

# Rifle HK416

Calibre 5.56 mm x 45



## Maintenance Manual





## 1.4.3 Conventions for illustrations



Illustrations and drawings can vary from your weapon, depending on the model.

The information “right”, “left”, “front” and “back” apply to the weapon as seen in the direction of fire.

Illustrations and their constituent elements support the descriptions in this manual, and are identified as follows:

- The name of an illustration comprises the current page number and a consecutive lower-case letter starting again from “a” on each page, e.g. 6a.
- Calls to perform an action are indicated by upper-case letters enclosed in circles.
- Components relevant to the action are highlighted in blue. Where necessary the components are marked with numbers and identified in a legend.
- Motions are indicated by orange-coloured arrows.

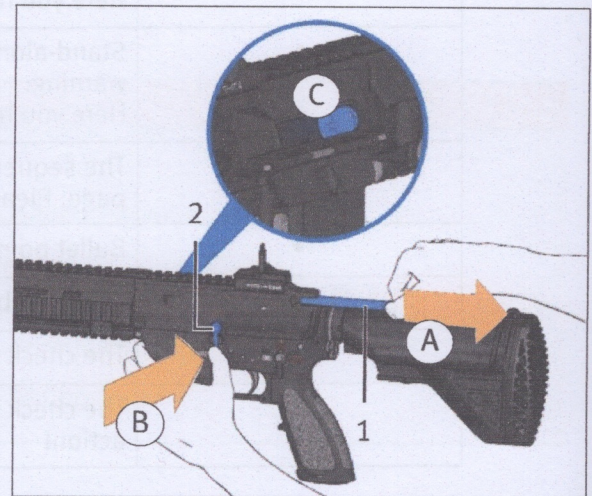


Fig. 6a: Example of an illustration

- 1 Charging handle
- 2 Bolt catch/release

## 1.4.4 Conventions for cross references

Cross references represent relationships between the text and an illustration or an individual section. Cross references are in *italics* and enclosed in (brackets).

- Example of a cross reference between the text and an illustration: (6a-2)  
The cross reference refers to numeral 2 in the illustration numbered 6a on page 6, the bolt catch/release.



The text frequently refers to the front and back fold-out pages, which are identified by the Roman numerals I (front) and II (back).

- Example of a cross reference between sections: (Section 1.4.3)  
The cross reference refers to Section 1.4.3, Conventions for illustrations.



## 2 Fundamental safety instructions



The weapon has been designed and manufactured according to the latest technical knowledge and the recognised safety rules. Nevertheless, use of the weapon may result in injury or death of the user and third parties, or damage to the weapon and other material property.

- › Follow all of the instructions in this maintenance manual and the operator's manual for the weapon described here. Non-compliance may result in injury or death.
- › Do not handle the weapon if you are tired, feel unwell, or have consumed alcohol, drugs or medicines.
- › Follow the applicable regulations for the handling of weapons.

### 2.1 Safety instructions for handling the weapon

- › Special care must be taken when handling firearms, because the position and direction of the weapon can be changed very easily.
- › Use the weapon only if it is in perfect technical condition.
- › Treat the weapon as if there were a round in the chamber and the safety released until you have carried out a safety check.
- › Make sure that the weapon is always unloaded when it is handled for purposes other than loading or firing.
- › Use the weapon only for its intended purpose. Do not use the weapon as a club, hammer, pry bar, etc. Using the weapon for other than its intended purpose may result in accidental discharge of weapon or damage to the weapon.
- › Do not play with the weapon.
- › Never point the weapon at people when handling or practising with it.
- › Do not touch the trigger when loading, unloading, aiming or handling the weapon in any other way. Always place your trigger finger on the outside of the trigger guard.
- › Do not use excessive force when handling, disassembling, cleaning and assembling the weapon.



- › Avoid dry firing of the hammer. Dry firing of the hammer can lead to premature wear.
- › Store weapon and ammunition separately. Be sure to prevent access to the weapon and ammunition by unauthorised persons, especially children.
- › Never give or take the weapon unless it is unloaded and the bolt group is in the open position.
- › Do not entrust the weapon to anyone who is not entitled to possess the weapon. Observe national regulations.
- › Immediately rectify any faults that compromise safety.
- › Exposure to exceptional stresses such as when the weapon is banged or dropped can have a negative effect on safety. Inspect the weapon after any excessive stresses.
- › Do not rely on safety features. Safety features are no substitute for careful, correct handling of the weapon.
- › When using accessories and ammunition, follow the instructions provided by their respective manufacturers.

## 2.2 Safety instructions for firing

- › Wear hearing protection when firing.
- › Wear safety goggles when firing.
- › Keep your hands out of the path of the bolt group when firing.
- › Keep the muzzle area clear when firing.
- › Do not shoot at doors, panes of glass, walls, concrete, stone, or smooth surfaces (including water). A bullet can penetrate these objects or be deflected in an unsafe direction.
- › Pull the trigger only if the weapon is pointing at the target and the area behind the target is not endangered.
- › Use only properly loaded, undamaged cartridges of the correct calibre.
- › Wear protective gloves when touching the barrel or the flash hider after firing. The barrel and flash hider heat up during firing.



## 2.3 Exclusion of liability and warranty

Heckler & Koch GmbH accepts no liability and provides no warranty for incidents arising from:

- non-compliance with this manual,
- incorrect handling of the weapon,
- negligence,
- improper use,
- modifications, attachments to or conversion of the weapon without the express written consent of Heckler & Koch GmbH, or
- use of accessories or spare parts from other manufacturers without the express written consent of Heckler & Koch GmbH.



### 3 Auxiliary materials



The specified service life of the weapon can only be ensured if the auxiliary materials listed in this manual are used.



Required auxiliary materials are listed at the beginning of each section.

#### 3.1 Tools, lubricants and other auxiliary materials



Tools, lubricants and other auxiliary materials are available from specialist dealers. Auxiliary materials that have an Ident.-No. can also be ordered from Heckler & Koch.

- Ø 0.9 mm pin punch (Ident.-No. 957 308)
- Ø 1.4 mm pin punch (Ident.-No. 957 309)
- Ø 1.8 mm pin punch (Ident.-No. 957 310)
- Ø 2.4 mm pin punch (Ident.-No. 957 311)
- Ø 2.8 mm pin punch (Ident.-No. 957 312)
- Ø 3.4 mm pin punch (Ident.-No. 957 313)
- Ø 5.9 mm pin punch (Ident.-No. 957 322)
- Hammer, 200 g (Ident.-No. 957 416)
- Mounting pin 3.92h8 x 13 mm (Ident.-No. 235 659)
- Mounting pin 3.9 x 8 mm (Ident.-No. 354 626) only for weapons with handguard with integrated front sight
- Screwdriver 7 x 150 mm (Ident.-No. 952 656)
- Screw bit 1.62 x 25 mm (Ident.-No. 973 357)
- Extension for screw bit (Ident.-No. 973 356)
- Pliers (Ident.-No. 997 417)
- Lubricating oil (Ident.-No. 979 341): Arpol Petroleum Company, Arpolube 46000
- Lubricating paste (Ident.-No. 960 930): Castrol, Optimol Paste PL
- Preservative oil (Ident.-No. 985 372): Electrolube, LWP (Light Weapons Preservative)
- "Break Free" oil (Ident.-No. 982 576): CLP Chemicals, CLP-9
- 5.56 mm x 45 training rounds (Ident.-No. 969 546)
- Loctite 242
- Zeroing target disc
- Cleaning rag
- Cleaning kit (Ident.-No. 968 569)
- Vice
- Mat






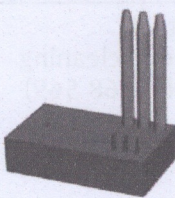
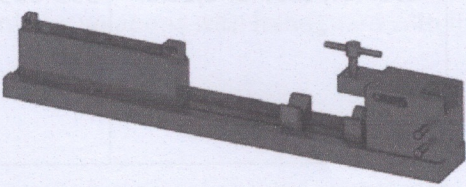


## 3.2 Special tools and gauges





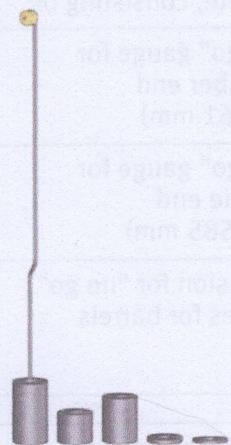
Special tools and gauges can be ordered from Heckler & Koch using the Ident.-No. shown.

Special tool	Ident.-No.	Illustration
Torque wrench 1 - 5 Nm	987 613	
Torque wrench 40 - 200 Nm	986 461	
Assembly tool (is included in cleaning kit Ident.-No. 968 569)	235 813	
Assembly tool for ejector	353 623	
Assembly tool for gas block (only for weapons with adjustable gas port)	354 206	
Cleaning tool for gas block (only for weapons with adjustable gas port)	354 259	

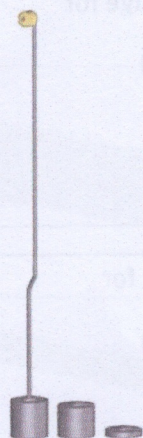


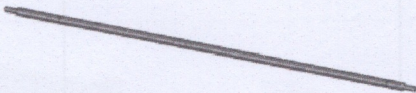
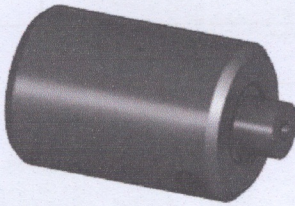


Special tool	Ident.-No.	Illustration
Mount for extension, complete, consisting of:	353 984	
Mount for extension		
Caulking tool A		
Caulking tool B		
Assembly device for charging handle	354 262	
Assembly device for extension	353 983	
Assembly wrench	233 122	
Counter bracket	233 157	



Gauge	Ident.-No.	Illustration
"No go" gauge for headspace (47.24 mm)	351 639	
"Go" gauge for headspace (47.01 mm)	351 638	
Test weight for standard trigger pull (20+10+15+2+1 N)	354 222	



Gauge	Ident.-No.	Illustration
Test weight for 2-stage trigger (10+15+3 N)	354 223	
"No go" gauge for barrels, complete, consisting of:	354 261	
• "No go" gauge for chamber end (Ø 5.61 mm)		
• "No go" gauge for muzzle end (Ø 5.585 mm)		
• Extension for "no go" gauges for barrels		
Firing pin protrusion gauge (0.90 mm - 1.20 mm)	346 280	



## Maintenance and checks



# Rifle HK416

## Calibre 5.56 mm x 45

HK416 10"

HK416 14.5"

HK416 16.5"

HK416 20"

### DANGER

**Risk of death from gunshot wounds!**

**Accidental discharge of weapon may occur when loaded weapon is handled.**

- › Carry out a safety check before working on the weapon.
- › Do not perform maintenance work until you have read and understood this manual and the operator's manual for the weapon described here completely.
- › Follow the safety instructions when handling the weapon.





## 4 Major cleaning



Regular cleaning and care of the weapon and accessories

- maintain functional reliability,
- increase service life,
- prevent accidents, and
- save repair costs and time.

Major cleaning removes fouling on the weapon and restores the optimal lubrication state of the weapon. Major cleaning must be carried out at the specified intervals (*Section 4.1*). In addition, major cleaning can be carried out at the discretion of the firearms technicians, for example when a malfunction of the weapon is suspected.

### 4.1 Intervals for major cleaning

- Carry out major cleaning at intervals of 15,000 rounds.



The intervals for special cleaning work (*Section 5*) can vary.



## 4.2 Carrying out major cleaning

Required auxiliary materials:

- Lubricating oil
- Lubricating paste
- Preservative oil
- "Break Free" oil
- Cleaning rag
- Cleaning kit

### NOTICE

**Danger of material damage from incorrect cleaning agents and care products!**

**Incorrect cleaning agents and care products can damage the weapon.**

- › When cleaning the weapon, use the specified cleaning agents.
- › Do not use any metallic objects, plastics (nylon, etc.) or chemical cleaning agents (benzine, tetrachlorethylene, trichlor, etc.) to clean the weapon.

S/N

1. Disassemble the weapon completely (*Section 9*).
2. Clean the pressure bolt hole (*Section 5.1*).
3. Clean all parts with the cleaning kit and remove lubricant using the cleaning rag.
4. Lubricate all parts according to the lubrication diagram (*Section 4.3*).
5. Assemble the weapon completely (*Section 10*).
6. Carry out function check.



### 4.3 Lubrication diagram



The parts of the weapon must be lubricated using the specified lubricants after major cleaning, when spare parts are used, and when required by the current lubrication state.

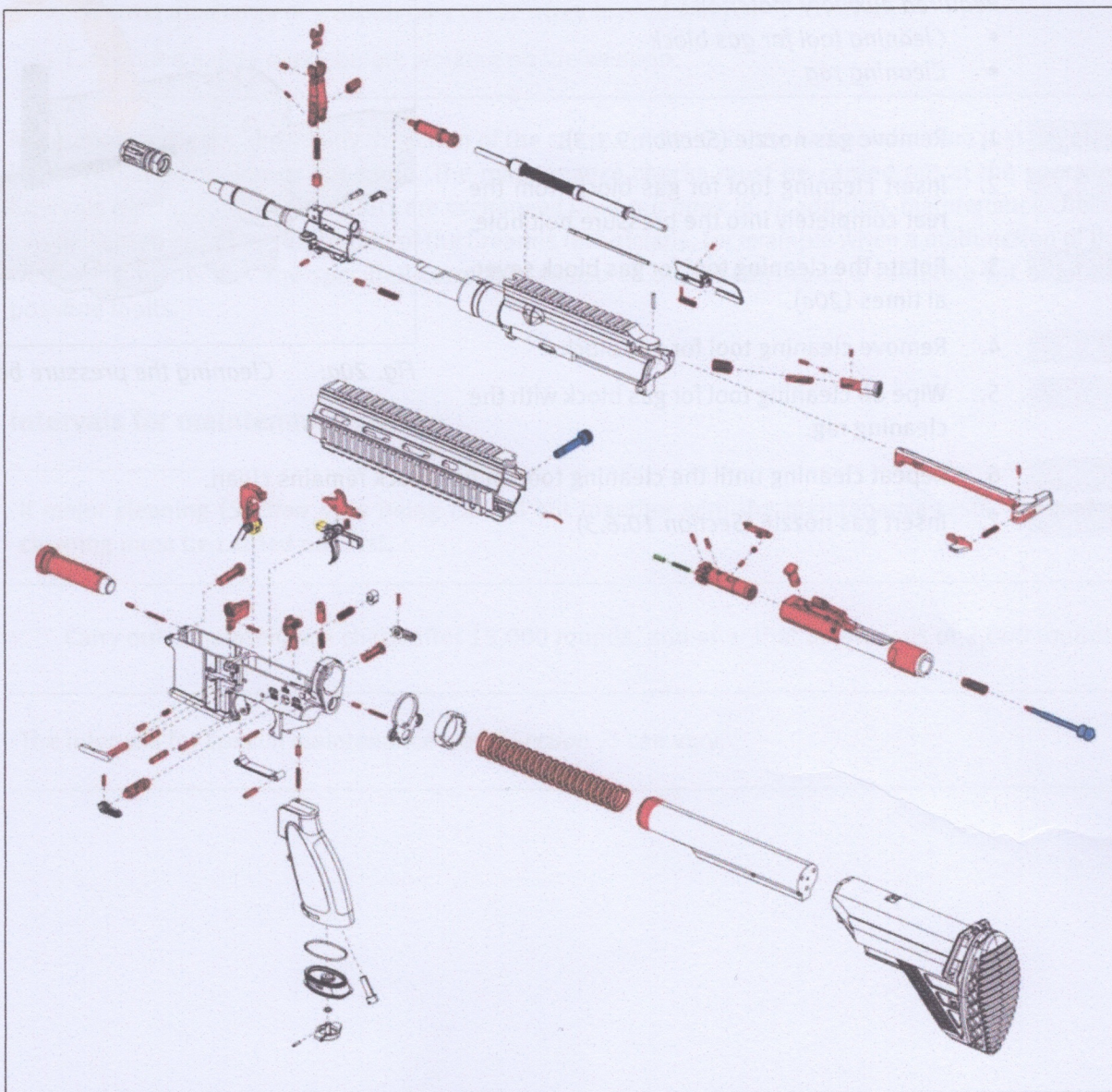


Fig. 19a: Lubrication diagram

Colour	Lubricant
Yellow	Lubricating paste
Red	"Break Free" oil
Blue	Lubricating oil
Green	Preservative oil



## 5 Special cleaning work

### 5.1 Cleaning the pressure bolt hole

Required auxiliary materials:

- Cleaning tool for gas block
- Cleaning rag

- S/N** 1. Remove gas nozzle (Section 9.1.3).
- S/N** 2. Insert cleaning tool for gas block from the rear completely into the pressure bolt hole.
- S/N** 3. Rotate the cleaning tool for gas block several times (20a).
- S/N** 4. Remove cleaning tool for gas block.
- S/N** 5. Wipe off cleaning tool for gas block with the cleaning rag.
- S/N** 6. Repeat cleaning until the cleaning tool for gas block remains clean.
- S/N** 7. Insert gas nozzle (Section 10.6.3).

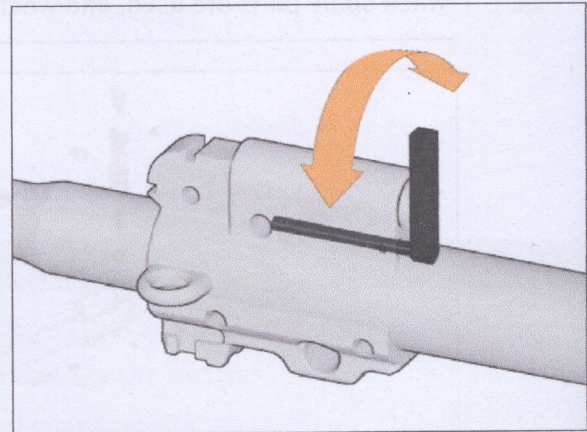


Fig. 20a: Cleaning the pressure bolt hole

Lubrication diagram	
Freeze-protective oil	Green
Lubricating oil	Blue
"Break free" oil	Red
Lubricating grease	Yellow
Lubricant	Color



## 6 Maintenance checks

### **WARNING**

**Risk of death from gunshot wounds!**

**Accidental discharge of weapon may occur when loaded weapon is handled.**

- › Carry out a safety check before working on the weapon.

Maintenance checks allow early detection of the causes of faults in the weapon that are just developing or which have already appeared. The maintenance checks must be carried out at the specified intervals (*Section 6.1*) or after parts are exchanged (*fold-out page II*). In addition, maintenance checks can be carried out at the discretion of the firearms technicians, for example when a malfunction of the weapon is suspected. The specified corrective measures do not constitute a complete list of all the possible faults.

### 6.1 Intervals for maintenance checks



If major cleaning (*Section 4*) is being carried out together with the maintenance tests, the major cleaning must be carried out first.

- › Carry out a maintenance check after 15,000 rounds, and after that at intervals of 2,000 rounds.



The intervals for special maintenance work (*Section 7*) can vary.



## 6.2 Checking the loading and unloading procedure



Checking the loading and unloading procedure ensures that the cartridges are fed, extracted and ejected properly. If the check of the loading and unloading procedure is not successful, malfunctions may occur.

*Required auxiliary materials:*

- Training rounds

1. Fill magazine with 5 training rounds.
2. Insert magazine into the weapon until the magazine catch engages.
3. Pull charging handle back all the way and let it snap forwards.
4. Repeat step 3. until all of the training rounds have been ejected. The bolt catch/release holds the bolt group in the open position.



The training rounds are fed, extracted and ejected properly.



Malfunctions occur.

1. Rectify fault (Section 8).
2. Repeat check.

## 6.3 Checking headspace



The headspace ensures that the bolt head can lock in the barrel extension when there is a cartridge in the chamber. If the headspace is too large, malfunctions may occur.

*Required auxiliary materials:*

- "No go" gauge for headspace
- Mat

1. Pull charging handle all the way back and hold it. »



2. Press bolt catch/release and hold it. The bolt catch/release holds the bolt in the open position.

### ⚠ CAUTION

**Risk of injury when the bolt group moves forwards quickly!**

**The bolt group snaps forwards when the bolt catch/release is pushed.**

- › Do not touch the bolt catch/release while you are inserting the gauge into the chamber.

3. Insert “no go” gauge for headspace into the chamber with the conical end forwards.

### NOTICE

**Danger of material damage!**

**If the bolt group snaps forwards while the gauge is in the chamber, the weapon and the gauge could be damaged.**

- › Move the bolt group forwards slowly.

4. Pull charging handle back and guide the bolt group forwards slowly.



The bolt head does not lock in the chamber.  
The bolt group is clearly set back (23a).



The bolt head locks in the chamber. The bolt group is not set back.

1. Clean and check barrel (1a-2) and bolt head (1a-42).
2. Replace barrel and/or bolt head if necessary.
3. Repeat check.

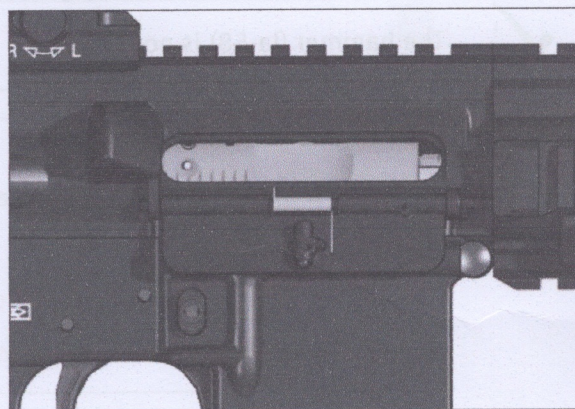


Fig. 23a: Headspace “Go”

5. Pull charging handle back and hold it.
6. Hold weapon so that the “no go” gauge for headspace falls out of the chamber and onto the mat.



## 6.4 Checking trigger pull



The correct trigger pull prevents a cartridge from being fired unintentionally. If the trigger pull is too light, a round can be discharged unintentionally. If the trigger pull is too heavy, it becomes harder to operate the weapon.

### 6.4.1 Checking standard trigger pull

Required auxiliary materials:

- Test weight for standard trigger pull

1. Put together 22 N test weight.
2. Pull charging handle (1a-29) back all the way and let it snap forwards.
3. Click safety lever (1a-68) to the "single fire" position.
4. Hold weapon vertically with the muzzle pointing up.
5. Lift test weight with the trigger (24a).



The hammer (1a-58) is not released.



The hammer is released.

1. Clean and check trigger (1a-61) and hammer (1a-58).
2. Replace trigger and/or hammer if necessary.
3. Repeat check.

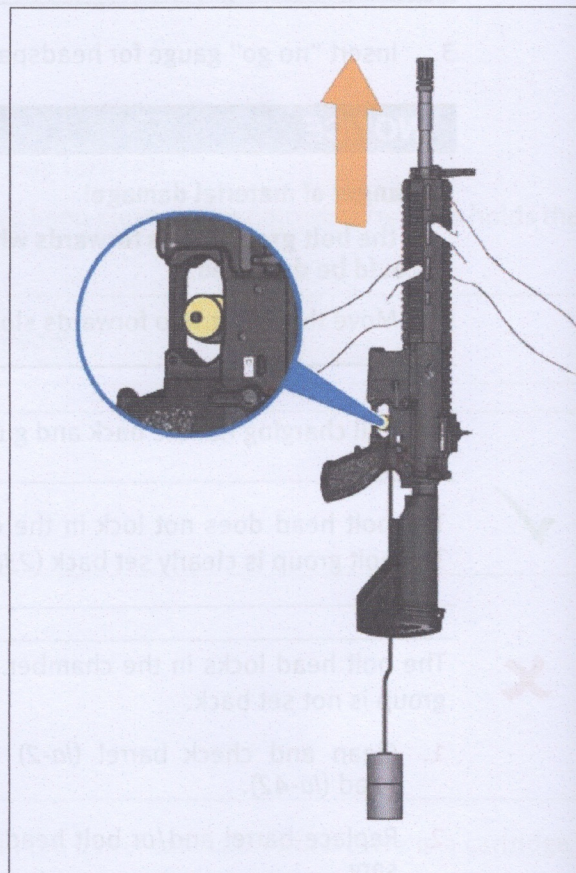


Fig. 24a: Lifting a test weight

6. Put together 46 N test weight.
7. Pull charging handle back all the way and let it snap forwards.
8. Hold weapon vertically with the muzzle pointing up.
9. Lift test weight with the trigger.



The hammer is released.



The hammer is not released.

1. Lubricate weapon according to lubrication diagram (Section 4.3).
2. Repeat check.



### 6.4.2 Checking 2-stage trigger

Required auxiliary materials:

- 2-stage trigger test weight

1. Put together 13 N test weight.
2. Pull charging handle (1a-29) back all the way and let it snap forwards.
3. Click safety lever (1a-68) to the "single fire" position.
4. Hold weapon vertically with the muzzle pointing up.
5. Lift test weight with the trigger (25a).

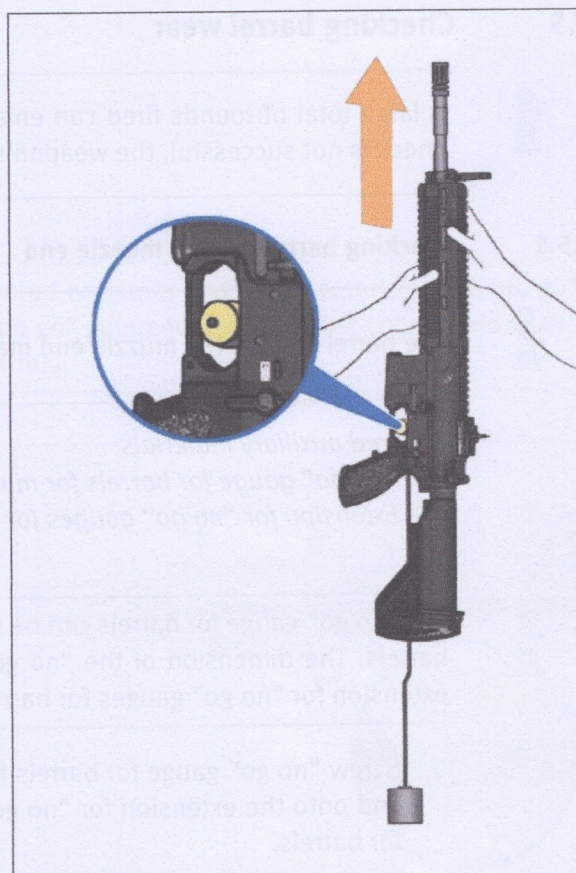


Fig. 25a: Lifting a test weight

✓ The hammer (1a-58) is not released.

✗ The hammer is released.

1. Clean and check trigger (1a-61) and hammer (1a-58).
2. Replace trigger and/or hammer if necessary.
3. Repeat check.

6. Put together 25 N test weight.
7. Pull charging handle back all the way and let it snap forwards.
8. Hold weapon vertically with the muzzle pointing up.
9. Lift test weight with the trigger.

✓ The hammer is released.

✗ The hammer is not released.

1. Lubricate weapon according to lubrication diagram (Section 4.3).
2. Repeat check.



## 6.5 Checking barrel wear



A large total of rounds fired can enlarge the inner diameter of the barrel (1a-2). If the barrel wear check is not successful, the weapon's shooting performance is no longer adequate.

### 6.5.1 Checking barrel wear at muzzle end



The barrel wear at the muzzle end may only be checked with the factory-installed flash hider.

*Required auxiliary materials:*

- "No go" gauge for barrels for muzzle end
- Extension for "no go" gauges for barrels



The "no go" gauge for barrels can be mounted on either end of the extension for "no go" gauges for barrels. The dimension of the "no go" gauge for barrels must correspond to the marking on the extension for "no go" gauges for barrels.

1. Screw "no go" gauge for barrels for muzzle end onto the extension for "no go" gauges for barrels.
2. Insert "no go" gauge for barrels for muzzle end into the barrel from the front (26a).



The red marking is located outside of the flash hider (1a-1).



The red marking is located inside of the flash hider.

1. Tighten the flash hider (1a-1) (Section 10.6.5).
2. Replace barrel (1a-2) if necessary.
3. Repeat check.

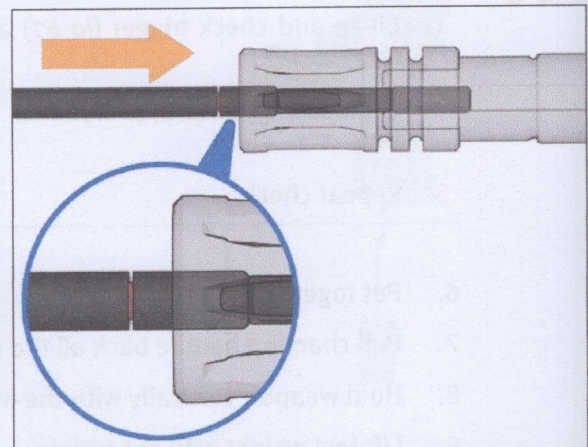


Fig. 26a: Inserting "no go" gauge for barrels into the barrel from the front



## Illustration of individual components

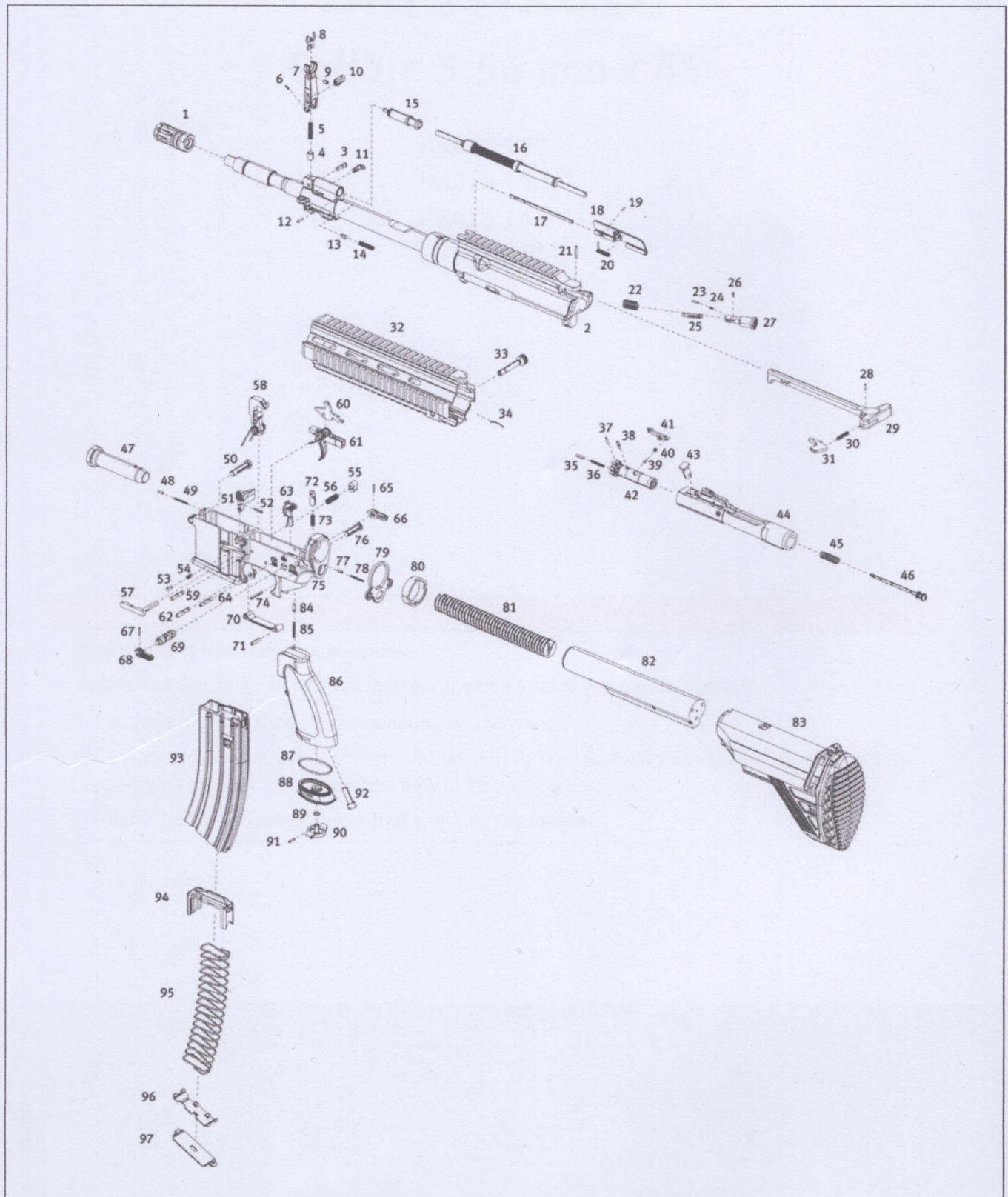


Fig. 1a: Illustration of individual components



## 6.5.2 Checking barrel wear at chamber end

Required auxiliary materials:

- “No go” gauge for barrels for chamber end
- Extension for “no go” gauges for barrels

1. Disassemble weapon into assembly groups.



The “no go” gauge for barrels (27a-1) can be mounted on either end of the extension for “no go” gauges for barrels (27a-3). The dimension of the “no go” gauge for barrels must correspond to the marking on the extension for “no go” gauges for barrels.

2. Screw “no go” gauge for barrels for chamber end (27a-1) onto the extension for “no go” gauges for barrels (27a-3).
3. Insert “no go” gauge for barrels for chamber end into the barrel from the rear (27a).
4. Look into the weapon from below.

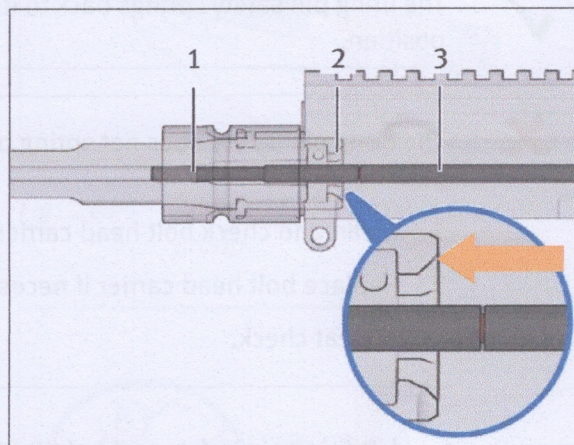


Fig. 27a: Inserting “no go” gauge for barrels into the barrel from the rear

✓ The red marking is located outside of the barrel extension (27a-2).

✗ The red marking is located inside of the barrel extension.

1. Replace barrel (1a-2).
2. Repeat check.

- 1 “No go” gauge for barrels for chamber end
- 2 Barrel extension
- 3 Extension for “no go” gauges for barrels



## 6.6 Checking function of the firing pin safety



The firing pin safety prevents accidental operation of the firing pin, for example if the weapon is dropped. If the firing pin safety is not functional, a round can be discharged unintentionally or ignition faults may occur.

1. Disassemble weapon into assembly groups.
2. Lift firing pin safety (28a-A).
3. Release firing pin safety.



The firing pin safety springs back to its starting position.



The firing pin safety does not spring back to its starting position.

1. Clean and check bolt head carrier (Ia-44).
2. Replace bolt head carrier if necessary.
3. Repeat check.

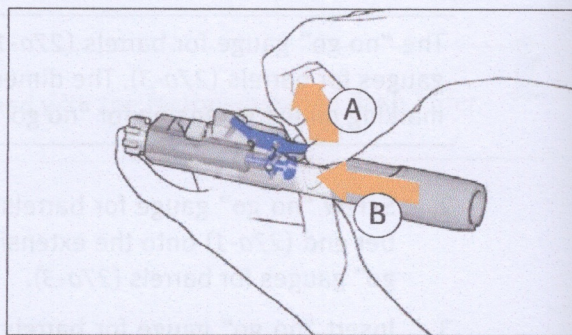


Fig. 28a: Pushing firing pin into the bolt group

4. Lift firing pin safety and hold it (28a-A).
5. Push firing pin into the bolt group from the rear (28a-B).
6. Push bolt head to the rear as far as it will go and hold it.



The firing pin projects visibly from the bolt head and springs back to its starting position.



The firing pin does not project from the bolt head or does not spring back to its starting position.

1. Clean bolt head.
2. Clean and check components of the bolt group (Ia-35 to Ia-46).
3. Replace components of the bolt group if necessary.
4. Repeat check.



## 6.7 Checking firing pin protrusion



The correct firing pin protrusion ensures that the firing pin projects far enough out of the bolt head to ignite a cartridge that has been loaded into the chamber. If the firing pin protrusion is too small, the functional reliability of the weapon is endangered. If the firing pin protrusion is too large, the firing pin may become damaged.

*Required auxiliary materials:*

- Firing pin protrusion gauge

1. Disassemble weapon into assembly groups.
2. Lift firing pin safety and hold it (29a-A).
3. Push firing pin into the bolt group from the rear (29a-B).
4. Push bolt head to the rear as far as it will go and hold it. The firing pin projects out of the bolt head.
5. Place firing pin protrusion gauge onto the tip of the firing pin from the front.
6. Push firing pin protrusion gauge against the bolt head (29b-A).

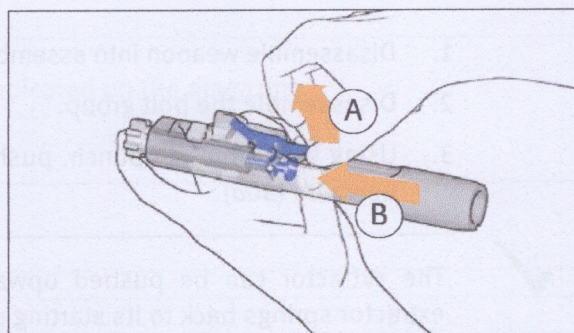


Fig. 29a: Pushing firing pin into the bolt group

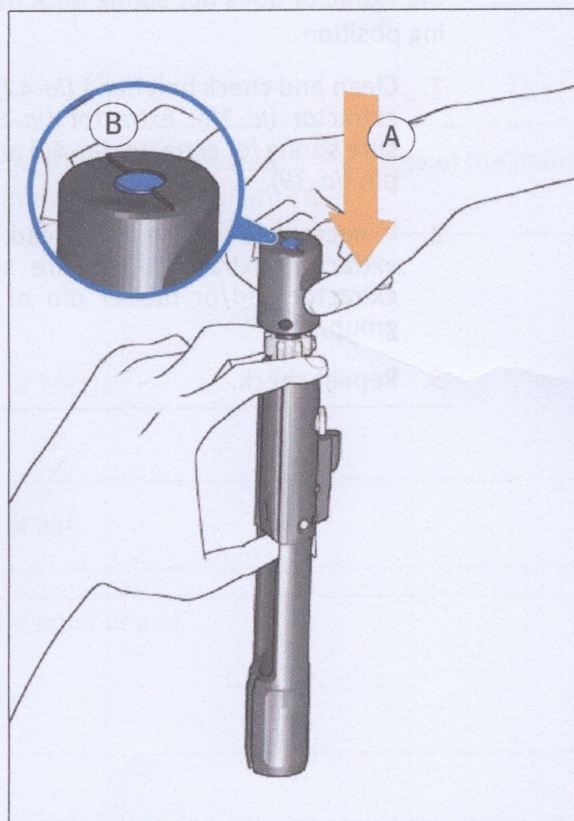


Fig. 29b: Checking firing pin protrusion

✓ The tip of the firing pin protrusion gauge is located between the two measurement surfaces (29b-B).

✗ The tip of the firing pin protrusion gauge is not located between the two measurement surfaces.

1. Clean bolt head.
2. Clean and check components of the bolt group (la-35 to la-46).
3. Replace components of the bolt group if necessary.
4. Repeat check.



## 6.8 Checking function of the extractor



The extractor pulls the cartridge case out of the chamber. If the check of the function of the extractor is not successful, malfunctions may occur.

*Required auxiliary materials:*

- Ø 2.8 mm pin punch

1. Disassemble weapon into assembly groups.
2. Disassemble the bolt group.
3. Using Ø 2.8 mm pin punch, push extractor upwards (30a).



The extractor can be pushed upwards. The extractor springs back to its starting position.



The extractor cannot be pushed upwards or the extractor does not spring back to its starting position.

1. Clean and check bolt head (1a-42), axle for extractor (1a-38), extractor (1a-41), pressure spring for extractor (1a-40) and rubber pin (1a-39).
2. If necessary replace bolt head, axle for extractor, extractor, pressure spring for extractor and/or rubber pin of the bolt group.
3. Repeat check.

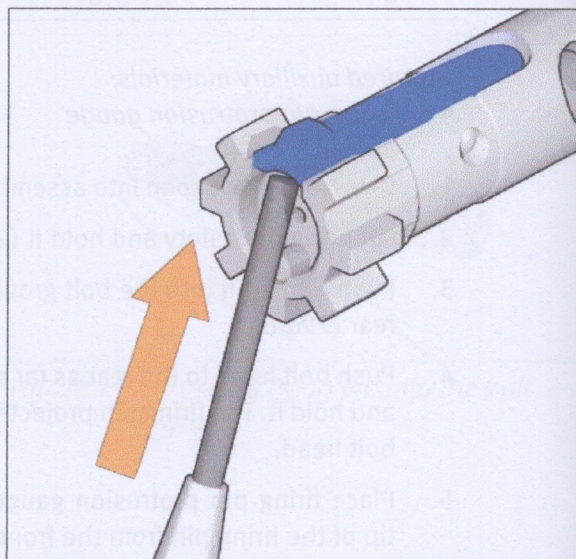


Fig. 30a: Checking function of the extractor



## 6.9 Checking firing function



Checking the firing function ensures that the weapon fires without faults.



Follow safety instructions for firing (*Section 2.2*).

1. Fill a magazine with the number of cartridges indicated on the magazine.
2. Shoot magazine empty.



No fault occurred during firing.



A fault occurred during firing.

1. Rectify fault (*Section 8*).
2. Repeat check.

## 6.10 Checking point of impact



Checking the point of impact ensures that the sights are correctly adjusted. If the check of the point of impact is not successful, the point of impact is different from the point of aim.

*Required auxiliary materials:*

- Zeroing target disc

1. Fire 5 rounds at a zeroing target disc at a range of 100 m.
2. Determine mean point of impact (*Section 7.2*).



The mean point of impact corresponds to the point of aim.



The mean point of impact does not correspond to the point of aim.

1. Adjust the sights.
2. Repeat check.



## 7 Special maintenance work

### 7.1 Checking minimum dimension of the headspace



The minimum dimension of the headspace is checked by the manufacturer before the weapon is shipped. The headspace cannot decrease through the use of the weapon. Therefore the minimum dimension of the headspace only has to be checked if a new bolt head and/or a new barrel has been introduced into the weapon.



The headspace ensures that the bolt head can lock in the barrel extension when there is a cartridge in the chamber. If the headspace is too small, malfunctions may occur.

*Required auxiliary materials:*

- "Go" gauge for headspace
- Mat

1. Pull charging handle all the way back and hold it.
2. Press bolt catch/release and hold it. The bolt catch/release holds the bolt in the open position.

#### **⚠ CAUTION**

**Risk of injury when the bolt group moves forwards quickly!**

**The bolt group snaps forwards when the bolt catch/release is pushed.**

- › Do not touch the bolt catch/release while you are inserting the gauge into the chamber.

3. Insert "go" gauge for headspace into the chamber with the conical end forwards. »



## NOTICE

### Danger of material damage!

If the bolt group snaps forwards while the gauge is in the chamber, the weapon and the gauge could be damaged.

- › Move the bolt group forwards slowly.

4. Pull charging handle back and guide the bolt forwards slowly.



The bolt head locks in the chamber. The bolt is not set back (33a).



The bolt head does not lock in the chamber. The bolt is set back.

1. Clean and check barrel (1a-2) and bolt head (1a-42).
2. Replace barrel and/or bolt head if necessary.
3. Repeat check.

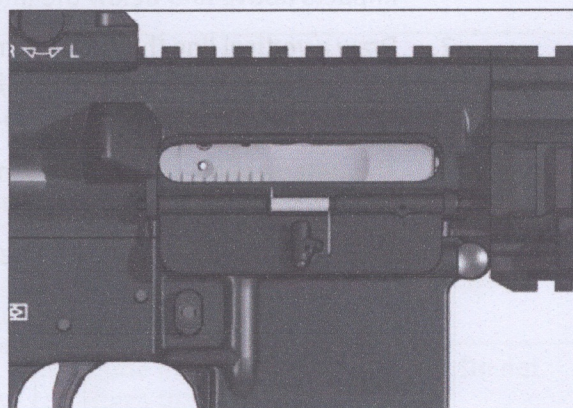


Fig. 33a: Headspace "Go"

5. Pull charging handle back and hold it.
6. Hold weapon so that the "go" gauge for headspace falls out of the chamber and onto the mat.



## 7.2 Determining mean point of impact

i

The mean point of impact is the point lying at the centre of a certain number of impacts. The mean point of impact serves as the basis for adjusting the sights.

1. Draw a horizontal line through the grouping so that there is the same number of impacts above and below the line (34b-A).
2. Draw a vertical line through the grouping so that there is the same number of impacts to the right and left of the line (34b-B).
3. The intersection of the two lines is the mean point of impact (34b-C).

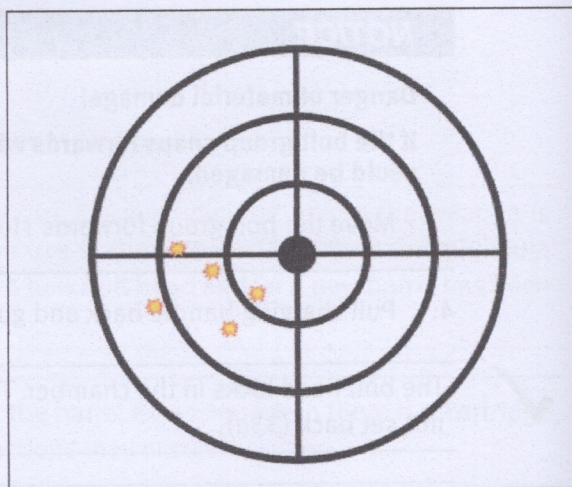


Fig. 34a: Grouping

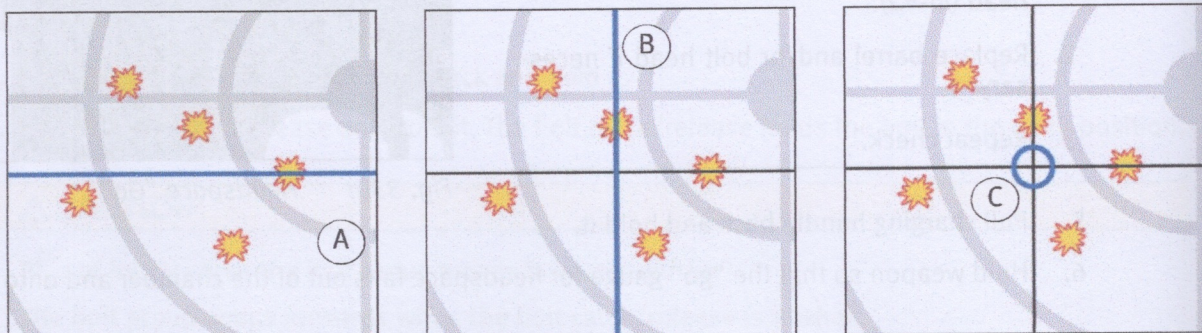


Fig. 34b: Determining mean point of impact



## 8 Faults: Causes and remedies

### WARNING

**Safety risk from not knowing whether or not the weapon is loaded!**

**In the event of a fault, the weapon may be loaded even if you expect that it is unloaded.**

- › In the event of a fault, treat the weapon as if there were a round in the chamber.
- › In the event of a fault, verify whether the weapon is actually loaded.
- › Follow the fundamental safety instructions (*Section 2*) for rectifying faults.

The following points do not constitute a complete list of all the possible faults. Causes other than those named here are also possible.

Fault	Cause	Remedy
Bullet is stuck in the barrel.	Improperly loaded ammunition.	Extract bullet from barrel from the front to the rear using brass mandrel. Check barrel for damage. Replace barrel if necessary.
Cartridge has not fired.	Defective ammunition.	Wait at least one minute. Unload weapon. Do not re-use cartridges that have failed to fire.
	Firing pin sluggish, damaged or broken.	Clean bolt head. Check firing pin for damage. Replace firing pin if necessary.
	Hammer defective/hammer fouled.	Clean hammer. Check hammer and hammer spring for damage. Replace hammer if necessary.
Bolt group does not open after firing.	Defective ammunition.	Unload weapon. Clean chamber if necessary.
	Gas drive fouled or defective. <sup>1</sup>	Clean gas nozzle. <sup>1</sup> Check gas nozzle for damage. <sup>1</sup> Replace gas nozzle if necessary. <sup>1</sup>

<sup>1</sup> only for weapons with adjustable gas port.



Fault	Cause	Remedy
Cartridge or cartridge case is not ejected.	Cartridge rim ripped off.	Unload weapon. Extract cartridge from barrel from the front to the rear using brass mandrel.
	Chamber is fouled.	Clean chamber.
	Rearward movement of bolt group too short.	Unload weapon. Carry out function check. Check position of gas nozzle. <sup>1</sup> Clean chamber if necessary. Replace buffer if necessary.
	Ammunition incorrectly loaded.	Use different ammunition.
	Extractor, pressure spring for extractor, ejector or pressure spring for ejector damaged.	Clean extractor, pressure spring for extractor, ejector or pressure spring for ejector. Check extractor, pressure spring for extractor, ejector and pressure spring for ejector for damage. If necessary replace extractor, pressure spring for extractor, ejector and/or pressure spring for ejector.
Cartridge is not loaded into the chamber.	Chamber is fouled.	Unload weapon. Clean weapon.
	Cartridge deformed.	Use different cartridge.
	Recoil spring defective.	Clean recoil spring. Check recoil spring for damage. Replace recoil spring if necessary.
Cartridge does not feed.	Magazine not correctly inserted.	Insert magazine correctly.
	Magazine spring defective.	Clean the magazine. Check magazine spring for damage. Replace magazine spring if necessary.
	Magazine or magazine lips damaged.	Use different magazine.
	Rearward movement of bolt group too short.	Unload weapon. Carry out function check. Check position of the gas nozzle. <sup>1</sup> Clean chamber if necessary. Replace buffer if necessary.
	Rearward movement of bolt too long. <sup>1</sup>	Check position of gas nozzle. <sup>1</sup>

<sup>1</sup> only for weapons with adjustable gas port.





After assembly of spare parts the specified checks must be carried out. A function check must be carried out after every assembly operation.

	Check
A	Check loading and unloading procedure (Section 6.2)
B	Check headspace (Section 6.3)
C	Check trigger pull (Section 6.4)
D	Check barrel wear (Section 6.5)
E	Check function of firing pin safety (Section 6.6)

	Check
F	Check firing pin protrusion (Section 6.7)
G	Check function of extractor (Section 6.8)
H	Check firing function (Section 6.9)
I	Check point of impact (Section 6.10)
J	Check minimum dimension of headspace (Section 7.1)

Item	Designation	Check
1	Flash hider	
2	Upper receiver with barrel	B,D,H,I,J
3	Axle for front sight	I
4	Sleeve for pressure spring	
5	Pressure spring	
6	Clamping sleeve	
7	Front sight holder	I
8	Front sight	I
9	Clamping sleeve for front sight	
10	Front sight locking device	I
11	Gas nozzle	H
12	Clamping sleeve	
13	Pressure bolt for gas nozzle	
14	Pressure spring for pressure bolt	
15	Gas piston	H
16	Rod	A
17	Axle for cover	
18	Ejection port cover	
19	Clamping sleeve	
20	Elbow spring	
21	Clamping sleeve for forward assist	
22	Pressure spring for forward assist	
23	Pressure bolt for forward assist	
24	Pressure spring for pressure bolt	
25	Catch piece for forward assist	
26	Clamping sleeve for catch piece	
27	Retainer	
28	Clamping sleeve for catch	
29	Charging handle	
30	Pressure spring for catch	
31	Catch	
32	Handguard	
33	Retaining screw for handguard	
34	Shaped spring	
35	Ejector	A
36	Pressure spring for ejector	A
37	Clamping sleeve	
38	Axle for extractor	A,G
39	Rubber pin	A,G
40	Pressure spring for extractor	A,G
41	Extractor	G,H
42	Bolt head	B,E,F,G,H,I
43	Control bolt	E
44	Bolt head carrier	E
45	Pressure spring for firing pin	E
46	Firing pin	E,F
47	Buffer	
48	Stop pin for locking pin	
49	Pressure spring for stop pin	

Item	Designation	Check
50	Locking pin, front	
51	Bolt catch/release	A
52	Clamping sleeve for bolt catch/release	A
53	Pressure pin	
54	Pressure spring for pressure pin	
55	Retainer for magazine catch	
56	Pressure spring for retainer	
57	Magazine catch	
58	Hammer	C,H
59	Axle for hammer	
60	Disconnecter	
61	Trigger	C
62	Axle for trigger	
63	Sear release catch	
64	Axle for sear release catch	
65	Clamping sleeve for safety lever, right	
66	Safety lever, right	
67	Clamping sleeve for safety lever, left	
68	Safety lever, left	
69	Safety roller	
70	Trigger guard	
71	Clamping sleeve for trigger guard	
72	Locking pin for buffer	
73	Pressure spring for locking pin	
74	Clamping sleeve for locking pin	
75	Lower receiver	
76	Locking pin, rear	
77	Stop pin for locking pin	
78	Pressure spring for stop pin	
79	Plate	
80	Nut for extension	
81	Recoil spring	H
82	Extension	
83	Buttstock	
84	Stop pin	
85	Pressure spring for stop pin	
86	Pistol grip	
87	O-ring	
88	Cover	
89	O-ring	
90	Cover locking mechanism	
91	Clamping sleeve for cover locking mechanism	
92	Cylindrical screw	
93	Magazine housing	H
94	Follower	H
95	Magazine spring	H
96	Magazine locking plate	
97	Magazine floor plate	



Fault	Cause	Remedy
Bolt group does not stay in open position after last round.	Magazine spring defective.	Clean the magazine. Check magazine spring for damage. Replace magazine spring if necessary.
	Rearward movement of bolt group too short.	Unload weapon. Carry out function check. Check position of gas nozzle. <sub>1</sub> Clean chamber if necessary. Replace buffer if necessary.
	Rearward movement of bolt too long. <sub>1</sub>	Check position of gas nozzle. <sub>1</sub>
	Bolt catch/release damaged.	Replace bolt catch/release.
	Ammunition incorrectly loaded.	Use different ammunition.
Magazine sticks in magazine well.	Magazine damaged.	Exchange magazine. Clean and check components of the damaged magazine. Replace components of the damaged magazine if necessary.
	Magazine catch defective.	Replace magazine catch.
Weapon fires with a significantly higher rate of fire.	Gas piston defective.	Replace gas piston.
Weapon does not function when shooting with blank firing attachment.	Blank firing attachment is not fully screwed on.	Tighten blank firing attachment.
	Inner wall of barrel is damp and/or unburnt powder in barrel.	Stop firing immediately. Clean barrel and blank firing attachment.
Windage or elevation of point of impact changed.	Sights misaligned.	Adjust the sights.
	Other type of ammunition.	Use another type of ammunition or adjust sights.
	Sights damaged.	Replace sights.

<sub>1</sub> only for weapons with adjustable gas port.



2. Press against the end of the pin.

3. Push against the pin to the right.

Fig. 4.14

## 9 Disassembling the weapon completely

9.1 Disassemble weapon into assembly 30-ops.

### 9.1 Disassembling the upper receiver

#### 9.1.1 Removing the flash hider

Required auxiliary materials:

\* Torque Wrench 40 - 200 Nm

\* Torque socket

\* Assembly wrench

## Part III

1. Using torque socket and torque wrench.

2. Turn upper receiver and the barrel.

## Disassembly and assembly

4. Loosen flash hider by turning and check with assembly wrench (4.14).

Fig. 4.14 Loosening the flash hider

5. Remove flash hider.

#### 9.1.2 Removing the front sight

Required auxiliary materials:

\* 5 x 4 mm pin punch

\* 5 x 4 mm pin punch

\* Hammer

\* Screwdriver 7 x 150 mm

1. Extract clamping sleeve (6-6) using 5 x 4 mm pin punch.

2. Remove axle for front sight (6-7).

3. Remove front sight holder (6-7).

4. Using 7 x 150 mm screwdriver, press front sight locking device in and push it to the side (4.15) in.

Fig. 4.15 Pushing the front sight locking device down to the side



## 9 Disassembling the weapon completely

- › Disassemble weapon into assembly groups.

### 9.1 Disassembling the upper receiver

#### 9.1.1 Removing the flash hider

*Required auxiliary materials:*

- Torque wrench 40 - 200 Nm
- Counter bracket
- Assembly wrench
- Vice

1. Clamp counter bracket in the vice.
2. Place upper receiver on the counter bracket.
3. Insert torque wrench in assembly wrench.
4. Loosen flash hider by turning anti-clockwise with assembly wrench (41a).
5. Remove flash hider.

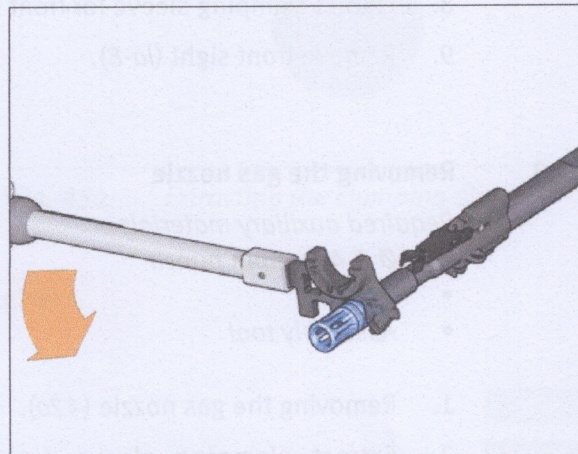


Fig. 41a: Loosening the flash hider

#### 9.1.2 Removing the front sight

*Required auxiliary materials:*

- Ø 1.4 mm pin punch
- Ø 3.4 mm pin punch
- Hammer
- Screwdriver 7 x 150 mm

1. Extract clamping sleeve (1a-6) using Ø 1.4 mm pin punch.
2. Remove axle for front sight (1a-3).
3. Remove front sight holder (1a-7).
4. Using 7 x 150 mm screwdriver, press front sight locking device in and push it to the side (41b). »

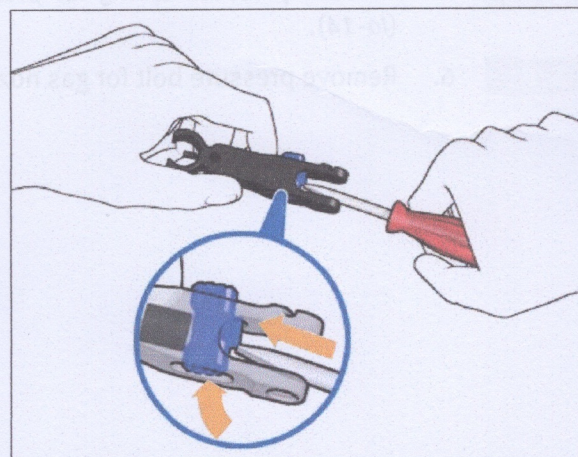


Fig. 41b: Pushing the front sight locking device to the side



5. Remove front sight locking device.
6. Remove sleeve for pressure spring (1a-4).
7. Remove pressure spring (1a-5).



The hole in the front sight holder (1a-7) has a shoulder. The clamping sleeve for front sight (1a-9) can only be driven out to the rear.

8. Extract clamping sleeve for front sight (1a-9) using  $\varnothing$  3.4 mm pin punch.
9. Remove front sight (1a-8).

### 9.1.3 Removing the gas nozzle

*Required auxiliary materials:*

- $\varnothing$  2.4 mm pin punch
- Hammer
- Assembly tool

- |     |  |
|-----|--|
| S/N | 1. Removing the gas nozzle (42a).  |
| S/N | 2. Extract clamping sleeve (1a-12) using $\varnothing$ 2.4 mm pin punch. |
| S/N | 3. Secure pressure bolt hole with your finger.                           |
| S/N | 4. Remove $\varnothing$ 2.4 mm pin punch.                                |
| S/N | 5. Remove pressure spring for pressure bolt (1a-14).                     |
| S/N | 6. Remove pressure bolt for gas nozzle (1a-13).                          |

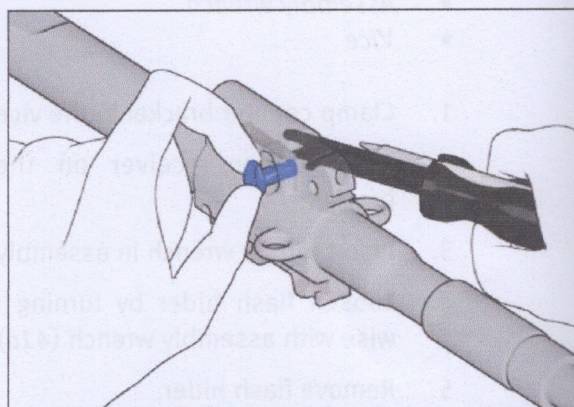


Fig. 42a: Removing the gas nozzle

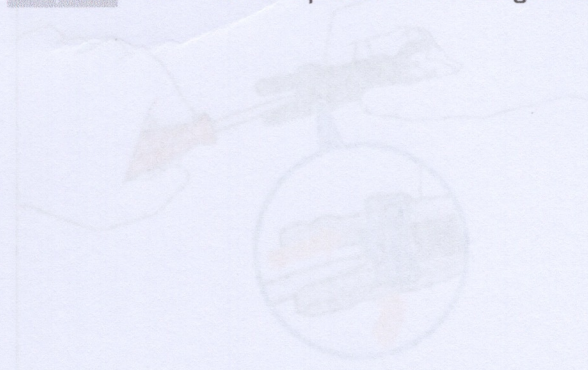


Fig. 42b: Pushing the front sight locking device to the side

1. Extract clamping sleeve (1a-6) using  $\varnothing$  2.4 mm pin punch.
2. Remove axle for front sight (1a-3).
3. Remove front sight holder (1a-7).
4. Using  $\times$  150 mm screwdriver, press front sight locking device in and push it to the side (41b).



### 9.1.4 Removing the ejection port cover

Required auxiliary materials:

- Ø 1.4 mm pin punch
- Ø 2.4 mm pin punch
- Hammer

1. Extract clamping sleeve using Ø 1.4 mm pin punch (43a).



The elbow spring (1a-20) is spring-loaded. Secure the elbow spring with your finger during disassembly of the axle for cover.

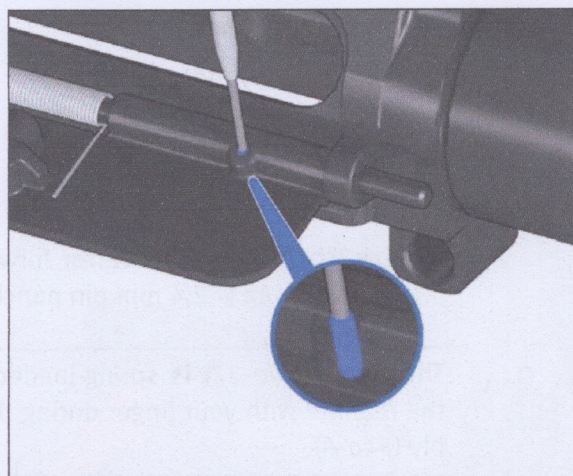


Fig. 43a: Extracting the clamping sleeve

2. Push axle for cover (1a-17) to the rear using Ø 2.4 mm pin punch.
3. Pull axle for cover forwards out of the upper receiver.
4. Remove elbow spring (1a-20).
5. Remove ejection port cover (1a-18).



### 9.1.5 Removing the forward assist

*Required auxiliary materials:*

- Ø 1.4 mm pin punch
- Ø 2.4 mm pin punch
- Hammer

1. Extract clamping sleeve for forward assist (la-21) using Ø 2.4 mm pin punch.



The retainer (la-27) is spring-loaded. Secure the retainer with your finger during disassembly (44a-A).

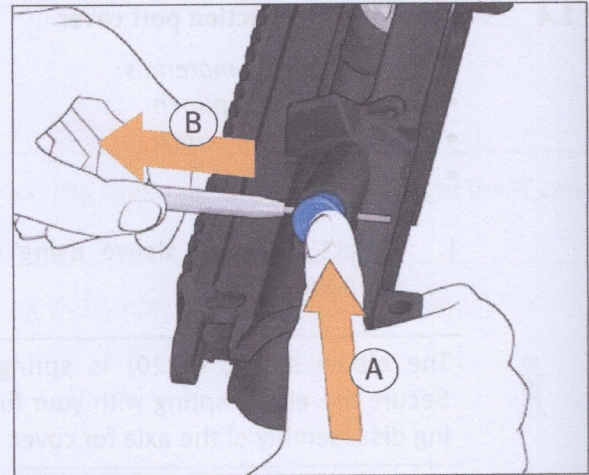


Fig. 44a: Securing the retainer

2. Remove Ø 2.4 mm pin punch (44a-B).
3. Remove retainer (la-27).
4. Remove pressure spring for forward assist (la-22).
5. Extract clamping sleeve for catch piece (la-26) using Ø 1.4 mm pin punch.



The pressure bolt for forward assist (la-23) is spring-loaded. Secure the catch piece for forward assist with your finger during disassembly (44b-A).

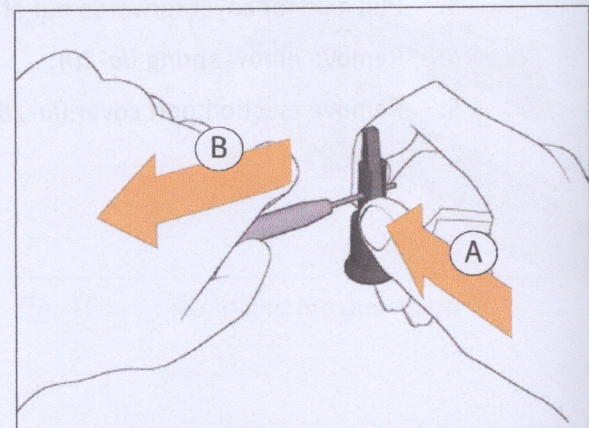


Fig. 44b: Securing the catch piece for forward assist

6. Remove Ø 1.4 mm pin punch (44b-B).
7. Remove catch piece for forward assist (la-25).
8. Remove pressure bolt for forward assist (la-23).
9. Remove pressure spring for pressure bolt (la-24).



## 9.2 Disassembling the handguard

### 9.2.1 Disassembling the standard handguard

*Required auxiliary materials:*

- Ø 0.9 mm pin punch

1. Extract retaining screw for handguard (la-33).
2. Using Ø 0.9 mm pin punch, push shaped spring in and then forwards (45a).
3. Remove shaped spring.
4. Remove retaining screw for handguard.

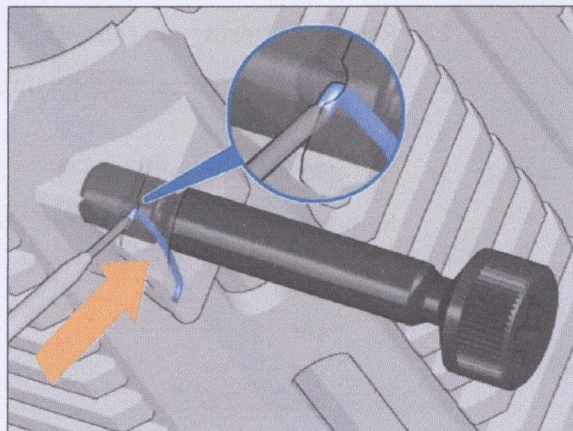


Fig. 45a: Pushing shaped spring in and forwards

### 9.2.2 Disassembling the handguard with integrated front sight

*Required auxiliary materials:*

- Ø 0.9 mm pin punch
- Ø 3.4 mm pin punch

1. Extract retaining screws for handguard (45b-1, la-33) as far as disassembly position.
2. Push rear grooved bolt (45b-4) forwards using Ø 0.9 mm pin punch and hold it.
3. Extract rear retaining screw for handguard (la-33) from the handguard (la-32).
4. Secure grooved bolt hole with your finger (45b-A).
5. Remove Ø 0.9 mm pin punch from the handguard (45b-B).
6. Remove rear grooved bolt.
7. Remove pressure spring (45b-3).
8. Remove front grooved bolt (45b-2).
9. Extract front retaining screw for handguard (45b-1) from the handguard. »

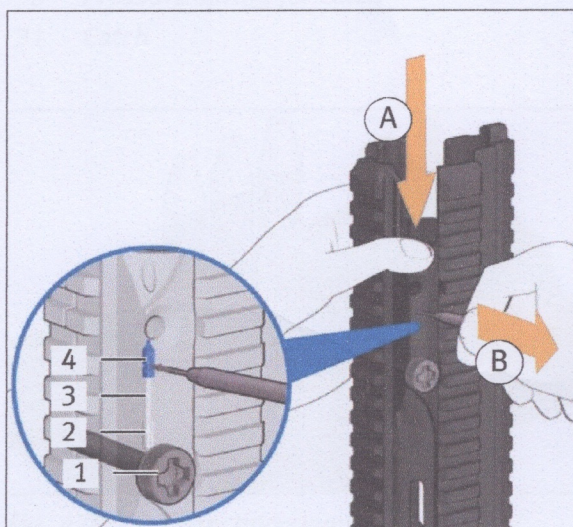


Fig. 45b: Securing hole for grooved bolt with your finger

- 1 Retaining screw for handguard, front
- 2 Grooved bolt, front
- 3 Pressure spring
- 4 Grooved bolt, rear



10. Extract axle for front sight (46a-1) using  $\varnothing 3.4$  mm pin punch (46b).
11. Remove front sight (46a-2).
12. Remove indexing pin (46a-4).
13. Remove pressure spring for indexing pin (46a-3).
14. Remove locking bolt (46a-5).
15. Remove pressure spring for locking bolt (46a-6).

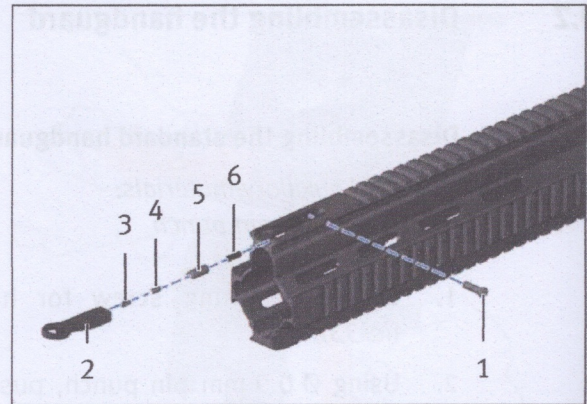


Fig. 46a: Handguard with integrated front sight

- 1 Axle for front sight
- 2 Front sight
- 3 Pressure spring for indexing pin
- 4 Indexing pin
- 5 Locking bolt
- 6 Pressure spring for locking bolt

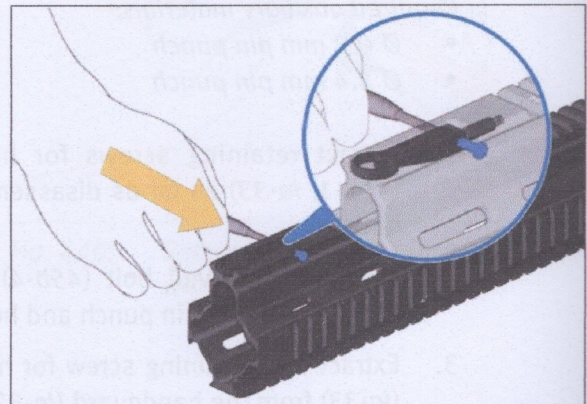


Fig. 46b: Extracting axle for front sight



## 9.3 Disassembling the charging handle

### 9.3.1 Disassembling the standard charging handle

*Required auxiliary materials:*

- Assembly device for charging handle
- Ø 1.8 mm pin punch
- Hammer

1. Place charging handle (47a-29) on the assembly device for charging handle.
2. Extract clamping sleeve for catch (47a-28) using Ø 1.8 mm pin punch (47b).



The catch (47a-31) is spring-loaded. Secure catch with your finger during disassembly.

3. Pull Ø 1.8 mm pin punch out of the charging handle.
4. Remove catch (47a-31).
5. Remove pressure spring for catch (47a-30).

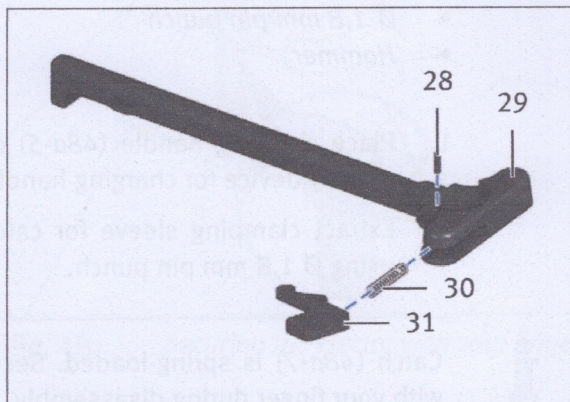


Fig. 47a: Charging handle

- 28 Clamping sleeve for catch
- 29 Charging handle
- 30 Pressure spring for catch
- 31 Catch

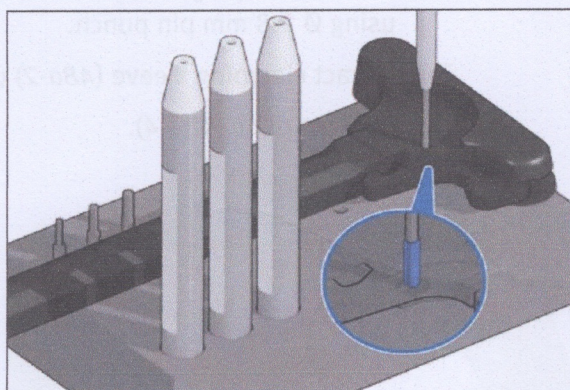


Fig. 47b: Extracting clamping sleeve for catch



## 9.3.2 Disassembling the convertible charging handle

Required auxiliary materials:

- Assembly device for charging handle
- Ø 1.8 mm pin punch
- Hammer

1. Place charging handle (48a-5) on the assembly device for charging handle.
2. Extract clamping sleeve for catch (48a-1) using Ø 1.8 mm pin punch.



Catch (48a-7) is spring-loaded. Secure catch with your finger during disassembly.

3. Pull Ø 1.8 mm pin punch out of the charging handle.
4. Remove catch (48a-7).
5. Remove pressure spring for catch 2 (48a-6).
6. Extract clamping sleeve for catch (48a-3) using Ø 1.8 mm pin punch.
7. Extract clamping sleeve (48a-2) using Ø 1.8 mm pin punch.
8. Remove plate (48a-4).

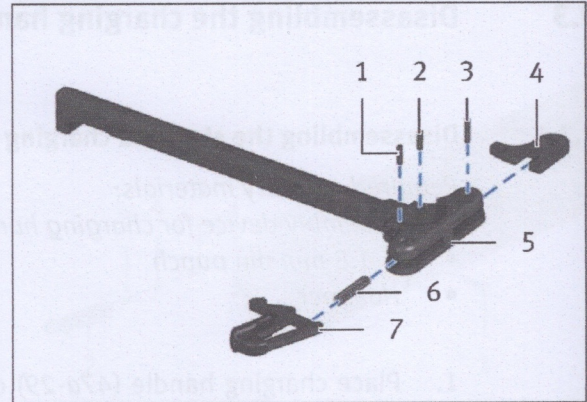


Fig. 48a: Charging handle, convertible

- |   |                           |
|---|---------------------------|
| 1 | Clamping sleeve for catch |
| 2 | Clamping sleeve           |
| 3 | Clamping sleeve for plate |
| 4 | Plate                     |
| 5 | Charging handle           |
| 6 | Pressure spring for catch |
| 7 | Catch                     |



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## 9.4 Disassembling the bolt head

Required auxiliary materials:

- Ø 1.4 mm pin punch
- Ø 2.4 mm pin punch
- Hammer

1. Disassemble bolt group.
2. Extract axle for extractor (la-38) using Ø 2.4 mm pin punch.
3. Pull Ø 2.4 mm pin punch out of the bolt head (la-42).
4. Remove extractor (la-41).
5. Remove pressure spring for extractor (la-40) and rubber pin (la-39).
6. Extract clamping sleeve (la-37) using Ø 1.4 mm pin punch.

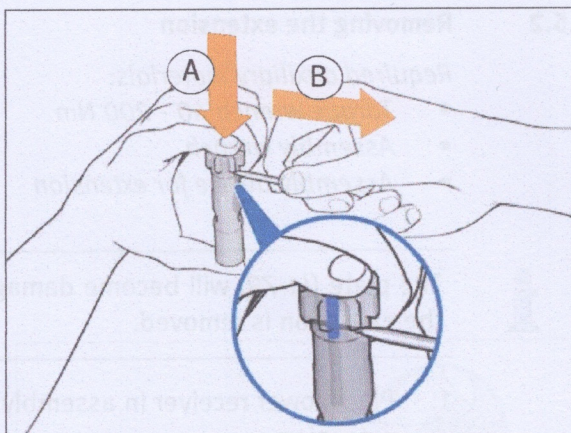


Fig. 49a: Securing the ejector with your finger



The ejector is spring-loaded. Secure the ejector with your finger during disassembly (49a-A).

7. Remove Ø 1.4 mm pin punch (49a-B).
8. Remove ejector (la-35).
9. Remove pressure spring for ejector (la-36).

## 9.5 Disassembling the lower receiver

### 9.5.1 Removing the buttstock

1. Pull buttstock release lever all the way down and hold it (49b-A).
2. Pull buttstock rearwards out of the extension (49b-B).

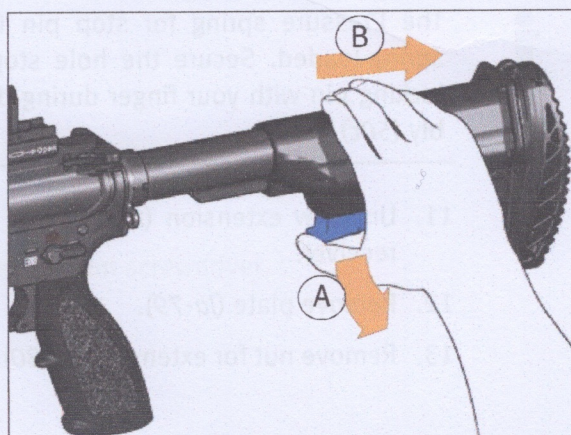


Fig. 49b: Removing the buttstock



### 9.5.2 Removing the extension

Required auxiliary materials:

- Torque wrench 40 - 200 Nm
- Assembly wrench
- Assembly device for extension



The plate (1a-79) will become damaged when the extension is removed.

1. Place lower receiver in assembly device for extension.
2. Push front locking pin in all the way (50a-A).
3. Push rear locking pin in all the way (50a-B).
4. Place retaining plate (50a-2) on the extension.
5. Tighten wing screw (50a-C).
6. Insert assembly wrench in torque wrench.
7. Loosen nut for extension using assembly wrench (50b).
8. Loosen wing screw.
9. Push retaining plate back.
10. Remove lower receiver from assembly device for extension.



The Pressure spring for stop pin (1a-78) is spring-loaded. Secure the hole stop pin for locking pin with your finger during disassembly (50c).

11. Unscrew extension (1a-82) from the lower receiver.
12. Remove plate (1a-79).
13. Remove nut for extension (1a-80).

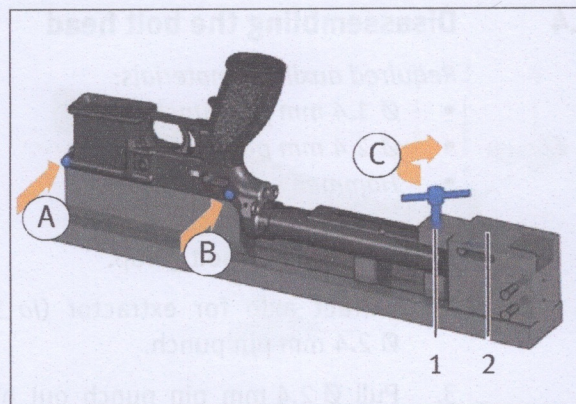


Fig. 50a: Placing lower receiver in assembly device for extension.

- |   |                 |
|---|-----------------|
| 1 | Wing screw      |
| 2 | Retaining plate |

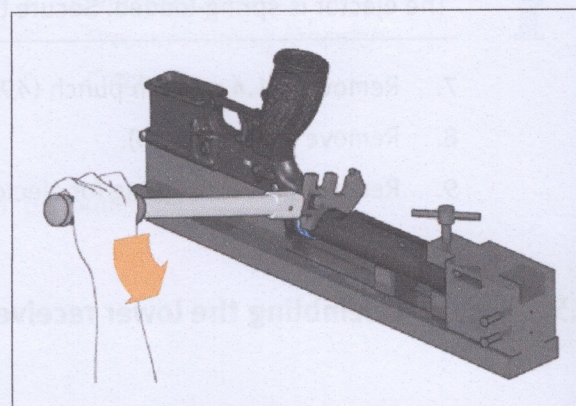


Fig. 50b: Loosening the nut for extension

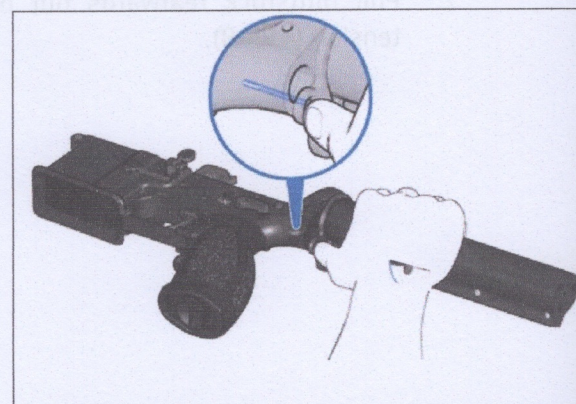


Fig. 50c: Securing hole for stop pin for locking pin with your finger



### 9.5.3 Removing the rear locking pin

1. Remove extension (Section 9.5.2).
2. Remove pressure spring for stop pin (la-78).
3. Remove stop pin for locking pin (la-77).
4. Remove rear locking pin (la-76).

### 9.5.4 Removing the locking pin for buffer

Required auxiliary materials:

- Ø 2.4 mm pin punch
- Hammer

1. Remove rear locking pin (Section 9.5.3).
2. Extract clamping sleeve for locking pin (la-74) using Ø 2.4 mm pin punch.



The locking pin for buffer (la-72) is spring-loaded. Secure the locking pin for buffer with your finger during disassembly (51a).

3. Remove Ø 2.4 mm pin punch.
4. Remove locking pin for buffer (la-72).
5. Remove pressure spring for locking pin (la-73).

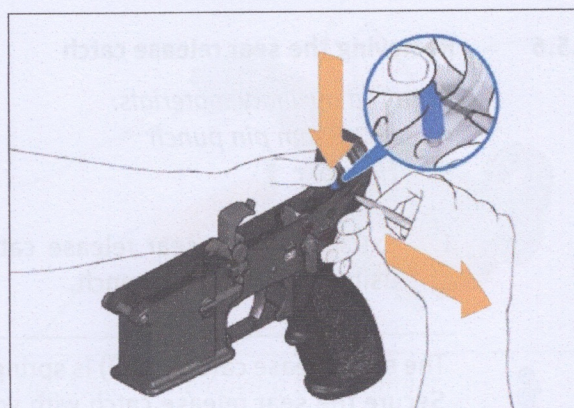


Fig. 51a: Removing the locking pin for buffer

### 9.5.5 Remove pistol grip

Required auxiliary materials:

- Screwdriver 7 x 150 mm
- Ø 1.8 mm pin punch

1. Remove cover (la-88).
2. Loosen cylindrical head screw (la-92) using 7 x 150 mm screwdriver.
3. Remove cylindrical head screw.
4. Remove pistol grip (la-86).
5. Remove pressure spring for stop pin (la-85). »



6. Remove stop pin (la-84).
7. Push clamping sleeve for cover locking mechanism (la-91) out of cover locking mechanism (la-90) using Ø 1.8 mm pin punch.
8. Remove cover locking mechanism.
9. Remove O-ring (la-87).
10. Remove O-ring (la-89).

## 9.5.6 Removing the sear release catch

*Required auxiliary materials:*

- Ø 2.8 mm pin punch
- Hammer

1. Extract axle for sear release catch (la-64) using Ø 2.8 mm pin punch.



The sear release catch (la-63) is spring-loaded. Secure the sear release catch with your finger during disassembly (52a).

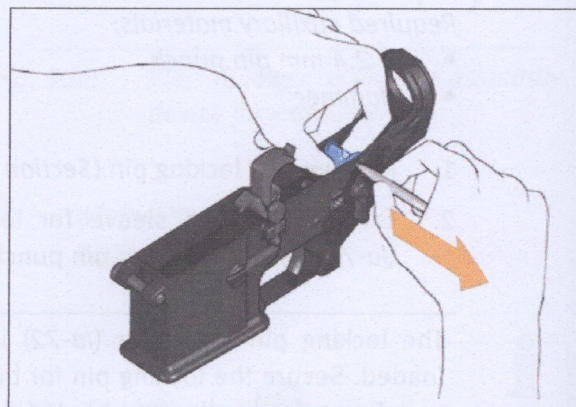


Fig. 52a: Removing the sear release catch

2. Remove Ø 2.8 mm pin punch.
3. Remove sear release catch (la-63).

## 9.5.7 Removing safety lever

*Required auxiliary materials:*

- Ø 1.4 mm pin punch
- Hammer

1. Remove pistol grip (Section 9.5.5).
2. Remove sear release catch (Section 9.5.6).
3. Extract clamping sleeve for right-hand safety lever using Ø 1.4 mm pin punch (52b).
4. Remove right-hand safety lever (la-66).
5. Extract clamping sleeve for left-hand safety lever (la-67) using Ø 1.4 mm pin punch. »

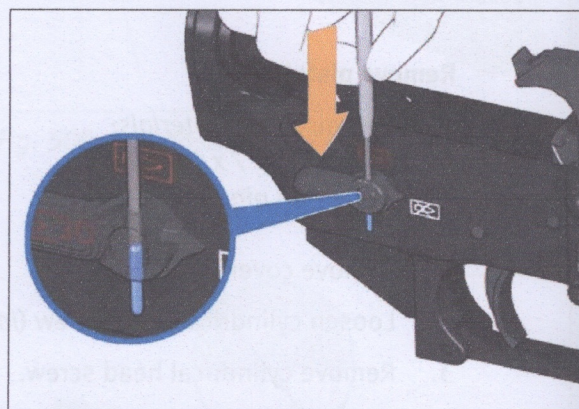


Fig. 52b: Extracting the clamping sleeve for the right-hand safety lever



6. Remove left-hand safety lever (la-68).
7. Cock hammer (la-58).
8. Remove safety roller (la-69).
9. Pull trigger. The hammer is released.

#### 9.5.8 Removing the hammer

Required auxiliary materials:

- Ø 3.4 mm pin punch
- Hammer

1. Extract axle for hammer (la-59) using Ø 3.4 mm pin punch.

i

The hammer (la-58) is spring-loaded. Secure the hammer with your finger during disassembly (53a).

2. Remove Ø 3.4 mm pin punch.
3. Remove hammer (la-58).

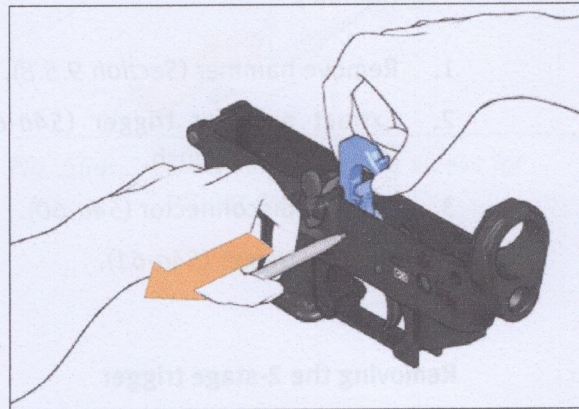


Fig. 53a: Removing the hammer

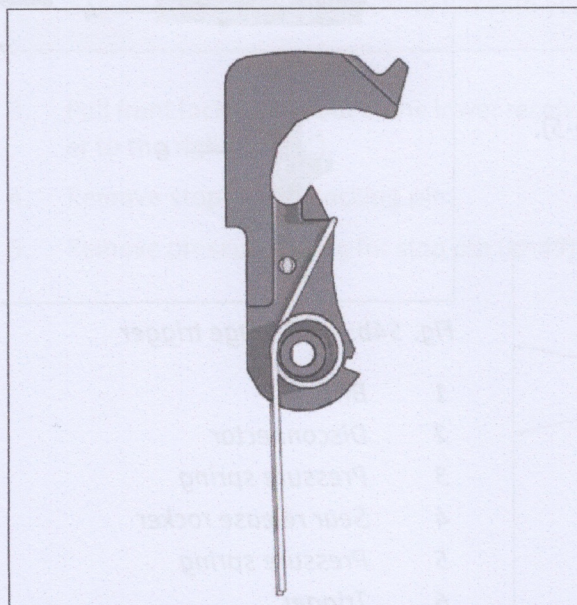


Fig. 53b: Hammer for standard trigger

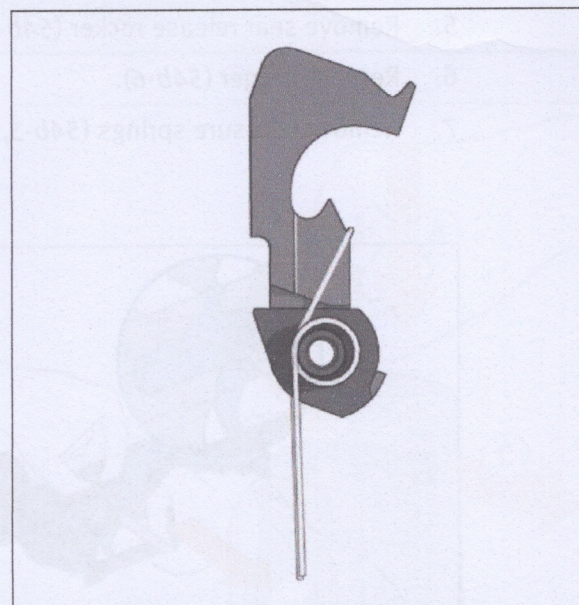


Fig. 53c: Hammer for 2-stage trigger



### 9.5.9 Removing the trigger

#### Removing the standard trigger

Required auxiliary materials:

- Ø 3.4 mm pin punch
- Hammer

1. Remove hammer (Section 9.5.8).
2. Extract axle for trigger (54a-62) using Ø 3.4 mm pin punch.
3. Remove disconnecter (54a-60).
4. Remove trigger (54a-61).

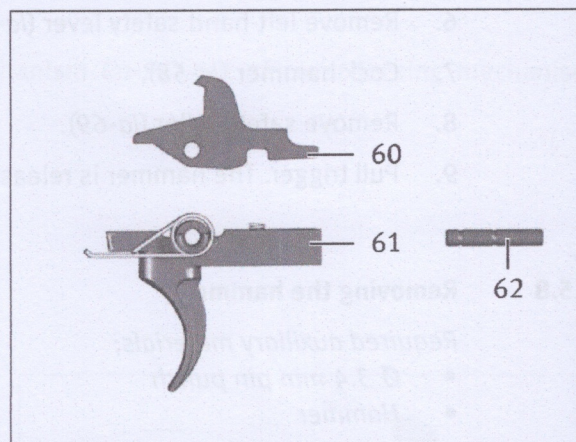


Fig. 54a: Standard trigger

- 60 Disconnecter  
61 Trigger  
62 Axle for trigger

#### Removing the 2-stage trigger

Required auxiliary materials:

- Ø 3.4 mm pin punch
- Hammer

1. Remove hammer (Section 9.5.8).
2. Extract axle for trigger (54b-7) using Ø 3.4 mm pin punch.
3. Remove disconnecter (54b-2).
4. Remove bridge (54b-1).
5. Remove sear release rocker (54b-4).
6. Remove trigger (54b-6).
7. Remove pressure springs (54b-3, 54b-5).

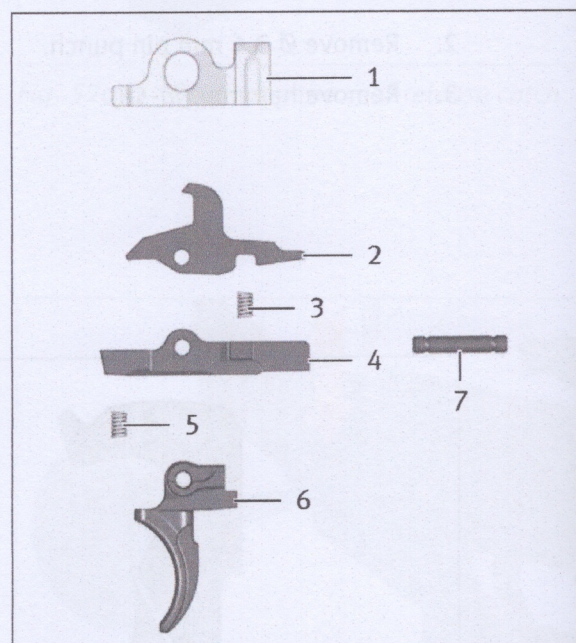


Fig. 54b: 2-stage trigger

- 1 Bridge  
2 Disconnecter  
3 Pressure spring  
4 Sear release rocker  
5 Pressure spring  
6 Trigger  
7 Axle for trigger

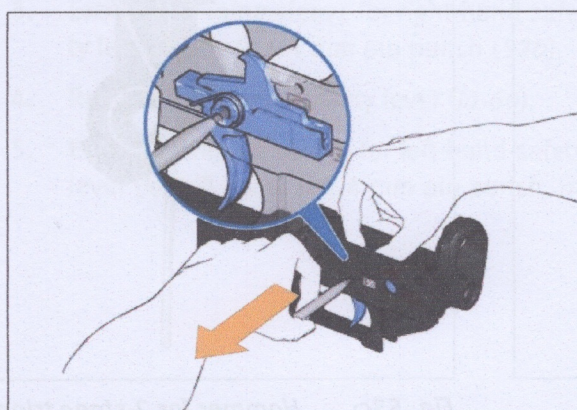


Fig. 54c: Removing the trigger



### 9.5.10 Removing the trigger guard

Required auxiliary materials:

- Ø 2.8 mm pin punch
- Hammer

1. Extract clamping sleeve for trigger guard (la-71) using Ø 2.8 mm pin punch (55a).
2. Push in trigger guard release mechanism using Ø 2.8 mm pin punch.
3. Remove trigger guard (la-70).

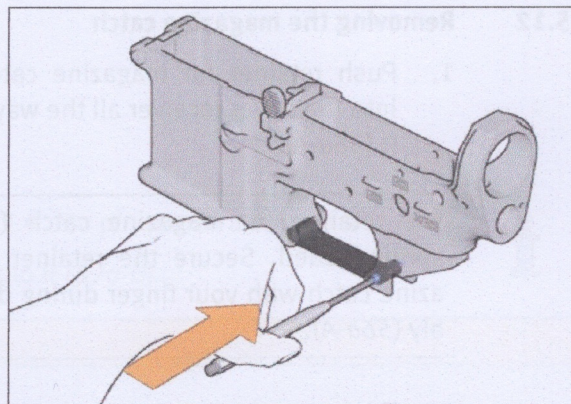


Fig. 55a: Extracting clamping sleeve for trigger guard

### 9.5.11 Removing the front locking pin

Required auxiliary materials:

- Ø 1.4 mm pin punch
- Hammer

1. Pull front locking pin (la-50) to the right as far as it will go.
2. Press in stop pin for locking pin (la-48) using Ø 1.4 mm pin punch and hold it (55b-A).

#### ⚠ CAUTION

**Risk of injury from spring-loaded parts!**

The stop pin for locking pin (la-48) is spring-loaded, and can fly out of the lower receiver during removal.

- › Wear safety goggles when removing the front locking pin.
- › Secure the stop pin for locking pin with your finger during removal (55b-B).

3. Pull front locking pin out of the lower receiver to the right (55b-C).
4. Remove stop pin for locking pin.
5. Remove pressure spring for stop pin (la-49).

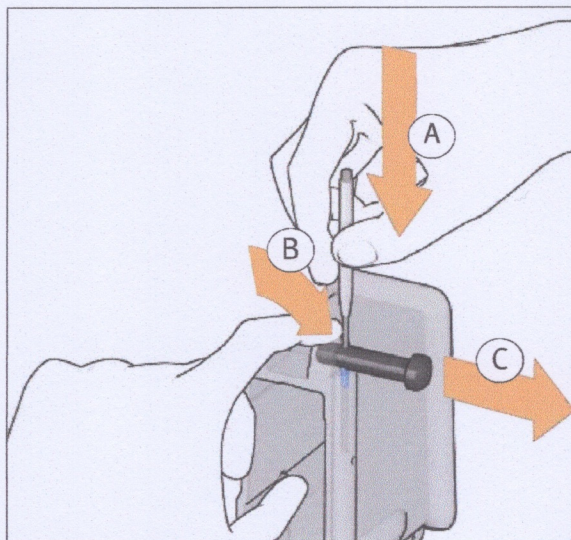


Fig. 55b: Removing the stop pin



### 9.5.12 Removing the magazine catch

1. Push retainer for magazine catch (Ia-55) into the lower receiver all the way and hold it (56a-A).



The retainer for magazine catch (Ia-55) is spring-loaded. Secure the retainer for magazine catch with your finger during disassembly (56a-A).

2. Turn magazine catch (Ia-57) anti-clockwise out of the retainer for magazine catch (56a-B).
3. Remove retainer for magazine catch.
4. Remove pressure spring for retainer (Ia-56).

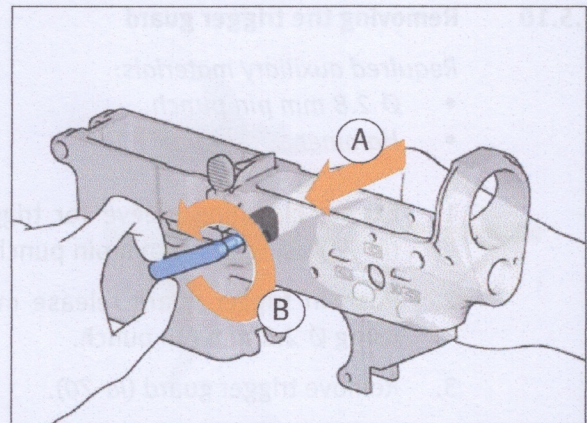


Fig. 56a: Turning magazine catch out of retainer for magazine catch

### 9.5.13 Removing the bolt catch/release

Required auxiliary materials:

- Ø 2.4 mm pin punch
- Hammer

1. Extract clamping sleeve for bolt catch/release using Ø 2.4 mm pin punch (56b).
2. Remove bolt catch/release (Ia-51).
3. Remove pressure pin (Ia-53).
4. Remove pressure spring for pressure pin (Ia-54).

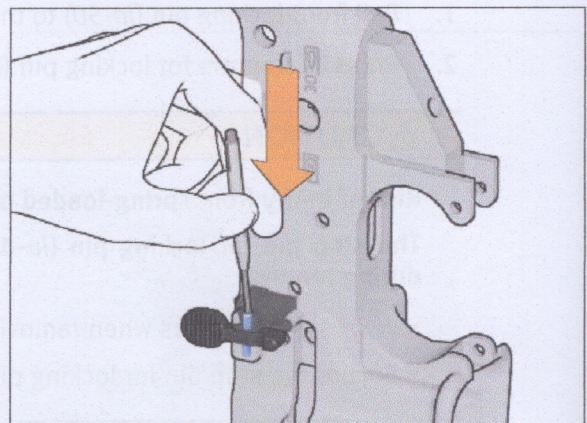


Fig. 56b: Extracting the clamping sleeve



## 9.6 Disassembling the magazine

Required auxiliary materials:

- Ø 1.8 mm pin punch
- Ø 3.4 mm pin punch

1. Press in magazine locking plate (1a-96) with Ø 3.4 mm pin punch and hold it (57a-A).
2. Pull magazine locking plate (1a-97) back and hold it (57a-B).

### ⚠ CAUTION

**Risk of injury from spring-loaded parts!**

The magazine locking plate (1a-96) will fly out of the magazine if the magazine locking plate is not secured.

- › Secure the magazine locking plate with your finger during disassembly (57a-C).

3. Tighten magazine locking plate (57a-C).
4. Remove magazine locking plate, magazine spring (1a-95) and follower (1a-94) from the magazine housing (1a-93).
5. Pull magazine spring out of magazine locking plate using Ø 1.8 mm pin punch.
6. Push magazine spring out of follower using Ø 1.8 mm pin punch.

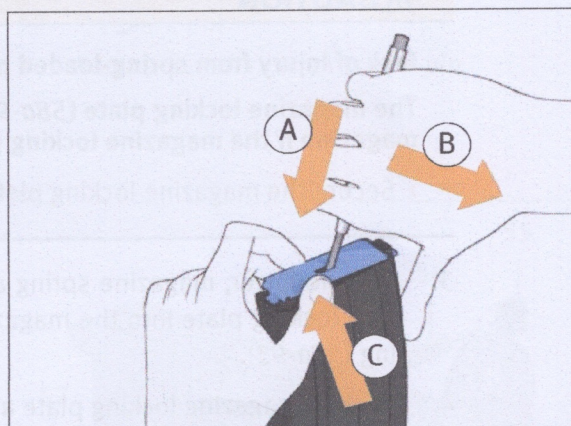


Fig. 57a: Disassembling the magazine



## 10 Assembling the weapon completely



Clamping sleeves that have been removed may not be re-used during assembly. Replace removed clamping sleeves with new clamping sleeves.

### 10.1 Assembling the magazine

*Required auxiliary materials:*

- Ø 3.4 mm pin punch

1. Place follower (58a-94) on the magazine spring (58a-95).
2. Hook magazine spring onto magazine locking plate (58a-96).

#### ⚠ CAUTION

**Risk of injury from spring-loaded parts!**

**The magazine locking plate (58a-96) is spring-loaded during assembly, and can fly out of the magazine if the magazine locking plate is not secured.**

- › Secure the magazine locking plate with your finger during assembly (57a-C).

3. Push follower, magazine spring and magazine locking plate into the magazine housing (58a-93).
4. Push in magazine locking plate and hold in place using Ø 3.4 mm pin punch.
5. Pull magazine locking plate (58a-97) to the rear using Ø 3.4 mm pin punch and push downwards until the magazine locking plate engages in the magazine housing.

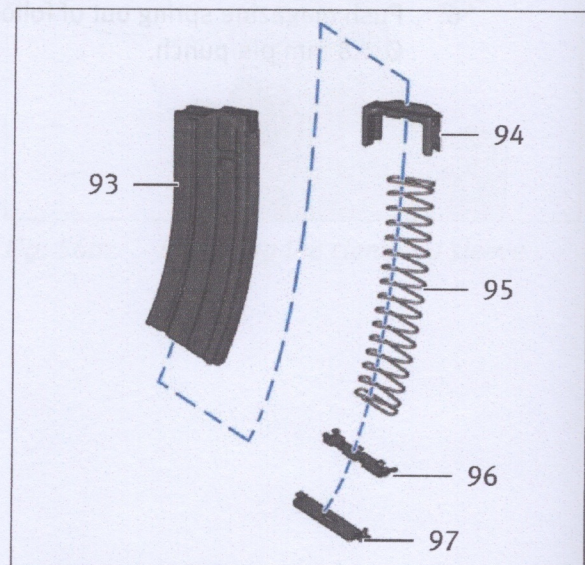


Fig. 58a: Magazine

- 93 Magazine housing
- 94 Follower
- 95 Magazine spring
- 96 Magazine locking plate
- 97 Magazine floor plate





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## 10.2 Assembling the lower receiver

### 10.2.1 Inserting the bolt catch/release

Required auxiliary materials:

- Ø 2.4 mm pin punch
- Hammer

1. Insert pressure spring for pressure pin (59a-54) into lower receiver.
2. Insert pressure pin (59a-53) into lower receiver.
3. Insert bolt catch/release (59a-51) into lower receiver.
4. Drive in clamping sleeve for bolt catch/release (59a-52) using Ø 2.4 mm pin punch.

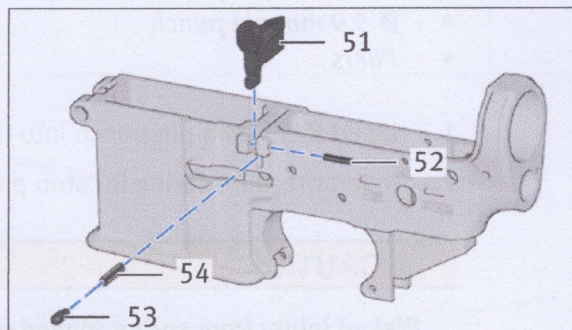


Fig. 59a: Bolt catch/release

- 51 Bolt catch/release
- 52 Clamping sleeve for bolt catch/release
- 53 Pressure pin
- 54 Pressure spring for pressure pin

### 10.2.2 Inserting the magazine catch

1. Insert magazine catch (59b-57) into lower receiver.
2. Push pressure spring for retainer (59b-56) onto magazine catch.
3. Place retainer for magazine catch (59b-55) on magazine catch.
4. Push retainer for magazine catch into the lower receiver all the way and hold it there.
5. Turn magazine catch clockwise into retainer for magazine catch.

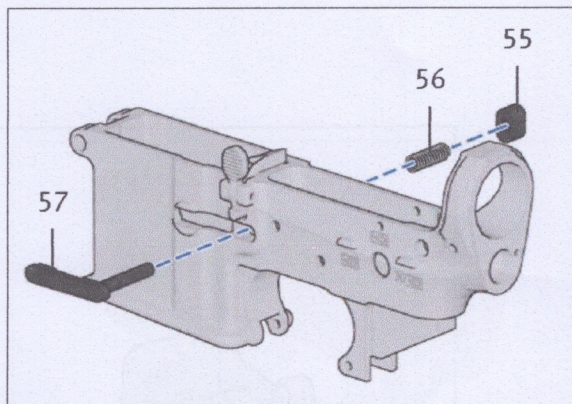


Fig. 59b: Magazine catch

- 55 Retainer for magazine catch
- 56 Pressure spring for retainer
- 57 Magazine catch



The magazine catch must not project out of the retainer for magazine catch. Do not turn the magazine catch too far.



### 10.2.3 Inserting the front locking pin

Required auxiliary materials:

- Ø 1.4 mm pin punch
- Ø 5.9 mm pin punch
- Pliers

1. Insert Ø 5.9 mm pin punch into the hole for locking pin from the left.
2. Insert pressure spring for stop pin (60a-49) into lower receiver.

#### ⚠ CAUTION

**Risk of injury from spring-loaded parts!**

**The stop pin for locking pin (60a-48) is spring-loaded when it is inserted, and can fly out of the lower receiver.**

› Wear safety goggles when inserting the front locking pin.

3. Using the pliers, set stop pin for locking pin on the pressure spring for stop pin and hold it there (60b-A).
4. Press stop pin for locking pin into lower receiver using Ø 1.4 mm pin punch and hold it there (60 b-B). »

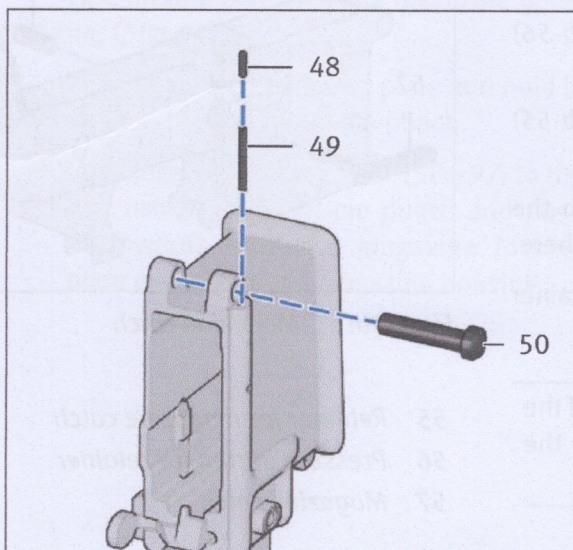


Fig. 60a: Front locking pin

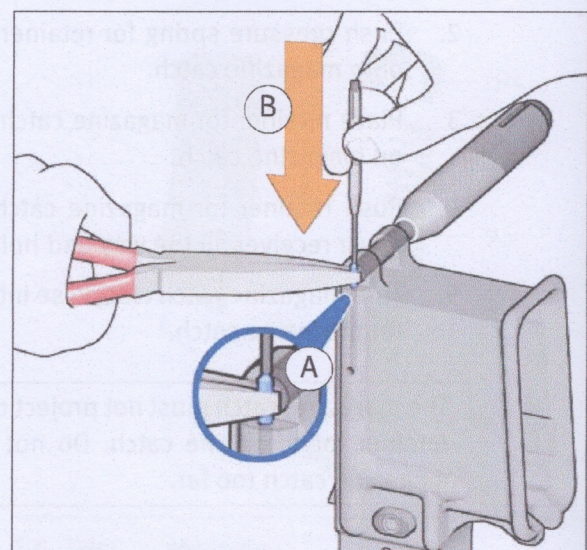


Fig. 60b: Inserting stop pin for locking pin

- 48 Stop pin for locking pin
- 49 Pressure spring for stop pin
- 50 Locking pin, front



5. Push  $\varnothing 5.9$  mm pin punch in front of the stop pin for locking pin and hold it there (61a).
6. Push locking pin in front of the stop pin for locking pin, thus extracting  $\varnothing 5.9$  mm pin punch (61b).

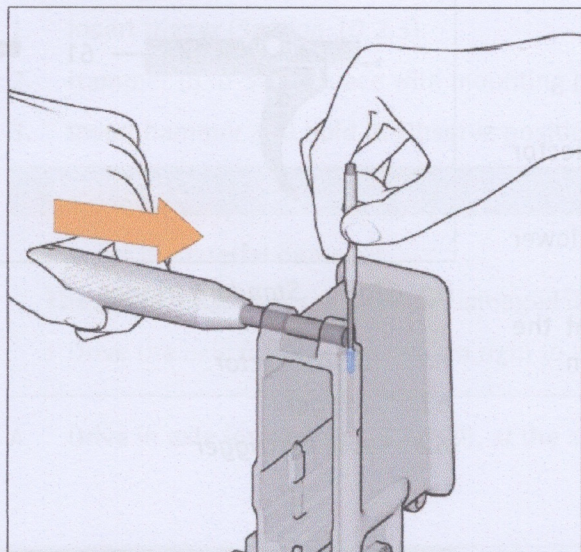


Fig. 61a: Pushing pin punch in front of the stop pin for locking pin

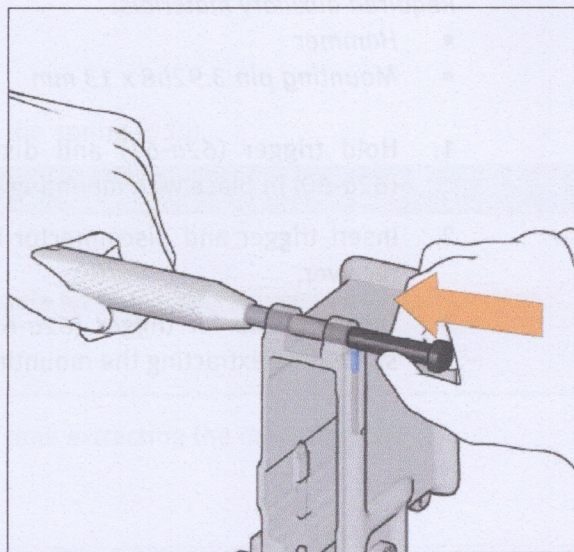


Fig. 61b: Pushing locking pin in front of the stop pin for locking pin

#### 10.2.4 Inserting the trigger guard

Required auxiliary materials:

- $\varnothing 2.8$  mm pin punch
- Hammer

1. Insert trigger guard (61c-70) into lower receiver and hold it there.
2. Drive in clamping sleeve for trigger guard (61c-71) using  $\varnothing 2.8$  mm pin punch.
3. Push in trigger guard release mechanism.
4. Fold trigger guard upwards until the trigger guard release mechanism locks into place.

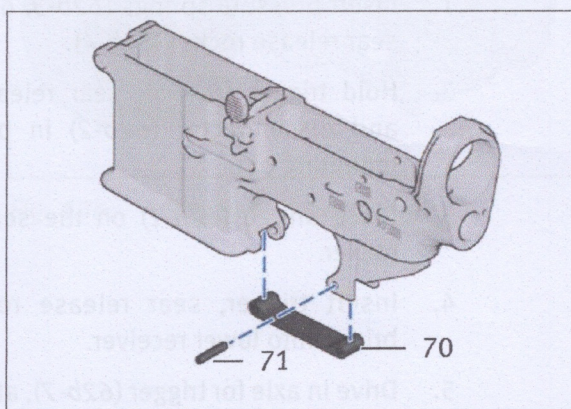


Fig. 61c: Trigger guard

70 Trigger guard

71 Clamping sleeve for trigger guard



### 10.2.5 Inserting the trigger

#### Inserting the standard trigger

Required auxiliary materials:

- Hammer
- Mounting pin 3.92h8 x 13 mm

1. Hold trigger (62a-61) and disconnecter (62a-60) in place with mounting pin.
2. Insert trigger and disconnecter into lower receiver.
3. Drive in axle for trigger (62a-62), at the same time extracting the mounting pin.

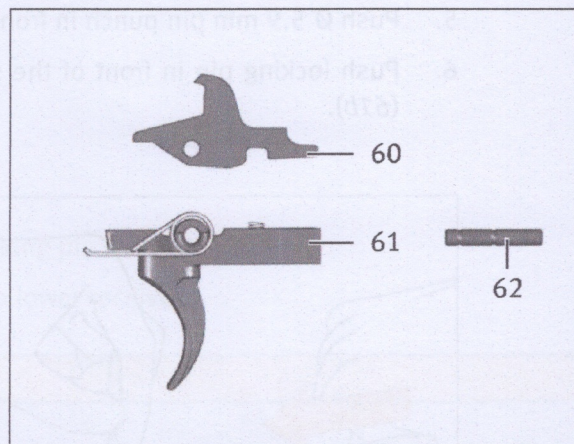


Fig. 62a: Standard trigger

- 60 Disconnecter
- 61 Trigger
- 62 Axle for trigger

#### Inserting the 2-stage trigger

Required auxiliary materials:

- Hammer
- Mounting pin 3.92h8 x 13 mm

1. Insert pressure springs (62b-3, 62b-5) into sear release rocker (62b-4).
2. Hold trigger (62b-6), sear release rocker and disconnecter (62b-2) in place with mounting pin.
3. Place bridge (62b-1) on the sear release rocker.
4. Insert trigger, sear release rocker and bridge into lower receiver.
5. Drive in axle for trigger (62b-7), at the same time extracting the mounting pin.

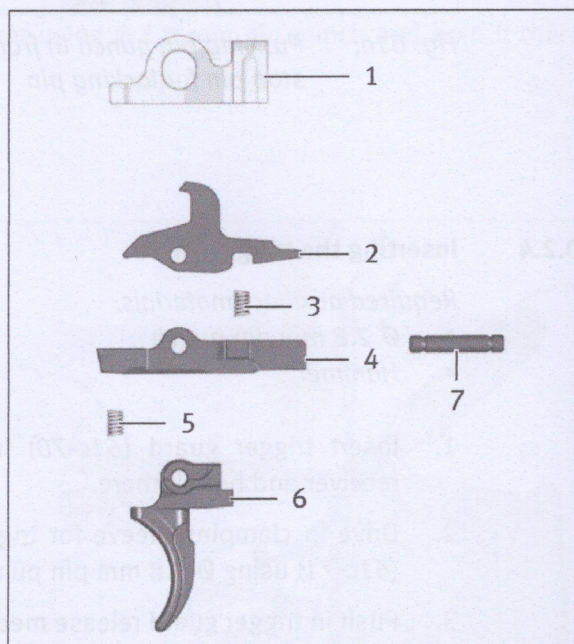


Fig. 62b: 2-stage trigger

- 1 Bridge
- 2 Disconnecter
- 3 Pressure spring (length approx. 11.5 mm)
- 4 Sear release rocker
- 5 Pressure spring (length approx. 8.5 mm)
- 6 Trigger
- 7 Axle for trigger



### 10.2.6 Inserting the hammer

Required auxiliary materials:

- Hammer
- 3.92h8 x 13 mm mm mounting pin

1. Insert trigger (Section 10.2.5).
2. Hammer (63a-58) in place with mounting pin.
3. Insert hammer and hold it. Observe position of the spring (63b).

#### NOTICE

##### **Danger of material damage!**

**The axle for hammer can become damaged if the axle for hammer is driven in from left to right.**

- › Drive the axle for hammer in from right to left.

4. Drive in axle for hammer (63a-59), at the same time extracting the mounting pin.

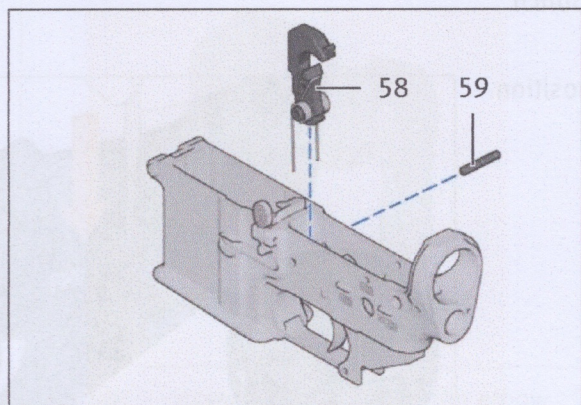


Fig. 63a: Hammer

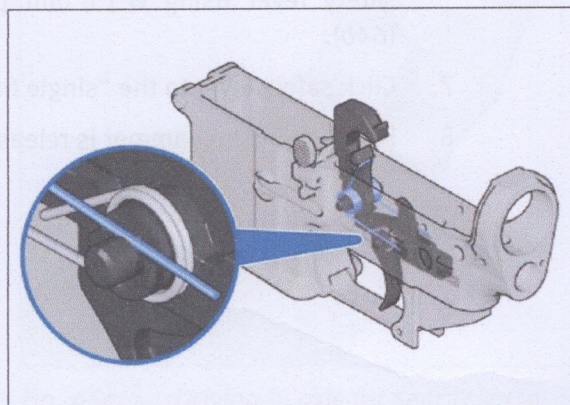


Fig. 63b: Position of the spring

58 Hammer

59 Axle for hammer



### 10.2.7 Inserting the safety lever

*Required auxiliary materials:*

- Ø 1.4 mm pin punch
- Hammer

1. Press hammer (1a-58) downwards. The disconnector (1a-60) holds the hammer in the cocked position.
2. Insert safety roller (64a-69).
3. Place left-hand safety lever (64a-68) on the safety roller.
4. Drive in clamping sleeve for left-hand safety lever (64a-67) using Ø 1.4 mm pin punch.
5. Place right-hand safety lever (64a-66) on the safety roller.
6. Drive in clamping sleeve for right-hand safety lever using Ø 1.4 mm pin punch (64b).
7. Click safety lever to the “single fire” position.
8. Pull trigger. The hammer is released.

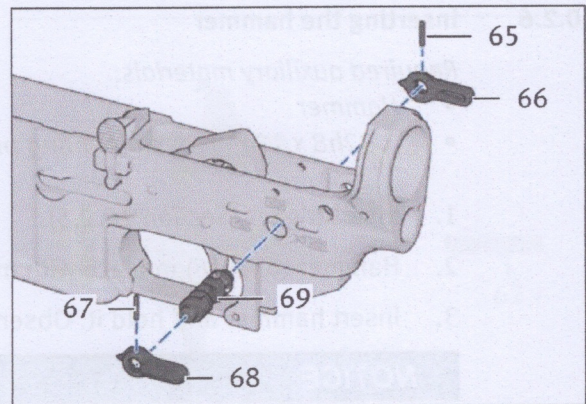


Fig. 64a: Safety lever

- |    |   |
|----|---|
| 65 | Clamping sleeve for safety lever, right |
| 66 | Safety lever, right                     |
| 67 | Clamping sleeve for safety lever, left  |
| 68 | Safety lever, left                      |
| 69 | Safety roller                           |

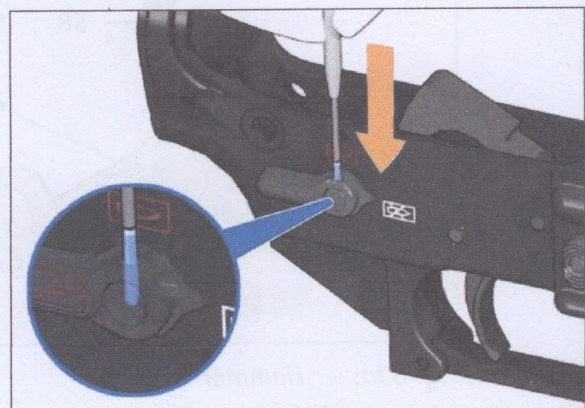


Fig. 64b: Driving in the clamping sleeve for the right-hand safety lever



### 10.2.8 Inserting the sear release catch

Required auxiliary materials:

- Hammer

1. Insert safety lever (Section 10.2.7).
2. Click safety lever to the “sustained fire” position.
3. Push elbow spring into assembly position (65b).
4. Insert sear release catch (65a-63). Observe position of elbow spring (65c).
5. Drive in axle for sear release catch (65a-64) (65c).

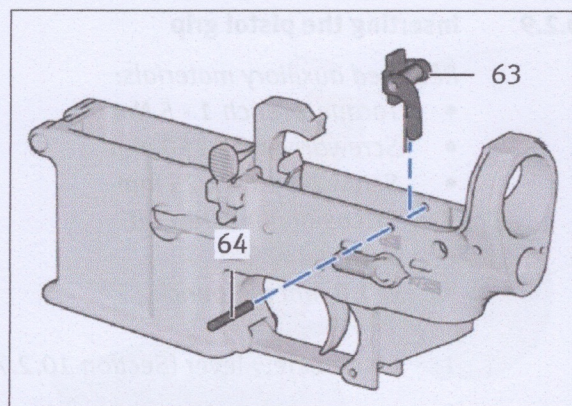


Fig. 65a: Sear release catch

63 Sear release catch

64 Axle for sear release catch

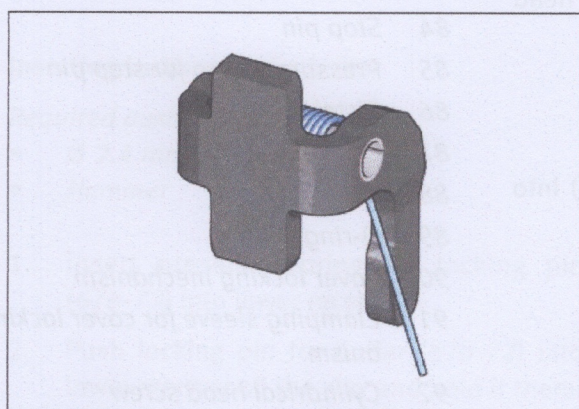


Fig. 65b: Assembly position of the elbow spring

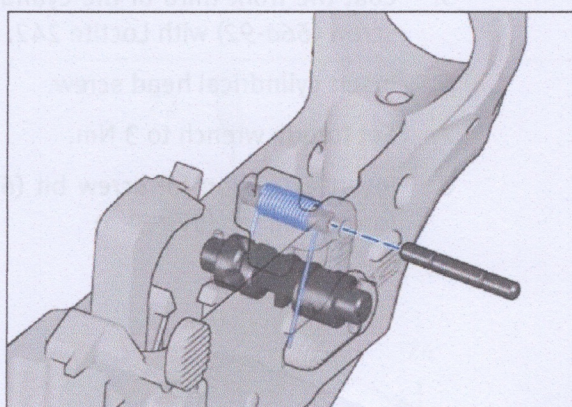


Fig. 65c: Driving in axle for sear release catch



#### 10.2.9 Inserting the pistol grip

*Required auxiliary materials:*

- Torque wrench 1 - 5 Nm
- Screwdriver 7 x 150 mm
- Screw bit 1.62 x 25 mm
- Extension for screw bit
- Loctite 242
- Ø 1.8 mm pin punch

1. Insert safety lever (Section 10.2.7).
2. Insert stop pin (66a-84) into lower receiver.
3. Insert pressure spring for stop pin (66a-85) into pistol grip (66a-86).
4. Set pistol grip on lower receiver in such a way that the stop pin engages in the hole for stop pin (66b).
5. Coat the front third of the cylindrical head screw (66a-92) with Loctite 242.
6. Insert cylindrical head screw.
7. Set torque wrench to 3 Nm.
8. Insert extension for screw bit (67a-2) into torque wrench (67a-3). »

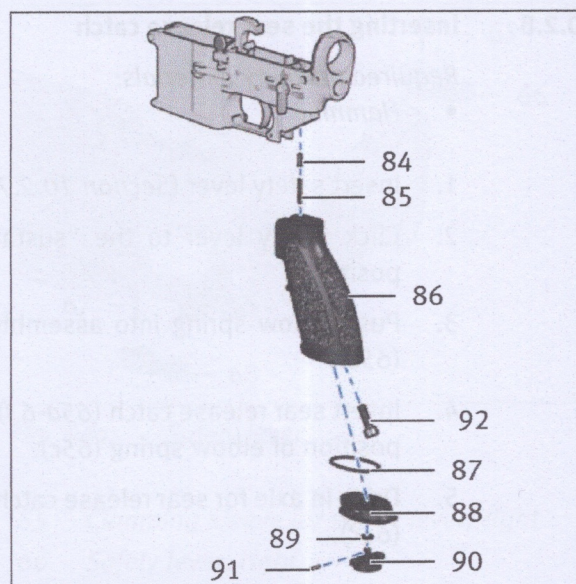


Fig. 66a: Pistol grip

- |    |   |
|----|---|
| 84 | Stop pin                                    |
| 85 | Pressure spring for stop pin                |
| 86 | Pistol grip                                 |
| 87 | O-ring                                      |
| 88 | Cover                                       |
| 89 | O-ring                                      |
| 90 | Cover locking mechanism                     |
| 91 | Clamping sleeve for cover locking mechanism |
| 92 | Cylindrical head screw                      |

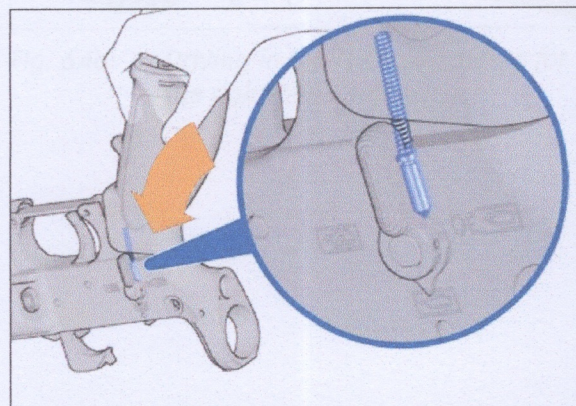


Fig. 66b: Placing pistol grip on lower receiver



9. Insert screw bit (67a-1) into extension for screw bit.
10. Tighten cylinder head screw using screw bit until the torque is reached (67a).
11. Place O-ring (66a-87) on cover (66a-88).
12. Place O-ring (66a-89) on cover locking mechanism (66a-90).
13. Insert cover locking mechanism into cover.
14. Drive clamping sleeve for cover locking mechanism (66a-91) into cover using  $\varnothing$  1.8 mm pin punch.
15. Insert cover into pistol grip.

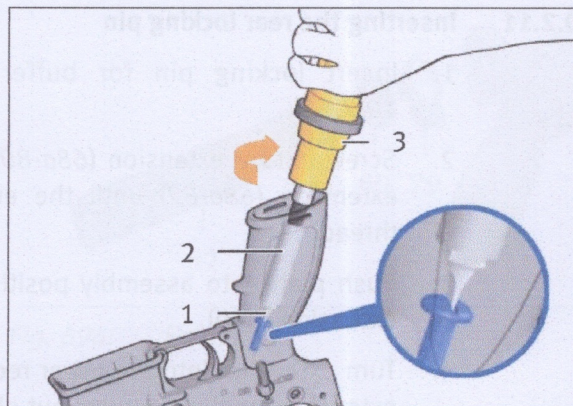


Fig. 67a: Tightening the cylinder head screw

- 1 Screw bit
- 2 Extension for screw bit
- 3 Torque wrench

#### 10.2.10 Inserting locking pin for buffer

Required auxiliary materials:

- $\varnothing$  2.4 mm pin punch
- Hammer

1. Insert pressure spring for locking pin (67b-73) into lower receiver.
2. Push locking pin for buffer (67b-72) into lower receiver all the way and hold it there.
3. Hold locking pin for buffer in place with  $\varnothing$  2.4 mm pin punch.
4. Drive in clamping sleeve for locking pin (67b-74), at the same time extracting  $\varnothing$  2.4 mm pin punch.

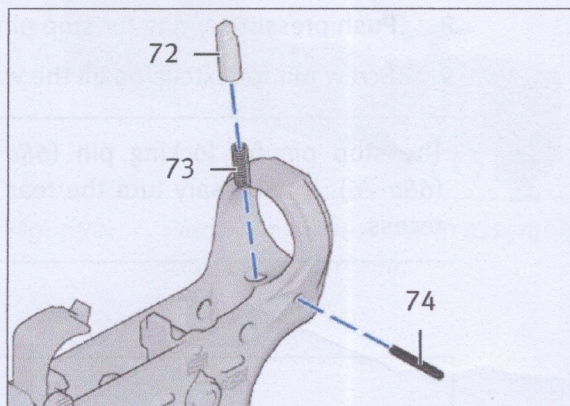


Fig. 67b: Locking pin for buffer

- 72 Locking pin for buffer
- 73 Pressure spring for locking pin
- 74 Clamping sleeve for locking pin



#### 10.2.11 Inserting the rear locking pin

1. Insert locking pin for buffer (Section 10.2.10).
2. Screw nut for extension (68a-80) onto the extension (68a-82) until the end of the thread.
3. Push plate into assembly position on the extension (68b).
4. Turn extension into the lower receiver. The extension must not project out of the lower receiver (68c).
5. Insert rear locking pin (68a-76) into lower receiver from the right side.
6. Insert stop pin for locking pin (68a-77) into lower receiver.
7. Insert pressure spring for stop pin (68a-78) into lower receiver.
8. Push pressure spring for stop pin into lower receiver with plate (68a-79) and hold it there.
9. Screw nut for extension all the way forwards.

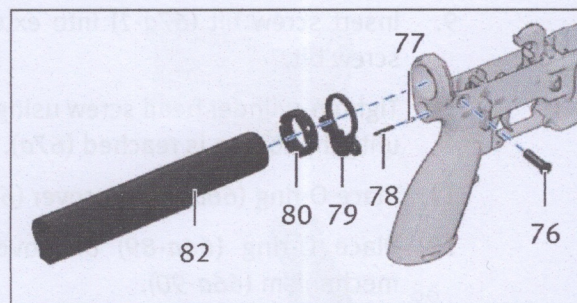


Fig. 68a: Locking pin, rear

- 76 Locking pin, rear
- 77 Stop pin for locking pin
- 78 Pressure spring for stop pin
- 79 Plate
- 80 Nut for extension
- 82 Extension



The stop pin for locking pin (68a-77) must engage with the recess in the rear locking pin (68a-76). If necessary turn the rear locking pin until the stop pin for locking pin engages in the recess.

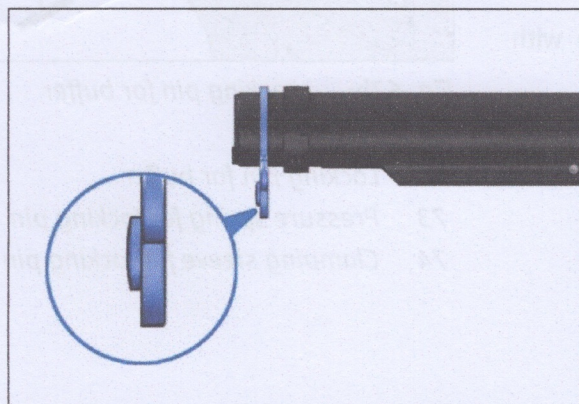


Fig. 68b: Pushing the plate onto the extension



Fig. 68c: Position of the extension



The first part of this manual ('General principles') describes the basic and/or principles for using this manual. The second part ('Maintenance and checks') describes the maintenance and checks that must be done on the weapon. The third part ('Disassembly and assembly') describes the complete disassembly and assembly of the weapon.

## 1.2. Target audience for this manual

This manual is intended for trained personnel to maintain. This manual is intended for personnel with knowledge of firearms.

## Part I

### 1.3. General principles

This manual is intended for use only if you meet the following requirements:

- you have successfully completed a technical training course for the weapon described here;
- you have read and understood this maintenance manual thoroughly;
- you have mastered the techniques described in this maintenance manual;
- you have read and understood the operator's manual for the weapon described here thoroughly;
- and you have mastered the activities described in the operator's manual.



### 10.2.12 Inserting the extension

*Required auxiliary materials:*

- Mount for extension
- Torque wrench 40 - 200 Nm
- Assembly device for extension
- Assembly wrench
- Vice
- Caulking tool A
- Caulking tool B

1. Insert front locking pin (Section 10.2.3).
2. Insert rear locking pin (Section 10.2.11).
3. Place lower receiver in assembly device for extension.
4. Push front locking pin in all the way (69b-A).
5. Push rear locking pin in all the way (69b-B).
6. Place retaining plate (69b-2) on the extension (69a-82).
7. Tighten wing screw (69b-C).
8. Set torque wrench to 60 Nm.
9. Insert assembly wrench in torque wrench.
10. Tighten nut for extension using assembly wrench until the torque is reached (69c).
11. Loosen wing screw.
12. Push retaining plate back.
13. Remove lower receiver from assembly device for extension. »

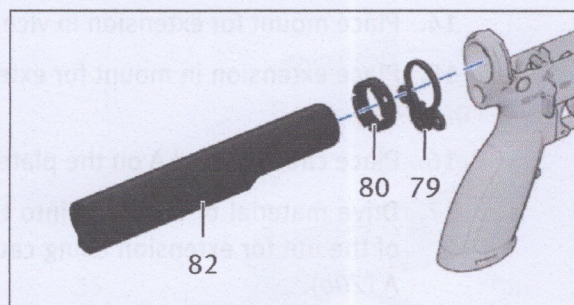


Fig. 69a: Extension

- 79 Plate  
80 Nut for extension  
82 Extension

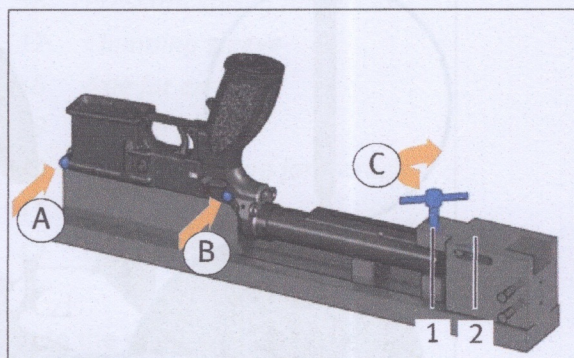


Fig. 69b: Placing lower receiver in assembly device for extension

- 1 Wing screw  
2 Retaining plate

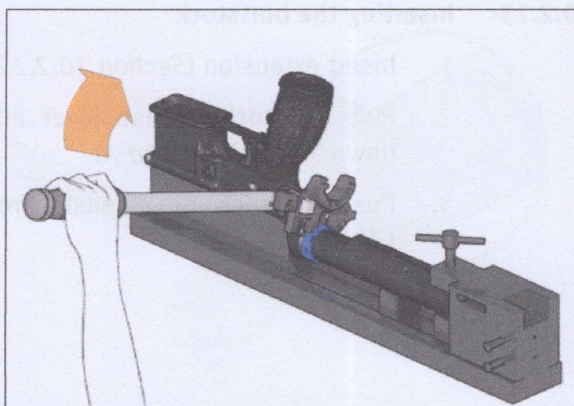


Fig. 69c: Tightening nut for extension



14. Place mount for extension in vice.
15. Place extension in mount for extension (70a).
16. Place caulking tool A on the plate.
17. Drive material of the plate into the groove of the nut for extension using caulking tool A (70b).
18. Place caulking tool B on the plate.
19. Caulk driven-in material and nut for extension using caulking tool B (71c).

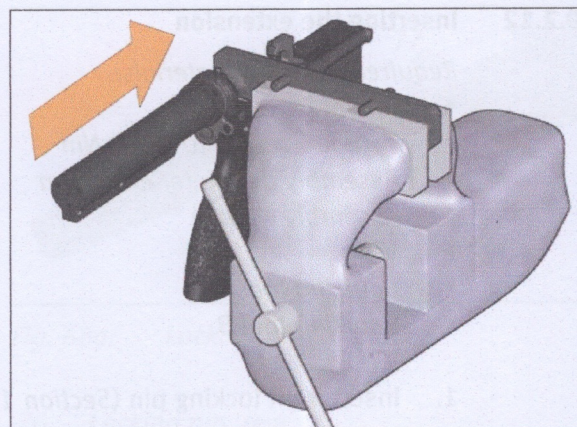


Fig. 70a: Inserting the extension

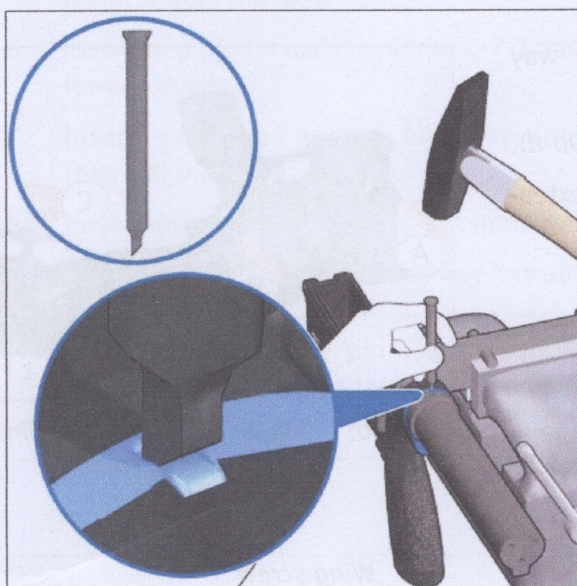


Fig. 70b: Driving material of the plate into the nut for extension

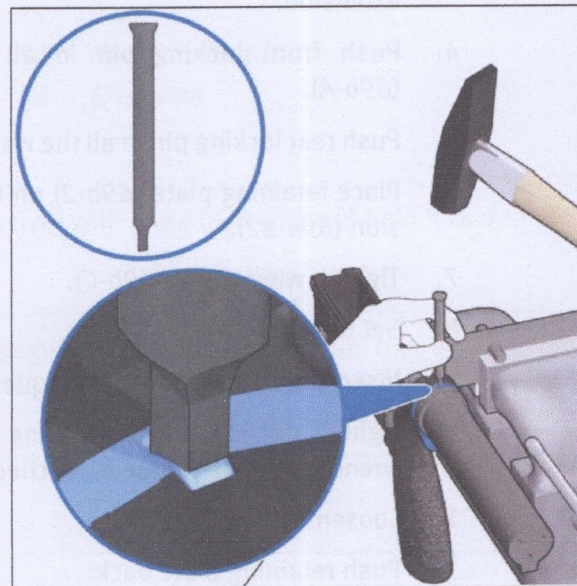


Fig. 70c: Caulking the plate using caulking tool B

#### 10.2.13 Inserting the buttstock

1. Insert extension (Section 10.2.12).
2. Pull buttstock release lever all the way down and hold it (70d-A).
3. Push buttstock onto extension from the rear (70d-B).

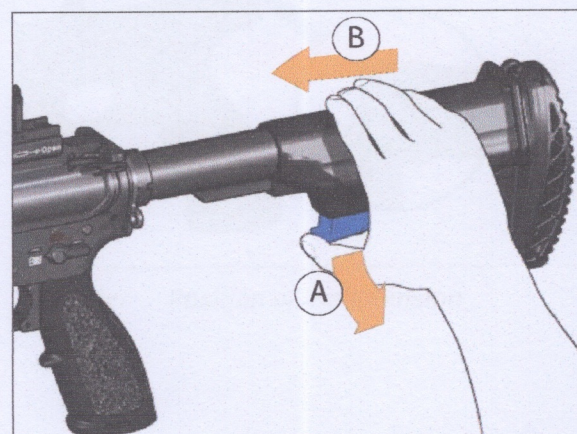


Fig. 70d: Inserting the buttstock



### 10.3 Assembling the bolt head

Required auxiliary materials:

- Assembly tool for ejector
- Ø 1.4 mm pin punch
- Ø 2.4 mm pin punch
- Hammer
- Vice

1. Insert pressure spring for ejector (71a-36) into the bolt head (71a-42).
2. Insert ejector (71a-35) into the assembly tool for ejector (71b).
3. Push assembly tool for ejector onto bolt head.
4. Clamp assembly tool for ejector and bolt head in vice.
5. Drive in clamping sleeve (71a-37) using Ø 1.4 mm pin punch.
6. Remove bolt head from vice.
7. Push rubber pin (71a-39) into pressure spring for extractor (71a-40).
8. Insert pressure spring for ejector with rubber pin into the extractor (71a-41).
9. Push extractor into the bolt head and hold it there.
10. Hold extractor in place with Ø 2.4 mm pin punch.
11. Drive in axle for extractor (71a-38), at the same time extracting Ø 2.4 mm pin punch (71c).

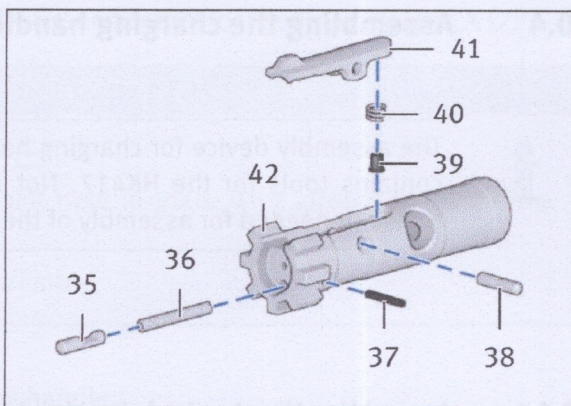


Fig. 71a: Bolt head

- |    |                               |
|----|-------------------------------|
| 35 | Ejector                       |
| 36 | Pressure spring for ejector   |
| 37 | Clamping sleeve               |
| 38 | Axle for extractor            |
| 39 | Rubber pin                    |
| 40 | Pressure spring for extractor |
| 41 | Extractor                     |
| 42 | Bolt head                     |

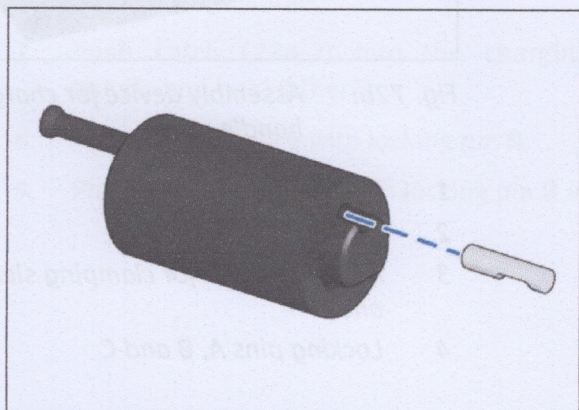


Fig. 71b: Inserting ejector into assembly tool for ejector.

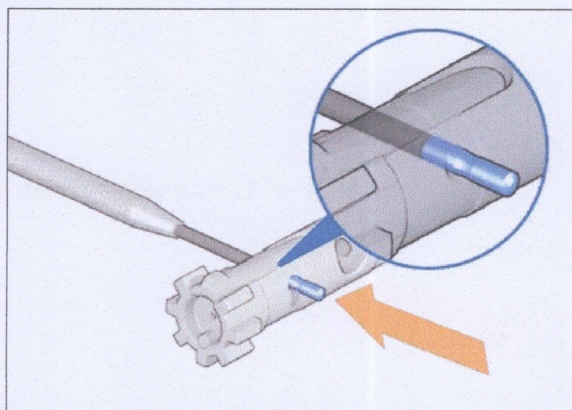


Fig. 71c: Driving in axle for extractor



## 10.4 Assembling the charging handle



The assembly device for charging handle also contains tools for the HK417. Not all of the tools are needed for assembly of the HK416.

### 10.4.1 Assembling the standard charging handle

*Required auxiliary materials:*

- Assembly device for charging handle
- Ø 1.4 mm pin punch
- Hammer

1. Place locking pin A (72b-4) in the mounting position (72b-2).
2. Insert pressure spring for catch (72a-30) into the charging handle (72a-29).
3. Push catch (72a-31) into the charging handle and hold it there.
4. Hold catch in place with locking pin A.
5. Place charging handle with locking pin A on the disassembly hole (72b-1). »

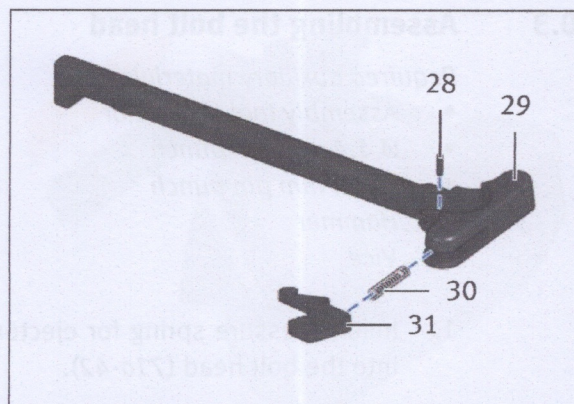


Fig. 72a: Charging handle

- 28 Clamping sleeve for catch
- 29 Charging handle
- 30 Pressure spring for catch
- 31 Catch

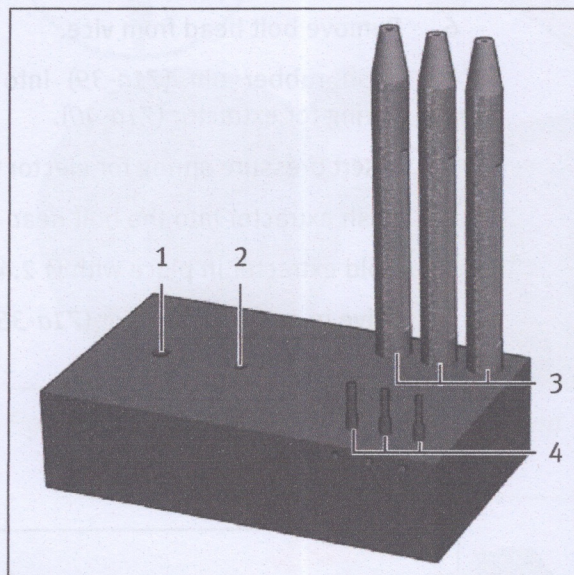


Fig. 72b: Assembly device for charging handle

- 1 Disassembly hole
- 2 Mounting position
- 3 Assembly tools for clamping sleeves A, B and C
- 4 Locking pins A, B and C



6. Insert clamping sleeve for catch (72a-28) into the assembly tool for clamping sleeves A (72b-3).

### NOTICE

#### **Danger of material damage!**

**The catch can become damaged if the catch is not held in place with locking pin A during assembly.**

- Hold catch in place with locking pin A during assembly.

7. Drive clamping sleeve for catch into the charging handle.

### 10.4.2 Assembling the convertible charging handle

#### *Required auxiliary materials:*

- Assembly device for charging handle
- Ø 1.8 mm pin punch
- Hammer

1. Place charging handle (73a-5) on the assembly device for charging handle.
2. Insert plate (73a-4) into the charging handle.
3. Drive clamping sleeve for catch (73a-2) into charging handle using Ø 1.8 mm pin punch.
4. Drive clamping sleeve (73a-3) into the charging handle.
5. Place locking pin B (72b-4) in the mounting position (72b-2).
6. Insert pressure spring for catch (73a-6) into the charging handle.
7. Push catch (73a-7) into the charging handle and hold it there.
8. Hold catch in place with locking pin B.
9. Place charging handle with locking pin B on the disassembly hole (72b-1). »

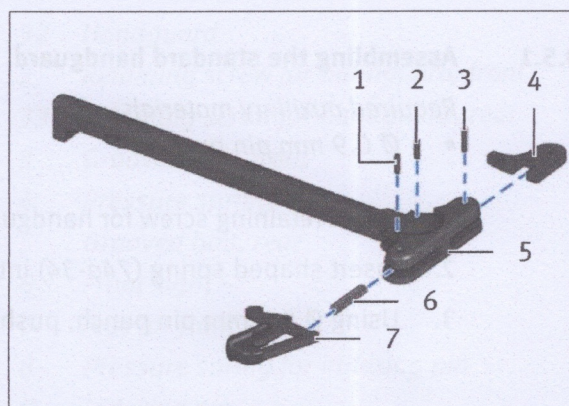


Fig. 73a: Charging handle, convertible

- |   |                           |
|---|---------------------------|
| 1 | Clamping sleeve for catch |
| 2 | Clamping sleeve           |
| 3 | Clamping sleeve for plate |
| 4 | Plate                     |
| 5 | Charging handle           |
| 6 | Pressure spring for catch |
| 7 | Catch                     |



10. Insert clamping sleeve for catch (73a-1) into the assembly tool for clamping sleeves B (72b-3).

#### NOTICE

**Danger of material damage!**

**Catch can become damaged if catch is not locked with locking pin B during assembly.**

- › Hold catch in place with locking pin B during assembly.

11. Drive clamping sleeve for catch into the charging handle.

## 10.5 Assembling the handguard

### 10.5.1 Assembling the standard handguard

*Required auxiliary materials:*

- Ø 0.9 mm pin punch

1. Insert retaining screw for handguard as far as assembly position (74b).
2. Insert shaped spring (74a-34) into the handguard (74a-32).
3. Using Ø 0.9 mm pin punch, push shaped spring into the handguard all the way.

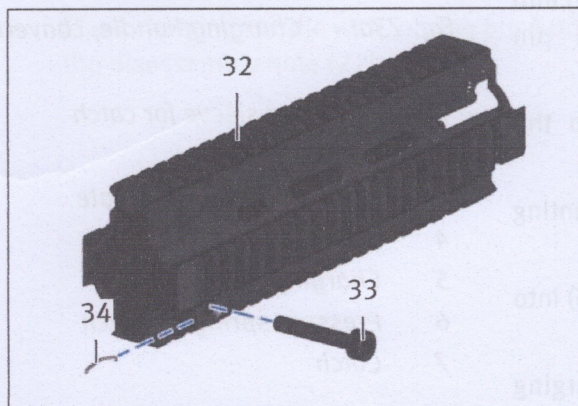


Fig. 74a: Handguard

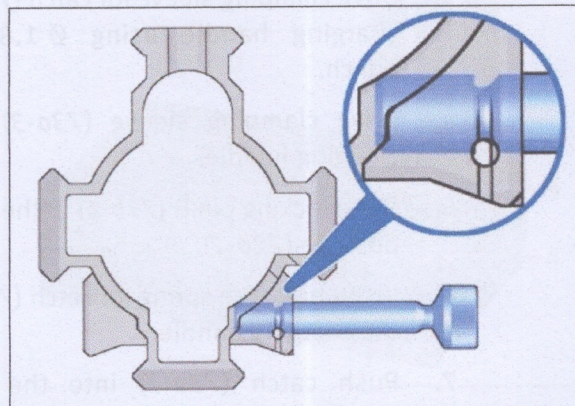


Fig. 74b: Assembly position of the retaining screw for handguard

- 32 Handguard
- 33 Retaining screw for handguard
- 34 Shaped spring



### 10.5.2 Assembling handguard with integrated front sight

Required auxiliary materials:

- Ø 0.9 mm pin punch
- Ø 2.4 mm pin punch
- 3.9 x 8 mm mounting pin

1. Insert front retaining screw for handguard (75a-2) into the handguard (75a-32).
2. Stand handguard up vertically.
3. Insert front grooved bolt (75a-3).
4. Insert pressure spring (75a-4).
5. Insert rear grooved bolt (75a-5).
6. Extract front retaining screw as far as the disassembly position.
7. Push in rear grooved bolt using Ø 2.4 mm pin punch and hold it there (75b-A).
8. Secure rear grooved bolt using Ø 0.9 mm pin punch (75b-B).
9. Insert rear retaining screw for handguard (75a-33) into the handguard.
10. Remove Ø 0.9 mm pin punch.
11. Insert pressure spring for locking bolt (75a-11) into locking bolt (75a-10).
12. Insert locking bolt with pressure spring for locking bolt into handguard.
13. Insert pressure spring for indexing pin (75a-8) into front sight (75a-6).
14. Insert indexing pin (75a-9) into front sight.
15. Insert mounting pin into front sight.
16. Insert front sight into handguard.
17. Drive in axle for front sight (75a-7), at the same time extracting the mounting pin.

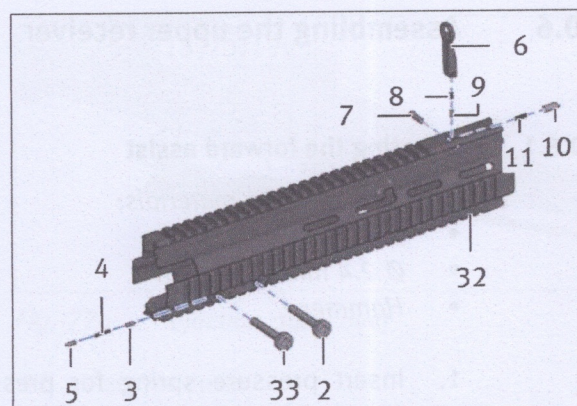


Fig. 75a: Handguard with integrated front sight

- |    |                                      |
|----|--------------------------------------|
| 32 | Handguard                            |
| 2  | Retaining screw for handguard, front |
| 33 | Retaining screw for handguard, rear  |
| 3  | Grooved bolt, front                  |
| 4  | Pressure spring                      |
| 5  | Grooved bolt, rear                   |
| 6  | Front sight                          |
| 7  | Axle for front sight                 |
| 8  | Pressure spring for indexing pin     |
| 9  | Indexing pin                         |
| 10 | Locking bolt                         |
| 11 | Pressure spring for locking bolt     |

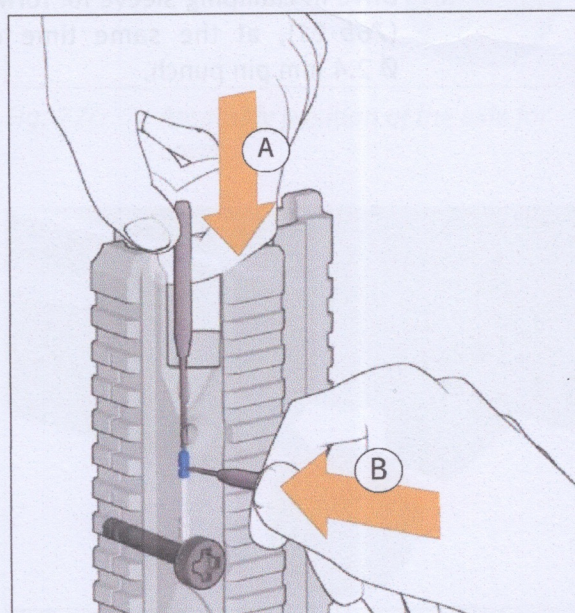


Fig. 75b: Assembling the handguard



## 10.6 Assembling the upper receiver

### 10.6.1 Inserting the forward assist

*Required auxiliary materials:*

- Ø 1.4 mm pin punch
- Ø 2.4 mm pin punch
- Hammer

1. Insert pressure spring for pressure bolt (76a-24) into the retainer (76a-27).
2. Insert pressure bolt for forward assist (76a-23) into the retainer.
3. Insert catch piece for forward assist (76a-25) into the retainer and hold in place with Ø 1.4 mm pin punch.
4. Drive in clamping sleeve for catch piece (76a-26), at the same time extracting Ø 1.4 mm pin punch.
5. Place pressure spring for forward assist (76b-22) on the retainer.
6. Insert retainer with pressure spring for forward assist into upper receiver.
7. Hold retainer in place with Ø 2.4 mm pin punch.
8. Drive in clamping sleeve for forward assist (76b-21), at the same time extracting Ø 2.4 mm pin punch.

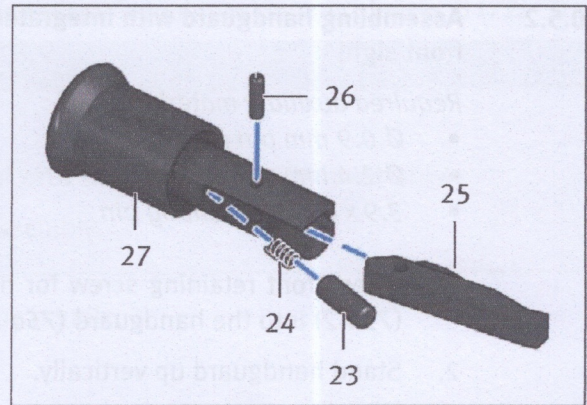


Fig. 76a: Forward assist

- 23 Pressure bolt for forward assist
- 24 Pressure spring for pressure bolt
- 25 Catch piece for forward assist
- 26 Clamping sleeve for catch piece
- 27 Retainer

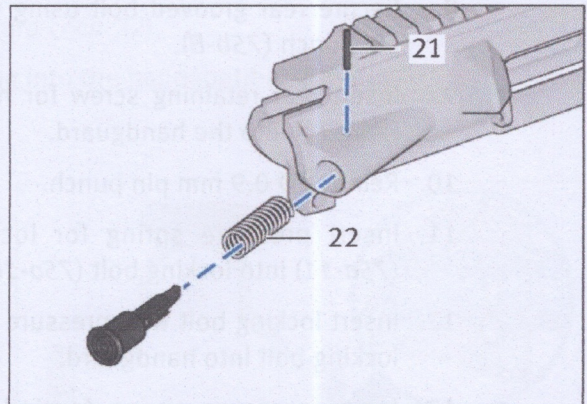


Fig. 76b: Forward assist, pressure spring and clamping sleeve

- 21 Clamping sleeve for forward assist
- 22 Pressure spring for forward assist



**10.6.2 Inserting the ejection port cover**

*Required auxiliary materials:*

- Ø 1.4 mm pin punch
- Hammer

1. Insert axle for cover (77a-17) into upper receiver.
2. Hold ejection port cover (77a-18) in place from the rear using the axle for cover.
3. Hold elbow spring (77a-20) in place a third of the way using the axle for cover.
4. Twist front arm of the elbow spring into the recess in the ejection port cover (77b).
5. Push axle for cover forwards into the assembly position (77c).
6. Drive in clamping sleeve using Ø 1.4 mm pin punch (77d).

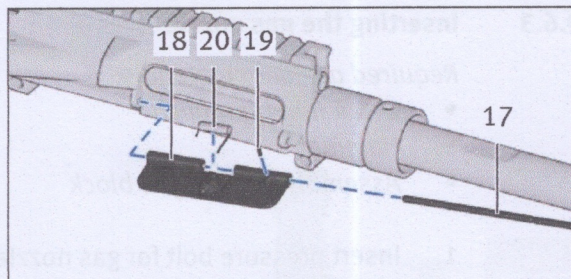


Fig. 77a: Ejection port cover

- 17 Axle for cover
- 18 Ejection port cover
- 19 Clamping sleeve
- 20 Elbow spring

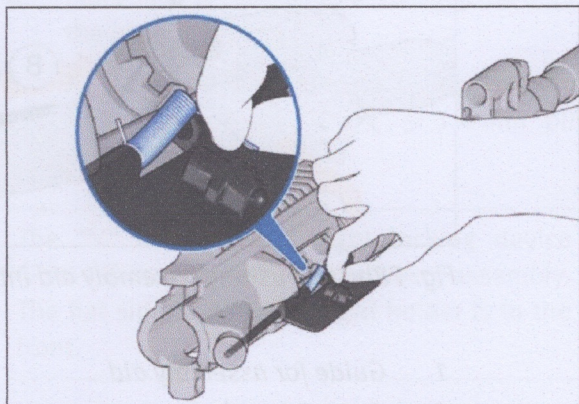


Fig. 77b: Twisting the elbow spring

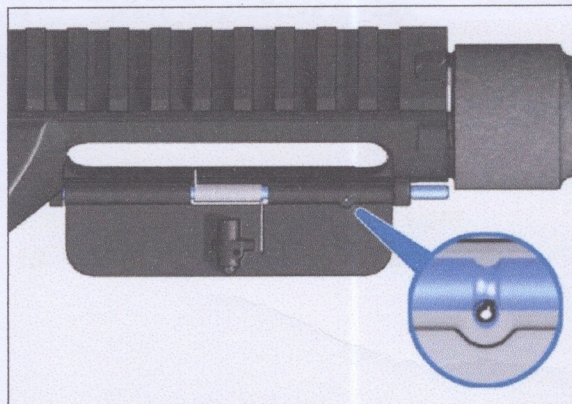


Fig. 77c: Assembly position of the axle for cover

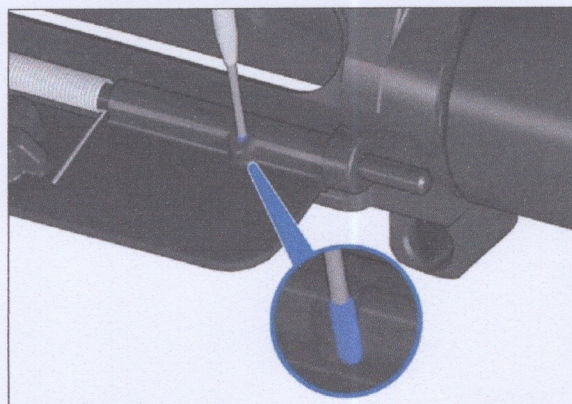


Fig. 77d: Driving in clamping sleeve



### 10.6.3 Inserting the gas nozzle

Required auxiliary materials:

- Ø 1.4 mm pin punch
- Hammer
- Assembly tool for gas block

**S/N** 1. Insert pressure bolt for gas nozzle (78a-13) into the gas block.

**S/N** 2. Insert pressure spring for pressure bolt (78a-14) into the gas block.

**S/N** 3. Insert guide for assembly aid into hole for gas piston (78b-A).

**S/N** 4. Push assembly aid through the guide for assembly aid and into the gas block and hold it there (78b-B).

**S/N** 5. Drive in clamping sleeve from the left using Ø 1.4 mm pin punch (78b-C).

**S/N** 6. Assemble gas nozzle (78a-11).

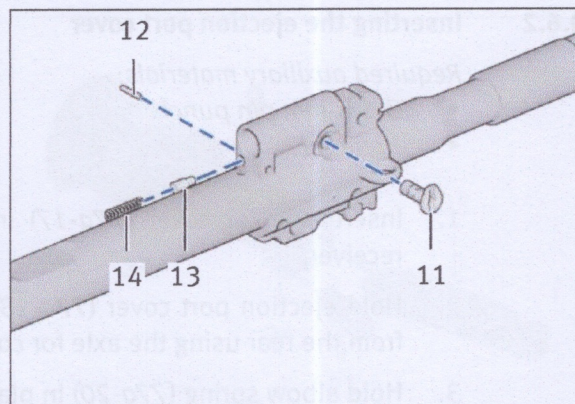


Fig. 78a: Gas nozzle

11 Gas nozzle

12 Clamping sleeve

13 Pressure bolt for gas nozzle

14 Pressure spring for pressure bolt

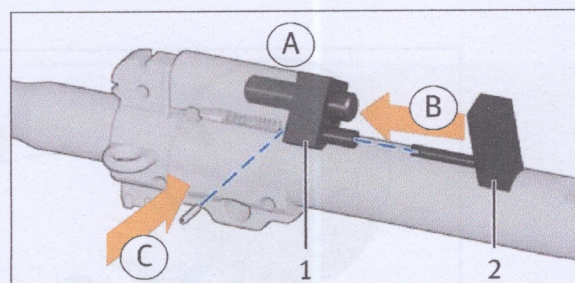


Fig. 78b: Pushing assembly aid into the gas block

1 Guide for assembly aid

2 Assembly aid



## 1 Using this manual

### 1.1 Purpose of this manual

The first part of this manual (“General principles”) describes the fundamental principles for using this manual. The second part (“Maintenance and checks”) describes maintenance and inspection work on the weapon. The third part (“Disassembly and assembly”) describes the complete disassembly and assembly of the weapon.

### 1.2 Target audience for this manual

This manual is intended for trained firearms technicians. This manual assumes good mechanical knowledge and knowledge of firearms.

### 1.3 Requirements for performing the activities in this manual

You may perform the activities described in this manual only if you meet the following requirements:

- you have successfully completed a technician training course for the weapon described here,
- you have read and understood this maintenance manual completely,
- you have mastered the activities described in this maintenance manual,
- you have read and understood the operator’s manual for the weapon described here completely,
- and you have mastered the activities described in the operator’s manual.



#### 10.6.4 Inserting the front sight

Required auxiliary materials:

- Ø 1.4 mm pin punch
- Ø 3.4 mm pin punch
- Hammer

1. Insert front sight (79a-8) into the front sight holder (79a-7) with the marking to the rear.



The hole in the front sight holder (79a-7) has a shoulder. The clamping sleeve for front sight (79a-9) can only be driven in from the rear. The flat side of the front sight holder is to the front.

2. Drive in clamping sleeve for front sight (79a-9) using Ø 3.4 mm pin punch.
3. Insert pressure spring (79a-5) into the front sight holder.
4. Place sleeve for pressure spring (79a-4) on the pressure spring.
5. Push sleeve for pressure spring into the front sight holder using Ø 3.4 mm pin punch and hold it there.



The "V" on the front sight locking device (79a-10) must face forwards during assembly. The flat side of the front sight holder is to the front.

6. Insert front sight locking device (79a-10) into the front sight holder.
7. Place front sight holder on the gas port.
8. Insert axle for front sight (79a-3).
9. Drive in clamping sleeve (79a-6) using Ø 1.4 mm pin punch.

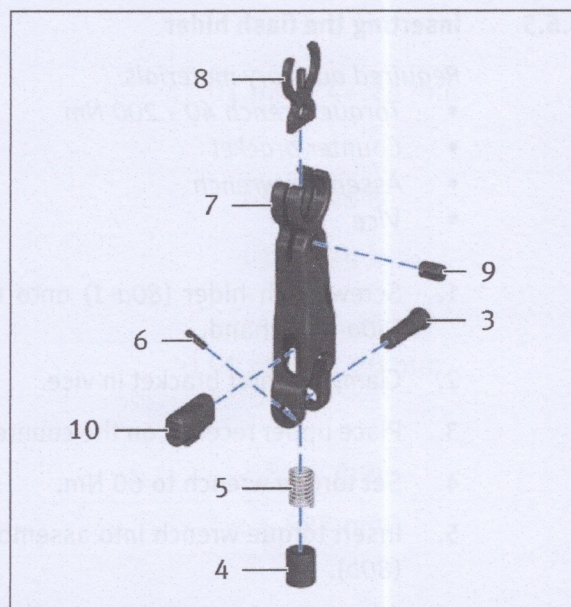


Fig. 79a: Front sight

- |    |                                 |
|----|---------------------------------|
| 3  | Axle for front sight            |
| 4  | Sleeve for pressure spring      |
| 5  | Pressure spring                 |
| 6  | Clamping sleeve                 |
| 7  | Front sight holder              |
| 8  | Front sight                     |
| 9  | Clamping sleeve for front sight |
| 10 | Front sight locking device      |



### 10.6.5 Inserting the flash hider

Required auxiliary materials:

- Torque wrench 40 - 200 Nm
- Counter bracket
- Assembly wrench
- Vice

1. Screw flash hider (80a-1) onto the barrel (80a-2) by hand.
2. Clamp counter bracket in vice.
3. Place upper receiver on the counter bracket.
4. Set torque wrench to 60 Nm.
5. Insert torque wrench into assembly wrench (80b).
6. Tighten flash hider using assembly wrench until the torque is reached (80c).

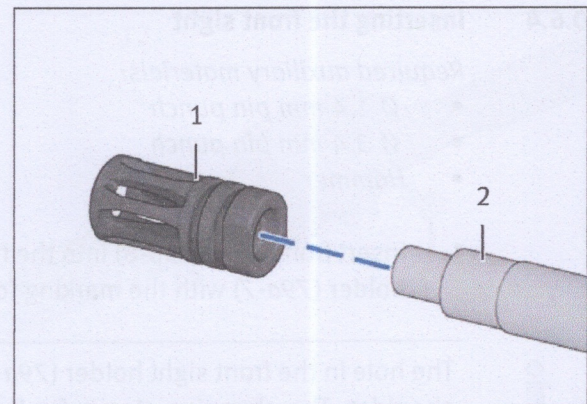


Fig. 80a: Flash hider

- |   |             |
|---|-------------|
| 1 | Flash hider |
| 2 | Barrel      |

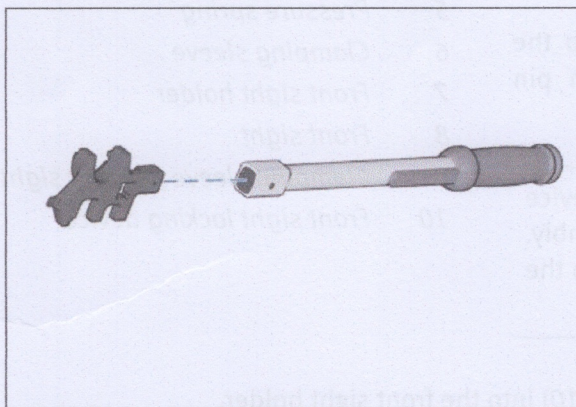


Fig. 80b: Inserting the torque wrench

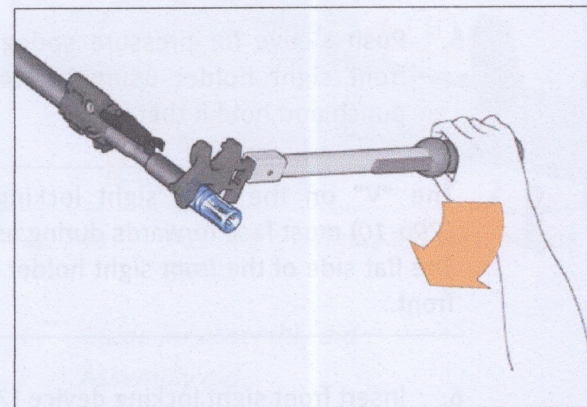


Fig. 80c: Tightening the flash hider



<b>Checking headspace</b>	
Headspace	47.01 mm - 47.24 mm
<b>Checking trigger pull</b>	
Trigger pull of standard trigger	23 N - 46 N
Trigger pull of 2-stage trigger	13 N - 25 N
<b>Checking firing pin protrusion</b>	
Firing pin protrusion	0.90 mm - 1.20 mm
<b>Checking barrel wear</b>	
Inner diameter of the barrel, chamber end	< 5.61 mm
Inner diameter of the barrel, muzzle end	< 5.585 mm
<b>Checking point of impact</b>	
Point-blank shot at a range of	100 m

**Dimensions and values for  
maintenance checks**



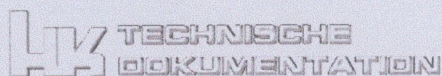


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# No Compromise

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Quality . Innovation . Service . Safety



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## 1.4 Warnings, notes and information

In order to ensure the greatest possible degree of safety during operation, important information and technical notes are specially highlighted.

### 1.4.1 Warnings and warning levels

Warnings are depicted as follows (example):




#### **DANGER**

**Risk of death from gunshot wounds!**

**Accidental discharge of weapon may occur when loaded weapon is handled.**



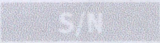


- › Carry out a safety check before working on the weapon.
- › Do not perform maintenance work until you have read and understood this manual and the operator's manual for the weapon described here completely.
- › Follow the safety instructions when handling the weapon.

The following colours and signal words are used in the warnings to indicate various danger levels:

Colour / signal word	Meaning
 <b>DANGER</b>	Direct, imminent danger! Non-compliance will lead to death or extremely serious injury.
 <b>WARNING</b>	Possible imminent danger! Non-compliance could lead to death or serious injury.
 <b>CAUTION</b>	Dangerous situation! Non-compliance could lead to minor injuries.
<b>NOTICE</b>	Non-compliance could lead to material damage.



## 1.4.2 Symbols used

Symbol	Meaning
	Supplementary information on the weapon, on practical handling of the weapon or on using this manual.
1. / 1.	Call to perform an action in a sequence of actions: Here you have to do something!
	Stand-alone call to perform an action or call to perform an action in a warning: Here you have to do something!
»	The sequence of actions is not complete, and is continued on the next page: Please turn the page!
•	Bullet point
	Action to be performed only for weapons with adjustable gas port.
	The check was successful.
	The check was not successful: Follow the specified call to perform an action!