HK243 semi-automatic rifle Calibre .223 Rem.



Operator's Manual



HK243 semi-automatic rifle Calibre .223 Rem.





Table of contents

Part I Description

1	Using this manual	3		
1.1	Purpose of this manual	3		
1.2	Target audience for this manual			
1.3	Safety instructions, notes and information	3		
2	Safety instructions	8		
2.1	Fundamental safety instructions	8		
2.2	The operator's manual as an integral component of the safety concept	9		
2.3	Safety instructions for handling the weapon	9		
2.4	Safety instructions for firing1	1		
2.5	Safety instructions for utilising accessories and ammunition1	2		
2.6	Exclusion of liability and warranty1	2		
3	Description of the weapon1	3		
3.1	Intended use1	3		
3.2	Functional elements1	4		
3.3	Assembly groups1	6		
3.4	Safety features1	7		
4	Versions1	8		
4.1	Handguard1	8		
4.2	Sights1	9		
4.3	Colour2	0		
4.4	Buttstock	1		
4.5	Optional equipment features2	3		
4.6	Examples of configurations2	4		
4.7	Technical data of the versions2	5		
5	Cleaning kit and auxiliary materials2	7		
5.1	Cleaning device (Ident. No. 210544)2	7		

5.2	Auxiliary materials	28
-----	---------------------	----

Part II Handling

6	Checks	
6.1	Carry out a safety check	31
6.2	Carry out function check	32
7	Preparations	
7.1	Lock bolt group into place and guide forwards	34
7.2	Use forward assist	35
7.3	Use forward grip	
7.4	Use 45° forward grip	
7.5	Use bipod	37
7.6	Using the Picatinny rail	41
7.7	Use buttstock	42
7.8	Using adapter for carrying sling	44
7.9	Use the carrying sling	46
7.10	Use magazine	49
7.11	Use sights	51
7.12	Adjust sights	55
7.13	Remove / insert flash hider	58
7.14	Remove / insert muzzle thread protector	58
7.15	Prepare weapon for firing	59
7.16	Additional preparations in unusual climatic conditions	60
8	Operation	62
8.1	Insert magazine	62
8.2	Load the weapon	62
8.3	Firing position and aiming	63
8.4	Firing	65
8.5	Remove magazine	65



13	Protection, packaging and storage	. 91		
12	Faults: Causes and remedies	. 88		
11.7	Insert handguard	.87		
11.6	Assemble parts of gas operation			
11.5	Insert pistol grip	.85		
11.4	Insert magazine well	.84		
11.3	Insert bolt group and back plate	.84		
11.2	Assemble bolt group	.83		
11.1	Assemble weapon			
11	Assembly	. 83		
10.7	Lubricate weapon	.82		
10.6	Clean parts of gas operation	.81		
10.5	Clean barrel	.78		
10.4	Clean assembly groups	.77		
10.3	Clean weapon	.77		
10.2	Maintenance plan	.73		
10.1	General instructions for cleaning			
10	Cleaning	. 72		
9.7	Disassemble bolt group	.71		
9.6	Remove back plate and bolt group	.70		
9.5	Remove magazine well	.70		
9.4	Remove pistol grip	.69		
9.3	Remove parts of gas operation	.69		
9.2	Remove handguard	.68		
9.1	Disassemble weapon			
9	Disassembly	. 67		
8.8	Empty magazine6			
8.7	Unload weapon6			
8.6	Reload weapon	.66		

13.1	Protect the weapon	.91
13.2	Package the weapon	.91
13.3	Store the weapon	.92
14	Transport and shipping	93
14.1	Prepare the weapon for transport	.93
14.2	Transport and ship the weapon	.93
15	Destruction and disposal	94
15.1	Destroy the weapon	.94
15.2	Dispose of the weapon	.94
	Index of keywords	95

Part I

Description



1 Using this manual

This operator's manual describes all product variants and serial or special furnishings which are offered in the product family. For that reason, this operator's manual also describes and depicts equipment and functions which are not present on your weapon, e.g. due to the special furnishings selected.

Specific subjects can be found most quickly with the table of contents or index of keywords at the end of this operator's manual. For an overview of the weapon, it is recommended to see the first part ("Description") of this operator's manual.

1.1 Purpose of this manual

The first part of this manual ("Description") describes the design and function of the weapon, and the second part ("Handling") describes the handling of the weapon.

1.2 Target audience for this manual

This manual is intended for persons who are authorised to use this weapon. This manual does not assume extensive technical or weapons-specific knowledge.

1.3 Safety instructions, notes and information

To ensure the greatest possible safety during handling, important information and technical notes are specially highlighted.



1.3.1 Safety instructions and danger levels

Safety instructions are depicted as follows (example):

A DANGER

Risk of death from gunshot wounds!

Accidental discharge of weapon may occur due to external influences when loaded weapon is handled.

- > Do not use the weapon until you have read and understood this manual completely.
- > Follow the safety instructions when handling the weapon.
- > Carry out a safety check before working on the weapon.

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

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

1

Using this manual Safety instructions, notes and information 1.3



Symbols used 1.3.2

Symbol	Meaning
0	Supplementary information regarding weapon and accessories.
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 ac- tion in a safety instructions: Here you have to do something!
	Cross reference between individual sections: Open to the relev- ant page and follow the section described there! The sections can be found most quickly with the index of keywords at the end of this manual.
•	Bullet point
\checkmark	Call to perform an action properly implemented. The check was successful.
×	Call to perform an action improperly implemented. The check was not successful: Follow the specified call to per- form an action!
click!	Here something engages.
	Here you have to observe something.

1.3.3 Symbols for auxiliary materials



The following table explains symbols for auxiliary materials which may appear in operation and maintenance manuals from Heckler & Koch. The symbols are shown in the illustrations and indicate which auxiliary materials are needed for which actions.

Symbols for auxiliary materials					
	Hammer		Pliers such as assembly pliers		Screwdriver
30 Nm	Torque, e.g. 30 Nm		Pointed object, such as a pin punch	ł	Vice
1.8	Pin punch, e.g. size 1.8 mm	17	Open jawed span- ner, e.g. size 17 mm	3.5	Screwdriver, e.g. 3.5 x 100 mm screwdriver
2	Screwdriver, e.g. size PH2	6	Allen key, e.g. size 6 mm	(2) 15	Offset screwdriver, e.g. size TX15
oil	Oil	GLUE	Adhesive		

1.3.4 Conventions for illustrations



Details in illustrations can - depending on the variant - deviate from your current weapon and/or the accessories.

The information "right," "left," "front" and "rear" refers to the position of the weapon and/or accessories as viewed from the direction of fire.

Illustrations and their constituent elements are identified as follows:

- 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.
- Calls to perform an action are indicated by upper-case letters enclosed in circles.

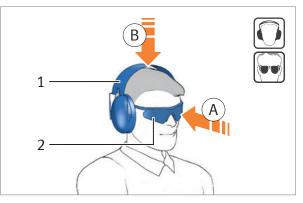


Fig. 1: Example of an illustration

- 1 Hearing protection
- 2 Safety goggles

1.3.5 Conventions for cross references

Cross references represent relationships between the text and an illustration or an individual section.

- Cross references between text and illustrations are in *italics* and enclosed in (brackets), e.g. (*Fig.* 1).
- Cross reference between individual sections are marked with the symbol ► (*Fig. 2*).

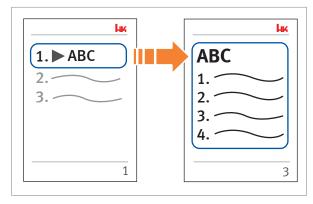


Fig. 2: Example of a cross reference between sections

2 Safety instructions

2.1 Fundamental safety instructions

The weapon has been designed, manufactured and proofed 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.

Please inform yourself with regard to the current edition of the safety instructions via www.heckler-koch.com.

- > Follow all of the instructions in this operator's manual. Non-compliance may result in injury or death.
- > Never handle the weapon if you are tired, feeling unwell, or when you have previously consumed alcohol, drugs or any types of medicines.
- > Always follow the instructions provided by their respective manufacturers when using accessories and ammunition.
- > Always follow the safety data sheets and details or instructions from the respective manufacturers when using hazardous materials, such as e.g. oils, lubricants and cleaning agents.
- > Always follow all valid provisions for handling weapons, accessories and ammunition.
- > Always follow all valid provisions for handling hazardous materials, such as e.g. oils, lubricants and cleaning agents.



2.2 The operator's manual as an integral component of the safety concept



The operator's manual is an integral component of the weapon.

- > Do not use the weapon until you have read and understood this operator's manual completely.
- Always adhere to the stated sequence for handling stages in the operator's manual.
- > Keep the operator's manual for the entire service life of the weapon.
- > Please inform yourself with regard to the current edition of the operator's manual, safety instructions and any relevant supplements via www.heckler-koch.com.
- > If you receive any supplements or amendments, be sure to add them to the operator's manual.
- > Always pass the operator's manual and the enclosed supplements on to any subsequent operator or owner.

2.3 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 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.
- > Until you have performed a safety check, treat the weapon as if it was loaded and the safety released.
- > Use the weapon only if it is in perfect technical condition.
- > Do not play with the weapon.

2.3.1 Handling

- > Never point the weapon at people when handling or practising with it.
- > Make sure that the weapon is always unloaded when it is handled for purposes other than loading or firing.
- > Do not touch the trigger when loading, unloading, aiming, disengaging the safety 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.

2.3.2 Safety features

- > Do not rely on safety features. Safety features are no substitute for careful, correct handling of the weapon.
- > For weapons with safety lever, make sure that the safety lever is always clicked to the "Safe" position.

2.3.3 Malfunctions and unusual encumbrances



Users are strictly prohibited from troubleshooting faults that go beyond the scope of this manual! Only authorised specialists may rectify faults in the weapon.

- > Always treat the weapon as if it were loaded in the event of a malfunction.
- > 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. After exceptional stresses, have the weapon inspected by the manufacturer or trained firearms personnel.

2.3.4 Handing over the weapon

- > Do not entrust the weapon to anyone who has not comprehensively read and completely understood this operator's manual.
- > Do not entrust the weapon to anyone who is not entitled to possess the weapon. Observe applicable regulations.
- > Never handover or receive the weapon unless it is unloaded and the slide is in the open position.
- > Handing over and receiving military small firearms: Never handover or receive the weapon unless it is unloaded and the slide is in the open position. The weapon must be unloaded and the barrel must be in the open position in the case of launching devices. The weapon must be unloaded, the cover, the feed tray and the slide must be in the open position in the case of machine guns. The weapon must be unloaded, the cover and the slide must be in the open position in the case of automatic grenade launchers.

2.3.5 Storage, transport and disposal

- > Store weapon and ammunition separately. Be sure to prevent access to the weapon and ammunition by unauthorised persons, especially children.
- Always follow the applicable provisions for the transport and shipping of weapons and ammunition.

> Always follow the applicable provisions for destroying and disposal of weapons and ammunition.

2.3.6 Additional information

- Always prevent dry firing of the hammer with weapons with a hammer sidelock. Dry firing of the hammer can lead to premature wear.
- > Always prevent dry firing of the firing pin with weapons with a firing pin hammer. Dry firing of the firing pin can lead to premature wear.
- Always prevent snapping forward of the bolt group with rapid firing weapons such as e.g. machine guns. Snapping forwards of the bolt group can lead to premature wear.

2.4 Safety instructions for firing

- > Wear hearing protection when firing.
- > Wear safety goggles when firing.
- > Keep the muzzle area clear when firing.
- > Wear protective gloves when touching the barrel or parts which heat up during firing after firing.
- > Use only properly loaded, undamaged cartridges of the correct calibre.
- > 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.
- > The trigger must be pulled back completely when firing. The trigger must be released completely and return to the forward position after every shot when firing in rapid succession.
- > Only actuate the trigger after you have snapped the safety lever into the desired firing selection position.
- > Keep your hands out of the slide when firing.



2

2.5 Safety instructions for utilising accessories and ammunition

- > Inspect the attachments mounted on the weapon for secure seating before firing and at regular intervals.
- Use only properly loaded, undamaged cartridges of the correct calibre. Σ
- The use of muzzle attachments such as silencers or blank firing attachments places > greater stress on the weapon and gets it dirty faster. Clean the weapon at shorter intervals.

2.6 **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 (except for accessories from other manufacturers mentioned in this manual).



3 Description of the weapon

The HK243 semi-automatic rifle is a semi-automatic, gas-operated weapon with rotating bolt head in .223 Remington calibre. The sports rifle is based on the G36 design. It has been specially designed for dynamic disciplines and is based on the high quality standards of the G36 used for military purposes.



Fig. 3: Scope of supply

- 1 Weapon
- 2 Magazine
- 3 Operator's Manual

3.1 Intended use

The semi-automatic rifle HK243 is a small arm for sport shooting at a range of up to:

Mechanical rear sight	Optical sight
approx. 300 m	approx. 500 m

Functional elements 3.2

3

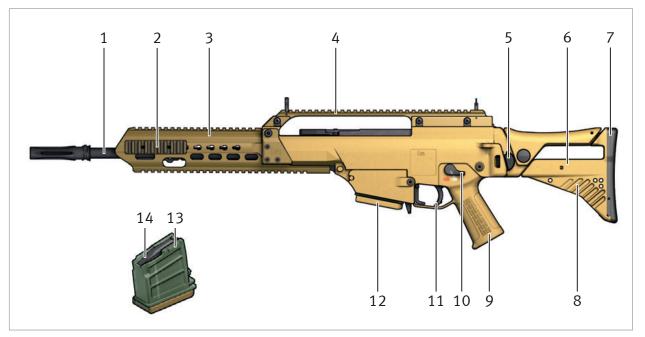


Fig. 4: HK243, elevation from the left

- Barrel 1
- 2 Picatinny rail
- Handguard 3
- Sight rail 4
- Unlocking button for buttstock 5
- 6 Buttstock
- 7 Buttstock cap

- 8 *Release lever for buttstock*
- 9 Pistol grip
- 10 Safety lever, ambidextrous
- Trigger 11
- Magazine 12
- 13 Magazine lips
- Follower 14



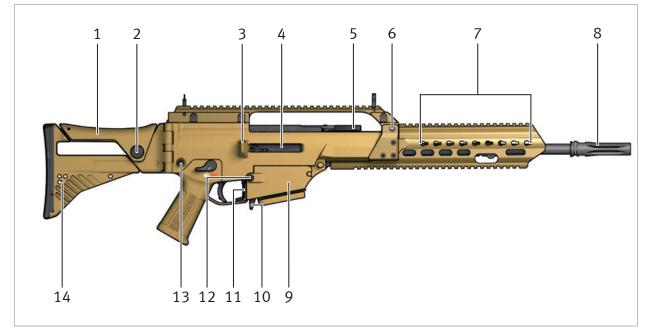


Fig. 5: HK243, elevation from the right

- 1 Cheek rest
- 2 Cheek rest release mechanism
- 3 Cartridge case deflector
- 4 Ejection port
- 5 Charging handle
- 6 Screw for handguard
- 7 Mounting points, both sides

- 8 Flash hider
- 9 Magazine well
- 10 Magazine catch
- 11 Bolt catch/release
- 12 Locking pin for magazine well
- 13 Locking pin for pistol grip
- 14 Locking pin receptacle



Assembly groups 3.3

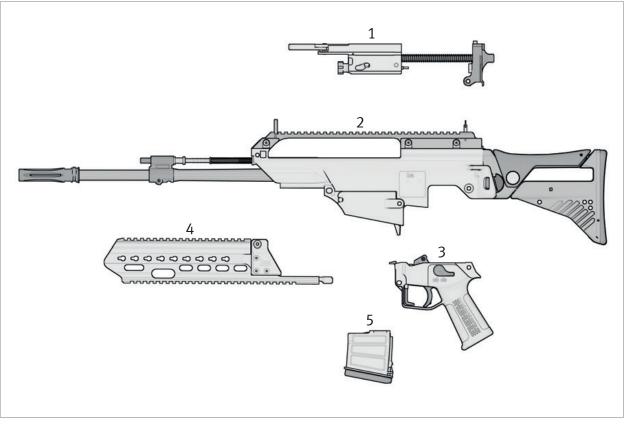


Fig. 6: Assembly groups

- Bolt group with back plate and recoil Handguard 1 4 spring
- *Receiver with barrel and add-on parts* 2 5
- Pistol grip 3

- Magazine



3.4 Safety features

3.4.1 Safety lever

The safety lever prevents accidental actuation of the trigger. In the "Safe" position (*Fig. 7*) the safety roller blocks the trigger. Only when the safety lever is clicked to the "Single fire" position (*Fig. 8*) will the safety roller release the trigger.

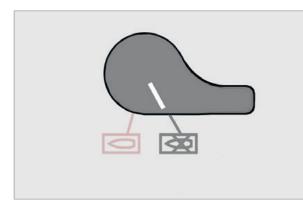


Fig. 7: "Safe" position



Fig. 8: "Single fire" position

3.4.2 Firing pin safety

The firing pin safety prevents the firing pin from being able to strike the cartridge primer in the event of an accidental discharge, for instance if the weapon is dropped. The firing pin remains blocked until the trigger is pulled.

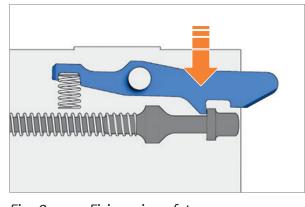


Fig. 9: Firing pin safety

4 Versions

Ĭ

The weapon features a modular structure and can be configured individually for the specific purpose of use depending on the customer's requirements.

The following chapters show the weapon's possible furnishings and functions.

4.1 Handguard

Various types of handguards are available for the HK243. A plastic or aluminium version can be selected between depending on requirement. Other equipment features, such as Picatinny rails for attaching accessories, are also possible.

Aluminium handguard

The aluminium handguard is fastened to the receiver by a screw. The HKey interfaces can be used to attach a wide variety of accessories.

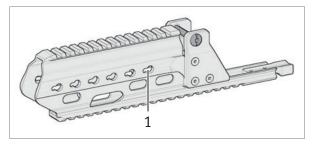


Fig. 10: Aluminium version

1 HKey interfaces

Polymer handguard

The polymer handguard is held in place on the receiver by a locking pin. The carrying sling can be fastened to the eye. Mounting points allow Picatinny rails to be attached.

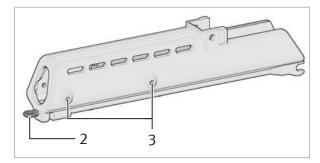


Fig. 11: Polymer version

- 2 Eye for carrying sling
- 3 Mounting points for Picatinny rail

4.2 Sights

Various types of sights are available for the HK243. Various sight rails or carrying handles with optical sights can be selected between depending on requirement.

Illustration	Feature
Andreamanna and a start and a	Sight rail "Version A"
Annonnonnanna .	Sight rail "Version B" – integrated folding rear sight (dioptre sight)
Re e	Sight rail "Version C" – removable quick-release sight
	Carrying handle – integrated telescopic sight – 1.5x or 3x magnification – optional: with Picatinny rail (A) – optional: with reflex sight(B)

Reflex sight

The reflex sight is attached to the rear part of the carrying handle. It serves as a quick sight for ranges up to approx. 150 m which can be aimed with both eyes without impairing the field of vision. The reflex sight has optics with a luminous red dot. During daylight, the light supplied by the light collector is enough to power the luminous dot. During dusk or darkness, the light is supplied by the built-in illumination.

Telescopic sight

The telescopic sight is integrated into the carrying handle. It is equipped with a special optical sight reticle. It serves as a sight for ranges up to approx. 800 m.

4.3 Colour

Illustration	Feature	Information
	Colour	Available in various colour concepts, such as e.g.: "SW", black (standard colour) "GB", green brown (similar to RAL8000)

4.4 Buttstock

Various types of buttstocks are available for the HK243. There is a standard buttstock or adjustable buttstock to choose from depending on requirement. All buttstocks are folding. Different lengths are also available. Other equipment features, such as a cheek rest or interchangeable buttstock caps, are also possible. The open-framed design of the buttstock allows firing with the buttstock folded.

Illustration	Feature
	Standard buttstock — foldable
	Standard buttstock – foldable – with cheek rest
	Adjustable buttstock – foldable – adjustable in 3 positions – with cheek rest
	Adjustable buttstock – foldable – adjustable in 4 positions – with adjustable cheek rest – buttstock cap convex or concave

Illustration	Feature
	Tactical buttstock – foldable – adjustable in 4 positions – removable cheek rest



4.5 **Optional equipment features**

Magazine

The magazine holds 10, 20 or 30 rounds depending on model. The magazine housing is made of transparent plastic. The number of cartridges can be seen from the outside. Connector studs on the magazine housing are available as an option. They allow magazines to be connected together.

Carrying sling

There are various carrying slings in different types, modes of functioning or fastening. The carrying sling enables various methods of carry. The buttstock can be extended or folded in doing so. The buttstock must always be extended for carry at the side or front of the body. The front snap-hook is to be attached to the handguard and the rear one to the eye on the receiver or, if the carrying sling is attached to the right side of the weapon, attached to a hole in the buttstock.

Flash hider / Muzzle thread protector

A flash hider or a muzzle thread protector can be mounted on the weapon as selectable. Various flash hiders are available.



Utilising a flash hider can impair the precision of the weapon.

Extended bolt catch/release

The weapon can be fitted with an optional extended bolt catch/release. The extended bolt catch/release serves to chamber another round when the magazine is empty.

4.6 Examples of configurations

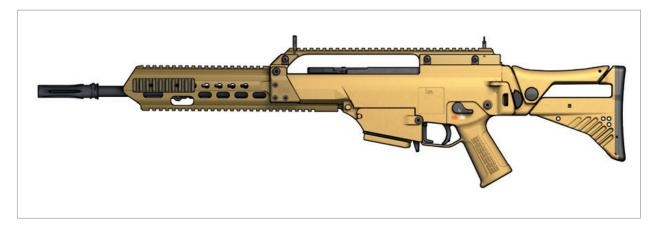
4.6.1 HK243 S SAR "Sporter Semi-Automatic Rifle"

Equipment: Polymer handguard, standard sight rail, standard buttstock, muzzle thread protector



4.6.2 HK243 S TAR "Sporter Tactical Automatic Rifle"

Equipment: Aluminium handguard, sight rail with integrated folding rear sight, adjustable buttstock, extended bolt catch/release, flash hider





4.7 Technical data of the versions

4.7.1 Dimensions

		HK243 S SAR	HK243 S TAR	
Α	Length, maximum	912 mm	892 mm	
В	Length, minimum	667 mm	681 mm	
С	Buttstock adjustment travel		40 mm	
D	Width, maximum	92 mm		
Е	Width, minimum	64 mm		
F	Height	234 mm	215 mm	
G	Cheek rest adjustment travel		17 mm	
н	Barrel length ₁	420 mm (16.5")		
I	Sight radius	267 mm	290 mm	

1 Without flash hider

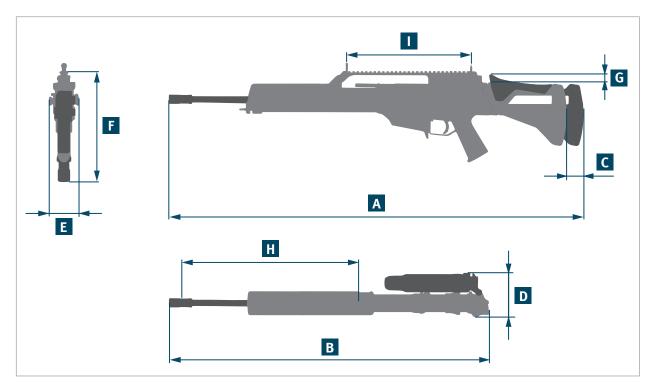


Fig. 12: Dimensions



4.7.2 Weight

The weapon's weight may vary depending on configuration.

	HK243 S SAR	HK243 S TAR	
Weapon without magazine	3210 g	3620 g	
Magazine, 10 cartridges (full) $_1$	19	195 g	
Magazine, 10 cartridges (empty)	70 g		

1 SWISS p-target 69gr HPBT ammunition

4.7.3 Muzzle velocity and muzzle energy

	HK243 S SAR	HK243 S TAR
Muzzle velocity -v ₀ -1	890 m/s	
Muzzle energy -E ₀ -1	1580 J	

¹ SWISS p-target 69gr HPBT ammunition

5 Cleaning kit and auxiliary materials

5.1 Cleaning device (Ident. No. 210544)

0

The cleaning kit is not included in the standard scope of supply for the weapon. The cleaning kit can be ordered from Heckler & Koch using the Ident.-No. shown.

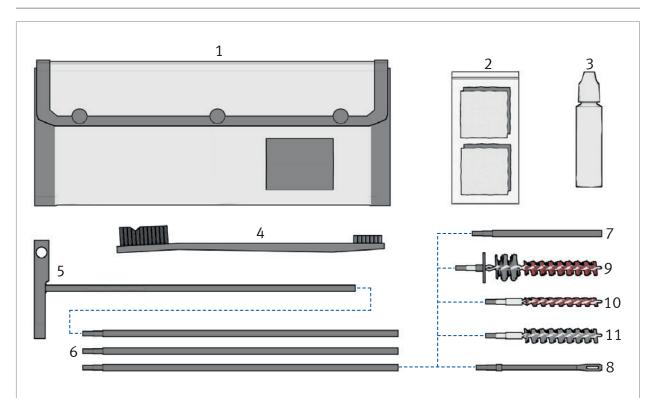


Fig. 13: Cleaning kit

Item	Designation	IdentNo.
	Cleaning kit (Pos. 1 - 11)	210544
1	Bag for cleaning kit	299172
2	Cleaning cloths	985527
3	Oil bottle	299175
4	Cleaning brush	988168
	Cleaning rod (Pos. 5 - 8)	985522
5	Handle rod	
6	Extension rod (3x)	
7	Adapter piece	

Item	Designation	IdentNo.
8	Pull-through holder	
9	Chamber cleaning brush	985524
10	Barrel cleaning brush	985523
11	Oil brush	985525

5.2 Auxiliary materials

0

Auxiliary materials are available from specialist dealers.

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

The following auxiliary materials are required in this manual:

- Pointed object (e.g. pin punch)
- Allen key 2 mm / 3 mm / 4 mm
- 3.5 x 100 mm screwdriver
- Torque wrench 2 10 Nm
- Torque wrench 6 50 Nm
- Screw bit 4 mm
- Torx insert TX15
- 17 mm open jaw spanner insert
- 19 mm open jaw spanner insert
- Low-temperature oil (MIL-L-14107), e.g. 0-157
- Oil (MIL-L-63460), e.g. S-761
- Grease
- Oil paper
- Cleaning rag
- Cleaning pull-throughs

Part II

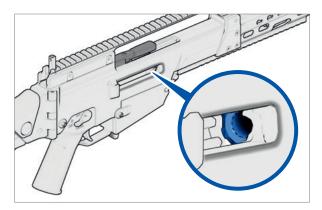
Handling

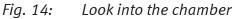
6 Checks

6.1 Carry out a safety check

Successful completion of a safety check verifies that there is no ammunition in the weapon. The safety check is especially important when giving or takeing a weapon and when you are unsure whether or not a weapon is loaded.

- 1. Click safety lever to the "Safe" position.
- 2. ► Remove magazine.
- 3. Lock bolt group into place.
- Look into the chamber (*Fig. 14*). There must not be a cartridge in the chamber. If there is a cartridge in the chamber, then a fault is present. ► Faults: Causes and remedies.





6.2 Carry out function check



Successful completion of a function check verifies that the weapon is functional. The function check is especially important after assembly of the weapon and after rectification of faults.

- 1. ► Carry out a safety check.
- 2. ► Remove pistol grip.
- 3. ► Check functioning of pistol grip in "Safe" position.
- 4. ► Check functioning of pistol grip in "Single fire" position.
- 5. ► Insert pistol grip.
- 6. Check free movement of bolt group and function of recoil spring.
- 7. If the function check is not successful, then a fault is present. ► Faults: Causes and remedies.

6.2.1 Check functioning of pistol grip in "Safe" position

- 1. Click safety lever to the "Safe" position.
- 2. Push the hammer completely to the rear.
- 3. Pull trigger. The hammer is not released.

6.2.2 Check functioning of pistol grip in "Safe" position

- 1. Click safety lever to the "Single fire" position.
- 2. Push the hammer completely to the rear.

A CAUTION

Risk of injury when the hammer snaps forwards! The hammer snaps forwards when the trigger is pulled.

- > Secure the hammer with your hand.
- > Move the hammer forwards slowly.
- 3. Hold hammer (Fig. 15).
- 4. Pull the trigger and hold it (*Fig. 15*).
- 5. Guide the hammer slowly forwards (*Fig. 15*).
- 6. Push the hammer completely to the rear The hammer will be held.
- 7. Release trigger.
- 8. Click safety lever to the "Safe" position.

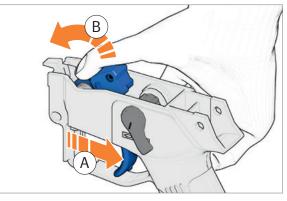


Fig. 15: Slowly guide hammer forwards

6.2.3 Check free movement of bolt group and function of recoil spring

- 1. Move charging handle all the way back and then forwards several times.
- 2. Let charging handle snap forwards.
- 3. Click safety lever to the "Single fire" position.
- 4. Pull trigger. The hammer is released.
- 5. Click safety lever to the "Safe" position.

7 Preparations

7.1 Lock bolt group into place and guide forwards

7.1.1 Lock bolt group into place

- 1. Pull charging handle back and hold it (*Fig. 16*).
- 2. Press bolt catch/release upwards and hold it (*Fig. 16*).
- 3. Guide charging handle forwards. The bolt group is held in rear position.

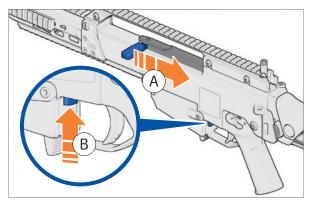


Fig. 16: Lock bolt group into place

7.1.2 Guide bolt group forwards



Initial state: Bolt group is locked in place.

The bolt catch/release holds the bolt group in the open position when there is an empty magazine in the weapon.

A CAUTION

Risk of injury when the bolt group snaps forwards! The bolt group snaps forwards when the charging handle is released.

- > Do not reach into the path of the bolt group.
- 1. Pull charging handle all the way back and hold it.
- 2. Move bolt group slowly forwards.



7.1.3 Let bolt group snap forwards with extended bolt catch/release



The extended bolt catch/release serves to hold the bolt group in the open position and allow reloading when the magazine is empty.



Initial state: Bolt group is locked in place.

A CAUTION

Risk of injury when the bolt group snaps forwards!

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

- > Do not reach into the path of the bolt group.
- Press bolt catch/release downwards.
 (*Fig. 17*). The bolt group snaps forwards.

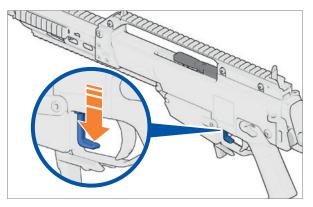


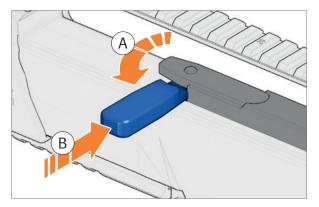
Fig. 17: Press bolt catch/release downwards

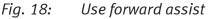
7.2 Use forward assist



The forward assist can be used to lock the bolt group manually in case of fouling.

- 1. Fold charging handle over and push it in. The charging handle engages in the bolt group (*Fig. 18*).
- 2. Push charging handle and bolt group forwards (*Fig. 18*).





7.3 Use forward grip

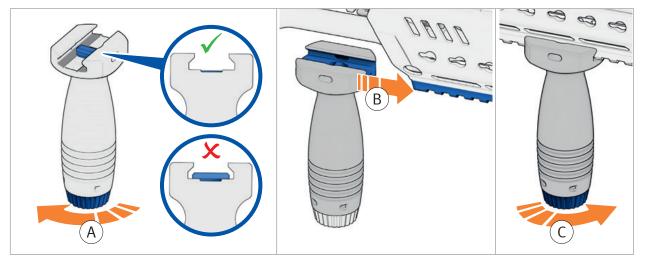


Fig. 19: Use forward grip

7.4 Use 45° forward grip

Required auxiliary materials:

• 4 mm Allen key

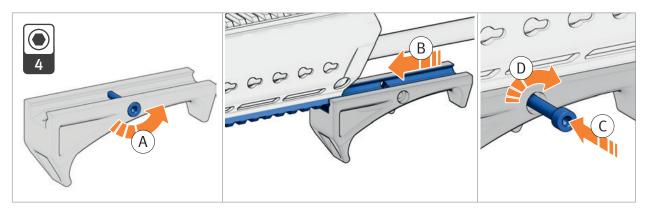


Fig. 20: Use 45° forward grip



7.5 Use bipod

7.5.1 Bipod versions

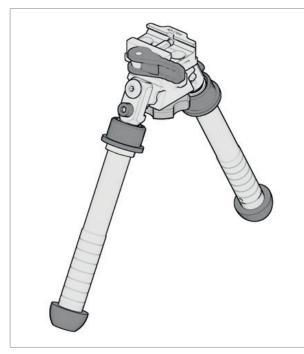


Fig. 21: Bipod "Variant A"

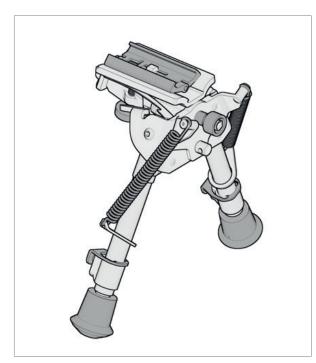


Fig. 23: Bipod "Variant C"

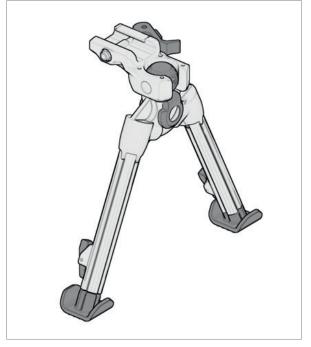


Fig. 22: Bipod "Variant B"

7.5.2 Bipod "Version A"

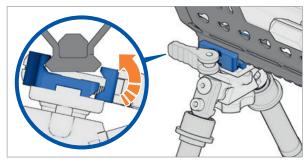


Fig. 24: Insert bipod

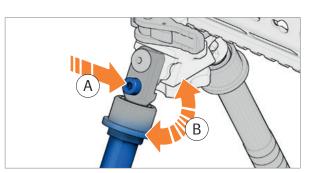


Fig. 26: Fold / unfold bipod

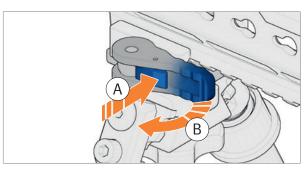


Fig. 28: Remove bipod

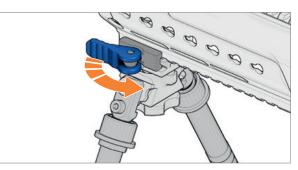


Fig. 25: Close quick-release lock

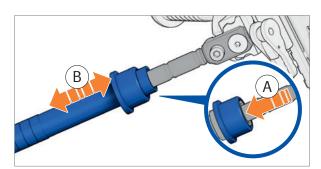


Fig. 27: Adjust bipod

7.5.3 Bipod "Version B"

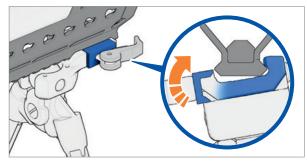


Fig. 29: Insert bipod

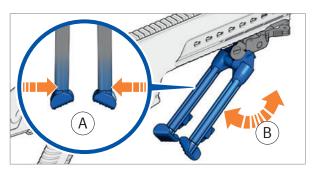


Fig. 31: Fold / unfold bipod

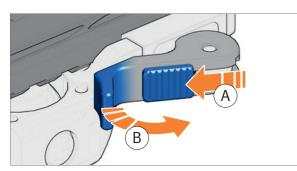


Fig. 33: Remove bipod

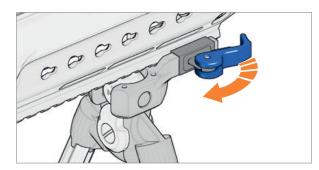


Fig. 30: Close quick-release lock

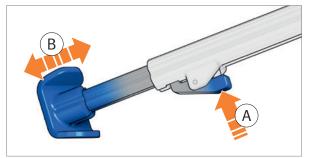


Fig. 32: Adjust bipod

7.5.4 Bipod "Variant C"

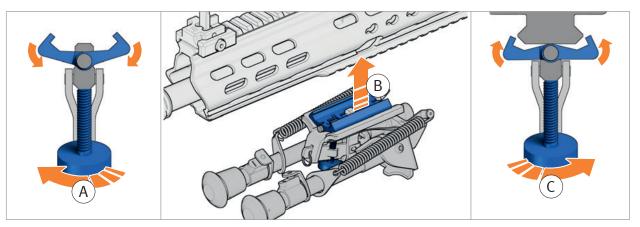


Fig. 34: Insert bipod

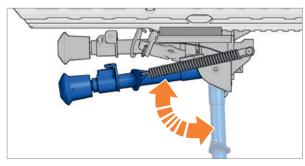


Fig. 35: Fold out bipod / fold in bipod

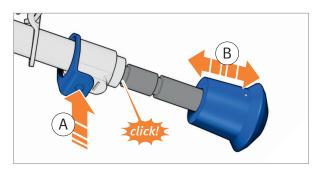


Fig. 36: Adjust bipod

7.6 Using the Picatinny rail

7.6.1 Insert Picatinny rail

Required auxiliary materials:

- Torque wrench 2 10 Nm
- Torx insert TX15
- 1. Insert Picatinny rail into mounting points and push forwards.



Observe the torque when tightening the screws.

- 2. Set torque wrench to 5 Nm.
- 3. Place Torx insert in torque wrench.
- 4. Tighten locking screws for Picatinny rail clockwise with torque wrench until the torque is reached (*Fig. 37*).

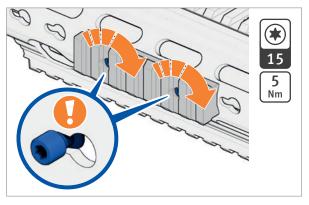


Fig. 37: Tighten screws for Picatinny rail

7.6.2 Remove Picatinny rail

Required auxiliary materials:

- Torque wrench 2 10 Nm
- Torx insert TX15
- 1. Place Torx insert in torque wrench.
- 2. Adjust torque wrench.
- 3. Loosen screws for Picatinny rail by turning anti-clockwise with torque wrench (*Fig. 38*).
- 4. Push Picatinny rail to the rear and remove.

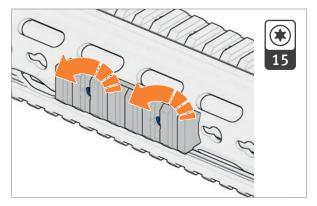


Fig. 38: Loosen screws for Picatinny rail

7.7 Use buttstock

7.7.1 Length-adjustable buttstock



The length adjustable buttstock must be extended to position 3 in order to be folded to the side. 3

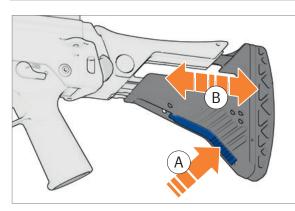


Fig. 39: Adjust buttstock

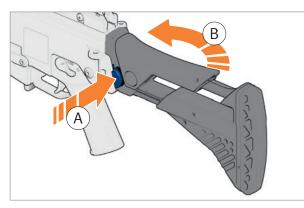


Fig. 41: Fold buttstock

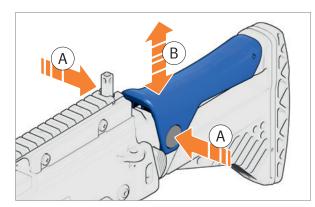


Fig. 40: Adjust cheek rest

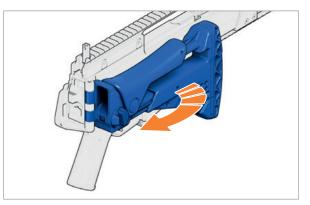


Fig. 42: Unfold buttstock

7.7.2 Tactical buttstock

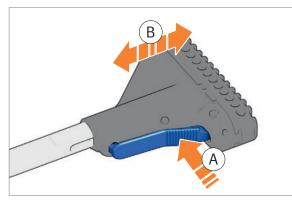


Fig. 43: Adjust buttstock

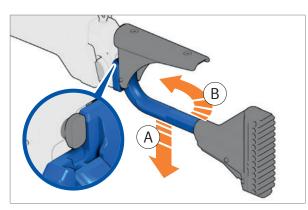


Fig. 45: Fold buttstock

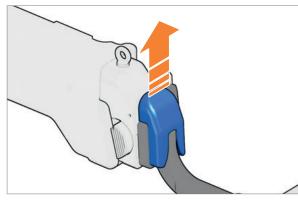


Fig. 47: Remove protective cap

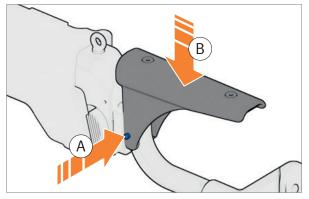


Fig. 44: Adjust cheek rest

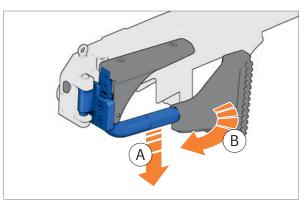


Fig. 46: Unfold buttstock

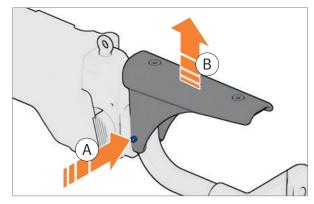


Fig. 48: Remove cheek rest



7.8 Using adapter for carrying sling



Various adapters for carrying slings available. The illustration may differ.

7.8.1 Fastening to HKey interface

Required auxiliary materials:

- Torque wrench 2 10 Nm
- Torx insert TX15



Observe the torque when tightening the screws.

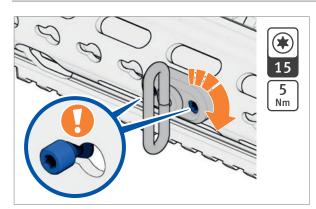


Fig. 49: Insert adapter for carrying sling into HKey interface

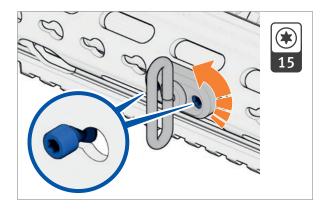


Fig. 50: Remove adapter for carrying sling



2.5

7.8.2 Fastening to Picatinny rail

Required auxiliary materials:

- Allen key
- Screwdriver

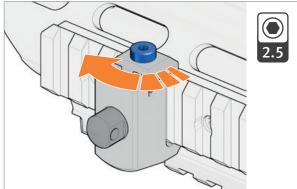
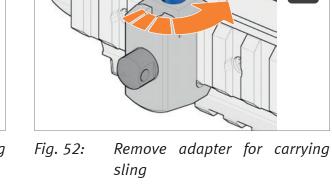


Fig. 51: Insert adapter for carrying sling on Picatinny rail



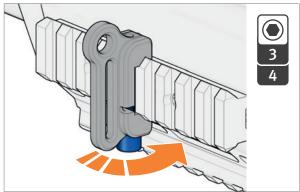


Fig. 53: Insert adapter for carrying sling on Picatinny rail

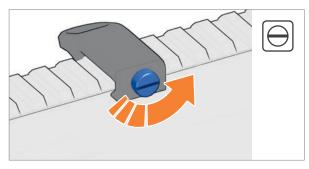


Fig. 55: Loosen screw

Fig. 54: Remove adapter for carrying sling

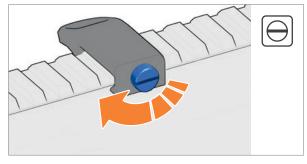


Fig. 56: Tighten screw

7.9 Use the carrying sling



The carrying sling connects the weapon to the shooter and secures the weapon to prevent it from being lost, falling and striking the ground.

Various adapters for carrying slings available. The illustration may differ.

7.9.1 Fasten carrying sling to handguard

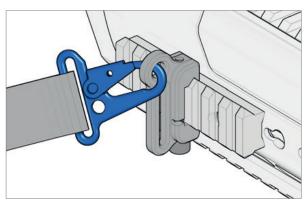


Fig. 57: Attach carrying sling with snaphook

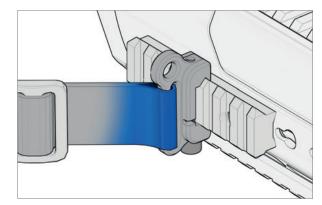


Fig. 58: Thread carrying sling directly

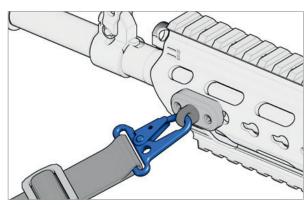


Fig. 59: Attach carrying sling with snaphook

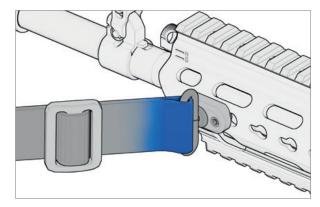


Fig. 60: Thread carrying sling directly

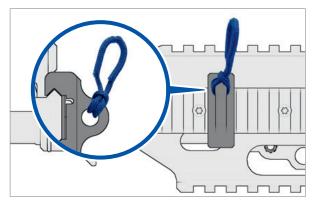


Fig. 61: Attach loop to adapter for carrying sling

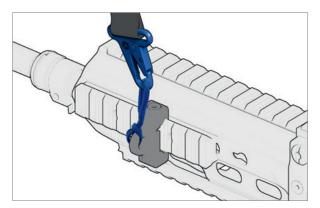


Fig. 62: Attach carrying sling with snaphook

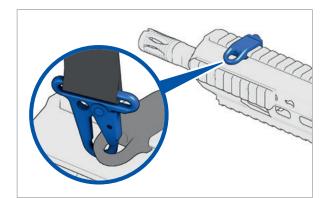


Fig. 63: Attach carrying sling with snaphook

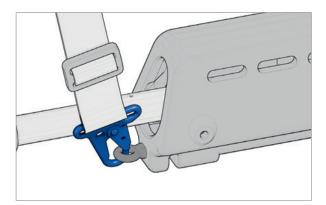


Fig. 64: Attach carrying sling with snaphook

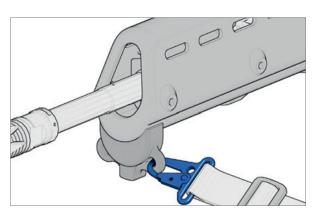


Fig. 65: Attach carrying sling with snaphook

7.9.2 Fasten carrying sling to receiver

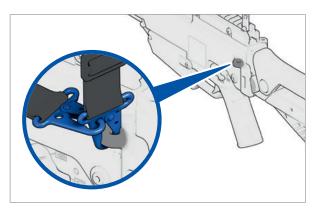


Fig. 66: Attach carrying sling with snaphook

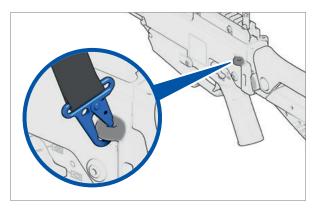


Fig. 67: Attach carrying sling with snaphook

7.9.3 Attach carrying sling to buttstock

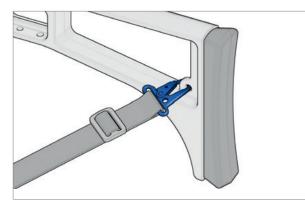


Fig. 68: Attach carrying sling with snaphook

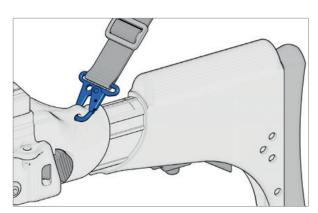


Fig. 70: Attach carrying sling with snaphook

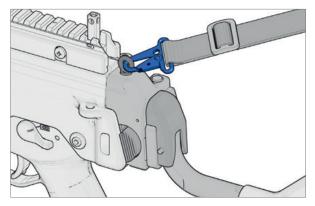


Fig. 69: Attach carrying sling with snaphook

7.10 Use magazine

7.10.1 Fill magazine



Overloading a magazine or keeping it fully charged for long periods of time can lead to malfunctions. Do not fill the magazine with more than the number of cartridges indicated on the magazine. Check to make sure that the final cartridge is resting against the right magazine lip. Empty the magazine before placing the weapon and magazine in storage.

NOTICE

Risk of material damage due to damaged or fouled cartridges! Damaged or fouled cartridges can damage the weapon and cause malfunctions.

- > Do not use damaged or fouled cartridges.
- 1. Grasp the magazine.
- 2. Push cartridge under the magazine lips (*Fig. 71*).
- 3. Push cartridge to the rear as far as it will go (*Fig. 71*).
- 4. Repeat steps 2. 3. until the magazine is full (*Fig. 72*).

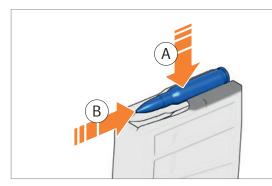


Fig. 71: Fill the magazine

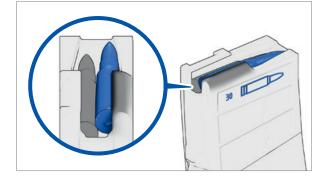


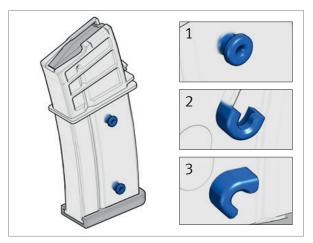
Fig. 72: Position of the last cartridge

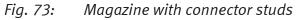
7.10.2 Interconnecting magazines



Interconnecting more than three magazines can lead to malfunctions.

- 1. Hold magazines.
- 2. Insert connector stud into upper slot (*Fig. 74*).
- 3. Twist magazines in opposite directions until connector stud engages in the lower slot (*Fig. 74*).





- 1 Connector studs (2x)
- 2 Upper connector stud slot
- *3 Lower connector stud slot*

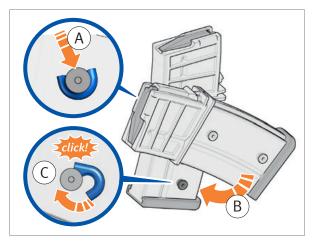


Fig. 74: Lock connector studs into place

7.11 Use sights

7.11.1 Fold / unfold rear sight

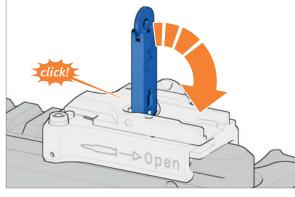


Fig. 75: Fold rear sight

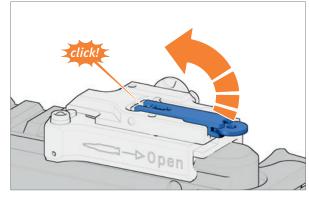


Fig. 76: Fold out rear sight

7.11.2 Fold / unfold front sight

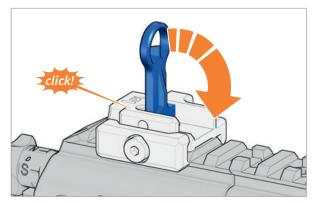


Fig. 77: Fold front sight

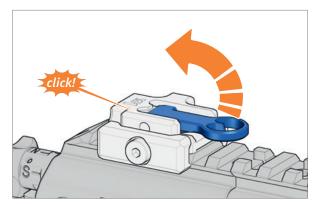


Fig. 78: Unfold front sight

7.11.3 Insert / remove front sight

Required auxiliary materials:

• Allen key

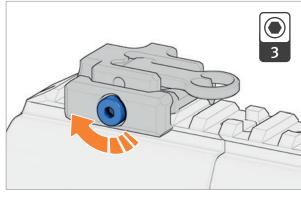


Fig. 79: Inserting the front sight

7.11.4 Insert / remove quick-release sight

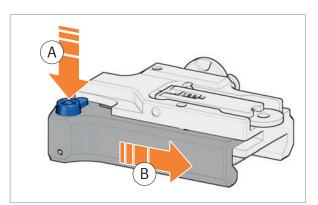


Fig. 81: Push locking device to the rear and hold

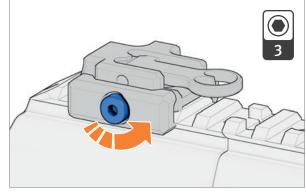


Fig. 80: Remove front sight

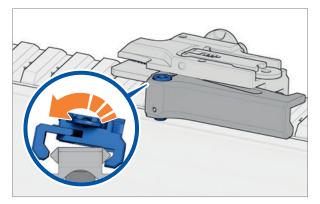


Fig. 82: Insert quick-release sight

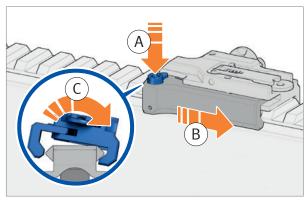


Fig. 83: Remove quick-release sight

7.11.5 Optical sights and sighting equipment



Observe the operator's manual specifications from the respective manufacturer.

Optical sights and sighting equipment are precision devices which must be handled carefully and gently. Do not expose sighting equipment to moisture or excessive heat. Avoid vibrations.

In case of temperature fluctuations

Protect the sighting equipment from great fluctuations in temperature. If the sighting equipment has to be brought into a room with a significantly higher temperature, put it in a suitable lockable container. Only open the container once the sighting equipment and container have assumed room temperature. If necessary, wrap the sighting equipment in cloths, film or paper.

In case of moisture

In case of moisture, dry the mechanical parts with a soft and clean cleaning cloth. Dry optical parts with a optical cleaning cloth or optical cleaning paper. Clean the dried lenses with an anti-fog cloth (klarinol cloth) to counteract the external fogging of the lenses. If the lenses fog on the inside, the sighting equipment may have a leak. If the lenses fog up repeatedly or for long amounts of time, submit the sighting equipment for repair.

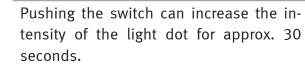
7.11.6 Use reflex sight

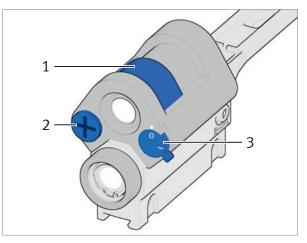
Activate light dot in daylight

1. Slide sliding cover of light collector forwards (open).

Activate light dot in dusk or darkness:

- 2. Slide sliding cover of light collector backwards (close).
- 3. Turn switch to the left to position "1".







- 1 Sliding cover
- 2 Battery compartment
- 3 Switch

Change reflex sight battery:

- 4. Turn battery compartment to the left.
- 5. Pull out battery compartment.
- 6. Remove battery.



Pay attention to correct polarity when inserting the new battery.

7. Insert new battery and lock battery compartment.

7.12 **Adjust sights**



The position of point of impact also depends on the ammunition. Use of different types of ammunition can change the elevation and windage of the position of point of impact. The sights can be adjusted to correct the changed position of point of impact.

7.12.1 Adjust sights of sight rail "Version A"

Required auxiliary materials:

2 mm Allen key

Position of the im- pact point	Corrective measures	Information
***	• Turn elevation adjustment screw clock- wise using Allen key (<i>Fig. 85</i>).	A quarter-turn changes the point of impact by approx. 5.5 cm at a range of
	 Turn elevation adjustment screw anti- clockwise using Allen key (<i>Fig. 85</i>). 	100 m.
***	• Turn windage adjustment screw clock- wise using Allen key (<i>Fig. 86</i>).	A quarter-turn changes the point of impact by approx. 4.5 cm at a range of 100 m.
***	• Turn windage adjustment screw anti- clockwise using Allen key (<i>Fig. 86</i>).	

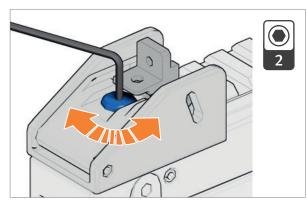


Fig. 85: adjustment Turn elevation screw

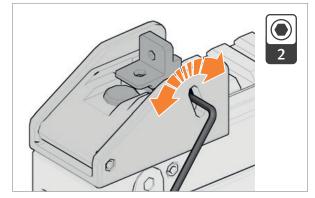


Fig. 86:

7.12.2 Adjust sights of sight rail "Version B"

Required auxiliary materials:

• Screwdriver 3.5 x 100 mm

Position of point of impact	Corrective measures	Information
	 Raise dioptre (<i>Fig. 87</i>). Turn dioptre in direction "D" (Down) (<i>Fig. 87</i>). 	Half a turn changes the point of impact by approx. 6 cm at a range of 100 m.
	 Raise dioptre (<i>Fig. 87</i>). Turn diopter in direction "U" (Up) (<i>Fig. 87</i>). 	
***	• Turn windage adjustment screw anti- clockwise using screwdriver (<i>Fig. 88</i>).	changes the point of impact by approx. 4 cm at a range of 100
***	 Turn windage adjustment screw clock- wise using screwdriver (<i>Fig. 88</i>). 	

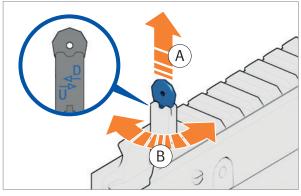


Fig. 87: Turning the dioptre

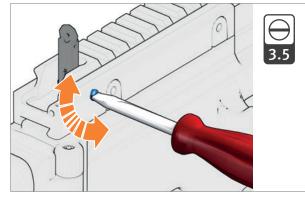


Fig. 88: Turn the windage adjustment screw

7.12.3 Adjust telescopic sight and reflex sight (carrying handle)

Required auxiliary materials:

• 3 mm Allen key

Position of point of impact	Corrective measures	Information
***	• Turn elevation adjustment screw anti- clockwise with Allen key (<i>Fig. 89</i>).	Telescopic sight: Turning by one scale mark changes the point of impact by
	• Turn elevation adjustment screw clock- wise with Allen key (<i>Fig. 89</i>).	approx. 2.3 cm at a range of 100 m. Reflex sight:
***	• Turn windage adjustment screw anti- clockwise with Allen key (<i>Fig. 90</i>).	A quarter-turn changes the point of impact by approx.
***	• Turn windage adjustment screw clock- wise with Allen key (<i>Fig. 90</i>).	20 cm at a range of 100 m.

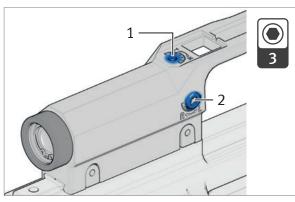


Fig. 89: Adjust telescopic sight

- 1 Height adjustment screw
- 2 Windage adjustment screw

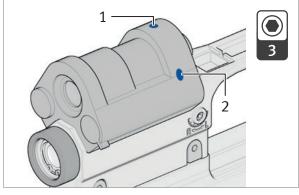


Fig. 90: Adjust reflex sight

7.13 Remove / insert flash hider



For ideal precision results, Heckler & Koch recommends tightening the flash hider with the specified torque when attaching it.

Required auxiliary materials:

- 19 mm open jaw spanner insert
- Torque wrench 6 50 Nm

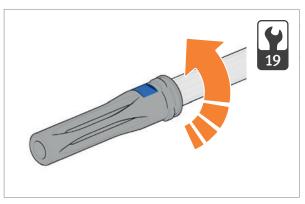


Fig. 91: Remove flash hider

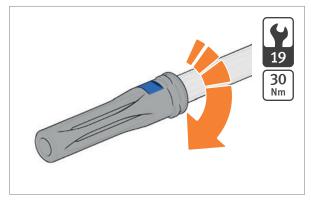
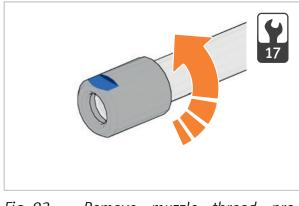


Fig. 92: Insert flash hider

7.14 Remove / insert muzzle thread protector

Required auxiliary materials:

- 17 mm open jaw spanner insert
- Torque wrench 6 50 Nm



17 30 Nm

Fig. 94: Insert muzzle thread protector

Fig. 93: Remove muzzle thread protector

7.15 Prepare weapon for firing

Required auxiliary materials:

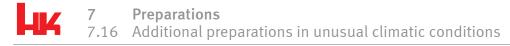
- Cleaning kit
- Cleaning pull-throughs
- 1. Disassemble weapon.
- 2. Screw handle rod, extension rod(s) and pull-through holder together.
- 3. Insert clean cleaning pull-throughs in pull-through holder.

NOTICE

Risk of material damage from incorrect cleaning direction!

Cleaning the barrel from the muzzle end may damage the muzzle. A damaged muzzle will decrease the weapon's accuracy.

- > Always clean the barrel starting from the chamber end.
- 4. Pull clean cleaning pull-throughs through barrel several times until barrel is free of oil and foreign bodies.
- 5. Visually check weapon for damage.
- 6. ► Assemble the weapon.
- 7. ► Carry out a function check.



7.16 Additional preparations in unusual climatic conditions



The following environmental effects require additional measures to maintain operability:

- Extreme dryness and heavy dust formation
- Extreme heat
- Moisture and mud
- Saltwater and salty air
- Extreme cold (under -25°C) and snow

7.16.1 Extreme dryness and heavy dust formation

- > Test the free movement of all moving parts of the weapon. Clean and oil if stiff.
- > Lubricate the weapon more heavily in case of extreme dryness or heavy dust concentration.
- > Protect magazine from dust (sealable magazine pouch).
- > Store ammunition in dust-tight containers.
- > Do not oil ammunition. Remove dirt and dust particles before use.

7.16.2 Extreme heat

- > Lubricate the weapon more heavily at temperatures over +63°C.
- > Only touch metal parts with gloves (danger of burns).
- > Protect ammunition from direct sunlight and heat.

7.16.3 Moisture and mud

- > Lubricate weapon more heavily.
- > Protect weapon from moisture and mud.
- > After contact with mud, wash the weapon off with fresh water, dry it and lubricate it.

7.16.4 Saltwater and salty air



Make sure that steel parts without protective coating are lubricated.

> In case of salty air and saltwater, lubricate all moving parts of the weapon with low-temperature oil.



- > After contact with saltwater or salt spray, wash the weapon off with fresh water, dry it and lubricate it.
- > Store the weapon in a dry container so that it is protected from saltwater and salty air.

7.16.5 Extreme cold (under -25°C) and snow



In cold conditions, freezing condensation can compromise the functional reliability of the weapon. To prevent the formation of condensation, do not bring the weapon from cold conditions into warm conditions and shortly thereafter again into cold conditions.

- > At temperatures below -25°C, lubricate all moving parts with low-temperature oil.
- > Only touch metal parts with gloves (danger of frostbite).
- > Before loading, carry out a function check and ensure that the moving parts move freely.
- > Thaw frozen parts of the weapon and ice in the barrel with heated low-temperature oil.
- > Store the weapon in dry, unheated rooms.

8 Operation

8.1 Insert magazine

- 1. ► Fill magazine.
- 2. Click safety lever to the "Safe" position.
- 3. Insert filled magazine into the weapon until the magazine catch engages.

8.2 Load the weapon

Risk of injury from accidental discharge of weapon! A loaded weapon is always a potential source of danger.

- > Load the weapon only immediately before firing.
- > Unload the weapon immediately after firing.
- 1. ► Insert magazine.
- 2. Pull charging handle all the way back.
- 3. Let charging handle snap forwards. The weapon now has a round in the chamber and is set to "Safe".



8.3 Firing position and aiming

8.3.1 Firing position



The supported shoulder firing position is the most stable and provides the best probability of hitting.

Risk of injury from recoil!

The weapon's recoil can cause serious injury.

- > When firing, pull the weapon firmly into your shoulder.
- > Keep your eye at least 6 cm away from the rear sight when firing.
- > Keep your hands out of the path of the bolt group when firing.
- 1. Rest weapon on the handguard or bipod.
- 2. Do not rest weapon on the barrel or magazine.

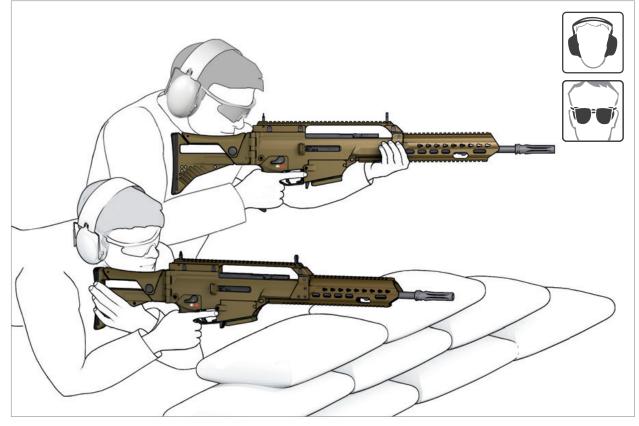
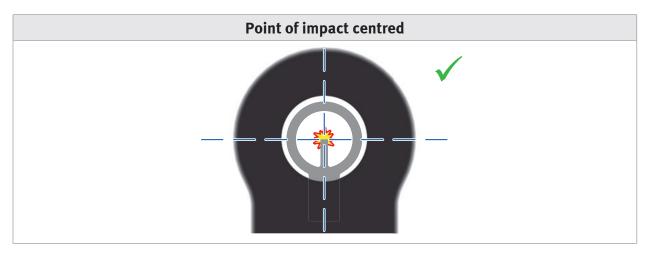


Fig. 95: Firing position



8.3.2 Aim

• Correct aiming



• Aiming errors

Shooting left	Shooting right
	×
Shooting high	Shooting low
	×
Shooting low and left	Shooting low and right
×	×

8.4 Firing



Follow Safety instructions for firing.

8.4.1 Firing in the "Single fire" position

- 1. Prepare weapon for firing.
- 2. ► Load the weapon.
- 3. ► Aim.
- 4. Click safety lever to the "Single fire" position.

Risk of injury from recoil!

The weapon's recoil can cause serious injury.

- > When firing, pull the weapon firmly into your shoulder.
- > Keep your eye at least 6 cm away from the rear sight when firing.
- > Keep your hands out of the path of the bolt group when firing.
- 5. Pull trigger. A cartridge is fired.
- 6. After firing, or to reload, click safety lever to the "Safe" position.

8.5 Remove magazine

1. Grasp magazine.

NOTICE

Risk of material damage from dropping the magazine!

Dropping a magazine can damage the magazine lips and cause malfunctions.

- > Remove the magazine by hand.
- > Avoid impacts on the magazine lips.
- 2. Press magazine catch.
- 3. Remove magazine.

8.6 Reload weapon

Risk of injury from accidental discharge of weapon! A loaded weapon is always a potential source of danger.

- > Load the weapon only immediately before firing.
- > Unload the weapon immediately after firing.



After the last cartridge in the magazine is fired, the bolt catch/release holds the bolt group in the open position.

- 1. **•** Remove the magazine.
- 2. ► Load the weapon.

8.7 Unload weapon

- 1. ► Remove magazine.
- 2. ► Lock bolt group into place. A cartridge is ejected. If no cartridge is ejected, then a fault is present. ► Faults: Causes and remedies.
- 3. Look into the chamber. There must not be a cartridge in the chamber.
- 4. ► Let bolt group snap forwards.
- 5. Click safety lever to the "Single fire" position.
- 6. Pull trigger. The hammer is released.
- 7. Click safety lever to the "Safe" position.

8.8 Empty magazine

Risk of injury from igniting the cartridges!

Impacts to the primer can ignite the cartridge.

- > Push the cartridges into your hand when you empty the magazine.
- > Prevent any impacts to the primer.
- > Prevent cartridges from falling.
- Push cartridges forwards out of magazine.



9 Disassembly

9.1 Disassemble weapon

Risk of injury from improperly assembled weapon! Improper assembly can compromise the safety and functioning of the weapon.

- > Only disassemble the weapon to the extent described in this manual.
- 1. ► Remove handguard.
- 2. ► Remove parts of gas operation.
- 3. ► Remove pistol grip.
- 4. ► Remove magazine well.
- 5. ► Remove back plate and bolt group.
- 6. ► Disassemble bolt group.

Tip: You can put the removed locking pin into the buttstock to avoid losing it (*Fig. 96*).

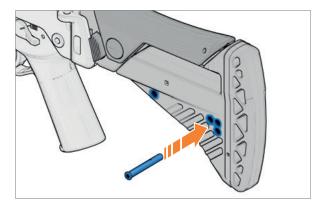


Fig. 96: Place locking pin into buttstock

9.2 Remove handguard

9.2.1 Remove handguard "Version A"

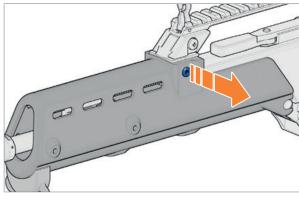


Fig. 97: Press in locking pin for handguard and pull it out

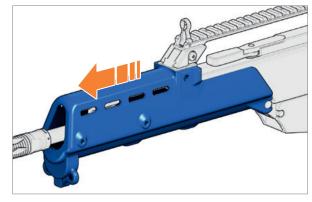


Fig. 98: Remove handguard

9.2.2 Handguard "Version B" remove

Required auxiliary materials:

- Torque wrench 2 10 Nm
- Screw bit 4 mm

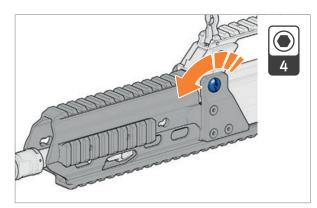


Fig. 99:

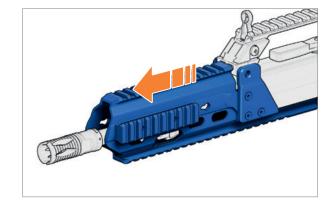


Fig. 100:

9.3 Remove parts of gas operation

- 1. ► Remove handguard.
- 2. Pull rod back and hold it (*Fig. 101*).
- 3. Pull rod upwards and forwards out of receiver (*Fig. 101*).
- 4. Remove gas piston from gas block.

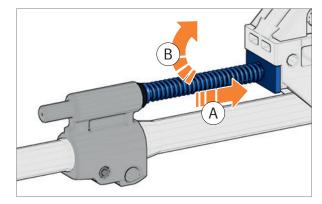


Fig. 101: Remove rod

9.4 Remove pistol grip

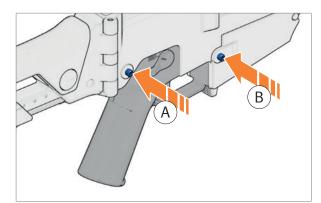


Fig. 102: Press in locking pin and remove it

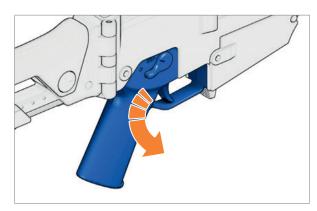


Fig. 103: Remove pistol grip downwards

9.5 Remove magazine well

- 1. ► Remove pistol grip.
- 2. Push magazine catch forwards and hold it (*Fig. 104*).
- 3. Remove magazine well downwards (*Fig. 104*).

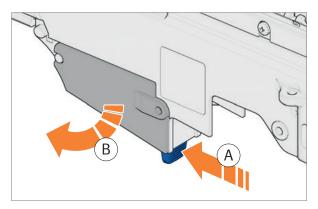


Fig. 104: Remove magazine well

9.6 Remove back plate and bolt group

- 1. ► Remove pistol grip.
- 2. ► Fold buttstock.
- 3. Push back plate downwards and hold it (*Fig. 105*).
- 4. Remove back plate and bolt group from the receiver (*Fig. 105*).

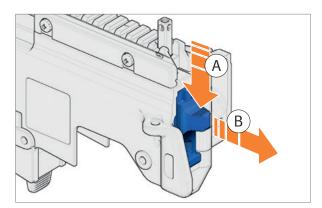


Fig. 105: Remove back plate and bolt group

9.7 Disassemble bolt group

Required auxiliary materials:

- Pointed object (e.g. pin punch)
- 1. ► Remove pistol grip.
- 2. Remove back plate and bolt group.
- 3. Press the locking pin out of bolt head carrier with a pointed object and remove it (*Fig. 106*).
- 4. Press firing pin safety to the side and hold it (*Fig. 107*).
- 5. Remove firing pin and pressure spring for firing pin from bolt head carrier (*Fig. 107*).
- 6. Remove control bolt from bolt head (*Fig. 108*).
- 7. Remove bolt head from bolt head carrier (*Fig. 108*).

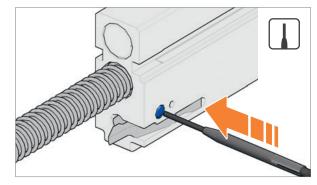


Fig. 106: Remove locking pin

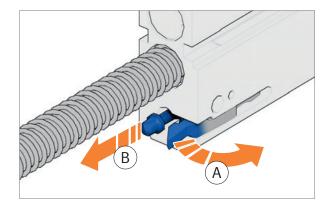


Fig. 107: Remove firing pin

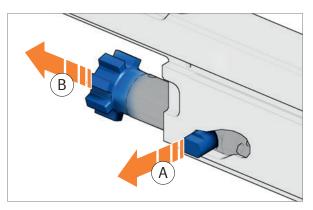


Fig. 108: Remove bolt head

10 Cleaning

10.1 General instructions for cleaning



Regular cleaning and care of the weapon and accessories

- maintain functional reliability,
- increase service life,
- prevent accidents, and
- save repair costs and time.
- > Clean weapon each time it is fired and at intervals of 1.200 rounds.

NOTICE

Risk of material damage from the use of excessive force!

The use of excessive force during cleaning can damage the weapon.

> Do not use excessive force when cleaning the weapon.

10.2 Maintenance plan

0

The maintenance plan depicts routine tasks which must be conducted before or after firing, as well as after a certain number of rounds fired.

The following maintenance tasks are to be conducted according to the following table.

Symbols	Intervals
\blacktriangle = function check	B = before firing / use of the weapon
= cleaning / service point	A = after firing / use of the weapon
● = oil / lubrication point	R (100) = according to total of rounds fired (number of rounds)

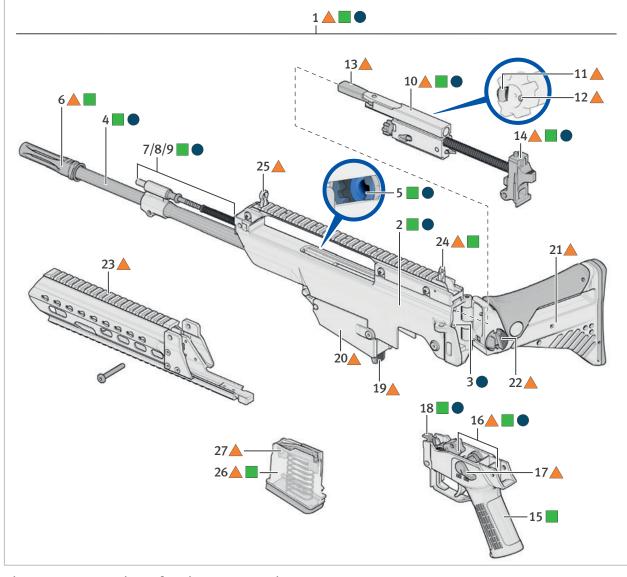


Fig. 109: Overview of maintenance points

Pos. (Fig. 109)	Designation	Check / activity	Auxiliary materials	Time of task
1 Semi-automatic	▲ function	_	S, N	
	rifle HK243 with accessories	clean	Cleaning kit	Ν
	accessories	• oil	Oil, e.g. S-761	N
2	Receiver	■ clean	Cleaning rag	N
		• oil	Oil, e.g. S-761	N
3	Bolt channel guides	• oil	Oil, e.g. S-761	S
4	Barrel	de-oil	Cleaning kit	S
		clean	Cleaning kit	N
		• oil	Oil, e.g. S-761	N
5	Chamber	clean	Cleaning kit	N
		• oil	Oil, e.g. S-761	N
6	Flash hider	▲ firm seating		S, S (500)
		clean	Cleaning rag	N
7	Gas port	clean	Cleaning kit	N
		• oil	Oil, e.g. S-761	N
8	Gas piston	clean	Cleaning rag	N
		• oil	Oil, e.g. S-761	N
9	Rod	clean	Cleaning rag	N
		• oil	Oil, e.g. S-761	N
10	Bolt group	▲ function		S
		clean	Cleaning rag	Ν
		• oil	Oil, e.g. S-761	N
11	Extractor	▲ function		S
12	Ejector	▲ function		S
13	Charging handle	▲ condition, lock- ing into place	_	S



Pos. (Fig. 109)	Designation	Check / activity	Auxiliary materials	Time of task
14 Back plate with recoil spring and	▲ function, condi- tion	_	S	
	buffer	clean	Cleaning rag	N
		• oil	Oil, e.g. S-761	N
15	Pistol grip	clean	Cleaning rag	N
		• oil	Oil, e.g. S-761	N
16	Trigger / trigger	▲ function	—	S
	mechanism	clean	Cleaning rag	N
		• oil	Oil, e.g. S-761	N
17	Safety lever	▲ function, locking into place	_	S
18	Bolt catch/release	▲ function	—	S
		● oil	Oil, e.g. S-761	N
19	Magazine catch	▲ function	—	S
20	Magazine well	▲ condition, firm seating	_	S, N
21	Buttstock	▲ condition, lock- ing into place	_	S, N
22	Unlocking button for buttstock	▲ function	_	S
23	Handguard	▲ condition, Firm seating	-	S, N
24	Rear sight / sight rail / Carrying	▲ condition, Function	-	S, N
	handle	clean	Cleaning rag	N
25	Front sight	▲ condition, Function	-	S, N
26	Magazine	▲ condition	_	S, N
		clean	Cleaning rag	N
27	Follower, Magazine spring	▲ free movement	—	S

Pos. (Fig. 109)	Designation	Check / activity	Auxiliary materials	Time of task
_	Accessories	▲ condition	_	S
		clean	Cleaning rag, Brush, Oil, e.g. S-761	Ν
_	Front grip / For- ward grip	clean	Cleaning rag	Ν
_	Bipod	▲ condition, ad- justability, locking into place	_	S
		clean	Cleaning rag	N
		• oil	Oil, e.g. S-761	N
_	Carrying sling	▲ condition	—	S
		clean	Cleaning rag, brush	N
—	Transport bag	▲ condition	—	S
		clean	Cleaning rag, brush	N

10.3 Clean weapon

NOTICE

Risk 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, tichlor, etc.) to clean the weapon.
- > Do not clean the weapon in an ultrasonic bath.
- 1. ► Disassemble weapon.
- 2. ► Clean assembly groups.
- 3. ► Clean barrel.
- 4. ► Clean parts of gas operation
- 5. ► Lubricate weapon.
- 6. ► Assemble the weapon.

10.4 Clean assembly groups

Required auxiliary materials:

- Cleaning rag
- 1. Clean fouled parts and surfaces using cleaning rag.
- 2. Clean inside of receiver using cleaning rag.
- 3. Clean pistol grip, recoil spring, firing pin and bolt head using cleaning rag.
- 4. Clean firing pin bore in bolt head using cleaning rag.
- 5. Clean magazine well, magazine and follower using cleaning rag.
- 6. Visually check weapon for damage.

10.5 Clean barrel

Required auxiliary materials:

- Oil
- Cleaning pull-throughs
- Cleaning kit

NOTICE

Risk of material damage from incorrect cleaning direction!

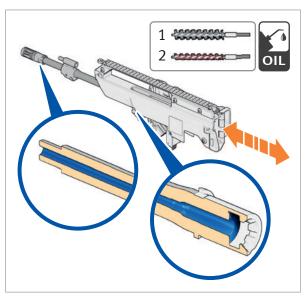
Cleaning the barrel from the muzzle end may damage the muzzle. A damaged muzzle will decrease the weapon's accuracy.

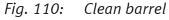
> Always clean the barrel starting from the chamber end.



If possible, lubricate the inside of the barrel immediately after firing while the barrel is still warm to the touch.

- 1. Oil outside of barrel
- 2. Let the oil sink in.
- 3. Clean and dry barrel using cleaning rag.
- 4. Screw handle rod, extension rods and oil brush together.
- 5. Lubricate oil brush.
- 6. Pull oil-lubricated oil brush through barrel (*Fig. 110*).
- 7. Let the oil sink in.





- 1 Oil brush
- 2 Barrel cleaning brush



- 8. Replace oil brush with pull-through holder.
- 9. Insert clean cleaning pull-throughs / insert cleaning cloths into pull-through holder.
- 10. Pull clean cleaning pull-throughs / cleaning cloths through the barrel to remove heavy soiling(*Fig. 111*).
- 11. Replace pull-through holder with barrel cleaning brush.
- 12. Oil barrel cleaning brush.
- 13. Pull oiled barrel cleaning brush through the barrel several times (*Fig. 110*).
- 14. Replace barrel cleaning brush with chamber cleaning brush.
- 15. Oil chamber cleaning brush.
- 16. Pull oiled chamber cleaning brush through the chamber and locking piece several times(*Fig. 112*).
- 17. Replace chamber cleaning brush with pull-through holder.
- 18. Insert clean cleaning pull-throughs / insert cleaning cloths into pull-through holder.
- 19. Pull clean cleaning pull-throughs / cleaning cloths through the barrel several times until the barrel is free of oil and foreign bodies.
- 20. Replace cleaning pull-through with oil brush.
- 21. Lubricate oil brush.
- 22. Pull lubricated oil brush through barrel to preserve the barrel (*Fig. 113*).

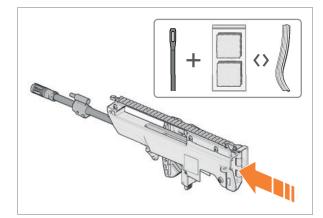


Fig. 111: Clean barrel

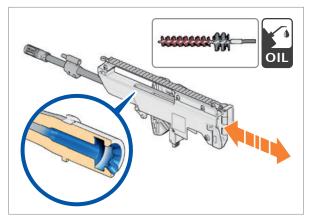


Fig. 112: Clean chamber and locking piece

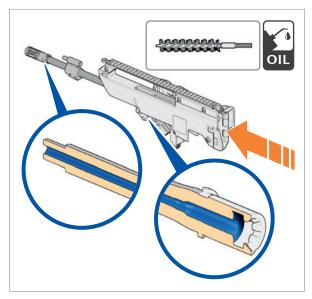


Fig. 113: Lubricate the inside of the barrel



The cleaning string serves for quick and rough cleaning of the barrel.

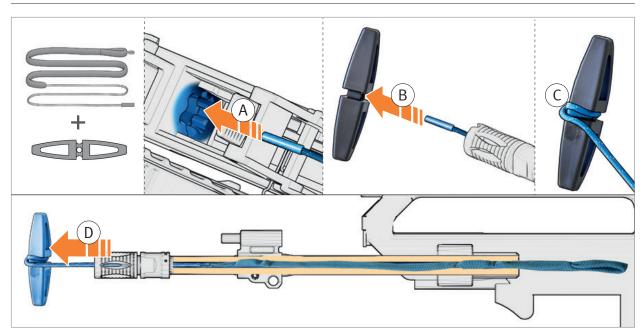


Fig. 114: Clean barrel with cleaning string

10.6 Clean parts of gas operation

Required auxiliary materials:

- Oil
- Cleaning kit
- Cleaning rag
- 1. Lubricate parts of gas operation (*Fig. 115*).
- 2. Let the oil sink in.
- 3. Clean and dry parts of gas operation using cleaning rag (*Fig. 115*).
- 4. Lubricate the inside of the gas port.
- 5. Let the oil sink in.
- 6. Screw handle rod and barrel cleaning brush together. Use different extension rods if necessary.
- 7. Oil barrel cleaning brush.
- 8. Clean inside of gas port with barrel cleaning brush (*Fig. 116*).
- 9. Lubricate the inside of the gas port.

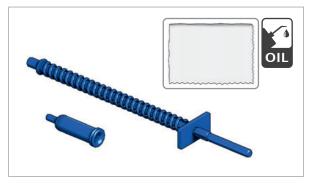


Fig. 115: Clean parts of gas operation

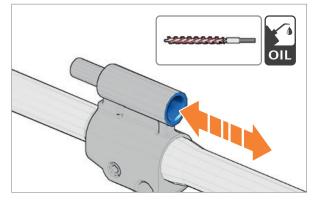


Fig. 116: Clean gas port

10.7 Lubricate weapon

Required auxiliary materials:

- Oil
- 1. Lubricate cleaned metal parts thinly.
- 2. Lubricate lubrication points of bolt group, recoil spring, rod and gas piston (*Fig. 117*).
- 3. Lubricate lubrication points on pistol grip (*Fig. 118*).
- 4. Lubricate lubrication points on receiver (*Fig. 119*).

NOTICE

Risk of material damage from lubricated cartridges!

Lubricated cartridges result in increased loads on components and can damage the weapon.

- > Do not lubricate the inside of the magazine.
- 5. Lubricate outside of magazine thinly.

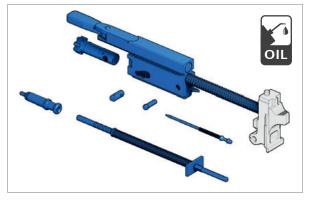


Fig. 117: Lubrication points of functional elements

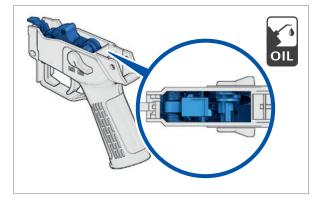


Fig. 118: Lubrication points on pistol grip

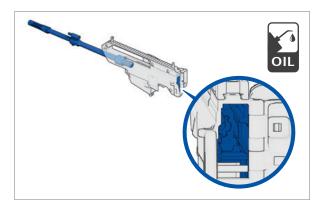


Fig. 119: Lubrication points on receiver



11 Assembly

11.1 Assemble weapon

- 1. ► Assemble bolt group.
- 2. ► Insert bolt group and back plate.
- 3. ► Insert magazine well.
- 4. ► Insert pistol grip.
- 5. ► Assemble parts of gas operation.
- 6. ► Insert handguard.

11.2 Assemble bolt group

- 1. Insert bolt head into the bolt head carrier with the extractor to the right (*Fig. 120*).
- 2. Insert control bolt into bolt head carrier with the bore in the longitudinal direction (*Fig. 121*).
- 3. Place pressure spring for firing pin onto firing pin.
- 4. Insert firing pin into bolt head carrier (*Fig. 122*).
- 5. Push locking pin into bolt head carrier (*Fig. 122*).

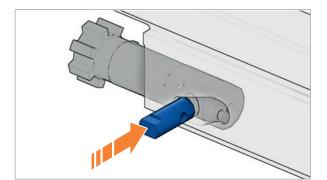


Fig. 121: Insert control bolt

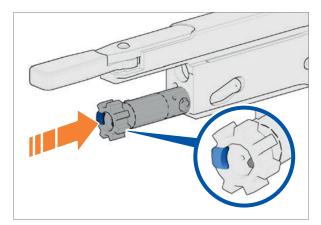


Fig. 120: Insert bolt head

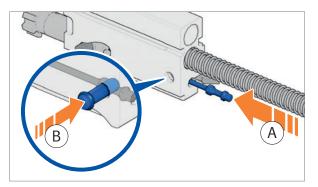


Fig. 122: Insert firing pin

11.3 Insert bolt group and back plate

- 1. ► Assemble bolt group.
- 2. ► Fold buttstock.
- 3. Insert bolt group and back plate into receiver (*Fig. 123*).
- 4. ► Unfold buttstock.

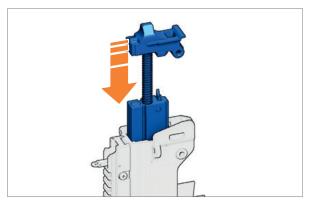


Fig. 123: Insert bolt group into receiver

11.4 Insert magazine well

 Insert magazine well into mounting lugs and swivel it upwards until the magazine catch engages (*Fig. 124*).

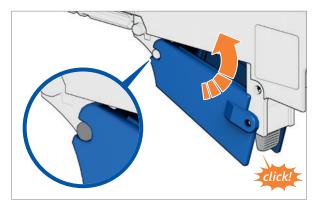


Fig. 124: Insert magazine well

11.5 Insert pistol grip

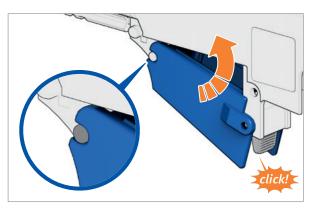


Fig. 125: Insert magazine well

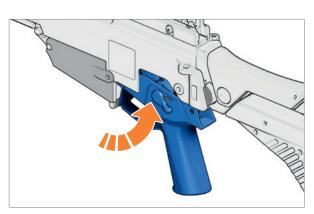


Fig. 127: Insert pistol grip

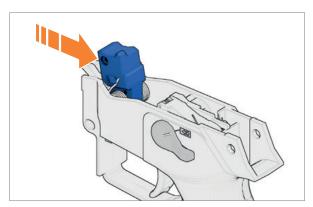


Fig. 126: Push hammer back

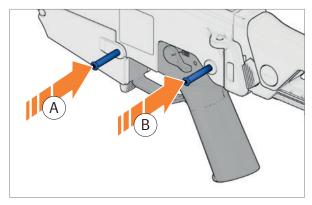


Fig. 128: Press in locking pin

11.6 Assemble parts of gas operation

- 1. Insert gas piston into the gas block (*Fig. 129*).
- 2. Insert rod into receiver in assembly position (*Fig. 130*).
- 3. Press rod to the rear against spring force and insert into gas piston (*Fig. 130*).

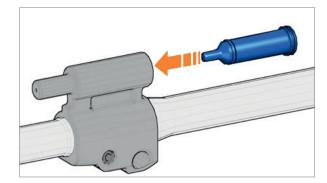


Fig. 129: Insert gas piston

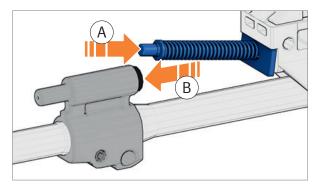


Fig. 130: Insert rod

11.7 Insert handguard

11.7.1 Insert handguard "Version A"

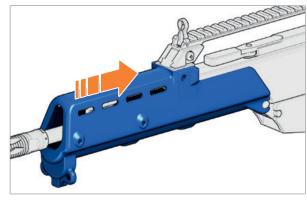


Fig. 131: Push handguard onto the barrel as far as it will go

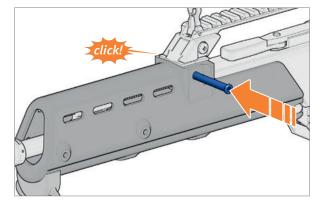


Fig. 132: Insert locking pin into receiver

11.7.2 Handguard "Version B" insert

Required auxiliary materials:

- Torque wrench 2 10 Nm
- Screw bit 4 mm



Observe the torque when tightening the screws.

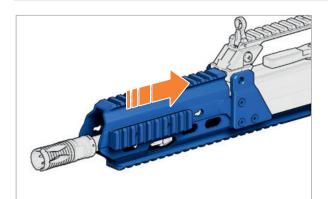


Fig. 133: Push handguard onto the barrel as far as it will go

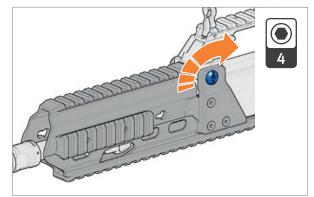


Fig. 134: Tighten screw for handguard

12 Faults: Causes and remedies



Users are strictly prohibited from troubleshooting faults that go beyond the scope of this manual! Only authorised specialists may rectify faults in the weapon.

A 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 it to be unloaded.

- > In the event of a fault, treat the weapon as if it were loaded.
- > In the event of a fault, verify whether the weapon is actually loaded.
- > Follow the fundamental safety instructions for troubleshooting.

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

Fault	Cause	Remedy	
Bullet is stuck in the barrel.	Defective ammunition	Send weapon in for repair.	
Cartridge has not ig- nited.	Defective ammunition.	Wait at least one minute. ► Un- load weapon. Do not re-use cartridges that have failed to fire.	
	Firing pin sluggish, damaged or broken.	Send weapon in for repair.	
	Hammer defective.		
Verschluss öffnet nach dem Schuss nicht.	Munitionsfehler	▶ Waffe entladen. ▶ Teile des	
	Gasantrieb verschmutzt oder defekt.	Gasantriebs reinigen. Gegeben- enfalls ▶ Waffe reinigen. Gegebenenfalls Waffe zur In- standsetzung abgeben.	



Fault	Cause	Remedy
Cartridge or cart- ridge case is not ejected.	Cartridge rim ripped off.	► Unloading the weapon. Send weapon in for repair if neces- sary.
	Chamber fouled.	Clean chamber.
	Rearward movement of bolt group too short.	 ► Unloading the weapon. ► Carry out function check. Replace barrel if necessary. ► Clean weapon. Send weapon in for repair if necessary.
	Defective ammunition	Use different ammunition.
	Extractor, pressure spring for extractor, ejector or pressure spring for ejector damaged.	Send weapon in for repair.
Cartridge is not loaded into the chamber.	Chamber fouled.	► Unloading the weapon. ► Clean weapon.
	Cartridge deformed.	Use different cartridge.
	Recoil spring defective.	Clean recoil spring. Check re- coil spring for damage. Replace recoil spring if necessary.
Cartridge does not feed.	Magazine not correctly inser- ted.	Insert magazine correctly.
	Magazine spring defective.	Send magazine in for repair.
	Magazine or magazine lips damaged.	Use different magazine.
	Rearward movement of bolt group too short.	 ► Unloading the weapon. ► Carry out function check. Replace barrel if necessary. ► Cleaning the weapon. Send weapon in for repair if necessary.

Fault	Cause	Remedy
Bolt does not stay in open position after last round.	Magazine spring defective.	Send magazine in for repair.
	Rearward movement of bolt group too short.	 ► Unload weapon. ► Carry out function check. Replace barrel if necessary. ► Clean weapon. Send weapon in for repair if ne- cessary.
	Slide release damaged.	Send weapon in for repair.
	Defective ammunition.	Use different ammunition.
Magazine sticks in magazine well.	Magazine damaged.	Exchange magazine. Send damaged magazine in for re- pair.
	Magazine catch defective.	Send weapon in for repair.
Windage or eleva- tion of point of im- pact changed.	Rear sight misaligned.	► Adjust sights.
	Other type of ammunition.	Use different type of ammuni- tion. ► Adjust sights.
	Sights damaged.	Send weapon in for repair.



13 Protection, packaging and storage



Protection guards the weapon against external influences and maintains its functional reliability even if it is not used for long periods. Whenever the weapon is expected to be stored for more than 6 months, the weapon must be protected.

If the weapon is not expected to be stored for more than 6 months, it is sufficient to clean the weapon.

13.1 Protect the weapon

Required auxiliary materials:

- Grease
- Oil paper
- 1. ► Clean the weapon.
- 2. Seal both ends of the barrel with grease.
- 3. Wrap weapon in oil paper.

13.2 Package the weapon

- 1. ► Unload weapon.
- 2. ► Empty the magazine.
- 3. Package the weapon in appropriate transport container.



13.3 Store the weapon



Store the weapon and ammunition separately.

- 1. Follow applicable regulations for the storage of weapons and ammunition.
- 2. If the weapon is not expected to be stored for more than 6 months, it will suffice to clean the weapon. ► Clean weapon.
- 3. If the weapon is expected to be stored for more than 6 months, the weapon must be protected. ► Protect the weapon.
- 4. ► Package the weapon.
- 5. Store the weapon in an enclosed, weather resistant room.

Risk of accidents caused by unauthorised persons!

Unauthorised persons who have no experience with weapons can cause accidents.

- > Be sure to prevent access to the weapon and ammunition by unauthorised persons, especially children.
- 6. Protect rooms where weapons are stored against break-in and fire.
- 7. If the weapon is to be stored for longer than 1 year, check the grease seal on the barrel and the oil film on the metal parts on an annual basis.

14 Transport and shipping

14.1 Prepare the weapon for transport

- 1. ► Package the weapon.
- 2. Secure weapon in vehicle.

NOTICE

Risk of material damage from vibrations! Vibrations during transport can damage the weapon.

- During transport, secure the transport container against slipping and damage from outside influences.
- > Avoid impacts and vibration of the weapon.

14.2 Transport and ship the weapon



Transport and ship weapon and ammunition separately.

 Follow the applicable regulations on the transport and shipping of weapons and ammunition.

15 Destruction and disposal

15.1 Destroy the weapon

> Follow the applicable regulations on the destruction of weapons and ammunition.

15.2 Dispose of the weapon

> Follow the applicable regulations on the disposal of weapons and ammunition.

Index of keywords

A

Additional information 11
Additional preparations in unusual climatic con-
ditions 60
Adjust sights 55
Adjust sights of sight rail "Version A" 55
Adjust sights of sight rail "Version B" 56
Adjust telescopic sight and reflex sight (carrying
handle) 57
Aim
Assemble bolt group 83
Assemble parts of gas operation 86
Assemble weapon 83
Assembly 83
Assembly groups 16
Attach carrying sling to buttstock 48
Auxiliary materials 28

В

Bipod "Variant C" 40)
Bipod "Version A" 38	3
Bipod "Version B" 39)
Bipod versions 37	7
Buttstock 21	

C

Carry out a safety check 31
Carry out function check 32
Check free movement of bolt group and function
of recoil spring33
Check functioning of pistol grip in "Safe" posi-
tion
Checks 31
Clean assembly groups77
Clean barrel 78
Clean parts of gas operation 81
Clean weapon77
Cleaning72
Cleaning device (Ident. No. 210544) 27
Cleaning kit and auxiliary materials 27
Colour 20
Conventions for cross references 7
Conventions for illustrations 7

D

Description of the weapon	13
Destroy the weapon	94
Destruction and disposal	94
Dimensions	25
Disassemble bolt group	71
Disassemble weapon	67
Disassembly	67
Dispose of the weapon	94

Ε

Empty magazine	66
Examples of configurations	24
Exclusion of liability and warranty	12
Extreme cold (under -25°C) and snow	61
Extreme dryness and heavy dust formation	60
Extreme heat	60

F

Fasten carrying sling to handguard	46
Fasten carrying sling to receiver	48
Fastening to HKey interface	44
Fastening to Picatinny rail	45
Faults: Causes and remedies 8	38
Fill magazine 4	49
Firing	<u> 5</u> 5
Firing in the "Single fire" position	<u>5</u> 5
Firing pin safety 1	17
Firing position ϵ	63
Firing position and aiming ϵ	63
Fold / unfold front sight 5	51
Fold / unfold rear sight	51
Functional elements 1	
Fundamental safety instructions	

G

General instructions for cleaning	72
Guide bolt group forwards	34

Η

Handguard18
Handguard "Version B" insert
Handguard "Version B" remove
Handing over the weapon10
Handling9
HK243 S SAR "Sporter Semi-Automatic Rifle" 24
HK243 S TAR "Sporter Tactical Automatic
Rifle"

I

Insert / remove front sight	52
Insert / remove quick-release sight	52
Insert bolt group and back plate	84
Insert handguard	87
Insert handguard "Version A"	87
Insert magazine	62
Insert magazine well	84
Insert Picatinny rail	41
Insert pistol grip	85
Intended use	13
Interconnecting magazines	50

L

Length-adjustable buttstock 42
Let bolt group snap forwards with extended bolt
catch/release35
Load the weapon 62
Lock bolt group into place 34
Lock bolt group into place and guide forwards
Lubricate weapon 82

Μ

Maintenance plan	73
Malfunctions and unusual encumbrances	10
Moisture and mud	60
Muzzle velocity and muzzle energy	26

0

Operation	62
Optical sights and sighting equipment	53
Optional equipment features	23

Ρ

Package the weapon	01
Package the weapon	91
Preparations	34
Prepare the weapon for transport	93
Prepare weapon for firing	59
Protect the weapon	91
Protection, packaging and storage	91
Purpose of this manual	3



R

Reload weapon66
Remove / insert flash hider 58
Remove / insert muzzle thread protector 58
Remove back plate and bolt group70
Remove handguard 68
Remove handguard "Version A"
Remove magazine65
Remove magazine well 70
Remove parts of gas operation
Remove Picatinny rail 41
Remove pistol grip 69

S

Safety features 10, 17
Safety instructions 8
Safety instructions and danger levels 4
Safety instructions for firing 11
Safety instructions for handling the weapon 9
Safety instructions for utilising accessories and
ammunition 12
Safety instructions, notes and information 3
Safety lever 17
Saltwater and salty air 60
Sights19
Storage, transport and disposal 10
Store the weapon
Symbols for auxiliary materials 6
Symbols used 5

Т

Tactical buttstock	43
Target audience for this manual	3
Technical data of the versions	25
The operator's manual as an integral component	ent
of the safety concept	9
Transport and ship the weapon	93
Transport and shipping	93

U

Unload weapon	. 66
Use 45° forward grip	
Use bipod	. 37
Use buttstock	. 42
Use forward assist	. 35
Use forward grip	. 36
Use magazine	. 49
Use reflex sight	54
Use sights	. 51
Use the carrying sling	. 46
Using adapter for carrying sling	. 44
Using the Picatinny rail	. 41
Using this manual	3

V

Versions 1	.8
------------	----

W

Weight	26
--------	----



			 		_	 				 				 _			 	 			
			 		_											_		 			
					-															\neg	
															_						
					T						Τ		T	T	T			T	T		7
-					-									-	-+						
					-																
					-+									-+			 	_	_	-+	
	 		 		 		 	 						 -				 			
	 		 	 	_	 	 	 		 	 			 _	_		 	 			
														 _						-+	
															T						
—															\rightarrow					\rightarrow	
<u> </u>			 							 	 			 						-+	
					_													_		-+	
				 	-								-	+	+			-	-	\neg	
											_									\rightarrow	
													\rightarrow							-	
<u> </u>			 							 	 			 			 				
					_	 				_	 				-+		 	_		\rightarrow	



							 							_				_	
														_				_	
							 	 						_				_	
																		_	
																		_	
							 											_	



			 		_	 				 				 _			 	 			
			 		_											_		 			
					-															\neg	
															_						
					T						T		T	T	T			T	T		7
-					-									-	-+						
					-																
					-+									-+			 	_	_	-+	
	 		 		 		 	 		 				 -				 			
	 		 	 	_	 	 	 		 	 			 _	_		 	 			
														 _						-+	
															T						
—															\rightarrow					\rightarrow	
<u> </u>			 							 	 			 						-+	
					_													_		-+	
				 	-								-	+	+			-	-	\neg	
																				\rightarrow	
													\rightarrow							-	
<u> </u>			 							 	 			 			 				
					_	 				_	 				-+		 	_		\rightarrow	

Semi-automatic rifle	HK243
Calibre	.223 Rem.
Operating principle	Semi-automatic, gas-operated
Locking system	Locked rotating bolt head
Cartridge feed	Magazine, 2 / 5 / 7 / 10 / 30 cartridges
Cartridge case ejection	Right
Mode of fire	Single fire
Barrel profile / twist	6 groove/land profile, 178 mm right-hand twist / C.I.P.
Trigger pull	40 N

Technical data



No Compromise

Quality . Innovation . Service . Safety



Heckler & Koch GmbH Heckler & Koch-Str. 1 78727 Oberndorf/N. Germany +49 (0) 74 23 / 79-0
 +49 (0) 74 23 / 79-23 50
 ■ TD@heckler-koch-de.com
 ● www.heckler-koch.com



Copyright © 2018 Made in Germany Version 001.0918