High-Precision Marksman's Rifle

PSG 1

© Edition 1a/TD 2162
OD 6.85

Brief Description

of the

High-Precision Marksman's Rifle

PSG 1

General

The design, construction and operation of the PSG 1 marksman's rifle is basically the same as that of the other well-known HK firearms.

The exceptional demands made on precision marksmen necessitate a special weapon, above all with superb accuracy when used to engage individual or multiple targets. It also requires a virtually unlimited degree of adaptability to suit individual firers.

The principal features of the PSG 1 are:

- Semi-automatic rifle for single-fire with recoil-operated roller-locked bolt system
- Exceptionally robust and durable construction
- Special device for positively and quietly closing the bolt
- Let-off point trigger with trigger pull of approx. 1.5 kp
- Variable trigger width provided by vertically adjustable trigger shoe
- Adjustable length of butt stock, vertically adjustable cheekpiece as well as angular adjustment facility for the butt plate
- Handguard with T-way rail to mount precision tripod and a firing sling

- Magazine option for 5 or 20 rounds
- Optical sighting through 6 x 42 telescopic sight, reticule No. 6 with reticule illumination

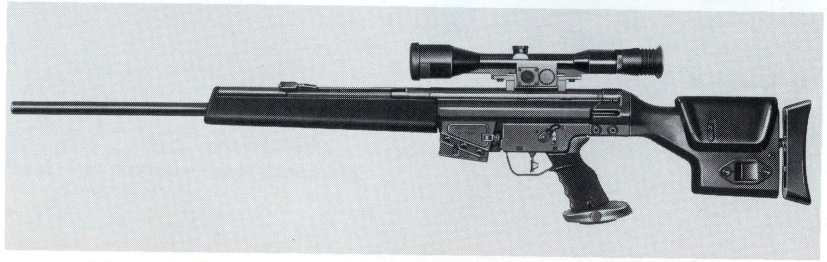
  Sighting adjustable by moving scope for elevation and windage

  1 click ≙ 1 cm at 100 m range

  6 sight settings 100–600 m with additional fine elevation compensation facility

  1 fine increment ≙ 1 cm at 100 m range

- Telescopic sight mounting is an integral part of the weapon, with STANAG 2324 mounting dimensions for different sighting devices.



Assemblies

1 Receiver with barrel, cocking device and telescopic sight
2 Bolt group
3 Pistol grip with trigger assembly
4 Back plate with butt stock
5 Handguard
6 Magazine

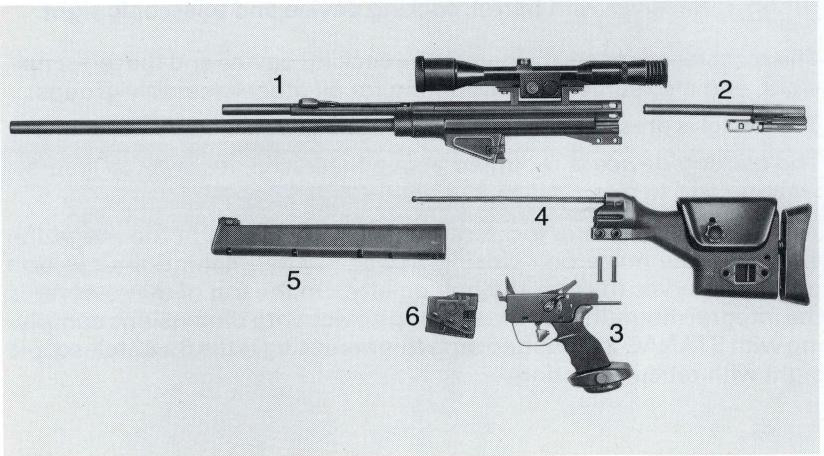


Fig. 2: Exploded view of assemblies

Description of assemblies:

Group 1: Receiver with barrel, cocking device and telescopic sight.

The receiver connects the barrel, the cocking device and the telescopic sight, and also serves as a mounting for all other assembly groups.

The barrel is pressed into the barrel extension and secured by pinning.

The cocking device is mounted above the barrel. It serves to load the weapon and to retain the bolt in the rearmost position.

The magazine catch is located on the lefthand side of the magazine well. The low noise bolt closing device is fitted behind the ejection port, and serves to close the bolt quietly. On the top of the receiver is the integral mounting for the sighting device with dimensions complying with STANAG 2324. Fitted onto this mounting is the 6 x 42 telescopic sight with reticule lighting.

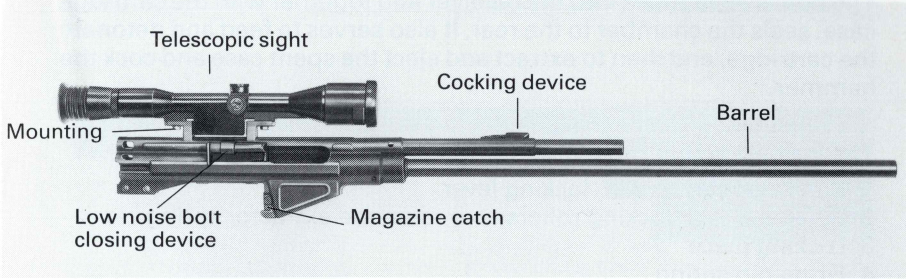


Fig. 3: Receiver with barrel, viewed from righthand side

Group 2: Bolt

The bolt is introduced into the receiver and together with the cartridge case, seals the chamber to the rear. It also serves to feed and detonate the cartridge, and then to extract and eject the spent case and cock the hammer.

The bolt assembly comprises:

1 Bolt head carrier with locking lever
2 Bolt head with locking rollers, extractor and extractor spring
3 Locking piece
4 Firing pin spring
5 Firing pin

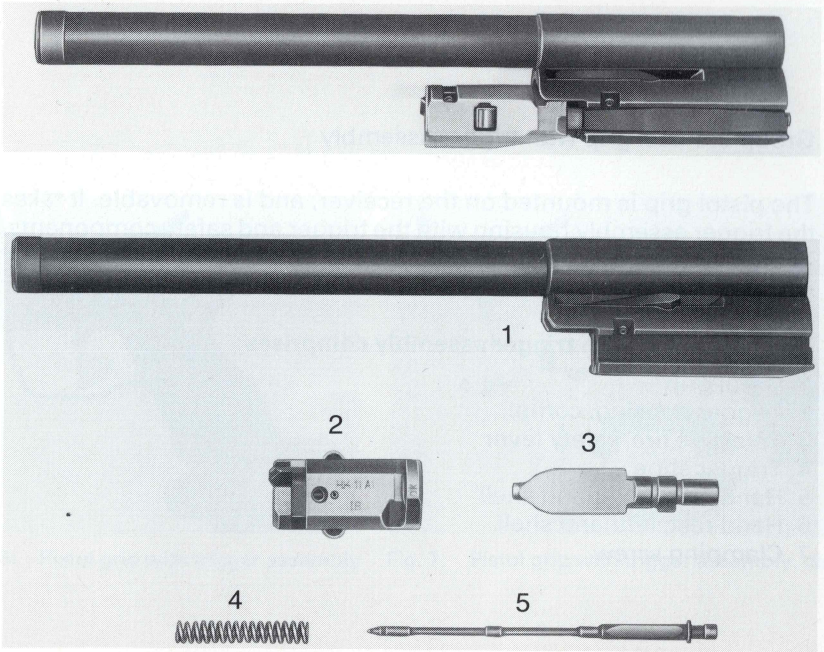


Fig. 5: Bolt – individual components

Group 3: Pistol grip with trigger assembly

The pistol grip is mounted on the receiver, and is removable. It takes the trigger assembly housing with the trigger and safety components. The pistol grip and the trigger assembly housing are joined by the safety device.

The pistol grip with trigger assembly comprises:

1 Pistol grip
2 Trigger housing, compl.
3 Selective fire/safety lever
4 Trigger shoe
5 Hand rest, righthand shell
6 Hand rest, lefthand shell
7 Clamping screw

Fig. 6: Pistol grip with trigger assembly

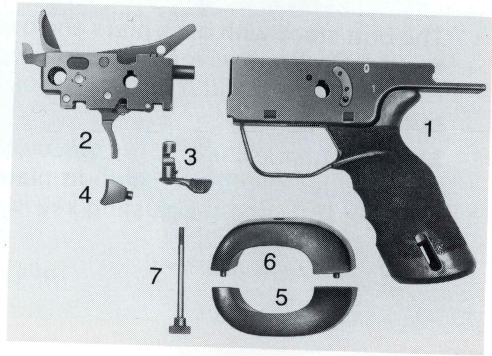


Fig. 7: Pistol grip with trigger assembly, dismantled

Group 4: Butt stock

The butt stock with back plate encloses the receiver at the rear end. It is joined to the receiver by two locking pins. The back plate carries the recoil spring guide rod with the recoil spring, the buffer device and the butt stock.

Mounted on the comb of the butt stock is the cheekpiece which can be adjusted for elevation. The butt plate is connected to the stock by a spindle. The special adjusting key is used to lock the cheekpiece and the butt plate.

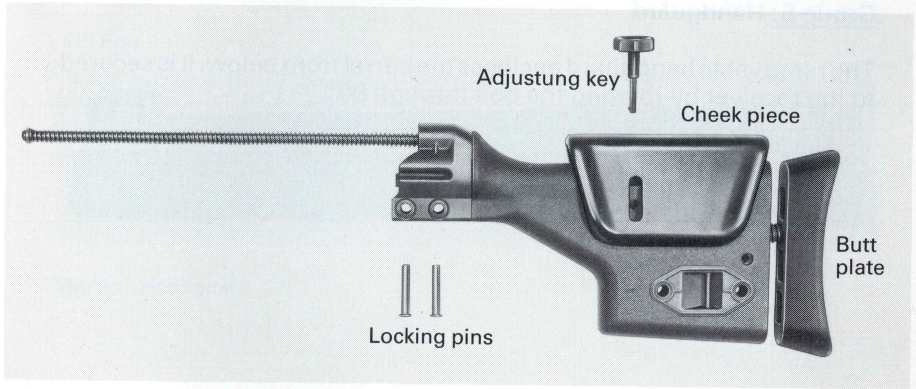


Fig. 8: Butt stock

Group 5: Handguard

The removable handguard encloses the barrel from below. It is secured to the receiver by rotating the bolt through 90°.

Bolt

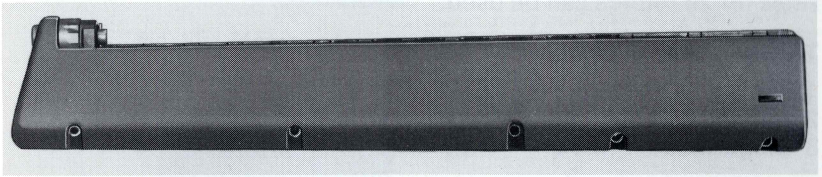


Fig. 9: Handguard

Group 6: Magazine

Steel magazines for 5 rounds (Fig. 10) are available. Optionally, magazines for 20 rounds can be used.

The magazine comprises:

1 Magazine housing
2 Follower with follower spring
3 Magazine floor plate

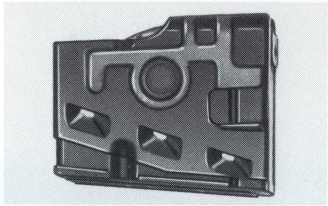


Fig. 10: Magazine for 5 rounds

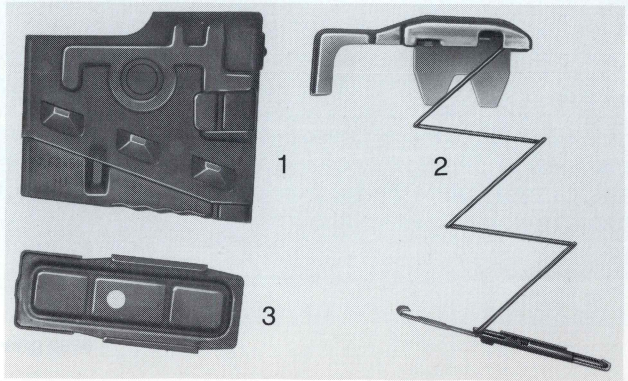


Fig. 11: Magazine for 5 rounds, dismantled

Accessories

Carrying case:

The carrying case is made of aluminium, and is fitted with a moulded liner of neopolene foam. The moulded liner is designed to provide space for the PSG 1 and the most important accessories.

Other accessories

The following additional accessories can be supplied: 20-round magazines, magazine loading device and magazine unloading device, cleaning rod, carrying sling and a precision tripod made by the Garbini company, Roggwil, Switzerland.

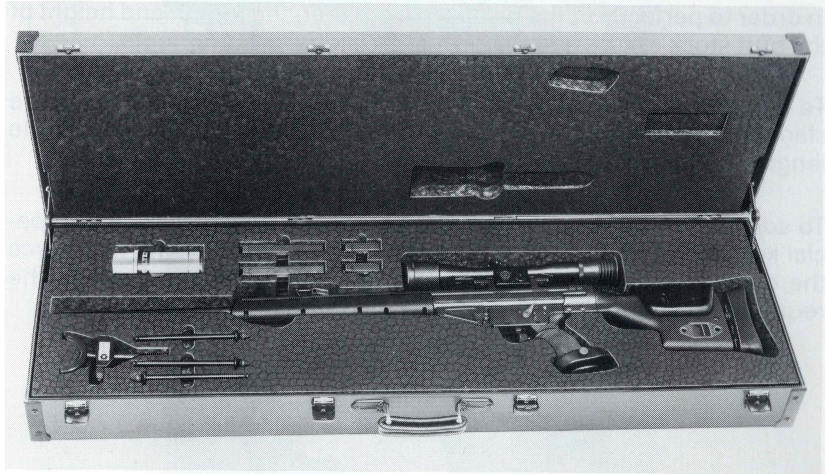


Fig. 12: Carrying case

Handling and operation

Adjusting the butt stock

In order to perfectly fit the weapon to the firer, the length and height of the butt stock can be adapted to his physical measurements.

To adjust the length of the butt stock use the special key to undo the clamping device, and rotate the butt plate until it reaches a suitable length. Subsequently retighten the butt plate with the special key.

To adjust the height of the butt stock comb or cheekpiece use the special key to undo the clamping device. Spring pressure will now force the cheekpiece into the highest position. Push it back down to the required height, and use the special key to lock it into place.

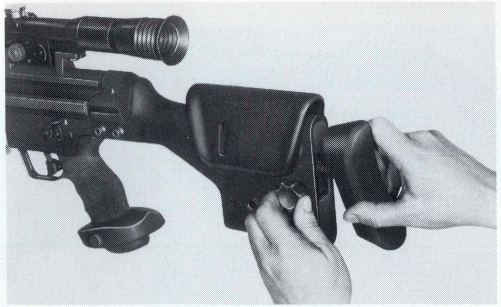


Fig. 13: Adjusting the length of the butt stock

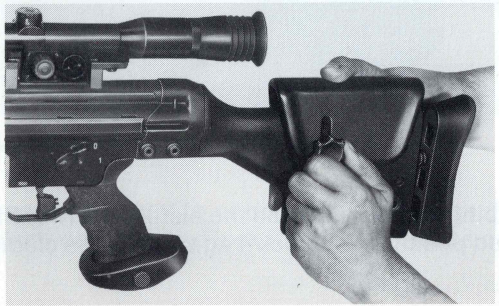


Fig. 14: Adjusting the height of the cheekpiece

Fig. 15: Adjusting the hand rest

Undo the clamping screws and hold the pistol grip. Move the hand rest into the required position, and lock it again with the clamping screws.

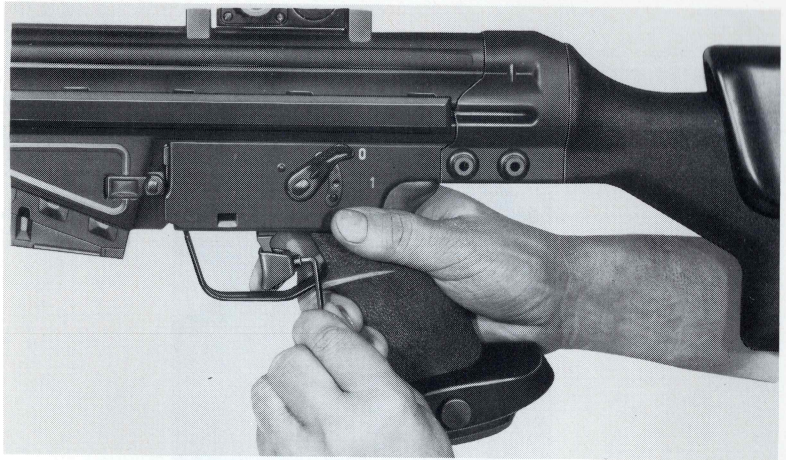


Fig. 16: Adjusting the trigger shoe

Use a hexagonal Allen key to undo the trigger shoe. Move the shoe into the required position and lock it there by means of the Allen key.

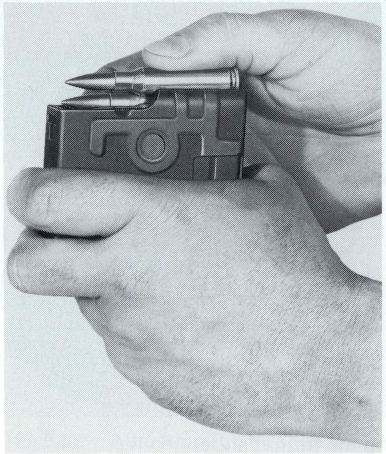


Fig. 17: Filling the magazine

Holding the magazine in one hand, use the other to feed the rounds into the opening. At the same time, with the thumb press the top round down below the lip of the magazine.

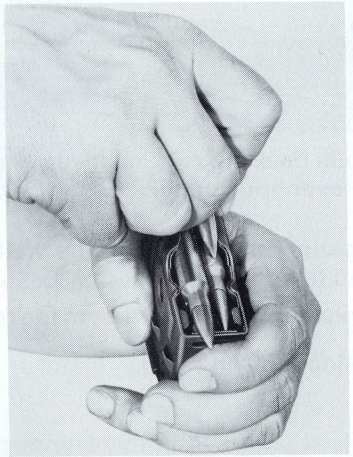


Fig. 18: Emptying the magazine

Hold the magazine in one hand, as shown ,with the points of the bullets facing forwards. With a chip of wood or another round, press down on the lower of the two visible rounds; the top round will then fall out on its own.

Loading the weapon

Safe the weapon!

With the left hand pull back the cocking lever, and engage it in the recess in the cocking lever housing (Fig. 19).

Push the filled magazine into the magazine well until the magazine catch is clearly heard to engage.

Allow the cocking lever to snap forward from the rear position (Fig. 20).

The weapon is now loaded and safed.

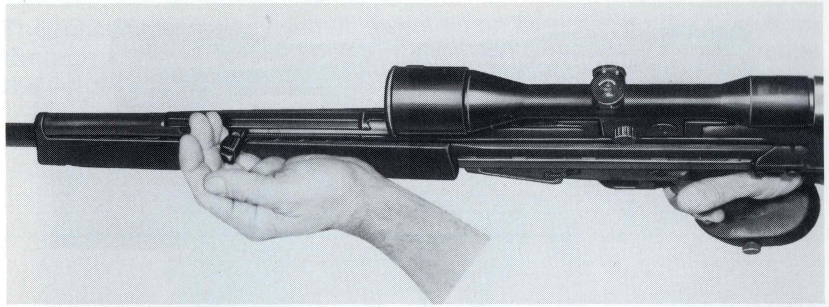


Fig. 19: Pulling back the cocking lever

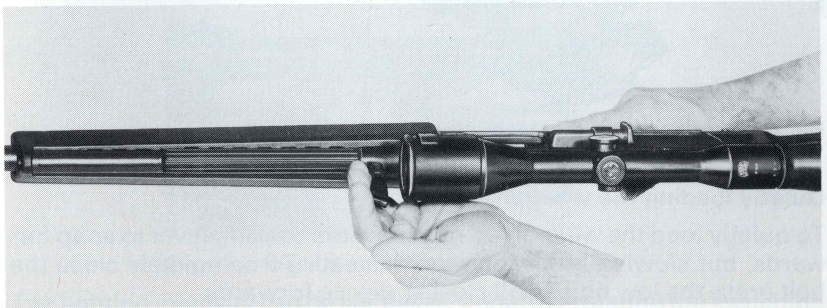


Fig. 20: Allowing the cocking lever to snap forwards

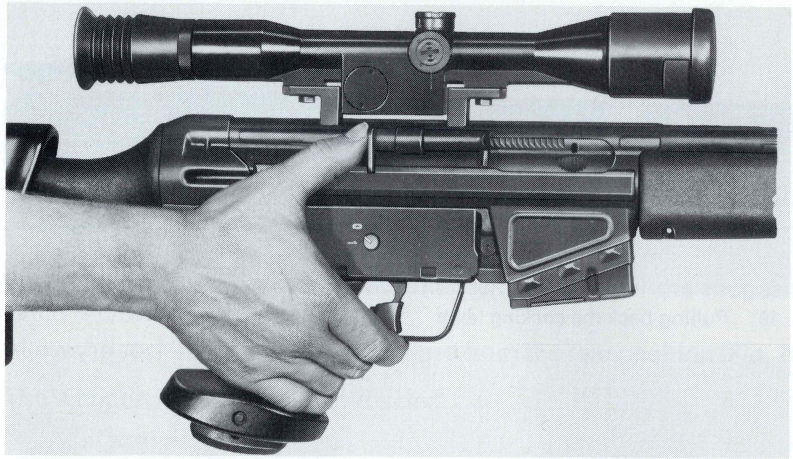


Fig. 21: Operating the low noise bolt closing device

Quietly loading the weapon

To quietly load the weapon do not allow the cocking lever to snap forwards, but slowly ease it forwards instead. To completely close the bolt press the low noise bolt closing device forwards.

Operation of the reticule lighting

The reticule lighting system is switched on by pressing the switch on the lefthand side of the telescopic sight. A timer automatically switches the lighting off again after two minutes.

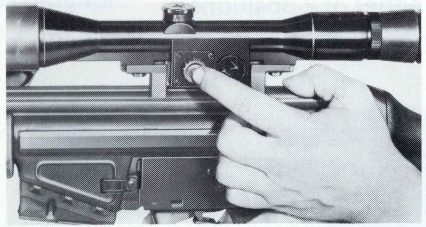


Fig. 22: Switching on the reticule lighting

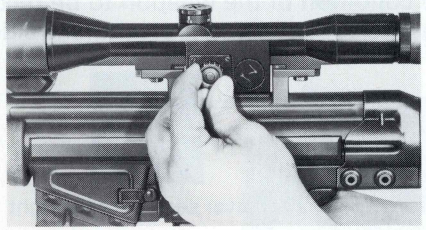


Fig. 23: Regulating the lighting intensity

The lighting intensity can be steplessly varied by rotating the switching device (Fig. 23).

Safety device features

The selective fire lever is mounted on the lefthand side of the pistol grip.

It can be turned into either of 2 positions:

0 – Safe
1 – Single fire

Fig. 24: Selective fire/safety lever seen from the left

In order to allow the condition of the weapon to be recognized from both sides, the figures are duplicated on the righthand side of the pistol grip.

Fig. 25: Selective fire/safety lever seen from the right

Safe the weapon!

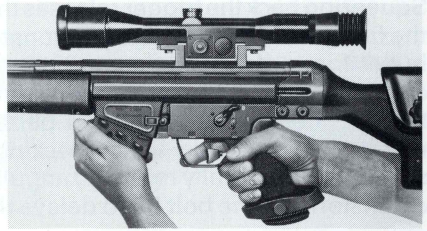
Set the selective fire/safety lever to »0«. The trigger can no longer be operated. The weapon can be loaded in the safed condition.

Inserting and removing the magazine

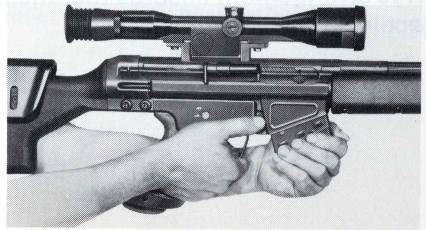
Engage the safety!

Insert magazine into the magazine well (Fig. 26) until you hear the magazine catch engage.

To remove the magazine, the magazine catch must be actuated (Fig. 27).



(Fig. 26)



(Fig. 27)

Interoperation of the components

The weapon is loaded and safed.

Squeezing back the trigger releases the hammer so that it strikes against the firing pin. The cartridge is detonated. The expanding gases drive the bullet forwards. At the same time the gases press back against the cartridge. The forces which consequently act against the recoil face of the bolt head are transmitted partially via the locking roller to the receiver, and partially via the locking piece to the bolt head carrier. In so doing the carefully matched angular relationship between the barrel extension and the bolt head delays the recoil motion of the bolt head.

This arrangement ensures that the bolt seals the barrel until the projectile has cleared the muzzle.

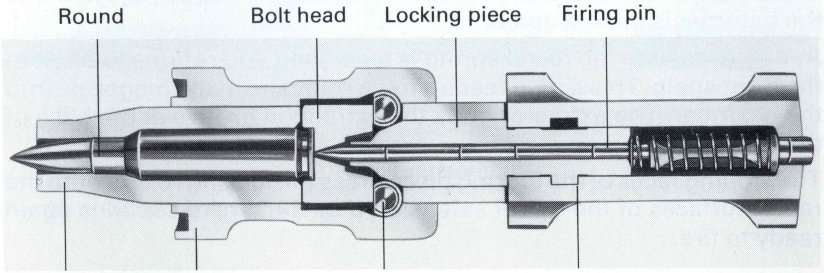


Fig. 28: Closed bolt

When the locking rollers have fully entered the bolt head the bolt is able to slide further to the rear. The spent cartridge is thereby ejected and the hammer is cocked again.

At the same time the recoil spring is tensioned and returns the bolt to the front again. This action feeds a fresh round from the magazine into the chamber. The extractor grips the extraction groove at the base of the cartridge.

The sloping faces of the locking piece press the locking rollers onto the recoil surfaces of the barrel extension (Fig. 29). The weapon is again ready to fire.

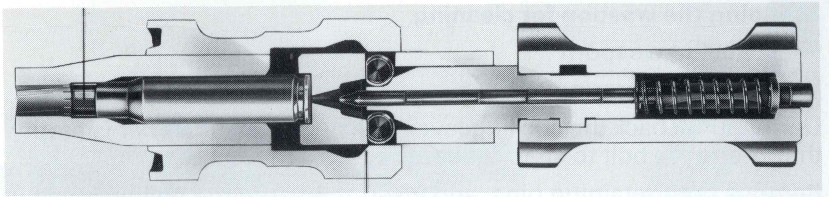


Fig. 29: Opened bolt

Stripping the weapon for cleaning

First safe the weapon!

Take out the magazine.

Unload: Pull back the cocking lever, check that the chamber is empty, then allow the bolt to snap forwards again.

Remove both retaining pins, and insert them into the hollow rivets in the butt stock.

Pull off the butt stock (Fig. 30) and remove the pistol grip with trigger assembly.

Draw back the bolt by means of the cocking lever, and take it out of the receiver (Fig. 31).

Fig. 30: Removing the butt stock

Fig. 31: Removing the bolt

To take off the handguard use a screwdriver to press the bolt back as far as it will go, then rotate it through 90° (Fig. 32).

Finally draw the handguard off the barrel over the muzzle.

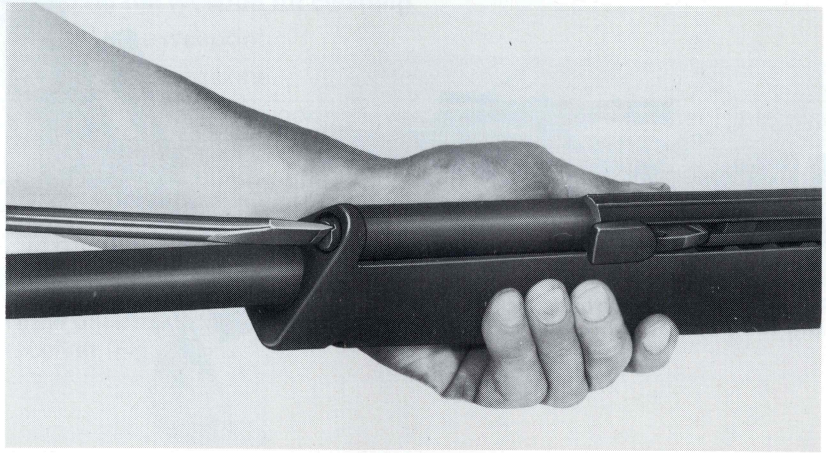


Fig. 32: Turning the bolt

Stripping the bolt

Rotate the bolt head 90° left and take it off.

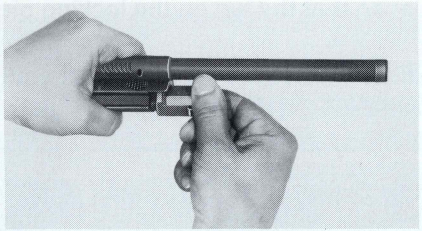


Fig. 33: Turning the bolt head

Remove the locking piece, firing pin and firing pin spring.

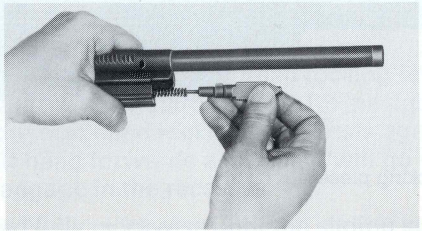


Fig. 34: Removing the bolt components

The bolt must be re-assembled in the reverse order of operations.

Insert the firing pin with its spring and the locking piece into the hole in the bolt head carrier so that the lug on the locking piece goes into the recess in the hole.

Press the locking piece all the way in, and turn it until the narrow side is under the bolt head locking lever (Fig. 35).

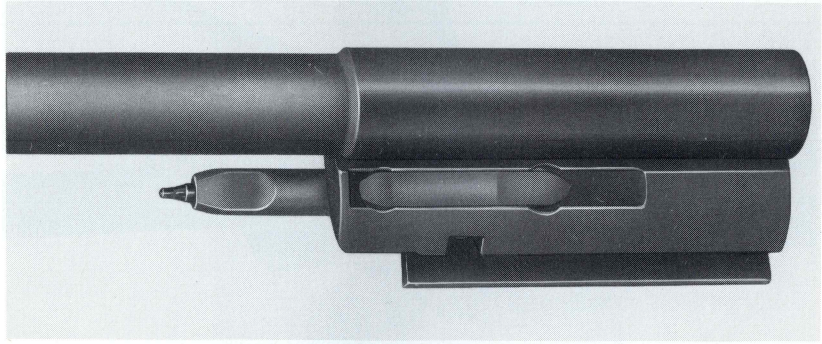


Fig. 35: Inserted locking piece

Mount the bolt head on the locking piece such that the sloping face is in front of the bolt head locking lever (Fig. 36).

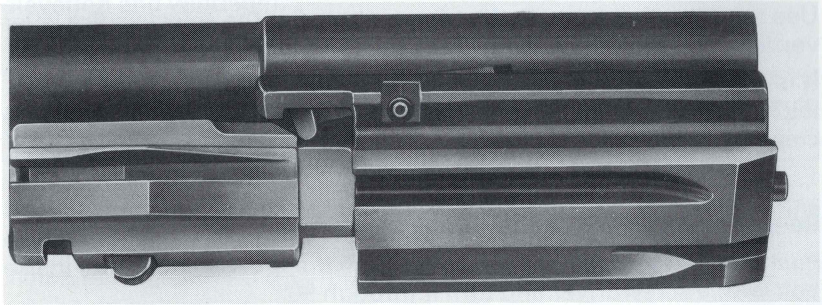


Fig. 36: Mounted bolt head

Press the bolt head against the bolt head locking lever up to the bolt head carrier. Rotate the bolt head clockwise (to the right) until resistance can be felt and the bolt head locking lever rests against the next surface. Pull the bolt head forwards as far as it will go until both locking rollers can fully engage in the recesses.

Turn the bolt head fully clockwise until the sliding surfaces of the bolt head and the bolt head carrier are flush.

Stripping the pistol grip with trigger assembly

Use the Allen key to undo the trigger shoe. Set the selective fire lever vertical, and then draw it out. Take out the trigger assembly housing.

It is not permitted to strip the trigger assembly housing any further. If it is particularly dirty, the housing can be washed out with a suitable cleaning fluid.

Re-assembling the weapon

Push the handguard onto the barrel from the muzzle end, press in the bolt with a screwdriver and turn it through 90°.

Push the assembled bolt unit into the receiver (when doing so the locking rollers must lie inside the bolt head).

Refit the grip assembly (selective fire/safety lever to »0« – Safe).

Push the butt stock onto the receiver and press in the retaining pins.

Harmonizing the telescopic sight

If the zeroing shots show that a correction is needed, this can be done by adjusting the height or lateral alignment of the telescopic sight (i.e., elevation and windage).

Adjusting the elevation:

The elevation adjuster is mounted on top of the telescopic sight. First make sure that the range is properly set, then use a screwdriver to undo the two cover screws (Fig. 37).

Turn the elevation adjuster by means of a suitable coin (Fig. 38).

Each click adjustment changes the point of impact for 1 cm at a distance of 100 m.

When the adjustment is complete retighten the cover screws.

Windage adjustment:

The windage adjustment facility is mounted on the righthand side of the telescopic sight.

Set the click ring to »0«.

Undo the cover screws.

Use a suitable coin to turn the windage adjuster.

Each click adjustment changes the point of impact for 1 cm at a distance of 100 m.

Retighten the cover screws.

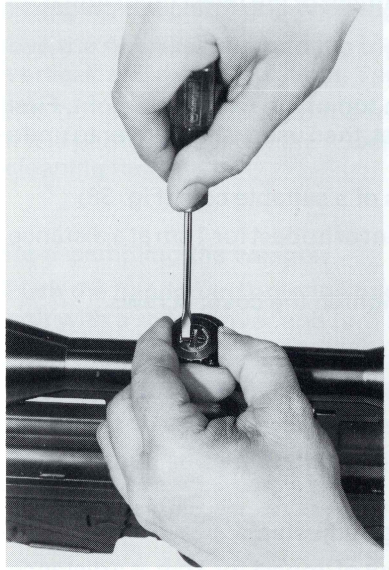


Fig. 37: Undoing the cover screws

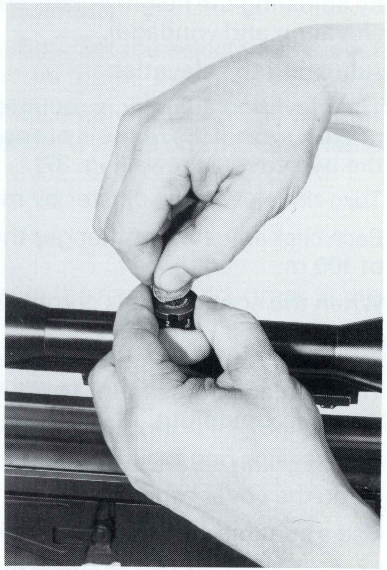


Fig. 38: Operating the elevation adjuster

Technical specifications

Calibre	7.62 mm x 51
Length of weapon	1.208 mm
Width of weapon	59 mm
Height of weapon (with telescopic sight)	258 mm
Length of barrel	650 mm
Bore profile	polygonal
Direction of rifling twist	righthand
Number of grooves	4
Trigger pull	approx. 1.5 kp
Weight of complete weapon less magazine and tripod	8.1 kg
Weight of 5-round magazine	0.19 kg
Weight of 20-round magazine	0.28 kg
Weight of precision tripod	1.025 kg
Sighting system	Telescopic sight 6 x 42, rear sight No. 6 with reticule illumination 6 sight settings 100–600 m (annotated 1–6)
Point-blank shot firing	6 settings 75–10 m (yellow figures)
Type of fire	single-shot

Table of contents