

SA vz. 61 SKORPION

pistol instruction manual



1. Description of Sa vz. 61 pistol

1.1. General

- 1.1.1.....Purpose and features of Sa vz. 61 pistol
- 1.1.2.....Characteristics of Sa vz. 61 pistol

1.2 Description of main parts of Sa vz. 61 pistol

- 1.2.1.....Barrel
- 1.2.2.....Receiver
- 1.2.3.....Sights
- 1.2.4.....Bolt
- 1.2.5.....Frame
- 1.2.6.....Trigger mechanism
- 1.2.7.....Hammer
- 1.2.8.....Grip
- 1.2.9.....Magazines

1.3. Accessories

- 1.3.1.....Description of Accessories

1.4. Ammunition

2. Operation of pistol, troubleshooting, storing, inspections, maintenance and zeroing of Sa vz. 61 pistol

2.1.Parts and Mechanism Operation of Sa vz. 61 pistol

- 2.1.1.....Fire Preparation
- 2.1.2.....Loading
- 2.1.3.....Firing
- 2.1.4.....Safety lever
- 2.1.5.....Fire termination

2.2. Trouble shooting

- 2.2.1.....Failure prevention
- 2.2.2.....Failure features and troubleshooting

2.3.Storing, dismantling, assembly and inspections of Sa vz. 61 pistol

- 2.3.1.....Storing
- 2.3.2.....Disassembly
- 2.3.3.....Assembly
- 2.3.4.....Inspections

2.4.Cleaning and preservation of Sa vz. 61 pistol

2.5.Zeroing of Sa vz. 61 pistol

3. Basic technical specifications of Sa vz. 61 pistol

4. List of parts

1. Description of Sa vz. 61 pistol

1.1.General

1.1.1.Purpose and features of Sa vz. 61 pistol

Sa vz. 61 pistol (further referred to as "pistol") is a versatile individual gun designed for sport, target shooting and self-defense. The pistol can shoot in single shots only. Effective range of fire is up to 200 m. The rear sights are adjustable for the range of 75 and 150 m. The pistol is chambered for cartridge 7,65 mm Browning. Each pistol is equipped with one short magazine (for 10 rounds) and two long magazines (20 rounds). Rounds are loaded into a magazine manually. The muzzle velocity of the bullet is 317m/sec., maximum range of fire is up to 1500 m, lethal effect up to about 800m. Combat rate of fire is 35 rounds per minute. The weight of pistol without magazine is 1,10 kg. The weight with full short magazine is 1,25 kg and with full long magazine 1,36 kg. Each gun is equipped with accessories.

1.1.2. Characteristics of Sa vz. 61 pistol

The Sa vz. 61 pistol is a simple light semi-automatic gun, which utilises gas pressure on the bottom of a cartridge to move the bolt into its rear position. The bolt is returned to its front position by a pressure of two return springs. The pistol is enclosed in a receiver. The cocking points do not protrude excessively out of the surface, thus enabling the operation when close to the body of a gunner or in very limited space. The ejection port is located in such position that accidental flames do not disturb the gunner. Pistol operation is reliable and safe even in difficult conditions i.e. in dust, rain, extremely low or high temperatures. The gun can be fired in any position. The triggering mechanism allows fire in single shots only. The cartridges are continuously supplied from a magazine when shooting. The position of the magazine provides comfortable two hand grip. Changing magazines is quick and easy.

It is easy to carry the pistol in any situation due to its low weight and small dimensions either in belt holster, armpit holster or free under jacket, etc. Dismantling, standard cleaning and preservation do not require any special tools.



Sa vz. 61 pistol – Overall View



Figure No. 2

Sa vz. 61 pistol main parts

1 – barrel, 2 – receiver, 3 – bolt, 4 – frame, 5 – trigger mechanism, 6 – grip, 7 – magazine

1.2. Description of main parts of Sa vz. 61 pistol

1.2.1. Barrel (Fig. 3 and 4)

There are six grooves creating six fields in the barrel. The right hand constant twist of 350 mm gives the bullet right-hand rotation. The muzzle is rounded in order to prevent damage to the grooves. The rear part of the barrel passes into a cartridge chamber with shape and dimensions corresponding to the 7,65mm pistol cartridge. The barrel bore is chrome-plated to prevent abrasion and to protect it against corrosion. The surface of barrel is smooth, black painted. The barrel is pressed into receiver insert. Approximately in the middle of the barrel is a ring by which the barrel presses against inner face of receiver insert. Barrel is fixed in its position by a pin. At its rear, the barrel is thickened, with a cut out for extractor.

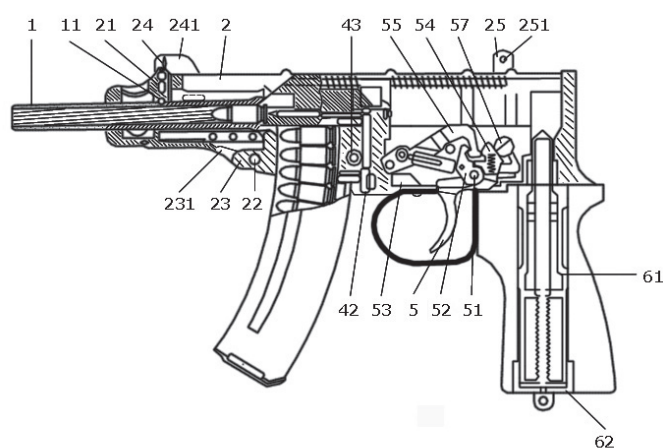


Figure No.: 3

Sa vz. 61 pistol – cross sectional view

1 – barrel, 11 – barrel pin, 2 – receiver, 21 – receiver insert, 22 – receiver pin, 23 – receiver pin plunger, 231 – receiver pin plunger spring, 24 – front sight, 241 – front sight cover, 25 – rear sight leaf, 251 – rearsight pin, 42 – bolt catch, 43 – magazine catch, 5 – trigger, 51 – trigger pin, 52 – trigger lever, 53 – insert lever, 54 – interrupter, 55 – hammer, 57 – safety lever, 61 – grip screw, 62 – grip cap

1.2.2. Receiver (Fig. 3 and 4)

The receiver guards and guides the bolt. The front part has a receiver insert welded in, by which the barrel is firmly fixed. There are two openings where the receiver is connecting to pistol body. The connecting pin is fixed in the left hand side opening. This pin is protected against accidental release by a latch with spring. The upper part of receiver has oval ejection port. Longitudinal rims of receiver sides guard the bolt movement at rear position. Longitudinal rims of receiver sides guard the cocking points at front part. These rims widen at the end to enable removal of cocking points when pistol is being disassembled. An original code of the gun "S-59" and serial number (e.g. S-59, 3300) is punched at the bottom front part of receiver.

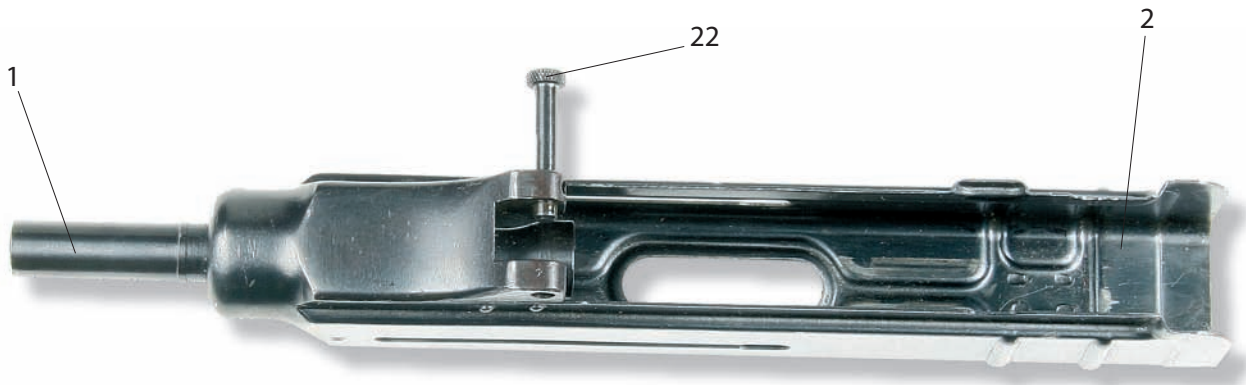


Figure No.: 4

Receiver with barrel - bottom view

1 – barrel, 2 – receiver, 22 – receiver pin

1.2.3. Sights (Fig. 3 and 5)

The sights of pistol are used for aiming the gun at target. The sights are placed on top of the receiver and consist of two parts: front sights and rear sights.

The front sight is a screw of oval shape, the head of which forms eccentric sighting rod. The screw of front sights protrudes through the sights cover and is fixed with barrel nut. Fire adjustment of the gun is performed by rotating of the screw and setting its side position and height. Front sights cover is welded to receiver.

The rear sights are mounted to the rear part of receiver at the rear sight base. The rear sight base is welded to receiver. There is a hole for rear sight leaf pin at both sides of the rear sight base. Back side of rear sights leaf is marked by figures 75 and 150, which refer to the firing range in metres. One of these two options can be selected by rotating the rear sights leaf. Each selected position is secured by rear sight latch being locked into the dimples on the inside of the rear sight base.

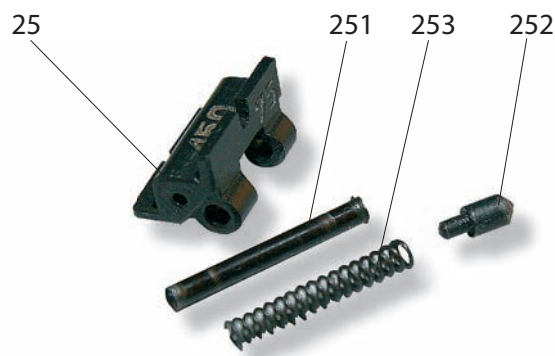


Figure No.: 5

Rear Sights

25 – rear sight leaf, 251 – rear sight leaf pin, 252 – rear sight latch, 253 – rear sight latch spring

1.2.4. Bolt (Fig. 6 and 7)

The bolt provides principle operation of Sa vz. 61 pistol by pushing a cartridge from magazine and inserting it into cartridge chamber. Further, the bolt locks the chamber for the moment of fire, ignites the primer, draws out the empty cartridge and ejects it out. The bolt has an opening for ejection of used cartridges. The extractor pulls out the fired cartridge from cartridge chamber.

The firing pin ignites the primer of cartridge; it is placed inside the bolt body. Front part of firing pin protrudes through the opening in a basement for bottom of the cartridge case. The spring of firing pin rests on spigot and forces the firing pin against hammer. The cocking points are used to pull the bolt.

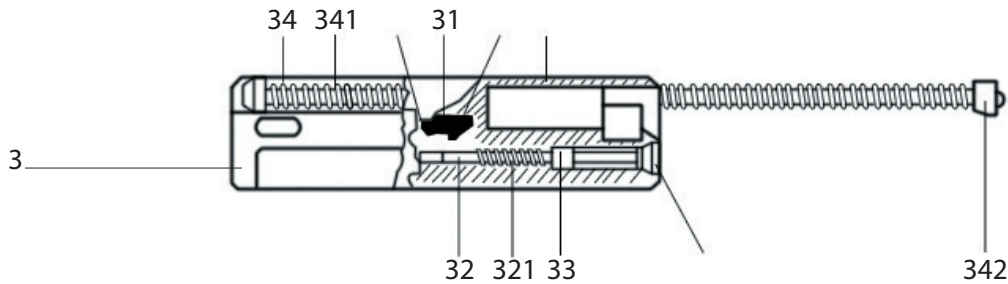


Figure No.: 6

Bolt (assembled)

3 – bolt, 31 – extractor, 32 – firing pin, 321 – firing pin spring, 33 – striker, 34 - return spring, 341 – return spring guide, 342 - return spring lock

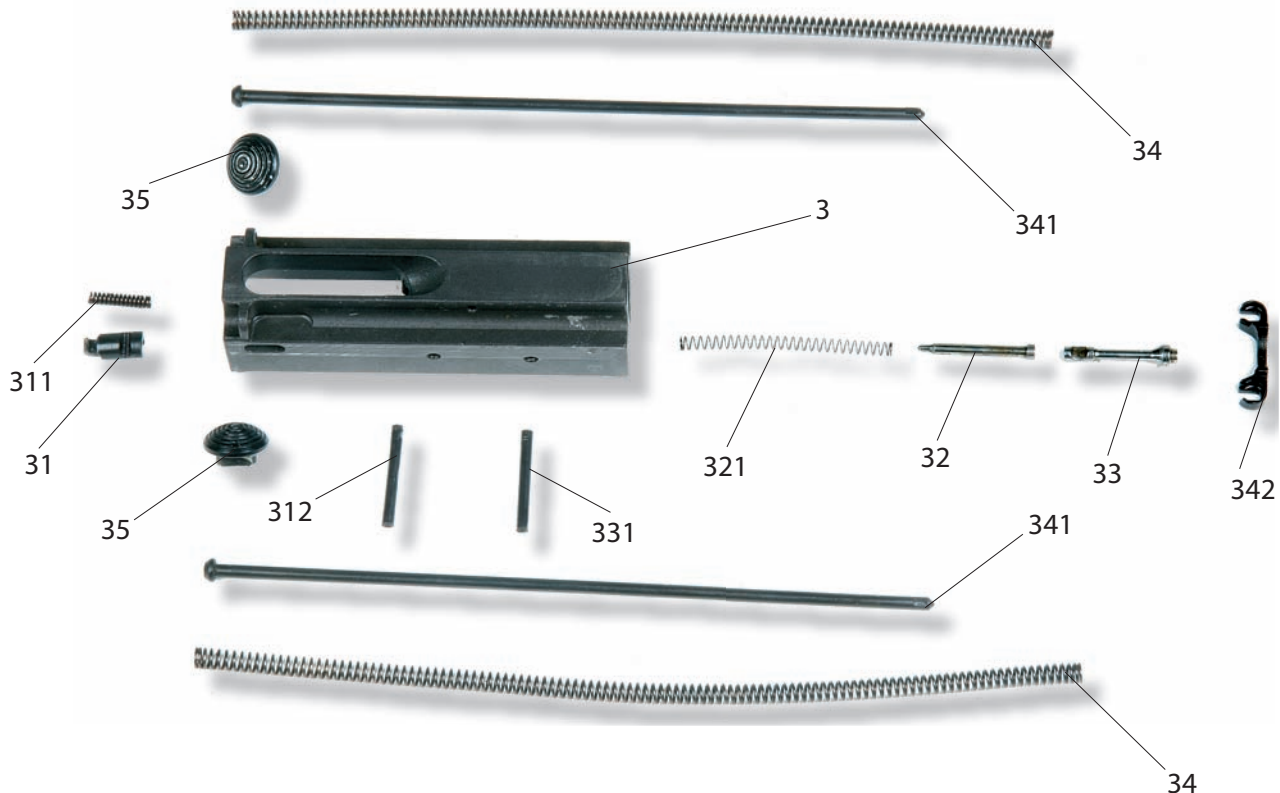


Figure No.: 7

Bolt (disassembled)

3 – bolt, 31 – extractor, 311 – extractor spring, 312 - extractor pin, 32 – firing pin, 321 – firing pin spring, 33 – striker, 331 – striker pin, 34 – return spring, 341 – return spring guide, 342 - return springs lock, 35 – cocking points

1.2.5. Frame (Fig. 8 - 10)

The frame houses all parts and elements of pistol in one unit. It is one of main parts of the gun and consists of the frame itself, ejector, bolt catch and safety catch.

The front part of pistol has opening for receiver pin. This opening is enlarged on left hand side in order to allow the receiver to be pushed forward during disassembly. There are two openings on the bottom part for magazine and trigger mechanism.

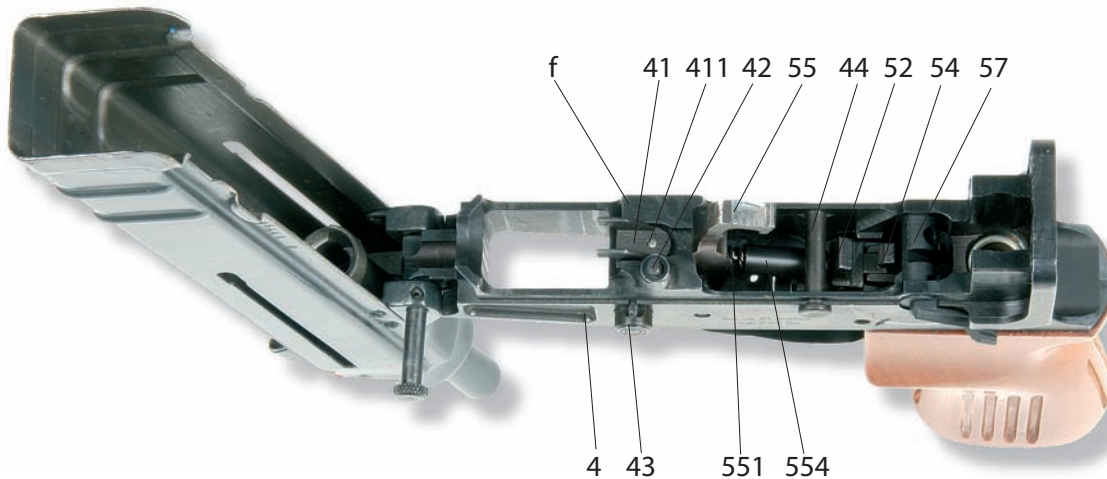


Figure No.: 8

Sa vz. 61 pistol frame with trigger mechanism

4 – frame, 41 – ejector, 411 – ejector pin, 42 – bolt catch, 43 – magazine catch, 44 – hammer stop, 52 – trigger lever, 54 – interrupter, 55 – hammer, 551 – hammer spring, 554 – hammer spring guarding tube, 57 – safety lever, f – bridge

The upper part of bridge has two arm ejector installed and secured by a pin with a spring. This pin also secures the magazine in fixed position. The magazine catch is formed by hollow pin fitted with a spring inside. The bolt catch is an oval pin (in its upper part), vertically embedded in left hand side of the frame bridge. It serves to retain the bolt in rear position after the last round is fired. It is secured against loosening by magazine catch. The bolt catch has two functions, first, it retains the bolt in rear position (when last round shot), secondly, prevents the fire when safety is in position "0" (i.e. locked) through the engagement of insert lever.

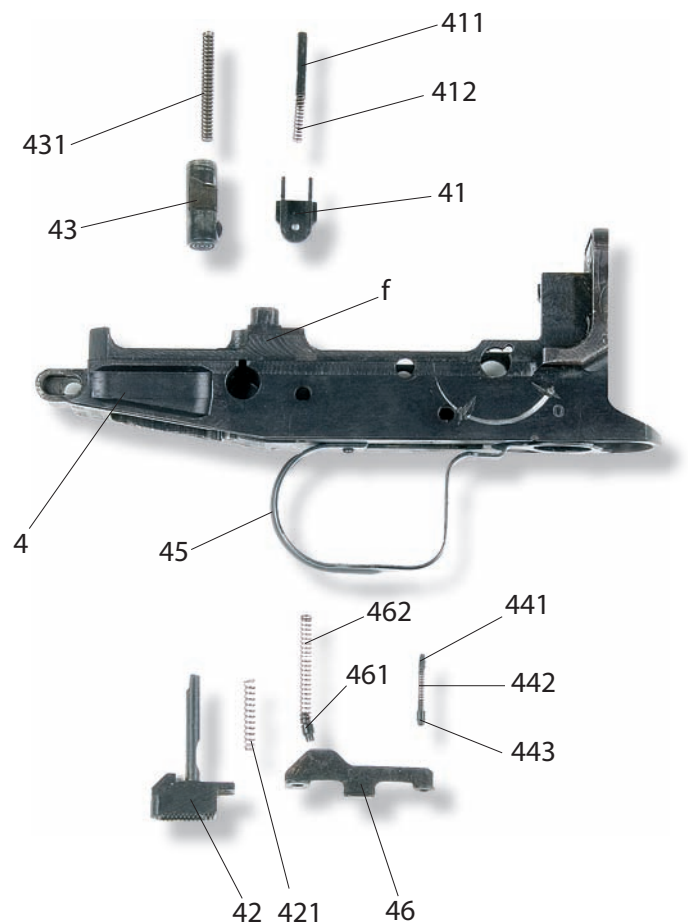


Figure No.: 9

Frame disassembled

4 – frame, 41 – ejector, 411 – ejector pin, 412 – ejector pin spring, 42 – bolt catch, 421 – bolt catch spring, 43 – magazine catch, 431 – magazine catch spring, 441 – hammer stop latch, 442 – hammer stop latch spring, 443 – hammer stop latch spring support, 45 trigger guard, 46 – fixing plate, 461 – fixing plate latch, 462 – fixing plate latch spring, f – bridge

At the bottom part of the frame, there is a rectangular opening for trigger and behind it, basement for the grip with thread opening for tube screw of the grip. The trigger is protected by trigger guard. The front part of trigger guard is fixed by a rivet and rear part by grip screw.

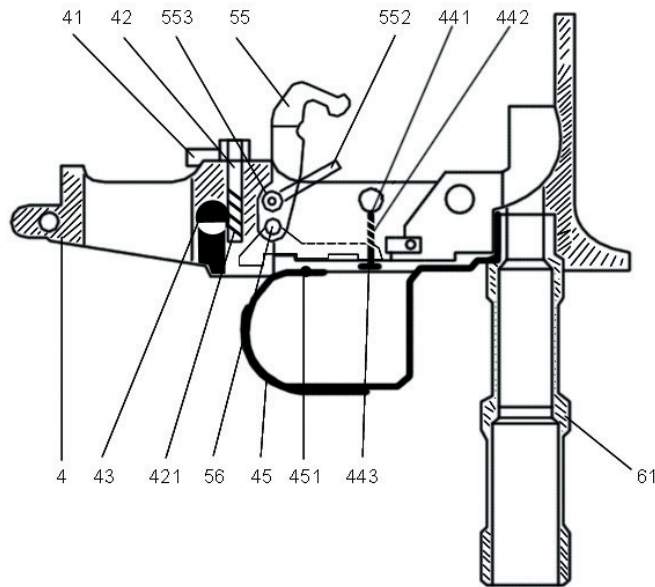


Figure No.: 10
Pistol frame

4 – frame, 41 – ejector, 42 – bolt catch, 421 – bolt catch spring, 43 – magazine catch, 441 – hammer stop latch, 442 – hammer stop latch spring, 443 – hammer stop latch spring support, 45 – trigger guard, 451 – trigger guard rivet, 55 – hammer, 552 – hammer spring guide, 553 – hammer spring guide pin, 56 – hammer pin, 61 – grip screw

1.2.6. Trigger mechanism (Fig. 11-12)

Trigger mechanism with safety offers the selection of single shots and safety locking. It is located at the rear part of the frame. The elements of trigger have one common pin which is locked by the pressure of hammer spring. The trigger, in fact, is two arm lever. The rear part of this two arm lever controls the trigger lever with trigger lever spring.

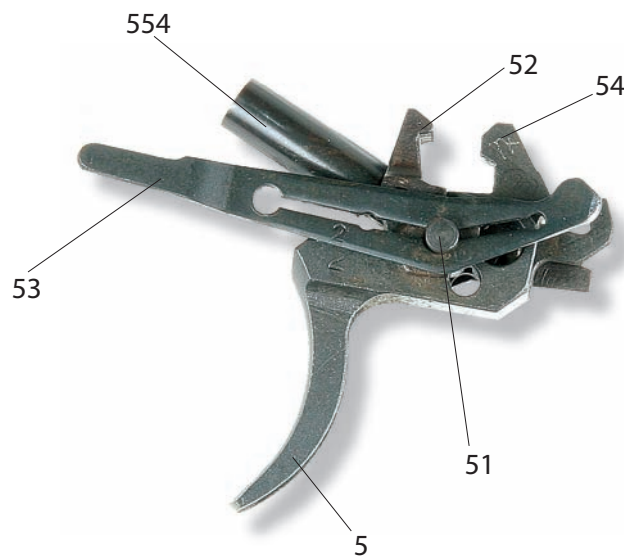


Figure No.: 11
Trigger mechanism

5 – trigger, 51 – trigger pin, 52 – trigger lever, 53 – insert lever, 54 – interrupter, 554 – hammer spring guarding tube

The sear is mounted on the top of the trigger. Guarding tube of hammer spring is swingingly mounted on the pin. Interrupter is placed in the centre on a trigger pin at the rear end of the trigger and is being pushed upward by sear spring.

Insert lever is mounted from left side on common pin of a trigger by its rear end. Apart from keeping the trigger mechanism together, insert lever fulfils also the drop safety function. The rear arm of the insert lever is pressed down when safety is in zero "0" position thus lifting up the front end of the insert lever and engaging bolt stop. This prevents the bolt from moving backwards even in the case the gun is accidentally dropped.

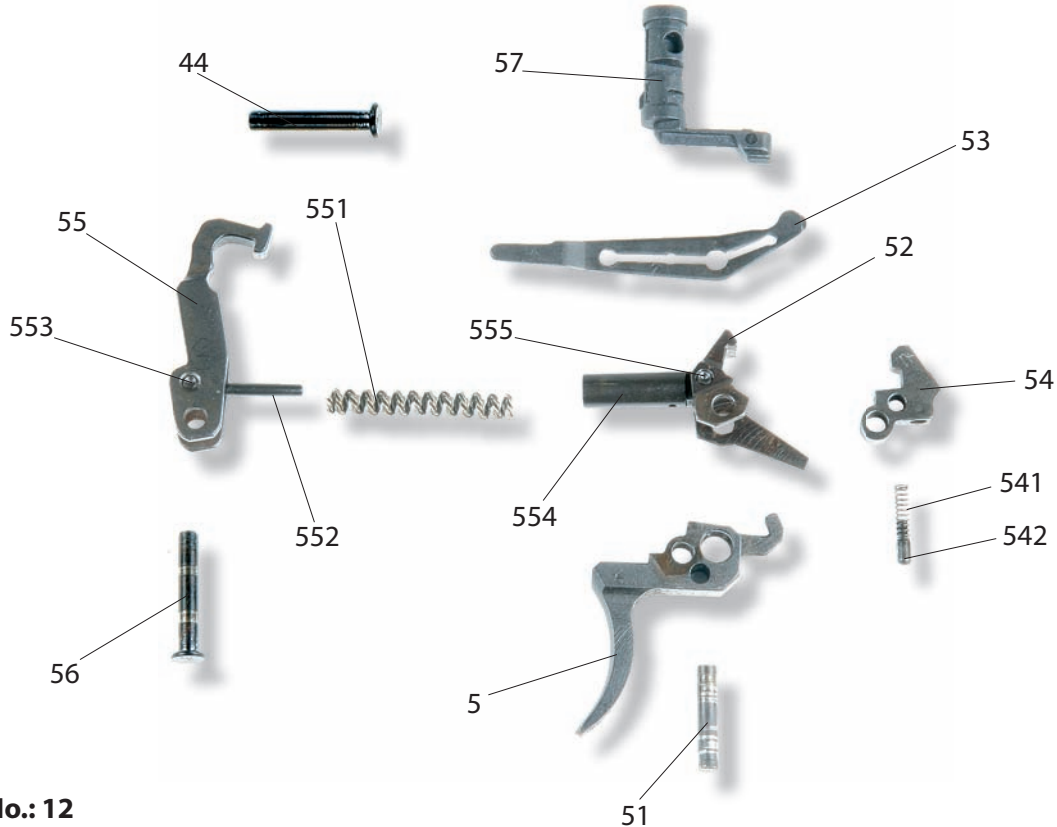


Figure No.: 12

Trigger mechanism with hammer

44 – hammer stop, 5 – trigger, 51 – trigger pin, 52 – trigger lever, 53 – insert lever, 54 – interrupter, 541 – interrupter spring, 542 – interrupter spring rest, 55 – hammer, 551 – hammer spring, 552 – hammer spring guide, 553 – hammer spring guide pin, 554 – hammer spring guarding tube, 555 – hammer spring guarding tube pin, 56 – hammer pin, 57 – safety lever

1.2.7. Hammer

The hammer strikes firing pin and, through the pressure of spring, holds the trigger in pistol frame. It is mounted on a pin which crosses rear part of frame behind the bridge.

1.2.8. Grip

The grip is wooden and serves to handle the pistol. There is a longitudinal hollow which accommodates the grip bolt. Aside declination is prevented by its basement and by mounting to trigger guard. The whole grip is fixed to the frame with a bolt and washer. This bolt is made of duralumin.

Interrupter is placed in the centre on a trigger pin at the rear end of the trigger and is being pushed upward by sear spring.

Insert lever is mounted from left side on common pin of a trigger by its rear end. Apart from keeping the trigger mechanism together, insert lever fulfils also the drop safety function. The rear arm of the insert lever is pressed down when safety is in zero "0" position thus lifting up the front end of the insert lever and engaging bolt stop. This prevents the bolt from moving backwards even in the case the gun is accidentally dropped.

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Figure No.: 13

Grip

6 – grip, 61 – grip screw, 62 – grip cap, 63 – grip cap washer

1.2.9. Magazines

Magazine(s) – one short (10 rounds) and two long (20 rounds), the design is the same, only the length differs. The magazine accommodates rounds for continuous feeding into pistol. It consists of magazine body, follower, spring, magazine floor and magazine floor safety.

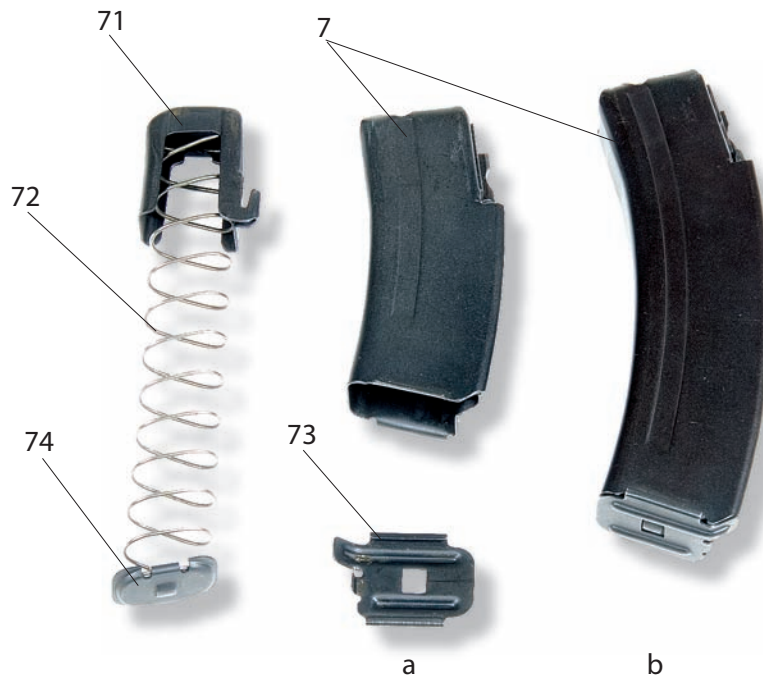


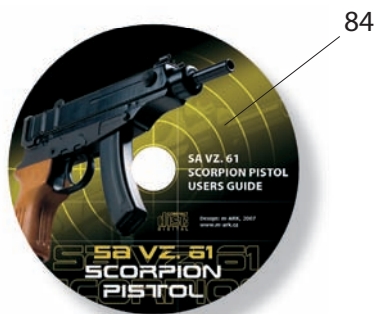
Figure No.: 14

Magazine

a – short (dismantled), b – long (assembled), 7 - magazine body, 71 – follower, 72 – magazine spring, 73 – magazine floor, 74 – magazine floor safety

Figure No.: 15 Accessories

- 8 – holster
- 81 – holster belt
- 82 – holster suspension belt
- 83 – magazine pouch
- 84 – CD



1.3. Accessories

1.3.1 Description of accessories

Accessories consist of belt holster, magazine pouch and CD.

Belt holster is used for carrying the gun on a hip.

**Figure No.: 16
Holster on a belt**



Gun can be carried also suspended on a suspension belt.

**Figure No.: 17
Holster suspended**



Magazine pouch is a textile case with two compartments for two long magazines. Pouch can be attached to a belt or carried in pocket.

1.4. Ammunition

The pistol cartridges 7,65 mm are used for firing and for training as well. The weight of the cartridge is 7,62 g. Storing, manipulation and use of the cartridges is subject to producers procedures and warranty conditions.

2. Operation, troubleshooting, storing, inspections, maintenance and zeroing of Sa vz. 61 pistol

2.1. *Parts and Mechanism Operation of Sa vz. 61 pistol*

2.1.1. Preparation for shooting

The pistol preserved for long storage must be disassembled, cleaned and assembled before use. All remnants of vaseline have to be removed and all movable parts oiled.

2.1.2. Loading

Insert loaded magazine into a gun until a click is heard. Turn the safety from position "0" to position "1" (single shots). Holding the cocking points firmly – pull the bolt backwards till it stops and release. The bolt returns back in front position and brings cartridge to the chamber and locks the chamber itself. This being done, the gun is ready to fire.

2.1.3. Firing

After pulling the trigger a sequence of movements in trigger mechanism results in hammer hitting a striker and igniting a primer, thus resulting in a shot. Part of powder gases thrusts onto cartridge case bottom and front wall of the bolt, ejecting the bolt into rear position. This energy suppresses the springs, ejects the cartridge and renews the operating position of the hammer. The empty cartridge is ejected upward and away from the shooter. The restored forward motion causes the new feeding of next cartridge to chamber. The trigger must be released after each shot. The pistol is ready for next single shot by new action of the trigger.

2.1.4. Safety lever

The gun is safely locked by turning the safety to position "0", i.e. pointing backwards. Thus, the trigger can not be pressed, accidental fire is prevented.

2.1.5. Fire termination

Should the fire be terminated, it is recommended to pull out the magazine and draw the bolt into rear position. The last unused cartridge should be ejected from the chamber this way only. Then, the bolt should be released again to its front position and gun locked by the safety (into position "0").

2.2. *Troubleshooting*

2.2.1. Failure prevention

Well preserved, stored and prepared pistol is free from defects and it is very reliable gun. However, long term utilization in adverse conditions, coarse impurities in the gun mechanism, defected cartridges and misuse might cause failures in operation and may even damage the gun.

Failures can be prevented if:

- rules of maintenance, disassembly, assembly, cleaning, inspections etc. are duly followed
- harsh and dusty conditions are avoided
- excessive force is not used while fixing failures
- defective and dirty cartridges are not fired
- moving parts are oiled and the barrel and chamber cleaned and wiped dry

Failure, Defect	Cause	Trouble removal
1. No shot after trigger pulled	1.defective firing pin 2.fatigued hammer spring 3.defective cartridge	1.replace firing pin 2.replace hammer spring 3.only after 10 seconds remove cartridge manually (pull the bolt backward) – danger of delayed ignition
2. Incomplete locking of the bolt	1.dirt in bolt or receiver 2.defective cartridge 3.dirt in cartridge chamber	1.open receiver, clean and oil 2.remove cartridge manually (bolt backward) 3.clean chamber
3. No cartridge fed	1.dirt in magazine interior 2.defective magazine body 3.fatigued or broken follower spring 4.recoil too short	1.clean magazine 2.replace magazine 3.replace follower spring 4.clean the gun
4. Non-ejected cartridge	1.short trajectory of bolt move 2.defective cartridge rim	1.clean the gun 2.replace defective cartridge
5. Cartridge not held in a magazine	1. magazine spring too strong or magazine feed lips too wide	1.replace the magazine spring or magazine
6. Bolt not retained in rear position when last round shot	1.defective magazine follower 2.plugged bolt catch	1.replace the magazine follower 2.replace or adjust bolt catch

2.3. Storing, disassembly, assembling and checks of Sa vz. 61 pistol**2.3.1. Storing**

The pistol has to be stored with bolt in front position in order not to overstrain the springs and the safety must be in position "0". The gun should be disassembled, cleaned and assembled after each use. Special attention must be paid to cleaning of the barrel and cartridge chamber.

1.3.2. Disassembly

Disassembling of the pistol is partial or complete. The complete disassembly is executed only in specialized workshops for repair reasons by authorized gunsmiths. Partial disassembly can be performed by each individual user. Attention should be paid to tiny components when disassembling the pistol.

Always make sure the gun is not loaded, remove the magazine and check the cartridge chamber. Regular check and maintenance require opening the bolt and receiver only. This provides sufficient access to trigger mechanism and receiver.

Partial disassembly:

- a) remove the magazine
- b) remove the receiver by pressing protruding end of receiver pin on right side of receiver, pull out the connecting pin to left until it stops, push the receiver forward and tilt it up
- c) remove the bolt by drawing it to rear position, remove both cocking points and the bolt itself from the receiver

Complete disassembly:

- a) perform partial disassembly first
- b) disassemble the bolt by removing the lock of return springs and guiding rods of return springs, knock out firing pin by using puncher, remove the striker and its spring
- c) knock out the pin of extractor by using the puncher and pull out extractor with its spring
- d) separate receiver from the frame by pulling out receiver pin till it stops and remove the pin with spring by applying pressure of a puncher.
- e) dismantle the trigger and hammer – push the fixing plate latch and pull out the front end of fixing plate, pull out the fixing plate latch with its spring as well as hammer stop latch, remove hammer stop, turn the safety lever forward and pull it out, remove the trigger by pushing forward and releasing the hammer pin, pull out the hammer spring and insert lever (using the needle from accessories), pull out the trigger pin and separate disconnector, sear and trigger, pull out hammer pin and hammer
- f) dismantle the ejector, bolt catch and magazine catch by pushing ejector safety pin by puncher

1.3.3.Assembly

Follow up the reverse procedure to assemble the pistol after all components are entirely cleaned, dry and preserved.

1.3.4.Inspections of Sa vz. 61 pistol

Inspecting of assembled pistol

inspect the condition of components for corrosion, dirt, completeness

check the sights

review movability of bolt and trigger

check whether magazines are undamaged

Inspecting of disassembled pistol

clean all components before checking

check corrosion, dirt and excessive wear-out of components

inspect carefully the barrel bore and grooves (remnants of powder, corrosion, dark stains, wear of fields, barrel swell

or cavities and mechanical damage)
check carefully the completeness of all components before assembly

2.4. Cleaning and preservation of Sa vz. 61 pistol

Thorough and careful cleaning and preservation is necessary for long term trouble free operation of the gun, fire precision and overall lifetime. Clean and soft cloths are recommended for cleaning the gun and accessories. Vaseline should be used for preservation to protect the pistol against corrosion during long term storage. It is recommended to use a mixture of gun oil and vaseline (ratio 3:1) for the use at temperatures below 0 °C.

2.5. Zeroing of Sa vz. 61 pistol

Each pistol is zeroed by the producer. New zeroing is required only when the pistol is significantly damaged (mainly the sights) and when converted for other than prescribed ammunition. The fire adjustment can be performed only by highly qualified staff.

3. Basic Technical Specifications of Sa vz. 61 pistol

Calibre.....	7,65mm Browning (.32 ACP)	
Muzzle velocity V0.....	317 m/sec.	(347 yards/sec)
Number of grooves.....	6	
Groove pitch.....	350 mm	(13.8 inch)
Overall length.....	270 mm	(10.6 inch)
Barrel length.....	115 mm	(4.5 inch)
Sight line.....	165 mm	(6.5 inch)
Sights range.....	75 and 150 m	(82 and 164 yards)
Width.....	45 mm	(1.8 inch)
Height.....	165 mm	(6.5 inch)
Combat rate of fire.....	up to 35 rounds/min.	
Effective range.....	up to 150 m	(164 yards)
Maximum range.....	about 1500 m	(1,640 yards)
Lethal range.....	600 m	(656 yards)
Weight of pistol without magazine.....	1,10 kg	(2.43 lb)
Weight of pistol with loaded magazine (10 rounds).....	1,25 kg	(2.76 lb)
Weight of pistol with loaded magazine (20 rounds).....	1,36 kg	(3.00 lb)
Weight of empty magazine (short).....	0,08 kg	(0.18 lb)
Weight of empty magazine (long).....	0,11 kg	(0.24 lb)
Weight of loaded magazine (short, 10 rounds).....	0,15 kg	(0.33 lb)
Weight of loaded magazine (long, 20 rounds).....	0,26 kg	(0.57 lb)
Number of magazines.....	2 + 1	

4. List of Parts

1	- barrel	55	- hammer
11	- barrel pin	551	- hammer spring
		552	- hammer spring guide
2	- receiver	553	- hammer spring guide pin
21	- receiver insert	554	- hammer spring guarding tube
22	- receiver pin	555	- hammer spring guarding tube pin
23	- receiver pin plunger	56	- hammer pin
231	- receiver pin plunger spring	57	- safety lever
24	- front sight	6	- grip
241	- front sight cover	61	- grip screw
25	- rear sight	62	- grip cap
251	- rear sight pin	63	- grip cap washer
252	- rear sight latch		
253	- rear sight latch spring	7	- magazine body
		71	- follower
3	- bolt	72	- magazine spring
31	- extractor	73	- magazine floor
311	- extractor spring	74	- magazine floor safety
312	- extractor pin		
32	- firing pin	8	- holster
321	- firing pin spring	81	- holster belt
33	- striker	82	- holster suspension belt
331	- striker pin	83	- magazine pouch
34	- return spring	84	- CD
341	- return spring guide		
342	- return spring lock		
35	- cocking point		
4	- frame		
41	- ejector		
411	- ejector pin		
412	- ejector pin spring		
42	- bolt catch		
421	- bolt catch spring		
43	- magazine catch		
431	- magazine catch spring		
44	- hammer stop		
441	- hammer stop latch		
442	- hammer stop latch spring		
443	- hammer stop latch spring support		
45	- trigger guard		
451	- trigger guard rivet		
46	- fixing plate		
461	- fixing plate latch		
462	- fixing plate latch spring		
5	- trigger		
51	- trigger pin		
52	- trigger lever		
53	- insert lever		
54	- interrupter		
541	- interrupter spring		
542	- interrupter spring rest		