Single Shot Free Pistol MTs 55-1M Manual

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1. The purpose of the pistol

Single shot free pistol MTs55-1M is designed for shooting at stationary round targets at distance of 50 meters in open or indoor shooting galleries with temperate climate according to GOST[1] 15150-69.

For the shooting with MTs55-1M must be used 5,6 mm rim fire cartridges with maximal barrel pressure of 128 MPa (1300kgs/cm^2); „Olymp“ or „Temp“ pistol cartridges for example.

General view of the pistol is shown in Figure 1.

1 GOST (Russian: ГОСТ) refers to a set of technical standards maintained by the Euro-Asian Council for Standardization, Metrology and Certification (EASC), a regional standards organization operating under the auspices of the Commonwealth of Independent States (CIS).

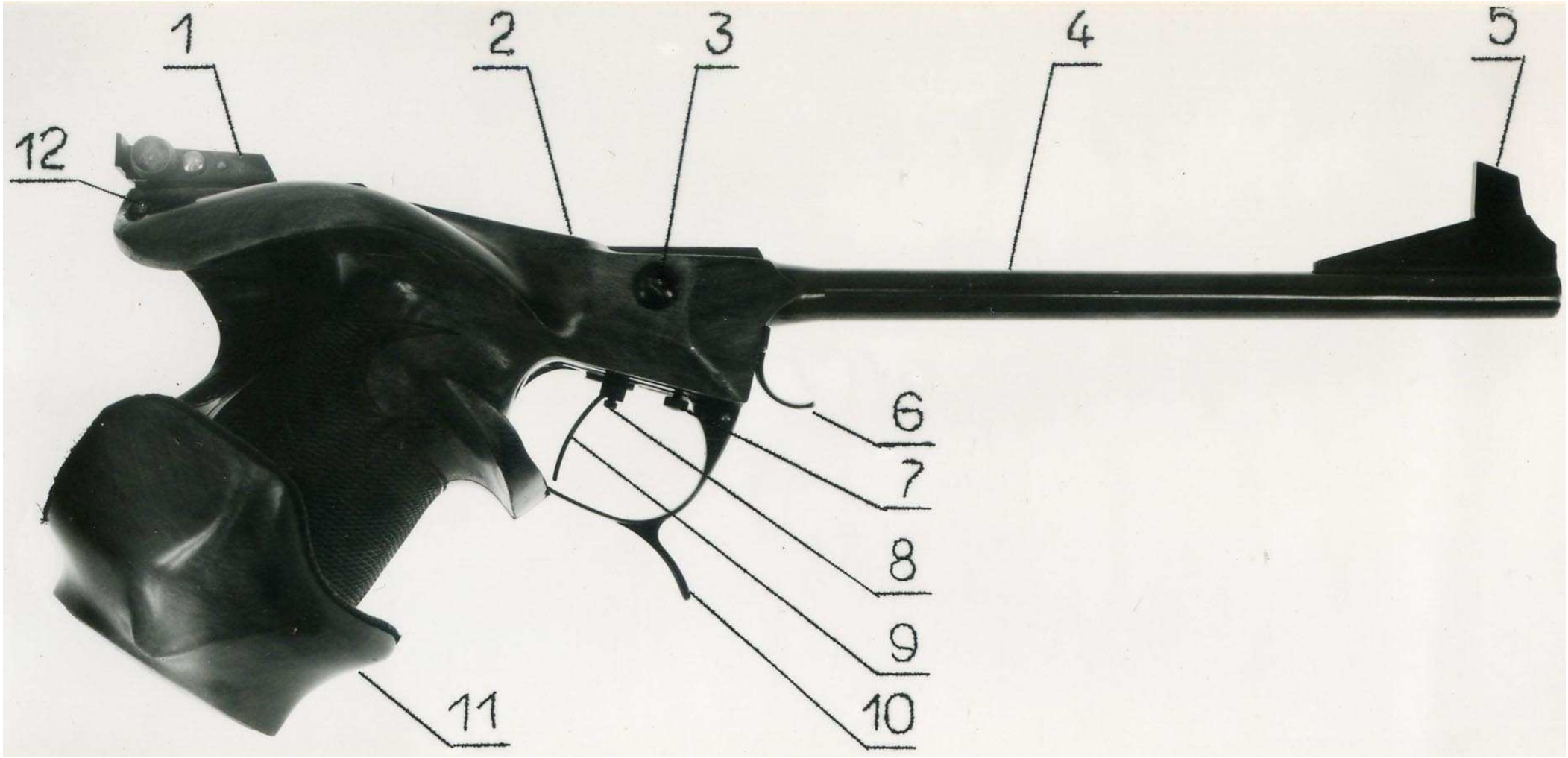


Figure 1.

1 – rear sight; 2 – right part of the grip; 3 – nut; 4 – receiver and barrel; 5 – front sight; 6 – bolt lever; 7 – adjustment screw; 8 – trigger shoe screw; 9 – trigger shoe; 10 – bolt latch; 11 – palm rest; 12 – grip screw;

2. Technical characteristics

Main characteristics of MTs55-1M pistol listed in Table 1.

Table 1.

Feature	Norm
Calibre, mm	5,6
Adjustment range of sighting line length, not less than, mm	45
Shift of mean point of impact at 50 m, when knob turned through 1 click, mm:	
in windage	8±1,5
in elevation	6±1,5
Front sight width, mm:	
#1	4-0,1
#2	4,5-0,1
#3	5-0,1
Rear sight width, mm:	
#1 and #4	2,75+0,1
#2 and #5	3,00+0,1
#3 and #6	3,25+0,1
Force needed to cock the mechanism, not more than, N (kgs)	80 (8)
Adjustable trigger pull, N (kgs)	0,1-1,0 (0,01-0,1)
Adjustable creep, mm	0,2-1,0
Dimensions, not more than, mm:	
length	420
width	110
height	170
Weight, not more than, kg	1,4

3. Main parts and delivery

3.1 Main parts

MTs55-1M pistol consists of parts shown in Figures 2, 3, 4, 5, 6, 7, 8, 9.

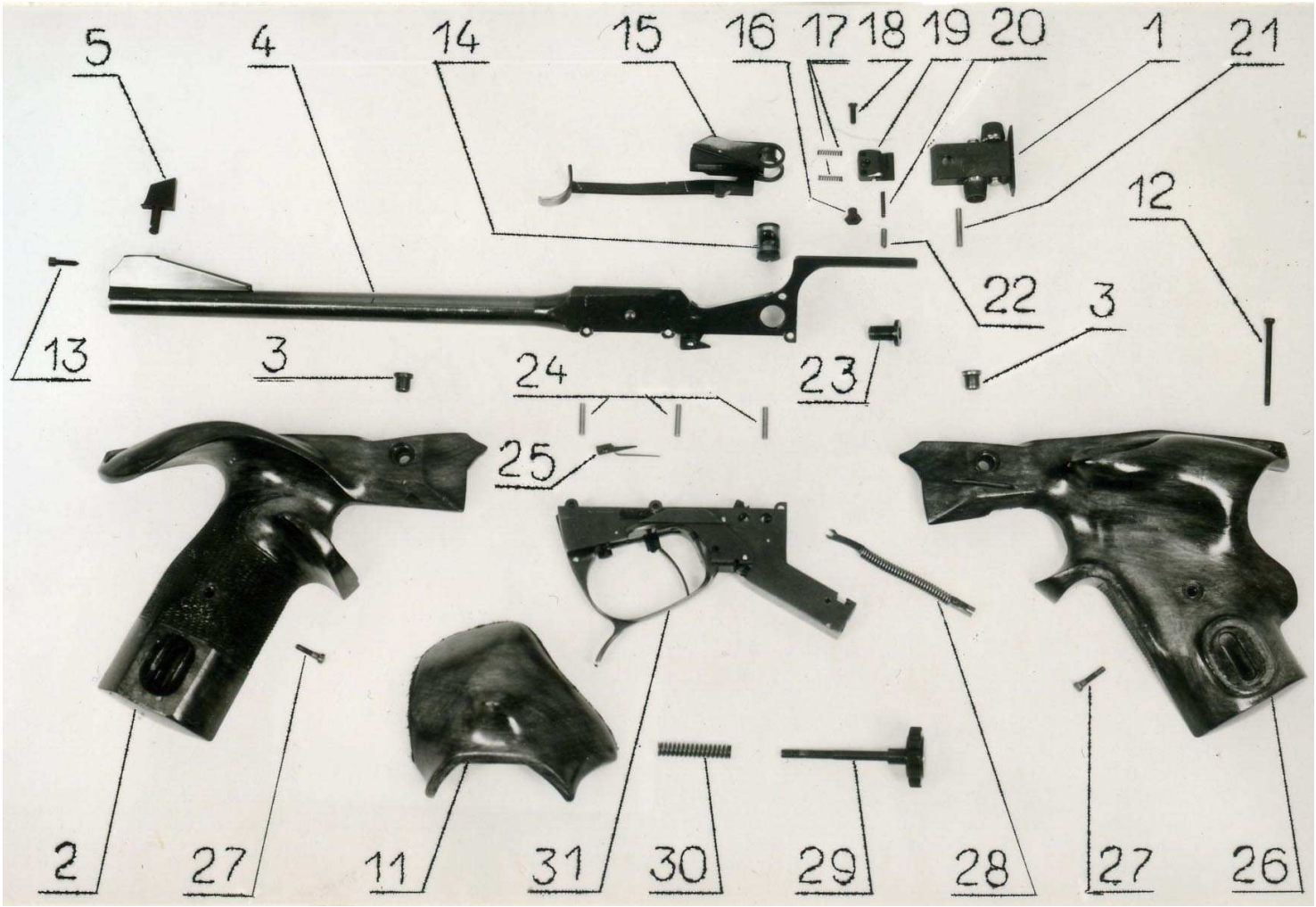


Figure 2.

1 – rear sight; 2 – right cheek; 3 – nut; 4 – receiver with barrel; 5 – front sight; 11 – palm rest; 12 – grip screw; 13 – front sight screw; 14 – bolt pin; 15 – bolt; 16 – rear sight mounting nut; 17 – rear sight spring; 18 – rear sight mounting screw; 19 – rear sight base; 20 – lock spring; 21 – rear sight pin; 22 – knob lock; 23 – bolt pin screw; 24 – pin; 25 – trigger spring; 26 – left cheek; 27 – grip screw; 28 – rod assembly; 29 – palm rest screw; 30 – palm rest screw spring; 31 – trigger mechanism;

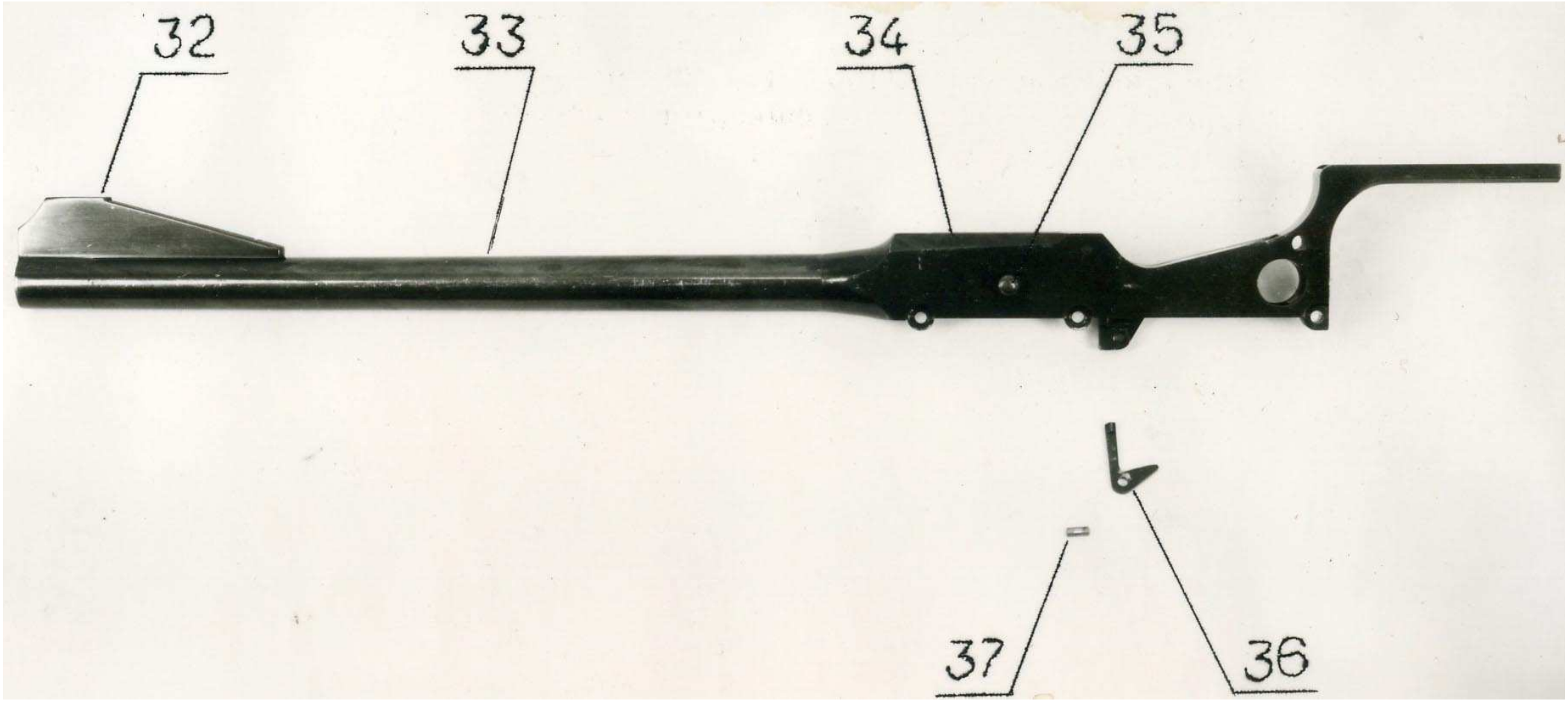


Figure 3.
32 – front sight base; 33 – barrel; 34 – receiver; 35 – screw; 36 – ejector; 37 – ejector pin;

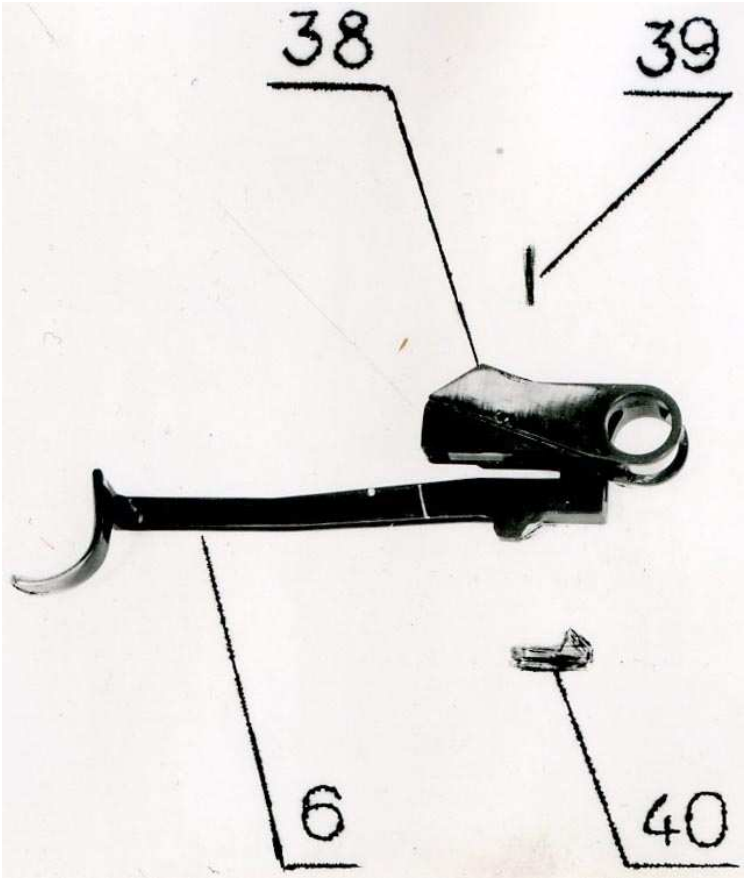
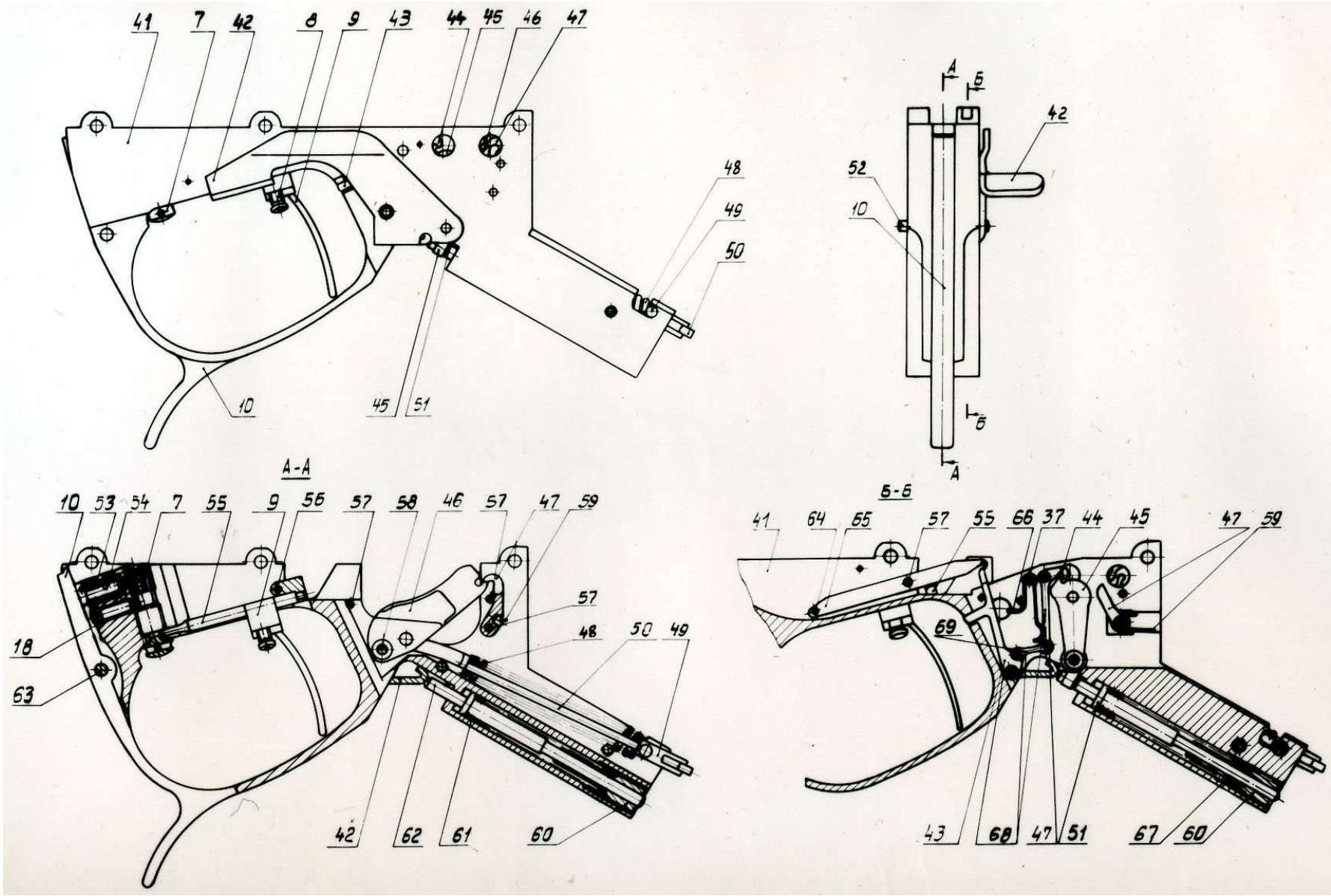


Figure 4.
6 – bolt lever; 38 – bolt frame; 39 – striker spring pin; 40 – striker;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41 64 65 57 55 66 37 44 45 47 59
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43 68 47 51 67 60

Figure 5.

7 – adjusting screw; 8 – trigger shoe screw; 9 – trigger shoe; 10 – bolt latch; 18 – screw; 37 – ejector pin; 41 – trigger frame; 42 – cocking lever; 43 – sear #3; 44 – sear #2; 45 – hammer #2; 46 – hammer #1; 47 – sear #1; 48 – mainspring; 49 – mainspring base; 50 – rod; 51 – pusher; 52 – hammer pin #2; 53 – latch spring; 54 – screw catch; 55 – trigger base; 56 – trigger pin; 57 – sear pin #1; 58 – hammer pin #1; 59 – sear spring #1; 60 – pusher spring base; 61 – pusher spring #2; 62 – pusher #2; 63 – latch pin; 64 – pin; 65 – sear #4; 66 – sear spring #2; 67 – pusher spring #1; 68 – sear with chain; 69 – chain;

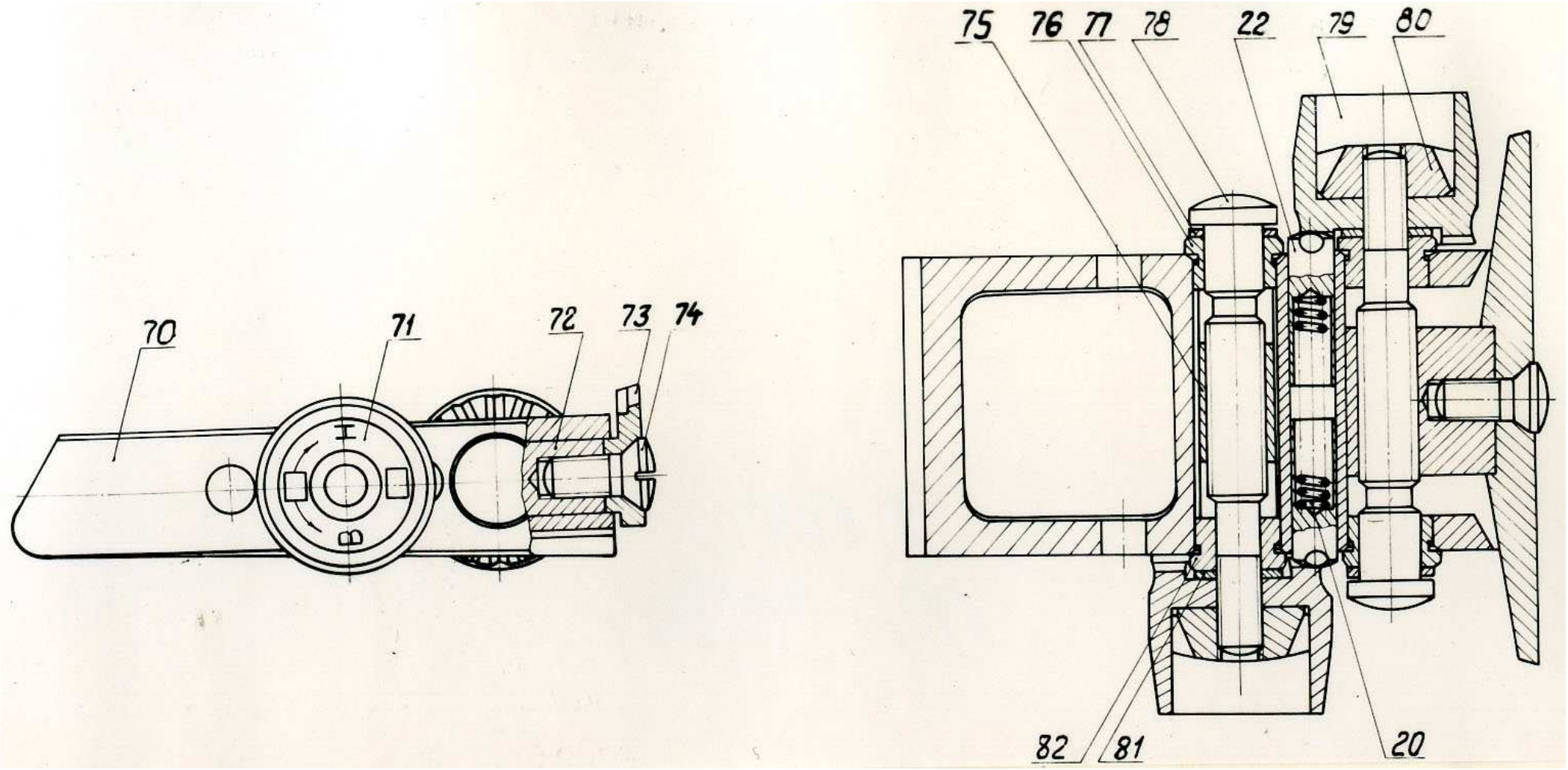


Figure 6.

20 – knob locking spring; 22 – knob lock; 70 – rear sight frame; 71 – nut #2; 72 – rear sight base; 73 – rear sight blade #1; 74 – rear sight blade screw; 75 – slider; 76 – bushing #1; 77 – washer #1; 78 – micro-metric screw; 79 – screw knob; 80 – nut #1; 81 – washer #2; 82 – bushing #2;

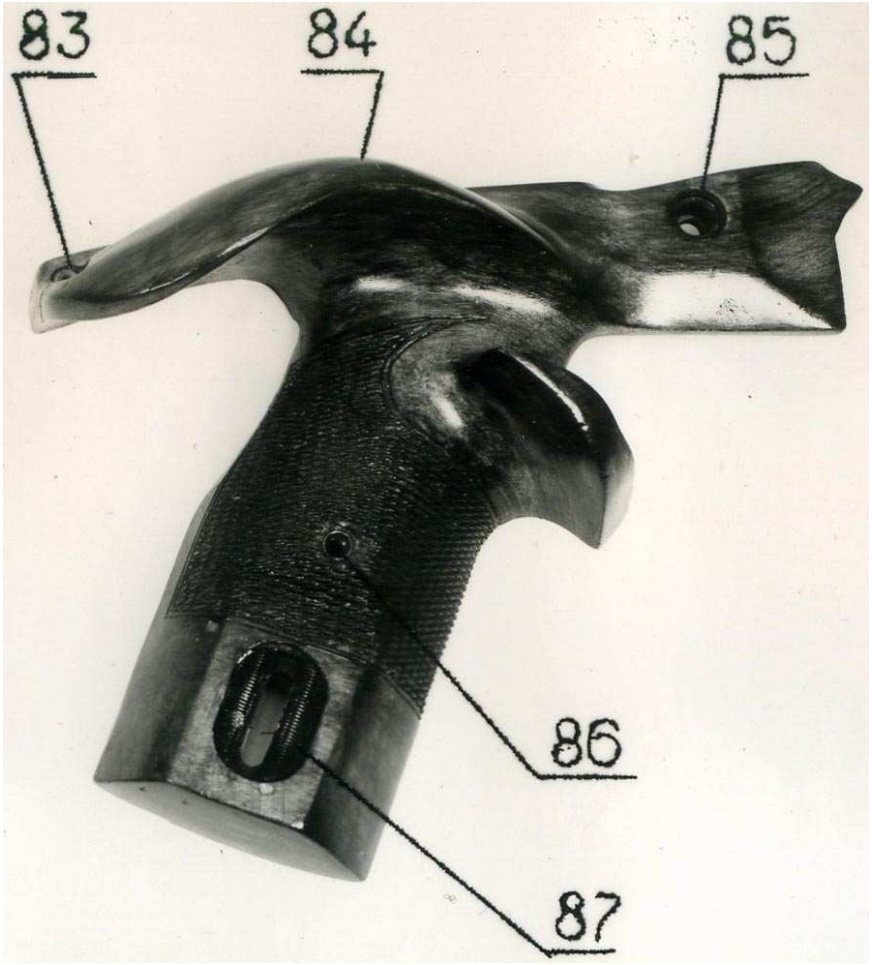


Figure 7.
83 – nut; 84 – right cheek; 85 – washer; 86 – washer; 87 – washer;

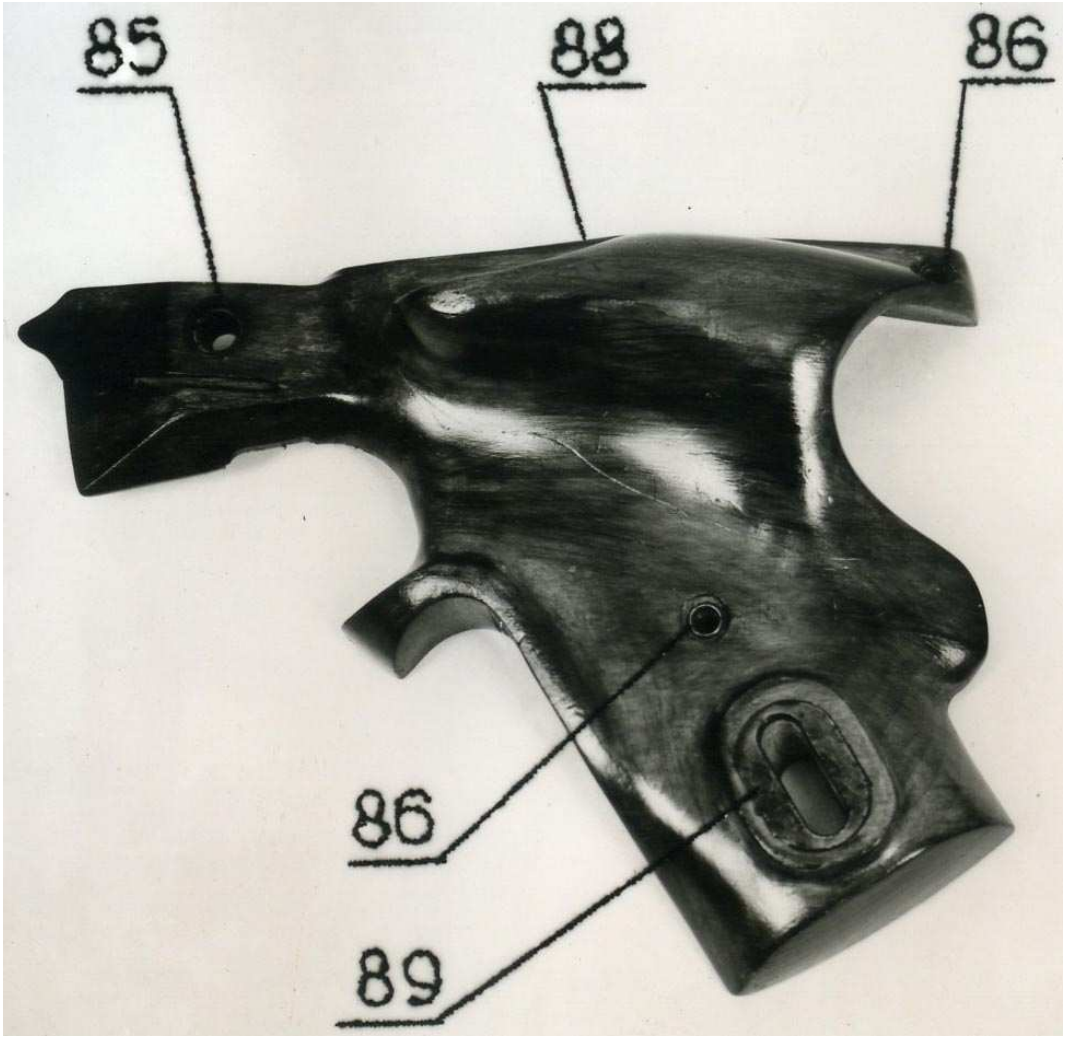


Figure 8.
85 – washer; 86 – washer; 88 – left cheek; 89 – washer;

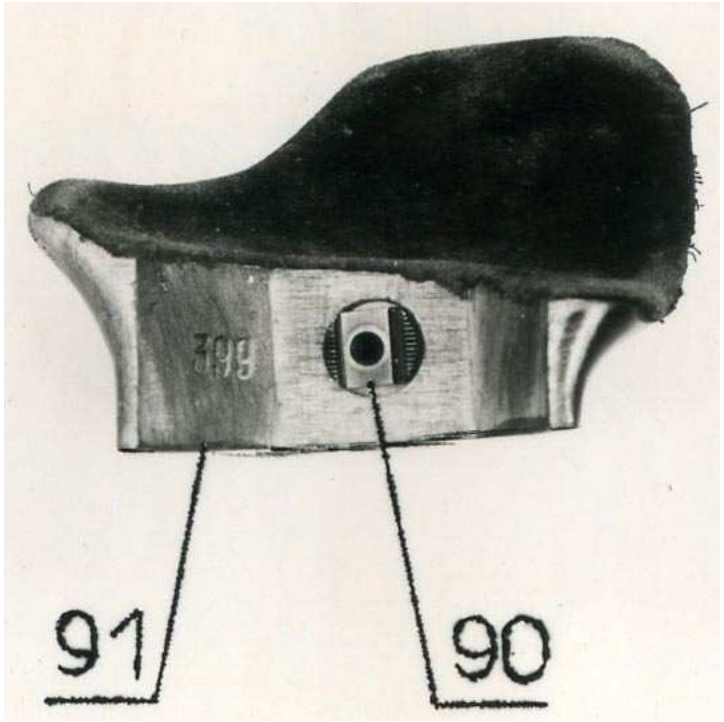


Figure 9.
90 – palm rest nut; 91 – palm rest;

3.2. Delivery

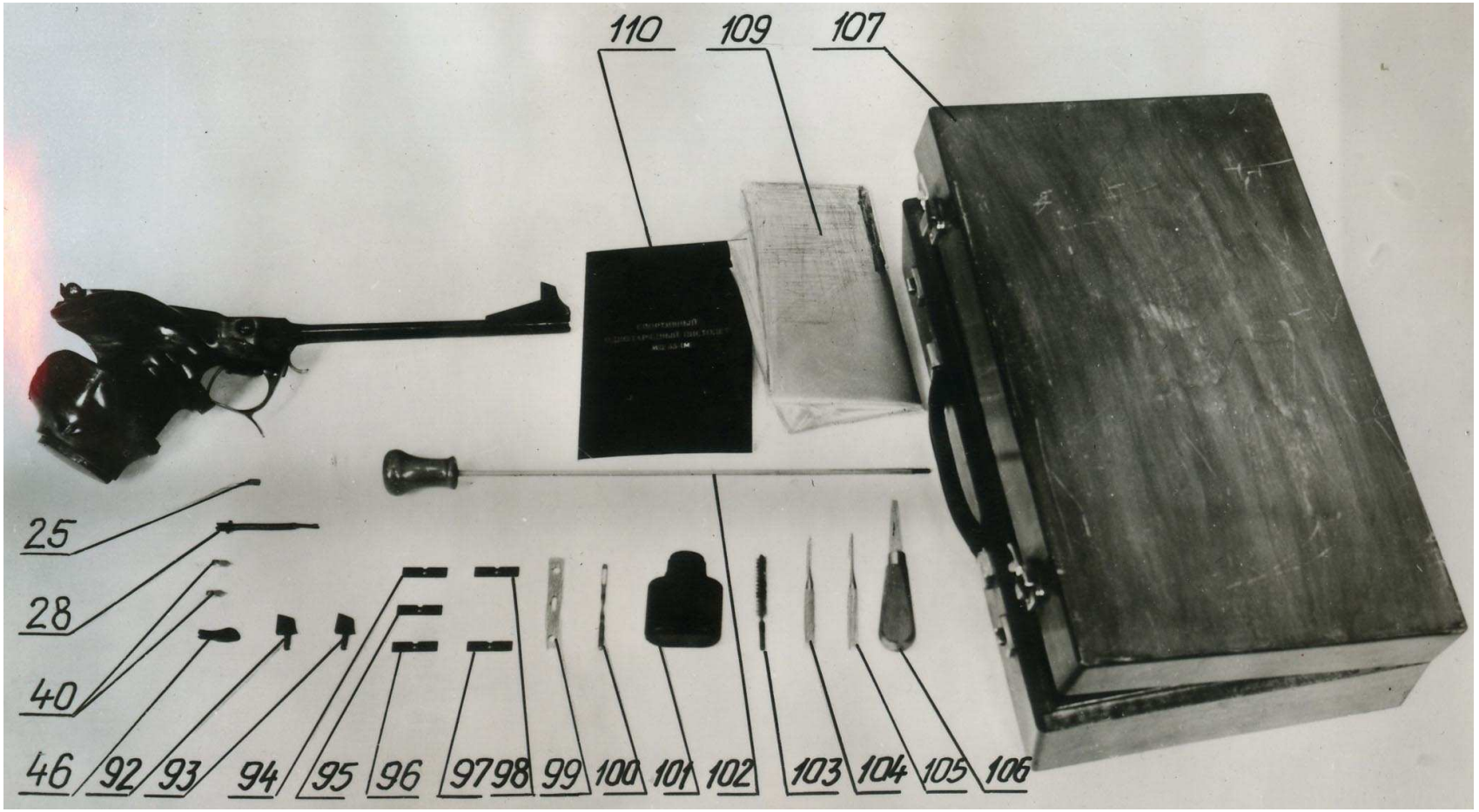


Figure 10. Delivery in hard case.

25 – trigger spring; 28 – rod assembly; 40 – striker; 46 – hammer; 92 – front sight #2; 93 – front sight #3; 94 – rear sight blade #4; 95 – rear sight blade #5; 96 – rear sight blade #6; 97 – rear sight blade #2; 98 – rear sight blade #3; 99 – key; 100 – wiping cap; 101 – oiler; 102 – cleaning rod; 103 – bristle brush; 104 – drift pin dia. 1,5mm; 105 – drift pin dia. 2,5mm; 106 – screw driver; 107 – wooden case; 109 – polyethylene cover; 110 – manual;

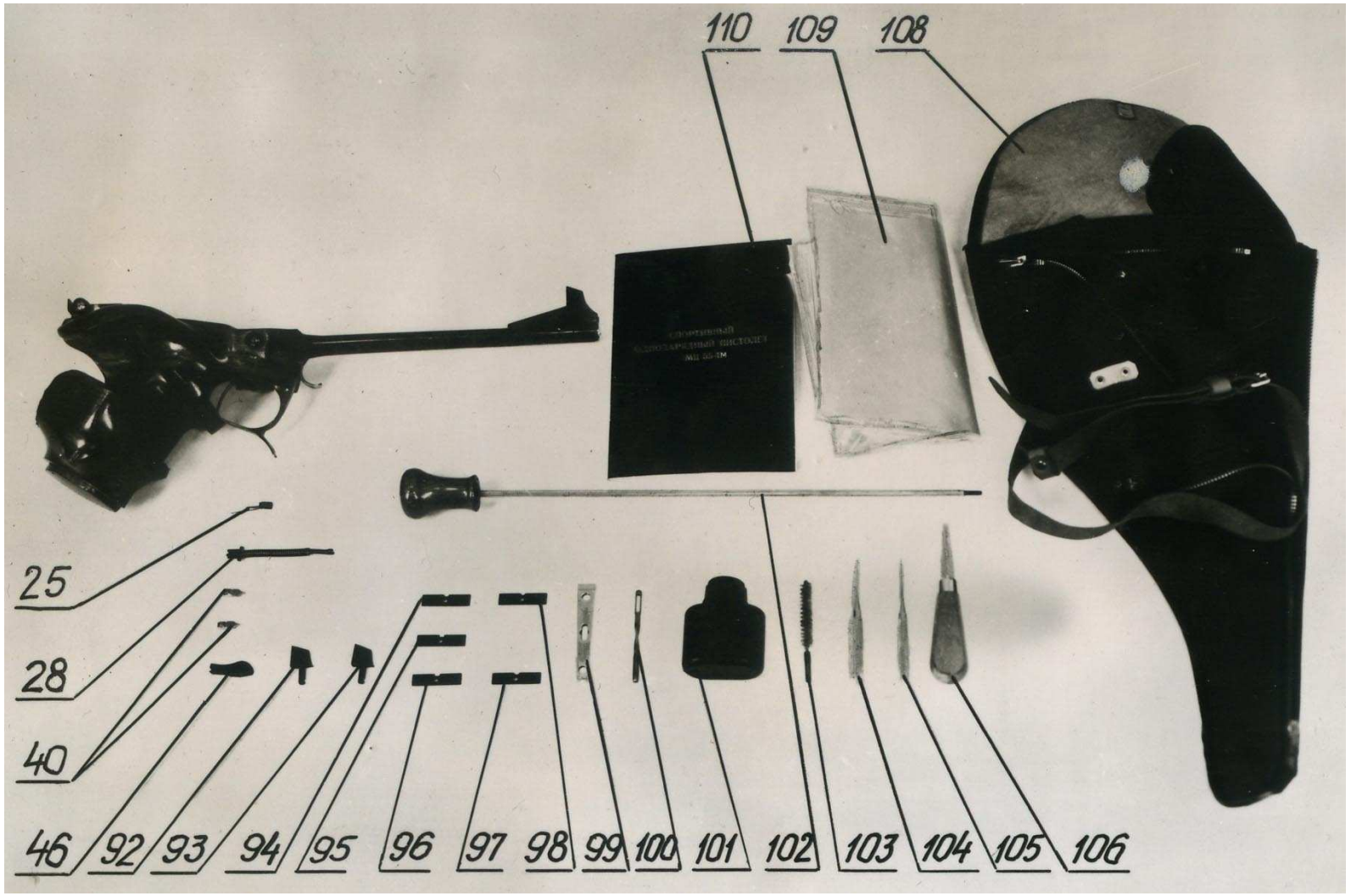


Figure 11. Delivery in soft cover.

25 – trigger spring; 28 – rod assembly; 40 – striker; 46 – hammer; 92 – front sight #2; 93 – front sight #3; 94 – rear sight blade #4; 95 – rear sight blade #5; 96 – rear sight blade #6; 97 – rear sight blade #2; 98 – rear sight blade #3; 99 – key; 100 – wiping cap; 101 – oiler; 102 – cleaning rod; 103 – bristle brush; 104 – drift pin dia. 1,5mm; 105 – drift pin dia. 2,5mm; 106 – screw driver; 108 – soft cover; 109 – polyethylene cover; 110 – manual;

4. Design and operation principle

The barrel is attached to the receiver by two guiding cylinders and thread.
The bearing bolt is locked by means of the rotation pin of the bolt, which geometrical axis crosses the middle line of the bore, and the latch located in the housing of trigger mechanism.
A fired cartridge case is ejected by the extractor on opening the bolt (by additional rotation).
Hammer type striking mechanism (hidden hammer). The hammer is cocked on opening the bolt by an additional lip located on the bolt lever.
Hammer type trigger mechanism (hidden hammer). The trigger is armed by pressing all the way downward the cocking lever fitted on the pistol left side. Special indicator shows if trigger is cocked.
Striking & trigger mechanisms are mounted in separate frame.
The sight enables fine adjustment of the rear sight in windage and elevation.
The front and rear sights are replaceable.
A walnut pistol grip is specially shaped and has an adjustable palm rest.
The MTs 55-1M is a single shot pistol. Cartridge feeding, opening and closing of the bolt, cocking of the striker & trigger mechanisms done manually.

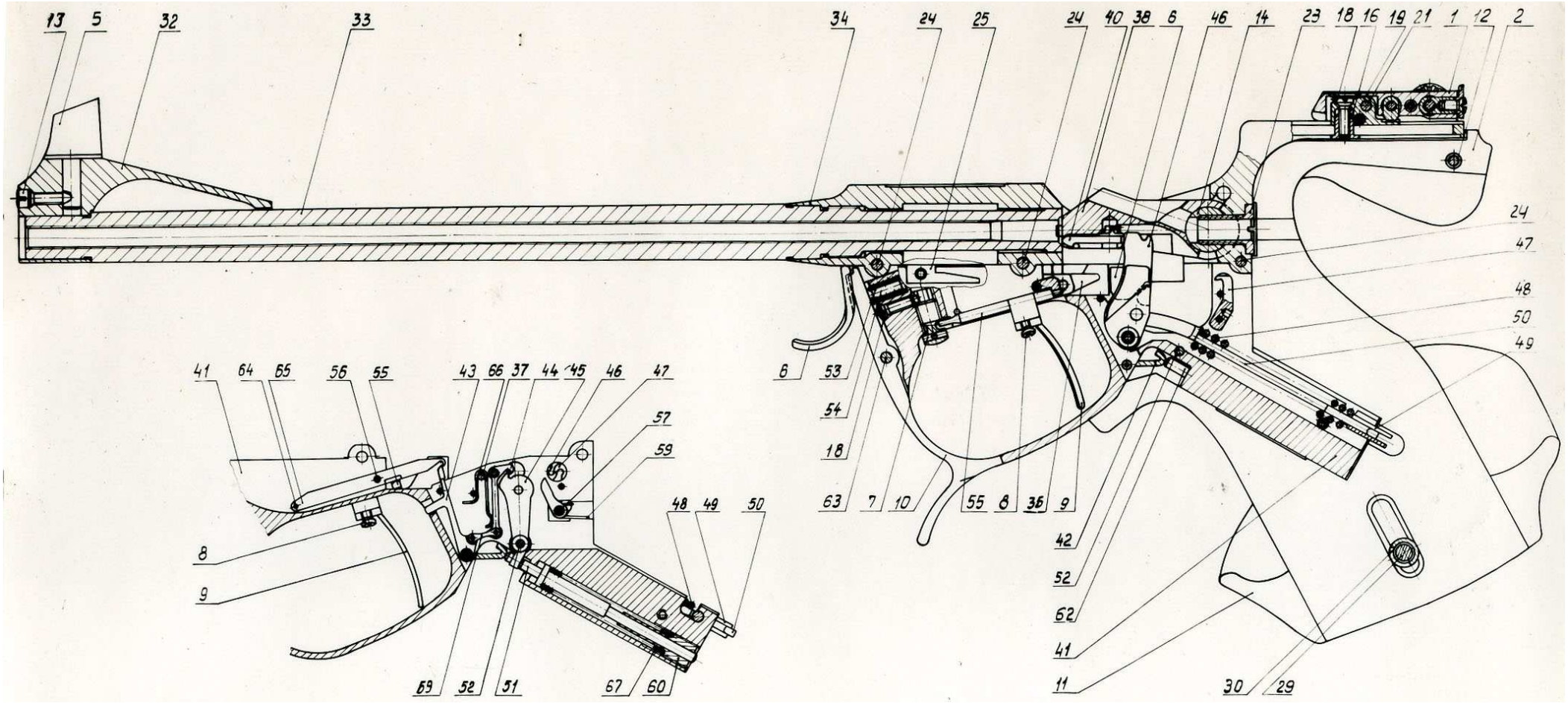


Figure 12. The scheme of mechanisms of the pistol.

On rotating the bolt lever (15) all the way downward, the lip on the bolt lever (6) rotates the hammer #1 (46) and the sear #1 (47) catches the hammer. In the same time the hammer #1 presses down on the rod (50), what causes compression of the mainspring (48). After the chamber was opened, the bolt frame (38) rotates the extractor (36), which removes empty case (or cartridge) from the barrel chamber (33) in chamfer on the bolt frame.
On rotating the bolt from lower position to upper position, bolt frame pushes the cartridge into the chamber and locks the barrel. In the same time the striker (40) is

pushed back by contacting with cartridge case. The hammer #1 remains caught by the sear #1.
On rotating the trigger cocking lever (42) all the way downward, it presses down on the lower lip of the hammer #2 (45); in the same time hammer #2 presses down on the pusher #1 (51) what causes compression of the spring #1 (67) of the pusher. After all the hammer #2 is caught by the sear #2 (44). The sear #2 with its bottom part, via chain (69), rotates sear #3 (43), which is caught by sear #4 (65). Sear #4 is under the action of the trigger spring (25).
The cocking lever is pushed back to its upper position by the pusher #2 (62) and spring of the pusher #2 (61).
The red indicator on the sear #3 shows through the opening (41) if the trigger is cocked.
Pulling the trigger shoe (9) the base of the trigger (55) lifts sear #4, what disengages the sear #3. Being under the action of sear spring #2 (66) and spring of the pusher #1, the sears #2 and #3 rotate and disengage hammer #2, which being under the action of spring of the pusher #1, rotates and hits sear #1. The rotation of the sears #2 and #3 is limited by the lip of spring of sear #2.
The sear #1 disengages the hammer #1, which being under the action of mainspring, hits the striker. From now the action of the mainspring is minimal on the hammer #1 (the action of the mainspring is limited by the rod and mainspring base (49)).

5. Safety precautions

Never point the pistol at people or animals. Keep the pistol unloaded with unarmed trigger and released mainspring.
Keep the barrel, chamber and bolt clean.
Don't modify the pistol.
Ensure that the pistol is unloaded before any manipulations with the trigger settings, grip, sights and before dry firing training.
To safely release the striking or trigger mechanisms – push the bolt lever (6) downward and holding the lever – pull the trigger (9). After that close the bolt until it locked by the bolt latch (10).

6. Preparation before usage

The trigger mechanism has following adjustable settings: trigger pull, trigger creep and position of the trigger shoe.

To adjust trigger pull insert drift pin (104) through the longitudinal opening (88) in the left cheek (Fig. 8) into trigger spring (25) opening; shift the trigger spring in needed direction. Shifting the spring forward to front sight makes trigger pull lighter and shifting trigger spring backwards to rear sight makes trigger pull heavier.
To adjust trigger creep insert drift pin (104) into the hole in adjustment screw (7) and rotate the screw. Screwing makes trigger creep longer and unscrewing makes trigger creep shorter.

To adjust position of the trigger shoe – loose the fixing screw (8) and move the trigger shoe (9). Tighten the screw to fix new position.
Length of the sighting line is adjustable. The front sight and rear sight blade are replaceable.
To adjust the length of the sighting line – loose the fixing screw (18); move rear sight along the frame (34) in wished position. Tighten the screw to fix new position.

Use rear sight knobs (79) to shift mean point of impact. Windage: «Л» - to the left, «П» - to the right. Elevation: «В» - up, «Н» - down.
To replace the front sight – loose the fixing screw (13); remove front sight; insert another one; tighten the fixing screw.
To replace the rear sight blade – loose and remove the fixing screw (74), remove rear sight blade; place another rear sight blade; insert fixing screw and tighten it.

7. Usage

To load the pistol:
Place your left hand index finger on bolt lever (6) and the thumb on bolt latch (10); pressing with your thumb on bolt latch you disengaging bolt lever; pull bolt lever downward with your index finger. The bolt is now open and striking mechanism is cocked.
Place a cartridge in chamfer on the bolt frame and push it into the chamber with your finger.
Close the bolt; bold lever must be fixed by bolt latch.
Cock the trigger mechanism pressing the cocking lever (42) down to the end (you will hear a obvious click); smoothly bring the cocking lever back. The red indicator on the sear #3 (43) will show in special opening (41) if the trigger is cocked.
The pistol is ready for a shot.
Pull the trigger (9) to release a shot.
To make next shot repeat the steps described above. On opening of the bolt the extractor (36) will remove used cartridge case, which must be removed manually before next shot.

To unload the pistol:
Press the cocking lever down to the end and hold it; pull the trigger and hold it; holding the trigger bring the cocking lever back; release the trigger.
Cock the striking mechanism (see above); remove used cartridge case. Cock the trigger mechanism (see above). Lift the bolt lever a little bit (3-5mm) and on holding the bolt lever pull the trigger. Close the bolt; it must be fixed by bolt latch. Put the pistol into case.

8. Maintenance

The length of service life and faultless operation of the pistol mechanisms largely depend on careful and skilful handling.
Some parts must be replaced from time to time according to the following table:

Part number	Description	Serviceability (number of shots)
25	Spring of the trigger	125000
28	Rod assembly	125000
40	Striker	8500
46	Hammer #1	125000

Keep the pistol clean. Clean the pistol after each shooting session and once in three months during long pauses. Clean the pistol after 250 shots in case of intensive shooting during one shooting session.
Barrel can be cleaned without disassembling of the pistol; it is enough to cock the striking mechanism and let the bolt be opened.
To retain good groups clean the barrel always from breech-end.

For visual controlling and cleaning of internal parts of the pistol – it is necessary to carry out partial disassembling of the pistol. To disassemble the pistol use the following procedure:
Before disassembling the pistol be sure to unload it or check to see that it is unloaded.
Remove the palm rest (11) and spring (30) by unscrewing its fastening screw (29).
Using screw driver (106) remove the screws (12 and 27); remove nuts (3); remove right cheek (2); remove left cheek (26).
Pull the bolt lever a little bit downward and using drift pin (105) extrude the connecting pins (24, Fig. 13); push the bolt lever back to its upper position; remove trigger housing (31).
Remove the trigger spring (25).
If it is necessary to replace the hammer #1 (46) or the rod assembly (28) or the striker (40) – continue the disassembling:
Remove the rod assembly by pressing on mainspring base (49) and ejecting the whole assembly from housing (41).
Turn aside the sear #3 to be able to insert the drift pin (105) through the opening on the housing left side (Fig. 5) pushing the pin (58)of the hammer #1; extrude the pin; remove the drift pin and hammer #1.
Using drift pin (105) extrude from housing (34, Fig. 3) the pin (37) of the extractor (36); remove the extractor.
Turn the bolt down and using drift pin (104) extrude the pin (39) from the bolt housing (38, Fig. 4); remove the striker (40).
Assemble the pistol in reverse sequence. Check functionality after assembly.

Full disassembling must be carried out in emergency cases and only by a gunsmith. Frequent full disassembling is not recommended; it speeds up wearing processes and disturbs proper functionality among parts of the pistol.
Keep the pistol unloaded – with released hammer and trigger – in special hard or soft case.

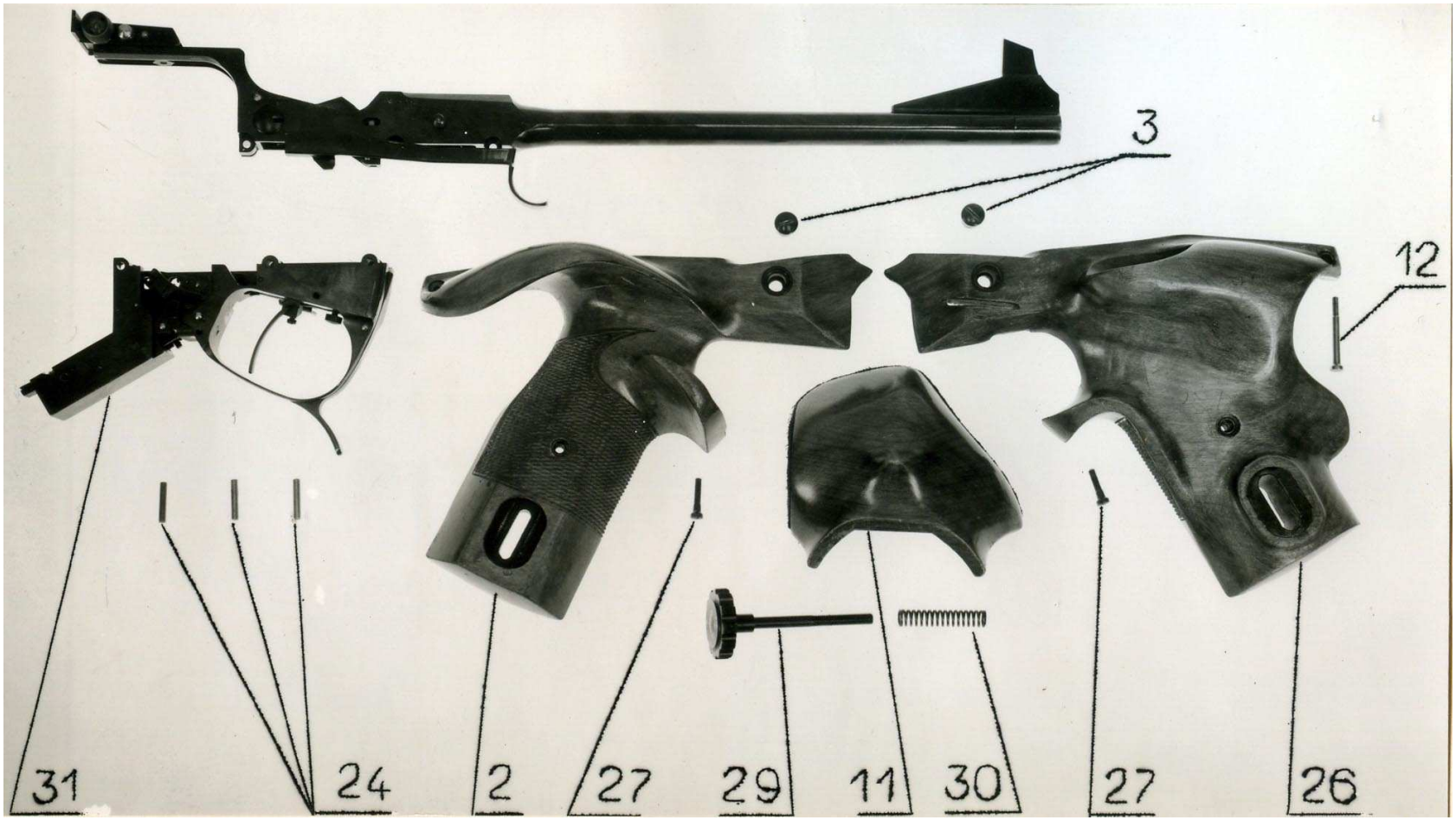


Figure 13.
2 – right cheek; 3 – nut; 11 – palm rest; 12 – grip screw; 24 – connecting pin; 27 – grip screw; 29 – palm rest screw; 30 – sprint of palm rest screw; 31 – striking & trigger mechanism;

9. Typical malfunctions and fixes

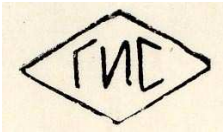
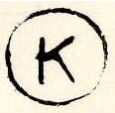
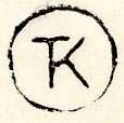
Malfunction description	Possible reason	Method to fix
Misfire	Cartridge defect. Thickening of the lubricant in striker groove in bolt housing. Mainspring is worn out or broken.	Reload the pistol. Unload, disassembly and clean the pistol. Unload the pistol and replace the rod assembly.
Tight closing of a cartridge	Cartridge defect. Chamber is dirty.	Reload the pistol. Unload the pistol and clean the chamber.
Uncontrolled shifting of mean point of impact	Rear sight or front sight or rear sight blade is not fixed.	Check the fastening screws.
Unprompted release of the hammer #2 without pulling the trigger	Trigger creep is too short (less than 0,2 mm). Trigger spring is worn out or broken.	Make trigger creep longer. Disassemble the pistol and replace trigger spring.

10. Warranty

Warranty given for 24 months of exploitation from purchase date but not more than 250000 of shots.
Warranty given for 36 months for a period of storage from conservation date if a pistol is stored in factory packaging.

11. Labeling and stamps

Labels and stamps are located on the receiver (34).
Meaning of labels and stamps:

Label text or stamp	Meaning
МЦ55-1М № 000000 5,6 ПВ 128 МПа or .22LR 128 MPa	Pistol index. Serial number. May be used 5,6 mm (.22LR) cartridges with maximal barrel pressure of 128 MPa (1300 kgs/cm^2).
VOSTOK Сделано в СССР or MADE in USSR	Trademark of V/O Raznoexport
	Pistol model tested at State Test Station
	Pistol tested with test cartridges according to GOST
	Group and mechanisms are tested
	Pistol accepted by Quality Inspector

Notice: VOSTOK label may be absent on receiver in case of USSR internal shipments.