7.9mm M76
SEMI-AUTOMATIC RIFLE,
SNIPER
WITH M76 OPTICAL SIGHT

(MAINTENANCE AND REPAIR IN THE WORKSHOP)

1982

STATE SECRETARY OF NATIONAL DEFENSE
TECHNICAL ADMINISTRATION
In. number 3687-5
According to article 26 of The Manual for producing and using of the military technical literature (IV U-1, edition year 1977) I am ordering the technical manual:

7.9mm M76 SEMI-AUTOMATIC RIFLE,
SNIPER WITH M76 OPTICAL SIGHT

(MAINTENANCE AND REPAIR IN THE WORKSHOP)

that becomes mandatory now.

Chief of Staff
Lieutenant-colonel General
Joza Praprotnik, dip.ing., s.r.
TABLE OF CONTENTS

INTRODUCTION ....................................................................................................... 8

CHAPTER I

INSPECTION, DISASSEMBLY AND ASSEMBLY OF THE SNIPER RIFLE

UNCLASSIFIED
1. WORKSHOP INSPECTION ................................................................. 9
   1) Inspection before repair - finding of defects ................................. 9
   2) Inspection during repair ............................................................... 10
   3) Inspection after finished repair - final inspection .......................... 10

2. TECHNICAL INSPECTIONS .............................................................. 10

3. INSPECTION SNIPER RIFLE IN ASSEMBLED CONDITION ............ 12

4. DISASSEMBLY OF SNIPER RIFLES ............................................... 13
   1) General procedures during disassembly and assembly .................... 13
   2) Disassembly of rifle into mechanisms ......................................... 13
   3) Disassembly of mechanisms into parts ...................................... 13

5. INSPECTION OF SNIPER RIFLE IN DISASSEMBLED CONDITION .... 17

6. LIGHT REPAIR ..................................................................................... 22

7. ASSEMBLY OF SNIPER RIFLES AND FULFILLING THE
   REQUIREMENTS OF PARTS REPLACING .............................................. 25
   1) General conditions ...................................................................... 25
   2) Assembly of mechanisms ............................................................. 25
      (1) Assembly of cylinder fastener ................................................. 25
      (2) Assembly of folding (sub mechanisms) ................................. 26
      (3) Assembly of the parts of trigger mechanism .......................... 27
      (4) Assembly of magazine fastener ............................................. 35
      (5) Assembly of stock ................................................................. 37
      (6) Assembly of handgrip ............................................................ 39
      (7) Assembly of the elements of the front sight ......................... 39
      (8) Installation of the ring sling on the stock ............................. 41
      (9) Installation of gas flow regulator on rifle ............................ 41
      (10) Assembly of bottom covering .............................................. 41
      (11) Assembly of gas cylinder ..................................................... 42
      (12) Installation of bottom covering on the rifle ......................... 42
      (13) Assembly of gas cylinder on rifle ....................................... 42
      (14) Assembly of bolt body (mechanism) .................................. 43
      (15) Assembly of bolt carrier (integral part) ............................... 43
      (16) Assembly of bolt (mechanism) ............................................. 44
      (17) Installation of bolt on rifle .................................................... 45
      (18) Assembly of spring recoil and its installation on rifle .......... 51
      (19) Installation of cover ............................................................ 51
      (20) Checking the unlocking force and carrier movement ............ 51
      (21) Assembly of magazine ......................................................... 51
      (22) Installation of magazine on rifle ......................................... 52
      (23) Assembly of optical sight carrier ....................................... 52
      (24) Installation of optical sight with carrier ............................. 54
      (25) Assembly of knife ............................................................... 55
      (26) Assembly of knife case ...................................................... 55
      (27) Assembly of knife and knife case ..................................... 56
UNCLASSIFIED

CHAPTER II

SPECIAL TOOLS, ACCESSORIES AND GAUGES FOR INSPECTIONS AND REPAIRS OF SNIPER RIFLES

1. CARE OF TOOLS, ACCESSORIES AND MEASURES .................................. 57
2. TOOLS AND ACCESSORIES ................................................................. 57

CHAPTER III

GENERAL PROCEDURES OF REPAIRING THE SNIPER RIFLES

1. CLEANING OF SNIPER RIFLES ............................................................ 63
2. REMOVING OF MECHANICAL DEFECTS AND DAMAGES
   OF PARTS ........................................................................................... 63
3. TESTING AND REPLACEMENT OF SPRINGS ..................................... 65
4. BURNISHING OF PARTS ....................................................................... 66
5. PRESERVATION OF SNIPER RIFLES ..................................................... 66

CHAPTER IV

MALFUNCTIONS OF RIFLE'S PARTS AND METHODS OF REPAIRING

1. MALFUNCTIONS OF BARREL ............................................................... 67
   1) Barrel malfunctions that can be repaired ......................................... 67
   2) Barrel malfunctions that cause barrel replacement ....................... 68
2. MALFUNCTIONS OF MECHANICAL SIGHTS ......................................... 68
   1) Malfunctions of front mechanical sight ......................................... 68
   2) Malfunctions of rear mechanical sight ........................................... 69
3. MALFUNCTIONS OF RECEIVER AND PARTS CONNECTED
   WITH RECEIVER .................................................................................. 69
4. MALFUNCTIONS OF MAGAZINE .......................................................... 70
5. MALFUNCTIONS OF BOLT ................................................................. 70
6. MALFUNCTIONS OF TRIGGER MECHANISM ..................................... 71
7. MALFUNCTIONS OF STOCK, HANDGRIP AND BOTTOM COVERING
   WITH CONNECTING PARTS ................................................................. 71
   1) Malfunctions of stock, handgrip and wooden covering ................. 71
   2) Malfunctions of connecting parts ................................................. 72
8. MALFUNCTIONS OF OPTICAL SIGHT ................................................. 72
9. MALFUNCTIONS OF ACCESSORIES PARTS ....................................... 73

CHAPTER V

FINAL INSPECTION - CHECKING

1. GENERAL PROVISIONS ....................................................................... 74
2. METHOD OF CONDUCTING FINAL INSPECTION .............................. 74
3. TESTING AND ADJUSTING OF RIFLE'S ACCURACY AND PRECISION

Appendix 1 - Summary of parts that need finishing touches during installation - replace

Appendix 2 - Summary of mechanisms or parts that when replaced - finalized cause the shooting testing

Appendix 3 - Summary of checking -measuring tools

Appendix 4 - Summary of special tools and accessories

Appendix 5 - Summary of the SPS 7.9 mm M76 optical sight malfunctions

Appendix 6 - Meaning of abbreviations and designations

Summary of changes - supplements

INTRODUCTION
This technical manual covers the regulations of the maintenance of the 7.9 M76 semi-automatic sniper rifle in technical workshops, rifle repairs as well as the regulations not covered with the technical rule UP-50 (description, handling and maintenance).

The technical manual covers description of the procedures of complete disassembly and assembly of rifle, inspection, repairs, and adjustments of certain parts, mechanisms and accessories of the rifle in case of their replacement and installation of new parts. Besides, this manual describes tools and accessories that are indispensable for the replacement of parts.

During repair work, the qualified persons of the technical maintenance must hold in every detail to this manual and other manuals that regulate the maintenance of weapons.

In this technical manual, work is not described according to the types of maintenance but according to the mechanisms and parts of the rifle. There are covered all works on light and medium repair that can be partially used in basic and technical maintenance.

CHAPTER I

INSPECTION, DISASSEMBLY AND ASSEMBLY OF THE SNIPER RIFLE

1. WORKSHOP INSPECTION
1. - The sniper rifle with its accessories that is sent to a workshop for repair is inspected:
- before repair - finding defects
- during repair,
- after repair - final inspection.
These inspections are done with qualified technical personnel of technical workshops to which the rifle was sent for repair.

1) INSPECTION BEFORE REPAIR - FINDING OF DEFECTS

2. The inspection before repair - finding of defects has a goal to find out the general condition and completeness of the sniper rifle with its accessories, detect malfunctions of certain mechanisms, sub-mechanisms, parts as well as accessories and to find out the causes. According to the inspection results - finding of defects it is determined the volume and type of repair, capacities of working force, time, accessories, tools, materials and spare parts that are needed for the corrections of malfunctions and repair of the sniper rifle.

The inspection before repair - finding of defects covers the preparation of sniper rifle and its accessories, un-preservation, cleaning, washing, drying and new lubrications (light) because of sliding surfaces.

The inspection of sniper rifle is done first in assembled and then in disassembled condition.

Before the inspection of the sniper rifle, it must be ensured that barrel and magazine are empty. After that it is made inspection of the completeness of accessories and tools needed for the inspection and disassembly. Also it must be confirmed that there is a serial number written on the following parts and that it is the same on each part:
- receiver cover,
- receiver,
- bolt carrier,
- bolt body,
- gas cylinder with covering and
- stock

Also, the serial numbers of the rifle and optical sight that are written in the technical book of the rifle should be noted carefully, because these two serial numbers are not the same. Immediately after the rifle is received in workshop for inspection and repair it is necessary to check the following information in the technical book:
- quantity of cartridges already fired with the rifle,
- number and types of repairs already made,
- condition of parts, and especially the percentage of corrosion of the barrel's inner surface that is entered in the technical book.

During inspection of sniper rifle in assembled and disassembled condition it is necessary to pay special attention to the general condition of the sniper rifle and its parts.

It is necessary to check the condition of surface protection of protected parts, and unprotected parts must be free from corrosion, erosion and powder gases.

Metal and wooden parts should have no mechanical damages like: worn out, dents, deformations and cracks. The forged and wooden parts must firmly seat in their seats (without swaying).
The accessories and ammunition bag, sling and case sheath for optical sight must be in good condition, whole and clean.

For inspection of the sniper rifle in a disassembled condition it is not necessary to do complete the disassembly. The complete disassembly is done only because of repair or replacement of certain parts or mechanisms. At that time, during repair, the inspection of parts in completely disassembled condition is carried out.

During the inspection before and after repair and technical inspection it is enough to do a partial disassembly or a disassembly of mechanisms.

Before starting the inspection of the sniper rifle in disassembled condition, it is necessary to prepare the rifle and accessories, as well as tool and accessories for the inspection.

During the inspection before repair - finding of defects, all malfunctions must be written down into a special form that has to be with the rifle all the time during repair, because of accurate records of repair.

2) INSPECTION DURING REPAIR

3. - The inspection during repair has a goal to check all the time the quality and precision of the repair work, as well as to check that repair work is done according to the anticipated and approved procedure and in a proper way. Besides, this inspection during repair of certain parts, sub-mechanisms and mechanisms can also detects some other malfunctions that cannot be detected during the inspection before repair - finding of defects. During this inspection is made measurement of the dimensions of certain parts and points on the sub-mechanisms and mechanisms according to the regulations in this manual. It is necessary to check the rate of parts' worn out as well as the condition of the thermal treatment of the certain parts.

Special attention should be pay to the inspection of the operation of certain mechanisms and their parts, and rifle as a whole. This inspection is done with qualified persons who work directly on the repair of the rifle, as well as persons specially determined to work on the inspection -controllers.

All malfunctions found during the inspection must be written down in a certain form.

3) INSPECTION AFTER FINISHED REPAIR - FINAL INSPECTION

4. - The inspection after the finished repair - final inspection is done in technical workshops where the rifle has been repaired. It is done after the repair and according to the rules of this manual in chapter X.

2. TECHNICAL INSPECTIONS

5. - While performing the technical inspections, all conditions defined with the rulebook of technical service must be fulfilled.

6. - The first and second technical inspections on all sniper rifles that are in service performing all operations are done once a year according to the planned table for inspection.
7. - The sniper rifle that are in war reserve have to pass only the second technical inspection, and that is during the de-preservation, without the testing of accuracy and precision.

8. - The technical inspections is done on the sniper rifles with long term preservation to check the condition and quality of the preservation. It is done once a year on 5% of preserved rifles.

### INSPECTION TABLE OF TECHNICAL INSPECTIONS

<table>
<thead>
<tr>
<th>Ordinal number</th>
<th>TYPE OF INSPECTION, CHECK</th>
<th>I tech. inspection</th>
<th>II tech. inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Check the condition of surface protection (burnishing).</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>2.</td>
<td>Check the appearance of corrosion.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>3.</td>
<td>Pull the bolt in the rear position and check that it leans properly on the follower extension. When the magazine is removed from the rifle, the bolt must move forcefully into the front position. Check this for all magazines that belong to the rifle.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>4.</td>
<td>Check the proper installation of the optical sight with the carrier on the rifle, its removing and turning on.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>5.</td>
<td>Check the proper removing and installation of the knife on the rifle.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>6.</td>
<td>Check the sight blade and front side carrier damage, and that the lines on the front sight base and sight blade carrier are aligned.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>7.</td>
<td>Check the possibility of shifting the gas regulator (brake) with hand.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>8.</td>
<td>Check the operation of the gas cylinder fastener, it should not move too easily and must to hold the gas cylinder firmly in its basic position.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>9.</td>
<td>Check the leaf and slide bar of the rear sight.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>10.</td>
<td>Check the wooden parts, they must not wobble and must be without cracks.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>11.</td>
<td>Check the completeness of all parts of the accessories.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>12.</td>
<td>Check the functions in “cold” operation with 10 dummy cartridges from one clip. Pull the bolt in the rear position and release it into its front position then check cartridge loading, bolt locking, operation of trigger mechanism and ejecting.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>13.</td>
<td>Check how much the firing pin goes out.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Check the ejector height.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Check the movement of the ejector</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
16. Check the depth of "front cut" (the depth of cartridge chamber) x
17. Check the straightness of the barrel. x
18. Check the caliber of the barrel. x
19. Check the possibility of untimely triggering. x
20. Check the accuracy and precision with the mechanical and optical sights. x
21. Check the cleanliness of the optical sight lenses. x x
22. Check the cleanliness of the reticle. x x
23. Check the possibility of achieving bordering points with turning the drum of the distance and direction and at the same time check that there are no gaps in the drum movements. x x
24. Check the optical parts for the scratches, cracks, damages of any kind, lenses should be glued and anti-reflective surface must be undamaged. x x
25. Check the possibility of turning on and off the infra red detector. x x
26. Check the operation of shadow mechanism. x x
27. Check the operation of the rubber cap. x x
28. Check that the reticule has not parallax bigger than allowed. x x
29. Check the reticule illumination. x x

8. - The information of the second technical inspection that is done should be entered into the form TS-22.

9. - The goal of the first and second technical inspection is to detect the firing condition and reliability of the sniper rifle, so that found malfunctions can be removed immediately and to prepare the sniper rifle for the service or storing or even to send it to revision.

3) INSPECTION OF SNIPER RIFLE IN DISASSEMBLED CONDITION

10. - The inspection of the sniper rifle in disassembled condition should check the operation of the rifle's mechanisms and their correlations, the quality of surface protection and traces of corrosion on the parts.

11. - Also, it should be measured the triggering force and turning force of firing regulator (brake) and it should be performed the inspection under the numbers 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12 and 19 in the inspection table of the first and second technical inspection.

12. - If the front of the follower is pushed down during the checking of the holding of the bolt in its rear position, it should be brought back in normal position with pressing its rear part with a finger. This is done with the magazine removed from the rifle.
4. DISASSEMBLY OF SNIPER RIFLES

1) GENERAL PROCEDURES DURING DISASSEMBLY AND ASSEMBLY

13. - The disassembly of the sniper rifle is done because of cleaning, lubricating, inspection and repair. The level of disassembly is not the same in all cases, so the rifle can be partially disassembled if there should be done some light repair or if only one malfunction should be removed. Therefore, the disassembly can be complete and partial. The partial disassembly is consisted of removing the certain sub-mechanisms from the rifle, or from each other.

The disassembly of the sniper rifle must be performed only with regulated tools and accessories. The tools and accessories must be correct. It is forbidden the use of force during the disassembly of the sniper rifle, except where it is allowed.

14. - If disassembly is performed because certain parts or certain mechanisms should be replaced or repaired, it is done in a measure required for that repair or adjustment. The disassembly and assembly must be always reduced at the minimum operations needed for repair. During the disassembly of more then one sniper rifle it must be paid special attention to prevent the mix of the parts of two or more rifles.

15. - The disassembly is performed on the rifle support on the bench. If parts of the rifle or rifle are needed to be hold with a vise, care should be taken to protect the parts and rifle from deformation caused with strong grip of the vise. The vise jaws should be covered with wooden or rag coverings so that the burnished parts of the rifle cannot be damaged. Special care should be taken so that wooden stock or carrier of optical sight is not deformed with the vise.

16. - Before the disassembly of the sniper rifle the check must be made that there is no cartridge in the barrel. Also, all magazines that belong to the rifle must be emptied.

2) DISASSEMBLY OF RIFLE INTO MECHANISMS

17. - The disassembly of the sniper rifle on mechanisms for maintenance and repair purposes is performed according to the explanations in the manual UP 50.

3) DISASSEMBLY OF MECHANISMS INTO PARTS

18. - The additional disassembly of the receiver, compared to the disassembly described in the manual UP-50, is performed in a way that the "a" and "b" extensions (Pic. 83) on the bottom fastener and follower insert are rectified and detached from the follower spring with a screwdriver.

19. - The disassembly of the bolt carrier with a piston includes hammering out the piston fastener that fastens the rod of bolt carrier and rear part of piston. After this operation, it is possible to remove piston from the bolt carrier.

20. - The disassembly of the bolt body is done by hammering out the firing pin fastener with a drive-out punch so that the firing pin can be taken out of the bolt body.
The extractor fastener is pushed out with the same drive-out punch, so that it is possible to take the extractor and extractor spring out of its seat.

21. - The disassembly of the gas cylinder mechanism is done in a way that the mechanism behind the rear seat of the wooden cover is caught with a steel-leg vise or pliers and turning of the wooden covering for 180°, so that it can be removed. When the wooden covering is removed, the spring must be taken out, if it is loose, because it can be lost during the inspection.

22. - The disassembly of the knife mechanism is performed only if some parts of the knife fastening mechanism are damaged and need to be replaced. The most frequently damaged parts are spring and tooth of the fastener. The knife handle must be put on the support so that the cut on the pusher should be opposite to the support side.

23. - Since the fastener is secured from the self-unscrewing, to release the securing points it is necessary that during unscrewing the fastener should be turned from time to time into the screwing direction. After that the unscrewing is done by turning it counter clockwise. After the pusher is unscrewed into the opposite direction, the fastener and spring should be removed. The removing of linen sling from the knife is performed by pulling the sling through the ring and "trap" so that it can be removed from the knife. The further disassembly is not performed because the head and handle are glued with special glue so that it is made inseparable connection with the blade.

24. - The disassembly of the knife case is performed only in case of replacing the damaged or broken knife spring or knife case plumb. The spring can be removed from the knife case after the extension for its fastening is pressed with a drive-out punch (Pic. 1).

The removing of the knife case plumb from the knife case is performed by pressing the fastener spring and removing the fastener from the knife case. The further disassembly is impossible because all other elements are inseparable connected.

25. - The removing of the leaf - the sub-mechanism of the sniper rifle (Pic. 2) is performed in case of replacing broken or loose leaf spring or some other part of the
rear sight (slide bar, slide bar tooth or spring). The rifle is placed on the working or
gunsmith rest, and then with one hand it should be pressed the leaf spring downward
with a screwdriver and with the other hand the whole leaf with spring should be taken
out of its seat on the rear sight base. After this, take out the leaf spring from its
channel in the rear sight base by pulling it forward.

26. - The disassembly of the leaf mechanism includes the removing of the
slide bar with a tooth from the leaf in a way that the slide bar is pushed forward with
the thumb and index finger until it goes out of the leaf cut sides, then the leaf is pulled
out of the slide bar channel. After this operation, it is possible to separate slide bar
tooth and spring from the slide bar.

Pic. 2 - Removing the leaf sub-mechanism from the rifle

27. - The disassembly of the gas cylinder fastener is performed with drive-out
punch 4.5mm - 5.5mm in diameter (Pic. 3).

Pic. 3 - Disassembly of gas cylinder fastener
28. - The disassembly of the mechanical front sight (blade) is performed with the special tool designated 678 23 0170 so that it is unscrewed to the left side. The disassembly of the sight blade carrier is performed after the sight blade is removed. The rifle is laid on its side, and below the front sight is placed a support of brass, copper or aluminum that has a hole 10.5mm in diameter. The sight blade carrier is driven out of the front sight base with the drive-out punch of brass, copper or aluminum less then 10mm in diameter and light hammer (Pic. 4).

29. - The disassembly of the magazine fastener (Pic. 5) is performed in the following way: Partly disassembled rifle is laid on its side, and suitable support made of soft metal is laid below the trigger guard so that its hole is pointed in the direction of the magazine fastener pin.
Then the pin of the magazine fastener is driven out with a steel drive-out punch and light hammer and the magazine fastener and spring are removed from their seat in the trigger guard.

30. - The removing of the handle is made by unscrewing the stock screw that connects the stock with the receiver. Thus, the handle, handle screw and screw washer are removed from the receiver.

31. - The disassembly of sling ring (inseparable connection) is performed by unscrewing two screws that hold the sling ring fixed to the stock.

32. - The disassembly of stock is performed in the following way:
First it is removed a rubber butt plate by unscrewing the screws that fastens it to the stock. One screw must be completely unscrewed from the rubber and wooden stock while the other screw is unscrewed partially so that it is possible to move the butt plate to the left or to the right.

Thus, the tool has open access to the head of the bolt that connects the stock that is placed into the hole in the rear part of the wooden stock. The head of the bolt is un-tightened with a special tool (Pic. 6) (turning it to the left side) until it goes out of the nut that is in the rear part of the receiver.
Since the front part of the wooden stock is pressed on the receiver it is necessary to slightly move the wooden stock left and right, up and down so that the connection between the wooden stock and receiver becomes loose, then the wooden stock should be removed by pulling it backward.

33. - The disassembly of the trigger mechanism parts is not recommended except when it is necessary to do some repair or in case of doing the surface protection of the receiver - barrel unit.

34. - The disassembly of the sear and trigger: hold the rifle for the receiver with one hand and with other hand with the drive-out punch press forward "A" point on the top of the firing separator lever (1, Pic. 7) and separate it from the sear tooth (2, Pic. 7). Pull the trigger and the mechanism is put in the position as on the picture 7.

35. - Lift up the left end of the hammer spring with the thinner end of drive-out punch (3, Pic. 7) and put it below the stretching tooth of the hammer (point "B"). Pull out the longer part of the firing separator spring with the screwdriver (4, Pic. 7) from the ringed groove of the trigger axle (5, Pic. 7). Push the trigger axle with the screwdriver to the left and pull it out. Gradually extracting the drive-out punch, take the sear with its spring out of the receiver with the left hand fingers (6, Pic. 7).

36. - Lift up the right end of the hammer spring with the drive-out punches and with the fingers put it below the hammer tooth. After this operation it is possible to remove the trigger mechanism from the receiver.

37. - The disassembly of the hammer should be performed in the following way: the press longer part of the firing separator spring down with a screwdriver and now will be possible to take out the hammer spring. Pull out the axle to the left with one hand and the hammer with spring turn to one side and pull it out of the receiver. The ends of the hammer spring that are put on the shoulders must be carefully released, because it could cause injuries to the fingers of the person who is doing disassembly.
Pic. 7 - Trigger mechanism prepared for disassembly:
1 - firing separator, 2 - hammer, 3 - hammer spring, 4 - firing separator spring, 
5 - trigger axle, 6 - sear, 7 - trigger, 8 - hammer axle, 9 - firing separator axle

38. – In order to disassemble the firing separator, it is necessary to push the 
firing separator axle to the left with the drive-out punch and to pull it out and after 
that the firing separator with spring should be pulled out through the magazine 
opening (Pic. 8).

After that the spring should be removed from the firing separator.
The disassembly of the firing regulator (brake) is made by turning it upward 
into the vertical position, and after that it is possible to remove it from the receiver 
with turning it to the left.

Pic. 8 - Removing firing separator with spring from the receiver

31. - The disassembly of the optical sight carrier:
First remove the optical sight from the carrier by unscrewing 6 screws on the 
seats and clamps of the optical sight with the 3mm insert wrench. When the optical 
sight is removed, unscrew with a screwdriver two screws that hold front and rear seat 
and washer below the front seat.

When the seat and washer are separated the optical sight carrier is held firmly 
in the vise which jaws are covered with linen (Pic. 9), then it is pressed down the split
pin with a sharp pint tool or drive-out punch and the nut is unscrewed with the screwdriver. Thus it is possible to remove the fastener with safety handle and spring from the body of optical sight.

Pic. 9 - Disassembly of the tightening mechanism of the optical sight carrier

40. - The disassembly of the optical sight, except from removing of the rubber eyeshell that is removed from the eyepiece, is performed in special technical units that are competent for such work.

5. INSPECTION OF SNIPER RIFLE IN DISASSEMBLED CONDITION

41. - The inspection of the sniper rifle in disassembled condition should prove that rifle is in firing condition and that all mechanisms are complete and that parts have no malfunctions. For that reason it is performed measuring of the certain dimensions of parts as well as certain requirements of the mechanisms and submechanisms. The springs' dimension and force are tested, and visual inspection of the parts is made in case of mechanical damages. The parts on key sliding surfaces as well as on other surfaces must not be worn more then it is allowed. There should be no corrosion, too. The threaded parts are inspected to have proper threads. Inspection includes all screws and nuts. Screw slots on the heads of certain screws must have no damages. The surface protection (burnish, paint) on all parts and mechanisms must be inspected. The parts that are not protected with a special coat must be smeared with thin layer of adequate lubricant. All parts, mechanisms and sub-mechanisms must be clean and must not have dirt of any kind.

42. - The inspection and checking of the barrel is performed in the following way: the barrel is one of the most important parts of the rifle so it is specially inspected. The barrel should be cleaned and dried before inspection of the inner surface of the barrel, cartridge chamber and bullet guide. First, the inner surface of the barrel is inspected. The level of the cartridge guide erosion is obligatorily rated in percentages and it is entered in the technical book of the sniper rifle. Special attention must be paid to the deformation of the barrel, it must be inspected for no widening or
"bulges", the rifling sides must have no damages, the sections of the transitional cone (in front of cartridge chamber) must have no bigger damages, also there should be no other damages on the cartridge chamber and bullet guide. After the inspection of the inner surface of the barrel it must be performed inspection of the external surfaces of the barrel and all other parts and mechanisms that are drawn on the barrel. The barrel and all other parts and mechanisms that are drawn on the barrel must have no damages. The special attention must be paid to the "forehead" part of the barrel, the surface on which is leaned the bolt body, it must have no dents. These dents can be made by a large number of blind bolt operations (without cartridge).

43. - After the inspection of the barrel, its inner and outer surfaces it should be tested the caliber and "straightness" of the barrel. The caliber testing is performed with the set of caliber gauges (Pic. 10). The following procedure should be implemented: the disassembled rifle, the barrel -receiver mechanism and stock should be laid with the butt plate on the bench, and it must be held in that position with one hand. With the other hand it is taken the caliber gauge designated 7.92mm and it is let to fall through the barrel with its own weight into the receiver (Pic. 11). A clean rag should be placed into the receiver to protect the gauge from damages. After this gauge it is taken gauge designated 7.93mm and the same procedure follows. The last gauge that has fallen through the barrel unhindered is the caliber measure.

44. - The 7.96mm gauge is the biggest gauge that can fall through the barrel. If 7.97mm gauge falls through the barrel it means that the barrel has too large caliber than it is allowed and that barrel must be replaced in a suitable workshop with special treatment.

45. - After the caliber of the barrel is measured with the previous procedure, it is time to measure the "straightness" of the barrel with the "straightness" gauge (Pic. 12). Its diameter should be 0.01mm smaller then the gauge with which is found the barrel caliber (the last one that has fallen through the barrel unhindered). If such selected gauge passes through the barrel unhindered then the "straightness" of the barrel is acceptable. If it cannot pass through the barrel then the straightness of the barrel is not good and it should be corrected. The length of each gauge for measuring the "straightness" of the barrel is 200mm.
46. After the testing of caliber and "straightness" of the barrel is done follows the testing of "forehead" spacing (the depth of the cartridge chamber). It is carried out in the following way: The mechanism barrel - receiver - stock is laid down
on the bench or gunsmith's base. Then the gauge of "forehead" spacing is taken (Pic. 13) to be placed in the cartridge chamber. After this, the bolt carrier together with the bolt body is placed in the rifle receiver and the bolt is put in a position next to the locking position. After that, on the receiver is put the force-measurer designated 68647 0570 (Pic. 15), then the bolt is pushed forward until it is completely locked. The locking force must not surpass 10daN, which can be seen on the force-measurer that pushes the bolt (Pic. 16). After the locking force is measured with the minimal "forehead" spacing gauge it is measured again with the maximal - operational "forehead" spacing gauge (46.20mm) (Pic. 14). The procedure is the same as above except that the bolt should not be locked (even partially) if it is pushed with the force of 30daN.

Pic. 12 - Gauge set for the testing of barrel "straightness".

Pic. 13 - Gauge for the minimal "forehead" spacing

Pic. 14 - Gauge for the "maximal - operational" "forehead" spacing
47. - The testing of the axial spacing between the bolt "forehead" and barrel "forehead" is carried out with leaflet gauges. The bolt body is placed into the bolt guides on the receiver - it is used tool set designated 686 49 0420, and the minimal "forehead" spacing gauge (designated 46.00) is put into the cartridge chamber, after that the bolt body is locked.

Pic. 15 - Force-measurer for the testing of "locking force".

40. - The inspection of the bolt body (assembly) is done visually first, with a special attention paid to the cracks and dents on the bolt body. The locking extensions are carefully and thoroughly inspected, there should be no damages and dents.

The firing pin should move easily within the bolt body, and the extractor should turn and return into its basic position under the tension of its spring. There should be no scratches, and the top of the firing pin should be free from deformations and other damages.
After visual inspection, it must be done the testing of certain parameters according to the following table.

<table>
<thead>
<tr>
<th>Ordinal number</th>
<th>Name of the testing parameter</th>
<th>Allowed seize in mm</th>
<th>Gauge designation</th>
<th>Shown on the Pic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Extractor maximum turning</td>
<td>min 12</td>
<td>682 49 0170</td>
<td>18</td>
</tr>
<tr>
<td>2.</td>
<td>The position of the extractor in relation to the tangent line of the opening for the placing of the cartridge bottom.</td>
<td>10.7 - 11</td>
<td>682 49 0180</td>
<td>19</td>
</tr>
<tr>
<td>3.</td>
<td>The height of the extractor tooth</td>
<td>1.65 - 1.9</td>
<td>687 47 1020</td>
<td>20</td>
</tr>
<tr>
<td>4.</td>
<td>Outgoing of the firing pin when its rear part is aligned with the rear part of the bolt body.</td>
<td>1.4 - 1.55</td>
<td>687 47 0980</td>
<td>21/1</td>
</tr>
<tr>
<td>5.</td>
<td>Outgoing of the firing pin when it leans on the cone.</td>
<td>1.52 - 1.7</td>
<td>687 47 0990</td>
<td>21/2</td>
</tr>
</tbody>
</table>
The requirements described above are shown on the picture 22. In case that some of these requirements is not fulfilled, it is not allowed any intervention of filing the parts. The requirements should be fulfilled by replacing certain parts.
49. - The gas regulator should be removed from the gas chamber and it should be inspected visually. Three holes, that are drilled with seize, for the passing of powder gases into the compression room, are tested with gauges 682 46 060 0, 682 46 060 0, 682 46 060 0 (Pic. 23, 24, 25).

The gauges, one for each hole, have two sides, one side represents the "it should" option and the other the "it should not" option. If one of the gauges passes through its hole with the "it should not" side, the gas regulator should be replaced with a new one. The gas regulator should be removed and put back into the gas chamber easily. At the bottom of the gas regulator, on its outer as well as on its inner surfaces, there could be found the soot sediments of powder gases that should be removed with a suitable tool.

50. - During the inspection of the gas cylinder, special attention should be paid to the extension that meets certain grooves on the gas regulator (it secures the gas regulator from rotating during operation), that extension should have no deformations and cracks.

51. - The carrier of bolt body should be inspected and it should not have mechanical damages or some other similar defects. The piston fastener on the body of the extractor and spring within the bolt body
bolt carrier should not be above the surfaces of the body of bolt carrier, and it should be positioned in such a way that it ensures necessary transversal shifts (wobble) of the piston.

Chromium-plated surface of the piston should have no scratches, holes on the piston head must be clear, unclogged.

Pic. 25 - Gauge of the hole of powder gases borrowing

52. - The hammer mechanism is inspected with a gauge and following the procedure in paragraph 70 of this manual. All actions described in procedure should be done. The pins (axles) of certain parts of the hammer mechanism should rest their seats and should stay in their seats if they are pushed with a drive-out punch. The hammer spring as well as firing separator spring must lean on appropriate surfaces. The firing separator spring, with its longer arm, should lay in the grooves of hammer, trigger and firing separator pins so that they are ensured from sideward falling out of their seats (holes) in the receiver.

53. - The receiver inner surfaces should be carefully inspected with special attention to the locking surfaces extensions which should be free from all defects (scratches, cracks and similar).

The surfaces of the inserted part in the front part of the receiver (behind the rear part of the barrel), the surfaces upon which glides the bolt carrier, as well as surfaces upon which glides bolt body should be free from all defects (dents, deformations and similar).

Also, it is inspected the magazine fastener, it should have no damages and must rotate around its pin easily, and under the tension of its spring it should return to its basic position.

54. - The bottom wooden covering should be removed from the rifle easily. The wooden part should have no cracks or some other defects, as well as its metal part. The collar which supports the wooden covering in its position should be easily moved along the barrel after the collar fastener is turned. The spring within the collar should work normally with both arms.

55. - The optical sight carrier after its removing from the sniper rifle together with the optical sight should be inspected so that there are no defects on the sliding surfaces "swallow tail". All parts should be correct, especially threaded surfaces. The forged stop point at the front must be hard and without wavering. The fastening and securing mechanisms should work properly and without blocking, and all their parts should have no defects. The thread on the fastener is inspected, too, as well as the fastener's nut. The safety pin should work correctly and easily in its seat under the tension of its spring.
56. - The inspection of the knife and knife case should be carried out so that the knife is taken out of the knife case and then it is visually inspected. The knife blade should have no mechanical damages. The knife spring should be removed from the knife case and then it should be inspected. Inside the knife case should be no dirt traces or other objects.

6. - LIGHT REPAIR

57. - The light repair includes works on removing the malfunctions and defects identified during the inspection as well as malfunctions and defects occurred during the service or combat actions. The units and institutions of technical maintenance should be responsible for such work.

58. - During light repair, it should be done measuring and repair of the sniper rifle so that parts, indivisible parts and mechanisms are replaced.

59. - The works included in light repair are done straight at the place where the defect or damage is found in the unit of the technical maintenance.

60. - During the light repair of the sniper rifle it could be done the following adjustments and replacing of the parts, with fulfilling of the conditions in the paragraphs 61 -105.

<table>
<thead>
<tr>
<th>Ordinal number</th>
<th>Name of the part</th>
<th>Number of the part</th>
<th>Type of work</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cylinder fastener indivisible part</td>
<td>3051</td>
<td>un-forged or replace</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Leaf spring</td>
<td>3073</td>
<td>replace</td>
<td>It is not needed to check the height &quot;H&quot;</td>
</tr>
<tr>
<td>3.</td>
<td>Slide bar tooth</td>
<td>3080</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Spring of slide bar tooth</td>
<td>3074</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Sear</td>
<td>6827</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Sear spring</td>
<td>3092</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Hammer</td>
<td>3088</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Hammer spring</td>
<td>3087</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Firing separator spring</td>
<td>3091</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Pin of trigger and hammer</td>
<td>3089</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Pin of clip fastener</td>
<td>3006</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Spring of clip fastener</td>
<td>3005</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Stock clamp</td>
<td>5659</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Stock screw</td>
<td>5660</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Split washer</td>
<td>5662</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Stock screw washer</td>
<td>5661</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Handgrip</td>
<td>6824</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Handgrip collar</td>
<td>6825</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Handgrip screw</td>
<td>3001</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Plate of the handgrip screw</td>
<td>6826</td>
<td>replace</td>
<td></td>
</tr>
</tbody>
</table>
21. Washer 3002 replace
22. Sight blade carrier 3072 replace
23. Sight blade 3068 replace
24. Spring of the cylinder covering 3056 replace
25. Extractor 6878 replace
26. Extractor spring 3035 replace
27. Firing pin 6877 replace
28. Extractor fastener 3033 replace
29. Firing pin fastener 3034 replace
30. Recoil spring 6880 replace
31. Guide rod of recoil spring 3283 replace

<table>
<thead>
<tr>
<th>Ordinal number</th>
<th>Name of the part</th>
<th>Number of the part</th>
<th>Type of work</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.</td>
<td>Recoil spring fastener</td>
<td>3284</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>Follower spring</td>
<td>6897</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>Magazine fastener</td>
<td>6895</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>Spring fastener</td>
<td>7063</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>Clip bottom</td>
<td>6884</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>Fastener, indivisible part</td>
<td>6830</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>Spring</td>
<td>3083</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>Safety pin of nut</td>
<td>6834</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>Fastener nut</td>
<td>6835</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>41.</td>
<td>Spring of the knife tooth</td>
<td>5410</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>42.</td>
<td>Knife button</td>
<td>5412</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>43.</td>
<td>Knife tooth</td>
<td>5410</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>44.</td>
<td>Sling ring</td>
<td>3319</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>45.</td>
<td>Slide bar</td>
<td>3318</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>46.</td>
<td>Knife case spring</td>
<td>5420</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>47.</td>
<td>Plumb, indivisible part</td>
<td>3332</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td>48.</td>
<td>Collar fastener</td>
<td>6853</td>
<td>un-forge</td>
<td></td>
</tr>
<tr>
<td>49.</td>
<td>Shell</td>
<td>209.100.</td>
<td>replace</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50.</td>
<td>Bolt body carrier, indivisible part</td>
<td>6872</td>
<td>replace</td>
<td></td>
</tr>
</tbody>
</table>
7. ASSEMBLY OF SNIPER RIFLES AND FULFILLING THE REQUIREMENTS OF PARTS REPLACING

1) GENERAL CONDITIONS

61. – The assembly of the sniper rifle is carried out in the reverse order from the disassembly. All parts should firstly be assembled into mechanisms and then they are assembled as a whole rifle.

Rifles are assembled according to the following order in the text below. The text defines the assembly procedures that are carried out during the replacement of parts.

The sequences of works of the rifle assembly, described in this chapter of the manual, are result of the technological sequences of works that include certain requirements and sequences of the assembly of parts of the barrel – receiver assembly. Some of the requirements can be fulfilled in a different order, for example, assembly of the mechanisms of rifle out of the barrel – receiver assembly, and later installation of these mechanisms into the rifle, and it is possible to assemble the basic mechanism right after the assembly of its sub-mechanism. The sequence of works is arranged according to the second model that is more acceptable, especially if during a repair it should be replaced only a defected part or mechanism.

The assembly work will be organized according to many factors like: repair extent, place available, the organization of work of the weapon repair and other factors.

After a repair, light or medium repair, the sniper rifle should fulfill all tactical-technical and functional requirements. Therefore, all procedures for doing repair works and tools, gauges and measures must be in accordance with the rules.

2) ASSEMBLY OF MECHANISMS

(1) ASSEMBLY OF CYLINDER FASTENER
62. – The cylinder fastener – indivisible part: usually it is not removed from the sniper rifle, but it can be replaced in case when it should be removed. The cylinder fastener (2, Pic. 26) is placed on the right side of the rear sight base (1, Pic. 26), on the barrel – receiver assembly. It is placed into the hole and it fastens the cylinder on the sniper rifle. Correct installation of the cylinder fastener on the rear sight base means that it can be easily moved and that "a" surfaces should be aligned. The "a" surface on the cylinder fastener should be aligned with the "a" surface on the rear sight base or slightly lower then it. This can be realized only with the change of the fastener's dimension and it is tested in the "open" position of the fastener.

After a suitable cylinders fastener is chosen, according to the previous requirements, the cylinder fastener should be un-riveted ate the position "b" to prevent it falling down from the rear sight base in a way shown on the picture 27. This is done with an auxiliary tool with cone ending and angle of 90°. After the end of the fastener is un-riveted, the fastener should be easily rotated and there should be possibility to put it into a "closed" position in which there should be no axial spacing (the "closed" position is shown with a broken line on Pic. 26).

Pic. 26 – Cylinder fastener indivisible part installed on the rear sight base:
1 - Rear sight base, 2- Cylinder fastener indivisible part
63. – If the connection of the cylinder fastener and rear sight base should be repaired on the mechanisms that have gotten spacing during exploitation, the same procedure is used for un-riveting a "b" end of the fastener as well as in case of installation of a new fastener.

(2) ASSEMBLY OF THE LEAF (SUB-MECHANISM)

64. – The assembly of the leaf (sub-mechanism) and its installation on the sniper rifle is done in reverse order then its disassembly.

65. – After the replacement of some parts of the leaf and its installation with a spring in the rear sight base it should be tested the following:
- the possibility of turning the leaf around its extensions at the angle of 180°;
- the possibility of returning back the leaf in the angle less then 30°, its basic position, under the tension of its spring;
- the possibility of returning the leaf into the middle position after it has been pushed left or right. It is not allowed if leaf does not return into the middle position, in that case the whole leaf is replaced with a new one.
- if the slide bars and leafs are replaced with new parts on rifles, and if one of these parts is replaced with a part from other rifle, the height "H" of the leaf should be tested on the rifle (Pic. 28). The measures on the picture must be measured with a tool designated 687 49 0710 in a way shown on the picture 29.
Pic. 28 – Position of the leaf in relation to the longitudinal axis of the barrel

The tool is placed in the barrel with its cylindrical part, aside of the cartridge chamber, and movable part of the tool is placed above the leaf. The gauge is consisted of two parts; one part covers the heights of the leaf on the slide bar positions 1 to 5, the other part measures the heights of the leaf on the slide bar positions 5 to 10.

When the height of the leaf is measured, the slide bar should be in proper positions, that is, the distance number on the leaf during the test must correspond to the number of rung on the gauge. In case that some of the heights "H" is below the gauge measure, the leaf or slide bar should be replaced on the rifle. If the leaf height is higher then gouge measure, the place where the slide bar seats on the rear sight base must be filed, until the required height is reached.

The leaf height "H" on the picture 28 should be in the range of the following dimensions:

1 - from 48.960 to 49.210
2 - from 49.480 to 49.730
3 - from 50.100 to 50.360
4 - from 50.850 to 51.100
5 - from 51.680 to 51.930
6 - from 52.620 to 52.870
7 - from 53.700 to 53.950
8 - from 54.900 to 55.150
9 - from 56.270 to 56.520
10- from 57.850 to 58.100

The surface of the rear sight base that is made white with filing can be left unprotected.
(3) ASSEMBLY OF THE PARTS OF TRIGGER MECHANISM

66. – Installation of the firing regulator, indivisible part, on the barrel - receiver assembly is done in the following way:

Take the firing regulator at the top of the firing regulator lever with the right hand and put it in the receiver, into the angled grooves, from the right side. The position of the firing regulator should be vertical at the moment of its putting into the receiver.

When the whole body of the firing regulator is placed into the receiver (cylindrical part should be placed into the opening on the left side of the receiver), turn the firing regulator clock wise (forward) until the front part of the firing regulator lever comes to the right side of the receiver. After this, continue to turn the firing regulator to the right side and place it into one position of two (U - blocked, or J - unblocked). These positions are defined with the entrance of the extension on the firing regulator lever into the notch on the receiver's side.

After the installation of the firing regulator, check the possibility of its shifting from one position into the other with a hand, and during that testing it should be evaluated a quality of the firing regulator operation and its staying in bordering positions (fastening of the firing regulator on the receiver without spacing).

The shifting of the firing regulator from the "blocked" - "U" position into the "unblocked" - "J" position and reverse must be realized with a certain force, that is measured with dynamometer 868 47 073 0. The extension on the lever of the firing regulator is pushed with the dynamometer so that the force could be measured (Pic. 30). The shifting force should be within the range of 3 - 6daN, that is:
Pic. 30 - Testing of the shifting force of the firing regulator

- the shifting of the tested position should be done if the firing regulator is pushed with the force of 3 - 6daN;
- force stronger than 6daN could not be applied with the hand, therefore it is not acceptable;
- the shifting force of the firing regulator less than 3daN is not allowed, because the firing regulator could be self-shifted during operation and it could cause functional problems;
- if the shifting forces are out of the border values 3 - 6 daN, the firing regulator lever should be slightly bended so that it is put more far or closer to the right side of the receiver. The adjustment of the firing regulator lever should be done when it is out of the receiver's right side (approximately 45° in relation to the upper surface of the receiver). If the shifting force is less than 3daN, the end of the firing regulator lever should be bended toward the inside of the receiver, if the shifting force is larger than 6daN, then the firing regulator lever is bended so that it is far from the receiver (its right side). When the bending of the firing regulator lever is finished it is put into the working position and the testing of the shifting force is made once again.

If the firing regulator is replaced with a new one, it should be done the following:
- the firing regulator should be installed following the previous procedure;
- the following functional requirements should be fulfilled:
- the later installation of the receiver cover should be made possible, therefore the measures 87.5 and 7.5 on the picture 31 should be realized. It is measured from the receiver to the top edge of the firing regulator when it is in the "blocked" - "U" position (1). The given measures are realized with the filing of the firing regulator lever. The measures 87.5 and 7.5 are tested with tools designated 683 47 0690 for the 7.5 measure, and 686 47 0740 for the 87.5 measure (Pic. 33).
67. - The assembly of firing separator (its function in case of sniper rifle is to prevent untimely firing), means its installation into the receiver-barrel assembly, and it is done with the preparation of parts or connecting the firing separator with its spring (Pic. 34). The shorter, bended arm of the firing separator spring is put in the hole on the firing separator body on its left side. By this operation is done partial preparation for the installation.

Thus prepared parts should be taken with the thumb and index finger of the right hand and put into the receiver, from the bottom side, through the magazine well (Pic. 8).

During the installation of the firing separator in the receiver, the firing separator arm should be put into an opening on the right side of the receiver at the same time when the firing separator body is placed in the bottom part of the receiver, this action must be synchronized, because the firing separator spring, with its longer arm, moves the firing separator, which makes assembly difficult.
After the firing separator with the spring is installed into the receiver, the opening of the firing regulator (2) and spring (3) should be aligned with the opening for the axle link (4) with the receiver with an auxiliary axle made in workshop (Pic. 35). The auxiliary axle, with which the openings of the parts are aligned with the opening in the receiver, should be placed on the right side of the receiver, so that it can be pushed out after the axle (4) is put into the receiver from the left side. The position of the parts should be as are on the picture 35.
After the assembly, the firing separator should move freely around its axle. The movement of the firing separator must be without obstacles from the position on the picture 35 to the turned position that is achieved by pushing the firing separator arm on the point "a" till it is aligned with the upper surface of the rib in the receiver. After the arm of the firing separator is released from its upper position it must come vigorously back into its basic position, under the tension of its spring, without any delays. This check should be done a few times so that any obstacle in the movement of the firing separator could be discovered immediately. This check should be done especially when a new firing separator is built in as a part of the trigger mechanism. Since the firing separator axle is not secured from its falling out of the receiver, during the check the axle should be supported in a way that the receiver is hold over the axle position with a hand.

The left, longer, part of the firing separator spring that leans on the rear part of the receiver should be transferred into the left inner part of the receiver, so that it cannot obstruct the installation of other parts of the mechanism.

68. - To install the hammer with its spring into the receiver (barrel -receiver assembly), first a preparation of the parts should be done. It includes the installation of the hammer spring on the hammer in way that will allow the installation of the hammer into the receiver. The hammer spring with its middle part is drawn on the cylindrical extensions of the hammer body (Pic. 36). These extensions serve as guiding parts of the spring. The ends of the springs are hooked up on the extensions on other part of the hammer (the hammer head). Thus, the holding of the spring on the hammer is achieved.

The hammer with spring, prepared for the installation in the previously described way, is taken with the hand for the head part and at the same time the ends of the spring are held so that they stay together when the hammer is put into the receiver. Installation of the hammer into the receiver is carried out in the rear part of the receiver with the opening for the hammer axle (hammer body) should be rotated in such a way that a hole axis should be placed in the direction of the longitudinal axis of the receiver. In this position, the hammer is brought to the place of its connection with the receiver, and then it is rotated for 90° and put so that the axle hole on the hammer is aligned with the hole on the receiver (Pic. 37). The axle (4, Pic.38) is put from the left side of the receiver (1) during which it should be placed above the left arm of the firing separator that secures the axle from falling out of the receiver. In this way the axle is secured from the firing separator that is already put into the receiver, but if the spring arm is not stretched, then it is not secured.
Pic. 36 - Hammer and hammer spring prepared for the installation into the receiver as well as removing from the receiver:
1 - hammer spring, 2 - hammer

Pic. 37 - Removing -installations of the hammer and hammer spring into the receiver
The pre-tension of the spring part that secures the axles is achieved by placing the hammer axle above the arm of the firing separator spring. Checking the both axles from falling out of the receiver is done by pushing the axle from the right side of the receiver, during that operation there could not be axial shifting of the axles and the left arm of the firing separator spring must stay in the channels of the axles (the channels are along the left side of the receiver).

The right part of the hammer spring (3, Pic. 38) hooked on the hammer (2) could be released from the hammer and put inside the receiver and the left part of the spring is still hooked on the head of the hammer. It will be put inside the receiver after the installation of all other parts of the mechanism.

The hammer should rotate around its axle freely, and that is tested with rotation - by pulling it backward and releasing it forward and at the same time, holding of the hammer spring arm that is hooked on the head of the hammer.

69. - Before installation of the trigger and sear into the receiver, it should be made free a space for their installation. The left arm of the firing separator spring and the right arm of the hammer spring obstruct the space between the trigger guard and receiver.

The trigger is installed from the upper side of the receiver and the finger extension of the trigger must enter the space between the trigger guard and bottom part of the receiver.

The sear is prepared separately for the installation with the trigger. That means that a spring (2, Pic.39) must be put into the hole on the rear part of the sear (1, Pic.39), then it should be in the installation position.
Pic. 39 - Installation of the sear with a spring into the trigger (receiver):
1 - sear, 2 - sear spring

To prevent the sear spring to fall out of the sear, the part of the sear spring that enters into the sear should be covered with conservation grease that would hold the spring until it is installed with the sear into the trigger. The sear is installed into the trigger from the upper part of the receiver, above the trigger (Pic. 39).

After the sear with a spring is installed into the trigger, the hole for the axle of the trigger and sear should be aligned with the hole in the receiver. It is done with the auxiliary tool - axle, which is installed from the right side of the receiver. After the auxiliary tool is installed it is possible to install the trigger axle, and it is installed from the left side of the receiver. It connects the trigger and sear with the receiver, and these parts rotate around it. The trigger axle is secured from falling out of the receiver with the left arm of the firing separator spring, that should be lifted above the trigger spring during its installation and it should be put into the axle channel that is on the left side of the receiver. The firing separator spring is lifted above the trigger axle with the auxiliary tool in a similar way that is shown on the picture 40, which shows the lifting up of the firing separator spring arm.

Pic. 40 - Lifting up of the arm of the firing separator

The right arm of the hammer spring that lies at the bottom of the receiver should be lifted up and hooked on the rear part of the sear before the trigger axle is completely installed with the auxiliary tool with which is lifted up the left arm of the firing separator spring.

The left arm of the hammer spring could be un-hooked now from the hammer head and it should be placed into the receiver on the left rear part of the trigger.

The installation and function of the parts should be tested so that the sear is pushed down toward the trigger that, after it is released, should return back into its basic position under the tension of its spring. The operation of the trigger is tested so that the trigger is pulled backward with a finger like during triggering. When the trigger is released from its backward position, it should return forward under the tension of its spring, it is pushed with the arms of the spring that are installed on the rear part of the trigger. The trigger must operate smoothly. When the trigger is in the front position, there should be no "spacing" - wobbling in its movement. It should be held all the time with the spring that pushes it at its rear part.
70. - During the testing of the trigger mechanism's parts, all parts of the mechanism and all technical requirements that ensure proper operation of the mechanism should be tested. If one part of the mechanism is replaced, then some adjustments should be made on other parts so that all requirements and measures that are needed for the proper operation should be fulfilled in new combinations and positions.

Characteristic positions of the trigger mechanism are:

POSITION I - firing regulator (1) is put in the "unblocked" position, the bolts are out of a rifle. The parts are put in the position as shown on the picture 41 with the trigger (2) pulled backward - like in a "triggered" position. In this condition - position of the trigger mechanism parts it should be tested:

- the height of the hammer (3) from the upper surface of the receiver (4, measure 12mm, with the tool designated 683 47 107 0 and the height 15.5mm, when the hammer (3) is pushed down, toward the trigger, with the same tool.

- The test of the previous requirement with the tool 683 47 107 0 is carried out in the way shown on the picture 42, with the rotation of the tool for 180° (horizontally).

The bottom of 12mm gauge should not touch the hammer when it passes across the hammer. That is in relation to the other side of the gauge with the 15.5mm measure. During the measuring of the 15.5mm distance, the hammer (3) is pushed with an auxiliary tool - rod at the extension on the head of the hammer;
Pic. 42 - Testing the height of the hammer

- the height of the arm of the firing separator (5, measure 3.9mm) measured from the upper surface of the receiver (4) with the tool designated 683 47 124 0. During this check, the hammer (3) should lean on the extension of the firing separator body (5).

The test of the previous requirement with the tool 683 47 124 0 is carried out in the way shown on the picture 43, the gauge is put in from the top of the receiver, above the top of the arm of the firing separator (5). The bottom of the gauge should not touch the firing separator, that means that the measured distance is larger than 3.9mm. If the gauge touches the arm of the firing separator then the measure is less than 3.9mm and the surface "a" should be filed with a file;

Pic. 43 - Testing the height of the firing separator arm

- the seize of the contact surface of the hammer (3) and the extension of the firing separator body (5) that should be 1.7mm. This contact surface is visually inspected by the seize of hammer's impression (3) on the extension on the firing separator body (5), or with marking the line that represents the place where the tooth of the hammer (3) meets the extension on the firing separator body (5). The line is marked with a needle, and the trace of the needle could be seen easily because of burnished surface. The picture 44 shows the image and contact surface of the hammer and the extension of the firing separator body, removed from the weapon, so that it could be clearly seen the other trace of the contact and marked line that indicates the reaching point of the hammer. The seize of the contact surface on rifles is measured on the extension of the firing separator body (5), that is the result of the contact with
the hammer pushed on the surface "a" (Pic. 41). After the firing separator extension is released from the hammer catch, the trigger should be released in its front position, it is ready to hold the hammer that will be slightly shifted when the firing separator is released from the hammer catch. After the hammer (3) is pushed on the position "b", the firing separator, under the tension of its spring, should be returned into the new contact with the hammer.

POSITION II - the firing regulator (1) is put in the "unblocked" position, and the bolt body (2) with the bolt carrier (3) is in the receiver (4) in the front-end position - the bolt is in locked position.

The trigger (5) is in the front-end position, and the other parts of the mechanism are in the positions as shown on the picture 45. When the parts are in this position it should be tested the following:

- the extent of the contact surface of the trigger tooth (5) and the extension of the hammer (6) that should be 3mm. The extent of the track on contact surfaces of the trigger (5) and hammer (6) is visually inspected. It is impossible to measure the extent of the contact surface on the trigger tooth while it is part of an assembled mechanism; therefore the extent of the contact surface is measured on the hammer extension. If the track of the contact is hardly seen, then on the hammer it could be drawn the border line, and according to its position it should be defined the extent of the contact;
- the spacing of 0.2mm between the tooth on the hammer body (6) and the extension on the firing separator body (7). Inspection is done visually or with the gauge leaf that is put in the spacing.

POSITION III - the firing regulator (1) is put in the "blocked" position, and the bolt body (2) with the bolt carrier (3) is in the receiver (4) in the front-end position - the locked position, and the trigger (5) is in the front position. The other parts of the mechanism are in the positions as shown on the picture 46. When the parts are in this position it should be tested the following:

Pic. 46 - Parts of the trigger mechanism (position III):
1 - firing regulator, 2 - bolt body, 3 - bolt carrier, 4 - receiver, 5 - trigger, 6 - hammer, 7 - firing separator

- the extent of the contact of the firing regulator (1) and rear part of the trigger (5), which blocks the trigger and prevents the trigger to rotate around its axle, as well as hammer (6) to be released from the contact with the trigger in case that the trigger is activated. In this position, the regulator body (1) goes above the rear extension of the sear (7), which also prevents its turning around the axle.

Also, it should be inspected the other blocking position - when the trigger is in the "triggering" position, and leaned on the rear part of the bolt body (2). To bring the mechanism in this position it should be done the following:
- shift the firing regulator (1) into the "unblocked" position;
- do a "triggering" with pulling the trigger (5) backward that will release the hammer (6) from the contact with tooth of the trigger (5). The hammer will be stopped next to the rear part of the bolt (2);
- shift the firing regulator (1) into the "blocked" position;

After this it is necessary to check the possibility of stretching the hammer (6) in this position with a hand. The tooth on the head of the hammer should not cross over the blocked trigger. This method of blocking with the firing regulator body should also to prevent the stretching of the hammer.
Pic. 47 - Parts of the trigger mechanism (position II):
1 - firing regulator, 2 - bolt body, 3 - bolt carrier, 4 - receiver, 5 - trigger, 6 - hammer, 7 - firing separator, 8 - sear

POSITION IV - the firing regulator (1) is put in the "unblocked" position, and the bolt body (2) with the bolt carrier (3) is put in the middle position (above the stretched hammer), on the half way of its path in the receiver (4). The trigger (5) is pulled backward, and the hammer (6) is held with the extension (tooth) of the firing separator (7). The other parts of the mechanism are in the positions as shown on the picture 47. When the parts are in this position it should be tested the following:
- the existence of the spacing between the hammer tooth (6) and sear (8) with pulling the sear backward so that the sear must not touch the tooth of the hammer;
- the extent of the tooth hammer's (6) going under the sear tooth (8) that should be 1.8mm. The check is done visually or with marking a line on the hammer next to the edge of the sear tooth.

After the testing of the spacing and extent of contact by pushing the bolt forward until it pushes down the arm of the firing separator spring, the hammer will be released from the extension of the firing separator.

At this moment the hammer should move (rotate) and lean on the sear.

Correct operation of the trigger mechanism is guaranteed if all specified requirements are fulfilled for all parts in the positions I, II, III and IV. The proper operation is proved with the following operations:
- when the trigger and the carrier are in the front-end position - locked position, and firing regulator is in unlocked position, the hammer should be activated with pulling the trigger backward. After this, the hammer should be energetically turned to the bolt body and it must stop after it strikes the rear part of the bolt body;
- with a finger still on the trigger (the trigger is in the "triggering" position), the hammer should be stretched with pulling the bolt body backward over the bolt carrier, back to the rear end position. After this, the bolt body with the bolt carrier should be returned into the locked position. The hammer, stretched in this way, and with the trigger still in backward position, should be held with the sear tooth. It must be held with the sear tooth until the trigger is released in its front position and when
the trigger extensions overtake the holding of the hammer, which is now released from the sear catch (when the trigger moves forward the sear moves backward);

- by pulling the trigger backward again the hammer should be activated, that is, the triggering must be done;

- triggering - activation of the hammer during the forward movement of the bolt body with the bolt carrier (but before locking) should not occur if the trigger is pulled. This function is done with the firing separator that holds the hammer until the bolt is locked when the bolt carrier with its right extension moves the arm of the firing separator and releases the hammer;

- the operation of the parts in blocked position is described in the explanation of the functions of the trigger mechanism parts - position III.

In case that some parts fail to pass the test of functional requirements, beside the allowed interventions, which are described, it could be done choice - selection of the parts.

After the finding that all functional requirements on the trigger mechanism parts are fulfilled, it should be inspected the securing of the axles from self-falling out of the receiver with the axial force that should be minimum 25 daN. The force is produced by pushing the dynamometer tool with the hand. Pushing of all axles is done from the right side of the receiver, normally on its sides on the axis of the axles.

The way in which this test is done with the tool designated 686 470 890 is shown on the picture 48.

![Securing test of the axles of the trigger mechanism parts](pic_48.jpg)

After the assembly is finished, it should be tested the triggering force, which should be in the range of 1.5 - 2.5daN. The test of this force is done with the tool designated 684 23 003 0, and the trigger is pushed horizontally with this tool in the triggering direction (Pic. 49). The measuring should be done a few times so that the results would be more realistic. During the testing of the triggering force, the firing regulator should be in "unblocked" position and the bolt body with the bolt carrier in the front-end position - locked position.

In case that the triggering force is larger then allowed, it should be done "ironing" of the hammer and trigger surfaces that take part in the triggering process. The force less then 1.5daN should not be expected.
The "ironing" of the hammer surfaces is done when the hammer is in the "triggered" position. In this position, the surfaces of the hammer tooth could be "ironed" with a fine whetstone or emery cloth number 400. The "ironing" of these surfaces is done directed to the line that is parallel with the sides of the receiver. The "ironing" of the surfaces on the hammer tooth is difficult because they are hard to reach, but it can be done with an emery cloth.

Pic. 49 - Testing of the triggering force

(4) ASSEMBLY OF MAGAZINE FASTENER

71. - The assembly of the parts of the magazine fastener on the sniper rifles is done after the worn or broken parts are replaced with new part. The assembly is done according to the position of the parts as shown on the picture 50. There are also defined requirements how much the top of the magazine fastener should go out in relation to the receiver (A), and what is the largeness of its opening for the placing of the magazine.

The assembly is done in the following order:
- put the spring (3) into the magazine fastener (2), the position of the fastener spring ends should be as on the picture 50;

Pic. 50 - Position of the magazine fastener parts:
1 - trigger guard, 2 - magazine fastener, 3 - fastener spring, 4 - fastener axle
Thus prepared parts, held with one hand, are put into the two-side extension on the trigger guard (1) and with pushing of the fastener (2) toward the guard (1) to overcome the tension of the spring (3). The holes on the magazine fastener are aligned with the holes on the guard extensions;

- it is hard to align the holes on the guard extensions with the hole on the magazine fastener because of the spring moves, therefore it should be used an auxiliary axle designated 679 47 2390 with a cone top so that parts could be more easily aligned. This auxiliary axle can stay in the assembly until all tests are done, and then it can be replaced with a suitable axle (4).

After the parts are placed in the described way it should be made test of the correct operation of the magazine fastener in a sense that it can be rotated by pushing the bottom part of the fastener down. When the magazine fastener is released after the complete possible turn, the fastener must be returned energetically into its basic position under the tension of its spring.

If only a spring (3) is replaced on the sniper rifle, and the magazine fastener (2) is not replaced, all requirements that will be explained later in this chapter should be fulfilled.

If the magazine fastener (2) on the sniper rifle is replaced with a new magazine fastener, it is necessary to prepare points "a" and "b" by filing (Pic. 50) so that requirements for correct operation of the parts can be fulfilled.

The extent of going out of the top of the magazine fastener tooth (2) is measured with the tool designated 683 47 065 0. It is measured in relation to the rear cut of the receiver (A, Pic. 50) and it has value of 0.5 to 1.5mm. The measuring is done with placing the tool 683 47 065 0 into the receiver (magazine opening) and with one of the measuring surfaces is leaned on the receiver and the other on the top of the magazine fastener tooth (Pic. 51). The gauge is two-sided tool with the difference of the others and measured surfaces of 0.5mm and 1.5mm.

If the tooth of the magazine fastener goes out less then 0.5mm, the surface "a" of the magazine fastener should be filed until the desired measure is reached.

If the tooth of the magazine fastener goes out more then 1.5mm, the surface "b" of the magazine fastener should be filed until the desired measure is reached. The "fastening height of the magazine" should not be changed during this operation. The height is measured with the tool designated 686 49 022 0. The installation of the magazine on the rifle with maximal dimensions is measured with this tool. The tool should be placed on the rifle easily, without pressing the magazine fastener with a
finger, and it should not be moved. In case that fastener does not enter under the tooth of the tool, the magazine fastener should be filed on the position "b". During this procedure, the seize of 0.5 and 1.5mm should be kept.

If there is a vertical spacing - wobbling, the magazine fastener should be replaced with a new magazine fastener that has larger measures from the axle hole to the top of the magazine fastener tooth. During filing the surfaces "a" and "b", the contact surface should be minimum 60% of possible maximum contact surface.

The magazine fastener axle (4, Pic. 50) is installed after the testing and fulfillment of the requirements is finished, and the auxiliary axle is removed from the mechanism.

The ends of the installed axle (4) should be hammered - secured from falling out of the receiver with a tool made in workshop, which has the cone end with angle of 90°. The hammering is done by hammer strokes, on both sides of the axle, so that the other side of the axle rests on the flat surface.

The finished assembly of the magazine fastener should be tested after the axle is hammered, during the testing, the magazine fastener should not be held with tools.

(5) ASSEMBLY OF STOCK

The assembly of the stock is carried out only in the case when the receiver-barrel assembly should be burnished and when the stock or some other part that connects the stock with the receiver should be replaced with new, proper parts.

72. - If the stock is removed from the rifle because the receiver-barrel assembly should be burnished - and it is necessary to install it on the rifle again, the assembly is done according to the following order:

- the stock should (1, Pic. 52) installed on the rear part of the receiver (6). In case that stock cannot easily seat on its place in the receiver it should be punched with a rubber or plastic hammer. The stock should not be punched so that it enters into the receiver with its whole connection part but only a half of it is enough;

- at the rear part of the receiver (6) there should be placed a stock bond (3) and a bolt (2) with a washer (4) and a spring washer (5) of the stock bolt should be put into the hole of the stock, from its rear. When the screw washer (4) is put on the bolt it should be inspected the washer seat in the stock hole because during the disassembly it could happened that washer was pressed into the stock wood. In case that those two washers are put on the screw, the effective length of the bolt threads would be lesser in the stock bond, because the stock bolt would be moved backward. In case that the hole for the washer seat in the stock is pushed down, it should be put two washers on the stock bolt;

- the stock bolt (2) should be tightened with a special wrench designated 647 323 012, and with that wrench the bolt is threaded into the stock bond (3). The bolt should be tightened until the stock (1) touches the "forehead" (bottom) of the opening of the stock (1) seat in the receiver (2).
Pic. 52 - Bond of stock and receiver
1 - stock, 2 - stock bolt, 3 - stock bond, 4 - stock screw washer, 5 - spring washer, 6 - receiver

- threaded link of the stock bolt (2) and stock bond (3) should be realized with the torque of 1.5daN/m. The torque is measured with the torque wrench designated 647 421 002 (Pic. 53). The screw is rotated until the connection of the torque of 1.5daN/m is achieved.

Pic. 53 - Checking the connection of the stock bolt and receiver

73. - After the threaded connection of the bolt and stock bond (stock and receiver) is made, the spacing between the rear part of the receiver and stock should be inspected for the minimum 0.4mm (Pic. 54). If the spacing is smaller, a suitable spacing should be made with a hand saw, on all sides of the stock (Pic. 55). During sawing the care should be taken that the depth of sawing is less then the seize of the receiver walls on the place where it is connected to the stock. The spacing between the bottom of the stock bond (3) and the receiver (4, Pic. 54) is inspected before the stock (1) is assembled. Normally, the spacing should be larger then 0.4mm,
Pic. 54 - Spacing between the bond, stock and receiver:
1, stock, 2 - stock bolt, 3 - stock bond, 4 - receiver

which makes the seat of the external cone surface of the bond secure onto the cone surface of the receiver opening, with which the bond "holding" during the fastening of the stock screw is realized.

74. - When a new stock is installed on the rifle, the spacing is lesser then 0.4mm, therefore it should be made larger spacing with hand saw as was described above.

After all works on the installation of a stock are finished, it is time to install the rubber butt plate.

75. - If there is a new rubber but plate to be installed on the rifle, after the installation of the rubber butt plate, the whole profile of the but plate and stock surfaces should be polished in order to adjust the surfaces. Polishing is made with a two sided grinding machine or on the wood-polishing machine with abrasive paper (Pic. 56). After the polishing, the stock and rubber butt plate should be wiped and polished places should be smeared with a flaxen oil to adjust the colors of polished and non-polished parts of the stock. The screw is screwed on until the handgrip is fixed firmly onto the receiver, that is, until the handgrip is fixed so that it cannot wobble.
(6) ASSEMBLY OF HANDGRIP

76. - Before the handgrip is installed on the receiver, the handgrip collar should be drawn on the handgrip, and the plate of the stock screw should be put in the bottom opening.

Thus prepared parts should be placed on the receiver and fastened with a handgrip screw with a washer. The screw is screwed on until the handgrip is fixed firmly onto the receiver, that is, until the handgrip is fixed so that it cannot wobble.

(7) ASSEMBLY OF THE ELEMENTS OF THE FRONT SIGHT
During the assembly of the elements of the front sight (Pic. 57) two situations are possible:

77. - When only a blade sight is removed, only a new one should be screwed back on only in the sight blade carrier with a tool designated 678 23 0170 to the height of 48mm measured from the barrel axis. The screwing of the sight blade should be done carefully because the threaded part of the blade is cut through longitudinally and widen before it is thermally treated, so that it is secured from self-unscrewing after the installation.

![Pic. 57 - Elements of the front sight](image)

1 - sight blade carrier, 2 - sight blade, 3 - base of the front sight

The height of 48mm represents the basic measure for sighting, so it is measured with a tool designated 687 49 0800 (Pic. 58). The checking surface is an extension with three grades of height:

- 49.3mm front part
- 48mm middle part
- 46.7mm rear part of the checking surface

If the top of the sight blade deviates from the middle checking surface, the sight blade should be unscrewed or screwed until it is reached the height of 48mm.

![Pic. 58 - Checking the height of the front sight](image)

The threaded link between the sight blade and sight blade carrier is secured from self-unscrewing. It is tested with a tool combination designated as follows:
- 686 47 1440 that is consisted of a part for catching the sight blade with a possibility to rotate it, and a part that makes a rotation (wheel with a rope) and
- 684 23 0030 dynamometer with which a force of the arm is made with a possibility to measure the force (Pic. 59).

The sight blade should not be unscrewed with a torque smaller then 4 daN/cm in the case of the measuring with the described tools because the radius force of the wheel should be larger then 2aN. If the rotation is made with a smaller force, the connection is weak and the sight blade should be replaced.

![Pic. 59 - Checking the threaded link of the front sight](image)

If the sight blade carrier is removed, it should be installed by putting it into the opening of the front sight base, so that the opening for the sight blade screwing is in the vertical position in relation to the barrel axis (Pic. 57), and to be in direction with the barrel axis. The connection of the front sight carrier and the sight blade carrier is overlapped; therefore, the installation is made by hand pressure or with hammer strokes.

During the installation of the sight blade carrier, a radial and direction shifting should be minimized so that the connection cannot become weaker. The inspection of the axial shifting is done with a tool designated 686 47 0430 in the way as shown on the picture 60. The sight blade carrier should not move in its place if the pushing force is below 25daN.

![Pic. 60 - Checking the connection of the carrier and base of the front sight](image)
A suitable overlap that ensures that the carrier would not move in its position is made with the installation of the parts of the same groups as shown in the following table:

<table>
<thead>
<tr>
<th>Group</th>
<th>Sight blade carrier</th>
<th>Front sight base</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>$\varnothing$ 10.035 - 10.050</td>
<td>$\varnothing$ 10.00 - 10.018</td>
</tr>
<tr>
<td>II</td>
<td>$\varnothing$ 10.050 - 10.085</td>
<td>$\varnothing$ 10.018 - 10.036</td>
</tr>
</tbody>
</table>

The measuring of the sight blade carrier is measured with a micrometer for the measuring of the external circumference 0 - 25mm and measuring accuracy of 0.001mm. The opening in the front sight base is measured with a micrometer for the measuring of the internal circumference 9 - 12mm and measuring accuracy of 0.001mm.

After the installation of the sight blade carrier on the front sight base it should be installed the sight blade and all checks from paragraph 77 should be done.

To find a target easily, the sight blade should be put in a certain position in relation to the barrel axis. The deviation could be maximum 0.45mm on either side. The check is made with a tool designated 687 48 0640 that is placed into the guard opening of the front sight (Pic. 61).

Pic. 61 - Checking the position of the front sight in direction

The cut on the tool is made 0.9mm larger than a diameter of the top of the sight blade, which covers the sight pushed extremely to one side.

Pic. 62 - Shifting of the sight blade in direction
In case that the sight blade deviates to the side more than 0.45mm, the sight blade carrier should be shifted to the opposite direction.

(8) INSTALLATION OF THE SLING RING ON STOCK

79. - Lower ring sling – the indivisible part, is installed into the cut of the stock (oval recess at the bottom of the stock). It is fixed with two sling ring screws.

During the installation of the sling ring and screwing of the screws, the rifle should be turned for 180° and it must rest on the table or installation support to secure the stability of the rifle and to make the good tightening of the screws possible.

In case of the stocks that have been installed on rifles before, because of the material thrown out with unscrewed screws during the disassembly of the sling ring, it is allowed to fill the damaged holes with a wooden cone insert that is put in glue. The screws can be screwed on after the glue is dried.

(9) INSTALLATION OF GAS FLOW REGULATOR ON RIFLE

It is recommended to remove the gas flow regulator from the gas chamber always when the rifle is repaired in the workshop. When the gas cylinder is removed from the rifle, the gas regulator is unfastened and it is easy to remove it and also to lose it. Therefore, it should be removed from the rifle even if it should not be repaired or replaced.

The assembly of the gas flow regulator means that it is put into the gas chamber right before the gas cylinder is installed on the rifle.

The gas flow regulator has only one position in which it can be put into the gas chamber, and it can enter into the chamber until it reaches the collar of the gas regulator at the end of chamber. In this position the gas flow regulator should be turned left or right and one of the fastening channels should be put in vertical position from the side of the gas cylinder extensions.

Since there are three positions on the gas flow regulator designated with numbers, the gas flow regulator is usually put in the middle position (position 2). This is the position of the gas flow regulator during the normal operation of the sniper rifle.

(10) ASSEMBLY OF BOTTOM COVERING

Assembly of the bottom covering means that the covering collars (rings) are put on the bottom covering - body so that angled extension of the bottom covering enters completely into the covering collar. In case that a new covering is installed on rifle, it is allowed to rasp the profile of the covering. After the bottom covering is installed on the rifle, the covering collars are fastened with the small triangular tin plates that should enter the wood.

(11) ASSEMBLY OF GAS CYLINDER
80. - If the gas cylinder is disassembled only because of the installation of a new covering, the modification of the gas cylinder ends is allowed because of the assembly. The modification of the gas cylinder ends are rasped with a rasp so that its ends can enter the collars ensuring the good joins and the compactness of the assembly at the same time.

81. - After the assembly of the old or new wooden covering in the mechanism, the spacing shown on the picture are allowed:

Pic. 63 - Spacing in the gas cylinder mechanism

(12) INSTALLATION OF BOTTOM COVERING ON RIFLE

82. - If a new covering is installed, it is allowed to rasp the front profile of the covering. The rasping can be done in order to adjust the profile so that the collar can hold the covering firmly, and to made the rotation of the covering fastener possible by shortening it.

After the adjustments are done, the bottom covering should not have longitudinal wobbling except for the wobbling caused with a collar fastener that pushes the covering toward the receiver.

(13) INSTALLATION OF GAS CYLINDER ON RIFLE

83. - If the gas cylinder (indivisible part) is replaced, filing is allowed to adjust connection and to make assembly - installation of the gas cylinder on the rifle possible. The filing is done:
- on the front part of the gas cylinder, at the points "a" and "b" as shown on the picture 64, to make a spacing needed between the gas flow regulator and the end of the gas cylinder.
- on the rear part of the mechanism at the point "a" (Pic. 65) to enable turning of the gas cylinder fastener.
The surface adjusted with a file could be without proper protection (white). If requirements are not fulfilled, after the gas cylinder is fastened it could cause the deformation of the barrel, or, there could be longitudinal wobbling larger than allowed because of a bigger spacing between the gas cylinder fastener and gas cylinder.

After the all requirements are fulfilled and the gas cylinder is installed on the rifle it should be done the inspection of the barrel straightness.

The extension on the cylinder (point "a", Pic. 64) should hold the gas flow regulator in the desired position, which is visually inspected according to the position of the gas cylinder extension in the channel of gas flow regulator and with a try to turn the gas flow regulator left and right manually.

(14) ASSEMBLY OF BOLT BODY

84. - Put the extractor spring and extractor into the bolt body, and fasten the parts with the extractor fastener. After that, install the firing pin and fasten it with the firing pin fastener.

85. - There is no need for any special tools to assembly the bolt body - it is necessary only hammer and various drive-out punches.
The firing pin fastener, because of the overlap connection, should be installed into the bolt body mechanism with hammering. In case that the connection fails certain tests, it should be disassembled with a hammer and drive-out punch (made in workshop or from the accessories).

The firing pin fastener, besides its function to secure the firing pin, also has a function to secure the extractor fastener in way that it covers its specially profiled end. The inspection of this requirement is done visually and according to the extent of the firing pin fastener going over the extractor fastener, or so that the extractor fastener is pushed from the opposite side with a drive-out punch. This inspection could be used for overall grading of the assembly quality. The assembled bolt body should fulfill all requirements described in paragraph 48.

(15) ASSEMBLY OF BOLT CARRIER (INDIVISIBLE PART)

86. - The bolt carrier is assembled so that the piston is screwed on the bolt carrier, by turning the piston clockwise until the piston collar reaches the bolt carrier. If the piston was the part of an old mechanism, and it was removed from it because of repair (new chrome-plated), during screwing on the bolt carrier the hole of the piston fastener should be aligned with a hole on the bolt carrier.

If there was replacement of any part, the measure 281.6 ±0.15 should be fulfilled, and the hole of 3.1mm in diameter for the piston fastener should be drilled (3, Pic. 66).

The length 281.6 ±0.15 is measured with a tool designated 687 49 065 0 as shown on the picture 67.

The hole of 3.1mm in diameter is drilled with a vertical drilling machine with use of the following tools:
- tightening toll for drilling designated 673 49 057 0;
- spiral drill bit of 3mm in diameter, sharp, with flat forehead, JUS K.D3.020 HSS;
- spiral drill bit of 3.2mm in diameter, JUS K.D3.020 HSS.

The method of drilling the piston is shown on the picture 68.

Pic. 66 - Bolt carrier indivisible part:
1 - bolt carrier, 2 - piston, 3 -piston fastener
After the required works are done, the piston fastener (3) can be built in and it should be secured against falling by hammering each side. The hammered surfaces are filed with a file and polished to be equal with the surfaces of the receiver.
87. - The piston fasteners (3) can be used only once, they always come as built in the mechanism as new parts. After the piston fastener is hammered, the top of the piston should have a transversal shift (wobble) of 0.5mm measured on the first ring of the piston with a tool designated 688 49 010 0 (Pic. 69). The transversal shift of the piston should be measured before drilling of the piston fastener hole and before the piston fastener is hammered, so that all requirements of the mechanism should be fulfilled after the assembly. The length position of the piston should be measured (measure 281.6mm) after the piston fastener is hammered in order to discover possible mistakes during screwing on the piston or drilling the hole of the piston fastener.

![Pic. 69 - Checking the transversal shift of the piston](image)

(16) ASSEMBLY OF BOLT (MECHANISM)

The assembly of a bolt is made as a preparation for the rifle assembly, and its purpose is to install the bolt body into the bolt carrier (indivisible part).

The bolt body should work properly inside the bolt carrier, it should move easily and there should be no blocking and stopping in its movement through the spiral channels.

After the installation into the bolt carrier, the bolt body should be aligned with the bolt carrier surface or little bit above it, minimum 0.5mm, at the rear of the bolt carrier. This distance is measured with a tool designated as 683 47 067 0 (Pic. 70). During measuring, the bolt body should be put in the "unlocked position", that is, it should be in the front position in relation to the piston. It is held with one hand in this position, and the position of the rear part of the bolt body in relation to the bolt carrier surface is measured with a plate gauge held in other hand.

The gauge for checking of this requirement is made of two sides, and the check is done in two steps with turning the gauge upside down, and holding the same position of the bolt body all the time and pushing the bolt body forward - backward.

If this requirement is not fulfilled, the bolt body should be replaced.
88. - If a bolt is replaced on the rifle with a new one bolt or if the installed bolt was a part from some other rifle, the following requirements should be checked and fulfilled:

- a bolt should start to rotate in the locking process when the distance between the bolt body "forehead" and barrel "forehead" is 2 - 2.5mm.

This model of rifle has a bolt with a rotating locking during which the bolt body, in its forward movement, not far from the barrel (2-2.5mm), is rotated, and certain extensions with spiral surfaces enter into the receiver that has a locking opening (with spiral surfaces) at the front. The locking -closing of the rifle is done in the following way: the bolt (1), during its forward movement through the receiver, moves directly until it has reached the extension of the insert (2) and then, after it gets from it rotation, changes its direct movement into rotation. The moment when the bolt changes its directional movement into the rotational movement is defined indirectly with a distance measured from the barrel "forehead" (3) to the bolt body "forehead" (1), 2 - 2.5mm (Pic. 7).

This measure is influenced with many parts involved in this process; therefore it should be achieved with adjustment -filing of the slant surface on the bolt body, which begins 4.8mm from the bolt body "forehead", and it is at the angle of 39° in relation to the bolt axis (15, Pic.71)
Keeping the moment of the beginning of bolt body rotation within the required measures of 2 - 2.5mm is important because of the following reasons:
- if the measure is larger then 2.5mm, the bolt locking would be impossible, because the spiral extensions on the bolt body are not positioned above the spiral extensions in the receiver;
- if the measure is lesser then 2.5mm, the bolt locking would be too late, and that would cause bigger pressing of the case and its deformation since the cartridge is already in the cartridge chamber in the barrel.

Testing of the moment of the beginning of bolt body rotation is done with a tool set that is consisted of:
1 – the gauge in shape of the rear part of the bolt carrier, shorter then the bolt carrier, which is built in the rifle, designated 686 49 043 0.
2 - gauge plate of 2mm designated 683 47 063 0.
3 - gauge plate of 2.5mm designated 683 47 063 0.

Each plate is shaped according to the shape of the barrel surface and inserted extension. The gauge plates are put on the barrel "forehead" with the cut for the insert extension on the left side, that is, on the right side are notches for the extractor.

The position of the gauges during the testing of the moment of the beginning of bolt body rotation is shown on the picture 72.

When the plate of 2mm is put in front of the bolt body, it should touch the insert (through the angled surface) and rotation should begin in the locking direction (to the right side if looking from the stock).

When the plate of 2.5mm is put in front of the bolt body, it should not touch the insert (at the angled surface) and rotation should not occur.

If all requirements for the bolt locking are not fulfilled, the slant surface on the bolt body is filed in the way shown on the picture 73 or the bolt body is replaced with a new one (if the beginning of bolt body rotation cannot occur even with a plate of 2mm).

The "forehead" spacing on the rifles should be within the range of 46.00 - 46.10mm under condition that MIN. gauge of the measure 46.00 should be "locked" by a force lesser then 98.06 N and MAX. gauge of the measure 46.10 should not be locked with a force of 294.18 N, which works on the bolt body through the bolt carrier. The "forehead" spacing is the difference of the distance between a transitional cone in the cartridge chamber and the forehead of the opening for the placing of the
cartridge bottom on the front part of the bolt measured with MIN. and MAX. gauge of the "forehead" spacing. This measure is a result of the dimensions of many parts and it is defined with multiple-meanings, therefore it should be fulfilled and tested because the direct measuring is impossible and there is no other way to check the proper operation of the mechanism.

There is an illustration of the "forehead" spacing on the rifle on the picture 74 with designated parts that are involved (a barrel, a bolt, a bolt carrier, a receiver, etc.)

Before the testing of the "forehead" spacing, the rifle should be prepared and cleaned, especially the cartridge chamber and the bolt body "forehead" (the places for the support of the "forehead" spacing gauge).

Pic. 72 - Position of the gauge for the measuring of the beginning of bolt body rotation
1 - gauge 686 49 043 0, 2, 3 - gauge plates 683 47 063 0 and 683 47 064 0

Pic. 73 - Adjustment of the slant surface on the bolt to realize the beginning of the bolt rotation
Pic. 74 - "Forehead" spacing and parts of the mechanism that partake in the creation of the spacing
1 - bolt body, 2 - bolt body carrier, 3 - receiver, 4 - locking support surfaces, 5 - barrel fastener

For the testing of the "forehead" spacing gauges that make the testing of the mechanism possible indirectly are used, so that it can be stated that all requirements are fulfilled within their ranges and that the mechanism works properly. They are as follows:
- gauge in a shape of a shorter cartridge with the dimensions of 46.00mm, declared for this rifle as MIN gauge of the "forehead" spacing, designated 682 49 027 0;
- gauge in a shape of a shorter cartridge with the dimensions of 46.10mm, declared for this rifle as MAX gauge of the "forehead" spacing, designated 682 49 029 0;
- gauge in a shape of shorter cartridge with the dimensions of 46.20mm, declared for this rifle as EXPLOITATION gauge of the "forehead" spacing, designated 682 01 1920;

The gauges MIN and MAX are used as a limits for the installation of a new bolts on the rifles, and the EXPLOITATION gauge is used as limit gauge when there should be made adjustment of the "forehead" spacing (with replacing the bolt body) on the rifles that are in service. As a final exploitation "forehead" spacing is used the locking of the gauge of 46.20mm with a force less then 294.18N. If the replacement of the bolt with proper measures does not fulfill the basic requirements for C measure, the barrel should be replaced.

Dynamometer, designated 686 47 057 0, with which the locking force is measured. Here are the forces required:
- 98.06 N for MAX. locking force of the MIN. gauge of 46.00mm;
- 294.19N for MIN. locking force of the MAX: gauge of 46.10mm or 46.20mm must not lock;

The "forehead" spacing is inspected with a certain tools that are put on the rifle as shown on the picture 16 or 75.

The "forehead" spacing gauges are put into the cartridge chamber, first MIN. then MAX. and EXPL.
The locking of the bolt for this rifle is complete - the bolt with the bolt carrier should come to the rear of the barrel under condition that in the cartridge chamber there is the MIN. gauge of 46.00mm for measuring of the "forehead" spacing. In this position, the bolt should turn around the longitudinal axis at the angle of 38°, so that its spiral extension could enter into the spiral grooves on the receiver.

"Unlocked bolt" is a state when the bolt spiral extension does not enter into the spiral grooves on the receiver, with the MAX. gauge of 46.10mm or EXPL. of 46.20mm for measuring of the "forehead" spacing in the cartridge chamber. It is hard to inspect the bolt rotation during the locking process. In the locked position, the bolt carrier is in its front-end position. Therefore, the "unlocked bolt" is recognized with the backward position of the bolt carrier (shifted position in relation to the support surface of the bolt carrier at the front of the receiver).

The locking and unlocking of the bolt is measured with a dynamometer designated 686 47 057 0, the measured locking forces should be 98.06N and 294.18N.

Pic. 75 - Gauge position during the inspection of the "forehead" spacing:
1 - dynamometer 686 47 057 0, 2.1 - min. gauge 682 49 0270, 2.2 - max. gauge 682 49 0290, 2.3 - exploitation gauge

If during the inspection of the "forehead" spacing, the gauge of 46.00mm does not allow the rotation of the bolt and its locking with a force of 10kp, then there is no spacing (there is overlap). This means that the installed bolt (installation of a new bolt) on the rifle did not make a room for the MIN. gauge of 46.00mm between the bolt "forehead" and transitional cone in the cartridge chamber, therefore the cartridge of maximum seize cannot seat normally in the cartridge chamber. The rifle would be rejected, since the basic requirement for the proper functioning of the rifle was not fulfilled. In this case it is chosen the bolt that has the smaller length of the spiral extensions, measured from the opening to the front of the bolt.

If the MAX gauge of 46.10mm and EXPL gauge of 46.20mm allow the locking of the bolt with the force less then 294.18N or without using the force, which means that the rifle has the spacing larger then 0.10mm or 0.20mm. Therefore, the new bolt has to be chosen for this rifle with the larger measure measured from bottom of the opening of the cartridge seat to the spiral locking grooves.
The testing of the spacing after the gauge is put on the rifle as on the picture 75 is done so with the rifle on the solid rest because of the locking forces. When the bolt is pushed with the dynamometer with a hand, the position of the front part of the bolt should be observed, because according to the bolt position in relation to the receiver it would be decided whether the bolt is locked or not.

The best bolts to be chosen to fulfill the needed requirements are those that can be locked with the force of 98.06N. In this case there is a free space made that allows the check of the "forehead" spacing after the following requirement is fulfilled. It determines the seize of overlapping of the contact surfaces on the locking spirals.

The spiral surfaces of the bolt body should lay over the spiral surfaces on the receiver at the minimum of 60% of total overlapping surface possible. This requirement is tested the following way:

- put the MIN. gauge of 46.00mm for measuring the "forehead" spacing into the cartridge chamber;
- cover the spiral surfaces with soot from the petroleum lamp or in some other way;
- put the bolt body with the bolt carrier into the receiver and lock the bolt;
- put the brass rod of 7cm in diameter into the barrel until it reaches the gauge of the "forehead" spacing. Press the gauge with a rod. The pressure will be passed on the spiral locking surfaces that are touching each other. The rifle should have solid support (the pressure can be made by pushing the rod with a hand or by pushing the stock).
- remove the bolt body with the bolt carrier out of the receiver (watch out to save the traces on the spiral locking surfaces) and inspect the spiral locking surfaces in the locked position, and if the overlapping surface is smaller then needed, the white parts of the surfaces should be filed (Pic. 76 and 77). The procedure should be repeated until the overlapping area is 60% of total overlapping surface possible.

When the overlapping requirement is fulfilled, the "forehead" spacing should be tested again. It should be of the measures given in the previous test above.

Pic. 76 - Surfaces on the bolt body overlapped during the locking position

The spacing between the bolt "forehead" and rear surface of the barrel, in the locked position of the bolt, should be 0.05 - 0.2mm. This requirement is tested the following way:
- put the MIN. gauge of 46.00mm for measuring the "forehead" spacing, designated 682 49 027 0 into the cartridge chamber;
- separate the bolt body from the bolt carrier and put it into a tool designated 686 49 042 0. Put the tool with the bolt carrier into the receiver and push it into the locked position;

Pic. 77 - Making adjustments of the bolt body surfaces to improve locking

- push the tool with the left hand and bring it into the utmost front position. In this way the spacing between the bolt body and gauge of the "forehead" spacing (that is in the cartridge chamber) will be eliminated;
- check the spacing between the bolt "forehead" and barrel with the set of the gauge plates. The gauge plates larger than 0.2mm and gauge plates smaller than 0.05mm are not allowed to enter into the measured space.

The check of the spacing between the bolt "forehead" and barrel "forehead" is done in the way shown on the picture 17. There are shown the positions of the tools and gauge plates at the moment of testing the spacing.

In case that the bolt body did not fulfill this requirement, it is replaced with a new bolt body under the condition that all other requirements are fulfilled ("forehead" spacing, overlapping, beginning of rotation, etc).

The bolt should not touch the side surfaces of the receiver when it moves through the receiver. This is not tested with the rifle magazine but with a tool of maximal dimensions designated as 686 49 022 0. When this requirement is tested, the bolt body with the bolt carrier (in front position) and tool in the cartridge chamber are put on the rifle. By pulling the bolt over the bolt carrier, the bolt should move freely across the magazine-tool. If this requirement is not fulfilled, the reasons for touching should be found, analyzed and, if possible, removed. The adjustments of the bolt are recommended in this case, but it can be replaced with the fulfillment of all other requirements.

If the bolt carrier is replaced with a new bolt carrier, it should be done and tested the following:

Check the triggering moment, that should be realized only in the position of the bolt carrier, in relation to the front support surface on the receiver 3 - 6mm, measured from flat support surface on the bolt carrier (the root of the bolt handle). When the bolt carrier comes closer to the support surface on the receiver (3) at the range of 3mm (3-6mm), the extension on the right side of the bolt carrier (1) should
push entirely down the arm of the safety mechanism for untimely firing (2), with which the activation of the trigger is enabled (4, Pic. 78).

The fulfillment of the previous requirements secures the fulfillment of the requirements that define the position of the firing separator arm (safety mechanism from untimely firing) that is described in the chapter of the assembly of the trigger mechanism parts, and the position of the extension on the right side of the bolt carrier that pushes down the arm of the safety mechanism from untimely firing. Since the position of the arm of the safety mechanism from untimely firing is correct and tested (the chapter of the assembly of the trigger mechanism parts), as a significant factor of the triggering moment remains only the position of the extension on the bolt carrier that is defined with the measures 5.7 and 102mm (Pic 79).

If the requirement of the triggering within the measures of 3-6mm is not fulfilled, the bolt carrier is replaced with a new one, or the significant measures 5.7 and 102mm can be adjusted.

A gauge designated 683 47 106 0 with gauge measures 3mm and 6mm is used for the testing of the trigger function within the required measures.

Each side of the gauge plate is used for measuring since the measure of 3mm represents the lower dividing line and 6mm represents the upper dividing line of the bolt carrier position during which there should be no triggering.

Pic. 78 - Position of the parts during the phase of possible triggering
1 - bolt body carrier, 2 - firing separator, 3 - receiver, 4 - hammer

Pic. 79 - Measures of the bolt carrier which influence the triggering moment
The gauge plate for the testing of the triggering moment is placed in front of the bolt carrier, on the support surface in the receiver (Pic. 80). The plate is put with its one side of 3mm first and with its other side of 6mm.

The checking of the triggering moment is measured on the assembled rifle; it can be done on the partially assembled rifle, too, which means it the present condition of the rifle when it has only the bolt body and bolt carrier installed into the receiver. The firing regulator should be in the "unblocked" position - the hammer should be cocked and held on the firing separator. The bolt carrier with the bolt body should at the distance of 10mm from the front support surface in the receiver. Placing the gauge plate of 6mm in front of the bolt carrier and holding the plate and bolt carrier is done with one hand, and the trigger is pulled with the other hand. In this case there should be no triggering. The bolt should be pulled backward until it pushes down the cocked hammer to ensure that the hammer is held with the firing separator, and then with the gage plate of 3mm in front of the bolt carrier in front position, check the triggering by pulling the trigger. In this case the triggering should occur and the hammer should be activated.

If the triggering occurs in the position of the bolt carrier with the gauge plate of 6mm, then it can be stated that the triggering happens too early and the right extension on the bolt carrier should be shortened (according to the radius \( R = 4 \) and the measure of 102mm.

If the triggering does not occur in the position of the bolt carrier with the gauge plate of 3mm, then it can be stated that the triggering happens too late and the bolt carrier should be replaced with a new one (the measure on this bolt carrier is too large and it is not possible to make adjustments).

The extension on the bolt carrier is shortened with an air-driven or a power grinding machine with a grind wheel of 5 - 6mm in diameter. The air-driven or power drill should be fixed when doing this works, and needed rotation should be done by the rotation of the bolt carrier.

Pic. 80 - Position of the gauge plate for checking the triggering

(18) ASSEMBLY OF SPRING RECOIL AND ITS INSTALLATION ON RIFLE
89. - These operations should be done as described in the UP-50.

(19) INSTALLATION OF COVER ON RIFLE

90. - If a new cover or cover from some other rifle is installed on the rifle, the following should be done:
- the measures L, A, and B (Pic. 81) should be adjusted, for securing the installation of the cover with the longitudinal shifting of 0.3mm. The vertical shifting of the cover is not allowed.
- side spacing of the cover and the extension of the guide rod of the recoil spring that could be maximum 0.5mm.

(20) CHECKING THE UNLOCKING FORCE AND BOLT MOVEMENT

91. - The movement of the bolt from its forward into backward the position should be done with the force of maximum 147.10N that is measured on the bolt handle as shown on the picture 82 and with a tool designated 686 47 079 0. During the unlocking force measurements, the trigger mechanism should be in the position "triggered" so that it is measured at the same time the force of the bolt carrier crossing over the hammer in the phase of stretching. The bolt handle is pushed with a dynamometer (686 47 079 0) and it should be placed in the parallel position with the vertical and horizontal axis of the rifle. If the unlocking force is larger then 147.10N, it means that there are sharp edges or defects on the parts, and that causes large force.

Pic. 81 - Measures adjusted during the installation of a cover

Pic. 82 - Checking the unlocking force

(21) ASSEMBLY OF MAGAZINE

92. - The assembly of magazine is done in the phases in the following order:
The assembly of the follower spring (indivisible part), is done so that the follower spring (2, Pic. 83) is connected to the magazine bottom fastener (1) and spring fastener (3). The extensions on the magazine bottom fastener (point "a") and spring fastener (point "b") should be bended and thus they are fastened to the follower spring. The bending of the extensions could be made with combination pliers or with some other suitable tool under condition that position of the parts is maintained as shown on the picture 83.

The following assembly should be done in reverse order then disassembly described in the UP -50 (The rule book of the M76 semi-automatic sniper rifle).

In case that the follower is replaced with a new one, or with a follower from some other rifle, it is possible that the follower could stop and block in the magazine body. In this case the follower should be replaced with a new one, or the inner measures of the magazine body should be tested with a tool designated as 658 49 0030. It is also possible to adjust the inside of magazine body with this tool, if it is not correct.

Pic. 83 - Follower spring indivisible part:
1 - magazine bottom fastener, 2 - follower spring, 3 - spring fastener
(22) INSTALLATION OF THE MAGAZINE ON RIFLE

93. - The magazine is a practical and a functional replaceable mechanism, and it should be installed on the rifle without difficulties. But, since the rifle was in service, there could be some sorts of deformations that prevent its installation. Since this is the last practical test, it should be done with great care and all parts of the rifle that have malfunctions, should be returned to a new inspection and corrections in order to remove the defects.

(23) ASSEMBLY OF OPTICAL SIGHT CARRIER

94. - The assembly of the optical sight carrier is done in the phases, according to disassembly (a partial or complete disassembly). The assembly order is the following:

The assembly of the parts that fasten the optical sight carrier on the sight base (on the rifle) means that fasteners should be installed on the carrier body (indivisible parts) as well as elements with which it is attached to the carrier body. The fastener is installed into an opening in the middle of the carrier body so that its lever (a part that serves for the tightening of the fastener) should be turned upward. After this the carrier body is turned in a way that the threaded part of the fastener should be turned upward. During this operation, the fastener should be held with the finger of one hand so that it is attached to the carrier body. A safety spring of a nut should be put into an opening next to the fastener opening in the carrier body with the other hand. After this, the safety part of the nut should be pushed down with a drive-out punch from the accessories (or with some other auxiliary tool, 2mm in diameter) until the spring is completely pressed. Thus it is possible to tighten the nut properly on the fastener. The tighten of the nut is done with a screw-driver 0.8x1, JUS.K.G5.200, under condition that one of its safety cuts should be above the safety part. It should lift up under the pressure of its spring after the tool is removed. When the nut is tightened the lever of the fastener should be in the "released" position, and that would
make possible to tighten the channel for the tightening the optical sight carrier on the base. The tightening of the nut is done as shown on the picture 9.

During the assembly of the parts for the fastening the carrier on the rifle, the parts should be smeared with a conservation grease. In this way the parts are protected and they could be easily turned and removed from the rifle.

After the assembly is finished, and the mechanism is release from the vise, it should be tested the possibility of turning the fastener into its end positions.

The possibility of "tightening" the angled channel should be tested on the rifle (on the base of the optical sight carrier) during the testing of the installation of the optical sight. During this operation it would be defined the position of the fastening nut and its possible correction.

95. - The front and rear seats of telescope are put into the openings on the optical sight carrier body, into which enter the lower extensions of the seat that define their position on the telescope carrier body. The extension of the front seat of the telescope has a cylindrical shape and secures the position longitudinally and transversally. The extension of the rear seat of the telescope allows only longitudinal shift of the seat along the carrier, with which it is adjusted the distance between the front and rear seat.

Therefore, the installation of the telescope seat on the telescope carrier body requires the precise definition of the position ensuring the proper seat of the telescope.

The protection agent from self-unscrewing of the screws should be put into the threaded holes that will prevent the unscrewing of the telescope seats screws.

After the protection agent is put into the holes, the washer is put on the lower extension of the front seat of the optical sight, and the seat is put into its place on the carrier. After this, each seat is fastened to the carrier with screws.

The screws are screwed with a screw-driver 0.8x1, JUS.K.G5.200 under condition that each screw is screwed properly so that the telescope seats are fastened firmly to the telescope carrier body. It is important to do this during the assembly phase since it would not be possible later unscrewing of the screws because they are secured with the protection agent from self-unscrewing.

The front telescope clamp is fastened to the front seat with two screws M4x8, JUS M.B1.120, and the rear clam is fastened to the rear seat with four screws of the same type with a screw-driver 3, JUS K.G5.040.

The screws are not entirely screwed until a tool - insert designated 679 49 025 0 is not put into the hole (at the place of the optical sight).

97. - The insert-tool designated 679 49 025 0 has a function to check the positions of the holes for the telescope tightening; the deviation could be 0.2mm.

If the mechanism is assembled from the parts that were belonged to the same mechanism, it should not be expected the deviation larger then 0.2mm. But, if some parts were replaced during the repair (for example, seat or clamp) the deviation could be larger then 0.2mm.

Checking of the position of the hole is done in the following way:

- put a prism (2, Pic. 85), a comparing device carrier (3, Pic. 85) with comparing device (4, Pic. 85) with measuring accuracy of 0.01mm, on the measuring plate (steel or stone) of 0.6x0.6m (1, Pic. 85);
- put the telescope carrier with tightened insert-tool designated 679 49 025 0 on the prism (jus part of the insert-tool that is out of the telescope seat) and hold it with one hand;
- in that position of the insert-tool in the telescope carrier, put the comparing device at the edge of the other part of the insert-tool (on the opposite clamp) and align the indicator needle and "0" of the scale. Transfer this position of the comparing device to the insert-tool in the clamp next to the prism. The measured seize gives the deviation of the holes in that testing surface. The same procedure is repeated once again under condition that the carrier with the insert-tool is turned at the angle of 90°. If the deviations are larger then 0.2mm in any measuring surface, the hole should be adjusted with a vertical drill, a cutting tool designated Rmc - 25.4 +0.1 +0.2 designated 602 612 064, a tightening tools designated 673 49 071 0 and insert-tool designated 679 49 025 0 (Pic. 86).

After the adjustment is finished, a new check should be done once again in the way described above.

Pic. 85 - checking of the hole position for the tightening of the telescope:
1 - measuring plate, 2 - prism, 3 - comparing device carrier, 4 - comparing device

Pic. 86 - Adjustment of the distance of the hole deviation for the tightening of the telescope
(24) INSTALLATION OF THE OPTICAL SIGHT WITH A CARRIER

98. - The installation of this mechanism is done in the following order:
The screws M4x8 - 6 pieces, that fastens the telescope clamps to the telescope seat, should be unscrewed with a screw-driver 3, JUS K.G5.040.
After the screws are removed, the telescope clamp should be in the same position as before the adjustment of the hole for the tightening of the telescope. If it is not possible to keep the position of the telescope clamp, or to prevent mixing that clamp with other clamps it is recommended to mark the position of the clamp and carrier numbers. The numbers and marks should be written inside of the seat and telescope clamp.

After the clamp is removed from the seat, the optical sight should be placed in the position shown on the picture 87, taking care of the position of the drum for setting the distance and direction that should be vertical (distance) and horizontal (direction).

Put the front and rear clamp on the telescope seats taking care to put the clamps according to marked positions and numbers.

![Pic. 87 - Assembly of the optical sight with a carrier](image)

Put all six screws into the holes in the telescope clamps and tighten them with a screw-driver 3, JUS K.G5.040 as it is shown on the picture 87. The screw should be tightened gradually - each screw equally so that clamps could be tighten gradually to their seats. At the end the screws should be carefully tightened keeping the position of the telescope. Installation of the telescope on the carrier should be done with the carrier held tight in the vise; the jaws of the vise should be covered with rubber to protect the angled channel that seats into the base of the telescope carrier, from damage and deformations.
The reticule position of the optical sight should not be tested after the assembly is done but on the testing shooting of the rifle.

(25) ASSEMBLY OF KNIFE

99. - Since that the disassembly of the knife includes only parts that serve for the fastening of the knife on the rifle and linen sling - the assembly of the knife means putting of these parts on the knife.
The assembly - putting of the parts on the knife is done in the following order:

100. - put the fastener into the angled hole in the knife carrier, which is placed on the plastic handle of the knife;
- from the other side of fastener, put the spring and button into the hole and partially tighten the button into the fastener. Before placing these parts on the knife, they should be smeared with grease in order to create anticorrosive protection of the assembly and their proper operation during the fastening of the knife on the rifle.

Before placing these parts on the knife, the fastening of the knife on the rifle.

If parts that were already parts of the knife assembly are used, it is possible to expect difficulties during the tightening of the button on the fastener, because the threads were damaged during the securing the ends of the threads. In this case the beginning tightening should be done with the help of a screw-driver;
- the final tightening of the button should be done with a screw-driver. After that it should be tested the operation of the parts for pushing the knife, during which the fastener should go out of the knife carrier and to return under the pressure of its spring into the primer position without stoppage. If parts operate properly, the button should be secured from self-unscrewing with striking it with a marker on two points, in a way that button material should be pressed into the fastener.

101. - On a thus assembled knife linen sling is put by pulling it thorough the hole in the knife carrier. The linen sling must be installed as on the position shown on the picture 88. After that, it can be put a ring on the knife by pulling the end of the sling through the each cut. The knife assembly is now complete.

(26) ASSEMBLY OF KNIFE CASE

102. - The assembly of the knife case is done in the following way:
- put the knife spring into the knife case. The whole spring is put into the knife case, and it becomes wider with its own tension and in this way it is fastened in the angled opening at the bottom of the knife case;
- the knife case plumb is put on the knife case with fastening a clasp on the knife case, thus the connection between the plumb and case is made.

(27) ASSEMBLY OF KNIFE AND KNIFE CASE
103. - After the knife is put into the knife case, the sling should be clasped over the knife handle. Thus the knife is secured in the knife case, and sling ring should be clasped on the cut in the knife guard.

(28) INSTALLATION OF SLING ON RIFLE

104. - Whenever a rifle is in a workshop for a repair or burnishing, a sling should be removed from the rifle. In this way a sling is protected from grease and dirt. Dirty sling would require additional work for its cleaning.

Installation of a sling on the rifle in a workshop is done only in special cases, if one rifle should be repaired. Usually, after all repair works are done including shooting testing, slings are packed together with rifles into boxes. They are put in polyethylene bags because of their protection.

(29) REPAIR OF COLLAR FASTENER

105. - During service, the connection between a collar and collar fastener of the lower covering could become loose. The connection could be repaired so that the end of the fastener is un-forged in the way shown on the picture 89. It could be un-forged with a wedge with a cone top.

Pic. 89 - Un-forging the ends of collar fastener
CHAPTER II

SPECIAL TOOLS, ACCESSORIES AND GAUGES FOR THE INSPECTION AND REPAIR OF SNIPER RIFLE

1. CARE OF TOOLS, ACCESSORIES AND GAUGES

106. - Inspection, disassembly and repair of sniper rifle is made only with regular tools and accessories. Besides general locksmith's tools, accessories and gauges there are also special tools and accessories. The tools and accessories should not be used for other repairs except those described in this manual.

107. - The tools and accessories should be always correct. The usage of malfunctioned and irregular tools can cause defects and damages on the parts, and some parts could be so damaged that they could be no more repaired. Therefore, the tools and accessories should be regularly tested and maintained. The malfunctioned tools and accessories should be repaired before using them.

108. - Auxiliary tools and accessories used for the repair of sniper rifles were made in workshops and it can be used for other similar works.

109. - All gauges used for the inspection and repair of sniper rifles should be kept in special boxes with a seat for each gauge. The seats should be covered with felt, and the gauges should be clean and lubricated before they were stored in boxes.

110. - If gauges are used every day, they should be cleaned and lubricated with a linen rag soaked in oil after the usage. Gauges that are not often used are lubricated with technical Vaseline or gauge grease. Before usage as well as before lubrication, gauges should be wiped with a clean flannel or cotton rag.

111. - The gauge precision is guaranteed at the room temperature of 20°C. To secure their precision during their usage, sniper rifles and measured parts should have the same or similar temperature. Therefore, the gauges and parts are kept in the same room that has the room temperature of 20°C.

112. - The gauges and measured parts should be cleaned properly before measuring. It is forbidden to use force during a measuring, except when it is regulated with technical requirements.

113. - During work, the gauges could be laid down on the clean flannel rag, or some other soft rag, rubber etc., but the best thing is to put them into their seats in the boxes.
2. TOOLS AND ACCESSORIES

114. - Tools and accessories used during disassembly, repair, assembly and testing of the requirements of sniper rifles could be divided in two groups:

- special tightening, cutting and assembling tools (appendix 4)
- tools and accessories used for checking and measuring (appendix 3).

One part of the tools from the first group could be made in repair workshops in accordance to the drawings in this manual. The checking-measuring gauges could be made only with special producers of tools and accessories and these can be ordered according to the designations of the drawings that have the producers of sniper rifles.

Pic. 90 - Tool for the un-forging of the ends of cylinder fastener

Pic. 91 - Tool for lifting up the ends of spring
Pic. 92 - Auxiliary axle for assembly the parts of trigger mechanism

Pic. 93 - Tool for the un-forging of the ends of the axle of the magazine fastener
1 - tool base, 2 - wedge

Pic. 94 - Wedge for the correction of the hole for telescope tightening

MORSE CONE № 2
Pic. 95 - Tool for screwing on the front sight

Pic. 96 - Tool for shifting the front sight in direction

Pic. 97 - Tool for drilling a hole in the piston
Pic. 98 - Tool for checking the geometry of magazine body

Pic. 99 - Insert-tool for checking the distance of the holes of the telescope clamps

Pic. 100 - Tightening tool for the correction of the telescope clamp hole
Pic. 101 - Auxiliary axle for the assembly of magazine fastener: 1 - auxiliary axle, 2 - axle

ALLOwed WORN-OUT IS 0.1

Pic. 102 - Gauge of the firing separator position

Pic. 103 - Gauge for the checking the hammer position

ALLOwed WORN-OUT OF MEASURE 3.9 IS 0.1

Pic. 104 - Gauge for the checking the position of the firing separator arm
Pic. 105 - Gauge of the position of the top of the magazine fastener

Pic. 106 - Tool for checking the possibility of the magazine installation on rifle

Pic. 107 - Tool for checking the sight height
Pic. 108 - Tool for the rotation of front sight during the checking of the moment of the threaded connection

**ALLOWED WORN-OUT OF MEASURES 2.9 AND 12 IS 0.05**

Pic. 109 - Tool for checking the front sight position in direction

Pic. 110 - Gauge of the minimum rotation of the extractor

**ALLOWED WORN-OUT IS 0.02**
Pic. 111 - Gauge of the closed extractor position

Pic. 112 - Gauge of the extractor tooth height

Pic. 113 - Gauge for the checking the firing pin height (1.52 - 1.7):
1 - comparer, 2 - carrier, 3 - checking measure, 4 - base
ALLOWED WORN-OUT FOR THE MEASURES
1.40 AND 1.52 IS 0.005

Pic. 114 - Gauge for the checking the firing pin height (1.4 - 1.52):
1 - comparer, 2 - carrier, 3 - checking measure, 4 - base

ALLOWED WORN-OUT IS 0.1

Pic. 115 - Tool for checking the piston length from the support surface of the bolt body carrier
1 - cartridge case, 2 - ruler
ALLOWED WORN-OUT OF TOLERATED MEASURES IS 0.01

Pic. 116 - Gauge of the piston position

ALLOWED WORN-OUT IS 0.1

Pic. 117 - Gauge of the bolt body position

Pic. 118 - Tool for checking the beginning of bolt rotation

Pic. 119 - 2mm plate for checking the beginning of bolt rotation
Pic. 120 - 2.5mm plate for checking the beginning of bolt rotation

Pic. 121 - Gauge of the forehead spacing 46.10mm

Pic. 122 - Gauge of the bolt carrier position in the triggering moment
Pic. 123 - Gauge for checking the spacing

Pic. 124 - Tool for checking the overlapping height of the barrel forehead - bolt forehead
CHAPTER III

GENERAL PROCEDURES OF REPAIRING THE SNIPER RIFLES

1. CLEANING OF SNIPER RIFLES

115. - Rifles are cleaned in the repair workshops before an inspection and repair always. After repair, rifles are cleaned and lubricated. If rifle would stay in a workshop for a longer time it is preserved also by grease.

116. - Besides cleaning from dirt and old lubricant, the parts are cleaned from corrosion and its effects. Metal brushes and grinding plates made of felt are used in workshops for the cleaning of the weapons from corrosion, and as cleaning means are used grinding powder and emery cloth.

117. - Corrosion is partially removed in way that a corroded part is soaked into petroleum, or corroded surfaces are sprinkled with petroleum. Such parts or surfaces are left for a period of 10 - 20 minutes, thus corrosion is much more easily removed from the parts with metal brushes or emery cloth. Since emery cloth and grinding powder remove metal from the treated surfaces, the surfaces of the parts that have minimum dimensions which could not become smaller are not allowed to be cleaned with these cleaning means.

118. - Corrosion from the bullet guide in the barrel is removed with a metal brush that is screwed on the brass rod for the cleaning of barrel. The handle of the cleaning rod should be turned in the direction of the connection with the rod, thus the rod can move along the rifling in the barrel in accordance to the angle of rifling rotation.

119. - A powder soot that is accumulated inside the gas chamber and gas flow regulator is removed by scraping tools and metal brushes.

2. REMOVING OF MECHANICAL DEFECTS AND DAMAGES OF PARTS

120. - During service, disassembly and assembly of rifle because of combat defects or using of irregular or wrong assembly tools, mechanical defects and damages could occur on rifles. The mechanical defects and damages made in this way could be:
- dents,
- bends,
- cuts, scratches of the parts' surfaces,
- damages of the screw heads,
- corrosions

121. - Dents are caused by a strike or pressing the hollow parts that have thin walls. Since the great majority of the rifle's parts is made of steel plate or tube
(cylinder, magazine and its parts, regulator, etc.) this malfunction is common for those parts.

Dents are repaired by straightening with a wooden hammer or soft metal hammer (made of zinc, copper and lead) and steel mold that have a shape in accordance to the straightening part. These molds are made in workshops according to their needs and the needs of the lower ranked workshops.

122. - Bending of the parts is repaired by straightening of the parts on the flat plate with wooden or copper hammer. The straightening of the parts is usually done in cold condition.

123. - Cuts and scratches on the surfaces of the parts are removed with filing, grindstone, and whetstone or emery cloth. If the parts are not heat treated, then protruding parts are lightly straightened with a hammer as much as it is possible. After this, the part is filed with a file and polished with an emery cloth or polishing plates. The parts that have defined dimensions so that they can work properly together in a mechanism could be filed only to the basic surface, so that the inter-relation of the parts' dimension is not disturbed. The parts could be filed much more, until the smaller cuts and scratches are removed. The traces of deeper cuts and scratches are not removed usually.

In case of the parts that are heat treated, these damages are removed only with a grindstone, taking care of the dimensions at the same time.

Cuts and scratches that disturb the operation of the parts are removed at the moment they are noticed. But if such damages do not interfere with the proper operation of the parts, especially if they are on the burnished surfaces, they are not removed at the moment they are noticed. They should be removed before the burnishing of the parts of the rifle and revision of the sniper rifle.

Cuts and scratches on the screw threads cause troubles during tightening and unscrewing of the screws. Smaller defects on the threads are removed with cleaning through with a screw-stock. If the defects of threads are large, the screws are replaced with new screws.

The threaded holes are cleaned through with a threaded drill of suitable dimensions.

The damages of bolt heads and nuts could be recognized as dents on screw slots or worn out screw slots. The angled bolt heads are damaged in a way that it is hard to use a suitable wrench for tightening or un-tightening of bolt and nut. Dents are removed with a file, and screw slots are made deeper with a metal saw. Defects on the angled bolt heads and nuts are removed by filling until the basic surfaces are reached so that the suitable wrench can be used. After filing the bolt head is polished with emery cloth. The screws are burnished or they are put on fire to become black. If there are bigger damages, the bolts and nuts are replaced with new bolts and nuts.

124. - Corrosions of the parts is removed by polishing the parts with an emery cloth or polishing plates. The deeper traces of corrosion are removed with a fine file or grind-stone or whetstone. After filing, the parts are polished with emery cloth or polishing plates. The dimensions of the parts, which are important for the interaction of the parts, should not be changed more then it is tolerated.
3. TESTING AND REPLACEMENT OF SPRINGS

125. - After long service or with inappropriate care of rifle springs could become weak or even could be broken. Inappropriate assembly can cause twisting of the springs. Multi-threaded springs could be un-weaved at the ends.

126. - Springs are tested during the inspection of rifle in assembled and disassembled condition. In assembled condition of rifle, it is tested the function of springs. In disassembled condition of rifle, the shape of springs, cracks and broken parts are tested by visual inspection, their dimensions are measured and their strength is tested.

127. - If a spring has dimensions different from those in the table below it should be replaced with a new one.

<table>
<thead>
<tr>
<th>Spring name</th>
<th>Part number</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recoil spring</td>
<td>6880</td>
<td>451 - 471</td>
</tr>
<tr>
<td>Follower spring</td>
<td>6894</td>
<td>195 - 205</td>
</tr>
<tr>
<td>Extractor spring</td>
<td>3035</td>
<td>12.5 - 13.5</td>
</tr>
</tbody>
</table>

The strength of the spring is tested with a device for the measuring of spring force (Pic.125). If a workshop does not have a device for the measuring of spring force, the strength of the force could be tested with weights that have the weight that is equivalent to the force of spring.

For that reason, the following springs should have, besides given lengths above, the values of the forces as listed below if measured at the following lengths of pressed springs:

<table>
<thead>
<tr>
<th>Spring name</th>
<th>Part number</th>
<th>The length of pressed spring</th>
<th>Required force daN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recoil spring</td>
<td>6880</td>
<td>313</td>
<td>4.5 ± 0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>177</td>
<td>8.5 ± 0.8</td>
</tr>
<tr>
<td>Follower spring</td>
<td>6894</td>
<td>80</td>
<td>1.9 - 2.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>3 - 4.5</td>
</tr>
<tr>
<td>Extractor spring</td>
<td>3035</td>
<td>9.8</td>
<td>3.5 - 5.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.8</td>
<td>5 - 7</td>
</tr>
</tbody>
</table>

The hammer spring (3087) could not be measured with a typical method. It is measured with a special measuring tool that measures moments shown on the picture 128 when spring arms are rotated.
4. BURNISHING OF PARTS

128. - All metal parts of rifle except bolt with bolt carrier should be burnished. The burnishing of parts should be made during the revision of rifle, and in case that some other mechanical damage should be removed by filing or if the burnished layer felt off from the most of parts.

The burnishing is made according to ordinary procedure during which it is used solvent made of 1 part of sodium-nitrate Na No3 or sodium-nitrate NaNo2, 20 parts of caustic soda (NaOH) and 20 parts of water (H2O).
The temperature of burnishing is 130 -142°C during which the above mentioned solvent should boil. The duration of burnishing process should be 20 - 30min, after that the burnished parts are washed out.

The quality of burnishing is proved by appearance and color of the burnished surfaces and durability in accordance with the burnishing methods.

129. - All parts should work properly before burnishing process, also they should be prepared for the burnishing. All surfaces of the parts that should be burnished are cleaned and polished with metal brushes, emery cloth or felt plates for polishing. The removing of grease from the parts is made with solvent made of warm water, 5% industrial detergent and 10% caustic soda (NaOH).

5. PRESERVATION OF SNIPER RIFLES

130. - The preservation of rifle and accessories is done with a preservation solvent (SZN-M) according to the regulations in the Manual for General Preservation.

CHAPTER IV

MALFUNCTIONS OF RIFLE'S PARTS AND METHODS OF REPAIRING

1. MALFUNCTIONS OF BARREL

UNCLASSIFIED
131. - There are barrel malfunctions that could be repaired and those that could not be repaired. In case that malfunctions could not be repaired, the rifle is sent to revision so that the barrel is replaced with a new one. Malfunctions could be detected by visual inspection or by checking or measuring gauges.

(1) MALFUNCTIONS OF BARREL THAT COULD BE REPAIRED

132. - The following malfunctions could be repaired:
- barrel is clogged up with stuck bullet, rag, oakum, parts of cleaning brushes, rope and some other alien object;
- barrel distorted between the gas chamber and muzzle.

133. - A bullet stuck in a barrel is driven out with a special steel rod. The bullet is driven out so that the rifle is partially disassembled and laid down with the bottom of the stock on the bench. The rod is driven into the barrel from the muzzle and with light hammer strikes the stuck bullet is driven out. The stuck bullet and all other stuck objects are driven out from the muzzle toward the cartridge chamber. It is not allowed to drive out the bullet from the side of cartridge chamber because the rod could get stuck in the barrel.

134. - Stuck rag, oakum or rope for cleaning of barrel are taken out with a special rod that has a threaded top. The rod is rotating at the place of stuck object, so that it enters into the stuck object, which is caught and chopped. The rod should be pushed toward the muzzle and the stuck object is taken out part with part, and if the object is small it could be taken out at once. During working with this tool the rifle should be disassembled and the receiver should be put into a vise. The jaws of vise should be covered with felt.
1. Distorted barrel
2, 3, 4 and 5 - barrel distorted at ¼ from the muzzle
6 and 7 - barrel distorted in the middle
2 and 6 - barrel distorted downward
3 and 7 - barrel distorted upward
4 - barrel distorted to the left
5 - barrel distorted to the right

Pic. 127 - Shape of shadows in distorted barrel and the way of straightening

135. - The distortion of the barrel is inspected and defined as it is shown on the picture 127. The straightening of the barrel could be done only if the barrel is distorted between the gas chamber and muzzle. First, it should be defined in what direction the barrel is distorted. Picture 127 shows the shadow of distorted barrel as seen during the visual inspection of the barrel. After the distortion is defined, the barrel is put with the top of the distortion arc on the middle movable support point and with the front and rear part of the distortion arc it is put on the fixed support of a special device for the straightening of barrels. By turning the wheel of the
straightening device, the movable support is moved and it pushes the barrel at the top of the distortion arc and straightens the barrel. During the barrel straightening it is necessary to watch the changes of the barrel shadow from the side of muzzle, shadows are shown on picture 127, and they show the way of distortion. The barrel straightening is a very delicate work and it should be done with great care. Personnel working on the barrel straightening should go through special training, because a little mistake could cause distortion that would be impossible to straighten.

(2) MALFUNCTIONS OF BARREL THAT CAUSE BARREL'S REPLACEMENT

136. - The barrel of sniper rifle should be replaced with a new barrel in case that one of the following malfunctions occurs:
- widening of caliber over 7.96mm with the fall of precision of 50% of table values (increasing of the deviation picture of 50%);
- damage or complete destroying of the field, so called "falling" of the field;
- inflated cartridge chamber or bullet guide;
- crack of the barrel;
- dents on the external surface of the barrel that have effect on the inner surface of the barrel;
- distortion of the barrel that cannot be removed with straightening of the barrel;
- severely corroded cartridge chamber and bullet guide;
- deepened cartridge chamber so that the "forehead" spacing is larger then allowed limit of 46.2mm.
The barrel is replaced during the revision of rifles.

2. MALFUNCTIONS OF MECHANICAL SIGHTS

(1) MALFUNCTIONS OF FRONT MECHANICAL SIGHT

137. - The front mechanical sight could have the following malfunctions:
- firm connection between the front sight base and sight blade is weakened;
- the threaded part of sight blade is damaged so that it could not be normally screwed on and unscrewed;
- the front sight base is shifted on the barrel and there are mechanical damages on it;
- the sight blade top is deformed or broken.
The sight blade with damaged threaded part or top is replaced with a new sight blade.

138. - If the firm connection between the front sight base and sight blade is weakened, the sight blade should be unscrewed, the sight blade should be driven out and replaced with a new one. The force new connection should be tested after the replacement is done.

139. - If the front sight base is shifted on the barrel and there are other mechanical damages on it, the rifle should be sent to revision.
(2) MALFUNCTIONS OF REAR MECHANICAL SIGHT

140. - The rear mechanical sight could have the following malfunctions:
- broken or weakened leaf spring;
- broken or damaged leaf;
- broken or weakened slide bar tooth spring;
- broken or damaged slide bar tooth;
- broken or weakened slide bar, and
- damaged rear sight base with the gas cylinder fastener.

Broken or weakened leaf spring and slide bar tooth spring are replaced with new springs.
Damaged or broken leaf, slide bar tooth and slide bar are replaced with new parts.

If there are bigger damages of rear sight base with the gas cylinder fastener, the rifle should be sent to revision. The other damages are repaired with special and general tools, if possible.

3. MALFUNCTIONS OF RECEIVER AND PARTS CONNECTED WITH RECEIVER

141. - A receiver and parts connected with receiver could have the following malfunctions:
- damages or dents on the locking surfaces in the receiver;
- damages or swaying of the locking inserts;
- damages or dents on the sliding surface upon which bolt glides;
- damages or dents on the extractor;
- damages or dents on the receiver body;
- damages of the trigger guard with magazine fastener;
- damages of handle carrier;
- damages or weakening of the optical sight base (swallow tail) and
- damages of cover.

142. - If the locking surfaces in the receiver of rifle are damaged too much, if they are cracked or have scratches, or the "forehead" spacing is larger then allowed, the rifle should be sent to revision.

143. - Damaged or dented sliding surfaces upon which the bolt glides should be put adjusted with tools so that bolt can slide easily.

144. - Damaged or dented extractor is repaired with gunsmith tools. After repair it should be tested the height of extractor, or whether it ejects dummy energetically out of the cartridge chamber. Damages or dents on the receiver body, trigger guard, handle carrier, optical sight base are repaired as usually with appropriate tools. After repair, the rifle should operate properly.
4. MALFUNCTIONS OF MAGAZINE

146. - A magazine could have the following malfunctions:
- broken or weakened follower spring;
- mechanical damages on other parts of magazine because of which the magazine does not work properly.

Broken or weakened follower spring is replaced with a new one. All other damages that appear on the magazine are repaired with special and general tools so that normal functioning of the magazine is secured.

All five magazines that are in the rifle set should work properly, and should be installed on the rifle easily. The magazine that could not be repaired is replaced with a new one.

5. MALFUNCTIONS OF BOLT

147. - A bolt could have the following malfunctions:
- damages or dents of the locking surfaces on the bolt body;
- broken extractor;
- broken or weakened extractor spring;
- broken, weakened or deformed firing pin;
- other damages of the bolt body;
- damages of bolt body carrier, especially of the sliding surfaces;
- damages or deformation of the piston and piston fastener;
- damaged or broken parts of the recoil mechanism;
- broken or weakened recoil spring of the bolt;

148. - The damages or dents of the locking surfaces on the bolt body are not repaired, the bolt body should be replaced with a new one and the locking surfaces should be adjusted once again as well as the "forehead" spacing.

149. - The broken extractor, broken or weakened extractor spring are replaced with new parts. After replacement, the extractor should be tested with a dummy cartridge.

150. - Broken, damaged or deformed firing pin is replaced with a new one.

151. - The other damages of the bolt body are repaired with special and general tools after which the bolt body operation is tested.

152. - The damages of bolt body carrier, especially of the sliding surfaces are carefully repaired. If it is not possible, the carrier is replaced with a new one.

If the piston is deformed, it is straightened, and if the piston fastener is weakened, it is un-forged and replaced with a new one.

If the chromate-covering is fallen out in large degree, especially from the head of piston, the piston should be replaced with a new one.
153. - If some parts of recoil mechanism are damaged or broken, depending on damage, they are repaired or replaced with new parts. The broken or weakened recoil spring is replaced with a new one.

6. MALFUNCTIONS OF TRIGGER MECHANISM

154. - A trigger mechanism could have the following malfunctions:
- broken or weakened: hammer spring, firing separator spring and sear spring;
- damaged or broken parts of the trigger mechanism;
- fallen out axle of: trigger, hammer, firing separator from the receiver of rifle;
- broken and deformed axles of trigger, hammer, firing separator;
- firing regulator lever (brake) has insufficient force to be moved.

155. - The broken or weakened springs of trigger mechanism are replaced with new springs as well as other broken parts of the trigger mechanism. The axles that have fallen out of receiver holes should be returned to their place, and the cause of the falling out should be found. Damaged or deformed axles are replaced with new axles.

7. MALFUNCTIONS OF STOCK, HANDGRIP AND BOTTOM COVERING WITH CONNECTING PARTS

156. - The next parts could have the following malfunctions:
- weakened connection of the stock and hand grip to the receiver;
- broken bottom covering - body;
- broken cylinder covering;
- broken stock;
- damaged butt plate;
- broken handgrip.

157. - If the connection of stock to the receiver becomes weak during work with rifle, the butt plate should be removed and connection bolt should be re-tightened with an appropriate tool. After the stock is firmly fastened to the receiver, but plate should be put on the stock.

158. - If stock and handgrip are broken or damaged in high degree during the exploitation of rifle, they are replaced with new parts.

159. - Damaged (scratched edges, deformations) rubber butt plate is replaced with a new one.
160. - Broken bottom covering - body and cylinder covering are replaced with new parts.

(2) MALFUNCTIONS OF CONNECTING PARTS

161. - A connecting parts could have the following malfunctions:
- damaged thread on the connecting bolt and stock bond;
- damaged thread on the handgrip screw and handgrip carrier;
- damaged profile of the seat of wooden covering and fastening collar of bottom covering - body.

162. - Damaged threads on the connection elements of the stock and handgrip are repaired with cutting new threads or with a drill thread.

163. - Damaged profile of the seat of wooden covering and fastening collar are repaired with a hammer and suitable auxiliary tools.

8. MALFUNCTIONS OF OPTICAL SIGHT

164. - Malfunctions of optical sight and procedures of repairing them are given in the appendix 5.

165. - Dirt and damages on optical elements decrease the transparency, weaken light, disturb observation, and fatigue eyes. Dirt is created by foreign particles on the surfaces of the optical elements (dust, sealing agent, cleaning agents, etc.)

Besides, the surfaces of optical elements could be fogged up, that is, they could have hydroscope effect, they could be detached, or they could have damaged reflexive coating and they could be damaged with stings and scratches.

The optical sight should be visually inspected from the side of eyepiece and lens while the other side is illuminated with a bulb of 75W that is screened with a white screen or the optical sight is directed to the open sky.

The traces of dirt particles on the optical elements could be noticed as black dots of various shape and seize. The fog out is characterized with brighter and dark dots that are dispersed thickly and the result is blurred glow. If the fog up is increased, the transparency of the optical sight is significantly decreased. Detachment of lenses is showed as a frosty flower or like a hoar-frost. It is like when during the winter windows are frozen and various shapes of flowers, leafs appear on the glass. If the lenses are detached in shape of small bubbles, that can be tolerated. Anti-reflexive coating is acceptable if it has even crimson color that vanishes with entering light when directed toward the reflexive light.

If that color is not acceptable, that is, if the coating is multicolored and it moves from crimson-brown to crimson-bleu color it can be tolerated, but if the coating is spotted and the light is dispersed, it is considered as damaged.

Stings and scratches that are not visible because of the eyepiece and that do not worsen the picture are tolerated. These damages are manifested as dots or stripes that have bright reflection on the edges in the reflected light.
166. - The reticule parallax is tested by sighting the object at the distance of minimum 300m that should have sharp painted vertical edge. The vertical line of reticule should be aligned with the vertical edge of the object by moving the eye to the left and right of the aligned edge. It should be noticed if the reticule is moving from that edge or not. If the reticule parallax is not larger then allowed, it should not move more then thickness allax is larger then allowed, the optical sight should be sent to repair workshop.

9. MALFUNCTIONS OF ACCESSORIES PARTS

167. - The accessories of weapon could have malfunctions because of which accessories are inappropriate for use or for the maintenance of weapon. Malfunctions could occur on the following parts of accessories and they are removed by repair.

168. - If the textile parts of accessories (sling, bag, case-sheath for optical sight and knife strap) are un-sewn they should be sewn back again. Torn up parts should be replaced with new parts. A dirty linen rag should be replaced with a new one.

169. - Cleaning brush and cleaning rope, in case that they are heavily damaged, should be replaced with new brush and rope, they are not repaired. Drive-out punch, cleaner and accessories box could be adjusted, and if that is not possible they are replaced with new parts.

CHAPTER V

FINAL INSPECTION - CHECKING

1. GENERAL PROVISIONS
170. - Final inspection - checking is made after finished repair, it has a goal to check that repair of sniper rifle is done properly and in terms of quality following the manual instructions as well as the special regulations and technical conditions. The inspection is made with a technical body and technical body in the workshops, if they have it, or specially appointed and authorized qualified person. The inspection is made right after the repair is done and before the unit to which the sniper rifle belongs is informed that rifle is repaired and that it should be picked up by the unit representative.

171. - If during the final inspection are discovered malfunctions after the repair, the sniper rifles are returned again to the repair workshops to finish the repair. After the additional repairs are done, the checking technical body is doing another final inspection and checks that repair of sniper rifle is done properly and in terms of quality. The inspection of the sniper rifle includes the inspection of complete accessories that belong to that rifle.

172. - After this inspection, when it is confirmed that sniper rifle is properly repaired, all information about repair is entered into the technical book of the rifle.

2. METHOD OF CONDUCTING FINAL INSPECTION

173. - The final inspection of sniper rifles is made in disassembled and assembled condition. In disassembled condition of sniper rifle especially are inspected the parts that have been repaired or replaced. The goal of this inspection is to check the quality of repair, and that the repair is made according to the regulations of this manual and special technical condition.

After the inspection in disassembled condition, the parts are cleaned and lubricated and the rifle is assembled. After the rifle is assembled, it is made the inspection of rifle in assembled condition. During this inspection are tested mutual relations of the parts and mechanisms and their functioning in the assembly.

174. - If the barrel or the elements of sight are repaired or replaced, the rifle must pass the testing of accuracy and precision. After the shooting, rifles are cleaned from soot, and the barrel, bolt and receiver should be visually inspected. The goal of this inspection is to check that all parts work properly after the shooting.

175. - During shooting magazines loaded with 10 cartridges are used. The shooting is done in the tunnel with sand or in the case that there is no tunnel at the open shooting range with decreased distance of 10 to 20m. During the check of the functions the operation of mechanisms, loading of cartridges, and uniformity of extracting the cartridges should be paid attention to.

3. TESTING AND ADJUSTING OF RIFLE'S ACCURACY AND PRECISION

176. - Testing and adjustments of the accuracy and precision of rifle is conducted as it is regulated in UP-50.
### REVIEW OF PARTS THAT ARE ADJUSTED DURING INSTALLATION - REPLACEMENT

<table>
<thead>
<tr>
<th>Ordinal number</th>
<th>Name of part</th>
<th>Part number</th>
<th>Type of work</th>
<th>Paragraph in manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Firing regulator</td>
<td>3096</td>
<td>Adjustment of the firing regulator arm to adjust the shifting force.</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>- indivisible part</td>
<td></td>
<td>Filing to fulfill the measures 87.5 and 7.5mm.</td>
<td>66</td>
</tr>
<tr>
<td>2.</td>
<td>Firing separator</td>
<td>8072</td>
<td>Filing of the upper part of the arm to fulfill the measure 3.9mm.</td>
<td>70</td>
</tr>
<tr>
<td>3.</td>
<td>Magazine fastener</td>
<td>5682</td>
<td>Filing to fulfill the measures 0.5 and 1.5mm and installation of magazine.</td>
<td>71</td>
</tr>
<tr>
<td>4.</td>
<td>Stock</td>
<td>6870</td>
<td>Filing to fulfill the spacing of 0.4mm and assembly with the receiver.</td>
<td>73</td>
</tr>
<tr>
<td>5.</td>
<td>Cylinder covering</td>
<td>3055</td>
<td>Filing along the profile and lengthwise to enable installation on cylinder.</td>
<td>80</td>
</tr>
<tr>
<td>6.</td>
<td>Bolt body</td>
<td>6876</td>
<td>Adjustments of spiral surfaces to fulfill overlapping during locking.</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Filing of the corner to adjust the beginning of the rotation.</td>
<td>88</td>
</tr>
<tr>
<td>7.</td>
<td>Piston</td>
<td>6874</td>
<td>Drilling of the hole of 3.1mm in diameter to enable installation of the piston fastener.</td>
<td>86</td>
</tr>
<tr>
<td>8.</td>
<td>Bottom covering</td>
<td>6863</td>
<td>Filing along the profile and lengthwise to enable installation of the part into the mechanism.</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>- sub-mechanism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Gas cylinder</td>
<td>6866</td>
<td>Filing of the front and rear part to enable installation into the mechanism.</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>- mechanism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Receiver cover</td>
<td>6822</td>
<td>Filing of the front part and rear hole for the cover fastener.</td>
<td>90</td>
</tr>
<tr>
<td>11.</td>
<td>Front clamp of the telescope</td>
<td>6838</td>
<td>Adjustment of the distance between the front and rear clamp</td>
<td>97</td>
</tr>
</tbody>
</table>
### Review of Mechanisms and Parts That When Replaced or Repaired Require the Shooting Testing of Rifle

<table>
<thead>
<tr>
<th>Ordinal number</th>
<th>Repair or installation of a new part</th>
<th>Type of testing</th>
<th>Number of cartridges for testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Gas cylinder</td>
<td>function</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>accuracy and precision</td>
<td>5</td>
</tr>
<tr>
<td>2.</td>
<td>Bolt carrier</td>
<td>function</td>
<td>10</td>
</tr>
<tr>
<td>3.</td>
<td>Piston</td>
<td>function</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>Bolt</td>
<td>mechanical</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>function</td>
<td>10</td>
</tr>
<tr>
<td>5.</td>
<td>Extractor</td>
<td>function</td>
<td>5</td>
</tr>
<tr>
<td>6.</td>
<td>Hammer</td>
<td>function</td>
<td>10</td>
</tr>
<tr>
<td>7.</td>
<td>Firing separator</td>
<td>function</td>
<td>10</td>
</tr>
<tr>
<td>8.</td>
<td>Trigger</td>
<td>function</td>
<td>10</td>
</tr>
<tr>
<td>9.</td>
<td>Gas flow regulator</td>
<td>function</td>
<td>5</td>
</tr>
<tr>
<td>10.</td>
<td>Adjustment of bolt beginning rotation</td>
<td>function</td>
<td>10</td>
</tr>
<tr>
<td>11.</td>
<td>Adjustment of the &quot;forehead&quot; spacing</td>
<td>mechanical</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>function</td>
<td>10</td>
</tr>
<tr>
<td>12.</td>
<td>Front sight carrier</td>
<td>accuracy and precision</td>
<td>10</td>
</tr>
<tr>
<td>13.</td>
<td>Front sight</td>
<td>accuracy and precision</td>
<td>10</td>
</tr>
</tbody>
</table>
## REVIEW OF CHECKING - MEASURING TOOLS

<table>
<thead>
<tr>
<th>Ordinal number</th>
<th>Name of tool</th>
<th>Designation of tool</th>
<th>Picture number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dynamometer for measuring the shifting force of the firing regulator lever</td>
<td>686 47 0730</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Gauge for the measure of 7.5mm of the firing regulator lever</td>
<td>683 47 0690</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>Gauge for the measure of 87.5mm of the firing regulator lever</td>
<td>686 47 0740</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Gauge for the height of the leaf (measure &quot;H&quot;)</td>
<td>687 49 0710</td>
<td>123</td>
</tr>
<tr>
<td>5.</td>
<td>Gauge for the measure of 12mm of the cocked hammer position</td>
<td>683 47 1070</td>
<td>103</td>
</tr>
<tr>
<td>6.</td>
<td>Gauge for the measure of 3.9mm of the top of the firing separator arm</td>
<td>683 47 1240</td>
<td>104</td>
</tr>
<tr>
<td>7.</td>
<td>Dynamometer for measuring the shifting force of the axles in the trigger mechanism and front sight base</td>
<td>686 47 0890</td>
<td>-</td>
</tr>
<tr>
<td>8.</td>
<td>Tool for measuring the triggering force of 1.5 to 2.5 daN</td>
<td>684 23 0030</td>
<td>-</td>
</tr>
<tr>
<td>9.</td>
<td>Gauge for the outgoing height of the magazine fastener tooth (0.5 - 1.5mm)</td>
<td>683 47 0650</td>
<td>105</td>
</tr>
<tr>
<td>10.</td>
<td>Gauge for the magazine fastener tooth (max. magazine)</td>
<td>686 49 0220</td>
<td>106</td>
</tr>
<tr>
<td>11.</td>
<td>Torque wrench for tightening the stock bolt of 13mm, with the measuring range of 5 daN</td>
<td>647 421 002</td>
<td>53</td>
</tr>
<tr>
<td>12.</td>
<td>Micrometer for the measuring of external circumference of 0 - 25mm (TO-0.001)</td>
<td>Type Nr 30102</td>
<td>&quot;MESSWELK&quot; 201</td>
</tr>
<tr>
<td>13.</td>
<td>Micrometer for the measuring of internal circumference of 10 to 13mm (TO-0.001)</td>
<td>Type Nr 36 200</td>
<td>&quot;MESSWELK&quot; 103</td>
</tr>
<tr>
<td>14.</td>
<td>Tool for checking the height position of the front sight</td>
<td>687 49 0800</td>
<td>107</td>
</tr>
<tr>
<td>15.</td>
<td>Tool for checking the moment of connection between the front sight and sight carrier</td>
<td>686 47 1440</td>
<td>108</td>
</tr>
<tr>
<td>16.</td>
<td>Gauge for checking the direction position of the front sight</td>
<td>687 48 0640</td>
<td>109</td>
</tr>
<tr>
<td>17.</td>
<td>Gauge for the minimal rotation of the extractor</td>
<td>682 47 0190</td>
<td>110</td>
</tr>
<tr>
<td>18.</td>
<td>Gauge for the position of &quot;closed&quot; extractor</td>
<td>682 49 0180</td>
<td>111</td>
</tr>
<tr>
<td>19.</td>
<td>Gauge for checking the height of the extractor tooth</td>
<td>877 47 1020</td>
<td>112</td>
</tr>
<tr>
<td>20.</td>
<td>Gauge for checking the outgoing height of firing pin (position I) 1-comparer 40295-101; 2 - carrier, 3 - checking measure</td>
<td>687 47 0980</td>
<td>114</td>
</tr>
</tbody>
</table>

**UNCLASSIFIED**

112
<table>
<thead>
<tr>
<th>number</th>
<th>Description</th>
<th>number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.</td>
<td>Gauge for checking the outgoing height of firing pin (position II) 1-comparer 40295-101; 2 - carrier, 3 - checking measure, 4 - base</td>
<td>687 47 0990</td>
<td>113</td>
</tr>
<tr>
<td>22.</td>
<td>Gauge for the measuring the length of piston from the support surface of the bolt carrier</td>
<td>687 47 0650</td>
<td>115</td>
</tr>
<tr>
<td>23.</td>
<td>Gauge for checking the position of piston in direction with the bolt body carrier</td>
<td>688 49 0100</td>
<td>116</td>
</tr>
<tr>
<td>24.</td>
<td>Gauge for checking the position of the bolt body in the bolt carrier</td>
<td>683 47 0670</td>
<td>117</td>
</tr>
<tr>
<td>25.</td>
<td>Gauge in the shape of the bolt body carrier for measuring the beginning of bolt rotation</td>
<td>683 47 0430</td>
<td>118</td>
</tr>
<tr>
<td>26.</td>
<td>Measuring plate of 2mm for checking the beginning of bolt rotation</td>
<td>683 47 0630</td>
<td>119</td>
</tr>
<tr>
<td>27.</td>
<td>Measuring plate of 2.5mm for checking the beginning of bolt rotation</td>
<td>683 47 0640</td>
<td>120</td>
</tr>
<tr>
<td>28.</td>
<td>Gauge for checking the MIN. &quot;forehead&quot; spacing of 46.00mm</td>
<td>682 49 0270</td>
<td>13</td>
</tr>
<tr>
<td>29.</td>
<td>Gauge for checking the MAX. &quot;forehead&quot; spacing of 46.10mm</td>
<td>682 49 0290</td>
<td>121</td>
</tr>
<tr>
<td>31.</td>
<td>Gauge for checking the EXPL. &quot;forehead&quot; spacing of 46.20mm (only max. gauge)</td>
<td>682 01 1920</td>
<td>14</td>
</tr>
<tr>
<td>32.</td>
<td>Insert-tool for checking the distance of the holes of the telescope clamps</td>
<td>679 49 0250</td>
<td>99</td>
</tr>
<tr>
<td>33.</td>
<td>Dynamometer for measuring the bordering locking forces</td>
<td>686 47 0570</td>
<td>15</td>
</tr>
<tr>
<td>34.</td>
<td>Plate for checking the moment of triggering start.</td>
<td>683 47 1060</td>
<td>122</td>
</tr>
<tr>
<td>35.</td>
<td>Tool for measuring the stretching force of bolt carrier</td>
<td>686 47 0790</td>
<td>-</td>
</tr>
<tr>
<td>36.</td>
<td>Tool for checking the geometry of receiver body and its correction</td>
<td>658 49 0030</td>
<td>98</td>
</tr>
<tr>
<td>37.</td>
<td>Measuring plates set for checking the spacing between bolt forehead and barrel forehead</td>
<td>Type 78500 105 &quot;MESSWELK&quot; 101</td>
<td>-</td>
</tr>
<tr>
<td>38.</td>
<td>Comparing device for checking the distance between the holes of telescope clamps</td>
<td>Type 42100 &quot;MESSWELK&quot; 101</td>
<td>85 pos. 4</td>
</tr>
<tr>
<td>39.</td>
<td>Comparing device carrier with pneumatic or magnetic base</td>
<td>Type 49320 &quot;MESSWELK&quot; 101</td>
<td>85 pos. 3</td>
</tr>
<tr>
<td>40.</td>
<td>Gauges for checking the barrel caliber</td>
<td>682 01 0180</td>
<td>10</td>
</tr>
<tr>
<td>Ordinal number</td>
<td>Name of tool</td>
<td>Designation of tool</td>
<td>Picture number</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------</td>
<td>----------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>41.</td>
<td>Gauge for checking the barrel straightness</td>
<td>682 49 0320</td>
<td>12</td>
</tr>
<tr>
<td>42.</td>
<td>Gauge in the shape of the bolt carrier for checking the spacing between bolt forehead and barrel forehead</td>
<td>686 49 0420</td>
<td>124</td>
</tr>
<tr>
<td>43.</td>
<td>Gauges for checking the holes of the powder gas regulator</td>
<td>682 46 0620</td>
<td>23</td>
</tr>
<tr>
<td>44.</td>
<td></td>
<td>683 113 002</td>
<td>24</td>
</tr>
<tr>
<td>45.</td>
<td></td>
<td>682 46 0600</td>
<td>25</td>
</tr>
<tr>
<td>46.</td>
<td>Prism for checking the distance between the holes of telescope clamps</td>
<td>Type 70800 &quot;MESSWELK&quot; 201</td>
<td>86 pos. 2</td>
</tr>
</tbody>
</table>
## REVIEW OF SPECIAL TOOLS AND ACCESSORIES

<table>
<thead>
<tr>
<th>Ordinal number</th>
<th>Name of tool</th>
<th>Designation of tool</th>
<th>Picture number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Tool for un-riveting cylinder fastener</td>
<td>Made according to the scheme in the manual</td>
<td>90</td>
</tr>
<tr>
<td>2.</td>
<td>Auxiliary tool for placing the ends of hammer spring</td>
<td>Made according to the scheme in the manual</td>
<td>91</td>
</tr>
<tr>
<td>3.</td>
<td>Auxiliary axle for the assembly of trigger mechanism parts</td>
<td>Made according to the scheme in the manual</td>
<td>92</td>
</tr>
<tr>
<td>4.</td>
<td>Auxiliary axle for the installation of magazine fastener parts</td>
<td>679 47 2390 or made according to the scheme in the manual</td>
<td>101</td>
</tr>
<tr>
<td>5.</td>
<td>Tool for un-riveting the ends of magazine fastener axle</td>
<td>Made according to the scheme in the manual</td>
<td>93</td>
</tr>
<tr>
<td>6.</td>
<td>Wrench of 13mm for tightening the stock bolt</td>
<td>647 323 012</td>
<td>-</td>
</tr>
<tr>
<td>7.</td>
<td>Tool for screwing on the front sight (blade)</td>
<td>678 23 0170</td>
<td>95</td>
</tr>
<tr>
<td>8.</td>
<td>Tool for shifting the front sight along direction</td>
<td>676 47 0580</td>
<td>96</td>
</tr>
<tr>
<td>9.</td>
<td>Tightening tool for the drilling of hole in the piston in the bolt carrier mechanism</td>
<td>673 49 0570</td>
<td>97</td>
</tr>
<tr>
<td>10.</td>
<td>Wedge for the correction of the hole for telescope tightening</td>
<td>Rmc 25.4 +0.1/+0.2 602 612 064</td>
<td>94</td>
</tr>
<tr>
<td>11.</td>
<td>Tightening tool for the correction of the telescope clamp hole</td>
<td>673 49 0710</td>
<td>100</td>
</tr>
</tbody>
</table>
### REVIEW OF THE SPS 7.9mm M76 OPTICAL SIGHT MALFUNCTIONS

<table>
<thead>
<tr>
<th>Possible malfunctions</th>
<th>Malfunction cause</th>
<th>Removing malfunction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Malfunctioned shell.</td>
<td>Wrong handling or too long in service.</td>
<td>Replacement of shell.</td>
</tr>
<tr>
<td>2. Dirty optical elements. Reticule has dirt particles.</td>
<td>Improper fallings or too long in service.</td>
<td>Disassembly, cleaning and testing in workshops equipped for this type of work.</td>
</tr>
<tr>
<td>3. Poor visibility because of detached optical elements.</td>
<td>High temperatures (more then 80°C) or low temperatures (below -40°C) Blow from the side of eyepiece or lens.</td>
<td>Disassembly and repair in workshops equipped for this type of work.</td>
</tr>
<tr>
<td>4. Fogged up optical elements</td>
<td>Damaged hermetical seals of the optical sight</td>
<td>Disassembly, cleaning and hermetical sealing in workshops equipped for this type of work.</td>
</tr>
<tr>
<td>5. Increased reflection because of damaged anti-reflexive coating on the eyepiece and lens.</td>
<td>Improper cleaning, storing with moisture of more then 80%</td>
<td>Smaller damages are not repaired. Larger damages should be repaired by replacing damaged parts in workshops equipped for this type of work.</td>
</tr>
<tr>
<td>6. Mechanism of the distance and direction makes noise - it is hard to rotate.</td>
<td>Damaged parts with blows or dirt because too long service.</td>
<td>The spindle of glider Replacement of the sliding part and other parts in relation to this mechanism. Repair possible in workshops equipped for this type of work.</td>
</tr>
<tr>
<td>7. Increased &quot;idle&quot; shifts of the direction and distance mechanism.</td>
<td>Worn out parts after long service.</td>
<td>Repair of parts in workshops equipped for this type of work.</td>
</tr>
<tr>
<td>8. Distance and direction drums and button for turning on IR screen do not seat firmly in their places.</td>
<td>Damaged parts after long service.</td>
<td>Repair possible in workshops equipped for this type of work.</td>
</tr>
<tr>
<td>9. During daylight on the IR screen could be seen spots and cracks.</td>
<td>Unpredictable strong shake or worn out IR screen.</td>
<td>Repair possible with replacement in workshops equipped for this type of work.</td>
</tr>
<tr>
<td>Possible malfunctions</td>
<td>Malfunction cause</td>
<td>Removing malfunction</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>--------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>10. Reticule poorly illuminated during night</td>
<td>Weakened light source because of too long service or hard blow</td>
<td>Repair possible with replacement of light source based on tritium gas in workshops equipped for this type of work and with thorough testing.</td>
</tr>
<tr>
<td>11. The eyepiece and lens could not be cleaned because of dirty and greasy linen rag.</td>
<td>Worn out or greasy.</td>
<td>Replaced in unit.</td>
</tr>
</tbody>
</table>

Appendix 6

MEANINGS OF ABBREVIATIONS AND SYMBOLS

- pcs. - pieces
- e.g. - example
- et al. - other
- min. - minimum
- max. - maximum
- expl. - exploitation
- etc. - et cetera
- i.e. - that is
- pos. - position
- mm - millimeter
- daN - deca-newton
- daNm - deca-newton-meter
- m - meter
**NOTE:** The information of change - addition should be updated and written clearly with ink or similar accessories.