



GL 5140

**40 mm Grenade Launcher
for Assault Rifle SIG SG 551**

Manual

Document No.
40 425 019

 TABLE OF CONTENTS

1	SAFETY WARNINGS GL 5140	4
1.1	Handling	4
1.1.1	Dangerous Weapons.....	4
1.1.2	15 commandments of firearms safety	5
1.1.3	Protect your eyes and ears	6
1.1.4	Ammunition	6
1.1.5	NEVER completely trust any safety	8
1.1.6	Loading	8
1.1.7	Firing	9
1.1.8	Unloading	9
1.2	Transport and storage	10
1.3	Maintenance.....	10
1.4	Care and cleaning.....	10
1.5	Parts	12
1.6	SAN SWISS ARMS AG service policy.....	12
<hr/>		
2	INTRODUCTION.....	14
2.1	General characteristics of GL 5140.....	14
2.2	System description	15
2.2.1	Ladder sight for GL 5140.....	16
2.2.2	Accessories	17
2.3	Technical specifications.....	19
<hr/>		
3	HANDLING.....	20
3.1	Installing GL 5140 on SG 551	20
3.1.1	Preparing GL 5140 for attachment to SG 551.....	20
3.1.2	Mounting GL 5140 on SG 551	20
3.2	Removing GL 5140 from SG 551	21
3.3	Preparing to fire.....	22
<hr/>		
4	SAFETY RULES	22
4.1	General.....	22
<hr/>		
5	OPERATION	22
5.1.1	Loading	22
5.1.2	Loading Extra-Length Grenades	23
5.1.3	Unloading	23
5.1.4	Unloading Live, Extra-Length Grenades	24
5.1.5	Reloading	24
5.1	Aiming.....	25
5.2	Correction and adjustment	25
5.2.1	Correction.....	25
5.2.2	Aligning.....	25

5.2.3	Elevation corrections	26
5.2.4	Windage corrections	27
5.3	Field stripping and assembling	28
5.3.1	Field stripping	28
5.3.2	Assembling	28

6	FUNCTION	30
6.1	Readiness to fire	30
6.2	Discharging the shot	30
6.3	Unlocking and tube advance	30
6.4	Trigger functions	31
6.4.1	Trigger in „Safety On“ position	31
6.4.2	Trigger in „Safety Off“ position	31

7	MAINTENANCE	32
7.1	Types of Maintenance	32
7.1.1	Daily preventive maintenance	32
7.1.2	Full depot maintenance	32
7.2	Cleaning and Lubrication Instructions	32
7.2.1	Before firing	32
7.2.2	After firing	32
7.2.3	Lubrication Instructions for full depot maintenance	32
7.2.4	Lubricant / Cleaning agent	33
7.3	Checking Functions	33

8	MALFUNCTIONS AND TROUBLE-SHOOTING	34
8.1	General	34
8.2	Trouble-shooting	34
8.2.1	Procedure in case of malfunction	35

9	APPENDIX	36
9.1	List of parts GL 5140	36
9.2	List of parts GL 5140 Accessories	37
9.3	List of parts GL 5140 Ladder sight	37
9.4	Exploded drawings	38
9.4.1	Exploded view GL 5140	38
9.4.2	Exploded view GL 5140 ladder sight	39

1 Safety warnings GL 5140

1.1 Handling

The safety warnings in this booklet are important. By understanding the dangers inherent in the use of any firearm, and by taking the precautions described herein, you can enjoy complete safety in the use of your Rifle. Failure to heed any of these warnings may result in serious injury to you or others, as well as severe damage to the firearm or other property.

1.1.1 Dangerous Weapons

PISTOLS, REVOLVERS, SHOTGUNS and RIFLES are classified as FIREARMS or DANGEROUS WEAPONS and are sold by us with the specific understanding that we are not responsible in any manner whatsoever for their safe handling or resale under local laws and regulations. SAN Swiss Arms AG shall not be responsible in any manner whatsoever for malfunctioning of the firearm, for physical injury or for property damage resulting in whole or in part from (1) criminal or negligent discharge, (2) improper or careless handling, (3) unauthorized modifications, (4) defective, improper, hand-loaded, or reloaded ammunition, (5) corrosion, (6) neglect, or (7) other influences beyond our direct and immediate control.

This limitation applies regardless of whether liability is asserted on the basis of contract, negligence or strict liability (including any failure to warn). Under no circumstance shall SAN Swiss Arms AG be liable for incidental or consequential damages, such as loss of use of property, commercial loss and loss of earnings or profits.

1.1.2 15 commandments of firearms safety

1. ALWAYS carry the rifle loaded with the safety lever in the “S” (SAFE) position.
2. Keep the safety lever on “S” (SAFE) unless actually firing.
3. ALWAYS treat every gun as if it were loaded.
4. ALWAYS be sure the barrel/tube is clear of any obstruction.
5. ALWAYS be sure of your backstop, what lies beyond and the safety of bystanders before you shoot.
6. ALWAYS use clean, dry, original factory- made ammunition of the proper type and caliber for your gun.
7. ALWAYS wear ear protection and safety glasses when shooting.
8. ALWAYS carry your gun so that you can control the direction of the muzzle if you fall or stumble.
9. NEVER shoot at a flat surface or water.
10. DO NOT leave an unattended gun loaded. Guns and ammunition should be stored separately, locked if possible, beyond the reach of children and careless adults.
11. NEVER allow your firearm to be used by anyone who has not read and understood this instruction and safety manual.
12. DO NOT point any gun, loaded or unloaded, at any undesired target.
13. NEVER fire your rifle near an animal unless it is trained to accept the noise: an animal’s startled reaction could injure it or cause an accident.
14. NEVER drink alcoholic beverages or take drugs before or during shooting, as your vision and judgement could be seriously impaired making your gun handling unsafe.
15. ALWAYS seek a doctor’s advice if you are taking medication, to be sure you are fit to shoot and handle your rifle safely.

1.1.3 Protect your eyes and ears

Always wear adequate safety glasses and ear plugs or «earmuff» type protectors whenever you are shooting. Always make certain that persons close to you are similarly protected. Unprotected eyes may be injured by powder gas, carbon residue, lubricant, metallic particles or similar debris which may emanate occasionally from any firearm in normal use. Without ear protection, repeated exposure to shooting noise may lead to cumulative, permanent hearing loss.

1.1.4 Ammunition

1. Use only high quality, original factory- manufactured ammunition. Do not use cartridges that are dirty, wet, corroded, bent, or damaged. Do not oil cartridges. Do not spray aerosol-type lubricants, preservatives, or cleaners directly onto cartridges or where excess spray may flow into contact with cartridges. Lubricant or other foreign matter on cartridges can cause potentially dangerous ammunition malfunctions. Use only ammunition of the caliber for which your firearm is chambered. The proper caliber is permanently engraved on your firearm; never attempt to use ammunition of any other caliber.
2. The use of reloaded, «remanufactured», hand-loaded, or other non-standard ammunition voids all warranties. Reloading is a science and improperly loaded ammunition can be extremely dangerous. Severe damage to the firearm and serious injury to the shooter or to others may result. Always use ammunition that complies with the industry performance standards established by the Sporting Arms and Ammunition Manufacturers' Institute, Inc. of the United States (SAAMI).
3. Firearms may be severely damaged and serious injury to the shooter or to others may result from any condition causing excessive pressure inside the chamber or barrel/tube during firing. Excessive pressure can be caused by obstructions in the barrel/tube, propellant powder overloads, or by the use of incorrect cartridges or defectively assembled cartridges. In addition, the use of a dirty, corroded, or damaged cartridge can lead to a burst cartridge case and consequent damage to the firearm and personal injury from the sudden escape of high-pressure propellant gas within the firearm's mechanism.
4. Immediately stop shooting and check the barrel/tube for a possible obstruction whenever:
 - You have difficulty in, or feel unusual resistance in, chambering a cartridge, or;
 - A cartridge misfires (does not go off), or;
 - The mechanism fails to extract a fired cartridge case, or;
 - Unburned grains of propellant powder are discovered spilled in the mechanism, or;
 - A shot sounds weak or abnormal.

In such cases it is possible that a bullet is lodged part way down the barrel. Firing a subsequent bullet into the obstructed barrel can wreck the firearm and cause serious injury to the shooter or to bystanders.

5. Bullets can become lodged in the barrel:

- If the cartridge has been improperly loaded without propellant powder, or if the powder fails to ignite, (ignition of the cartridge primer alone will push the bullet out of the cartridge case, but usually does not generate sufficient energy to expel the bullet completely from the barrel), or
- If the bullet is not properly seated tightly in the cartridge case. When such a cartridge is extracted from the chamber without being fired, the bullet may be left behind in the bore at the point where the rifling begins. Subsequent chambering of another cartridge may push the first bullet further into the bore.

6. If there is any reason to suspect that a bullet is obstructing the barrel, immediately unload the firearm and look through the bore. It is not sufficient to merely look in the chamber. A bullet may be lodged some distance down the barrel where it cannot easily be seen.

IF A BULLET IS IN THE BORE, DO NOT ATTEMPT TO SHOOT IT OUT BY USING ANOTHER CARTRIDGE, OR BY BLOWING IT OUT WITH A BLANK OR ONE FROM WHICH THE BULLET HAS BEEN REMOVED: SUCH TECHNIQUES CAN GENERATE EXCESSIVE PRESSURE, WRECK THE FIREARM AND CAUSE SERIOUS PERSONAL INJURY.

If the bullet can be removed with a cleaning rod, clean any unburned powder grains from the bore, chamber, and mechanism before resuming shooting. If the bullet cannot be dislodged by tapping it with a cleaning rod, take the firearm to a gunsmith.

7. Dirt, corrosion, or other foreign matter on a cartridge can impede complete chambering and may cause the cartridge case to burst upon firing. The same is true of cartridges which are damaged or deformed.
8. Do not oil cartridges, and be sure to wipe the chamber clean of any oil or preservative before starting to shoot. Oil interferes with the friction between cartridge case and chamberwall that is necessary for safe functioning, and subjects the firearm to stress similar to that imposed by excessive pressure.
9. Use lubricants sparingly on the moving parts of your firearm. Avoid excessive spraying of any aerosol gun care product, especially where it may get on ammunition. All lubricants and aerosol spray lubricants in particular can penetrate cartridge primers and cause misfires. Some highly penetrative lubricants can also migrate inside cartridge cases and cause deterioration of the propellant powder; on firing, the powder may not ignite. If only the primer ignites, there is danger that the bullet may become lodged in the barrel.

1.1.5 NEVER completely trust any safety

1. Your firearm comes equipped with an effective, well-designed safety device. HOWEVER, NEVER RELY COMPLETELY ON ANY SAFETY MECHANISM.

It is NOT a substitute for cautious gun handling. NO safety, however positive or well-designed, should be totally trusted. Like all mechanical devices, the safety is subject to breakage or malfunction and can be adversely affected by wear, abuse, dirt, corrosion, incorrect assembly, improper adjustment or repair, or lack of maintenance. Moreover, there is no such thing as a safety which is «child-proof» or which can completely prevent accidental discharge from improper usage, carelessness, or «horseplay».

The best safety mechanism is your own good sense; USE IT! Always handle your firearm as though you expect the safety NOT to work!

2. While handling any firearm, do not allow it to point at any part of your body or at another person. No harm will result if you obey this rule, even if an accidental discharge occurs.
3. Never carry this rifle with a cartridge in the chamber and the trigger cocked.
4. Always keep your finger off the trigger and point the muzzle in a safe direction when operating the gun release.

1.1.6 Loading

1. Always make sure the muzzle is pointed in a safe direction!
2. Never attempt to load or unload any firearm inside a vehicle, building or other confined space (except a properly constructed shooting range). Enclosed areas frequently offer no completely safe direction to point the firearm; if an accidental discharge occurs, there is great risk of injury or property damage.
3. Before loading, always clean all grease and oil from the bore and chamber, and check to be certain that no obstruction is in the barrel/tube. Any foreign matter in the barrel/tube could result in a bulged or burst barrel/tube or other damage to the firearm, and could cause serious injury to the shooter or to others.

1.1.7 Firing

1. Keep the muzzle pointed in a safe direction and your finger away from the trigger when cocking any firearm.
2. Never carry about or leave unattended any firearm which is cocked and ready to fire! When cocked, it will fire from slight pressure on the trigger. An accidental discharge could easily result if you fall or drop the firearm, or if the firearm is struck or disturbed by someone or something.

Never fire any firearm with your finger, hand, face, or other part of your body over or adjacent to the ejection port, or in any position where you may be struck by reciprocating movement of the breech. Both the ejection of empty cartridge cases and the movement of the breech are part of the normal operating cycle of firearms, and pose no safety hazard to the shooter if the firearm is held in a normal grip and fired at arm's length.

3. Never allow other persons to stand beside you where they might be struck by an ejected cartridge case. The case is hot, and may be ejected with sufficient force to cause a burn or cut or injure an unprotected eye. Make certain there is a clear, unobstructed path for safe ejection of the fired case. Remember, the case may bounce off a hard object nearby and strike you or someone else.
4. If, while shooting, your firearm develops a mechanical malfunction or binding, or «spits» powder gas, or if a cartridge primer is punctured or a cartridge case is bulged or ruptured, or if the report on firing does not sound quite right, STOP SHOOTING IMMEDIATELY! It may be dangerous to continue. UNLOAD THE FIREARM – do NOT try «one more shot». Take the firearm and the ammunition to a gunsmith for examination.

While shooting any firearm, an unfired cartridge or fired cartridge case may occasionally become jammed between the slide and the barrel. Clear the jam as follows, WHILE KEEPING THE MUZZLE POINTED IN A SAFE DIRECTION: Remove the magazine, then pull back the slide and lock it to the rear by pushing up the slide release. The jammed cartridge or case now can be removed by shaking it out or by picking it out with the fingers.

1.1.8 Unloading

1. Always make sure the muzzle is pointed in a safe direction!
2. Remember to clear the chamber after the magazine has been removed.
3. Never assume that any gun is unloaded until you have personally checked it!
4. After every shooting practice, make a final check to be certain the firearm is unloaded before leaving the range.

1.2 Transport and storage

When transporting your firearm to and from shooting activities, keep it unloaded for your safety and for the safety of others. When storing your firearm, keep it separated from ammunition, under lock and key if possible, and out of the reach of children and other inexperienced or unauthorized persons.

1.3 Maintenance

All firearms require periodic maintenance and inspection which may reveal a need for adjustment or repair. Have your firearm checked by a competent gunsmith annually even if it seems to be working well, since breakage, improper functioning or corrosion of some components may not be apparent from external examination. If you notice any mechanical malfunction, do NOT continue to use the firearm. UNLOAD the firearm and take it to a competent gunsmith immediately for a thorough examination. Similarly, if water, sand, or other foreign matter enters the internal mechanism, immediately dismantle the firearm for a complete and thorough cleaning. Failure to keep your firearm clean and in proper working order can lead to a potentially dangerous condition and an accident causing serious bodily injury or property damage may result.

1.4 Care and cleaning

1. Your firearm is delivered factory packaged and preserved with a light coating of protective grease and oils. Before loading make certain that all packing grease and oil has been cleaned from the bore and exposed mechanism.
2. Before you begin to disassemble your firearm for cleaning, always double-check to make sure it is unloaded!
3. After cleaning always check to be sure that no cleaning patch or other obstruction remains in the bore or chamber!

1.5 Parts

Our Service Department maintains a full complement of replacement parts. Even though most gunsmiths have the knowledge, training and ability to make the necessary repairs to your firearm, the skill and workmanship of any particular gunsmith is totally beyond our control. Should your firearm ever require service, we strongly recommend that you return it to SAN Swiss Arms AG. Follow the instructions outlined below. Remember, unauthorized adjustments of parts replacement can void your warranty.

A firearm is a precision instrument and some replacement parts will require individual fitting to insure correct operation.

A wrong part, improper fitting or incorrect mechanical adjustment may result in an unsafe condition or dangerous malfunction, damage to the firearm, or possible serious injury to the shooter or to others. IF ANY PART IS ORDERED WITHOUT RETURNING THE FIREARM TO SAN SWISS ARMS AG, the customer bears full responsibility for ensuring that the part supplied is correct for his particular firearm and is properly installed and fitted by a qualified gunsmith. SAN SWISS ARMS AG CANNOT BE RESPONSIBLE FOR THE FUNCTIONING OF ANY FIREARM IN WHICH REPLACEMENT PARTS ARE INSTALLED BY OTHERS.

1.6 SAN SWISS ARMS AG service policy

Before shipment your firearm was carefully inspected and test fired in order to ensure that it conformed to our specifications and standards. Should your firearm require adjustment, repair or refinishing, we strongly recommend that you return it to SAN Swiss Arms AG for factory service.

If there is any question regarding the performance of your firearm, please write to SAN Swiss Arms AG. Service Department fully describing all circumstances and conditions involved. If our Service Department makes the determination that your firearm requires factory service, you will be so advised and will be given instructions for the most expeditious handling of your shipment.

Our Service Department will give your firearm a complete inspection, and evaluate the problem(s) specified in your letter. If the work required is not covered under the terms of our «Limited Warranty» (a copy is enclosed with your firearm), you will receive an actual cost quotation, not an estimate. Any repair work must be authorized by you, and no work will be done without your express approval.

To return any firearm to us for adjustment, repair or refinishing, please follow these suggestions to expedite service:

1. Only Federally licensed dealers may ship handguns via mail. Handguns mailed by individuals are confiscated by the Post Office.
2. Federal law permits you to return your firearm to the manufacturer for service via common carriers or, if your firearm is a rifle or shotgun, by mail. However, state and local firearms laws vary greatly; you should consult your local prosecuting attorney regarding any restrictive laws in your jurisdiction regarding your shipment or receipt of firearms. With the above in mind, it is strongly recommended that any firearm sent to us for repair be sent through a Federally licensed dealer.
3. All firearms must be shipped to us prepaid. **WE WILL NOT ACCEPT COLLECT SHIPMENTS.**
4. Firearms returned for repair should be addressed to:

SAN Swiss Arms AG
Industrieplatz
8212 Neuhausen am Rheinfall
Switzerland

5. Be sure to enclose a letter stating serial number, caliber and barrel length of your firearm. Also state nature of trouble experienced or work required. Merely stating «defective» or «repair as necessary» is inadequate information. Be specific and enclose copies of any previous correspondence.
6. **FIREARMS MUST BE SHIPPED UNLOADED.** Double-check the chamber of your firearm before shipping. If firearms are sent to SAN Swiss Arms AG in a loaded condition, we are required by law to notify the Federal authorities.
7. **DO NOT** include telescopic sights, custom stocks, slings, or other accessories with any firearm shipped to us.

2 Introduction

2.1 General characteristics of GL 5140



Fig. 1: GL 5140 40 mm Grenade Launcher

The GL 5140 can be attached to all SG 551 models. It is a single-shot weapon which is reloaded by cycling the tube in pump-action. It can be easily mounted on every SG 551 rifle and can be fired off-shoulder.

The GL 5140 can fire all 40x46 mm grenades with an overall length of 100 mm – 198 mm

The GL 5140 can be used in the following modes:

- Direct fire at 25 m - 200 m (from cover)
- Against point or mass targets
- Free off-shoulder or supported from cover

It must not be used shooting a grenade with folded buttstock!

2.2 System description

The main components of the GL 5140 are:

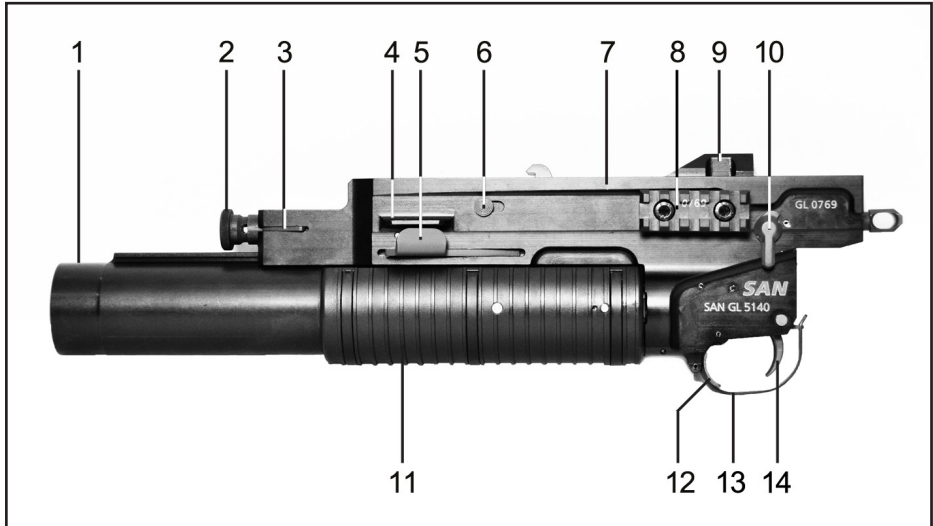


Fig. 2: GL 5140

- | | |
|----------------------------------|----------------------|
| (1) Tube | (8) Picatinny rail |
| (2) Location bush | (9) Support bearing |
| (3) Retention latch | (10) Eccentric latch |
| (4) Tube stop | (11) Hand guard |
| (5) Tube latch | (12) Safety lever |
| (6) Grip screw | (13) Trigger guard |
| (7) Receiver with trigger casing | (14) Trigger |

2.2.1 Ladder sight for GL 5140

The ladder sight can be installed laterally at the Picatinny rail of the GL 5140 housing. The six resp. three cut-outs in the rear sight leaves are for the distance adjustment.

50 / 100 / 150 / 200 / 250 / 300 / 350 m

resp.

50 / 100 / 150 / 200 m

The rear sight has a windage adjustment screw and a leaf screw for elevation adjustment.

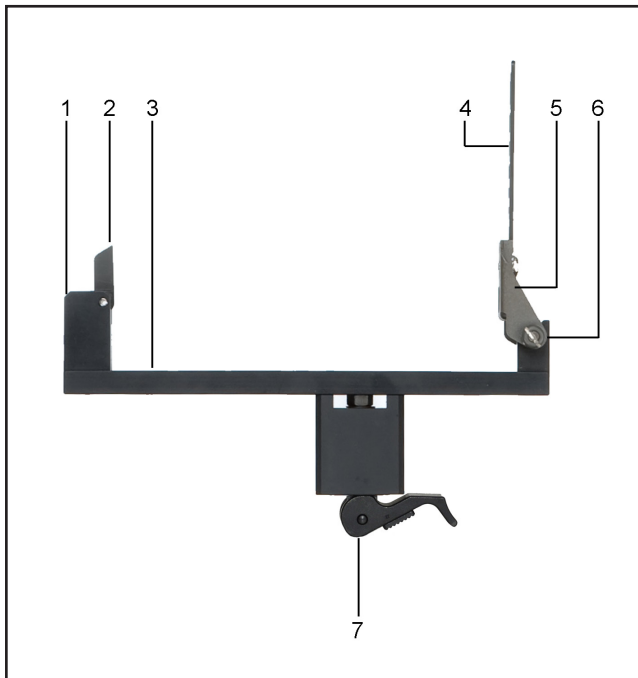


Fig. 3: Ladder sight for GL 5140

- | | |
|------------------------------|--|
| (1) Flip up front sight base | (5) Rear sight leaf holder |
| (2) Front sight | (6) Rear sight base |
| (3) Sight carrier | (7) Quick lock mount with locking safety |
| (4) Rear sight leaf | |

2.2.2 Accessories

Part of each GL 5140 are:

- One synthetic carrying case
- One cleaning kit
- One manual

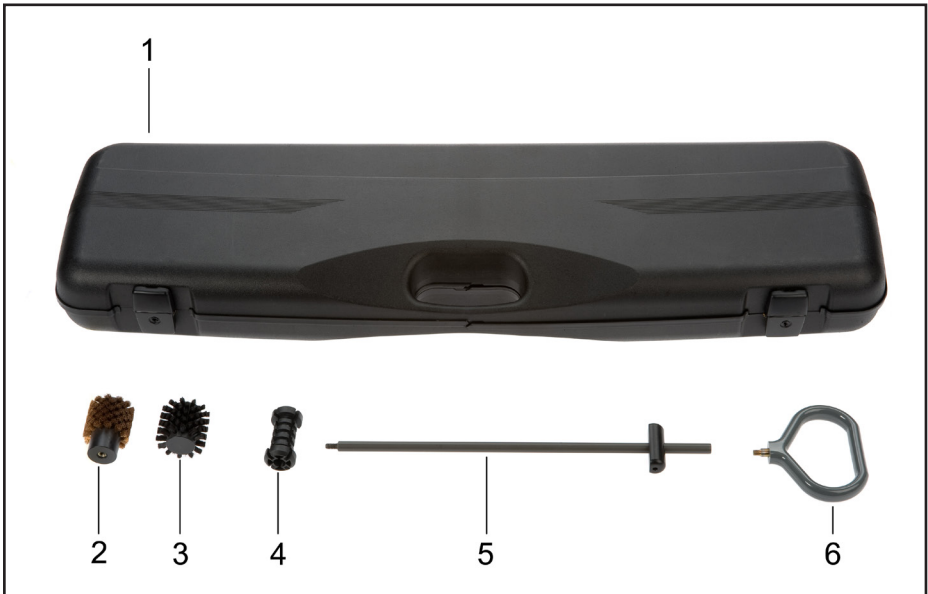


Fig. 4: Accessories

- | | |
|-----------------------|-------------------------|
| (1) Carrying case | (4) Jag |
| (2) Bronze wire brush | (5) Cleaning rod |
| (3) Nylon brush | (6) Cleaning rod handle |

2.3 Technical specifications

Measurements

Overall length.....	432	mm
Overall width	67.50	mm
Height	113	mm

Tube

Caliber.....	40x46	mm
Length of tube	305	mm
Rifling pitch	1200	mm
Number of grooves	12	

Weight

Weight unloaded.....	1735	g
Weight ladder sight	155	g

Sights

Ladder sight	laterally mountable	
Sight base	140	mm

Shooting performance

Muzzle velocity V_0	approx. 75 m/s +/- 5 m/s
-----------------------------	--------------------------

Subject to change without notice

3 Handling

3.1 Installing GL 5140 on SG 551

Preparing SG 551 to accept GL 5140

1. Unload SG 551.
2. Remove trigger housing.

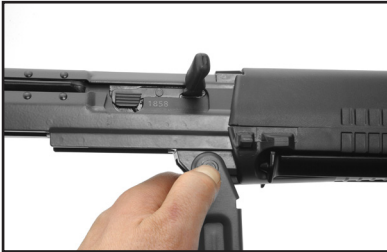


Fig. 5: Remove trigger housing

3. Remove lower and upper hand guard.

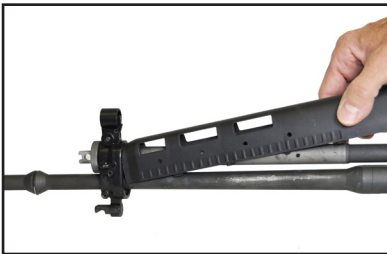


Fig. 6: Remove upper hand guard

3.1.1 Preparing GL 5140 for attachment to SG 551

1. Unload GL 5140 (see section «5.1.4 Unloading» on page 23).
2. Press retention latch (3), pull location bush (2) forward to the stop and release retention latch (3).
3. Rotate excentric latch (10) to its vertical, tight position.

3.1.2 Mounting GL 5140 on SG 551

1. With support bearing positioned in the middle of the barrel, locate GL 5140 on the barrel of SG 551.
2. Lightly press rear end of GL 5140 against the barrel of SG 551 and slide it back until bearing (A) locates against the chamber taper.

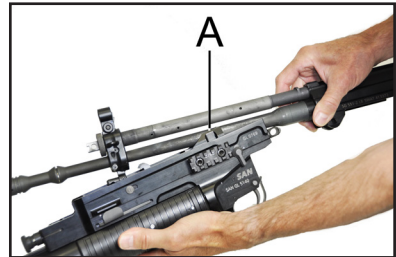


Fig. 7: Installing GL 5140

3. Press GL 5140 against the barrel of SG 551 until both lie parallel.
4. Press retention latch (3) and slide location bush (2) up to the stop, over the bayonet lug.
5. Check that location bush (2) has registered and is locked.
6. Slide grip screw (6) to the rear.
7. Slip upper hand guard into the front sight mount and lower it until the entire length of the hand guard lies on the GL 5140.



Fig. 8: Install upper hand guard



Fig. 10: GL 5140 ready for firing

8. Slide grip screw (6) forward and ensure that upper hand guard is fixed.
9. Reinstall the trigger housing of SG 551.
10. Rotate excentric latch (10) to its horizontal position (The pressure spring of the drag-bar is now removed) (Fig. 9 / No. 1).
12. The GL 5140 is now attached to SG 551 and ready to fire.

With the GL 5140 fitted to the SG 551, it is not possible to fix the bayonet or to use the bipod. All other functions of the rifle remain completely operational.



Fig. 9: Excentric latch in horizontal position (1)

11. Attach ladder sight to the Picatinny rail on the left side of the GL 5140 casing. Rotate quick lock mount lever to its horizontal position (Fig. 9 / No. 2).
- ### 3.2 Removing GL 5140 from SG 551
1. Unload SG 551 and GL 5140.
 2. Rotate excentric latch (10) to its vertical position.
 3. Remove trigger housing of SG 551.
 4. Draw back grip screw (6).
 5. Lift off upper hand guard of SG 551.
 6. Press retention latch (3) and pull location bush (2) forwards.
 7. Lift GL 5140 slightly away from the front of SG 551 and slide it out towards the rifle muzzle.
 8. If necessary remove GL 5140 ladder sight from GL 5140.
 9. Stow GL 5140 and ladder sight in its carrying case.

3.3 Preparing to fire

Depending on the intended assignment, prepare SG 551 and GL 5140 as follows:

1. SG 551 in safe condition (loaded or unloaded) and night front sight flipped down.
2. Front sight and rear sight leaf of ladder sight flipped up.
3. Location bush (2) in rear, locked position.
4. Excentric latch (10) in horizontal position.
5. Grip screw (6) in forward position and upper hand guard fixed.
6. Nominated type of 40x46 mm grenades are at hand.
7. Tube is free of dirt, grease, oil, water or other foreign objects.
8. Trigger guard (13) is in its closed position (only to be opened in cold weather when firing with gloves or mittens).

4 Safety rules

4.1 General

The shooter should always consider the weapon as loaded and ready to fire until he has personally convinced himself of the contrary by unloading it.

5 Operation

All manipulations (loading, unloading, re-loading) on the GL 5140 can be executed in the safe condition. However, if the GL 5140 is in the decocked condition (firing pin discharged) safety lever (12) cannot be flipped to the «Safety On» position.

When handling, grasp the pistol grip of SG 551 with the rifle firing hand (finger off the trigger). All manipulations on GL 5140 are executed with the opposite hand, including launching the grenade.



Fig. 11: Shooting

5.1.1 Loading

1. Press tube latch (5) - tube will jump slightly forward.
2. Slide tube (1) forward and up to the stop (manual and visual check that tube is really empty).
3. Flip safety lever (12) to the rear «Safety On» position.
4. Slip 40 mm grenade into tube (1) up to the stop.
5. Slide tube (1) back to the rear stop. Attempt a forward movement to verify that tube is correctly locked.



Fig. 12: Loading



Fig. 13: Check locking

5.1.2 Loading Extra-Length Grenades

1. Press tube latch (5) - tube will jump slightly forward.
2. Slide tube (1) forward and up to the stop (manual and visual check that tube is really empty).
3. Depress tube stop (4) until tube (1) can be slid further forward.
4. Release tube stop (4) and slide tube (1) up to the rear stop.
5. Flip safety lever (12) to the rear «Safety On» position.
6. Slip 40 mm grenade into tube (1) up to the stop.
7. Slide tube (1) back to the rear stop. Attempt a forward movement to verify that tube is correctly locked.

5.1.3 Unloading

1. Flip safety lever (12) to the rear «Safety On» position (only possible when firing pin is in the cocked condition).
2. Press tube latch (5) - tube will jump slightly forward.
3. Slide tube (1) forward and up to the stop. Grenade or spent case will automatically eject to the rear and downwards.
4. Manual and visual check that tube (1) is really empty.
5. Slide tube (1) back to the rear stop. Attempt a forward movement to verify that tube is correctly locked.
6. Point the weapon in a safe direction.
7. Pull trigger (14).
8. Flip safety lever (13) to the rear «Safety On» position.
9. If situation allows, collect, clean and dispose of ejected round.
10. Flip down rear sight leaf (4) and front sight (2).

5.1.4 Unloading Live, Extra- Length Grenades

1. Flip safety lever (12) to the rear «Safety On» position (only possible when firing pin is in the cocked condition).
2. Press tube latch (5) - tube will jump slightly forward.
3. Slide tube (1) forward and up to the stop.
4. Depress tube stop (4) until tube (1) can be slid further forward.
5. Release tube stop (4) and slide tube (1) up to the stop.
6. Grasp the grenade at the rear end, extract it and dispose it.
7. Manual and visual check that tube (1) is really empty.
8. Slide tube (1) back to the rear stop. Attempt a forward movement to verify that tube is correctly locked.
9. Point the weapon in a safe direction.
10. Flip safety lever (12) to the forward «Safety Off» position.
11. Pull trigger (14).
12. Flip safety lever (12) to the rear «Safety On» position.
13. Flip down rear sight leaf (4) and front sight (2).

5.1.5 Reloading

1. Press tube latch (5) - tube will jump slightly forward.
2. Slide tube (1) forward and up to the stop (spent case will eject to the rear and downwards).
3. Manual and visual check that tube (1) is really empty.
4. Flip safety lever (12) to the rear «Safety On» position.
5. Slip fresh grenade into tube (1) up to the stop.
6. Slide tube (1) back to the rear stop. Attempt a forward movement to verify that tube is correctly locked.

5.1 Aiming

When aiming, align the eye, the corresponding diopter aperture of the GL 5140 ladder rear- and front sight, and the center of the target.

When aiming it is essential that the front sight is precisely centered in the corresponding rear sight aperture.



Fig. 14: Aiming

5.2 Correction and adjustment

5.2.1 Correction

1. With the correction the GL 5140 will be aligned with the sight.
2. In combat conditions, shifting the point of aim is the normal procedure for correction.
3. Possible windage and elevation corrections of the GL 5140 ladder sight are made with the screwdriver of a pocket knife.
4. The elevation scale is divided into increments of 1,5 mm; the windage correction scale has increments of 1 mm.

5.2.2 Aligning

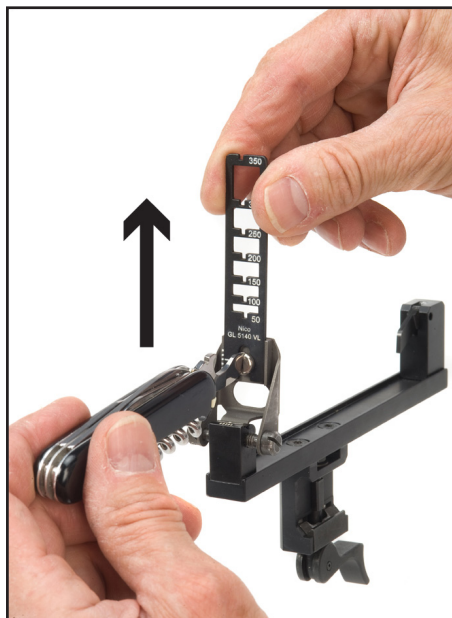
The aligning has to be effected after a tube change.

1. Put elevation- and windage adjustment screw to the center position.
2. Alignment at a distance of 50 m.
3. Correction according to section "5.2.3/5.2.4 on page 26/27.

5.2.3 Elevation corrections

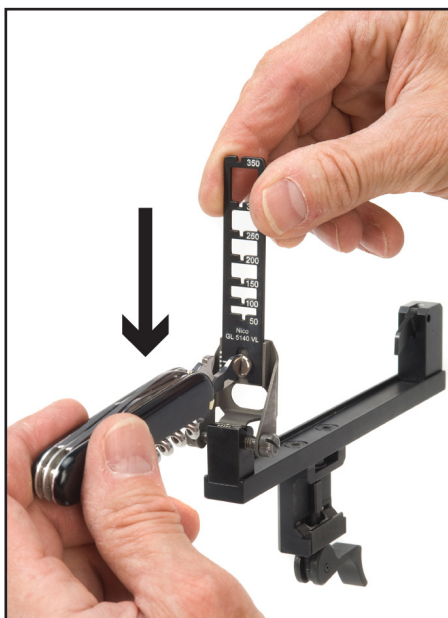
Procedure at low shot

1. Release lock screw of rear sight leaf.
2. Shift rear sight leaf up as required.
3. Tighten lock screw.



Procedure at high shot

1. Release lock screw of rear sight leaf.
2. Shift rear sight leaf down as required.
3. Tighten lock screw.



Shifting the point of impact per cue	=	
at 50 m	=	19,2 cm
at 100 m	=	38,4 cm
at 150 m	=	57,6 cm
at 200 m	=	76,8 cm
at 250 m	=	96,0 cm
at 300 m	=	115,2 cm
at 350 m	=	134,4 cm

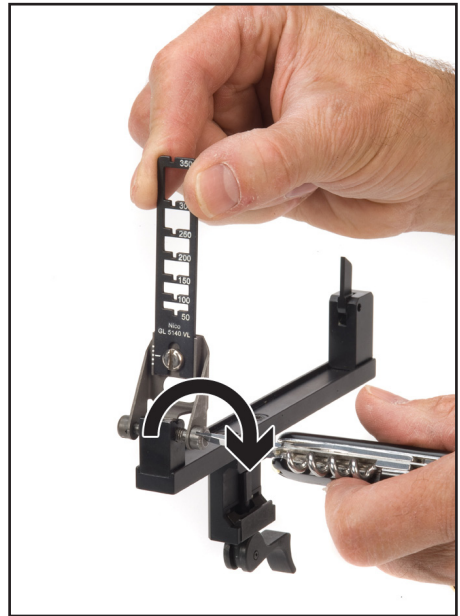
5.2.4 Windage corrections

Procedure at shot to left

Turn windage correction screw anti-clockwise until rear sight leaf shifts as far as required.

Procedure at shot to right

Turn windage correction screw clockwise until rear sight leaf shifts as far as required.



Shifting the point of impact per cue	=	
at 50 m	=	2,6 cm
at 100 m	=	6,5 cm
at 150 m	=	10,4 cm
at 200 m	=	14,3 cm
at 250 m	=	18,2 cm
at 300 m	=	22,1 cm
at 350 m	=	26,0 cm

5.3 Field stripping and assembling

Further stripping may only be undertaken by armorers.

5.3.1 Field stripping

- For DPM, the GL 5140 does not have to be removed from SG 551.
- For FDM, remove GL 5140 from SG 551 according to section “3.2 Removing GL 5140 from SG 551” on page 21.

PROCEDURE

1. Press tube latch (5) and open tube (1) completely.
2. Hold down tube stop (4) and push tube (1) forward and off the receiver with trigger casing (7).



Fig. 15: GL 5140 stripped

5.3.2 Assembling

1. Press safety hook (4) and draw tube (1) back to the stop.
2. From the front, slide tube (1) into the receiver guide.
3. Execute functions check in accordance with section “7.3 Checking Functions” on page 33.

6 Function

6.1 Readiness to fire

At the moment of readiness to fire the tube is closed and locked.

- The tube latch locks the tube.
- In this position the firing pin is armed and assured.

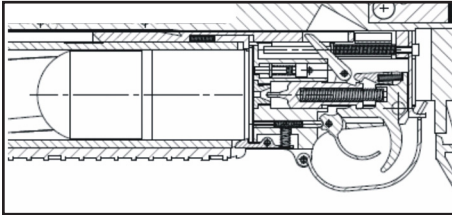


Fig. 16: Weapon locked, armed and assured

6.3 Unlocking and tube advance

Activate the tube latch (5) (tube will jump slightly forward) and slide tube (1) forward whereby grenade or spent case will automatically be ejected.

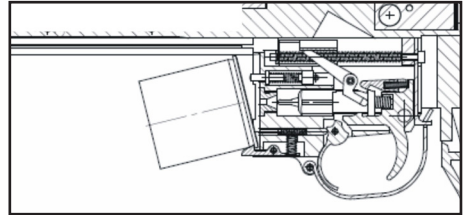


Fig. 18: Ejecting

6.2 Discharging the shot

By pressing the trigger of the unsaved weapon the firing pin is released under pressure of the firing pin spring, the firing pin strikes against the grenade primer which in turn is discharging the shot.

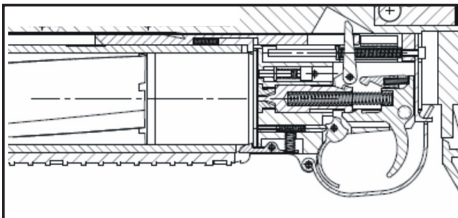


Fig. 17: Discharging the shot

6.4 Trigger functions

6.4.1 Trigger in „Safety On“ position

- The safety lever is flipped to the rear «Safety On» position.
- The safety lever blocks the trigger.

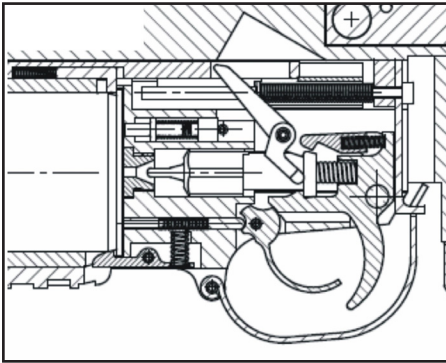


Fig. 19: Trigger in „Safety On“ position

6.4.2 Trigger in „Safety Off“ position

- The safety lever is flipped forward «Safety Off» position.
- The safety lever releases the trigger.

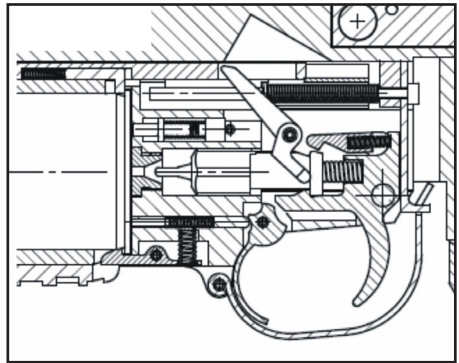


Fig. 20: Trigger in „Safety Off“ position

7 Maintenance

7.1 Types of Maintenance

- Daily Preventive Maintenance (DPM)
- Full Depot Maintenance (FDM)

7.1.1 Daily preventive maintenance

Daily preventive maintenance is carried out if the GL 5140 has not been fired and the weapon is dry.

- Unload GL 5140.
- Clean the exterior of the weapon.
- Lightly grease external components.

7.1.2 Full depot maintenance

Full depot maintenance is carried out:

- In wet weather, even if weapon has not been fired.
 - After every firing session.
 - During lulls in combat, if situation permits.
 - Within the scope of troubleshooting checklist.
 - At the end of a service period.
1. Unload GL 5140.
 2. Strip the weapon (see “5.3 Field stripping” on page 28) Clean major assemblies:
 - Casing including trigger housing (with cloth).
 - Tube from the chamber end (with cleaning rod, bronze wire brush, jag and patches).
 3. Clean accessories.
 4. Check condition of component parts and match serial numbers.
 5. Lubricate the weapon in accordance with section “7.2 Cleaning and Lubrication Instructions” on page 32.

6. Assemble GL 5140 in accordance with section “5.3.1 Assembling” on page 28.
7. Check functions in accordance with section “7.3 Checking Functions” on page 33.

7.2 Cleaning and Lubrication Instructions

7.2.1 Before firing

Before firing, the stripped tube is to be pushed through from the chamber end (cleaning rod with jag and patch).

7.2.2 After firing

After firing, the stripped tube is to be pushed through at least 10 times with a greased tube cleaner to ensure that powder and warhead residues are softened and removed.

7.2.3 Lubrication Instructions for full depot maintenance

1. Grease tube and chamber (from chamber end with cleaning rod and grease brush).
2. Grease all guides on the tube and receiver.
3. Wipe off receiver, recoil base and all external surfaces with a greased cloth.
4. Grease lightly all moving parts (trigger, trigger guard, firing pin and bore, safety lever, trigger bar, tube stop, location bush, retention latch, tube latch, grip screw, excentric latch and rear sight assembly).

7.2.4 Lubricant / Cleaning agent

Grease for automatic Weapons	ALN 9150-335-4809
Weapon cleaning oil	ALN 9150-335-4606
Microlube	GBU Y 131 (Industrial lubrication, Trigger unit)

7.3 Checking Functions

The function check has to be made after stripping the GL 5140

1. Unload the weapon	- GL 5140 unloaded
2. Tube	- Flip safety lever to „Safety Off“ position - Clearance, check if tube can be opened up to stop - Close tube
3. Safety hook	- Clearance, fully open tube (1) press tube stop (4) and check that tube (1) can also be opened up to front stop - Close tube
4. Trigger unit	- Open tube, flip safety lever (12) to the rear „Safety On“ position) - Close tube, pull trigger - The firing pin must not trip, the trigger must be blocked - Flip safety lever (12) to the forward („Safety Off“ position), pull the trigger - The firing pin must trip - Carry out loading movement with trigger pulled through - The firing pin must not trip - Release the trigger and pull it again - The firing pin must trip
5. Safety lever	- Check operation resistance - If the safety catch can be activated without detent, the weapon has to be checked by an armorer or the maintenance department
6. Front sight and rear sight	- Check clearance - Check register, flip rear and front sight up and down to verify that it registers clearly in both positions - Check firm seat of the rear sight leaf

8 Malfunctions and trouble-shooting

8.1 General

Prior to every trouble-shooting action the weapon must be unloaded according to "5.1.4 Unloading" on page 23

8.2 Trouble-shooting

Trouble-shooting checklist for malfunctions on GL 5140

Malfunction	Possible Cause	Countermeasures
Grenade cannot be fired	<ul style="list-style-type: none"> - Safety lever is in „Safety on“ position - Too much oil or water in recoil base - Dirt and/or fouling in firing pin bore - Dirt in the cam slot of the trigger bar - Defective ammunition 	<ul style="list-style-type: none"> - Flip safety lever to „Safety off“ - Clean - Clean - Clean - Use fresh ammunition
No ejection	<ul style="list-style-type: none"> - Case stuck in tube 	<ul style="list-style-type: none"> - Knock out case with cleaning rod - Inspect extractor, repair if defective
Grenade cannot be inserted in tube	<ul style="list-style-type: none"> - Wrong or defective ammunition - Dirt in chamber 	<ul style="list-style-type: none"> - Replace with correct ammunition - Clean tube and chamber
Tube cannot be locked	<ul style="list-style-type: none"> - Downholder or trigger mechanism fouled 	<ul style="list-style-type: none"> - Cleaning according to "7.2 Cleaning and Lubrication Instructions" on page 32 - Repair by armorer in workshop

8.2.1 Procedure in case of malfunction

- Whenever a GL 5140 no longer works due to a malfunction, proceed as follows:
 - a. Open tube (1) about 2 cm and then close it again. Attempt a forward movement to verify that tube (1) is correctly locked.
 - b. Fire again
- If the GL 5140 still does not function correctly:
 - a. Take cover
 - b. Reload with a fresh grenade
 - c. Take up position and fire
- If the weapon cannot be unloaded or the fault rectified by the rifleman in accordance with the operating instructions, a trained expert must be consulted.
- The expert always acts according to the principle «First think twice, then take action».
- The weapon must remain in position as long as it is loaded.
- By asking the shooter or his superior clever questions and based on one's observations the expert makes a diagnosis and tries to find the cause of the malfunction (ejection-, ignition or other failures).
- Spectators and other unnecessary persons must be sent away so that the problem can be tackled carefully without disturbance.
- As long as the weapon is loaded, only trained experts should be allowed to manipulate the weapon. This is valid for all parties independently of the rank.
- If there are doubts the trained expert inquires his technical books or applies to his technical superior.

9 Appendix

9.1 List of parts GL 5140

The parts marked with * are not available as spare parts

Pos.	Pos. No. on exploded drawing	Description	Ident. No.	Qty./Unit
1	361	Lever, excentric shaft	34 550 361	1
2	641	Spring	34 550 641	1
3	783	Picatinny rail	34 550 783	1
4	851	Tube complete	34 550 851	1
5	852	Stop bar*	34 550 852	1
6	857	Tube sub-assembly	34 550 857	1
7	891	Casing GL 5140	34 550 891	1
8	897	Hand guard, complete	34 550 897	1
9	902	Centering piece	34 550 902	1
10	903	Safety hook	34 550 903	1
11	904	Location bush	34 550 904	1
12	905	Tube latch	34 550 905	1
13	906	Locking lever	34 550 906	1
14	907	Excentric shaft	34 550 907	1
15	908	Drag-bar	34 550 908	1
16	909	Trigger	34 550 909	1
17	910	Sear	34 550 910	1
18	911	Firing pin	34 550 911	1
19	912	Cocking lever	34 550 912	1
20	913	Spacer	34 550 913	1
21	914	Ejector	34 550 914	1
22	915	Extractor	34 550 915	1
23	916	Stop pin	34 550 916	1
24	917	Safety lever	34 550 917	1
25	918	Trigger guard	34 550 918	1
26	919	Closing plate	34 550 919	1
27	920	Cylinder head screw	34 550 920	2
28	920	Downholder, complete	34 550 920	1
29	925	Trigger axle	34 550 925	1
30	926	Locking slider	34 550 926	1
31	927	Pressure pin spring	34 550 927	1
32	928	Pressure pin	34 550 928	1
33	929	Stud	34 550 929	2
34	930	Knurled screw	34 550 930	2
35	931	Screw M3x8 (closing plate)	34 550 931	1
36	932	Leg spring	34 550 932	1
37	933	Pressure spring, drag-bar	34 550 933	1
38	935	Locking slider spring	34 550 935	1
39	936	Ejector spring	34 550 936	1
40	938	Firing pin spring	34 550 938	1
41	939	Stop pin spring	34 550 939	1
42	940	Extractor spring	34 550 940	1
43	941	Location dowel pin 3x24 shortened	34 550 941	1
44	942	Spring pin, 2.5x24 (safety lever)	34 550 942	3
45	945	Spring pin, 3x10 mm	34 550 945	1

46	946	Roll pin, 2.5x24	34 550 946	1
47	947	Spring pin, 3x16 mm (trigger guard)	34 550 947	1
48	949	Splint, 1.6x10	34 550 949	1
49	950	Roll pin, 2x24 mm - steel	34 550 950	1
50	951	Location dowel pin, 5x16	34 550 951	1
51	952	Spring pin, 3x37	34 550 952	1
52	962	Hand guard	34 550 962	1
53	964	Stop slide*	34 550 964	1
54	965	Pressure spring for tube*	34 550 965	1
55	966	Retaining spring	34 550 966	2
56	967	Rivet *	34 550 967	2
57	968	Tube*	34 550 968	1
58	969	Bolt *	34 550 969	2
59	975	Cramp	34 550 975	3

9.2 List of parts GL 5140 Accessories

60	863	Synthetic carrying case	34 550 863	1
61	976	Cleaning rod, complete	34 550 976	1
62	977	Cleaning rod	34 550 977	1
63	979	Handle for cleaning rod	34 550 979	1
64	996	Nylon brush	34 550 996	1
65	997	Bronze wire brush	34 550 997	1
66	998	Jag	34 550 998	1

9.3 List of parts GL 5140 Ladder sight

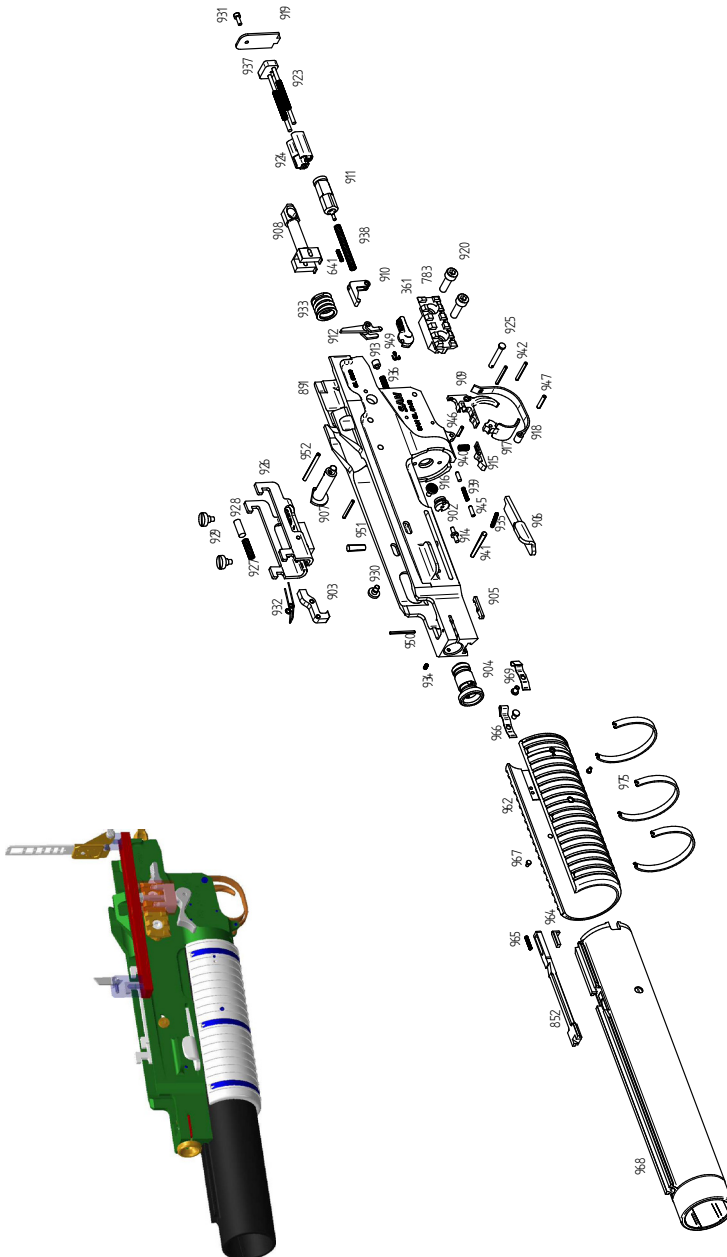
1	051	Spring pin 1.5x18 (rear sight)	34 555 051	1
2	401	Spring pin, 3x10 mm (front sight)	34 554 401	1
3	661	Click pin	34 554 661	1
4	671	Spring (front sight)	34 554 671	1
5	777	Rear sight base	34 550 777	1
6	778	Flip up front sight base	34 550 778	1
7	782	Sight carrier	34 550 782	1
8	784	Quick lock mount, complete	34 550 784	1
9	785	Windage adjustment screw	34 550 785	1
10	786	Countersunk socket screw M4x10 mm (for quick lock mount)	34 550 786	2
11	788	Front sight	34 550 788	1
12	789	Limiting ring	34 550 789	1
13	779	Countersunk socket screw M5x12 mm (for sight base)	34 550 779	2
14	849	Rear sight leaf NICO 350 m (GL 5140)	34 550 849	1
15	849	Rear sight leaf NICO 200 m (GL 5140)	34 550 849	1
16	987	Rear sight holder, complete	34 550 987	1
17	988	Screw M4x5 mm, rear sight leaf	34 550 988	1

Information to be supplied when ordering spare parts:

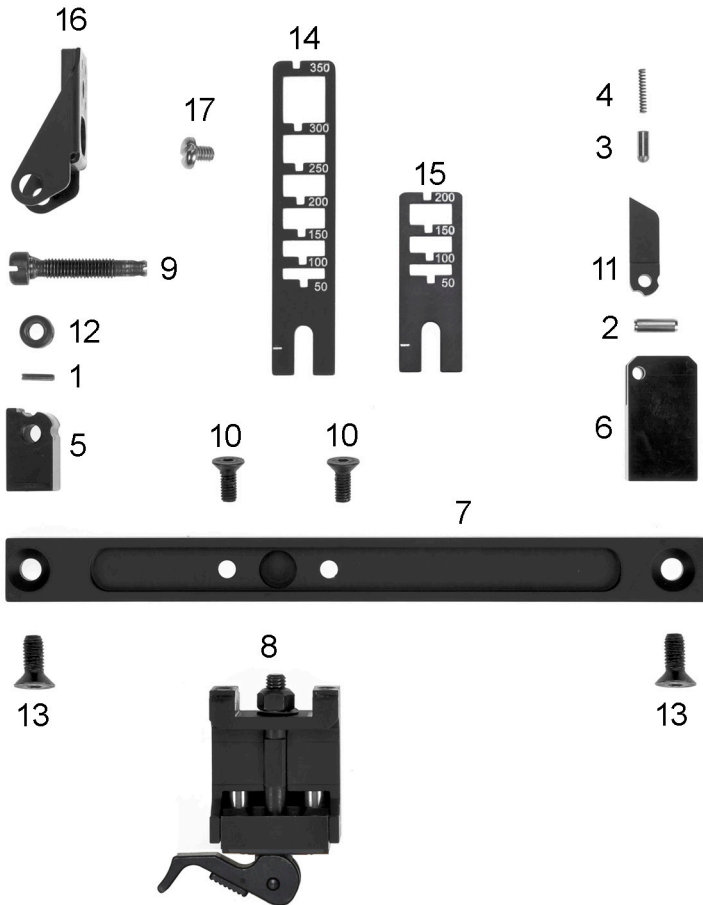
- **Type of weapon**
- **Serial number**
- **Caliber**
- **Part number according to list of parts**
- **Part designation according to list of parts**

9.4 Exploded drawings

9.4.1 Exploded view GL 5140



9.4.2 Exploded view GL 5140 ladder sight



SAN Swiss Arms AG
Industrieplatz
Postfach 1071
CH-8212 Neuhausen am Rheinfall
Switzerland

www.swissarms.ch

Subject to change without notice