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User Manual

FOR

GRENADE LAUNCHER ML40mk1

FOR

LA-10/LA-15/LA-16 series

Revision: 0	**Date of issue:** 6/26/2019

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REVISION

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1. Introduction

1.1. Use of User Manual for Grenade Launcher 40mm

The user manual Grenade Launcher 40mm is the basis for making rules, instructions and teaching material.
The level of detail depends on the planed use.

1.2. Structure of this manual

This manual is divided into the following categories:

- General information
- Safety rules
- System properties
- Mount of rifle adapter
-Mount grenade launcher on rifle
- Mounting sights
- Safety functions
- Trigger properties
- Check of operational readiness
- Loading
- Shooting
- Unloading
- Sight adjustment
- Troubleshooting
- Cleaning
- Technical specifications

1.2.1. Headline

The headline includes the chapter title, the system name (Grenade Launcher 40mm) and the company logo.

1.2.2. Footer

The footer includes the date of issue, confidentiality undertaking and the page number.

1.2.3. Index

There is an index in the beginning of this document. This lists the number of chapter, chapter title and page number of chapter.

1.2.4. Chapter structure

This user manual is divided into clear chapters by number.

Main chapter	1.
Subsection	1.1.
Sub-Subsection	1.1.1.

1.2.5. Revisions, Additions

Revisions and additions of this User Manual will be marked by continuous revision number and date of issue.

1.3. References

1.3.1. Cross references

References are done on the chapter number.

1.3.2. References on pictures

Figures are referenced by an abbreviation (fig.) and the continuous picture number.

(Fig.3) = Figure 3

1.4. Abbreviation

This manual uses the following abbreviations::

BoM	Bill of Materials
LV	Low Velocity
LV ER	Low Velocity Extended Range
MV	Medium Velocity
LUVO PRAGUE LTD.	Madritsch Weapon Technology
Nm	Newton meter
NSN	Nato Stock Number
TBA	To be advised
TBC	To be confirmed

2. General information

- Read safety rules carefully and completely before first use.
- Only use the Grenade Launcher 40mm after fully understanding of safety rules and instructions of use.

3. Safety rules

- Take care and be watchful while using a weapon. Never use weapons when you are ill, feel unwell, drank alcohol and took medicine ore drugs.
- Only use the Grenade Launcher 40mm in connection with a rifle of the type M4, LA16, MA16, the extension stock or the folding stock and when it is mounted correctly.
- When assigning the weapon, the loading state must be known, the safety has to be engaged and the muzzle has to show in a safe direction
- Always act, as the Grenade Launcher 40mm would be loaded
- Before loading and before shooting make sure, that the inside of the tube is free of obstacles and the inner surface is clean.
- Only load the Grenade launcher 40mm, when you intend to shoot.
- Only point in safe directions.
- Make sure the area in front of the tube is free, therefore there are no obstacles in front of the Grenade Launcher 40mm which can be hit, before shooting.
- Always wear ear protection while shooting. Make sure everybody near the shooting area wears ear protection.
- Only use approved and authorized monition which is clean and undamaged.
- After shooting, in shooting breaks or after cessation as well as after dysfunction engage the safety of the Grenade Launcher 40mm, open the tube and unload the weapon.
- Never play with the Grenade Launcher 40mm.
- Never touch the trigger while loading, unloading, engaging the safety, releasing the safety or other work on the weapon. The trigger can be touched first, when the Grenade Launcher 40mm is pointed at the target.
- Handle with care. Never use brute force for use, disassembling, cleaning and assembling of the Grenade Launcher 40mm.
- Never take the Grenade Launcher 40mm to pieces.

LUVO PRAGUE LTD. will not take any responses for any incidents due to: not reading or not understanding of the manual or the safety rules; due to carelessness, improper use, not authorized replacement of parts or other inappropriate use.

The user manual is part of the Grenade Launcher 40mm and has to be hand over with the Grenade Launcher 40mm.

4. System properties:

- The Grenade Launcher 40mm is a single shooter including a rotatable tube.
- The Grenade Launcher 40mm is mounted on a rifle adapter, which is mounted form-closed to the barrel of a M4, LA16 or MA16 rifle to an extension stock or folding stock.
- The Grenade Launcher 40mm is able to shoot 40mm grenades with multiple lengths.
- For training and for combat there are multifaceted grenades available. These grenades make it possible to fight unarmored or lightly armored point targets or plain targets up to 350 m (LV) distance (MV 650m).
- RingSight®, the optical sight, is placed on the left side of the rifle or stock. It can be mounted on the picatinny-rail of the rifle, on the rails of the stock or on the rail mounted on the housing of the Grenade Launcher 40mm.
- The mechanical sight can be mounted on the left or on the right side of the rifle or stock. It is mountable on the rail of the rifle, the rail of the extension or folding stock or on the rail of the housing of the Grenade Launcher 40mm.
- Excluding the mount of the Grenade Launcher 40mm on a rifle, it is an independent weapon in the caliber 40 x 46 with an own safety, mounted on extension or folding stock.

Mounting the Grenade Launcher 40mm on a rifle can move the mean point slightly upwards.

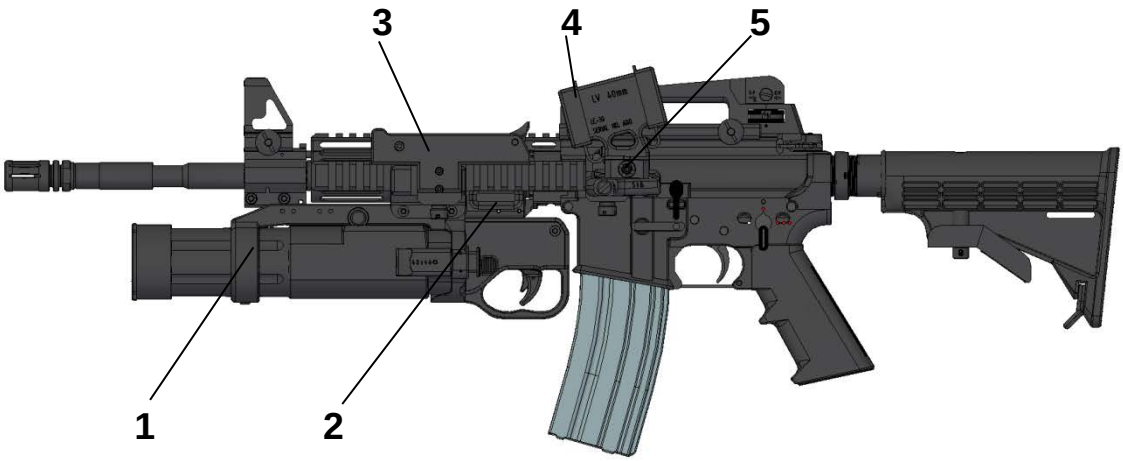


Fig. 1 Assault rifle LA16 with Grenade Launcher 40mm and rail system

1. Grenade Launcher 40mm
2. Rifle adapter
3. Mechanical sight
4. RingSights®
5. Sight mount rifle

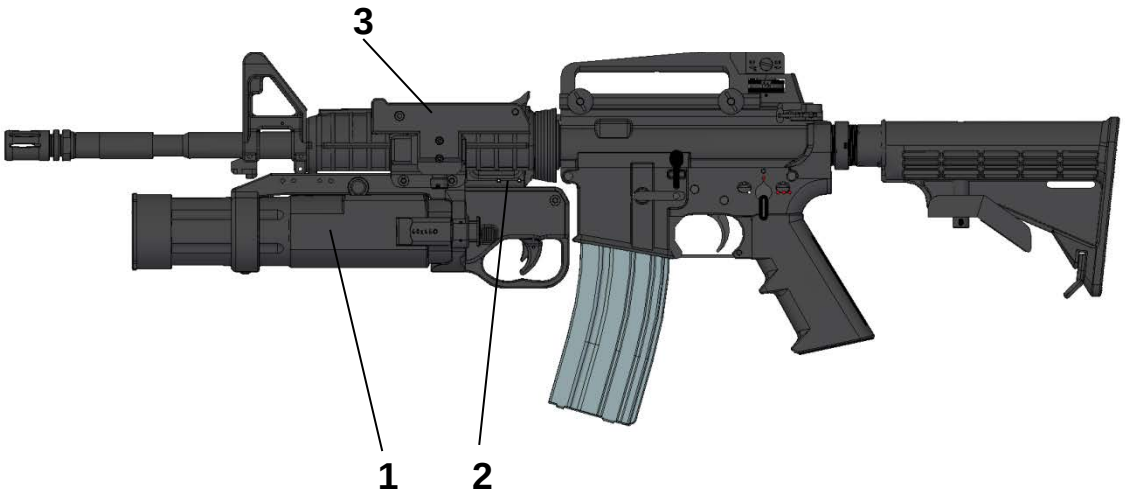


Fig. 2 Assault rifle LA16 with Grenade Launcher 40mm and hand guard

1. Grenade Launcher 40mm
2. Rifle adapter Grenade Launcher 40mm
3. Mechanical sight

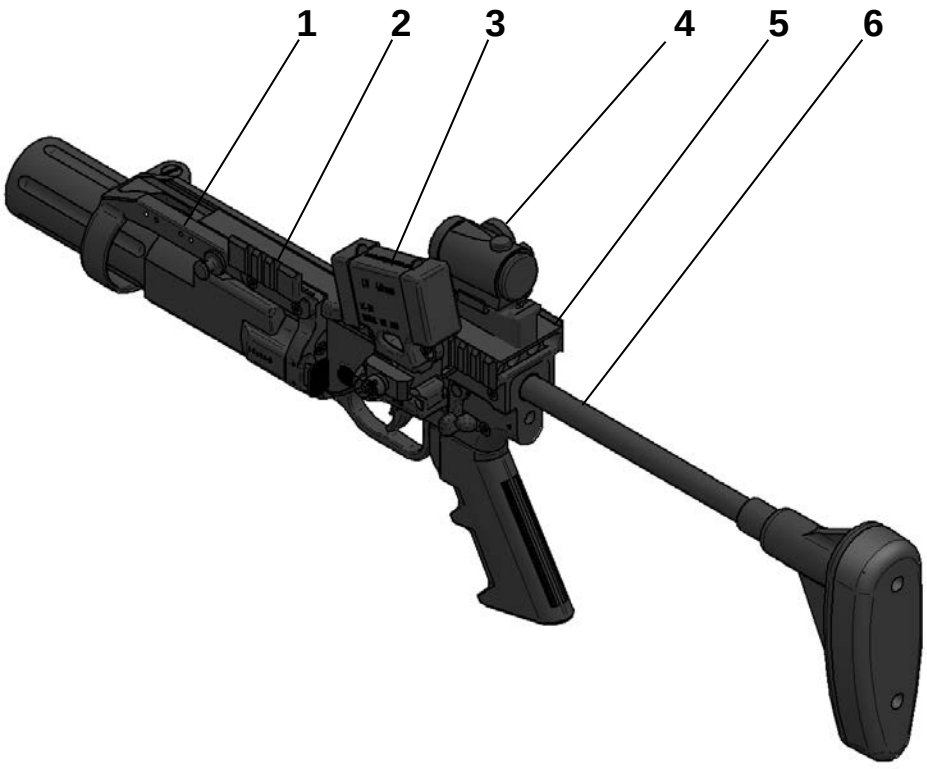


Fig. 3 Grenade Launcher 40mm with extension stock

1. Grenade Launcher 40mm
2. Picatinny rail receiver
3. RingSights®
4. Red dot sight
5. Sight adapter with 3 degree rail mounted
6. Extension stock

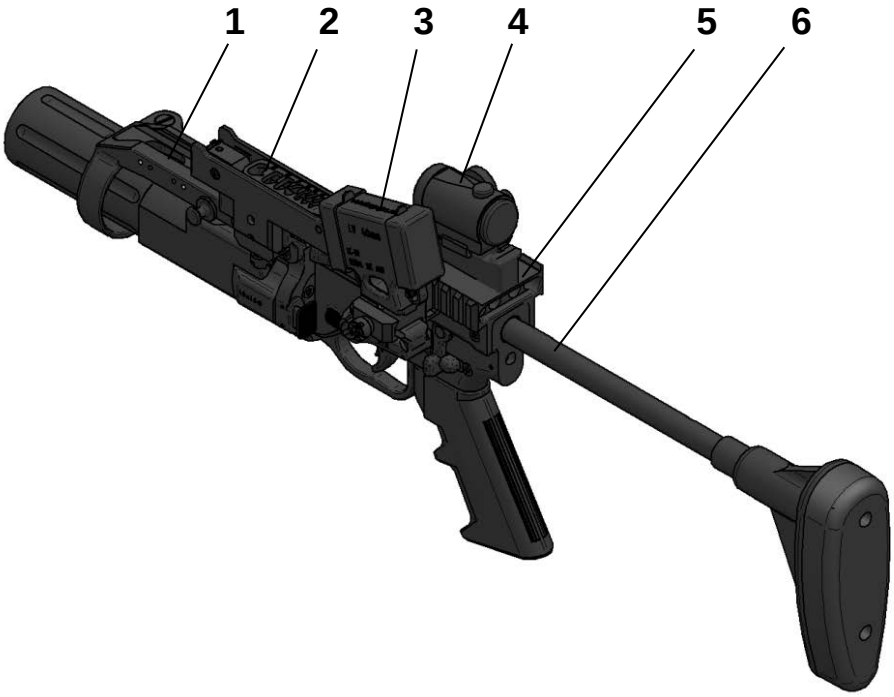


Fig. 4 Grenade Launcher 40mm with Extension stock and mechanical sight

1. Grenade Launcher 40mm
2. Mechanical sight
3. Optical sight RingSights®
4. Red dot sight
5. Picatinny sight adapter with picatinny rail 3 degree
6. Extension stock

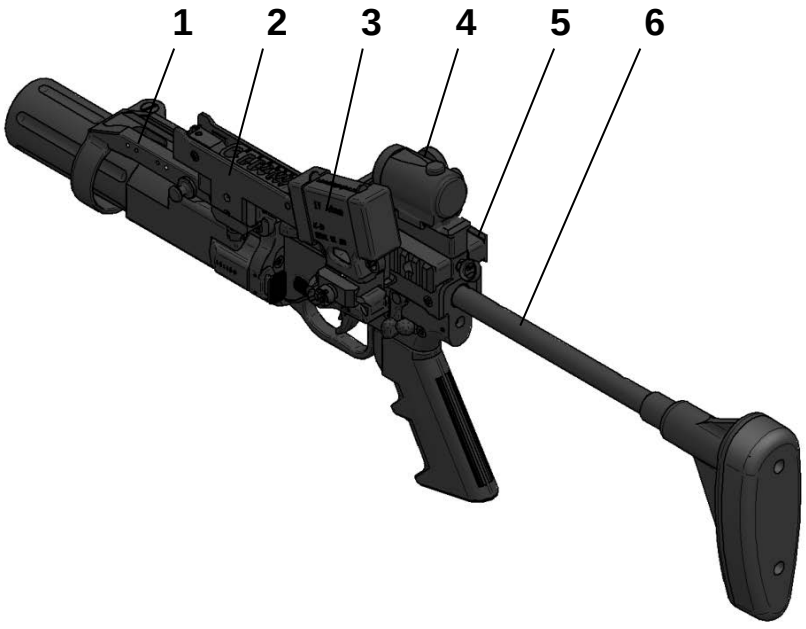


Fig. 5 Grenade Launcher 40mm with extension stock and picatinny sight adapter

1. Grenade Launcher 40mm
2. Mechanical sight
3. Optical sight RingSights®
4. Red dot sight
5. Picatinny sight adapter with picatinny rail 3 degree and side rails mounted
6. Extension stock

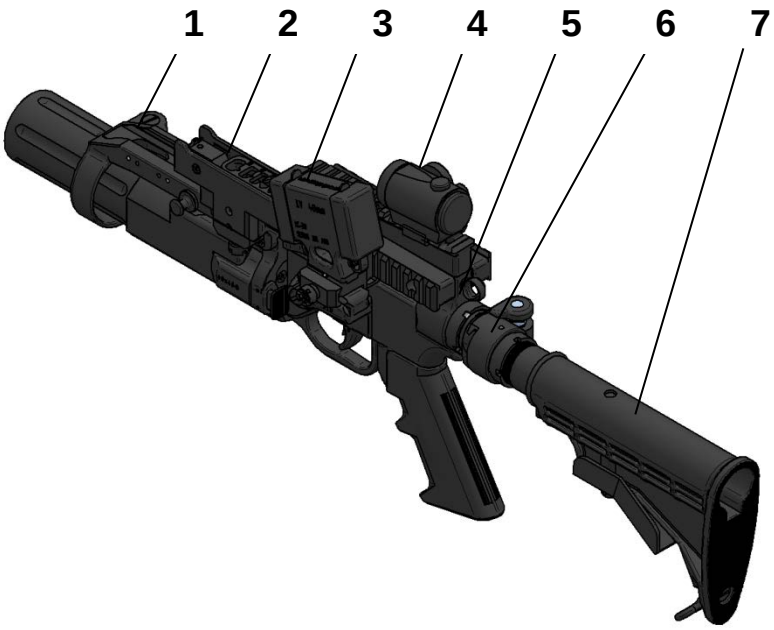


Fig. 6 Grenade Launcher 40mm with folding stock

1. Grenade Launcher 40mm
2. Mechanical sight
3. Optical sight RingSights®
4. Red dot sight
5. Folding stock
6. Folding mechanism
7. Butt stock

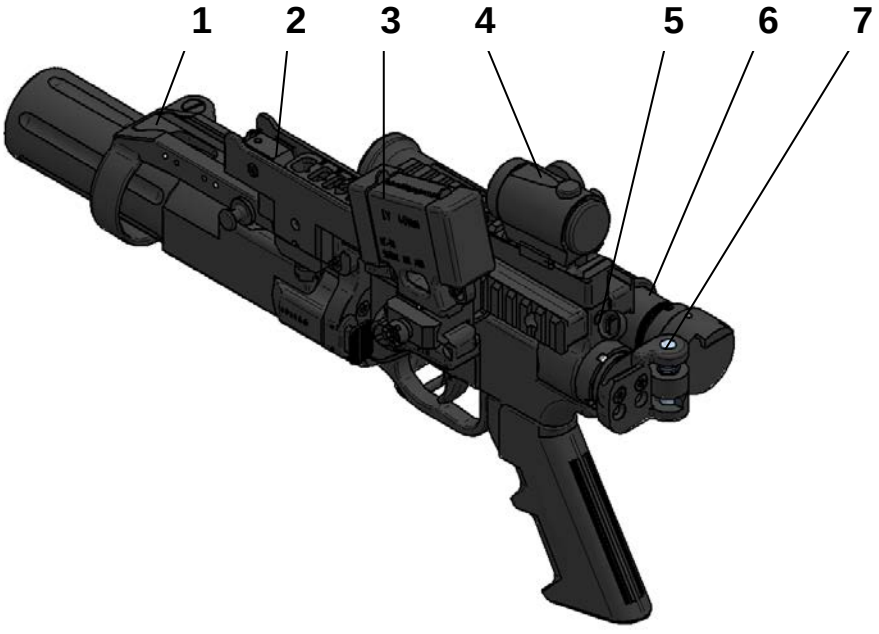


Fig. 7 Grenade Launcher 40mm in hinged position

1. Grenade Launcher 40mm
2. Mechanical sight
3. Optical sight RingSights®
4. Red dot sight
5. Folding stock
6. Butt stock
7. Folding mechanism

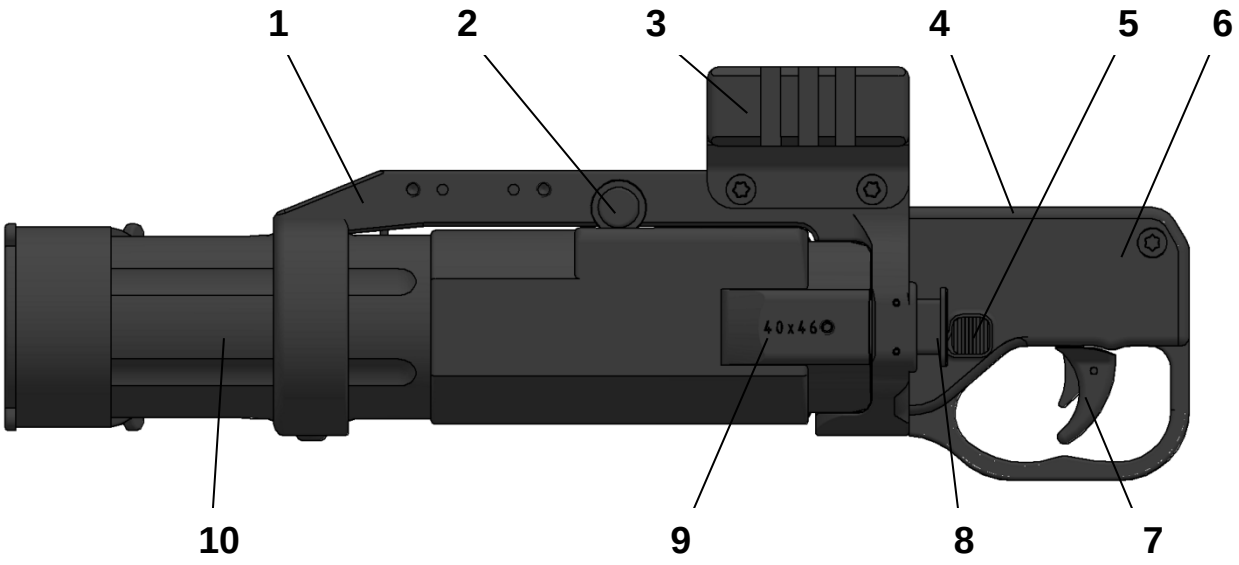


Fig. 8 Grenade Launcher 40mm with push through safety, left side

1. Grenade Launcher 40mm main housing
2. Locking pin
3. Picatinny rail receiver
4. Additional mounting safety
5. Safety
6. Firing housing
7. Trigger including paddle safety
8. Locking up push button
9. Caliber declaration
10. Tube

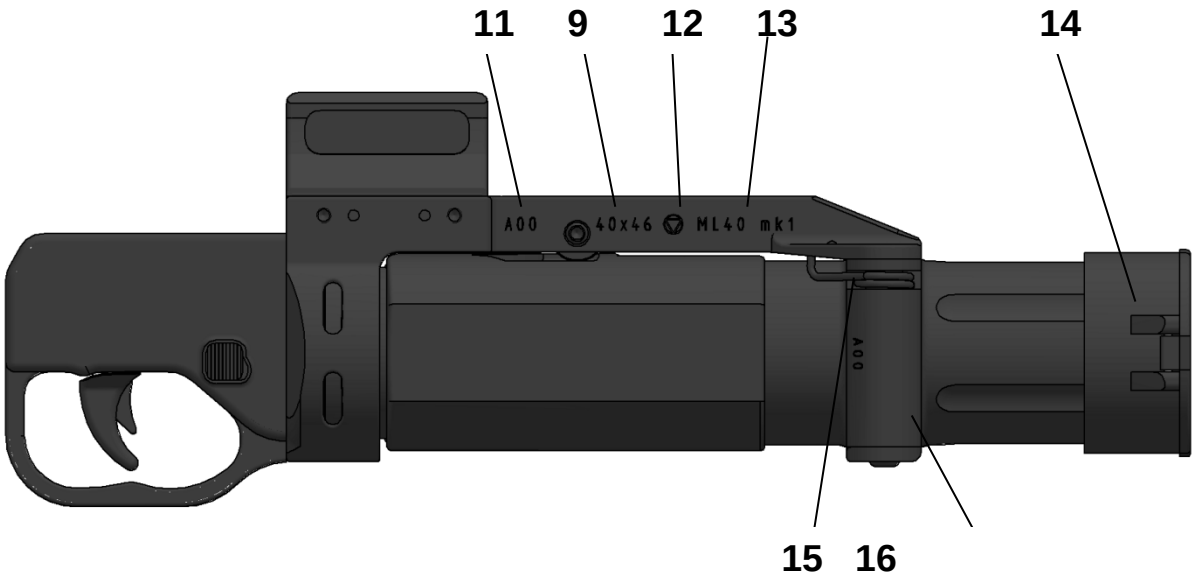


Fig. 9 Grenade Launcher 40mm with push through safety, right side

11. Weapon identification number
12. Roundel
13. Branch of the service
15. Leg spring
16. Tube Pivot Axis

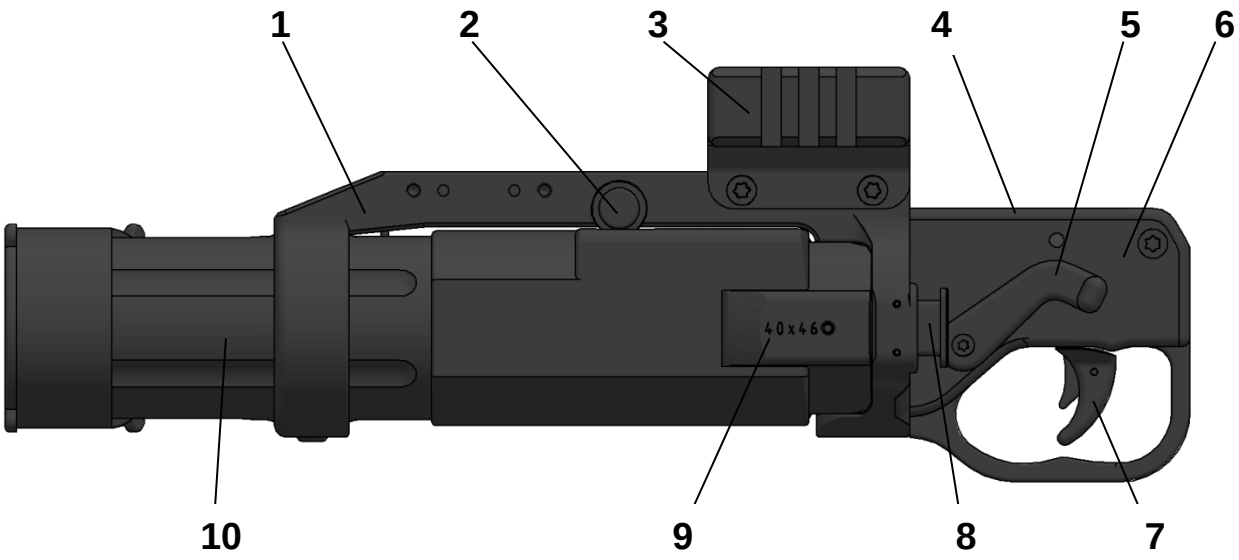


Fig. 10 Grenade Launcher 40mm with lever safety, left side

1. Grenade Launcher 40mm main housing
2. Locking pin
3. Picatinny rail receiver
4. Additional mounting safety
5. Lever safety
6. Firing housing
7. Trigger including paddle safety
8. Locking up push button
9. Caliber declaration
10. Tube

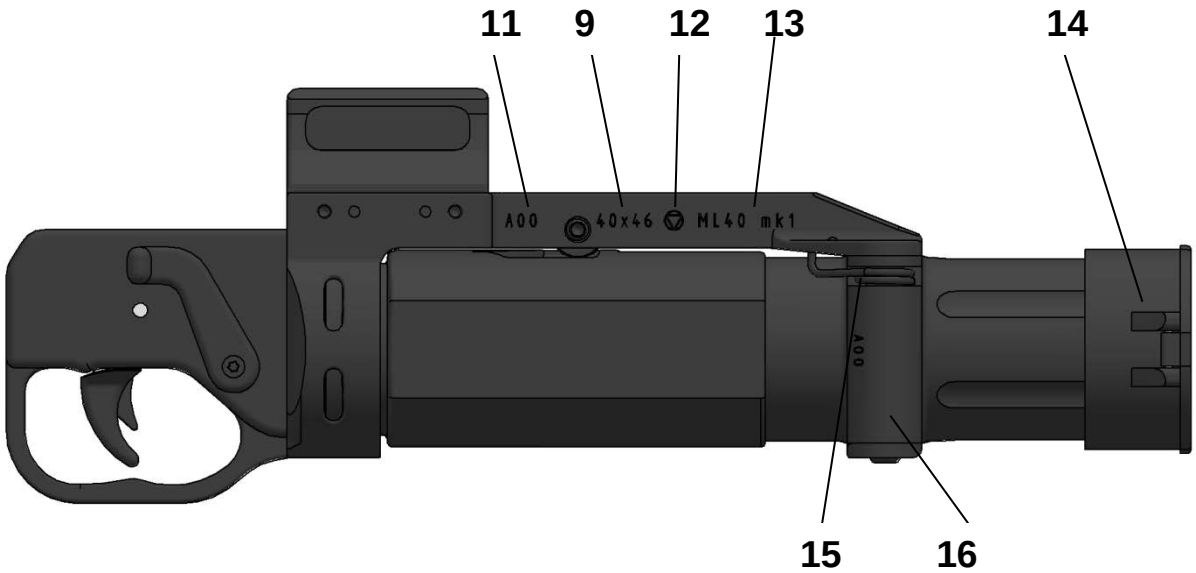


Fig. 11 Grenade Launcher 40mm with lever safety, right side

11. Weapon identification number
12. Roundel
13. Branch of the service
14. Mündungskappe
15. Leg spring
16. Tube Pivot axis

4.1. Interlock bolt

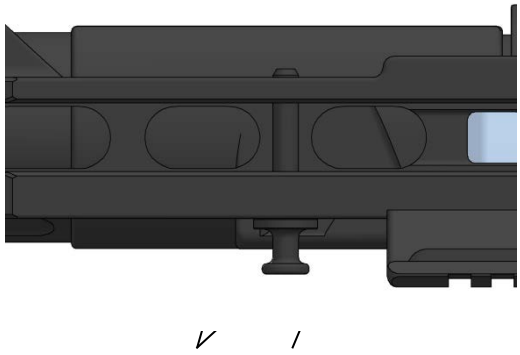


Fig. 12 Grenade Launcher 40mm locked



Fig. 13 Grenade L auncher 40mm ready for mounting

1. Locking pin
2. Control edge

To mount / dismount the Grenade Launcher 40mm it is necessary to swing out the tube and pull out the locking pin (1). The control edge (2) prevents the locking pin from loosing. It can be used for pushing the locking pin back in the mounted position while closing the tube.
The Locking pin is kept in place by a clip.

Attention: The permanent use of the control edge to push the locking pin in is not planed and is to avoid, doable.

4.2. Mount safety

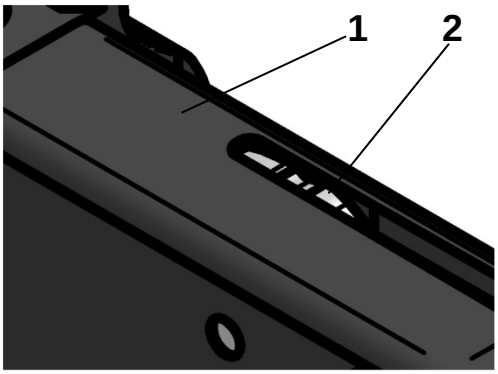


Fig. 14 Additional mounting safety

1. Firing housing
2. Additional mounting safety

The additional mounting safety prevents (without manipulation) the function of the trigger on a trigger with released safety of a dismounted Grenade Launcher 40mm.

4.3. Flat spring

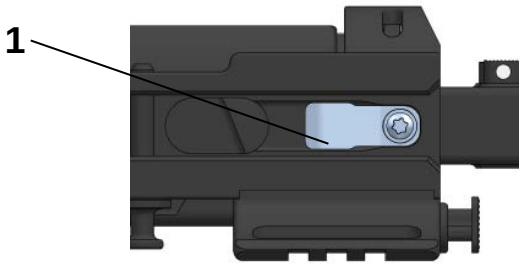


Fig. 15 Flat spring

1. Flat spring

The flat spring (1) provides a constant initial tension from the main housing to the rifle adapter. Therefore the sound emitting movement between main housing and rifle adapter is minimized.

4.4. Extension stock

Single-hand control
Lengthwise adjustment

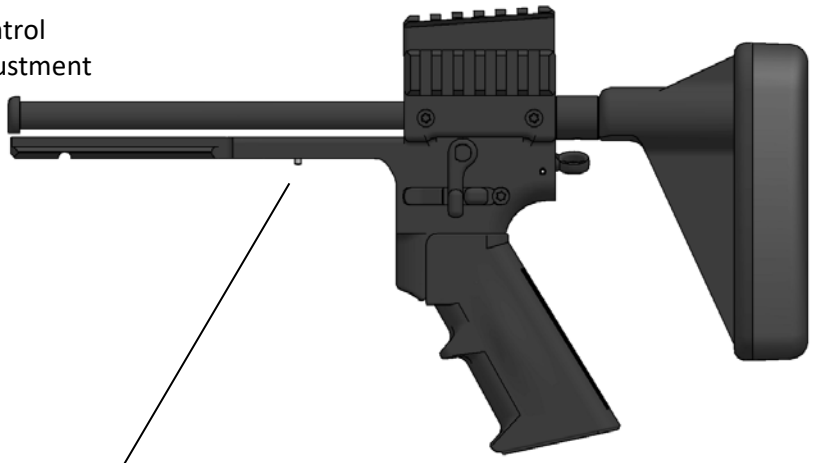


Fig. 16 Extension stock with sight adapter, stock retracted

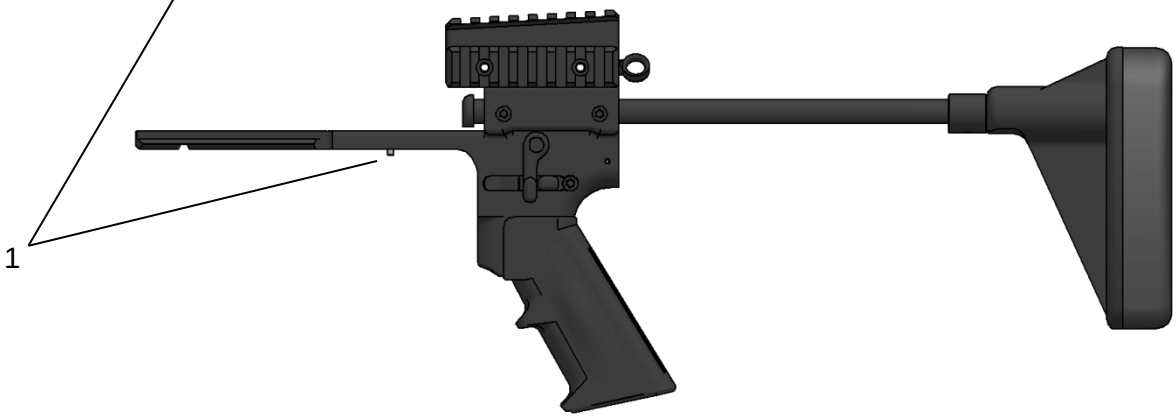


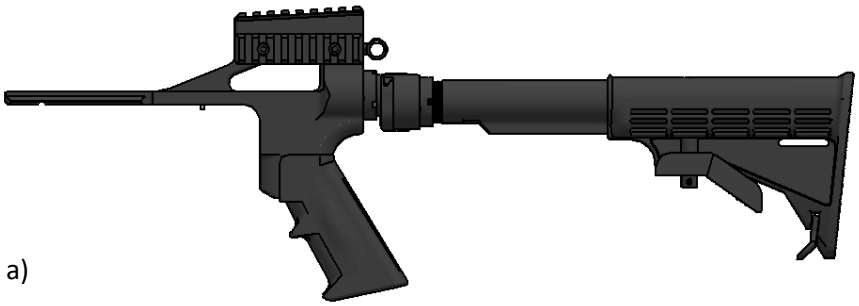
Fig. 17 Extension stock with picatinny sight adapter, stock extended

1. Pin for activating the additional mount safety

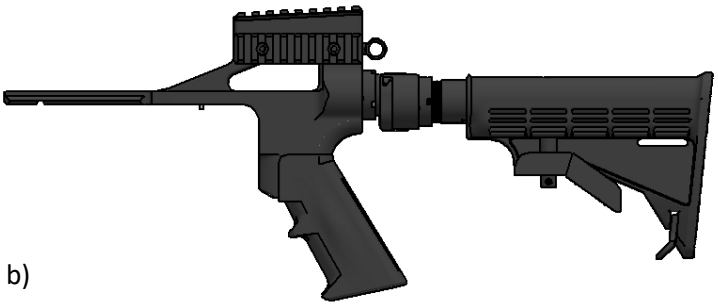
4.5. Folding stock

Foldable
Lengthwise adjustment

a)



b)



c)

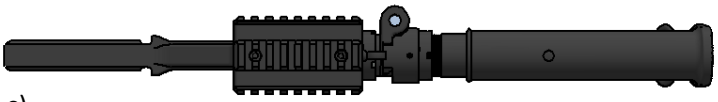


Fig. 18 a) Folding stock with extended butt stock; b) Folding stock retracted; c) Top view

d)



e)

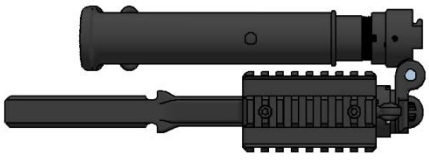


Fig. 19 d) Folding stock, folded, side view; e) Folding stock, folded, top view

4.6. RingSights® 0 - 350m

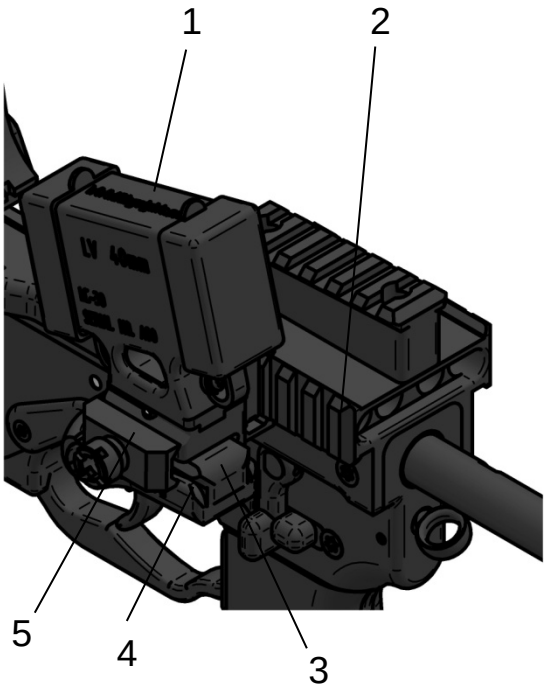


Fig. 20 RingSights® mounted

1. Sight
2. Picatinny rail on sight adapter
3. Rail on sight mount
4. Sight mount
5. Locking plate

4.7. Red dot sight



Fig. 21 Red dot sight

Optic

Working principle: Passive-reflex collimator-red dot sight
Optical magnification: 1x, eye distance: unimportant
Open aperture: 20 mm
Dot size: 4 MOA * (1.2 mrad)

Energy source

Battery type: one 3-V-Lithium battery, Type CR2032, commercially available

Environmental impact

Temperature range: use and storage:
-45 °C to +71 °C (-50 °F to +160 °F)
Air humidity: up to 95 % in the range 20 °C (68 °F) to 50 °C (122 °F), changing
Water proofed: 25 m (80 ft) for T-1
Impacts: 3 x 500 G 0.7 – 1.1 ms
Vibrations: XYZ: 10 to 30 Hz: 3 mm, 30 to 150 Hz: 5.75 G for 30 minutes
Radioactive materials: none (Tritium 0 %, Thorium 0 %, Thorium fluoride 0 %)
Harmful material: none (mercury 0 %, including battery)

4.8. Manual sight

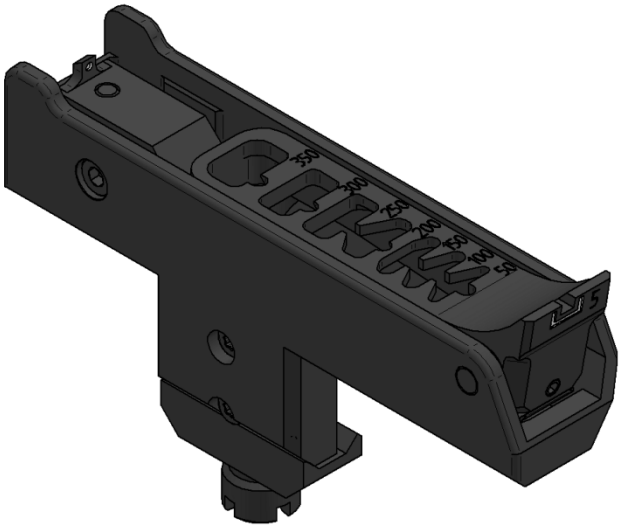


Fig. 22 Manual sight – closed
capable for 50m close-quarters fighting

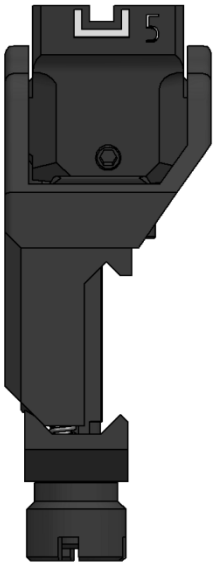


Fig. 23 Manual sight - closed - 50m mark

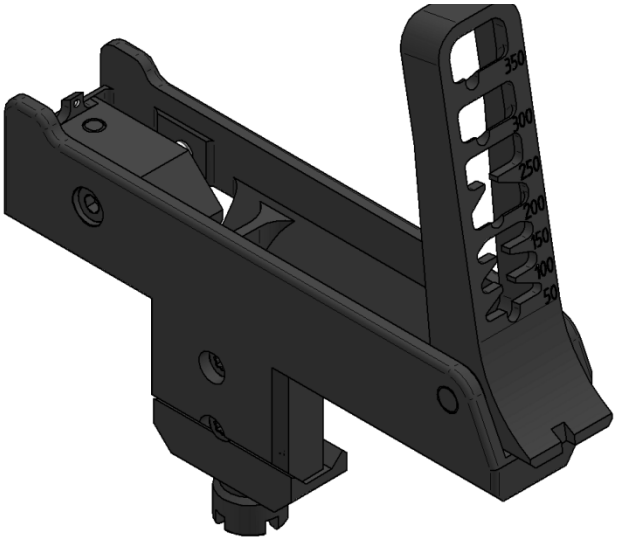


Fig. 24 Manual sight - open

5. Mount of rifle adapter on M4, LA16, MA16

5.1. Work on rifles

Dismount existing hand guard or existing rail system according to the manufacturer's instructions. When using the standard hand guard or the hand guard (grenade launcher) the delta ring can stay in place. If a rail is mounted the delta ring has to be dismounted according to the manufacturer's instructions. A replacement of the barrel nut is not necessary in any case.

5.1. Mount of rifle adapter for use with hand guard

Set the rifle adapter (1) on the barrel (2) of the rifle and push it into the barrel nut (3) as far as possible. The integrated anti-rotation protection pin (5) should pass the toothed rim of the barrel nut (3) and the rifle adapter (1) should sit straight under the barrel (2). If necessary readjust the barrel nut (3).

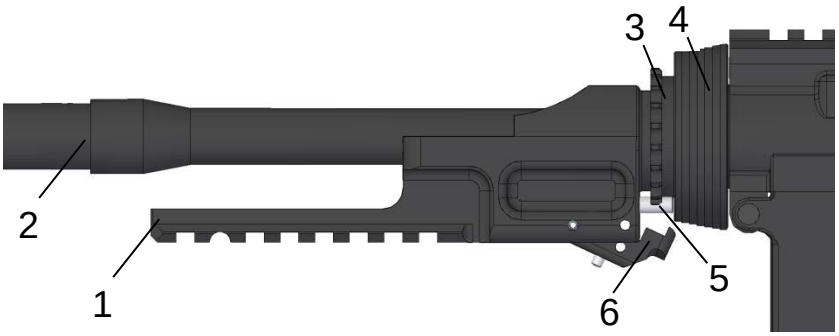


Fig. 25 Mounting rifle adapter; step 1

Push back the delta ring (4) and slide the holding claw (6) behind the toothed rim of the barrel nut (3). Lock the position of the holding claw (6) by a c-lock pin (7). Attach the rifle adapter (1) on the barrel (2) by rifle adapter clamp (8) and cheese head screws M4x12 (9). Use Loctite 270 to fix the screws in position.
ATTENTION: Make sure the gap between the parts is equal on both sides.
Cheese head screws (8) have to be torque down with 2.5±0.3 Nm.

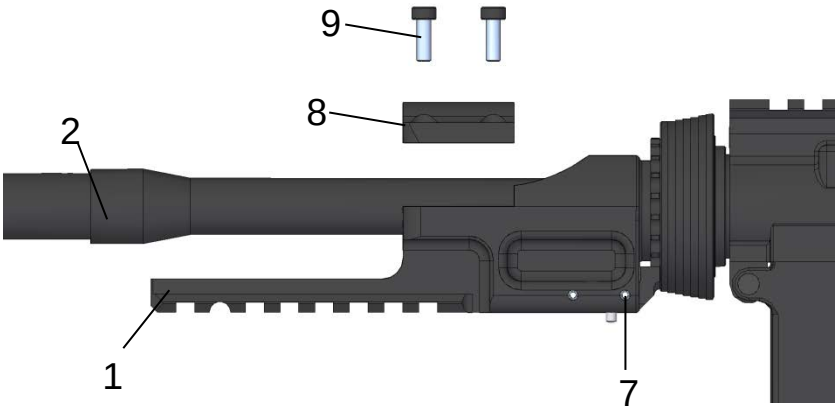


Fig. 26 Mounting rifle adapter; step 2



Fig. 27 Mounting rifle adapter; step 3

Mount the front sight (1) or gas block, hand guard cap (2) and gas tube (3) according to the manufacturer's instructions.

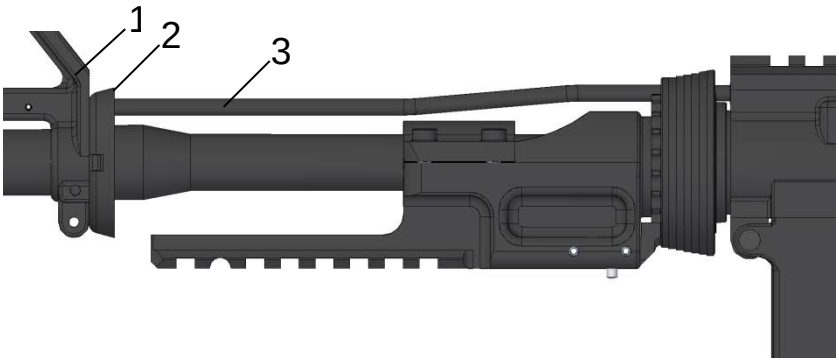


Fig. 28 Mounting rifle adapter; step 4

Hook the standard hand guard or hand guard (grenade launcher) into the hand guard cap and into the delta ring.

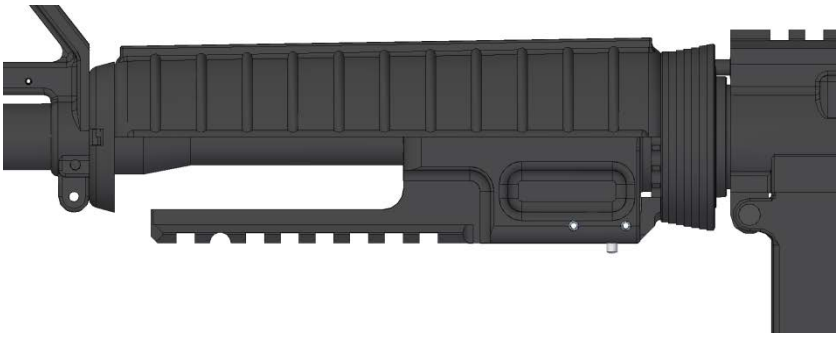


Fig. 29 Mounting rifle adapter; standard hand guard

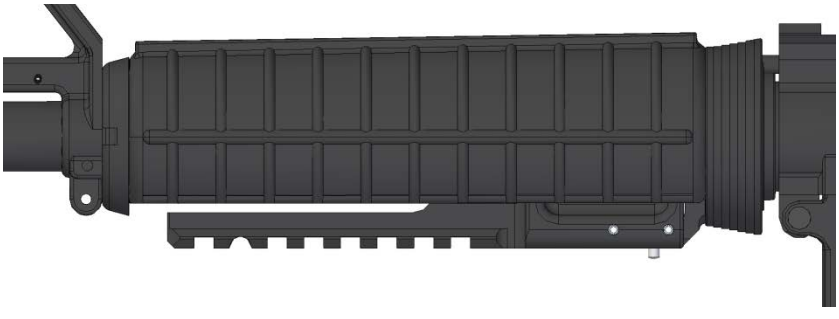


Fig. 30 Mounting rifle adapter; hand guard (grenade launcher)

5.2. Mount of rifle adapter for use with rail system

Set the rifle adapter (1) on the barrel (2) of the rifle and push it into the barrel nut (3) as far as possible. The integrated anti-rotation protection pin (4) should pass the toothed rim of the barrel nut (3) and the rifle adapter (1) should sit straight under the barrel (2). If necessary readjust the barrel nut (3).

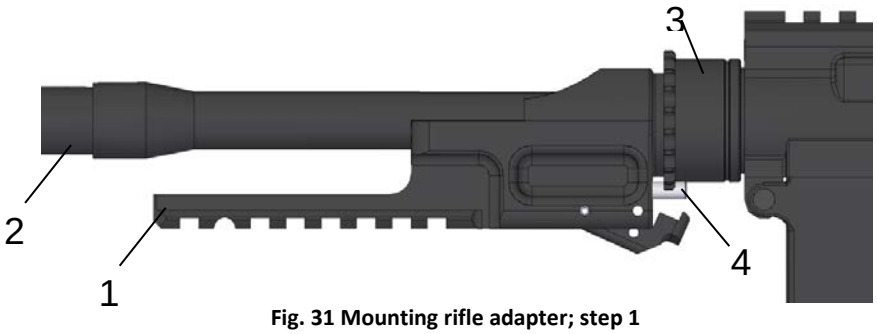


Fig. 31 Mounting rifle adapter; step 1

Slide the holding claw (5) behind the toothed rim of the barrel nut (3). Lock the position of the holding claw (5) by a c-lock pin (6). Attach the rifle adapter (1) on the barrel (2) by rifle adapter clamp (7) and cheese head screws M4x12 (8). Use Loctite 270 to fix the screws in position.
ATTENTION: Make sure the gap between the parts is equal on both sides.
Cheese head screws (8) have to be torque down with 2.5±0.3 Nm.

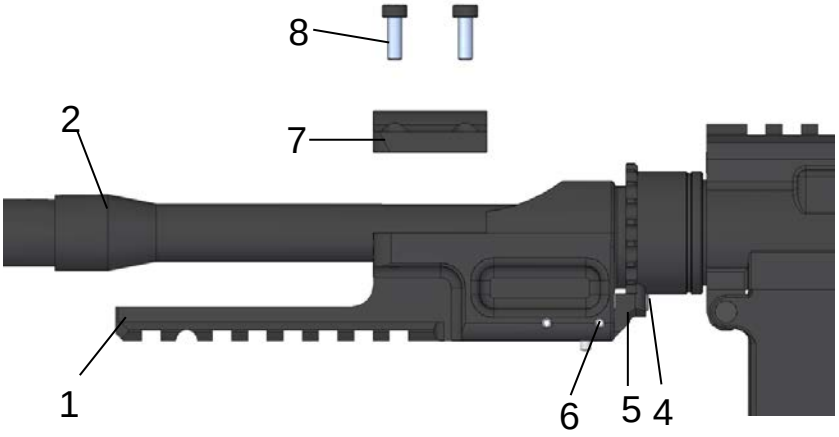


Fig. 32 Mounting rifle adapter; step 2

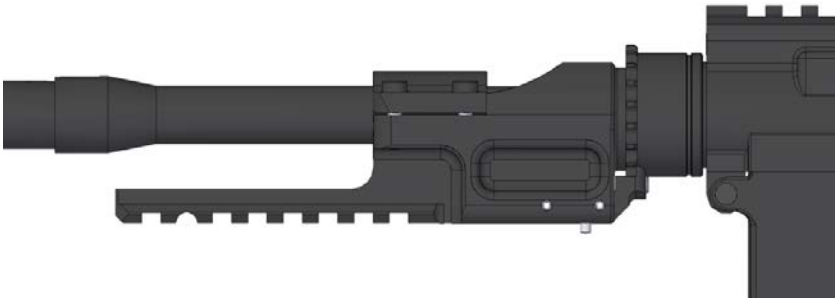


Fig. 33 Mounting rifle adapter; step 3

Push the rail over the barrel and slide it over the toothed rim of the barrel nut. While pushing the rail against the upper receiver fix it with the clamp and counter sink screws M3x18.
ATTENTION: Make sure the gap between the parts is equal on both sides.

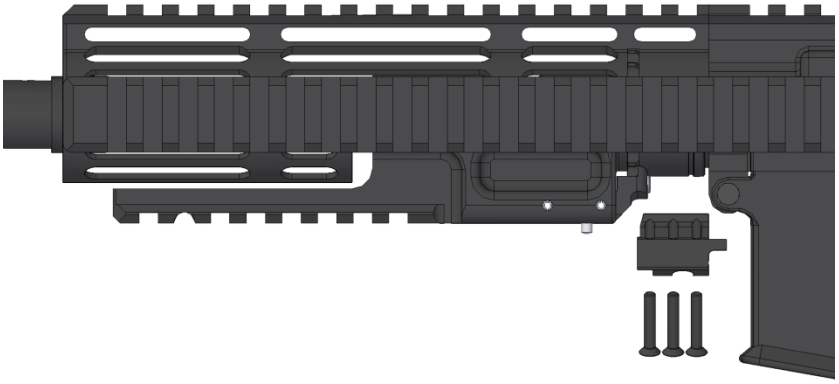


Fig. 34 Mounting rifle adapter; step 4

Mount the front sight (1) or gas block and gas tube (2) according to the manufacturer's instructions.

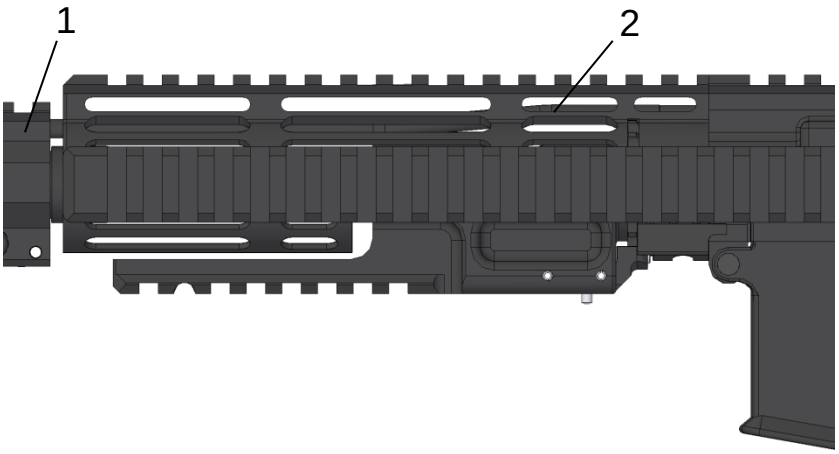


Fig. 35 Mounting rifle adapter; step 5

6. Mount grenade launcher on rifle

Swing out the tube (1) and pull out the locking pin (2).

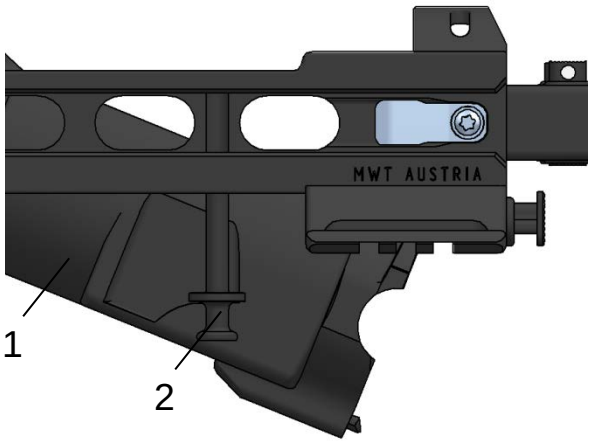


Fig. 36 Grenade Launcher 40mm ready to mount

Slide the main housing over the rifle adapter (4). In the end position pull the locking pin (2) in and close the tube (3).



Fig. 37 Mounting of Grenade Launcher 40mm on rifle adapter

Attention: It is important, that there is only a small gap between the firing housing of the Grenade Launcher 40mm and the lower receiver of the rifle. When the gap is bigger than shown in figure 38, check the assembly of rifle and launcher and the position of the Grenade Launcher 40mm on the rifle adapter. Make sure that rifle and Grenade Launcher 40mm are not put into operation by anyone, when there are any suspicions of wrong assembling or mounting.



Fig. 38 Grenade Launcher 40mm mounted on rifle

7. Mounting sights

The main housing of the Grenade Launcher 40mm carries a picatinny rail adapter on the left or on the right side of the housing. This makes it possible to mount one sight directly on the Grenade Launcher. The front position is preferred for mounting the mechanical sight, but it is although possible to mount the optical sight RingSight® in this place. Mounting the sight via adapter directly on the main housing, has the advantage, that the Grenade Launcher 40mm inclusive sight is exchangeable between extension stock, folding stock and rifle adapter without adjustment of the sight.
It is possible to use optical and mechanical sight in parallel. Therefore the optical sight is mounted on the main picatinny rail and the mechanical sight is mounted on the picatinny rail adapter on the main housing.

7.1. Sight adapter on grenade launcher housing

The mechanical sight (1) can be fixed on the rail adapter by a fixation screw (2).

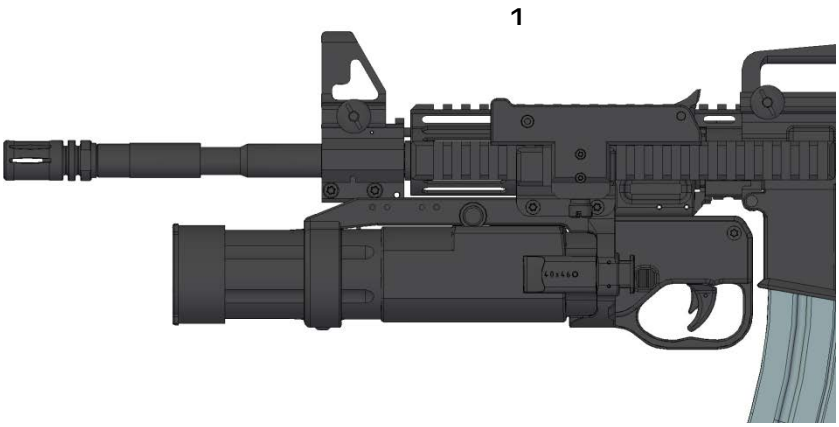


Fig. 39 Mounting mechanical sight

7.1. Sight interface rail

The optical sight RingSight® (3) can be mounted on the main rail by a sight mount adapter (4).



Fig. 40 Mounting RingSight®

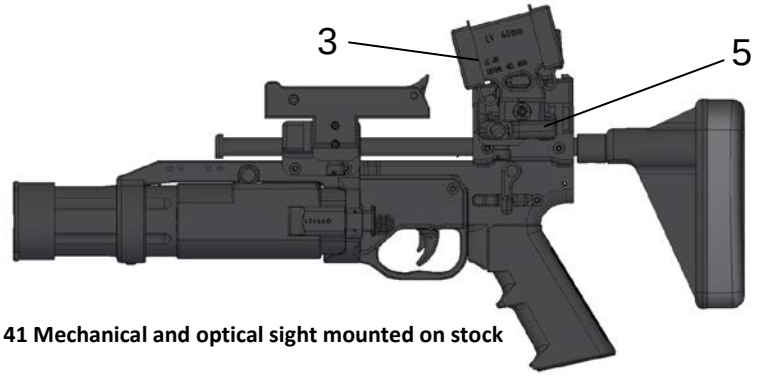


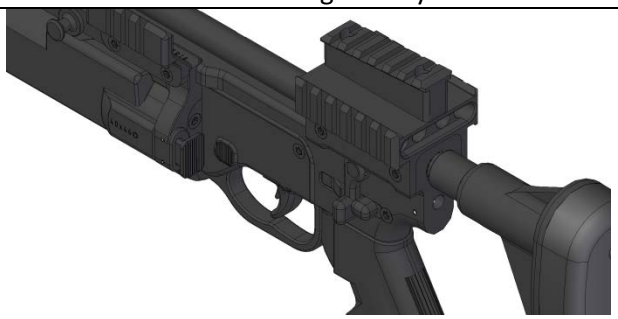
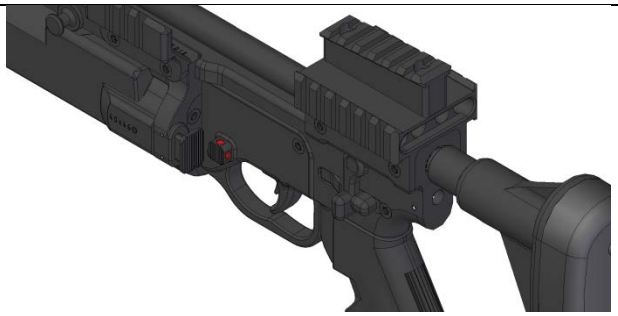
Fig. 41 Mechanical and optical sight mounted on stock

8. Safety functions

- The safety should always cover the red point – white can be seen when there is no intent to shoot.
- Only shortly before shooting release the safety. Therefore the safety lever / safety slider has to cover the white point – the red dot can be seen (red = attention).
- For targeting and shooting hold the Grenade Launcher 40mm on the grip. Only touch the trigger when you will fire.
- Make sure that the area in front of the muzzle stay clear and there are no obstacles in front of the muzzle, which can be hit by a projectile.
- Follow the instructions of the ordnance factory.

The Grenade Launcher 40mm has a safety which can be used from both sides with two positions:
Red dot visible = released safety
White dot visible = engaged safety

In engaged position (white dot visible) the safety cam locks the trigger function.

	Lever safety	Push through safety
Engaged safety	 **Fig. 42 Engaged lever safety**	 **Fig. 43 Engaged push through safety**
Released safety	 **Fig. 44 Released lever safety**	 **Fig. 45 Released push through safety**

9. Trigger properties

ATTENTION: The trigger can only be pulled, when the Grenade Launcher 40mm is mounted on an extension stock, folding stock or rifle adapter.



Fig. 46 Grenade Launcher 40mm, released safety – ready to fire

The safety has to be released (red dot visible).
While pulling the trigger, the striker gets cocked. In the end of the trigger way the necessary force rises disproportionately (trigger point). Pulling over the trigger point unloads the shot.
After fully release of the trigger, it can be crocked again and a shot can be fired.

10. Check of operational readiness

Before every single start of operation, the operational readiness has to be checked. The check has to be performed in unloaded condition.

10.1. Mount safety

The trigger has to be locked, when the safety of the Grenade Launcher 40mm is released, but the launcher is not mounted to a stock or rifle.
When the Grenade Launcher 40mm is mounted on an extension stock, on a folding stock or rifle adapter and the trigger safety is released, the trigger can be pulled.

10.2. Trigger safety

When the Grenade Launcher 40mm is mounted on a rifle adapter, extension stock or folding stock and the safety is engaged, the trigger is locked.
Mounted and with the safety released the trigger can be pulled.

10.3. Additional trigger lever

When the Grenade Launcher 40mm is mounted on an extension stock, folding stock or rifle adapter and the safety is release, the trigger cannot be pulled, when the paddle safety is not pulled at the same time.
When paddle safety and trigger are pulled at the same time, the shot goes off.

10.4. Trigger

The trigger can be checked by a small coin. The coin is placed on the breech face insert, when the tube is closed. When the trigger is pulled, the coin jumps out of the tube.

10.5. Tube

Check if the inside of the tube is free of obstacles, dust, oils and fats.
The tube has to be free rotatable and the leg spring has to hold the tube open. The tube has to close proper.

10.6. Locking up push button

The locking up push button has to slide smooth and free.

10.7. Sight

The sight has to be checked on any damages by visual inspection.

11. Loading

- Engage the safety – white point visible
- Swing out the tube - therefore press the locking up push button.
- Tube swings out left in loading position

- Load grenade in cartridge chamber

- Close tube. Swing the tube right, until it locks safely.

The Grenade Launcher 40mm is loaded and the safety is engaged.



Fig. 47 Loading the Grenade Launcher 40mm

12. Shooting

- Engage the safety – white point visible
- Select the distance mark on the sight according to the distance of the target.
- Release the safety (red dot visible)
- Acquire a target
- Pull the trigger
- Engage the safety (white dot visible)
- Swing out the tube, therefore press the locking up push button
- Remove cartridge case
- If necessary load again

13. Unloading

- Engage safety – white point visible
- Swing out tube, therefore press the locking up push button
- Remove cartridge or cartridge case
- Close tube. Swing the tube right, until it locks safely.

14. Sight adjustment

14.1. RingSights®



Fig. 48 RingSights®

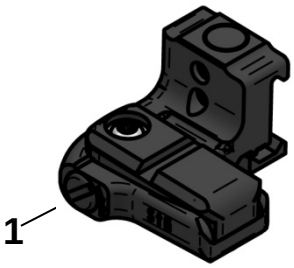


Fig. 49 Top view

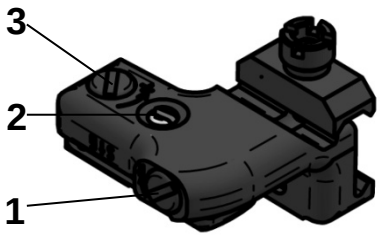


Fig. 50 Bottom view

1. Latch screw side adjustment
2. Lock screw
3. Latch screw height adjustment

14.1.1. Side adjustment

Loosen lock screw!
Left shot: Turn latch screw right (clockwise)
Right shot: Turn latch screw left (counter clockwise)
(1 click equals 4 cm change of height of mean target point at 100m)
Tighten lock screw!

14.1.2. Height adjustment

Loosen lock screw!
Low shot: Turn latch screw left (counter clockwise)

High shot: Turn latch screw right (clockwise)
(1 click equals 3.5 cm change of height of mean target point at 100m)
Tighten lock screw!

14.2. Manual sight

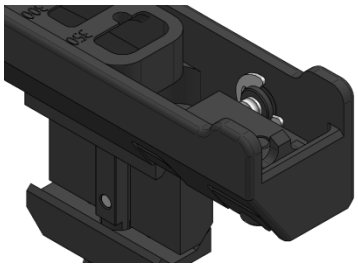


Fig. 52 Front sight part of mechanical sight

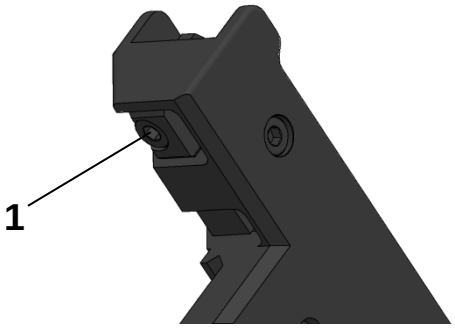


Fig. 51 Adjusting screws

14.2.1. Height adjustment

Low shot: Turn latch screw (1) clockwise.

High shot: Turn latch screw (1) counter clockwise

Advice: One turn equals 70 cm change of height of mean target point at 100m

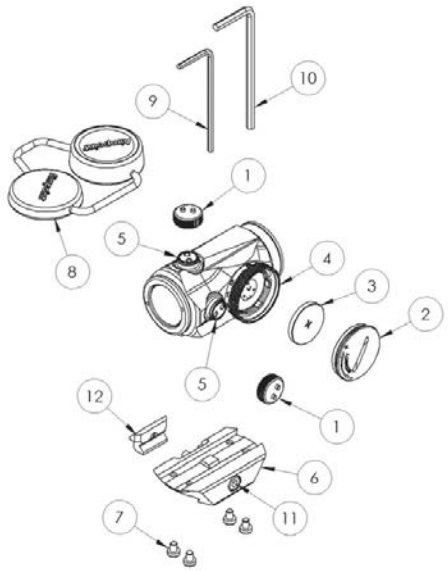
14.2.2. Side adjustment

Left shot: Turn latch screw (2) right (clockwise)
Right shot: Turn latch screw (2) left (counter clockwise)

Advice: One turn equals 70 cm change of height of mean target point at 100m

14.3. Red dot sight

14.3.1. Position and Description of main parts



1. Protecting cap (2 pieces)
2. Battery cover
3. Battery (Type CR2032)
4. Turn-switch
5. Adjustable screw
6. Rail
7. Screws (4 pieces) for rail
8. Protection cap, gum
9. Hex-wrench (size 2 mm)
10. Hex-wrench (size 3 mm)
11. Shaft (for rail)
12. Lock bar

Fig. 53 Aimpoint Micro T1

14.3.2. Setting to zero

Sights of the Micro-Series are delivered with the illuminated dot on central position. That means, normally there are only little adjustments necessary, when the rail is aligned proper.

ATTENTION: If you feel resistance during height or side adjustment, do not continue.

The height adjusting screw (5) is on the top of the case. The side adjustment screw (5) is on the right side of the housing.

a. Open protection cap (8) (remove)
b. Turn turn-switch (4) clockwise until the brightness of the illuminated dot is satisfying.
c. Remove protection caps (1). The two knobs on the protection cap (1) are used to adjust the adjusting screws (5).
   Advice: 1 click equals 13 mm change of height of mean target point at 100m (3 mm at 25 Meter; 26 mm at 200 Meter or 1/2“ at 100 Yards).
d. Put the two knobs of the protection cap (1) into the gap on a adjusting screw (5).
   - To shift the point of impact to the right, turn the side adjusting screw counter clockwise.
   - To shift the point of impact to the left, turn the side adjusting screw clockwise.
   - To shift the point of impact upwards, turn the height adjusting screw counter clockwise.
   - To shift the point of impact downwards, turn the height adjusting screw clockwise.
e. Check the centering by at least three shots on a cero set target. Check the point of impact. If necessary repeat this step.
f. After first shot check, if the sight mounting is secure.
g. Turn turn-switch to OFF (counter clockwise).
h. Close protection cap (ocular and objective).

15. Troubleshooting

Attention: The Grenade Launcher 40mm has to be treated as loaded in cases of dysfunction.
The following list does not cover all theoretically possible dysfunctions or correctives.

Dysfunction	Reason	Corrective
Cartridge is not setting off	Failure in monition	Point for three minutes on the target. Pull the trigger the second time. If the cartridge is not setting off, wait for three more minutes, than unload.
	Obstacle in the tube	Give Grenade Launcher 40mm to overhauling
	Fatigue of firing pin spring	Give Grenade Launcher 40mm to overhauling
	Broken firing pin	Give Grenade Launcher 40mm to overhauling
Tube cannot be closed	Obstacles at the locking surface of locking up push button	Clean surface
	Cartridge is loaded	Unload cartridge
	Cartridge rim deformed / damaged	Deposit cartridge
Tube locking up does not close automatically when tube is closed	Spring locking up push button damaged	Give Grenade Launcher 40mm to overhauling
	Damages on locking up slider	Give Grenade Launcher 40mm to overhauling
	Obstacle between tube housing and locking up slider	Remove obstacles
	Dirt on locking up slider	Clean and oil locking up slider
Cartridge cannot be removed	Cartridge sticks to cartridge chamber	Open tube, push cartridge out from the muzzle side
Point of impact and target point of sight do not match	Sight misaligned or damaged	Adjust sight / replace sight
Tube does not open after pressing the locking up push button	Cartridge damaged or obstacles between locking up slider and cartridge	Push locking up push button and open tube by pushing through the gap in the housing on the right side
	Leg spring damaged	Replace / overhauling

16. Cleaning

To clean the Grenade Launcher 40mm use the cleaning equipment 40mm.

- Pouch
- Nylon brush (for oiling)
- Phosphor bronze brush (cleaning)
- Stick
- Gun oil
- Cleaning tissue



Fig. 54 Reinigungsgerät 40mm GrG LV

17. Technical specifications

Trigger mechanism	Double Action Only	
Trigger weight	50N ± 5N	
Picatinny norm	STANAG 2324 (MilStd.1913)	
Caliber	40mm × 46 LV / 40mm x 46 LV ER / 40 mm x 46 MV	
Muzzle velocity v_0	LV 75 m/s / LV ER 105 m/s (TBC) / MV 95 m/s	
Sight range	0-350 m RingSights® (LV) 50-350m mechanical sight (LV) (RingSights® 50m steps) (Mechanical sight 50m steps) MV sight is under way LV ER sight is under way	
Tube length	229 mm	
Lay	1200 mm , clockwise Optional: Progressive tube, clockwise	
Tube profil / rifling	Reverse drawing/Panel 6-times	
Mass	1040g	
Dimensions		
Length / Width / Height	335 x 75 x 85	(335 x 75 x 120 incl. rails)