

***PLEASE READ THIS INSTRUCTION FOR STORAGE, MOUNTING
AND OPERATION OF THE NIGHT RIFLESCOPE ATTACHMENT
BEFORE USAGE***

**Ignoring the rules described in this manual may void your
manufacturer warranty.**

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Appearance of the device

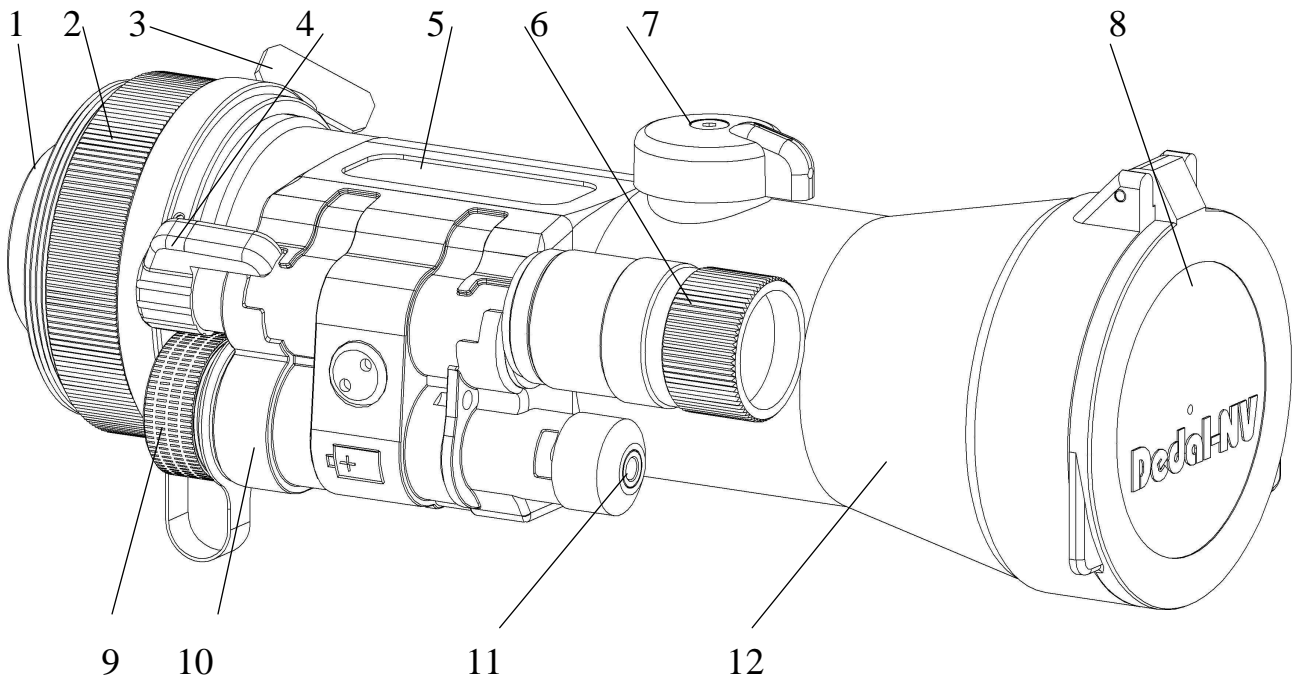


Fig. 1

- 1 - Eyepiece
- 2 - Adapter ring with thread
- 3 - Retention pin
- 4 - On/off and IR switch
- 5 - Device body
- 6 - Built-in IR illuminator
- 7 - Lens-focusing knob
- 8 - Objective lens cover
- 9 - Battery compartment cover
- 10 - Battery compartment
- 11 - Open mortise of the remote control stand
- 12 - Objective lens

Overview

Your Dedal-541 (Dedal-542, Dedal-543*) is an afocal night vision attachment designed for installation in front of a daytime riflescope or other observation device for the following purposes:

- *Night hunting,*
- *Night observation,*
- *Patrolling and site protection.*

The device is equipped with high quality image intensifier tube (Gen. II+, III, XR-5), which operates on a principle of light amplification in visible and close infrared ranges.

* – hereafter for Dedal-54x it is implied one of the modifications Dedal-541, Dedal-542, Dedal-543.

Features

- *Installed night vision riflescope attachment Dedal-54x in front of a daytime riflescope does not affect the latter's zeroing.*
- *Keeps all "tactical" capacities of a day riflescope intact*
- *Gen II+, III or XR-5 image intensifier tube*
- *Specially designed night time fast optics*
- *High quality image in the entire field of view*
- *High quality image within the entire field of view*
- *Built-in high-power eye-safe IR illuminator*
- *Waterproof up to 1 meter*
- *Low power consumption*
- *Compact*
- *Lightweight*

Specification

Dedal-541, Dedal-542, Dedal-543	
General	
Magnification, x	1.0
Field of view, degree	8.8
Objective lens	
Dedal-541	78mm-G2-F/1.5, T/1.6
Dedal-542	78mm-HC-F/1.5, T/1.6
Dedal-543	78mm-G3-F/1.5, T/1.6
Objective focusing, m	From 10m to infinity
Daytime riflescope (or monocular) magnification	Admitted: 1-20
	Recommended: 3-12
Power source	Battery type CR123A – 1 pc.
Power supply, V	3
Battery life, h	min. 60
Build in IR illuminator (805 nm), mW	max.75 (2 modes)
Overall dimensions, mm	202x62x80
Weight, kg	0.63
Tube	
Scope modification	Photocathode sensitivity ($\mu\text{A/Lm}$), resolution (lp/mm), hole pitch of MCP (μm)
. Dedal-541-A; Dedal-542-A	Gen. II+ (min. 450, min. 43, 12.5)
. Dedal-541-C; Dedal-542-C	Gen. II+ (min. 540, min. 57, -)
. Dedal-541-DEP_0; Dedal-542-DEP_0	Gen. II+ (-, typical 64, -)
. Dedal-542-DEP_XR-5	XR-5 (min. 700, min. 64, -)
. Dedal-542-DK2; Dedal-543-DK2	Gen.III (min. 1800, min. 57, -)
. Dedal-542-DA3; Dedal-543-DA3	Gen.III (min. 1800, min. 64, -)
Environmental conditions	
Operation temperature range, °C	from - 40 to +50
Relative humidity, %	98

NOTE:

1. *The Dedal-54x could be equipped by various objective lens:
78mm-G2-F/1.5, T/1.6 – standard high-aperture objective lens for tube Gen. II+,
78mm-HC-F/1.5, T/1.6 – high-contrast and high-aperture objective lens for tube Gen. II+ and Gen. III,
78mm-G3-F/1.5, T/1.6 – special high-aperture objective lens for tube Gen. III.*
2. *The screen may have separate black dots or small groups of dots allowed by the individual specifications of the image intensifier tubes.*
3. *Due to constant improvement of the design, some technical parameters of the night vision riflescope attachment D-54x may be changed without notice.*
4. *The scope may be marked with Dedal-54x or D-54x logo.*

Delivery Set

Standard delivery set:

- Dedal-54x night vision riflescope attachment (with the objective lens cover and eyepiece rubber) - 1 pc.
- Operation manual - 1 pc.
- Case - 1 pc.

Additional accessories (not included into standard set):

- AD540.65-48 fixed adapter for installation on a daytime riflescope - 1 pc.
- AD540.58-48 fixed adapter for installation on a daytime riflescope - 1 pc.
- AD540.38-30 fixed adapter for installation on a daytime riflescope - 1 pc.
- AD540-M44 tapped adapter for installation on a daytime riflescope - 1 pc.
- AD540-M52 tapped adapter for installation on a daytime riflescope - 1 pc.
- AD540-M54 tapped adapter for installation on a daytime riflescope - 1 pc.
- AD540-M55 tapped adapter for installation on a daytime riflescope - 1 pc.
- AD540-M72 tapped adapter for installation on a daytime riflescope - 1 pc.
- AD540-NF50 tapped adapter for installation on a daytime riflescope - 1 pc.
- AD540-NF56 tapped adapter for installation on a daytime riflescope - 1 pc.
- side adapter for installation on a side weaver mount - 1 pc.
- Remote control switch - 1 pc.
- M-540 optical insert for Dedal-540 transformation into night vision monocular - 1 pc.
- Optics cleaning tissue - 1 pc.
- CR123A type battery - 1 pc.

Battery Installation

Your Dedal-54x is powered by one standard CR123A battery.

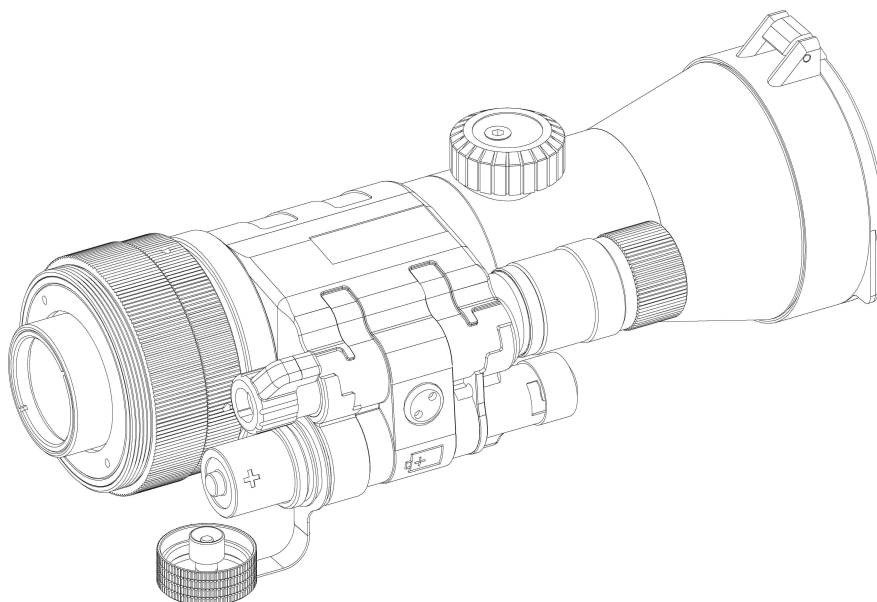


Fig. 2

Be sure that the battery is in good condition and it is installed in accordance with the signs on the battery compartment.

For battery replacement unscrew the cover of the battery compartment and replace the old battery with a new one observing correct polarity.

Daytime Functionality Testing

Daytime mode is used for testing purposes only. The objective cover (8) must be closed in daytime. It has a small hole, which is enough for operational testing. Turn on the device, and the observed image will appear on the screen in a yellowish-green color.

Installation in front of the Dedal 3-12x50 Daytime Riflescope

Your Dedal-54x matches to the inner thread M52x0.75 of the objective lens of the Dedal 3-12x50 daytime riflescope (or any other daytime riflescope, which has the same thread and sufficient thread depth in its objective).

WARNING.

Use of this device may be restricted by the national regulations. You should consult with local authorities prior to use the night vision riflescope attachment.

Mount your night vision riflescope attachment as follows:

1. Loosen the retention pin (2) by turning it counterclockwise.
2. Turn the adapter ring (3) counterclockwise and screw it into the inner thread of the daytime riflescope until stop.
3. Turn the night vision attachment Dedal-54x so that the lens-focusing knob (7) is located on top.
4. Lock the attachment in this position by turning the retention pin (2) in the clockwise direction.

The night vision riflescope attachment Dedal-54x is ready for use.

The installation in front of the other daytime riflescopes performed similarly to the installation of the Dedal 3-12x50. The required tapped ring (for example AD540-M55) should be previously fixed on the Dedal-54x night vision riflescope attachment.

Also, the installation of the Dedal-54x could be performed by dint of the side adapter on the weaver mount.

Installation in front of a Daytime Riflescope

with the fixed and taped adapters

Several adapter modifications are available for Dedal-54x night vision riflescope attachment to install it in front of daytime riflescopes of different models:

Fixed adapter	External diameter of the objective lens of the daytime riflescope	Expletive ring set (quantity x thickness)
AD540.65-48	From 48 to 65 mm	2pc.x2mm, 3pc.x1.5mm
AD540.58-48	From 48 to 58 mm	1pc.x2mm, 2pc.x1.5mm
AD540.38-30	30 and 38 mm	1pc.x4mm

Tapped adapter	List of modifications of the daytime riflescopes
AD540-M44	Leupold VXIII 6.5-20x40 Leupold Mark 4 3.5-10x40 PR Leupold Mark 4 16x40 PR Swarovski AV 3-10x42 HABICHT
AD540-M52	Swarovski 3-12x50 HABICHT Swarovski AV 4-12x50 A HABICHT Swarovski Z6i 2-12x50 Swarovski Z6i 3-18x50 P Swarovski Z6i 5-30x50 P
AD540-M54	Swarovski Z5 5-25x52 P Schmidt-Bender 3-12x50 Zenith Schmidt-Bender 3-12x50 PM II Schmidt-Bender 4-16x50 KLASSIK Schmidt-Bender 4-16x50 PM II
AD540-M55	Leupold VXII 4-12x50 Leupold VX-7 3.5-14x50 Leupold Mark 4 4.5-14x50 LR/T Leupold Mark 4 6.5-20x50 LR/T Swarovski PVI-2 4-16x50 Swarovski AV 6-18x50 A HABICHT
AD540-NF50	Night Force NXS 5.5-22x50
AD540-NF56	Night Force NXS 3.5-15x56
AD540-M73	Zeiss ZF 6-24x72

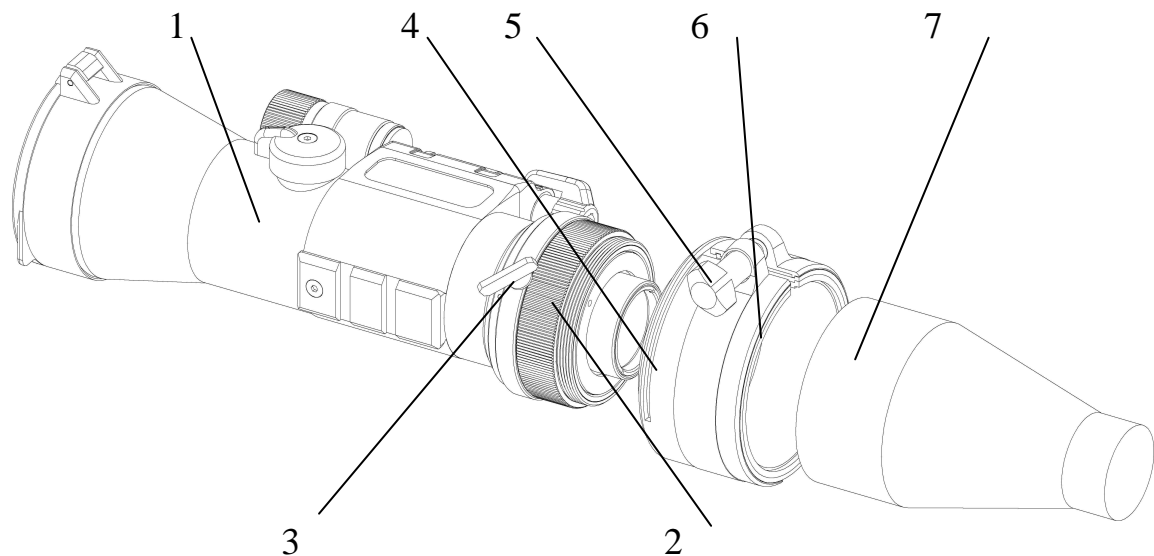


Fig. 3

- 1- Dedal-540 night vision riflescope attachment
- 2- Adapter ring
- 3- Retention pin
- 4- AD540.65-48 (AD540.58-48, AD540.38-30) fixed adapter
- 5- Adapter screw
- 6- Expletive rings
- 7- Objective lens of a daytime riflescope

Assemble the fixed adapter and mount the night sight attachment as follows (see Fig. 3):

1. It's necessary to select needed quantity of the expletive rings (6) with the needed thickness for a particular external diameter of the objective lens of the daytime riflescope. The objective lens of the daytime riflescope (7) should fit loose, but without apparent drift into the adapter (4) with the installed expletive rings (6) and untight adapter screw (5).
2. After the expletive rings (6) are selected, the adapter (4) must be screwed on the adapter ring (2) against the stop and locked by the retention pin (3) in the counterclockwise direction.
3. Put the night vision riflescope attachment with the fixed adapter (4) on the objective lens of the daytime riflescope (7) and fix it by the adapter screw (5).

Set the tapped adapter and mount the night sight attachment as follows:

1. Loose the retention pin (2) by turning it counterclockwise.
2. Turn the tapped adapter and screw it into the inner thread of the daytime riflescope until the stop.
3. Turn the night vision attachment Dedal-54x and screw it into the inner thread of the tapped adapter so that the lens-focusing knob (7) is located on top.
4. Lock the attachment in this position by turning the retention pin (2) in the clockwise direction.

NOTE:

During shooting with the night vision riflescope attachment Dedal-54x, which is attached to the daytime riflescope with help of the fixed adapter the adapter could move along the objective lens of the daytime riflescope. The size of this movement depends on the tightening force of the adapter screw (5), recoil force of weapon, etc., and could be equal to 1 mm on each shot. This movement is allowed and do not affect on the impact point. However, the position of the adapter should be controlled after each shot in the shooting process.

NOTE:

In comparison with AD540.65-48 adapter, the AD540.58-48 adapter has smaller external diameter. It is important when the daytime riflescope is positioned low above the weapon barrel.

Operation at Night

Operation procedure:

1. Check the adjustment of the daytime riflescope (diopter adjustment, parallax adjustment, etc.).
2. Install the battery into the Dedal-54x and mount it in front of the daytime riflescope as described above.

NOTE:

Being mounted in front of a daytime riflescope, the night vision riflescope attachment Dedal-54x doesn't affect the riflescope zero and keeps all tactical features of a daytime riflescope (zoom level, adjustment step, etc.) intact.

3. Open the objective lens cover (8).
4. Turn the switch (4) of the device into ON position. You should see a yellowish-green light through the eyepiece of a daytime riflescope (the device works in passive mode).
5. Set the required magnification of a day riflescope. Choose the object of observation and focus the objective lens of the devise by dint of the lens focusing knob (7).

NOTE:

In order to get the maximum quality of night picture through the daytime riflescope, we recommend using riflescope magnifications from 3 to 12.

NOTE:

Observation and identification range provided by the night vision riflescope attachment Dedal-54x depends on the ambient illumination, atmospheric transparency and contrast between the target and background. Identification range increases in conditions of higher illumination, in moony night with

external light sources of illumination, or if the target is located in front of light background (sand, snow). The identification range decreases in conditions of low illumination, low atmospheric transparency, or if the target is located in front of dark background (plough-land, trees, etc.).

6. If necessary, turn on the IR-illuminator (6) (the device works in active mode). You can work with one of two IR-illuminator power positions (10, 30 and 75 mW). Position of infrared beam can be adjusted in vertical plane by illuminator rotation on the mounting plate. The beam position can be adjusted additionally by rotation of the IR-lens. This allows the IR spot placing in the centre of the field of view. The divergence of IR beam could be changed from 5 to 20 degree by rotating of the IR lens.
7. The fire adjustment of the combination daytime riflescope / night vision riflescope attachment should be performed in accordance with the instructions of the fire adjustment of the daytime riflescope.
8. Turn off the switch (4) after work is over.
9. Close the objective lens cover.

NOTE:

When mounted in front of the daytime riflescope, night vision riflescope attachment can change zeroing as not more than 3 cm at 100 m. This is connected with changes in the weapon balance, light distortions in the image intensifier tube, technological limits of the adjustment of the night riflescope attachment. This imprecision usually appears as fixed value and can be easily compensated by the adjustment mechanism of the daytime riflescope.

RECOMMENDATION:

Due to manufacturing process and design of image intensifier tubes, it is not always possible to eliminate all hidden defects, which could appear during shooting. It is recommended to make 10-15 shots during the scope testing to make additional test before operation in real conditions.

RECOMMENDATION:

Remove the batteries from the battery compartment during long-term storage to avoid batteries leakage.

**DO NOT FORGET TO TURN OFF THE NIGHT VISION RIFLESCOPE
ATTACHMENT AFTER USE!**

Use in a Dark Time as a 1x Night Vision Monocular

Operation procedure:

1. Screw the M-540 optical monocular into the eyepiece of the Dedal-54x night vision riflescope attachment.
2. Open the objective lens cover (8).
3. Turn the switch (4) of the device into ON position. You should see a yellowish-green light through the eyepiece of a daytime riflescope (the device works in passive mode).
4. Choose the object of observation.
5. If necessary, turn on the IR-illuminator (6) as described above (the device works in active mode).
6. Turn off the switch (4) after work is over.
7. Close the objective lens cover (8).

Operations with the remote control stand

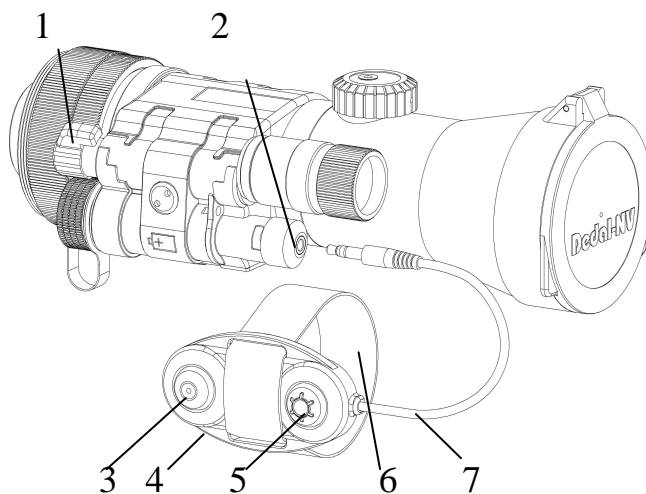


Fig. 4

1 – On/off and IR switch

2 – Open mortise of the remote control stand

3 – On/off button

4 – Remote control stand

5 – IR on/off button

6 – Self-bonding tape

7 – Remote control stand cable

The Dedal-54x night vision riflescope attachment could be equipped by the remote control stand for the purpose of the easement of the operation process (see fig. 4).

Operation procedure:

- set the jackplug of the remote control stand to the open mortise (2).
- fix the remote control stand (4) on a weapon in the convenient place by dint of the self-bonding tape (6).
- push the on/off button (3) to switch the device on

- push the IR on/off button (5) to switch the IR on.
- the overstrike to the buttons (3 and 5) would switch the device and the IR off.

Maintenance and Storage Rules

Device maintenance and storage rules are very simple.

Keep and carry the device in a closed case with the closed objective cover.

Protect the device against shocks and direct impact of rain, snow and dust to the optical parts.

Protect the case against moisture penetration. The device should be protected against direct sun. It should be kept in a warm, dry place far from heating devices. The batteries should be removed during long-term storage. The storage temperature must not exceed 60°C.

Troubleshooting

Dedal-54x does not work...

Make sure that the batteries are properly installed and they are in good condition.

Dedal-54x cannot be focused...

Rotate the focusing knob (8) as described in this manual. If this does not help, wipe and clean the optical parts with a special optical cloth.

The image is dark or disappeared...

Bright source of light can be a reason of the image reduction, loss of resolution or complete disappearance. This is how automatic brightness protection works. The image will restore when you place the device in dark environment.

Condensation effect...

Use special anti-damping chemicals (like those used for eyeglasses) to avoid misting of the eyepiece lens in cold time.

Some black dots are on the screen...

Small black dots or groups of black dots are admitted by the image intensifier tube specifications. Most of black dots can be seen only in daytime and in the operation mode the dots become practically invisible.

Warranty

Dear Customer,

We thank you for buying our product.

Read the operation manual attentively before you start using our night vision scope.

The manufacturer guarantees normal operation of the device when the user follows the rules of usage and storage described in this operation manual.

The warranty period is 1 (one) year from the production date of the device or from the date of its sale through the retail selling network on the condition that the seller has the official suppliers authorization certified by the JSC Dedal-NV.

The warranty covers all defects (failure) of the item, caused by workmanship or components defects. Parts and labor needed to remove these defects are free of charge to the customer.

Warranty and after-warranty service is performed by the manufacturer:

Joint Stock Company Dedal-NV

Moscow, Russia

107014 P.O. box 109

Tel: +7-(495) 617-05-96; 617-05-97

Fax: +7-(495) 961-21-86

E-mail: info@nightvision.ru

All the repairs can be done through our European Centre. You can find detailed information on our website: <http://www.nightvision.ru>.

NOTE:

All returns must be authorized by the JSC Dedal-NV BEFORE sending the products to our address.

This warranty is valid only when the warranty coupon is properly filled by the seller and bears clearly visible seller's seal and date of sale.

Any device returned for warranty service will be examined by the manufacturer for confirmation of the warranty case.

The warranty is void if the failure of the product was caused by the following reasons:

- 1) Neglecting of recommendations of this operation manual, misuse or abuse;
- 2) Mechanical damages of the product caused by a strong impact or drop;
- 3) Unauthorized disassembling of the product;
- 4) Natural fatigue and weariness of the parts having limited service period;

- 5) Directing operating device to the bright sources of light: lamps, the sun, welding fire and similar, which may lead to the image intensifier tube degradation;
- 6) Intensive use of the device in excessively bright environment (in the morning, in the evening, in a daytime) without changing its position for more than 30 minutes;
- 7) Unqualified mounting on a rifle;
- 8) Action of the irresistible force or Act of God (accident, fire, flood, lightning strike and etc.)

Acceptance Certificate

The night vision device Dedal-54x is admitted for use.

Date of production_____

Serial No._____

The representative of quality control_____

Stamp of the Manufacturer

Date of sale_____

Seller_____

Stamp of the Seller