

## **Features**

- *Installed night vision riflescope attachment in front of a daytime riflescope does not affect the latter's zeroing.*
- *Keeps all "tactical" capacities of a day riflescope intact*
- *Special high-contrast rapid optics*
- *Internal focusing of a lens (from 10m indefinitely)*
- *High quality image in the entire field of view*
- *Gen II+, III (Russia) or XR-5(Photonis, France-Netherlands) image intensifier tube*
- *Built-in high-power eye-safe IR illuminator*
- *Waterproof*
- *Compact*
- *Lightweight*

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## ***Appearance of the device***

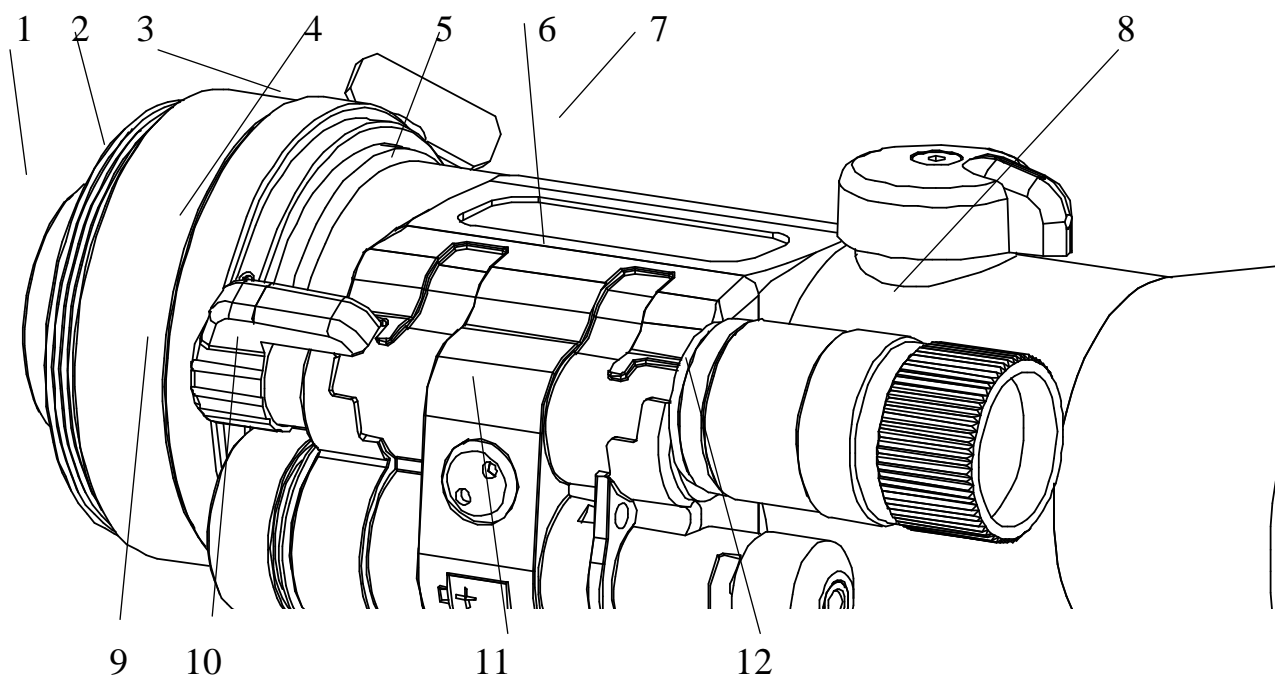


Fig. 1

- 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.

*NOTE.*

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

## Technical characteristics

<b>Dedal-541, Dedal-542, Dedal-543</b>	
<b>General</b>	
Magnification, x	1.0
Field of view, degree	8.8
Objective (see. P.S.) mod. «Dedal-541» mod. «Dedal-542» mod. «Dedal-543»	78mm-G2-F/1.5, T/1.6 78mm-HC-F/1.5, T/1.6 78mm-G3-F/1.5, T/1.6
Objective focusing, m	From 10m to infinity
Daytime riflescope (or monocular) magnification	Admitted – 1-20
	Optimal – 3-12
Power source	Battery type CR123A – 1 pc.
Power supply, V	3
Battery life, h	min. 60
IR illuminator (805 nm), mW	max.75 (2 modes)
Overall dimensions, mm	202x62x80
Weight, kg	0.63
<b>Tube</b>	
Tube type (Photocathode sensitivity ( $\mu\text{A/Lm}$ ), resolution (lp/mm), hole pitch of MCP ( $\mu\text{m}$ ))	
<b>model</b> : «Dedal-541-A»	Gen.II+ (min. 450, min. 43, $\geq 12.5$ )
<b>model</b> : «Dedal-541-C»	Gen.II+ (min. 540, min. 57, -)
<b>model</b> : «Dedal-541-DEP_0» «Dedal-542-DEP_0»	Gen.II+ (-, appr. 64,-)
<b>model</b> : «Dedal-542-DEP_XR-5»	XR-5 (min.700, min. 64, -)
<b>model</b> : «Dedal-542-DK2», «Dedal-542-DK3», «Dedal-542-DA3»,	Gen.III (min. 1800, min.57, -) Gen.III (min. 1800, min.64, -) Gen.III (min. 1800, min.64, -)
«Dedal-543-DK2» «Dedal-543-DK3» «Dedal-543-DA3»	Gen.III (min. 1800, min.57, -) Gen.III (min. 1800, min.64, -) Gen.III (min. 1800, min.64, -)
<b>Environmental conditions</b>	
Operation temperature range, °C	from - 40 to +50
Relative humidity, %	98

P.S.

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+, XR-5  
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**

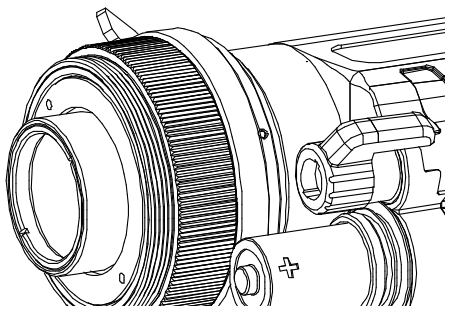
(not included into standard delivery set):

- AD540-D56 - adapter for installation D-54x on day rifle scope with the diameter of objective 56 mm - 1 pc.
- AD540-D50 - adapter for installation D-54x on day rifle scope with the diameter of objective 50 mm - 1 pc.
- AD540-D42 - adapter for installation D-54x on day rifle scope with the diameter of objective 42 mm - 1 pc.
- AD540-M44 - threaded adapter for installation D-54x in a day riflescope with diameter of inside objective thread M44x0.75 - 1 pc.
- AD540-M52 - threaded adapter for installation D-54x in a day riflescope with diameter of inside objective thread M44x0.75 - 1 pc.
- AD540-M54 - threaded adapter for installation D-54x in a day riflescope with diameter of inside objective thread M44x0.75 - 1 pc.
- AD540-M55 - threaded adapter for installation D-54x in a day riflescope with diameter of inside objective thread M44x0.75 - 1 pc.
- AD540-M73 - threaded adapter for installation D-54x in a day riflescope with diameter of inside objective thread M44x0.75 - 1 pc.
- AD540-NF50 - Threaded adapter for installation D-54x in a day riflescope Night Force NXS 5.5-22x50 with diameter of objective 50mm - 1 pc.
- AD540-NF56 - Threaded adapter for installation D-54x in a day riflescope Night Force NXS 3.5-15x56 with diameter of objective 56mm - 1 pc.
- D-54x night sight attachments holding on Weaver mount - 1 pc.
- D-54x night sight attachments holding on Weaver side mount - 1 pc.
- Wired remote control - 1 pc.
- D-541,-542, -543 rubber eyepiece - 1 pc.

- M52/37 transitive ring for photo/video connection - 1 pc.
- M542-2x/M37 – 2x optic monocular together with transitive ring for installation after Dedal-54x device. 1 pc.
- Napkin set for optic cleaning - 1 pc.
- CR123A type battery - 1 pc.

## ***Battery Installation***

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



Be sure that the battery is in good condition and it is installed in accordance with the signs on the battery compartment (see Fig. 2)

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

Fig. 2

## ***Daytime Functionality Testing***

For check of working capacity you can switch on the device with the closed cover in the daytime. In a lens cover there is a small aperture, sufficient for check of a working condition of the device. After inclusion on the screen there will be a supervision picture in yellowish-green color.

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

Dedal-54x is twisted in a lens of a day sight Dedal 3-12x50 without additional adapters.

### ***WARNING.***

*Dedal 3-12x50 has the strengthened case, allowing to twist a night attachment in a forward thread of a day sight, intended for a blend installation.*

Mount your night vision riflescope attachment as follows:

1. Loose the retention pin (3, see Fig.1) by turning it counterclockwise.
2. Turn the ring (2) counterclockwise (If to take a detached view an eyepiece of a day sight) and screw it into the inner thread of the daytime riflescope until stop.
3. Turn Dedal-54x night sight attachment by the handle of focusing of a lens (7) upwards and lock the attachment in this position by turning the retention pin (3) in the clockwise before fixing.

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

Installation of a night sight attachment before a Dedal 3-12x50 day sight can be executed also with the help throw on adapter. You may install night sight attachment on a side or vertical Weaver mount on the gun, with the help of the WP542-02 or SMWP542 mount type. Accordingly, your weapon should have a vertical or lateral lath before day riflescope.

## ***Installation in front of a “XXX” Daytime Riflescope with the help of throw on adapter***

Its reasonable to realize the installation of a night sight before a day sight through the throw on fixing adapter (AD540-D56, AD540-D50 or AD540-D42 type) on a lens of a day sight.

The adapter of this kind is issued in three executions:

<b>Adapter</b>	<b>External diameter of the objective lens of the daytime riflescope</b>	<b>Expletive ring set (quantity x thickness)</b>
AD540-D56	56 mm	1pc.x1mm, 1pc.x2.0mm
AD540-D50	50 mm	1pc.x1mm, 1pc.x2.0mm
AD540-D42	42 mm	1pc.x1mm, 1pc.x2.0mm



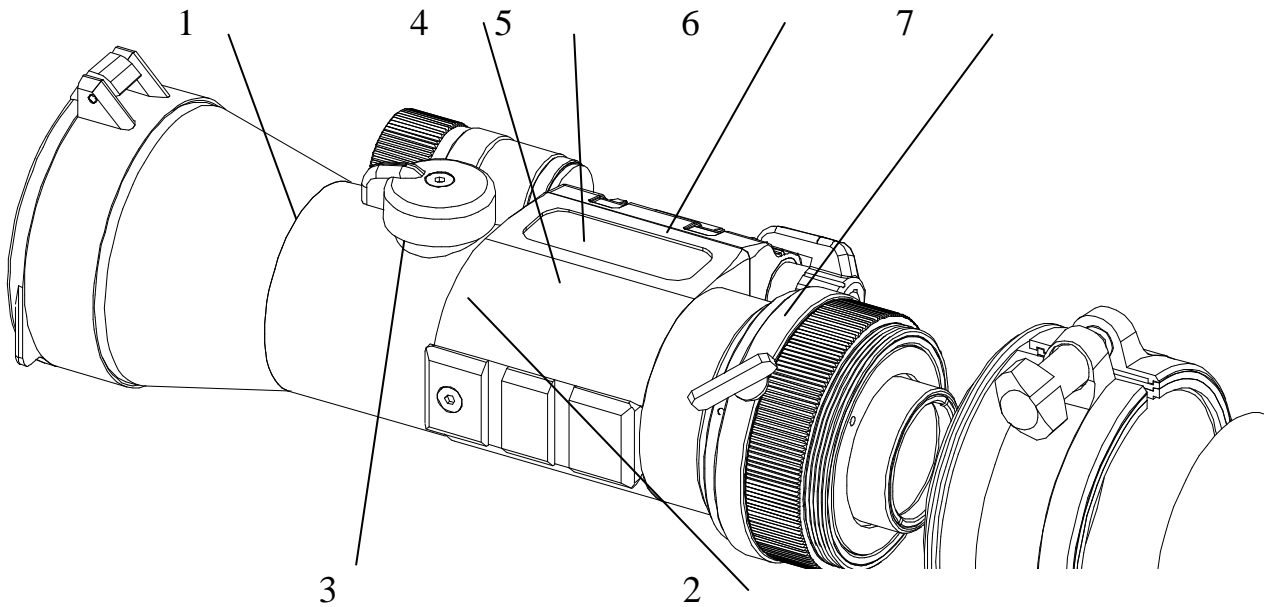


Fig.3

- 1- Dedal-54x night vision riflescope attachment
- 2- Adapter ring
- 3- Retention pin
- 4- AD540-D56 (AD540-D50, AD540-D42) adapter
- 5- Adapter screw
- 6- Expletive rings (thickness 1 mm or 2 mm )
- 7- Objective lens of a daytime riflescope

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

1. Take the necessary AD540-D56 (AD540-D50, AD540-D42) adapter, which is suitable to daylight diameter of your day riflescope 56 mm (50 mm or 42 mm.). For example: Swarovski Z6i 2-12x50 riflescope requires AD540-D50 adapter.

*NOTE:*

*Last two figures (56, 50 or 42) in an adapter designation specify in light diameter of a lens of a day sight.*

*NOTE:*

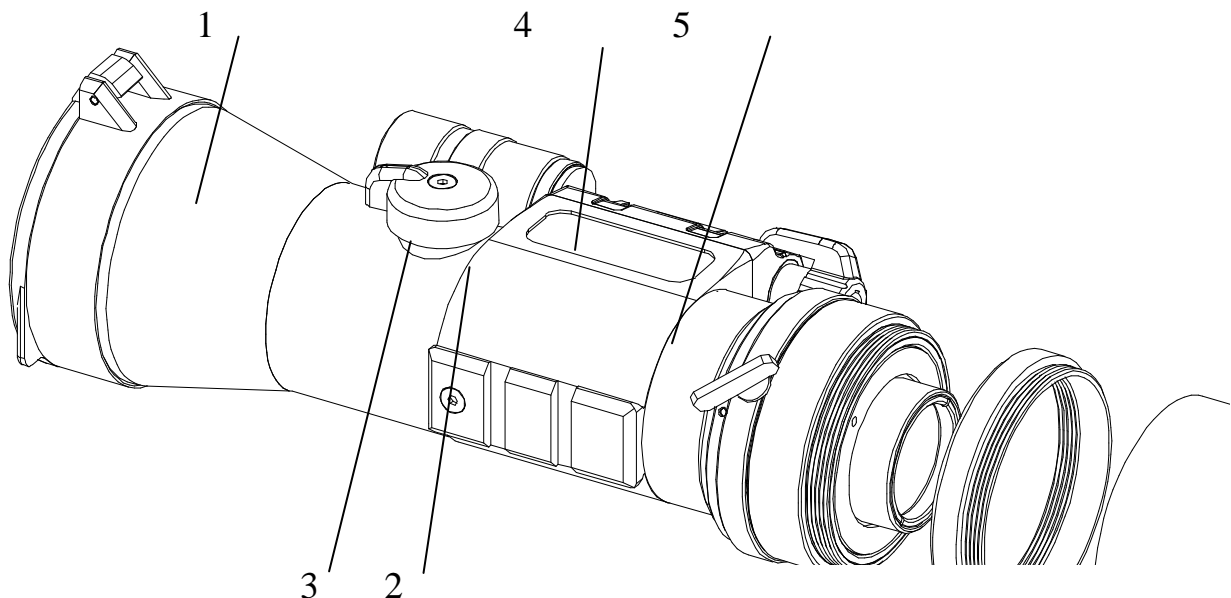
*At attachment installation it should be provided sufficient (more than 15 mm) deepening of a day sight forward lens from an objective butt end, that excludes mechanical contact of an attachment eyepiece and day riflescope forward lens.*

- depending on the external objective housing of your day sight, establish the first (thickness of 1 mm) or the second (thickness of 2 mm) a plastic ring, so that the adapter with a plug-in ring freely enough put on a lens of a day sight (7) at the weakened screw of the adapter (5);
- screw the adapter (4) on a transitive ring (2) against the stop and tighten the lock screw (3) clockwise;
- further, the attachment with the adapter it s necessary to put on a lens of a sight (7) and to fix its screw of the adapter (5).

The device is ready to work.

## ***Installation in front of a “XXX” Daytime Riflescope with the help of threaded adapter***

The adapter of AD540-M44 (AD540-M52, AD540-M54, AD540-M55, AD540-M73, AD540-NF50 or AD540-NF56) type is twisted in a female thread of a lens of the day sight, intended for blend installation.



- 1- Dedal-54x night sight attachment
- 2- Adapter ring
- 3- Retention pin
- 4- AD540-M44 adapter type
- 5- Day sight objective

Fig. 4

Installation of a night sight attachment on a day sight is carried out as follows (fig. 4 see):

- take necessary AD540-M44 (AD540-M52, AD540-M54, AD540-M55, AD540-M73) adapter, corresponding to a female thread under blend installation of your day sight.

For sights Night Force NXS 5.5-22x50, NXS 3.5-15x56 use adapter AD540-NF50 or AD540-NF56, accordingly;

**NOTE.**

*Last two figures (44, 52, 54 etc.) in an adapter designation specify in diameter of a threaded under blend installation of your day sight.*

**NOTE.**

*The design of day sights of different manufacturers can appear insufficiently strong for deduction of a night attachment that can lead to damage of a carving ring of a lens of a day sight and failure of a day sight.*

***Joint-Stock Company Dedal-NV does not bear responsibility for durability of day sights of other manufacturers.***

- screw the adapter (4) in to inside thread of a lens of a day sight against the stop;
- arrange (screw) attachment by the handle of focusing of a lens upwards, and rotating a transitive ring (2), twist it in a carving of the adapter (4);
- tighten the lock screw (3) clockwise.

The device is ready to work.

### ***Other variants of installation before “XXX” day riflescope***

In the case, that the hunting rifle has (extremely seldom) vertical or lateral lath Weaver before a day sight, installation of attachment by means of vertical fastening of WP542-02 type or lateral fastening of SMW542 type is possible.

In order to provide geometrical alignment of day sight and a night sight attachment it is recommended to address in Joint-Stock Company Dedal-NV.

### ***Operation at Night***

Operation procedure:

- check the adjustment of the daytime riflescope (diopter adjustment, parallax adjustment, etc.).
- 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.*

- open a cover of a lens (8) (see fig. 1) and switch the device - position ON of the switch (4). Looking through a day sight, on the device screen there should be a yellow-green luminescence (the device works in a passive mode);
- choose necessary frequency rate of a day sight;

*RECOMMENDATION.*

*For reception of the maximum quality of a night picture it is recommended to establish frequency rate of a day sight in a range 3-12 x.*

- guide the device at object of supervision and focus a lens of the device by means of the handle (7) before reception of as much as possible accurate picture of supervision;

*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.).*

- if necessary to shine object of supervision with additional turn of the toggle-switch (4) aside of battery compartment, switch built-in IR-illuminator (6) in a mode of the minimum capacity. For reception of the maximum capacity (75mV)) IR-illuminator in addition turn the toggle-switch (4) aside of battery compartment. Rotating lens of IR-illuminator (6), you can change a corner of divergence of beam of IR-illuminator from 5 to 20 dergees;
- sighting of a complex: day sight + night attachment need to carry out according to rules of sighting of a day sight;

**NOTE:**

*At shooting with the night attachment established by means of the adapter, probably, some displacement of the adapter forward on an optical sight lens. The displacement size depends on degree of an inhaling of the screw, return of the weapon and can make to 1 mm on each shot. This displacement is admissible and does not influence on center of impact position. In the course of shooting it is necessary to supervise adapter position on a sight after a shot, excepting its full slipping from a day sight.*

**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.*

- upon termination of work switch off the food toggle-switch – position OFF of the switch (4);
- close a cover of a lens after the termination of work with the device.

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

## ***Use in a Dark Time as Night Vision Device***

Operating procedure:

- screw optical monocular (additional delivery from Joint-Stock Company Dedal-NV) on carving connection from outside an eyepiece of a Dedal-54x night attachment  
or
- twist an eyepiece of a Dedal-54x night attachment in the inside thread of a lens of the day field-glass or a day telescope directly or by means of the suitable carving adapter;
- remove (open) a cover of a lens of the device;
- switch the device – position ON of the switch (4) (fig. 1). On the screen there should be a yellow-green luminescence (the device works in a passive mode);
- choose object of supervision;
- in case of need illuminations of object of supervision, include (4) IR-illuminator (an active mode);
- upon termination of work switch off the food toggle-switch – position OFF of the switch (4);
- close a cover of a lens after the termination of work with the device.

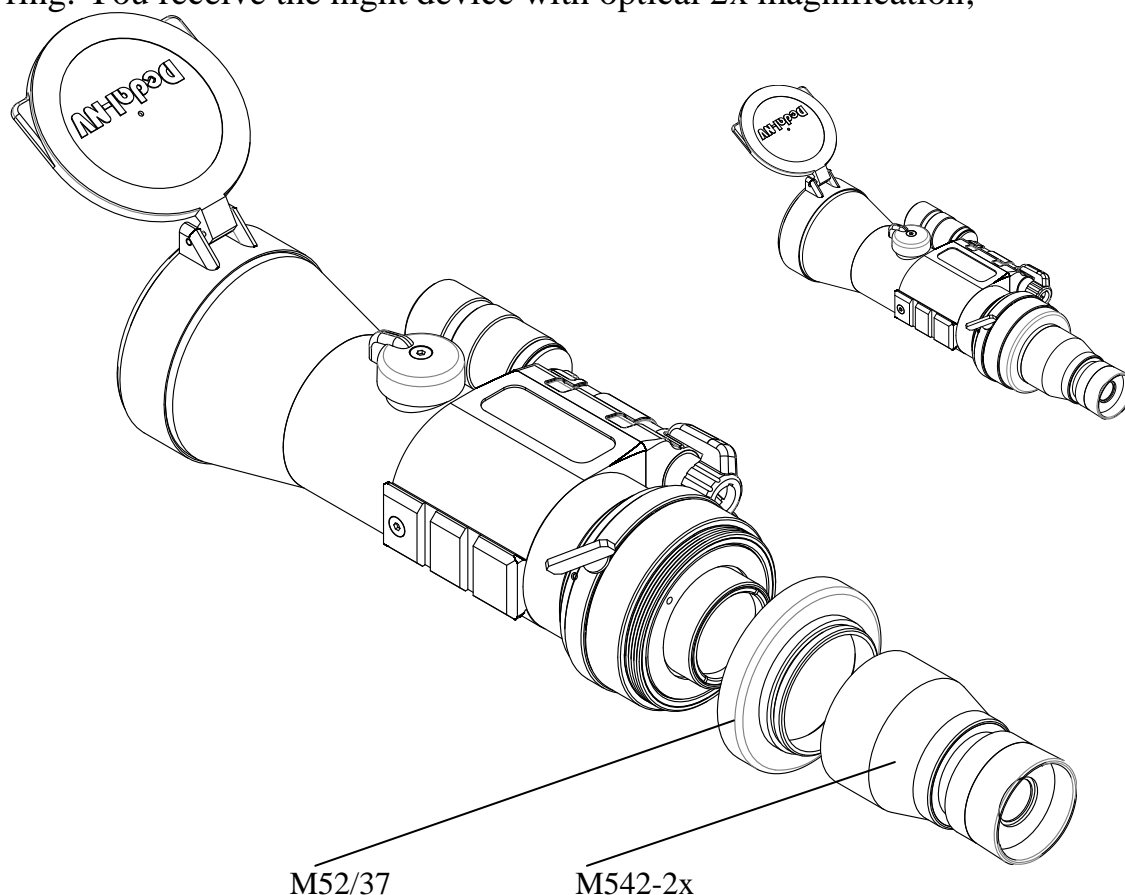
**DO NOT FORGET TO TURN OFF THE NIGHT VISION RIFLESCOPE  
ATTACHMENT AFTER USE !**

## ***Use as the device for night supervision***

Dedal-54x device can be used as the high-grade device of night vision.

Operating procedure:

- wind M52/37 transitive ring on a carving from outside an eyepiece of Dedal-54x night attachment;
- wind optical monocular (M542-2x) on carving connection of M52/37 transitive ring. You receive the night device with optical 2x magnification;



- remove (open) a lens cover of the device;
- switch on the device – position ON of the switch (4) (see fig. 1). On the screen there should be a yellow-green luminescence (the device works in a passive mode);
- choose object of supervision;
- in case of need, you can illuminate an object of supervision, switch on (4) IR-illuminator (an active mode);
- upon termination of work switch off the food toggle-switch – position OFF of the switch (4);
- close a lens cover after the termination of work with the device.

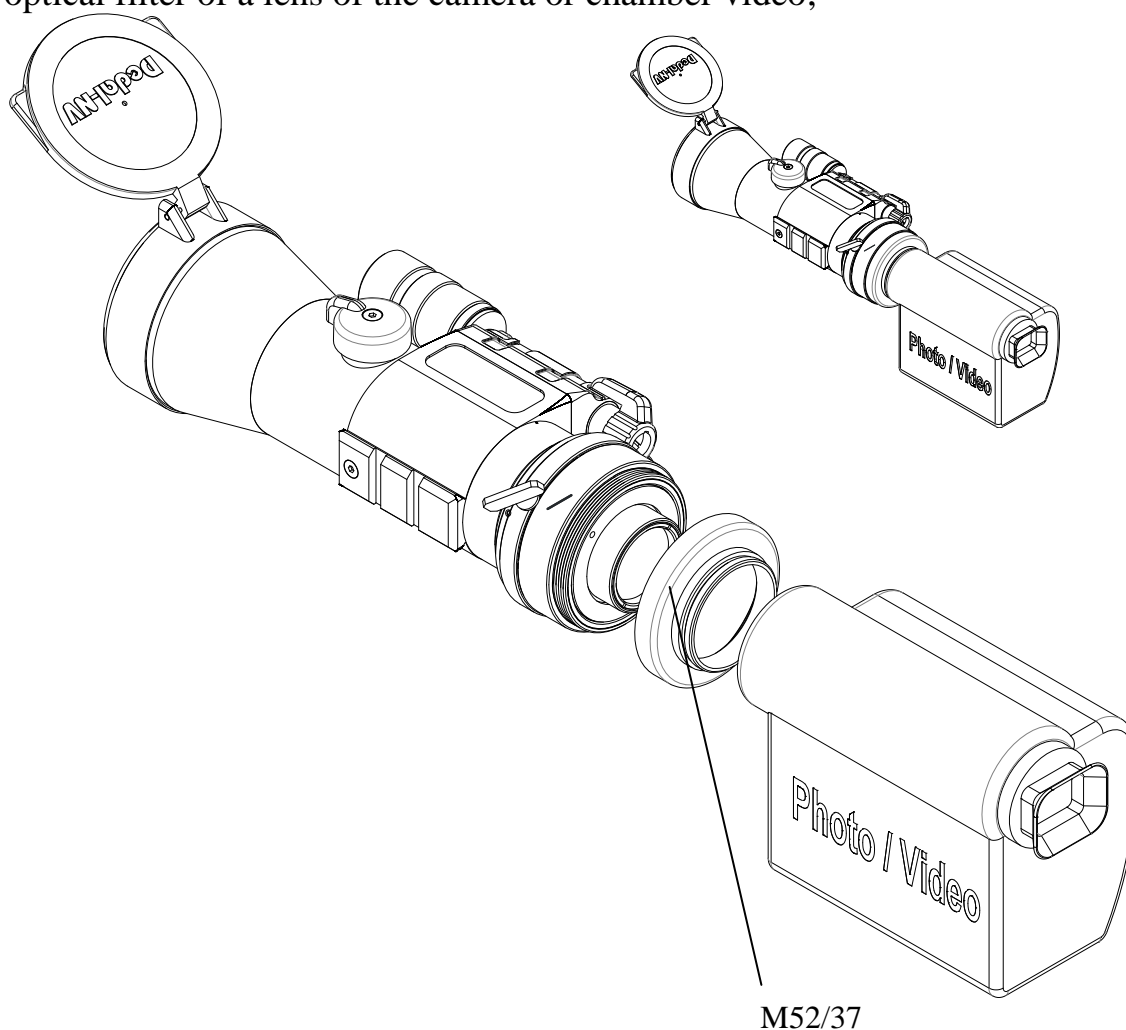
**DO NOT FORGET TO TURN OFF THE DEVICE AFTER USE !**

## **Connection with a photo/video equipment, the day field-glass or telescope**

Dedal-54x device can be used for a shooting photo/video at night.

Operating procedure:

- wind M52/37 transitive ring on a carving of an eyepiece of Dedal-54x night sight attachment ;
- twist Dedal-54x device with the installed M52/37 adapter in a carving under an optical filter of a lens of the camera or chamber video;



### **NOTE.**

*In the event that your lens has other landing diameter under an optical filter (for example, 49mm or 58mm) it is necessary for you to buy in addition in a photographic supplies store or to order in Joint-Stock Company "Dedal-NV" transitive rings from 37mm diameter on your size;*

*For connection with the day field-glass or a day telescope, twist an eyepiece of Dedal-54x night sight attachment in the inside thread of a lens of the field-glass (telescope) directly or with the help of the suitable carving adapter.*

- remove (open) a lens cover of the device;
- switch on the device – position ON of the switch (4) (see fig. 1). On the screen there should be a yellow-green luminescence (the device works in a passive mode);
- choose object of supervision;

- in case of need, you can illuminate an object of supervision, switch on (4) IR-illuminator (an active mode);
- upon termination of work switch off the food toggle-switch – position OFF of the switch (4);
- close a lens cover after the termination of work with the device.

**DO NOT FORGET TO TURN OFF THE DEVICE AFTER USE !**

### ***Operations with the remote control stand***

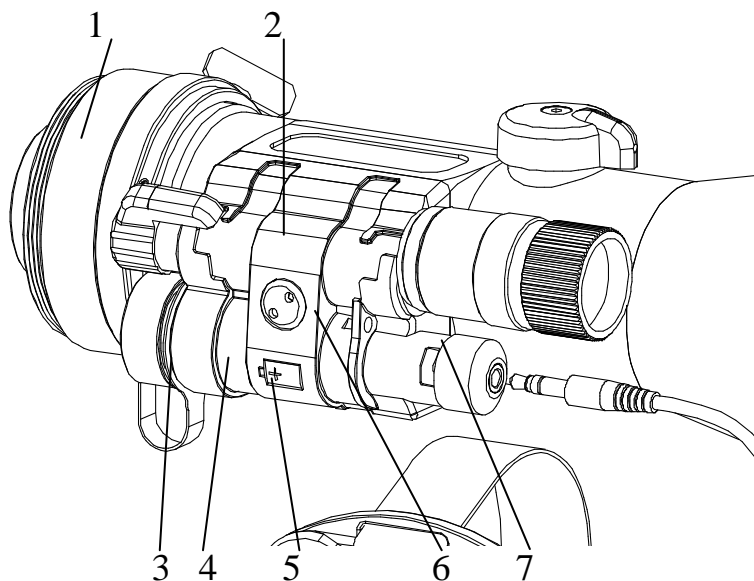


Fig. 5

- 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

Dedal-54x device has possibility of installation of the panel of the remote inclusion, it makes easier to switching on/off of the device and IR-illuminator

Operation procedure:

- set the jack plug 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.

## ***Trouble shooting***

### *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 (7) 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](mailto: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) Flare of the switched off device direct solar beams, and also long (more 1h.) its irradiation a diffused light at light exposure more than 10 Lux;
- 8) Unqualified mounting on a rifle;
- 9) 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.

- mod. «Dedal-541-A»
- mod. «Dedal-541-C»
- mod. «Dedal-541-DEP\_0»
- mod. «Dedal-542-DEP\_0»
- mod. «Dedal-542-DEP\_XR-5»
- mod. «Dedal-542-DK2»
- mod. «Dedal-542-DK3»
- mod. «Dedal-542-DA3»
- mod. «Dedal-543-DK2»
- mod. «Dedal-543-DK3»
- mod. «Dedal-543-DA3»

Serial No. \_\_\_\_\_

The representative of quality control \_\_\_\_\_

Date of production: ”\_\_”\_\_\_\_\_2010\_г.

Stamp of the Manufacturer

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Adaptation on weapon in Joint-Stock Company Dedal-NV

- :    Realized  
      Not realized

Quality control representative \_\_\_\_\_

Adaptation date: ”\_\_”\_\_\_\_\_2010\_г.

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*The information on sale and adaptation on the weapon*

Seller \_\_\_\_\_

Selling date: " \_\_\_\_ " \_\_\_\_\_ 2010\_г.

The press of the seller (shop)



Adaptation date: " \_\_\_\_ " \_\_\_\_\_ 2010\_г.

Place (firm, shop, service center, ...) adaptations: \_\_\_\_\_

Adaptation master \_\_\_\_\_



*For notes*