

Night Sight PN15K

service manual

Introduction

This manual provides operation and maintenance instructions and describes purpose, performance features, operation principles, design, possible troubles and troubleshooting methods of the PN6K Night Sight.

WARNING! DO NOT SWITCH ON THE SIGHT WITHOUT LIGHT FILTER UNDER DAYLIGHT AND TWILIGHT CONDITIONS. DO NOT VIEW BRIGHT OBJECTS (HEADLIGHTS, CAMPFIRE ETC) UNDER NIGHT ILLUMINATION CONDITIONS.

1 Description

1.1 Purpose

1.1.1 The PN6K Night Sight (hereinafter referred to as the Sight) is designed to aim a rifle under natural night illumination conditions.

1.1.2 The Sight operates at ambient temperature from -40°C to $+40^{\circ}\text{C}$ and relative humidity up to 98% at temperature 25°C .

1.2 Specifications

1.2.1 Performance features of the Sight are shown in to the following table 1.

Table 1

Specification	Value
Magnification, x	4
Field of view, deg	10
Eye relief, mm	65
Step of reticule adjustment	0-00.2
Battery voltage, V	1.2-1.5
Consumption current, mA	100
Battery lifetime between recharging at temperature from 0 to 40°C ,h	15*
Weight, kg	1.5
Overall dimensions, mm	
Length	295
Width	90
Height	125

1.2.2 The Sight provides aiming of rifle equipped with top Picatini rail and identification of a target exposed on background of plane grass surface at height of grass up to 0.3 m within rifle direct fire range under starlight illumination at clear atmosphere conditions.

Identification range of Sight (500m) depends on level of natural night illumination, atmosphere clarity and contrast between target and background. High illumination and light background (sand or snow) raise the identification range. Low illumination, clouds, atmospheric turbidity and dark background (tillage, forest etc.) decrease the identification range.

1.3 Package inventory

1.3.1 The package inventory is presented in the table 2

Table 2

Item	Qty
PN6K Night Sight	1
Flat Wrench	1
Hexagon Wrench	
UK-316 Battery Tester	1
Napkin	1
Carrying Bag	1
Service Manual	1

1.4 Design and operation principle

1.4.1 The Sight intensifies low light up to the level which is sufficient for viewing by human eye.

1.4.2. The sight consists of an objective lens 2 (fig. 1) and body 4, which are connected by means of a thread and a lock-nut 3.

1.4.3 The Sight is provided with the following control mechanisms:

- 14 - Tumbler "On/Off";
- 15 - Reticule Brightness Handwheel;
- 5 - Elevation adjustment screw "U-D";
- 10 - Windage adjustment screw "L-R".

The Sight is switched on when the Tumbler "On/Off" is set into upper position.

1.4. 4 Battery compartment is closed by cap 11. Cap 6 is provided with a rubber gasket 7 and closes the nipple intended for blowing out the interior space. The cap 11 is secured to the Sight with a cord 13.

1.4.5 The eyeshield 9 is fastened by collar 8. The eyeshield guides an eye to exit pupil position of the eyepiece and protects the eye against accidental injuries.

1.4.6 Step (click) of Elevation and Windage adjustment is 0-00.2.

1.4.7 Battery compartment is marked with the picture of battery and direction of positive pole "+".

1.4.8 The mounting of Sight on a weapon equipped with Picatini rail is shown in the figure 2.

1.4.9 Figure 3 presents the aiming reticule. Figure 3b is the magnified central part without range-finding scale.

Upper (first) aiming mark in the form of horizontal and vertical lines crossing is used within 400m range.
Second aiming mark in the form of central vertical line is used by following ways:

- upper end is for range of 500 m;
- lower end is for range of 600 m.

There is one horizontal line of windage correction of the size 0-10 at the left and one at the right of upper aiming mark.

1.5 Tools and accessories

1.5.1 The flat wrench is intended for adjusting of Elevation and Windage screws 5 and 10 (fig.1). The hexagonal wrench is designed for tightening the screws 5 (fig. 1) while mounting the sight on a weapon.

1.5.2 The napkin is used for cleaning of outer optical surfaces and electrical contacts.

1.5.3 The UK-316 Battery Tester (fig. 4) tests charge of AA storage batteries.

The four LEDs in the front panel of UK-316 indicate voltage of the battery in Volts.

If all four LED shine, the voltage of storage battery is 1.4 V at least.

If no one LED shines, the battery must be replaced or recharged.

Figure 4. **Setting of storage battery into UK-316 Battery Tester.**

2. Operation

2.1 Operating limitations

2.1.1 In order to prevent a damage of the Sight:

- Do not switch on the Sight without Light Filter 1 on Objective Lens (fig. 1) in daylight and twilight conditions.

ATTENTION! Day light damages the Sight!

- Do not view bright light sources (headlights, searchlights, campfire, etc) even with Light Filter put on.

2.1.2 When a bright source appears in the field of view, switch off the Sight (lower position of Tumbler 14).

2.1.3 When operation is completed, the Sight must be switched off.

2.1.4 Prevent a short circuit between contacts of the battery and metal objects.

2.1.5 Having finished working with the sight, take the battery out and keep it in the pocket in order to avoid accidental switch of the sight. It also helps to extend the lifetime of the battery.

2.2 Preoperation instructions

2.2.1 Learn design, controls and mount of the Sight.

2.2.2 Clean outer optical surfaces with a napkin.

2.2.3 In case of necessity, replace a battery in the following order:

- switch off the Sight by means of Tumbler 14;

- remove the cap 11;

- remove the discharged battery from the Sight;

- insert a new AA battery in the battery compartment according to designated polarity;

- close the cap 11;

- switch on the Sight to check its operability and switch off.

ATTENTION! Image of aiming reticule at maximal brightness indicates the charge of the battery. If the screen of image intensifier shines but reticule is dim or invisible the battery is discharged.

2.3 Mounting on a weapon

2.3.1 Attach the Sight to a weapon with Picatini mount rail in the following order:

- loosen the two screws 5 (fig.2) by means of a hexagon wrench;

- align the mount slot of Sight 2 with the weapon mount rail 3 and push forward the Sight up to the stop;

- tighten the screws 5 with a hexagonal wrench.

The Sight must be fastened rigidly.

2.4 Zeroing

2.4.1 For zeroing the Sight with weapon under daylight or twilight conditions:

- remove the cap 11 (fig.1) and insert a battery;

- close the cap 11 again;

- fasten the weapon rigidly (a special aiming rest is preferable);

- set the iron sight to range 400 m;

- aim the weapon by means of iron sight at aiming point ranged by 100 m;

- attach the Sight to the weapon according to p.2.3, keeping the constant position of the weapon;

- ensure that the Light Filter 1 is put on the Sight;

- switch on the Sight pushing up the tumbler 14 (field of view will shine with yellow-green within 4-6 seconds and aiming reticule will shine red);

- adjust the brightness of aiming reticule by means of Handwheel 15;

- check if the top of the upper aiming mark coincides with aiming point of the iron sight.

2.4.2 If the upper aiming points (third aiming mark) of the Sight and iron sight do not coincide:

- adjust the Elevation and Windage screws 5, 10 by means of a flat wrench (1.3);

- fire four single shots aiming at the aiming point with the Sight;

- determine accuracy and the center of impact (MPI).

Accuracy is acceptable if it is not worse than the accuracy of the weapon without the Sight.

2.4.3 Center of impact must coincide with Reference Point (RP). Acceptable deviation is up to 3 cm. The RP for the Sight lays by 22.5 cm above the aiming point.

If the deviation exceeds the specified limit:

- Adjust the Elevation screw 5 (fig.1) in U (Up) direction if the MPI is below the RP or in D (Down) direction if above. One step of the screw (one click) corresponds to 2 cm displacement at 100 m range.

- Adjust the Windage screw 10 in R (Right) direction if the center of impact is at the left of RP or in L (Left) direction if the MPI at the right. One step of the Turret (one click) corresponds to 2 cm displacement at 100 m range.

- Test zeroing by fire again.

- Switch off the Sight.

2.5 Operation

2.5.1 General information

Result of surveillance and shooting with the Sight depends on experience, since image color, appearance and contrast differ from usual for naked eye under daylight. Surveillance and target search should be executed at minimal brightness of aiming reticule

2.5.2 Switch on the Sight.

Make the horizontal and vertical laying of the weapon.

2.5.3 If the target is situated at a range of 400 m, the weapon must be pointed with the help of the top of the upper aiming point imposing it on the middle of the target is image. Use the top of the aiming point while shooting at a range of 500 m, and the bottom of the second aiming point while shooting at a range of 600 m.

3 Maintenance

3.1 General

3.3.1 Keep the Sight clean, prevent it against dust or dirty. Outer optical surfaces must be always clean.

In order to prevent a malfunction of the Sight:

- Do not disassemble the Sight;
- Do not switch on the Sight without Light Filter;
- Do not apply excessive force to mount;
- Do not use improper types of battery;
- Do not keep the battery in unused Sight for a long time.

3.1.2 Routinely execute the following maintenance procedure:

- Clean the Sight from dust, dirty and moisture;
- Check the battery contacts state and clean them in case of necessity;
- Remove grease stains from glass surfaces with a clean napkin. In case of necessity clean the glass surfaces with alcohol.

3.2 Safety

3.2.1 Ensure safe fastening of the Sight on weapon to avoid an injury in service.

3.2.2 Excessive pressure on the eyeshield is not allowed. The eyeshield should be pressed until clear boundary of field of view will appeared only.

3.2.3 To avoid a pollution of environment it is recommended to throw out all used batteries only in places assigned for waste utilization.

4 Troubleshooting

In case of troubles, check the follows:

- If the Sight is mounted to the weapon safely;
- If the Light Filter is put on;
- If the optics free of dirt, dust, oil, frost and water;
- If the battery is charged enough;
- If the Sight is switched on;
- If the contacts of battery and battery compartment are clean.

4.2 Possible troubles and troubleshooting methods are listened in the table 3.

Table 3

Trouble	Possible cause	Troubleshooting
The screen of image intensifier does not shine	1 The battery is discharged 2 Malfunction of image intensifier Light overload	1 Replace the battery with ope-rable one 2 Send the Sight to repair facility
Brightness of image rises to maximum and falls down fast or fluctuates disturbing the viewing		Put the Light Filter 1 (fig. 1) on the objective lens 2
Image is weak	Sweating or dirtying of outer optical surfaces	Wipe the outer optical surfaces of objective lens and eyepiece with napkin
The aiming reticule does not shine when the Tumbler "On/Off" 14 is switched on	1 The battery is discharged 2 Malfunction of light	1 Replace the battery with ope-rable one 2 Send the Sight to repair fa-

	emitting diode	cility
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5 Storage

Store the Sight in a heated room at temperature from +5 to +35°C and relative humidity up to 85%. Daily temperature variations must not exceed 5 °C.

It is recommended to store the Sight in carrying bag without battery.

6 Acceptance Certificate

The PN6K Night Sight having serial number _____ conforms to specifications TU3-2002 AL3.812.252TU and found fit for service.

Issue date _____

Quality Inspector _____