



Detailed description of the technical solution that ensures the protection of the equipment installed in the vehicle against the influence of adverse weather conditions when the lifting mechanism is in the upper working position

OPTIX JSC, as a long-standing and established manufacturer of mobile surveillance systems, presents its specially developed and tested in real field conditions constructive solution, which provides protection of the equipment installed in the vehicle from the influence of bad weather conditions when the lifting mechanism is in the upper working position.

The proposed solution is the construction of a lifting mechanism, built into the luggage compartment of the mobile surveillance system and a specialized hatch.

This technical solution provides complete protection of the equipment installed in the vehicle from the influence of unfavourable weather conditions when the lifting mechanism is in the upper working position.

The lifting mechanism in the presented technical solution is the best means of achieving precise accuracy when conducting surveillance with specialized cameras mounted on a panoramic device.

The lifting mechanism is an automatic lifting mechanism designed for integration into specialized mobile systems for highly effective surveillance and security. It ensures the lifting of the panoramic device, together with the sensors integrated on it, above the roof of the vehicle in the working position, as well as the removal (retraction) of the same inside the mobile system in the transport position, even when the mobile system is moving at a speed of up to 60 km/h.

The automatic lifting mechanism is of the electro-mechanical type. The drive is carried out by a DC motor. By means of synchronous belt gears, the torque from the motor is transmitted to a conventional screw-nut, self-retaining pair. It converts the rotational movement into translation of the carriage, through which the lifting of the mounted equipment from the transport to the working position is carried out.

The load capacity of the lifting mechanism is provided by the self-retaining screw-nut pair with a trapezoidal thread, designed for higher loads than the real ones. The screw is driven by a synchronous belt drive, and in its lower part it is mounted on a tapered roller bearing unit with a high axial load capacity.

To avoid jamming of the mechanism, the running nut is hinged to the carriage.

Accurate "guidance" when removing and relocating the mounted equipment is provided by ball linear guides.



The lifting mechanism is mounted and removed from the vehicle chassis using bolts. The lifting mechanism is constructed using extruded aluminum profiles, which are characterized by high precision, stability and low mass. The individual profiles are connected by screw connections, properly secured against self-unwinding. Welding joints are avoided to reduce the risk of deformation. This, along with the use of ball linear guides with a low friction coefficient, ensures smooth movement of the lifting mechanism.

In addition to fastening, the lifting mechanism also serves to firmly and reliably fix the equipment during transport.

The movement of the lifting mechanism in both directions is extremely stable and is not affected by the weight of the equipment mounted on its platform.

The lifting mechanism is automatically switched off when taking the transport and working positions, while providing the operator with a clear and easily visible light signal for the occupied position. For this purpose, inductive sensors are located at precisely defined locations on the frame structure, which detect the position of the moving element.

The overall control of the lifting mechanism is carried out from the operator's workplace using specialized hardware with the necessary software.

In the working and transport position of the lifting mechanism, protection of the equipment in the vehicle from the influence of external atmospheric conditions is ensured.

Mechanical (emergency) control of the mechanism is provided in the event of a failure in its electrical system.

The lifting mechanism will be centrally located in the technical compartment of the mobile surveillance system. Its position is structurally and technologically consistent with the installation and maintenance of the components located in the technical compartment of the mobile surveillance system.

The specialized hatch is part of the mechanisms through which the mounted equipment is raised above the roof of the vehicle and removed in the transport position.

The mechanical structure of the hatch is composed of an aluminum frame, which is rigidly mounted to the roof of the vehicle.

The hatch is fully automated, consists of several components and provides excellent operation at low temperatures.

The safety clutch is intended to protect certain elements of the system in an emergency. In an emergency, the safety clutch disconnects the connection to the components. In this way, the equipment can be brought from work to the transport position until the fault is eliminated.

When installing the hatch to the roof of the cargo compartment, 100% water resistance is ensured.



The design of the hatch is such that it provides full protection from external atmospheric conditions of the equipment installed in the cargo compartment, both in the working and transport positions of the lifting mechanism.