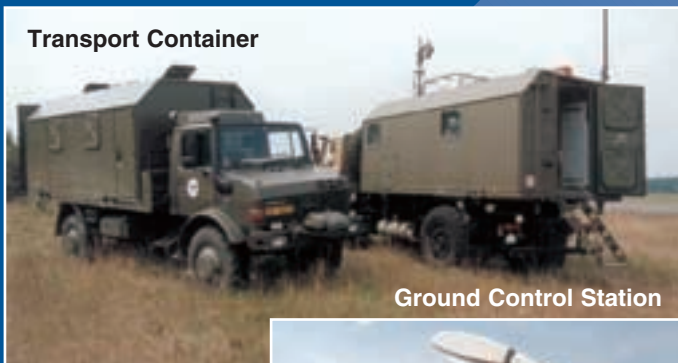


SOJKA III

Multi-purpose UAV System

Exported by OMNIPOL a. s.

Transport Container

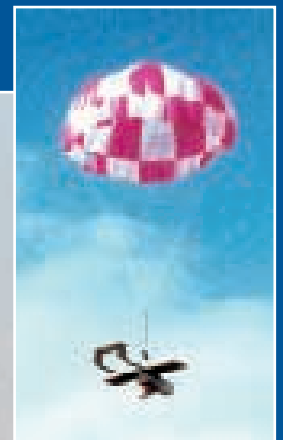


Ground Control Station

Off-Road Recovery Vehicle



Rocked-Assisted
Launcher



Export *Installation*
Training *Maintenance*
Related Services

OMNIPOL a. s. Prague, Czech Republic

The system is designed for the real time safe and low cost TV or IR aerial reconnaissance (able to identify a target of minimum 2x4 m from a flight altitude of 600 m), monitoring of contaminated and inaccessible areas, artillery fire monitoring, radio reconnaissance and jamming, border patrol, search and rescue (SAR) assistance, or it can be used as an aerial target. The full SOJKA-III system consists of five main elements: ground control station, rocket-assisted launcher, transport container, off-road recovery vehicle and three or four aerial vehicles. Ground control station built into a container as well as rocket-assisted launcher and transport container are attached to and transported by the field trucks, which have ISO-1D standard fixing points. The ZSK/RE container (manufactured in the Czech Republic) is fitted with an air-conditioning system (heating, cooling and ventilation), including NBC filters, for three ground control station operators.

The UAV take-off is performed on a rocket-assisted launcher. The main part of the launcher is the foldable ramp, placed on a platform and fixed to and transported by the truck. During transfer to the launch area, the ramp is folded so that the outer dimensions of the truck and launcher are similar to those of a normal loaded truck. The erected ramp is 14 m long, with a 20° elevation. The aerial vehicle is placed on the carriage, which also houses the re-usable solid-fuel rocket engine.

The UAV is powered by a two-stroke, two-cylinder piston engine (22 kW/6,400 rpm) with a pusher propeller. It has a wing span of 4.12 m and a length of 3.78 m. The aerial vehicle can fly for two hours at a maximum speed of 200 km/h. Operational speed is approximately 180 km/h. The operational altitude is 50 – 2000 m with a tactical range of at least 100 km (depending on radio communication conditions). Maximum payload is 20 - 25 kg. UAV control is either semi- or fully automatic. The flight plan can be pre-programmed before take-off or during flight. There may be up to four flight plan variants and the system can switch between them in flight. An on-board safety system stops the power plant and deploys a parachute if any malfunction in a flight control system occurs. The flight can be also cancelled at any moment by operator's command. Navigation is via GPS and there is a real-time datalink between the UAV and its GCS, allowing the ground crew to monitor real-time on-board TV images and the vehicle's position (displayed on a digital moving map). The main flight data from the UAV (flight altitude, flight speed, heading, engine r.p.m., rate of climb or descent and aircraft attitude) are displayed on a monitor at the ground control station as well. The standard reconnaissance payload is a colour TV camera and an IR linear linescanner (for opto-electronic day/night reconnaissance with high resolution). The UAV's fuselage design allows the installation of other equipment if needed. A stabilized gimbal with high resolution digital cameras may also be installed. A radiation sensor was one of the payloads tested during the development phase.

The aerial vehicle can land either on its belly (using a landing shock-absorber) or with a parachute, depending on the terrain. Its maximum take-off weight is 145 kg (excluding fuel, on-board avionics and landing system). Disassembled aerial vehicles are usually carried in the transport container. Three to four disassembled aerial vehicles can be stored inside, including up to twenty rocket motors. Minor mechanical repairs and operational maintenance can be done inside the container.

The off-road vehicle is used to transport the crew as well as to identify the best site for vehicle launch and landing. It features a special trolley to transport the assembled UAV from a landing point to the next launching point. The car is also equipped with fire extinguishers and rescue tools for UAV recovery, should the vehicle land in difficult terrain. The medium-weight transport truck, as well as the off-road vehicle, can be of any model type with ISO-1D fixing points, depending on end-user requirements. The system is offered on the Tatra 815 4x4 field trucks, however, it was tested also on the Mercedes Unimog 2150L and Ural trucks and the recovery vehicles used were Land Rover Defender 110 and UAZ 469. The system can also be delivered without field trucks and off-road recovery vehicles if the end-users wish to use their own vehicles.

The system is highly mobile and easy to deploy. Launch including flight programming takes 45 minutes and the UAV is ready for another flight in less than 40 minutes. Within 30 minutes after landing, the aerial vehicle and its equipment can be packed and all the system moved to another launch position, if required.

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