Under the sign of Shaman
We are glad to present you a new family of all-terrain vehicles on extra low-pressure tires of AVTOROS Company. The new name of 8x8 axle configuration off-roaders is Shaman. This name was not chosen by chance.

Shaman — according to religious beliefs is a person endowed with special abilities. “The sacredness of the world and the experience of other shamans make them strong, and being a chosen one the shaman acts in accordance with his new knowledge of life and takes this knowledge to the human world, bringing new insight that meets the needs of the community” (Wikipedia).

In the old days and today this word has always been associated with something mysterious, unknown and secret. Shamans were intended to protect people from trouble and to guide them through the ways of life. Shaman ATVs on low-pressure tires are specifically designed to help people.

This kind of equipment is classified as snow and swamp-going vehicles and can be used under any extreme conditions. While 8-wheel configuration of Shaman and extra low-pressure tires allow to overcome various obstacles and go with ease both cross-country and on public roads.
First trial model of an ATV with composite body was presented at Moscow Motor Show in 2008.

Long-term testing of the new body and chassis. Development of original units and components. Implementation of electrohydraulic steering of all wheels, installation of water propeller hydraulic drive.

First batch of Shaman ATVs delivered in the beginning of 2013. Along with the manufacturing of ATVs endurance testing was carried out which allowed immediately finalize and make changes to the construction, and in Autumn 2013 keys were solemnly granted to the first customers of the company.

AVTOROS ATVs underwent exterior restyling in 2012. A brand new ergonomic interior was implemented in the new body. Besides, the refurbished ATV received new axle-based chassis. The new ATV possesses new features and is called Shaman.
NEW TAKE OF ALL-TERRAIN VEHICLES
We made a special focus on the design of our all-terrain vehicles. Proportions and body parts are product of work of professional designers and are directly related to ergonomics and usability of the vehicle. Color and graphics design is unique, providing unmistakable identification of the car from a big distance. The modern interior not only provides an unrivalled level of comfort for such vehicles, but also meets the most stringent requirements of extreme operation.

The work on the serial body lasted several years: first ATV prototypes were used for calculation of forces, modeling of rollover situations, body torsion, and the obtained data have been analyzed and taken into account during design of the serial body. To improve the performance properties of the new body special attention was paid to the rigidity. Rigid body provides higher steering accuracy and maneuvering ability while improving the driver and passengers safety. The result of this work is the body you can see right now.
Another important task addressed by the designers of Shaman ATV was user friendliness. Handy steering wheel of comfortable size. User friendly handles of wide doors located at a proper height. Nice to feel upholstery materials. Everything is at hand and in its proper place.

An important advantage of our all-terrain vehicles is comfortable conditions for the driver and passengers during a long journey. Anatomical seats, adjustable steering column, sprung driver’s seat with all adjustments, climate control with air conditioning, excellent ride comfort will make comfortable any multi-day trip. Low noise level in the passenger compartment allows to speak in a level voice while driving. Please pay attention to a roomy cabin of Shaman ATV. Comfortable sleeping bunks and storage spaces ensure proper habitability of the vehicle, and enough space over head and in the foot well allows passengers to make themselves comfortable in the rear part of the body. On top of that the new off-roader is equipped with various roomy compartments and arches for storage purposes. Properly designed and embedded in the interior clubby boxes allow passengers to efficiently stow their luggage.

For the first time a strong focus is made on the whole scope of various tasks in this kind of vehicle. There were no insignificant details for us. Designers proposed to use efficient energy-saving LED lighting across the interior. It has also individual light setting option.

For the sake of better usability the steering wheel, gearbox and parking brake handles in the cabin are leather wrapped.

Ergonomics and habitability

The ATV body distinct in its modern design concept is driver-oriented. The driver’s chair located on the centerline in the middle provides an excellent vision, which makes it possible to see vehicle dimensions and to choose the optimal moving direction.
In Shaman all-terrain vehicle all elements are thought out and are at the right place. Designers and engineers made a strong focus on controls and their location in the interior of the ATV. Dashboard cockpit is oriented on the driver, and all instruments are turned towards him. Shaman designers are especially proud of a unique remote control of wheel pumping systems and transmission control made in the form of membrane keyboards, allowing to get rid of multiple toggle switches and levers, and having simplified wiring diagrams. Unlike liquid crystal displays, membrane keyboard allows you to control systems at extremely low temperatures. You will be able to control all the transmission systems, without waiting until the unit reaches its operating temperature.

Systematic approach to the development of ATV controls and reasonable design of interfaces influenced also the dashboard. All instruments are authentic and manufactured specifically for Shaman all-terrain vehicle, whereas lighting and basic buttons are from the best producer – Hella company.

As in all modern cars, the steering column is adjustable in two positions: by length and by angle, and instead of a usual ignition key, a start button is provided as an option.
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For a more efficient and reliable operation of ATV, especially at low temperature and low speeds, an engine on diesel fuel has been selected. The search for such type of engines with optimal characteristics of high efficiency lasted more than one year. Long tests under various climatic conditions have revealed a number of disadvantages of domestic diesel engines. The main requirements that are raised by Shaman designers were reliability, efficiency and weight. The choice of designers was the engine of IVECO brand.

**IVECO F1C** – turbocharged 4-stroke 4-cylinder diesel engine. 3 liters working volume gives 107 kW (170 hp) power and 400 Nm torque ranging from 1400 to 4000 rpm. The engine weight is 240 kg. In addition to the guaranteed low fuel consumption and low operating costs IVECO engines give a real pleasure while driving: the torque is constant over a wide rpm range allowing to achieve excellent power characteristics and elasticity, the gear-changing is minimized, and the dynamics is optimal under all driving conditions. And finally, a high level of comfort to the driver and passengers is ensured thanks to the low noise IVECO engine.
IVECO F1C engine is equipped with the latest fuel feed technology Common Rail, which allows you to combine smoothness and efficiency on the one hand with rapid ramp-up and terrific traction on the other.

IVECO engines are delivered with manual 6-speed gearbox of ZF brand (Germany). It is possible to equip it with an automatic transmission Agile.
Modern simulation methods allow designers to calculate the body and chassis with regard to different loads and road situations. Suspension of Shaman ATV is independent, double wishbone and performed on A-shaped double transverse levers, which guarantees maximum maneuverability along with reliable steering of wheels in every driving situation. Besides the ATV has a hydro-pneumatic suspension with the possibility to change the stiffness and ride height.

The springing element is the gas pumped under pressure into the suspension sphere, into which oil is fed from the hydraulic suspension cylinder. Throttling happens during oil transfer.

Proper chassis configuration, even mass distribution between the axles and low center of gravity ensure stability of the vehicle when driving off-road with challenging terrain.

Pumping system is designed using microprocessor control. There is constant monitoring of the pumping system and, if necessary, automatic pressure adjustment. High performance pumping system allows you to continue driving even on flat tire.

Transmission is based on the bridge circuit of 4 transverse differentials and 1 inter-axle differential. The first and second axles are connectable on-demand. All differentials have positive locking with electro-pneumatic drive, allowing quick selection of transmission operation mode and its optimal configuration under certain conditions. Shaman ATV is equipped with central 5-shaft transfer gearbox with variable speed range, and a power take-off shaft which makes it possible to connect additional units, such as water propeller. The absence of wheel gearboxes allows to significantly reduce the unsprung weight and to propose a simple and reliable design.

In general the off-roader transmission provides a wide speed range, which provides to the vehicle an opportunity to move with both low stable speed around 2 km/h and maximum speed up to 75 km/h.
The ATV is 2.5 meters wide, which makes it possible to drive it on public roads.

The chassis is a sealed hull, where the majority of units are installed, which increases buoyancy and provides additional protection for the units. Several high-performance pumps are mounted in the hull for cases of water leakage, the total capacity of pumps is about 200 liters per minute. For the sake of faster drainage electric air actuated valves are provided.

Shaman ATV has hydraulic steering and all-wheel drive. Thanks to the latest steering system it was possible to significantly reduce the turning radius of ATV, which is not inferior to the turning radius of a usual passenger car. Shaman can easily enter any turn without additional maneuvering.

The new steering system also supports multiple turning modes (all wheels turn), which by improving the maneuverability allowed to avoid oversteering (rear wheels are set to straight-ahead position) while driving the ATV at high speed.

To move across marshland and to avoid wheels hitting the front wheel track a special drive mode is implemented which was called "crab". Thus, the all-roader could move sideways. Each wheel moves in its track.
Care for the Environment
Shaman ATV is equipped with extra low-pressure tires AVTOROS of our own design. AVTOROS wheels are suitable for all-season use on paved roads, unpaved roads, on sand, plough-land, virgin snow and boggy areas. Distinctive advantages of AVTOROS tires are ultra-low ground pressure, which is an environmental factor and allows not to destroy vegetation cover, high quality and service life of tires, self-cleaning tread, high resistance to punctures. Especially designed aluminum alloy wheels for AVTOROS tires are light weight, high quality and easy to mount and dismount. The tires are widely used not only on various all-terrain vehicles, but also on specially tuned SUVs.
Hydraulic actuator and power take-off shaft allow you to install a variety of auxiliaries, such as a water propeller. It allows the ATV to easily force water barriers and steadily move on water at speeds up to 7 km/h. Due to quick hydraulic connections, attaching the propeller takes not more than 2 minutes.

Auxiliary equipment
<table>
<thead>
<tr>
<th><strong>Length</strong></th>
<th>8300 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Width</strong></td>
<td>2500 mm</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>2700 mm</td>
</tr>
<tr>
<td><strong>Track</strong></td>
<td>1890 mm</td>
</tr>
<tr>
<td><strong>Clearance</strong></td>
<td>490 mm</td>
</tr>
<tr>
<td><strong>Curb weight</strong></td>
<td>Up to 4000 kg</td>
</tr>
<tr>
<td><strong>Carrying capacity on firm ground</strong></td>
<td>1500 kg</td>
</tr>
<tr>
<td><strong>Carrying capacity on soft ground</strong></td>
<td>1000 kg</td>
</tr>
<tr>
<td><strong>Axle configuration</strong></td>
<td>8x8</td>
</tr>
<tr>
<td><strong>Engine</strong></td>
<td>Iveco F1C 3.0 TD</td>
</tr>
<tr>
<td><strong>Engine power</strong></td>
<td>170 h.p.</td>
</tr>
<tr>
<td><strong>Fuel tank capacity</strong></td>
<td>260 l</td>
</tr>
<tr>
<td><strong>Steering</strong></td>
<td>Electrohydraulic</td>
</tr>
<tr>
<td><strong>Gearbox</strong></td>
<td>Mechanical ZF 6 S 450, 6 stage</td>
</tr>
<tr>
<td><strong>Distribution gearbox</strong></td>
<td>Original 2-stage with locking differential and on-demand 1st and 2nd axles.</td>
</tr>
<tr>
<td><strong>Axles</strong></td>
<td>Original, based on UAZ Spicer axles</td>
</tr>
<tr>
<td><strong>Wheel-hub drive</strong></td>
<td>Original</td>
</tr>
<tr>
<td><strong>AUTOROS extra low-pressure tires</strong></td>
<td>AVTOROS X TRIM IN 108 1185/850-21 LT</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Combined: orange, gray</td>
</tr>
<tr>
<td><strong>Starting preheater</strong></td>
<td>Webasto</td>
</tr>
</tbody>
</table>
Optional equipment

- Automatic wheel pumping
- Additional cabin heater
- Heated mirrors
- Audio system
- Hydraulic winch
- Non-standard body color
- Water propeller
- Radio, navigation
- Roof-rack
- Trailer
- Interior trim
We represent you new family of all-terrain vehicles. New name of ATV is “Shaman”. This name is not accidental. Shaman – according to religious beliefs, the man endowed with special abilities. In the old days, and these days the word has always been associated with something mysterious, unknown and mysterious. Shamans were designed to protect people from bad luck and to be agents of the roads of life. ATVs. “Shaman”, on low-pressure tires are designed specifically to help people. This technique is classified as all terrain vehicle and can be used in any extreme conditions, and eight formula “Shaman” and low pressure tires allow to overcome a variety of obstacles and move easily in both off-road and on public roads.

**Appearance.** Particular attention was paid to the design of our all-terrain vehicles. The modern interior is not only unprecedented for this type of equipment and comfort, but also meets the most stringent requirements of the machine in extreme conditions.

Conforts. The designers and constructors paid great attention to governments. Their location in the interior of the all-terrain vehicle. Cockpit instrument panels are focused on the driver, and the instruments deployed in his direction. Special pride creators of “Shaman” is a unique development of remote control systems, switch the wheels and transmission control systems. The modern interior is not only unprecedented for this type of equipment and comfort, but also meets the most stringent requirements of the machine in extreme conditions.

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Transmission is designed based on the bridge principle: 4 cross-axle, 2 cross-bridge and 1 cross-trolley differentials. All the differentials feature positive locking with electropneumatic actuator, so you can quickly select the operating mode for the transmission, and in the optimum way configure it for appropriate operating conditions.

All-terrain vehicle “Shaman” has a three-shaft transfer case installed. The central transfer case with the variable speed range is also equipped with a power shaft, which makes it possible to connect additional units, such as hydropneumatic installation of safety clutches to interlock peak loads that may occur on the transmission shafts represents a new engineering solution that benefits reliability of the structure and all-terrain vehicle as a whole. Lack of wheel-hub drive has significantly reduced unsprung weight and offered more simple and sound design.

The hydraulic motor and power shaft allow to hydraulically the all-terrain vehicle can move sideways. Each wheel moves on its own.

**Engine.** For more efficient and reliable operation all-terrain vehicle, especially at low temperatures and low speeds, the engine has been selected with a diesel type fuel. For more efficient and reliable operation all-terrain vehicle, especially at low temperatures and low speeds, the engine has been selected with a diesel type fuel.

**Transmission.** Advanced modeling techniques allow designers to calculate the body and chassis to suit different loads and road situations. Suspension rover “Shaman” independent, double wishbone and executed on A-shaped double wishbone, ensuring maximum flexibility and at the same time stable direction wheels in every driving situation. In addition, hydro-pneumatic suspension all-terrain vehicle with the ability to change the stiffness and size of ground clearance.

Control. The design of the transmission allows to achieve high performance of the all-terrain vehicle at low speeds, but also reach the maximum speed of 75 km/h. The all-terrain vehicle capable to easily cross water obstacles install various attachments, such as, propeller. It makes the turning radius of an ordinary light car. “Shaman” can easily enter any turn, without additional maneuvering required. Besides, the new steering system supports several turning modes (all wheels turning), which, with the improved cornering ability, allow to eliminate oversteer (rear wheels are set in the straight position), the all-terrain vehicle driving at high speed.

To move across marshlands and eliminate hitting the wheels in the tracing nuts made by the previous wheels, “crab” mode of motion has been realized. Thus, the all-terrain vehicle can move sideways. Each wheel moves on its own.

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WE KEEP UP WITH TIMES IN OUR DEVELOPMENTS, SO WE ACTIVELY KEEP SEARCHING FOR NEW SOLUTIONS.