

# STEEL character

- ▶ IN THE SANDS OF YEMEN
- ▶ TEST-DRIVE OF NEW MULTIAXLE TRUCK
- ▶ MIRAGES OF DAKAR
- ▶ IN THE MOUNTAINS OF GEORGIA



# STEEL character

Corporate magazine of  
the AvtoKrAZ Holding Company

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Dear readers,

I am happy to introduce you the new corporate edition of our company – the magazine “Steel Character” which I hope will become the most complete and reliable source of information about the activities of the AvtoKrAZ Holding Company and its products.

I hope you will enjoy reading the magazine. In our turn we will do everything to make it more and more interesting and informative with each issue.

Yours truly,  
Sergey Sazonov  
General Director  
Chairman of the Board of Directors of the AvtoKrAZ HC

# PER ASPERA AD ASTRA

The AvtoKrAZ Holding Company is the brand, famous all over the world, which unites under its banner 13 Ukrainian enterprises with the Kremenchug automobile plant at the head.

Speaking about the today's AvtoKrAZ group we consider not only the heavy-duty trucks, but also the railroad cars, river- and sea-going vessels, drill platforms for oil and gas extraction, equipment for oil-and-gas enterprises and a wide range of various machine-building products. The company shows a constant dynamic development, which is confirmed by the highest growth rates among the Ukrainian enterprises.

**Mr. Sergey SAZONOV** tells about the development strategy in the automobile sector of the leading Ukrainian Holding:

► **Mr. Sazonov, how do you estimate the results the Company showed in the year that passed?**

The year 2007 was a successful year for our enterprise. AvtoKrAZ ended it with results considered to be the highest for the last 12 years. In 2007 the automobile plant produced over 4200 KrAZ vehicles. That is a 21% increase comparing to the quantity of vehicles manufactured in 2006.

► **What are the main factors defining a successful work in 2007?**

The personnel of the Holding Company has considerably changed its psychological approach to the customers. 2007 became the year when everything, from design development to technical service was oriented towards the maximum satisfaction of the customers.

We have entirely optimized the dealer network. The Company has its geographical corporate centers within the territories of almost all post-Soviet states and in several countries of Europe, Asia and Africa.

Deep reconstruction of the most popular models of vehicles enabled the maximum extension of the spheres where these trucks can be used. It drew attention to these vehicles in new markets and ensured stable sales. There was a lot of work done to improve the quality of vehicles and to increase the life period of their units and aggregates.

The level of technical service has been considerably improved due to the market saturation with spare parts and major efforts aiming to perfect the technical equipping of service centers and to raise the personnel qualification.

► **What are the markets you are going to focus in your marketing strategy in 2008?**

The CIS countries will remain the key sales markets. We are planning to increase sales in the Middle East, East-European countries, Africa, Latin America and South-Eastern Asia.

► **What new models of KrAZ vehicles is the Company planning to introduce to the market during the current year?**

This year, on the main assembly line, we have started the assembly of vehicles equipped with Eaton transmission and YAMZ-658 engines of the Yaroslavskiy Motor Plant, meeting the Euro-3 requirements.

Many efforts are exerted to cooperate with a number of enterprises manufacturing special superstructures in terms of installing new concrete mixing plants, concrete pumps and special equipment for oil-and-gas industry on KrAZ chassis.

We are working actively to start in 2008 the serial production of vehicles with the new 8x6 wheel arrangement, starting with dump trucks with 30 tons of payload. By the end of the year we are planning to have mastered the production of vehicles with RH steering of 6x6 and 6x4 wheel arrangements.

The product innovation of this year will be the truck tractor with 6x6 wheel arrangement and 85 tons full mass of the towed semitrailer.

At the end of the year we schedule to create a vehicle with a new cabin above engine configuration, that has never been used in KrAZ before.

► **Are you going to manufacture other techniques in addition to the heavy-duty trucks production?**

Currently we are considering several proposals that we obtained from automobile companies of Europe and South-Eastern Asia relating to the arrangement of assembly projects. Nevertheless we are mostly focusing on the idea to set up the joint manufacture of a special heavy-duty vehicle with one of the foreign companies. This future truck is to have the best that only the KrAZ truck design can offer, especially the chassis. It will be equipped with a new modern cabin and several other aggregates.

► **What are the production plans for 2008?**

In the current year we intend to assemble on the main assembly line more than 5000 KrAZ vehicles. We have all preconditions to achieve the goal.

## THE UKRAINIAN ARMY IS ARMED WITH NEW KRAZ TRUCKS

The AvtoKrAZ Holding Company has supplied to the Ministry of Defense of Ukraine **57 KrAZ-6322 trucks named "Soldier"** with enhanced cross-country ability. This is the first large-scale contract with the Ministry of Defense for the last **17 years**.

The trucks are engineered in accordance with the Ministry of Defense performance specification. Prototype models were manufactured in the year 2007.

The state committee consisting of representatives of the Ministry of Defense, the Armed Forces of Ukraine and the AvtoKrAZ Holding Company has carried out a 5-month state testing of these trucks in hard conditions on a fixed route in different regions of Ukraine. The vehicles covered **over 15 000 km** on carpeted asphalt, ground and sand roads.

All the trucks successfully passed this state testing. Therefore the state committee has recommended them to be put into service of the Armed Forces of Ukraine.

In April 2008 there is the state testing planned for two prototype models of KrAZ-5233 BE platform trucks.

Defense techniques manufactured by the AvtoKrAZ

Holding Company were demonstrated to Mr. Viktor Yushchenko – the President of Ukraine and Supreme Commander-in-Chief of the Armed Forces of Ukraine during his visit to the 1-st independent guards tank brigade of the 8<sup>th</sup> army corps. The President of Ukraine was accompanied by Mr. Yuriy Yekhanurov – the Minister of Defense of Ukraine and Army General Sergey Kirichenko – the Joint Staff Commander and Commander-in-Chief of the Armed Forces of Ukraine. The presented KrAZ vehicles were highly appreciated by the Head of our state.



## IN THE FIELD OF PEACEMAKING

The AvtoKrAZ Holding Company has won the tender for a supply of **KrAZ-6322 all-wheel drive heavy-duty trucks** of various modifications to the National Police of Indonesia.

The trucks will serve as a part of the UN peacemaking mission in Sudan.

Earlier KrAZ vehicles were used for different tasks in the peacemaking contingents of the Armed Forces of Ukraine in Sierra Leone, Lebanon, Kosovo, Iraq, Afghanistan and other countries.

Among the vehicles supplied there are KrAZ-6322 platform trucks, repair trucks, chassis for mounting of water and fuel transportation tanks, which are popular in the armies of **Iraq, Yemen, Angola, India, Egypt** and other countries of the world.



## INDONESIA

KrAZ vehicles are manufactured in compliance with the UN requirements, painted white and have the United Nations Organization logotype applied.

All the trucks are equipped with 330 hp diesel engines manufactured by the Yaroslavskiy Motor Plant, Eaton transmission, ZF clutch and Webasto air-conditioner.



During the inspection of trucks Mr. Imam Yuvono, the Colonel of National Police of Indonesia strengthened: "Our decision to choose KrAZ trucks for the peacemaking contingent in Sudan was affected not only by the fact that engineering data completely meets our requirements to the similar machinery, but also that the KrAZ

trucks have already been involved in service in the peacemaking contingents in different countries. We are entirely satisfied with these vehicles. They are powerful and impressive".

## DEFENDING THE CAUSE OF ORDER IN NIGERIA

The first lot of **25 KrAZ 5133BE-016 trucks** with high cross-country ability, 4x4 wheel arrangement has been supplied to the National Police of Nigeria. In the end of the year 2007 the tender for a supply of 100 KrAZ trucks, announced by the National Police of Nigeria, was won in partnership with the Specialized Foreign Trade Firm “Progress” State Enterprise. The contract is planned to have been completely executed by June 2008. It is the largest supply of KrAZ trucks to Nigeria in the history of the Kremenchug automobile plant.

A group of technicians from the National Police of Nigeria has taken training courses in the fields of KrAZ trucks maintenance, servicing and repair, held at the the AvtoKrAZ Holding Company.

Negotiations on the supply of spare parts and components for the KrAZ-5133BE trucks maintenance have being carried out.



### NIGERIA



## CUBAN PERSPECTIVES

To finalize the negotiations on arrangement of joint projects the Deputy Minister for Construction of Cuba and top-managers of the “Somec” Company visited the AvtoKrAZ HC. The production facilities of namely this Cuban Company are planned to be used for the execution of these projects. In the course of negotiations there was a contract signed for a delivery of the first lot of the KrAZ trucks assembly sets. The facilities of this enterprise are able to produce 300 trucks annually.

At the present time the plant has been regular supplying Cuba with the KrAZ automobile technique and its spare parts. The Ministry for Construction of Cuba is the main customer of the Kremenchug technique for the civil sector. Since December 2007 the Holding Company supplied the customer approximately **70 trucks** including bitumen distributor trucks, tar pavers, motor-truck concrete mixers on KrAZ trucks basis and fifth-wheel tractors. KrAZ vehicles have not been supplied to Cuba for **17 years**.



### CUBA



## KRAZ IS CERTIFICATED IN SAUDI ARABIA

The AvtoKrAZ Holding Company **has successfully accomplished certification of the KrAZ-65055 (6x4) dump truck** in Saudi Arabia.

This vehicle is equipped with the 12 m<sup>3</sup> dump platform and has 20 t load carrying capacity. It is one of the most demanded dump trucks in the Kingdom of Saudi Arabia.

Certification was carried out by the Standardization Organization for the Cooperation Council for the Arab States of the Gulf (GSO).

The certificate of conformity with the GSO standards was issued for the KrAZ truck by the Persian Gulf Council Certification Organization.

The acquired certificate enables importing of the KrAZ dump trucks to the countries of the Persian Gulf Council and operate them on public roads.

Six countries are members of this Council: UAE, the Kingdom of Saudi Arabia, the Kingdom of Bahrein, Sultanate of Oman, Qatar and Kuwait.

The certification of KrAZ trucks in the Persian Gulf countries opens up new perspectives for the promotion of KrAZ vehicles in this region.

In the nearest future the AvtoKrAZ Holding Company plans to certificate a model range of KrAZ vehicles.



### SAUDI ARABIA



# "RUSKRAZ": NEW APPROACH TO WORK IN RUSSIA



Proceeding to improve the work in the market of Russia, the AvtoKraz HC established a company with the status of official importer of KrAZ trucks – the "RusKraz" Company. This Company will help to effectively control the marketing processes, to promptly respond to the market needs and to maximally satisfy the customers' demands. We asked Mr. Vladimir BRULEVICH, Director of the "RusKraz" Company, about the consequences this strategic step can cause in the dealer's work and in relations with the customers.

► **Mr. Brulevich, when was "RusKraz" Company established?**

The "RusKraz" Company, delegated by the AvtoKraz HC with the duty of being the official Russian importer of the automobile technique manufactured by the Kremenchug automobile plant, was established in January 2008. Now the Company is strengthening its position and will start the full work in April.

► **What are the main objectives for this company?**

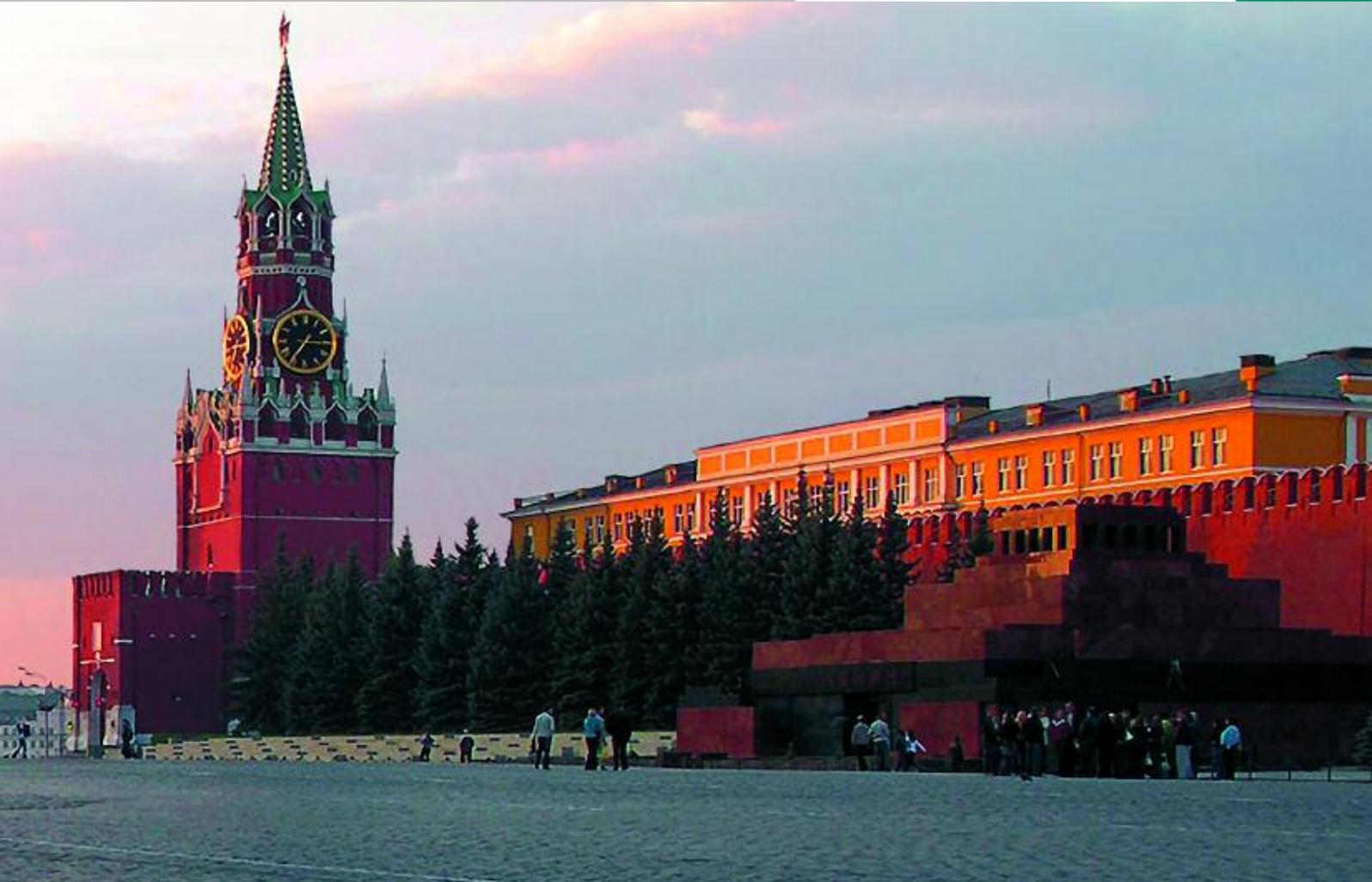
We will complete a task complex which can be described as execution the interaction between the Russian dealers and the manufacturing plant and coordinating and monitoring the automotive equipment sellers work within the territory of the country.

► **How is this coordination implemented in practice?**

There are 24 dealers of the AvtoKraz HC in Russia. They are operating within a territory reaching from St. Petersburg to Khabarovsk. The dealer network comprises all the cities-millionaires. Before establishment of the official importer company the Russian sellers of KrAZ vehicles worked unmethodically, without general strategy and mutual coordination. Our task is not only a systematic increase of "KrAZ" automotive equipment sales, but also organizing its effective promotion and provide accurate and timely service and quality and prompt repair. "RusKraz" will cooperate with the manufacturing plant in terms of defining the primary business development directions in Russia, sustain a timely execution of orders for the technique supplied and assist vehicle design improvement according to the customers' wishes. Moreover, considering that earlier all the orders from the dealers were forwarded directly to the plant, now there will be a common order formed as dealers required. Such a procedure will simplify and expedite its execution.

► **What are the results of such an approach?**

Such method of work means first of all structuring. As one dealer can have a growth of sales, others will decline. The importer strives for systematic growth of sales and here we need to coordinate the process countrywide. We have started a detailed analysis of demand on technique among Russian enterprises, who mount their equipment on Kremenchug chassis, for example mobile drilling machines or logging platforms. As a result we have come to a conclusion that a number of enterprises order annually approximately the same amount of KrAZ vehicles. And we thought: why not plan the work of the plant following the annular requests of regular customers? AvtoKraz will get the opportunity to plan in



advance the load of production facilities. The customers here will save a lot of time. Technique will be manufactured and delivered at our disposal beforehand and a customer will receive it as soon as he requires it.

► **But can a precise number of chassis orders be guessed?**

Chassis are not surely the dump trucks, but it makes no doubt that each thing can find its buyer!

KrAZ vehicles in Russia are well-known and highly estimated. Recently we got an order for a lot of trucks from the dealer in Khabarovsk. Frankly speaking, I thought he would have difficulties with their sales, as the Primorskiy Krai is floated with Chinese and used Japanese trucks of all classes and types. I was surprised when just a few days after the trucks shipment the dealer called and told he had already found their owners.

► **The AvtoKrAZ Holding Company is an Ukrainian company. How do things stand with the trucks customs clearance?**

One of the most important purposes of the “RusKrAZ” Company establishment is to solve the problem of the trucks customs clearance. Previously each dealer dealt with this problem on his own.

It often happened that the customers refused the order due to the long clearance terms and non-desire to wait for the execution of all bureaucratic procedures. Now we are purposively engaged in the problem of customs clearance as well as equipment certification.

► **What top-priority problems are you solving now?**

First, it is putting things into order in the after-sales service of KrAZ trucks. Often for dealers it’s much more

important to sell the vehicle and the further service of it seems secondary. As a result, the truck owners had to have them repaired on their own. To cope with the existing situation we required our dealers to arrange a service zone and a store for the most demanded spare parts. They are not to crap out from the warranty service of the trucks sold by them or bought at other sellers. Secondly the “RusKrAZ” is seriously engaged in the Russian centralized spare parts store build-up to order and deliver them centralized, which is easier, faster and economically more efficient. We plan for the store to come into service within the nearest future. Thirdly, our company is beginning to gather information on the trucks failures, which will give us an opportunity to optimize the dealers’ supply with spare parts and to interact with the manufacturing plant on estimating the weaknesses of truck design in the most effective way.

Until recently some of the dealers in addition to KrAZ vehicles used to sell trucks of another similar rank brands, mainly Chinese ones. We demanded that they stop such a practice. And one more important point: now every dealer works only in a fixed territory, so that they not make an unnecessary interior rivalry in definite region.

► **What are the plans defined for the “RusKrAZ” in the current year?**

We are assigned the task to push up the KrAZ trucks sale. In the year 2007 more than 2000 KrAZ automobiles were sold in Russia, in the present year we plan to achieve an increase of sales of 500 units.

The “RusKrAZ”, Ltd

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# PIT-RUN LOCOMOTIVE

The dimensions of this vehicle inspire with respect even from far. The “average” KrAZ-6510 (6x4) dump truck with 8,35m in length and 2,9m in height, parked nearby, seems...no, not like a toy certainly, but too fragile. All is correct. Our testee has 2-meter distance from the front bumper to the rear platform. The cabin is placed thirty centimeters higher. Merely a word: locomotive. Pit-run. In fact, let me introduce: we're portraying the 25 tons KrAZ-7140C6 dump truck.

Its “first night” took place held last summer in Moscow at the “Interavto'2007” Exposition. The Ukrainian premiere was in October in frames of the “TIR'2007” Commercial Transport Show. Positive responses and a number of advance orders from potential customers bear evidence of the good market prospective of this new dump truck. Generally speaking, a dump truck with the 8x6 wheel arrangement is the achievement of design development of 3-axles 18-tons KrAZ 65032-070 (6x6) dumper, equipped with single Michelin tires keeping 2,5 meters width limit. The precondition of the KrAZ-7140C6 vehicle appearance was as follows: the mentioned 6x6 dump truck has not a sufficient but an excessive reserve of passability required for overburden operations in the open-pit, for instance. But there is no reserve remained for a payload increase. This is the reason to decide about a considerable increase of load capacity by setting an auxiliary axle. Due to the unbelievable load capacity reserve this axle was made non-driving to reduce the price and simplify the construction. As a result the KrAZ-7140C6 truck does not differ from the KrAZ-65032-070 dump truck with its running gear and third axle. And only on the lengthened rear overhang of frame there is an auxiliary axle mounted on the individual leaf suspension. The wheels are steered by a separate hydraulic

actuator and turn reversely from the front ones. As a result the turning radius of the KrAZ-7140C6 truck proved to be even less than 3-axles truck!

A detailed inspection focuses on the frame: it is completely made from a single channel. Its safety coefficient allows not even to think about implementing the auxiliary boosters in the form of an extra internal channel or straps in the points of maximum tension concentration. Besides, the frame of a dump truck with the 8x6 wheel arrangement is fully original but not a modified detail and has no extension inlays. And the 4-axle truck platform is actually an elongated variant of the KrAZ-65032-070 platform: a few several meters of length allowed increasing its capacity one and a half times as much. Gratifying, the body remained unresized regarding to the load capacity required: 18 m<sup>3</sup> for the 25-tons load means that the truck can easily be used for the ground, argil, or natural sand transportation without a risk to be seriously overloaded, while many of “the Chinese” loaded maximally can be officially used for haydite and coal transportation.

Due to the increased full mass, comparing to the 3-axle truck the KrAZ-7140C6 vehicle was provided with a more powerful engine – the 400 hp “eight” YAMZ-7511.10 instead of the YAMZ-238DE2, 330 hp. Towing performance abilities of the 4-axle truck are higher due to the 9-stage transmission YAMZ-2391 with a “snake” first speed, gear ratio of which is one and a half times more than but the first gear of the 8-stage 6x6 dump truck transmission.

## Keep driving...

I have never driven KrAZ truck before, but quickly managed to find a common language with it. Maneuverability is absolutely excellent: by turning-turnback it



unconsciously seems that a vehicle will need much more space. Due to the fact that outside axles are driven, there is no “plough” effect appeared by a sharp turn on the slippery road (in the open-pit where a test was carried out there were none but of such kind): even with the rear interwheel blocking activated a loaded dump truck didn’t tend to slide with its front wheels off the turning radius, because rear axle stably “twists” the hull back in the direction required. The excavator, which loaded us in the open-pit, heaped 6 cubic meters (approximately 10 t) of overburden into the body at a stretch. We decided to limit with two dippers: at 20% underloading the machine behavior will differ insignificantly from the one at-with full mass. What we noticed at first. The place of loading that goes from the technological “track” to the patch of overburden discharge was separated by a long ascending grade entirely covered by a viscous mess like a cement mortar. 40 tons BelAZ vehicles obviously did not like that descent: they passed to the top slipping and making wheel-track. A few trips of BelAZ vehicles resulted in that heavy bulldozer had to intervene in order to “clean-up” difficult areas. But KrAZ vehicle did overcome this section without apparent difficulties, even without blocking activation. Consequently, if such dump trucks are applied bulldozer would have only to make a check cleaning-up once per shift or even more seldom.

Due to successfully selected ratios and high engine torque (at 1000 rpm already it makes 1550 m uphill) rate of acceleration of the loaded KrAZ-7140C6 has not changed significantly in comparison with the empty one. But the travelling comfort has improved considerably. If we speak about cross-country ability, slippery washed-out roads, wet clay, heavy squishy ground, sand are unlikely to become an obstacle for the KrAZ-7140C6:

powerful engine, three driving axles and two interwheel blockings will be enough to overcome any road (I mean off-roads) conditions under which wheeled equipment can not be operated at all.

### Economic factor

Speaking about economic attractiveness of the KrAZ-7140C6 (8x6) operation as compared to the KrAZ-65032 (6x6), it is right side up. Having 40% payload growth and 50% capacity increase, dump truck (8x6) average fuel consumption is only 10-15% more. Fundamentally, only one pair of tires has been added to the “consumers”. Who can be viewed as a competitor? All-wheel drive KamAZ and MAZ vehicles do not reach KrAZ with respect to load-carrying capacity. MZKT-75165 and MoAZ-75051 may be not taken into account due to scanty volume of production. Their free entering the roads of common use is blocked due to their oversized width. The Chinese have not yet started to supply us dump trucks of really high cross-country ability. Thus, the most real competitor for our hero is rather Tatra of TerrNo1 series (8x8): it is notable for payload (29 t), higher level of comfort, except the price is “pricey”. Hence: the new Kremenchug dump truck is sure to find its place in the sun. Generally we can say to KrAZ people: “Well done!” Their systematic work at model range extending and reconstruction of the already developed trucks within the recent few years has not been wasted – the volume of production for the recent five years has increased nearly five times. On the whole, keep it up!

Nikolay Markov,  
“Kom Trans” (Russia)  
№3, 2008

# IN THE MOUNTAINS OF

Annually about 150 KrAZ vehicles are set off to Georgia – to the state with an ancient history and original unique culture, kind and outgoing people, to the country of mountains and songs.

Mr. Sergey Dun', Deputy General Director – Quality Director and Mr. Nikolay Lyapun, Director of the AvtoKrAZ HC Trade House have made a business trip to Georgia and shared with their impressions about the trip and plans of Ukrainian-Georgian cooperation.



Nikolay Lyapun

► **What kind of agreements have been reached during the visit?**

**N. Lyapun:** Following the results of negotiations with the enterprises of Georgia we have reached the agreement to have delivered to Georgia about 200 units of automotive engineering by the end of 2008.

Today interests of the the AvtoKrAZ Holding Company in the territory of Georgia are represented by the “Tavazi” Company. To extend the presence of KrAZ vehicles in the market and to offer the customers a possibility of buying KrAZ vehicles

in leasing, the Georgian party initiated the establishment of representative offices of the AvtoKrAZ Holding Company in the territory of Georgia. It will be executed on a base of the “Tavazi” Company. Today the stock of orders for purchasing KrAZ trucks under leasing schemes makes about 20 units per month. Therefore the AvtoKrAZ HC plans to launch this program in the nearest future.

► **How do Georgian customers speak about KrAZ**

**vehicles?**

**S. Dun':** We have visited many places where our KrAZ vehicles are mass-workers. There are no complaints on the quality of our production in Georgia, they are satisfied with KrAZ vehicles that work efficiently, frequently round-the-clock and successfully cope with the tasks assigned. They are operated correctly, valued, treated carefully. People understand that these trucks are the main source of their income.

Not far away from Batumi 28 KrAZ vehicles are used for transportation of rock extracted from the bed of the Chorokh river and transported to the plant of concrete products. The project manager spoke well of KrAZ vehicles operating characteristics.

We also visited the “Georgian Manganese” Company in the city of Chiatura. The company is located in the mountain terrain of West Georgia at the height of 1000-1200 m above the sea level. Here manganese ore is extracted and treated. There is a very good attitude to KrAZ trucks in this region. We reached the agreement with the “Georgian manganese” to deliver 50 KrAZ-7140C6 vehicles to replace BelAZ vehicles working here.

► **How is the after-sales service of the supplied technique carried out?**

# GEORGIA



**S. Dun’:** Warranty and post-warranty maintenance of the trucks supplied both for the recent few years and during the time of the Soviet Union is conducted by the “Tavazi” company. Today there is a company service center in Georgia. It is located at the distance of 12 km from Tbilisi. Two years ago this was a neglected automobile operating company. And today this is a service station of modern level which meets the customer’s demands and services the KrAZ vehicles delivered to the countries of Transcaucasia.

► **What are your future plans for cooperation development?**

**N. Lyapun:** A fleet of automobile equipment in Georgia mostly consists of old trucks. According to approximate calculations today there are at about 2.5 thousand old vehicles of KrAZ-255, 256, 258 operated in Georgia. Therefore the emergency issue in Georgia at the present moment is the setting up of a new repair plant for modernization of the existing fleet of heavy-duty trucks.

A supply of spare parts for updating a truck fleet will begin in May of the current year. Repair-work will be done by experts of the “Tavazi” Company. As a next step of cooperation development between Georgia

and the AvtoKrAZ HC we consider an establishment of the trucks assembly plant in the territory of Georgia. We already reached some advance agreements. A show room arranged by the “Tavazi Company” started its work. It is located on the Tbilisi – Batumi basic transport highway. A fleet of new KrAZ trucks in Georgia makes at about 500 units, including state. In 2008-2009 we can double here a fleet of new KrAZ trucks and development of some commercial projects.



Sergey Dun’

“We extract stones on the Chorokh river. The “Tavazi Company” supplies us with KrAZ trucks and provides their maintenance. We have no claims neither to the “Tavazi Company” not to KrAZ trucks. There are insignificant breakages during operation, but they are promptly eliminated by our partner – the “Tavazi Company”. It is already the second year we deal with KrAZ trucks. There are 28 units in our stock, and they are in operation round the clock. I can say the Ukrainian trucks are the best ones. Here we have Turkish trucks, MAN trucks, and others, but they are intended for operation on roads, KrAZ trucks are beyond comparison”, says Georgiy Gubeladze, Deputy General Director of the “Avtomzidi Company”.

# MIRAGES OF DAKAR





News that organizers had cancelled the race "Euromilhoes Lisboa-Dakar 2008" bursted like a bolt from a clear sky directly before its start, on January 4. There were tears and shock, disappointments and broken hopes, vainly spent efforts and a financial loss of thousands of dollars.

510 teams from 50 countries, including the "Team KRAZ Ukraine" of the AvtoKRAZ Holding Company, dreamed to challenge the desert and reach the Pink Lake. The KrAZ-5233BE vehicle would pass a route of the most complex world motor rally as the technical assistance vehicle for the first time in the history of the Ukrainian racing.

The objective of the KrAZ team was charged to take part in the racing out of the competition was to get acquainted with the route and ideology of the racing.

The KrAZ team consisted of driver Sergey Malik, champion of Ukraine on circuit racing, navigator Sergey Sukhovskiy, champion of Ukraine on rally racing and mechanic Alexander Masliy, test driver of the top category of the Kremenchug automobile plant. Having returned from the journey, **Alexander Masliy** shared the impressions and the feelings he had experienced during these days.

► **Alexander, what kind of feelings did you have when you heard that you had become a member of the team going to Dakar?**

I felt emotion and joy over being charged with this mission. Everybody knows that such routes not only test the vehicles but also the teams in endurance, strength of mind and skills. As every other professional driver I have always dreamed to drive on real racing routes, to feel all the power and strength of the truck you drive and to negotiate the extreme obstacles. When I had a chance to achieve my dream, I was enthused.

► **Could you tell us about the preparation and departure?**

The farewell was touching. Thousands of people gathered on the main square of country – The Independence Square – wished us a happy journey and success. A child attached a toy to the direction indicator switch "for luck". I keep it as a talisman for this journey. The preparation for the journey was very rushed. In two weeks we had to obtain visas for Shenguen, Morocco, Mauritania, Senegal and prepare necessary documents such as driver's licenses, medical certificates and special

license for driving in countries with a vehicle which mass exceeds 3.5 tons (such license is necessary for each separate country).

► **How did you feel while driving? How did the local population react to you during your journey?**

Honestly speaking, the trip was exhausting. To be able to cover a distance of 6 000 km in over 4 days (we left the borders of Ukraine on 30<sup>th</sup> of December and arrived to Lisbon on 30<sup>th</sup> of January 2008) – a great result! It was impossible to find a place to rest during the New Year holidays. All the hotels were overcrowded, but luckily we could use the sleeping bags we brought. When we got to the destination point, we rested, slept so good that before the start we were cheerful, full of energy and "up in arms".

Different situations happened on the way. For the 6 000 km we covered to get to Lisbon we had an opportunity to test the truck on various roads. We crossed Poland and Germany on autobahns. Then our way ran through the Alps, where we branched off in order to decrease the distance and continued our journey on the shortest upland roads, using GPS. The drop in temperature was about 30 degrees and added some difficulties. Just in case the truck body was full of spare parts, just to be safe!

It happened so that we had tested our truck by gravel and glaze ice but not by the sand! We had a rest in mountain towns. The streets are so narrow there that it seemed to us we can hardly pass without catching balconies with our mirrors. In the mountains fog came down, the road was almost invisible that complicated our driving.

The local population in the different countries we were passing, met us very well. We were accepted as heroes because people saw the Dakar TV cast running the day before. The truck stroke the eye from a far. The names and blood groups of crew members were on the cab. In Spain we were asked to give autographs, while in Portugal our names and surnames were chanted. Since we wore special clothes, we were recognized in all-in-service stations and in other places. The same happened in Ukraine, anywhere we stopped people came up to us and asked to take pictures with the truck. My daughter later told me: "Daddy, you had a "Moment of glory".

► **How did the truck do on the way?**

The truck covered all the distance well, almost 12 000 km without any breakage. We only had to replace the blinkers lights. Sergey Malik and I drove the truck in turns. Sergey was enthused at our truck and put hopes in it.

► **Tell us about your meeting with the other teams. What happened at the starting line?**

For Lisbon the start of Dakar is a great holiday. The people live by this event: these days the entire city is brightly illuminated and merry-go-rounds work and much other entertainment for both adults and children. A lot of people take pictures near the exhibited vehicles of the participants too.

The atmosphere among the crews of rally is friendly, people make acquaintances, communicate and greet

## ◀ MIRAGES OF DAKAR



each other. While we were taking pictures the team of KamAZ were driving by, broke, greeted us with joy and hanked. We were very pleased to hear from members of the KamAZ crew heartfelt words to us. At the starting line we were welcomed. When we opened the hood of the truck and everybody noticed that it was the standard model the surprise and admiration knew no bounds. We were called “pioneers” since only “pimped out” vehicles usually take part in the rally, something like “three shock absorbers per one wheel” and other things. No other vehicle was so popular!

About 100 000 Ukrainians live in Lisbon and they came closer, took interest in the truck, touched it and told us their life stories: someone used to work as “Kraz” driver and someone used to drive it in the army. We thought they would take the truck to pieces.

- ▶ **What were the feelings in your soul at that moment?**  
Pride for the plant and for the truck, we were happy that Kraz got in the rally as a repair truck and that we were given a hearty welcome. As we approached the starting line we saw the Ukrainian flag and we were met by a great tornado of applause and exclamations. These feelings can't be described nor expressed, they can only be experienced.
- ▶ **What was the reaction of participants to news of the rally cancellation?**  
Stress and shock... People cried... The preparation for the rally is not an affair of a week or even a month, it requires efforts, energy and colossal investments. We were upset and disappointed, we almost got a map and made acquaintance with the team that we were to join. Our task consisted in following the route of the rally, observing how the things go around. We were to know

what we have to bear in mind when preparing for such a serious event. And though we didn't get to do it, the experience was not in vain. We tested the possibilities of the truck which after leaving the assembly line passed 12 000 km without any particular preparation. I have no doubts that we would have reached Dakar! Moreover, we got a definite managerial experience and drew appropriate conclusions on things we have to work on and what we have to improve in the truck while preparing for such kind of a rally.

- ▶ **You crossed almost all Europe. What impressed you?**  
We were at the cape Cabo da Roca – it's the Europe western-most point. The truck caught the ocean splashes but we didn't risk to drive down to the ocean shore because the storm force was about 6 degrees. Everyone who has been on ocean storm knows the truck could be carried away in three seconds.  
Driving on the autobahns we could see nothing but the road and the vehicles. When driving on highways we could see picturesque places and pieces of nature particularly in the mountains. While approaching Portugal we were charmed by a canyon – two rocks and between them at 140 m height there is a bridge. When driving in Switzerland we were impressed by the beauty of mountains rising above us. We had to pass through the tunnels that break through the mountains and one of them is 5 km long.
- ▶ **If you get another chance will you take part in such a project?**  
It is a question I am often asked lately. In my soul I know that if I have a chance I will not refuse, because it's a sign of destiny and such a chance comes once in lifetime. It's a must.

## ◀ THE JOURNALISTS COMMENTS

### ▶ Leonid Gogolev, editor-in-chief of the “Commercial vehicles” magazine (Ukraine):

“I had the opportunity to test two other axle all-wheel drive KrAZ trucks. And then I appreciated the high cross-country ability and the excellent maneuverability of the trucks. The truck intended for the participation in the rally was designed on the same base. So the test became something like a meeting with an old acquaintance. I noticed with pleasure the cab style to be more safe inside. The air suspension seats for crew members increasing comfort when driving. It’s noteworthy that the central seat for the mechanic is noticeably moved back that the legs room. I had a great pleasure after I had tested the new gearbox of the famous brand Eaton. The shifting was performed according to the usual H-shaped scheme and more to the point. It was accurate and easy. The test-drive took place in a territory where there was sand, sharp hills and boggy areas. Expectedly the truck cross-country ability was at the highest pitch. The truck ran like a million dollars! I appreciated once more its maneuverability; the steering wheel is very responsive.

It’s a pity that the rally-raid “Lisbon-Dakar 2008” didn’t take place for a number of reasons. There are all the reasons to consider that the KrAZ wouldn’t get in trouble”.

### ▶ Maxim Shelepenkov, the columnist of the “Gruzovik-Press” magazine (Russia):”

Constantly applied all-wheel drive helped to prevent getting into mischief in a diddicult situation, but it excluded reckless driving on narrow curves. When driving an unloaded truck on barchans we could use only high range speed gears which in combination with a really luxury gearbox manufactured in China save many troubles relating to the selection of speeds – the shifting according to the usual scheme was exact and quick. The brakes were of the “KrAZ” character! Pressing the brake pedal was to be made with a high accuracy. The frozen sand in January and a perfect geometric cross-country ability created an excellent alliance for demonstrating a high speed passage of trucks in the cross-country. Even

these untrained as automobile journalists easily negotiated any slope, hill or ravine. As consequence, such permissiveness played a low-down trick to us. Between two sand barchans before negotiating a new hill the speed was reduced to 0 and KrAZ didn’t manage to climb up on the sand. The attempts to get out of the unexpected trap made the truck to go deeply in the sands. And we began to rub hands gladly – ha, we managed to dig Dakar truck in sand! But our happiness was too early because we absolutely forgot about the central tire inflation system. As soon as the tyre pressure dropped to 2 atm, the truck came out of sand trap with surprising easiness. We wanted to find out the truck speed limit on highway: KrAZ got up to 130 km/h – but there was still a speed margin – the rated engine speed at high range hardly exceeded 1500 min<sup>-1</sup>.

### ▶ Nikolai Markov, correspondent of the “Commercial vehicles” magazine (Russia):

The KrAZ truck intended for Dakar made a very pleasant impression. A company eliminated tight steering wheel and exceptionally hard gas pedal, which I had experienced earlier while driving the serial vehicles. The gearbox manufactured in China was highly appreciated! Good selectivity, almost double lever effort reduction and exact engagement of gears. Due to the insignificant efforts applied in the controlling system you got a possibility to drive the KrAZ-5233BE while sliding. When you are speaking about a heavy-duty truck this description seems to be rather odd. But at one moment you begin to feel you are driving the jeep, which is unbelievable huge in its size. The inset of wheel arises smoothly (the tyres resistance to skid lasts surprisingly long) and it is quite predictable. To reduce it one should slightly release gas pedal for two seconds: practically at once the stabilization comes and the truck comes back to path of motion determined by the steering wheel. The distinctive feature is that when making a turn on rims the vehicle is far from to be turned down: it seems that with the best wish in the world we will not succeed to turn the unloaded KrAZ-5233BE truck on slick roads! And in spite of our wish we didn’t manage to stall the truck in the quarry”.



## TECHNICAL PERFORMANCES

Wheel arrangement	4x4
Curb mass, kg	11000
Truck full mass, kg	17000
– through front axle, kg	7000
– through bogie, kg	10000
Engine	YAMZ-238DE2
Engine displacement, l	14,86
Power, kW (hp)	243 (330) at 2100 rpm
Engine torque, Nm (kgf·m)	1274 (130) at 1100-1300 rpm
Clutch	single-disk, model MFZ 430
Gearbox	double-range, nine-speed
Final drive	central, two-stage axles
Final drive ratio	6,154
Transfer case ratios:	
– high range	0,95
– low range	1,31

# IN THE SANDS 0

In November 2007, the KrAZ-5133BE (4x4) off-road truck passed tests held by the Ministry of Defense of Yemen Republic.

The specialists of the AvtoKrAZ HC Test Centre Mr. Vasiliy Ukhnal' and Mr. Valeriy Kalyuga tell how the truck approved its work.

► **What was the purpose of your trip?**

Yemen has always been a traditional sales market for the Kremenchug trucks. KrAZ trucks are well-known in this country. Currently, the spare parts are regularly supplied to Yemen. JTI Company represents the AvtoKrAZ Company interests at the Yemenite market. Yemenite military forces showed their interest in KrAZ trucks. But for these trucks to be taken into service, it is necessary to go through the official tests procedure. That was the reason our KrAZ appeared in the Yemen sands.

► **How did the truck approve its work?**

The total run of the truck made 3800 km. The truck perfectly approved its work at all stages. The militaries imported enthusiastically about the truck performance, especially in the areas of quicksands, while we overcame all difficult obstacles with no efforts with the tire pressure reduced. On the sharp serpentine hill during the ferry from Sayoun to Hamud, the military even began applauding when the truck briskly climbed the 40% gradient.

► **How did the country impress you?**

It is the admirably picturesque region. Though the civil war was over more than ten years ago, it is difficult to call the country calm and quiet. Such a quantity of weapon like in Yemen, we have not seen anywhere! Yemen is the country with the biggest quantity of weapon per head in the world. According to some data, almost four pistols or guns fall per each citizen including women and children. Minefields, jeeps with machineguns, camouflaged tanks along the roads – all these factors make modern Yemen. The Kalashnikov gun for men isn't just a weapon but a symbol of manhood and freedom. Menfolk publicly carry beautiful cranked daggers called "jamby". Although the carrying of arms was lately restricted by the legislation. In spite of their belligerent air the Yemenites are very communicable, sincere and friendly.



► **What impressed you in particular?**

"Mud skyscrapers" in Shibam. Just imagine white and yellow 10–11 storied buildings which were built in XIX and made up of burnt clay without any additional linking elements.

► **Did you enjoy the ethnic cuisine?**

It is unusual, but delicious and rich! very spicy thick soup called "shurpa", "salta" is stewed poultry meat with lens, beans, spices, served with rice, "hanid" is the lamb stew with spices, traditional flatbreads, kabob, couscous... and certainly sweets!

Just as the owners of the house we used bread or flatbread instead of flatware to take meat or gravy. Knives and forks are used seldom in daily living, but they are always available in restaurants and are served on the guest's demands.

Strange it may seem that in spite of that the coffee roots are originated from Yemen, the daily drink in the country is tee (called "shi") spiced with herbs which Yemenite people drink from small glass cups.

# F YEMEN



## ◀ IN THE SANDS OF YEMEN

### FROM BOARD LOG:

<b>23.11.07</b>	The ferry of the truck from the sea port Hodeida to the capital city of Sana'a. The route length makes 240 km through the pass at the height of 3600 m. The truck covered a distance without any problems.
<b>24.11.07</b>	The truck was shown to the representatives of the Ministry of Defense. The test schedule of KrAZ on the roads of Yemen is approved. The truck is loaded with new storage batteries, estimated weight of the load is 7 t.
<b>25.11.07</b>	The ferry of the truck covered the distance of 550 km from the city of Sana'a in the east of the country to the town of Sayoun. The beginning of our way was a sharp serpentine downhill to wild country, after that there was smooth asphalt road crossing the desert. The travel speed is 80-100 km/h. All truck performances are in order. The ambient temperature is about 40 °C. We unloaded a party of new storage batteries in a military department. Instead of these batteries we loaded the same quantity of the used ones.
<b>26.11.07</b>	The ferry of the truck from the town of Sayoun to the town of Hamud. After leaving a military department we negotiated a very sharp serpentine hill (about 40%), the engine power was quite sufficient. Having negotiated the hill we stopped to inspect the vehicle. Cooling liquid temperature did not exceed 85 °C. Because of the frequent sharp turns the oil in the steering tank warmed up. There was a slight oil slobbering through the tank breather. Further our way went through mountain country with slight upgrades and downgrades. In Hamud the next party of storage batteries was unloaded and replaced by the used ones.
<b>27.11.07</b>	The ferry of the truck Hamud – Romah – Hat. In every point of destination the unloading/loading of storage batteries is performed. All groups and units of the truck are in order.
<b>28.11.07</b>	The ferry from the town of Hat to the town of Al Haida. Now on our way there was a smooth road section. At the end of our route approaching Al Haida we negotiated a sharp downhill. The distance from Sana'a to Al Haida was 1600 km. The truck covered all this distance without any problems. The town of Al Haida became the end point of unloading new storage batteries and loading the used ones.
<b>29.11.07</b>	Return trip: town of Haida – town of Sana'a. Our way was on the same route, upgrades and downgrades were the same too.
<b>30.11.07</b>	Returning we moved to the town of Romah where we have the command of border troops. The militaries asked us to show them negotiating the sand areas. With the decreased tire pressure to 3 atm we reached the hilly sand area, where the truck negotiated all the obstacles specified by the army men. Most obstacles were small barchans and the smooth but friable sand. The militaries were impressed by the truck performance.
<b>01.12.07</b>	The ferry of the truck from the town of Romah to the town of Sayoun.
<b>02.12.07</b>	Sayoun – Sana'a. After we covered the distance of 240 km on asphalt road in the desert the militaries asked us to turn off and to drive a distance of 50 km on barchans along the asphalt road. The tyre pressure was decreased to 3 atm and the truck successfully coped with its task. Then we turned on hard road, pumped up tyres and continued our way to the capital of Yemen.
<b>03.12.07</b>	The truck was inspected after the run of 3200 km in the military department of the Ministry of Defense located in Sana'a, the oil in engine was changed. After the work had been carried out, KrAZ was loaded with track shoes. The load on the vehicle made 8 t.
<b>04.12.07</b>	Uphill climbing. After covering the distance of 20 km we stopped in front of the mountain on peak where the artillery post was located. The army men asked us to climb up to this post. The causeway was very narrow and sharp with reversing. There were some moments when KrAZ didn't negotiate the corner the very first time and we had to reverse, sometimes we had to drive on cliff edge. To army men's joy which they didn't dissimulate, the truck had coped successfully with this task. All the performances were excellent.
<b>08.12.07</b>	Sharp hill descent. The descent was as dangerous as the climbing up. With the low range speed and exhaust brake applied we happily got down. The trucks were highly appreciated by the army men again.
<b>12.12.07</b>	The truck climbed up and descended without any problem. After we put the load in a straight way (track blocks slipped off) we went out to negotiate one more hill.

# IN OPEN PITS OF POLAND



The Ukrainian trucks are well known in Poland and have a reputation of reliable and simple in service vehicles. Till 1992 the deliveries of KrAZ trucks to Poland were regular. Since 1960 about 8 000 trucks had been delivered to Poland. After the USSR collapse the contacts and channels of sales which had been established for years were lost.

And now, 15 years later, the KrAZ trucks of a new generation return to the market of Poland. For the last year about 30 KrAZ trucks have been delivered there. A party of new KrAZ-65032 trucks works in the open gravel mine of polish township of Shcheguchitse. A truck run is 3000 – 13000 m. Mr. Stanislav Shchislovskiy, Deputy Chief of the Mining Department of the “Shcheguchitse 2” Mine tells about the operation of KrAZ trucks.

► **What is your company profile?**

The “KRUSZGEO” Company profile is the extraction and recycling of constructive, mineral, natural and drag ores as well as extraction and recycling of mineral raw materials. One of the segments of our activity is the production of concrete and products from concrete. Also we provide geological, geological – engineering, laboratory and geodesic services.

All our business is focused in 24 manufacturing enterprises and 5 service rendering enterprises situated in the

territory of Malopolski and Podkarpatski Provinces.

► **The machinery and especially trucks are of top priority among all business activities provided. Not long ago new KrAZ trucks appeared in your fleet. Where do you use them?** You are right. In May of 2007 during the “AUTOSTRADA POLSKA” Road Building Exhibition we were proposed the KrAZ trucks. We purchased a party of KrAZ trucks and began to use them in July for bringing out the ground during working in open pit as well as carrying the sand-gravel aggregate from the open pit to the recycling enterprises.

► **Do you plan to purchase a next party of KrAZ trucks?** Yes, we do. We are very content with the ones we are operating now. Their work is blameless. These trucks are reliable, enduring, moreover their price is competitive.

► **What factors were decisive in your choice of vehicle?**

Besides the above-mentioned factors, the work of these trucks in open pit is stable. In spite of their big dimensions they are very maneuverable This is very important for the safety and labor economics in conditions we have. Based on the work carried out by these vehicles we assured that KrAZ trucks are notable for their high endurance in difficult geographical conditions.



## OPERATION EXPERIENCE: COMBINED ROAD TRUCKS

Durable KrAZ frame with side members made of hot-rolled channel bars is an ideal base for mounting of any kind of equipment intended for oil and gas complex, extractive industry, wood-processing industry, building industry, road and community facilities as well as armed forces.

So, combined road trucks on KrAZ-6510 and KrAZ-65055 chassis manufactured on demand of “UkrAvtoDor” and well known German manufacturer of equipment intended for community facilities – “Schmidt” company – are widely exploited on the roads of Ukraine. The trucks are intended for loose and bulk loads transportation as well as for removal of snow from road surface, spreading of chemical composition to prevent freezing over and ice formation on pavement.

The seminars dedicated to “Operation and maintenance of snow removal machines on chassis of KrAZ truck took place in Kiev and in Kharkov, where managers, mechanics and drivers of “UkrAvtoDor” had been trained for an efficient operation and qualitative maintenance of the trucks KrAZ-6510 and KrAZ-65055 equipped with Schmidt products.

**The director of “UkrAvtoDor” Kharkov department, Evgeniy Zarjavets** remarked high reliability of KrAZ trucks as well as qualitative service securing rational operation of road maintenance vehicles.

KrAZ trucks were also highly estimated by other representatives of “UkrAvtoDor” organizations, among them there are:

**Mikhail Niberkal, Plant Engineer of DEO of Ternopil region department:**

“I feel that these trucks perform work which two similar vehicles of other manufacturers can’t do together. KrAZ trucks are famous for their power. KrAZ trucks are much more enduring than those of other well known brands. Real workers! Schmidt equipment is notable for simplicity in operation, easy maintenance and high reparability. We had no problems with their operation”.

**Vasiliy Lagovski, Plant Engineer of DEO, Rivne region department of “UkrAvtoDor”:**

“I have been servicing these vehicles for a long time. They approved themselves very well. No claims, they are super in work! Their easy maintenance is a matter of no small consequence. And last but not the least, they are paid back in a relatively short time. The operation of the KrAZ trucks provides absolutely minimum costs. I am very glad of their operation.”

**Alexander Trubaev, Plant Engineer of DEO of Kharkiv region department:**

“Unfortunately, this year we had no opportunity to use and test these vehicles at best one can, but we still manage to make sure of their advantages. When removing snow we noted many positive moments in their operation as well as in their maintenance. The first advantage is their all-season work, in wintertime KrAZ trucks are used as combined road vehicles equipped with sand spreading and snow plough attachments, while in summer time they are equipped with a standard dump platform, and the vehicle is used as a dump truck. The truck is quite usable, as it is exploited well enough in different weather conditions”.

## ADVANCED EQUIPMENT PUT INTO PRODUCTION

To increase the volume of output, the AvtoKrAZ Holding Company actively improves its production, implementing advanced technologies and effective machinery into the manufacturing process. In 2007 the automobile plant put into operation 39 items of processing equipment. The number of machines, already existing at the plant, were extended with 20 new ones intended for manufacture of accessories and tools. The assembly production is implemented a laser-cutting machine, which can process more than 500 types of spare parts. It allowed to exclude the costs for preparing the production of die tooling.

The bay of flexible technologies was completed by the hydraulic bending machine with programmed numerical control for manufacturing parts by the method of high precision bending, producing more than 100 types of spare parts. At the same bay a pipe-bending machine with PNC was put into operation for high precision manufacturing of parts for the exhaust system of KrAZ vehicles from pipes of 60-120 mm in diameter. The guillotine-shears with PNC are mounted for cutting a steel sheet of maximum 12 mm in thickness.

Implementation of the flexible technologies of micro-plasma and laser cutting, bending on machines with PNC resulted in refusal from 250 types of die tooling to the amount of more than 900 000 USD during 2007.

The implementation of the new machinery into the manufacturing process permitted to improve quality of

parts, increase productivity, decrease production cost, and extend design possibilities when developing new parts. The increase in costs on energy sources forces the company to an active implementation of energy-saving technologies. The range of organizational and technical measures meant to save energy resources permitted the AvtoKrAZ to decrease considerably electric energy, water and gas consumption in 2006-2007.

The program of technical re-equipment suspects the investment in new technologies valuing more than 20 millions USD in 2008.



### Interesting fact

The processing equipment machinery of the Kremenchug automobile plant numbers more than 9000 items.

The machinery disposes some long-living rarities! The place of honor in the history of the AvtoKrAZ HC is taken by a band sawing machine manufactured by the "KIRCHNER" Company (Leipzig, Germany). This machine won many awards on International Exhibitions in Chicago (1893) and in Paris (1900). It appeared in the bridge building plant in 1946 and continues to deal with its tasks successfully. Some time ago it has been used for sawing the boards for wood and metallic cabins and later for packages intended for spare parts, casting forms and fabrication parts.

# PLATFORM EVOLUTION



1958 was the year when the Yaroslavskiy automobile plant moved the production of trucks and YAZ vehicles main units to Kremenchug. The KrAZ was provided with the platform drawings, including:

- bucket type dump platform from sheet steel;
- YAZ-214 side platform, consisting of metallic base with welded body front and sides as well as of wooden detachable sides and metallic tailgate. The platform was equipped with bows and tent. It was mounted off-the-shelf on KrAZ-255B advanced trucks
- side platform of the YAZ-219 truck (consisting of metallic welded base, body front, 4 body sides and wooden tailgate, reinforced by steel parts). This platform was applied off-the-shelf on KrAZ-257. In nineties this platform was equipped with metallic drop sides manufactured by the Tokmak Press-Forging Plant, that was the member of the AvtoKrAZ Industrial Association. Due to the small production volume the TFPF refused to manufacture them and KrAZ returned to its wooden sides.

Since 1959 the plant began the development of platforms for new trucks. In 1961 were manufactured first KrAZ-254 experimental side tippers. But this development didn't cause any consequences. In two years there was a platform of 6 m<sup>3</sup> in capacity designed for KrAZ-256, which was more technological and less metal-intensive. On its basis the plant made the 8 m<sup>3</sup> platform of KrAZ-256BAЭ for export vehicles. In 1969 was manufactured an experimental model of the KrAZ-251 dump truck, differing by a new cabin and modified platform with body sides equipped with horizontal stiffeners. Due to the deterioration of the assembly-welding processibility the production of this platform was not started. At the same time the Company developed a platform for the KrAZ-250 platform truck, which differed from the platform of KrAZ-257 by metallic body sides made of formed section and modified body bolts.

A new platform of KrAZ-255B type was designed for

KrAZ-260 off-road trucks. The difference was in light-weight base made of separate supports instead of longitudinal side members. KrAZ-6322 modern trucks are equipped with such platform with small modifications.

In seventies appeared a road train consisting of KrAZ-6435 fifth-wheel tractor with three way tipping trailer and of KrAZ-8570 two way tipping trailer. There was a platform especially designed for it in two variants: with cruciform base of the "Miler" type and base with longitudinal side members. The platform was equipped with power-operated sides opening and closing. To avoid self backfilling of wheels in the time of side dumping, body sides were of split-design under the height. Here the low part of side acts as a continuation of base. The works under this project were stopped.

In the end of seventies the KrAZ-251 dump truck was equipped with telescopic tipper of the KamAZ vehicle which was connected to the platform in the upper part of body front under cabin guard canopy without any additional links. The design of the platform was considerably simplified. The platforms of 7, 5; 9 and 10 m<sup>3</sup> were developed. Along with these works was developed a design of platform of the KrAZ-256B type with application of telescopic tipper for KrAZ-65041 modified truck. In spite of positive results of test this activity had no further development due to the problem of provision with the KamAZ telescopic tippers.

All dump platforms of initial period (till eighties) were equipped with cabin guard canopies overlapping the cab till windshield. In the next period the cabin guards were minimized, they assured overlapping the space only between cab and platform to avoid damage of parts by falling pieces of hard-rock. In eighties KrAZ-65055 and KrAZ-6032 models with increased load carrying capacity appeared in the model range of KrAZ products. They were applied platforms with traditional equalizing lift. The particularity of the new platforms was in use of high resistance and low-alloyed steel with increased

thickness of sheets for parts manufacturing.

Since 1991 to 1993 were produced and tested some variants of dump platforms with different arrangement of body side stiffeners, longitudinal side members and cross bars of base.

In 1994-1995 for the first time was applied a system concept in design development of platforms: there was developed a family of dump platforms with capacity of 9; 10,5 and 12 m<sup>3</sup> for the KrAZ-6125C4, 65055 and 65032 trucks with gate or without it.

In 1998 on the demand of Ukrainian agrarians there was the 20 m<sup>3</sup> platform developed for the KrAZ-6130C4 and intended for transportation of agricultural loads with a density less than 1 t/m<sup>3</sup>. Just a new element was the tailgate with power-operated lifting on the height up to 600 mm above body side level, ensuring increase of area of passage during unloading.

The gate is equipped with flaps with vertical hinges ensuring the loading/unloading of separate, for example, long goods or unit loads without use of hydraulic hoist. Here there is a hatch provided which is equipped with a latch ensuring the unloading of restricted quantity of bulk loads. In 2002 the 20 m<sup>3</sup> platform was developed for the KrAZ-7133 C4 (8x4) truck intended for transportation of agricultural and other "light" cargoes. This platform is similar to the 6130C4 platform but it has the usual gate. In 2006-2007 the reinforced platforms with 14 and 16 m<sup>3</sup> of capacity similar to the platform of KrAZ-65055 were developed for heavier cargoes. The particularity of these platforms is the presence of the so called shovel placed behind the gate preventing the self backfilling of the wheels. The same platform but with the capacity of 18 m<sup>3</sup> was developed in 2007 for the KrAZ-7140C6 (8x6). The platforms of type 6510 and 65055 with straight base without slant section of floor in the rear part of platform, equipped with gates with manual locks were designed for combine road trucks named "Dorozhnik". Such a design was intended for transportation of sticky cargoes. The works on developing of platforms were less dynamic. In 1996-1997 there were new platforms appeared for line-haul train as part of the KrAZ-5133B2 (4x2) fifth-wheel tractor and A181B2 trailer, where their base and sides were made from formed section. Aiming to meet the European standards with the platform there was developed an original platform design of the KrAZ-5133B2 and A181B2 trailer. They differed by detachable body sides, side racks and tent carcass.

Since 2005 up to the present time there was developed a line of side platforms on the basis of the KrAZ-6322 and KrAZ-65101 platforms with a variation of their dimensions or application spheres of separate elements in accordance with the customers' demands.

Last year the plant has designed a side platform with a reinforced base and tent bows of the KrAZ-5233B2 truck in the variants as follows: vehicle for mine clearing for Ukrainian Ministry of Emergency Situations (MES) and

sport truck for the participation in the Lisbon-Dakar 2008 Rally. Currently the standard series of dump platforms includes the platforms with capacity of 8; 9; 10,5; 12; 14; 16; 18 and 20 m<sup>3</sup>.

In the short range plans there is development of dump platform with arch cross section according to the European standards.



1959

8 m<sup>3</sup>

1966

6 m<sup>3</sup>

1985

9 m<sup>3</sup>

1993

10 m<sup>3</sup>

1994

10,5 m<sup>3</sup>

1995

12 m<sup>3</sup>

1996

20 m<sup>3</sup>

2006

16 m<sup>3</sup>

2007

18 m<sup>3</sup>

A humor article about KrAZ was published on one of the popular American gateways – Absurdopedia. We would like to offer you the fragment of it.



Picture of V. Grigorenko

## WITH A SMILE ABOUT KRAZ

"KrAZ" – Ukrainian truck manufacturer that manufactures super cool off-road and on-road trucks. Even they are not off-road trucks, KrAZ trucks are still super cool. They have been through some hard times (and soft ones, too), but they've made it because they are too cool to die. Now, let's go on with this story.

### HISTORY

After World War II the Ukrainians were almost totally dry of money, so they needed a way to produce more money. So, in 1946 they began constructing a factory in Kremenchug, but they had a tough time to deciding on what it should produce. So, even after the factory was finished, they spent a few years idling until someone had the idea of producing combines. They began combine production in 1956, but it made too little money to be successful, so they left it.

Then somebody had the brilliant idea to produce trucks, and it was that point that they conducted experiments with injecting Chuck Norris' DNA into ordinary 6x6 trucks. Why they chose to do this is a mystery, and shall always be because of the Soviet Union's secrecy. The result was the KrAZ-255 off-road truck. It was like nothing anyone ever seen before. With its massive off-road tyres, high ground clearance and large size, KrAZ-255 was ultimate off-road heavy duty truck. It was a great success for the company. The initial batch had sold out within the first day, and as a result, the Ukrainian economy was revitalized.

However, there were problems with obtaining more of Chuck Norris DNA, so they made more of it using top-secret Soviet replication techniques. Then, one day, somebody accidentally injected a non off-road truck with Chuck Norris DNA, and the resulting truck, although not as super cool as KrAZ-255, was still really cool. This truck was designated KrAZ-256, and it made even more money for KrAZ, as not everyone was looking for an off-road truck. In 1971, for their contributions to the Soviet Union, KrAZ was awarded the Order of Lenin.

Eventually, it was decided that, though they were really super cool and all, KrAZ-255 and KrAZ-256 were looking

old-fashioned compared to newer trucks, so in 1982, new replacements were issued in the form of KrAZ-260 6x6 truck and KrAZ-261 6x4 truck. Both trucks proved even more popular than KrAZ-255 and KrAZ-256 that they replaced. After the fall of the Soviet Union, the plant had fallen on some hard times. At this time they founded the group "Foreign Trade Firm KrAZ" for the purpose of exporting their super trucks. It was also at this time that KrAZ-260 was redesigned and improved as KrAZ-6322. Other new models, such as KrAZ-65101 6x4 and KrAZ-7133H4 8x4 were introduced in these post-Soviet years. Today, KrAZ is the most popular Ukrainian truck manufacturer ever.

### TRUCKS

As explained earlier, the reason that KrAZ trucks are so good is because they have been injected with some of Chuck Norris' DNA. The off-road models also have huge off-road tires, high ground clearance and just huge all around. KrAZ trucks are powered by YAMZ diesel engines, which have a horsepower output from 240-330 hp depending on the model. Sadly, they are not available in the USA for some reason. Maybe those Americans don't know about what they are missing, they are happy with Hummer H2's, which have the huge fuel consumption. KrAZ trucks are available in a wide variety of applications, including: cargo/transport, tractor-trailer, fire truck, garbage truck, dump truck, etc... However they can not go back in time. They can't even go 88 MPH. They can only reach 40 MPH. If you are looking for fast, then you are stupid. Just have you on. If you are looking for torque and towing capacity, then we've got your truck right here, guy! And this truck is just that you need.

### SUMMARY

The trucks KrAZ are super reliable and super cool. KrAZ trucks are super-reliable & super-awesome. They will hardly let you down. They are also the best in many areas such as: off-road capability, towing capacity, coolness, etc... In addition, the company KrAZ has been around for a long time, so their trucks are proven. So, the name of your heavy-duty truck should be KrAZ. If it's not, then you are STUPID!

# WE INVITE YOU TO VISIT THE EXPOSITIONS OF AvtoKrAZ HC

## MAY

6-8	"Avtosalon. Avtotechservice. Uraltrans"	Ufa
8-10	"Avto-Expo"	Barnaul
10-18	"Arkhangelsk-Avto"	Arkhangelsk
13-15	"Avtomir-Saratov"	Saratov
14-16	"AUTO EXPO CASABLANCA 2008"	Morocco, Kasablanka
14-16	"Transport. Road engineering"	Novokuznetsk
15-18	"AUTOSTRADA-POLSKA 2008"	Poland, Kielce
15-18	"Avtotechservice"	Volgograd
16-18	"Oil and gas of Uzbekistan. OGU-2008"	Tashkent
16-18	"Bridges. Roads"	Khanty-Mansiysk
17-20	"Building-2008"	Voronezh
20-23	"Cheliabinskiy Avtosalon-2008"	Chelyabinsk
22-25	"Roads. Bridges"	Omsk
26-30	"Road and building engineering", "Avtomir-2008"	Tyumen
27-30	"Avtomir"	Perm
27-30	"Avtosib-2008"	Novosibirsk
28-31	"Retekmash-2008"	Moscow
29-31	"International Transportation Fair 2008"	Cuba, Havana

## JUNE

3-6	"Russia coal and mining-2008"	Novokuznetsk
4-6	"Oil and gas of Kaspiy-2008"	Baku
4-7	"Wood. Wood processing industry"	Tomsk
6-8	"Murman-AVTO 2008"	Murmansk
7-12	"FIA – FOIRE INTERNATIONALE D'ALGER 2008"	Algeria, Algiers
9-10	"Avto and Service"	Krasnoyarsk
10-13	"Crimea. Avtosalon-2008"	Simferopol
16-20	"Avtosalon"	Syktyvkar
17-20	"WAMPEX 2008" – the 8-th West African mining and energetic exhibition	Ghana, Accra
17-20	"Technodrev. Ural. Povolgye"	Perm
17-21	"Kazan-Avto"	Kazan
june	"Building engineering and technologies"	Moscow
25-27	"Min Tek Kazakhstan"	Karaganda
25-27	"AGRO-2007"	Kiev
28	"KrAZ-2008" Motor Show	Kremenchug

## JULY

3-4	"Road-building engineering and technologies"	Perm
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## AUGUST

13-17	"National Sorochintsky Fair"	B. Sorochintsy
27 august – 7 september	"Avtosalon-2008", "Interavto-2008"	Moscow



# KRAZ -2008 MOTOR SHOW



KREMENCHUG  
June, 28, 2008

