

# STEEL character

**THE KRAZ-5401K2 GREEN AND EFFICIENT  
UKRAINIAN TRUCK**



# STEEL character

CORPORATE MAGAZINE OF PJSC "AUTOKRAZ"

Editor-in-Chief: D. Stegantseva

Designed and made up by: D.Stegantseva

Photographs from archives of PJSC "AutoKRAZ", Streit Company, PJSC "PAAZ", Y.Gogolev, K.Zakurdayev, S.Popsuyevitch.

Printed by – "Printlux", Kremenchug.

Circulation: 700 copies. Editorial office: Press service PJSC "AutoKRAZ"

62, Kiyevskaya Str., Kremenchug, 39631, Ukraine

Tel.: +38 (0536) 766092; tel/fax: +38 (0536) 766208; e-mail: pr@kraz.ua

When using materials reference to the magazine is obligatory.



KRAZ NEWS **4-5**



KRAZ-PATRIOT **6-7**



TEST-DRIVE **10-12**



PARTNERS **16-17**



TESTS **20-23**



ANNIVERSARY **27-28**

## **DEAR READERS!**

*I am very pleased to greet you on pages of the latest issue of our corporate magazine Steel Character.*

*I am grateful to you for being with “AutoKrAZ” all this time.*

*These last years have been a trying time that brought some tough challenges for the Kremenchug Automobile Plant. This year is no exception. Financial crisis has been aggravated by political situation, which made it many times more difficult for the company to operate. However, we do not give up, rev up production and sales, build new products, improve customer appeal and quality of mass produced vehicle and come into new markets.*

*Our plans are ambitious but realistic. Today efforts are underway to extend our lineup and they are meant both to increase and decrease payload capacity. Very soon, we will unveil a new cabover version of four-axle chassis cab. At the same time, we work to develop lighter vehicles available in 4x2 axle configuration, not only heavy but also medium-duty trucks.*

*As for major strategic plans of the company for the next few years, our priority is to achieve pre-crisis level of production and sales seen in 2007-2008, and to come into European market.*

*We are optimistic, result-oriented and feel confident about KrAZ future.*

*Roman Chernyak, General Director  
PJSC “AutoKrAZ”*

## NEW KRAZ DUMP TRUCK!



“AutoKrAZ” has built the KrAZ C26.2M 6x4 dump truck offering greater payload capacity of 26 ton.

The novelty features the WP12.400E40 inline diesel engine rated at 400 hp that meets Euro-4 emission standards but can be adapted to meet Euro-5. It is equipped with SCR system that offers some advantages: extremely low emissions level, reduced fuel consumption and Nox content in exhaust gases. The engine is coupled with the MFZ-430 clutch and the 9JS200TA transmission.

The KrAZ C26.2M dump truck is provided with ergonomic MAN cab that features comfortable air-suspended driver’s seat, height and tilt adjustable steering column, functional dashboard and many other advantages that offer comfortable working environment and reduce driver fatigue.

Moreover, it has a new 14 cubic metres half round dump body with Binotto telescopic hoist.

## NEW KRAZ-MOUNTED SPECIAL VEHICLE



“AutoKrAZ” in partnership with Machine-Building Plant “Zvezda” (Karpinsk, RF) has built a new MZ-3B-16 mix pump vehicle mounted on the KrAZ C20.R 6x4 truck.

The truck is provided with the YaMZ-6511 6-cylinder engine (Euro 4) rated at 362 hp, the MFZ 430 single disk clutch. This truck also features a comfortable Renault Kerax cab and 3-ton Palfinger crane.

The MZ-3B-16 mix pump truck is used for carrying explosives or their components and loading holes with a diameter of 130 mm and over with all kinds of factory-produced granular explosives allowed for mechanical loading as well as with igdanit (ANFO) and granulite “E” prepared on-site by mixing.

## SUCCESSFUL DEBUT OF THE KRAZ-MPV SHREK ONE VEHICLE



PJSC “AutoKrAZ”, in partnership with Streit Group, has built a new KrAZ-MPV Shrek One vehicle. The Route Clearance Vehicle was unveiled at two International Exhibitions: “Eurosatory 2014” (June 16–20 in Paris) and DVD-2014 (Defence Vehicle Dynamics) (June 25-26 in UK). The KrAZ-MPV Shrek One is mine protected off-road vehicle with V-hull mounted on the KrAZ-5233 4x4 chassis. It is used for investigation in dangerous areas, detection and clearance of explosive devices. The vehicle is provided with Bomb Arm with Grasping rake and CCTV system remotely controlled from the cab. It is offered in the following versions: KrAZ-Personnel Carrier, KrAZ-Ambulance, KrAZ-RCV.

Its ballistic protection meets B6+/STANAG 4569 level 2. Tire Inflation System or RunFlat tires are available that allow to drive with punctured tires and ensure that handling remains steady.

Preliminary orders have been placed before the KrAZ-ASV went on display. The exhibition results enable us to say that the KrAZ-MPV Shrek One will take rightful place among similar vehicles. It has been confirmed by many attendees who came to see the novelty throughout the exhibition, high praise given to the armored vehicle by weapons experts from various countries of the world and a number of scheduled negotiations with delegations of Africa, Europe, Middle East and Southeast Asia.

## NEW KRAZ AERIAL LIFT TRUCK FOR MINING AND CONCENTRATING COMPANY

“AutoKRAZ” in partnership with “Protorus”, leading Ukrainian manufacturer of various truck-mounted aerial lifts and boom hoist trucks, has built the KrAZ-63221 (VS-26MC) aerial lift truck. This special vehicle is used for repair, construction and installation and other works involving height of up to 26 m.

The elbow aerial lift is mounted on the KrAZ-63221 all-wheel drive three-axle chassis truck (6x6, 330 hp).

Four-door cab can accommodate as many as seven crewmembers.

The customer, LLC “Yeristov Mining and Concentrating Company”, is very glad with the product.

The company says the upside is that Ukrainian Mining and Concentrating Companies still prefer purchasing heavy-duty trucks from domestic manufacturer and consider “AutoKRAZ” as serious partner, which has a potential to provide them with a wide range of vehicles and maintenance service for them.



## ANOTHER KRAZ FIRE FIGHTER

Another novelty in the lineup of KrAZ fire fighters is the KrAZ-6443 (AC-30-70-2) special vehicle used for protection and emergency response. The order has been placed by the Ministry for Emergency Situations of Kazakhstan. The novelty has been built by “AutoKRAZ” in partnership with “POZHSPETSMASH” (Priluki), leading Ukrainian manufacturer of fire fighting and special vehicles.

This combination vehicle consists of the KrAZ-6443 6x6 tractor truck powered with the YaMZ-6582.10.12 engine meeting Euro-3 and special equipment including 30 cu.m. tank with independent water heater, 1000 l foam tank and fire pump discharging 60 l/s at a head of 100m.

Compartments in self-supporting structural body are automatically lighted, spot lights are provided along the perimeter of vehicle body.



## NEW 8X8 KRAZ CHASSIS CAB

The novelty of 2014 is a new KrAZ H27.3EX (8x8) chassis cab used to carry special equipment such as cranes, equipment for oil and gas and forest industries.

27-tonne KrAZ H27.3EX chassis cab is provided with the YaMZ-7511.10 engine meeting Euro 3 rated at 400 hp, the YaMZ-184 single disk clutch and the YaMZ-2391 transmission. This power plant and powertrain allow for improving traction performance of the vehicle.

The novelty features engine behind cab layout and length from back of cab to end of chassis of 8080 mm. First and second axles are steerable, all the axles are driving. Integral power steering allows reducing force applied to steering wheel to 10 kgf, which helps reduce significantly driver fatigue. All-wheel drive provides for use of this vehicle on rugged terrains.

Low mounted ergonomic Hubei RDGD cab, 2800 mm (for comparison the KrAZ H30.1EX truck cab has height of 3170 mm) enables easy installation of crane and other equipment, while wide windshield provides excellent visibility.



# SERVING THE PEOPLE OF UKRAINE!

An army is an image of a country, an evidence of its power and strength. A nation ceases being power when it is unable to defend itself. Military invasion to Crimea revealed that Ukraine is unable to stand up to outside aggression, its army falls behind in all the weapons and equipment. Most military equipment built in the period of USSR is obsolete and worn out. Unfortunately, only military conflict and the price Ukraine had to pay made understand that it is time to create a new army, modern, mobile and able to face challenges and threats of the 21st century.

KrAZ is ready to serve to the people of Ukraine. Together with other patriots, domestic manufacturer can help Ukraine to be strong independent state. Military trucks from "AutoKrAZ" are as good as foreign-made ones and sometimes even exceed them in performance. There are good reasons for up-to-date KrAZ trucks being in service with 36 armies of the world such as Georgia, Iraq, Egypt, India, Yemen, Angola and Nigeria. KrAZ trucks are used to carry personnel and various cargoes, tow artillery systems and trailers with weight ranging from 12 to 75 tons. They accommodate warfare systems and various combat systems, tow aircrafts with gross weight as much as 100 tons.

Special vehicles have always been in the lineup of the Kremenchug Automobile Plant,

which includes: the KrAZ-6322 Soldier (6x6) and the KrAZ-5233BE Spetsnaz (4x4) platform trucks, the KrAZ-63221, KrAZ-6322 (6x6) and the KrAZ-5233HE (4x4) chassis trucks, the KrAZ-6446 (6x6) and the KrAZT17.1EX (6x6) tractor trucks. Two models of army off-road trucks such as the KrAZ-6322 Soldier (6x6) and the KrAZ-5233BE Spetsnaz (4x4) have undergone official tests and have been adopted by the Armed Forces of Ukraine. Adopted on paper, in fact only some units were delivered to the Ukrainian army.

Military KrAZ trucks are powerful, rugged, reliable and simple. They meet all the requirements applicable to soldiers. An experience of service in the armies of various world countries and use during combat operations show that KrAZ trucks tackle tough jobs under the harshest

environmental conditions: desert, jungle, mountains. KrAZ trucks are workhorses operating over temperature range from -50 to +65°C, 5000 metres above sea level, water barriers as deep as 1,5 m and snow cover as high as 0,6 m are no obstacles for them. A centralized tyre inflation system ensures excellent off road capability on low-load-bearing capacity soils.

Cab-behind engine design is a huge advantage on the battlefield, as it ensures reliable protection for the crew. Combatants say that landmine blast under the vehicle destroys front axle but occupants survive. It is not for nothing that they call KrAZ bonnet "1,5 metres of life".

Today, amid local wars and military conflicts, a need



The KrAZ-6322 Soldier AWD Military Vehicle



The KrAZ-5233 Spetsnaz Truck



The KrAZ-6322REB-Mounted Kolchuga-M Passive Surveillance System



The KrAZ-6322REB-Mounted Kolchuga-M Passive Surveillance System

emerged for armoured trucks, for this reason, “AutoKrAZ” and its partners started building vehicles provided with base and additional armour kits.

AWD KrAZ chassis trucks available in 4x4 and 6x6 axle configurations can carry all body superstructures for military use. They accommodate weapons systems such as the BM-21 Grad MLRS and C300 ADMS, intelligence systems, various communication systems and mobile command posts. They are excellent carriers for pontoon bridge equipment, mobile workshops, various engineering equipment such as tanks, cranes, etc.

The secret of popularity among body superstructure manufacturers and military men is very simple: it has no equal in many areas. It is an exceptional case when the vehicle has all the qualities of conqueror of tough terrains: durable unkillable chassis, rugged rigid axles on semi-elliptic springs, wide section pressure-adjusted tires and heavy-duty bumper. A multitude of conversion possibilities primarily due to a wide choice of lengths from back of cab to end of frame and rated load parameters are an additional irresistible argument for the military men who opted for the KrAZ chassis trucks to accommodate their body superstructures, including very heavy weapon systems.

KrAZ is waiting for call up! Alone or in partnership with such national manufacturers as “Iskra”, “Aerotechnika”, “Progress” and “KhZTO”, KrAZ is willing to provide the Ukrainian army with state-of-the-art weapons and military equipment. Hope emerged that governmental policy aimed to support domestic manufacturers would be put into reality. We would like economic patriotism of Japan and USA to set the example for Ukraine. Their cry Be a Patriot, Buy Domestic Products could not have come at a better time. House divided against itself cannot stand! Serve to the people of Ukraine!



Based on the KrAZ-63221 Chassis Truck



The 9K57 Uragan Weapons System



The KrAZ T17.1EX Tractor Truck in Combination with Trailer

# KRAZ MUNICIPAL VEHICLES



The KO-503 IVK Vacuum Vehicle Mounted on the KrAZ H12.2 Chassis Cab



The KrAZ K12.2 Rear Loader Garbage Truck

It is hard to imagine maintenance of urban streets without using special vehicles. Cleaning of storm drains, response to disasters, water supply to residents and urban infrastructure maintenance are hardly possible without special equipment for municipal services. Domestic manufacturer “AutoKrAZ” has all the capabilities to provide municipal services of the country with high-performance and efficient vehicles.

KrAZ has launched production of municipal vehicles not long ago, because this powerful heavy-duty truck has been developed for use in tough environments. So it has been for a long time: construction sites, open pits, oil and gas production sites, forestries, MD and MES units, KrAZ trucks have been widely used in these applications being some of the best if not the best vehicles. A cumbersome and heavy vehicle was not designed for use in tight urban environment, long bonnet did not provide small turning radius and made it difficult to maneuver in tight spots.

Everything has changed today. “KrAZ” made a great stride forward by developing and launching a lineup of flat nose vehicles. Nobody is surprised to see municipal vehicles with familiar KrAZ logo on radiator grille that bustle in and out while cleaning, sweeping, carrying garbage containers. These are KrAZ trucks of new generation: while keeping the same reliability, simple use and maintainability, they offer high performance, fuel economy and meet the highest standards.

“AutoKrAZ” could burst into the market of municipal vehicles by creating the cabover vehicles lineup depriving settled foreign competitors of their competitive advantages. Today the lineup of KrAZ special vehicles contains all the most popular municipal vehicles such as garbage trucks, street sweepers, gully cleaning and sludge pumping



The KrAZ K16.2R Garbage Truck with Removable Containers





The KrAZ-6322 (KO-503IV) Sludge Pumping Vehicle Provided with Equipment from “Budshlyakhmash”

vehicles, multi-purpose road maintenance trucks. The first municipal vehicles of this lineup went to serve to community to Kiev, Donetsk, Kremenchug and Komsomolsk. Manufacturer’s fears over difficult assimilation of heavy-duty truck in alien urban environment have not panned out. Moreover, its performance characteristics greatly exceed designed ones. Operators’ opinion: KrAZ does well in urban cycle, it offers efficiency, mobility and high performance.

Building a green chassis cab (4x2) provided with the Daimler gas engine meeting Euro-5 has been an important step in extension of municipal vehicles lineup. Gas engine ensures reduced fuel consumption, longer service life and minimum emission.

KrAZ continues to develop cabover vehicles, our efforts are meant to both increase and

decrease their payload capacity. This year, in accordance with Development Plan, a new general-purpose chassis cab suited to be fitted with any power plant and accommodate any body superstructure will be built.

Except municipal vehicles, KrAZ offers other special vehicles suitable for various applications and jobs. The automobile plant builds vehicles used for dismantling and construction of buildings: excavators, concrete mixer trucks, truck mounted-concrete pumps, pipe-layers, load-handling devices. These vehicles are the first and major helpers of municipal workers. Powerful and reliable equipment saves time and increase efficiency.

PJSC “AutoKrAZ” is open for cooperation. Let’s make cities clean together.



The KrAZ C20.2R Road Maintenance Vehicle with RASCO Salt Spreading and Snow Removal Equipment



The KrAZ-5401K2 Vacuum Street Sweeper with the Daimler Engine



The UDS-114 Boom Excavator Mounted on the KrAZ H17.1EX Chassis



The KrAZ H12.2 MDKZ Truck with “Budshlyakhmash” Sand Spreading and Snow Removal Equipment



The KrAZ-63221 Road Maintenance Vehicle with RETECH Snow Cutter Blower

Having a close up look at gas-powered KrAZ truck promised to be of special interest. We had to check a new vehicle heart powered by natural gas and sweep a road. That's so, because it was a street sweeping version of the KrAZ-5401K2 truck.

### PURITY WILL SAVE THE WORLD

An idea to convert the KrAZ truck to run on gas is as relevant as ever due to toughening emission standards. Cleanliness of exhaust puffed by the street sweeper operating close to residential buildings is of critical importance. This engine meets Euro-5 emissions standard that has been in effect in EU countries for several years. The truck is provided with the Mercedes-Benz M906LAG methane-powered engine rated at 279 hp. Gas is supplied to the engine from nine gas cylinders with total capacity of 1155 l.

The first thing you pay attention to is quiet engine running. Moreover, it is very much in evidence not only inside but also outside the cab: when standing close to the operating truck the impression is that it is not a heavy-duty truck but a light delivery van. The KrAZ-5401K2 truck has the cab we could see on previous KrAZ models, this cab is mounted on French trucks Renault Kerax. Of course, it is very impressive with its ergonomically friendly design and quality. Driver's seat offers multiple adjustments, for instance, you can adjust both seat cushion front and rear tilt.

The gas engine surprises with its flexibility when accelerating to 1000-1700 rpm in spite of curb



*KrAZ and gas. Do they have anything in common? That's funny enough but much in common. And we made sure of it by testing the first methane-powered Kremenchug truck.*

## GREEN CITY



The cab for gas-powered KrAZ truck has been adopted from well-known Renault Kerax truck. It offers excellent ergonomics



weight of 14 tons. It should be mentioned that tachometer with its bright LED scale is highly informative: green zone showing fuel efficient engine speed is illuminated all the time, while red zone comes on after the pointer moves beyond 2000 rpm mark.

Shaanxi 9-speed manual transmission is well familiar to us. It utilizes a gearshift lever from Renault truck, for this reason it has high/low range and splitter buttons, which are not used in this case. The transmission uses double H shift pattern. Shifting from low (1-4 gears) to high (5-8) range is made by moving the gearshift lever to the right until a click is heard. Gears are shifted properly, the only thing is that the gearshift lever is a bit tight, especially when shifting to 8th gear.

One of the primary advantages of gas engine is its fuel efficiency. And the KrAZ-5401K2 is no exception. Average methane consumption is within the range 25 and 30 cu.m. per 100 km. Diesel-powered version would have about 15 l of diesel fuel per 100 km. Not bad for heavy-duty truck.

# SWEEPING



Sweeping equipment control board has display showing images from camera located on the right side of the vehicle



Tachometer with LED scale and digital speedometer in the centre of control panel

## WONDER STREET SWEEPER

After checking road performance of the KrAZ-5401K2 chassis truck it is time to test its electronically controlled sweeping equipment from Turkish manufacturer Katmerciler. This is not the first KrAZ street sweeper we test. Two years ago we tested the KrAZ K12.2 sweeper provided with special equipment from German manufacturer Bucher-Schörling (see CV No 8 2011). Therefore, having some experience in road sweeping, we get down to

cleaning and removal of fallen leaves in the plant territory.

As a first step, we turn key in ignition switch on a special control panel located close to driver's seat and start an independent diesel engine rated at 120 hp. arranged behind the cab. The vehicle under test was provided with two side brooms and rotating main broom. There is a pick-up head on both sides of the vehicle. As a result, sweeping path ranges from 600 to 3700 mm. There is a water tank for broom sprinkling.

Left side broom movements can be seen through outside mirror, while to monitor right broom movements camera and color display are provided. As for the street sweeper with German equipment, it had no cameras. All debris are collected into 6 cubic metres hopper that is easily discharged by dumping, tipping angle is 55 degrees. Dumping mechanism can be controlled both with in-cab control board and outside board located in the rear of the hopper.

And what about picking up debris in inaccessible spots, for instance, in narrow driveway? 4 m long rear wandering hose with a diameter of 250 mm is provided for this purpose. Of course, we did not miss opportunity to use it a little, as holding it in hands is rather an easy job.

It should be mentioned that the vehicle offers an excellent maneuverability, which is of critical importance in tight streets. Turning radius is only 8,5 m at the chassis length of 7,95 m.

Test-drive by Leonid and Yuriy Gogolev, magazine Commercial Vehicles.

4 000 mm long rear wandering hose with a diameter of 250 mm



Process water draining after sweeping

The Mercedes-Benz 279 hp gas engine under the cab and gas cylinders behind



Sweeping equipment: rotating main broom (length 1500 mm / diameter 350 mm), side broom (diameter 700 mm / reach 650 mm) and pickup head (length 600 mm / diameter 250 mm)

# NEW HEART FOR KRAZ TRUCK

Every day the market imposes new requirements. Customers increase their demands. “AutoKrAZ”, as automaker that keeps up with innovations, adapts new engines to its trucks.

- WP12.400E40

- Euro 4/Euro 5

- Power: 400 hp

- Fuel consumption:  
185g/kW-hour



One of them is 400 hp. WP12.400E40 inline diesel engine (Weichai Power). This engine meets GOST (Russia), International Quality System ISO9001, ISO/TS16949, CE (Europe) and TUV (Germany) safety certificates.

It has been designed by Weichai Power engineers in partnership with Austrian Engineering Company AVL List GmbH and Bosch GmbH. The engine is designed to operate at temperature ranging from -60° to +50°C and relative humidity as much as 98% at +25°C.

Weichai Power is undisputed leader in the list of world leading manufacturers of diesel engine for heavy-duty trucks, buses, ships and power stations, its products are sold in over 60 countries of the world.

This unit meets Euro-4 emission standard and can be adapted to meet Euro-5, it is provided with high-efficiency SCR system: extremely low emissions, reduced fuel consumption of 185 g/kW-hour and lower nitrogen oxides level. The engine features Common Rail fuel system with Bosch fuel supply control unit.



- M906LAG

- Euro 5

- Power: 280 hp.

- 9 gas cylinders with total capacity of 1155 l

The other model is the M906LAG inline gas engine meeting Euro-5 emission standard from Daimler (Germany) that emits ultra low emissions. This engine is rated at 280 hp. at torque of 1000 Nm.

The use of special vehicles to be provided with gas engine has been predetermined by extremely low fuel consumption, extended service life and

reduced emissions. Two-axle chassis trucks to be provided with this engine will accommodate body superstructures for municipal applications. Excellent manoeuvrability in tight urban areas, fuel-efficient engine, extended mileage between fillings these are undisputable advantages of new KrAZ municipal vehicles in urban cycle.

# KRAZ CONQUERS A



The KrAZ-6322 Three-Axle Truck Jumps Off. Proving Ground at "AutoKraz", 2007.



The KrAZ-5233 Spetsnaz Truck at Kadex Proving Ground, 2010.



The KrAZ-5233BE Truck on Steps. Nizhniy Tagil, 2010.

KrAZ has been rightly called off-road vehicle. There is no obstacle KrAZ truck cannot overcome. Proving ground obstacles are no exception.

Even spoilt and satiated attendees at Idex, Sofex, proving grounds of Nizhniy Tagil and Bronnitsy, gave a standing ovation to the KrAZ truck. Driving over obstacle courses

is an audacious dazzling show featuring special boldness. Overcoming seemingly the most challenging obstacles of proving grounds it is a breeze for KrAZ. A flight off jump, driving up and down a 70 percent hill, spectacular driving through wading pool and mud pit is a risk, extreme, and KrAZ is at home in it.



The KrAZ-5233 Truck is the Only Vehicle that space & Defence. RSA, 2010.

# ALL OBSTACLES



ing Ground. Kazakhstan, 2012.



The KrAZ-5233Be Truck Drives over Vertical Step. Nizhniy Tagil, 2007.



Negotiated 70 Percent Gradient. Africa Aero-



The KrAZ-5233BE Truck Driven over Cross-Country Courses at IDEX-2011.



The KrAZ-6322 Raptor Overcomes Bumpy Track. UAE, IDEX-2007.

# KRAZ – STREIT: developing cooperation

Joint work to build the KrAZ-MPV Shrek One vehicle mounted on the KrAZ-5233 two-axle chassis has been a new step in development of cooperation between PJSC “AutoKrAZ” and Streit. Guerman Goutorov, Streit owner, tells about the company and prospects for the development of partnership with “KrAZ”:



Guerman Goutorov, President,  
Streit Group



Main Assembly Line of Streit  
Group

Streit Manufacturing Inc. was founded almost 20 years ago in Ontario (Canada). We started manufacturing armored vehicles in rented garage with few tools and bank loan, our first contract awarded was for delivery of three armored wagons. My dream was to manufacture the most innovative and safe vehicles. We worked non-stop to build vehicles before scheduled date. By the way, those wagons hand assembled by Streit workers are still in operation, although used as reserve vehicles.

A turtle on Streit logo is our particular pride. In our opinion, it represents a symbol of reliability and security without showing excessive aggression.

Cooperation between Streit and “AutoKrAZ” started in 2006 amid growing demand in heavy mine-protected armored vehicles that can carry more than 12 persons. KrAZ platform was a natural choice, as by that

time the vehicles produced by Kremenchug Automobile Plant had been widely recognized not only in CIS countries but also in foreign markets. In its turn, Streit was considered as the most acceptable contractor for armored vehicle development due to its flexible approach, the shortest development time and in-house production of prototypes. Thus the first armored vehicle meeting all up-to-date requirements and built by Streit on KrAZ chassis appeared. That was the KrAZ-6322 Raptor 6x6. It was showcased at IDEX-2007 in Abu-Dhabi where it was a great success. In spite of extra 5 tons of armor weight KrAZ masterfully and easily overcame the toughest obstacles of proving ground. I would like to emphasize that KrAZ had been chosen as armored vehicle platform due to its particular reliability and use of time-proven technical solutions. The choice is due in no small part to maintainability



Streit Group Headquarters





The KrAZ-MPV Shrek One Mounted on the KrAZ-5133HE



Shrek One Armored Ambulance Mounted on the KrAZ-5133HE

and acceptable operating costs. Surely, one of the most important criteria was its excellent value-for-money ratio.

Key element of joint success of Streit group and “KrAZ” is a close collaboration of our companies. I can safely say that within the period of cooperation both engineering technicians and managers could build up trend and ensure efficient teamwork to achieve shared goals. Careful attention to changing market requirements, willingness to invest in development of new models, a focus on quality of products are also the elements of our success.

Our priority markets are Middle East countries, Africa, Indian subcontinent regions, Southeast

Asia and Latin America. It is true that many manufacturers of armored vehicles in pursuit of innovations have crossed the price threshold affordable for most of our target markets. In development and launch of new models we are committed to use of the latest design solutions that allow keeping up the price within the effective demand. Markets of Europe/CIS and Northern America are also of the utmost interest, though they impose quite different certification requirements. By now, a series of Streit armored vehicles have been tested and certified according to NATO standards. At the same time, efforts are underway to homologate light armored vehicles for circulation

on the roads of European Union.

For obvious reasons, it's early to disclose details of cooperation between PJSC “AutoKrAZ” and Streit, however, even today I can say that joint offer of both companies caught the interest of end users from MOD and National Guard of Ukraine, with which we are discussing plans to deliver KrAZ-mounted armored vehicles.

We believe that “KrAZ”-Streit partnership has good prospects for development through defense and law enforcement agencies using our vehicles for safe transportation of personnel, patrolling, escorting and peace-keeping tasks. I am sure that “KrAZ”-Streit tandem will have great global success.



Shrek One RCV Armored Vehicle with Interrogation Arm for Investigation in Dangerous Areas

# PRESERVE YOUR HARVEST WITH KRAZ

Ukraine is a leading agricultural country. Record ever-increasing harvests of major crops such as small grains, corn and sunflower seeds cannot be reaped and processed without powerful vehicles. The KrAZ-6511C4 Caravan grain road train built by "AutoKrAZ" last year turns into reality all the aspirations of rural sector workers. Its major operating characteristics are not only impressive but also entitle us to say that KrAZ grain truck is the best offer for Ukrainian agrarian business.

What features has KrAZ novelty got? Payload capacity as large as 46 ton that allows carrying 75 cubic metres of crops. The WP12.400E40 400 hp. inline engine (Euro-4) delivers extraordinary power, it is coupled with the MFZ 430 clutch and the Fast Gear 12JS180TA. Ergonomic MAN cab produced under license has an air conditioning unit, independent heater, sleeper and other accessories for driving pleasure that reduce driver fatigue. Among them, there are power windows, rear view mirror adjuster, radio-tape recorder, cab guard canopy, door lock remote control, etc.

The road train is used for carrying and dumping bulk fine-fraction loads with a specific weight ranging from 0,4 to 0,85 t/cubic metres over all types of roads. It consists of dump truck and dump trailer provided with 35 cubic metres and 40 cubic metres dump bodies respectively that have been developed and made in partnership with Ukrainian leader in industry OOO "Aleko plant".

The grain truck is based on the KrAZ-6511 cabover chassis truck provided with reinforced equalizing beam suspension, front non-driving axle with increased axle capacity as much as 8 tons and integral steering gear.

Three-axle dump trailer is provided with air ride suspension that allows reducing trailer height

by 100 mm when unloading. Brake system of the WIELTON PS3D chassis is provided with ABS and EBS. Rear wheel chocks are automatic.

The truck dump body is capable to tip to the right side, while the trailer body to the right side and to the rear. Cover with device for winding up and unwinding is provided for cargo protection from weather and better safety, with special pads and additional ladders for comfortable and safe maintenance of cover and visual inspection of dump body and cargo.

KrAZ grain truck has already undergone field tests hauling grain from field to elevator and from elevator to port. It has been tested in Grain Corporation branches, Sumy and Krolevets Centres of Grain Production, where it was used to haul grain to elevators in Sumy, Poltava, Chernigov regions and port Ilyichevsk. Then KrAZ Caravan went for testing to PJSC "Zernoproduct MHP" for hauling soy beans from Bershada branch grain storage to the elevator in Mironovka, Kiev region. Test results are impressive: KrAZ grain truck proved to be more powerful and efficient than the automobile plant designers expected.

L.Tereshtchenko, Deputy Head of Production Department, PJSC "GPZKU", said, summarizing tests results: "We do business with small farms





Truck Dump Body Capable to Tip to the Right Side



State-of-the-Art Cab Offers High Level of Comfort



The WP12.400E40 Inline Engine Rated at 400 hp.



Trailer Dump Body Capable to Tip the Right and to the Rear



Dumping to the Rear and Right Side



Sleeper Bunk

and small-scale producers who have no possibility to carry harvest from fields. For that reason, it would be a good thing if we had our own grain trucks to carry crops. We were willing to accept proposal of “KRAZ” to carry out tests, moreover, this is a domestically produced vehicle.” In his turn, V.Kravtsov Director of “Sumy Centre of Grain Production” added:” We are pleased with this grain truck, it makes two trips per day of 120 km each hauling from 42 to 45 tons of grain per trip, load-in time is short”.

PJSC “Zernoprodukt MHP” workers also gave high praise to the KRAZ grain truck. They emphasized that this vehicle has excellent operating

characteristics, such as reduced fuel consumption per trip less than 38 l per 100 km. Short load-in and load-out time, driving speed on public roads and off road and comfortable working environment for driver made us glad, too. All the above-mentioned parameters have been recorded in tests reports of L.Pogorelov Research Institute for Future Studies and Agricultural Vehicles and Technologies Testing.

“AutoKRAZ” is sure that the new domestic grain road train will compete favorably in agriculture trucking. As far as “AutoKRAZ” is a domestic manufacturer, it offers to lease its products through Ministry of Agriculture leasing system.

# FIGHT OF TITANS



Two Titans KrAZ and MAN on the Start Line!



Vassiliy Ukhna, Test Driver, PJSC "AutoKrAZ"

**T**est driver Vassiliy Ukhna has been being on a first-name basis with KrAZ for over 30 years. Taming steel character of iron giant was possible due to extraordinary strength of his arms made from the same steel grade as KrAZ, strong nerves of steel and excellence in driving achieved by driving thousands of kilometres. He feels the truck as himself, one hundred percent confident in it!

KrAZ has never failed, it always gives a good account of itself whatever circumstances are. And now, going to Thailand for testing he had no doubts that KrAZ would be at its best.

KrAZ has won! That was a tough fight with European and Asian competitors. The story below goes about it.

By the way, initially foreign customers did not choose KrAZ. Thai officers came to Ukraine to have a close-up look at other heavy wheeled vehicles. A proving ground of "AutoKrAZ", the only in Ukraine, compliant

with world standards, perfectly suited to this purpose. After an armoured vehicle drove through obstacle course, hospitable KrAZ workers proposed to show run of their off road truck. And KrAZ showed at its best. Thai people were stunned how easily this seemingly cumbersome and clumpy giant truck was driving through intricate obstacles. KrAZ power impressed so much that we were immediately offered to compete in tender announced by the Royal Thai Army.

**Extract from a diary of test driver:**

*"15.01. I came to Bangkok, inspected the truck, it's all right. I fitted a black-out device, NATO electrical socket and set up a canopy. KrAZ is all set.*

*16.01. I can say that KrAZ testing has already started. The truck went under its own power to Kanchanaburi province (300 km) as tractor truck with semitrailer that had to haul it to test site had not been*



Towing Artillery Gun Over Rough Terrain

*provided for reasons undefined. Foreign country with its road laws, right-hand traffic could not prevent from coming in time. The truck faultlessly got to destination point. By and large, I can say it has undergone running-in.*

**17.01.** *Unexpected news. Seven out of nine competitors who had submitted a bid opted out of test. After seeing the most complicated obstacle course their trucks had to drive through, they were not about to take any chances. As a result, only two competitors will fight: Ukrainian KrAZ and German MAN.*

**21.01.** *Yesterday MAN completed preliminary testing. Today the ball is in our court. Rivals triumphed before the start looking forward for KrAZ's failure. "Do you really want to win on this puddle-jumper?", – told me German driver with ironic smile and unabashed superiority. His sarcasm rather made me angry and put in good heart than offended. I said reservedly: "Two can play at that game", – and went to prepare."*

That was not only the toughest

fight of two automaker giants but also confrontation of two totally opposite design concepts, two ideas embodied in metal by different manufacturers. Superiority is proved by deed not by word. You can speak for a long time about advantages and disadvantages of any brand, but what it is worth you can see only on the road.

When driving through obstacles our skilled driver from habit beat the bag out of it. He knew full surely, KrAZ is able to withstand extreme challenges. He suddenly recalled triumph in 2006 at IDEX demonstration track in Abu Dhabi, when KrAZ, this armoured leviathan, successfully overcame obstacles one by one. Then brilliant driving up 70 percent hill on the military proving ground in RSA. Sheikhs, generals, government leaders gave standing ovation to the KrAZ truck. He will show here in Thailand that KrAZ is an excellent truck, worthy adversary that must be respected. Simple and tough design, perfect strength and stability, ability to get out of any trouble, easy maintenance made this truck a must in many



Wading Pond Negotiated!



KrAZ Trucks Are Not Afraid of Mud



Driving Up 64 Percent Slope



Driving Through Proving Ground Obstacles



Tailspin: Steep Ascents Alternate with Equally Steep Descents



Towing Heavy Howitzer Over Rough Terrain



Sand Pit Negotiated!



Driving Over Cobblestones

armies of the world. It is evident that in case of victory here, in Southeast Asia, KrAZ will catch on, too.

Both trucks successfully passed tests, however, weight of ballast carried by the KrAZ truck was 12 ton, while his adversary carried two tons less. As soon as after first runs Europeans were not as high and mighty as before tests. Laugh at archaic KrAZ gave place to concern and anxiety. They realized that KrAZ, mediocre at first sight, is a dangerous and strong competitor.

During checkout tests, the fight was even tougher. KrAZ and MAN competed under the acute supervision of the Royal Thai Army's command. Now both trucks hauled 10 tons each.

*Extract from a diary of test driver:*

*"23.01. Checkout tests are over. KrAZ passed them well. Sense of pride in KrAZ and wish to be ahead of the game whipped up and carried along. A recognized engine, the YaMZ-238, delivered 330 horsepower, I had no problems with dynamics. My KrAZ truck, this huge Hercules, successfully made acrobatic maneuvers without giving a single chance to competitor."*

Extreme obstacles and road conditions made by laborious officers of the Royal Thai Army have been easily and effortlessly negotiated by KrAZ. It has been responsive to driver command. Though MAN performed better during checkout tests than at preliminary ones, it fell short of performance achieved by KrAZ. Ukrainian truck was the best in almost everything. Here are some details: KrAZ negotiated 0,9 m ditch, while its adversary could overcome only 0,7 m ditch, vertical step – 0,5 m, MAN only 0,4 m. A difference in performance

when driving through other obstacles was substantial: KrAZ's fording ability – 1,2m, MAN's fording ability – 0,75m. KrAZ towed 30 tons, while MAN only 20 tons. KrAZ could go up 64 percent gradient, while MAN only 40 percent, with difficulty. Our truck drove over cobblestone and undulating tracks and mud pit much faster. KrAZ's braking path at a speed of 50 m/h is two metres less than MAN's one.

Army men were surprisingly effective judges, notwithstanding that most officers obviously preferred MAN. KrAZ's persistence and strength helped break ice in hearts of those officers who felt cool about this truck. Commission members personally took measurements. Removal of an officer from the commission because of lobbying for German truck gives evidence that no biasing of results was possible.

*Extract from a diary of test driver:*

*“24.01. Major battle appears to be ahead. We drive trucks to point No 2 M\*\*\* to a firing field of artillery battalion. Turning point of tests, major reason for tendering, is a check for towing performance. In this case, towing 152 mm artillery gun. When speaking with army men I learnt that vehicles in service with the Thai Army today have*

*payload capacity as less as 5 ton only, towing heavy gun is too far for them.*

*28.01. I drove 10 kilometers off road with ammunition and artillery section onboard. Thai people checked the truck for boarding/deboarding convenience, ride comfort, rapidity of arrival to combat area. KrAZ ran easily without difficulty as it always has been.”*

From bad to worse. After loading 10-ton ballast and attaching a howitzer the truck went on running through circles of hell. Over asphalt road as long as 200 km at a speed of 60-80 km/h, over earth road to check towing performance of the truck with howitzer attached, over worndown road looking like after bombing, with ditches and potholes, road without any flat at all. Finally through impassable mud, when the truck in a literal sense had to swim in sticky slush as its belly was in contact with it. It was tough, but the result was worthy.

KrAZ, unlike its competitor, drove through all the planned tracks. The only thing it can be reproached with is a modest comfort. However, it was obvious that it was the last thing the army men cared about, they set a stress on quite different characteristics. By the way, easy maintenance of the KrAZ truck proved to be advantage. Thus, removal of “damaged”

and spare wheels, its assembly and disassembly on the KrAZ truck have been done faster and easier. MAN workers refused to do this task due to absence of necessary tools, as they explained. It proves once again that simplicity is worth much, especially on the frontline, in hellish road conditions or at extreme temperatures. Electronic equipment efficient on highways was temperamental in harsh environment and failed, only highly skilled personnel could repair it.

Further works outside the scope of tender tests have been carried out by KrAZ alone, its competitor refused to participate. Much was still ahead, but the most important thing was that KrAZ merited victory.

Participation of KrAZ in this tender is only a separate phase of tough battle of two titans. Ukrainian truck has had plenty of such battles for fifty years and many of them are still ahead. KrAZ has not always been winner, but it has never lost presence of mind, belief in victory and success.

*Information: the above-described events led to awarding the contract for delivery of 86 KrAZ off road trucks to the Royal Thai Army. The contract has been performed: KrAZ trucks have been in service with the army.*



Batch of KrAZ Off Road Trucks Arrived for Service

# FIRST-BORN KRAZ TRUCK CELEBRATES 55!

This year the Kremenchug first-born truck turns out 55 years. The 10th of April 1959 is a big day in the history of the Kremenchug Automobile Plant. This day two first KrAZ-222 Dniepr trucks were assembled.

First KrAZ dump trucks can be considered as Ukrainian trucks in spite of the fact they were assembled from drawings and parts delivered from the Yaroslavl Automobile Plant. They have reserved for ever the right to be named the first Ukrainian mass-production trucks. They were at the origin of the new brand “KrAZ” in the world’s automotive history.

KrAZ birth was difficult, as few in Kremenchug and at the plant could see the YaAZ truck, production of which they had to master. Conversion of the Kremenchug Harvester Plant into Automobile Plant started in April of 1958. “Many of us are concerned about vehicles to be produced by our plant. Our dear reader, you can see a photo showing the YaAZ-222 truck. It is the truck we decided to start from”. Such a caption appeared under the photo of the YaAZ-222 truck in a plant newspaper “Harvester Builder” with title in capital letters “Tomorrow’s Products” above and specifications below.

As early as September of 1960 the plant built first trucks with home-made chassis, transfer cases and axles. Production rates rise and 10000th truck, the KrAZ-222 Dniepr, was built the same year, while in April of 1963 the 25000th truck was made.

The history of trademark for the new automotive brand “KrAZ” is not without interest. Conditions of a contest announced in November stipulated the design of the tiniest parts of this trademark. It should be not only decorative element but also serve as bonnet handle and fit exactly into the space provided for Yaroslavl Automobile Plant trademark replacing a bear on the bonnet and plate YaAZ on radiator grille. A commission selected an acronym KrAZ among several versions of logo submitted to the Chief Designer Department. There were propositions to name a new plant and vehicle UAZ (Ukrainian Automobile Plant), KAZ (Kremenchug Automobile Plant), Dniepr, etc.



Running In of the KrAZ-222. May, 1959.



Installation of Dump Body on the KrAZ-222 Truck in Assembly Shop. 1960.



First-Borns of the Ukrainian Automotive Industry: the KrAZ-222 truck and the ZAZ-965 Zaporozhets at USSR EANE, 1960.



The First KrAZ-222 Dniepr Dump Trucks at May Day Parade in Kremenchug, 1959.





25000th KrAZ-222 Truck. April 16, 1963.



The KrAZ-222 Truck is Used to Haul Earth-Mover. 1963.

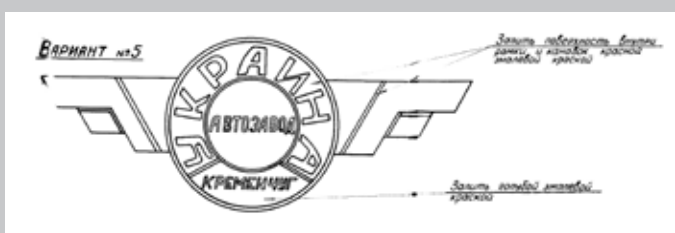


The KrAZ-222 Dniepr Dump Truck Exhibited in "AutoKrAZ" Museum. 2009

The KrAZ-222 truck was in production until July of 1964. The total number of the KrAZ-222 trucks manufactured at the Kremenchug Automobile Plant amounts to 11 641 units. It was succeeded by two dump trucks: the KrAZ-222B and the KrAZ-256.

This model has been discontinued from production for half century. You can hardly see this dump truck except newsreel and photos. Now the KrAZ-222 Dniepr truck takes pride of place in the KrAZ museum. In 2006, it was refurbished in the development shop. Broken truck with missing parts was found in a vehicle fleet of Ukraine. A number of original units were looked for in warehouses of various companies and fleets. Some missing parts that could not be found were made by the company's workers in strict accordance with drawings and technologies of the day.

State of the art KrAZ trucks are quite different from their remote ancestors. It became common for them to have axle configurations 4x4, 6x6, 8x4, 8x8. They feature new layout, comfortable cabs, new power packs and innovative body solutions. Their payload capacity is many times higher and fuel consumption is greatly reduced. However, these are as powerful, solid, rugged and low-maintenance KrAZ trucks as before, dignified successors of today's hero of anniversary, the KrAZ-222 Dniepr truck.



Variants of KrAZ Trademark Submitted to the Contest. 1958.

# "PAAZ" FEELS CONFIDENT ABOUT THE FUTURE

Strategic Partner of PJSC "AutoKrAZ", Poltava Brake Components Plant, is high-technology machine-building plant. Established almost 70 years ago as agricultural machinery repair company, today, "PAAZ" is the only Ukrainian and the largest CIS producer of sophisticated brake components for heavy-duty vehicles. Andrian Litovchenko, General Director tells about company's life, its achievements and plans for the future.

When talking about achieved targets and important things for the company in previous year I should mention events that changed significantly business operation and affected positively its future.

The major milestone is receipt of ISO/TS 16949:2009 Certification. The certificate was issued after audit conducted by Certification Body TUV SUD Management Service GmbH. This certificate covers design, development and production of pneumatic and hydraulic components of motor vehicles. This is evidence that the Quality Management System operating at our company ensures that customers receive high quality products and services independent of changing external or internal conditions. ISO/TS 16949:2009 is a warranty of quality and stability, important image-building element for our company.

Of no less importance is the Resolution No DI-1/595 dd 26.11.2013 of the Railroad Transport Council of CIS member countries, Georgia, Lithuania, Latvia and Estonia and Directive of Ukrzaliznytsia Railcar Fleet Management Department to assign identification number 1471 to Poltava Brake Components Plant for marking R17B connection hoses (assy) and T-connectors 573 and 573P when manufacturing.

Assignment of identification



A.Litovchenko, General Director PJSC "PAAZ"

number is a necessary stage in this business activity that will allow us extending a range of products produced and sold by our company and expanding into new markets both domestic and foreign ones. This event is a result of long-term diversification program aimed at production of air control brake components for rolling stock.

Current year will be as stressful and rich in events as previous one. Poltava Brake Components Plant started 2014 as one of the most successful machine-building companies of Poltava region and Ukraine at large. We succeed in maintaining production and sales at high level and steady flow of orders amid financial crisis. Measures taken in 2013, such as intensive

collaboration with customers to improve quality of brake components, upgrade of products, reduction of its cost, energy saving and many others, allow us keeping our head above water. This year we plan to go on doing work in these areas. It is clearly seen now that 2014 is much harder than previous one: financial crisis has been aggravated by political one, to survive and keep the staff we'll have to intensify efforts in all activities and work more productively.

As for the goals for this year, they are ambitious but quite feasible. In particular, we plan to start preproduction of new generation components and launch them in domestic and CIS market. Efforts will be taken to upgrade separate components in high demand among most customers and improve their quality.

Products, preproduction and upgrade of which we plan to start, are as follows: flange type clutch booster, clutch release master cylinder, handbrakes, electropneumatic valves block, coupling heads, brake chambers, brake valves, automatic condensate drain valve, one-section brake valve, electropneumatic valve. Efforts are underway to prepare design documentation and build prototypes for rolling stock.

Launch of these products planned for 2014 will allow

increasing market share of the company by average of 1,5-2 percent and increase our sales.

Special attention is paid to restore connections broken during crisis and to regain lost market shares. Efficient selling is a must for the company to survive. We are pleased that our long-term strategic partner PJSC "AutoKraZ" extends cooperation between our companies. Thus, Kremenchug Automobile Plant starts to use on its vehicles new brake components from Poltava Brake Components Plant. These are such parts as dryer, handbrake, fuel distribution valve, bayonet connections. Earlier KraZ procurement managers used

to purchase them from foreign suppliers. Today KraZ expands a range of components produced by our company to replace similar units on its vehicles.

Moreover, it should be mentioned that deliveries of Poltava brake components to such giants of CIS automotive industry as URAL, MAZ, GAZ, Pavlovsk Bus Plant and a wide range of companies producing trailers, semitrailers and special vehicles, recovered or significantly increased. Today Poltava Brake Components Plant delivers its products to over 35 automotive companies. Negotiations are underway to expand cooperation with both domestic and foreign automakers.

This year intensive efforts have been taken to extend sales area. Poltava Brake Components Plant mostly exports its products. Our major customers are in Russian Federation, Republic of Belarus, Kyrgyzstan, Latvia and Lithuania. Gradually we increase our presence in the market of Hungary and Vietnam, to which we came in 2013. Increase in export sales of consumer goods produced by Poltava Brake Components Plant is a significant supplement to export sales policy.

We've got loads of plans for this year! We are not going to slow down, our team is committed to fulfill approved business-plan.



Brake Valve and Pedal 121.3543081



Air-Over Hydraulic Servo Unit 11.1609010



Auxiliary Brake 12.3570010



Electropneumatic Valve 14.3745010



T-Connector 573, 573P



Handbrake



Air Dryer



Four-Circuit Protection Valve



**KRAZ IS THE KEY TO YOUR SUCCESS!**



**PJSC "AvtoKRAZ"**  
62, Kievskaya Str.,  
Kremenchug, 39631, Ukraine  
Tel. +38 0536 766200  
Tel./Fax +38 (0536) 766208  
e-mail: info@kraz.ua

**Foreign Trade Firm KRAZ**  
2, Yaroslavskiy Proyezd Str.,  
Kremenchug, 39631, Ukraine  
Tel. +38 0536 766210  
Tel./Fax +38 0536 771673  
e-mail: office.ftfkraz@kraz.ua

**Sales Department**  
2, Yaroslavskiy Proyezd Str.,  
Kremenchug, 39631, Ukraine  
Tel. +38 0536 766313  
Tel./Fax +38 0536 778986  
e-mail: sale@kraz.ua

[www.autokraz.com.ua](http://www.autokraz.com.ua)