

STEEL character



**NEW GENERATION
OF CONVENTIONAL TRUCKS** **KRAZ**

STEEL character

Editor-in-Chief: Stegantseva D.

Designed and made up by: Stegantseva D., Voronchenko R.

Materials and photographs by: Dun' S., Nikonova E., Poposuyevich S., Sazonov S., Shelepenkov M., Stegantseva D., Terentyev V., Teryoshin V., Ukhnal' V., Vyazovskaya S., Zakurdayev K., AutoKrAZ PJSC's archive

Editorial office: Public Joint-Stock Company “AutoKrAZ”, Press service
62, Kiyevskaya Str., Kremenchug, 39631, Ukraine
Tel.: +38 0536 766092; tel./fax: +38 0536 766208,
e-mail: pr@kraz.ua

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KRAZ TRUCKS WITH RENAULT AND MAN CABS

Public Joint-Stock Company “AutoKRAZ” has adapted the cabs from known manufacturers Renault and MAN to the KrAZ H23.2 chassis truck. It is a significant step for AutoKRAZ to develop a new family of cabovers.

The KrAZ H23.2R and the KrAZ H23.2M are provided with the YaMZ-6501.10 six-cylinder engine (Euro 3) delivering 360 hp.

Highly ergonomic cabs feature comfortable seats, tilt and height adjustable steering column, functional dashboard.

The chassis cabs are designed to accommodate various equipment, mainly for use in municipal applications.



THE KRAZ H30.1E HEAVY DUTY NOW IN FULL PRODUCTION

AutoKRAZ has started full production of the KrAZ H30.1E 8x6 chassis cab after successful completion of certification test in early 2012.

Powered with the YaMZ-6581.10 engine rated at 420 hp Euro 3, special heavy off-road four-axle KrAZ H30.1E chassis cab offers payload capacity of 30 t. The truck well suited to accommodate heavy equipment is much needed by oil and gas workers.

The first production KrAZ H30.1E rolled off assembly line of the Kremenchug automobile plant on the eve of the Ukrainian National Holiday, the 20th Anniversary of Independence Day. What is the most remarkable is that it turned out to be the 100 000th Ukrainian vehicle assembled within this period.

Two of the first batch of production chassis cabs were built on order by RusKRAZ, the official importer in Russian Federation. One of these chassis was used to be fitted with well development and servicing unit at Ishimbay plant, the leading engineering enterprise in RF. Airfield sweeper was built on the other chassis by Aviaistok Research and Manufacturing Association. The sweeper is designed to remove water, snow and rubbish from airport paved surfaces.



ROAD MAINTENANCE TRUCK WITH RENAULT CAB WINS TENDER

AutoKRAZ has won an order to build the batch of the KrAZ C20.2R 6x4 multi-purpose road maintenance trucks based on cabover dump truck of the fifth generation. The vehicles are provided with winter maintenance equipment from Rasco, Croatia, and cab from French automaker Renault. Powered with the YaMZ-6501.10 engine Euro 3 delivering 362 hp, the truck features MFZ 430 clutch and 9JS200TA manual double-range transmission. Renault Kerax cab offers highly ergonomic driver’s workplace.

Road maintenance experts believe that technical capability of the KrAZ trucks provided with Rasco equipment is the best solution for efficient snow removal from roads and motorways.



AUTOMOBILE PLANT AWARDED WITH STATE PRIZE

The President of Ukraine has signed Decree on honoring AutoKrAZ's workers with State Prize of Ukraine in the domain of science and technology for special KrAZ truck design conception and development.

Among awardees are: Sergey Sazonov, General Director, Public Joint-Stock Company "AutoKrAZ", Alexandr Gritsenko, ex-Engineering Director, Mikhail Korsun, ex-Chief Designer, Vassiliy Ukhnal, test driver.



THE KRAZ-5233 "SPETSNAZ" IN SERVICE WITH UKRAINIAN ARMY

The KrAZ-5233 "Spetsnaz" has entered into service with the Ukrainian army.

The KrAZ-5233BE off-road truck and its variants are designed for prompt transportation of personnel of military units, special forces, as well as various equipment, artillery systems of up to 152 mm caliber, communication and radioelectronic warfare systems.

Government testing of the KrAZ-5233BE Spetsnaz truck carried out by the Ministry of Defense was successfully completed in September past year. The trucks covered around 30 000 km on rugged terrain in the most challenging environment.

This truck is a true conqueror of the toughest terrains. That was repeatedly proved by demonstrating its capabilities on various proving grounds. In particular, the KrAZ-5233BE truck was presented at the 10th edition of the International Defence Equipment Exhibition IDEX 2011 held in Abu Dhabi, where AutoKrAZ usually participates. Once again, the Kremenchug all terrain truck was at its best easily overcoming all obstacles on proving ground.



NEW KRAZ CONVENTIONAL TRUCK MAKES DEBUT

The KrAZ B18.1X new conventional truck 6x6 has made its debut at two International Auto Shows: Autodorexpo-2011 held 15-17 December in Kiev, and Russian Forest, held 7-9 December in Vologda (RF).

The KrAZ B18.1X truck features newly designed cab with plastic single-piece sloped bonnet, wraparound windshield, new bumper and dashboard, which redefine this Kremenchug vehicle.

The truck is provided with the YaMZ-6511 six-cylinder engine rated at 360 hp Euro 4. This power plant produced by Yaroslavl engine plant under Renault license combines EGR system, MFZ 430 single disc clutch and 9JS200TA manual double-range transmission.



The KrAZ C18.1: new generation of conventional trucks





**Sergey Vasechek,
Chief Designer,
AutoKrAZ PJSC**

The KrAZ C18.4 truck is a significant milestone for Kremenchug automakers in developing new lineup of conventional trucks. This vehicle with improved performance, fuel efficiency, reduced vibration and noise leaves behind its predecessors. While the unit is still suitable for construction, mining and dumping applications typical for the dump truck, its appearance and main units have undergone some changes.

The main feature is the YaMZ-6511 six-cylinder in-line liquid-cooled engine Euro 4 delivering 360 hp. The unit produced by Yaroslavl engine plant under Renault license combines the new power plant with EGR system with MFZ 430 single disc clutch and 9JS200TA manual double-range transmission.

This is the first time ever that single-piece sloped plastic bonnet is applied to the KrAZ C18.1 dump truck. Its design allows for easy access to the engine. Newly designed dashboard, seats and upholstery coupled with other engineering changes have almost fully altered the cab interior.

The new dump truck is available in 12 and 16 m³ capacities and various engine configurations, as well as with 14 m³ half-round dump body.

New equalizing beam suspension and some design solutions have never been applied to production conventional trucks.



KrAZ C18.1 cab interior



New YaMZ-6511 engine arrangement under bonnet offers easy access





The truck has made its debut at Russian Trade Show Building Machinery and Technologies 2011, held in late May.

A novelty has drawn plenty of visitors, including newsmen of capital and regional automotive magazines, dealers, operators. The truck is praiseworthy! Congratulations! KrAZ development is very impressive! - that was a unanimous opinion of the KrAZ exposition visitors.

Competent newsmen have expressed high opinion of the new conventional dump truck:

Fyodor Lapshin, editor of the magazine AutoReview:

- For twenty years of my work as automotive journalist I have seen plenty of prototypes and I can say that your prototype is perfect. It is so well built and neat-looking, sitting in its cab is a real pleasure. My congratulations! The plastic bonnet does not discomfort, it's a quite normal design solution.

Eighty percent of U.S. vehicles have plastic bonnets that open in the same way. The bonnet is in favor in our country because it provides 1,5 meters of life.

Dmitriy Gladkiy, editor-in-chief of the magazine Gruzautoinfo:

- The design is good enough. This new bonnet blends in ideally with a serial cab: no disharmony, they supplement each other without changing the vehicle's image, but refreshing it. Our compliments for this design solution! We like it. Certainly, there are some fears because our people do not feel confident about plastic. I think KrAZ should not concern about it, just take care to habituate the customers.

Vladimir Novosyolov, deputy editor-in-chief of the magazine Construction Vehicles and Technologies:

- I'm very glad that KrAZ is one of few companies of the former USSR that is not focused only on surviving but makes progress under present-day conditions. The company permanently develops new models, especially in recent years; first, it was cabover, then a new conventional truck, cooperation with Renault in terms of fitting the new cab.



As journalist, I make my best to inform end customers and I can see that all these innovations are welcomed.

I wish to the Kremenchug automobile plant good luck, growth in the context of today's Russian market and growing number of KrAZ admirers, I'm sure they will grow because of many positive changes in new models.

Konstantin Zakurdayev, editor-in-chief of the magazine Commercial Vehicles:

- I am pleased to see that KrAZ continues to improve its conventional trucks without focusing entirely on cabovers and comes up with new vehicles having newly designed bonnets and cab's interior. Due to this strategy, usual for our operators KrAZ trucks are modern and roadworthy for many years.



SERVING THE NEEDS OF COMMUNITIES



The KrAZ K12.2 collects autumn leaves.
Kremenchug, October 2011



Curbstone area cleaning.
Kremenchug, August 2011

Until quite recently, KrAZ cabovers were rather rare and amazing sight for Ukrainian urban residents, but today its new appearance is quite usual for them. The Kremenchug flat-face truck is well on the way to gain its niche in municipal service sector.

The KrAZ public service trucks are as good as their foreign co brothers. The KrAZ K12.2 vacuum street sweeper is designed for cleaning urban hard surface asphalt or cement concrete roads, providing full scope of cleaning works from sweeping and refuse collection to dumping.

The KrAZ H12.2 two-axle chassis cab 4x2 accommodates Bucher-Schoerling special equipment,

Germany. The truck is powered with new YaMZ-536 six-cylinder in-line engine delivering 312 hp Euro 4. Sweeping equipment is comprised of 6 m³ debris hopper, 1500 l water tank, main and side brooms, suction nozzle, dust suppression and sprinkling systems. In addition, the vehicle is able to wash road signs, safety fences and even itself after cleaning is over.

Work tools are controlled by in-cab control panel. Other features include special equipment operation control, in particular, air filter clogging degree.

The Kremenchug versatile performer is suitable for all year-round use.

The KrAZ K16.2 garbage truck is designed for collecting and carrying household rubbish and containers with industrial waste.

Refuse body is mounted on the KrAZ H23.2 chassis cab 6x4 provided with new YaMZ-6501.10 six-cylinder in-line engine rated at 362 hp Euro 3.

The equipment features 30 m³ removable container and hydraulic crane with 0,35 m³ clamshell bucket. Payload capacity is 23 t. Major advantages of the new domestic garbage truck are its versatility and high performance.

New cabovers for use in municipal applications offer high maneuverability and excellent visibility allowing for waste collection in tight locations.



The KrAZ K16.2 truck loads containers. Kremenchug, July 2011

First domestic prototypes such as KrAZ K16.2 for container loading, KrAZ K12.2 rear-loader, KrAZ K12.2 vacuum street sweeper, have been field-tested in different Ukrainian cities. In whole, these tests have shown that new domestic municipal trucks perform as well as foreign refuse vehicles.

Sergey Krayevskiy, test driver, AutoKrAZ PJSC, gives his opinion about novelties:

These new municipal vehicles are a real break-

through for AutoKrAZ, given that until recently only foreign trucks were used in public service applications. Now it all changed.

I had an opportunity to operate one refuse truck of the first batch submitted for field-testing.

The vehicle is responsive and offers excellent maneuverability and visibility coupled with smooth ride. This truck is a joy to operate.

Every day, within six months, the truck performed garbage container collection and removal. Through-

SPECIFICATIONS

Special truck	KrAZ K12.2	KrAZ K16.2	KrAZ K12.2
Base chassis	KrAZ H12.2	KrAZ H23.2	KrAZ H12.2
Configuration	4x2	6x4	4x2
Six-cylinder in-line turbocharged engine	YaMZ-536 (Euro 4)	YaMZ-6501.10 (Euro 3)	YaMZ-536 (Euro 4)
Power at 2 300 rpm, kW (hp)	230 (312)	266 (362)	230 (312)
Manual 9-speed transmission	9JS150TA	9JS200TA	9JS150TA
Curb vehicle weight, kg	11 650	16 600	13 050
Weight of special equipment, kg.....	4 300	6 400	5 700
GVW, kg	21 000	32 700	20 000
Top speed, km/h	90	90	90
Turning radius, m.....	8,5	10	8,5





The KrAZ K12.2 rear loader during field-testing. Donetsk, June 2011

out this period it covered 20 000 km without a single failure. All the systems functioned as normal, the vehicle behaved perfectly.

Operation mode was rather intensive: 9-hour shift, 120 km long route, 3 trips. The hopper was full after driving round 5 streets.

We would never achieve the task on conventional truck in tight areas. This cabover has showed excellent mobility.

I believe in this truck! It has a good future.



Sergey Krayevskiy,
test driver,
AutoKrAZ PJSC



KrAZ H23.2 (AC-13-17): POWERFUL FIRE FIGHTER



AutoKrAZ, jointly with Tital, the company specializing in production of rescue vehicles and equipment, built the new KrAZ H23.2 (AC-13-17) water tender for Eristov Mining and Concentrating Company.

Powered with the YaMZ-6501.10 (Euro 3) engine delivering 362 hp the KrAZ H23.2 6x4 chassis has been selected to accommodate fire-fighting equipment.

A special compartment is provided behind the cab to house four crewmembers, portable radio, first aid kits, personal protective equipment and breathing apparatuses behind the seats.

The KrAZ H23.2 (AC-13-17) truck is provided with various rescue equipment, including hydraulic and pneumatic tools, engine-driven

pump, petrol-powered saw, turbo blower, initial fire attack and fire-fighting equipment located in special compartments protected with roll up doors.

The customer's representative, Yuriy Khimich, Commercial Director, Eristov Mining and Concentrating Company, thanked for fast order fulfillment and said:

"We received today a new domestic product, fire-fighting vehicle built on cabover KrAZ truck, which has no equal in Ukraine.

The company management team sticks to purchasing the best equipment offered in global market, while tending to support Ukrainian manufacturers buying their products and services. We are pleased to note that this truck has been made by Ukrainian manufacturer."



EXPERT OPINION

S. Ostapchenko, Head of Rescue Service, Poltava Mining and Concentrating Company:

The personnel of my subdivision is very glad, this truck is a dream, it is new, powerful and good, moreover, it is a domestic, we never had such vehicle. It is provided with all equipment needed for fire fighting and rescue operations. Four fire-fighting trucks available in out fleet are not a patch on this truck.



V. Boldarev, Fire Safety Engineer, Eristov Mining and Concentrating Company:

The KrAZ H23.2 (AC-13-17) truck offers a unique combination of performance and special features; it is one-of-a-kind in Ukraine.

Polypropylene water tank with capacity of 11 t, telescopic scene lighting, and full provision with necessary equipment allows for arriving to fire scene fully armed.



P. Britskiy, Director, Tital:

This three-axle truck, capable to carry 13 t of water and plenty of equipment, is new not only for our company but for the entire former Soviet Union. There is another fire-fighting vehicle able to carry 13 t, but it has four axles, in addition, unlike this neat-looking, eye-catching and quite maneuverable novelty it is huge like missile carrier.

According to our experts, the new KrAZ cab offers high level of comfort. It is worth noting that its cab has the same width as the truck - 2,45 m. Other features include corrosion-resistant plastic cab panels, wraparound windshield that provides excellent visibility, reliable and low power LED lighting. Most of the noise is not heard in the cab.

According to our drivers, the KrAZ truck with its increased payload capacity and strength margin is stocky and efficient.

The combination of the KrAZ three-axle truck and Tital polypropylene tank ensures service life of up to 30 years and more.



S. Lavrentyev, driver of Rescue Service, Poltava Mining and Concentrating Company:

The KrAZ truck has many advantages over vehicles I worked on in many regards. It is very simple in operation; it took me only one day to learn driving it. Comfortable, high and roomy cab with good visibility is a huge superiority. The truck can pass, if necessary, through arch, what is of great importance during rescue operations. The engine revs up quickly, allowing the vehicle to accelerate from standstill. Today the KrAZ is the best vehicle to accommodate rescue equipment.

SPECIFICATIONS

Chassis KrAZ.....	H23.2	Flow rate, sec	48
Configuration	6x4	Movement angle, degrees:	
Engine	YaMZ-6501.10 (Euro 3)	- in horizontal plane	360
Number of cylinders	6	- in vertical plane, up/down	90/10
Power at 1900 rpm, hp.....	362	Portable fire monitor	Protek Style 600
Manual double-range, 9-speed transmission.....	9JS200TA	Flow rate, l/sec	30
Curb weight, kg.....	13 700	Multi-purpose nozzle (2 pcs)	Protek Style 366
Weight of special equipment, kg.....	850	Fixed powder	
GVW, kg	28 300	extinguishing unit.....	GFA-600
Number of seats for crew members including driver.....	1+5	Powder container capacity, kg	250
Combined modular tank:		Handheld powder nozzle.....	HPN-50
- water tank capacity, l	11 000	Powder consumption, kg/sec	4
- foam tank capacity,	1 2 000	Throw, m	15
Pump	MFV-LP-1040	Total length of discharge hoses, m.....	440
Pumping capacity (rated/maximum), l/sec	70/80	Top speed, km/h.....	80
maximum suction head, m	8	Gradient, %	30
Fixed fire monitor	Protek Style 933	Turning circle, m.....	10

KRAZ 2012



The KrAZ H23.2 Fire Fighting Truck

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
M	2 9 16 23 30	6 13 20 27	5 12 19 26	2 9 16 23 30	7 14 21 28	4 11 18 25
TU	3 10 17 24 31	7 14 21 28	6 13 20 27	3 10 17 24	1 8 15 22 29	5 12 19 26
W	4 11 18 25	1 8 15 22 29	7 14 21 28	4 11 18 25	2 9 16 23 30	6 13 20 27
TH	5 12 19 26	2 9 16 23	1 8 15 22 29	5 12 19 26	3 10 17 24 31	7 14 21 28
F	6 13 20 27	3 10 17 24	2 9 16 23 30	6 13 20 27	4 11 18 25	1 8 15 22 29
SH	7 14 21 28	4 11 18 25	3 10 17 24 31	7 14 21 28	5 12 19 26	2 9 16 23 30
SU	1 8 15 22 29	5 12 19 26	4 11 18 25	1 8 15 22 29	6 13 20 27	3 10 17 24



JULY

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AUGUST

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NOVEMBER

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DECEMBER

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FTF KRAZ: 20 YEARS

The Foreign Trade Firm KrAZ, subdivision of AutoKrAZ PJSC, turned 20 years on the 1st of April 2011. Within this period:

- over 9000 trucks sold;
- deliveries made to 54 world countries, including Egypt, UK, China, India, Vietnam, United Arab Emirates, Peru, Afghanistan, Congo, Columbia, Yemen;
- biggest contract for deliveries of the KrAZ trucks to Iraq awarded through tender. Over 2300 drop-side trucks, refuellers, workshop trucks and





RS IN GLOBAL MARKET

special trailers have been supplied to the country as part of Postwar Revival Program. That was the second order of such magnitude in the history of military technical cooperation between Ukraine and foreign countries and the biggest one in the history of the Kremenchug automobile plant;

- assembly factories established in Vietnam and Cuba;
- KrAZ trucks entered in service with UN peacekeeping forces in Iraq, Sudan, Yugoslavia, and Sierra Leone.



HEAT, DESERTS AND



Ahmed Helmy,
Brigadier General,
Armed Forces
of Egypt



Egyptian MOD representatives inspect the KrAZ trucks.
Kremenchug, 2011

The KrAZ trucks took hold in Egypt as early as in 1960s.

Most were the KrAZ-214 army trucks.

Deliveries to Egypt increased dramatically in 1970s with bigger variety of models.

Over 1600 trucks were sold to the country within 1970-1978; it is worth noting that most of them, over 1200 units, were new KrAZ-255B trucks.

Supplies of Kremenchug vehicles today are going on to Egypt.

Mr Helmy, MOD representative, who came to the automobile plant to inspect the trucks for quality, told us about KrAZ trucks operation in Egypt:

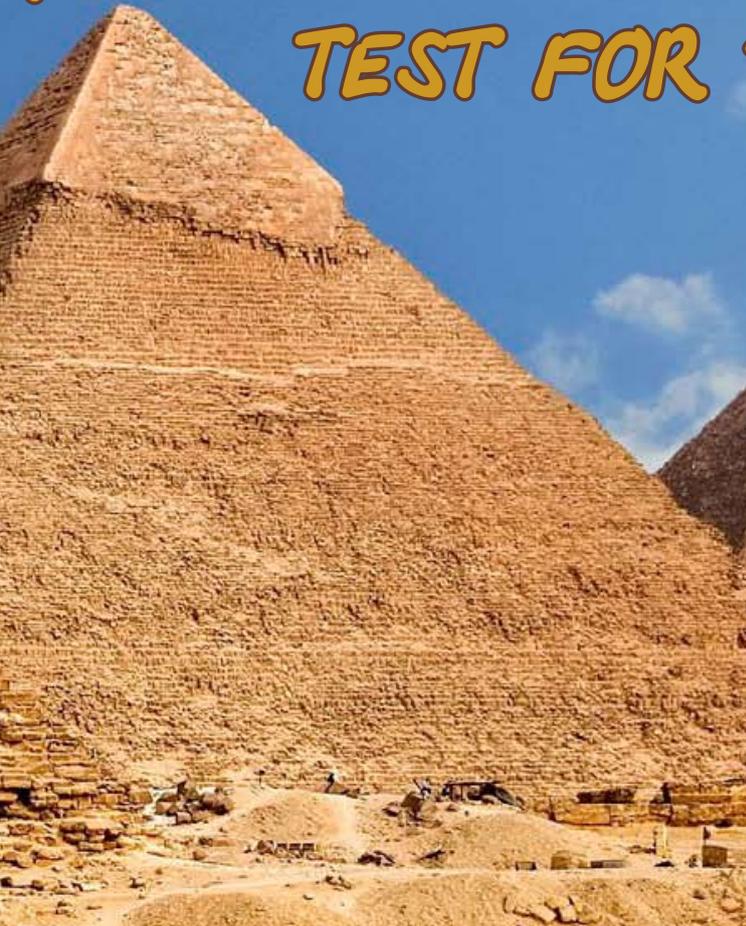
- KrAZ is a good, powerful and reliable truck.

Even 50 years on, they are still operated by the Egyptian army. We purchased at different times such models as the KrAZ-214, KrAZ-255, KrAZ-257, KrAZ-258, KrAZ-260, KrAZ-644317. Most of them, about 2000 units, are used to carry personnel, loads, rescue equipment, pontoons and radio stations, and tow artillery guns.

In addition, many dump trucks are in service.

In whole, I can say that KrAZ is the most suitable vehicle for Egyptian army; it is powerful

MARSHES OF EGYPT: TEST FOR DURABILITY



The KrAZ-6322 off-road truck. Egypt, 2006

and reliable, well suited for country's natural environment.

The KrAZ trucks are also used by peacekeeping forces. In Darfur, Sudan, most of vehicles are the old KrAZ-255 trucks, but there are some new off-road KrAZ-6322 trucks.

When compared to other brands they are simple in use and repair. As for disadvantages, there is no one.

The KrAZ trucks are reliable in operation. Parts that failed, mostly because of improper use, are replaced with new ones, produced by Egyptian plants.

In conclusion, I would like to say that I saw what I expected to see – powerful trucks that give you feeling of great security in any situation.

I would like also to give my opinion about AutoKrAZ's Training Centre that deserves high praise, sectional units and scale model all-terrain truck's units clearly show inner parts, while smart stands simulate pneumatic and fuel system operation to help learning their features.

It was a pleasure to speak to lecturers, they are the tops.



The KrAZ-5233BE off-road truck. Egypt, 2004

KRAZ CAB:



The cab is a vehicle's key attribute. The design of the very first of them derived to KrAZ truck from Yaroslavl automobile plant along with truck model was at that moment old-fashioned both in appearance and in design.

It did not meet ergonomic requirements for the driver's workplace in many regards.

Contrary to popular beliefs, the cab of the two first generations of the KrAZ trucks was partially wooden. The cab frame was comprised of wooden beams made of stressed skin veneer, which were fastened together with tie bolts and plated with formed metal panels using screws.

Unlike all-metal cab, this concept was much cheaper to produce.

Sometimes, in Far North, the cab saved driver's life when its frame was used to build up fire allowing a driver to hold out 2-3 days until help comes. In addition, no sophisticated equipment was needed to repair it, only maintenance in operation, including regular tightening of bolts, frame gluing, painting and panel repairing.

A good while the KrAZ cab lacked enough attention because of state-planned economy, the root principle of which was: "Who cares what you want? Just buy we've produced and be happy."

Works on new cab development were rather fo-



Oleg Kolesnikov,
Automotive Designer,
AutoKrAZ PJSC

cused on adapting all-metal cabs from other soviet trucks. That solution was fast and efficient in its entirety.

Thus, in 1961, slightly refined ZiL-130 cabs with wraparound windshield were fitted on the prototypes of the KrAZ-250 drop-side truck and KrAZ-251 dump truck.

They have successfully passed test, however, the prototype acceptance team noted: "Three-seat ZiL-130 cab can accommodate only two occupants in winter clothes, roomier cab is needed."

Two years later the Soviet Ministry of the Automotive Industry came up with an idea to use on KrAZ trucks the UrAL-377 truck cab that was about to enter mass production.

In 1964, two KrAZ-251 trucks provided with UrAL cab passed testing. The new cab proved quite satisfactory, but it was of no use, because a new YaMZ-238H turbocharged engine with turbocompressor mounted behind engine bloc could not be housed under the bonnet.

No good came of adapting these cabs to KrAZ



Cab of the YaAZ-222 truck, 1957

PAST, PRESENT AND FUTURE



Cab of the KrAZ-250 truck, 1969



Interior of the KrAZ-250 truck cab

trucks: foreign organs did not strike roots in the body of the Kremenchug vehicle. The conclusion was forced upon us: KrAZ's own cab is needed.

With opening of foreign markets, which gave possibility to compare, the KrAZ's appearance lost heavily to overseas counterparts.

In the course of development, there were some multiple attempts to modify the cab exterior, in particular, to replace roof and door upholstery and to make one-piece version.

However, that was rather in spite of than thanks to plant's policy. Industrial designers (as they were called at that time) repeatedly drawn and made of plasticine new dashboards and steering columns, developed new designs of seat suspensions and seat cushions shaping.

In 1978, fiberglass flat-face frame-and-panel cab was developed, but this project was not to be. In 1982, industrial designers, on their own initiative, made of plasticine all-metal forward-tilting bonnet. Fenders remained stationary on the truck frame. At this time, this idea was trailblazing.

An ergonomic task group affiliated to Design

Office was founded, which gained invaluable experience forming driver and passenger seats and controls development algorithms.

Separate full-scale cab models have undergone wind tunnel tests at Khrakov Aeronautical Institute. Aerodynamic testing in natural conditions



Cab of the KrAZ-6322 truck, 1996



Cab of the KrAZ-6512
(scale 1:5), 1994

was conducted according to method developed by V.Kholyavko, Lead Engineer, Chief Designer Department. This method allowed reducing significantly cost of expensive wind-tunnel tests. Just at that time were obtained valuable data on cab ventilation and dirt retention, heating system efficiency. Works were underway to use electrorheological fluid in cab suspension and driver seat and so on.

Sometimes it came to realize separate solutions on prototypes. Many times production cab was extended to accommodate berth, habitable and inhabitable spoilers were fitted on the roof and streamlined bumpers were used.

A small batch of truck tractors provided with

separate compartment behind the cab was produced to carry chemical agents. They accommodated kitchen and two berths. The first three cabs were made in experimental workshop in 1967. They were mounted on the KrAZ-250 drop-side truck prototypes. New state standard to cab for was fully met. Three-seat all-metal cab featured new driver seat adjustable in three planes, new wraparound windshield with centre arch. However, military men insisted to modify the windshield: instead of two wraparound sections, four flat zones were made. By the way, the new KrAZ cab was provided with two removable berths in the form of hammocks made of close canvas cloth.

The first all-metal KrAZ cabs went into production in 1979, when the KrAZ-260 army off-road truck rolled off the assembly line.

As early as in 1960s the automobile plant designers gave more thought to cab-over- and engine-behind-cab layouts. The Chief Designer Department engineers developed and tested some prototypes on order by the Soviet Ministry of Defense. However, it was not until 1980s that the first step to build this cab was made; the first prototype was the KrAZ-E6316 8x8. Asymmetry was distinctive feature of this cab; it was shifted 70 mm to the left side relative to longitudinal axis. The design challenge in developing this truck was to house the bulky Yaroslavl engine of the new 840 family in a tunnel under the cab and to mount driver's seat without increasing cab width up to 2700 mm. However, this cab was supposed to be used on civil vehicles and



Cabover KrAZ picture. O. Kolesnikov, 1997



Flat-face cab frame, 2009



Interior of the KrAZ C20.2 truck cab

the width should not exceed 2500 mm. There was no possibility to locate the cab above the engine due to overhead clearance above railroad limiting the height for trucks transported abroad on flatcars. There was nothing else to do but to shift the cab to the left side, and that was done. The cab developed for use on the other 8x8 truck, the KrAZ-E6316, is equally worth mentioning. It was seated in front of the engine and its design was adapted to accommodate exterior armor plates. This truck, to keep its purpose in secret, was named Siberia. It featured air suspension designed to maintain level ride height for the truck.

Mention may be made that when developing the cab, the automobile plant had to meet the Ministry requirements: both flat-face and conventional versions must be unified. (Later Scania has successfully implemented this idea). Some experience in building cabover trucks was gained in early 1990s, when developing the KrAZ-6512 dump truck; however, financial problems did not allow building even a prototype. The project folded in 1994. Only in 2005, after AutoKrAZ's financial status improvement, an opportunity appeared to get down to building new cabs. The first project to implement was "Cab for the KrAZ C20.2 cabover dump truck."

The new cab is of frame-and-panel type. It consists of load-bearing space frame made of shaped tubes and roll-formed sections covered with fiberglass panels and upholstery. To attach exterior panels, glued connections were used; windshield is wraparound single-piece. Steering column offers both tilt and telescoping adjustments. This



Cab of the KrAZ C20.2 dump truck, 2009

cab can be used on all-wheel drive trucks as well. New design allows reducing its price, labor cost and working hours.

The Kremenchug automobile plant continues works on adapting cabs from other automakers. KrAZ trucks provided with Renault and MAN cabs clearly show results.

Production cab has undergone fundamental changes in 2011. It appeared in revised version: fiberglass forward-tilting bonnet making one piece with fenders. Now, due to the windshield mask, the new bonnet showing off smooth lines and the high cab roof without sharp corners and edges typical for alligator hood make harmonious whole. Wraparound windshield glued in the



The KrAZ truck with Renault Kerax cab, 2011



Sketch of restyled KRAZ cab. O. Kolesnikov, 2011

mask offers increased height providing cab stiffness and excellent visibility. Much higher roof allows for locating additional dashboard to improve its usability. To date works on redesigning door panels, roof, controls and other elements are underway to keep with the times and technological possibilities.

Semi-independent suspensions employed on bonnet and cab reduces vibration amplitude for their systems and interference. In short,

updating the production cab gave a chance to extend its life span for years. Smooth lines of the bonnet, mask fillet and rounded roof corners match well with existing door and rear wall lines, turning outdated elements inherited from the past into advantages. Building new bonnet that makes one piece with fenders was dictated by the need to fit the YaMZ-6511 six-cylinder in-line engine which differs from V-8 by dimensions, fuel and exhaust systems, suspension, electronic fuel supply control system and to make the truck look more updated.

Works on building new cabs and upgrading those in production are still underway. Flat-face cab is presently undergoing restyling. Shape modification will result in more modern image of frame-and-panel cab and improved usability. Efforts are also focused on developing new generation cab with minimum number of metal parts used and small parts integrated into multifunctional units.

New driver's workplace design philosophy is being developed to significantly simplify control of systems and replace analogue communications with digital ones. Army vehicles are not neglected, with various projects ranging from hidden armoring to monohull design. Production cab is not outdated and can be of use after going through significant upgrading. Short conventional cab can be used on agricultural and municipal vehicles.



Cab of the KRAZ B.18X truck, 2011



Picture of the KRAZ-5233 armored truck cab, 2011

RESPONDING TO CHERNOBYL DISASTER

It fell to the KrAZ trucks to respond to the largest man-made disaster of the 20th century - accident at the Chernobyl Atomic Power Plant. Much equipment, including thousands of the KrAZ trucks, was used in recovery efforts.

Their first task was to lay bridge across the Pripyat river. The KrAZ-255B trucks being in operational service with the unit of Kiev military district successfully tackled this job. It took 7 hours to lay the floating bridge.

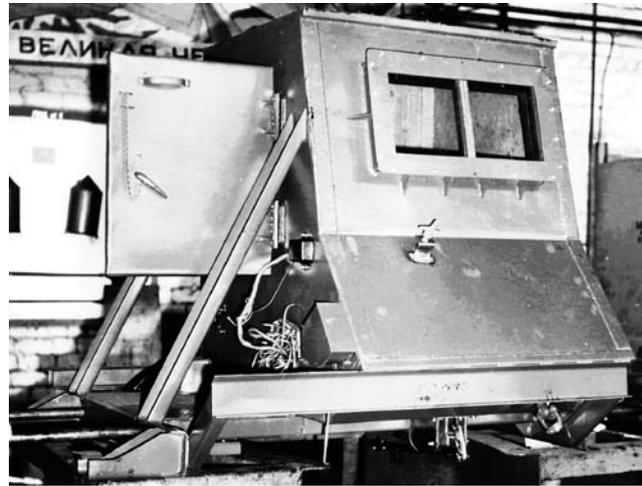
The major challenge was removal of radioactive debris and delivery of building materials to deadly accident area. Common trucks were not able to protect

drivers from radiation. For that reason, the Soviet government set a task before the Kremenchug automobile plant to build trucks capable to operate under conditions of high radiation.

A special group was formed, consisting of the best experts from the Chief Designer Department. Viktor Kholyavko, lead design engineer, was one of them. He says, recalling events that occurred 25 years ago: "We got a message to manufacture a batch of dump trucks in the evening of the 22nd of June, 1986."



Viktor Kholyavko,
Lead Design Engineer,
Chief Designer
Department, 1986



Cab-capsule for the KrAZ-256B1-030 prototype



The KrAZ-256B1-030 special truck. June, 1986



The KrAZ-256B1-030 in Chernobyl APP area, 1986

The truck was designed to remove radioactive debris of fourth unit of the Chernobyl APP and it should be highly reliable. The KrAZ-256B1, well proved dump truck, was selected as a base. The major task designers had to resolve was to provide reliable protection for driver from nuclear radiation. Found solution was simple and efficient: sealed lead capsule.

When developing the capsule we tried, first, to place it into the production cab (rather to put a floorless cab on the capsule secured to the frame). This decision was made to comply with customer's requirement to disguise the capsule and vehicle purpose.

However, when it came to fitting filtration unit, necessity to redesign the production cab arose.

To meet delivery dates we had to give up an idea of disguising the capsule due to tight deadlines.

Building the capsule was a challenge, too. It was made of welded multi-layer panels. Exterior layers were 3 mm steel sheets, and molten lead was poured inside. Lead layer between floor panels was 30 mm thick, between sidewall panels - 25 mm, and between roof panels - 12 mm.

To manufacture the prototype, large amount of lead was needed, which was brought from all Kremenchug enterprises. Sixty tons of lead for building the whole batch were brought from Kazakhstan with the utmost promptitude.

The last trucks of the pilot batch were accepted as early as 27th of June, in only one month after the special task had been received. Total number of such vehicles was 18 units.

Nobody knows exactly what happened to lead giants made by the Kremenchug automobile plant; however, we may be justified in assuming that after job completion they had been brought to Burakovka, burial ground for radioactive equipment situated in the like-named village not far from Chernobyl APP.



“That was long ago, in Soviet times”, - this is a keynote of a new documentary series “Wheels of the Soviet country. True and tall stories.” by author and director Andrei Kryukovskiy, produced by the studio “Wings of Russia.” Each of the four films with newsreel footage presents a captivating story about Soviet-made vehicles.

The Kremenchug vehicles starred in the series episode featuring the first-born KrAZ-222 and the workhorse KrAZ-256, special trucks for Chernobyl disaster relief operations and property of iconic film “Mimino”...

Many facts of the KrAZ history were shown on TV screen for the first time: participating in building the Channel tunnel, prototypes ahead of time, KrAZs sold as BeLAZ. The series “Wheels of the Soviet country. True and tall stories.” is expected to be released on DVD in the beginning of 2012; thousands of automobile history lovers may enjoy watching it. We are especially happy to see the Ukrainian first-born KrAZ-222 Dniepr showing off on DVD case cover.

KRAZ MOVIE STARS

Open pit mines, construction sites, battlefields, logging areas are comfort zone for the KrAZ workhorses. However, it is in its element on filming ground as well.

The film by Georgiy Danelia "Mimino" came out in 1977 and smashed all box office records. The "26B", as called by Armenian actor Frunzik Mkrtchyan, who acted the part of the driver Ruben Hachikyan, is the KrAZ-256BC arctic dump truck. The driver is passionate about it and the KrAZ truck easily navigates Moscow streets, clearly seen in traffic stream.

In the film "Highway" (USSR-Czechoslovakia), shot in 1979, Czech guys on the Tatra 148 tacitly compete with Soviet drivers working on the KrAZ-256 trucks. Dump trucks racing is a rare sight in the cinema, but this film features a continuous competition. In spite of the author's idea to advertise the Czech brand, viewers can see that KrAZ usually emerges the winner: both on and off road.

The pieces of screen "Artist's farewell guest performance", "Ksenia, Fyodor's love wife", "Double overtaking" are only some films starring the KrAZ trucks. Funny enough, but the KrAZs featured even in fairy tale film "Hey-ho, distress is not a big deal" by M. Yusovskiy. V. Pavlotos wrote about it in his book "Born to turn fairy tale into...":

"...To turn this movie we have built a giant (18 m high) war knight Karabarass, wiping everything off the face of the Earth.

Metal structure was mounted on solid triangular frame (made of steel beams), with rear part resting on two eight-wheel bogies (pole trailers for carrying long goods) and front part resting on the truck tractor (KrAZ). A vertical load bearing metal structure fitted on triangular support frame was upper section of electricity pylon that was surrounded by steel space frame covered with wire mesh. Foamed polyurethane sprayed on this mesh was painted to imitate a terrible monster's skin.

The monster's head (5 m high and 3,5 m wide) was mounted on pivotal bearings, which allowed bowing it during film shooting, its movements were controlled from inside. A huge structure (as high as five-storied building) towed by tractor truck during filming drove across tableland at the speed of up to 40 km/h, showing a good maneuverability and stability."

The KrAZ prime movers, tippers and drop-side trucks, strong, vigorous and cinematic giants, are among the most impressive wheel movie heroes. A legend in life and on screen, the Kremenchug trucks, within centenary history of their labor activity, prove they are worth to be heroes of formidable achievements, small and great events.

The KrAZ-256B1 truck in the film "Artist's farewell guest performance"



The KrAZ-256B in the film "Highway"



The KrAZ-256BC in the film "Mimino"



The KrAZ-257, the knight of war Karabarass



Flying vehicle mounted on the KrAZ-255B truck



The KrAZ-5444 tractor truck in the film "European convoy"





KRAZ – KEY TO YOUR SUCCESS!



“AutoKRAZ” PJSC
62, Kievskaya Str.,
Kremenchug, 39631, Ukraine
Tel.: +38 (0536) 766200
Tel./fax: +38 (0536) 766208
e-mail: info@kraz.ua

Foreign Trade Firm KRAZ PJSC
2, Yaroslavskiy Proyezd Str.,
Kremenchug, 39631, Ukraine
Tel.: +38 (0536) 766210
Tel./fax: +38 (0536) 771673
e-mail: office@ftfkraz.ua
www.autokraz.com.ua

Trade House of AutoKRAZ PJSC
2, Yaroslavskiy Proyezd Str.,
Kremenchug, 39631, Ukraine
Tel.: +38 (0536) 766313;
Tel./fax: +38 (0536) 778986
e-mail: sale@kraz.ua