The 7.5-tonne rated KrAZ-255B became an icon of Ukraine's manufacturing industry. It pioneered the combination of mobility-enhancing big-footprint tyres and driver-controlled inflation pressure adjustment

NATIONAL HERO

With Ukraine very much in the news, we look at KrAZ, the country's sole truck manufacturer and pioneer of on/off-highway trucks with standard-fit big-footprint tyres

By Ed Burrows

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Awaiting TLC by collector and restorer David Weedon, a KrAZ badged as a Belaz, typically used in the 1970s with dump bodies by UK civil engineering contractors

GM TWO-STROKES

On the eve of WWII, General Motors licenced the USSR to build type 4-71 Series two-stroke diesels. After the war, the Soviets needed no US assistance in reverse-engineering a six-cylinder version.

ABOVE Topping the dump truck range is the KrAZ-7133C4 22-tonne payload 8x4, powered by a 330 bhp V8 diesel

They are normal-control 6x6s with fat tyres and olive drab or camouflage paint jobs, and roll into view in most TV news bulletins. In the stand-off between Ukraine and Russian-speaking rebels, if they are Ukrainian army vehicles they will have been built by AutoKrAZ, the Ukraine's sole truck manufacturer.

KrAZ was founded in the Soviet era, when Ukraine was part of the USSR. In 1958, the Central Committee of the USSR decided to transfer heavy-duty truck production from the YaAZ diesel engine and vehicle manufacturing plant in Yaroslavl, Russia, to a factory in Kremenchug in Ukraine. Until that point, Kremenchug built steel bridge structures and combine harvesters.

Positive start

KrAZ stands for the Kremenchug Motor Vehicle Plant. The late-1950s switch to truck manufacture got off to a good start. The factory took over the YaAZ-219, -221 and -222 range of 6x4s and a derivative, the 6x6 YaAZ-214. Development of the 214 began in 1951, and became standard issue with the armies of the USSR. YaAZ (Yaroslavl Motor Plant) also used to be known as JaAZ, and is now part of the Russian Federation's GAZ group.

Before all these ZZZZZs send you to sleep, if you read last month's *Trucking* feature about Detroit Diesel, this will really open your eyes: in 1939, General Motors granted the Soviet Union a licence to build 4-71 Series two-stroke diesels, as well as assembling them from kits supplied from the US. After World War II ended, the Soviets put a slightly modified version – dubbed the YaMZ-204 – into production. When you've got your hands on a good thing, you want more, don't you? The Reds certainly thought so, and they copied the GM/Detroit's six-inline 6-71 two-stroke diesel and manufactured it as the YaAZ-206.

ABOVE Ukraine was once known as the breadbasket of Europe. The KrAZ-6511C4 'Caravan grain road train' has an operating gross of 46 tonnes

With outputs of 165 bhp, 200 bhp and 205 bhp, production was subsequently gifted to KrAZ. The 6-71/YaMZ-206 remained in production, powering the Ukrainian's three-axle types (including dumpers and logging tractors for the civilian market) until 1967, when it was replaced by a four-stroke V8.

The first truck built by Kremenchug Motor Vehicle Plant was the KrAZ-222; a 10-tonne 6x4 dumper identical to that previously built by YaAZ. The ➤

The first Kremenchug-built truck, the KrAZ-222 dumper of 1959 is credited with kick-starting the Ukraine's manufacturing industry

Project cancelled: The late-1980s' KrAZ-7E63161 400 bhp 15.7 tonnes kerb weight 8x8 was killed by the collapse of the USSR

YaAZ series of three-axle bonneted designs was undoubtedly influenced by US trucks supplied in large numbers to the USSR during WWII. In general appearance, the vehicle which first-generation YaAZ and KrAZ trucks most closely resembled is the Reo 28SX tank transporter tractor; one of the two main US heavy prime movers operated by the Soviets. Around 200 Reo 28SX 7.5-ton rated 6x4s were supplied through the wartime US Government Lend-Lease Act. The Reo 28SXs were later supplemented by 300 of the more familiar – visually similar, though neater – classic Diamond T 980. Amazingly, under the Lend-Lease programme, the US supplied Soviet armed forces with over 400,000 trucks. A key delivery route was the so-called 'Persian Corridor', which ran 865 miles north from Iranian ports on the Persian Gulf coast to Soviet Azerbaijan. (Aid even included US government buying a complete tyre factory from Ford, and crating and shipping the machinery to Russia. It had the capacity to produce a million truck tyres a year. The US also shipped an oil refinery.)

Until the ZIL and MAZ 8x8s appeared in the 1960s, the 6x6 KrAZ-214 was the largest truck in service with Soviet bloc armed forces. It was basically a KrAZ-222 6x4 with the chassis ride height raised to accommodate the driven front axle's differential. Robust, simple and functional, the seven-tonne rated KrAZ-214 departed from convention in one major respect; drive from the transfer case was taken forward to the front axle and rearwards by a single prop shaft to the differential of lead rear-axle and a parallel three-section shaft system to the back axle diff.

The -214's engine was the two-stroke YaAZ-206 (GM Detroit 6-71 clone), which by this time was being manufactured by KrAZ. The gearbox was a five-speed; the transfer box had two ratios. In 1963, four years into production, the KrAZ-214B model was introduced. Hydraulic shock absorbers were added to the front and rear semi-elliptics suspension. Electrics were also changed, from 12 to 24 volts. Further development saw the two-stroke 'six' replaced by a four-stroke V8, the 14.9-litre YaMZ-238. Initially producing 215 bhp, in 1966 this was upped to 240 bhp.

LEFT The 21-tonne gvw KrAZ-K12.2 vacuum street sweeper is one of a variety of models supplied as a complete unit

BIG NUMBERS

Hurt by the recession but helped by the present conflict, KrAZ delivered its 800,000th truck in 2006. It exports to Thailand, Iraq and elsewhere – and has been operating an assembly plant in Russia.

LEFT With YaMZ, Cummins and Deutz engine options of up to 400 bhp, KrAZ-6322 roles include multiple rocket launcher chassis

BELOW Typifying current KrAZ high-mobility tactical trucks, the 12-tonne capacity KrAZ-6322 is spec'd to operate at temperatures from -50 to +60 degrees Celsius

Moving up

The uprated engine powered what to Western eyes is probably the most familiar iteration of the series: the 7.5-ton payload rated KrAZ-255B. Introduced in 1965, it remained in production – together with truck, artillery tractor, bridging systems transporter, crane and other variants – until 1979.

The KrAZ-255B 6x6 was novel in being the first volume-produced tactical truck with wide-section, big contact patch all-terrain tyres. Like the original KrAZ-214, the -255B had a driver-controlled central tyre pressure regulation system. The range of adjustment was between 14.5 psi (1 bar) and 50.7 psi (3.5 bar). Over snow or soft ground, the lowest setting permitted the KrAZ-255B to travel at a maximum speed of 15 kmh for distances of up to 5 km. Diff locks were supplemented by a suspension locking mechanism.

Wearing the Belaz badge – Belaz is actually a quite different ➤

A 16-tonne gross 4x4 available with up to 370 bhp, the KrAZ-5233BE is designed for rapid deployment of Spetsnaz (special forces) troops

BELOW In 2014, the H27.3EX 27 was announced; an all-new engine-behind-cab 8x8 crane carrier and heavy equipment transporter

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With central tyre deflation/inflation, the KrAZ-255B was ideally suited to tasks such a transporting and launching scissor-type assault bridges

Poor terrain is home ground for the 30-tonne load capacity, 400 bhp, 8x6 KrAZ-7140H6/H30.E chassis

Belarus-based truck manufacturer – in the 1970s, the KrAZ-256 dump truck variant was operated in the UK by a number of civil engineering contractors. Crude by contemporary standards, but cheap and tough, they proved reliable if properly maintained.

Later in the 1970s, the tractor version of the KrAZ-255B was replaced by the 40-tonne gross combination weight KrAZ-206V. This was powered by a 300 bhp turbocharged version of the YaAZ V8 in place of the earlier, naturally aspirated 240 bhp unit. From the beginning of the 1980s, a new generation of three-axle KrAZ trucks – the nine-tonne rated KrAZ-260 and derivatives – entered service. These are immediately identifiable by a bonnet with integrated radiator panel and cab with a four-piece windscreen.

Whereas earlier vehicles had a timber-framed cab, its replacement was all-steel. The -260 style cab continues to be fitted to current KrAZ military chassis – introduced in the mid-1990s – and to some of its civilian models. The KrAZ-260 featured an eight-speed main gearbox and other specification improvements. The engine was a turbocharged V8 developing 288 bhp supplied by YaMZ (formerly known as YaAZ).

KrAZ's current military range includes bonneted and cabover 6x6 and 4x4 trucks and tractors with YaMZ, Cummins or Deutz engines up to 400 bhp, recently introduced mine-resistant armour-protected V-hull monocoque troop carriers, and patrol and special mission vehicles developed in association with Canada's Streit Group.

While past and present bonneted KrAZ heavy trucks have been evolutionary variations on a theme, there was a significant departure in the second half of the 1980s. KrAZ-6E63161/-7E63161 development prototypes were 8x8s with the cab located in front of the engine.

With a 450 bhp, a 15.7-tonne kerb weight and cargo bodies, they were designed to haul a 15-tonne drawbar trailer. The collapse of the Soviet Union resulted in the project being cancelled. Interestingly, last year the configuration reappeared: KrAZ announced the 27-tonne carrying capacity H27.3EX 8x8 crane carrier and heavy equipment transporter with a 400 bhp power unit. Promoted as part of the civilian range, this might conceal its real purpose. ■

The KrAZ-B12.2MEX 12-tonne load capacity 6x6 is one of a variety of KrAZ specs fitted with MAN-sourced cabs

ABOVE KrAZ all-wheel-drives have a wading depth in excess of one metre. This truck is being put through its paces on the company's own proving ground

RIGHT The KrAZ forward control range includes two- and three-axle Renault-cabbed trucks. This example has a 280 bhp gas fuelled Daimler/Mercedes-Benz engine

ABOVE KrAZ catalogues no less than 17 different dump truck specs. This 6x4 is the 18-tonne capacity KrAZ-C18.1

The KrAZ-64372 is a 330 bhp, 6x6 timber tractor designed to operate with a pole trailer at a maximum combination gross of 47 tonnes

ABOVE Unveiled in February 2015, the KrAZ-5233 has a V-section hull to deflect mine blast, and the body armour protects against small arms fire