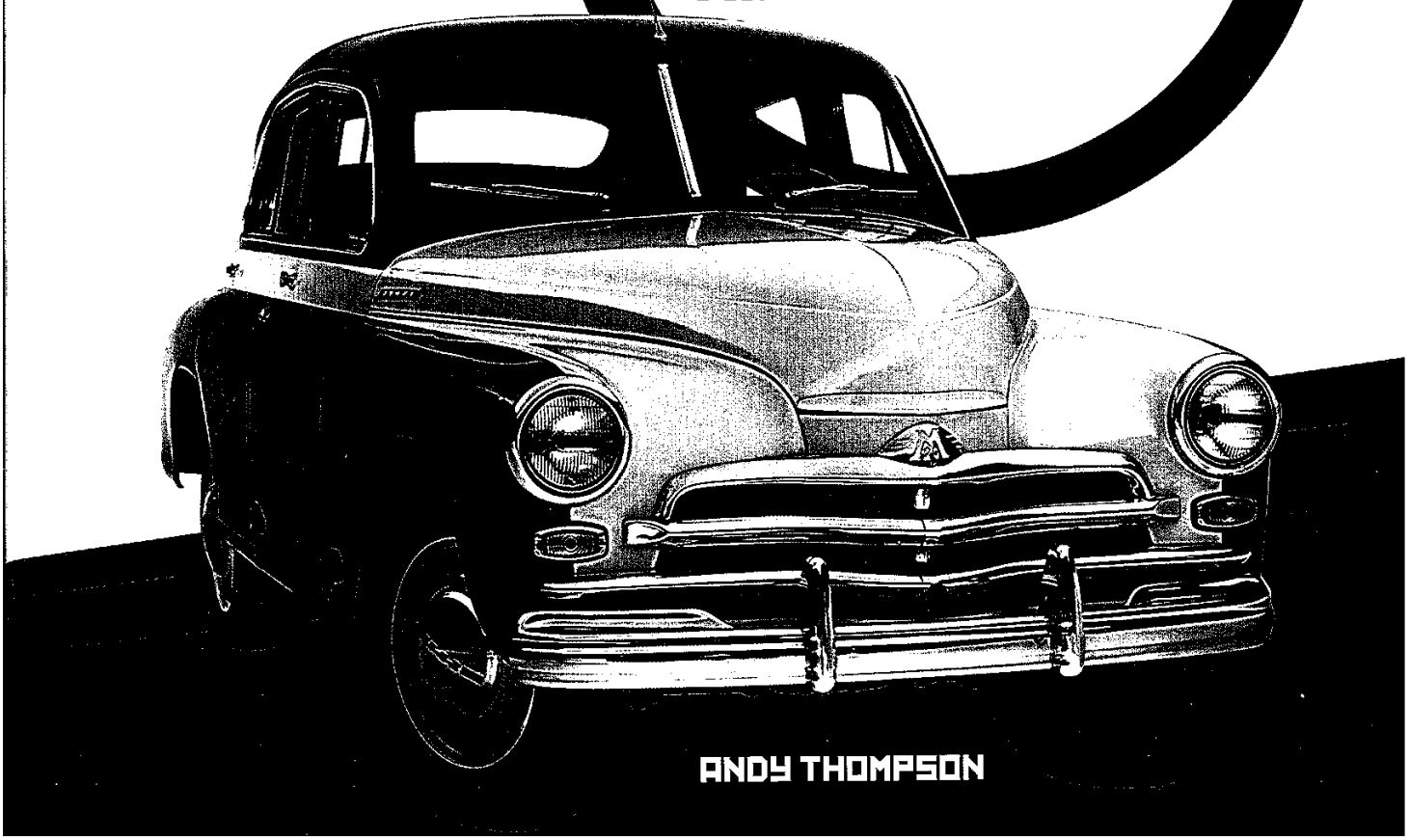
CARS OF THE SOVIET UNION

SECOND EDITION

THE DEFINITIVE HISTORY



ANDY THOMPSON

When the Communist Party took control of Russia and neighbouring states in October 1917, it inherited a country with virtually no motor industry. While Britain, Germany, America and France already had factories mass-producing cars, the Soviets had three tiny assembly plants and a large vehicle workshop in Moscow. However, by the time the Soviet Union dissolved at the end of 1991, its engineers, designers and workers had created one of the world's largest motor industries.

What made the Soviet motor industry so different was its unique background. The Soviet Union's communist system was the world's first and largest attempt to create a new type of society. For more than 70 years, cars and vans were designed and built not to win market share and make ever-greater profits but to meet a clear social and economic purpose. Every car and van had a place and a role to play in keeping the wheels of Soviet society turning; designers and engineers were given clear instructions on what that place and role would be. Ideology and policy were never far from the top of those design briefs, either to demonstrate to the West during the Cold War that communist engineering was just as good as the capitalist kind or to offer a carefully graded structure of cars to reward revolutionary heroes.

The vast natural environment also played its part. Soviet motorists were faced with driving huge distances across a landscape that included some of the coldest and hottest places on earth, a country that spanned Europe and Asia, the Arctic Circle and the Caucasus region. Service stations and motorways were few and far between in such a huge country, making reliability and serviceability far more important than chrome and carpets.

The rest of the world took note and Soviet-made vehicles were sold across the globe. Three decades after the demise of the Soviet Union itself, its cars and vans are still to be found, living examples of what was a truly unique motor industry. *Cars of the Soviet Union* is the story of those vehicles.

Andy Thompson has had a lifetime interest in the vehicles that are the real backbone of the world's transport systems. He has owned and driven more than 100 different cars and vans, ranging from a 20-year-old Toyota Starlet used to travel across West Africa to a 32-ton Scania used to haul recycled waste around Shropshire. Brought up in the Midlands, and having lived in places as diverse as London and rural Bulgaria, Andy, his family, dogs and cat, have settled in the Aeron Valley in Wales. He currently drives an Alfa Romeo.

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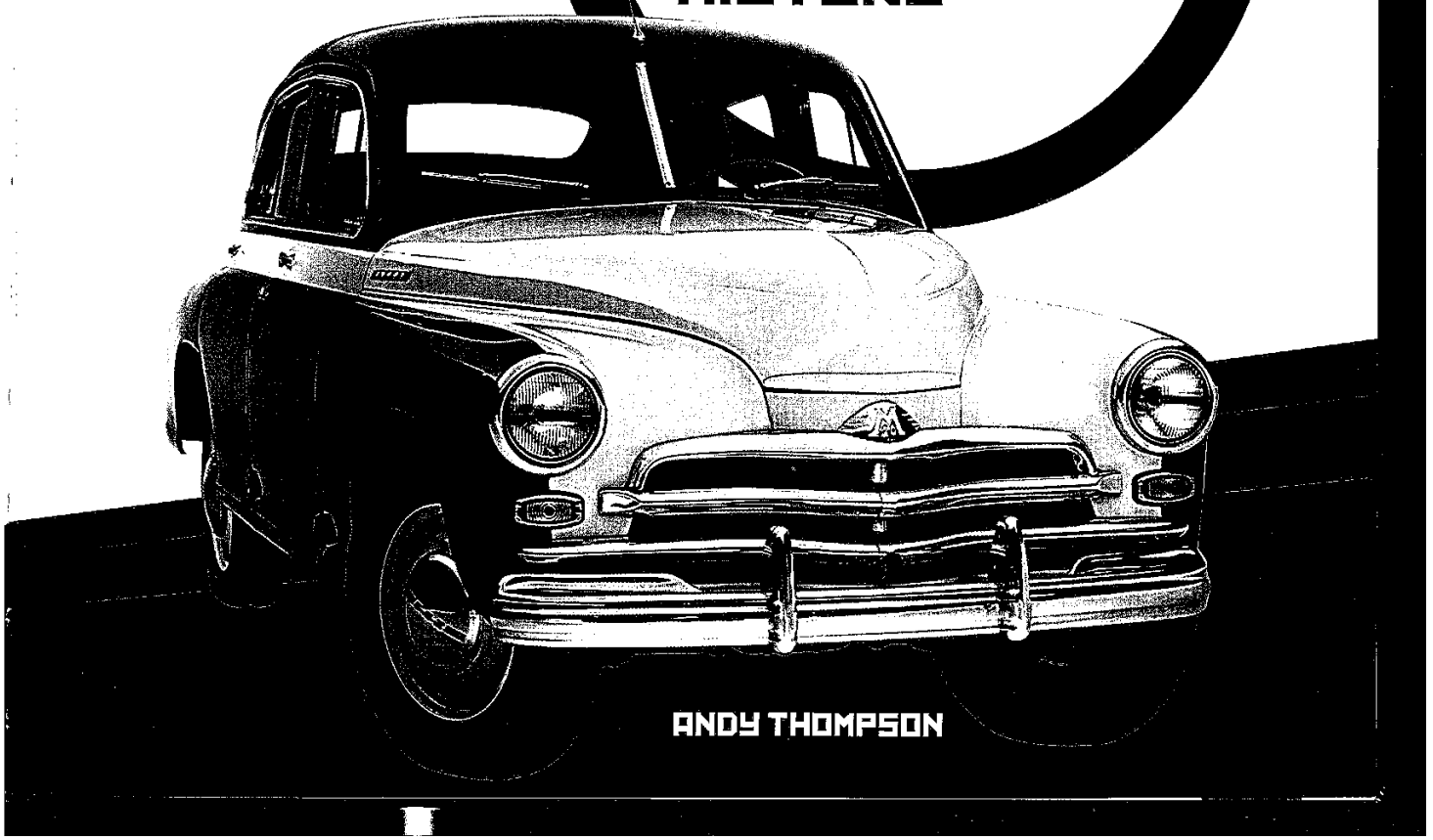

ANDY THOMPSON

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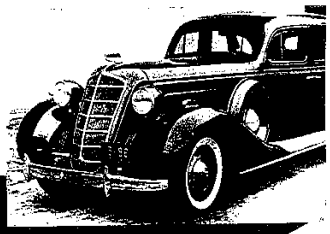
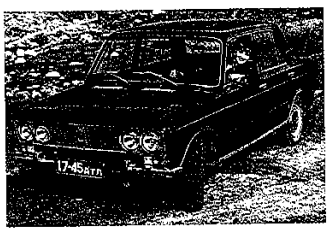




INTRODUCTION

The Soviet Union was born in October 1917 in St Petersburg. The product of the world's first Communist revolution, it was consequently also the first country to be governed and managed on the basis of a totally new and untried economic system, which abandoned the idea of capitalism and free markets that had, to a greater or lesser degree, held sway since time immemorial. Communism was to be a completely different way of running society – one in which everything would be planned and nothing left to chance, in which everyone and everything had a role to play, and in which everyone would have a fair share of everything. But by 1991 the Communist system had been consigned to the history books. Capitalism, with all its inherent chaos, disorder and unfairness, had seen off the young socialist upstart.

This book is most emphatically not an economic or social critique of socialism. Neither is it a social history of life in the Soviet Union. Instead, it is a history of the cars made in the Soviet Union between 1917 and 1991.

It is, perhaps, unlikely that we shall ever again see a major country adopt an economic and social system like the one that dominated Russia and the Soviet Union for three-quarters of a century. To be able to understand how and why the Soviet car industry developed in the way that it did and how that heritage lives on in the new free-market Russia, a few words on the history of the Soviet Union, post-Soviet Russia and the concept of communism are perhaps in order.

In place of supply and demand coming together in some mysterious fashion that relied upon the ability and willingness of men to buy and sell their labour in a seemingly disorganised and ad hoc way, communism offered a planned approach. The system – the state – would find out what the people needed and then organise everything necessary to meet those needs.

In October 1917 Russia was a tormented country. It offered fertile ground for the advocates of communism, its people being among the most economically backward and politically repressed in Europe. Compared to Britain, America and Europe its industrial capacity was extremely low as a result of years of oppressive, almost feudal government that had not created the social stability necessary to allow businesses and ideas to germinate and grow.

POVERTY

The new post-October 1917 Revolution government inherited a nation with a few very rich people but an awful lot of very poor people, including huge numbers of peasants whose lifestyle had not changed for centuries. It faced three main challenges – to put into practice what was still only a theoretical economic system, to survive in the face of hardening international opposition to an alternative to capitalism, and to catch up with the rest of the industrialised world. Poverty was widespread throughout the country, exacerbated by appalling losses of men and material in the First World War. Expectations amongst the people were high.

There was opposition to the new Communist government both within and without Russia. Civil war continued in parts of what was to become the Soviet Union until 1921, and governments elsewhere in the world feared for their own futures following the success of the Russian revolution in creating a completely new way of running things. From the first hoisting of the Red Flag over the Kremlin – the long-time seat of supreme power in Russia – until after the Second World War, the Soviet Union endured economic, social and political turmoil.

The new government introduced a policy of promoting heavy industry and agricultural development over and above all else. It had to feed its people and it wanted to offer them the kind of comforts that industrialised nations were beginning to take for granted – electricity on tap, effective health care and decent homes. In its rush to put right the pre-Revolutionary years of neglect however, the government often acted ruthlessly, and strong and dictatorial political leadership took precedence over the principles of people's control that were theoretically integral to communism.

Josef Stalin, who became the Secretary of the Communist Party in 1922 – and in effect the country's leader – was the most ruthless of political leaders. His power was so immense and so feared that he influenced everything that took place within the Soviet Union until, and indeed after, his death in 1953. He even took a direct interest in the development of the Soviet Union's first cars.

TYRANNY

In transforming the Soviet Union from an essentially agricultural society to, by 1950, one of the world's major industrial powers, Stalin was indeed an effective ruler. However, that progress came at a huge cost. He was a man who did not tolerate opposition, either to himself, the government's plans or the Communist system. The 'Great Terror' he instituted between 1933 and 1938 saw hundreds of thousands of people, including some of the country's brightest talents, killed or exiled to purgatory in the Siberian prison camps. Thinking outside of the box became positively dangerous and everything, even science and engineering, had to conform to Marxist ideals.

Stalin's vision was that through a series of Five-Year Plans the Soviet Union could catch up with and then overtake the capitalist world. The first of these was launched in 1928 and advocated particular attention towards developing a motor industry, albeit one focused very much on the trucks needed to develop a fully functioning industrial system. Cars were not seen as a priority by a government that, in any case, wherever possible favoured collective services over and above those that catered for individuals – public transport over private cars. The idea of individuals owning their own cars was simply not part of the Soviet government's agenda.

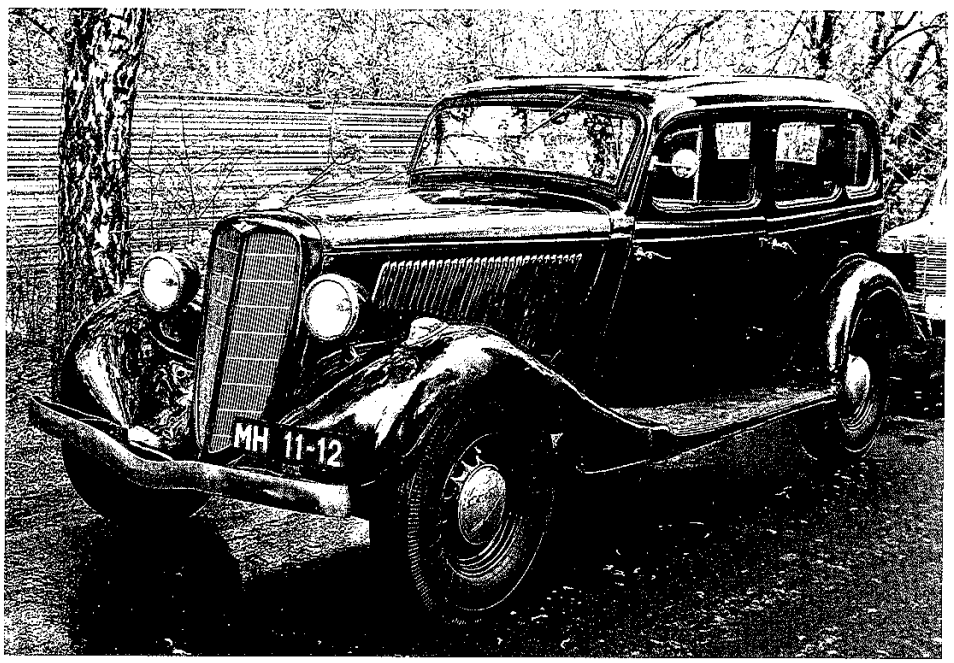
HUMANITY

However, after the Second World War the Soviets wanted to show the West that communism was more than capable when it came to improving the lot

of the common man. After all, the Soviet Union had proven itself to be the equal of Britain and America when it came to freeing the world of Nazi tyranny. Moreover, after the Second World War consumer products started to take on extra importance within the Soviet Union, the country having developed the necessary heavy industry to produce them and its leadership having realised that they needed to acknowledge human nature: people wanted to be able to express themselves, if only at weekends or by travelling on their own or with their families. The desire for a car became as much of an ambition for the increasingly well educated, well fed and healthy people of the Soviet Union as anywhere else in the world. But whereas the private car was seen as a great liberating force elsewhere, it was seen by the Soviet government as a safety valve to keep people on course as they created a brave new socialist world. Happy workers were productive workers, content citizens were wise citizens.

At the same time, the Cold War began, a state of continuous political tension and rivalry between the West and what was by then the Eastern Bloc, made up of the Soviet Union and its Communist satellites. Though the most obvious weapons available may have been their huge armies, navies and air forces, both protagonists saw the ideological front as being equally important. Americans and Europeans may have had 20 different types of colour television to choose from and high fashion on every High Street, but the Soviets had free healthcare for everyone and job security. The Soviets may have had to wait for years to get a flat but when they got one it cost next to nothing to rent and was a home for life. In America if you couldn't pay a market price for your home, then home was Skid Row, but if you had the money you could buy a palace. It was the last true battle of ideas.

The Soviet system was based upon meeting people's material and social needs and providing for their intellectual development rather than fulfilling their consumerist desires and whatever took their fancy for leisure and pleasure. Every town had its own 'Palace of Culture' where classical music,



➔ The GAZ M1 was the first mass-produced Soviet car. A surprising number have survived and are popular with Russian classic car enthusiasts.
(Vladimir Varaksin)

theatre and cinema were made available at little or no cost. Every factory offered cradle to grave care and support, including kindergartens for children and health and sports centres for workers and their families. People didn't work to become rich – that wasn't the way people were supposed to be rewarded in the Soviet system. Instead, they worked for the recognition of their peers and of the government for having contributed to the greater good of society as a whole.

The capitalist system was completely different. People worked for money, business existed to make a profit and everyone and everything needed to be constantly new and better for companies to survive and prosper. Carmakers had a vested interest in introducing a new model every year. It didn't matter if the old cars had plenty of useful life left in them – people hanging onto their cars meant less sales and less profits. Planned obsolescence became a way of life. The positive side was that new ideas and new features were constantly being introduced into Western cars, even if some of them weren't necessary or added little to the value of the car as a safe and efficient means of transport.

EFFICIENCY

In the Soviet Union, those market imperatives didn't apply. Gosplan was the Soviet ministry tasked with organising the entire economy – *it* decided how many cars would be built and thus how much steel would be needed to build them, and how many miners would be needed to mine the ore, and how many homes those miners would need, and how many bricks would be needed to build the homes, and where those homes would be built, and how many cars would be needed for the builders to get to and from the building sites, and so on and so on.

Each type of car – just like everything else – had its own place in the plan, and the development of new products was designed to meet a defined need rather than simply to tempt consumers to part with cash for the latest new style. Changes were made for specific reasons – to improve efficiency, comfort or durability, and rarely just for the sake of a change. Soviet cars were made to do a job and to keep on doing that job.

The geography of the Soviet Union naturally played its part in shaping the nation's cars. It was a vast country, including some of the coldest and hottest places on earth. Distances were immense. Populations were spread over vast areas. Communications were difficult. Cars for such conditions had to be rugged, reliable and easy to maintain and to repair. They had to be able to cope with a road network that, away from population centres, was made up of unpaved tracks. Components needed to be interchangeable so that a service depot in a remote part of Siberia could service as many different vehicles as possible without having to keep excess stores of spare parts.

The story of the Soviet Union's cars, then, has to be seen in the context of a planned society in a vast, relatively undeveloped territory in which everything was planned well in advance to meet a clearly defined need. And for many years the system seemed to work. The country may have always had more buyers than cars and its products may not have had all the glitter and razzamatazz of a Western car, but they were arguably well-suited to their home market and those of other countries with similar social and geographical conditions. It is surely no coincidence that outside of the Eastern Bloc, Soviet cars found welcome markets in Africa, South America and amongst lower income motorists in Western countries, where being able to buy and maintain a car on a budget were the most important considerations.

By the 1980s though, the intellectual tide in the West was moving firmly towards free markets and away from post-war flirtations with socialistic notions. Britain and America in particular were abandoning much of the post-war consensus of state intervention to support industry and to

provide welfare for those displaced by capitalism's fallout. Their leaders – President Ronald Reagan and Prime Minister Margaret Thatcher – had an almost visceral hatred of socialism and communism and an almost evangelical belief in the power of the free market to provide just about anything anyone could ever possibly desire. For them, bringing about the collapse of the Soviet Union was an article of faith. Its very existence showed that there was an alternative to a free market, no-holds-barred social and economic system. A combination of constant and unrelenting media pressure, overtly conspicuous consumption and extravagant displays of wealth were used to browbeat the Soviet Union (and indeed, anyone who wasn't 100 per cent in favour of untrammelled neo-liberal capitalism) into losing faith in their own beliefs and their own ways of doing things.

In the Soviet Union, the new government of Mikhail Gorbachev started to question the undoubted rigidity of the Communist system. People began to wonder whether or not some of the capitalist dynamism that came from allowing individuals more scope to innovate and to be materially rewarded for their efforts might be introduced into the Communist system. The ideal – the free spirit of capitalism underpinned by the stability of socialism – seemed to offer a way forward. Perhaps entrepreneurial people could be rewarded for personal success without all those other people, the majority, having to be, since all they wanted was to simply get on with their jobs and enjoy their lives without suffering the constant insecurity of being go-getting, jet-setting whiz-kids.

COMMUNISM

Once the capitalist genie was out of the bottle, however, the Communist system simply couldn't hold together what were apparently contradictory outcomes. Consequently in 1991 the Union of Socialist Soviet Republics (USSR) came to an end, economically broken by the constant strain of having to maintain military parity with America and its Western allies, and socially broken by the bright lights of London and New York that promised consumer heaven for absolutely everyone. The well ordered if somewhat slow Soviet system was replaced by a rampant, unregulated, ungoverned free market – the complete opposite of what had been in place for the previous 74 years. A society that had been operated on structured and organised lines descended almost overnight into an anarchistic world in which the strongest survived and the rest suffered the kind of hardships that had been banished by communism. The Soviet car industry was catapulted from fulfilling steady, reliable orders from a limited number of big buyers, into a tooth and nail battle with multinational firms who knew from long and bitter experience how to operate in a free market in which the fickle nature of thousands of individuals, not the carefully thought-out ideas of ministerial planners, determined what cars were made, when, by whom and for whom. Yet nearly 30 years after the collapse of the Soviet Union, its cars remain amongst the most popular in post-communist Russia, although their days are sadly numbered now thanks in large part to Western automotive legislation being adopted by the Russian government.

The cars designed and built by the Soviet Union are unique in the world because they have a unique heritage. They were built for a social purpose, influenced by politicians, sometimes designed with military needs in mind, and used in a country where the open road was often a 300-mile track across a windswept steppe. The cars of the Soviet Union may not have the cachet of Mercedes, Jaguar and Ferrari, be as well known as Volkswagen, Renault and Toyota, or be as universally well loved as MG, Alfa Romeo and Land Rover, but they are just as important a part of the global motoring story as all these august brands. That is why it is important and timely to look at the cars produced by the Soviet Union now, before the memories and the cars themselves fade away. ■

THE SOVIET VEHICLE IDENTIFICATION SYSTEM

The Soviet Union used a theoretically logical system to identify all its cars, vans, trucks and buses. Product identifications began with the initials of the factory or plant where they were made, the first initial being the town or city where the factory was based. Almost invariably this was followed by 'AZ', for *Avto Zavod* ('Automobile Factory'). Then followed a numerical indicator. This system has persisted into the post-Soviet era.

The first set of numbers ran until the mid-1970s, with a letter being added to the end of the designation to denote a specific model – for example, an export version – or to differentiate updated models from their predecessors. In the mid-1970s this system was replaced by a less rigid one. Some understanding of the system will help the reader, but be warned – anomalies abound! Moreover, the Cyrillic alphabet does not translate letter for letter into the Roman alphabet. For the purposes of this book I have followed the translations that are used most often, but readers should be aware that others exist.

MODEL NUMBERS

Brand and model names weren't generally used in the Soviet Union itself but were commonly used in export markets. However, different names were used in different markets. For convenience I have opted to use the most common brand and model names and have tried to include them each time a car is mentioned, as I know, from experience, that remembering all the model numbers is not easy!

1917 until mid-1970s		
Numerical range	**Factory**	**Examples**
1–99	GAZ (cars and trucks	GAZ-13
100–199	ZIS and ZIL (cars and trucks)	ZIL-130
200–299	YaAZ and KrAZ (trucks)	KrAZ-258
300–399	UralAZ (trucks)	UralAZ-375
400–450	MZMA and AZLK (cars)	MZMA-403
450–499	UAZ (vans and light trucks)	UAZ-469
500–599	MAZ and BelAZ (trucks)	MAZ-500
600–649	KAZ (trucks)	
650–699	PAZ, LiAZ and LAZ (buses)	
700–999	ZAZ and RAF (trailers)	RAF 977

↓ The 1965 line-up of cars available from the Soviet Union – from left to right the GAZ 21 Volga, the Moskvich 408 and the ZAZ 965. *(Motor)*

↑The VAZ 2106 had the longest life of any of the original Lada family, being made until December 2005. It remains a highly respected car throughout Russia. *(Author's collection)*

The revised system introduced in the mid-1970s is much more complicated but supposedly offers more information about each vehicle. The first number indicates the vehicle class (for cars, the engine capacity dictates this), while the second number indicates the type of vehicle.

Mid-1970s to present day	
First number	**Engine capacity**
1	up to 1,200cc
2	1,200–1,800cc
3	1,800–3,200cc
4	more than 3,500cc
Second number	**Type of vehicle**
1	passenger car
2	bus
3	truck
4	semi-trailer truck
5	dump truck
6	tanker truck
7	van
8	reserved
9	special vehicle

The third and fourth numbers are used by the factory itself to designate specific models. Any fifth number differentiates different versions of mainstream cars, and a sixth number denotes an export model. A good example is the VAZ 21099 Samara Saloon. It is a car produced by the VAZ factory, its engine is between 1,200 and 1,800cc, it is a passenger car, the factory itself has coded the main model 09 and the fifth number tells us that this is a variation on a theme, in this case a four-door version of the VAZ 2109 Samara five-door hatchback.

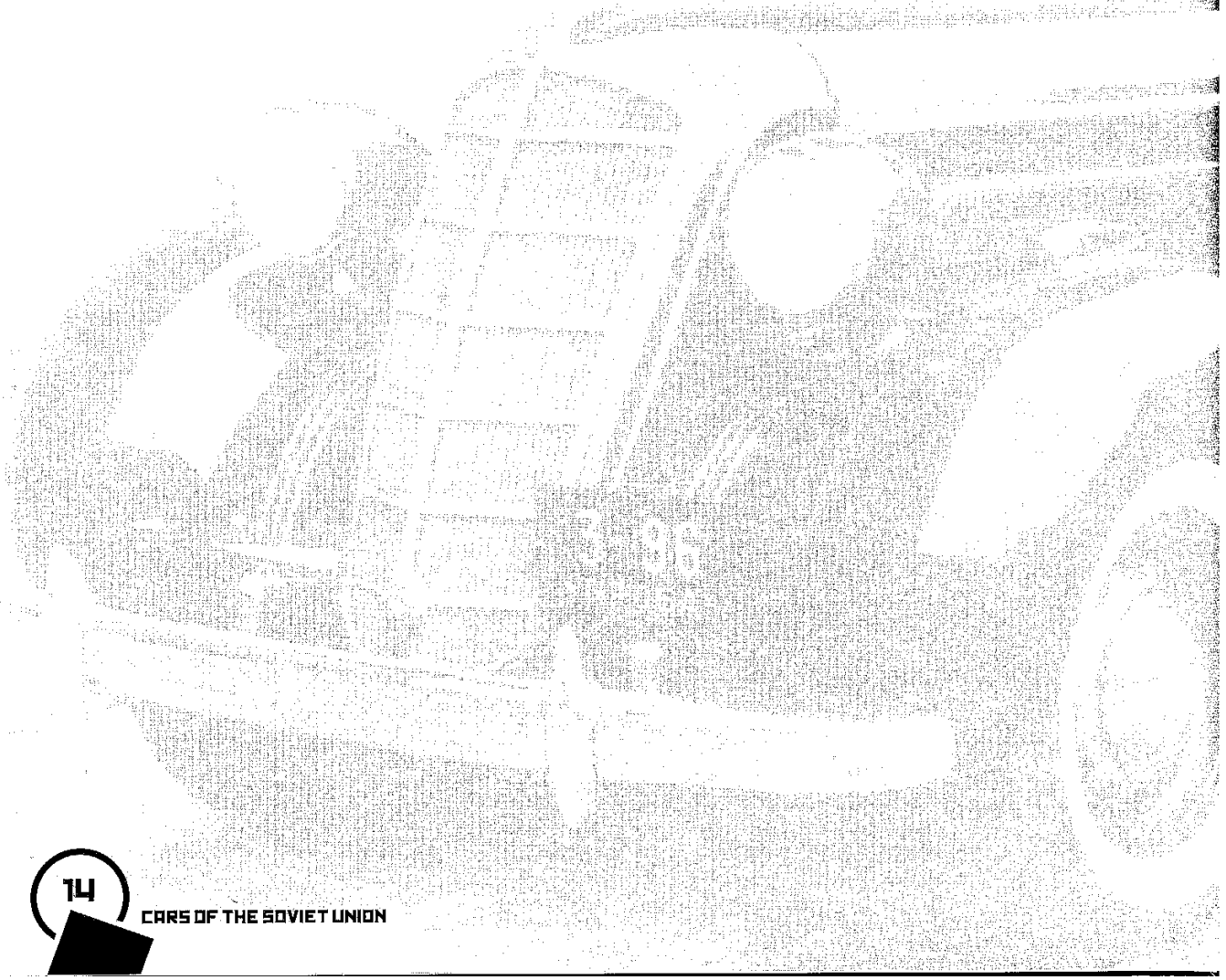
All of this sounds simple and easy to understand, but the system was not strictly adhered to in the Soviet era and has been even less rigidly followed in the post-Soviet era. Even the way the numbers are written can be confusing. For example, the GAZ 2410 Volga car is often written as GAZ 24-10 Volga. Moreover, the code strictly speaking, means it should be a bus... And as for UAZ – well, that's another story altogether; battle-hardened Russian motoring journalists have admitted defeat in trying to understand the UAZ interpretation of the system! ■

ACKNOWLEDGEMENTS

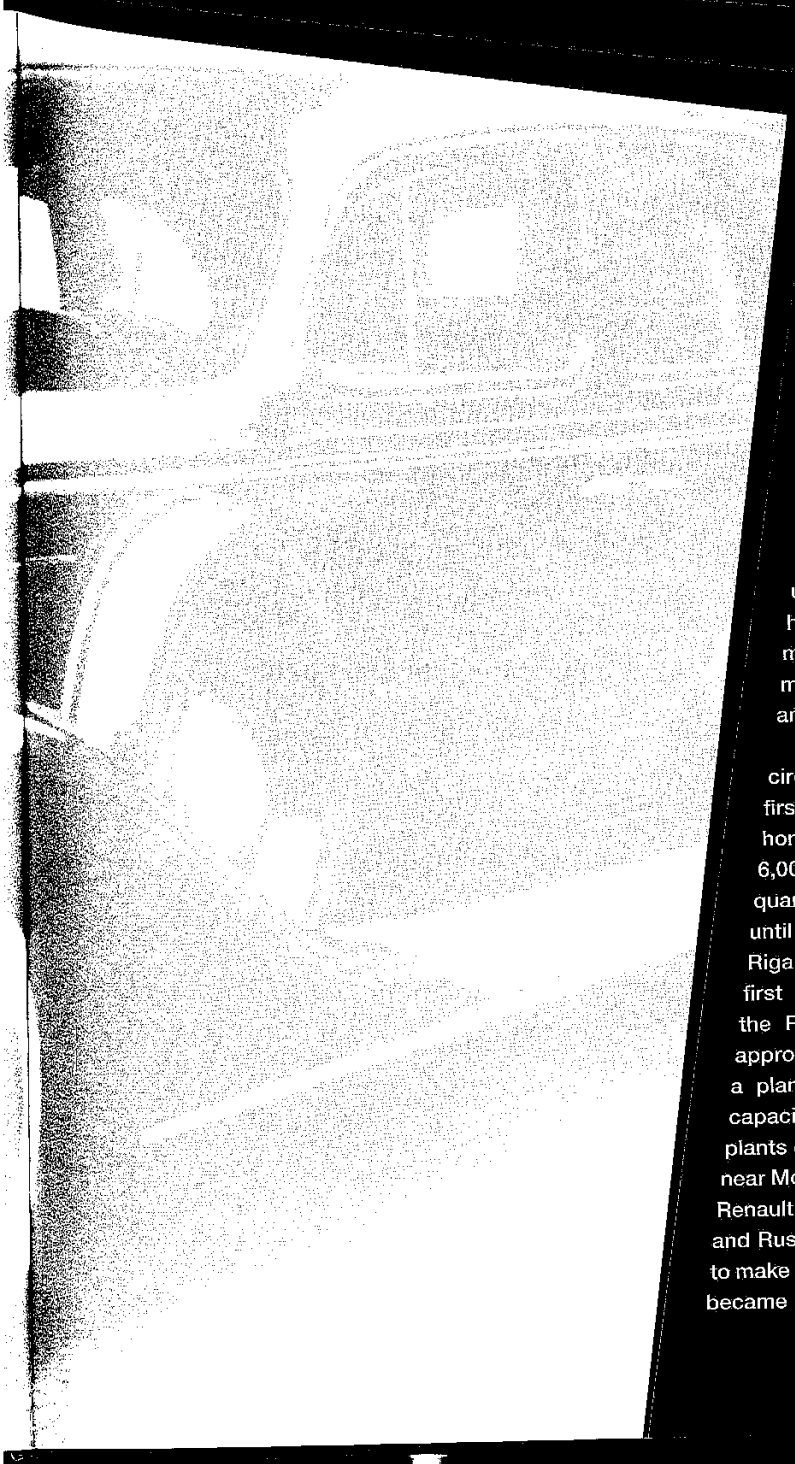
This book could not have been written and illustrated without help and support from many people, including friends and colleagues who have tolerated me with great patience. I would particularly like to thank Marina Klemendeeva at UAZ; Alexander Bredikhin, Head of Marketing at AutoVAZ (Lada), for a great set of Lada photographs; Edmond Lardinois of the Belgian Lada Club for some rarely seen shots; Paul Riaser for his great pictures of the LuAZ 1301; Paul Török for help with IZH vehicles (www.autoprosimania.uw.hu); Kucs Zsolt and Szél Imre of the Hungarian Moskvich Club for way too many pictures to mention (www.moszkvicsklub.hu); Alexander Melnikov who has perhaps the biggest and best personal pictorial record of cars in the Soviet Union and Russia (www.foto-avto.narod.ru); Ed Hughes for pictures and details of Britain's only right-hand-drive ZAZ Tavria; and Sergey Lugovoy, Director for Public Relations at Group GAZ, for some rare pictures from the GAZ archives. I would also like to give a special mention to Julian Nowill, who inspired this book with his own *East European Cars* volume and has been a source of support and encouragement throughout. Last, but most assuredly not least, my wife Bev and our children Joshua and Kelly for tolerating me while I put the whole thing together. ■

←The little Oka, also known as the VAZ 1111, was a well-sorted mini car, offering decent motoring for those on a budget. *(AvtoVAZ)*

PART

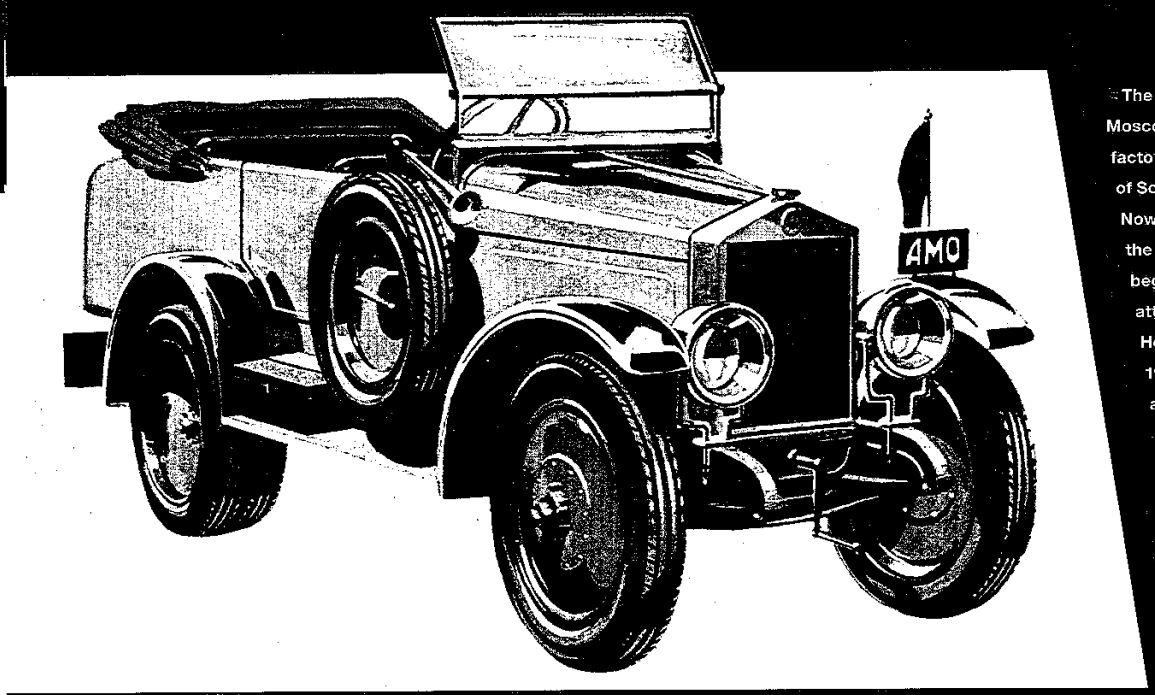


BRAVE NEW ROADS
1917-1945



In the first decade of the 20th century, Russia was behind its European neighbours in developing a motor industry. Tsar Nicholas II initially rejected the idea of a horseless carriage, but under the influence of his relative Kaiser Wilhelm II of Germany he changed his mind and ordered himself a couple of Rolls-Royce cars. Although there were in time many other cars in the Tsarist garage, Nicholas preferred to use Britain's finest. In May 1912 the Russian government promoted its first ever endurance rally, under the direct supervision of Tsar Nicholas himself. The event covered more than 1,900 miles and attracted entries from 45 motor manufacturers, including Ford, Mercedes and Napier.

Very few Russians outside of the court circle could afford cars. By the end of the first decade of the 20th century Russia was home to 175 million people but had just 6,000 cars. Most of these were imports (a quarter were Ford Model Ts) since it wasn't until 1910 that a railway carriage factory in Riga began producing imperial Russia's first home-built cars and trucks. In 1916 the Russian army's technical department approached a number of industrialists with a plan to build six factories with a total capacity to build 7,500 vehicles per year. The plants chosen were AMO in Moscow, Bekos near Moscow, Lebedev in Yaroslavl, Russian Renault in Rybinsk, Aksai in Rostov-on-Don and Russo-Balt in Riga. Only three ever got to make motor vehicles. Of these Russo-Balt became the largest car producer in Russia,



The AMO works in Moscow was the first factory to make any kind of Soviet motor vehicle. Now known as ZIL, the plant has from the beginning focused its attention on trucks. However, in the 1920s it did produce a small number of open-top cars using the chassis and mechanical components of its first Soviet era product, the 1.5-tonne F-15 truck. *(Avtoexport)*

but it didn't resume production after the October Revolution in 1917.

Immediately after the Revolution, the new Communist government found itself critically short of cars. Its leader Vladimir Lenin used the Tsar's Rolls-Royce Silver Ghost while his comrades divided the rest of the royal collection among themselves. The Revolution and the ensuing civil war took their toll on the cars inherited from the previous regime and in 1919 the government sent an order to London for 70 more Rolls-Royces. However, the new regime also realised that it needed to create its own motor industry, and on 16 October 1918 it created the Central Automobile and Motor Research Institute, better known nowadays as NAMI, or the National Automobile Institute. NAMI was established to assist in the development and regulation of the Soviet motor industry, a role it still provides in Russia today. It is one of the oldest scientific organisations in Russia and works with numerous manufacturers to improve the design and engineering capability of the Russian automotive industry.

Although a domestic motor industry slowly started to develop, clear emphasis was given to trucks rather than private cars. Of the six vehicle factories proposed before the revolution, just two made vehicles after the change in government, and in both cases these were commercial vehicles. AMO started making lorries in 1924, and the former Lebedev factory in Yaroslavl made trucks between 1926 and 1959 before turning to engine production. Interestingly, 1928 saw the launch of *Za Rulem* (which roughly translates into 'At the Wheel'), the first and, until the end of the Soviet Union in 1991, the only motoring magazine available to the Soviet people. Publication stopped during the Second World War.

By the end of the 1920s the Soviet government realised that it needed to develop and build passenger cars – if not entirely for peaceful purposes. The national newspaper of the Communist party, *Pravda*, said on 20 July 1927: 'If we do not develop our automobile industry, we are threatened with the heaviest losses, if not defeats, in a future war.'

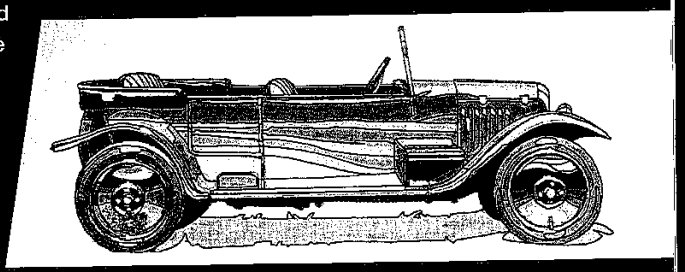
The NAMI-1 was the first purpose-designed, Soviet-made passenger automobile, built in 1927 by engineers working at the institute. It featured a two-cylinder air-cooled 22bhp engine and was

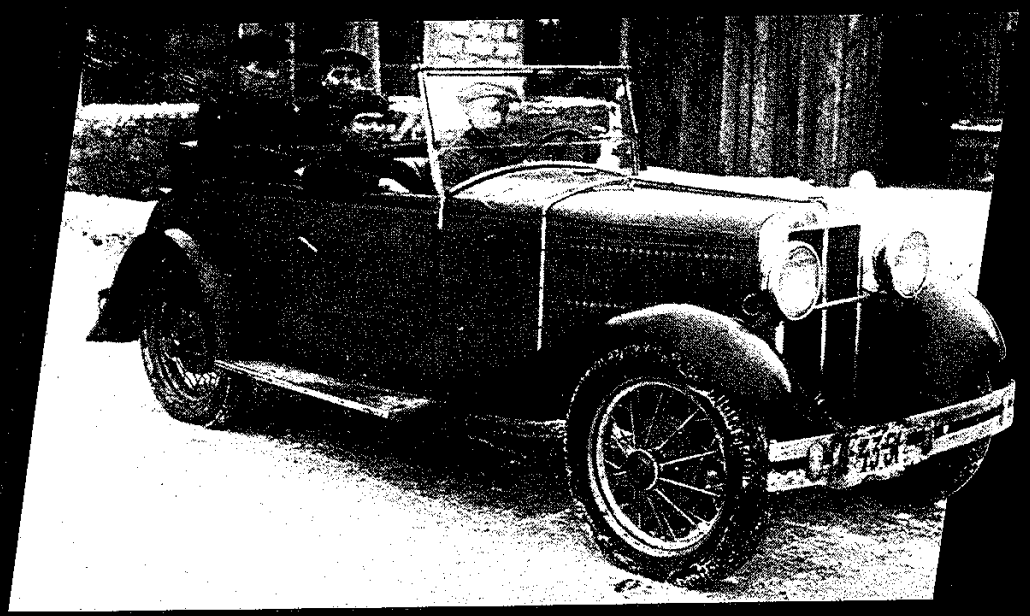
made for three years in very small numbers at the Spartak works in Moscow.

This period was one of great change as the Soviet Union industrialised at a breakneck pace, racked by political turmoil as the Communist regime fought to establish itself. The often malign influence of Josef Stalin, who during this period became the Soviet Union's own home-grown dictator, should never be underestimated. Neither should the inherited problems of poor road infrastructure and the national lack of fuelling, repair, and maintenance facilities that plagued the development of Soviet motoring.

In 1941 the Germans invaded and nearly made it to the gates of the Kremlin. Twenty million Soviet people are thought to have lost their lives in what became known in Russia as the Great Patriotic War, as the Soviets joined the British and the Americans in destroying Nazi tyranny. However, one side-effect of the conflict was the concentration of talent and skills in what was to become the nucleus of the Soviet motor industry as equipment and machinery was evacuated eastwards from Moscow to prevent it falling into German hands.

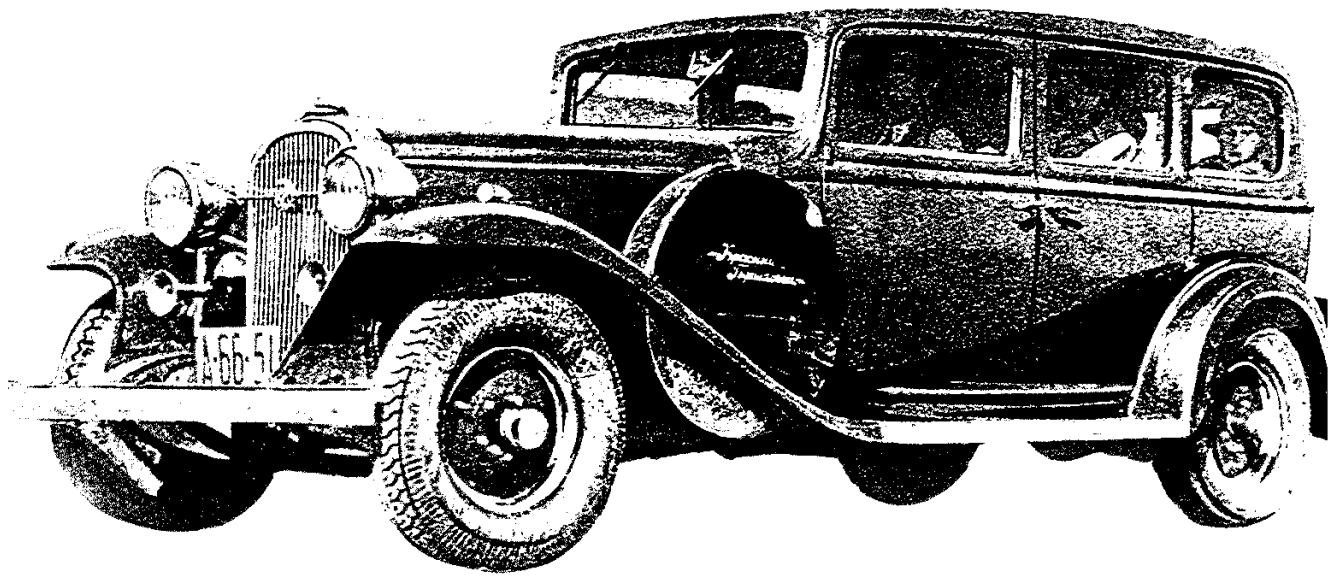
By 1945 the Soviet Union had fought and won a major war and realised its true engineering potential. It had also established a solid foundation for a domestic motor industry. There were two factories making cars and two more that would soon be in a position to join them. Although the fledgling Soviet car industry had been created initially for industrial and defence purposes, and passenger cars accounted for only 12 per cent of total output before the war, the stage was set for major growth in the post-war period.





ZIS

SOME CARS ARE MORE EQUAL THAN OTHERS



↑ Built in 1933 and based on a 1931 Buick design, the L1 was the first Soviet limousine. It was not a success and the task of creating a top car for those Communists more equal than others was passed to ZIS. *(Autocar)*

ZIS, now better known as ZIL, is the one Soviet vehicle manufacturer that was a vehicle factory before the October Revolution of 1917, though it wasn't called ZIS or ZIL at the time. On 2 August 1916 a public prayer and foundation ceremony took place in the Tyufleva Grove district of Moscow to inaugurate the Automobile Moscow Society (AMO) works, with a plan to manufacture 150 half-ton Fiat F-15 trucks by March 1917. These plans were foiled by the difficulties of wartime production and the underlying weakness of engineering in the Russian economy. Instead, the Russians bought from Italy F-15 vehicle kits that enabled them to assemble 432 trucks in 1917 and 779 in 1918. The plant never progressed beyond assembling trucks, and following the October Revolution and the subsequent civil war the unfinished works were nationalised on 15 August 1918 and turned into workshops where vehicles and other machinery were repaired. In 1919 just 108 new trucks were assembled.

On 30 April 1923 AMO was renamed in honour of the Italian communist Ferrero, who had been killed by fascists. This was the first of many name changes for Soviet car and truck factories decreed from on high as a way of recognising heroes of the revolution. In June 1923 Gosplan, the USSR's planning ministry, approved a scheme for the works to produce trucks between 1923–7. However, it wasn't until March 1924 that the plant got an official government go-ahead to produce the first Soviet trucks. On 1 November 1924 the first one-and-a-half ton truck was assembled, the AMO F-15, and on the 7th the first ten trucks were proudly paraded

in public; this date is considered to be the official birthday of the Soviet motor industry.

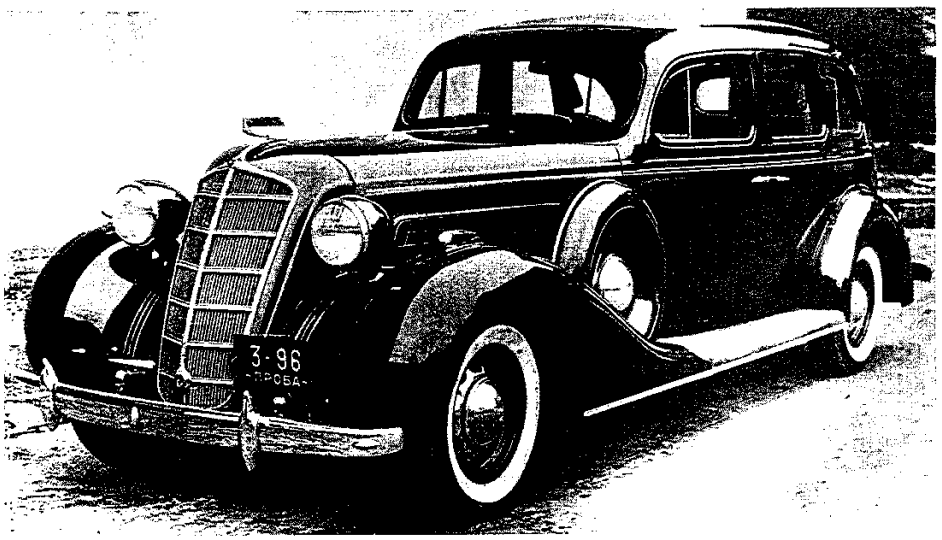
At the beginning of 1927 a decision was taken to increase the factory's capacity by introducing production-line assembly methods. At the same time an American truck built by Autocar, with a payload of 2.5 tonnes, was chosen to be the yardstick for a new Soviet truck. On 1 October 1931 the rebuilding work was finished. New American equipment made it possible to increase annual output by more than eight times, to 25,000 trucks a year.

In 1931 the works was renamed ZIS (Zavod Imeni Stalina), dedicated to the increasingly powerful Soviet leader Josef Stalin. Three years later it produced its first passenger cars, which were most definitely not intended for use by the working masses.

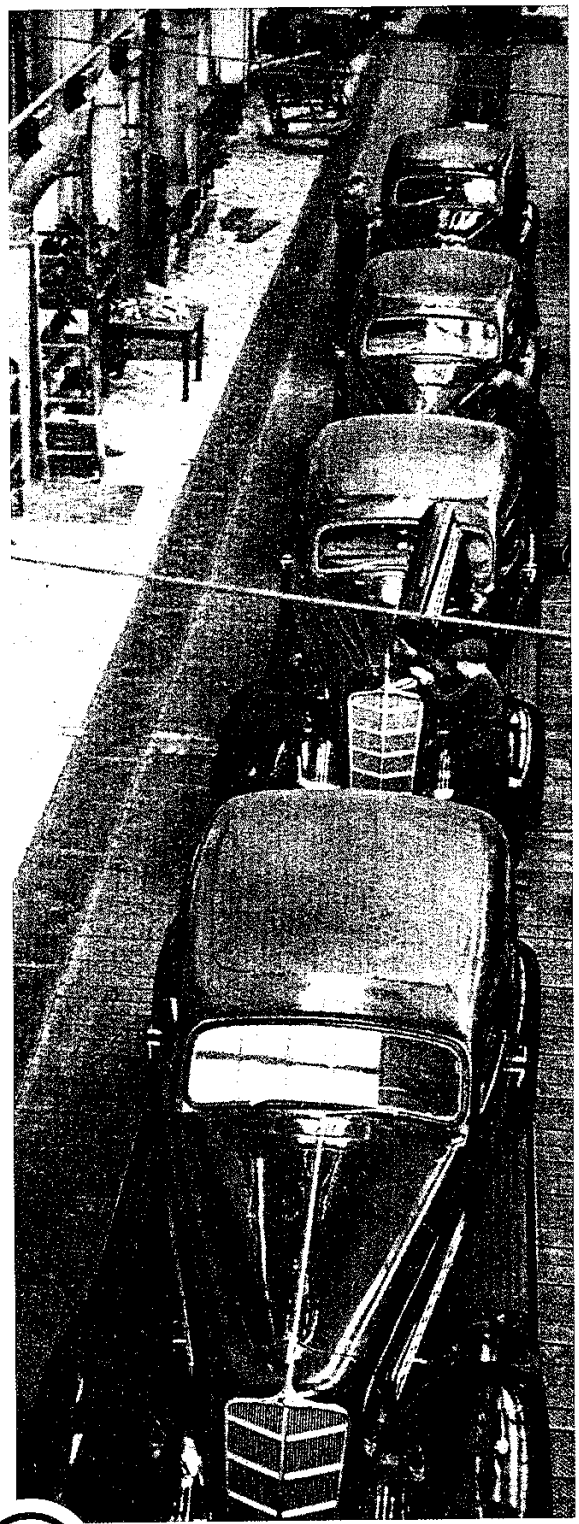
Stalin himself was behind the decision to make high-quality limousine-style cars so that the USSR was seen as a superpower, just as capable as any other country of making its own proper luxury vehicles. The first attempt to build a Russian limousine was made at the Krasnyy Putilovets factory in Leningrad. The engineers used the 1931 Buick 90 as their model. They took it apart down to the last screw and bolt and reinterpreted its design as the blueprint for their own car. The cars had a 5,650cc straight-eight engine with an American Marvel carburettor. Six 'Soviet Buicks', known as the L-1, took part in the 1933 May Day parade, but according to many reports they broke down or fell apart during a road test running from Leningrad to Moscow and back. After the failure of the Putilovets cars, the project to create a Soviet supercar was passed to ZIS, and the Leningrad plant turned its attention to developing farm machinery.

The ZIS team took a different approach from their colleagues in Leningrad. Although they left much of the Buick-derived chassis design in place, they designed a completely new body, ordering machine tooling from the Budd company in Philadelphia to produce a new and extremely sleek car. Although clearly influenced by contemporary American cars and built using American-supplied machinery, the new ZIS was developed without any formal design help from the USA. The first two ZIS 101 prototypes, one in black and the other in cherry red, were presented to Soviet leaders in the Kremlin on 29 April 1936. Stalin was pleased with the car, although apparently he didn't like the original bonnet mascot and it had to be replaced with one more to his liking.

The first production ZIS 101 seven-seater cars were officially launched on 3 November 1936. This was truly a huge car – 5.75m long with a wheelbase of 3.6m and four doors. Motive power came from an inline eight-cylinder, 5,766cc engine with a compression ratio of 4.8:1, producing 90bhp. There was a three-speed manual gearbox. The car could reach 71mph but relied upon mechanical brakes to bring it to a halt. Eleven were built in



← The ZIS factory in Moscow – which by the mid-1930s was famous for its trucks – showed the full range of its talents when it announced the ZIS 101 limousine in 1936. *(Autocar)*



1936. In 1938 a soft-top version appeared, the ZIS 102, also with four doors and seven seats. The engine had a higher compression ratio of 5.5:1 and aluminium pistons. It produced 110bhp and could reach 78mph. No more than ten were made.

The ZIS 102 formed the basis of a stunning sports version, the 101 Sport of 1939. This was the first of a series of attempts by ZIS to produce sports cars. The engine was the same 5,766cc unit as in the 101 but boosted to 141bhp at 3,300rpm, for an official maximum speed of 101mph, although *Pravda* claimed 112mph.

Though only two examples of this imposing two-seater car, built by a group of young ZIS engineers, are believed to have been made, their existence reflected a growing Soviet interest in motorsport. Motor racing had become increasingly important worldwide during the 1930s and national prowess at motorsport was officially smiled upon, in much the same way as pilots and military heroes were highlighted as role models for the rest of the Soviet population to emulate. Some of the first races in the Soviet Union were organised on the main public highways. A long, straight stretch of road would be closed off and the drivers raced to the end and then turned round and raced back. The Minsk highway near Moscow was a popular venue. The ZIS plant used ZIS 101s for its first forays into motorsport, often driven by their first and perhaps most famous driver, Boris Kurbatov.

← The ZIS production line in 1936, with the first ZIS 101s being made ready for delivery to their exclusive band of lucky users. *(Author's collection)*

→ The ZIS range included the original ZIS 101 limousine (bottom), the ZIS 102A convertible (middle) and the ZIS 101A (top), which combined the more powerful engine of the ZIS 102 with the body of the ZIS 101. The 101A had a more imposing radiator style than the 101. These colourful drawings of the three cars were featured in Avtoexport's *Round-Up* magazine in the late 1980s. *(Avtoexport)*

The ZIS 101 remained in production until 1940, when it was replaced by the ZIS 101A. This combined the body of the ZIS 101 with the engine of the ZIS 102 and was built until 1941. It had a slightly altered front end to distinguish it from its predecessor. The soft-top with the new front styling was called the ZIS 102A.

In 1940 Soviet aircraft engineer J.J. Dolmatovsky designed a radical new ZIS concept with aerodynamic coachwork and a rear-mounted V8 air-cooled engine – the Czech Tatra had obviously made a great impression in Russia, just as it had in Germany (where it led, eventually, to the Volkswagen Beetle). However, this car remained a sketch. Instead, work focused on the ZIS 101B, a further development of the 101A. This had a fully integrated boot, eliminating entirely the luggage rack that had been a feature of the earlier cars. The instrument panel now had huge rectangular dials and the steering wheel had a chrome-plated horn ring. Underneath there were improved shock absorbers. Testing of the ZIS 101B started in May 1941 and the car was scheduled to be launched in 1942. However, the German invasion of the Soviet Union in June threw these plans into disarray. Production of the ZIS 101A stopped on 7 July 1941 but development of the ZIS 101B continued until October, when the possible fall of Moscow brought the project to an end. At the same time, the ZIS engineering team were working on the ZIS 103, a restyled limousine with independent front suspension, intended to be an eventual successor to the ZIS 101B. There was even talk of a 130bhp engine. This work wasn't wasted – as became clear in the first post-war ZIS, the 110.

A total of 8,752 ZIS 101, 101A and 102 cars were made. Almost all the limousines were painted in black but some were finished in dark blue or silver.

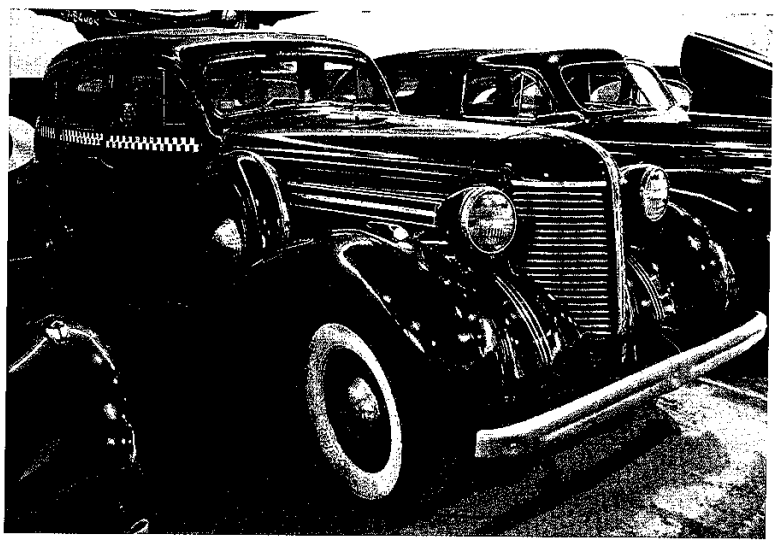
All ZIS production was suspended in 1941. The threat of German forces overrunning the capital resulted in industrial equipment and a great number of people being evacuated eastwards to Ulyanovsk, Miass, Chelyabinsk and Shadrinsk. Some of the vehicle production lines in Moscow were dismantled and sent east to Miass in the Urals, where they were used to create the UralAZ truck factory, and to Ulyanovsk where they led to the establishment of the now well-known UAZ factory. However, ZIS was able to retain at least some of its equipment in

Moscow, and following a successful offensive by the Red Army in the winter of 1941–2 was able to restart its production lines, with truck manufacture getting under way again during 1942.

The Soviet leadership was now convinced that, having turned back the Germans, with British forces apparently on the brink of victory in North Africa and the United States having formally joined the Allied side after the Japanese attack on Pearl Harbor, victory over the Nazis didn't seem as improbable as it had. In February 1942 Andrei Ostrovtsev, the leading engineer at the ZIS plant, was summoned to the National Commissariat of Middle Mechanical Engineering, one of many government bodies set up as part of the managed economic system that was central to communism. There, in a blacked-out office hidden from the Luftwaffe's bombers, he was told to start design work on a new ZIS. It had to match up to the biggest, the most luxurious and the most imposing cars that the American and British industries could offer. On Stalin's personal instructions, the new car had to symbolise to everyone the Soviet Union's rightful place at the global top table.

Although examples of America's most up-to-date luxury cars were available to the ZIS engineers for inspiration (including two Cadillacs, a '67' and a '75', both manufactured in 1942), General Vlasik, who was in charge of the special government car fleet, suggested that it would be wise for the designers to take a close look at the Packard line. Stalin had a particular liking for Packards, President Roosevelt having given him a Packard Super Eight. However, the new Packards announced for 1942 were rather different from those that Stalin liked, being sleeker, with full-width front end styling rather than the upright grille used on the Super Eight. Alongside its sample Cadillacs ZIS did have three Packards to hand, two of which were the smaller Clippers with the new, full-width body, while the third was a 180, the top-of-the-line Packard introduced in 1940 that retained the traditional frontal styling used on the Super Eight. General Vlasik, no doubt with an eye to maintaining a good working relationship with Stalin, suggested that the larger and older Packard style should be the car to inspire the new ZIS.

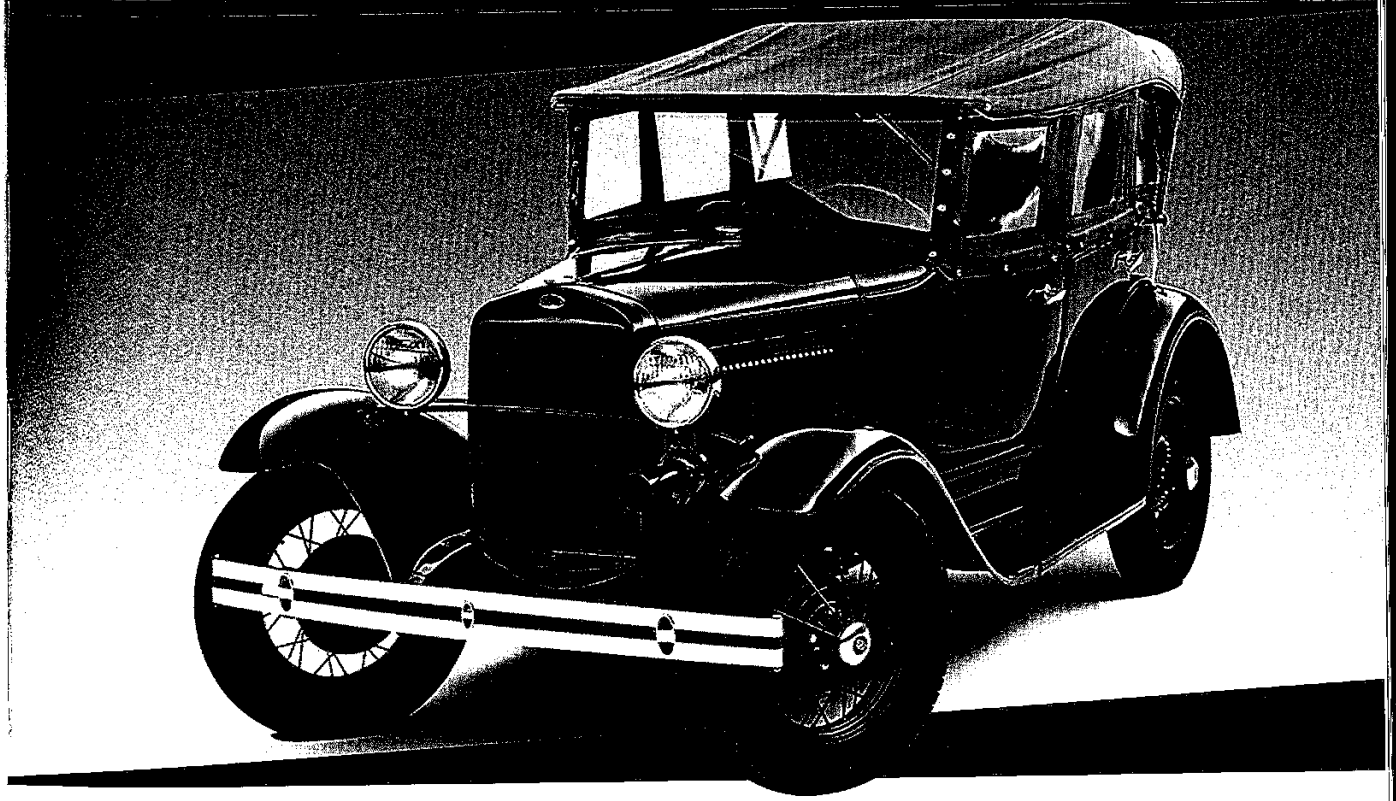
On 19 September 1942 work officially started on the new top class Soviet government limousine, which was to become the ZIS 110. The lion's share of resources at ZIS still had to be devoted to the war effort, so mass production of the new 110 was only able to start after the war ended. The design team was led by Ostrovtsev himself, who had been behind the design of the KIM 10-50, a compact car that couldn't have been more different from the ZIS (as will be seen later in this chapter), and which indirectly laid the foundation for the birth of the Moskvich. Indeed, the bodies for the first two KIMs were built at ZIS. Ostrovtsev remained head of car design at ZIS until 1953, when he left to join the Moscow Highway Institute. ■



One of the few pre-Second World War ZIS cars to have survived into the 21st century, this is a ZIS 101A. The picture shows the more upright grille design that was introduced on this model. *(Vladimir Varaksin)*

GAZ

YOU CAN HAVE ANY COLOUR YOU LIKE AS LONG AS IT'S BLACK



In the 1920s Soviet political leaders, engineers and media took great interest in America's industrial achievements, especially those of the Ford Motor Company. Communist leaders were impressed by the firm's huge output of cars and tractors, achieved through economies of scale and increasingly automated production facilities. They had no intention of imitating the whole system of capitalist industrial production – especially as Henry Ford was vehemently opposed to organised labour – but they did see that the technology developed by Ford could be usefully applied in the Soviet Union to give their own nascent motor industry a real kick-start.

The Gorki Auto Factory (GAZ), in what was known until 1932 as Nizhniy Novgorod, was one of the six plants created as part of the first Five-Year Plan to industrialise the USSR, announced in 1928. It was to become a major symbol of the new country's industrialisation, as well as being the first Soviet enterprise to mass produce cars and light trucks. The official decision to build the new factory, which had a planned annual output of between 100,000 and 140,000 vehicles, was taken on 4 March 1929. Nizhniy Novgorod, 250 miles east of Moscow, was chosen because it had a relatively advanced metal working industry and was close to abundant timber and water resources.

By the end of the 1920s the Soviets had brought to an end direct financial investment by overseas firms so that they could retain complete ownership and management control over their own enterprises and factories. Western businesses were instead offered the opportunity to sign up to technical assistance agreements, paid for in cash

↑The very first GAZ, the GAZ Model A, which, like its Ford namesake, was often painted black. *(Group GAZ)*

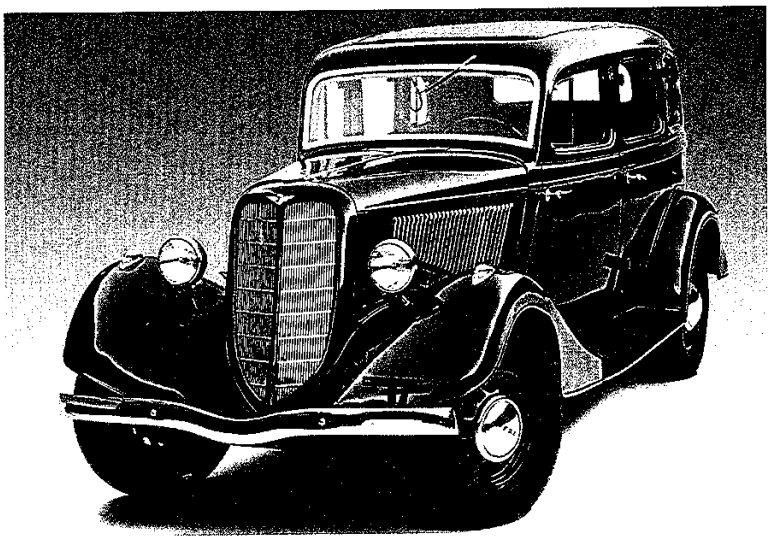
by the USSR. Instead of allowing foreign firms the chance to own or be directly part of the new Soviet economy, the Soviets instead wanted to simply buy in the necessary expertise to develop their own factories and skills. Hundreds of manufacturing and engineering companies took part in the programme, including Ford. Businessmen like Henry Ford saw a great opportunity to make money without any real hassle. Instead of having to risk their own capital and effort establishing a new factory that might or might not turn a profit, they sold industrial blueprints to the Soviets who took on all the hard work and the risk themselves.

On 31 May 1929 the Soviet government signed a deal with Ford to support both the new plant in Nizhniy Novgorod and one in Moscow, Ford having been chosen after a series of tests of various European and American cars and light trucks. The Ford products were regarded as offering the best combination of reliable, simple technology, low-cost production and the capability of building a wide range of vehicles from a common set of components. Of the two factories, the one in Moscow was named KIM after the Komintern of Young People, and achieved fame after the Second World War for its production of Moskvich cars, while the one at Nizhniy Novgorod became GAZ. Even today, despite Gorki being given back its original name of Nizhniy Novgorod following the collapse of the Soviet Union, the city's car plant retains the name GAZ.

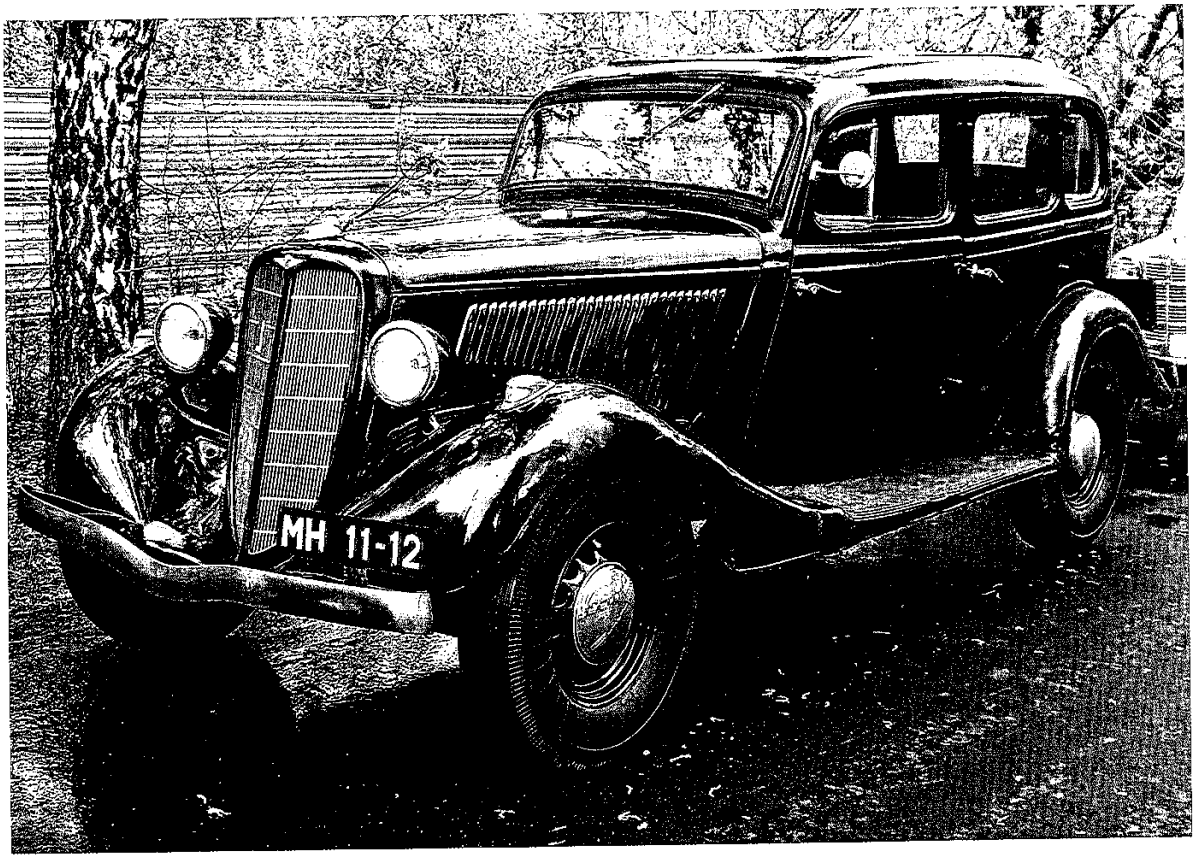
The GAZ plant itself was built by the Austin Company, headquartered in Cleveland, Ohio. The Austin Company remains to this day one of America's leading building design, engineering and construction firms, and in 2001 it revisited its links with GAZ by displaying a GAZ 3111 Volga saloon at the 74th Greater Cleveland International Auto Show. In 1929 the company had just completed Michigan's Pontiac Six factory, at that time the largest auto assembly facility in the world. The mission set for them by the Russians was to design and manage construction of both the production factory and the workers' city. To supervise construction, Austin sent 20 engineers – several accompanied by their families – to Nizhniy Novgorod.

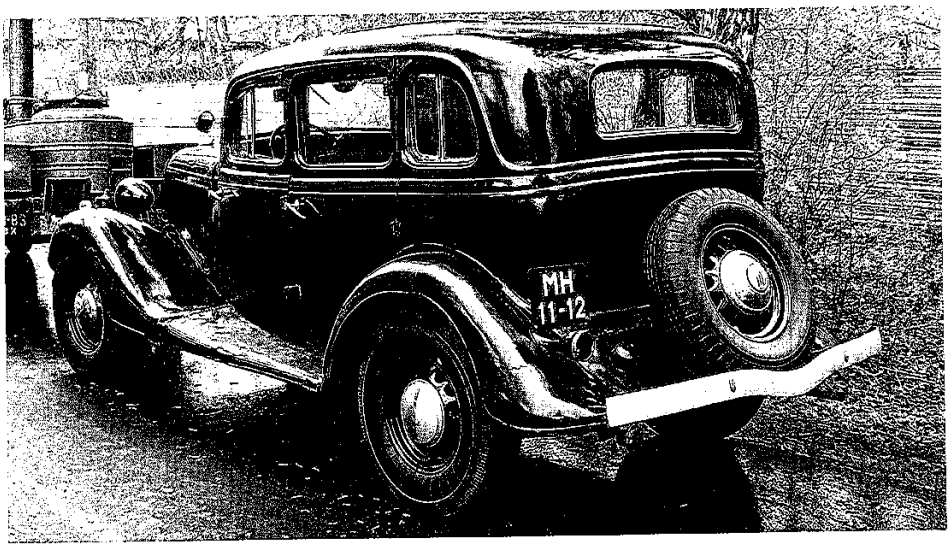
Construction of the plant began in May 1930 and was completed in November 1931. 'The project was quite amazing,' said Michael Pierce, vice president of sales and marketing for the Austin Company, in 2001, 'especially when you consider Austin had only 18 months to design, engineer and construct a facility that could turn out 140,000 vehicles a year. In addition, the project included creating a model socialist city for 35,000 workers and their families. Austin was paid $1.6 million in gold, a payment that saw the company through the lean years of the Great Depression.'

Delegations of engineers from the USSR visited America during 1929 to learn how to build the new products. The two chosen vehicles were the Ford Model A car and the 1.5-ton Ford AA truck, which

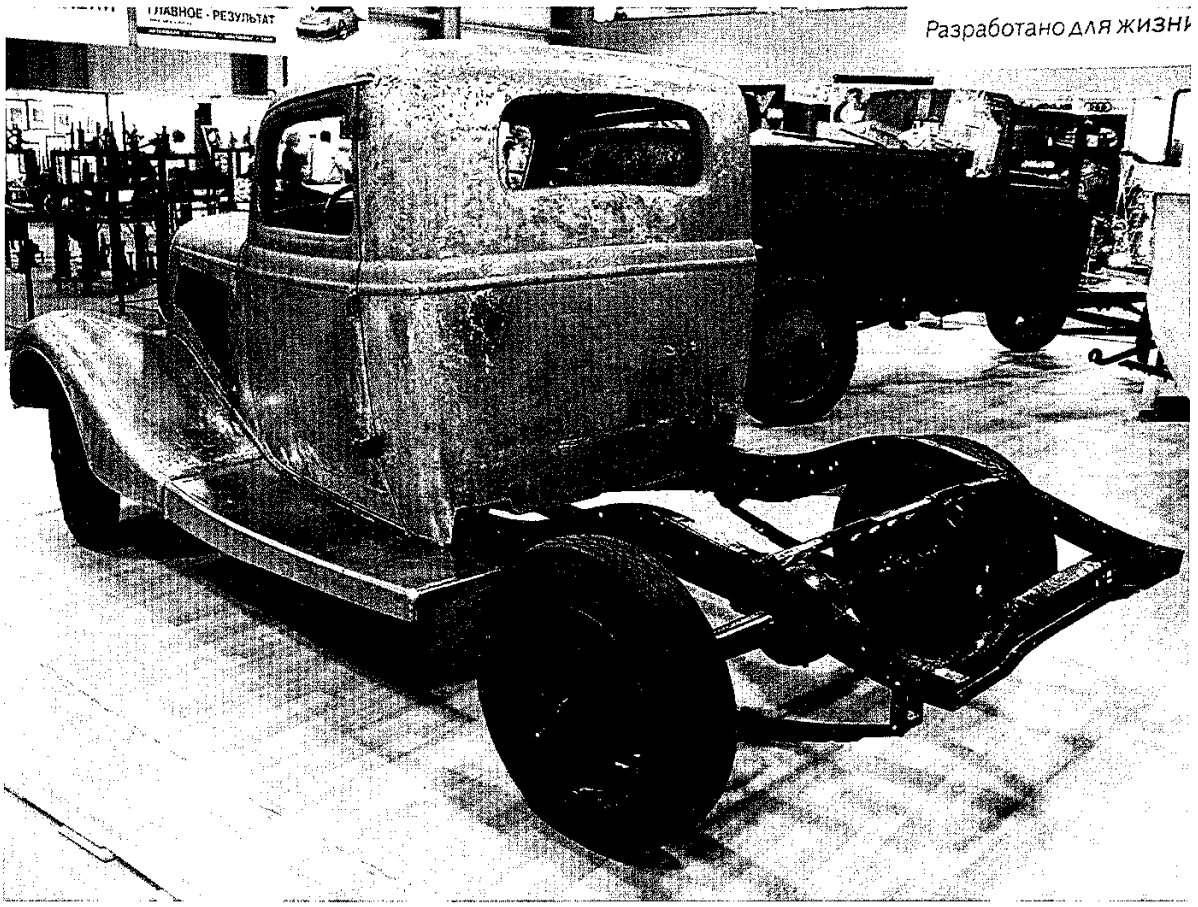


The GAZ M1 was a major step forward for the Soviet car industry, with many design features included to cope with Soviet road conditions, such as disc rather than spoked wheels. Most were painted black. A small number of prototype soft-tops were made, and some GAZ M415 pickups too.
(Group GAZ)





The GAZ M1 was the first mass-produced Soviet car. A surprising number have survived and are popular with Russian classic car enthusiasts. *(Vladimir Varaksin)*



↑The GAZ M415 was a light pickup truck based on the GAZ M1. This chassis cab of one of the few surviving examples awaits completion of its restoration in a Russian museum. *(Vladimir Veraksin)*

had been built in the USA since 1927. The first car, the four-door soft-top GAZ Model A – which, unsurprisingly, was recognisably a Ford Model A – was built on 8 December 1932, having been designed using drawings from the American firm. The engine had four cylinders, displaced 3,285cc and produced 40bhp at 2,200rpm. The gearbox had three forward speeds and the top speed was claimed to be 56mph.

The majority of cars were made with the same four-door soft-top body, but it is known that several prototypes were built with a two-seat roadster body. A pickup version of the GAZ A, called the GAZ 4, was also built from 1933 until 1937 – 10,648 left the Gorki factory gates. It had a 400kg payload and included passenger benches along the side of the cargo box. Light commercials were to become the major part of the plant's business from the mid-1990s when it started producing the Gazelle light van, which bore a remarkable resemblance to the 1990s Ford Transit! In 1934 a small number of fully enclosed examples of the GAZ A were built for taxi work – this was the GAZ 6. A year later, another fully enclosed car, using the GAZ A chassis with a wood-frame body, was built in small numbers at the Moscow Aremkuz body repair shop.

The GAZ chassis also underpinned the Soviet Union's first aerodynamic car when, during the 1930s, motor manufacturers across the world began to grasp the importance of aerodynamics. One of the best-known examples of foreign aerodynamic design was the Chrysler Airflow. However, unlike the Airflow the GAZ Aero was very much a one-off, built purely for research reasons, and not used for racing

or speed trials. It had a wooden frame with a steel skin. The spare wheel was located behind the seats. Drag coefficient was 0.207 – half that of a regular GAZ A. The 3,285cc four-cylinder engine was based on the GAZ A unit but had an aluminium cylinder head and a compression ratio increased from 4.2 to 5.45:1. Top speed was 66mph and the car took 36 seconds to get to 50mph.

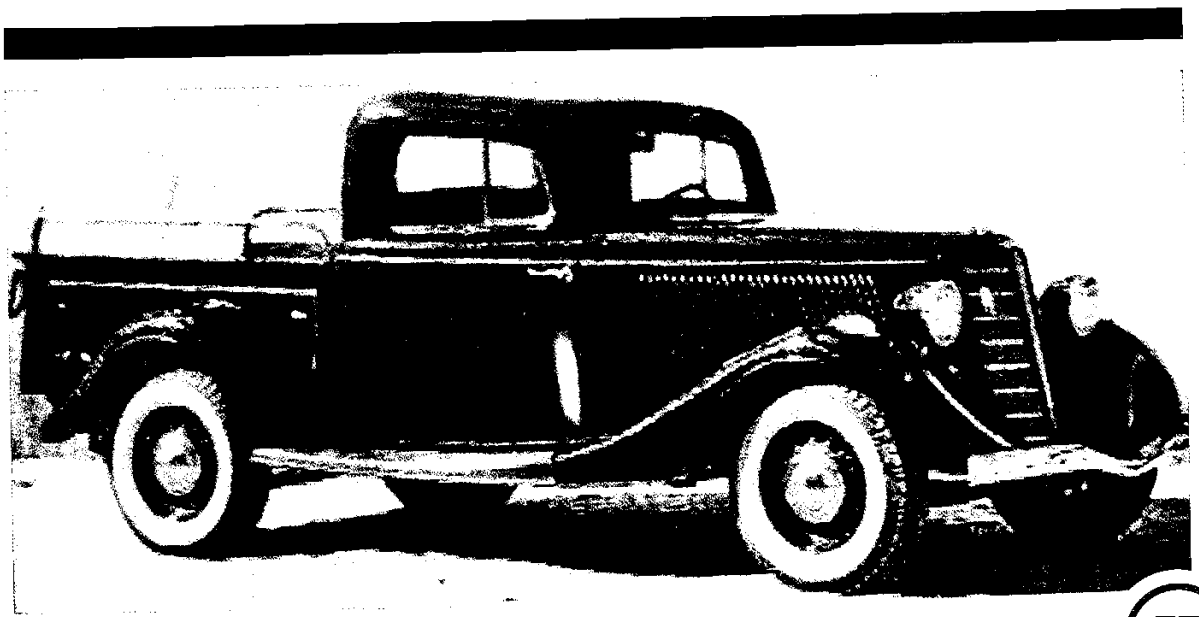
It wasn't all plain sailing at GAZ, however. When the real work started and practical matters had to be solved, the differences between the American and Communist systems soon became clear. The Ford system was predicated on an uninterrupted flow of raw materials, skilful engineering, good factory management and a disciplined and well-trained workforce. In the early days of the USSR such conditions didn't exist. The workers were from a largely agricultural background with no history of engineering or factory work and little experience with the kind of tools found in a car factory. There was also tension at a higher level – the Russians were proud of their theoretical knowledge, while the Americans stressed the importance of practical experience.

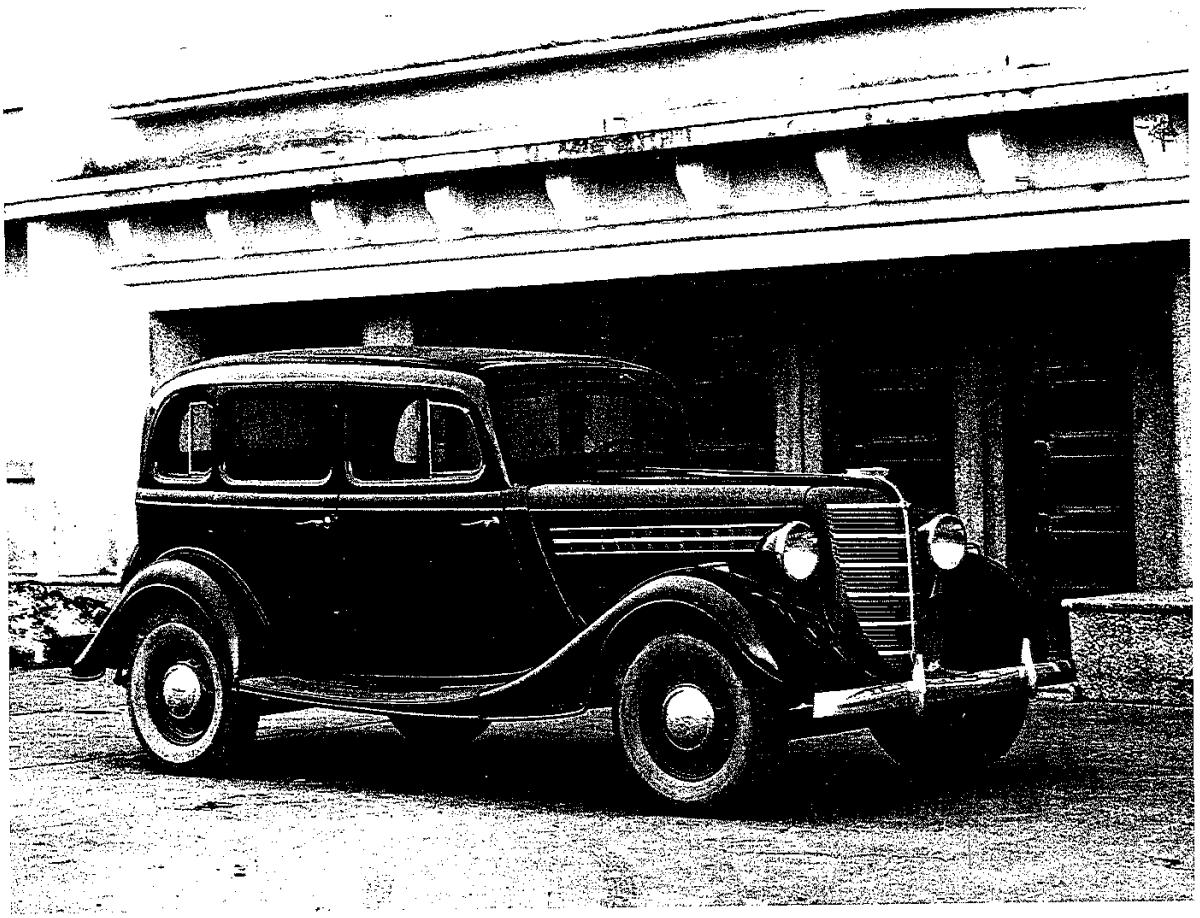
The social-political climate within Soviet industry at that time was a mixture of enthusiasm and fear, which didn't help matters. The political police and local Communist Party leaders were influential across both society and industry. Their suspicion of engineers, as a part of an intelligentsia increasingly distrusted by Stalin and his fellow ministers, was often counter-productive, hindering the ability of engineers to think openly about ways of solving problems and glitches in the new enterprise.

Soviet car and truck production, virtually all of it made by GAZ, was way below the ambitious targets set in the Five-Year Plan, reaching just 23,879 in 1932 and 49,710 in 1933. The links between the Ford Motor Company and GAZ faded away in 1933, five years earlier than the end date agreed in 1929, a victim of the increasingly obvious differences between the two socio-economic systems. Very few American specialists remained on site in Gorki. In any case, by this time the Soviets felt more confident and had evolved their own approach to the mass production of cars. The main priorities for car production in the USSR were the manufacture of simple and durable vehicles designed to cope with the terrain and infrastructure of a still largely rural country. Without the distraction of foreign competition, the main tasks of the GAZ plant were to meet the state-set production schedules for new cars and to supply other car factories, such as the KIM works in Moscow, with materials and equipment.

On 17 April, 1935 the hundred-thousandth GAZ A was built. It had a special emblem on the radiator cap, the inscription '100000' on the radiator grille, two-tone paint, two horns and two additional lamps

↓ The GAZ M415 was the first car-derived pickup built in the Soviet Union. It was a useful addition to the GAZ range but the idea was not repeated with any subsequent GAZ car models.
(Julian Nowill)





↑A step up from the GAZ M1 was the GAZ 11-73, which had a six-cylinder 3,485cc engine. Externally, the only difference from the M1 was a different style of radiator grille. *(Group GAZ)*

on the windscreen surround. 41,917 GAZ As were built between 1932 and 1936.

The four-door GAZ M1 saloon replaced the GAZ A on 16 March 1936, the first prototypes having been made in 1935. The first two production GAZ M1s were sent to the Kremlin on 17 March 1936, where they were examined by top-ranking Soviet leaders, including Stalin and Foreign Minister Molotov. This established the tradition whereby all new Soviet cars and trucks were approved by the highest members of the government. The 'M' became part of the official title of GAZ cars after Molotov's name was included in the official title of the Gorki works.

The GAZ M1 is one of the most important Soviet cars because it was the first Russian car designed specifically for Soviet road conditions, though it remained, technically, very much a Ford clone. It also opened a new era in the development of both the Gorki motor vehicle plant and the Soviet car industry. According to the 1929 agreement signed between the Soviets and Ford, the M1 was supposed to have been based on the 1933 Ford Model 40 V8, but by the time the new Ford was on the road the practical relationship between Ford and GAZ was at best frosty – indeed, it was rapidly coming to an end. Moreover, the Soviet design team wanted to prove itself by designing its own car. The director of the Gorki plant had pulled together a group of talented automobile designers, who became the founders of the GAZ design department. The design team was led by the plant's chief designer Andrei Lipgart, who went on to become a doctor of technical sciences

and an honoured Soviet scientist, until he fell foul of Stalin just after the Second World War. The team became an incubator for the Russian auto industry, providing the men who later became chief engineers at ZIL, the Ukrainian ZAZ plant and the Byelorussian MAZ truck plant.

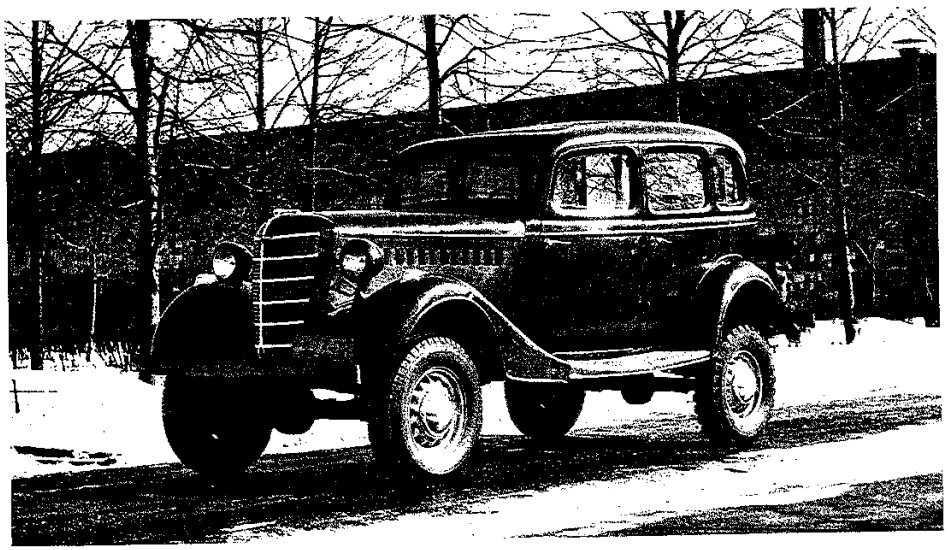
Among the changes made to the GAZ M1, compared to the Ford V8, was the use of a four-cylinder engine rather than a V8, a stronger chassis with beefier leaf springs, and disc wheels rather than spoked ones. All these changes were made because the Ford chassis had shown itself to be not strong enough to cope with Russian conditions.

The M1 also saw the debut of the GAZ M engine, an uprated version of the four-cylinder 3,285cc engine used in the A but which now produced 50bhp at 2,800rpm compared to 40bhp. The same engine was also used in the GAZ AA light trucks. Top speed was 62mph. The gearbox had three speeds. For the first time in Russian automotive history, the suspension had hydraulic rather than mechanical shock absorbers, automatic centrifugal distributor timing and front seats that could be adjusted fore and aft. GAZ built 62,888 M1s between 1936 and August 1941, when production ended following the German invasion, although a few more were assembled in 1942 using spare parts manufactured before the war.

In 1937 the GAZ M1 was premiered internationally, together with other Soviet motor industry products, at the World's Fair in Paris. Experimental four-door soft-tops based on the GAZ M1 were built, also in 1937. Several different versions were made at the same time, some with a V-shaped front windscreen and some with a flat screen. The doors were all front-hinged, unlike the rear-hung doors of the saloon. A year later, in 1938, GAZ tested a modified GAZ M1 with its own gas fuel generation unit.

The range was expanded to meet rural needs – a major issue in a country as large as the Soviet Union. The GAZ M415 pickup was made from 1939 to 1941. It had a load capacity of 400kg and was based on the GAZ M1. The cargo bed was 1,610mm long and top speed was 56mph. The first prototypes had the load bed styled to be integral with the cabin styling – much like today's popular pickups such as the Toyota Hi Lux. The production models, however, had a separate, rectangular cargo bed, more akin to the traditional style used for heavier commercial vehicles.

GAZ M1s are still occasionally seen in use today, but some older Russians do not have fond memories of them. When the M1 was introduced private transport was virtually unheard of in the Soviet Union, so it was mostly used either as an official car or as a taxi. Black GAZ M1 saloons,



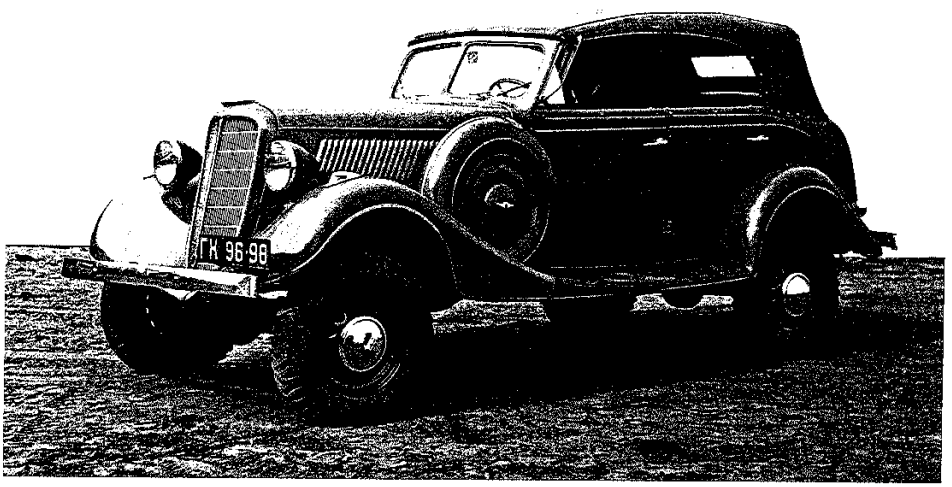
←The GAZ 61-73 was the four-wheel-drive version of the GAZ 11-73, one of the world's first 4WD saloon cars that didn't compromise passenger comfort to achieve decent off-road capability. *(Group GAZ)*

known as 'Black Ravens', were used by the NKVD – the Soviet secret police – and the sound of one pulling up outside your home in the early hours of the morning was feared across the Soviet Union. A slightly less sinister nickname was 'Emka', derived from the letter M!

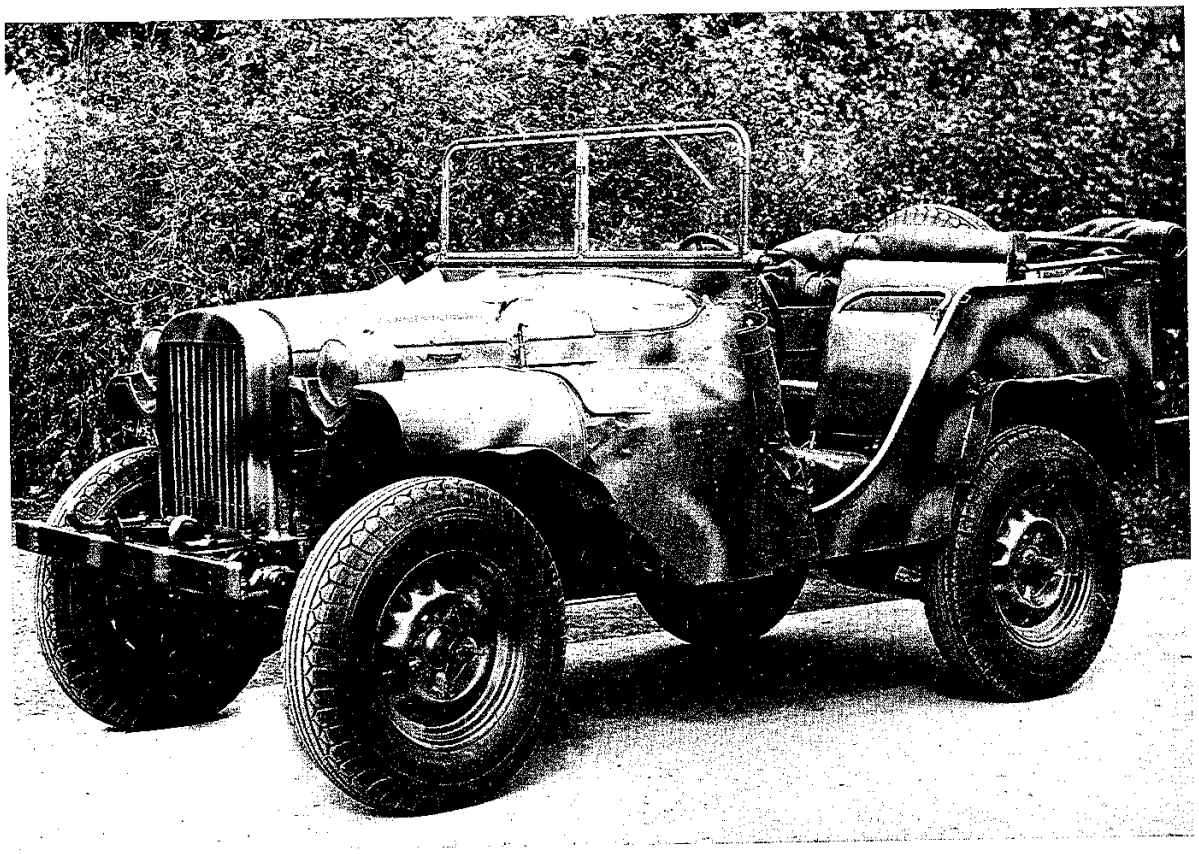
The GAZ M1 provided the basis for a range of six-cylinder GAZ cars that shared much of its engineering and body styling. The GAZ 11-73 was built from 1940 until 1941 and then again from 1945 until 1946. To help develop its six-cylinder engine, GAZ had bought a number of American side-valve Dodge D5 engines, which led to the development and production in 1937 of the GAZ 11 engine. This six-cylinder 3,485cc 76bhp engine was also used in the GAZ 51 truck. Outwardly the GAZ 11-73 cars differed from the basic M1 by having a restyled grille and bumpers, and they could reach a top speed of 69mph. The GAZ 11-40 was the open-top version, but no more than six examples of this four-door drophead were made. A prototype for a pick-up version of the GAZ 11-73, the GAZ 11-415, was made in 1940, but did not go into production.

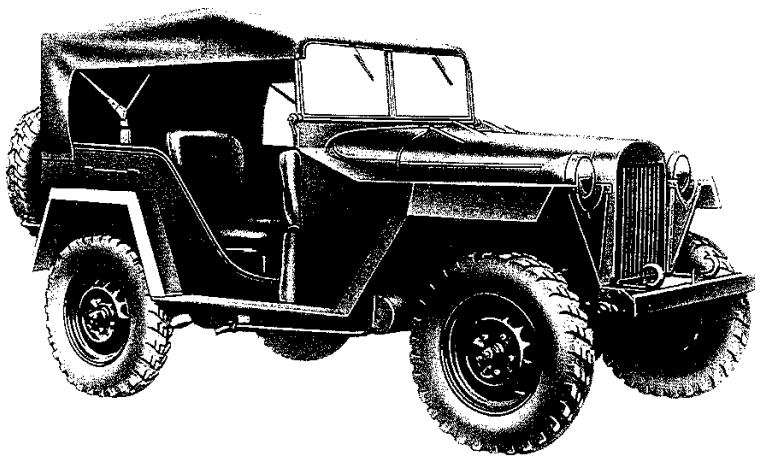
The GAZ 11-73 gave birth to what were among the first four-wheel-drive passenger cars made anywhere in the world. Known as the 61 series, these used the six-cylinder engine. The first prototype was a dark blue soft-top that shared much of its body with the prototype GAZ 11-40 drop head. The new car was thoroughly tested between June and October 1939, showing unprecedented off-road ability. The test schedule included quarry conditions to see how well it could handle sand and loose soil. For winter testing the open-top body was replaced by the closed body of the M1, leading to two distinct versions of the new car being put forward for approval. They were signed off in 1940 and the soft-tops, called the GAZ 61-40, and the saloons, named GAZ 61-73, were scheduled to go into production by the end of that year. However, the formal introduction of the 4x4 GAZs was delayed due to technical issues. The first example, a GAZ 11-73, was finally made on 9 June 1941, and was tested by being used to tow a 76mm artillery gun! Mass production got underway on 12 July but only 181 were made before manufacture came to an end thanks to a lack of materials – especially sheet steel – because of the war. Another two are believed to have been made in 1942, nine in 1944 and two more in 1945.

At the end of 1940 the GAZ engineers had tested a couple of 4x4 pickups called the GAZ 61-415. Based on the GAZ 61 chassis and intended for both military and civilian use, these did not progress beyond the prototype stage. The closely related GAZ 61-417, however, did go into production to meet the Red Army's need during May 1941 for a simple vehicle to support its front-line light artillery. Capable of carrying six people and 250kg of arms, it used some of the same body panels as the 61-73 as far back as the front door post but had no back to the cab. Aft of the cabin was an open body with longitudinal seats on top of the ammunition boxes.



→ GAZ made a soft-top version of its GAZ 61-73 four-wheel-drive saloon, the GAZ 61-40. It shared its body-style with the GAZ 11-40, a prototype cabriolet derivative of the six-cylinder GAZ 11-73 saloon. *(Group GAZ)*





The GAZ 64 was quickly developed during the Second World War to provide a compact go-anywhere military vehicle. *(Group GAZ)*

Towards the end of the Second World War GAZ created the GAZ 67, which was virtually unstoppable off-road. It was made until 1953. *(Author's collection)*

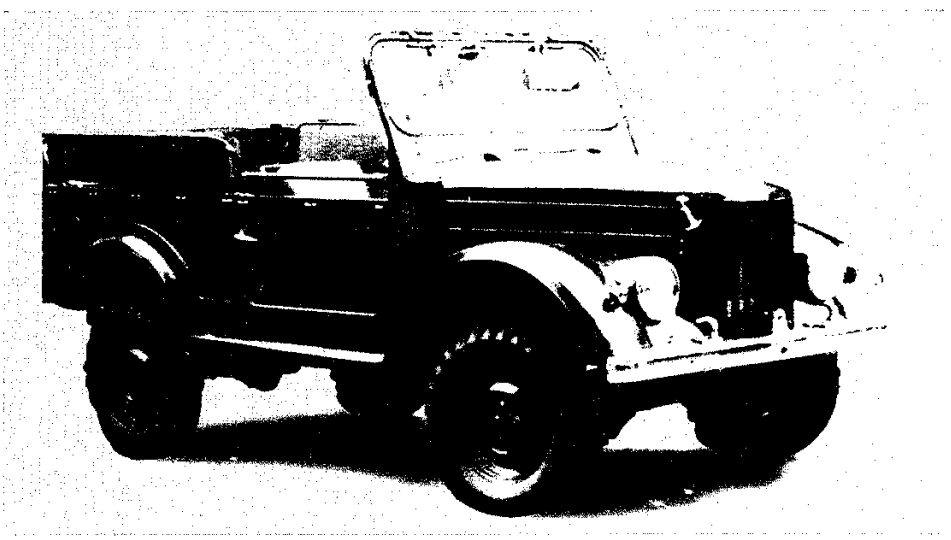
The first of these little trucks were manufactured on 7 October 1941 and 36 had been built by the end of the year. Production ended when supplies of body panels ran out.

The extremely high ability of the GAZ 61-40 to go wherever its driver chose to go and its unpretentious nature earned it plenty of respect from front-line soldiers. They were favoured by the very highest officers in the Red Army – for example, Marshall Georgy Zhukov (who held the Germans back before Moscow) had a grey example, while Marshal Semyon Timoshenko (credited by many commentators with mechanising the Red Army) had a dark green one. However, after the severe winter of 1942 most were fitted with closed bodies.

GAZ made another valuable contribution to the Allied war effort. In 1938, prompted by the clouds of war looming over Europe, it had started developing specialised 4x4 vehicles for use by the military. It wasn't the only one. At the same time as the GAZ 64 – a rudimentary jeep-style vehicle – was being developed, the NAMI research institute produced another prototype 4x4 for use by the Soviet military, the NAMI AR. Designed in 1941–2, this off-road vehicle competed with the GAZ 64 to be chosen as the official 4x4 of the Red Army. Like the GAZ 64, it used the same engine as the GAZ M1, but equipped with two carburettors taken from the KIM 10 car. This increased power from 50 to 57bhp. The first example was produced at what was to become the Moskvich works.

GAZ began work on the GAZ 64 in February 1941, using the GAZ 61's chassis, front and rear axles (with some modifications), transfer box, gearbox, shortened driveshafts, front springs (also used at the back), steering gear and brakes. The engine came from the GAZ AA truck, mounted high up to increase ground clearance in comparison with the GAZ 61. Special high-grip chunky 6.50-16 tyres were developed for the new car, and were subsequently used on all GAZ cross-country vehicles produced up to 1958. However, because of supply shortages the early models often used the GAZ M1's 7.00-16 highway tyres. The first GAZ 64 was put together in just 51 days and in March was given a favourable assessment by Red Army. Prototypes of both 4x4s were presented to Stalin and it was the GAZ which got the official seal of approval.

Production began in August 1941, albeit using temporary production equipment. The body was made by hand by panel-beaters. By the end of the year 602 had been built, and were used as infantry transport and staff command cars. Production fell to just 67 units in 1942 and at the beginning of 1943 it was replaced by the GAZ 64V, an improved wide-track version with the front track increased to 1,293mm. Production ended in April, when the chassis were required for armoured car production. However, GAZ had already started working on a replacement



➔The GAZ 61-417 of 1941 was the first GAZ designed primarily for military use. It was the forerunner of the famous post-war GAZ 69. *(Avtoexport)*

in February. The first running prototypes of the new GAZ 67 were on the road in the summer, with even wider track front and rear of 1,449mm. The chassis was strengthened to address problems found in the GAZ 64 of cracks appearing in the chassis rails. An extra fuel tank was installed under the driver's seat – a necessity for a vehicle which had a healthy appetite for fuel. The first production GAZ 67 was built on 23 September 1943 and by the end of the year 718 had been built. The front-end style differed from the GAZ 64 in having separate front and rear wings and steps to help people get in and out. It was also slightly longer and wider. Off-road the GAZ 67 was even better than the Allied jeeps produced by Willys, Bantam and Ford, although its brakes were less effective and it wasn't as reliable. A hard-top version of the regular GAZ 67, the GAZ 67-420, was built in October 1943, and there was even an amphibious model, the GAZ 011, built in 1945.

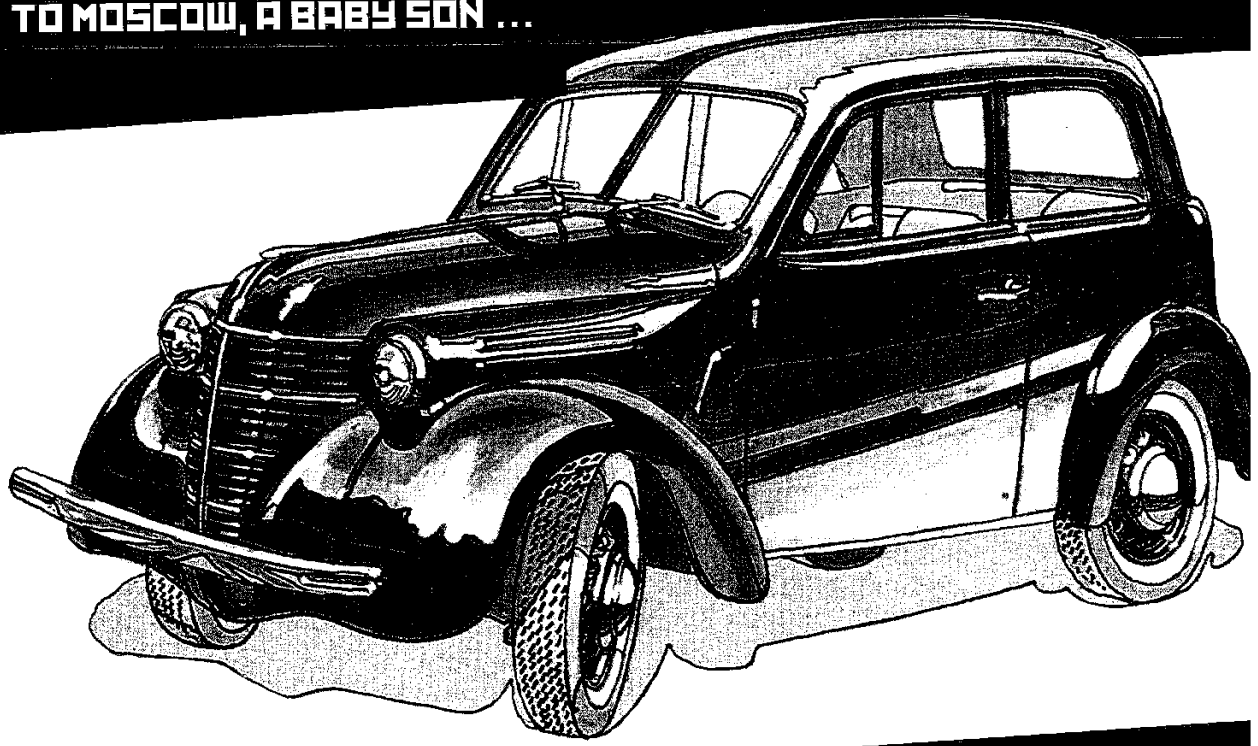
During January 1944 GAZ built the first GAZ 67Bs, seen by many as the definitive GAZ jeep. This had a slightly wider track than the GAZ 67 and was fitted with a four-cylinder 3.2 litre 54bhp engine. Total production amounted to more than 92,843 units when the last ones were made in the autumn of 1953. All GAZ 67s were painted dark green, even those made after the war.

During July 1944 plans were drawn up for a rear-wheel-drive-only GAZ 67, the GAZ 67V. The first was built on 3 September. It was intended to be a wartime replacement for the GAZ M1, since the need remained for a simple and cheap car, especially where there was no need for off-road capability. To create the GAZ 67V the transfer box was removed and a front axle based on the GAZ M1 was installed. Weight was lower than the four-wheel-drive model. Even without four-wheel drive, the car was surprisingly capable off-road, but production couldn't get under way because the war effort took up all of the Gorki plant's capacity. ■

The Soviet auto industry took to motorsport in the 1930s. The first track-bred GAZ was unveiled in 1938 (top) – it had a top speed of 87mph. In 1940 a revised model (upper middle) had an uprated engine, wheel discs and a fairing over the driver's seat that helped increase its speed to 101 mph. Another racing special, the QAKS-GAZ (lower middle), was tuned to develop 65bhp from its four-cylinder GAZ 3,285cc engine – enough for a top speed of 87 mph. Most imposing of all was the ZIS 101 Sport (bottom). Its eight-cylinder engine churned out 141bhp and the car could hit 101 mph. *(Avtoexport)*

KIM

TO MOSCOW, A BABY SON ...

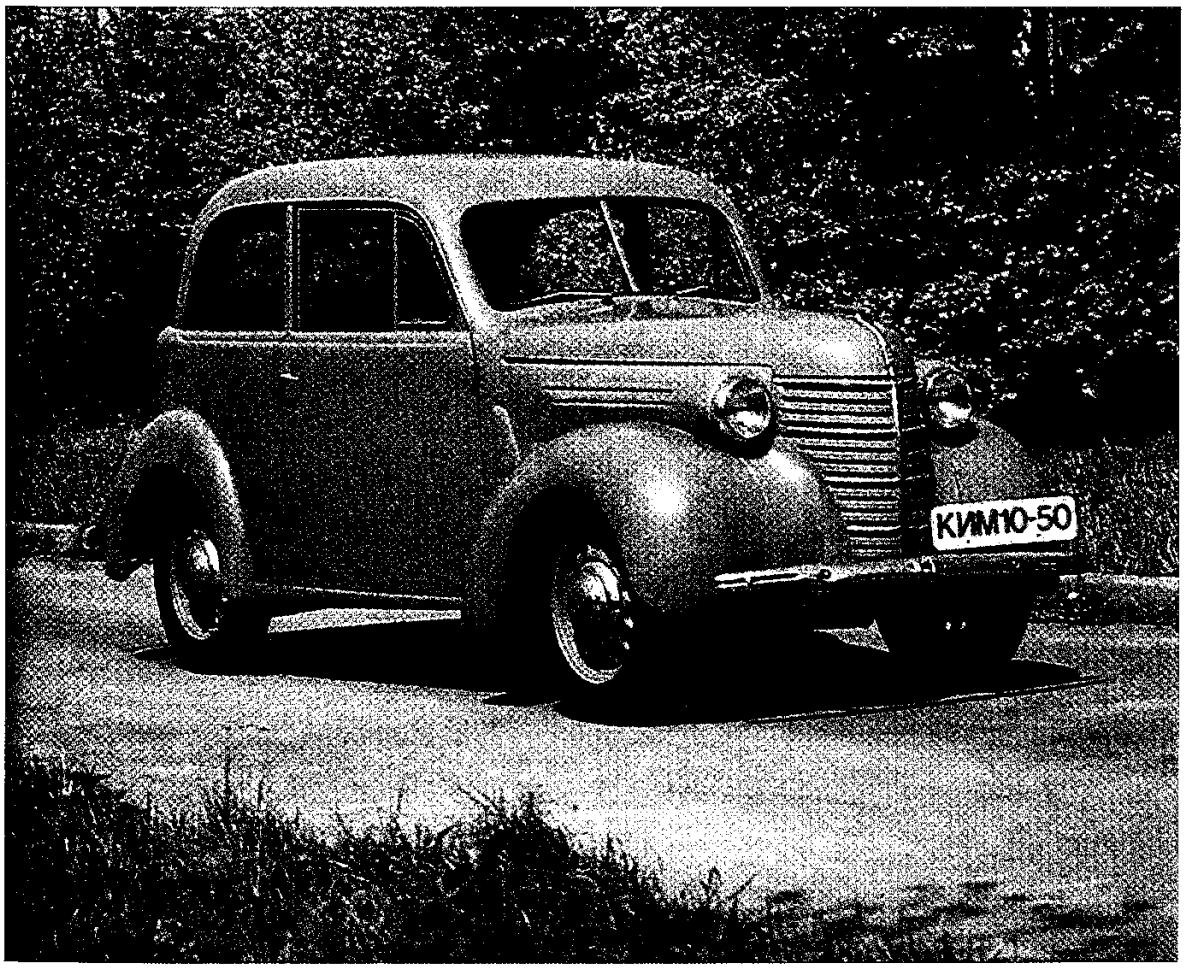


↑Although not called a Moskvich, the KIM-10 was the first original design to be made by the Moscow-based car plant. It was replaced after the Second World War by the Moskvich 400. This colourful picture was published by Avtoexport in the 1980s as part of a celebration of the history of Moskvich. *(Avtoexport)*

The Moskvich – which translated literally means 'Son of Moscow' – was for a long time one of the most famous Soviet cars. Its history began as part of the deal with Ford to create the GAZ plant. Construction work on the Moscow factory began in August 1929 and by November 1930 the main assembly plant was ready for business. In December 1930 the works were named the KIM auto assembly plant, 'KIM' standing for the Komintern of Young People. In August 1933 KIM formally became a branch of the GAZ works, but in 1939 they were split into two separate entities.

At first KIM assembled GAZ AA trucks, adding engine production for the Communard combine plant in the Ukraine to its product line in 1932. Between 1935 and 1937 the factory was extended to raise its annual production capacity to 60,000 vehicles, although plans to add the GAZ M1 to the production line were dropped in favour of using the extra capacity to boost output of the GAZ AA truck. The KIM plant laid claim to a significant footnote in the social history of the Soviet Union when it became the first Soviet factory to introduce a piece rate system to pay its workers, albeit after a lengthy debate over the pros and cons of adopting such an approach in a socialist society.

In 1938, Minavtoprom, the Soviet Union's Ministry of the Automobile Industry, was prompted by press articles to hold a conference to discuss the idea of building a new small car. A decision was made in January 1939 to go ahead, and in May production of the GAZ AA at KIM came to an end to make way for the Soviet Union's first true people's car. Design work had already begun in the second half of 1938.



Drawing inspiration from Britain's 1938 Ford Prefect (the original E93A series), the Soviet car had a two-door body (the British Ford had four doors) on a separate chassis, solid front and rear axles, and a 30bhp engine. The saloon model was named the KIM 10-50 and the soft-top the KIM 10-51. The original plans were for production to start by the end of 1939 but delays installing new equipment meant that the first car wasn't built until 25 April 1940.

In August 1940 Stalin was shown one of the cars alongside a similarly-sized German Opel Kadett, sent to Moscow thanks to the non-aggression treaty signed between Hitler and Stalin in 1939. Stalin objected to the KIM's two-door body and the old-fashioned headlights mounted on the front mudguards. The plant was therefore asked to quickly develop a revised model that addressed Comrade Stalin's criticisms – a wise move in those days! The plant rapidly produced two prototypes of the KIM 10-52, a four-door, five-seat saloon, and prepared to introduce the revised car to the production line as soon as possible. Road tests of the four-door took place in January 1941 and production was scheduled to get under way in earnest in June.

However, full-scale mass production of any of the KIM range didn't begin because of the German attack on the Soviet Union in June 1941. Instead, between April 1940 and the outbreak of hostilities, just 450 KIM 10-50 and KIM 10-51 cars were built, and only a handful of KIM 10-52s. The KIM plant then turned its attention to the war effort and only resumed car production in the last days of the conflict when it was clear that the Allies were going to be victorious. ■

↑One of the few remaining KIM 10-50 cars, photographed in 1988. *(Julian Nowill)*

UAZ

WAR CHILD

UAZ (Ulyanovsk Avtomobilny Zavod) owes its very existence to the German invasion of the Soviet Union in 1941. In July that year the Soviet Defence Committee decided to evacuate large quantities of industrial machinery to Siberia, the Urals and the Volga region to avoid it falling into the clutches of the advancing German army. ZIS was among the companies which saw a substantial part of its production equipment moved away from Moscow. In August 1941 its director Ivan Likhachev sent a group of engineers east to seek a suitable location for a subsidiary factory. They took a look at Ulyanovsk, a small town on the right bank of the River Volga, consisting mainly of wooden buildings – only the central Goncharova and Karl Marx streets had stone buildings. The town did, however, have an important claim to fame as the birthplace of Lenin, the iconic father of Soviet communism.

A location for the new plant was found on the banks of the Volga where there were already State Customs Department warehouses. The site's main advantage was that two railway lines led there, and it was by train that the first 1,500 workers arrived from Moscow on 20 October 1941 to start building the new plant. The existing warehouses were emptied and the vehicle manufacturing equipment was installed immediately. In little more than two months production of components had begun and the first deliveries of equipment to the Red Army were made at the beginning of 1942.

By May 1942 the first five ZIS 5 trucks had been assembled at what was already a substantial manufacturing complex. In July, by when the assembly rate had grown to 20–30 trucks per day, the Ulyanovsk works was officially appointed by the ZIS management to be the prime builder of ZIS 5 trucks. A number of vehicles were adapted by the Ulyanovsk plant to be field workshops and mobile generator plants. It also built the gas-powered ZIS 21. The factory was given the title UIZIS, combining an abbreviated form of its host city with the name of the parent plant.

In the spring of 1943 the head of the design team had been called to Moscow and told to engineer a new range of trucks. This was backed up in June 1943 when the Soviet government, impressed by the efforts of the Ulyanovsk workforce, decided to build a new fully-fledged vehicle factory in the town. The local council allocated 200 hectares (495 acres) of land beyond the River Sviyaga and building work soon got under way. It was here that, in the autumn of 1944, the company's designers and engineers, who since their arrival in Ulyanovsk had occupied first a part of the local library and then the local museum, finally found a permanent home. In addition, in April 1944 work started on a technical school to develop the factory's engineering capabilities. The first engineers graduated from there on 23 May 1946.

At the end of 1943 UIZIS started to assemble American Studebaker Series M army trucks, supplied to the Soviet Union under the 'lend-lease' arrangements made between the Allies to support the war against the Nazis. However, in May 1944 the first example of a self-penned Ulyanovsk truck, named the UIZIS 253, was built. It was a competent piece of design work that more than matched the Studebaker when it came to performance and efficiency. It was to have a three-cylinder, two-stroke diesel engine, a concept that Rootes in Britain took forward extremely successfully with the

TS3 engine used in Commer trucks from 1954 until 1973. Production of this engine was planned to take place at the Yaroslavl auto works (YaAZ) alongside American-based GMC motors. Unfortunately, however, neither the new truck nor its engine were put into production, as the war was still raging and the Soviet Union was still concentrating on the manufacture of war materiel.

In September 1944 the plant was officially renamed UAZ, and at the end of the year ZIS 5 production was moved to the town of Miass, where another truck factory was being established and which became the famous UralAZ works. UAZ was assigned the job of building the 1.5-tonne GAZ AA truck. In the autumn of 1945 the first consignments of manufacturing equipment and technical documents – accompanied by engineers from the Gorki works – arrived in Ulyanovsk. Even though the new factory was still being completed, it was under orders to start turning out vehicles as soon as possible. The first GAZ AA truck left the factory gates on 26 October 1947.

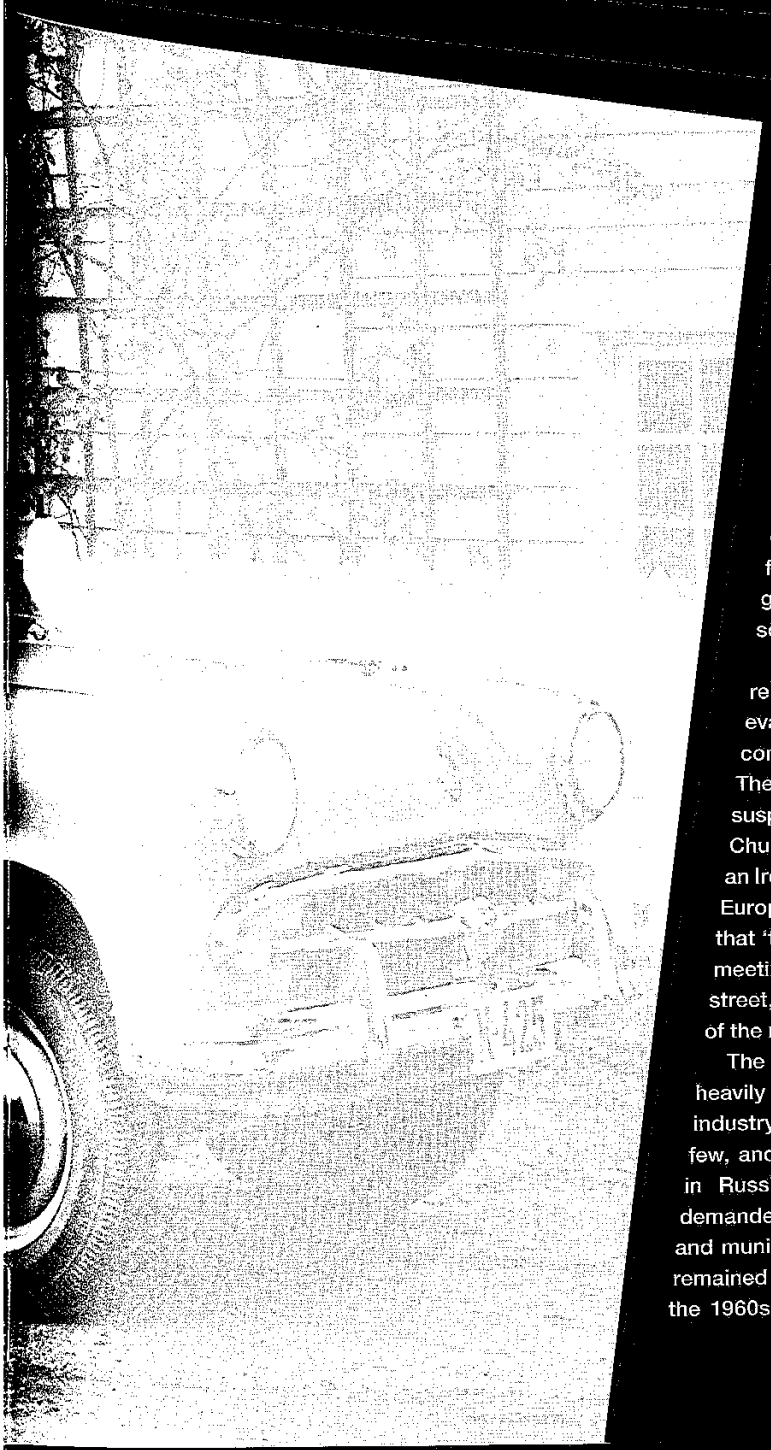
One of the early spin-offs from the UAZ plant was the UMZ (Ulyanovsk Motorniy Zavod) engine works, which today is owned by GAZ. In the autumn of 1942 the Ulyanovsk factory had begun production of a stationary small-capacity water-cooled 3hp engine, the L3/2, used to power generators employed at the battlefront. Cast iron components for it were made in a special workshop which had been developed from a local iron foundry. When the decision was made to set up UAZ as a vehicle maker in its own right the engine part of the plant remained in situ and over time developed into the UMZ engine factory, a major supplier of engines to both UAZ and GAZ. ■

OILING THE WHEELS

Although Soviet cars didn't appear on export markets until well after the Second World War, during the 1920s and 1930s the Soviet government got involved in retailing petrol and oil products to Western motorists. The Soviet government had inherited productive oil fields in the Caucasus region but found that the established Western companies, such as Standard Oil and Shell, were reluctant to take its crude, preferring to develop their own sources. The Soviets therefore established outlets for their fuel in Sweden, where during the 1920s it built up the Nafta chain before selling out to Gulf in 1937. In Britain, they operated as ROP (Russian Oil Products) and used the brand name ZIP for petrol sales. After the Second World War the Soviet Union was unable to provide secure supplies, and ROP was sold to Regent in 1948 (replaced in turn by Texaco in 1967). The Soviet Union thereafter stayed out of Western petrol markets until the 1960s, when the Nafta brand established itself in Britain and Belgium. ■

PART

FROM VICTORY TO SPUTNIK
1945–1960



The Soviet Union was shattered by the Second World War. It had endured some of the fiercest and most destructive battles of the whole conflict and faced a monumental task to rebuild its shattered towns, factories and landscape. However, there was a sense of optimism in the air – the Allies had defeated the Nazis and the Japanese and could now look forward to an era of peace. All across the world people exhausted by war looked forward to more from their lives, regardless of whether their governments were communist, capitalist or something in between.

Sadly, the political and governmental relationships developed during the war evaporated as the ideological battle between communism and capitalism gained speed. The two sides eyed each other with increasing suspicion – Britain's wartime leader Winston Churchill summed up the mood when he said an Iron Curtain had been pulled down across Europe. Both sides were determined to show that 'their' system was best when it came to meeting the needs of the ordinary man in the street, and the motor industry was just one of the many weapons they deployed.

The Soviet system remained, however, heavily geared towards defence and heavy industry. Family-owned cars were relatively few, and for a long time remained a luxury in Russian eyes. Lots of vehicles were demanded by the army, the government and municipal agencies, and making trucks remained the state's primary concern until the 1960s. Private cars accounted for just

31 per cent of total vehicle production in 1960. Changes of model and diversity in the type of cars and trucks available were less important than simply churning out enough units to meet demand.

With the death of Stalin in 1953, however, there was a general relaxation in government thinking and a recognition that people could not live by bread and ideological purity alone. The Soviet Union's new leader, Nikita Khrushchev, was particularly bullish about promoting the superiority of communism over capitalism, touting the benefits of the Soviet system wherever he went. He established a completely different ethos for government in the Soviet Union, and society became more open and more receptive to new ideas than it had been in Stalin's time, when free thinking wasn't just discouraged but was positively dangerous. The winds of change that blew through the Kremlin were reflected in the brighter styles adopted by the country's car designers and in its approach to exports, with some extremely stylish and artistic brochures being produced to promote Soviet products.

Demand for cars was growing, and to maintain its legitimacy as the provider of all that workers could ever want, the Soviet government decided to develop its car industry. Even with official support, however, demand far exceeded supply, and motorists had to wait many months to buy even a modest car unless they were able to claim the special privileges awarded to war heroes, labour veterans and the handicapped.

The Soviet Union had started its automotive export drive even before Stalin's death. As early as February 1951 *Time* magazine reported that the Moskvich was beginning to move in on the low-priced end of the car market in Western Europe. The Moskvich 400 was shown at the 1951 Brussels Motor Show at just $978 – much the cheapest car on display. The sale of the Moskvich vehicles was part of a trade treaty with Belgium for which the Soviet Union received sheet steel, copper, electrical equipment and $150,000 worth of herring! But the beginning of the Soviet car industry's real export push came in 1956, when Avtoexport was established as a state-controlled organisation with monopolistic powers to move Soviet-made vehicles onto international markets and import the motor vehicles and specialised automotive machinery needed by Soviet industry and agriculture. Two GAZ products were given top awards at the 1958 World Expo in Brussels – a real boost to export efforts – and Russian cars started to appear regularly at Western motor shows.

By 1960 the Soviet motor industry was moving ahead. Its cars were modern and stylish, albeit with unique Russian characteristics such as high ground clearance, thicker than average metal and pragmatic engineering geared towards ease of maintenance. Motoring in the Soviet Union was becoming more commonplace too – indeed, Khrushchev even established a car hire agency in 1959, inspired by his visit to America, home of Hertz and Avis in September of that year. The swinging 'sixties were just around the corner and Soviet cars were well placed to join the party.

ZIS

FIRST AMONG EQUALS

Worn out by war production, the ZIS plant in Moscow was thoroughly refurbished and re-equipped in 1946. The company also diversified in the post-war period, producing refrigerators from April 1950 and bicycles between January 1951 and 1959. At the beginning of 1953 a special management team was asked to design the first car factory in China. Working in Chanchune, ZIS engineers assisted in the production of the first communist Chinese truck, the Dzefan, based on the ZIS 150. In the meantime ZIS also developed its core truck business and turned its attention to bringing on stream its latest flagship, the ZIS 110 limousine.

Before the beginning of the Second World War, the ZIS design team had begun work on proposals for a car that would be radically different from the rather conservative ZIS 101. Ironically for a revolutionary political party, however, the Soviet leadership was made up of men with traditional tastes. Along with Stalin's liking for the Packard Super Eight/180 style, this meant that the new ZIS 110 did not advance towards the full-width, generally sleeker style then being rapidly adopted by the world's automakers. Instead it retained a traditional upright grille and distinct front-wheel wings.

Numerous elements of the Packard's exterior design trim were faithfully copied onto the new car – radiator grille, sidelights and tail lights, chrome trims and even the dashboard. However, the team did try to introduce some of their own ideas. The rear profile was more prominently slanted, which increased the size of the boot and helped accommodate the spare wheel that was no longer

↑ This picture shows the differences in appearance between the pre-war ZIS 101A (left) and the post-war ZIS 110. The latter is much sharper and a little more imposing than its predecessor. *(Vladimir Varaksin)*

mounted on the front wing. The wings themselves adopted a softer line than the Packard.

Contrary to common beliefs, the body panels between a ZIS and a Packard are *not* interchangeable. The dies used to press the panels were made by ZIS themselves, as it simply wasn't possible at the time to get any from abroad. They were cast using a zinc aluminium alloy that, although softer than was usual for such equipment, was perfectly acceptable for a low production car.

The specification sheet for the ZIS 110 was a roll call of Soviet motor industry debuts: as befitted a luxury car, the windows and the glass partition between the driver and passengers were raised and lowered using electro-hydraulic equipment; the engine had hydraulic valve adjusters, making the engine quieter and easier to maintain; and underneath there were hydraulic brakes and independent front suspension. There was also a powerful heater, and the speedometer needle was green up to 60km/h (37mph), turned yellow up to 100km/h (62mph), and then became red as the car soared to revolutionary glory.

The new design was presented to a committee of high-ranking government officials on 20 September 1944. They gave the green light for production to commence and five had been built by the end of August 1945.

On 28 April 1947 the Soviet motor industry presented its latest products to the Soviet government's movers and shakers, including the feared Josef Stalin, Foreign Minister Molotov and the sinister head of the secret police, Lavrenti Beria. The vehicles on show alongside two versions of the ZIS 110 (a saloon and a four-door soft-top) were the GAZ M20 Pobeda, the Moskvich 400 saloon, the Moskvich estate car with its wooden rear body (for which a taxi role was suggested), the Moskvich postal van (the estate car with the rear windows blanked out) and the ZIS 154 bus. The ZIS 110 was given a thumbs-up and full-scale production got under way the same year. Officially it remained in production until 1959, although a few examples are rumoured to have been put together up until 1961. In total 2,089 were manufactured, which compares well with foreign cars of a similar class. Just 672 Packard Super Eight 180s were made, for instance, although by the 1950s Packard was itself fading away; by the end of the decade the firm that had once been at the very top of the American motor industry had stopped making cars at all.

The new ZIS had an eight-cylinder, 6,005cc, 140bhp engine with a compression ratio of 6.85:1 and a top speed of 87mph. The cars were to all intents and purposes handmade, weighed 2.5 tons and were 6m long, with a turning circle of 7.4m! Mechanically they retained a manual gearbox, there being no automatic option, unlike a growing number of similar top-line cars in America and Europe.

The majority of ZIS 110s were built as four-door, seven-seater limousines, for use by the highest in the land. Chauffeurs rarely had to use the standard siren or high-beam light installed behind the grille because other drivers quickly moved aside when they noticed a ZIS 110 in their mirrors. The cars were also used by individual members of the Soviet elite – the award of a ZIS was seen as a pretty high honour indeed. For example, the creator of the Soviet atomic bomb, Igor Kurchatov, got one, and on Stalin's personal orders the Moscow Patriarch Alexis I was given one thanking him for his role as head of the church during the struggle against the Nazis. A very small number of ZIS 110 saloons were also made for use as taxis.

Between 1947 and 1955 approximately 40 ZIS 110B four-door soft-tops were also made. They were used for military parades after 1955, replacing the horses that the highest-ranking generals had previously used on such occasions. They were also used to carry important overseas visitors invited to take part in parades, Fidel Castro of Cuba and India's first post-independence Prime Minister, Jawaharlal Nehru, being among the most famous. Some 110Bs were even used as taxis alongside their saloon counterparts. The ZIS 110V was another soft-top variant, this time having rigid window frames and retaining the glass partition between the driver and rear passengers. It was really a halfway-house between the 110 and the 110B.

A number of ambulances were built based on the ZIS 110 – the patient got loaded in through the boot of the ZIS 110A! One hearse was built, and there was a one-off cabriolet with electric roof control made for Klement Voroshilo, president of the USSR from 1953 until 1960. Almost all the limousines were painted black, although some were

dark blue, while ambulances were – unsurprisingly – white and soft-tops were grey for parade use but otherwise black.

The most impressive ZIS 110s, however, were the armoured versions. The specification of the armoured ZIS was developed personally by NKVD chief Lavrenti Beria, a thoroughly nasty fellow who used his own ZIS to cruise the Moscow streets looking for girls. When he saw one that took his fancy, he would pull over and the girl would be 'invited' to join him back at his Moscow home (now the Tunisian embassy), where she would be expected to have sex with him. Anyone who refused stood a good chance of being raped instead.

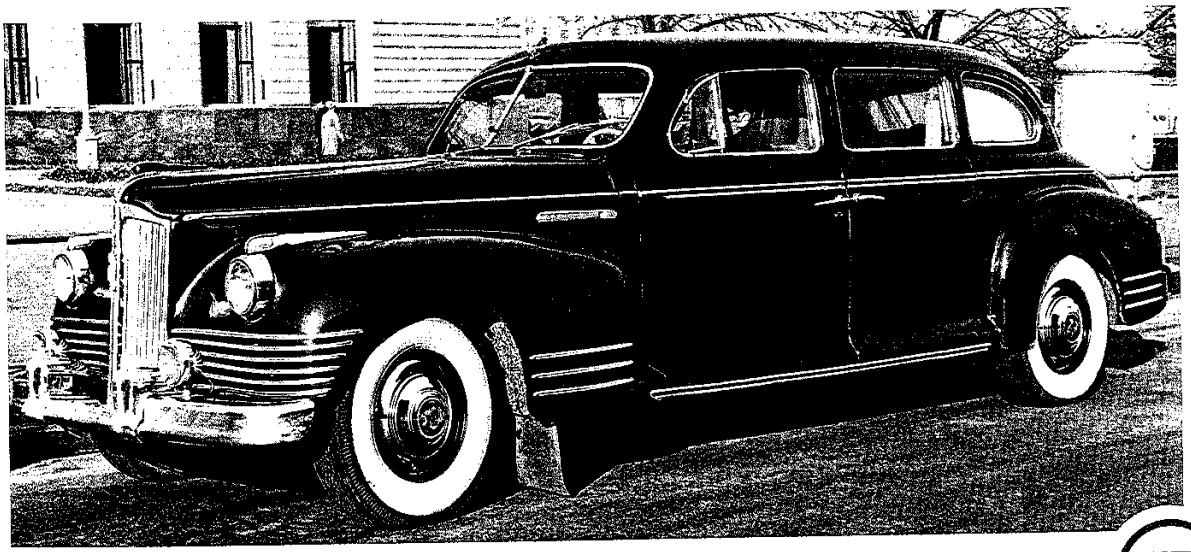
The first five ZIS 110S armoured limousines were built in 1947 to test new ideas and technology. They were followed by the armour-plated ZIS 115, of which 38 were made between 1949 and 1952. Manufacture of these cars was strictly bespoke, with even the smallest body parts being stamped with the car's number. Indeed, the Russian security services kept strict records of every ZIS regardless of model, detailing who had been involved in its construction and a full schedule of maintenance and repairs. All these documents as well as the cars themselves were treated as state secrets.

The armour plating built into the doors, floor and passenger shell, and the 75mm glass of every ZIS 115 were fully tested by machine-gun fire at a military facility in Moscow. One urban myth is that Stalin tested this by having the car's designers placed in the car and then instructing soldiers to fire at it with their machine guns. Not a single bullet made its way into the car... Opening and closing such substantial doors wasn't easy – for a frail passenger the help of a guard or the chauffeur was all but essential. Help wasn't needed to wind the windows up and down however. Heavy-duty hydraulic jacks were installed, the regular systems being unable to cope with the bulky bullet-proof glass.

Once inside, the finest and most expensive materials greeted the lucky passengers. Underfoot there was a fitted velvet carpet. Top-quality American sourced cloth covered the eiderdown-stuffed rear seats, while black leather was used on the front seats. Some cars were even equipped with a rather crude air conditioning system, with the compressor under the bonnet and the rest of the equipment in the boot.

The armoured ZIS weighed 7,300kg – more than double a standard ZIS 110. The Yaroslavl tyre factory developed special 7.50-17 tyres, an inch bigger in diameter than the regular ZIS 7.50-16 units, to help cope with all the extra weight. Mechanically, upgraded front suspension, brakes and a new rear axle were fitted. The revised rear axle gave the car one of its few external identifying features – the slightly more convex hub caps specified to accommodate the heavier half shafts. The extra weight and the higher final drive ratio of 6.67:1 lowered the top speed from 87mph to 62mph, even with a 140bhp engine. There were two mechanical

With its bold upright radiator grille the ZIS 110 reflected Stalin's conservative tastes. Contrary to popular myths, the ZIS was not made from cast-off Packard body dies, even if at first glance there are some styling similarities between the two cars. Look closer and it becomes clear that the ZIS was an original design. *(Autocar)*



variations – one, for use in the central USSR, had an oil cooler while the other, for use in mountainous regions, had improvements to the cooling system. All had a separate back-up ignition system.

Most of the armoured ZIS cars built were used by Stalin himself, who by this time was increasingly paranoid about attacks on his life. Twenty were kept in Moscow and at the various dachas around the capital that the Soviet leader used when he wanted to get away from the Kremlin. Two were sent to Leningrad and others were kept at various holiday dachas in the Crimea.

In spite of all the security surrounding the ZIS 115 fleet, Stalin never used the same car two days running. Nobody, including the staff of the official garage, knew which car Stalin would use. When he got into the car he had chosen, the driver was expected to be ready to pull away as soon as the door closed behind him. The route to and from his out-of-town dachas was changed regularly and without warning, and the security guards who accompanied Stalin's every journey would wait in the Kremlin until they received a radio message telling them where exactly they were to join his motorcade, which was made up of several cars all travelling quite close together. The number plates, which were only fitted to the back of the cars, were repeatedly changed to confuse any would-be assassins.

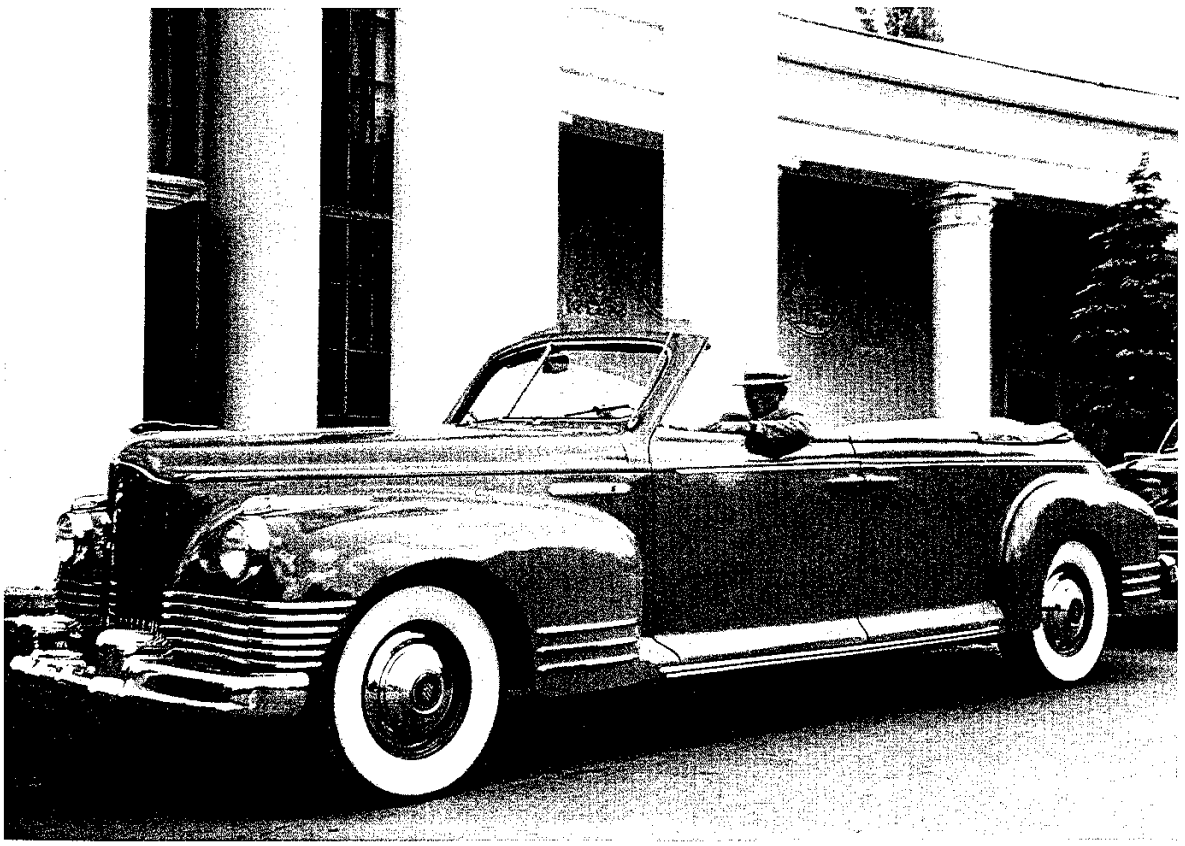
Even when Stalin was inside one of the cars, protected by seven tons of armour plate and bullet-proof glass and with first call on the luxurious sofa-like back seat, he remained fearful for his life. General Zhukov reputedly claimed that Stalin always chose to sit in the middle row of fold-down seats. Zhukov had to sit behind him and chief bodyguard Nikolai Vlasik had to take the front seat, Stalin's theory being that an assassin trying to shoot him from behind would hit Zhukov and if they tried from the front they would hit Vlasik.

All that armour and built-in protection proved its worth only once, and even then not against an assassin's bullets. A peasant lost control of her truck on the mountain roads of the Crimea and crashed into Stalin's motorcade. The limousine was barely scratched but the truck fell to pieces. Stalin suffered nothing more than mild shock and ordered his guards to release the driver. Even so, the Soviet security services conducted a thorough investigation to find out if the peasant woman had any foreign espionage connections – none were found.

The fate of the armoured ZIS cars was tied up with the general 'de-Stalinification' of the Soviet Union following his death in 1953. The country's new leaders felt that the image created by the cars – of the leader of a people's republic being scared of attack by his own people – wasn't a good advertisement for the Communist system. To remove this public relations faux pas it was decided to destroy the cars. Even so, it wasn't until the summer of 1969 that all but one of the ZIS 115s were recalled to what was then the ZIL plant in Moscow, ZIS having been renamed ZIL on 26 June 1956 in honour of the factory's former director Ivan Likhachev, who died that year. Born in 1896, Likhachev had worked his way up from being a metal craftsman to the post of general director of ZIS in 1927, before crowning his career with a ministerial appointment. The name change was also another example of the desire by the Soviet leadership, following Khrushchev's denunciation of Stalin in 1956, to scale back the generalissimo's reputation to something less akin to that of a god.

Breaking the ZIS cars up wasn't a simple matter, as would normally have been the case for what were by then officially scrap vehicles. The cars were considered to be as important to the security of the country as the latest weapons deployed by the Red Army. Like any other piece of redundant military equipment, they first had to be formally declassified and any secrets kept hidden from public view.

Most of the cars were cut into pieces and the metal melted down. Some, however, managed to avoid being scrapped immediately. ZIL themselves kept four for a while, although these too were eventually dismantled, and the Yaroslavl tyre factory was given one, its weight and general bulk making it an extremely useful test vehicle for new types of tyre. This car, initially number 2 but renumbered post-declassification as 202, later found its way to the Riga motor museum. Another mysteriously wound up in a Geneva car collection. One was even sent to North Korea, where it was given to Kim Il Sung, the country's Communist leader. Its ultimate fate, like much else about that country, remains a mystery.



The one ZIS that escaped the 1969 recall had been sent to Poland in 1952 to be ready and waiting for Stalin's planned visit to the country in 1953. His death meant that the car wasn't needed for its original purpose and instead it was gifted to the Chairman of the Polish Union of Work Party, Boleslav Beruta. He died in 1956 and the car was eventually passed on to the Polish military authorities, who donated it to a new motor museum in 1984. By 1997 it was in private hands.

The Bauman Institute, an elite technical education and scientific research institute in the Soviet Union, had asked in 1969 for 12 of the cars to be passed over to them, its scientists wanting to carry out research to help develop more modern and effective limousines for use by top state officials. Just two cars were actually handed over, and in 1992, after the fall of the Soviet Union, one of these was transferred to private ownership. Believed to be the 18th car made, it didn't have the usual glass partition between the passenger salon and the driver. The unlikely story behind this omission is that during a visit to ZIS Stalin said there was no need for such a partition as he didn't have secrets from the people.

The most interesting postscript to the tale of the armoured ZIS cars is that, given a choice, Stalin didn't often use them at all. When he had no need to display his patriotism by travelling in a Russian car, he preferred to use his bullet-proof armour-plated 1936 Packard. Maybe he was influenced by the American car's 185bhp V12 engine, which made it a lot quicker than the ZIS!

↑The ZIS 110 was made in what was, for such a low production model, a surprisingly wide range of different types. This is the ZIS 110B cabriolet model. Others included the ZIS 110A ambulance and the armour-plated, bullet-proof ZIS 115. *(Autocar)*

The ZIS 110W was a four-wheel-drive prototype version of the ZIS 110, made in 1949. Its axles were borrowed from an American Dodge WC51 to save development time. The transfer box also came from the Dodge, one of many different American vehicle types that remained in Soviet territory at the end of the Second World War. ZIS opted to use their most powerful engine, as seen in the armoured ZIS 115, its capacity for hard work boosted by a more advanced oil cooler and a larger radiator. Top speed was 65mph. Suspension of the live axles was by leaf springs front and rear with an anti-roll bar at the back. Fuel consumption was 30 litres per 100km (9.5mpg) on the highway and as much as 67 litres per 100km (4.2mpg) off-road. To cope with its high demand for fuel an extra fuel tank was added, increasing its total fuel capacity from 80 to 113 litres. The ZIS 110W was only slighter longer and wider than the regular ZIS 110, but was taller – 1,958mm compared to 1,762mm.

The brakes were the same as for the two-wheel-drive car, as were most of the steering components. However, neither was really up to the task of off-road motoring, with the steering components in particular prone to failure during trials. The same applied to the 17in tyres, which although the largest made in the Soviet Union – they had been designed for the ZIS 115 – were not durable enough and lacked the right tread pattern for serious off-roading. Goodyear tyres, the same as those used on the Dodge, were imported instead.

With its new tyres the ZIS 110W was reasonably capable off-road – certainly better than a standard ZIS 110. However, there was little else positive to report about it. The engine, while powerful, did not have enough torque to make it really suitable for off-road use.

The body itself, which was virtually unchanged from the standard car, caused problems when the going got tough, having front and rear overhangs that seriously hindered its ability on anything other than comparatively smooth tracks. The addition of side skirts – added to maintain the car's appearance – was a serious mistake too, since they caught on the ground when the car rode over humps and hollows. Even the basic structure of the body caused problems. It had been designed to cope with highways and simply wasn't up to the strain of off-road motoring. Rain and dust got into the stressed-out creaking body, and the windows were fixed to try and stop water and muck getting in, making the interior very uncomfortable in hot weather. Raising the body had also made the ZIS 110W harder to drive by seriously reducing visibility both front and rear, and made getting in and out extremely difficult too. The fuel tanks, in spite of the raised body, were vulnerable to grounding and were mounted a little too close to the exhaust system for comfort.

Perhaps the biggest black mark against the ZIS 110W was not really the fault of the car itself. Although it had more ground clearance than a

↓→The ZIL 111, unveiled in 1959, was without any shadow of a doubt a child of the 1950s, with enough chrome on board to be easily spotted from outer space by a passing Sputnik! *(Julian Nowill)*

standard ZIS 110 (226mm compared to 170mm), the kind of tracks it would be expected to travel along were created by the Soviet Union's principal trucks, the ZIS 150 and the ZIS 5. These had much greater ground clearance and the wheel ruts they gouged out of the ground were therefore much deeper than anything the ZIS 110W could cope with. Nevertheless, a total of four prototypes were eventually made, two using mainly Dodge components and two using a greater proportion of Russian parts. All were scrapped once tests had been completed, but they did pave the way for 47 4x4 ZIS 110Ps.

The ZIS 110P four-wheel-drive limousine was designed in 1956 and made some use of GAZ 63 parts. The GAZ 63 was a four-wheel-drive truck, developed during the Second World War for use by the Red Army. The latest ZIS 4x4 limousine had independent front suspension and, unlike the ZIS 110W, used only Soviet parts. The engine came from the ZIS 115 but the steering was completely new.

As part of the Cold War battle of hearts and minds, ZIS, like the American motor industry, produced its own 'dream-cars'. The futuristic 1951 ZIS 112, designed by Valentine Rostkova, was inspired by the American Buick Le Sabre. It had a detachable metal hard top and a single headlamp in the centre of its chrome bedecked front panel. The 6m-long car – nicknamed Cyclops by the ZIS workers – was painted blue and white, which were later adopted as the plant's corporate colours. It had an interesting experimental V8 engine designed by Vasily Rodionov, which produced

182bhp, enough for a top speed of 127mph. There was an oil cooler too – rather necessary for a car that tipped the scales at 2,450kg! The first versions had two carburettors but later examples had four, producing 192bhp, which when combined with a shorter, lighter bodyshell and the deletion of the hard top raised top speed to 130mph.

The ZIS 112 was successfully used in several national motorsport competitions, in spite of being a concept rather than a racing car. The 1958 ZIS 112/4, still derived from the regular ZIS saloons, was another two-seater sports car, but this time with huge tail fins. This type of futuristic concept car was very rare in the Soviet Union. Only ZIS and GAZ produced such vehicles. All were produced for propaganda intentions, without any commercial objectives – which was not all that surprising considering the very limited market in Soviet Russia for luxury cars. ZIL formally disbanded its motorsport team at the end of the 1960s but it returned to the race track in the late 1990s, when it made a name for itself on the truck racing circuit.

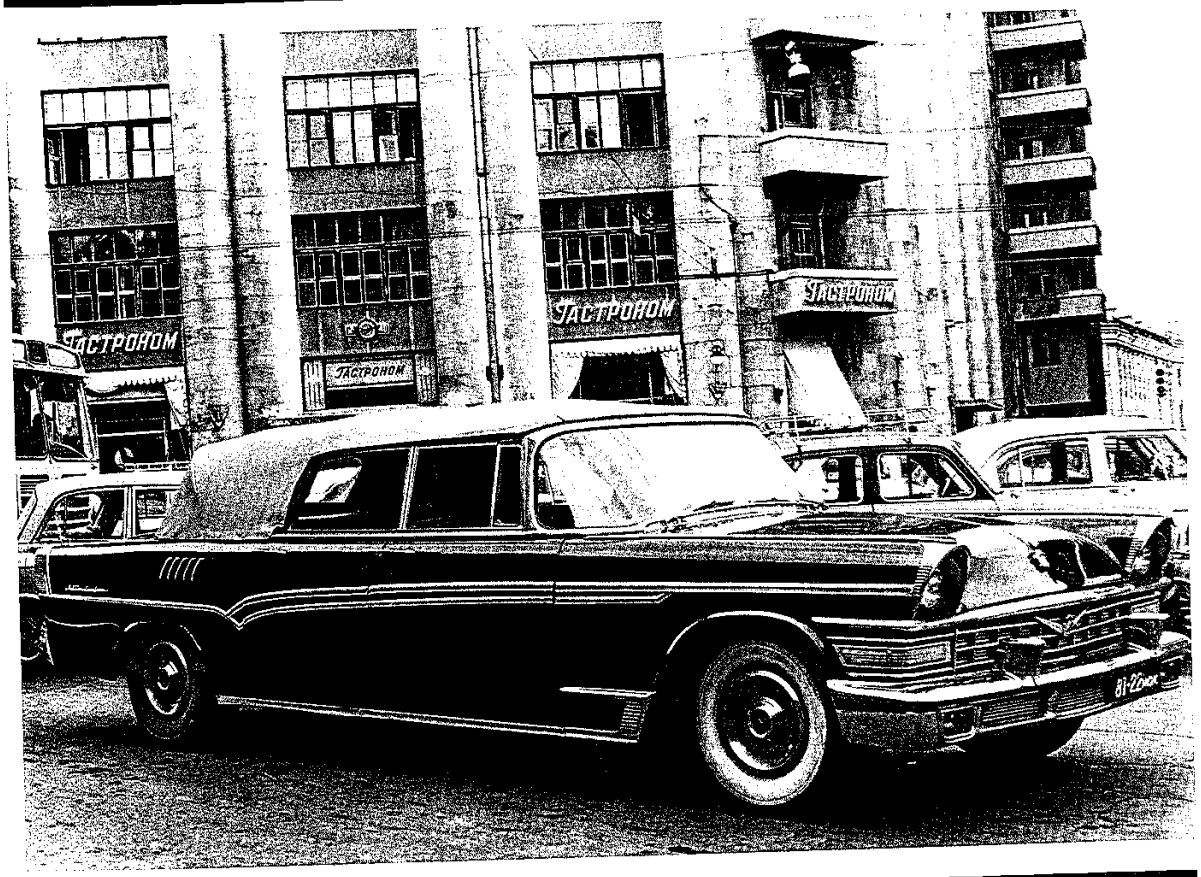
By the middle of the 1950s the ZIS 110 was starting to look and feel antiquated, especially when compared with the cars used by America's elite. Work therefore began in earnest to design a new governmental limo. This wasn't the first time that ZIS had looked into replacing the ZIS 110. As early as 1947 a small batch of prototypes – possibly as many as five – were built with a full-width grille resembling the Packard Clipper. This model was unofficially called the ZIS 110M and was followed by the ZIS 111 Moscow, designed by Valentine Rostkova, two or three examples of which were built at the beginning of the 1950s. One of these, which bore some resemblance to the late 1940s Buick, was put on show in 1956 at the Exhibition of Achievements of the National Economy of the Soviet Union. However, the design wasn't seen as a success – mainly because it was already looking dated, at a time when the Cold War was as much about image as about force of arms.

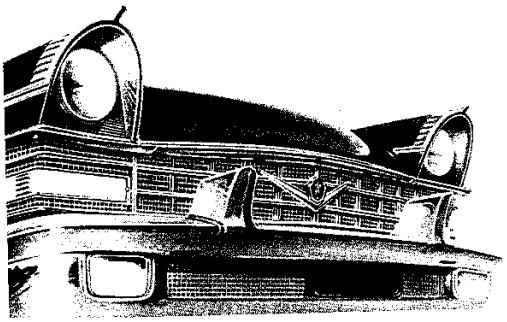
The ZIS management decided to opt for an informal competition for their new car, one of the criteria being that it should look fully up to date. Two designs were given serious consideration. The ZIS 111 Moscow design by Rostkova was one. The other was a sleeker, sharper car penned by a young designer named Eremeyeva, who drew his inspiration from the very latest Packard designs. Its thoroughly up-to-date appearance resembled the 1953 American Packard Patrician and it was built on the ZIS 110 chassis. This design was chosen for the new ZIS.

A common misconception amongst American and European motoring historians is that the ZIL 111 was a precise copy of the Packard Caribbean, and that the Packard body presses had been sold to the Soviets. None of this is true. Nevertheless, the ZIL design team were under pressure from the Kremlin to out-do American designs. Consequently the ZIL 111 (and indeed the GAZ M13 Chaika) resembled the 1956 Packard Patrician 195 from the front, while the lines of the limousine body were not dissimilar to those of the Chrysler Imperial Crown. The mechanical parts and interior were developed with an eye on the Cadillac Fleetwood 75, while the instruments of the Chaika were clearly inspired by the Packard.

The new car, by now called the ZIL 111, was shown to representatives from Minavtoprom in 1957, alongside the 1956 Cadillac Fleetwood 75, Chrysler Imperial Crown, two Packard Executive Patricians and a Packard Caribbean with an open body. It was clearly an original design but undoubtedly in tune with current trends. However, at 1,640mm the ZIL 111 was taller than the American cars, which gave it a slightly heavier appearance. Despite this its modern, good looks earned it a top prize at the Brussels Expo World Fair in 1958.

The ZIL 111 was 6.14m long and had all the usual attributes of an American mid-1950s car – separate body-on-frame construction with independent front suspension, a V8 engine, automatic gearbox, power steering, power brakes, automatic windows, power antenna and air conditioning. The interior upholstery was in leather and cloth, and outside there was enough chrome to dazzle even the Americans. The single camshaft iron block 6,000cc engine produced 200bhp driving through an automatic gearbox. The ZIL 111 finally went into production in 1959. An air-conditioned version, the ZIL 111A, had a smaller rear screen to allow for the air-conditioning ducts to be located in the C pillars. ■





USSR SECTION - BRUSSELS UNIVERSAL AND INTERNATIONAL EXHIBITION 1958

The ZIS 110 was finally officially replaced by the ZIL 111 in 1959. This is one of what are believed to have been just three soft-top examples, the ZIL 111V. The Soviet motor industry was no more immune to American influence in the immediate post-war era than any other country – indeed, compared to some other contemporary cars that adopted American styling, such as Britain's Vauxhall Cresta and France's Simca Vedette, the ZIL 111 was a model of restraint and good taste! *(Autocar)*

The cover of the ZIL 111 brochure produced for the 1958 Brussels World Fair. *(Julian Nowill)*

GAZ

VICTORY ON THE VOLGA

↑The GAZ M20 Pobeda was one of the world's first entirely new cars to be produced after the Second World War. It had extremely fashionable styling, and after the teething troubles in the first series were ironed out became known for its near indestructibility.
(Group GAZ)

At the end of the 1930s GAZ had realised that it needed a much newer design for its cars. Initial prototypes had aerodynamic styling very similar to the Czechoslovakian Tatra. However, the outbreak of war in 1941 put paid to plans to introduce a new civilian car using the M1 chassis, although GAZ did build the GAZ 11-73 for a short while after the war until 1946. More significantly, in 1946 the company unveiled the M20 Pobeda (meaning 'Victory').

As early as December 1941, with the Germans at the gates of Moscow, GAZ had been asked by the government to start work on a new car, even though the plant was fully occupied with the war effort. The GAZ engineers looked carefully at foreign cars, mainly American and German models. American cars of 1940–1 were no longer fitted with running boards and looked wider than before, although in deference to the conservative tastes of their buyers they retained the rudiments of wings and running boards in their styling. There was also a move towards monocoque bodyshells, in which the chassis was integrated into the body itself.

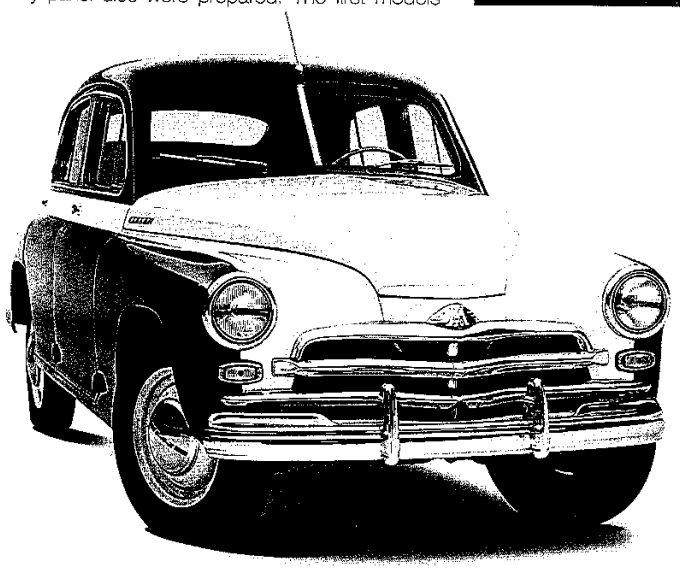
The capability to design such bodies didn't exist in the Soviet Union, so to speed the process along a bit the Russians got hold of a 1938 Opel Kapitan to act as inspiration. The Kapitan combined healthy German conservatism with all the newest technologies available to European designers. The GAZ designers got to work, but as they developed their own ideas the appearance of the car steadily changed. Indeed, by the time they had finished only the internal panels and floorpan retained any Opel DNA.

With the ultimate outcome of the war no longer in doubt following the surrender of 91,000 German troops at Stalingrad in February 1943, Andrei Lipgart, the chief designer at GAZ, was called to Moscow to report on the progress of the new Soviet cars, including what was to become the new GAZ M20. When he left the capital Lipgart was under no illusions about the importance of the project – the Soviet government wanted to be a victor on the roads as much as on the battlefield.

In the summer of 1943 Luftwaffe bombers attacked the Gorki car factory, which was building lorries and armoured cars. In 25 attacks the German bombers destroyed 9,000m of production lines and 6,000 machine tools, and the factory was on the verge of grinding to a halt – but work on the new car was not interrupted.

Styling had been handed over to the imaginative and talented Veniamin Samoilov, who gave the new car flush-mounted headlamps and smooth side panels. All the design lines flowed into one another to create a remarkably streamlined look. The rear had a distinct fastback shape too.

At this time the Soviet Union was short of skilled body engineers and could not produce its own body dies. In the past it had always bought in American technology, but this time, thanks to the war, it had to do everything itself. For the first time Soviet designers created full-size wooden models against which the body dimensions were checked and the initial body panel dies were prepared. The first models



The Pobeda was at the forefront of the Soviet Union's export drive. This is the front page of the first brochure produced for the GAZ M20. *(Author's collection)*

The GAZ M20 Pobeda has become an automotive icon in post-Soviet Russia, representing for many people a time when, following its role in the Second World War, their country was able to stand shoulder to shoulder with Britain and America. Concours examples – such as this one with the later radiator grille style – fetch a high price in Russia today. *(Group GAZ)*

were made from alder, which warped, and the GAZ production engineers found themselves having to make last-minute adjustments and corrections to the large body presses. This caused a two-month delay in getting the car ready for production.

The first protoype M20 had a six-cylinder engine and GAZ M1 wheels. The radiator grille mouldings extended to encompass the side lights, a style used on the first production cars eventually made in 1946 and early 1947. The car looked great; it was simple yet clean and stylish, with flowing lines that were bang up to date. Thought was also given to the colour range, pastel shades being chosen to accentuate the car's modern feel. Technically it was full of new ideas. There were electric indicators and brake lights and a proper boot with space for a spare wheel. It was also the first Soviet car to have electric windscreen wipers. Previous cars had either mechanical or pneumatic drives, the speed varying according to how fast the car was going. Some British Fords persisted with this archaic arrangement until the end of the 1950s.

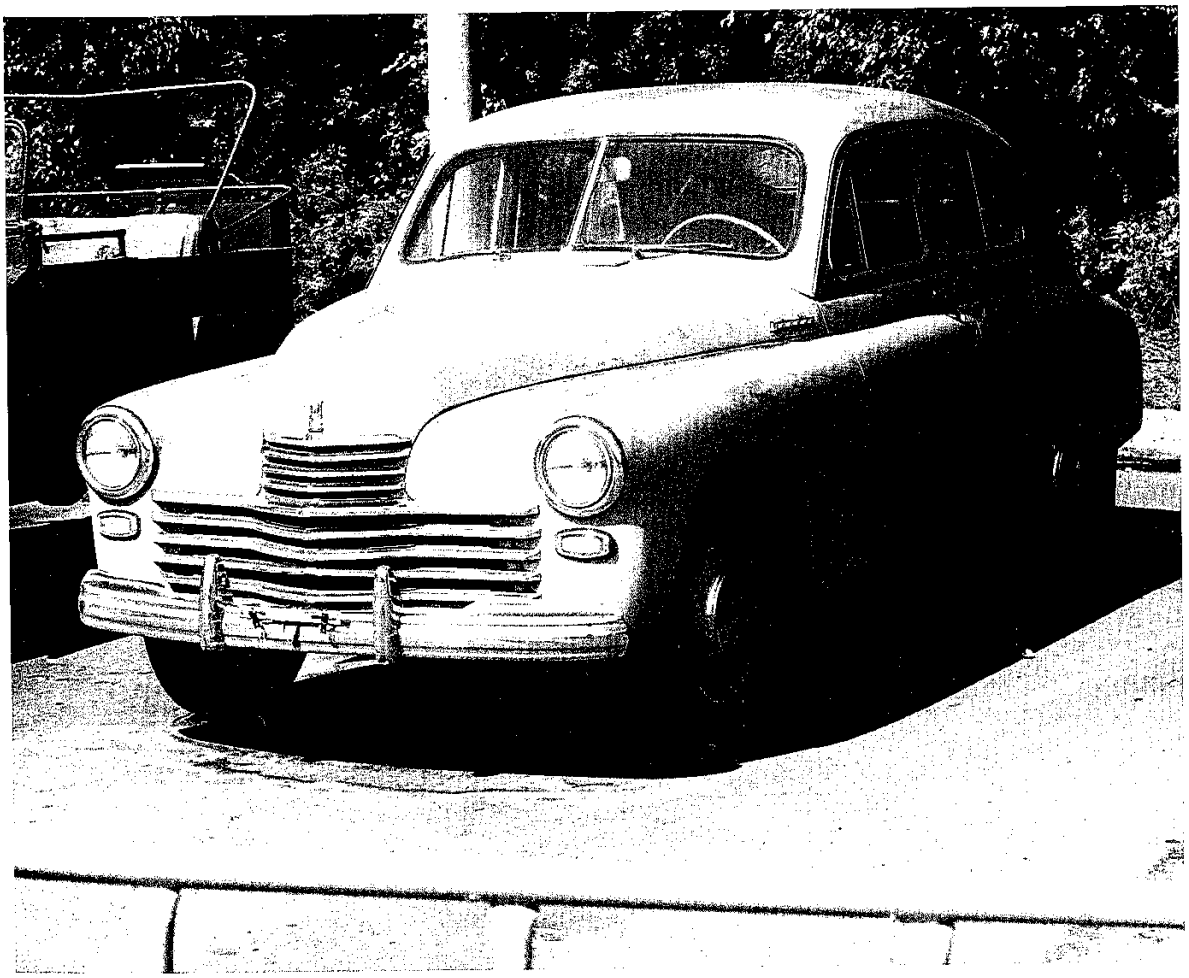
As to the choice of engine, there was some debate about which way to go. The final choice was between a six-cylinder unit, similar in some ways to the engine that the factory had developed for the GAZ 11-73, and a four-cylinder version of the same motor. Mass production of the six during the war meant the basic design had been well and truly debugged, and it had even been used on light tanks. However, the four-cylinder unit was more compact and used less fuel. The designers decided to leave the final decision to Stalin himself.

Though the first cars were tested on 6 November 1944, it was not until 19 June 1945, five days prior to the end-of-war Soviet victory parade, that the new car was shown to Stalin and other Communist leaders. Both six- and four-cylinder cars were made available for them to test. The four-cylinder 2,112cc engine produced 50bhp and used 11 litres of petrol to travel 100km (25.6mpg). The six-cylinder 2,700cc unit churned out 62bhp but needed 12 litres of petrol to travel the same distance (23.5mpg). Apart from their engines the cars were identical.

Stalin was reported to have been rather sceptical about the six – it seemed to him to be more a car for the upper classes than a mainstream vehicle for the common man. He was also concerned about its higher fuel consumption, as the Soviet Union still faced a precarious and uncertain future when it came to petrol supplies. For these reasons he opted for the four-cylinder engine. Soon afterwards, in August, the government approved mass production of the new car, which was planned to start in June 1946. Originally the M20 was going to be called the 'Native Land', Pobeda or 'Victory' being simply a reserve name. It was Stalin who pressed for the latter to be adopted.

Deciding to make a car and actually building one are two totally different things, and the GAZ team faced huge problems getting the Pobeda

↓The two different grille treatments used on the GAZ 20 Pobeda. On the left is the 1955 facelifted variant, while the original production style first seen in 1947 is on the right. *(Vladimir Varaksin)*



into production by June 1946. The project involved virtually every government department. Even such apparently trivial problems as the manufacture of steel for the wheel rims and the metal needed for the brakes needed help from the Ministry for Metals and because the headlamps chosen for the car were patented in the USA, the electrical industry ministry had to get involved in the project!

Nevertheless, on 28 June 1946 the Gorki car factory started production, making GAZ one of the first motor manufacturers in the world to introduce a new car following the end of the Second World War. The beetle-backed Pobeda was revealed long before such post-war trailblazers as the British Standard Vanguard and the American Studebaker.

Although reliable, the Pobeda was quite slow even by the standards of the day, having a top speed of just 65mph. Its gearbox had three speeds. Length was 4.66m and it turned the scales at 1,460kg. However, it was very aerodynamic, its declared coefficient of 0.31 being better than several modern cars! Moreover the new independent front suspension made it quite comfortable to ride in. Hydraulic brakes were fitted all round.

Production of the Pobeda was to prove an extremely steep learning curve for Soviet technology. The first cars had to be made practically by hand, so it is unsurprising that by the end of the year just 23 had been completed. Meanwhile the design was subtly changed and improved. The radiator grille was changed in early 1947 and the lower chrome strips no longer embraced the indicator lights. There were also new solid wheels rather than the perforated ones used on the earliest cars. Inside,

↑A solid but well-used GAZ 20 Pobeda. Once the original production glitches regarding inadequate supplies of sheet steel had been resolved, the Pobeda's bodyshell became well known for its strength and longevity. *(Julian Nowill)*

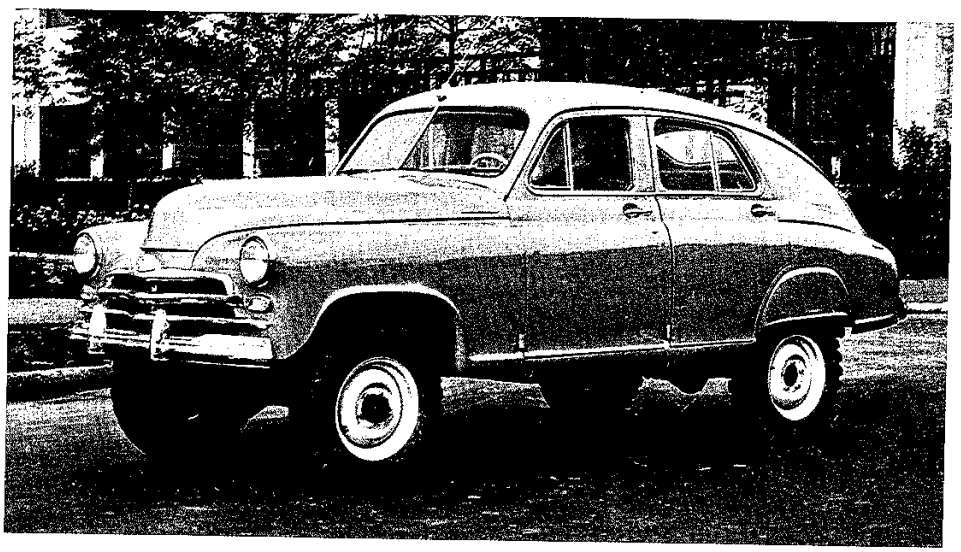
the initial strip-style speedometer was replaced by a round one and space was made for a radio. The headlamp rings became chrome-plated.

On 28 April 1947 the Kremlin leaders were shown the latest car and genuine mass production finally began. However, metal supplies were to prove a major problem. The Soviet Union lacked the capacity to produce large enough strips of steel for the largest body panels to be pressed in one piece. The steel that was provided was of such poor quality that at one time 62 per cent of the panels pressed had to be rejected. For a while metal was imported from Belgium, but at other times workers had to weld together strips of steel to make pieces of the required width before putting this almost homemade sheet steel into the presses. Producing the car from countless little bits of metal resulted in an overall increase in weight of some 200kg, including up to 20kg of solder to fill all the joins. Needless to say, this method of construction considerably complicated the Pobeda's manufacture and also compromised its durability and appearance.

The hasty start of production brought the usual results that come from rushing through an incomplete project. Though 700 cars were built in the two years up to October 1948, their quality was so poor that production was halted by orders from on high. The first cars built had been issued for use by high-ranking officials, who had previously enjoyed access to ZIS cars. Quite apart from the Pobeda being smaller and not as obviously prestigious, their build quality was way below that of the ZIS series. Complaints had been made, and the finger of blame was ironically pointed at GAZ's head designer, Andrei Lipgart. This wasn't really fair, as it was Lipgart who had cautioned against rushing the new car into production until the plant and its component suppliers were ready. Now it was his job to fix – quickly – all the faults that, if he had been listened to in the first place, may never have arisen.

There were plenty of other problems for him to deal with. The engine was prone to pinking, it couldn't maintain speed up hills, the back axles made a lot of noise, rough roads shook the steering wheel, the door handles broke, the windscreens shattered and the door windows fell out of their runners. The body was not very strong and cracks appeared in it. Dust and rainwater got inside, the back leaf springs soon lost their bounce, the paint lost its shine quickly, there was no way of venting hot air onto the windscreen and the heater was unreliable. However, there was some positive feedback, most notably there being not a single reported instance of engine damage even when driven hard on rough roads.

The director of GAZ was fired as a result of the poor quality of the Pobeda. Lipgart expected



→ Off-roading in luxury can trace its roots back to the GAZ M72, a four-wheel-drive version of the GAZ M20 Pobeda. Nearly 5,000 examples of this incredibly capable car were made. *(Group GAZ)*

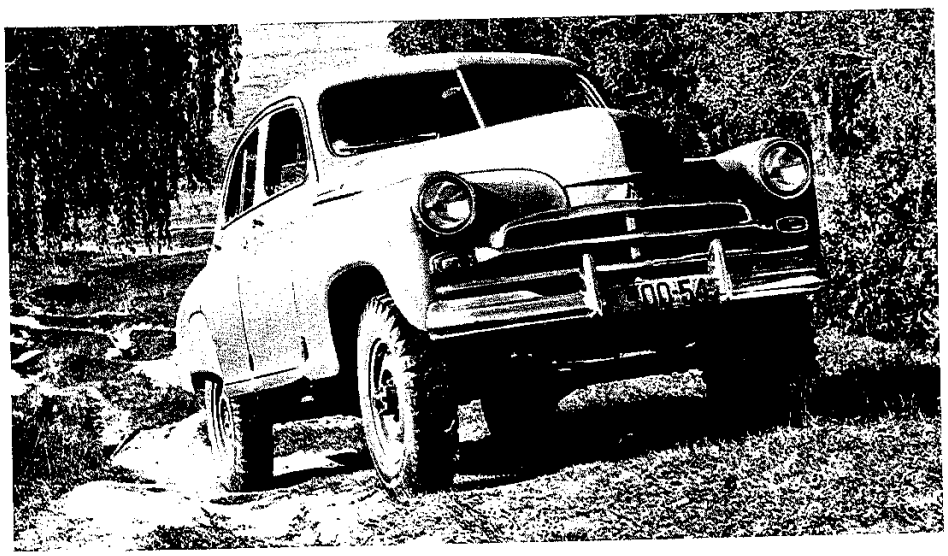
to be disciplined too but was apparently taken under the protective wing of Minister Akopov, who had responsibility for the motor industry: GAZ's designers were by now working on the new GAZ 12 and the GAZ 69 off-road vehicle – the plant needed all the experience it could get, and losing a talented engineer such as Lipgart would not have been at all helpful.

All in all, 346 changes were made to the Pobeda and 2,000 new tools were introduced at the factory. A more modern carburettor was designed, and the final drive ratio went from 4.7:1 to 5.125:1. These mechanical changes allowed the car to reach 31mph (50km/h) in 12 seconds – half the time it had previously taken. It could also run on low grade petrol. The number of individual panels needed to make the body was reduced and the body itself was subjected to extensive testing for strength. In the end the Victory's body was nearly as torsionally strong as that of a modern-day VAZ 2115 Samara 2. The changes allowed GAZ to finally build precisely-made mass production cars. Other changes included stronger rear springs, and, crucially for Russian motoring, a new heating system. Finally, the back seat was made 5cm lower than before, this particular modification being introduced so that Red Army officers using the car in Western Europe could still wear their caps and so give the right image of the Soviet Union to the watching world.

On 14 June 1949 the latest Pobedas – two saloons and a cabriolet – were driven to the Kremlin. At the same time, GAZ were hoping to get a green light for the production of the new larger GAZ M12 ZIM. Having examined the 12 ZIM, Stalin turned his attention to the Pobeda. He asked whether or not the new car had a heater and blower. When told that it did, Stalin is reported to have replied that as far as he was concerned the Pobeda was now a good car.

One other test, not planned by GAZ engineers, was the resistance of the Pobeda to nuclear attack. On the morning of 29 August 1949, on the Kazakh steppes, the Soviet Union exploded its first atomic bomb. To test the destructive effect of the bomb at various points within a 10km (six-mile) radius of the bomb site, scientists had placed various structures and bits of machinery. Ten Pobedas were placed at 500m intervals, starting 1,000m from the epicentre. All ten cars were thoroughly and totally destroyed. Ironically the creators of the bomb were themselves rewarded for their success with new cars, including for the top scientists ZIS 110s and for others further down the chain new Pobedas.

Manufacture of the improved Pobeda started on 1 November 1949. Shortly before this, a former workshop that had made aircraft engines and was a very light, clean and modern building, had been turned over to the production of Pobedas.



←The GAZ M72 included a radio and heater as standard equipment, making it clear for the first time that a car could go off-road yet still offer a comfortable journey. *(Group GAZ)*

↑The GAZ 18 prototype was prompted by a letter to the Soviet government from war veterans, requesting a vehicle for disabled drivers. *(Julian Nowill)*

New machinery was installed, including 450m of moving production line.

Developing the Pobeda had created a whole new range of skills within the Soviet car industry – indeed, it was perhaps the car most responsible for giving the Soviet Union a modern and viable automobile industry. It could now make its own presses and dies rather than being obliged to import them from America, and automatic transfer lines for making engine blocks and wheels were in use. Thanks to this more modern production equipment and improved supplies of sheet steel the Pobeda's weight was now back down to that specified in the original design brief.

The Pobeda was continually uprated. In 1950 a synchronised gearbox with column shift replaced the non-synchro unit with its floor shift. In 1952, the power of the engine was raised slightly from 50 to 52bhp by altering the engine breathing, and 62mph could be reached in 46 seconds.

New models joined the range – the GAZ 20B cabriolet, made between 1948 and 1953, and the GAZ 20 taxi, announced in 1949. The Pobeda became the first regular taxi on the streets of Moscow. Until then a limited number of ZIS cars had offered a service between major cities and the Black Sea holiday resorts.

The cabriolet differed from the base model in having a body with the main roof structure left intact but enough removed to make it a true open-top – the designers didn't want to weaken the body structure too much. Some cabriolets were supplied as taxis to the warmer south of the country.

Pobedas were also used by Allied officers in Western Europe, especially in Vienna. The car was shown at international trade fairs, such as the Poznan fair in Poland during the spring of 1950. In 1951 the FSO factory in Warsaw started to build the Pobeda – which was there called the Warszawa – and continued to do so, albeit in a slightly facelifted format, until 1973. The export of Pobedas began too, firstly to fellow Communist countries. Cars sent to the People's Republic of China had a unique grey and dark blue colour scheme that was apparently considered a sign of happiness by the Chinese. Additional versions were reportedly assembled in Pyongyang in North Korea and, for a brief time, in China.

During 1955 the Pobeda got a new radiator grille, more attractive upholstery, a new steering wheel with horn ring, a radio and a new badge on the radiator. Power was up from 52bhp to 55bhp. This revised car was given the name GAZ M20B.

It was also in 1955 that GAZ created the world's first comfortable mass-produced chassis-less monocoque multi-purpose off-road 4x4. This was the M72, a 4x4 variant of the Pobeda, developed using components borrowed from the GAZ 69 chassis and the Pobeda body. It was put together by Vitaly Gracheva, assistant to Grigory Moiseevich, the chief engineer responsible for the GAZ 69.

The M72 had completely new engine mounts, designed to accommodate the leaf-spring suspension of the GAZ 69 front axle. The GAZ 69 also donated its transfer box. The gearbox was the standard M20 unit. The rear axle was developed specially for the M72 and was used only on this model. To increase ground clearance, the springs were mounted on top of the axles rather than below as is the norm for leaf-spring set-ups. A number of cross members, essential for body strength, had to be removed to accommodate the transfer box. To compensate for the loss of these load-bearing components, and to increase the torsional strength of the body as a whole, 14 extra strengthening panels were added to the floor, chassis rails, door apertures and roof.

Inside, the equipment and trim were as for the M20, including the heater, radio and soft upholstery. A total of 4,677 were built before production ended in 1958.

In 1956 a special six-cylinder model, the GAZ M20G, was built in very limited numbers for the KGB. These cars took their 3,485cc six-cylinder power units from the GAZ M12 ZIM. It is unknown how many were actually built. Production was however believed to be very low, as the extra weight of the six-cylinder engine was too much for the front axle to handle, making it a difficult car to drive. Top speed was reported to be 87mph and the car halved the regular Pobeda's 0–62mph (0–100km/h) acceleration time from 34 seconds to a sprightly 16 seconds. There wasn't room under the bonnet for a brake servo, so the all-drum brake system remained the same...

←The GAZ styling team working in 1955 on a full-size timber mock-up of what was to become the GAZ 21 Volga. *(Julian Nowill)*

The total number of Pobedas manufactured before production came to an end in 1958 was 235,999, including 14,222 cabriolets and 37,492 taxis.

The Pobeda was arguably the first mass-market Soviet car. It was officially described as 'a motor vehicle for private use', and was offered for general sale, although its price of 9,000 roubles was a lot compared to the wage of an average worker (500–1,000 roubles a month). However, members of the Soviet Union's technical, creative and administrative elite had incomes as much as ten times higher than that of ordinary workers, so could afford to buy a car much more easily. Many Pobedas were also presented as awards to writers, musicians, engineers and other Soviet citizens who distinguished themselves.

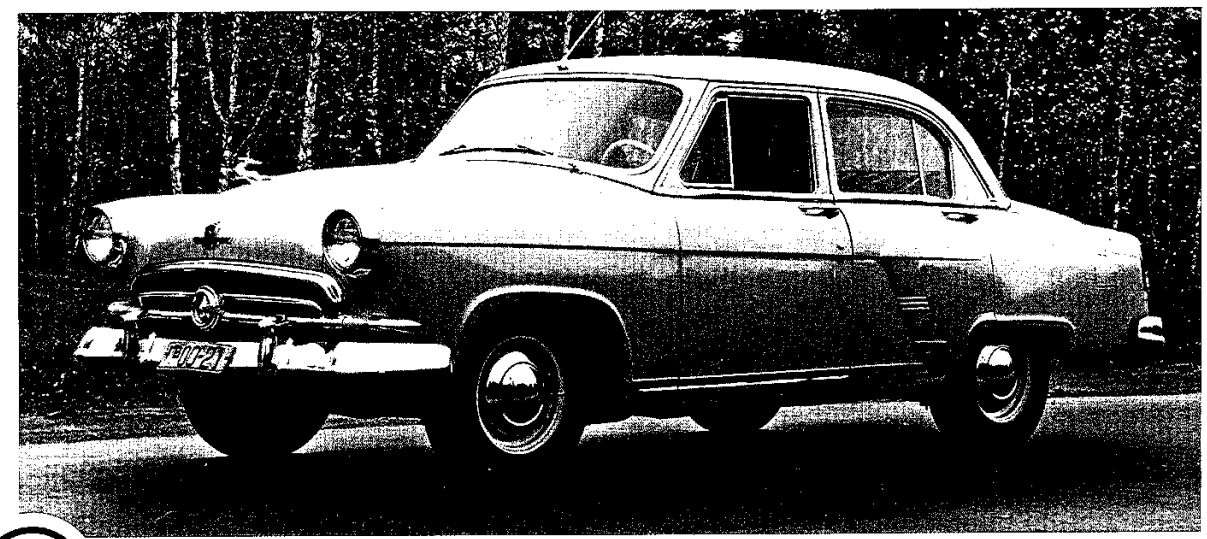
The GAZ 20 gave the Soviet car industry its first serious opportunity to export cars. The Pobeda was sold in Scandinavia, Belgium and a number of other European countries. Western drivers found it to be almost indestructible, the only real problems being its lack of performance and rear visibility. In 1952 Britain's *Motor* magazine said of it: 'The strongest point of the Pobeda appears to be its roadworthiness ... one need have no fear of driving the Pobeda fast over bad roads even when fully loaded.'

An interesting prototype was derived from the Pobeda in the early 1950s. Called the NAMI 013, this was, for its time, wildly innovative with its forward-control driving position and engine placed right at the back. The engine itself was the Victory's 2,100cc four-cylinder, but with a modified cylinder head mixing overhead and side valves. This increased power output to 63bhp, good for a top speed of 70mph. The NAMI 013 was also the first Russian car with automatic transmission. However, the project's technical promise on paper did not come good during road testing. The engine had problems overheating. What may well be one of the many urban myths surrounding the Soviet motor industry is that the steering system operated in such a way that the driver had to turn the steering wheel in the direction opposite to the one he wanted the car to go...

Equally interesting but more practical was the little GAZ 18 intended for disabled veterans of the Second World War. During March 1955 a group of war vets from Kharkov wrote to the Central Committee of the Communist Party suggesting that the government should develop a car that could be driven by disabled people. Since the tenth anniversary of the war's end was approaching the Soviet leadership acknowledged that something indeed needed to be done. They asked the GAZ design team to take up the challenge.

Designer Nikolai Yushmanov took the lead, recognising at the same time that a small, compact car could have a role to play in the Soviet car market beyond providing transport for disabled drivers. The availability of a compact, cheaper car would allow even more people to join the growing band of Soviet motorists.

↓The first of the famous Volgas. This is an original Series 1 GAZ 21 Volga with the revolutionary star insignia in the centre of the radiator grille, a design feature insisted upon by war hero General Zhukov. *(Group GAZ)*

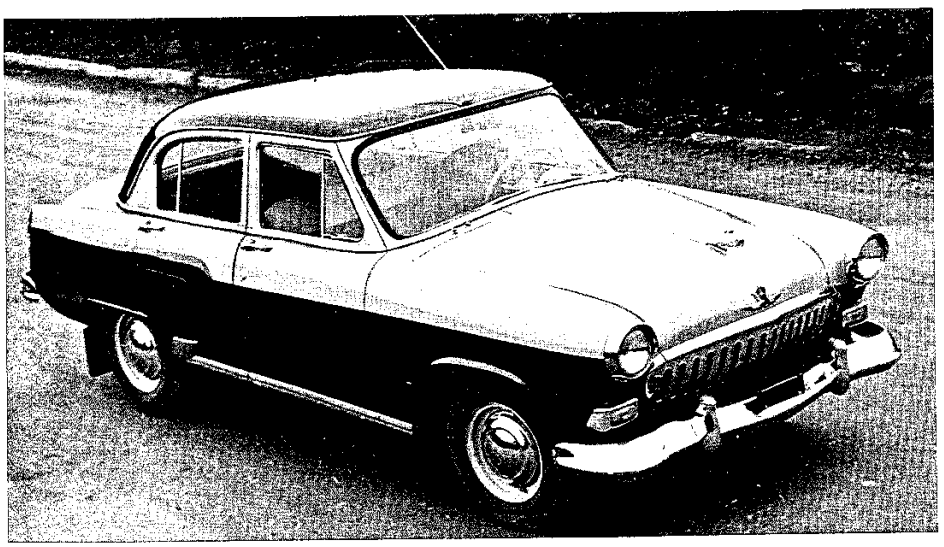


Though Yushmanov realised that the possibility of GAZ producing such a car without funding from Minavtoprom was unlikely, his design was, from the outset, much more than the sort of motorised wheelchairs that had previously been the norm for disabled drivers. The head of the GAZ prototype team, Boris Kotelnikov, was especially interested in the design. Apparently he had once had an accident in which his feet were frozen solid, so he had a greater understanding of the problems faced by people who had lost the use of their legs. Testing of the mock-ups was undertaken by disabled drivers. Indeed, one was taken to Kharkov so that the people who had written the original letter could have their say in its design.

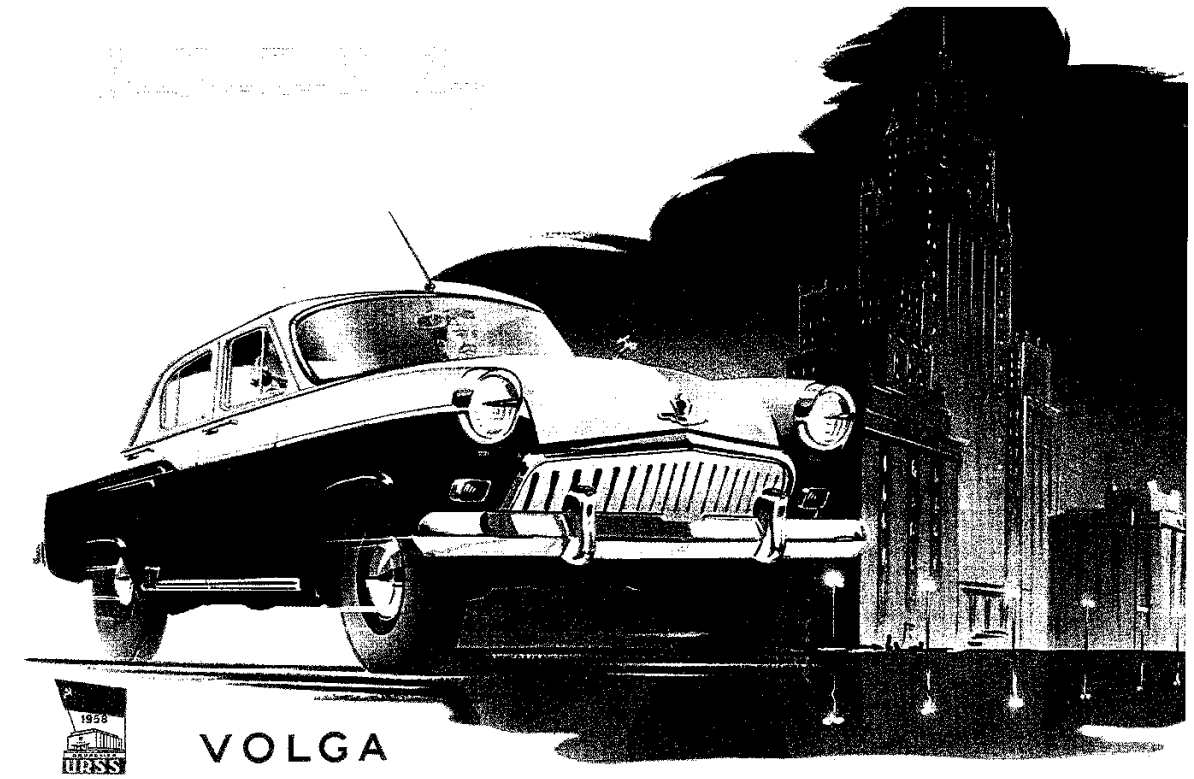
The GAZ M18 had an all-metal two-door body that from some angles looked very like a shrunken Pobeda. The two-cylinder engine was created by chopping a Moskvich unit in half. It produced 10bhp and was mounted at the back of the car. The suspension was independent all round by torsion bars, an idea that, like the rear engine position, Germany's Volkswagen Beetle had by then proven to be extremely practical. However, the big innovation on the GAZ M18 was its automatic transmission, complete with a hydraulic torque converter – pretty unusual anywhere in the world at that time for such a small car. This unit came from the GAZ M21 Volga, the first examples of which were built with automatic transmissions. For the GAZ M18's target drivers, not having to use a clutch was essential.

By 1958 the first two running prototypes had been built. Two more were quickly made and the car was all set for pre-production tests. What still remained to be decided, however, was where to build the new car. GAZ itself didn't have the space. One possibility was the SeAZ plant in Serpukhov, which in July 1958 developed the C3A, a four-wheeled soft-top vehicle powered by an IZH motorcycle engine, no doubt with an eye on the same customers as the GAZ team. However, the SeAZ plant – which had been established in 1939 to build motorcycles and had expanded into tiny but crude micro cars powered by motorcycle engines, for use by disabled drivers – wasn't capable of building something as comparatively sophisticated as the GAZ M18. By this time work was also well advanced on the Moskvich 444, the compact four-seater that was eventually to be launched as the ZAZ 965. Since this was larger and could carry a family of four, the ministry, recognising that it had much greater potential as a car for disabled and able drivers alike, decided to cancel the GAZ M18 project. One GAZ M18 has survived and can be seen today in the GAZ plant's museum.

Surprisingly the slow and heavy Pobeda also gave birth to some aerodynamic sporty prototypes. All were powered by modified versions of the engine used in the standard Pobeda. Modifications included stretching the capacity to 2,500cc, fitting an aluminium cylinder head, high-compression pistons, twin-spark ignition and a supercharger.



←The Series 2 GAZ 21 Volga had a simpler radiator grille than the Series 1. It could be supplied either in body colour or in chrome. *(Group GAZ)*



VOLGA

The Pobeda was replaced by the famous GAZ Volga, which remains one of the enduring symbols of the Soviet Union, both good and bad. This was the biggest, most luxurious car that could be bought by ordinary Eastern Bloc motorists. It was also the preferred choice of law enforcement agencies and the secret police.

The story of the Volga goes back to the early 1950s, when the Cold War was getting fairly hot. In the autumn of 1953, when Senator Joseph McCarthy was hunting for communists in the American Army, Hollywood and almost certainly under his bed, GAZ designers were sketching out their first thoughts on what was to become the Volga. Josef Stalin was dead and his successors were eager to move the Soviet Union forward. Chief designer Alexander Nevzorov was given carte blanche to develop a car that would rival those produced by the United States. He started work in November 1953 with help from stylist Leo Eremius. The company bought a Chevrolet Bel Air, Ford Customline and Plymouth Savoy to act as inspiration, and although the finished Volga was an entirely Russian design it was clearly similar in looks, if nothing else, to the Customline.

The first working prototype of the new Volga, by now named the M21, was completed in 1954. Its four-cylinder, overhead valve four-stroke engine featured a chain-driven overhead camshaft and hemispherical combustion chambers. It even featured a cross-flow cylinder head with inlet and exhaust manifolds on opposite sides. However, since this new engine could not be made ready in time the car was initially fitted with a bored-out GAZ M20 Pobeda side-valve engine of 2,432cc, boosted to produce 65bhp. Two new three-speed gearboxes were developed – automatic and manual. There was independent front suspension, while at the back there was a live axle on longitudinal semi-elliptical springs. The car was also equipped with four lever shock absorbers. Tyres were 6.70-15. Three prototype models were produced – a standard model (GAZ M21G), one for use under tropical conditions (GAZ M21 GYU) and a taxi (GAZ M21B).

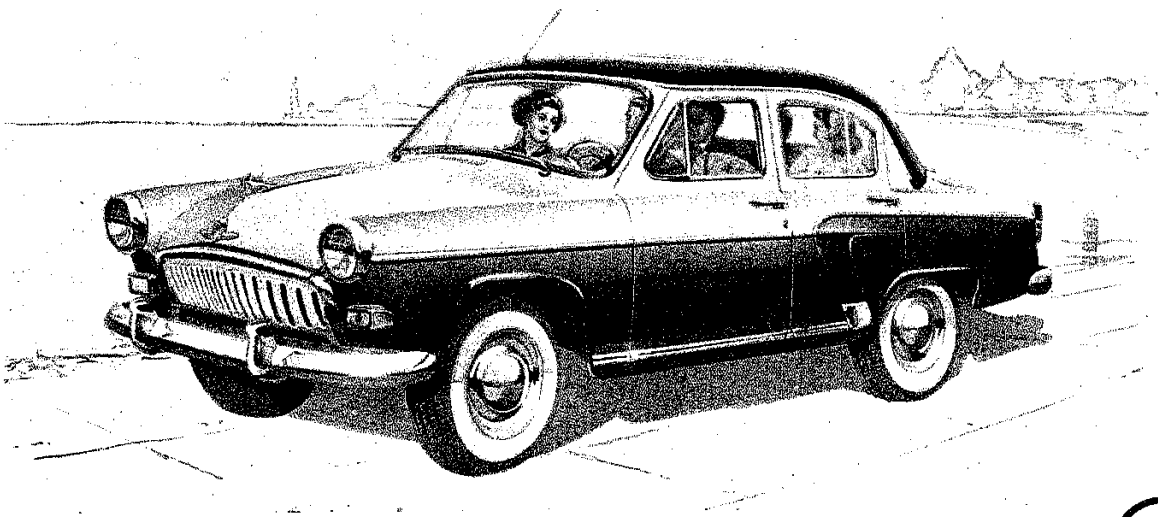
In May 1955 the Volga was introduced to the public by means of a trial-run from Moscow to the Crimea and back. Two of the three Volgas used in the trial were equipped with the automatic gearbox. A test-track was set up on a state farm located 10km from Simferopol, which the Soviet journal *Flame* described in July 1955 as 'a neglected clay road. It seemed unnatural to see the beautiful car, designed for high speeds, floundering in the deep mud. Throwing up columns of water, it jumped over the ditches, scrambled out from the sand. The Volga exceeded its predecessor in ability.'

While the Soviet government proudly pointed to the fact the Volga had gone from concept to

←By the end of the 1950s the Soviet motor industry was beginning to make its mark in world markets. This is the cover of a brochure produced for the GAZ 21 Volga, complete with an example of the new skyscrapers that were starting to appear on the Moscow skyline.
(Author's collection)

A Series 2 GAZ 21 Volga, photographed alongside a fine example of contemporary sculpture in 1960.
(Autocar)

↓This picture of a GAZ 21 comes from a 1959 catalogue – the colour scheme is not one usually associated with Volgas!
(Author's collection)



drivable car in just two years, the reality was that the Volga was nowhere near ready to be mass-produced. In fact in 1956, its first official year of production, only five cars were built, with the first three coming off the line on 10 October. These cars were all powered by the side-valve engine.

By American standards the Volga was a small car at only 4.83m long. However, with seating for six adults it was large for a European car, and firmly located in the upper middle class market. The front seat backs could be folded down flush with the rear seat cushion to form a useful emergency bed. The car was equipped with a three-band radio and a large electric clock. The rear light units incorporated brake and turn indicators in a single unit, there was a reversing lamp in its own chrome-plated mounting, and a long chrome moulding swept back along the centre of the bonnet. A final flourish was the now well-known GAZ emblem, a small chrome deer – the symbol of Nizhniy Novgorod – mounted on the bonnet.

Aerodynamically the Volga was quite advanced, especially bearing in mind that in the 1950s aerodynamic car design was still in its infancy; it had a coefficient of just 0.42. The taxi variant had separate front seats rather than a bench seat, no cigarette lighter, and a taximeter instead of the radio. Large round insignia saying 'Made in the USSR' were prominent on all versions.

In 1957 people from all over the Soviet Union gathered in Moscow as part of the annual celebrations to mark the anniversary of the Communist revolution. The event was also marked by the beginning of full-scale GAZ M21 Volga production. Any Soviet citizen who had managed to save up 5,400 roubles could now – in theory at least – sign up to buy a Volga, though in truth many of the cars produced were sold to state organisations and agencies.

The 1957 Volga, which later became known as the Series 1, was rather different under the skin from the car shown to the press in 1955. The biggest change was its entirely new 2,445cc four-cylinder overhead valve engine, which was to become the first produced by the new ZMZ engine factory, established at Zavolzhsky in 1956 as a component-making affiliate of GAZ. It had a gear rather than a chain drive for the camshaft and the cylinder block and head were made from aluminium alloy. Wet liners were used for the cylinders. With a compression ratio of 6.6:1 it produced 70bhp at 4,000rpm and torque of 167Nm at 2,200rpm.

For the first time a mass-produced Russian car had an automatic transmission. It had a hydraulic torque converter and a three-speed gearbox. However, the automatic gearbox went out of production after only a short time. It was too complex to be DIY-maintained by the average Soviet motorist (at that time there were almost no service stations in the Soviet Union), there were few mechanics qualified to service a car with an automatic gearbox, and there was a shortage in the USSR

↓The GAZ M12 ZIM was the largest car that private motorists in the Soviet Union could buy – although with a price tag of 40,000 roubles not too many took up the offer! It was an extremely roomy car and many were used as taxis. *(Group GAZ)*

of the correct oils needed to keep such gearboxes going. Production quality at the GAZ works at that time was also suspected of not being quite high enough to mass-produce an automatic gearbox. The drivers of the 700 automatic models produced had little positive to say about the gearbox, and a three-speed manual gearbox – with synchromesh on the top two gears only – became the only transmission option available from 1958. However, the work on the automatic gearbox was not a complete waste: the GAZ 13 Chaika was fitted with an automatic gearbox designed and built using the lessons learned producing the Volga transmission. The Chaika, however, was only ever intended to be built in small numbers, and maintained by specially trained mechanics working for the state with access to all the imported transmission fluid they needed.

The first series Volga range included the original Volga automatic, the GAZ M21, a manual transmission version called the GAZ M21V, and a taxi, the GAZ M21A. All had the 70bhp 2,445cc engine. There were also two export models, the manual transmission GAZ M21D and the automatic GAZ M21E, both equipped with an 80bhp version of the same engine, the extra power being the result of a slightly higher compression ratio of 7.2:1.

Production of the Volga's predecessor, the Pobeda, continued alongside it until 1958, with the final Pobeda series (made from 1955 to 1958) sharing a similar grille style with the first production Volgas made in 1957 – three horizontal chrome-plated bars. The upper bar was fixed to the bonnet and the lower was bound at the ends by the indicators. A five-pointed star completed the

↑ A fine example of a fully-restored GAZ M12 ZIM, which had a six-cylinder engine, could reach 78 mph and could ford 550mm of water. *(Vladimir Varaksin)*

↑This rear view of the GAZ M12 ZIM shows the extra width built into the design to allow for a wide enough rear seat. *(Vladimir Varaksin)*

Volga's ensemble, leading to the early examples of the GAZ M21 being known by car enthusiasts as 'the Volga with the star'.

The appearance of this style of grille followed a demonstration of the experimental cars in the Kremlin, when there had been some criticism of the styling, especially by the legendary Second World War hero General Zhukov, who had become Defence Minister in 1955. An urgent instruction was sent to the Gorki plant from Moscow: change the design! Stalin and his ilk may have gone, but Zhukov was a man used to getting what he wanted, so the star was included to keep him happy. When, in 1957, the General left his position of power following disagreements with Khrushchev over the transfer of military resources to civilian projects, a new directive made its way from the Kremlin to Gorki: alter the Volga's grille design to remove Zhukov's star! Thirty-one thousand Volgas were built with the Zhukov star before it was dropped in 1958, as part of the preparation for the Series 2 model.

Announced in 1959, the second series Volga featured a new radiator grille in which a series of vertical openings replaced the horizontal bars of the original. The grille could be either painted to match the body colour or chromed. The front indicators and bumpers were also changed, and windscreen washers and tubeless tyres were added, as well as a chrome strip down the side. The dashboard was altered halfway through the production run of the second series: the speaker housing was changed and the top of the dashboard got a vinyl cover matching the fabric used for the rest of the interior. Also towards the

end of the life of the second series telescopic shock absorbers were introduced. The Series 2 was produced until 1962.

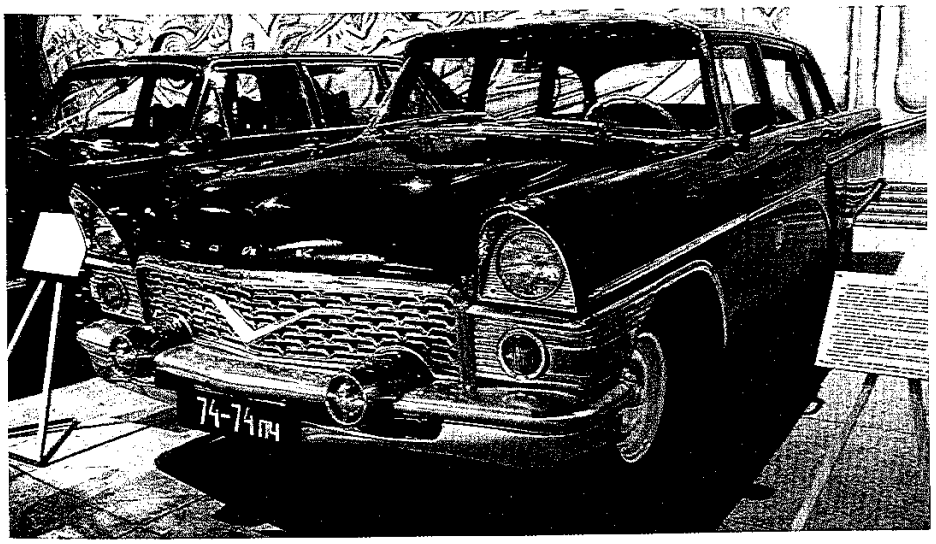
A wide range of Series 2 Volgas was made. The GAZ M21I was the standard model, with the 70bhp engine; the GAZ M21K was an export version with the higher-powered 80bhp power unit, the GAZ M21A was a 70bhp taxi, and the GAZ M21H was a right-hand-drive export model.

In 1958 the Soviet automobile industry was honoured with awards for its work on the Volga at the Brussels Expo World Fair, where it was up against the cream of the world's motor industry. Production of the Volga export model began the same year, and everywhere it was sold it gained a reputation as an exceptionally reliable, unpretentious and extremely solid car. In Belgium it was nicknamed 'the tank on wheels', in Finland and Norway it was 'the tank in a tail coat', and in England – where the right-hand-drive model was marketed – it was described as being 'like a shire horse'. Other exports included nearly 100 right-hand-drive models to Indonesia, and many taxis to Greece. Volga M21s took part in motorsport, in both the Soviet Union and Europe. In 1959 a Volga took first place the 160km 'Thousand Lakes' competition in Finland and came third in the Greek Acropolis Rally.

The longevity of the Volga's body was a result of its anticorrosion protection and not, as is frequently claimed, just the thickness of its metal. Not that the steel used in Volgas was in any way below par – it was 1.2mm thick in essential areas, the wings were 0.9mm thick and the rest of the bodywork was 0.6–0.8mm thick. After assembly the body was thoroughly cleaned and degreased before being washed in a bath filled with a phosphate solution. After drying it was dipped in primer twice before a special kind of putty-like material was applied to some parts, where it served not only as protection against stone chips but also damped out panel vibrations. Only after all this did the Volga get its final colour coat.

The M21 was originally equipped with a central lubrication system attached to the front suspension, which was prone to wear if not regularly lubed. The system was made up of a central oil drum, a complex system of hoses to all the parts needing regular oiling and a foot-operated oil pump. Applying pressure to the pump's pedal sent oil from the tank via oil lines to 19 joints in the front suspension and steering. Although theoretically a good idea, in practice this system was not very effective, since not all the parts were fed with oil equally. There were also a lot of oil leaks. On rough roads in rural areas the oil lines frequently broke, while in cities anyone could tell where a Volga had been parked by the oil puddles on the road. Consequently this system was abandoned and replaced in 1959 with a traditional grease-based system complete with grease nipples.

Even though it resembled an American or large European car, the Volga had been designed and



←The GAZ 13 Chaika replaced the sober styling of the GAZ M12 ZIM with an almost baroque style that lasted without change until 1981. The Chaika was only available as an official car.
(Vladimir Varaksin)

built to meet Russian realities. Good roads were rare, so the Volga had 23cm of ground clearance so that it could navigate anything from highways to tracks. In that pre-seatbelt era there was also enough headroom so that passengers didn't get concussion while tackling back roads.

Just as important as being able to navigate bad roads was the car's mechanical simplicity, so that its owners could service it. Volgas were very rugged, with five main engine bearings – quite unusual for the time. They also came with a detailed maintenance manual and two tool kits that included not just spanners, wrenches and screwdrivers, but also a starting handle, a tyre pump and cans of touch-up paint. Full tool kits became a much-loved feature of all subsequent Soviet cars.

When Secretary General Nikita Khrushchev visited the USA during September 1959 American farmers suggested that they would feed the entire Soviet Union. 'And we will supply you with automobiles,' joked Khrushchev. Someone in his entourage took this literally and sent a message to the Gorki works, reporting his comments. Rumours spread through the corridors of power that the country's leader had committed the USSR to satisfying the massive American car-buying public. No matter how much some high-ranking Soviet decision-makers – committed to proving that communism could outpace capitalism – wanted GAZ to make cars for the American market, the company refused to have anything to do with such a wild idea. The Gorki management felt able to stand its ground – it was, after all, the height of the Khrushchev thaw.

As has already been mentioned, part of the Volga project involved the building of a new engine plant at Zavolzhsky. This was the ZMZ factory, founded in April 1958 as an affiliate of the Gorki company. In 1961 it gained the status of an independent enterprise and remained so until it was bought by the Severstal Group, owners of UAZ, in 2001. It began life manufacturing automobile spares and aluminium castings for the Gorki and Moscow car factories. It assembled its first engine for the GAZ M21 Volga on 4 November 1959, and its millionth in December 1968.

GAZ entered the upper echelons of the post-war Russian car market in May 1948, when it was asked by the government to develop a six-seater to fill the gap between the prestigious ZIS 110 and the smaller Pobeda. The government set the project a design-to-production deadline of only 29 months. GAZ had two options: copy a similar foreign model (the plant was pointed in the direction of the American Buick) or create its own design by making as much use as possible of existing components, including, crucially, the engine. In spite of support at a very senior level in favour of copying a foreign model, the second option won through.

The choice of an independent design was a daring step by Lipgart, still clinging to his post as chief designer in spite of his run in with Stalin over

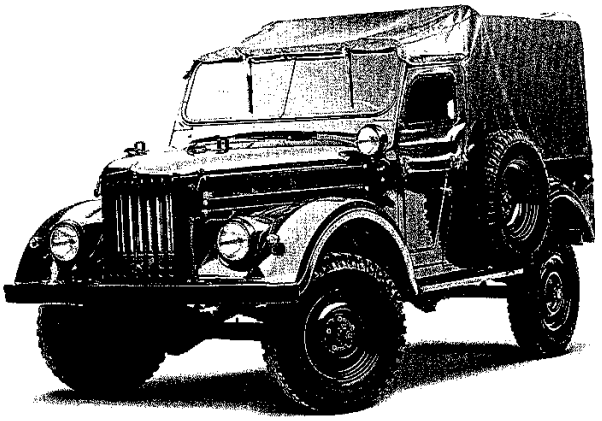
➔A superbly maintained GAZ 13B convertible with the top up, seen in 2006. Like the saloon, it was officially only available to state organisations. *(Julian Nowill)*

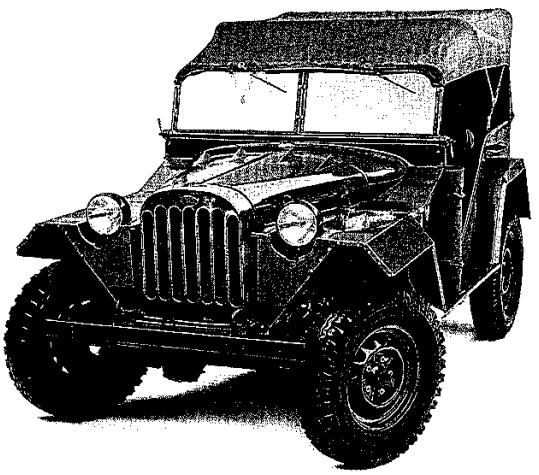
the failures found in the early Pobeda. As much use as possible was made of existing components for the new car, named the GAZ M12 ZIM, with about 50 per cent of the engine, transmission and drivetrain components coming from the GAZ 51 truck and the Pobeda. ZIM stood for Zavod Imeni Molotova, a tribute to Soviet foreign minister Molotov. The car was also sometimes known as the Winters.

On 7 November 1949, a national holiday to mark the birth of the Soviet Union, an experimental M12 ZIM was given its first public outing during a parade through Gorki. It was based on a lengthened Pobeda floorpan and was fitted with an inline six-cylinder 95bhp 3,485cc engine derived from an earlier GAZ unit developed back in 1937. After the war the original was used in the GAZ 51 and GAZ 63 trucks, where it produced just 70bhp. Horsepower for the new car had been increased by enlarging the inlet system, using a dual-barrel carburettor and increasing the compression ratio to 6.7:1, although the car could still run on the standard 70-octane fuel then the norm in the USSR. It was not possible to squeeze more than 95bhp out of the engine without the risk of seriously compromising its reliability. To make sure the performance was what would be expected of such a luxurious car, its weight had to be kept as low as possible. GAZ managed to do this and still fit all the seats within a 3.2m wheelbase. As a result of the design improvements fuel consumption was a very reasonable 19 litres per 100km (15mpg) – not bad for a car that still tipped the scales at 1,940kg, had a top speed of 78mph and could get from 0 to 62mph (100km/h) in 37 seconds. Maximum power was delivered at 3,600rpm, which allowed for an unstressed and quiet ride. Suspension at the front was independent with coil springs while at the rear were longitudinal semi-elliptical leaf springs. Shock absorbers were hydraulic double action units. One innovation appearing for the first time on a Russian car was steel 15in wheels, all previous Soviet cars having had 16in wheels. This reduction in diameter led to the development of a new type of drum brake, with two leading shoes and two brake cylinders.

The brief for the car had made it clear that it had to be able to seat six. The design team wanted to make sure that three could sit comfortably on the back seats, so the rear wheelarches were moved apart to allow this, after increasing the track to 1,560mm. Track up front was 100mm less. The styling was clearly designed to accommodate the wider rear track, with a slightly more bulbous tail end and large rear wings. However, this made it possible to eliminate the aesthetic monotony of long, uninterrupted side panels. A set of occasional seats could be folded up into the back of the front seats, creating a 1.5m expanse of space between the front and rear seats.

There was no power steering, but steering the ZIM was actually quite easy, being helped by the steering gear ratio of 18.2:1 and the large-diameter steering wheel. Even with an overall length of more than 5.5m it had a turning radius of only 6.85m. For the first time in a Soviet car, the ZIM had a





↑GAZ introduced the off-road GAZ 69 (top) in 1953 to replace the GAZ 67 (bottom). Although still built with military needs uppermost in the minds of its designers, the new car was much more accommodating for civilian agencies that also needed off-road vehicles. So durable is the GAZ 69 that many examples remain in regular use in countries such as Afghanistan and Tibet. *(Group GAZ)*

hydraulic link between the engine crankshaft and clutch disc. The fluid coupling made it possible for the ZIM to travel without the need to change out of second gear between 0 and 50mph. Low gear was really needed only on hills or when driving along rough roads, while third was effectively a high-speed overdrive.

Driving or riding in this car was a real dream for the Russian motorist, with luxury equipment that included a three-band radio receiver. It was incredibly well built and could run through 550mm of water without a drop getting inside. There was also an anti-dust seal on the doors, an outstanding feature for that period. The instrument panel had warning lamps for the handbrake and any increase in the cooling system temperature. Interesting special features included a bonnet that could be opened to either side or removed altogether, while the rear screen was curved – another first for a Soviet car. And finally, on the front of the ZIM the GAZ deer emblem made its appearance for the first time.

The car was presented for judgement by the leaders of the Soviet state on 15 February 1950. They were pleased with it, but when Stalin learned that the main designer was Lipgart – responsible, in his eyes, for the disasters that had accompanied the first production run of Pobedas – he is reported to have asked why Lipgart had not been disciplined and still held his post? The situation was rescued when Stalin was quickly persuaded to go for a ride in the back of the ZIM. After ten minutes he grudgingly told the GAZ engineers that although the new car was not all that good, it would have to do.

Unfortunately for Lipgart, the rest of the top government men took Stalin's remarks seriously. During December 1951 GAZ was awarded three Orders of Lenin and two Red Banners – all thanks to the ZIM. Lipgart's reward was to be removed from his post of chief designer at GAZ and sent to UralZIS to work as a general engineer. Only after Stalin's death in March 1953 was Lipgart allowed to return to top-level automotive work, and even then not at GAZ but at NAMI.

In October 1950, bang on schedule, Gorki built the first production batch of ZIMs, and they began to be seen on taxi ranks (the fare to travel in a ZIM was reputed to be one-and-a-half times more than in a Pobeda). The ZIM was also on sale to ordinary Soviet motorists, although in the early 1950s, with the country still in a critical state following the war, it was perhaps a little optimistic to assume that anyone other than the state could scrape together the asking price of 40,000 roubles. Even so, a few were actually bought by individual motorists.

In 1951 GAZ prepared three experimental examples with a four-door soft-top body. This car did not go into production – the work needed to strengthen the body, after the loss of its roof,

added too much weight, and the 95bhp engine simply couldn't cope. In the same year GAZ began assembling the GAZ M12B, a vehicle designed especially for use by the medical services. This had a glass partition behind the front seat, two hinged seats for medical staff, located one behind the other, and stretchers that were loaded through the boot-lid.

Immediately after the introduction of the M12 ZIM the braver senior echelons of Soviet officialdom tried pulling strings to be allocated one, especially those who had previously been assigned a Pobeda or a lowly Moskvich. Indeed, the clamour amongst bureaucrats for the new GAZ flagship was so strong that early in 1952 the satirical magazine *Krokodil* published a rather caustic article criticising the lengths to which people would go to get hold one.

The ZIM was manufactured without any major changes during its production life, although later models replaced its velour trim with leather. In the summer of 1957 the car officially became the GAZ 12 as references originally introduced to honour Soviet war leader Molotov started to be quietly dropped from the GAZ model indices. Production came to an end in 1959 after more than 21,500 had been made.

Although the ZIM was sold to family motorists in very small numbers, its successor was reserved exclusively for the use of high-level officers, officials, bureaucrats and managers. The first prototype was completed in 1957, and in 1958 GAZ unveiled what was to become its most famous flagship, the 5.6m-long GAZ 13 Chaika ('Seagull').

The design of the Chaika was undoubtedly influenced by American cars, since the USA was then the global leader in automobile design. It owed a lot to the American Packard Patrician in particular, although it also included a lot of Russian-developed ideas and innovations. The front suspension, for instance, had coil springs whereas the Packard was torsion bar sprung. It was equipped with a V8 5,526cc engine with a central camshaft producing 195hp, a four-chamber carburettor, an automatic gearbox of a similar design to the Chrysler Torqueflite unit and power steering. The gearbox itself was controlled by push buttons. The car had electric windows, fog lamps, and the aerial for the multi-waveband radio was electrically operated. The saloon had seven seats and turned the scales at two tons! Top speed was 99mph and fuel consumption was 15 litres per 100km at 60km/h (18.8mpg) rising to 21 litres at 100km/h (13.4mpg).

It went into small-scale production on 16 January 1959. The first cars were painted in two colours – dark cherry and light beige – though all subsequent examples were coloured black, with very few exceptions: one painted white was presented to Valentina Tereshkov, the world's first

The GAZ M73 was designed as a small, economical 4x4 for rural users. Originally planned as a two-seater and a pickup, the project was soon abandoned as being impractical. *(Julian Nowill)*

female astronaut, Moscow's Fire Chief got a red one, and one or two green and white models are believed to have been made as well. A highly stylised seagull symbol was prominent on the grille. Three basic models were developed: the GAZ 13, a saloon; the GAZ 13 A, a limousine with a partition between driver and rear passengers; and the GAZ 13 B, a cabriolet with the top lowered and raised by an electro-hydraulic system controlled by the driver. Soft-top models had four doors and were built primarily for parade use in 1961 and 1962. The armed forces also converted some saloons into cabriolets for themselves. A special estate version, the GAZ 13A Universal, was produced during the 1960s at the RAF factory in Latvia, forming the basis for an ambulance, the GAZ 13C, and a hearse. It was the lowest-volume Chaika variant. Another special version was built for the cinema industry, as a mobile camera platform.

Chaikas were a rung below the more prestigious ZIL limousines, and were assigned to top professionals, party officials, scientists, academics and other important persons. They were used by the heads of ministries and departments, the first secretaries of the Communist parties in the various republics that went to make up the USSR, and Soviet ambassadors in foreign countries. In Moscow itself Chaikas were used by the ambassadors of the German Democratic Republic (East Germany), Bulgaria, Hungary, Mongolia, the People's Democratic Republic of Korea (North Korea), Indonesia, Ethiopia and Finland. One Chaika was apparently even used by the American embassy! President Khrushchev gave Chaikas as presents to the writer Mikhail Sholokhov, the ballerina Galina Ulanova and the Cuban leader Fidel Castro. Their massive size and powerful V8 engine were also attractive to the KGB, who ordered a few examples for special duties. As top man in the Communist Party, Nikita Khrushchev was entitled to a ZIL but he preferred Chaikas and kept one at his summer dacha.

In 1963 an attempt was made to modernise what had become, by then, a rather dated model. A prototype with dual headlights, a slimline radiator grille and different bumpers was built, but never made it into production, and the GAZ 13 Chaika subsequently remained pretty much unaltered throughout its long life. Its replacement, the GAZ 14 Chaika, was announced in 1977, but the two cars were built side by side until 1981, when the ancient GAZ 13 was finally pensioned off. In total, 3,179 GAZ 13 Chaikas were built, including 20 medical service specials and up to eight cabriolets. The cars were used for 100,000km by their original users, including two overhauls, before being passed onto Intourist for use by official tourists and the Civil Registry Office for use at weddings.

At the opposite end of the market from the ZIM and the Chaika, GAZ also continued to develop its off-road range until the mid-1950s. The 4x4 GAZ 69 (known in Russia as the Kozlov, or 'Goat') had replaced the GAZ 67 in 1953. Designed by Grigory Vasserman, it was totally new, but retained a 2,100cc engine with side valves producing 55hp as used in the Pobeda saloon. It had a three-speed gearbox and could reach a dizzy top speed of 56mph. Like the previous GAZ 4x4, it was equipped with two fuel tanks, one of 47 litres under the floorpan, and another of 28 litres under the driver's seat.

The stunted two-seat M73 pickup, also with a 4x4 transmission, was another spin-off from the GAZ off-road programme. Designed in 1955, it was intended as a cheap and simple vehicle for rural users. Two versions were planned – a pickup and a coupe. The engine was borrowed from the Moskvich 402, but the axles were new and suspension was non-independent all round. Off-road it was as capable as the GAZ 69 and the GAZ M72. One of the prototypes was passed to MZMA, who used it in the development of the 4x4 Moskvich 410.

The GAZ 19 was a rear-wheel-drive van that was also based on the GAZ 69, designed for use by mobile building and equipment maintenance teams. Although prototypes were built, it apparently didn't go into production because of the lack of a suitable front axle in the Soviet parts bin – the vehicle's projected low production run didn't justify a bespoke unit.

Production of the GAZ 69 was eventually transferred to the city of Ulyanovsk. In 1954 GAZ had supported the introduction of the GAZ 69 at the town's UAZ plant, thereby kick-starting the latter's long and illustrious history as a builder of compact off-road vehicles. More than 600,000 units were produced before it was replaced by the UAZ 469 in 1972. GAZ itself stopped producing the GAZ 69 in 1956. ■

UAZ

THE SOLDIERS' FRIEND FINDS A ROLE IN CIVVY STREET

As the Second World War ended, UAZ was firmly established as a vehicle maker in its own right, although it wasn't until 1958 that it produced vehicles of its own design. Having been established primarily as a military plant it retained close links with the Soviet military throughout its history. Indeed, the plant's output was integral to the nation's defence.

Production was expanded in 1947 to include GAZ AA trucks and in 1948 UAZ had developed an experimental 1.5-tonne truck, the UAZ 300, which used the 50bhp motor from the GAZ M20 Pobeda. However, it didn't go into production because UAZ at that time didn't yet have sufficient capacity or capability to build its own vehicles. By 1950 the company had developed the capacity to produce its own parts and reduce its dependence on GAZ for component supplies. The plant built its own forge, press shop and main assembly line. An automatic machine shop, a chassis fabrication unit and a carpentry shop for vehicle bodies were also opened. At the same time, the city itself was being developed to provide the facilities needed to support the burgeoning workforce. Before UAZ, Ulyanovsk had been quite a small place, but it was soon to grow into a major city supported by UAZ, who contributed towards the building of a cinema and a concert hall.

The relationship with the Gorki plant led to UAZ becoming the Soviet Union's leading maker of 4x4s, a role it has retained into the post-Soviet era. In December 1954 it started to assemble the GAZ 69 lightweight passenger jeep, first built in Gorki in 1953. The first few thousand were assembled

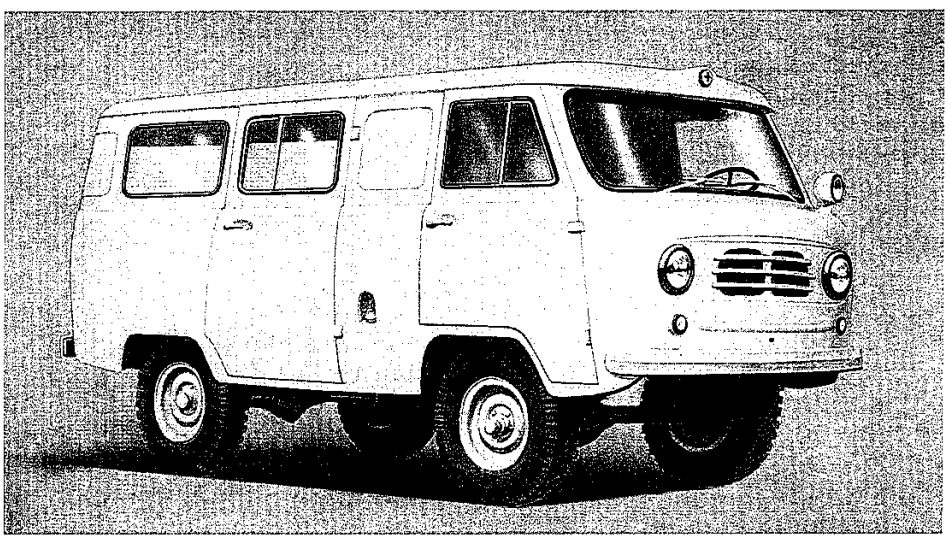
↑Work on the UAZ series of light commercials started in 1954. This is one of the very first running prototypes, made in 1955. *(UAZ)*

using parts from Gorki, but in the summer of 1956 production of GAZ 69 vehicles – and matching trailers – was transferred entirely to Ulyanovsk. This vehicle had a 2,200cc side-valve engine.

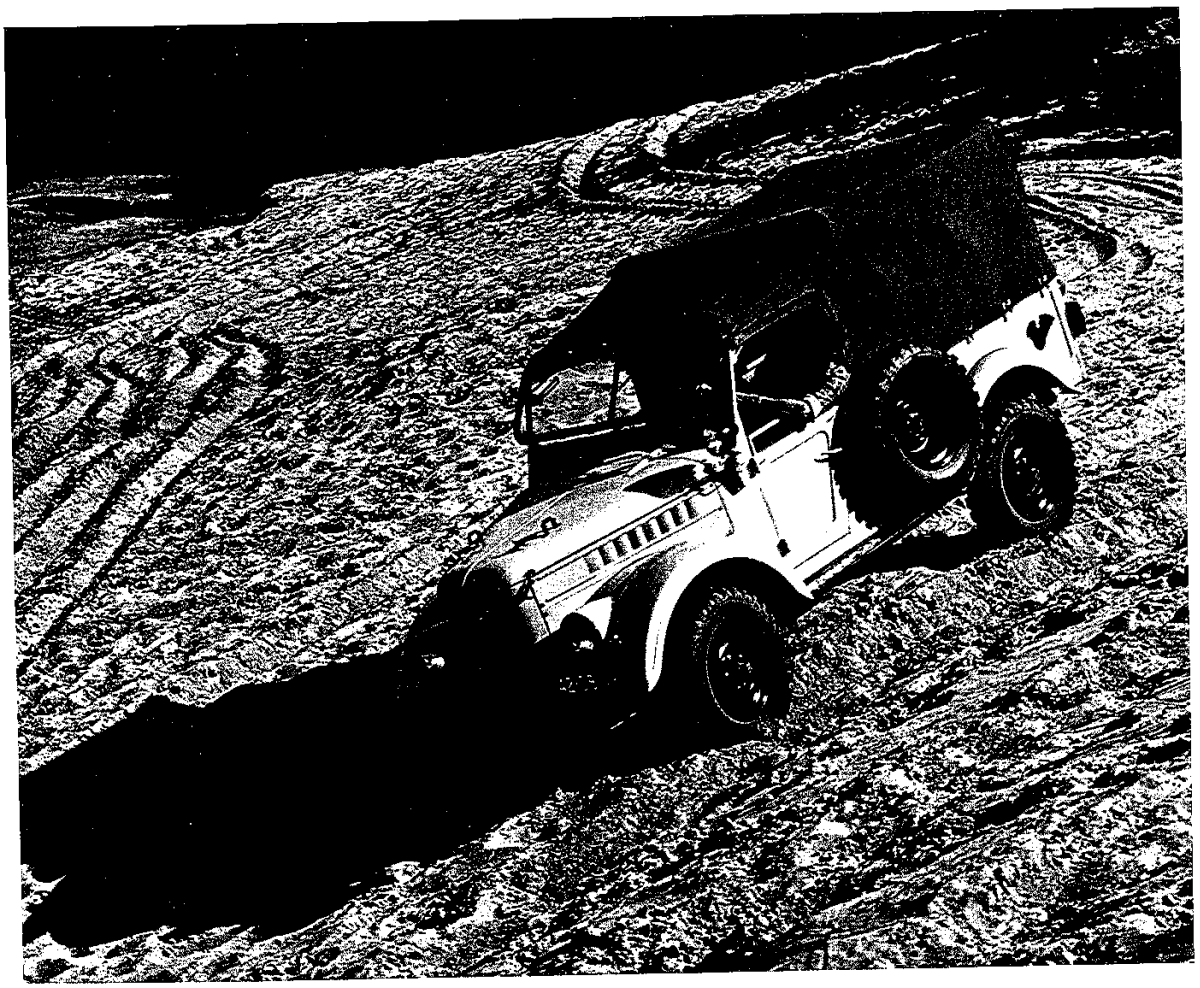
The GAZ 69 was popular with many Soviet agencies and organisations and was soon in use across the USSR's varied landscape. In 1956 the UAZ-built GAZ 69 entered the global market and by 1959 it was being exported to 22 countries across the world. Its robustness and simplicity of maintenance earned it a fine reputation both in the Soviet Union and elsewhere.

UAZ established its own design department in 1954, which began work on a unique family of vehicles. Prompted initially by military needs, five examples of a forward-control van were assembled in 1955 under the codename 'Forty'. This looked a little like a British Austin J2, but with much higher ground clearance and a split windscreen. The chassis was taken from the GAZ 69, so the vehicle combined a substantial load-carrying capacity with excellent go-anywhere capability.

The first prototypes of what was to become the UAZ 450 were built in 1956 and tested in the mountains of the Caucasus and the Crimea. It was launched in October 1958. With a total weight of 2.7 tonnes, this was the first Soviet light truck with its cab mounted above the engine. The first production model of the new family was the UAZ 450A ambulance, using a panel-van body style. It was a simple yet smart vehicle with a large curved windscreen and was as up-to-date as anything being produced in Western Europe. It had room for at least two stretchers inside, and with four-wheel-drive and soft suspension it was second to none in the world as a purpose-built ambulance for use in remote areas. It was followed by the UAZ 450D lightweight drop-side pickup with a payload of 800kg. There was also a van, simply called the UAZ 450 with a payload of 750kg, and an 11-seat microbus, the UAZ 450V. All were powered by a 2,432cc, 62bhp four-cylinder low compression GAZ M21G petrol engine, based on the original Pobeda unit but with the bore increased from 82 to 88mm. The Pobeda also donated its three-speed gearbox, while the twin range torque divider, chassis, solid drive axles on leaf springs and drum brakes came from the GAZ 69. The UAZ machines had the ability to disconnect drive to their front 15in wheels. They could tow a trailer without brakes weighing up to 850kg, reach a top speed of 56mph, and used 14 litres of petrol per 100km (20mpg). ■



UAZ's first self-penned vehicle, announced in 1958, was the UAZ 450 4x4 light commercial. It was made as a van, a pickup, a minibus and an ambulance, shown here with the original front-end styling that was retained until 1966. The series offered the ability to transport just about anything or anyone anywhere. The basic design must have been a sound one, since with only a few modifications the vehicle remained a mainstay of the UAZ range into the 21st century. *(Author's collection)*

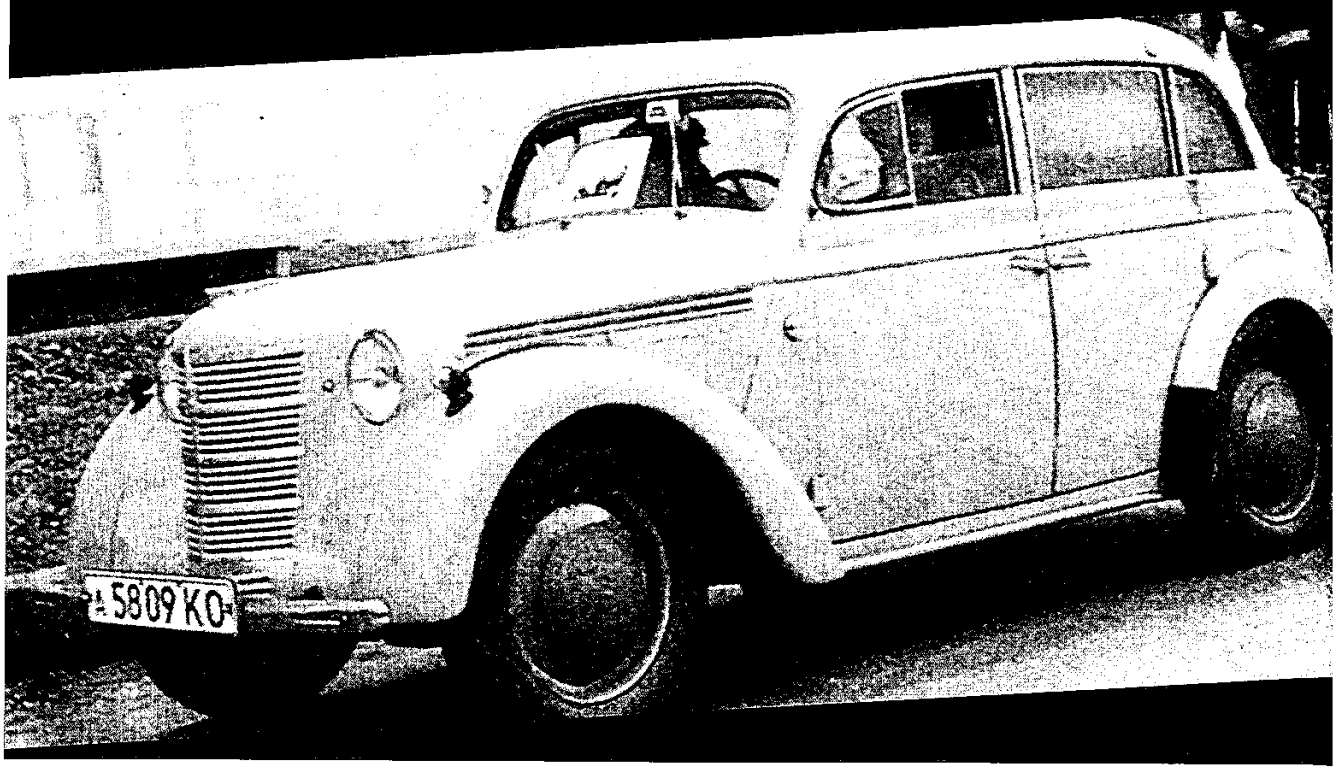


↑After 1956 the GAZ 69 was made exclusively by the UAZ plant. This is a GAZ 69M – unusually it is not painted olive green! *(Avtoexport)*

←This is the UAZ 460, one of the very first prototypes of what was to become the famous UAZ 469 series. *(Julian Nowill)*

MOSKVICH

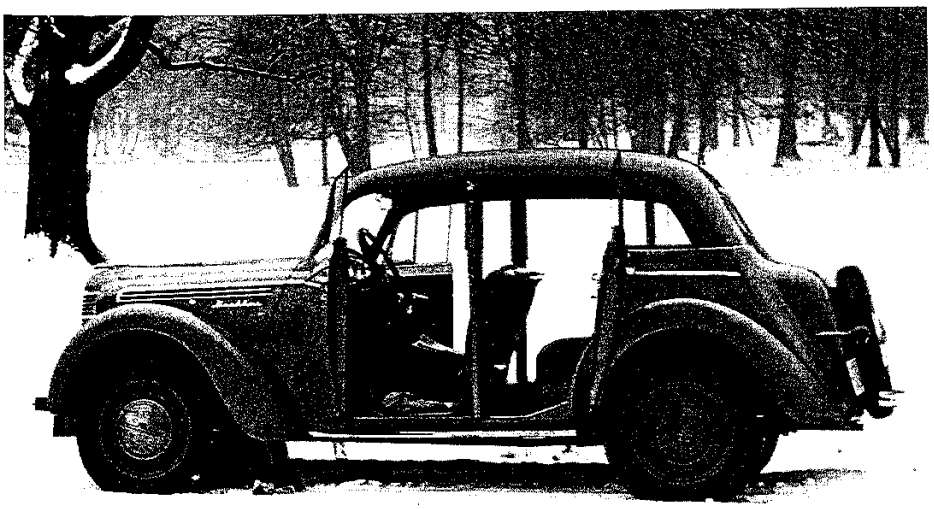
MOSCOW'S FAVOURITE SON COMES OF AGE



↑A Moskvich 401, which in 1954 replaced the original Moskvich 400. Visually, the two cars were all but identical but the later car was a little more powerful. *(Avtoexport)*

The Soviet government faced a monumental task to rebuild their shattered nation following the Second World War. Its priorities were to rebuild homes and re-equip factories in order to provide life's essentials. Cars for personal use were not high on the agenda. Many officials were using captured German Mercedes and BMWs, but it soon became clear that without spares and maintenance these would not last forever. There was a real need for a compact, domestically produced car that could be easily maintained in a vast country with limited technical resources outside the principal cities, and could be repaired without having to rely on imported spares. The decision was therefore taken to press on with the pre-war plan to develop a car that would achieve all of these objectives at a low price.

The government chose the KIM plant to be the focal point of this project. In August 1944, by which time it was clear that ultimate Allied victory over the Germans and Japanese was certain, the factory's engineers dusted off their blueprints for the KIM 10-52. An official green light was given early in May 1945, with a target date set for prototypes to be tested and signed off by December. However, these plans were thrown into disarray by the end of May, when the idea was floated of developing a new car instead, based on the pre-war Opel Kadett K38. This suggestion was prompted by the fact that when the Red Army arrived in Frankfurt in 1945, it discovered that Opel's Russheim works were relatively undamaged, with the complete tooling for the Kadett still in situ. The Soviet Union, as one of the three major Allies, was entitled to



↑A Moskvich 400 on test in 1951 in Belgium, the car's first export market. *(Motor)*

←The Moskvich 400 had a surprisingly spacious interior. Stalin reportedly insisted on the car having four doors. *(Motor)*

↑An early export brochure illustration for the Moskvich 400 series. *(Author's Collection)*

war reparations from the defeated Nazi state, and the Opel factory was considered as good a reparation as any!

In June 1945 a high-level meeting at the Kremlin that included Stalin himself reviewed the options available to rebuild the USSR's civilian motor industry. The KIM and the Opel were examined side by side, and, despite some dated elements in the Opel's make-up, the decision was taken to use the German design to relaunch production at KIM. A freight train left Berlin bound for Moscow with 56 carriages packed with the Opel Kadett production line.

On 20 June 1945 all work on the KIM 10-52 officially came to an end. During August 1945 KIM was renamed MZMA (the Moscow Zavod Malolitratsjnij Avtomobilij, or 'Factory for Making Small Cars') in preparation for its new and exciting future building what was to become the Moskvich.

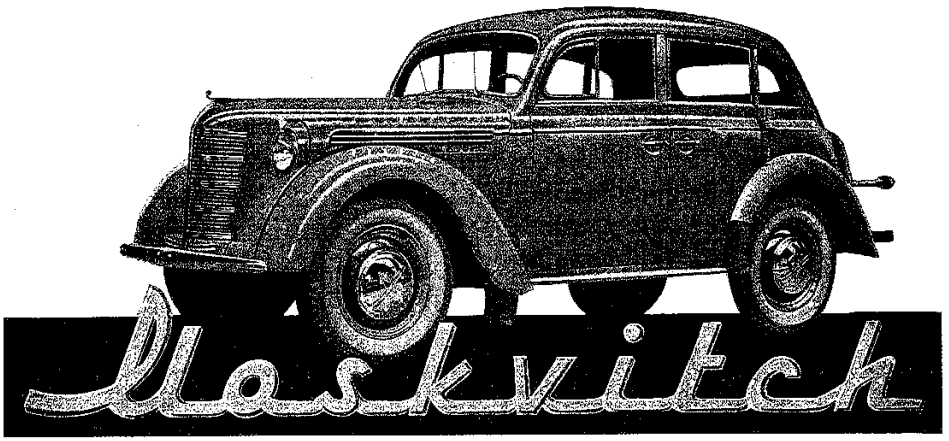
Unfortunately, the Soviet engineers did not have enough technical documentation on the K38 to simply bolt all the German equipment back together in Moscow, press the 'on' button and start building cars. The MZMA team had to do a lot of work drawing up new blueprints, using captured cars as models, which put them behind their original deadline to be ready for production by July 1946. However, by December MZMA had finished the majority of the preparatory work, and on the 9th they built the first Moskvich 400-420. It was a surprisingly modern car with a unitary body, independent front suspension and hydraulic brakes. The first cars were equipped with a four-cylinder 1,074cc engine, the 400 series, producing 23bhp at 3,600rpm. The compression ratio was 5.8:1. With its three-speed gearbox it could reach 56mph and used 9 litres of petrol per 100km (31.3mpg) – making it the most economical means of transport in the USSR. Zero to 50mph took 55 seconds. It was 3,855mm long, 1,400mm wide and 1,550mm high. The wheelbase was 2,340mm and ground clearance was 200mm.

It received its official Kremlin seal of approval on 28 April 1947 and by the end of the year 1,501 had been built, including the first limited edition Soviet car – painted ruby red with a special plaque on the left wing to celebrate Moscow's 800th anniversary. Production increased to 4,808 in 1948, when a fine mesh oil filter was introduced, and to 19,806 in 1949.

The plant's designers also experimented with several variations. The Moskvich 400-422, announced in 1948, was a van with its wood-framed rear covered with plywood or tin, and a fabric roof. It could carry up to 800kg and was used mainly by the post office and the ministry responsible for food distribution. It was not available for private sale. The Moskvich 400-421, an estate car with a wood-style body based of the Moskvich 400-422, was developed but didn't go into mass production. A pickup prototype was also built. In addition a small number of chassis cabs were built as the Moskvich 420K, which were used by coachbuilders to create insulated vans to carry perishable food.

In 1949 came the Moskvich 400-420A cabriolet, made until 1952. In May 1951 the top two gears got synchromesh and the gearshift moved to the steering column. In October 1952 the 100,000th Moskvich was built.

The Moskvich production line in 1950, showing finished cars being checked prior to delivery to their customers. *(Author's collection)*

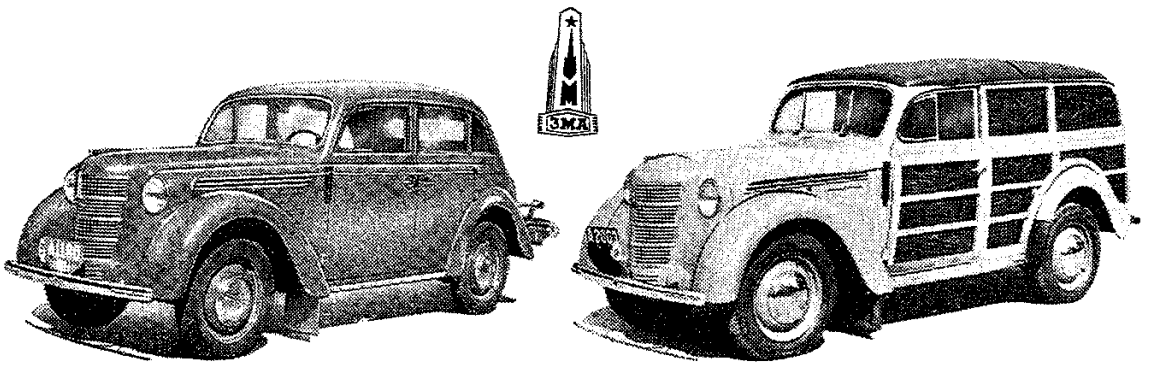


➔The cover of the Belgian sales brochure for the Moskvich 400. *(Author's collection)*

➔The utility version of the original Moskvich saloon, the 400-422 – shown here on the right in this extract from a Swedish sales brochure – featured a wooden-framed rear body with a fabric roof. Although it looked like a station wagon it was actually a van. The estate car version didn't get beyond the prototype stage. *(Author's collection)*

The Moskvich 400 was one of the first Soviet cars to be exported to the West, the first examples going on sale in Belgium in October 1950. Its price was the Belgian equivalent of £349, which put it midway between the British Ford Anglia and Ford Prefect and considerably below the Morris Minor. *Motor* magazine in January 1951 was rather impressed by it: 'Having driven and been driven in examples of this marque, we feel an initial duty to make it very clear that this car is not in any sense a thing to be laughed at.' *Motor* also commented favourably on the standard of finish, the quiet engine and the ride quality. The steering and brakes, however, were criticised as lacking in 'feel'.

The design team also experimented with slightly more exotic variations on the Moskvich theme. In 1951 came the Moskvich 403E-424E coupe, a prototype with a 35bhp engine. It was based on 1949 proposals for a facelifted 401 saloon, the 26bhp 401E-424E and more powerful 33bhp 403E-424E. This was followed in 1954 by the stunning Moskvich 404 Sport, a true roadster complete with low windscreen and chrome-plated radiator grille. It was a one-off, also based on the Moskvich 400 but using an experimental four-cylinder engine with overhead valves and a hemispherical combustion chamber. There were also four side draft carburettors that played a big role in helping it to churn out 58bhp. Compression ratio was 9.2:1 and maximum



A Moskvich 400-421 estate car prototype undergoes tests. Although the car wasn't given a green light for production the very similar van variant did get built, albeit for official or business use only. *(Julian Nowill)*

The Moskvich plant experimented with a small pickup based on the Moskvich 400 but the project didn't go into production. However, a small number of chassis cabs were built for use by specialist coach-builders. *(Julian Nowill)*

↑The 1949 Moskvich 1949 403E-424E was a proposal to update the 400 series with a full-width front end. Just six were built. *(Julian Nowill)*

➔The Moskvich 402 of 1956 looked completely up to date and was the car that allowed the Soviet motor industry to really get into global markets. *(Autocar)*

speed was 91mph. It won the Soviet motor racing championships three times.

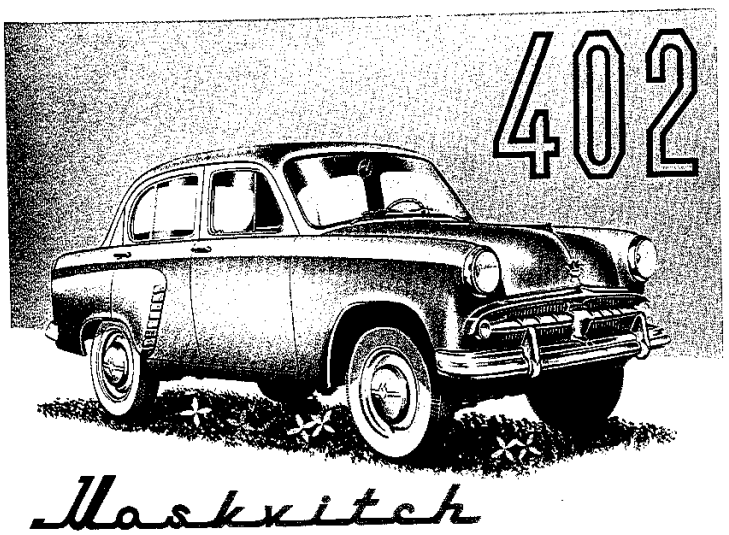
An improved Moskvich replaced the 400 series in March 1954 – the same month in which the 150,000th Moskvich was built. The body of the Moskvich 401 remained the same as that of the 400, but it had a higher-powered version of the original engine, the 401 series, producing 26bhp. This included a higher compression ratio at 6.2:1 and revised inlet and exhaust manifolds. Other changes included an upgraded starter motor and dynamo, revised rear wheel bearings, a new steering wheel and a handbrake mounted under the dashboard. The new car was made as a saloon, the Moskvich 401-420, and as a van, the Moskvich 401-422. There was also a pickup, the 420B. The Moskvich 401 saloon was made until 20 April 1956, although the van lingered on until December. In all 247,439 of the first two types of Moskvich were built, the best year being 1955, when 47,758 were produced.

By the early 1950s the Moskvich's flat screen and pre-war styling were looking and feeling increasingly dated, especially when set against the Soviet Union's advances in the fields of design, architecture and technology. The country needed a more modern car that matched its increasing self-confidence.

As a first step the Moskvich's designers checked out what other carmakers were up to and bought examples of the best compact family cars currently available. From Italy they chose the Fiat 1100 and Lancia Aurelia, from France the Simca Aronde and Citroën 2CV, and from Britain the Hillman Minx, Ford Consul and Jowett Javelin. After extensive comparative analysis, the MZMA designers chose the Ford Consul as being the car that came closest to meeting the requirements of the Soviet motorist. The first five running prototypes were made in August 1954, and on 16 April 1956 production of the new Moskvich 402 began.

The Moskvich 402 was a pioneering project for the Russian auto industry. It was the first Soviet car to have both a curved windscreen and rear window, telescopic hydraulic shock absorbers, door locks incorporated into the handles, a lockable boot lid and a twin-spoke steering wheel. The four-door body could accommodate five people and was 4,055mm long, 200mm more than its predecessor.

It was powered by a 1,222cc four-cylinder engine, developed from the original 1,074cc unit and now producing 35bhp at 4,200rpm. Even though that was an improvement over the previous Moskvich, it wasn't too sprightly compared to cars made in other countries. Senior Soviet motor industry official Dmitriy Velikanov, comparing the Moskvich to similar-sized foreign cars, noted that they had a power to weight ratio of between 35–41bhp per tonne compared to only 22.7bhp for the Moskvich, which explained the Russian car's comparatively sluggish acceleration and low top speed.



The 1950s trend for whitewall tyres didn't pass the Soviet Union by – although they were generally only included in advertising pictures such as this elegant cover of an early brochure for the Moskvich 402. *(Author's collection)*

➔The original Moskvich 407, introduced in 1957, had a simple grille that was retained until 1960. This picture comes from an early Avtoexport brochure produced to promote sales outside the Eastern Bloc.
(Author's collection)

➔This 1958 Moskvich 407 was a pioneer of detente before detente became fashionable. Imported from Holland by a retiring seafarer, the car wound up languishing in a Californian scrapyard until being rescued and restored in 1982 by American classic car enthusiast Gary Bricken.
(Avtoexport)

The gear lever was now on the steering column but the gearbox remained a three-speed unit. Electrical equipment changed to a 12-volt system instead of 6-volt. Standard equipment included a radio, a cigarette lighter and a heater and demister – the latter being at the time still an optional extra on nearly all British cars. The front seats were adjustable for rake and could be folded down flush with the rear seat to form a makeshift bed. Fully equipped, the Moskvich weighed only 980kg, which allowed it to accelerate to 68mph and use just 9 litres of petrol to travel 100km (31.3mpg).

A year later, in July 1957, the five-door Moskvich 423 estate car was introduced, with a payload of 250kg if the back seats were folded down. MZMA had originally planned for the estate (and subsequent van) versions of the Moskvich 402 to have a shared three-door body, with longer front doors, but this idea was rejected as being unjustifiably complex and expensive for what would be comparatively low volume models. The estate car even included the same rear panel, with its high loading height, as was used for the boot of the saloon model.

Autocar magazine managed to get hold of a Moskvich 402 in June 1957, owned by a Norwegian captain who drove it to England to visit friends. In Norway the car cost more than the Ford Anglia or Prefect but was freely available and not subject to import restrictions. The magazine commented that the Moskvich was 'docile and simple to drive, it has a good clutch, excellent synchromesh and light, precise steering'. The suspension was praised for providing 'an excellent ride over poor surfaces'. However, *Autocar* concluded that the Moskvich 402 'breaks no new ground, and as tried would be unacceptable to the average British motorist on the counts of finish and performance.'

The Soviet Union's size and harsh terrain created a real need for vehicles that could travel off-road, which became ever greater as the government started to expand into hitherto undeveloped parts of the country. To meet this demand, MZMA built a small number of 4x4 cars, starting in February 1957 and continuing through until 1958. The Moskvich 410 saloon was based on the 402 and combined the front and rear axles, springs and dual range transfer box of the GAZ 69 with the Moskvich 402 engine and three-speed gearbox and the GAZ M20 Pobeda's steering gear, oil cooler and lever-type hydraulic shock absorbers. At 220mm, ground clearance was no less than the supremely capable GAZ 69. The 4x4 Moskvich could cross water up to 300mm deep and in first gear it could climb a slope of 33°. Top speed was 56mph.

The Achilles heel of the new Moskvich 402 was its side-valve engine, which dated back to the 1930s. MZMA had developed a new overhead-valve aluminium engine family, the 406, which could be built in different sizes between 1.1 and 1.5 litres, but couldn't get permission to re-equip the factory to produce it. Instead they had to work on updating the existing engine, which they altered from a

←The Moskvich 407, an updated Moskvich 402 that first appeared in 1958, featured a two-tone paint scheme and a more powerful engine. This model has the revised mesh-style radiator grille introduced in 1960.
(Author's collection)

↑A 1961 Moskvich 407 on display with a Moskvich 423 estate car, a GAZ M21 Volga and, just visible at the back, a GAZ M13 Chaika. *(Author's collection)*

side-valve unit to an overhead-valve type with an aluminium cylinder head and increased in size to 1358cc. In 1957, a year after beginning production of the 402, MZMA prepared a test batch of 100 experimental 45bhp 407 series engines. In May 1958 the Moskvich 407 went into production with the new power unit. Top speed of the Moskvich 407 was 71.5mph. The last Moskvich 402 was built in July; a total of 94,080 had been built including 18,019 for export.

The body of the Moskvich 407 differed from the Moskvich 402 by just a few minor changes to trim and equipment, backed up by improved finish. Variations included the Moskvich 423N estate car, the Moskvich 430 van, the Moskvich 407B special saloon for handicapped drivers, the Moskvich 407M for use by medical teams, and the Moskvich 407T taxi. For the Moskvich 430 van the designers added a bulkhead behind the front seats and panelled in the rear doors and windows. The rain gutters on both the estate and the van remained as for the saloon, dipping down behind the rear passenger doors. The rear passenger doors were simply welded shut and there was no attempt to fill the resulting seams! Sales of the Moskvich 430 light van, like its predecessor light commercials, were strictly limited to official organisations and businesses.

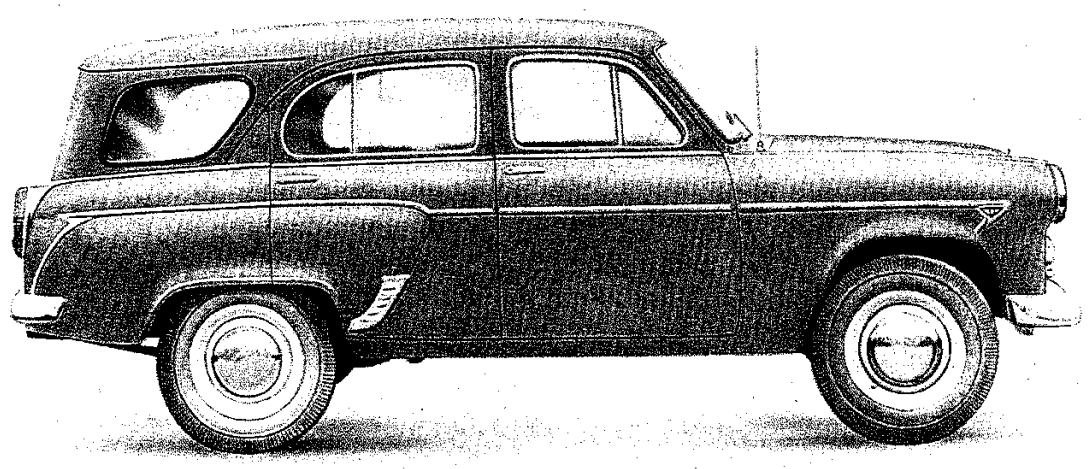
The Moskvich 407 was an instant success. In the 1957 international 'Thousand Lakes Rally' in Finland a Moskvich 407 came third, even though Soviet teams at that time had very little experience of motorsport. At the 1958 Brussels International Motor Show the saloon and its estate car companion

were awarded gold medals. However, the MZMA team didn't rest on their laurels. In December 1959 a four-speed gearbox with synchromesh on the top three gears replaced the three-speed unit. Tubeless tyres followed in January 1960. During 1960 a hypoid final drive with a lower final ratio was introduced on the back axle, an improved pre-paint treatment was introduced to improve corrosion resistance, and a new radiator grille replaced the original single horizontal chrome bar and large central badge with a more ornate mesh-type grille. In July 1961 the clutch was modified to reduce user effort and in January 1962 a gear lever damper was introduced.

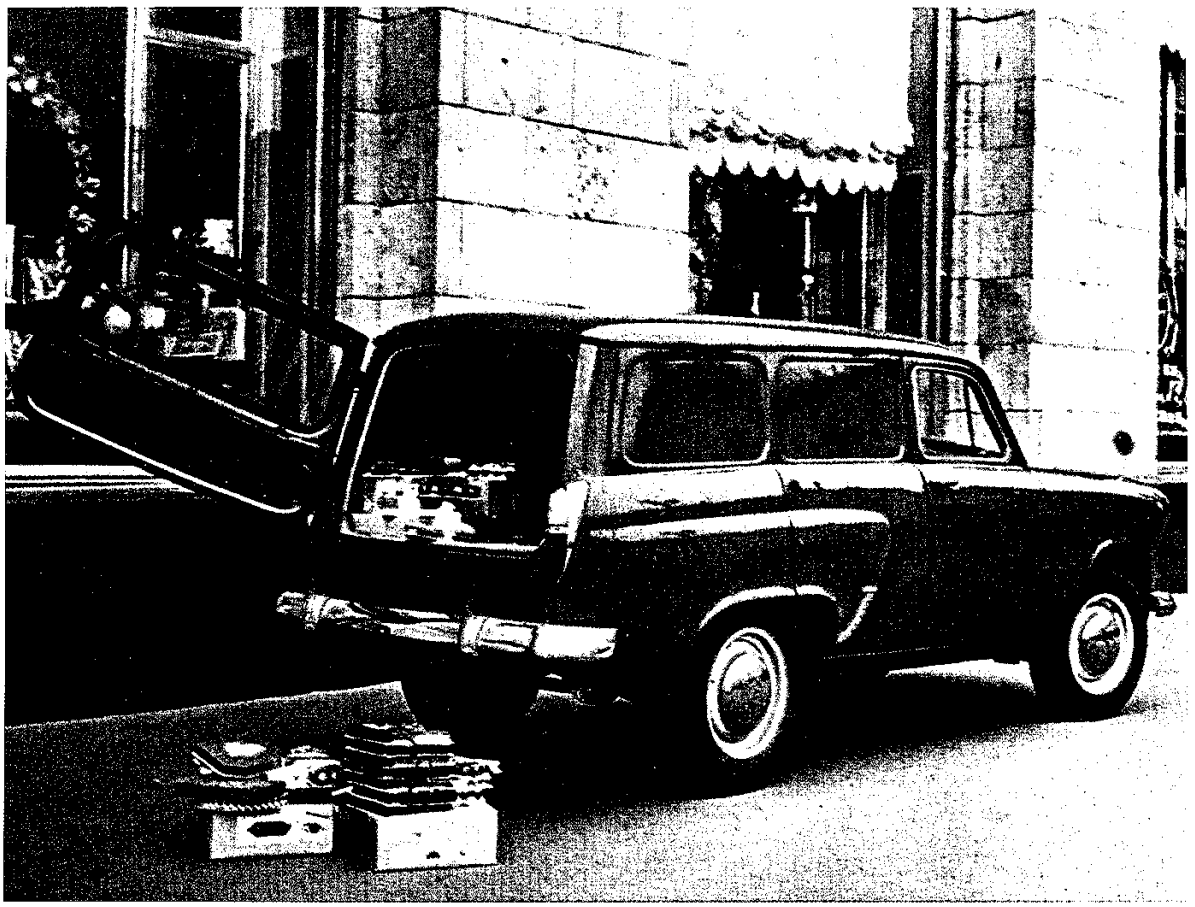
There were also four-wheel-drive versions of the Moskvich 407. Limited production of the Moskvich 410N saloon took place from June 1958, while the Moskvich 411N 4x4 estate car, based on the Moskvich 423N, joined the range in August. MZMA also developed a four-wheel-drive version of the 430 van but it didn't get the green light for production. Early versions of the 4x4 had a three-speed gearbox, but in 1960 the four-speed unit used on the rear-wheel-drive cars was installed. When production of 4x4 Moskviches ended in January 1961 a total of 11,890 had been made since their announcement in 1957.

The 4x4 Moskvich saloons prompted MZMA to look at designing something a little more practical than the 410 for professional users but more civilised, manoeuvrable and economical than the bulky, rough and ready GAZ 69. The first prototype, conceived by a team headed by the works' chief designer Igor Gladilin, was clearly inspired by the American Jeep. Its engine was the same as in the 407, mated to a four-speed gearbox and a two-speed transfer box. Top speed was 65mph. This was followed by two compact Land Rover-like prototypes that predated the Japanese compact 4x4s by nearly 20 years! One open-top Moskvich 415 was built and two examples of the Moskvich 416, one with a soft top and the other a hard top. Testing went ahead and blueprints and official documentation were prepared ready to put these extremely practical little SUVs into production. Sadly, however, they remained prototypes, just like the 1958 prototype A9 minibus that used mechanical components from the 407. The minibus had a top speed of 56mph and used 11 litres of petrol per 100km (25.6mpg). It clocked up 10,000km in the Moscow area between October 1958 and January 1959.

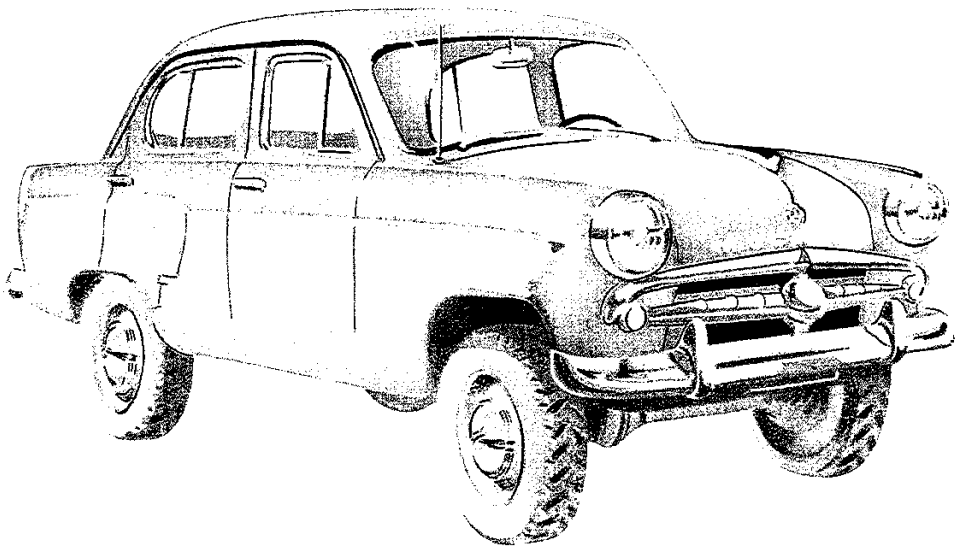
As the new decade dawned, the Minavtoprom instructed MZMA to concentrate on its core production of passenger cars. There simply wasn't the means, equipment or space to put all its other projects into production, especially as MZMA was



The Moskvich 423N estate car, which shared its drivetrain with the Moskvich 407 saloon. The 423N looked no different from its predecessor, the Moskvich 402-based 423 estate. *(Author's collection)*



↑The Moskvich 430 light van looked as though it had side loading doors but these were actually welded into place. Like all Soviet light vans, it wasn't offered for sale to individual motorists, who, it was reasoned, had no need for a commercial vehicle in a planned economy. *(Author's collection)*



→The Moskvich 410 was an extremely capable four-wheel-drive version of the Moskvich 402. *(Author's collection)*

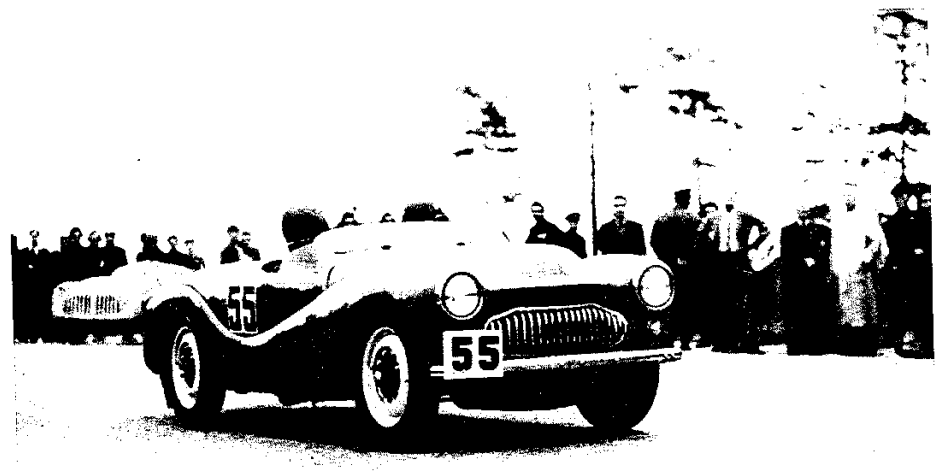
now beginning to enjoy major export success. Its Moskvich 407 was the first Russian car to make a real impact outside of the Soviet Union, especially when a two-tone colour scheme – a first for the Russian industry – became an option. What would Stalin have made of such frivolity? Indeed, the success of the regular Moskvich 407 was behind the decision to end production of its 4x4 variants – MZMA simply couldn't make enough 407s to meet demand! For several years more than 50 per cent of all 407s made were exported, not only to the countries of the Eastern Bloc but also to Finland, Norway and France. The Moskvich was particularly successful in the Benelux countries, where the Belgian importer found a ready market for the rugged yet stylish Russian cars, which were sold under its Scaldia name. Export versions of the Moskvich 407 were also known as the Elite in some markets, because Peugeot had carefully registered all model names with a zero in the middle.

During the 1950s MZMA acted as the principle design centre for the Soviet car industry, even though its design team totalled no more than 90 people. A great deal of effort was put into the tiny Moskvich 444, which eventually became the ZAZ 965. Its body was closely inspired by the Italian Fiat 600, as the plant did not have as much confidence in its own design skills as perhaps it should have had. Moreover, the ministerial brief for the 444 is believed to have changed six times during the car's development. Five prototypes were built between 1957 and 1959.

In 1955 MZMA started to explore the exotic world of motorsport, when its designers developed a proper racing car, the Moskvich G1 405, with wheels, brakes and suspension borrowed from the Moskvich 401. The 407 engine was used in the 1956 Moskvich G2 405, based on the G1 but with a much more streamlined aluminium body. It weighed only 660kg and test drivers got it up to a top speed of 139mph. Because the power unit was located towards the rear of the car, the driver sat towards the front. It had a 120-litre fuel tank next to the engine. There was no mistaking the G2 on the track – it had no silencers, so its 70bhp engine really did make the earth move! It was followed in 1961 by the G3 with the engine up front and again powered by a 407-based engine.

By the end of the 1950s MZMA had also been involved in various non-automotive projects, beginning with the design of the transmission for the MAZ 525 dump-truck and ending with the creation of an automatic cigarette vending machine.

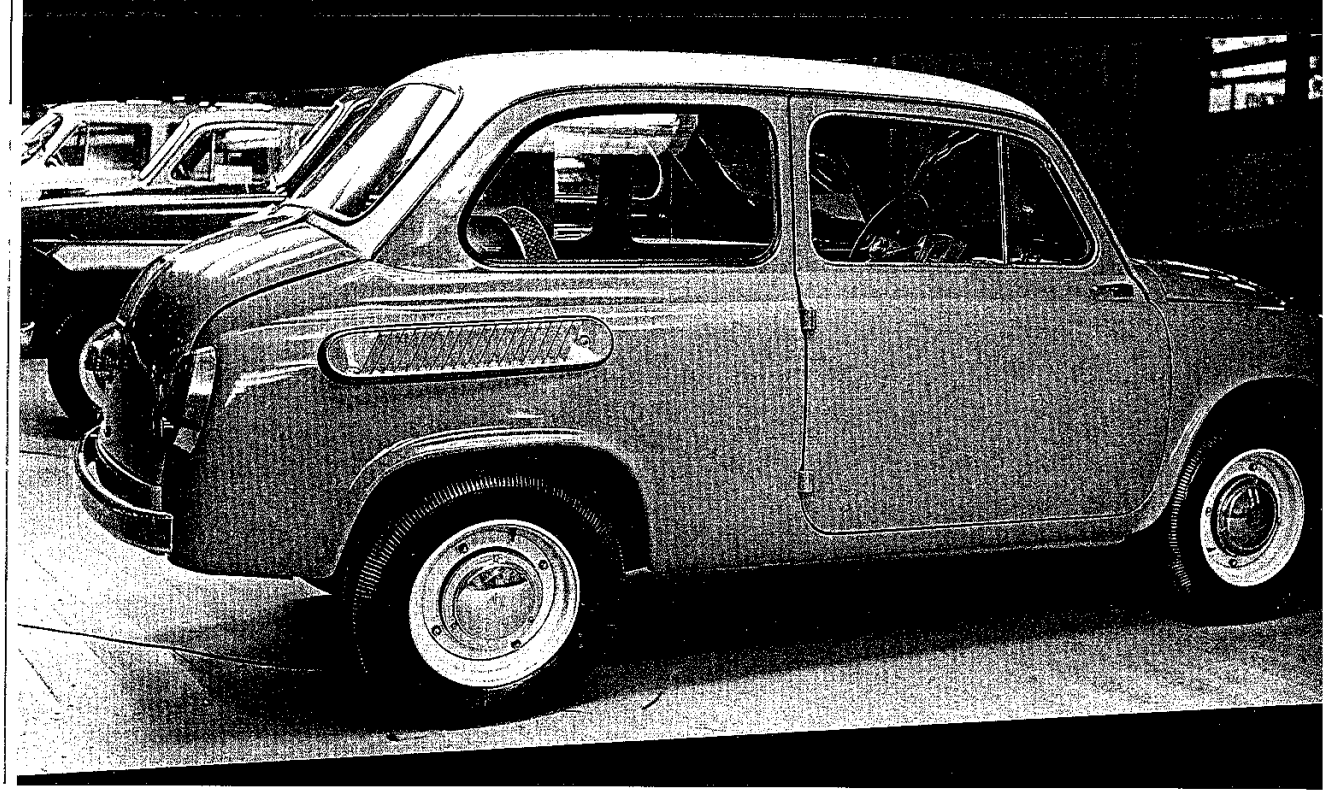
Although the 1950s had been a period of incredible growth for MZMA, both in the quantity and quality of its cars, the best was yet to come. The 1960s really did swing for Moskvich! ■



←The Moskvich 404 Sport of 1954 had a tuned 1,074cc engine that gave the compact sports car a top speed of 93mph. *(Author's collection)*

ZAZ

THE SOVIET MINI



↑ One the first of the Zaporozhets 965 series, seen here in 1960. Although the Fiat 600 was chosen as a benchmark for the Ukrainian car, by the time production started in 1959 the Soviet vehicle had evolved into a completely different and distinct design in its own right. *(Author's collection)*

ZAZ has a history going back to the Victorian era. The company grew out of four small plants set up by the German entrepreneur J. Koop in the Ukrainian city of Aleksandrov (renamed Zaporozhets in 1921), manufacturing agricultural machinery and equipment. After the Revolution and Civil War the plant restarted operations under the name Communard, and by 1921 was producing 24 types of agricultural machine. It built its first combine harvester in 1929, and between 1930–41 and 1947–52 a total of 129,724 were produced. The works were completely destroyed during the Second World War but were rebuilt and re-equipped following the end of hostilities and resumed the production of agricultural machinery until 1959.

By the mid-1950s Western Europe had recovered enough from the war for people to start enjoying life's little luxuries, including a car of their own. Many companies had introduced small, low-cost, economical cars such as the Fiat 500 Topolino or Citroën 2CV, while the Volkswagen Beetle and Morris Minor offered a touch more power and comfort. Although some of these cars were extremely small, with engines of less than a litre, they were a definite step up from the bus queue. As Dante Dzhakoza, developer of the Fiat 600, Fiat 600 Multipla and Fiat 500, said: 'Even a small car will always be more comfortable than a scooter.' There was a burgeoning mass market for small family cars, which accounted for between 25 and 40 per cent of all European automobiles.

At the time the Soviet Union produced just two general-purpose passenger cars at two factories – GAZ making the Pobeda and the soon-to-be-

launched Volga, while MZMA had its Moskvich line. However, the Pobeda and Volga were big, expensive cars and were practically unavailable to ordinary Soviet motorists, while the Moskvich plant simply couldn't keep up with demand. Moreover, with the end of Moskvich 401 production and the introduction of the larger, more spacious but more costly Moskvich 402, the MZMA plant was, anyway, moving into a different class.

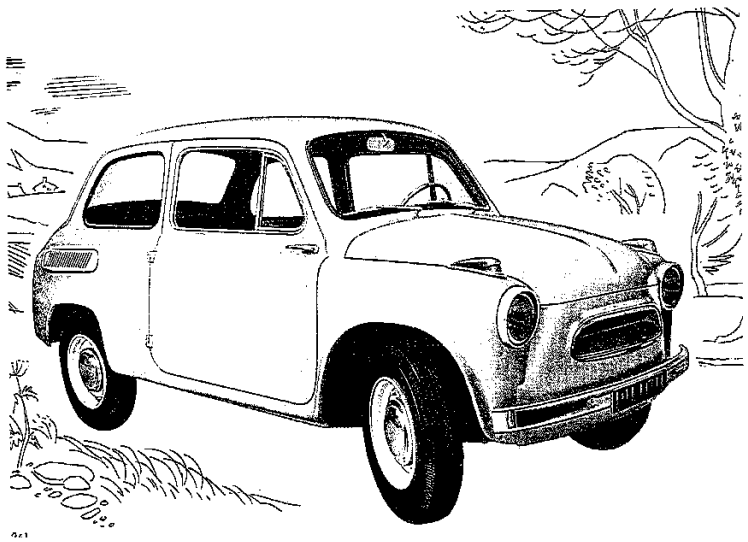
Work on the design of a new small car therefore started in the autumn of 1956. To prepare for it, NAMI undertook extensive research into what would be appropriate and affordable for Soviet customers. As part of this research, many foreign cars were bought and thoroughly examined by NAMI, including extensive testing under both normal road conditions and at the NAMI proving ground near Dmitrov. The Fiat 600, a brand new car in 1955, was chosen by Minister Strokin, head of Minavtoprom, as the most appropriate car to emulate.

The new project was passed over to MZMA. The first prototype, the MZMA 444, was finished in October 1957. It had rear-hung doors, a triangular emblem at the front, convex arrow-shaped motifs on the doors, a decorative piece of trim in front of the rear wheelarch – borrowed from the Moskvich 402 – and four round air ducts on the rear wing. The front and rear screens were interchangeable, a useful way of reducing manufacturing complexity that was also adopted by Skoda for the Octavia.

While the Soviet car looked a little like the Fiat, it was clear that the design had been developed to meet Soviet needs. Instead of 12in wheels the Soviet car had 13in, and ground clearance was 200mm.

The engine could not have been more different from the Fiat's inline water-cooled four-cylinder unit. Myths that the little Soviet car used as its engine the starter motor from a Soviet tank are completely false. At first, the MD-65 air-cooled opposed twin-cylinder engine produced by the Irbitskeyeo motorcycle plant was used, but tests proved it to be totally unsuited for use in a car – it developed just 17.5bhp, making the car's maximum speed a lowly 50mph instead of the design objective of 59mph. It was also very noisy, and when installed in a car overheated. Its main failing, though, was that it was short-lived, and could only run for 30,000km before needing a major overhaul. It became clear that an entirely new motor was necessary.

MZMA in 1957 began looking at different engine options, including inline, V and opposed cylinder formats. Conveniently, there were two new Soviet engine designs under development at the time: the NAMI-G and the NAMI-V. The Moscow engineers had also looked closely at engines from the Citroën 2CV, the Volkswagen Beetle and the BMW 600, all of which had air-cooling. The best performer was the Volkswagen unit. This influenced the Soviet designers to opt for an engine with a similar layout, which turned out to be the NAMI-V flat-four engine already on the drawing board. The only real



The Zaporozhets 965 was the Soviet Union's very own Mini. It is now one of the most popular classic cars in the former Soviet Union. *(Author's collection)*

problem was getting to the valves to adjust them, a consequence of its opposed cylinder design. The wheelarches of the new car would make access difficult, but apart from that the designers were all set to opt for a horizontally opposed air-cooled engine. However, the men from the ministry had different ideas, all of which influenced the final decision.

As ever during the Cold War, the Soviet government wanted to push forward the boundaries of technical development to show that the Communist system was advancing ahead of the capitalist world. They decided that the NAMI-G engine, which was a V-4, was the best way to do this. Automotive experts, however, felt that it was not right for a car with its engine at the back, since it had been designed to be cooled by airflow created by the vehicle being in motion – in other words, the best place for it was at the front of the car.

There were, however, practical arguments in favour of this particular engine, not least the fact that it was practically ready for full-scale production, unlike the V: This was because the G engine had also been developed for military use in a lightweight amphibious vehicle – which eventually became the LuAZ 967 – and had consequently been prioritised. Because of its military origins it included a number of unique features not normally associated with car engines: a rear-mounted oil cooler, high mounting points for ancillary equipment, castings made from magnesium-magnesium alloy and a lightweight block. The engine made a characteristic cackle when it ran and reputedly had its roots in a BMW unit developed at the beginning of the 1950s for a cross-country vehicle.

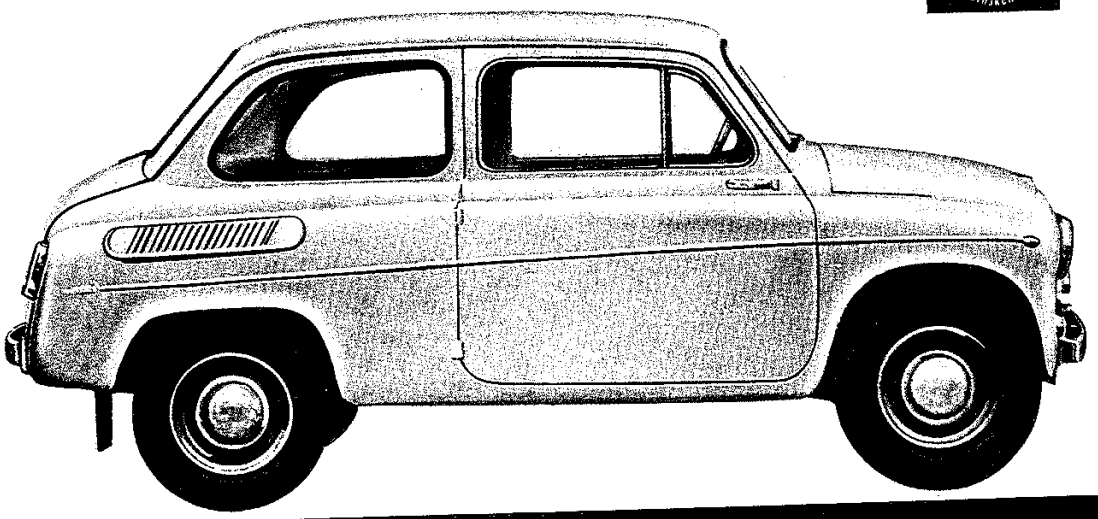
The dimensions of the new engine – which was to be built by MeMZ (Melitopolski Motor Plant) and already had the official name of MeMZ 965 – were bigger than the MD-65 engine around which the original body layout had been drawn. Because of the 90° V arrangement of its cylinders the 746cc unit simply would not fit. The designers therefore hastily restyled the rear of the little car: the sloping, flat rear bonnet was replaced by a convex one and the rear wings were changed. What also became apparent at the same time was the need for changes in the gearbox. The solution was to use the box that had been developed for use with the MeMZ engine. However, this unit incorporated not just the gearbox itself but also the clutch housing, differential, auxiliary transmission and transfer box. After brief reflection the engineers lopped off the bits that would be unnecessary for a two-wheel-drive vehicle and altered the gearchange mechanism into one that would be acceptable to a civilian driver. The rear suspension also had to be altered to accommodate the engine.

The developers of the amphibious military vehicle that had effectively donated its engine to the project were now drawn into the civilian car programme. They brought with them the experience they had gained in creating numerous successful off-road military vehicles, for example the BTR-40 and BTR-150. The car therefore benefited from a number of features that they had already worked up, including all-round independent suspension, a flat underside and careful weight distribution that placed just the right amount of weight over the driven wheels to give the maximum possible traction.

The design, even with all these changes and compromises, was now getting close to being finished. Ministerial approval for the project to move to the production phase was granted on 28 November 1958. Although Soviet leader Nikita Khrushchev did not intend to become a second Henry Ford by putting an entire country on wheels, after the devastation and hardship of the Second World War the Soviet government felt that it was time to offer some real improvements in the living conditions of its people. The very idea of making a small car widely available was quite revolutionary for a country still somewhat limited by Stalinist ideology, and some in the government remained uncertain about permitting the growth of private transport. However, Khrushchev was driven by a belief that the Communist system could and indeed would outpace capitalism and offer a better standard of living for ordinary people. The idea of an affordable, practical car priced within the reach of Soviet workers appealed to him, and as he made his mark lingering Stalinist doubts about the project faded away. The government set a target deadline of two years for the new car to be made available and mobilised the full force of the Communist system behind the project.

MeMZ was confirmed as the engine plant for the new car. It had been founded in Melitopol in 1908 by a Ukrainian entrepreneur named Zaferman, to build diesel engines. After the October Revolution it was nationalised and was

ЗАЗ-965А



V/O·AVTOEXPORT·USSR·MOSCOW

named the Second Soviet Plant, then after the end of the Civil War in 1925 it was reorganised into the Victory co-operative and continued to produce diesel engines for the agricultural, construction and fishing industries. In 1931 the co-operative was transferred to direct state control and became part of the Soyuzdiesel organisation, and turned over to the production of engines for fishing boats. In 1936 the Victory plant was renamed the Mikoyan Diesel Plant and specialised in producing high-speed diesels for trawlers. It was evacuated during the Second World War, just before the Germans invaded in 1941. Immediately after the liberation of Melitopol the factory was completely rebuilt and restarted production during 1944. It was officially named MeMZ in 1958, when it was completely re-equipped to build petrol engines for the new car.

To produce the cars themselves the Zaporozhets Communard agricultural machinery works was refitted and re-equipped, since there simply wasn't any spare capacity at the Moskvich works in Moscow to manufacture the new car alongside the highly successful Moskvich 402. Work went ahead at full speed to prepare the Ukrainian plant for its new role. In less than a year a new tool shop was constructed and the main factory was rebuilt and extended to include a paint shop and assembly lines. A design and experimental section was also built, setting up the new factory to be able to in the future develop its own cars.

A more advanced prototype, created by MZMA in 1958, had higher front wings and a changed grille design. It was given a public airing during the winter of 1958–9 at the Exhibition of Achievements of the

↑The Zaporozhets 965 was a well-proportioned car, and in spite of having been originally inspired by the Fiat 600D, by the time it was released it had developed its own clear and distinctive appearance.
(Author's collection)

↑A well-maintained example of the ZAZ 965. *(Vladimir Varaksin)*

National Economy of the USSR. Instead of '444' its nameplate said '650'. Like the first prototype, the front suspension was by transverse spring and the front doors had sliding rather than winding glass.

During 1959 the design of the front suspension was finalised, drawing on the torsion bar system used by Volkswagen. This was another example of how, in spite of its close visual similarity to the Fiat 600, the Soviet vehicle was in fact a completely different car, since the front suspension on the Italian car was, like the earlier Russian prototypes, by transverse spring. The front doors were also changed to incorporate winding windows.

The first ZAZ 965, as it was now called – a combination of the factory's name with that of the engine – rolled out of the Zaporozhets factory on 12 June 1959, to be followed on the 18th by the first experimental batch of production cars. However, engineers carried on tweaking and improving it for almost a year before, as was traditional by now, the new vehicle was presented at the Kremlin for approval by the government. On 18 July 1960 the factory's official test driver drove Nikita Khrushchev around the outside of the Council of Ministers' building, around the Ivanovo area and home again. Khrushchev was impressed, calling it a 'good gift for the worker'. On 25 July the government gave the green light for what was to become known as the 'Dnieper Cossack', with its price set at 1,800 roubles. Assembly of the first production run of the ZAZ 965 began on 25 October 1960, and by the end of the year about 1,500 had been built. The Soviet Union now had its own Mini. The final production engine was the air-cooled, V-4 23bhp 746cc MeMZ 965 unit. ■

LuAZ

PLOUGHSHARES INTO SWORDS

ZAZ was one part of the Ukrainian motor industry that had a chequered reputation within the Soviet Union. The second part was LuAZ, which built vehicles that were almost unbelievably capable off-road but whose build quality was so bad that for a time the LuAZ was the only car that could be bought off the shelf by Soviet motorists.

The LuAZ motor firm was created at the end of September 1955 out of the LuZM (Mechanical Factories of Lutsk) works in western Ukraine, which repaired trucks and manufactured mobile repair shop and refrigerator bodies on Moskvich, ZIL and UAZ chassis. Its first complete vehicle was the diminutive LuAZ 967, designed to be a front-line military transport with a small payload capacity of up to 950kg.

The LuAZ 967 was prompted by the Korean War of 1950–3, during which the Soviet Union supplied North Korea with military equipment. This conflict underlined the need for small, agile, rough-terrain vehicles to rescue wounded soldiers and supply front-line troops with ammunition. The GAZ 69, which had been used for these purposes, was too large and clumsy and had too little ground clearance to use in minefields. It was also too heavy to be delivered into a battle zone by air.

Development was undertaken by a special group at NAMI. The first prototype, named the NAMI 049, was finished in 1958. It had a basic glass fibre body with a wheelbase of 1,800mm. The suspension was independent all round, with four semi-trailing arms. It had permanent all-wheel drive with a lockable differential in the transfer case and reduction gears at the wheels. The loaded vehicle had a ground clearance of 280mm. A 22bhp MD-65 motorcycle engine, similar to the one used on the Orbita motorcycle and once mooted as a possible power unit for the ZAZ 965, was used. Tests, however, showed that the body was not strong enough and the engine was underpowered.

For the development of a second prototype, called the NAMI 049A, the designers consulted the Zaporozhets works. A solution to the lack of power was on the horizon in the form of the new air-cooled MeMZ engine by this time destined primarily for the ZAZ car range. Body strength problems were resolved by giving the NAMI 049A a body made from steel, firmly connected to a strong framework. The permanent all-wheel drive of the first prototype was rejected and the rear axle was instead switched in as and when required. The torsion bar suspension of the original was also replaced by a more traditional spring set-up, which was better able to withstand the shock arising from delivery by parachute. The team worked on two vehicle variants, one a standard dry-land model and the other amphibious. The military opted for the latter.

Total weight of the new vehicle was just 1,350kg and it could pull a 300kg trailer. Height with the windscreen up was 1,580mm. Power came from a front mounted MeMZ 967A 37bhp engine, giving a top speed of 47mph with front-wheel drive. The LuAZ was equipped for almost any eventuality. It had two easily removable ramps to get over ditches or out of water, a winch with 200kg of pulling power and 100m of cable, and could overcome gradients of up to 58 per cent. While afloat steering was achieved by turning the front wheels – not a problem when waterborne top speed was just half a knot. The driver's place was in the centre and the two back seats were hinged so that when folded down they formed a flat surface to carry stretchers. To achieve better camouflage, the windscreen could be folded down onto the bonnet and the driver's seat folded back. The steering column and instrument panel could then be folded downward, allowing the driver to steer while lying down. Production of the LuAZ 967 started at the Lutsk works in 1961. ■

RAF

NEVER HAVE SO MANY BEEN TRANSPORTED BY SO FEW

↑The Latvian-made RAF 977 was an extremely successful minibus, offering stylish and robust transport for up to ten people. *(Avtoexport)*

Expansion across the USSR was one of the features of post-war Soviet motor industry development. Latvia joined the ranks of the motor producing republics in 1949, when the Soviet authorities authorised bus body production at the No 2 Riga motor vehicle repair plant, known by its initials as RARZ. In 1955 this became an experimental bus plant and was renamed the Riga Autobus Fabriku, or RAF. It subsequently became the main source of minibuses in the Soviet Union, as well as producing trolley buses and the GAZ 51 truck.

The first RAF minibus was assembled by five enthusiastic engineers in 1954, out of two GAZ cars, chipboard, leatherette and a tarpaulin. The first official RAF product was the RAF 251, built from 1955 until 1958. It was a 22-seat bus based upon the mechanical components of the GAZ 51 truck and fitted with a body made of wood and metal. Also built was the RAF-251T, a passenger-cargo version designed to carry 14 passengers and an 800kg payload.

By the mid-1950s the Soviet Union was moving rapidly ahead with the production of trucks and full-size buses, but Minavtoprom realised that a smaller passenger vehicle was also needed, bigger than a traditional taxi but smaller than a bus, for use by sports organisations, as official transport for factories and enterprises, and as a 'route taxi' to serve public transport routes that didn't warrant a full-size bus. Such a vehicle could also form the basis of a fast and comfortable ambulance. Ambulances were often regular cars with the rear seat removed

and the patients loaded through the boot on their stretchers.

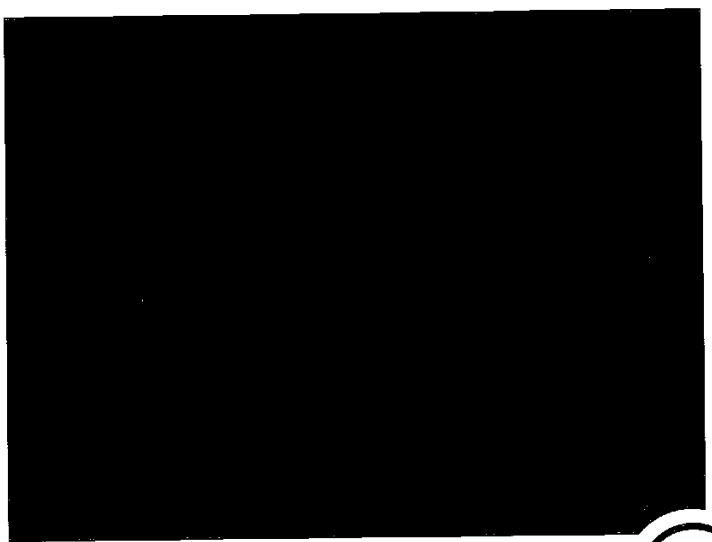
The role of route taxi was at the time being partially filled in Moscow by a fleet of GAZ M12 ZIM seven-seat cars, but these were not very convenient for people to hop in and out of and their passenger capacity wasn't really sufficient for this type of work. Designers at the ZIL works had a go at designing a minibus based on the ZIL 111 chassis but the result did not go into production, as it was too heavy and unwieldy. The ministry therefore commissioned design work for two small buses. One, with four-wheel drive for military and rural use, was passed over to UAZ to develop and build, while the other, a two-wheel-drive civilian and urban vehicle, was passed to RAF.

RAF abandoned its work on larger vehicles and thereafter specialised in developing and building minibuses, using at first a mixture of Volga and Moskvich mechanical parts. A Volkswagen Microbus was imported to provide inspiration for its first proper minibus. Although the early RAF models looked a little like the Volkswagen, mechanically they were totally different, with a front-mounted, water-cooled engine rather than the German vehicle's rear-mounted air-cooled unit. Two prototypes were developed, the smaller of the two being the RAF 08, sometimes called the Moskvich 8 in recognition of the donor of its drivetrain. The larger prototype was the RAF 10, which drew upon the GAZ M20 Pobeda for its mechanical components, including the transmission, front and rear axles, steering gear and steering wheel. Both were first shown in 1957. The main differences in appearance between the RAF 10 and the RAF 08 were an increase in the 10's length and a different style up front, with a unique radiator grille and headlight layout. It also had a better cooling system. The body of the RAF 10 was an all-metal semi-monocoque with ten seats, and a side door to allow passengers to get in and out as well as the usual cab doors. It was powered by the GAZ 21B engine, mounted between the front seats, with a large engine cover allowing access from inside the cab.

The first test batch of RAF 10s was made for use at the 1957 Moscow Youth Festival – indeed, the vehicle was provisionally named the Festival. There were several versions, the only real difference between them being the front-end styling. One had the headlights moved to the centre of the vehicle!

The smaller RAF 08, which had eight seats, remained a prototype but production of the larger vehicle began in 1959. Renamed the RAF 977 Latvia, the majority of its mechanical components came not from the, by then, superseded Pobeda but from the newly announced GAZ M21 Volga, including a low compression version of the 2445cc engine. It was well in line with styling trends of the 1950s, with curved glass windows on each side, although it still had a split front windscreen. It differed in appearance from the RAF 10 only slightly, with a simple front-end style with single headlamps and a chrome grille.

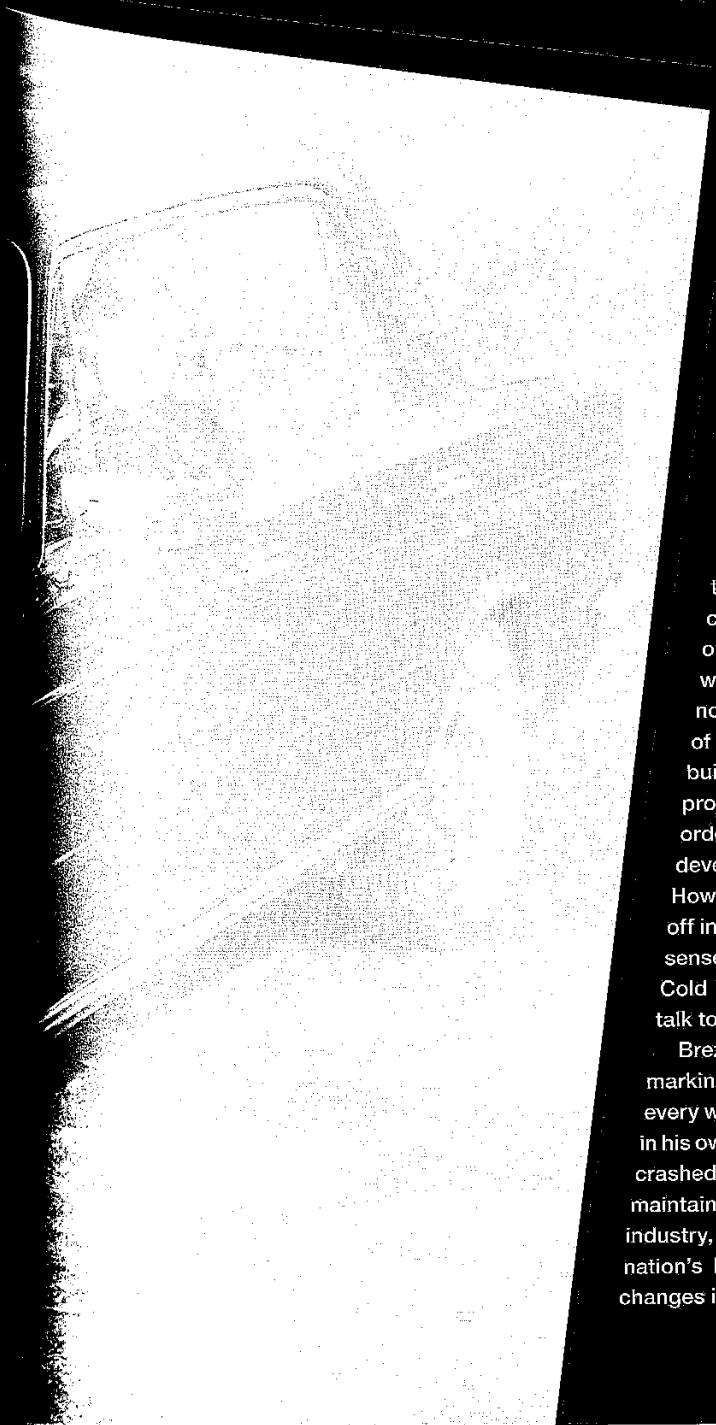
The RAF 977 was intended for use as an official vehicle. Although its passenger capacity was less than another official bus of the time, the PAZ 652, the RAF was considerably more efficient, using just 13 litres of fuel for every 100km travelled (22mpg); faster, with a maximum speed of 62mph; more manoeuvrable; and more comfortable for passengers. It also proved itself to be a perfect basis upon which to build ambulances, and was used to carry mail, take passengers to aircraft on small airfields and to transport students and researchers on study trips as well as performing in its original intended roles as a minibus and route taxi. Production, however, remained low, as the RAF plant wasn't yet equipped for production line manufacture. Most were assembled by hand. ■



PART

A CAR FOR EVERY DACHA

1960-1979



The Soviet car industry had its own summer of love. In the swinging 'sixties bright new cars were announced by all the major Soviet firms – indeed, by factories right across the Eastern Bloc, with new cars coming out of Yugoslavia, Poland and Romania too. Although Khrushchev was forced to retire as Soviet leader in 1964, his more open approach to government and international relations wasn't completely abandoned. The first international motor rally in the Soviet Union, 'Russian Winters' took place in 1965. However, while the country didn't slip back into a Stalinist way of operating, his replacement Leonid Brezhnev was a much more cautious character who was not receptive to any but the most mild forms of opposition. He also prioritised a military build-up and focused attention on prestige projects such as the space programme in order to keep pace with America, rather than developing the nation's consumer industries. However, after the notorious nuclear stand-off in 1961 there seemed to be an underlying sense of live and let live between the two Cold War protagonists, and they started to talk to rather than shout at each other.

Brezhnev's time in office was one of marking time – there was little change. In every way, Brezhnev – who enjoyed motoring in his own Rolls-Royce Silver Shadow until he crashed it – seemed to be more interested in maintaining the status quo. The Soviet motor industry, as ever, reflected the mood of the nation's leader, making careful but limited changes in its designs and products.

Exports, however, really took off and for a time it looked as if Khrushchev's boast that the Soviet Union would overtake America by 1970 was not so far fetched. Soviet-made cars were soon seen all round the world. In 1965, Avtoexport published the first edition of its *Avtoexport Round-Up* magazine. Printed in four languages – English, Russian, French and German – it was designed to provide news and information about the Soviet motor industry to an international audience. Almost every edition carried articles about Soviet vehicles in use across the globe. By the mid-1960s Avtoexport had built one of the largest marketing networks in the world, with 1,200 service centres, 17 warehouses and 24 teaching and consulting centres where more than 2,000 specialists were trained annually. Exports of cars between 1949 and 1959 totalled 74,000, between 1960 and 1969 this increased to 449,200 and by 1978 to 402,000 a year!

Russian cars first appeared for sale in Britain in March 1960. The Moskvich 407 saloon retailed for £759 in July that year, less than a Morris Oxford at £816 but on a par with a Vauxhall Victor Super at £752 and a Hillman Minx Deluxe at £765, all slightly larger cars. *Autocar*'s review of the 1960 London Motor Show described the Moskvich as 'quite exceptional value by any standards'. The Volga M21 was priced at £1,113, not far off the £1,191 Humber Hawk, which was also a large, four-cylinder car designed with comfort in mind. The Moskvich 407 was imported by Thomson & Taylor (Brooklands) Ltd based in Byfleet, Surrey, who also imported the later 403 and the 423 estate car, plus the Volga M21 and M22. The Zaporozhets 965 was shown at the 1961 Earls Court Motor Show, but few if any were actually sold. Thomson & Taylor continued to be the agent for imported Russian cars until 1966, after which they were imported by Russian Cars Concessionaires of West London until 1970.

The Soviet cars sold in Britain in the early 1960s were not priced appreciably lower than locally produced vehicles. They sold on their merits rather than, as became more usual later, their bargain basement prices. By November 1963 there were four Soviet cars available in Britain, two from MZMA and two from GAZ. As can be seen from the table below, even though they were generally older designs they were not especially cheap to buy, although car-for-car they were generally better equipped than their British and European competitors.

During the swinging '60s, Avtoexport had a lot of success promoting Soviet cars throughout the world. Here, two Moskvich 408s and a ZAZ 966 take pride of place at an Italian motor show in 1968. *(Avtoexport)*

Compact saloons			Compact estates		
Model	*First made*	*Price*	*Model*	*First made*	*Price*
Morris 1100 (1,098cc)	1962	£593	Morris Minor Traveller (1,098cc)	1953	£582
Ford Cortina 1200 Deluxe (1,198cc)	1962	£615	Ford Cortina 1200 Deluxe (1,198cc)	1962	£683
Moskvich 403 (1,360cc)	1958 (as the 407)	£629	Moskvich 423 (1,360cc)	1958	£699
Vauxhall Victor FB (1,595cc)	1961	£635	Ford Cortina 1500 Deluxe (1,498cc)	1962	£713
Wolseley 1500 Fleet (1,489cc)	1957	£640	Hillman Super Minx (1,592cc)	1962	£798

Large saloons			Large estates		
Model	*First made*	*Price*	*Model*	*First made*	*Price*
Ford Zephyr Six Mk 3 (2,553cc)	1962	£836	Ford Zephyr Four Mk 3 (1,703cc)	1962	£1,050
Vauxhall Velox (2,651cc)	1962	£840	Volkswagen 1500 Variant (1,493cc)	1961	£985
Volga M21 (2,445cc)	1958	£897	Volga M22 (2,445cc)	1962	£999

The motor vehicle research institute, NAMI, was responsible for a lot of automotive development work in the Soviet Union. A Lada and a Moskvich are shown here undergoing crash tests.
(Author's collection)

During the 1960s and 1970s Russian car sales in Britain grew, especially as newer models came on stream. The Soviets re-entered the European petrol market too, with two small chains of service stations using the Nafta brand in Britain and Belgium in the mid-1960s. At its peak the British chain had 275 outlets and the Belgian about 50. The British chain was sold to Q8 in 1987, but the Belgian business continued dealing in fuel oil and with a diminishing number of branded service stations.

The Soviet motor industry, unlike its Western counterparts, was never shy about showing its new cars long before they were put into production. For example, the Zaporozhets 966 was openly seen out and about under test and on display a year before it made the production line. This was because there was no need to hide new ideas for fear of competitors stealing their latest concepts. And, as *Autocar* noted in July 1968, Eastern Bloc carmakers had 'no incentive to design for obsolescence to keep up sales'. This open development of new models continued after the fall of the Soviet Union, with

The 1965 line-up of cars available from the Soviet Union – from left to right the GAZ 21 Volga, the Moskvich 408 and the ZAZ 965. *(Motor)*

prototypes and pre-production models being shown publicly as soon as the first examples had been built rather than being kept under wraps in preparation for a big launch.

Although the cost of Soviet cars for Soviet buyers rose throughout the first years of the decade, the number of cars registered in Moscow alone doubled during the early 1960s. However, although it too was increasing, production was still way below that achieved in the West – the total annual output of cars in the USSR was 149,000 in 1961, compared with more than 1.8 million in West Germany and about 5.5 million in the USA. Even so, the export of Moskvich and Volga cars started to take priority over domestic sales. To help cut the waiting lists for cars – which according to some reports was seven years long – in 1964 the Kremlin began a short-lived import programme of Yugoslavian-built Zastava-Fiats, initially set at 2,500 per year.

Khrushchev's car hire system, launched in 1959, was effectively moribund by the start of the 1970s. On average half the cars were unused at any given time, and another quarter were under repair. The Moscow hire-car pool (860 vehicles) had made a loss of 158,000 roubles in the first six months of 1963, while Leningrad's lost about 50,000 roubles and Riga's about 15,000 in the same period. Losses continued to mount until by the end of the decade the whole thing was allowed to wither away. Foreign tourists could still rent cars for hard currency through Intourist, the official Soviet travel agency, but for Soviet motorists who wanted to drive, buying a car was their only option.

In the 1970s, the Soviet Union – insulated to a large degree from the economic shocks of the 1973 oil crisis – was able to continue developing its car industry, although as time went on the needs of its export markets started to become just as important as meeting domestic needs. Russian society settled down to a period of stability; indeed, some called it stagnation.

In 1970 only one person in 200 owned a car in the Soviet Union: in the US registrations equalled one in three of the population and in Britain one in six. Even so, by the middle of the 1970s motoring was well established in the USSR and a car was considered to be one of the most luxurious items a Soviet citizen could possess. Production was

The arrival of the VAZ 2101, the product of a massive new factory in Togliatti, laid the foundations for huge expansion of the Soviet motor industry, both at home and in export markets. This is an early 1972 Avtoexport brochure for the Lada 2101. *(Author's collection)*

up to 518,000 per annum by 1971 – a major improvement on 1961 – and production of cars finally exceeded that of trucks in 1972.

Soviet motorists, though, went about their motoring business in a completely different way to their Western counterparts. Getting a new car was not simply a matter of saving up enough cash or having a nice chat with the local bank manager before calling at different showrooms and choosing a car of any make. Buying a car in the Soviet Union was in some ways easier than in the West – there was little risk of choosing the wrong car or being ripped off by a commission-hungry salesman. However, in many ways it was much harder.

For one thing, a buyer had to pay cash up front in full, and that wasn't easy. In 1972 a cheap Zaporozhets cost the equivalent of $4,000 (£1,710), while a Volga was priced at $11,000 (£4,700). For workers on an average monthly wage of $180 (£77) that meant a serious amount of scrimping and scraping. Even the better-paid professionals had to save up for years. In addition, because cars were always in short supply buyers faced a delivery delay of up to 18 months unless they could find a shortcut through the system. Cars were allocated to buyers by a whole range of different methods, none of which involved glossy brochures and pushy salesmen, but all of which involved long waits and varying degrees of bureaucracy. Most cars were distributed through the workplace or via such organisations as trade unions. Who got to buy a car was therefore inextricably bound up with where a motorist worked or to which social organisations they belonged. The following were some of the ways in which a Soviet motorist could get behind the wheel:

- People were given priority because of their status as war veterans or if they had a physical disability.
- First come, first served – people would put their names on a waiting list managed by their employer or trade union.
- Winning contests – for example, whoever mined the most coal in a particular mine would be able to buy a car.

- Managers of workplaces would decide who was eligible, often using the lure of a car as an incentive to encourage their workforce.
- If only one car was available to a particular group of workers, they would vote amongst themselves to decide who should be able to buy it.
- Lotteries – state enterprises with access to a batch of new cars would operate a lottery to decide who should get the chance to buy one.

The shortage of cars gave rise to some black humour. One joke describes how a man in Russia gets a ticket allowing him to buy a car. He sits down with the car dealer and picks his car, decides the colour and even specifies a few accessories. The car dealer says the car will be ready in ten years. The man wants to know if it will be ready in the morning or the afternoon. The car dealer is a bit surprised: 'Why do you care? It's ten years away.' 'Well,' says the man, 'the plumber is coming in the morning.'

The Soviet press, meanwhile, called for improvements in the motorist's lot. As early as 1970 *Pravda* stressed the need for more safety devices (seat belts were rare in the Soviet Union at the time) and highlighted the shortage of road signs, durable paint for road markings, traffic lights and filling stations. Even so, in 1971 the print run of the motoring magazine *Za Rulem* was over two million copies.

By the start of the 1970s a thriving second-hand market for cars developed, although it was closely linked to the development of the grey market for all difficult-to-obtain consumer goods. Hedrick Smith, a veteran *New York Times* correspondent who won the Pulitzer Prize in 1974 for his reports from Moscow, described his visit to a Russian second-hand car market in his 1976 book *The Russians*. He recorded everything from ancient Moskviches to brand new Ladas being up for grabs.

Officially second-hand cars, like all second-hand goods, were supposed to be sold through a network of state-owned second-hand stores, the Kommissiony, which set a price for everything. However, because of the shortage of cars few were ever traded through the Kommissiony system. Instead, impromptu markets took place on wasteland where buyers would meet sellers on a strictly informal basis. Even though price speculation was illegal and the police used plain-clothes officers posing as buyers to catch people making an illicit profit, cars changed hands for anything up to double their official price. The buyer would go for a test drive

An IZH 2125 and a Moskvich 412 go head-to-head in this crash test – they seem to be equally matched. *(Avtoexport)*

This IZH 412IE seems to have taken rather drastic steps to escape the pursuing GAZ 21 Volga. *(Avtoexport)*

with the seller away from watchful eyes, the real reason for the spin being to agree in private the real price. All the paperwork completed would show the state value placed on the car when it was officially evaluated, but that wasn't the sum that actually changed hands.

Finding spare parts was a problem too, because the Soviet motor industry was more interested in meeting its production targets for new cars than producing spare parts. Spares on the black market could change hands for ten times their official price. Maintenance was difficult anyway for those without any mechanical knowledge. There were in the mid-1970s just 16 car-repair centres in Moscow, handling 250,000 cars. Owners did a lot of their own maintenance, which was positively encouraged by the multipiece tool kits that came as standard with every Soviet car. High standards of car-care were expected by the authorities too – having a dirty car was punishable by a spot fine!

The less pleasant aspects of motoring also arrived in the Soviet Union. Russian motorists soon had to be come as familiar with the notion of 'lock it or lose it' as their counterparts in the West. Cars would be stolen from their winter storage places, the owners not finding out until the spring thaw! Before leaving a parked car, Soviet owners systematically removed the windscreen wipers, petrol-tank cap and aerial and locked them inside.

By the end of the 1970s the Soviet motor industry had made great advances, although there were some areas in which it was starting to fall behind the rest of the world, including paint technology and the development of new drivetrains. It was during this period that perhaps the most famous name in the annals of the Russian car industry appeared – Lada. It was to be responsible for establishing the Soviet Union's global reputation as a truly reputable carmaker.

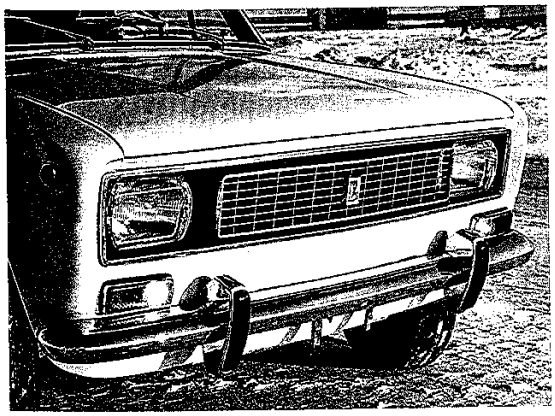
VAZ 2101

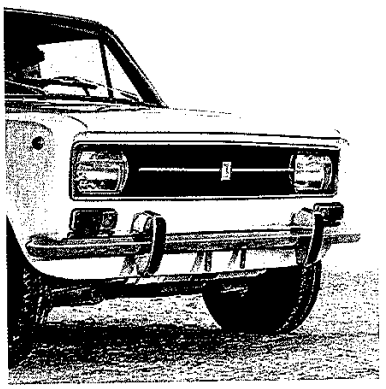
OVER THE HILLS AND FAR AWAY

↑The very first Lada was the VAZ 2101 saloon. Externally it differed little from the Fiat 124 upon which it was based, but mechanically the Soviet car had far more differences than most people realised. For example, the engine design was unique to the Russian product, as was the braking system. It was built without any significant changes from 1970 until 1982. *(Author's collection)*

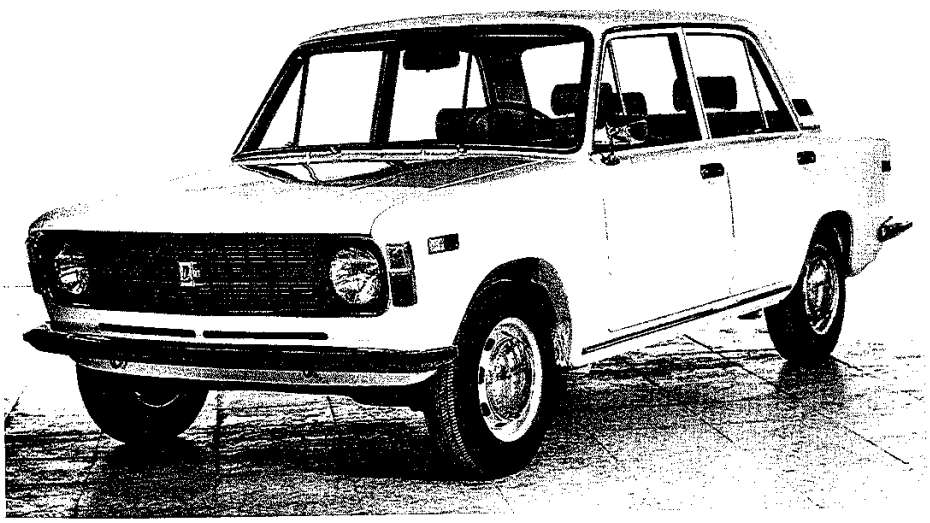
In the 1960s the Soviet government decided that it needed to produce more cars to meet the rising aspirations of its growing middle class. The decision to increase car production substantially was taken by the Brezhnev-Kosygin leadership mainly to stimulate productivity throughout the economy by offering the public the chance to buy a modern car. The range and quality of other consumer goods was still pretty unsatisfactory so the prospect of owning a new television or a washing machine provided only a limited incentive. Not only that, but the average Russian flat could only accommodate so much in the way of electrical equipment. Cars, however, were something that people were clearly willing to work for, so providing more cars would – in theory at least – make for a happier, more productive society.

Expanding existing plants would only go so far towards meeting the growing demand. The government therefore decided that a completely new, fully integrated factory, which could build everything in one place, was the best way of giving the Soviet car industry a massive boost. The official decision to go ahead with what was to be one of the biggest engineering projects ever undertaken in the USSR was made in July 1966 by the Central Committee of the Communist Party, as part of the eighth Five-Year Plan. Viktor Polyakov (later Minister in charge of the Soviet motor industry, 1975–86) was appointed as Director-General of the new plant, while Vladimir Solovyev was chosen as Chief Designer. The Soviets also decided to seek the assistance of an experienced Western manufacturer, because the USSR was, in spite of





A variety of styling updates for the VAZ 2101 series were pulled together by the Togliatti design team, including one with corner-mounted indicators that at a glance looked a little like the Fiat 128. *(Julian Nowill)*



the progress made at MZMA, GAZ and ZAZ, still more accustomed to building lorries and heavy industrial plant than modern cars. A number of Western companies were approached to join the project, including what was then the British Motor Corporation, before the Soviets eventually opted for the Italian Fiat company, which had been involved in the Russian car industry before the 1917 Revolution. A month after the project had been given the green light, the Ministry of Foreign Trade and Fiat signed an agreement and Russia was added to Fiat's large family of overseas partners, which already included other Eastern Bloc countries – FSO in Poland and Zastava in Yugoslavia.

Work started in January 1967 on a gigantic factory in the Samara region on the banks of the Volga. It was located at what was originally the town of Stavropol, renamed Togliatti in 1964 after one of the founders of the Italian Communist Party, who had died the same year. The plant itself was the Volga Car Factory, the initials of which became VAZ when translated into Russian. The plant's first phase, designed for the production of 220,000 motor vehicles per year, was to be finished in 1971 and would produce a version of the then newly introduced Fiat 124. This was a conventional but neatly styled compact saloon, unveiled in 1966, which had won the European Car of the Year Award in 1967.

Construction of the massive factory was far from easy. Thirty to forty Soviet ministries were involved and there were delays in the supply of such materials as cement, bricks and pre-cast concrete. Construction or modernisation of factories for the manufacture of these materials fell behind schedule – as did the building of workers' houses, because some of the house-builders were directed to work on the plant itself! Car production was started before construction of the plant itself was completed. The factory was finally completed in 1970, and the first cars rolled off the production line on 19 April, coinciding conveniently with the 100th anniversary of Lenin's birthday.

The Russian model was given the Soviet code VAZ 2101 but quickly became known as the Zhiguli, after the hills near the factory. Some 22,000 were built in 1970. Annual production capacity by the end of 1973 was 660,000. On 21 December 1973 the millionth car was produced. In October 1974 a third production line went live, contributing to the plant's daily output of 2,230 cars – 160 cars an hour, or a finished car every 22 seconds! At the same time, the 1,500,000th car was produced. To celebrate the occasion all the workers were

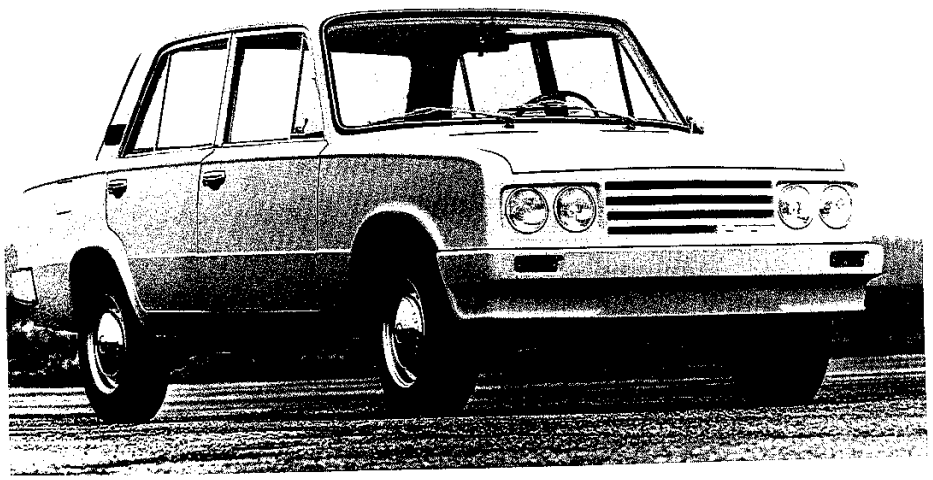
Very soon after the first Lada saloon was announced the range was extended by the addition of a very useful estate car, the VAZ 2102. Mechanically it shared the saloon's underpinnings. The boxy styling made it extremely spacious for such a compact car – ideal for collecting antiques! It was made from 1972 until 1986. *(Author's collection)*

brought together to receive a presentation and to be thanked for their efforts by a delegation of government ministers.

The factory itself was and remains the biggest in Europe, with an annual capacity in 2008 of 750,000 cars. The VAZ plant represents one of the greatest Soviet achievements. It covers 600 hectares (1,500 acres) of land, the three final assembly production lines are each 1.7km long, and at its peak the factory provided work for 180,000 people. It is also unique among global car factories in that most of the components for its cars have always been made in-house. As *Automotive News Europe* said in 2008 'iron ore, coal and other raw materials go in one end and cars drive out the other'.

The VAZ 2101 gave a real boost to trade between Europe's communist states which were part of an international organisation set up to promote trade and economic collaboration between the world's socialist countries. The Council for Mutual Economic Assistance (CMEA) also included as member states Mongolia and Cuba. The CMEA, sometimes known as Comecon, was at first glance similar to the capitalist world's European Economic Community (now the European Union) and the European Free Trade Association (EFTA) but with one major difference. The relationship between the member states was based not upon competition but upon a plan which assigned certain tasks and projects to each country with the aim of integrating their economies. As Avtoexport noted in 1975, 'the development of international socialist division of labour, co-ordination of national economic plans, specilisation and co-operation in production...will serve as the basis for faster growth'. Trade was not entirely based upon cash transactions but instead upon creating centres of excellence and allowing each nation to contibute what it best could to the wider socialist system. Components were often exchanged for other products – for example Poland shipped shock absorbers and light units to VAZ and received in exchange windscreens and bearings for the Polski-Fiat 125P. In the case of countries without a car industry, such as Hungary, components were traded for complete cars. This perhaps helps explain why after the fall of communism many factories and businesses across eastern Europe, set up with guaranteed markets and a clear part to play in a structured industrial system, either shrank in size or in the worse cases closed completely.

The first VAZ trademark was made up of a traditional Volga boat in grey on a red background inside a pentagon, superimposed with the name



←A very forward-thinking proposal for the VAZ 2103 model incorporated a body-coloured bumper and grille long before such things became fashionable. *(Julian Nowill)*

↑ In 1972 VAZ introduced a more powerful, more luxurious Lada, the VAZ 2103. Powered by a 1,452cc engine, it had soft fabric seats and full instrumentation, including a rev counter. *(AvtoVAZ)*

➔ Lada really pushed the boat out when they launched the VAZ 2103... *(Author's collection)*

Togliatti in Cyrillic script. The first badges were made in Turin, but with an error in the way the name Togliatti appeared – Togliatti in Russian translates as **Тольятти**, but the first badges were produced with the Cyrillic letter **я** rendered as a Roman R, in other words back to front. Examples of this logo are few and far between today – find one and it's a true collector's item.

The original VAZ 2101 was made until 1982, outliving its Italian counterpart, which went out of production in 1974. It spawned numerous variants via an ongoing programme of modifications, including 1,294, 1,452 and 1,568cc engines, an estate car and a substantial facelift in 1980. The series has consistently been Russia's best-selling car, largely because of its low price, rugged nature and easy maintenance.

Though the VAZ 2101 looked just like the Fiat 124, more than 800 changes were made by Russian engineers so that it could cope more easily with the Soviet Union's harsh motoring conditions. It had a 1,198cc engine producing 62bhp and could reach 87mph. Other changes included replacing the rear disc brakes with aluminium brake drums, which were more effective in muddy conditions. The original Fiat engine was dropped in favour of a newer design, likewise purchased from Fiat. This had a modern overhead camshaft but was never used in Fiat cars. The suspension was raised (to clear rough Russian roads) and the bodyshell was made from thicker, heavier steel. The Russian car therefore weighed 945kg, 90kg more than the Fiat. The first models were equipped with a starting handle in case the battery went flat in Siberian conditions, though this was later dropped. Another feature specifically intended to help in cold conditions was a manual auxiliary fuel pump.

Exports began on 21 February 1971 to Yugoslavia. Later that year, on 30 July, 32 cars left for Belgium, Holland and Finland. They travelled all over these three countries, showcasing this new Soviet product in the quest for new markets.

For export, VAZ decided that the VAZ 2101 needed a new name, and a contest was launched in the motoring magazine *Za Rulem*. Altogether 1,812 suggestions were received, including Argamak, Ataman, Avrora, Directivets, Fialka, Gvozdika, Iskra, Katioucha, Lada, Lutch, Madonna, Mechta, Memorial, Sokol, Novorojets, Ruslan,

The VAZ 21011 was another addition to the range that at first glance looked little different from the original VAZ 2101. However, the new car featured bumpers without overriders but with full-width rubber rubbing strips and ventilation slots underneath its revised, more elaborate grille, behind which there was a new 1,294cc engine. *(Author's collection)*

The British importers of Ladas made no bones about the car's well-known heritage when they launched the car in spring 1974. At the time, Fiat was still selling the Fiat 124 in Britain – for £1,236, compared to the Lada's launch price of just £999. At first only the basic VAZ 2101 and VAZ 2102 were sold in Britain, but the range soon grew as sales increased. *(Author's collection)*

↑The VAZ 2106 had the longest life of any of the original Lada family, being made until December 2005. It remains a highly respected car throughout Russia. *(Author's collection)*

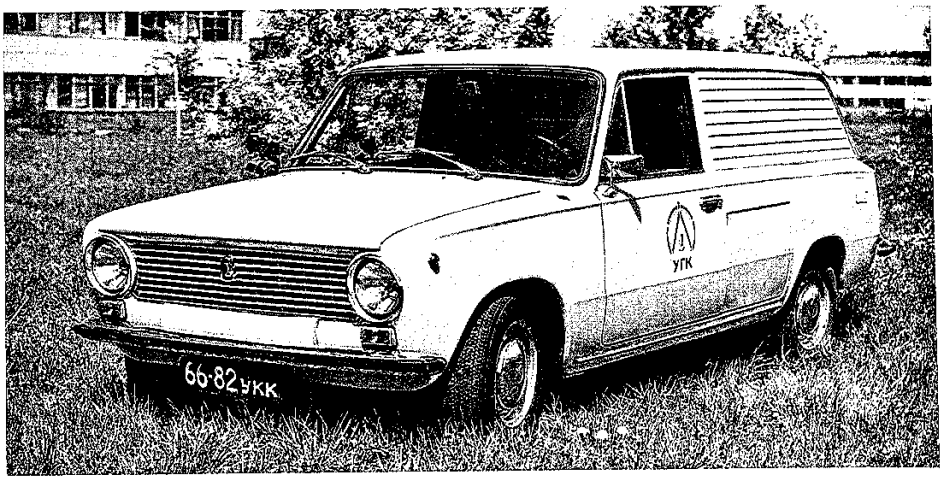
➔Lada cars proved themselves to be competent contenders on the global rally circuit, including this 1978 example competing in the Thousand Lakes Rally in Finland. *(Avtoexport)*

slimline chrome items on the VAZ 2103. There were no internal changes.

These saloons were the top of the Eastern Bloc charts for comfort and prestige, and by the end of the 1970s the VAZ 2106 had acquired a fine reputation as an elegant and fast car, despite being more expensive and less practical than other Zhigulis. Top speed was 93mph and the car could reach 62mph in 16 seconds. In comparison with the Moskvich range – in theory competing for the same buyers – the VAZ cars were better dynamically and had a more comfortable interior. Changes during their long and successful life were few and far between, but in 1977 more modern and efficient electrical terminals and connections were installed.

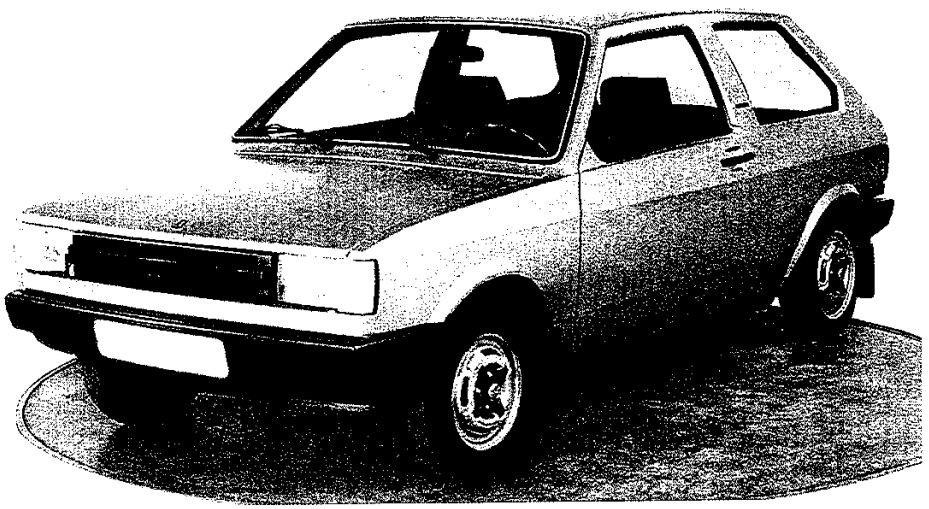
In 1979 VAZ launched less powerful versions – the VAZ 21061 with the 75bhp 1,500cc engine of the VAZ 2103, and the 21063, with the 64bhp 1,300cc engine of the VAZ 21011. Although these smaller-engined models were not as highly regarded as the original 1,600cc model they were made in substantial numbers, although the VAZ 21063 was never a popular choice. With cars of any kind being in perpetual short supply in the Soviet Union, some desperate buyers did nevertheless opt for a 21063, reconciling themselves to a combination of a comparatively expensive price tag and a heavy body being lugged around by a small engine as being better than no car or a Moskvich, which by that time was rapidly acquiring a poor reputation. The VAZ 21063 was eventually dropped from the line-up in 1993. It was the VAZ 21061, offering performance not far below that of the VAZ 2106 but costing less, that gave the car its real sales

↑ Greece has always been a popular market for Lada cars, no doubt helped by the marque's success in local motorsport. This specially built Lada 1600 was one of just 14 cars that completed the 1979 Cyprus Rally. *(Avtoexport)*



In the 1970s VAZ were thinking beyond the oil crisis. This is the VAZ 2801 electrically powered car, based on the VAZ 2102 estate. The company has continued to work on alternative-fuelled cars, including the fuel-cell configured Antel, based on the 1990s 2110 series – very green indeed!
(Julian Nowill)

This interesting idea for a more luxurious Zhiguli estate car, using the frontal styling of the VAZ 2103, did not go ahead. Instead, VAZ created an up market estate using the bodyshell and single headlamp styling of the VAZ 2102 and the cloth-trimmed, multi-dialled interior of the VAZ 2103.
(Julian Nowill)

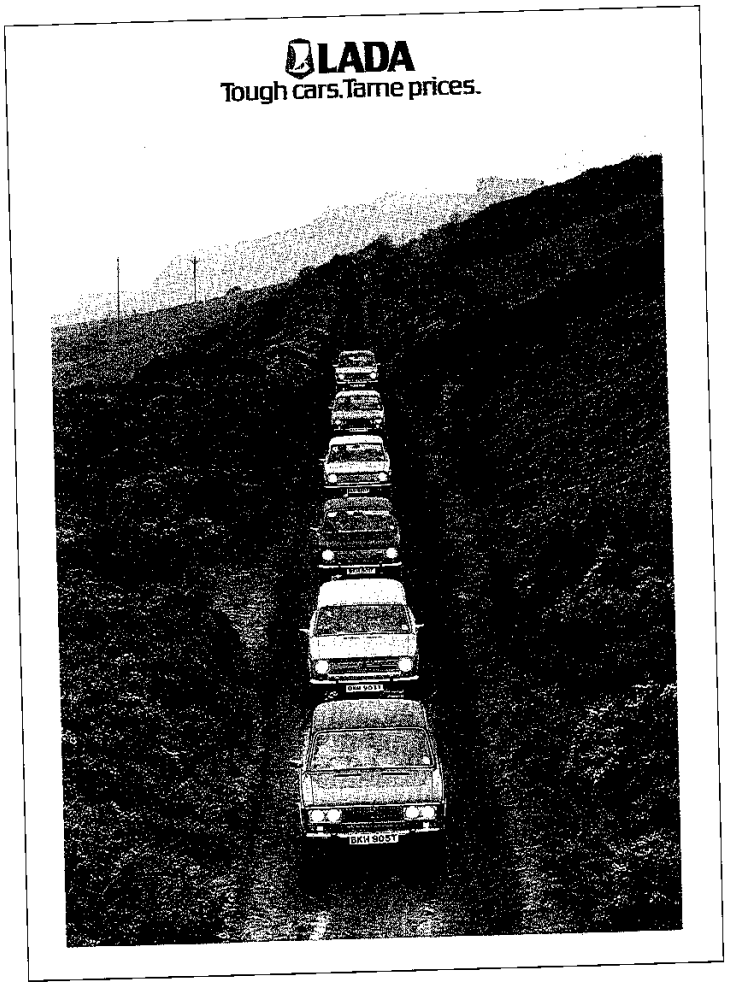


The VAZ 1101 Ladoga prototype. Although a smaller car than the VAZ 2108 Samara of the 1980s and designed during the 1970s, this had the crisp styling of the later car.
(Edmond Lardinois)

boost, helping the VAZ 2106 series to become the best-selling of Lada's classic models and the prestige car of choice for many Soviet buyers.

VAZ went much further than the 2106 in its quest for faster, more dynamic Zhigulis. Rally and road-racing versions were first built in 1975. The power extracted from the 1,300cc engine was 135bhp, while from the 1,600cc engines Russian engineers managed to coax 150bhp. The most powerful was the 2105 T-16, a special rally version with a turbocharged, 16-valve 1,800cc engine producing a staggering 240bhp.

Buyers on a budget or not so desperate to be first away from the traffic lights weren't ignored. In 1977 the VAZ 21013 was launched – a VAZ 21011 body complete with improved ventilation and rubber-tipped bumpers, but with the 1,198cc engine of the VAZ 2101. A police-only model called the VAZ 21016 was also made available in 1977, combining the VAZ 21011 body with the 1,452cc engine from the 2103. The KGB got a more powerful version of the Zhiguli the following year, the VAZ 21018; this had a twin rotor VAZ 311 rotary engine and electronic ignition. It was also in 1978 that the estate range was expanded to include the 1,294cc VAZ 21021 and the 1,452cc VAZ 21023. Export versions got a rear window



↑ By 1979 Lada had firmly established itself on the British market with a reputation for strong yet affordable cars. This is a typical advertising picture from the era, showing the full Lada saloon range available at the end of the marque's first decade on the British market. *(Author's collection)*

← The VAZ 2101 estate survived until 1986. More than 660,000 were made. *(Author's collection)*

↑The VAZ 2101 Zhiguli in 1972. *(Avtoexport)*

wash/wipe system and, in the case of the larger-engined model, some also got the fabric-trimmed seats and fully instrumented dashboard of the VAZ 2106. An interesting one-off made in 1978 was the VAZ 2801, which used a three-door van derivative of the VAZ 2102 bodyshell but was powered by an electric motor. By the end of the 1970s VAZ had a full range of cars that was becoming as popular outside of the Soviet Union as inside it.

In May 1974 the VAZ 2101 and VAZ 2102 were launched in Britain as the Lada 1200 saloon and estate. They were competitively priced, with the saloon costing £979. Their price competitors were often smaller and older designs: the Hillman Imp Deluxe at £966 was first seen in 1963, the Mini 1000 at £1,002 could trace its roots back to 1959, Simca's 1000LS at £970 and Renault's 4 Deluxe at £1,002 first saw the light of day in 1962, the Citroën Ami Super at £1,035 was still at heart a Citroën Ami 6 from 1961, and the £1,010 Volkswagen Beetle 1200 could look back to 1939! Even other Eastern Bloc imports offered less car for the money.

Cars from behind the Iron Curtain were, depending on who was telling the story, either sold at low prices to generate hard currency for their respective countries or were priced so low because inflation wasn't an issue in the Communist east. The Lada's comrades in the West were the Russian Moskvich 1500 at £785, the East German three-cylinder, two-stroke Wartburg Knight at £811 and the Czech Skoda S110L at £931. Interestingly, the Fiat 124 – the car used by VAZ to create the Lada – was still offered for sale in Britain at £1,275! That was the sort of

money that a buyer would need to spend to get a car the same size and as modern as the Lada 1200 – for example, the Hillman Hunter 1500 at £1,292, also launched in 1966.

The new Lada made a good impression straight away. *Motor* magazine's first road test said that 'the Lada represents unrivalled value for money'. It noted that the Lada compared favourably with cars costing £200 to £300 more when it came to performance, gear change, accommodation, comfortable driving position and excellent visibility. The only real faults it found were the heavy steering, poor instrumentation, cold-running problems and disappointing interior finish. *Autocar* simply concluded that 'at a time when motoring costs seemed to be going through the roof, this is a car that merits serious consideration'. The Automobile Association's ever practical *Drive* magazine said: 'No other car offers the same conscientious body and anti-corrosion engineering, mechanical virtues and no-nonsense accessory equipment at the price. It is a car that should be judged on a long test drive. If its uncompromising solidity and earthy practicality can be lived with, it is unbeatable value.'

The range of Ladas offered for sale in Britain grew throughout the 1970s as their competitive prices attracted a growing following of loyal buyers who wanted to avoid the risks of buying second-hand but couldn't keep up with the constantly rising prices of British and European cars. Importers Satra developed their own trim levels, adding at their Yorkshire import centre equipment such as vinyl roofs and centre console units to the basic cars shipped in from the Soviet Union.

In the summer of 1976 the Lada 1500 (VAZ 2103), was launched taking the Lada range into a new, more competitive sector of the market. Its £1,676 price was comparable with the nimble and stylish Hillman Avenger 1300 Deluxe at £1,691 and the sporty front-wheel-drive Fiat 128 at £1,699.

By this time another Fiat-based Comecon car was offering Lada competition in its core market of lots of metal for not much cash – the 1,481cc Polish Polski Fiat 125P, priced at £1,449. The Polish car had a Fiat 125 bodyshell – which shared its doors and central section with the Fiat 124 – riding on the earlier Fiat 1500 drivetrain with leaf-spring rear suspension and an overhead valve engine. *What Car?* magazine tested the two cars side by side. The greater sophistication of the Lada's coil sprung rear axle, complete with Panhard rod, and its overhead cam engine, made for a much smoother and quieter ride. Inside, the Polski's dashboard was cruder, with a strip speedometer compared to the Lada's round dials, which included a rev counter. At the end of the test, *What Car?* concluded: 'Although more expensive than the Polski Fiat, the Lada 1500 is a better car all round'. By the end of the 1970s Lada was selling a steady 10,000 cars a year to value-hungry British motorists. ■

Lada Range in Britain – 1970s

British model	AvtoVAZ model	Engine size	Introduced	Discontinued
Lada 1200 Saloon	VAZ 2101	1,198cc	May 1974	October 1982
Lada 1200 ES Saloon			July 1976	October 1977
Lada 1200 Estate	VAZ 2102		May 1974	October 1985
Lada 1200 ES Estate			July 1976	October 1977
Lada 1300 ES Saloon	VAZ 21011	1,294cc	October 1977	March 1980
Lada 1500 Saloon	VAZ 2103	1,452cc	May 1976	May 1979
Lada 1500 Estate	VAZ 21023	1,452cc	October 1977	October 1980
Lada 1500 DL Estate (with VAZ 2103 dashboard)		1,452cc	October 1980	October 1985
Lada 1500 ES Estate		1,452cc	October 1977	March 1980
Lada 1600 Saloon	VAZ 2106	1,569cc	September 1978	April 1984
Lada 1600 ES Saloon				
Lada Niva left-hand drive	VAZ 2121		November 1978	February 1983
Lada Niva right-hand drive			February 1983	September 1995

VAZ 2101

THE FIRST FRONT-WHEEL-DRIVE LADA

Working alongside Fiat engineers and their chief engineer Dante Dzhakozoy to get the VAZ 2101 into production, it wasn't surprising that the VAZ design team started to take an interest in front-wheel drive, although the Italians are reputed to have denied the Soviet engineers access to the technology. Autobianchi, a small Italian manufacturer that belonged to Fiat, had already announced the Primula with front-wheel drive, and by 1969 it had been joined by the Fiat 128 – a Car of the Year winner – and in 1971 by the Fiat 127 supermini. Front-wheel-drive cars were also making serious inroads into the European car market elsewhere. Most famous of all, perhaps, was the British Mini and its larger sisters, the Austin-Morris 1100/1300 series and Austin-Morris 1800. Citroën in France had been committed to front-wheel drive since the original pre-war Traction Avant and had continued after 1945 with first the 2CV and later the ID/DS series and the Ami range. By the 1960s Renault was making front-wheel-drive cars too – first the Renault 4 and then in 1965 the larger Renault 16 and in 1969 the intermediate Renault 6 and 12 models. Behind the Iron Curtain itself, the East Germans had long been fans of front-wheel drive – the tiny Trabant, the family-sized Wartburg and even the Barkas light van all had front-wheel drive.

Long before the Zhiguli was officially announced, at the end 1968 a small group of VAZ designers started work on project VAZ 1101. This was to be a front-wheel-drive car, slightly smaller than the VAZ 2101. By this time work on the VAZ 2101 and its forthcoming estate 2102 and luxury 2103 variants was nearly finished. According to some accounts published in the Russian press, the engineers and designers who had arrived at VAZ from different plants were getting bored without a new project to get their teeth into!

The project was given the green light by VAZ chief designer Vladimir Solovyev and had in theory at least the support of the plant's management team because they wanted to show that they were capable of designing a car from scratch. However, they saw the project as a theoretical exercise rather than a practical one to develop a car to join the Zhiguli on the Togliatti production line. The company was quite busy enough with the VAZ 2101! As a result the project didn't really pay much attention to such things as possible production costs.

The body design was sorted thanks to Leo Murashov – one of the few VAZ designers who had experience of designing cars from scratch. He had begun his career at MZMA, where he was involved in creating the Moskvich 444, which became the ZAZ 965. He then followed the car to work at the Zaporozhets works. To some eyes, his design for the 1101 looked a little like a truncated Fiat 128, especially from the rear where there was vestigial boot-lid deck.

Everything about the VAZ 1101 was totally new and original. The power train group under Mikhail Korzhov's management created a family of three engines from 897 to 1,100cc. For the running prototype the smallest version, producing 50bhp, was used, mounted transversely. It was mated to a completely new four-speed gearbox. Front suspension was by McPherson struts. Even the seats were unique to the car. Nevertheless, there was some raiding of the Soviet parts bin – some steering gear components were lifted from the ZAZ, and the VAZ 2101 donated a few bits of trim and the instrument panel.

The first running prototype, by now nicknamed Cheburashku, was made at the end of 1971 and was taken out for its first road tests early in 1972. As was only to be expected, there were a few teething troubles. There were plenty of oil leaks

from the engine: everything was handmade – even the bearings and gaskets – so perhaps this was not surprising. In addition the speedometer didn't work, apparently because of the sharp turns in the drive cable; the drive shaft joints, which were a completely new concept in the Soviet Union, broke up; and exhaust gases made their way inside the car, although that too was probably more down to the hand-built nature of the vehicle than any intrinsic design faults.

Later in 1972 the Cheburashku was tested against the Fiat 127 and 128. The first prototype didn't really shine in comparison, but the designers were convinced that their concept could be made to match the Italian cars, and over time they and their engineers ironed out the faults and managed to produce a serviceable little car. In 1973 the second VAZ 1101 prototype appeared. It was a noticeable improvement over the original car, with power increased to 55bhp and a completely new body design – the work of AutoVAZ designers Vladislav Pashko and Igor Galchinskiy. It had taken on more of a hatchback profile, a little like the newly announced Fiat 127.

Although the VAZ 1101 project remained a design exercise, it allowed the Togliatti team to hone their body-styling and body-construction skills. The Cheburashku most certainly had an influence on how VAZ's first all-wheel-drive car – the now famous VAZ 2121 Niva – turned out when it was unveiled in 1977. And it was a two-way process, as the VAZ 1101 models now started to display some of the features that went into production on the Niva. By this time, however, work on the VAZ 1101 was taking a back seat as the company engineers concentrated their efforts on the Niva.

The last of the series was the 1976 VAZ Ladoga front-wheel-drive hatchback prototype. While not looking much like the original VAZ 1101 (it was more like the VAZ 2108 Samara launched in the 1980s) it could trace its genes back to the original Cheburashku. Indeed, the VAZ 1101 project had a long-standing influence on the whole Soviet motor industry, primarily because it allowed Soviet auto designers to get some very real and useful practical experience of the dynamics of front-wheel drive. Minavtoprom asked the VAZ team to share this experience with their colleagues at the ZAZ works in the Ukraine, who were by the late seventies working on their own front-wheel-drive project, the ZAZ 1102.

↑The first ever front-wheel-drive Lada was the VAZ 1101, a prototype made at the start of the 1970s. *(Edmond Lardinois)*

The Cheburashku sired one additional car, the VAZ 311011. In 1969 VAZ somehow managed to get hold of a British Mini-Moke, a compact open-top car based on the legendary Mini. It had been designed originally for military use but was quickly relegated to a fun car for young people. The brisk, manoeuvrable little Moke caught the eye of the chief engineer at VAZ, who began it to use it to travel along the plant's huge main production line. Two similar cars were then made, using mechanical components similar to those used in the VAZ 1101. The little runabout – really a sort of petrol-engined golf cart – was reportedly presented to a member of the Politburo, who commented that it was a little expensive to be considered as a present for his grandson!

The Cheburashku influence lives on in today's front-wheel-drive VAZ cars. The company finally decided to bite the bullet and put a front-wheel-drive car into full-scale production in 1978, codenamed the VAZ 2108. It took six years to reach the production stage, when, as the Samara, it heralded a new direction not just for Lada but the entire Soviet car industry. ■

THE SOVIET VOLVO

↑The GAZ 21 Volga looked and was an extremely sturdy and imposing car, although by the early 1960s its styling was arguably falling a little behind the times compared to the simpler, less fussy models beginning to appear from other manufacturers. This is a 1962 Series 3 example. *(Group GAZ)*

In spite of the success of the VAZ 2106, the real Russian middle-class car was the GAZ Volga, and owning or being assigned a Volga was considered a sign that a comrade had really made it within Soviet society.

In the 1960s and 1970s the GAZ plant was thoroughly overhauled. The foundry shops were the first to be re-equipped, and in 1962 GAZ became home to Russia's first automated precision casting shop. In 1967 a new die and mould plant was opened and the gearbox plant was upgraded in 1968. On 24 August 1971 the various plants and branches that contributed to GAZ were formally combined to become AvtoGAZ. For its success in developing and producing new commercial and passenger vehicles for the national economy, AvtoGAZ was awarded the Order of Lenin in 1971.

At the start of the 1960s there was a change at the top of the GAZ range, which began in 1959. Production of the GAZ M12 ZIM limousine ended. In spite of its size and obvious prestige, it was actually a rather egalitarian car. ZIMs were used not only by officials but also as first-aid vehicles and as taxis. Furthermore, ordinary motorists with 40,000 roubles to spare could buy their own ZIM. However, its replacement, the GAZ 13 Chaika, was to be supplied only to official users and organisations, such as local councils, state enterprises and the Soviet tourist agency Intourist. The sale of the Chaika to individual owners was taboo. Consequently the recently introduced Volga was henceforth the new top car for the masses. However, a little of the Volga lived on in the Chaika – it was fitted with the automatic gearbox that

↑The third series of the GAZ 21 Volga, announced in 1962, had a sleeker radiator grille and revised indicator lights. The leaping deer bonnet mascot was dropped for safety reasons. *(Author's collection)*

had been tested on the first Volgas. And a little of the Chaika found its way into the Volga when, in 1962, the former's 160bhp V8 engine along with its automatic gearbox and power steering were installed in an extremely rare modification of the Volga, the GAZ M23. This had a rather exclusive customer: the KGB. The KGB had always had a penchant for fast cars – so called 'interceptors' – to pursue its enemies, and these had been supplied in very small numbers by GAZ since the 1950s. Between 1962 and 1970 603 M23s were made. While the KGB didn't like the M23 because of its poor handling, it became quite fond of the regular Volga and black-painted examples became closely associated with the dreaded secret police.

The price of a standard Volga in 1961 was 5,100 roubles, but there was one famous Russian who didn't have to worry about finding the cash: in 1961 the Soviet government gave an M21 to Yuri Gagarin, the first man in space, thereby combining two potent symbols of the achievements of the Communist state. Gagarin was very fond of his Volga and on 6 February 1963 discreetly paid a visit to the GAZ plant, where he spent time talking with the workers. Forty years after his first space mission, a memorial plaque was hung up on one of the buildings he visited. The space hero died in a plane crash in 1968 and his Volga was then placed in a special showroom. Yuri Gagarin was probably the most famous man to drive a Volga until 2005, when President Putin and President Bush went for a spin in Putin's own classic white 1956 M21. Bush was so impressed he told reporters: 'I'm having so much fun, we're going for another lap.' Another famous

↑A third series GAZ M21 showing the simple chrome radiator grille and larger indicator lights. *(Author's collection)*

→Summertime and the driving is easy in a brand new GAZ M21 Volga Series 3. *(Author's collection)*

driver was Leonid Brezhnev, who was Soviet leader from October 1964 until 1982. After his promotion, however, Brezhnev – who had a real passion for cars – reputedly never drove another ordinary Volga.

The third and final series of the Volga M21, announced for 1963, was smartened up for the swinging 'sixties. Another new grille, with 36 narrow openings compared to the 16 on the Series 2, wraparound front sidelamps integrated into the grille, and new taillights with a plastic rather than steel frame were the distinguishing features of the Series 3. The housing for the number plate light become squarer and followed the lines that had been introduced for the Chaika. The bonnet lost its longitudinal chrome moulding and the leaping deer mascot was also dropped; this was for safety reasons, and because the mascot had become a target for vandals. The new bonnet emblem was borrowed from the Chaika, the only difference being that it had two horizontal wings. Volgas built for export had never had the deer because of safety concerns. The bumpers lost their overriders and were much more elegant, with a slightly wedge-shaped profile. Chrome now only covered the upper part, with the lower part painted in the same colour as the body. The engines were slightly uprated – the basic model's compression ratio was nudged up to 6.7:1 and now produced 75bhp, while the high compression version, usually reserved for export markets, now had a 7.65:1 compression ratio, producing 85bhp.

Underneath, the suspension – which had already received telescopic shock absorbers during the Series 2 production run – was stiffened. Inside, the woven roof upholstery was replaced by a washable artificial leather material and the seats were given a new-style fabric cover. The radio set became an optional extra, although the antenna remained a standard fitting. The strips on the bottom of the doors changed from aluminium to chrome. The Series 3 saloon range was made up of the standard 75bhp GAZ M21L model and the GAZ M21T taxi. There was also a right-hand-drive export version, the GAZ M21N.

In 1962 GAZ also announced the M22 estate car. This had a horizontally split tailgate, fold-down rear seats, and could carry a cargo weighing 400kg. Prototypes were built on the basis of the second series Volga, and although advertising material for foreign markets was prepared using these cars, real production started after the introduction of the Series 3 GAZ 21 Volga in 1963. On the ambulance versions the spare wheel was located in a compartment accessed via the left-hand rear door; in the event of a flat tyre the spare could be used without having to disturb the patient. The rear compartment also had a rear-facing seat for the doctor. On the left-hand front wing there was rotating spotlight while on the roof there was another spotlight with a red cross.

Mechanically the estate car followed the lead set by the saloon. Most estates were exported and they

← In 1962 GAZ unveiled its GAZ 22 Volga estate car. Estates were built mainly for export or for official use, having for many years lacked the same social status in Russia as saloons. The first cars were delivered in 1963. *(Group GAZ)*

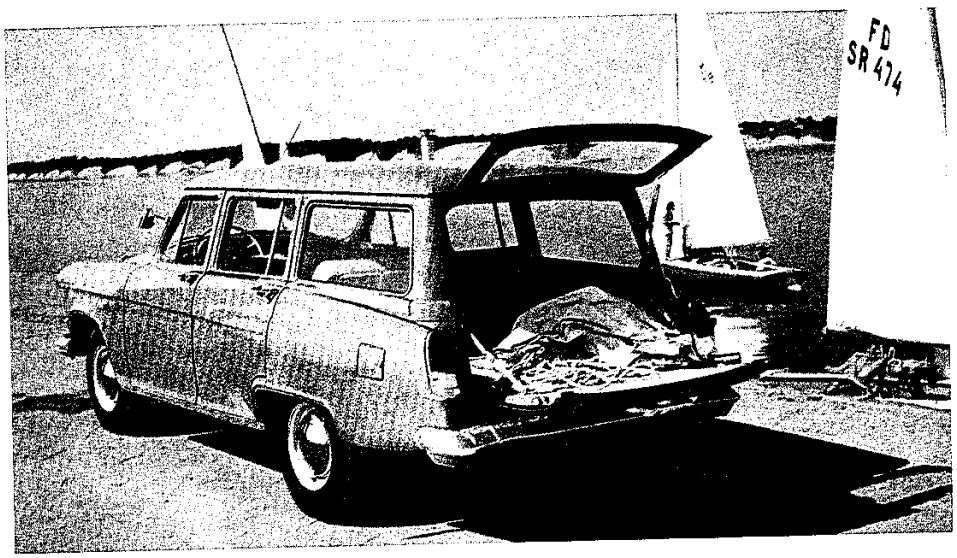
are now very rare, both in Russia and elsewhere. The very few that were delivered to the Russian market were mainly used as ambulances and other special purpose vehicles. The estate had a slightly lower drag coefficient than the saloon – 0.415 compared to 0.42. The original estate series was made up of the GAZ M22 and export GAZ M22G, both with the 75bhp engine, and the GAZ M22K, an 85bhp export model. Ambulances were the 75bhp GAZ M22B and the 85bhp GAZ M22BK.

GAZ also built a prototype four-wheel-drive Volga M22 estate car, using drivetrain components from the GAZ 69. Vans and pickups were never part of the official production range, although GAZ did make some pickups for its own needs. It also made a prototype van, the GAZ 22A.

The final changes were made in 1965. Officially still the Series 3 GAZ M21 Volga, the changes were nevertheless quite extensive. It gained stronger chassis rails, and a more effective heater and wipers were installed. The front wheels began to be equipped with roller bearings instead of ball type bearings. The basic 75bhp model of what was really the mark two version of the third series was named the GAZ 21R, the taxi was called the GAZ 21TS, and the 85bhp export models were the GAZ M21S for left-hand-drive cars and the GAZ M21P for right-hand-drive. The estate cars were similarly uprated: the range was now made up of the GAZ M22V and export GAZ M22E, both with the 75bhp motor and the GAZ M22M, an 85bhp model intended primarily for overseas markets.

The price in 1965 of the most expensive Volga saloon, an export version which Russian buyers looking for a bit of extra performance might be able to lay their hands on if they were very well connected, was 6,455 roubles. Two-tone paint added 270 roubles to the price tag. After 1965 development of the GAZ M21 Volga series came to an end, although a floor-mounted gearshift became available during the final years of production. A fuel-injected prototype had been built in 1963 – the basic engine was the same but it had a slightly higher compression ratio, as well as all the usual electronic gadgetry needed for a fuel injection system. Top speed went up from 79mph to 87mph and fuel consumption was actually slightly lower. However, the complexity of the system meant that it wasn't all that reliable, and like many countries at the time the Soviet Union had very few motor mechanics familiar with fuel-injection systems.

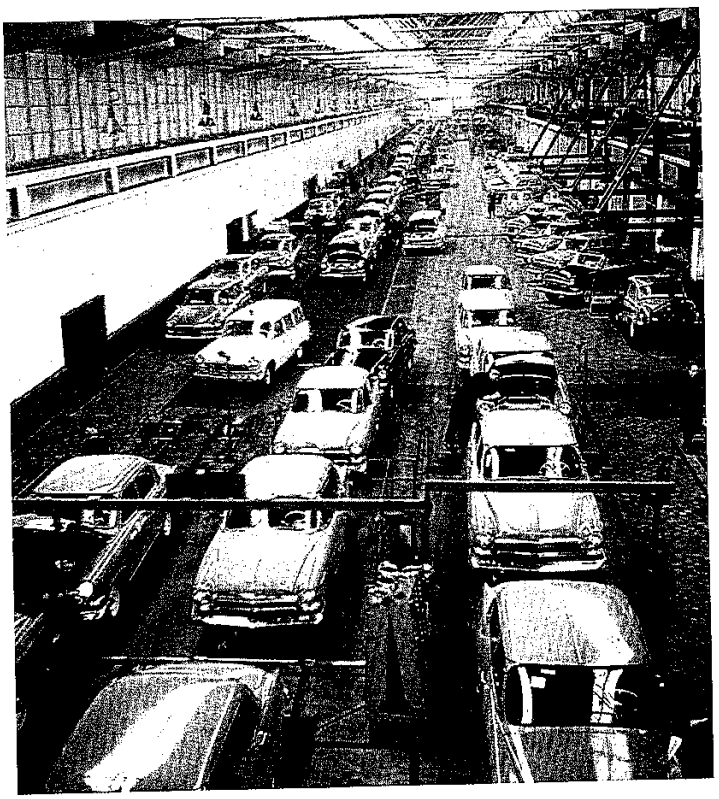
Along with the smaller Moskvich, the Volga M21 pioneered the Soviet Union's successful export strategy to sell its cars outside the Eastern Bloc. Export versions were generally a little better equipped and carried more external trim details – for example, the export modifications included a decorative nameplate saying 'Volga' on the front wings, and chrome strips on the front and rear wings.



→The GAZ 22 Volga estate car was a spacious and seemingly indestructible car that, thanks to its long-travel suspension, offered both a high load capacity and a comfortable ride over the roughest of roads. This example was made in 1968. *(Avtoexport)*

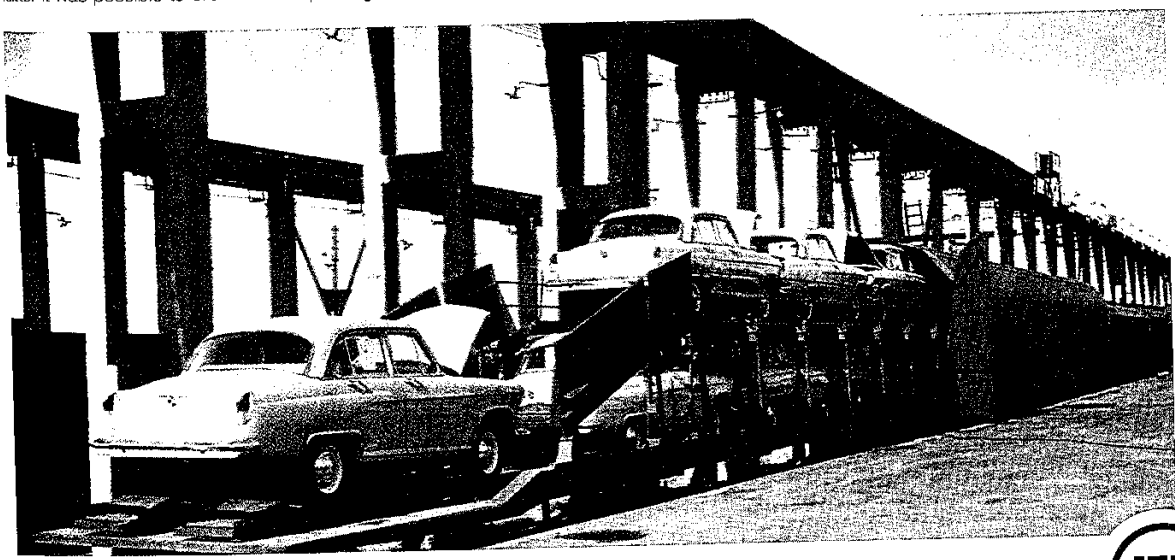
In July 1960, British motoring magazine *Autocar* conducted a road test on the Volga and came away quite impressed. While the M21's performance was not exactly awe-inspiring, with an 80mph top speed and 24-second quarter-mile time, the big car's 22.8mpg fuel consumption and rugged construction scored big points with reviewers. They were also impressed with the car's build quality, something for which most Soviet cars were not well known. Even so, the Volga remained a rarity on British roads.

Volgas were sold more successfully in other Western European countries, where the Belgian company Sobimpex, later renamed Scaldia-Volga, handled sales during the 1960s. Scaldia also assembled Soviet vehicles, including the Volga and Moskvich ranges. In these cases the assembled cars were modified to suit local markets. From 1962 to 1966 the first 167 Volgas were assembled by Sobimpex in Brussels. The Volgas were shipped to Sobimpex without engines and with the gearbox in the boot. Once on Belgian soil, a four-cylinder diesel engine and the transmission were installed. From 1960 until 1962 the Volga was offered with a 1,620cc 43bhp diesel engine made by Perkins, with which it could reach a maximum speed of 72mph. Then in 1962 the Volga was offered with a diesel 2,228cc 65bhp Rover engine, boosting top speed to 75mph, and in 1968 a two-litre 68bhp French Indenor diesel unit was offered. As an option with the latter it was possible to order a four-speed gearbox



GAZ 21 and GAZ 22 Volgas roll off the Gorki production line in 1966. *(Avtoexport)*

GAZ 21 Volgas are loaded onto railway wagons in 1966 for delivery across the Soviet Union. *(Avtoexport)*



made by Peugeot. Synchromesh was standard on the top three gears.

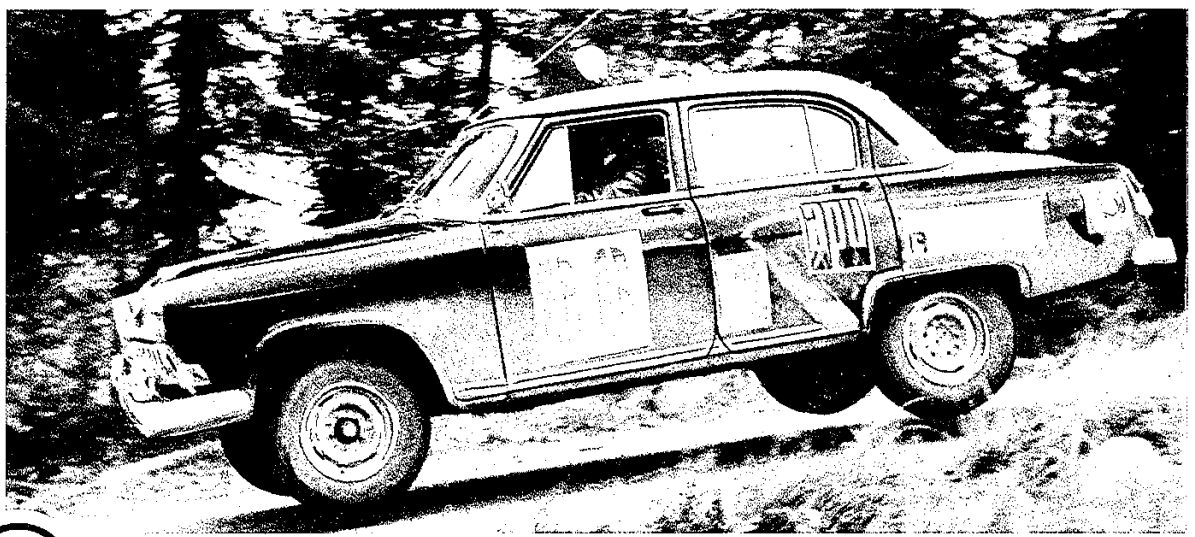
Despite making the Volga a lot more expensive than it would have been equipped with the standard Russian petrol engine, the Volga diesel was by far the most popular version in the Benelux countries. Although the petrol engine was always offered, the sales department of Sobimpex and later Scaldia-Volga put their greatest effort into pushing the diesel version. In the Netherlands the Volga diesel was popular as a taxi, and in the 1960s Volgas could be regularly seen in cities such as Rotterdam and Groningen.

Scaldia offered a range of trim levels and options different from those offered to Soviet buyers. Using the GAZ 21 Volga as a base, Scaldia Volga created the Volga Luxe, Diesel Rover, Diesel Indenor, Kombi (estate car) Luxe, Kombi Diesel Rover and Kombi Diesel Indenor. The number of Volga (and Moskvich) models offered by Scaldia Volga was reduced over time and by the late 1970s had been largely replaced by the business of selling Lada cars to other European dealers. With help from VAZ, Scaldia-Volga developed and began production of the cabriolet Lada Natasha, based on the 2108 Samara series, but by the middle of the 1990s the company had ceased trading.

Because of its modern design the Volga did not at first appear as an anachronism amongst contemporary European cars, such as the Ford Zephyr Series 2, the Standard Vanguard and the Volvo 120 series. However, by the mid-1960s crisper designs had appeared, such as the Peugeot 404, the Vauxhall Cresta PB and PC and the Ford Taunus. After Avtoexport reported the development of the new Volga M24 in 1966, the M 21's position in Western markets was undermined and exports came to an end. However, the GAZ M21 remained on sale in Eastern Bloc countries right up until the end of production in 1970, by which time 638,875 had been built. The peak production year was 1969, when 59,680 units rolled off the Gorki lines. For all the efforts GAZ had put into the Volga, it did not sell all that well outside its home market. Even in its most successful markets, such as the Benelux countries and Scandinavia, it was never a chart topper. While it was indeed rugged, it was also slow, and occasionally had difficulty with hills due to design problems with the carburettor. Its strengths were not needed in Western Europe, where roads were much better and servicing and maintenance was increasingly in the hands of specialists and garages rather than owners.

A fourth series of the M21 Volga was planned but never made it past the styling stage, the Gorki engineers being now totally engrossed in the second generation Volga, the GAZ M24. Cynical minds suggested that the indexing of Volga cars

↓The GAZ 21 Volga was an unlikely motorsport contender but even so it was campaigned in various events, including the Thousand Lakes Rally in Finland in 1964. *(Author's collection)*



depended on the number of the nearest Communist Party Congress: 21 for 1956, 22 for 1961 and 24 for 1971, but work on the 24 had actually begun in 1961. For export markets the car was known as the GAZ M24 Volga, but for the home market it was simply the GAZ 24 Volga; the M wasn't dropped from export cars until 1985.

The GAZ 24 Volga is a true Soviet and Russian classic. For Russians it became a real symbol of the whole late Soviet era, and for many years it was also one of the most exported Soviet cars, so it was not all that rare even in Western Europe. Almost all GAZ passenger cars introduced since the 1970s are based on the venerable GAZ 24 platform. Mechanically the car has evolved over the years, although it wasn't until 2003 that the original front suspension was replaced by one that did away with the need for regular greasing and lubrication. The decision in the 1960s to opt for high maintenance kingpins on the new car, at a time when this type of suspension was being rapidly abandoned throughout the rest of the motoring world, may have seemed a strange decision, bearing in mind the constant need for lubrication. However, the thinking behind this choice was based on the potential users of the Volga: it was always intended to be operated by organisations with the capacity, capability and commitment to undertake regular maintenance. With regular maintenance the Volga's suspension would last forever and the Volga could handle rough roads with aplomb. However, its directional stability left a lot to be desired, and if maintenance was scrimped then the suspension would fail. The rear suspension, although modified in 2003 with an anti-roll bar, is still the same live axle suspended on leaf springs first seen on the original GAZ 24.

Whereas the M21 had drawn some clear influence from the 1955 Ford, the Volga M24 was an all-Russian design with no more than passing similarities to contemporary European and compact American cars, such as the Vauxhall Cresta PC and the larger Opels. It was a real Soviet car – strong, long-lived, adapted to Russian roads, and very simple to service. It was larger, more comfortable and much more difficult to buy than all the other cars available for private ownership behind the Iron Curtain, and so it was seen as an ultimate status symbol.

The development of the M24 started during the early 1960s, with work really getting under way in 1963. However, economic problems and political changes in the USSR meant that the first drivable prototypes weren't ready until 1967. The new car was clean, crisp and simple to look at, with no unnecessary chrome trim or styling frivolities. Original prototypes had four headlamps, although these were later reduced to two. The original

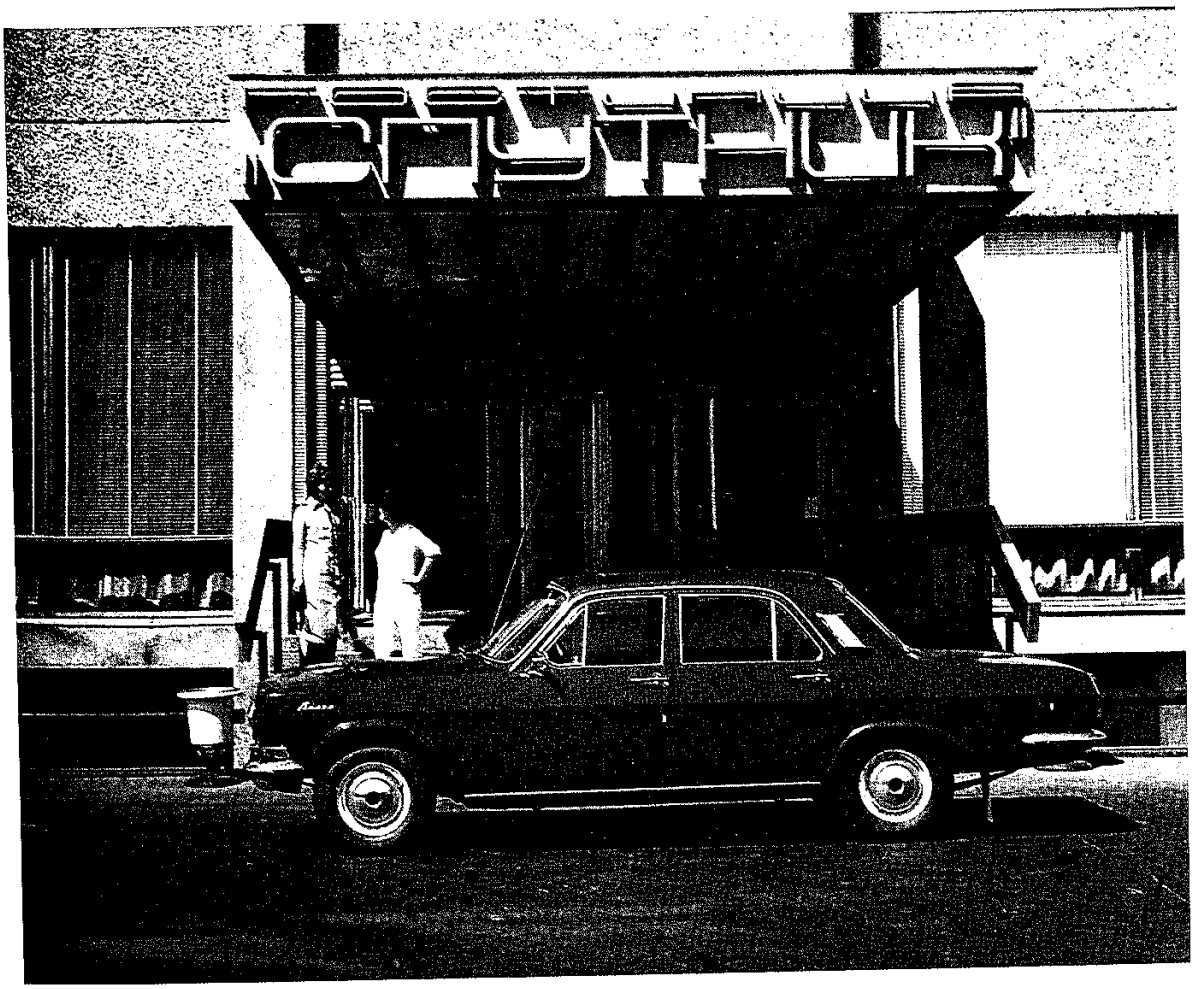
←A 1968 GAZ 22B ambulance, based on the GAZ 22 Volga estate car. *(Avtoexport)*

↑The GAZ 24 Volga was a thoroughly up-to-date development of the Volga family. This is a pre-production example undergoing tests in 1968. The GAZ 24 took nearly ten years to make the transition from design brief to production line. *(Author's collection)*

Volga M21 had taken just two and a half years to make it from drawing board to production line. However, the first production M21s had used the old Pobeda's side-valve engine, and it was only in 1958 that a new overhead-valve engine had become ready.

The first running prototypes of the GAZ 24 were equipped with a 2,990cc V6 125bhp petrol engine, being developed by ZMZ, but the production GAZ 24 Volga was powered by a traditional inline four-cylinder, 2,445cc overhead-valve ZMZ unit, which in standard form produced 95bhp but needed 92-octane petrol. The basic 2,445cc engine had appeared first in the GAZ M21 but was updated for the GAZ 24 and renamed ZMZ 24. GAZ 24-01 taxis were equipped with a detuned version of the same motor, the ZMZ 24-01, producing 85bhp but able to run on 76-octane petrol. The GAZ 24-07 model could run on LPG.

During its long life, various alternative power units were tried in the GAZ 24. GAZ engineers never lost hope of offering buyers six-cylinder Volgas and they created several concepts using foreign engines, including the GAZ 24-BMW in 1973, with a BMW 2,494cc six-cylinder 125bhp unit; the GAZ 24-PRV in 1978, with a Peugeot-Renault-Volvo 122bhp V6, seen variously in the Renault 30, Peugeot 604 and Volvo 260; the GAZ 24-91 in 1975, with a Mercedes R6 engine; and the GAZ 24-FORD in 1984, equipped with a 135bhp V6 Ford 2.8-litre, found in the Granada/Scorpio. None of these was ever mass-produced and all remained as prototypes. More successful was the 62bhp French Indenor 2,112cc diesel



engine in the GAZ 24-76 (left-hand-drive saloon) and GAZ 24-77 (left-hand-drive estate) versions announced in 1976, assembled in Belgium.

The new ZMZ 24 petrol engine provided enough power for the Volga to hit 87mph and accelerate from 0 to 62mph (100km/h) in 23 seconds, as compared to the 34 seconds needed by the GAZ 21. Indeed, this basic 2,445cc engine was still catalogued for the Volga range rolling off the Gorki (by then Nizhniy Novgorod) production lines in 2006, although it had by then been renamed the ZMZ 402.10 and, in low-compression tune, ZMZ 4021.10, and was only available to special order for use in those limited export markets that hadn't adopted European Union-style pollution laws.

The ZMZ 24 engine, which quickly become the mainstay of the Soviet engine industry and was found

←↑Soviet publicity pictures of the GAZ 24 Volga dating from 1970. *(Avtoexport)*

↑The largest family car available in the Eastern Bloc, the GAZ 24 Volga was actually quite difficult for Soviet citizens to buy, most being initially sold only to official agencies. The car was widely exported, however, where it was promoted as a luxurious and spacious vehicle, ideal for aspiring members of the middle class bourgeoisie. This is an early example, photographed in 1970. *(Author's collection)*

in the RAF minibus and ErAZ light van, remained in production largely unchanged until the autumn of 2006, when it was offered, as the ZMZ 4021.10 or the closely related Ulyanovsk manufactured UMZ 4178.10, as a mainstream option in the UAZ 31512/4 and 2206/3741/3303/3309/3625 series. The design of the larger 2,890cc UMZ 4218, first seen in 1996 (the ZMZ equivalent was the ZMZ 4104.10), was really a stretched version of the original engine; in its UMZ 4213 format, by the end of 2006 it had gained fuel injection and was used to make UAZ's venerable light commercial range Euro-2 compliant with Russian anti-pollution laws introduced that July. Other post-Soviet ZMZ engines, including the fuel-injected 2,287cc 16-valve 131bhp ZMZ 4062.10 unit offered in Volgas after 1996, the slightly larger 2,463cc 145bhp ZMZ 40552.10 found in GAZ's light commercial range, and the range-topping 2,690cc ZMZ 409.10 unit found in UAZ's Patriot SUVs, can all trace their roots back to the venerable ZMZ 24 block. Indeed, even ZMZ's 5143 diesel engine, introduced in the UAZ Hunter range in 2006, was openly a derivative of the original Volga unit!

The new Volga had rear-wheel drive like its predecessor but was equipped with a fully synchronised four-speed manual gearbox instead of the three-speed of the earlier model. During its first years of production GAZ also planned to offer versions with an automatic gearbox, a manual gearbox with a column gearchange, and a three-speed manual gearbox with automatic overdrive, but none of these ever came to fruition.

By American standards the new Volga was a small car at 4.76m long, but by European standards

it was large. Although shorter than the previous model and lower, it was just as spacious and roomy, with a better-trimmed and much simpler interior. However, the steering wheel was still large and thin, made of shiny plastic, and unpleasant to use. It had to be large because the M24 didn't have the option of power-assisted steering. The driving position itself also wasn't good – the steering column didn't enter the cabin in a straight line and as a result the steering wheel was slightly offset, and angled ever so slightly to one side, away from the driver. Even with the seat right back, really tall drivers found legroom was less than could reasonably have been expected for such a large car – the designers had obviously concentrated more on the comfort of the official passengers, who would be chauffeur-driven in their Volgas! The seats were also mounted quite high and tall drivers found their heads grazing the roof lining, while generously-proportioned drivers found the steering wheel grazed their knees and stomach.

However, the M24 was considerably improved technically in comparison with the previous Volga. Critics suggested that it had lost some of the character of the previous model. That, of course, is subjective – for people whose early motoring experiences were rooted in the 1950s the GAZ 24 was indeed a little bland, but for those who cut their teeth in the 1970s it was packed full of minimalist style!

The GAZ 24 Volga was ideally suited to Russian roads, being able to travel over rough roads with ease thanks to the long travel built into its suspension. It wasn't the tightest of cars to drive, rolling on corners and needing constant steering correction when driving at speed to maintain a straight line. Indeed, it soon gained the nickname Barzha ('Barge'), because of its somewhat nautical floating feel on the road and the square boot that looked rather like a barge's stern. In spite of being softly sprung, heavy and rather slow in their standard trim, some GAZ 24 Volgas were used in Soviet motorsport events.

It was between 1968 and 1970 that the first pre-production GAZ 24 Volgas came out of the Gorki factory – 32 cars were built in 1968, and a further 215 in 1969. Full-scale production started on 15 July 1970, and 18,486 were built before the end of the year. The last GAZ 21 Volga was also made on 15 July 1970, and was given pride of place in the plant's own museum. Thereafter the GAZ 24 started to make its presence felt, and in 1971 GAZ celebrated by introducing a new logo.

The new Volga got golden awards at international exhibitions in Plovdiv in Bulgaria in 1969 and again at Leipzig in 1970. It was exported to several countries, including some in Western Europe, until 1992, especially Belgium. The GAZ M24D model was assembled in Belgium from the 1960s until the 1980s, powered by the same Peugeot Indenor diesel engines found in Citroën H series vans, the Ford Granada Mk 2 and the Peugeot 404 and 504 cars and J7 and J9 vans. Like the earlier M21s,

In spite of its spare wheel taking up a lot of room, the GAZ 24 had a large boot. Interestingly for such a big car the driving position was a little cramped for tall or oversized drivers. *(Author's collection)*

the M24Ds arrived at Antwerp harbour without an engine. The GAZ 24 was sold to almost all the Communist bloc countries, including Cuba and China. Annual production capacity was 75,000.

At the 1970 London Motor Show, Satra proudly displayed a GAZ M24 Volga with the promise of sales starting in 1971. However, sales didn't start in 1971 although the Volga again put in an appearance at that year's London Motor Show. The British Soviet export effort remained focused on the Moskvich series until the Lada arrived in 1974, but the Belgian market really took to the Volga when fitted with the 62bhp Indenor diesel, for which servicing and spares were much more readily available in Western Europe than they were for the original ZMZ petrol motors.

In 1972 the GAZ 24 saloon was joined by the GAZ 24-02 estate car with three rows of seats. This was a real workhorse and was used mainly by official organisations. In 1971 the GAZ 24-01 taxi saloon was officially announced, powered by a detuned engine that could run on 76-octane petrol. An estate taxi, the GAZ 24-04, followed in 1972 with stronger rear springs and a payload of 400kg. The GAZ 24-03 ambulance model, based on the estate car, was announced in 1975. This had special medical equipment, stretchers and an emergency lamp on the roof. The front cabin was separated from the rear by a partition with a window and the left-hand rear door was sealed. In 1977 the GAZ 24-07 appeared, which could run on LPG.

An extremely limited number of convertibles were made by the military authorities, as they had done with both the Pobeda and the M21. These retained four doors and were built specifically for use by senior officers in military parades. They were invariably painted grey.

The GAZ 24-95 was an extremely rare 4x4 model, reputedly inspired by Leonid Brezhnev. He was the only Soviet leader who often drove a car himself – often quite badly, as he was regularly involved in crashes. He was, however, a committed car enthusiast, and Western leaders made a habit of presenting him with their latest prestige models as gifts (his garage in the Kremlin hosted at least one Rolls-Royce). Brezhnev is said to have wanted a comfortable 4x4 to go hunting – another of his hobbies – and the GAZ 24-95 was the result. This may be a Soviet urban myth, but it certainly makes a nice change from cars being inspired by the latest reports of soulless marketing departments or changes in legislation. However, it's more likely that the car was requested for no more exotic reason than a desire to have an off-road vehicle that was as comfortable as a car but no less capable than a traditional off-roader.

This wasn't the first time that GAZ engineers had created a 4x4 passenger car. In 1955 they had taken the chassis of the GAZ 69 4x4 army jeep and mounted a Pobeda bodyshell on it to create the GAZ M72, the first mass-produced SUV in the world. Now they repeated the exercise to create the GAZ 24-

→The GAZ 24 Volga was definitely a vehicle of its time, the crisp, no frills styling being typical of the fashions prevailing at the end of the 1960s. *(Author's collection)*

95, using UAZ mechanical components. The result included the UAZ transfer box linked to equal length driveshafts. The floorpan had to be radically altered, including fresh holes cut for the transmission levers. The biggest challenge, though, was the front axle. The solution adopted was to use a standard Volga rear axle turned round to face the other way, with UAZ drive joints at each end to allow for steering. The chassis had stronger rails at the front to carry the leaf springs. The engine sump and oil pump pickup also had to be altered to accommodate the differential. Interestingly, an anti-roll bar was only installed at the back. The weight was 90kg more than the standard Volga. The engine remained the standard Volga unit and top speed was 71mph. Although a car like the GAZ 24-95 would have been a really useful piece of kit for a country like the Soviet Union, with huge distances to cover and few roads in remote areas, only five were built, all during the winter of 1973–4. One of these was given to Brezhnev, one remains in the GAZ plant's official museum, and one is rumoured to still be in private use in Nizhniy Novgorod. The other two are lost to history.

Other variants were also built in small numbers, including the KGB special order GAZ 24-24. Development of the latest Soviet muscle car started in 1973. It was nicknamed 'The Double' by the KGB because it had eight rather than four cylinders. Its original engine was the ZMZ 2424, later replaced by the improved 5,530cc 190bhp ZMZ 503.10 unit that also powered the Chaika. It also shared its three-speed automatic gearbox with the Chaika. There were some changes in the suspension, the GAZ 24-24s using 14in wheels shod with Michelin tyres. They also had a special 105-litre fuel tank – every drop of which was needed. Traditionally the cars were carefully camouflaged to look like an ordinary Volga, but experienced drivers soon learned how to identify them by their double exhaust, disguised to look like a standard exhaust, and special KGB radio antenna. They also had their own distinctive stance, with the front end lower to the ground thanks to the heavy V8 power unit. Their top speed is reported to have been much more than the speedometer's upper limit of 112mph, although driving even at that speed was not easy. Despite having power steering, because of the very heavy engine, it still had old school drum brakes (which, lest we forget, were standard equipment on most of America's original muscle cars) and was hard even for burly KGB officers to drive. Stopping it from a high speed was, to say the least, a little scary.

The GAZ 24 Volga was built for 16 years with few changes to the original layout and specification although in the first year, a driver's door mirror was standardised. Volgas were graced with a rather simple symmetrical dash panel, the lower part of which was made of metal painted the same colour as the bodywork while the top half had a black plastic cover. In front of the driver there was a long, thin, horizontal speedometer and dash-mounted ignition key and on the passenger's side

← In 1972 GAZ announced the estate car derivative of its latest Volga, the GAZ 24-02. It was later used as the basis for an ambulance, the GAZ 24-03. *(Group GAZ)*

there was a large glovebox. The area between them was covered in plastic wood trim. Some of the cars, usually more luxurious models intended for export to the decadent West or built to meet special Soviet orders, had chrome-effect trim on the dashboard.

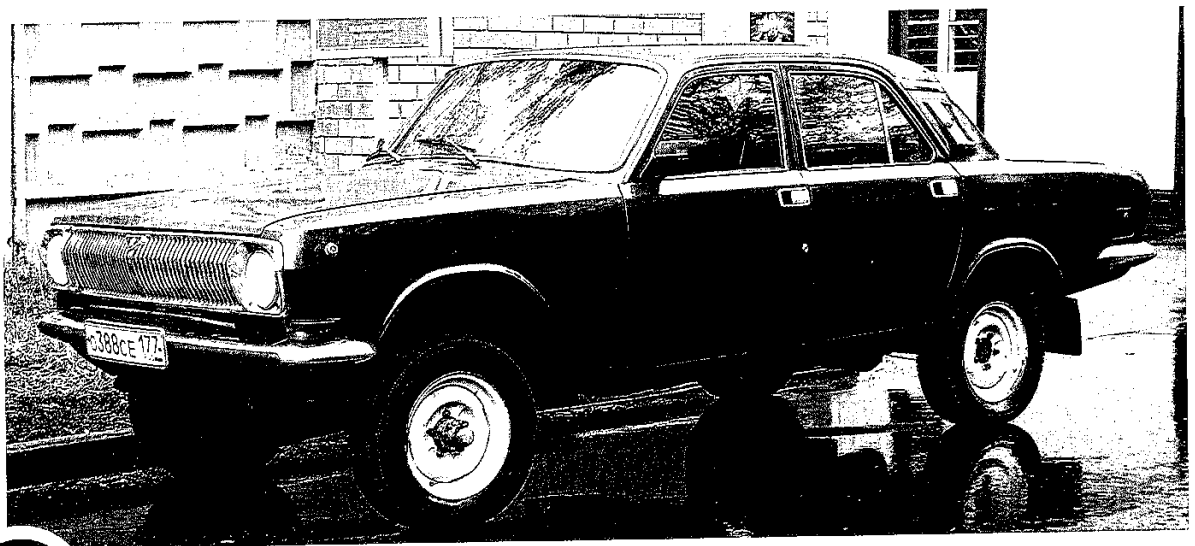
The colour of the interior seemed only occasionally to have been chosen to complement the bodywork – from some of the combinations that rolled off the Gorki assembly line a cynic might be tempted to suggest that the standard approach was to use whatever was closest to hand at the time! Tan seemed to be a popular choice. However, this ad hoc approach was not used for cars intended for delivery to Communist Party organisations – these were usually painted black and had red interior trim. Volga trim comprised a mix of vinyl and soft fabrics, and the doors had vertical styling mouldings pressed into the linings. At first the separate front seats had a folding armrest in them that when folded down created a third seat in the centre. There were, however, no safety belts. In 1975 the strip speedometer was replaced with a dial-style instrument, and the ignition key was located underneath the steering column. At the same time an improved cooling system, designed as a sealed unit for use with antifreeze, was also added.

Later, in 1977, the interior was further altered so that the Volga could meet the international vehicle safety rules that were now being adopted by the USSR. This type of interior remained unchanged thereafter until 1985. There were now only two front seats, with the occasional middle seat being deleted; front and rear passengers got safety belts; and the lower half of the dashboard was made of soft plastic. Away from such safety-prompted changes, the door linings gained a new horizontal style for the mouldings pressed into the plastic. The seating surfaces themselves were now all-fabric instead of a vinyl and fabric mix, although most estate cars and taxies had more utilitarian interiors trimmed entirely in easily washable vinyl. Externally, there were mildly revised bumpers and front fog lights.

One of the rarest Volgas was the GAZ 24-56, made in 1978. These had right-hand drive, and although they were powered by the Peugeot Diesel Indenor XDP 4.90 engine they were not assembled in Belgium like other diesel Volgas. Less than 1,000 were built as part of a short-lived plan to start exports to Singapore, India and Pakistan. They were the last ever right-hand-drive GAZ cars.

The Volga was a true Soviet status symbol. It was always known as a large and spacious, reliable and strong, comfortable and luxurious car. It had a three-band radio, a power aerial and an electric clock as standard. However, unlike its M21 predecessor the M24 Volga was not a car generally available to ordinary citizens. With Ladas now on stream and increased production from the Moskvich and IZH plants the authorities felt that there was little need to make the larger GAZ 24

↓An extremely rare version of the GAZ 24 Volga was the 24-95, a four-wheel-drive model apparently inspired by then Soviet leader Leonid Brezhnev's passion for hunting. *(Vladimir Varaksin)*



Volga widely available to private motorists. Most were therefore sold for use as official transport for state organisations, for law enforcement duties with the police or state militia and to serve as taxis. An individual's best chance of getting a Volga was to be assigned one as a perk of their position, in which case it usually came complete with a driver! A few high-ranking or well-off Soviet citizens, such as academics or sports stars, were able to buy a new Volga for their own private use, although even then they needed special permission from the authorities to place their order.

For ordinary citizens, getting behind the wheel of a new GAZ 24 Volga meant waiting for those few occasions when limited numbers of factory fresh Volgas were officially sold to ordinary private owners. A potential customer whose heart was set on a Volga had to be prepared to wait for many years for his car to be delivered. The other route to Volga ownership was to buy a used one that had become too old for official use – generally after between 100,000 and 150,000km. There was a slightly risky way to get hold of a brand new Volga – buy one on the black market, for double the official price and the headache of having to explain where it came from if the owner fell foul of the police. By the end of the 1970s, however, the number of privately-owned Volgas in the Soviet Union – whether second-hand, official or slightly informal purchases – was rapidly increasing. In the mid-1980s however, the car started to become as readily available as a Lada or a Moskvich and more people were able to enjoy the undoubted pleasures of Volga motoring. ■

↑The 1977 GAZ 24 complete with driving lamps and revised bumpers without underriders flanking the number plate. Changes to the car were minimal for the first 16 years of its life, no substantial alterations taking place until the middle of the 1980s. *(Avtoexport)*

MOSKVICH

RISE AND FALL

↑ Moskvich 407s roll off the Moscow production line. *(Author's collection)*

Moskvich entered the 1960s head held high. The Moskvich 407 was winning friends across the Soviet Union and, indeed, the world, and the MZMA plant maintained its rapid pace of development throughout the decade. The Moskvich G3 racer appeared in 1961 with more powerful brakes to go with its more powerful engine. In the same year, changes were made to the Moskvich 430 van. The rain guttering on the van, which had previously followed the line of the rear door profile, was altered to run the full length of the vehicle, while the rear passenger 'doors', which remained welded shut, acquired an altered upper profile with a square outline.

In December 1962 production began of a new car, which was officially launched in May 1963. Confusingly, this was called the Moskvich 403, its model number being out of synch for no apparent reason. The last Moskvich 407 was built in October 1963, by which time 359,980 had been made, nearly a third of which – 120,903 – had left the Soviet Union for export. Diminutive but sturdy, it had been especially popular in Greece, Finland, Norway and Belgium.

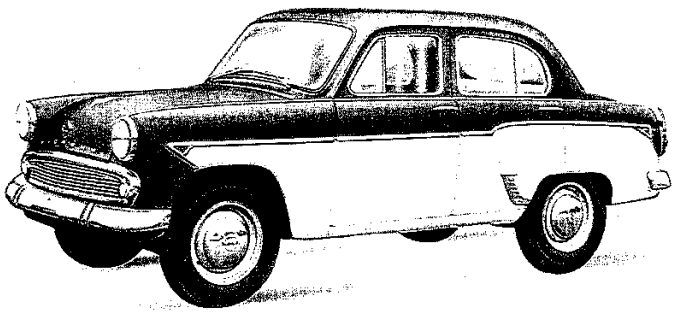
To look at, the Moskvich 403 differed only slightly from the Moskvich 407 – some interior trim details and some extremely subtle styling changes to the front. However, underneath the familiar shell there was a whole host of mechanical refinements, including considerably reduced maintenance needs, improved front suspension which made the car easier to keep on track and much improved protection of the body against dust and mud. The clutch and brake pedals were now suspended

from a pedal box rather than protruding through the floorpan. The engine was upgraded to increase its power and longevity.

The Moskvich 403 was really a transitional model, combining the mechanical elements of the soon to be announced Moskvich 408 with the body of the long running Moskvich 402/407 series. As was now the norm for Moskvich, there was a full range of vehicles available, including the Moskvich 403E and 403IE, both for export markets, and from 1963 the 424 estate car, its export sister the 424E, and the 432 van, the latter – like all Soviet light vans – not being offered for sale to private Soviet buyers. The last Moskvich 403s were built in July 1965. In just two years, 133,523 had been made, 50,612 of which went for export. The export models had additional chrome trim on the flanks.

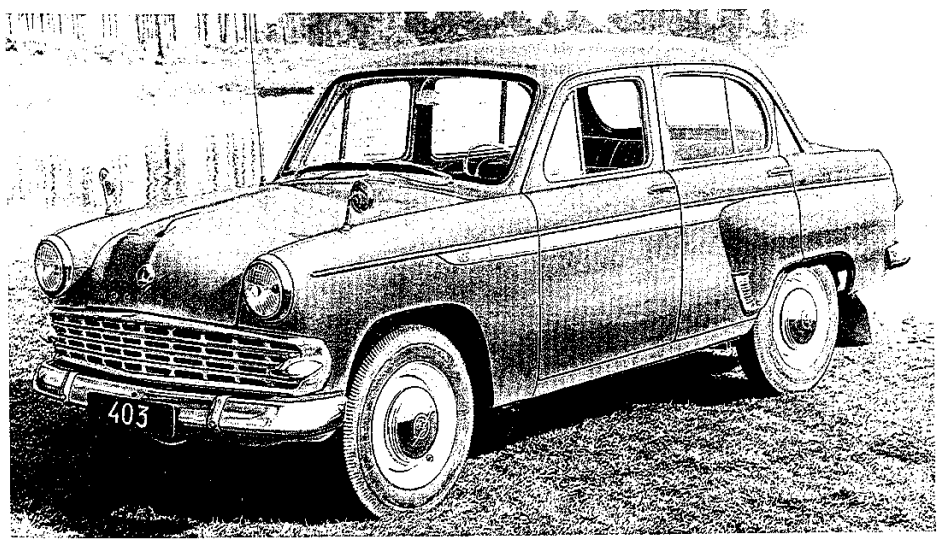
On 1 August 1964 MZMA built the first of its new and completely restyled Moskvich 408 series, which was officially announced on 21 October at a major presentation at the Moscow Cinema House. The Moskvich 408 appeared less than ten years after MZMA's first in-house design – a remarkable achievement. The first prototypes had been built in March 1961, with design work having started in 1959.

The Moskvich 408 had a completely new crisp, sharp four-door saloon body style with large front and rear screens, front hinged bonnet, swept-back wheelarches and discreet styling fins on the rear wings. The wheelbase was increased too. Brakes



Later examples of the Moskvich 407 were identifiable by their mesh radiator grille, introduced during 1960. Earlier examples had the simpler chrome bar of the Moskvich 402. This picture also shows the single chrome trim that ran along the sides, introduced on the 407. *(Author's collection)*

The Moskvich 403 of December 1962 was readily identifiable by its restyled radiator grille and more restrained chrome side trims. Under the bonnet, however, it featured a more powerful engine that would remain a feature of the Moskvich range until the 1980s. *(Author's collection)*



↑The Moskvich 403 used the same bodyshell as the Moskvich 407 but with a new larger engine. Externally the main change was a revised grille that incorporated the indicator lights. This is a 1963 example that took class victory in the 1963 Rajd Polskie rally in Poland. *(Avtoexport)*

→The Moskvich 403 was really a stopgap car that filled the interval between the Moskvich 407 and the forthcoming Moskvich 408. However, its powerful new engine gave the old stalwart a welcome boost on the international rally scene. This example was part of the Soviet team that competed in Sweden's 1964 Midnight Sun Rally. *(Avtoexport)*

←Chrome glinting in the sun on a Moskvich 403 and its Moskvich 408 successor. *(Hungarian Moskvich Club)*

↓The new Moskvich 408, seen here in 1964, its first year of production, became the first really well known Soviet car for many non-Soviet motorists. It offered a unique combination of solid, no frills engineering – ideally suited to places where motoring took place on a budget – with a stylish and well equipped body. *(Avtoexport)*

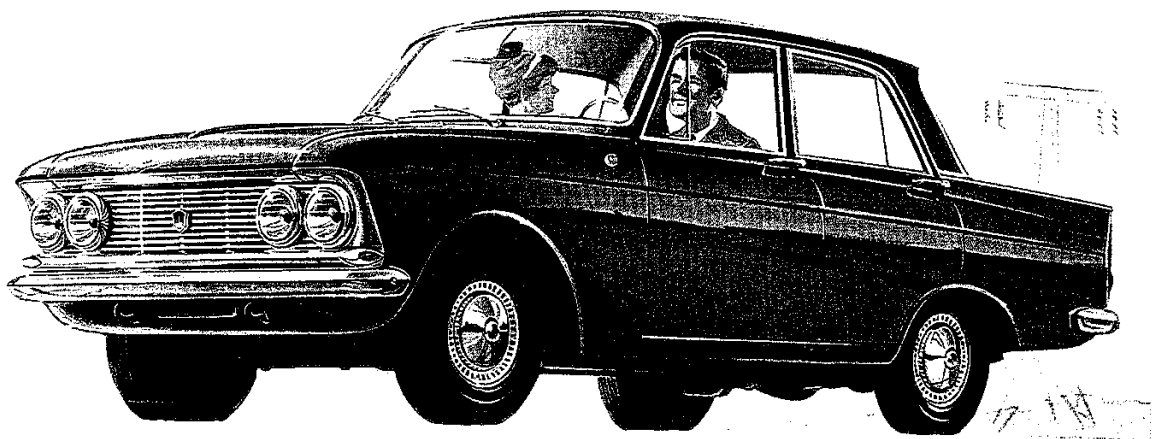
were now self-adjusting – albeit still drums all round – and the wheels were 13in diameter. The heating system was even more effective and the electrical system now included an alternator. The 1,358cc engine produced 50bhp. This was also the first Soviet automobile in which the designers had paid real attention to passive safety, with the option of seat belts that had been tested in France. Top speed was 80mph – faster than a GAZ M21 Volga!

On 20 August 1966 MZMA built its hundred-thousandth Moskvich 408. Just under a year later, on 18 May 1967, the millionth Moskvich rolled off the Moscow production line.

In the middle of December 1966 the first three-door vans were built, called the Moskvich 433. Early examples had a full-height bulkhead with a small window behind the seats, but this was soon

➔The Moskvich 408 was initially built with either two or four headlamps, depending upon what was ordered by the buyer. Here a 1965 example of the former is made ready to roll off the production line. Just behind it is one of the last Moskvich 403s. *(Avtoexport)*

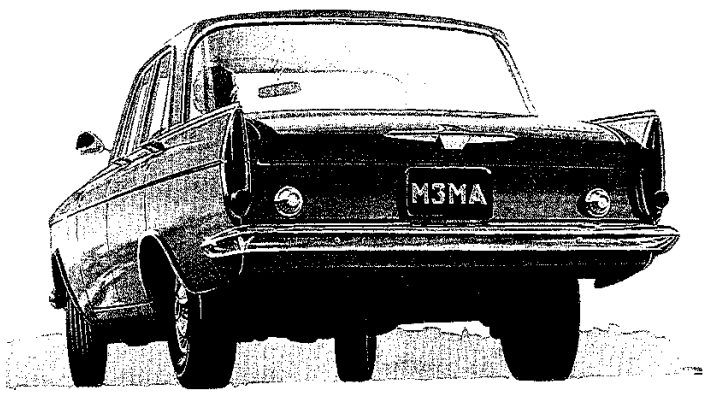
➔Moskvich made full use of artists' impressions in its launch publicity for the new 408. In the early 1960s this approach was quite common throughout the world. *(Author's collection)*



changed for a half-height bulkhead to allow the driver to access the load from the cab. The rear door was a split unit with a bottom-hinged lower portion and a top-hinged upper half. This vehicle was followed in March 1967 by a five-door estate car, the Moskvich 426. This time round, though, there were some significant differences between the two, the vans having single-piece body pressings aft of the front doors. Both featured stronger rear springs.

In 1964 the MZMA design team developed an interesting two-door cabriolet with a fastback styled hard top, the Moskvich 408 Tourist. Many of the body panels were fabricated from aluminium, but only two prototypes were built. One had a fuel injection system. Sadly, neither example of what was an incredibly elegant car survive.

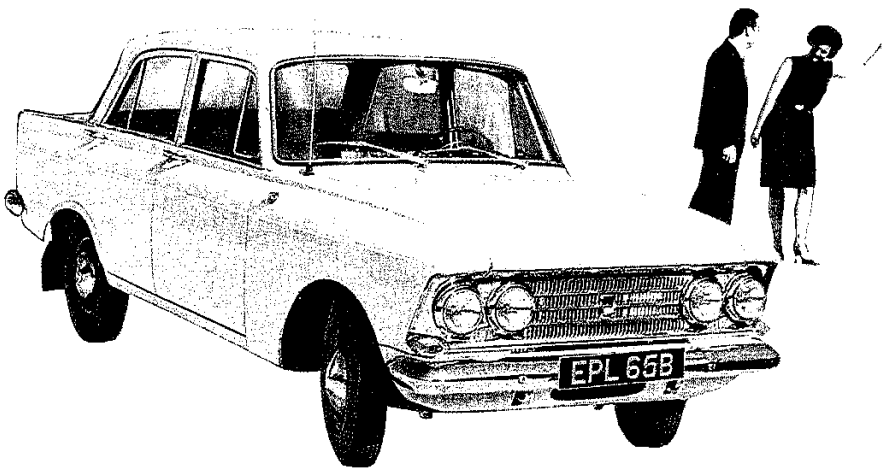
The Moskvich 408 was launched in Britain in 1965, making its first appearance in right-hand-drive form at the October Motor Show at Earls Court. Priced at £667, it faced head-on competition from the likes of the 1,725cc Hillman Minx Deluxe at £660, the 1,595cc Vauxhall Victor 101 for £690 and the 1,198cc Ford Cortina Deluxe at £668. *Motor* magazine road-tested the Moskvich 408 in August 1966 and declared that: 'the Moskvich is a paradox – its design is "grand" but the lack of attention to such matters as vibration and gearbox noise, heavy brakes and poor acceleration has removed some of the cream from the borshch.' However, it also noted that: 'the seats are comfortable, the steering is relatively light and positive and the handling safe.'



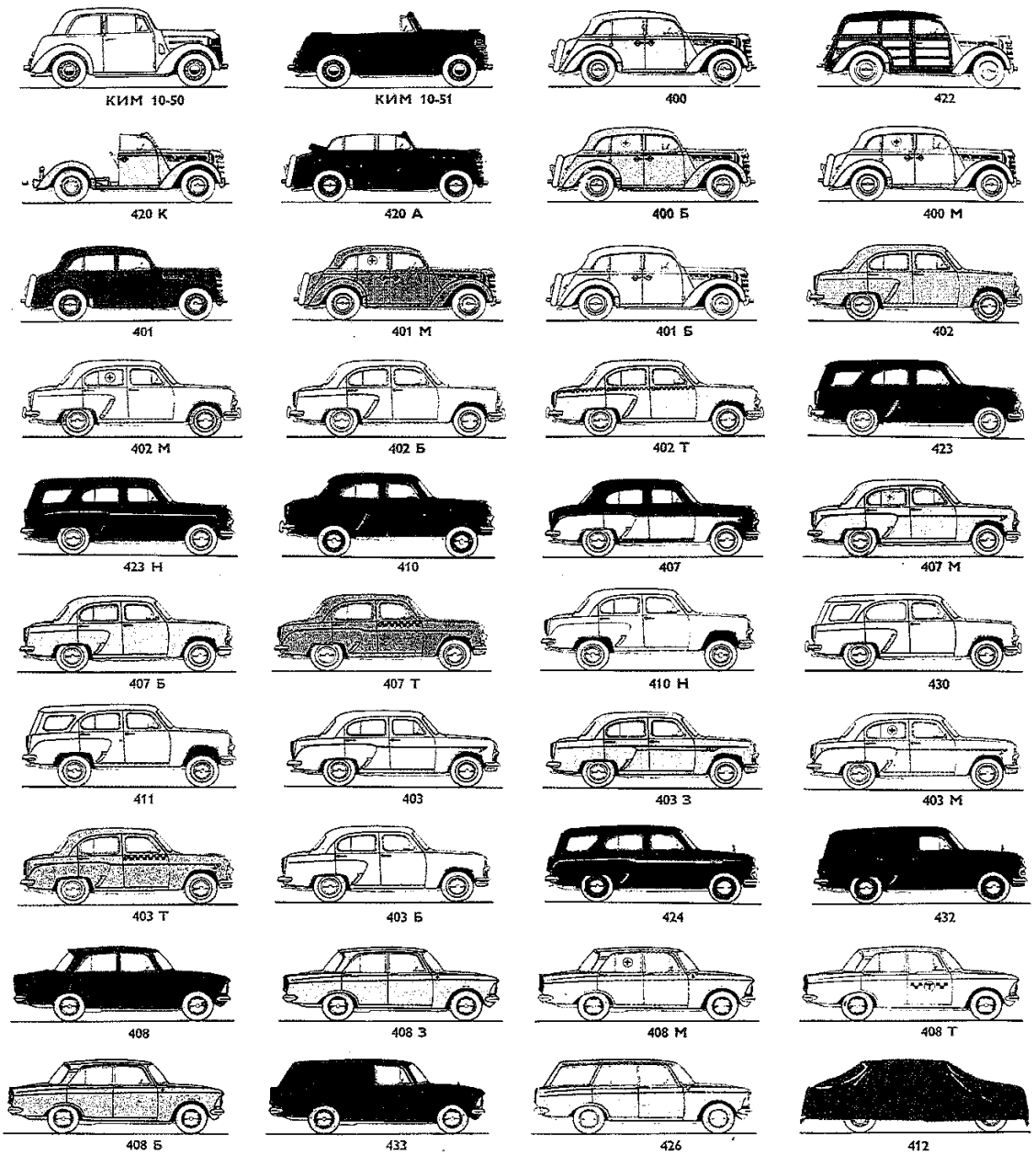
↑The Moskvich 408 featured vertical tail-light clusters that blended well into the lines of the car as a whole. *(Author's collection)*

Performance-wise the Moskvich showed a clear pair of heels to all the cars chosen by *Motor* for its comparison charts.

In the same edition, *Motor* also interviewed the proud and satisfied owner of a GAZ M22 Volga estate car, who was full of praise for its comfort and its ability to shift huge loads and cover rough ground without any bother. But by October 1967 the Volga M21 and its estate counterpart had been dropped from the British market: the competition was offering much more modern cars, such as the Vauxhall Cresta PC and the expansive Ford Zephyr Mark Four, both better suited to the tastes

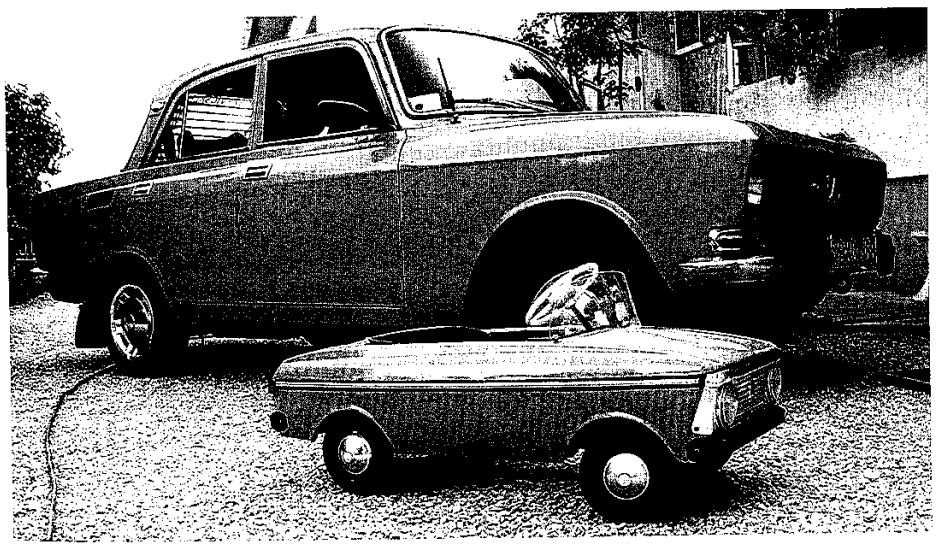


←The in-crowd in many countries certainly found the Moskvich 408 to be an ideal accompaniment to growing post-war prosperity, and it was a serious contender in export markets across the world. *(Avtoexport)*

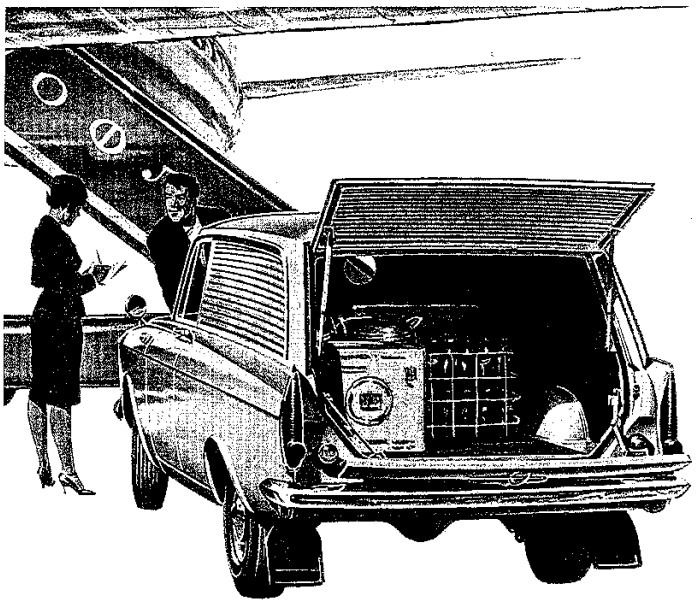


I-Spy Moskvich – this line-up of all the cars made by the Moskvich plant in Moscow since 1940 was released in 1967. *(Avtoexport)*

The millionth Moskvich – made on 18 May 1967 – proudly makes its way through the Moscow traffic. The following month saw the millionth Volga roll off the GAZ production line in Gorki. *(Avtoexport)*



For the drivers of tomorrow, the Soviet toy industry built pedal cars styled after the Moskvich 408 series. *(Hungarian Moskvich Club)*



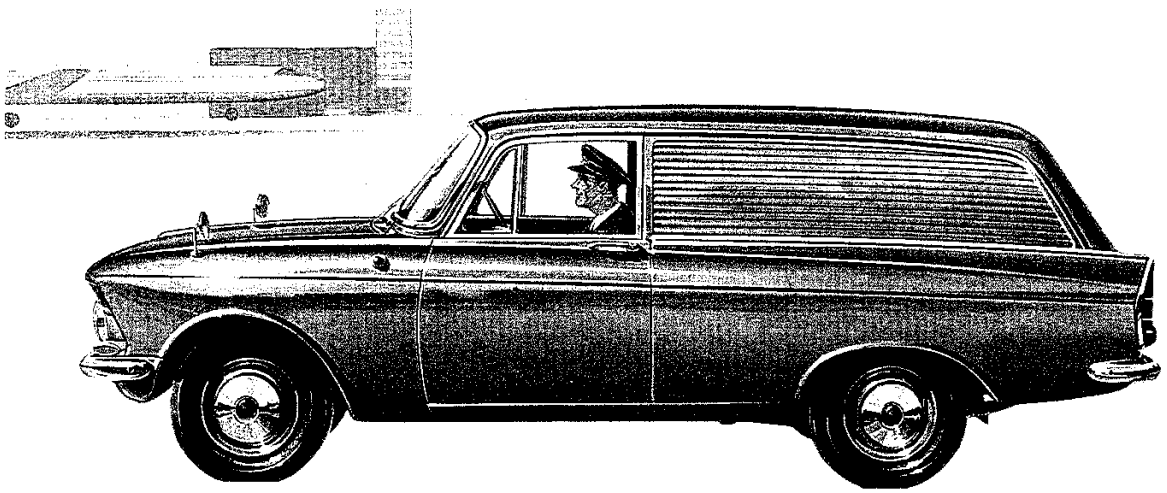
The first derivative of the Moskvich 408 was the Moskvich 433 light van, announced in December 1966. These brochure illustrations from 1967 give what was a fairly basic workaday vehicle a whole new image as the driving force behind the jet set! *(Author's collection)*

of trendy, ambitious attaché-case-wielding middle managers in the swinging '60s.

However, the Moskvich 408 saloon was now joined by the Moskvich 426 estate car, which at £647 was extremely good value compared to the smaller Austin A40 Countryman that sold for the same price but had two less doors and a lot less space inside. Moskvich continued to make good progress on the British market, and sales in 1969 were up by 70 per cent compared to 1968. Indeed, all across Europe sales were booming, especially in Finland and Norway. In 1968 55 per cent of MZMA's output went for export – even though there were long waiting lists in its home market. By the start of the 1970s Moskvich cars were on sale in more than 70 countries, including such out-of-the-way places as Kuwait and Ecuador.

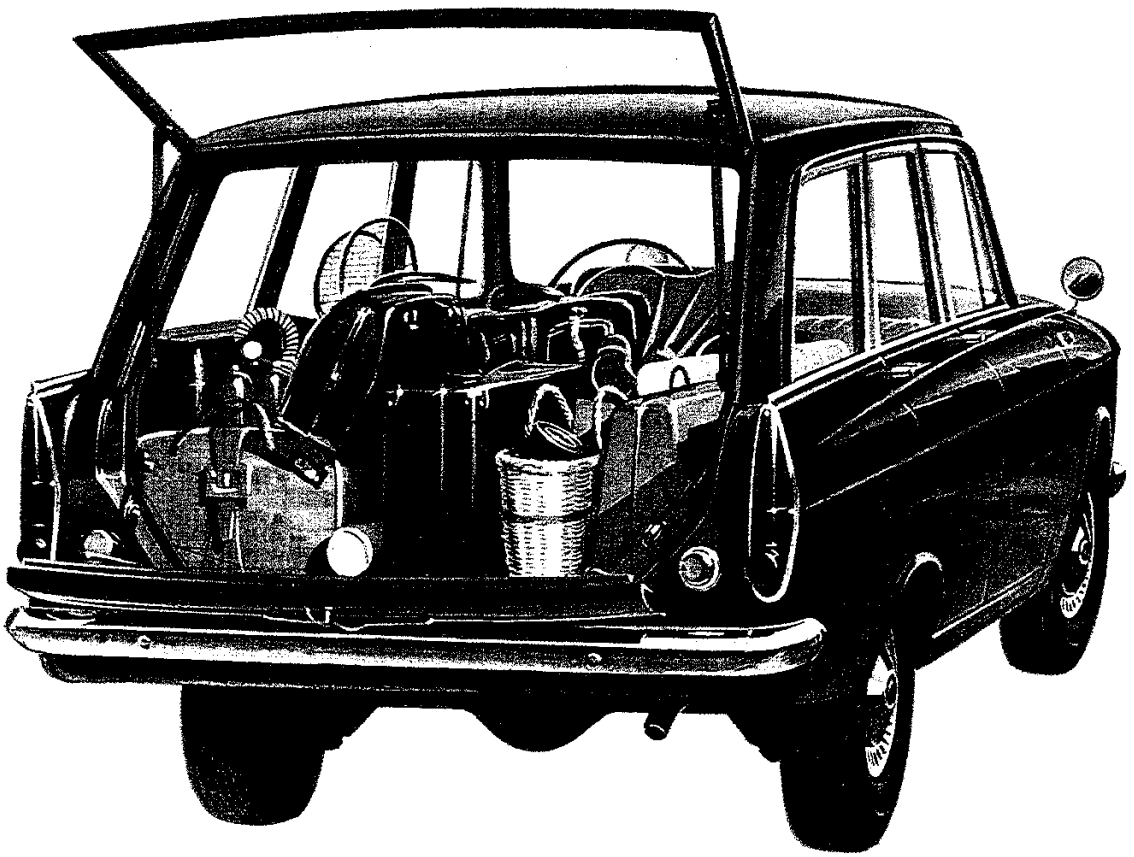
MZMA had a real success story on their hands, but they did not rest on their laurels. At the beginning of 1967 they introduced formal crash tests to improve the safety of their cars, an early result being the introduction at the end of the decade of an energy-absorbing steering column to the Moskvich range.

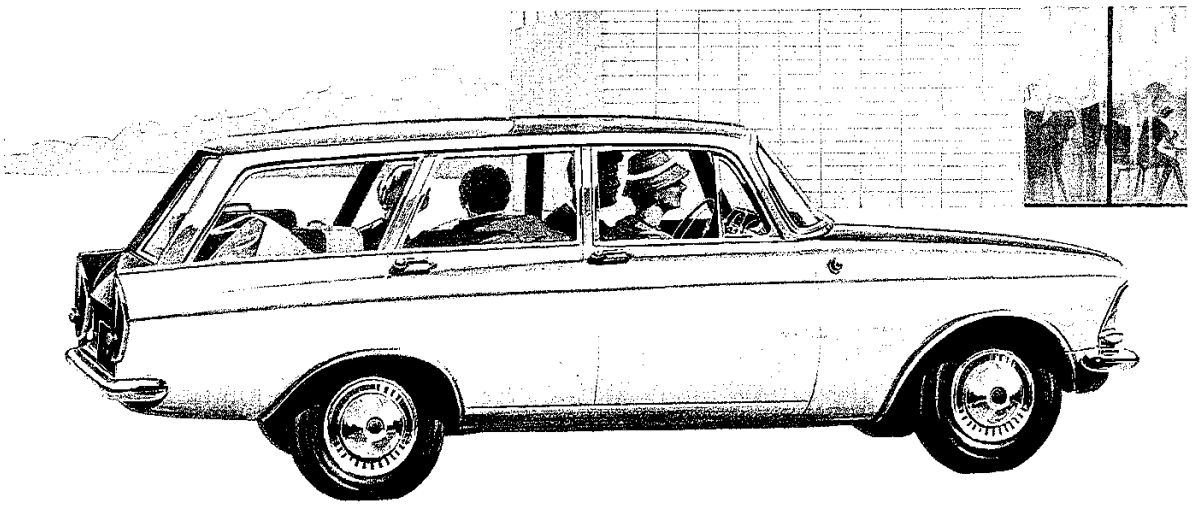
The MZMA team also quickly realised that the capacity of other cars in the same class as the Moskvich 408 got bigger every year as buyers indicated their preference for more powerful models. Acceleration and higher cruising speeds for the world's growing motorway networks became key selling points. All the major European car companies



↑Moskvich vans were not generally made available to private motorists in the Soviet Union. This is one of the earliest 433 models, the first of which were built in December 1966. *(Avtoexport)*

←One of the very first Moskvich 426 estate cars, introduced in March 1967. Note the single round headlamps. *(Avtoexport)*





– Simca, Ford, Fiat – started to announce cars such as the Simca 1300/1500, Ford Taunus 12 and 15M and Fiat 1300/1500, which had bodyshells the same size as the Moskvich 408 but packed more punch under their bonnets, with more powerful engines producing between 70 and 80bhp.

At first glance a simple solution would have been to increase the size and power of the 50bhp 1,360cc engine. Boring out the cylinders of the existing Moskvich 408 engine (which could trace its roots back to the pre-war Opel engine acquired by the Soviets after the Second World War) would in theory have offered at least another 140cc of capacity and an extra 5bhp. However, the little engine was at the limit of its capacity for growth – there simply wasn't enough strength left in the block for bigger cylinders. And even if that had been possible, a mere 5bhp extra on the 408's 50bhp would have been nowhere near enough to put the Moskvich on a par with its European contemporaries. MZMA engineers had no option but to develop a completely new engine.

In 1963 MZMA prepared the first test batch of a new engine, provisionally called the 'DM'. It had a very rigid crankshaft to help improve its potential lifespan, and the camshaft was raised almost to the top of the engine block to allow for very short pushrods. This was an approach taken later by the British Rootes Group for its Hillman Avenger engine, announced in February 1970. The DM showed a lot of promise, but MZMA's engineers, led by Igor Okunev, wanted to push the boundaries further. In the 1940s Okunev had worked as a designer at motorcycle plants in Moscow and had been involved in motorcycle races. When he joined MZMA he brought with him his interest in motorsport and an enthusiasm for powerful engines.

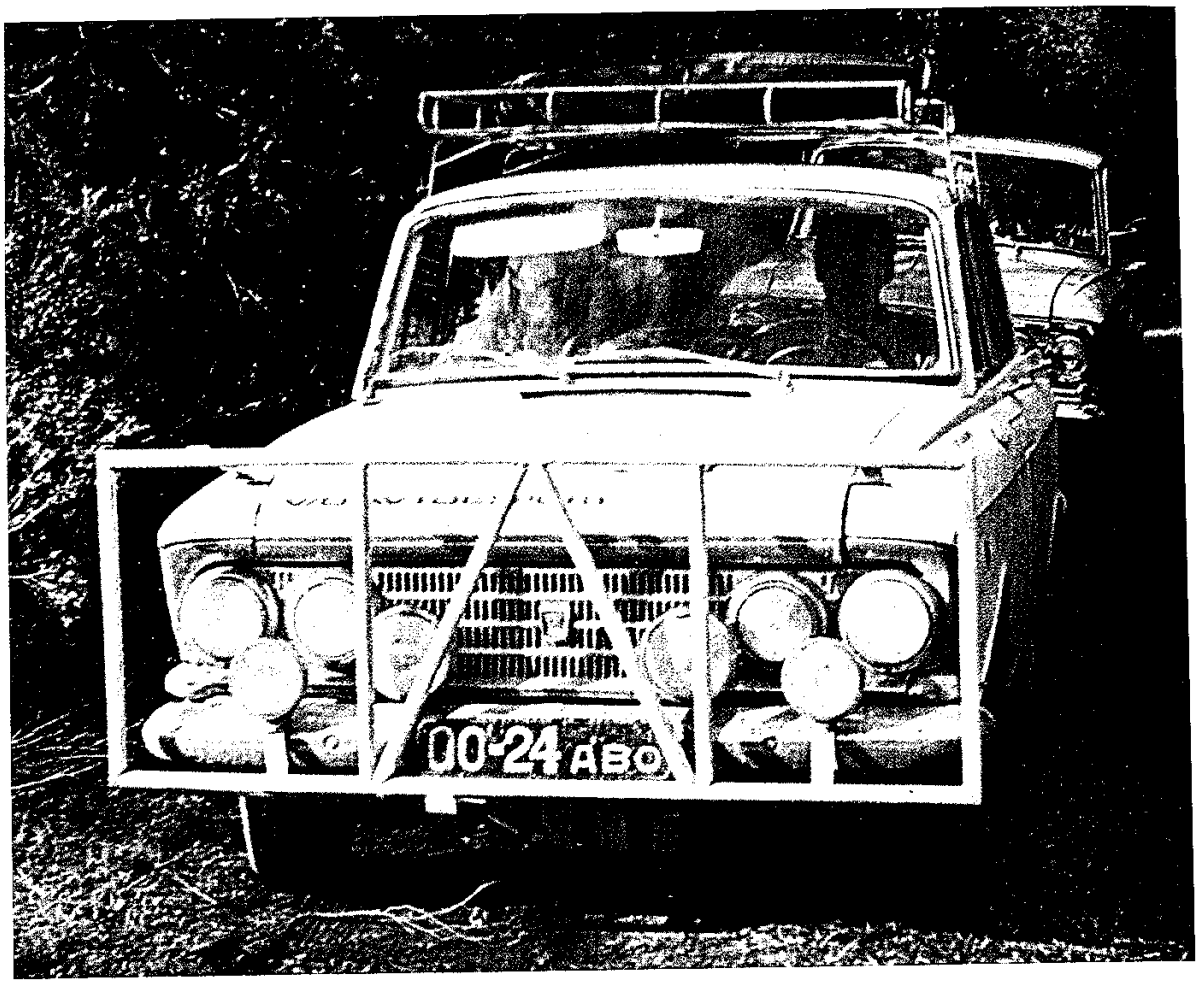
Locating the camshaft in the cylinder head and driving it by chain would make it possible to forget all about pushrods, opening the way to a much higher-revving engine – redlining at 5,800rpm instead of 4,750rpm. Putting the valves at an angle to each other would hold out the promise of hemispherical combustion chambers – extremely popular in racing car engines.

The result was the Moskvich 412 engine, which to some observers bore some similarities to a BMW 1,500cc unit developed in 1961. The Soviet engine had a five-bearing crankshaft and a chain drive for the overhead camshaft. To compensate for the additional weight of the new design, Okunev opted for an aluminium alloy cylinder block, cylinder head, sump, rocker cover, inlet manifold and other components. Consequently a fully equipped 412 engine weighed 146kg, just 6kg more than the old 50bhp engine, but with 75bhp on tap produced one and half times as much power. The first prototypes appeared in 1964.

Prior to the beginning of mass production the 412 engine passed a baptism of fire on the race circuit. In the summer of 1966 a tuned version producing 92bhp was fitted to the Moskvich G4M racing car, while the later G5 racer had a special

← In 1967 the Moskvich 426 estate car joined the range. Note the split tailgate, shared with the Moskvich 433 van. *(Author's collection)*

← In October 1967 Moskvich extended its new range with the 1,478cc Moskvich 412. Early publicity examples, such as this 1968 model, showcased rectangular headlamps that didn't become standard production-line fittings until 1970. *(Avtoexport)*



↑→The Moskvich 412 was the car that well and truly launched the marque onto the global motorsport circuit. Four competed in the gruelling 1968 London to Sydney Marathon, the Soviet team securing fourth place overall against the cream of the world's motor industry. *(Author's collection)*

twin cam 124bhp version. Sadly this was the last MZMA racing car.

Production of the 412 engine was passed to the Ufa motor plant (UZAM), which had not built car engines in the past. It had made its name producing aircraft engines, which it continues to do today. The first Moskvich 412 engines were built there on 15 March 1966. (The plant's car engine business was spun off as a separate firm in 2002, which now concentrates on spare parts for existing UZAM engines.) MZMA built its first 412-engined Moskvich during March 1967 and officially launched the high-powered Moskvich 412 in October. Then in December the newly opened IZH works in Izhevsk (see page 180) began mass producing its own version of the Moskvich 412, and UZAM suddenly found itself at the forefront of the Soviet car industry, supplying the country's most advanced automobile engine to two factories.

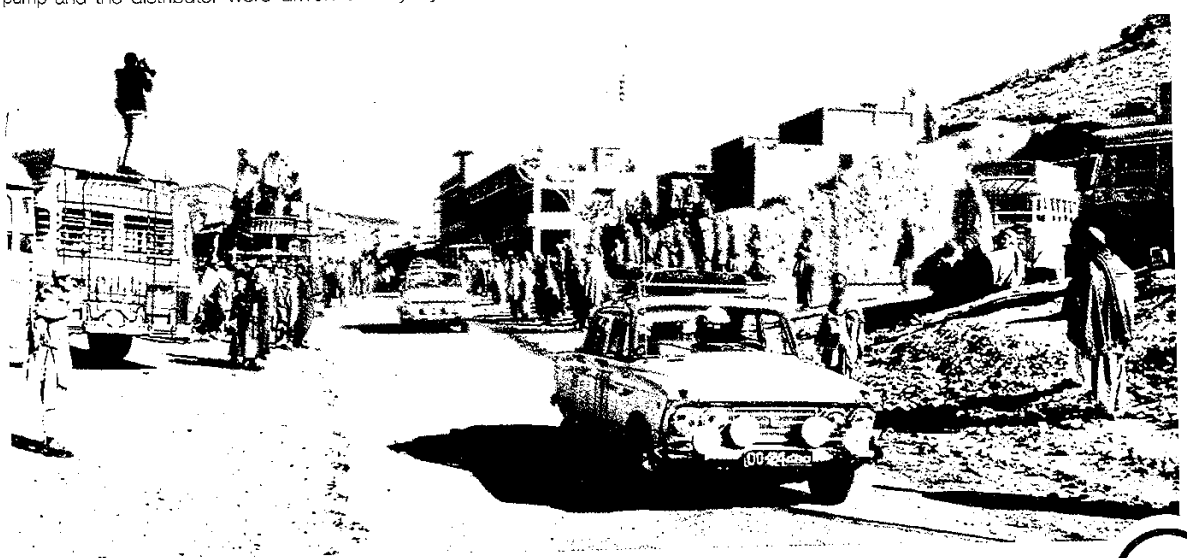
Although it looked very similar indeed to the 408, the body of the Moskvich 412 had been subtly altered to accommodate the new 1,478cc engine. It also had a better trimmed interior and body finish and, to cope with its extra get-up-and-go, a hydraulic vacuum assisted brake circuit, although still mated to all-round drum brakes. It could top 90mph, reach 62mph in 19 seconds, and needed just 11 litres of 93-octane fuel to travel 100km (26mpg). The 412 engine had removable cylinder liners, making it easy to overhaul. The oil pump and the distributor were driven directly by the crankshaft. The oil pump itself could be easily removed and replaced without opening up the sump. Indeed, its aluminium construction made the engine very light and easy to remove from the car should that prove necessary.

A 412-powered estate car and van, the Moskvich 427 and the Moskvich 434 respectively, along with a pickup version of the van, completed the 1,478cc Moskvich range.

At Izhevsk, IZH abandoned assembly of the smaller-engined cars once the larger engine was launched. Unlike most other Soviet car factories, IZH was not a fully integrated manufacturing unit, although it did stamp its own body panels. It always relied heavily on components being shipped in from all over the country, including radiators from Vostok, gearboxes from Omsk and, of course, engines from Ufa. Indeed, it wasn't until the early 1970s that the IZH plant moved from assembly by hand to more conventional mechanised systems.

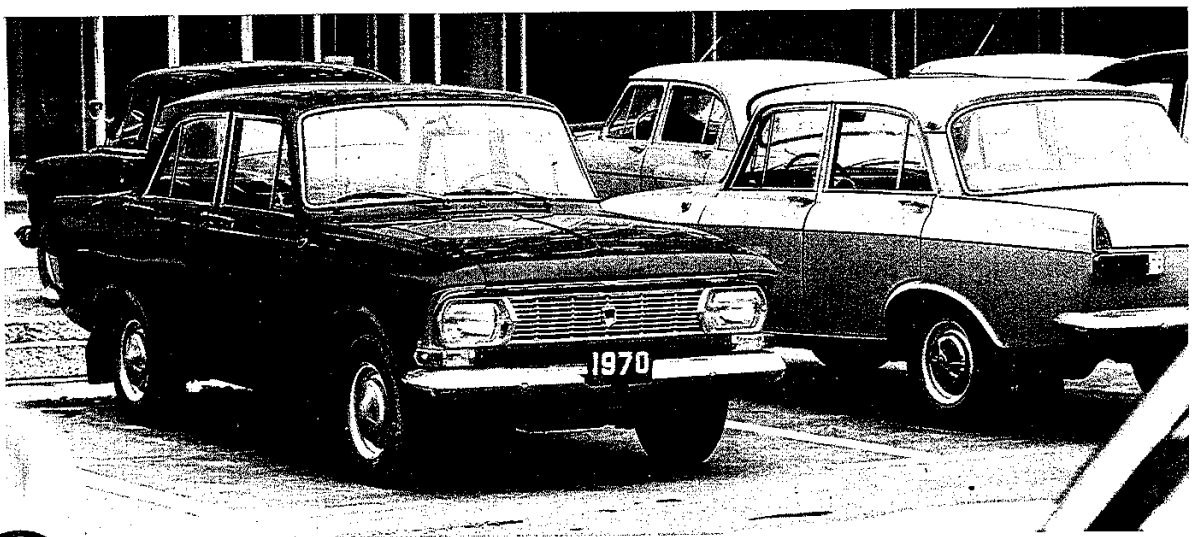
The Moskvich 412 was the car that made the Soviet Union a force to be reckoned with on the international rally sport circuit. During August 1968 the Moskvich 412 became the national champion of the Soviet Union's car racing circuit – the first of 15 such victories, although to be fair there wasn't too much competition! More importantly, the 412 opened up the opportunity for Soviet rally drivers to make their presence felt on the international circuit. In 1968 four Moskvich cars took part in the 16,000km *Daily Express* London–Sydney

↓The London to Sydney Moskvich team makes its way through what was then a much more peaceful Afghanistan. *(Author's collection)*



➔Two years after the 1968 London to Sydney Marathon, Moskvich repeated its success in the 1970 London to Mexico Rally, taking third place overall. *(Author's collection)*

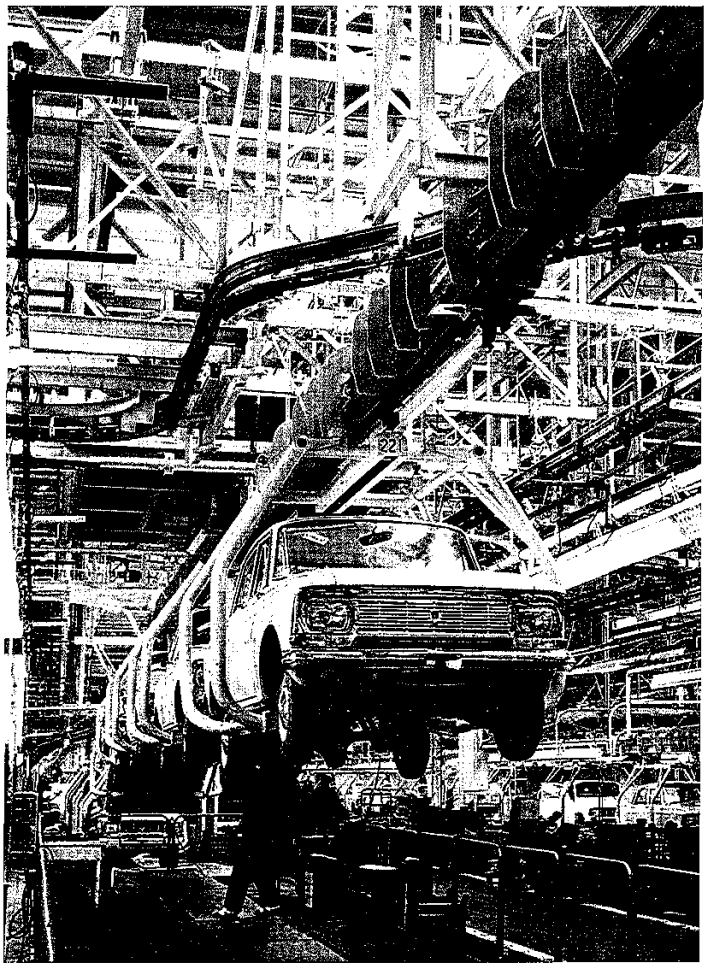
➔In 1970 the Moskvich range was facelifted, with rectangular headlamps up front and revised rear lamps being the most obvious changes. *(Avtoexport)*



Marathon. Three Moskvich 412s completed the rally on 17 December, taking fourth place overall for the team, with the highest placed Moskvich finishing in 20th place. It was major morale boost for what was now the AZLK plant, MZMA having been renamed in October 1968 to celebrate the 50th anniversary of the Soviet Union's Lenin Young Communist League: AZLK stood for 'Automobile Zavod Lenin Komsomol' or Lenin Young Communist League Car Factory. The by then extremely well-known Moskvich brand name, however, was retained

Two years later, in spring 1970, three Moskvich 412s completed the London to Mexico City rally. Even more gruelling than the London to Sydney event, this rally offered competitors the prospect of driving up to 26,000km through 25 European and South American countries, passing through stony deserts, alpine passes 5,000m above sea level, tackling dust, mud and snow on the way.

Five blue 412s were prepared for the event. First off, the suspension was reinforced to cope with what were expected to be extremely challenging road conditions. Special tyres, installed on ivory coloured 145mm-wide rim wheels without hubcaps, were added to increase handling and road-holding capabilities. The standard aluminium sump, which dissipated heat well but was not so good at standing up to hard impacts, was replaced by one stamped from mild steel. Under-body guards made from thick steel sheet were bolted on to protect the front suspension, sump and gearbox, while zinc-coated



↑By 1972 the Moskvich works had been provided with the latest equipment, putting it on a par with any Western carmaker. *(Avtoexport)*

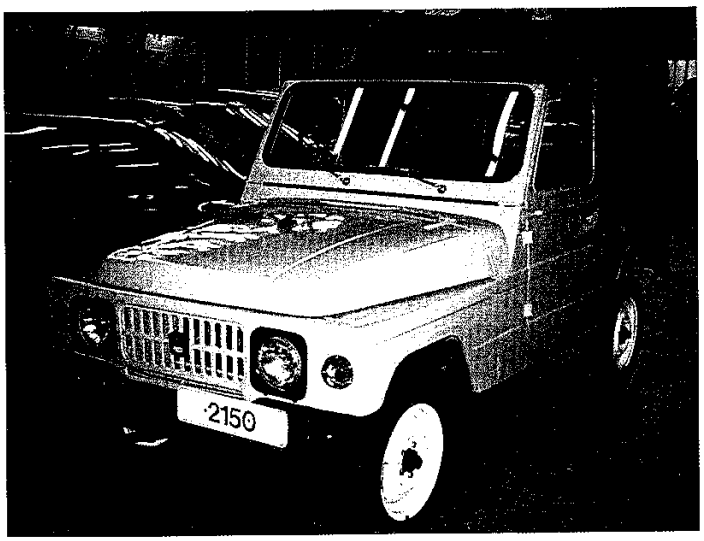
←A Moskvich 412 racing through the concrete jungle of 1970s Moscow. *(Avtoexport)*

↑The five-car Moskvich team performed extremely well in the 1971 Tour d'Europe, taking away a gold trophy as well as a bouquet or two of red roses. *(Avtoexport)*

wire grilles were fitted to protect the headlamps and radiator from stones and flying debris. Oil coolers were also added to help prevent overheating. Inside there was a roll cage and high-backed bucket seats equipped with safety belts. Powerful iodine halogen headlamps and four spotlights graced the front end, the teams being expected to drive night and day. Air horns were fitted too, for dusty conditions in which even the lights wouldn't show other road users that the cars were there.

Since both people and engines have difficulty breathing at 5km above sea level, the cars were equipped with oxygen masks and carburettors with special high altitude equipment that allowed their engines to produce 30–35bhp instead of the 16–18bhp that they would have otherwise struggled to churn out at such a height. Closer to sea level, the Moskvich engines churned out 80bhp. Navigation instruments, spare parts, warm clothing, tools for running repairs and food and drink for the crew increased the weight of the cars significantly: whereas a stock Moskvich 412 tipped the scales at 1,045kg, a rally specced one weighed in at 1,550kg.

On their sides the cars bore various advertising slogans: AZLK itself, of course, as well as Moskvich; Avtoexport, the Soviet vehicle export agency; Dunlop, who supplied the tyres; Shell, who provided petrol and oil; and, perhaps most important for the crews, Kofi-café, who provided the coffee! The name of the British *Daily Mirror* newspaper, which sponsored the rally, was written under the competition numbers on the sides, along with references to the Football World Cup, to be held in 1970 in Mexico City. Race numbers were pasted on the roof, the bonnet and



In the early 1960s the Moskvich design team had come up with their own ideas for a compact 4x4, the 415 and 416. In the early 1970s they revived the project with the 2150, which looked all but identical to the earlier cars except for having gained a full-width grille and light panel and being powered by the OHC engine from the Moskvich 412. This photograph shows the hard- and soft-top prototypes. Their plans were overtaken by the VAZ 2121 Niva, which was a less utilitarian vehicle. *(Julian Nowill)*

the boot-lid. Finally, the cars got matt black bonnets, to reduce glare.

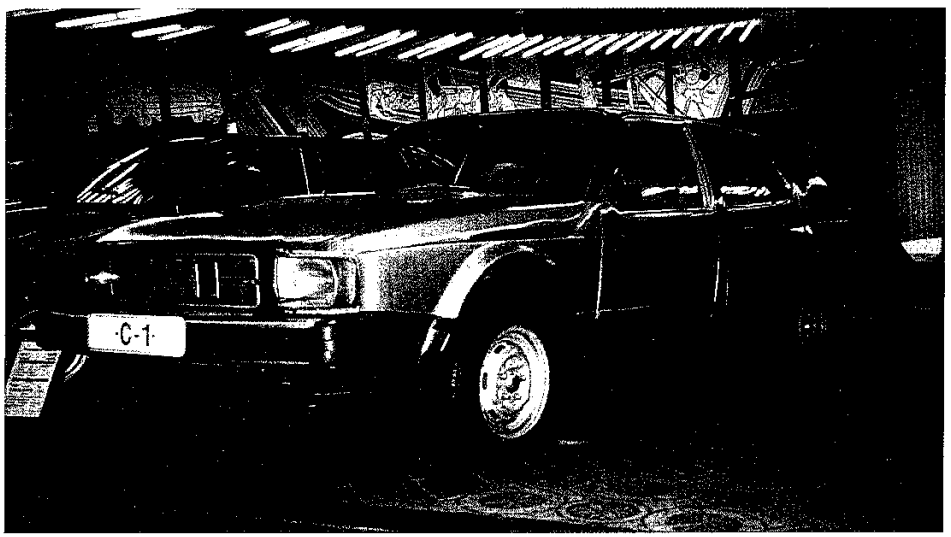
The rally cars were supported by a small team of mechanics, who kept pace in a couple of Moskvich 427 estate cars, laden down with spares and tools. They met up with the rally cars at night to complete any running repairs or routine maintenance that the competition cars might need.

The competition rules were, to say the least, extremely challenging. Contestants were allowed 400 driving hours and 400 repair and maintenance hours. Of the 25,810km route almost half was made up of alpine roads, and just 23 out of the 96 cars that set off from London on 19 April finished the run to arrive in Mexico City on 27 May. Three Moskvich cars were among them, coming in at 12th, 17th and 20th, giving the team third place overall. The Soviet press lost no time in proclaiming the achievement as evidence of the nation's technological prowess: 'When our drivers rushed along the roads of Latin America, and when Argentineans, Peruvians and Mexicans read in the newspapers and heard on the radio of the Moskvichs' performance, they got irrefutable proof of the industrial power of the Soviet Union and its successes in automobile construction.'

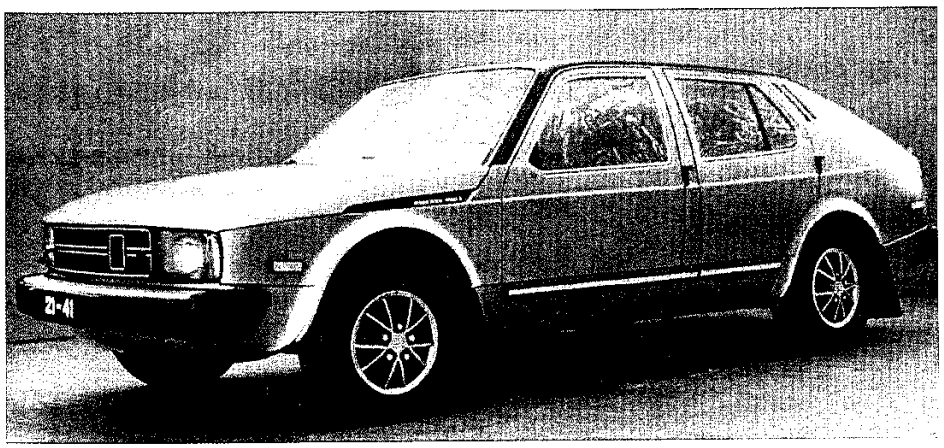
The blue Moskviches were then returned home to Russia, where they were displayed at exhibitions. The contributions of the drivers, mechanics, engineers and designers were recognised by rewards, certificates and public appreciation. However, the best reward of all was the international respect that the Moskvich brand had earned.

At the end of 1969 the exterior of both the 408 and the 412 was changed. The vertical rear light clusters were changed to rectangular units, mounted horizontally. Above them, in the distinctive tail fins, were triangular turn indicators. The estate cars and the van, however, retained the original vertical clusters. On all models, twin rectangular headlights replaced the round ones originally used. The first cars had also had two headlamps, but this was gradually changed over the first three years of production to four. To go with the new headlamps there was a new-style radiator grille. Inside, a safety steering column was fitted along with small changes to the interior trim and equipment. The gearshift was moved from the column to the floor and separate front seats were fitted, replacing the original front bench seat with a split back. A day/night dipping rear-view mirror and servo assistance for the brakes added to the car's safety features. In 1971, but on left-hand-drive cars only, the dashboard acquired safety padding and the heater controls were grouped together in a convenient central console.

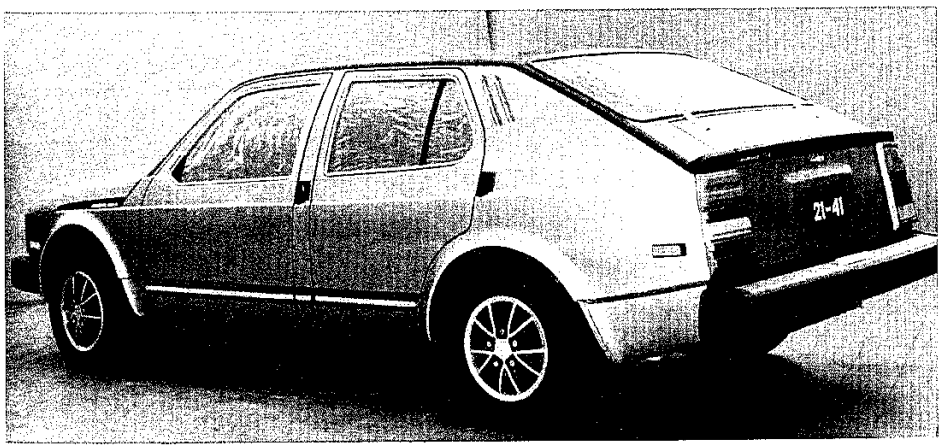
During the early 1970s Moskvich continued to push its products hard in export markets, especially Britain, Belgium – where it was assembled by the

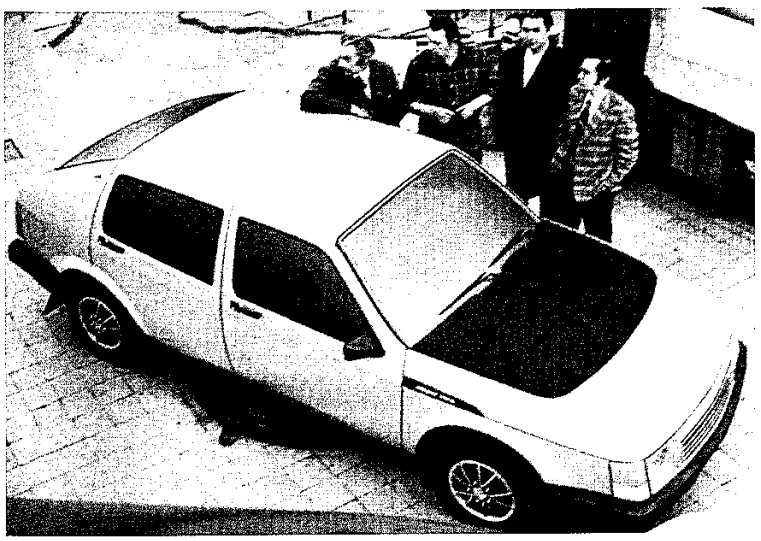


➔ With its five-door hatchback layout and all-round independent suspension the 1975 Moskvich C1 represented a radical change in direction. In spite of its Saab-like looks it remained rear-wheel drive. *(Julian Nowill)*

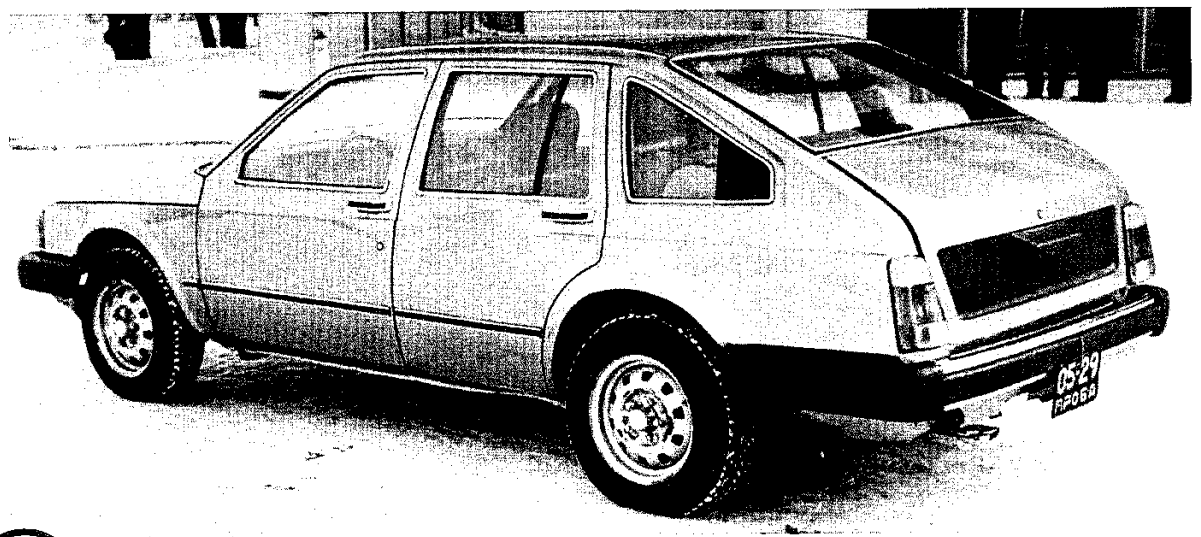


←↙ The styling of the C1 was rather heavy, especially when viewed from the rear. Particularly innovative, however, was the location of the door handles in the B and C posts. The badge on the bonnet reads 'Meridian 1700TS'. *(Julian Nowill)*





↑ In between the C1 and C3 came the C2, which was not made as a running prototype, only full-size styling bucks. *(Julian Nowill)*



Scaldia company in a factory just outside Brussels and offered with a British Perkins diesel engine – and the Scandinavian markets on Russia's doorstep. Scaldia was used for a time as the brand name for all the Moskvich-based models sold in Belgium. The Moskvich 407 had been sold as the Scaldia 1400, the Moskvich 408 as the Scaldia 1300, and the Moskvich 412 as the Scaldia 1500.

During the summer of 1970 the Moskvich 408 and 426 were replaced on the British market by the 1,478cc Moskvich 412 saloon and 427 estate cars. Vans and pickups soon followed. The arrival of the Moskvich 412 series coincided with the appointment in June 1970 of a new importer, the Satra organisation. The new firm, whose name derived from 'Soviet American Trading', introduced a new pricing policy to boost sales. Whereas the previous concessionaire had priced Moskvich and Volga cars slightly below their obvious British counterparts, Satra decided to go for broke in an effort to grab a market share. It was helped in this by the Soviet government's desire to obtain foreign currency to fund imports and activities outside the Eastern Bloc, the rouble not being seen by Western money traders as a hard currency. Its purchasing power was limited outside of those countries who were members of Comecon, the communist trading bloc set up to encourage trade between socialist countries. It was worthwhile for Avtoexport to trim its margins to the bone and sell its products overseas for prices either close to or even below their actual rouble cost of production to get its hands on hard currency. For the importers, this was manna from heaven.

The new Moskvich cars were given a flying start in Britain as Satra, based in Byfleet, introduced its aggressive pricing policy, which pitched the four-door 1,478cc £749 Moskvich 412 against the £770 two-door 1,098cc Austin 1100 and the £749 998cc Mini Clubman. Ford's cheapest Escort 1100 two-door retailed at £807. At £800, the Moskvich 427 estate was quite simply unique in its price bracket – for a saving of £7 a buyer could opt for a Mini Clubman estate with an engine 50 per cent smaller and only two doors.

Moskvich sales really took off during the early 1970s. As British and European manufacturers raised their prices up to four times a year to keep pace with inflation, Moskvich cars looked ever better value. By October 1973 a brand new Moskvich 412 cost £717, while a new Mini 850 cost £739 and the cheapest British car was the basic Hillman Imp, which was only £3 less than the Moskvich. Even a Skoda was dearer: the cheapest S100 cost £798. Although the Moskvich looked dated compared to the very latest British family saloons – such as the February 1970 Hillman Avenger, the October 1970 Vauxhall Viva and the April 1971 Morris Marina, it cost much, much less. And the cars that were available for the same price were not only smaller but were even older – the 1959 Mini, the 1963 Hillman Imp and the 1962 Renault 4. In some respects the Moskvich was

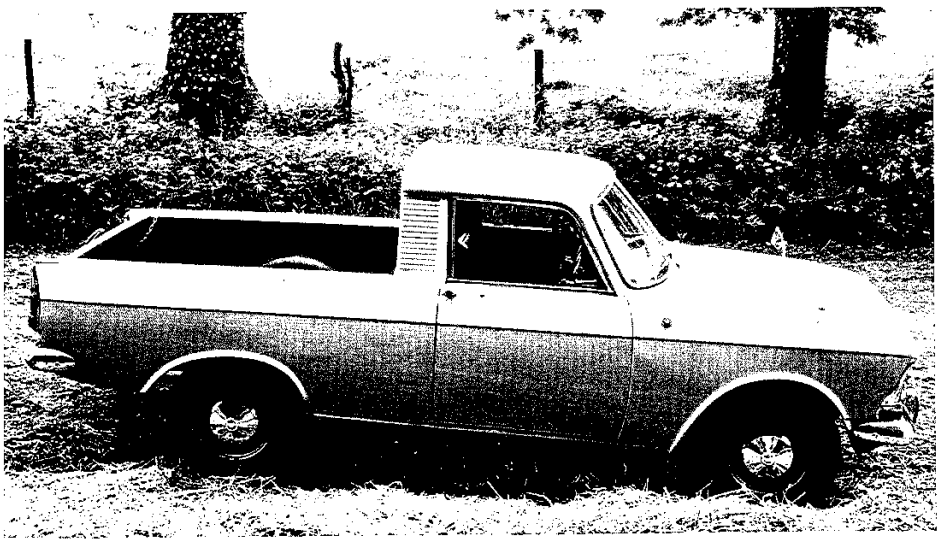
The 1976 Moskvich C3 was a direct evolution of the earlier C1 – it was much sleeker to look at but retained the front engine/rear-wheel-drive layout. *(Vladimir Varaksin)*

The C3 had a more conventional approach to the B and C posts and was better proportioned overall than the earlier C1. *(Julian Nowill)*

Some export examples of the Moskvich 412 got chrome trim strips along the lower body sides. *(Author's collection)*

↑This picture of a Finnish market Moskvich 412 – known there as the Elite – shows the revised rear-light clusters introduced in 1970. *(Author's collection)*

➔The 1,478cc-powered Moskvich estate was known as the Moskvich 427. This 1972 example features the one-piece tailgate introduced to the range that year. *(Author's collection)*



↑A van fitted with the larger engine was also made, the Moskvich 434. This example was built in 1972. *(Author's collection)*

←The Moskvich 434 pickup was a useful little truck that for a while was popular among jobbing builders and smallholders in export markets. It was never offered for sale to individuals in the Soviet Union. *(Author's collection)*

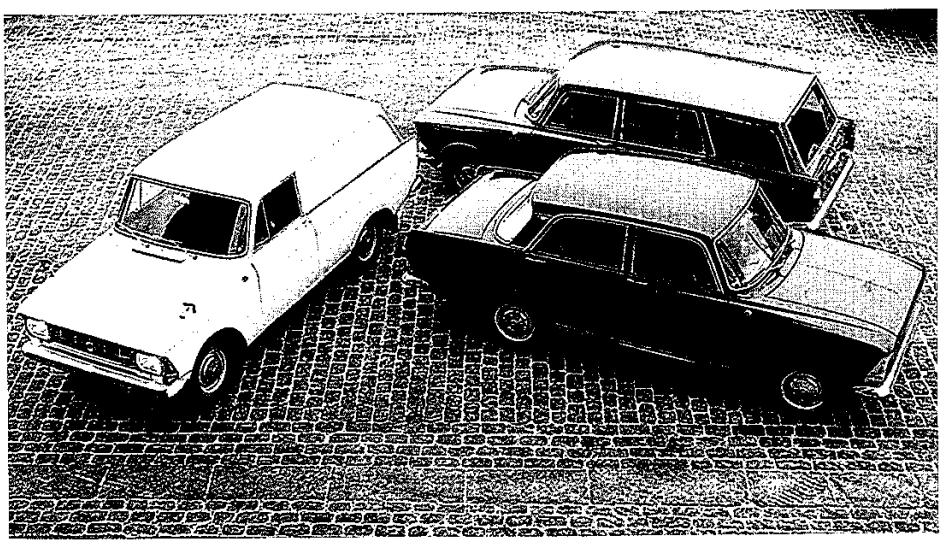
more advanced than its competitors – it had an overhead camshaft, all-aluminium engine, servo-assisted brakes and driving aids that were still an optional extra on many British cars. Even a heater still wasn't standard on the basic Imp or Mini, while the Moskvich had a veritable furnace designed for Siberia! Reclining seats and two-speed wipers remained the preserve of top-of-the-range British saloons.

The 412's image was boosted by its success on the race track when Satra entered the Group One Production Saloon Car championship in 1972, in which showroom-spec cars were raced against each other. Admittedly the Moskvich had a slight advantage in that the cars were grouped by price, so that the Moskvich, with its meaty 1,478cc engine in the capable hands of Tony Lanfranchi, was easily able to outpace the sharp-handling but underpowered Hillman Imps and Minis in both 1972 and 1973. In the Avon Round Britain Rally in July 1973, the Moskvich secured first, second and third places in its class.

The Moskvich had its own special appeal to the still sizeable body of British motorists who liked to do their own maintenance – and in an era before black boxes and sealed units such people could still look after their cars themselves. Being designed for a country where DIY maintenance was the norm (the Moskvich came with a 21-piece tool kit and a pack of essential running spares as standard wherever it was sold) the Moskvich was an instant hit. It even had a starting handle! It may not have looked as fashionable as an Avenger or handled as crisply as an Escort, but for buyers on a budget that really wasn't an issue: they had a new car that they could maintain themselves and still have money left over for a few weekend motoring outings. The van and pickup versions had their own appeal to self-employed builders, which was unsurprising as their options were otherwise limited to the Escort van – much more expensive; the Bedford HA – much smaller; or the A55-based Austin-Morris Half Ton range – designed in 1959 and with its heater an optional extra.

Moskvich 412 sales took off in the UK and they started to be seen with increasing regularity on British roads as sales increased from 300 in 1969 to 3,462 in 1973. When *Motor* magazine tested a 412 they admitted that they didn't like it, but they added that they wouldn't 'discourage anyone from buying one provided they knew and accepted the snags. It's a personal matter of weighing the very considerable appeal of having a big, brisk car on the cheap against having a very dated car with many faults.' *Motor*'s road tests awarded stars for each aspect of a car's performance, five being the highest: the Moskvich scored five for performance and accommodation and three for ride comfort, economy, transmission, fittings and finish. However, it got just one star for its brakes. *Motor* wrote that: 'the brakes on our test car suffered from so many faults that we can only describe them as

Moskvich cars were assembled from Soviet-supplied kits at Lovetch in Bulgaria from 1966 until 1990, by which time the plant could put together 20,000 cars a year. For a brief period in the 1960s the cars were called the Moskvich Rila. The Bulgarian operation started building the Moskvich 408 before replacing that with the 412. The Moskvich 2140, seen here under assembly and which was known in Bulgaria as the Moskvich 1500, was built from the late 1970s until the introduction in 1987 of the last Moskvich of all, the 2141 Aleko. *(Avtoexport)*



↑By 1973 Moskvich was on a roll in Britain. Taken from a sales brochure, this is the model range offered to British buyers that year. *(Author's collection)*

←The 1974 Moskvich range included a van, estate car and saloon. These are all 1,478cc-powered examples. *(Author's collection)*

↑The last-ever British Moskvich sales brochure, by which time the 412 had been renamed the Moskvich 1500 for the UK market. *(Author's collection)*

dangerous.' It cited brakes pulling violently to one side, locking a rear wheel, and excessive brake fade, although the figures showed that the car could actually stop 'quickly if not in a straight line'. A similar report by the Consumers Association's *Which?* magazine that criticised the brakes as being potentially dangerous was picked up in the autumn of 1973 by the BBC's *Nationwide* news programme and Moskvich sales suddenly started to fall away. The criticisms were perhaps a little unfair – at this time the cheaper Avengers and Marinas still had all round drum brakes and cross ply tyres as standard equipment, and if the brakes weren't perfectly adjusted they too could display some erratic braking characteristics.

At the 1973 London Motor Show, Satra showed that they were determined to keep the red flag flying in British car showrooms by putting two Lada 1200s on display alongside three Moskvich cars. It was a wise move. Sales of the Moskvich simply fell away – from the 3,462 sold in 1973, sales plummeted to 424 in 1974 and 344 in 1975.

In May 1974 Satra re-branded the Moskvich 412/427 as the Moskvich 1500. A number of changes had been made, including padded trim to the top of the fascia and in front of the passenger and relocated heater controls in a neat extension mounted under the centre of the dashboard that had been added to left-hand-drive cars three years earlier. There was also a central handbrake lever between the two front seats and some changes to the all drum-brake system. At £785 it was undercut by just one car, the tiny two-cylinder Fiat 126, which cost £1 less.

↑This is the final resting place of one of the Moskvich 355 prototypes, now gathering moss in a Moscow car lot. The 355, built in 1972, was used as the basis for the Moskvich 356 prototype, which had a bolder front end with larger grille and headlamp units. *(Julian Nowill)*

Autocar tested the new 1500 in March 1975 with mixed feelings. The brakes still came in for criticism, although the car's performance was highly rated. The steering too was criticised for sticking on full lock when cornering at speed – the magazine published a picture of the Moskvich cornering with the driver's hands clear of the steering wheel! However, *Autocar* cited examples of satisfied owners, including a fleet operator who had run cars and vans to 80,000 miles without any major breakdowns, and one owner in Nottinghamshire who used a Moskvich to pull a two-blade plough! Even so, *Autocar* wondered just how long Satra would continue with the Moskvich when they had the Lada range to offer British buyers. Moskvich imports ended in October 1975 although stocks lingered on until July 1976.

Meanwhile, back in the Soviet Union, the AZLK designers continued to refine their product and prove their ability to mix it with the best of the world's motorsport competitors. In 1972 the two-piece tailgate on the van and estate cars, with its upper half top-hinged and lower half bottom-hinged, was replaced by a single-piece top-hinged unit. In the same year Moskvich scored more international motorsport success by winning first place and the Gold Cup in the International Tour d'Europe-71. This was followed by a first place in the South Africa Safari of 1973 and gold and silver cups in the 15,000km International Auto-rally Tour d'Europe-74.

At the start of the 1970s the AZLK team dusted off its plans from the early '60s for a compact 4x4. Although the 415 and 416 had remained prototypes, the team still felt there was a clear need for such a

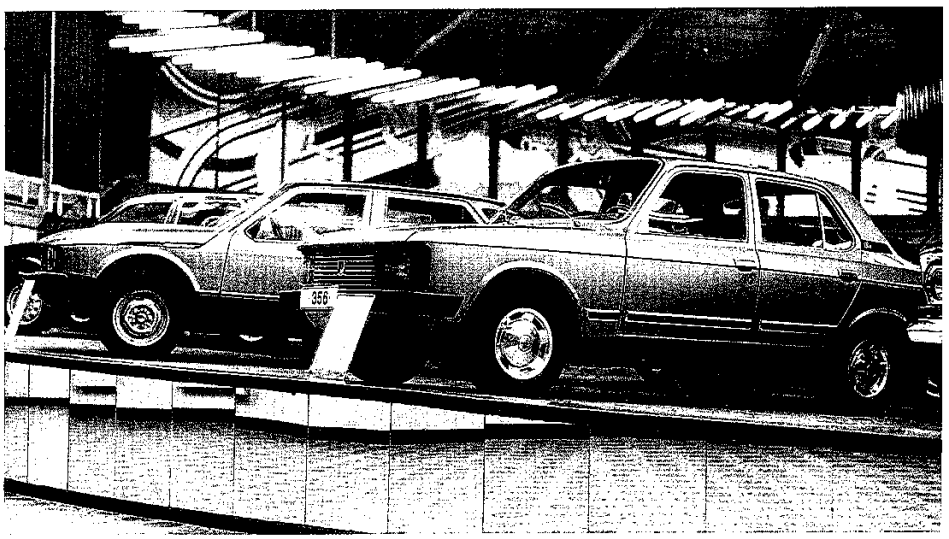
car. The project was therefore reprised with the more modern 412 engine as the Moskvich 2150, but this also did not progress beyond the prototype stage because by the mid-1970s work was well advanced on what was to become one of the most iconic Soviet vehicles of all time – the VAZ 2121 Niva.

AZLK also worked on possible options to replace the Moskvich 408/412 itself. Ironically, the success of the 408/412 was perhaps a poisoned chalice. In 1966 the Soviet government agreed to invest sufficient funds in the Moskvich line to boost capacity to 200,000 cars a year. However, on the basis that one doesn't change a winning formula, they decided to use the new production equipment to produce more of the current car rather than introduce a new one. Even so, the AZLK designers didn't stop thinking about or working on new products.

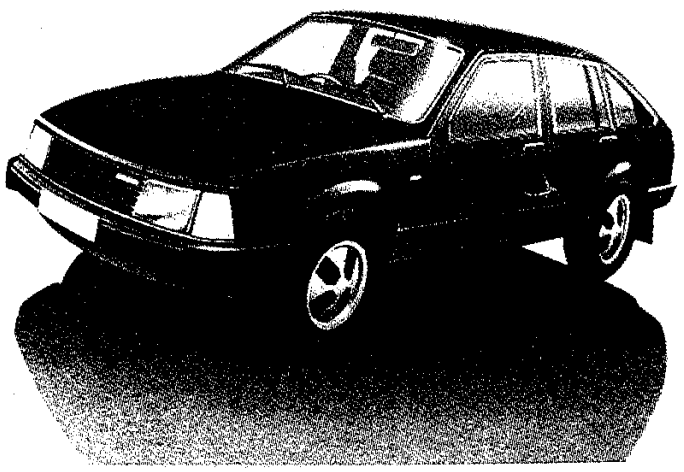
The prototype Moskvich 353 of 1970 was quite traditional in style and used the same mechanical parts as the Moskvich 412 without any major changes. Although its bodywork was bigger, with larger rear wings, it still looked recognisably like a Moskvich 408/412. This was followed in 1972 by the Moskvich 355, which was still conservative in style but looked substantially different from the 412. Its length had grown by 230mm, while 140mm was added to the wheelbase and 80mm to the width. The interior and the boot were both usefully larger. The spare wheel was located vertically in the boot and the door handles were recessed into the panels.

The 355 sired the 356, developed between 1973 and 1975. It shared much of its body with the 355 but had much bolder front end styling. Underneath the boxy body there was a revised suspension set-up and a 1,799cc version of the UZAM engine, which, with twin Zenith carburettors, gave 103bhp and a top speed of 99mph. A rear-wheel-drive car, it was intended to be equipped with a Borg-Warner automatic transmission and the example on show at the Moskvich museum in Moscow, painted a pleasant shade of emerald green, has just such a gearbox. Two other engines were planned for the car, both based on the UZAM 412 unit, one a 1600 and the other a 1700. A new five-speed manual gearbox was also drawn up for buyers who still wanted to shift their own gears.

The chief designer at AZLK, Alexander Andronov, retired after the Moskvich 356. He was replaced by a team of people who were determined to make their own mark on Moskvich and take the company in a new direction. Having seen the changes taking place across Europe and not wanting Moskvich to fall any further behind, they began work on a car that was intended to have no links with the past and would take the Moskvich upmarket. While retaining an engine that would not move too far beyond the company's longstanding 1,500cc market niche, the new car was to have capabilities that would allow it to challenge the Soviet Union's traditional middle-class car, the GAZ 24 Volga series. AZLK wanted to develop a car that would be just as



➔The 1973 Moskvich 356 prototype featured a 1,799cc engine and a Borg Warner automatic gearbox. Sadly it didn't go into production. This example is now on show at a museum in Moscow dedicated to the marque. *(Julian Nowill)*



The Moskvich 356 was an extremely tidy-looking car, with a few hints of the Fiat 132 about its lines. Behind this example can be seen sketches for other proposed Moskvich cars as the design team started to explore hatchback body styles. *(Vladimir Varaksin)*

The Moskvich C3 prototype of 1976. *(Author's collection)*

➔The Moskvich 2140, announced at the end of 1976, was a careful revamp of the 1,478cc Moskvich 412 that gave the venerable range's reputation and sales a short-lived boost. The front and rear ends were restyled and there was a new interior and dashboard. The Moskvich 2138 was identical apart from its smaller 1,358cc engine. *(Author's collection)*

➔This 1977 Moskvich 2140 is for the export market, where it was often sold as the Moskvich 1500. *(Author's collection)*

comfortable as the Volga but cost much less to build and to run.

1975 saw the first fruits of their enthusiasm, the C1. Even its name – Series One – was chosen to represent the start of a new era. However, some compromise was nevertheless inevitable: the C1 retained a traditional front engine/rear-wheel-drive layout, even though there was a definite shift towards front-wheel drive by other makers, including Audi, Volkswagen and Fiat.

The C1 prototype looked very similar to a Saab 900. Like the 356, it had a UZAM 412-based engine, but in this instance it had only been stretched to 1,702c and produced 81bhp – enough for a top speed of 93mph. Suspension at the front was by McPherson struts while the rear had independent trailing arms, as adopted by BMW. Indeed, the MZMA design team maintained their own BMW 520 for tests and comparisons. The body style was a fastback although it did not have a rear hatch, instead retaining a separate luggage compartment with its own boot lid. Although a major step forward compared to the existing Moskvich range, the C1 did not offer the much higher levels of refinement that AZLK were looking for.

The C1 was followed in 1976 by the C2, which only got as far as a clay mock-up. This was a heavier-looking car, but like the C1 was a fastback saloon. Later that year came the C3, which was an evolution of the ideas explored in both the C1 and the C2. It retained a fastback profile, only this time it got a full fifth door at the back, with the possibility of folding the rear seat to create estate car capability. To look at it was a little less daring

↑The Moskvich 2137 was the revised estate car announced at the same time as the 2140. This example was exported to Cuba and is seen here in Havana. *(Avtoexport)*

and innovative in its details than its predecessors, especially in its doors, which lost the interesting use of corners and prominent B post that had been a feature of the C1. The front end was also a little more conventional. Even so, the C3 remained a good-looking and elegant car with sufficient style of its own to distinguish it in what was becoming an increasingly competitive global market for family-sized cars. If it had gone into production it would have been made as both a hatchback and a traditional saloon. It had the same mechanical components as the C1, although fitting the engine under the low bonnet proved to be difficult, even after the engineers slanted the engine to one side (a solution chosen by both the British Rootes group for its 1966 Hillman Hunter and Vauxhall for its 1967 Victor FD). Sadly none of these promising prototypes got beyond the experimental department. As far as buyers of Moskvich cars were concerned, the 408/412 series – albeit with some judicious alterations – was the only option available until well into the 1980s.

Until November 1973 the body of the Moskvich 408 and Moskvich 412 differed in internal equipment and style, having, for example, different instrument panels; but from November AZLK standardised the same trim and equipment on both. In spite of the 1973 changes, the Moskvich range, which in its time had been highly regarded as a reliable and unpretentious quality product, was increasingly seen as being old-fashioned, both inside and outside the Soviet Union. Even so, in August 1974 AZLK completed the two-millionth Moskvich, just seven years after Moskvich number 1,000,000 had been made.

At the start of 1975 the instrument panel was changed from the rather fussy oval speedometer surrounded by tiny auxiliary gauges to three large round instruments, the central one being the speedometer and the outer two housing the fuel, temperature, ammeter and oil pressure instruments. The rest of the dashboard remained unchanged. The new dials weren't seen on British cars, although they were shown – as a drawing – in the last ever brochure for the pickup, published in the autumn of 1975.

Production of the Moskvich 408 and Moskvich 412 officially came to an end in December 1975, when Moskvich announced their replacements – the Moskvich 2138 and Moskvich 2140 respectively, which were really little more than facelifted versions of the existing vehicles. Production of these new models officially commenced in January 1976. The 2138 was fitted with the 1,358cc 50bhp engine while the 2140 got the larger 1,478cc 75bhp unit. With the exception of their engines and gearboxes the two cars were otherwise identical. Export designations were Moskvich 1300 (2138) and Moskvich 1500 (2140).

These cars were the Moskvich factory's contribution to the Soviet Union's tenth five-year plan, the five-year Quality Plan. They included a number of safety features not seen before on Russian cars,

➔The rear of the Moskvich 2137 remained unchanged from its predecessor, the Moskvich 427. The estate cars retained the same rear-end styling from the commencement of production in 1967 until the final examples were made in 1988. *(Author's collection)*

and answered the criticisms made of the original cars that they were dated to look at and to ride in. The facelift had taken three years to complete from the first sketches to production getting under way. External styling was changed, with the boot and rear wings being squared off and the previous chrome grille being replaced with a black plastic unit. The front wings were also slightly altered as the grille no longer wrapped around the front corners of the car. Exterior door handles were altered to recessed safety units, and the bumpers gained black rubber overriders. Badges at the back spelling out the car's name were in Roman script rather than Cyrillic. There was even a new, brighter colour range.

The mechanical components were also improved, especially the brakes. The new English-licensed brake system had front discs and servo-vacuum instead of hydro-vacuum assistance. It was a dual circuit system, which meant that in the event of a fluid leak a minimum 60 per cent of the braking power remained available to the driver. A red signal light was fitted to alert the driver to any system problems as well as acting as a handbrake warning light. The cooling system became a sealed one complete with expansion tank. Lower profile tyres were fitted too. Unfortunately the unreliable gearbox, which could trace its birth back to the original column gearshift Moskvich 402 unit, remained, albeit with the floor-mounted gearshift first seen on the 408 and 412. However, thanks to the new diaphragm clutch the Moskvich was much easier to drive.

Other changes included the option of a headlamp wash/wipe system – a first for a Soviet car, a standard laminated windshield, black 'goose-head' gearshift knob and a smaller 380mm steering wheel with a safety pad in the centre. The stop signals and turn indicators shone more brightly when the lights were turned off – when the lights were used at night, the stop lamps and indicators were dimmed to avoid dazzling other drivers. Hazard lights were also a standard fitting. After tests on the car, including a session in France, the new Moskvich was able to display the internationally recognised European 'E' safety symbol.

Inside, the entire car was thoroughly upgraded with a larger back seat and taller front seats. The front seats also gained figure-hugging contours to stop the driver and front passenger sliding around during hard cornering. Seat upholstery was offered in two versions: perforated vinyl and soft-feel cloth. Colour combinations were the most diverse ever offered by Moskvich: all black, dark grey with black, contrasting shades of red and tan. The redesigned dashboard was completely covered by a black or tan-coloured energy-absorbing material, although the actual instruments were the ones introduced on the 408 and 412 at the start of 1975. Noise reduction had also been a priority for the designers: a new three-stage exhaust was fitted and special sound insulation material was added to the body and engine bay. The new cars offered improved ventilation and minor controls.

←The 1976 Moskvich 2136/7 estate cars remained useful compact station wagons, sharing the mechanical refinements of their 2138 and 2140 saloon car counterparts. *(Hungarian Moskvich Club)*

↑The Moskvich 2140 was a brave attempt to give the 1964 Moskvich 408/412 a new lease of life. Mechanically, it gained a new brake system but little else was changed under the skin. *(Avtoexport)*

In spite of its official launch date being December 1975, with production formally starting in January 1976, the actual launch of the Moskvich 2140 and its sister the 2138 was subjected to a somewhat ad hoc approach. First off the production line came cars with the 412 bodyshell but fitted with the rear wings, boot lid and tall panel of the 2140. Next came models with the revised front end but still with the 412 doors. And then eventually, early in 1976, came complete 2140s and 2138s without 412 doors. The hybrid models were few in number but are now rather collectible. They are not, as has sometimes been suggested, home-made cars!

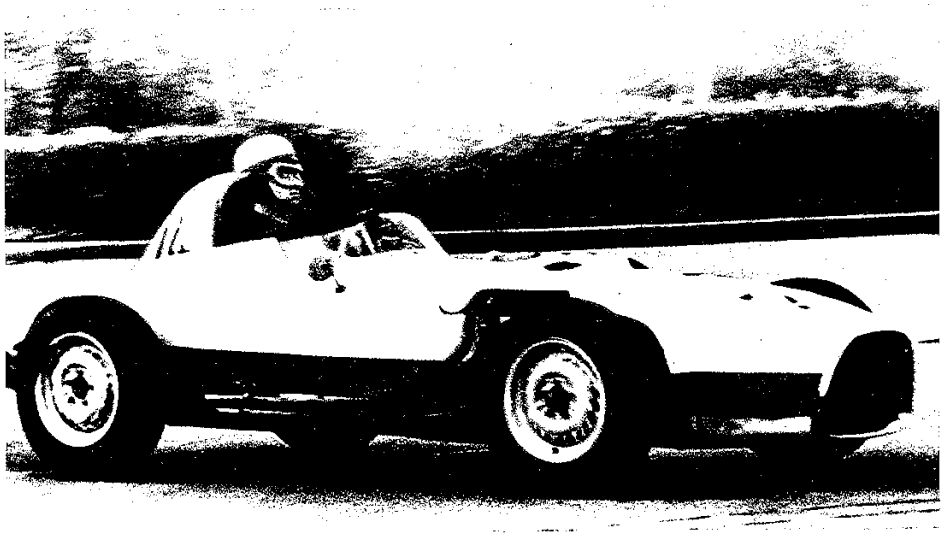
The rest of the range was similarly upgraded. The 1,360cc estate car was called the 2136 and the 1,478cc the 2137. Estate cars were always made in much smaller numbers than saloons, since traditionally station wagons have not been popular with Russian car buyers. The 2136 was only made for a year, being dropped from the line in 1977. The 1,360cc van was named the Moskvich 2733 and the 1,478cc version the Moskvich 2734. A few facelifted pickups were built – the 27334 with the 1,358cc engine and the 27344 with the larger 1,478cc unit. However, pickup production at the Moskvich works, which had in any event been on an extremely small scale, soon came to an end, leaving the field open for IZH to corner the Soviet market in compact pickups (see page 180). By the start of the 1980s AZLK had all but dropped production of the vans too, mainly in order to meet domestic demand for its cars.

The pre-facelift pickups were the last new Moskvich cars to be offered to British buyers,

being listed for sale into 1975. These were also the only Moskvich cars imported to Britain with a revised instrument panel with round dials. It is not known how many were actually sold.

Other variants were the AZLK 21381 and 21401, introduced in January 1976, which were built for use by the medical services. In October 1978 Moskvich introduced the 21406, especially designed for use in rural areas. It was powered by a low compression 68bhp 1,478cc engine that could run on 76-octane fuel, had front drum brakes, reinforced rear springs and town-and-country tyres. A small number of standard 2140s were fitted with the 68bhp engines, these being known as the 2140D and, in the case of models adapted for disabled drivers, the 21403, first seen in November 1979. There was even a right-hand-drive version, the 21402.

The revised Moskvich range was really too little, too late. The rest of the world had moved on, including the Soviet Union. Although the millionth export Moskvich was made in December 1977, exports to markets outside the Eastern Bloc fell away, especially as local importers switched their efforts to the much more promising Lada range. Belgium was one of the last Western markets for the traditional rear-wheel-drive Moskvich, the Moskvich 2138 being sold as the Scaldia 1300 and the Moskvich 2140 as the Scaldia 1500. Finland too remained a reasonably successful outlet for Moskvich cars for a while. ■

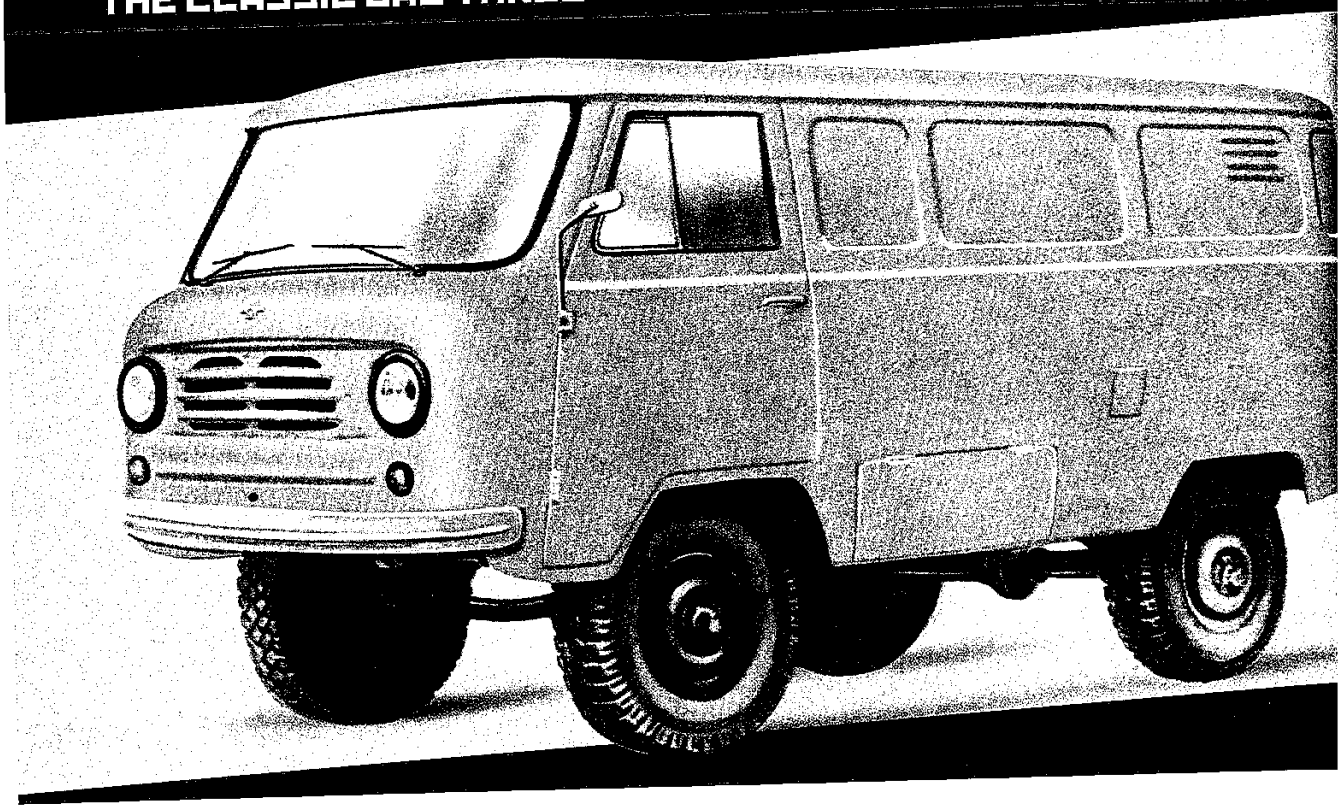


↑An eye-catching use for a Moskvich 2140, seen in Bulgaria in 2006... *(Author's collection)*

←Moskvich used the 407 series engine in this 1961 Moskvich G3-407 racing car. *(Author's collection)*

UAZ

THE CLASSIC UAZ TAKES THE WORLD BY STORM



↑The two-wheel-drive versions of the UAZ light commercials, the UAZ 451, were announced in 1961. Avtoexport promoted them as general-purpose utility vehicles, promoting their suitability for use in towns and rural areas. This is the van derivative. *(Author's collection)*

UAZ started the 1960s with further development of its successful range of forward-control light trucks. Its van was nicknamed the 'Loaf' and its pickup the 'Tadpole', derived from the profile of the vehicles, names that are still widely used today. On 12 December 1961 two-wheel-drive versions of the 4x4 UAZ 450 were announced, sharing the same 2,300mm chassis and the same engine but without the driven front axle or transfer box. The new UAZ 451 4x2 machine was offered as the UAZ 451D drop-side pickup, the UAZ 451 van, and the UAZ 451A ambulance. There was also a minibus, the UAZ 451B.

In January 1963 the company unveiled one of the most interesting UAZ prototypes ever made. The UAZ-452GP had a unique hydro-pneumatic suspension system. It was developed to answer a longstanding problem with off-road ambulances such as the UAZ 450. While they could go anywhere, they could only do so slowly. Driving quickly would throw everyone – including the patient – all over the place, which was hardly conducive to good medical care. During the 1950s two cars had appeared that dispensed entirely with metal for their spring systems. The Citroën DS19 used a pump-driven hydraulic system, and the Austin Mini introduced a similar system but without the need to have a pump constantly running. Both systems proved themselves to be surprisingly reliable and the thought occurred to Soviet engineers that something similar could be used on their own vehicles.

They decided to design a similar but simplified version of Citroën's hydro-pneumatic suspension for a cross-country vehicle. The experimental GAZ-

633G appeared in 1961 and proved to be very successful at ironing out the bumps when off-road. This inspired the idea of equipping UAZ ambulances with a similar suspension system.

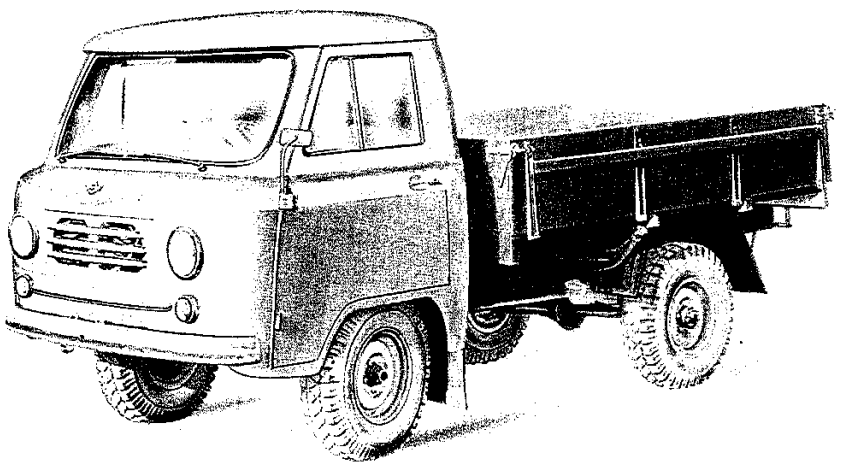
It was decided at the beginning of the project to mass-produce vehicles with the new type of suspension, so the designers had to adapt the existing UAZ solid axles. First they fitted much softer leaf springs, but replaced the shock absorbers by large, hydro-pneumatic cylinders, the idea being that the cylinders would absorb all the movement created by the very soft springs and so insulate the body from the worst of the road conditions. To keep the hydraulic system under pressure there was a hand pump, while to help control what would be potentially quite excessive body roll anti-roll bars were fitted.

The first examples proved to be difficult to keep in a straight line, but after some changes to the steering gear it became possible to drive the new ambulance at unbelievably high speeds over the roughest of terrain. While the driver could still feel the rough ground through the steering wheel, the passengers no longer needed to cling onto whatever they could to stay in their seats or stretchers. The vehicles could now be driven for considerably greater distances than regular UAZs, in which the harsh ride made long journeys a veritable endurance test.

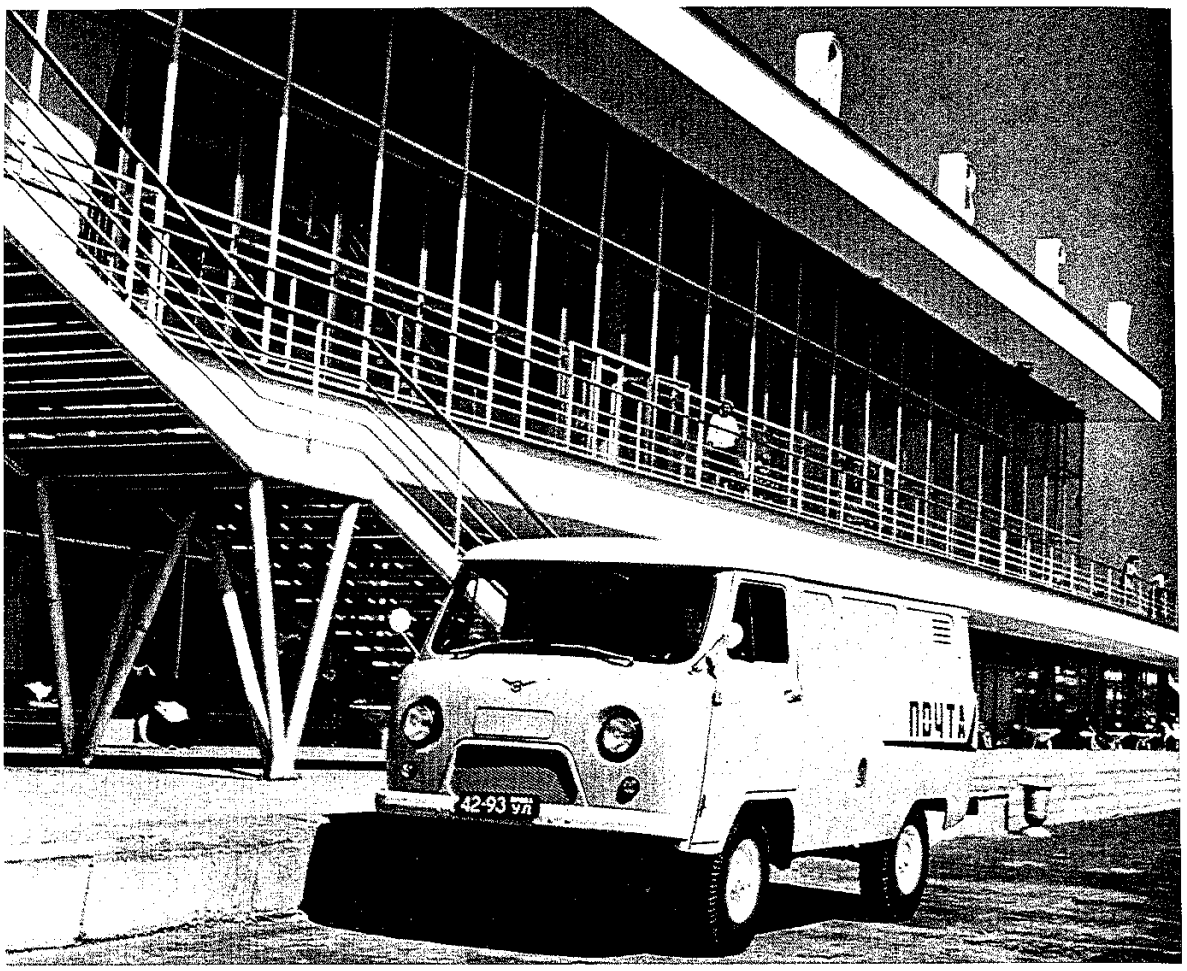
One problem that became clear early on was the need to use a manual pump to pressurise the hydraulic system. As the project progressed an electric pump was used instead. This automatically corrected the height of body once the engine was fired up. In spite of successful testing, however, the design was dropped. No official reasons were given but it is likely that the Red Army didn't trust something as complex as a hydraulic suspension system. Springs and shock absorbers could be easily bodged back together in a battlefield situation whereas hydraulic cylinders and pumps – well, that would be another matter entirely.

In 1966 the entire UAZ 450 series family was modernised. All models got a more powerful 70bhp 2,445cc overhead-valve engine based on the one used in the GAZ M21 Volga, a four-speed gearbox, revised axles and a slight change to the appearance of the cab, which got a revised front panel and a lower radiator grille. The van got a side-loading door. The clutch and steering were improved to make them more driver-friendly. Chassis strengthening made it possible to increase the load capacity of all models. The two-wheel-drive range now consisted of the UAZ-451M van and the UAZ-451DM drop-side pickup, the van being able to carry 800kg and the pickup 1,000kg. Maximum speed was 59mph.

The four-wheel-drive models were renamed UAZ 452. The original range was made up of the UAZ 452 van, the UAZ 452D drop-side pickup, the UAZ 452V microbus and two ambulances, the UAZ 452A and UAZ 452G, distinguished by their differing patient capacity. The UAZ 452 S was another ambulance, designed and



←The two-wheel-drive Ulyanovsk range included this UAZ 451D pickup truck, with a wooden drop-side body. *(Author's collection)*



↑ In 1966 the UAZ light commercials were given a thorough makeover. The front-end styling was changed to this simpler look, which has remained unchanged ever since. This is a 1966 UAZ 452 van. *(Avtoexport)*

→ One of the more popular UAZ light commercial options has always been the pickup truck. This is a 1968 UAZ 452D. *(Avtoexport)*

equipped for use in cold, northern areas, and was equipped with additional heating, double-glazing and insulated floors, roof and sidewalls. These vehicles were tested in the Oimyakon region, where temperatures fell to –60°C, and were able to maintain an inside temperature of +30°C! Vehicles with screened electrical equipment were also produced. The UAZ 452 was able to overcome snow to a depth of 50cm and carry 800kg of load. Due to its reliability and amazing off-road ability, it was extremely popular with armies and official agencies right across Eastern Europe. At an international exhibition of agricultural technology held in May 1966 in Moscow, the UAZ 452D truck was awarded the highest prize – a gold medal. In October 1977 the UAZ 452 van was granted the State Quality Sign and the UAZ452D was officially recognised as being in the highest quality category for Soviet products.

A rare model was the UAZ-451M-based LuMZ 946, which was equipped at the Lutskom Machine Building Plant with a refrigerator with a load capacity of 500kg. Prototypes models based on the UAZ 452 included the articulated UAZ 452P. Total weight of the combination was 2.25 tonnes. A snowmobile based on the UAZ 451D was also designed. This was the UAZ 451S, which had steering skis instead of the front wheels while the rear axle was equipped with caterpillar tracks. It was tested by being driven from Novosibirsk to Ulyanovsk. Another interesting model, the UAZ 451S2, was a cross-snow, cross-

A UAZ Trekmaster – the name adopted when attempts were made to market the UAZ 452D in Britain in 1978. This dramatic publicity shot certainly showed the vehicle's undoubted ability to keep going when the going got tough. *(Author's collection)*

This 1979 shot of a UAZ 452 shows just how little the vehicle had changed since its introduction in 1966 – and the 1966 version wasn't all that different from the original launched at the end of the 1950s! This UAZ remains globally something of a rarity: a four-wheel-drive van was and still is relatively unusual. *(Author's collection)*

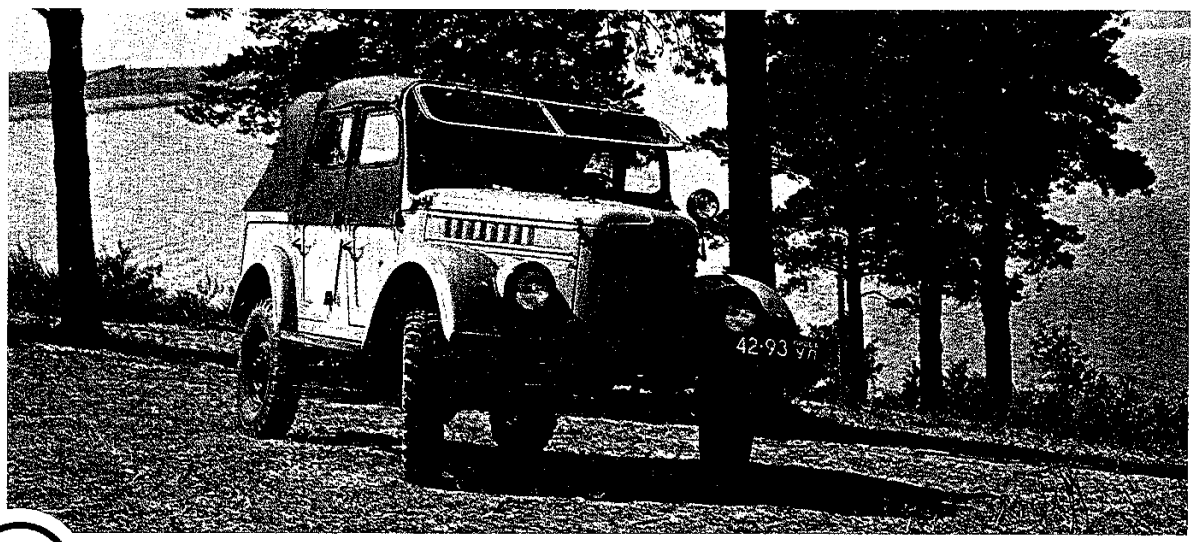
swamp vehicle with four caterpillar drives. Two six-wheel-drive prototypes were built, a two-ton truck in 1973 and a 16-seat minibus in 1975.

In the mid-1970s attempts were made to sell the UAZ 452 in Britain. The UMO Group, with its head office in Letchworth, Hertfordshire, had already had some success importing Soviet-made agricultural and construction machinery such as KrAZ dump trucks. The vehicles were branded variously as Belaz 452, UAZ 452 and Trekmaster 452. Vans and pickups were offered and even a locally bodied Tipmaster tipper. How many were sold isn't really known but few were ever seen on the roads. UAZs remain a rarity in Britain, although one nearly made an appearance as a police van in the 2005 British-made film *Charlie and the Chocolate Factory*, starring Johnny Depp. Apparently it failed the audition but was in spring 2007 offered as a prize by *Practical Classics* magazine, replete in blue police livery.

By the middle of the 1950s it was becoming increasingly clear that the UAZ-built GAZ 69 was falling short of the ever more demanding needs of the Soviet military and other official agencies that needed four-wheel-drive passenger vehicles. UAZ set to and started designing a new vehicle to replace the ageing GAZ 69. The first prototype UAZ 471, built in 1958, had independent suspension for all four wheels. Tests showed, however, that it was too complex to build and not that reliable.

In the autumn of 1960 UAZ finished a new prototype, the UAZ 460 with non-independent leaf spring suspension, a separate chassis, and the engine of the GAZ M21 Volga. Two versions were developed: the military model with wheel reducers in the axle hubs to increase ground clearance, and a general-purpose version with normal axles. Including wheel reducers in the axle hubs is a technique that makes it possible to increase ground clearance by lowering the centre of the wheels below the centre line of the axle itself. It is relatively simple and avoids the need to completely re-engineer axles and chassis mountings to achieve better ground clearance. In 1961 tests began across Central Asia to the Caspian Sea and on special routes used by the defence ministry for training and development.

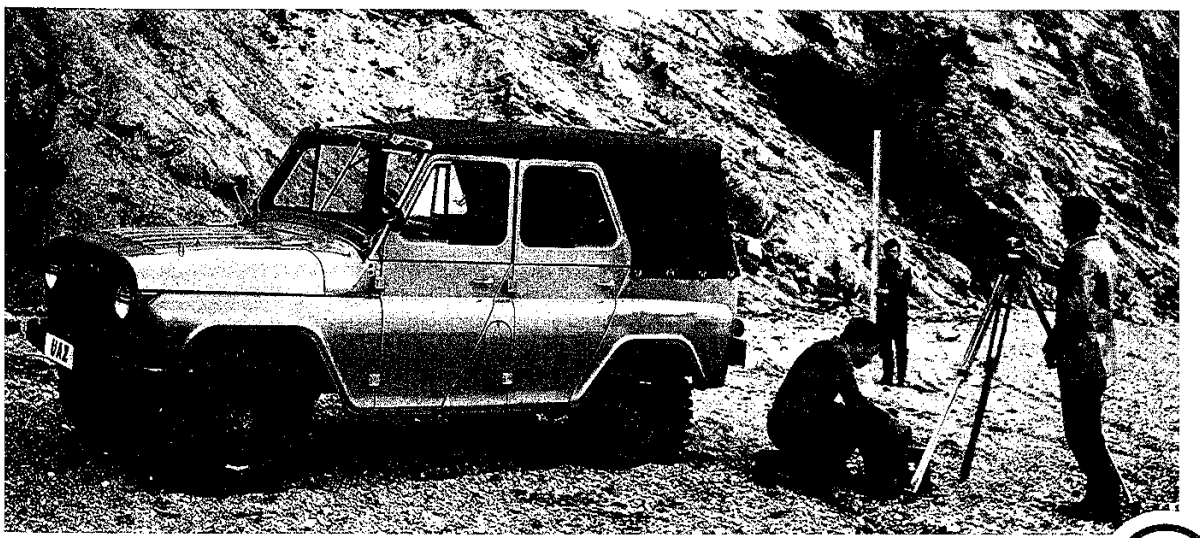
Debugging the new design took a lot of time and the new UAZ wasn't able to pass its official tests until December 1964, when it was approved for mass production. The cause of the delays was the extremely high standards demanded by the armed forces, which compared it with foreign vehicles, even though most of them couldn't keep going when the UAZ still could. Even the civilian versions had to meet army requirements. This was because every vehicle was registered with the military and subject to immediate mobilisation in the case of war. This explained why the UAZ only had a canvas top until 1993 because that made it easier for soldiers to get in and out. Some last minute shakedown tests took place in 1965 and the designs for what was now the UAZ 469 were finally passed over to the production team.



Although sold under the GAZ badge, the GAZ 69 was made by UAZ. This is a 1968 GAZ 69AM four-door model. *(Avtoexport)*

←The two-door GAZ off-roader was the GAZ 69M, seen here in 1968 in an atypical blue paint finish. Most were painted olive green. *(Avtoexport)*

↓Introduced in 1972, the UAZ 469 became the mainstay of the plant's production for many years. It was the ubiquitous four-wheel-drive for the whole of the Eastern Bloc, being used by military forces, police services, emergency rescue teams and – as seen in this 1977 picture – surveyors and civil engineers. *(Author's collection)*



↑The UAZ 469 really was a go-anywhere vehicle, and was the only one that could equal a Land Rover off-road – or, as shown here, in water... *(Author's collection)*

UAZ celebrated its silver anniversary in 1966, and in January 1967 Minavtoprom and the state planning department, Gosplan, agreed to a major project to reconstruct and expand the plant. This would raise vehicle production by 350 per cent and allow for the introduction of new models. What was missing from the Gosplan approval was the cash needed to put the expansion plan into action. It wasn't until March 1971 that the ministry agreed to fund the introduction of a new range of vehicles, even though the design had been signed off by technical experts six years earlier!

Approval having finally been given for the UAZ 469, in 1972 an extension was built at the south side of the main Ulyanovsk assembly line that made it possible to set up a second line. Within just a few months UAZ production was up by 150 per cent, and by the first quarter of 1973 daily output at the UAZ works had doubled. On 18 February 1974 UAZ built its millionth vehicle, a UAZ 452.

The last GAZ 69 had meanwhile rolled off the Ulyanovsk production line on 15 December 1972, to be followed immediately by the first UAZ 469. This was the first time that the Soviet motor industry had made a complete model switch on a single day.

The UAZ 469 was equipped with the same inline four-cylinder 2,445cc 75hp UMZ 452MI engine that was by then used in the UAZ 452 range. ZMZ made a similar engine for use in the GAZ M21 Volga. It could run on the lowest grade fuel – as low as 72 octane, although 76 octane was the preferred mix. The UAZ 452 and UAZ 469 also shared the same basic chassis and four-speed gearbox, with synchromesh on the top two gears. There was a dry single-disc

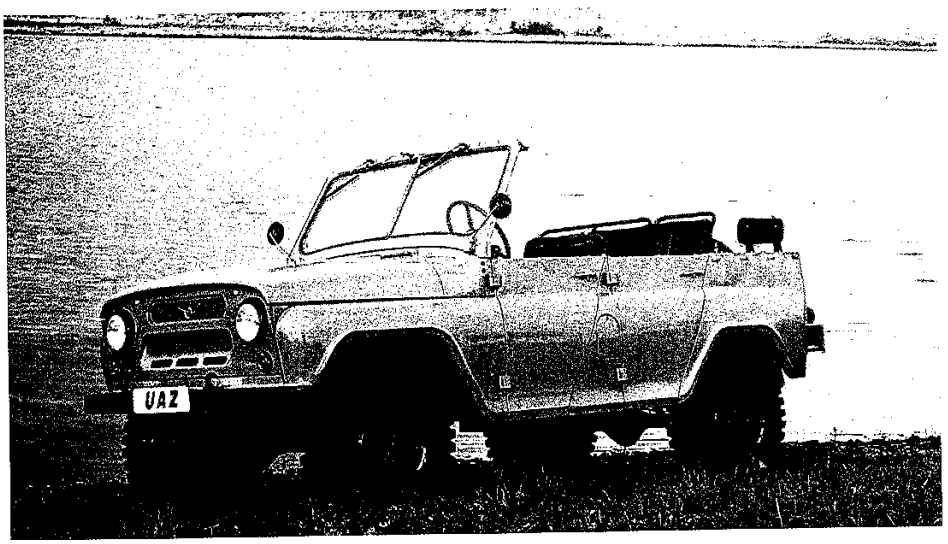
clutch, two-range twin lever transfer box, and drive to the front axle could be disconnected. The steering gear and hydraulic drum brakes were not equipped with power assistance. The suspension remained dependent leaf springs all round with lever type hydraulic shock absorbers. The military UAZ 469 had wheel reducers that made it possible to increase the road clearance from the 220mm of the civilian UAZ 469B to 300mm. There was also a pre-operational heater and screened electrical equipment. The civilian version was first built in 1973, although during the Soviet era an ordinary citizen was not allowed to buy one. Distribution was strictly to state orders from the army, collective farms and state agencies. The UAZ 469 BG was a medical version, with space for a stretcher next to the driver.

The folding tarpaulin awning and the removable windshield, which could fold down onto the bonnet, made the machine not only air-transportable but also easily disguised. The door window frames could be quickly unbolted too but were also suitable for models with a rigid metal top. Even though a prototype hard-top UAZ 469 was built in 1967 production of hard top examples didn't begin until the early 1990s. A UAZ 469 could carry up to seven passengers and 100kg or, with just two people, 600kg. It could tow an 850kg trailer even when travelling off-road, and a special trailer was even built for use with it.

Like much of the Soviet auto industry during the 1960s, UAZ expanded its reach beyond the Iron Curtain. In the early part of the decade it began technical co-operation with the Italian company Martorelli Brothers, which had imported the GAZ 69 before turning later to UAZ vehicles. The design work on the UAZ 460/469 was closely followed in the People's Republic of China. In 1965 the first Chinese off-roader, the Beijing BJ212, was built in Peking, which, apart from the design of the bonnet and wings, was extremely closely related to the 460.

The new UAZ 469 generated enormous interest in other countries and during the 1970s it was exported to 80 countries. UAZ vans and trucks became popular on Cuba's sugar-cane plantations, they were often seen in Vietnam and Mozambique, and during August 1974 three 469s even climbed Mount Elbrus, which at 5,642m is the tallest mountain in Europe (the only other vehicle to ever achieve the same feat was a Land Rover Defender in 1997). In 1975 UAZ took part in a trek through the heart of the Sahara desert, and when the second European competition for cross-country automobiles took place in San Remo in October 1978 UAZ vehicles came first. Italy became an important export market for the UAZ 469B, where it was a popular choice amongst off-road enthusiasts. In Colombia, it was marketed as 'the indestructible UAZ'.

Back in the USSR, on 31 July 1968 the Ulyanovsk engine factory was renamed the Ulyanov Motor Plant (UMZ) and re-equipped to build engines for cars and light trucks. On 28 October 1969 the first UMZ 451 car engine was built, producing 72bhp. ■



←Hardtop UAZ 469s didn't appear until the 1990s. All were sold until then with a fully collapsible soft-top that allowed for real open-roof motoring. *(Author's collection)*

IZH

LIKE A MOSKVICH ONLY BETTER

↑The IZH 2125 was the plant's first self-designed car, although it clearly owed a lot to the Moskvich models the plant had been building since 1966. Announced in 1973, the five-door hatchback was a clever variation on the Moskvich theme. *(Avtoexport)*

More commonly known simply as IZH, Izhevsky Mekhanichesky Zavod ('Mechanical Factory of Izhevsk') was originally established as a weapons manufacturing plant in 1807 with the full support of Tsar Alexander. The city of Izhevsk itself was founded in 1760 on the site of an iron works on the River Izh in the western Urals and is now the capital of Russia's Udmurt Republic. Today the factory produces cars, motorcycles, industrial machines, tools and, as in the past, weapons – everything from knives to bazookas. During the Second World War IZH alone produced 11 million weapons, while in the same period the *total* arms production of Nazi Germany was just 10 million! In the West, the company is perhaps best known for its Kalashnikov assault rifle.

Vehicle manufacture at IZH started in 1928 when the Soviet government approved plans for it to build motorcycles. IZH was given a centrally developed design to build although it did make a few changes to the approved blueprint. The first motorcycles were made in 1933/4 and owed a little to German DKW machines. However, over time IZH developed its own style and designs and during the 1970s and 1980s its bikes were successfully sold in Britain as Cossacks or Nevals. It was the Soviet Union's biggest maker of motorcycles, a position it now holds in post Soviet Russia.

IZH's first stab at car production came when it proposed a multi-purpose four-wheel-vehicle for rural areas. A prototype – the IZH Ogonyok or NAMI-048 – was unveiled in 1958, based on a GAZ chassis but using a 750cc flat twin engine derived from the Ural M72 Motorcycle, but did not go into production.

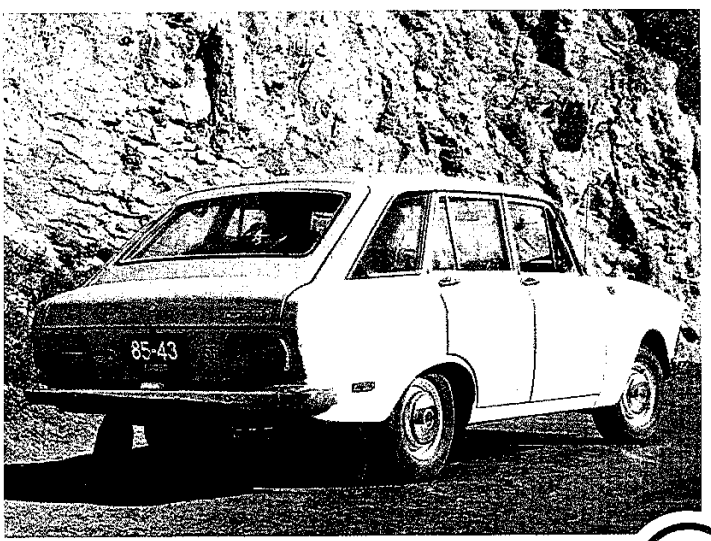
It wasn't until October 1965 that the company was given the go-ahead to build a car assembly plant. The IZH 408 was the first car to be made at the new works, production starting on 12 December 1966. This was a copy of the Moskvich 408 and was made from components shipped out from Moscow. Three hundred were made by the end of 1966. In December 1967, after 4,000 had been made, the IZH 408 was replaced by the IZH 412, which was very closely based on the overhead cam 75bhp 1,500cc Moskvich 412, which had been produced along with the 427 estate and 434 van at the AZLK works in Moscow since October 1967. By the end of the year 207 of the new IZH 412 had been made at the Izhevsk works. In 1968 the saloons were joined by the Moskvich 434 van. The engines for the new car came from the UZAM factory in the town of Ufa, located to the south of Izhevsk.

Although the IZH cars were based on Moskvich designs, they eventually started to develop their own identity. For instance, when the Moscow car adopted rectangular headlamps in 1970 IZH opted for two round headlights and a new radiator grille with a fine mesh style. In January 1971 the IZH, like its Moscow counterparts, also gained a revised rear lamp design, individual front seats, power-assisted brakes and tyres increased in size from 6.00x13 to 6.40x13. Around this time the Izhevsk built 412 was renamed the 412IE.

The firm went on to produce its own variants. In 1970 two prototypes, a five-door hatchback and a van, were designed entirely by engineers in IZH's new engineering and design department. The van, added to the range in 1972 as the IZH 2715 had a 1,478cc engine, side-hinged rear doors and a high roof and could carry 350kg. The van and its sister, the IZH 27151 pickup announced in 1974, were a major success for IZH, staying in production officially until 1997, although the last examples were not built until 2001, when 325 vans were made in the first six months of the year. The pickups were sometimes sold abroad, to markets as diverse as South America and Scandinavia. Sales of both the IZH 2715 and the IZH 27151 to private owners, however, were in Soviet times forbidden. Even so, the two vehicles had their own appeal to private motorists. By sharing components with

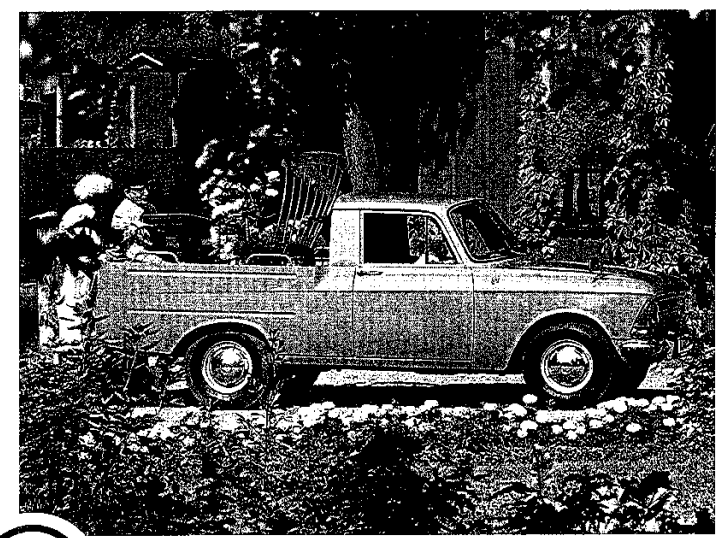
Although sales of the IZH 2125 outside of the Eastern Bloc were very few indeed, it was a popular car within the Soviet Union. This is a 1977 example. *(Avtoexport)*

Creating the hatchback IZH 2125 from the saloon IZH 412IE was a relatively simple operation. Retaining the high loading lip of the parent car's boot helped maintain the torsional strength of the body without the need for extensive re-engineering. *(Avtoexport)*



➔The IZH 2715 van, announced in 1972, stayed in production until 2001. Designed by the IZH team, its high-top body offered much more capacity than the Moskvich 434 van. *(Avtoexport)*

➔Alongside the IZH 2715, the plant also created a smart little pickup truck, the IZH 27151. *(Avtoexport)*



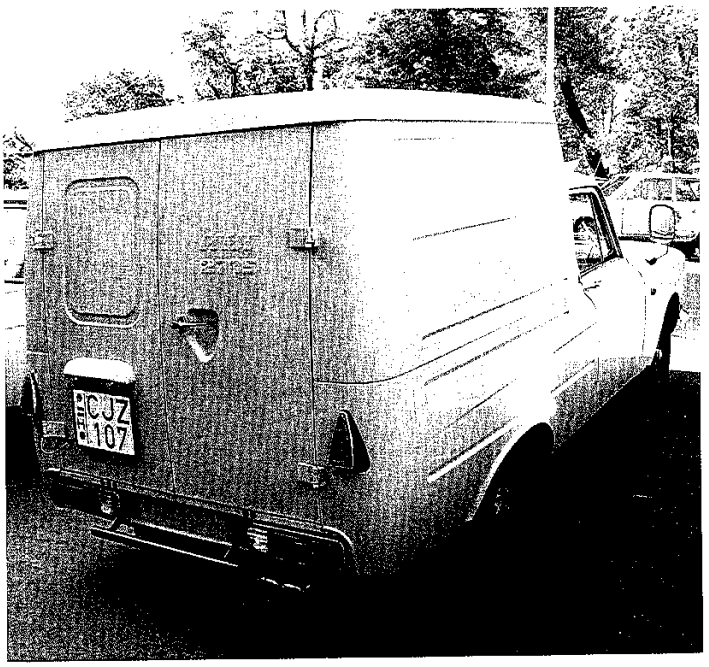
the mainstream IZH and to a lesser degree the Moskvich series, not only did state agencies find it relatively easy to maintain their fleets but private owners of IZH and Moskvich 412s had an unofficial source of hard-to-get spares!

The IZH 2715 van was sold in China as well as the Soviet Union, where it gained particular favour with the Soviet and later the Russian Post Office. Right up to the end of production, it remained firmly a utilitarian vehicle, even though a version with side windows and sideways-mounted rear seats, the IZH 27156, was introduced in 1987. Top speed was 109 km/h (68mph), handling and roadholding on wet and slippery roads rather minimal, and the interior retained an ignition switch mounted on the dashboard. Only the driver's seat was adjustable – by 180mm (7

inches) fore and aft – the passenger seat being fixed, with the spare wheel located behind it. Tall passengers could easily rest their elbows on the dashboard. However, steering effort was lighter than expected, the load space was huge and had secret compartments in the floor, the vehicles were easy to maintain, and they remained incredibly cheap to buy right up until production came to an end.

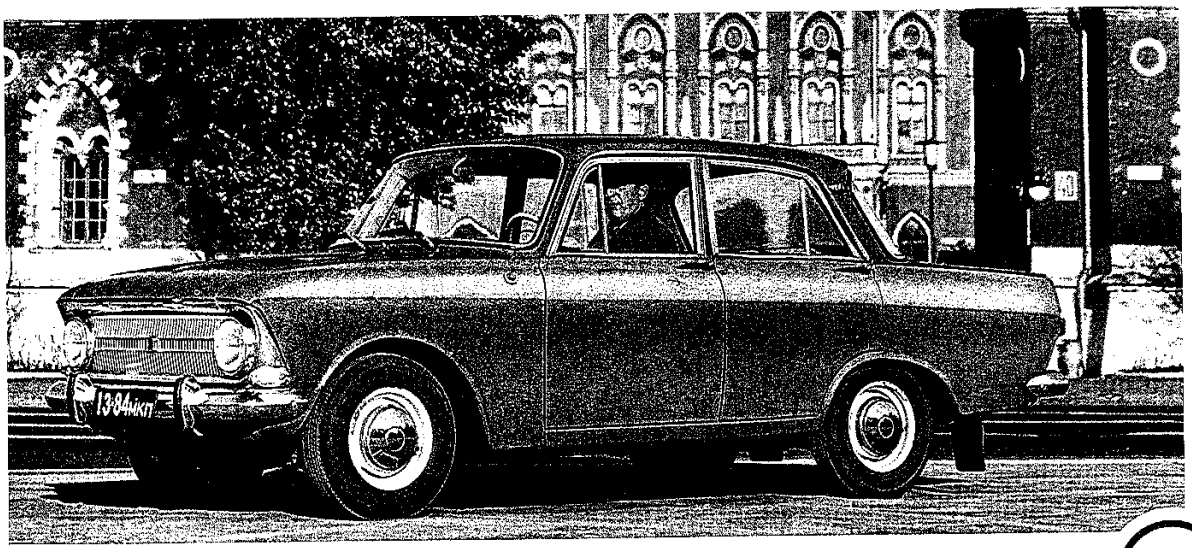
The 1970 five-door hatchback was eventually introduced as the IZH 2125 Kombi in September 1973. As far as IZH was concerned, Kombi meant a five door hatchback. The 2125 had its own unique grille design with rectangular headlamps. The rear end retained the high loading lip of the saloon but had an attractive fastback body style with a small notchback effect. It was a simple but effective adaptation of the mainstream car and proved to be extremely successful.

The expanding IZH range benefited from major investment in the production capacity of the Izhevsk plant. In 1971 more than 5,000 pieces of new equipment and tools were introduced, with support from Renault and Komatsu. By then IZH was no longer an assembler of cars but a fully-fledged manufacturer in its own right. The plant's dependence on the main Moscow plant for many components diminished as IZH created a network of its own subsidiaries. Production of the mainstream IZH 412 and its 2125 hatchback derivative increased quickly.

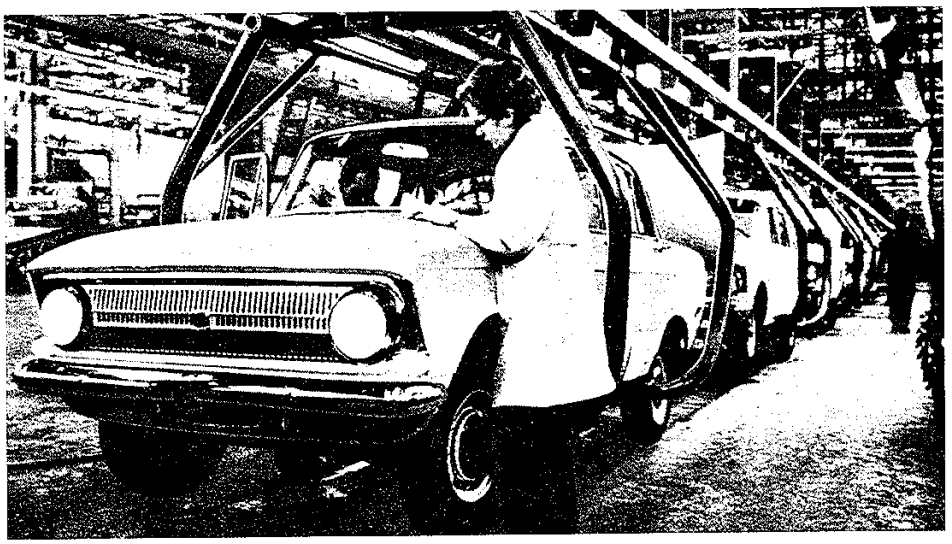


The IZH 2715 van had a large and practical rear load space – effectively one big cube! This vehicle was popular with the Soviet and, later, Russian postal services. *(Hungarian Moskvich Club)*

The IZH 412IE saloon retained single round headlamps long after its Moskvich cousin had moved first to twin headlamps and then to rectangular units. The IZH also had a slightly different radiator grille and was often said to be better-built than the Moscow car. *(Avtoexport)*



↑This is an early IZH 412IE, still hard at work in 2004. The IZH saloon range retained single round headlamps throughout its production. The grille was subtly different from the Moskvich models, and as time progressed IZH gradually differentiated their car further from the Moscow machine. *(Julian Nowill)*

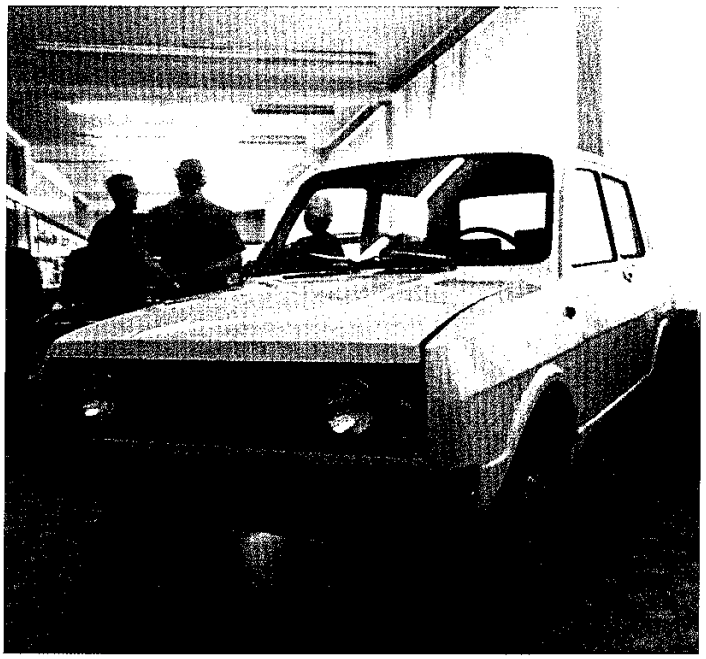


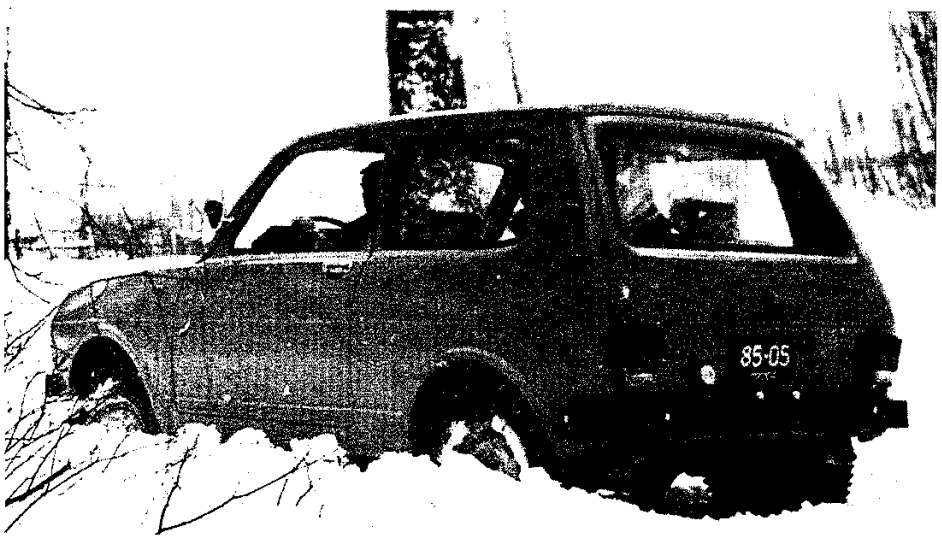
➔The IZH production line in 1975. *(Author's collection)*

Moskvich announced its new 2138 and 2140 in January 1976 but IZH continued to build the 412IE, based on the original Moskvich 412 series. It was said on the Soviet Union grapevine that IZH cars were more solid and better built than the Moskvich and were the preferred choice of the Red Army, among others.

In 1977 the millionth IZH car was made. Even so, despite an output of 100,000 cars per year IZH was not one of the biggest Soviet automotive factories. Its most important activity remained weapons production. However, between the late 1960s and the early '70s a number of prototypes were produced. The IZH 13 and IZH 19 were sporty looking front-wheel-drive saloons while the IZH 14, produced in 1974, was a small four-wheel-drive vehicle. Unfortunately, none of these cars – all equipped with the 1,500cc engine of the mainstream IZH vehicle – entered production, partly because they would have required huge amounts of investment.

IZH didn't stand still, though. Gradually the plant made many small but important improvements to its cars, which took on more of their own identity as the years went by. This meant that over time many parts ceased to be interchangeable between a Moskvich and an IZH – which made life a bit tougher for motorists in the Soviet Union, where the supply of spare parts could be erratic. Major changes to the IZH range didn't take place until the eighties. ■





↑ ← In 1974 IZH completed its own ideas for a small 4x4. Its project was subsequently dropped in favour of the VAZ 2121 Niva, which ended up looking remarkably similar to the IZH vehicle. *(Julian Nowill)*

LADA NIVA

MADE FOR SIBERIA NOT SUBURBIA

↑The VAZ 2121 Niva was ideal for people who wanted to spend their weekends getting back to nature. Its compact three-door bodyshell, short wheelbase and minimal front and rear overhangs gave it unrivalled off-road ability and made it extremely manoeuvrable in urban driving conditions. *(Author's collection)*

Back on the River Volga, VAZ was preparing to launch what was to become its most acclaimed car. Although the success of the VAZ 2101 Zhiguli and its sister models had increased car ownership right across the Soviet Union, the rugged Zhiguli couldn't penetrate every market, especially in a country where there were many markets without any roads at all! The solution was an off-road vehicle that would not only be tough enough to go anywhere but also not so rough that no one would want to use it. In 1970 the only four-by-fours that met this description were the Range Rover and the American Jeep Cherokee. Even the Toyota Land Cruiser was still very much in the mould of the Land Rover – a workman's tool – while the Eastern Bloc's own off-roader, the UAZ, was produced almost exclusively for military use. A civilian 4x4 was needed, one that would be as easy and as cheap to drive as a compact car.

Led by VAZ designers Vladimir Solovyev and Valery Semushkine, the project to develop what became known as the Lada Niva got under way at Togliatti in 1971. The car's origins can be traced back to the IZH 14, a remarkable vehicle with a short chassis, minimal overhangs, large wheels and high clearance that was nevertheless more a car than a jeep. It had phenomenal off-road ability and a unique transfer box that let the driver select rear-, front- or four-wheel-drive. However, since the Izhevsk plant's role in the planned Soviet economy was car, not jeep, production the IZH 14 remained only a prototype. It was, however, carefully studied by VAZ and clearly influenced what was to become the VAZ 2121 Niva.

The first Niva prototypes, produced in 1971 and 1972, were in the form of a traditional jeep, canvas covered and without doors. The engine was a VAZ 1300 unit that was quickly discounted as being too weak for the tough job of powering a 4x4. Moreover the prototypes' rustic character was disliked by Soviet leaders, who wanted rural motorists to have the same creature comforts as those living in cities. The design team added a roof and doors, thereby creating a mini SUV before its time.

It wasn't until 1973 that the results of this rethink took form. The new design, inspired by the first Lada and more particularly by the VAZ 1101 Cheburashku, was the work of the young designer Valery Pavlovitch, who worked at VAZ into the 21st century and later designed what was to become the Chevrolet Niva. The body of the latest proposal was made entirely out of steel, with two doors. The engine was changed to the 1,570cc VAZ 2106 unit, and there was permanent four-wheel drive with the added bonus of locking central and rear differentials. These were truly revolutionary ideas for the time. Performance was modest on-road but exceptional cross-country: neither inclines of up to 58°, fords 60cm deep nor a metre of snow could stop this car! Over the next two years the prototype was further developed, including tests conducted with the help of UAZ engineers in Uzbekistan during the summer of 1973. Porsche got involved in the project too, developing a twin-range transfer box that had originally been planned for a small cross-country vehicle designed by the German firm that never made it beyond the design stage.

VAZ presented the finished product for approval in April 1977, now officially called the Niva, which means 'Field', the name being chosen because it was expected that the car would spend most of its life in fields. It was the first Lada not to be a cloned Fiat, although the carburettor-fed 76bhp engine had its roots in the Italian-based range. The Niva was an incredibly capable car off-road thanks to its short wheelbase, short front and rear overhangs, locking inter-axial differential, twin-range gearbox and large 16in wheels. Top speed on-road was 81mph and it could climb a 58° slope with ease.

The 1978 Paris Motor Show was the little car's first Western European outing. Compact, robust, comfortable and economical, the Niva combined qualities then unknown in a 4x4, and its low price made it possible for a far greater number of drivers than ever before to enjoy a 4x4 lifestyle. It was the SUV of the masses, and soon accounted for 40 per cent of the European 4x4 market. It maintained its position at the top of the SUV tree for 15 years because there was little real competition. Japan had its Suzuki SJ 410, later assembled in Spain by Santana, and in the Eastern Bloc itself there was the Aro Series 10, but neither was a serious challenge. Back home VAZ couldn't meet sales demand for the Niva because production for the export market was prioritised.

The Lada Niva arrived in Britain in November 1978 and was an immediate success, despite at first only being available with left-hand drive. Priced at £4,098 it had only two competitors, the Subaru Leone 1600 4WD Estate at £3,990, which was much less capable off-road, and the £3,949 Daihatsu F20 three-door,

↑A pre-production VAZ 2121 Niva undergoing tests. Note the round indicator and sidelight lenses, replaced on production models by a flush-fitting one-piece unit. *(Author's collection)*

↑The VAZ 2121 Niva is the most successful Lada, internationally at least. With its permanent four-wheel drive, dual-range transfer box and supple coil springs it brought Range Rover capability within the reach of everyone.
(Avtoexport)

➔ One of the world's few truly classless cars – the VAZ 2121 Niva.
(Author's collection)

which was a much cruder vehicle altogether, offered nothing like the creature comforts of the Niva and, in spite of its rugged appearance, wasn't as capable as the Lada in the rough stuff. *Motor* magazine summed the Niva up very succinctly in its first road test by saying: 'It's hard to see how the Niva can fail to succeed in the UK. It has a few shortcomings but none of them is serious. And it's as capable in the rough as any but the Land and Range Rover. It is also reasonably civilised on the road.'

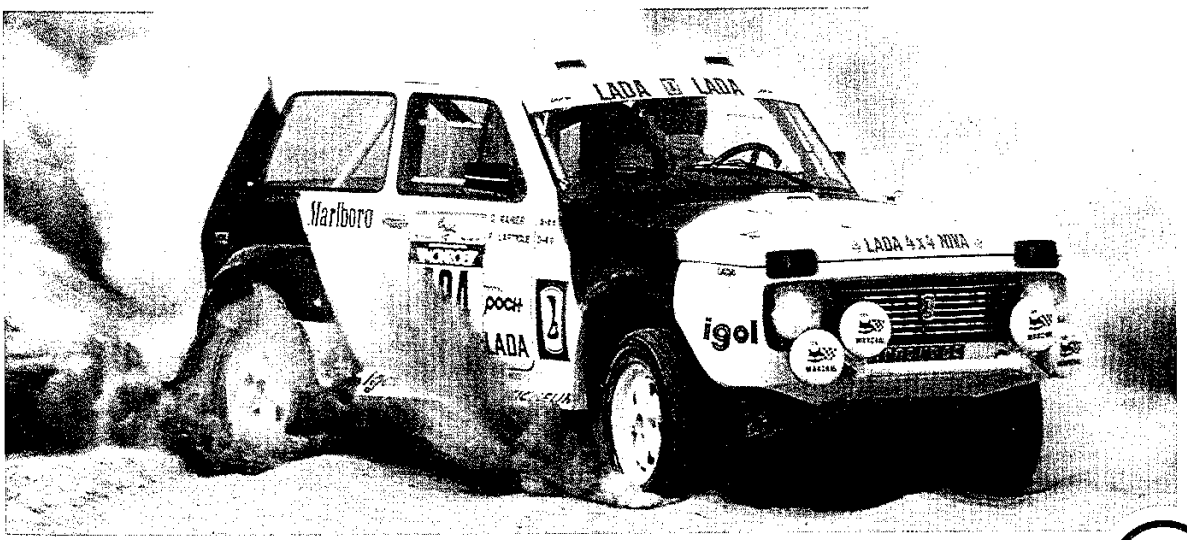
A very interesting amphibian military version of the Niva, the VAZ 2122, was developed in the late 1970s. Called the Reka ('River'), it had a strengthened bodyshell and a 60bhp 1,300cc engine derived from the VAZ 2101 Zhiguli, providing a top speed of 71mph on land and 5 knots on the water. Several configurations and revised prototypes were developed until 1988. Though they passed various military tests successfully, the Red Army – the main potential buyer – was by this time having financial difficulties, and with its main market effectively closed the Reka never entered production.

Meanwhile the Niva's off-road capabilities had helped it to become the first champion in the emerging Rally Raid movement. In 1984 this sport turned professional and became the Formula One of 4x4 motoring. The Niva's subsequent roll of honour in such events included the Tunisia Rally, the Atlas Rally, the Algeria Rally, the Rally of the Pharaohs and the Baja Rally. Even the legendary Jacky Ickx drove a Niva in non Formula One events.

Specialised high-speed models with no relationship to mass production Nivas other than in their shape were also developed. In 1981 some were equipped with the 1800 Turbo engine of the VAZ 2105 VFTS. The French importer Lada-Poch went one step further, preparing the powerful Niva Proto for the gruelling Paris–Dakar rally. Its engine was a rear-mounted six-cylinder Porsche unit. Several privately entered Nivas, almost all equipped with the normal engine, also performed with distinction in the Paris–Dakar event – even without the benefit of high-tech tweaks, Lada Nivas could take on the Sahara and come out on top.

Even without professional support, Ladas can beat the rigours of desert motorsport. No Lada has ever failed to complete the Plymouth–Banjul Challenge, the antidote to the high cost, high-tech Paris–Dakar rally. In the Plymouth–Banjul event, which also includes trekking across the Sahara Desert, no car is allowed to cost more than £100 and there is no formal or official support for the competitors at all! This event, because the competitor cars are pretty much at the tail end of their useful life, tests the intrinsic design qualities and strengths of any car. Getting from Plymouth through Europe and across the Sahara to the Gambia in aging bangers with no back up from well-equipped mechanics is perhaps the ultimate test of man and machine – and one that Ladas have never failed to pass! ■

↓One of the many successful Lada Nivas prepared by the French importer Lada-Poch for competition work in the most gruelling of events, such as the Paris–Dakar Rally. *(Avtoexport)*



LUAZ

THE GO ANYWHERE VEHICLE

↑The LuAZ 967 was prompted by the need for a vehicle that could recover injured soldiers from the front line. As can be seen from this picture, it was admirably suited to the task. *(Author's collection)*

The Lada Niva wasn't the first small Soviet 4x4 – that distinction belonged to the products of the Ukrainian LuAZ factory in Lutsk, although the two vehicles could hardly have been more different. While the Niva was refined and user-friendly, the LuAZ products took basics back to a new level of utility.

The LuAZ 969A was an example of a rare phenomenon, the transformation of a military product into a civilian one. Its roots were in the front-line LuAZ 967, production of which had started in 1961, and it would have perhaps remained a purely military vehicle if the USSR hadn't embarked on a policy of agricultural expansion in remote areas, such as the steppes of Kazakhstan. The government realised that to get around in these remote areas the nation needed a simple, cheap, general purpose cross-country vehicle for civilian use.

Designers working at the Moskvich plant applied some of the ideas they had developed for the Moskvich 415 to the LuAZ concept. They added a proper body to the LuAZ 967, with a more conventional layout, but the result remained firmly utilitarian. The chassis, engine (an 887cc 30bhp four-cylinder air-cooled MeMZ 966 unit shared with the later versions of the ZAZ 965 car) and all other mechanical components remained unchanged. A trial batch of 50 vehicles, called the ZAZ 969, was made at the ZAZ plant in 1965, followed by full production in 1966 as the ZAZ 969V. This continued at the Zaporozhets plant until 1971, when the Lutsk works took over.

The ZAZ 969V was the first Soviet vehicle with front-wheel drive, which it had only because the Lvov plant was at first only able to supply limited numbers

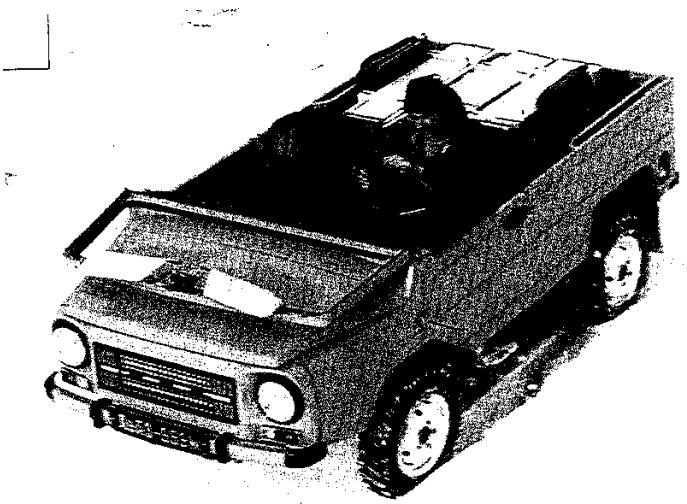
of driveable rear axles, which were reserved for use in the military LuAZ 967 that remained in production until 1967. Even so, the two-wheel-drive ZAZ 969V had remarkable cross-country capability, mainly because of its small weight of 1,340kg and short wheelbase of 1,800mm. The mechanical layout, with the engine mounted well to the front ahead of the front axle, and independent suspension all round all contributed to the car's ability to keep going in the rough. The gearbox had four speeds. The examples made in the first 18 months had a power take-off to drive stationary agricultural equipment. However, unlike its military counterpart the civilian 969V could neither float nor wade.

The Soviet Union's baby off-roader had a relatively uneventful 1970s. In 1971 the LuAZ-built LuAZ 969 with all-wheel drive replaced the ZAZ 969V, and offered a low range option. Then in 1975 the LuAZ 969 was replaced by the LuAZ 969A, powered by a new engine, the 1,197cc MeMZ 969A producing 40bhp but still an air-cooled V4. This model was built until 1979. In 1977 a small batch of all-metal vans with a 400kg payload, the LuAZ 969F, was also made. The ZAZ 969V, LuAZ 969 and the LuAZ 969A all look alike.

In 1979 the Lutsk automobile works began production of the LuAZ 969M – a modified variant of the LuAZ 969A – for which development work had started in 1974. This was named the Volin, after the region surrounding Lutsk. Like its predecessor it was equipped with the 40bhp MeMZ 969A engine, but it had dual circuit brakes and a servo. Outwardly the front styling was rounded off and the windshield was restyled. The doors became lockable and had firm, removable upper sections with sliding windows, while the dashboard was padded and gained a safety steering column. Even before full production got under way the LuAZ 969M received a high honour at an exhibition held in 1978 to celebrate the achievements of the USSR. It gained international recognition as well, making it into the Top Ten of European cars at an international show in Turin, while in Czechoslovakia it received a gold medal for being one of the best cars for rural regions. Exports to Western markets were limited, however, although Italy (where the Volin was sold alongside the UAZ 469B) took a shine to it. The Italian importer Martorelli also offered a Ford engine in the LuAZ. ■

The first multi-user LuAZ, as opposed to those aimed unashamedly at military users, the 969M offered crude but effective off-road motoring for a very low price. *(Avtoexport)*

A somewhat optimistic view of a LuAZ being used in winter. While the car could certainly cope with a Russian winter, quite how long the driver would have lasted with the roof and windscreen down is another matter. *(Avtoexport)*



VANS AND MINIBUSES FOR THE SOVIET UNION

↑Throughout the 1960s and well into the 1970s the RAF 977 was the main Soviet luxury minibus. Changes were minimal but the basic vehicle was strong, spacious, and thanks to its relatively soft suspension very comfortable. This is a 1969 RAF 977 DM. *(Avtoexport)*

The RAF 977, launched in 1959, was given its first facelift in 1961 and renamed the RAF 977D. Its split windscreen was replaced by a single curved unit, and a GAZ M21 Volga steering wheel and minor controls were introduced. The instruments were those being developed for the forthcoming Moskvich 408. Manufacture in earnest started in 1962 on a newly installed production line. Mainstream variations now offered on the RAF 977 theme included the RAF 977I ambulance and the RAF 977E, which, designed for tourist work with Intourist within the Soviet Union, was equipped with special seats, roof lights and a sunroof. Another variation, first seen in 1966, was the RAF 983, equipped for use by local fire departments.

A smaller version of the RAF 977 was developed at the beginning of the 1960s, picking up on the ideas originally explored with the RAF 08. Called the RAF 978, it shared much of its body with the RAF 977 but was shorter and featured dual headlamps. Power came from the 45bhp 1,360cc engine of the Moskvich 407, which also donated the front suspension set-up. However, the vehicle was not a success, its engine not having enough torque to cope with the body weight. The engineering team tried altering the gearbox and rear axle ratios but all to no avail. The shorter wheelbase and length improved manoeuvrability but at the expense of ride comfort. The project was abandoned.

The next major change to the RAF 977 was in 1969, when it was superseded by the RAF 977DM. This update addressed criticisms of inadequate ventilation in the original model. The main differences were a wider side passenger

door and the appearance of two wider opening windows behind the door on the right-hand side and three on the left side, instead of the previous three and five respectively. The ambulance variant, the RAF 977IM, no longer had fewer windows than the minibus as had previously been the case. The tourist model was now called the RAF 977EM.

The RAF 980 was a road train developed for use at airports, tourist attractions and exhibitions. The passenger units had the front and rear ends made from the rear panel pressing used on the RAF 977, while the tractor unit was a standard RAF 977 with the side panels cut away to allow easy access to rows of hard plastic seats. A full RAF 980 road train could carry 44 passengers.

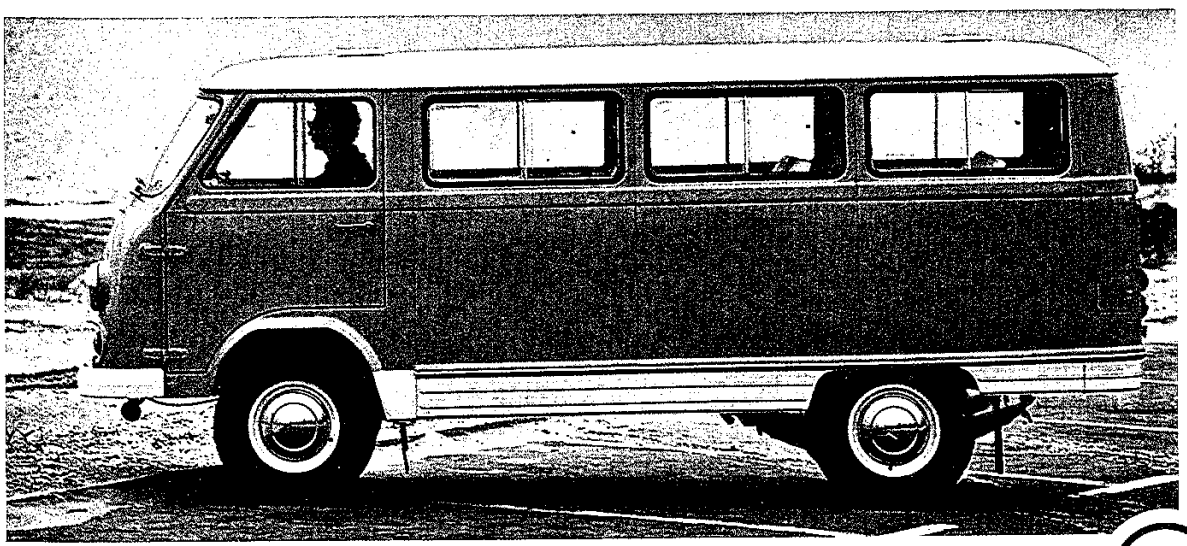
In 1962 the first one-ton van based on the RAF 977 was produced. Called the RAF 977K, it was essentially an RAF minibus without seats and rear windows. However, the limited production capacity of the RAF plant in Riga – 3,000 units a year, with vehicles built on trolleys rather than on a traditional conveyor belt type assembly line – did not allow the plant to start full-scale production of the van. Instead, the design was sent to a fork-lift truck factory in Armenia, which started to build its own van model based initially on kits supplied from Latvia.

The history of the first – and, to date, only Armenian vehicle factory – began on 31 December 1964, when the Soviet government gave a green light for the production of light vans to begin at the Yerevan fork-lift truck plant. During 1965 sixty-six people from the Yerevan factory were sent for training at the Riga and Ulyanovsk factories. At the same time, the first production facilities for the new vans were installed and, to mark its status as a fully-fledged Soviet vehicle factory, in September 1965 the new plant was officially named ErAZ. Its first van, the ErAZ 762, was built on 1 May 1966, by which time production capacity was 2,500 vehicles per year, though in its first year actual production was 1,000. Local people referred to the ErAZ 762 as the Yeraz, which is Armenian for 'Dream'.

The ErAZ 762 was replaced in 1969 by a slightly modified version, the ErAZ 762A. By 1973 production was up to 6,500 per year and by 1975, following the installation of one of the first overhead production lines in the Soviet Union, capacity was up to 12,000.

In 1971 the ErAZ design team worked on developing a new generation of van, the ErAZ 3730, based on the principles of easy access first seen in the famous British Commer/Dodge Walk Thru. In 1976 a test batch of ErAZ 3730 vans was built and sent for testing and approval in Moscow. However, a lack of development resources stopped the new van going into production, although in 1980

↓This profile shot of the RAF 977DM minibus shows the simplicity of the styling. *(Avtoexport)*



ErAZ prepared ten refrigerated vans based on the 3730 to serve visitors attending the Moscow Olympic Games.

An RAF-based vehicle, the LARZ 977, was also produced at the Ukrainian LARZ (Lugansk Avto Remontnyi Zavod) works.

Returning to the story of RAF, by the mid-1960s it was clear to the company's management that their factory was out of date and needed new investment. However, to convince Minavtoprom of the need for a new factory they needed to show that they would use it to build a new, modern vehicle. RAF designers therefore looked at a bus with a metal frame and plastic body panels, prototypes of vehicles with this type of construction having been built in the Soviet Union in the 1950s. However, this method of construction was not ideal for the kind of mass production that the plant had in mind. There was also a debate within RAF over whether or not the next RAF design should be normal control, like, for example, the Ford Transit, or forward control, like the Commer PB or Renault Estafette. In 1965, therefore, the management made what was an unusual decision for a Russian vehicle plant. They assigned two separate groups, each with four designers, the task of independently developing a proposal for the next generation RAF. The teams were forbidden to share their ideas and had just two given parameters within which to work: the new vehicle had to be able to seat 12 people (one more than the RAF 977) and had to use the mechanical components of the GAZ M21.

The two outcomes, unveiled at the end of the 1960s, were entirely different. One group came up with a normal control, fairly conventionally styled minibus, the RAF 982-I, which looked a little like the original Ford Transit. It wasn't an entirely successful design – the body seemed way too wide for the track. Originally called 'Cyclone', it was renamed 'Latvia', confusingly the name chosen for the other proposal, the RAF 982-II. The RAF 982-II forward-control model was extremely forward-looking, with a sharp, chiselled profile, though some RAF engineers were concerned that the extreme forward-control layout posed a risk to the driver and front passenger in the event of a crash. Both designs were taken to Moscow to demonstrate what the plant was capable of designing.

A committee in Moscow, which included specialists from NAMI and members from the health ministry (because RAF was a major ambulance producer), chose the 982-I Cyclone. The RAF team were quite happy with the decision. The Cyclone not only had safety advantages but also looked as if it would be easier to get into production – but the committee's decision was not the one that the director of RAF wanted to hear. He felt that he would stand a much better chance of convincing

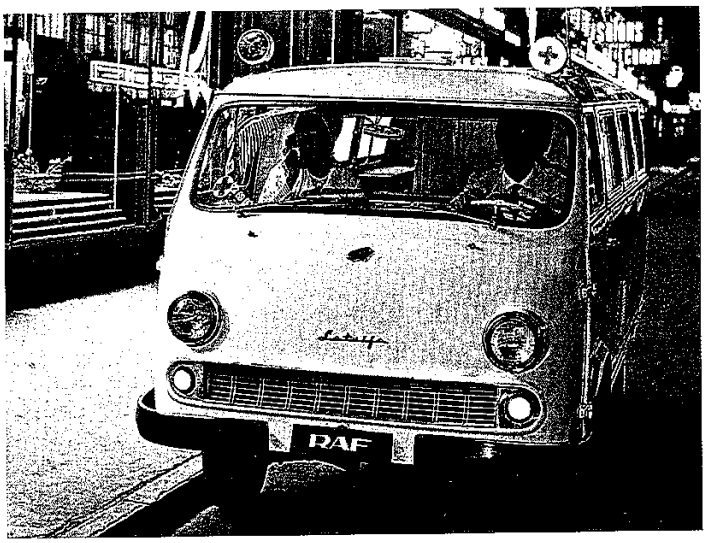
→The RAF 977 EM was the more luxurious version of the Latvia minibus, offering a sunroof and higher quality interior trim. It was often used for taking tourists around the Soviet Union. *(Avtoexport)*

Minavtoprom to fund a new factory if it was to be used to build a radically new and modern design like the RAF 982-II. A second delegation set out from Riga to Moscow to try and change the minds of the committee – and it was successful, because the final thumbs-up was given to the RAF 982-II. On 25 July 1969 the foundation stone for a new plant was laid in Jelgava, 50km from Riga, to build the next RAF minibus, the RAF 2203, which was based on the futuristic RAF 982-II design.

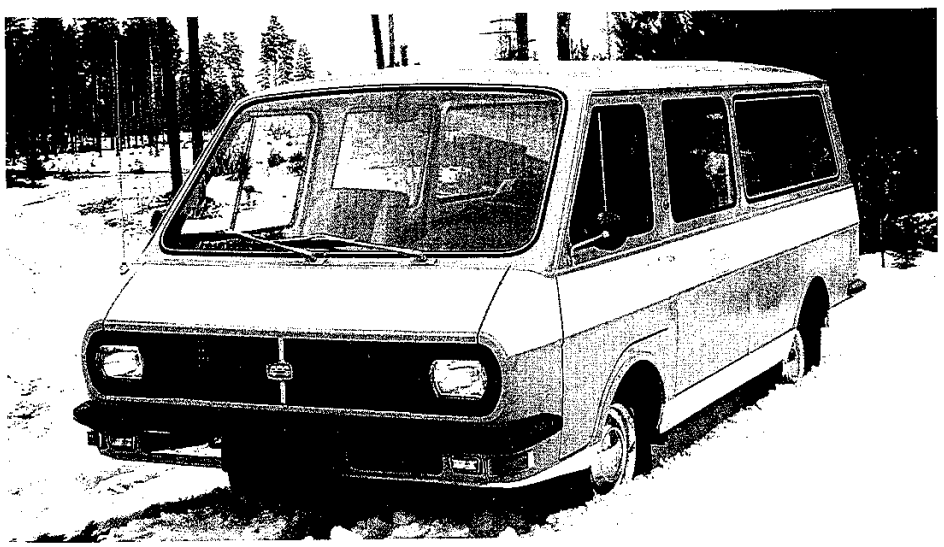
The new Jelgava factory was opened in February 1976. It had a modern production line, a lot of high-tech equipment and had been designed to build 17,000 minibuses a year, having been built especially for the RAF 2203. The first hundred left the plant on the eve of the 25th congress of the Soviet Communist Party in 1976. To show how tough they were, three brand new RAF 2203s immediately set off on a marathon 16,000km run from the Baltic Coast right across the Soviet Union to its easternmost city Vladivostock.

Also known as the Latvia, the 2203 was powered by the 2,445cc engine used in the GAZ 24 Volga. This was positioned between the front seats, which were mounted over the front wheels. The independent front suspension was also based on Volga components, although the springs came from the GAZ 13 Chaika. However, although the back axle was lifted straight from the Volga, on the RAF vehicle the propshaft was a two-part unit rather than a single component. Headlights and some parts of the brake system came from the Moskvich 412. The wheels remained the 15in units used on the GAZ M21 Volga, not the smaller ones adopted for the GAZ 24.

Two basic versions of the RAF 2203 were made. The RAF 2203 itself, with space for ten passengers plus driver and front-seat passenger, was built for official transport purposes and had a ZMZ 2,445cc engine with a compression ratio



↑The ambulance derivative of the RAF 977. *(Avtoexport)*



←The RAF 2203 looked to be extremely modern and futuristic, although its mechanical components were borrowed from existing vehicles such as the GAZ 24 Volga. Sadly the RAF 2203 proved to be somewhat unreliable, and not particularly pleasant to drive in poor weather conditions. *(Author's collection)*

↑Bright colours were often used for the RAF 2203, which was for many years the only comfortable general-purpose minibus available in the Soviet Union. It had one side-loading door. *(Author's collection)*

➔The RAF 2203 had a huge top-hung rear tailgate to allow access to the luggage area. *(Author's collection)*

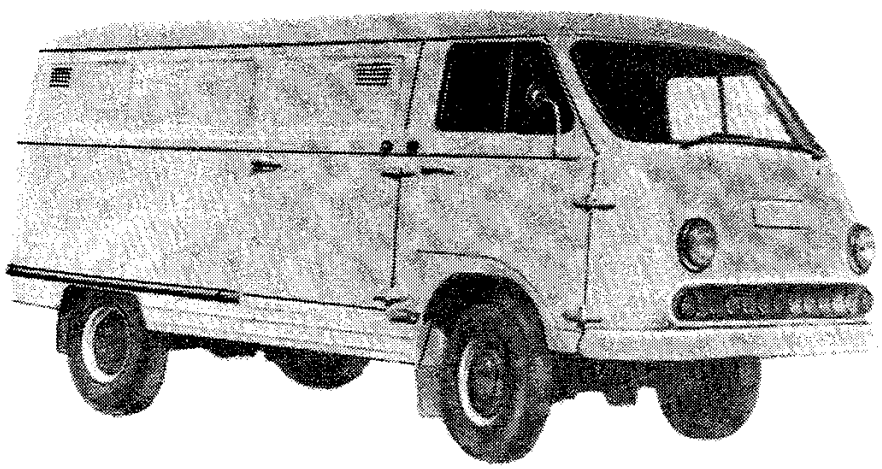
of 8.2:1, developing 95bhp. The RAF 22032, with space for two more passengers thanks to longitudinally mounted rear seats, was designed for work as a route taxi or crew bus. The motor on the RAF 22032 had a lower compression ratio, 6.7:1, designed to work on cheap 76-octane petrol, and its power was just 85bhp. An ambulance, the RAF 22031, was also quickly added to the range – indeed, ambulances made up a third of all RAF 2203 production. There was also a minibus version designed to run on LPG, the RAF 2203-02. The RAF 22033 and RAF 22036 were special versions built for use by the state militia and the RAF 22035 was designed for use by the blood donor and transfusion service. The RAF 22034 was equipped for use by fire departments. The RAF 2203 also formed the basis for experiments with electrically powered vehicles such as the RAF 2207.

The styling was undoubtedly distinctive, with a a clean, uncluttered side profile. There were two front doors and one hinged door on the right-hand side. External door handles were taken from the Moskvich 408. Up front sat the driver and one passenger, with a half-height bulkhead between them and the rest of the passengers. In the back of the official bus there was a mix of benches and individual seats to accommodate ten passengers. The front seats were wider than those in the rear but all were trimmed in vinyl and complemented by matching sidewall trims. The driver's seat reclined and could be adjusted for rake. Seats belts were fitted as standard. Behind the rear seats there was a space for luggage accessible through a top-hinged tailgate.

The RAF 2203 was usually sold only to official bodies – private individuals were not normally allowed to own them, the only exception being families with five or more children. Small numbers of luxury-trimmed eight-seat versions were made and sold for the use of such large families.

By this time RAF was the Soviet Union's in-house specialist coachbuilder. As well as its mainstream RAF 2203 range (and associated derivatives) the Riga plant was responsible for such interesting vehicles as station wagon adaptations of the GAZ limousine range for use variously as ambulances and hearses for the Soviet elite. Some were exported to Cuba and North Vietnam.

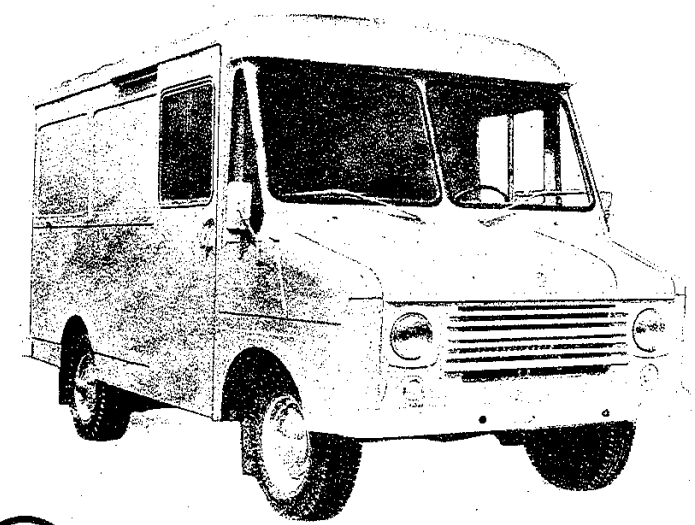
The RAF 2203 offered more space and comfort than the RAF 977 and promised in theory at least a much longer service life. It looked extremely smart, with its shovel-nose front end projecting a thrusting image. However, the good looks hid a number of critical deficiencies in the vehicle's design and construction. Its all-metal body was heavy and generally robust but rust soon weakened it, especially the chassis rails. Problems in the quality



←Very little publicity was given to the ErAZ vans – indeed, they were not that well known at all outside the Soviet Union. This is a 1971 ErAZ 762A. The family relationship with the RAF 977 is clearly evident. *(Author's collection)*

This ErAZ 762 van was seen in 2004, a little the worse for wear. The 762 didn't change much in appearance from the day it was introduced in 1966 until production ground to halt in the mid-1990s. It was never really promoted as an export model and within the Soviet Union was, like all commercial vehicles, only ever made available to official organisations. *(Alexander Melnikov)*

One of the great missed opportunities of the Soviet motor industry was the ErAZ 3730 series, a well-designed and sensible box van ideally suited to urban delivery work. This is one of the extremely rare early pilot production models, the first of which were made in the early 1970s. *(Author's collection)*



of construction and assembly were hard to resolve because most of the vehicle's components had to be shipped in from all over the Soviet Union. Oil leaks were a common fault and axle bearing failures were common.

On the road, the RAF 2203 was notorious for heavy oil and fuel consumption, overheating in hot weather, and severe vibration. A lot of the problems were related to the location of its heavy engine above the front axle, directly between the driver and passenger seats. This caused constant breakdowns, including the failure of the front suspension, and made the RAF extremely difficult to control on slippery roads, a problem exacerbated by the all-round drum brakes. Road-holding in general was poor, although it could be driven reasonably quickly on dry roads. On wet and icy roads, however, the situation was completely reversed.

The front suspension had springs and shock absorbers considerably stronger than those on the Volga from which it had been derived. However, the suspension still didn't last for long and the lubrication point of the kingpin was located in the middle, not the top, of the component, meaning it often ran dry and wore out. Some owners consequently tapped in another lubrication point at the top of the pin. The front springs collapsed as well over time, giving the RAF its characteristic inclination towards the front or a slight lean to one side or the other. The rear suspension, however, was more durable, being a live axle on longitudinal semi-elliptical springs, with hydraulic shock absorbers.

Added to the well-known deficiencies of any forward-control layout with regard to crash protection and driving position, the RAF somehow managed to add inconvenient entry to the cab, complicated steering and gearbox linkages, high noise levels and high concentrations of exhaust and other fumes in the cabin. The cabin heating and ventilation system was pretty poor as well, combining freezing cold air on the feet of the front-seat occupants with a heater that boiled away the upper portions of their bodies!

The general purpose RAFs came with a choice of bright colours: red, orange, light green, blue and gold. Medical vehicles were white with a red strip and traffic control vehicles were yellow with a blue strip down the sides. ■

ZAZ

THE UKRAINIAN CONNECTION

During the 1960s the ZAZ 965 had such an impact on Soviet society that to this day it is still held in high regard across the Commonwealth of Independent States, the loose federation of countries that emerged following the break of the Soviet Union in 1991. It was fondly nicknamed 'The Hunchback' alongside its other popular title of 'Dnieper Cossack'. It even had a drive-on role in the 1995 James Bond film 'Goldeneye' as the company car of a Moscow based CIA agent! But the ZAZ 965 wasn't perfect – the front suspension torsion bars lost their tension, especially on earlier examples, and the engine was prone to overheating in hot weather. Other problems included high noise levels and a small boot. The rear-hung doors were not liked either. Yet in spite of these faults the little car was ideal for use in rural areas, especially in regions with poor roads. Its off-road ability was enhanced by its smooth underside, independent suspension on all wheels and the fact that 60 per cent of its weight was over the driven wheels. In the rare cases when a ZAZ 965 was unable to escape from mud under its own steam, a few strong men could simply lift it free, as it weighed only 665kg. Urban drivers also grew to love the Dnieper Cossack for its manoeuvrability and fuel efficiency. The engine with separate cylinder liners was comparatively light and simple to repair, it could be removed easily and be fixed either by any home mechanic or quickly and efficiently at a garage.

During the first two years of production testing continued to find ways to improve the car. Ten owned by the plant clocked up almost a million kilometres (625,000 miles) under all possible road

↑The rear of a 1968 ZAZ 966 clearly shows the vents in the engine cover that, along with the large scoops on the rear flanks, were needed to keep the engine cool. *(Avtoexport)*

↑To look at, the ZAZ 966 was a completely different vehicle from its predecessor, the ZAZ 965. It had a crisp style with plenty of glass and, like the NSU Prinz and Hillman Imp, had clearly been inspired to some degree by the American Chevrolet Corvair, also rear-engined and air-cooled. Note the large air scoops on the rear wings. This 1968 example is an export model with chrome front grille trim. *(Avtoexport)*

and climate conditions across the Soviet Union. The accumulated experience led to a thoroughly revised model being unveiled in October 1962. This was the ZAZ 965A, which had a larger and more powerful engine, the 887cc 27bhp MeMZ 966. It is interesting to note that because the cylinder banks in the MeMZ 966 were at a 90° angle to each other no balancing shaft was needed to make the engine run smoothly.

The 965A could be distinguished by its steering wheel with a central badge, parking lights installed in the wings rather than on the top of them, a changed trademark (a rectangle instead of an asterisk) and a decorative grille on the front panel. On some export cars there was a full-length bright side moulding. The original cars had four round holes on the rear wings to draw in air to cool the engine, fondly referred to as the car's ears. They looked a little like the famous portholes that appeared on the front wings of Buicks to denote a V8 under the bonnet... For the 965A, they were replaced by a body coloured grille. Inside there were new seats and an instrument panel with an oil temperature gauge. The electrical equipment was also improved and the rear bonnet and front panel were restyled. In 1966, a mildly revamped engine, the MeMZ 966A nudged power up to 30bhp, the front panel was restyled, replacing a recessed mouth with a more bulbous pressing. Side repeater flashes were added to the front wings. In spite of these continual improvements, the price only went up from 1,800 roubles in 1961 to 2,200 roubles in 1969. Its low price had been insisted upon personally by Soviet leader Nikita Khrushchev, and the instruction survived his departure from the highest office in 1964.

The range evolved during the decade to include some special cars designed for disabled drivers, harking back to the late '50s when GAZ had developed a small car for disabled drivers but had been forced to can the project in favour of the ZAZ. The ZAZ 965AB was designed for drivers without the use of one or both feet while the ZAZ 965AR was for people without the use of one arm and one leg. Another special model was designed for the Soviet Post office. The ZAZ 965S had right-hand drive, blanked off rear windows and a box for letters instead of a rear seat.

The replacement for the ZAZ 965, called the ZAZ 966, was launched in 1967, production having started in November the previous year. This resembled the NSU Prinz 4, launched at the 1961 Frankfurt Motor Show and itself inspired by the American Chevrolet Corvair. However, the 966 was an entirely in-house design, developed by the ZAZ team without any outside help – even from MZMA – at all. It was crisp, with thin window pillars and a very stylish, sharply styled belt line. Prominent 'cars' on the rear wings were there, though, to cool the V4 engine, which was initially the 887cc MeMZ 966A producing 30bhp. The new car had some interesting features including a separate petrol-driven heating system that could

run independently of the engine. A radio was also standard equipment. The new car had really grown up in comparison with the 965. Increased overall dimensions, a larger boot, a more spacious interior – the ZAZ 966 had moved up a class and was consequently also more expensive than its predecessor.

Technically, serious changes from the ZAZ 965A were not too numerous: the gearbox, brakes, front suspension and the MeMZ 966A engine were all inherited from the previous car, meaning it retained the rear engine, rear-wheel-drive layout of its predecessor. This was an approach that Renault had adopted when it replaced the Dauphine with the Renault 8 in 1963. Volkswagen, too, had used their Beetle rear engine format for their Type 1600 of 1961. Front-wheel drive at this time was still an uncommon layout, with only Citroën and BMC, among the larger firms, pushing it forward. Simca and Britain's Rootes Group had also expressed their faith in rear engines with, respectively, the Simca 1000 of 1962 and the Hillman Imp of 1963.

From November 1966 through to May 1969 the ZAZ 965A was made alongside its successor, the ZAZ 966. Though strong customer demand suggested that the two cars could be happily run side-by-side, it was eventually decided to end production of the older model. In eight and a half years 322,116 ZAZ 965 cars were built and it now has a massive following, with enthusiasts' clubs across Russia and the Ukraine.

The Ukrainian industry was by this time beginning to really grow. In 1965 work was finished on a new power unit, the 1,197cc MeMZ 968, which produced 40bhp but was still a V4 air-cooled unit – it won a top diploma at the Exhibition of Achievements of the National Economy of the USSR. In 1966 work began on adapting the new engine for use in the LuAZ off-roader, this modification becoming the MeMZ 969V (MeMZ 969B).

Construction of a new building at the Melitopol works for the production of MEMZ 968 engines had only started in 1967, but in 1968 ZAZ launched the 966B. This used the larger MeMZ engine, and although it was a heavier car, at 780kg, it offered a higher maximum speed of 75mph. After the beginning of production of the ZAZ 966B, the smaller MeMZ 966-engined 30bhp model gained the designation ZAZ 966-1. This was built in comparatively small numbers and is today extremely rare.

Exports to Eastern Bloc countries were popular although the ZAZ – or Zapo as it was sometimes nicknamed – gained a reputation for somewhat hit-and-miss build quality. Even so, there are plenty of examples still running in Bulgaria today. Sales to Western Europe, including France and Scandinavia, were more limited, and took place under the name 'Yalta'. In some markets a 956cc Renault engine replaced the Russian unit, the cars being sold as the Yalta 1000.

In 1972 the ZAZ 966B underwent some mild restyling and was renamed the ZAZ 968. It could be

←The ZAZ production line in 1969, with the last of the ZAZ 965 series being built alongside the new ZAZ 968. *(Avtoexport)*