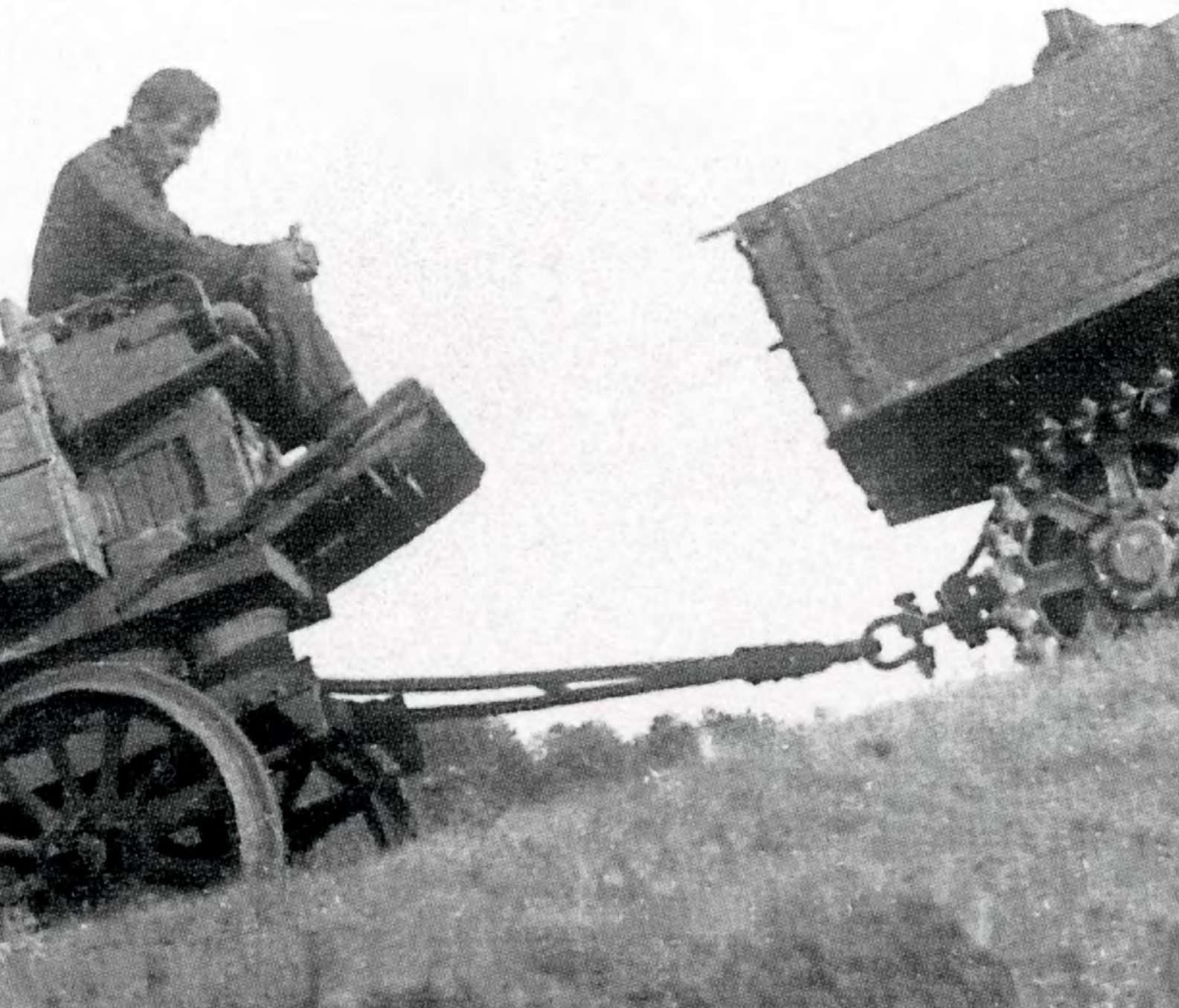
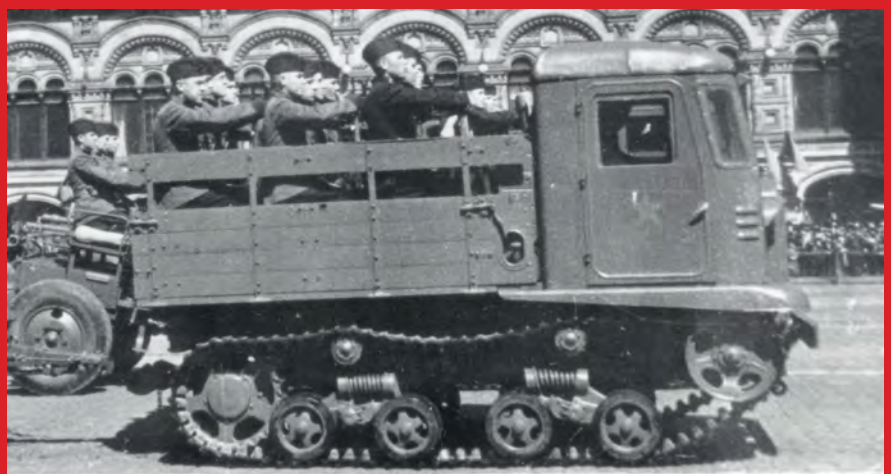


words Steve Wilson pictures Garry Stuart, John Tinley

From The Farm to **THE FRONT**

James Kinnear examines the role the Russian STZ-5 artillery tractor played during World War Two





ABOVE: A series production STZ-5 during a Red Square parade in 1940

MAIN IMAGE: An early STZ-5 prototype with a trailer mounted test load during NATI institute trials in 1936
Note the open cab arrangement on this prototype



A wartime-era Soviet illustration of the STZ-3 on which the STZ-5 was based



The early STZ-5 cab-over-engine artillery tractor prototype, with new road wheels and track



The STZ-5 as illustrated in the official maintenance manual

During the 1930s, the rapidly industrialising Soviet Union increased production of all manner of armoured vehicles, and also transport vehicle types, from GAZ and ZiS light vehicles and trucks to artillery tractors. The implementation of mass production techniques in the Soviet motor industry, courtesy in no small part to US companies such as Ford, Autocar and Caterpillar, was accompanied by rapid mechanisation of the Red Army during the 1930s to a level comparable with the armies of the United States and Europe - and in particular Germany.

There was, throughout the history of the Soviet Union, a 'national specific' with regard to motor vehicle production. Soviet vehicle designs were developed on the basis that in the event of a national emergency these reserve 'tyl' vehicles could and would be drafted into military service. Most vehicle types were developed on the basis of the Soviet Union's military requirements, with civil requirements for construction and agriculture being a

secondary consideration. This is why many civil vehicles in the Soviet Union had large and powerful, but particularly thirsty, petrol engines

'Many Red Army artillery tractors were essentially agricultural and civil engineering tractors'

which would have been uneconomical for civil use in any but an integrated, state system. The great advantage to this deliberate plan was that in dire emergency, all civil tyl vehicles could be seamlessly drafted into military service without

maintenance or problems sourcing parts. This policy also applied to most agricultural tractors, many of which were tracked due to the specifics of the Soviet climate and the huge size of Soviet collective farms.

The greatest beneficiary of the mechanisation of the Red Army in the 1930s was without doubt the Red Army's 'God of War', the artillery forces. The development of ever more powerful artillery tractors now gave medium and heavy artillery the required mobility to keep pace with advancing armoured formations. Although several specialised artillery tractors such as the Komsomolyets, the Komintern, and the Voroshilovets were developed specifically for military service, many Red Army artillery tractors were essentially agricultural and civil engineering tractors. With the outbreak of war in June 1941, many of these agricultural tractors such as the STZ-3, the S-60 and the S-65 were pressed into military service without requiring any modification whatsoever.

One agricultural tractor that made the

STZ-5 tractors towing 122mm and 152mm howitzers across Red Square, November 7, 1940



STZ-5 tractors were produced at STZ in Stalingrad alongside the T-34



An STZ-3 in Red Army service. Note the all-steel road wheels and agricultural tracks



ABOVE: STZ-5 tractors in the Moscow region, winter 1941-42. Note the winter radiator covers



transition to military service in the pre-war era was the STZ-3 light artillery tractor, which was developed into the STZ-5 at the NATI (Nauchniy Avto Traktorniyy Institut - Scientific Auto and Tractor Institute) design bureau. It was developed in 1935-36 in cooperation with engineers from Plant N°264 located in Stalingrad, and better known as STZ - the Stalingrad Tractor Plant. The NATI institute had from 1933 begun development of two-tracked tractors on a common theme, intended for agricultural and military use respectively. Both tractor types were initially designated STZ-3, the 'transport' (military) STZ-5 being so designated at a later date. After prolonged trials in 1935, the rework of some design components took another two years, with the STZ-5 entering series production in late 1937. Known during development as the STZ-NATI-2TB, the designation was simplified to STZ-5 in Red Army service.

Description

The STZ-5 was a cab-over-engine, militarised version of the essentially civilian STZ-3 agricultural tractor (which was also pressed into military service in 1941). The STZ-5 was re-configured to serve the role of artillery tractor for light and medium artillery and anti-aircraft guns, transporting the associated ammunition complement in the rear cargo area. The modifications to the basic STZ-3 were drastic. The driver's position was moved from the rear of the vehicle to a front-mounted cab-over-engine configuration, with all the control links



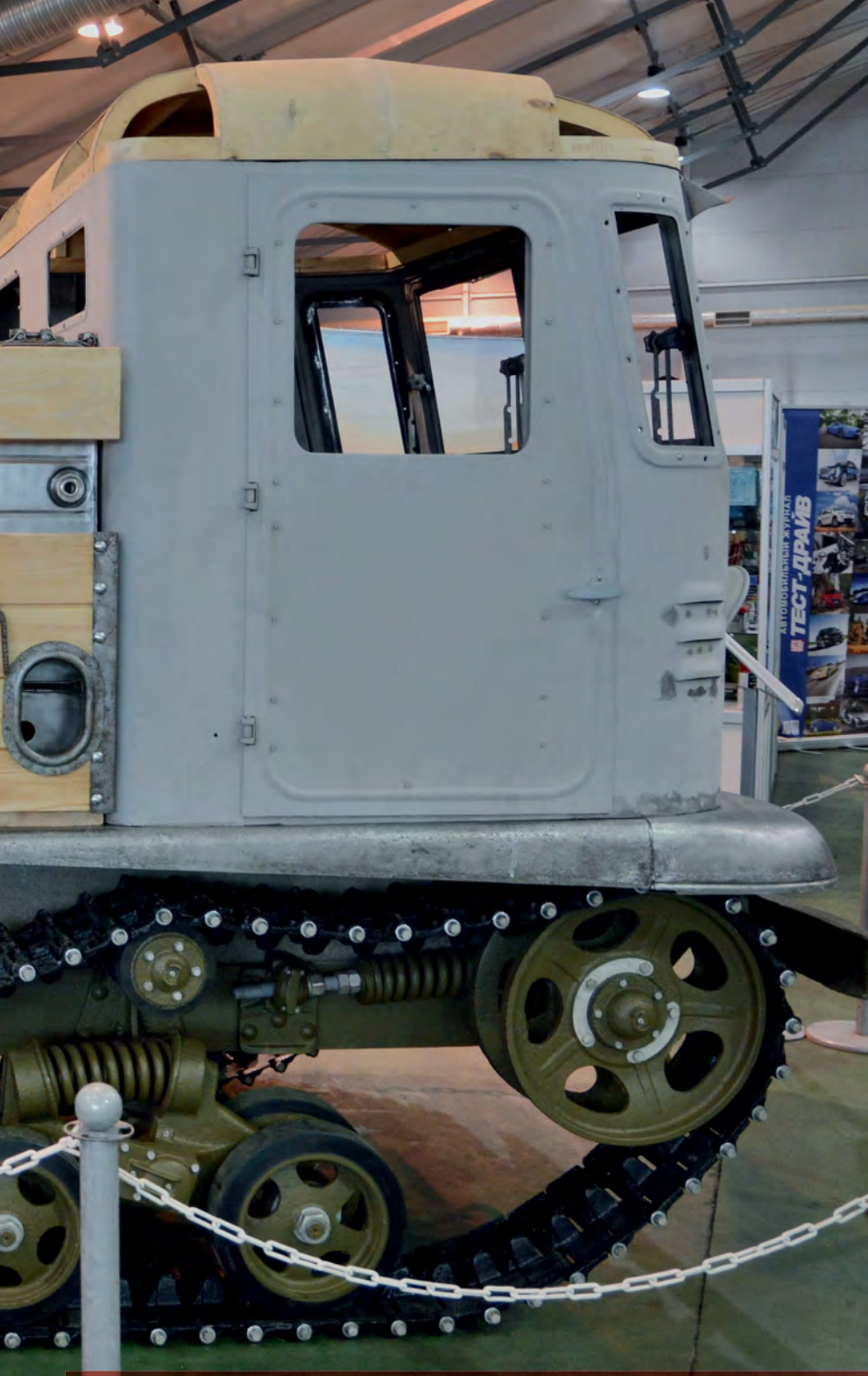
A T-34-85 serves as a war memorial in the village of Pervie Voin. Tanks plinth mounted as war memorials are to be found throughout Russia and other countries of the former Soviet Union, and are always a poignant reminder



The cab roof was supported on a wooden framework, a common construction for Soviet military vehicles until the mid -1950s



The cab with controls familiar to any tank driver. The original cast components have survived, while the sheet steel components have mostly had to be reformed from scratch



ABOVE: The STZ-5 has been completely rebuilt by the Shamansky Company, from a chassis and few recovered parts RIGHT: The STZ-5 has a distinctive cab and radiator, the latter bearing the STZ plant symbol

correspondingly modified and incorporated within a cab that could accommodate the driver and up to three of the gun crew.

The STZ-5 was powered by the standard four-cylinder GAZ engine used in the GAZ-AA 1.5-tonne cargo truck; coupled to a relatively advanced for its day four-speed gearbox with two-speed transfer box giving the driver a wide range of gear options. The engine was not particularly powerful relative to the need to move the six-tonne STZ, a 1.5-tonne ammunition load and tow artillery pieces weighing up to 3.4 tonnes. The compromise was however necessitated by the availability of engines, and the 14km/h laden road speed was actually quite acceptable compared to the S-60 and S-65 heavy tractors.

The STZ-5 retained the same oscillating bogies with horizontally-mounted coil-spring suspension system as the agricultural STZ-3, but the cast road wheels were replaced with a new type fitted with rubber rims to reduce vibration and noise, and increase track life. The original roughcast tracks were replaced with smoother road tracks, which also reduced vibration and improved road speed. A wooden stake rear cargo area was fitted behind the reconfigured and now front-mounted cab, with bench seats for the gun crew and a drop down tailgate for loading and unloading ammunition.



'Most vehicle types were developed on the basis of the Soviet Union's military requirements'



This view of the STZ-5 shows the much finer tracks of the STZ-5 compared to the STZ-3 from which it was derived



The rear cargo area of the STZ-5 was entirely constructed from wood



The STZ-5's fuel tank is mounted behind the cab in the cargo area

prototype trials proved that the STZ-5 would provide a stable launch platform. Accordingly, a small quantity of STZ-5 tractors were rebuilt as BM-13 Katyusha MRS vehicles and entered service with the Red Army.

STZ-5 based NI Odessa Tanks

In August 1941, the southern Ukrainian port of Odessa was cut off from the mainland, as a result of which the city turned to its own resources to build armoured vehicles to defend the city. The engineer P K Romanov, an engineer working at the January Uprising Factory in the city, had many ideas for the armoring of available vehicles, which resulted in the local shipyards turning to the production of armoured tractors based on available tracked agricultural tractors, not least because there was a significant inventory of available vehicles within the catchment area of the shipyards. The majority of tractors converted were STZ-3 and KhTZ-3 agricultural tractors; however a smaller number of cab-over-engine STZ-5 tractors were also converted.

The tractors were individually completed according to available components, fitted with combinations of steel plate sandwiched with wood and rubber sheeting to give some protection from small arms fire. The armament on the vehicles also varied, some tanks being fitted with small machine gun turrets from the T-26 M-1931, others had new turrets fitted with 37mm Model 15R mountain guns, or 45mm anti-tank guns. A total of 68 Odessa tanks were produced. During the fighting, the tanks were referred to by local Russian residents as Na Ispug - literally 'Frightener Tanks'. This referred not to their combat capability but rather was an ironic commentary on the clatter the tracks of the agricultural-based tractors made while driving along the cobbled streets of the old city centre. Even if the armour was somewhat crude, the tanks proved surprisingly effective against the Romanian infantry advancing on Odessa.

The fate of these conversions remains unclear. They were apparently driven off the harbour walls and into the sea to save them from being captured and turned against their original owners. There is however no record of them being recovered after the war, and the few vehicles in museums are all replicas.

And Then There Were Two...

Until recently there was not a single surviving STZ-5 artillery tractor in the Russian Federation or indeed anywhere else. A BM-13 Katyusha multiple rocket launcher version, plinth mounted in the town of Novomoskovsk in the Moscow region was the only surviving example of a vehicle type that was produced in significant numbers. However, in early 2016, the Russian Shamansky restoration company unveiled its almost complete restoration of a vehicle, rebuilt from scratch from a recovered chassis and mechanical components. As the accompanying photographs show, the STZ-5 project is the very definition of a nut and bolt (and a fair bit of wood) no-expense spared restoration rebuild. But it is difficult to put a price on rebuilding a unique vehicle type of which no intact example had survived to the present day. ◀

The STZ-5 was produced at Plant №264 in Stalingrad from late 1937, but production was initially slow until formal Red Army trials and subsequent acceptance for service in 1939, after which production dramatically increased. There were 1,256 STZ-5 tractors produced in 1939, and 1,274 in 1940, the majority for the Red Army, with the STZ latterly being built alongside T-34 medium tanks being assembled at the same plant. The STZ-5 was a regular participant in Red Square parades during the 1930s and was initially used in service to tow a variety of medium and heavy artillery.

The Red Army had 2,839 STZ-5s in its inventory (13% of its entire artillery tractor park), with a further 5,478 in state service on January 1, 1941. In total, 9,944 STZ-5 tractors were built at Plant №264 until the autumn of 1942, when the production tooling was partially evacuated as advancing Axis forces closed on Stalingrad. Of that total, 6,505, the majority, were built at Plant №264 after the outbreak of war on June 22, 1941.

In practice the STZ-5 was used to tow the 76.2mm regimental gun, 122mm and 152mm howitzers, and 76.2mm and 85mm anti-aircraft guns. After the outbreak of war the vehicle was often used to tow heavier weapons due to the lack of alternative heavier tractors. The STZ-5

was used in the early stages of World War Two on the Eastern Front, with civilian vehicles drafted into military service, though huge numbers were destroyed or captured in the months that followed 'Operation Barbarossa'. A significant number were captured by the Wehrmacht, which pressed the vehicles into service as the Artillerie Schlepper STZ-601(r).

By the autumn of 1941, with the Kharkov KhTZ plant now over-run, and Plant No37 near Moscow on rails to Siberia, the STZ plant was the only plant west of the Ural mountains still producing military-tracked artillery tractors, these were produced alongside the T-34 until the plant was destroyed during the Battle of Stalingrad in the autumn of 1942.

STZ-5 BM-13 'Katyusha'

In September 1941, with Axis forces approaching Moscow, the ZiS plant in Moscow halted production of the ZiS-6 6x4 trucks as the plant was prepared for evacuation to Miass in Siberia and other cities. The ZiS-6 had been the standard chassis for the 16 rail, 132mm calibre BM-13 'Katyusha' multiple rocket launcher, and as the number of available ZiS-6 chassis dwindled, alternative chassis were required. The tracked STZ-5 was considered ideal, not least because it was available in quantity, and