

STRIDSVAGN M/38 TANK

WORDS CRAIG MOORE

Sweden's medium tank was ahead of its time when it was designed in 1937, and influenced similar designs during WWII

DIVER'S VISION

Most tanks in 1938-39 had vision slits cut into the armour plate. The advanced Stridsvagn m/38 tank used optical periscopes and vision ports with armoured covers that were fitted with bulletproof thick glass blocks to protect the driver's eyes.

In the 1930s Sweden realised it needed more modern tanks to defend its neutrality. It had large deposits of iron ore, a resource that the Soviet Union, Germany and Great Britain needed to build weapons such as battleships and tanks.

At the beginning of the Second World War, the biggest threat to Swedish territory came from Great Britain. A proposal was put forward that suggested British troops should occupy northern Sweden to stop iron ore exports to Germany. The 1939 Soviet invasion of Finland, called the Winter War, was used to request permission to send British troops across Norway and Sweden to help Finland. Both Scandinavian governments refused the request as they suspected Britain's real intention. Soon, Germany

invaded and occupied Norway to secure access to iron ore shipping ports such as Narvik.

The Stridsvagn m/38 (Strv m/38) tank was designed in 1937 by the German engineer Otto Merker and built by a partly German owned Swedish heavy industry manufacturing company called AB Landsverk. An order for 16 Strv m/38 tanks based on the L-60 tank was placed in July 1937. A total of 216 were built between 1938 and August 1939 (16x m/38, 20x m/39, 100x m/40L and 80x m/40K tanks).

STRIDSVAGN M/38

COMMISSIONED:	1938
ORIGIN:	SWEDEN
LENGTH:	4.80M (15FT 9IN)
RANGE:	270KM (168 MILES)
ENGINE:	SCANIA-VABIS 1664CC 16 OHV 142 BHP (104 KW) PETROL ENGINE
CREW:	3
ARMOUR:	6-15MM
PRIMARY WEAPON:	37MM BOFORS M/38 ANTI-TANK GUN
SECONDARY WEAPON:	SWEDISH MADE BROWNING 8MM KSP M/36 MACHINE-GUN

WEAPONS AND AMMUNITION

The Stridsvagn m/38 turret was armed with a 37mm Bofors m/38 anti-tank gun and a coaxial Swedish made Browning 8mm ksp m/36 machine-gun. The main gun could fire armour-piercing rounds, high-explosive shells and white phosphorus incendiary smoke shells.

ARMOUR PROTECTION

The armour thickness ranged from 6mm to 15mm. In 1938 this was comparable with the German Panzer III Ausf.A to D and Soviet T-26 tanks, but the Stridsvagn m/38 tank armour was stronger because it was welded rather than riveted.

SUSPENSION SYSTEM

The Stridsvagn m/38 was the first tank equipped with the revolutionary torsion-bar suspension system. It provided a far smoother and efficient ride over the old leaf springs suspension system.

Illustration: Alex Pang

“THE STRIDSVAGN M/38 (STRV M/38) TANK WAS DESIGNED IN 1937 BY THE GERMAN ENGINEER OTTO MERKER”



The Stridsvagn m/38 was armed with a 37mm Bofors m/38 anti-tank gun and a coaxial Browning 8mm m/36 machine-gun

Image: © The Arsenalen, Swedish Tank Museum

ARMAMENT

The Stridsvagn m/38 was not fitted with a hull machine-gun. It was armed with a 37mm Bofors m/38 anti-tank gun and a coaxial Browning 8mm ksp m/36 machine-gun. The Swedish manufacture Bofors developed the 37mm anti-tank gun for the export market. When it was first sold in 1938, it was an effective weapon that could penetrate the armour of most tanks. A gun-mount was developed to enable it to be fitted inside the Stridsvagn m/38 turret. As tank armour thickness increased, the gun was considered obsolete by 1941.

Image: © The Arsenalen, Swedish Tank Museum



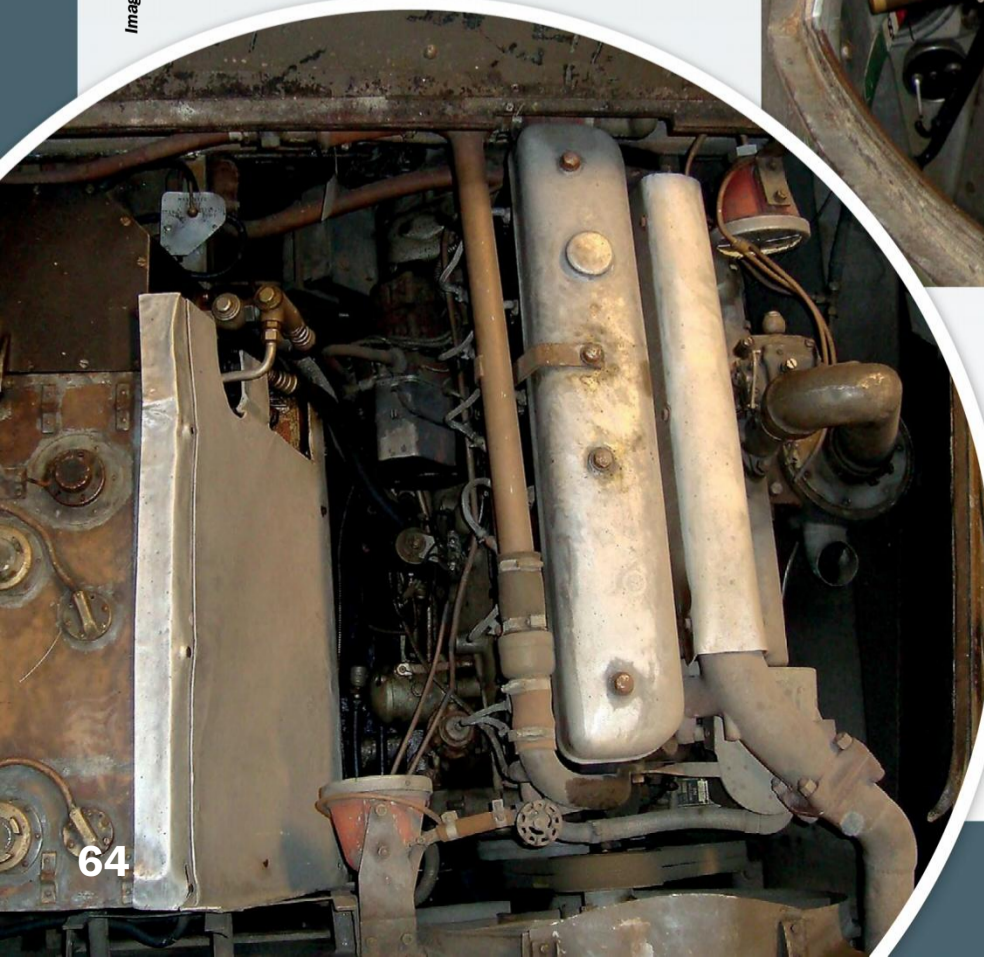
This is the gunner's position. He could traverse the turret and fire the main gun and coaxial machine gun

Image: © The Arsenalen, Swedish Tank Museum

ENGINE

Between 1932 and 1942, the Swedish car and commercial vehicle manufacturer Scania-Vabis produced a range of haulage trucks. The model 335 was fitted with a Scania-Vabis 1664cc inline-six overhead valve (I6ohv) 142bhp (104kW) petrol engine. This same engine was used to power the Stridsvagn m/38 tank. The engine had already been tested on commercial trucks and found to be reliable. Spare parts were readily available. It was a good idea to use an existing dependable engine, as it cut down development time in producing a new tank.

The Stridsvagn m/38 was powered by a Scania-Vabis 1664cc 142hp engine, which was also used in the Scania-Vabis 335 truck





Each side had a front drive sprocket, four double road wheels, an idler wheel and two return rollers

Image: © The Arsenalen, Swedish Tank Museum

DESIGN

The Stridsvagn m/38 tank was ahead of its time when it left the factory gates at AB Landsverk in 1938. The Swedish designers, under the direction of the German chief engineer Otto Merker, fitted a torsion-bar suspension system. It was revolutionary for the time. This system would be used on German tanks like the Panther and Tiger. It provided a smoother ride than the traditional leaf springs suspension system. The hull armour was stronger than other tanks because it was welded, not riveted.

The armoured engine compartment was at the rear of the tank. The large hatch helped the crew access the engine

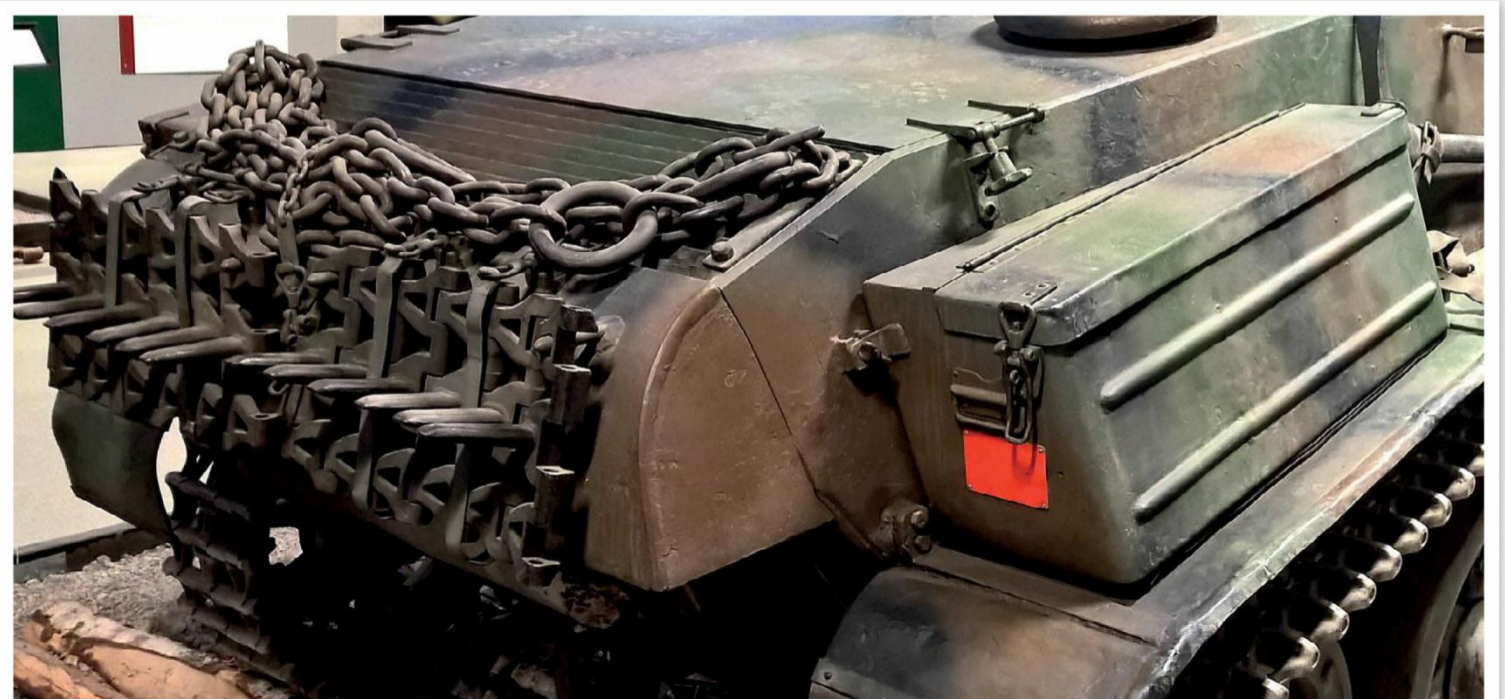
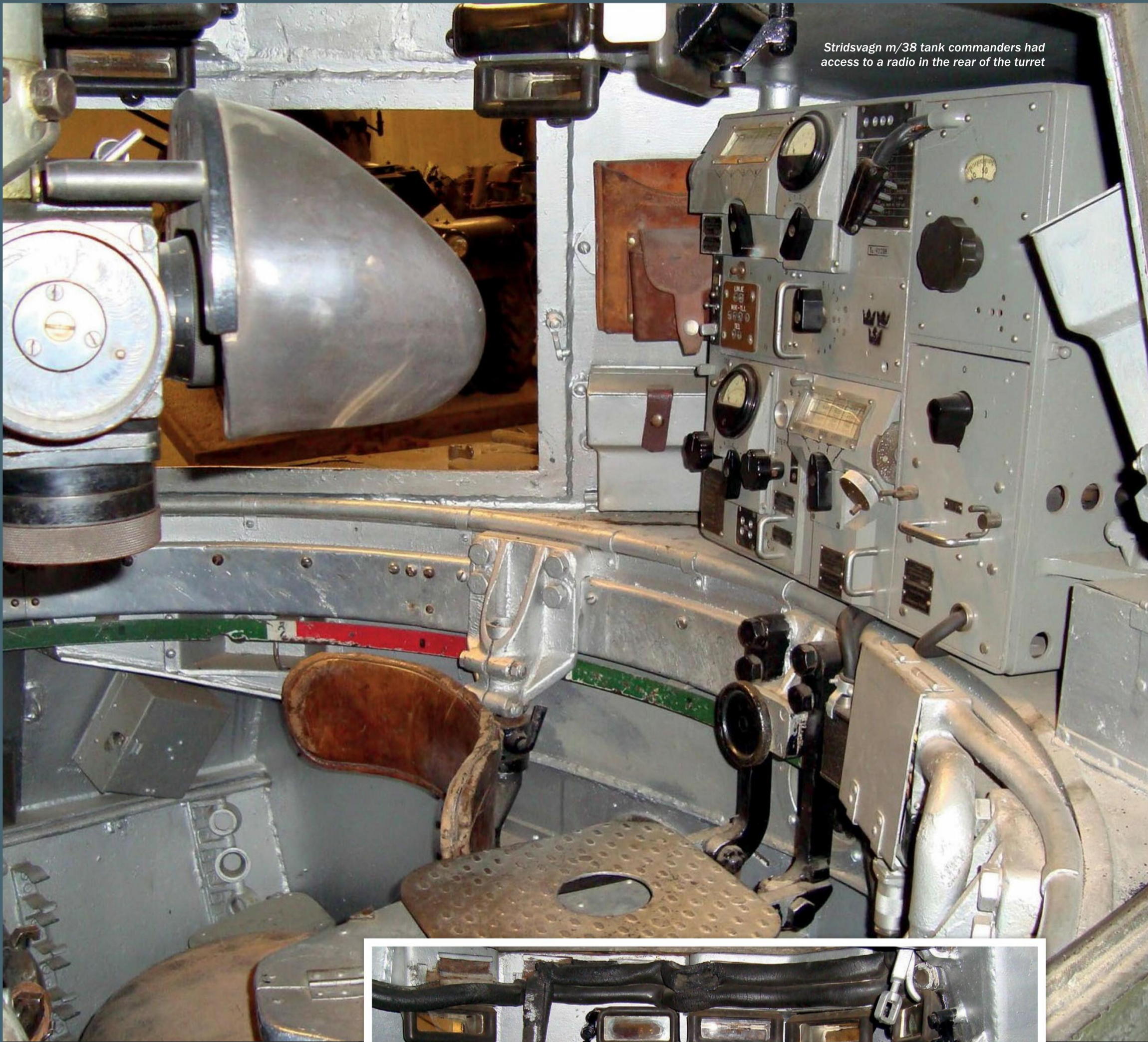


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Stridsvagn m/38 tank commanders had access to a radio in the rear of the turret

CREW COMPARTMENT

The Stridsvagn m/38 tank had a crew of three. The driver sat on the left side of the tank. He had good vision compared to other tanks developed in the late 1930s. He had three periscopes and three vision ports with armoured covers. Thick glass blocks protected the driver from eye injury. The large hatch above his head slid sideways to open and did not obstruct the turret. The commander was over-worked having to load the gun, operate the radio, find targets, look for threats and navigate.

The driver controlled the direction of the tank by moving the two levers with wooden handles

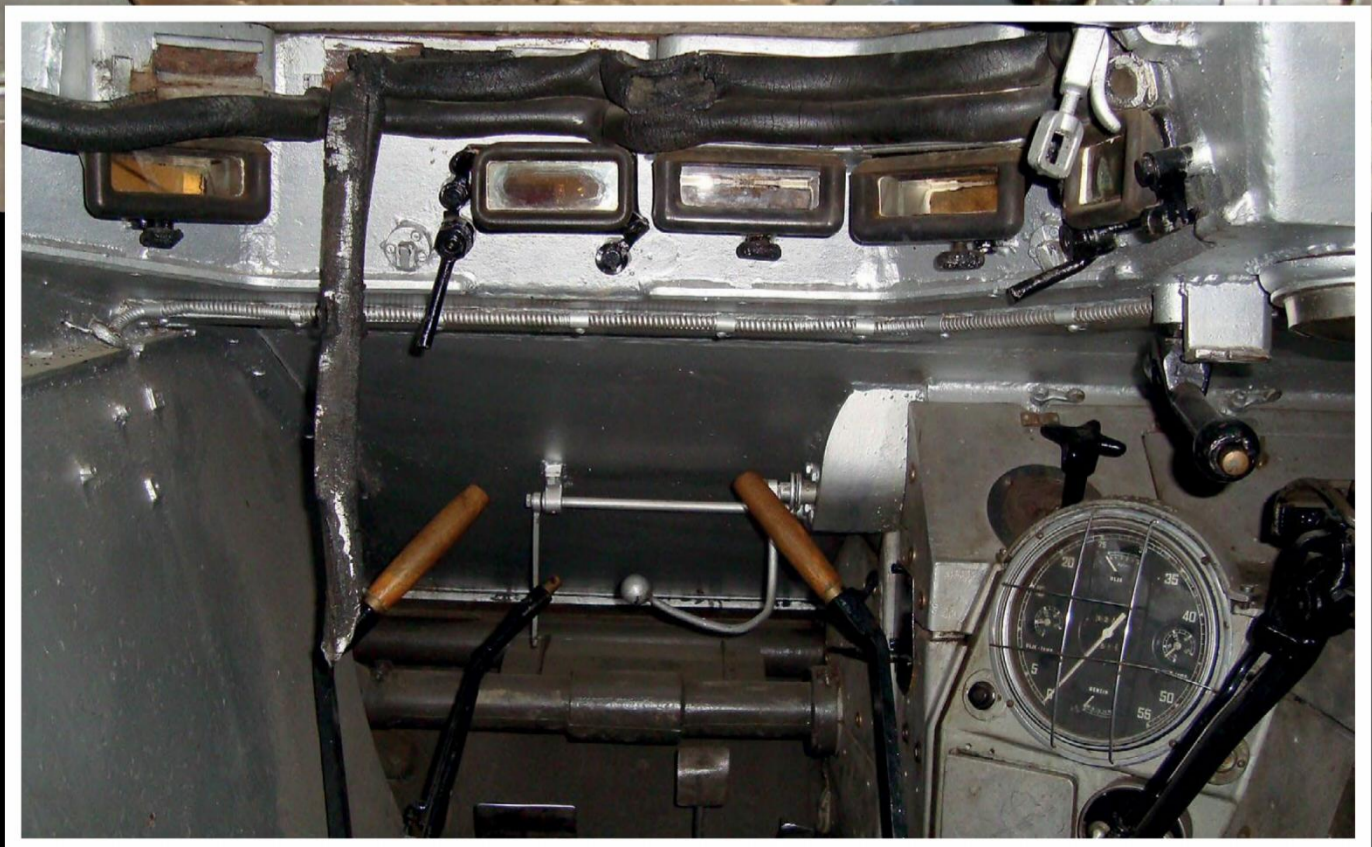


Image: © The Arsenalen, Swedish Tank Museum

SERVICE HISTORY

In 1936 the Swedish Army wanted to field two full strength tank battalions to enable it to defend the country from attack. They had observed other countries rearming. They were particularly aware of what was happening in Germany. The Swedish Government refused to allocate funds for two tank battalions and only financed one tank battalion. This consisted of 16 Stridsvagn m/38 medium tanks and 48 Stridsvagn m/37 light tanks that were only armed with two 8mm m/36 machine-guns. The more numerous Stridsvagn m/37 light tanks would be used in a scout role, searching out enemy paratroopers and infantry. If they encountered enemy tanks, they would withdraw and keep observation while calling in artillery fire and support from the Stridsvagn m/38 medium tanks. The Stridsvagn m/38, and the upgraded m/39, m/40L, m/40K versions, were only tanks that could knock-out enemy armoured vehicles until new tanks arrived in 1941.



A Stridsvagn m/38 parades through Stockholm

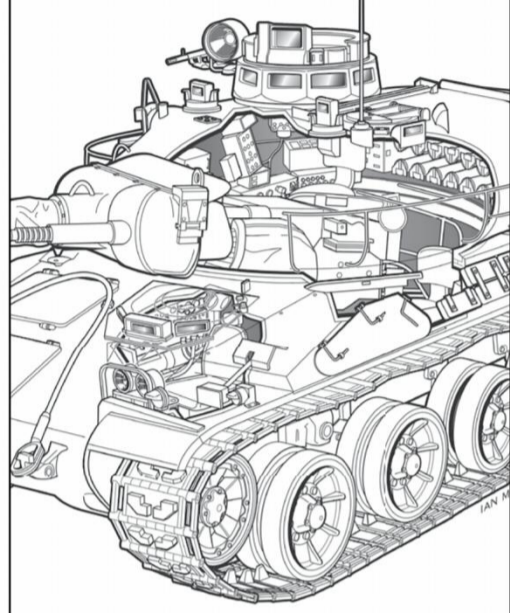
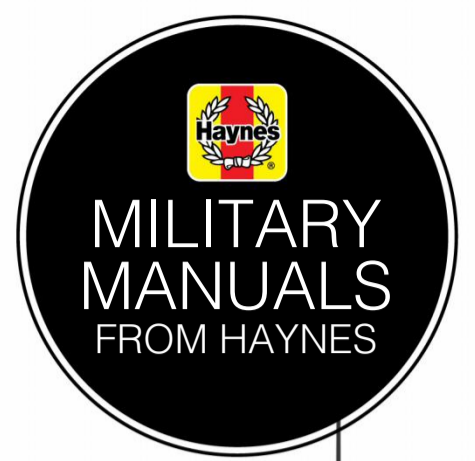
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The tank hull armour was welded rather than riveted, making it stronger

Image: © The Arsenalen, Swedish Tank Museum

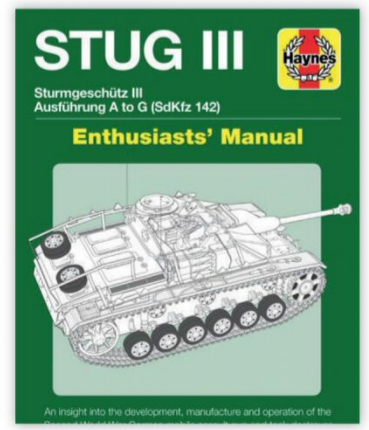
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WAGENBURG THE HUSSITE WAR WAGON

Each wagon was manned by two handgunners and six crossbowmen, who fired through small slit holes, protected by foot soldiers stationed outside



Facing the combined might of the Holy Roman Empire and the Catholic Church, the ingenious leader of the 15th century Hussite revolt created the Medieval world's very own tank



In 1419, four years after the renegade preacher Jan Hus was burned at the stake, his followers, the Hussites, found themselves at war with the combined might of the Holy Roman Empire and the Catholic Church. Despite inferior numbers, training and equipment, they endured five successive crusades before succumbing to infighting. With an army largely consisting of peasants and farmers, their very survival depended on finding a way to stop the mounted knights in their tracks. They found their answer in the form of the 'Wagenburg', or 'Wagon Fort' – the Medieval world's very own tank.

The strategy was devised by the one-eyed Hussite leader, Jan Žižka, a former captain of the Bohemian King Wenceslas's palace guard, who had also fought as a mercenary against the Teutonic Knights in Poland. In the winter of 1419, while Žižka was besieging Nekmer Castle, he was attacked by a far larger royalist army. Desperate, Žižka tried something new, chaining seven wagons together between two lakes, reinforced with large guns. As the royalists charged towards them, unable to break through the wagon line and shocked by the Hussite gunfire, they were decimated.

Until now, wagons had long served as supply carts, and had even been used to enclose camps or field headquarters. At the Battle of Mohi in 1241, the Hungarian King Bela had drawn up a defensive ring of wagons to fortify his camp against the Mongols, only to be slaughtered. However, using them as mobile defensive fortifications on the battlefield, as Žižka had, was unique. Žižka was also an early adopter of the firearm, utilising 'pipe guns', consisting of short iron tubes attached to long wooden shafts – weapons the Czechs called *pistala*. As the wars progressed, he introduced increasingly large guns, the most ingenious of which was the 'houfnice', or 'howitzer', designed to mow down attacking troops. This heavy artillery consisted of a short, wide barrel, mounted atop an axle and wheels.

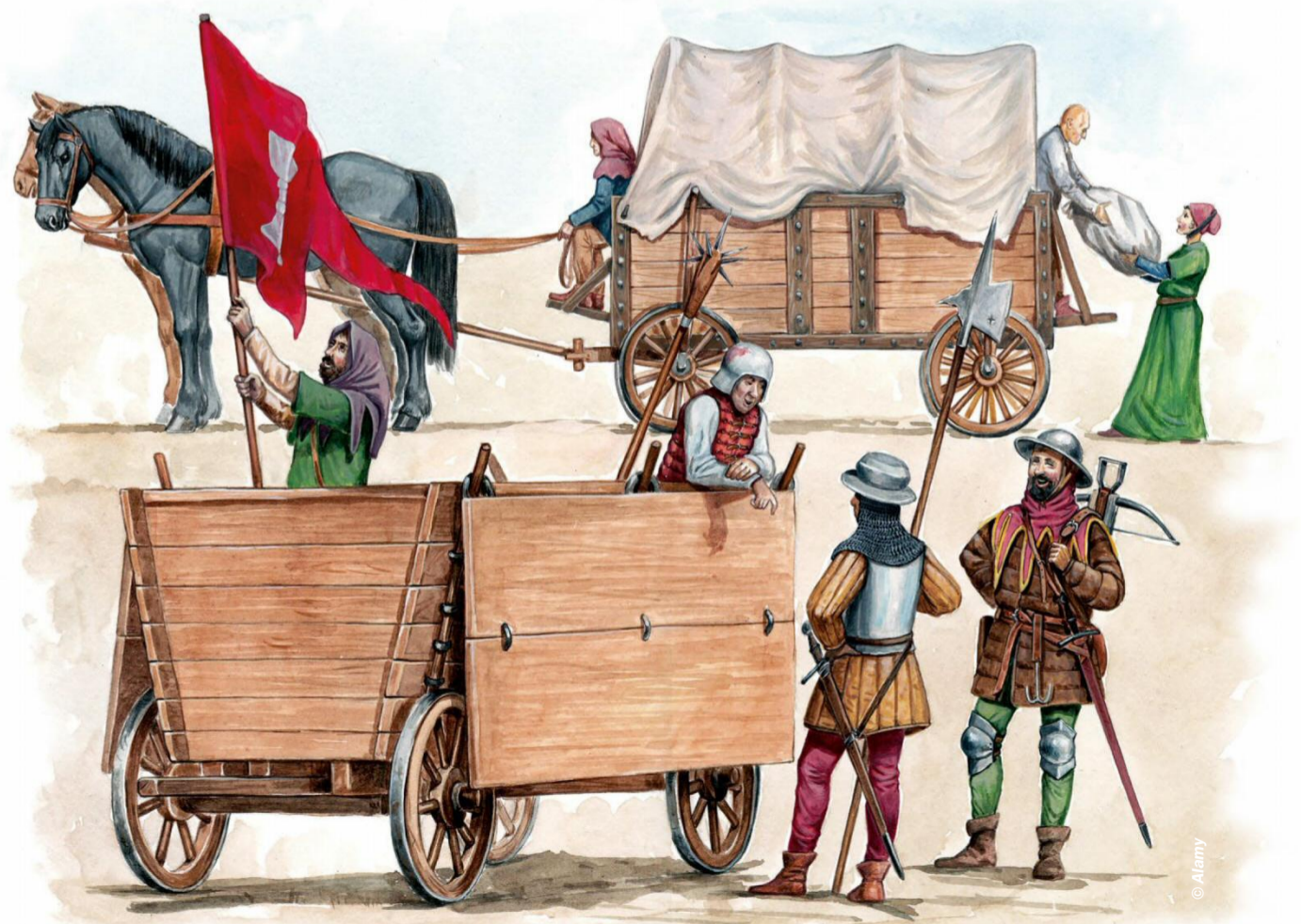
In 1421, as the royalists wrought terror on the Czech populace, Žižka found himself surrounded by Emperor Sigismund's army within the city of Kutná Hora. Facing destruction, he gambled on his own genius – mounting his guns atop wagons and using them to punch a hole in the enemy's line, in among the first documented uses of field artillery. Between his guns and war wagons, Žižka had essentially built the Medieval tank, an impregnable moving fortress of destruction. While only seven war wagons were used in their first deployment at Nekmer, this soon swelled to 180 – paired with 35 large guns.

With most of his followers hailing from agricultural backgrounds, Žižka had plenty of four-wheeled farm carts to draw upon. These were reinforced with thick layers of planks, pressed alongside one another and filled with soldiers, to create mobile forts. Further heavy planks were bound by rope and dropped over the left hand side as additional armour, with small triangular holes from which guns and crossbows could be mounted and fired. On the right-hand side, a narrow door dropped out into a ramp, to allow the crew easy access.

Each wagon was stocked with a crate of throwing stones, two axes, two pickaxes, two hoes, two shovels and two spades. A bucket was hung between the wheels, to water the horses or put out fires, and wagons carrying artillery would also bear shot and powder. While two handgunners and six crossbowmen would be stationed inside, they were protected outside by 14 flailmen and four halberdiers, as well as two pavisiers, who set up shields to protect any gaps in the line.

Each wagon had its own commander, placed into groups of ten, with a linesman commanding up to 100 wagons each, led by a captain responsible for all of the wagons.

The Hussites fought under the image of a chalice – a reference to Jan Hus's belief that during Communion, all participants should partake of the wine



THE HUSSITE WARS



As the Czech majority grew tired of their oppressive German overlords, and the Catholic church, Bohemia erupted into full-blown religious revolt

In 15th-century Bohemia, part of the Holy Roman Empire, years of oppressive rule by the German minority led to a rise in Czech nationalism, coupled with resentment for the materialist nature of the Catholic clergy. Amid a papal schism, the reformist preacher Jan Hus found fertile ground for his calls to abolish the payment of indulgences. However, despite being promised safe passage, he was arrested and burned at the stake as a heretic. In the aftermath, King Wenceslas of Bohemia ejected Hus's followers from most of the churches in Prague.

Stoked by the priest, Jan Želivsky, the Hussites rose up in revolt, breaking into the town hall and hurling councillors from windows, onto spears. Wenceslas died soon after, and his brother, Emperor Sigismund found himself at war. Despite securing freedom of worship for the Hussites in Prague, Jan Žižka found that his Taborite faction was too extreme for the populace, and moved to Pilsen, and then Tabor.

Along the way, the Catholic church called a crusade against the 'heretical' sect. However, thanks to Žižka's strategic genius, the Hussites endured five successive crusades, before finally succumbing to infighting between the extremist Taborites and moderate Utraquists. Though the Hussite revolt was quashed, the Utraquists not only established an independent church, but were championed by the Utraquist pacifist, King George of Kunštát and Podebrady.

After the Battle of Lipany, although Bohemia was reunited with the Catholic Church, the Utraquists won the right to establish an independent church



Source: Wiki / Josef Matthäuser



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Signal flags were used at the front and back of the lines to communicate movements. As they approached the battlefield, wagons were moved into tight formation, creating a defensive perimeter, at which point the horses were unbound and wagon shafts removed – raised vertically or placed against the preceding vehicle. They were then chained to one another, and their protective panels released. Shovels might even be used to dig a ditch around the lines, and the soil thrown over the wheels. Then, Hussite gunners, crossbowmen and artillery would target enemy knights, wearing them down before releasing their own cavalry for a decisive shock attack.

Aeneas Silvio Piccolomini, later Pope Pius II, called Žižka's army a "many-armed monster which unexpectedly and quickly seizes its prey, squeezes it to death and swallows up its pieces". Describing the war wagon process, he said, "The mounted troops fought outside the wagon stronghold, but moved back into it whenever the enemy threatened to overpower them, and they then fought dismounted as if from the walls of a fortified city."

During the fifth crusade, the war wagon had become so renowned that when the crusaders laid siege to Domazlice in 1431, they brought their own. However, when the Hussites

Above: As war erupted, the Hussites were led by the one-eyed military genius Jan Žižka, until his death in 1425

approached to relieve the town, a breakdown in communication triggered a general rout, as the crusader commander frantically tried to throw together a wagon fort. With haste, the Hussites smashed through crusader lines before their wagenburg was closed off – scoring their greatest ever haul of booty, including Cardinal Cesarini's hat.

Three years later, the extremist faction of Hussites was dealt a brutal defeat by an alliance of moderates, Czech nobles and Prague townsmen – who set up war wagons in a long formation atop a hill. Under a cloud of artillery smoke, they feigned a retreat, drawing the radicals in, before snapping the fort shut – so they could trample and hack them down at their leisure. After 17 years of bloodshed, the battle ushered in the end of the Hussite Wars, reuniting Bohemia with the Catholic church, and earning the moderate Hussites the freedom to practice their faith. Though the wagenburg would not become a staple of European warfare, field artillery and guns would. The cavalry would finally be killed off centuries later, with the introduction of the tank – in many ways, a compact version of the wagon fort.