

# MYTH **VS** MACHINE TIGER

Discover the tactics, technology and battlefield record behind Germany's infamous yet iconic heavy tank

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Left: Rearming a Tiger I while on operations in Russia, June 1943



Left: A Panzer VI pictured on deployment in North Africa, Tunisia, 1943

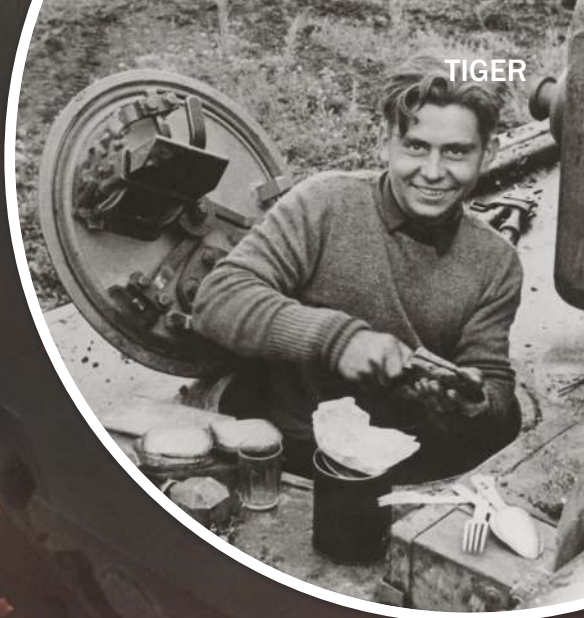


Above: Tigers drive past burning villages during an offensive in the Orel region



Left: The crew of a Panzer VI Königstiger spray their vehicle to blend with their surroundings





**Right:** The radio operator of a Tiger prepares sandwiches for his crew mates, Eastern Front, August 1943

**T**he Tiger – no other tank of World War II is better known. The nimbus of the infamous German heavy tank and that of its successor, the mighty King Tiger, is still unbroken and as powerful as it was 72 years ago. Today, it is still known for its fabled ‘invincibility’, for the power of its mighty 8.8cm gun and, especially in modern, revisionist historiography, for its legendary ‘unreliability’. Yet on the Eastern Front, and to a slightly lesser extent in the western theatre of war, Tiger-equipped German units performed surprisingly well.

The true story of the Tiger is hidden somewhere between those extremes, and is best told by those who used and also faced the gigantic German war machines on the battlefield.

### **THE HEAVY TANK BATTALIONS**

*“A concentration of the available armoured forces will always be more effective than dispersing them, irrespective of whether talking about a defensive or*

## **“THE INTRODUCTION OF THE PANZERKAMPFWAGEN TIGER PROVIDED THE GERMAN ARMY WITH A MASSIVE INCREASE IN THE COMBAT POWER OF ITS PANZER FORMATIONS”**

*offensive posture, a breakthrough or an envelopment; a pursuit or a counterattack”*  
– **Generaloberst Heinz Guderian**

The introduction of the Panzerkampfwagen Tiger provided the German Army with a massive increase in the combat power of its Panzer formations. To get the most out of the new tank’s capabilities and to make full use of the propaganda advantage of creating new, elite, heavy Panzer units, the Tigers were grouped into *schwere Panzer Abteilungen* (s.Pz.Abt – heavy tanks battalions). These were independent *Heerestruppen*, held at *Armee* or *Korps* level, which could be used as heavy reinforcements to be sent to wherever their firepower was needed.

Within the German Army, the use of heavy tanks in that role was not new, and had been originally formulated by Generaloberst Walther von Brauchitsch in 1938. The German offensive campaigns in 1939 and 1940 had clearly highlighted the shortcomings of the German Panzers, yet due to the spectacular successes achieved in those early campaigns, the development of heavy tanks had not been given any priority. All that changed drastically during the first weeks of Operation Barbarossa, the campaign in Russia, when German tanks were clearly outclassed by Soviet-made T-34 and KV-1 tanks.

After a hasty development phase, the Tiger made its battlefield debut in spring 1942. It

*Artwork from mass multi-player online game World of Tanks, main sponsor of The Tiger Collection at The Tank Museum, Bovington*

*Main image: World of Tanks*

was planned to add a heavy tank company of nine Tigers to each Panzer regiment, yet it soon became clear that the tank's mass and weight opposed its use within the ranks for regular Panzer divisions, whose tactics were heavily based on speed and mobility. The key to success was found in the concentrated use of Tigers formed into independent units. Only two 'elite' German divisions, the *Panzer-Lehr-Division* and the *Panzergranadier-Division 'Grossdeutschland'*, ever received organic Tiger battalions.

**TACTICS & ORGANISATION**

Initially, the organisational structure of a schwere Panzer-Abteilung was based on a mixture of Tigers operating with and supported by a number of *Panzerkampfwagen III Ausf. N*. In battle, the Tigers would engage 'hard' targets such as enemy armour and fortified positions, while the lighter Panzer IIIs, armed with a short 75mm gun, would focus on 'soft targets' – enemy infantry and anti-tank guns. This form of experimental structure was known as 'Organisation D'.

Each Tiger Abteilung was equipped with three companies of nine Tigers and ten Panzer IIIs. Added to those were two Tigers operated by the battalion's command staff and five Panzer IIIs formed into a light platoon, adding up to a total of 29 Tigers and 35 Panzer IIIs. Yet due to production and supply shortcomings, the heavy battalions usually operated with only two companies summing up to 20 Tigers and 25 Panzer IIIs.

**“IN THE LIGHT OF EXPERIENCE, IT HAD SOON BECOME CLEAR THAT THE TIGER WAS ACTUALLY AT ITS BEST IN A LONG-RANGE ENGAGEMENT OR IN A AMBUSH POSITION, PICKING OFF INCOMING ENEMY TANKS FURTHER AWAY, WITH ITS SUPERIOR GUN”**

By March 1943, combat experience had shown that the increased flexibility offered by the supporting Panzer IIIs was clearly outweighed by their heavy losses in combat, where Soviet gunners would effectively pick off the lightly armoured Panzer IIIs before turning their attention to the unsupported Tigers.

By this time, Tigers were being constructed in greater numbers, and a new organisational scheme was introduced. In this new scheme, known as 'Organisation E', the heavy tank battalions were turned into pure Tiger units, consisting of three companies of 14 Tigers each and a staff company of three Tigers.

Even though under combat conditions this nominal balance of 45 Tigers was hardly ever achieved, the new heavy battalions performing far better and drastically reduced the logistical efforts required to operate a heterogeneous mixture of tank types.

In the first months of the Tiger's operational use, very little thought was given to developing effective tactics for it, while on the other hand Tiger crew training differed little to that given to crew of German light and

medium tanks. The men of the first heavy tank Abteilungen were largely left to gather their own experiences, while higher up the chain of command, combat and experience reports were hastily gathered to speed up the development of tactics.

These experienced-based tactical directives were formulated and first put into print in the *Tiger-Fibel*, a humorous training manual, illustrated with allegorical sketches, technical drawings, photographs and cartoons in August 1943. In the light of experience, it had soon become clear that the Tiger was actually at its best in a long-range engagement or in an ambush position, picking off incoming enemy tanks further away, with its superior gun.

**TIGERS IN COMBAT**

The Tiger saw its baptism of fire in September 1942 in an action south of Lake Ladoga on the northern Russian front. The outcome can only be described as a disaster. Ignoring the well-known, swampy ground conditions, all four available Tigers were sent into action. Being unable to manoeuvre properly, all four were severely



A large formation of Tiger IIs, or King Tigers, the superior successor to the Tiger I



A Tiger deployed during operations on the Eastern Front, creeping past a village in the Orel region

damaged. One of them, abandoned by its crew, could not be recovered, and later fell into Soviet hands, yet this prelude would not prevent the Tiger from proving its value on the Eastern Front.

Three months later, Tigers of s.Pz.Abt 502, again fighting at Lake Ladoga, Mishkino and Krasnyi Bor, achieved spectacular successes. Between 19 and 31 March 1943, four of the unit's Tigers (supported by three Panzer IIIs) destroyed 48 Soviet tanks without losses.

In the period between 12 January and 31 March of the same year, s.Pz.Abt 502 destroyed 160 Soviet tanks while losing only nine Tigers in the process. During this period, the unit operated in cohesion, and time was given for refit and repairs, while the German heavy tanks were not split up and were supported by a number of assault gun and tank-hunting units.

*'Tigers have to be used as battering rams in a running attack and as a bumper in the focal point of a defence. There is the danger that Tiger units receive tasks that could be fulfilled without any difficulty by regular tank companies. Constant positional changes put a massive strain on suspensions and engines while also taking up time needed for technical servicing – the damage caused by this will result in Tiger units not being available when needed'*

- Hauptmann Lange, CO 2./s.Pz.Abt 502, 29 January 1943

On 10 October 1943, s.Pz.Abt 503 reported the results of 78 days of continuous fighting in the area of Kursk. In total, the unit had destroyed 501 Soviet tanks, 388 anti-tank guns, 79 artillery pieces and seven aircraft. 18 Tigers had been lost in combat: six burned out after being hit by 12.2cm and 5.7cm guns, one had been taken out of action by a Soviet close-combat team using Molotov cocktails, one had been destroyed by friendly fire from a German assault gun, another had been blown up after receiving a penetrating hit in the lower hull, three had been disabled by direct artillery hits on radio operators coppola and suspension system, four had been severely damaged by penetrating hits in the suspension and tracks and had to be transported back for repair.

In stark contrast to the myth of the unreliable Tiger, only two had been lost due to technical problems – one had to be blown up after engine failure, while another was destroyed by its own crew after suffering a failure and block of the final drive system. In the whole period and under combat conditions, the unit had managed to keep an average daily combat strength of 10 to 12 Tigers available.

*"..the development of the situation in Africa requires the urgent and extra supply of modern and decisive weapons. The speedy delivery of a company of Tigers (1./s.Pz.Abt 501) has been ordered" – German High Command (OKH), Operational Section, 2. November 1942*

**"THE TIGER SAW ITS BAPTISM OF FIRE IN SEPTEMBER 1942 IN AN ACTION SOUTH OF LAKE LADOGA ON THE NORTHERN RUSSIAN FRONT. THE OUTCOME CAN ONLY BE DESCRIBED AS A DISASTER"**



# EARNING STRIPES

## THE ELITE PANZER UNITS

### WAFFEN SS



#### S.SS-PANZER-ABTEILUNG 501

Formed in July 1943 around a core of troops of SS-Panzer-Division 'Leibstandarte Adolf Hitler', the unit saw service in Italy and on the Eastern Front. Assigned to the 'Hitler Youth' Division it saw service against the Western Allies in Normandy. Refitted with King Tigers from September 1944, it fought in the Battle of the Bulge before seeing final service on the Eastern Front.

**ENEMY TANKS DESTROYED: CA 500**  
**OWN LOSSES (TOTAL): 107**  
**KILL RATIO (TOTAL LOST): 4,67**



#### S.SS-PANZER-ABTEILUNG 502

Formed in October 1943, it saw service in Normandy from June 1944, and was later sent to the Eastern Front in March 1945.

**ENEMY TANKS DESTROYED: CA 600**  
**OWN LOSSES (TOTAL): 76**  
**KILL RATIO (TOTAL LOST): 7,89**



#### S.SS-PANZER-ABTEILUNG 503

Formed in November 1943, the crew's saw combat service as infantry in Yugoslavia until January 1944 when the unit was sent to Holland. It was attached to Heeresgruppe Weichsel and sent to the Eastern front Jan 1945.

**ENEMY TANKS DESTROYED: CA 500**  
**OWN LOSSES (TOTAL): 39**  
**KILL RATIO (TOTAL LOST): 12,82**

### WEHRMACHT HEER



#### S. PANZER-ABTEILUNG 501

Formed for service in North Africa, where the first units arrived in November 1942. The unit surrendered in Tunisia in May 1943. Reformed, it was then sent to the Eastern Front in November 1943.

**ENEMY TANKS DESTROYED: CA 450**  
**OWN LOSSES (TOTAL): 120**  
**KILL RATIO (TOTAL LOST): 3,75**



#### S. PANZER-ABTEILUNG 502

Formed in August 1942, the first tanks arrived at the front near Leningrad on 29 August 1942, with more tanks arriving from February 1943. It saw combat on the Eastern Front only, and was one of the most successful Tiger units created.

**ENEMY TANKS DESTROYED: CA 1400**  
**OWN LOSSES (TOTAL): 107**  
**KILL RATIO (TOTAL LOST): 13,00**



#### S. PANZER-ABTEILUNG 503

The unit saw service on the Eastern Front in southern Russia, and took part in the withdrawal from Stalingrad. It fought at Kursk, and later near Cherkassy, before being transferred to the Western Front in April 1944.

**ENEMY TANKS DESTROYED: CA 1700**  
**OWN LOSSES (TOTAL): 252**  
**KILL RATIO (TOTAL LOST): 6,75**

# THE KING TIGER

THE TIGER TANK AND ITS VARIANTS BROUGHT FORMIDABLE FIREPOWER, INNOVATION, AND NEW TACTICS TO THE EUROPEAN THEATRE IN WWII

The Tiger II, or King Tiger, was the heaviest tank deployed by any combatant during World War II. Based upon practical experience with its predecessor, the Tiger I, the King Tiger incorporated numerous innovations that were far ahead of its time. Its primary weapon, a variant of the formidable 88mm multi-purpose gun, was capable of destroying targets at distances of up to 2.4 kilometres, while its armour protection was virtually impervious to anything but a direct hit at its weakest points.

**“ITS PRIMARY WEAPON, A VARIANT OF THE FORMIDABLE 88MM MULTIPURPOSE GUN, WAS CAPABLE OF DESTROYING TARGETS AT DISTANCES OF UP TO 2.4 KILOMETRES”**

## MAIN ARMAMENT

The 88mm KwK 43 L/71 high velocity gun was the most powerful weapon of its kind mounted in a tank during World War II. The L/71 entered production in 1943, and was introduced with the Tiger II, or King Tiger. Its barrel length of 6.43 metres was over a metre longer than the 88mm L/56 mounted on the Tiger I, and its muzzle velocity reached an astonishing 1,000 metres per second. New armour-piercing rounds, larger than those of the L/56, were also developed. An anti-tank version of the L/71, the PaK 43, was mounted on tank destroyers or field artillery carriages.

## 88MM MAIN GUN MANTLET

## FAMILIAR INTERIOR DESIGN

The interior layout of the King Tiger borrowed significantly from the PzKpfw. V Panther medium tank design. The King Tiger accommodated a crew of five with the driver seated forward in the hull to the left and utilising a cut steering wheel, power steering, and semiautomatic gear box. Manual tillers were installed if the transmission failed. To the driver's right sat the hull machine gunner/radio operator. The large turret accommodated the massive breech of the 88mm L/71 gun, with the commander seated to the left rear, the gunner in front to the left of the breech, and the loader on the right.

## SECONDARY ARMAMENT

A pair of MG 34 machine guns, capable of a high rate of fire compared to contemporary Allied weapons, was installed for protection against enemy infantry. One was mounted coaxially in the turret, while the other was positioned frontally in a ball mount on the right side of the hull.

## ARMOUR PROTECTION

Sloped 50mm to ward off enemy shells, the frontal armour of the Tiger II was also 150mm thick. The turret glacis was armoured with 180mm of steel, and the side armour, sloped at 25 degrees, was 80mm thick. While such protection was a strong attribute, the great weight strained performance.

## TORSION BAR SUSPENSION

The Tiger II's traverse torsion bar suspension helped minimise cross-country instability. However, the nine overlapping road wheels on either side of the hull continually required maintenance due to trapped debris. In winter conditions, the wheels would sometimes freeze together, requiring the crew to remove ice before the tank could operate.

## DRIVER'S PERISCOPE WITH ROTATING CAPABILITY

**COMMANDER'S CUPOLA WITH VISION SLITS****LOADER'S HATCH FOR INGRESS AND EGRESS****ANTI-PERSONNEL S MINE PROJECTOR POSITION****HENSCHEL TURRET**

The Henschel turret of the King Tiger replaced an earlier, rounded design erroneously labelled the 'Porsche turret,' which presented a possible shot trap issue for enemy rounds that struck the vulnerable area where the turret meets the tank's welded hull. The Henschel turret is distinctively flatter and features sharper angles, helping to ward off enemy rounds and diminishing the concern for shot trap damage. Only the first 50 production King Tigers were topped with the Porsche turret. The Henschel turret also eliminated a noticeable bulge on the left side that was originally meant to support the commander's cupola position.

**COMMON POWERPLANT**

The source of numerous mechanical failures, the Maybach V-12 HL 230 P30 petrol engine was the same powerplant installed in late-war Panther medium tanks. Capable of generating 690 horsepower and a top road speed of 38 kilometres per hour, the understrength engine was the Achilles heel of the Tiger II.

**REAR FUEL TANK PORT****INTERCHANGEABLE WIDE BATTLE TRACKS****AMMUNITION CAPACITY**

The Tiger II carried a mixture of up to 80 rounds of armour-piercing and high-explosive ammunition for its 88mm gun. The rounds were stored at the rear of the turret, and along the right side of the hull, offering the easiest access for the loader during combat operations.

## MYTH VS MACHINE

Between November 1942 and January 1943, 29 Tigers had been landed in Africa to equip s.Pz.Abt. 501, which first saw action in the African theatre of war in December 1942.

*“Around 3pm enemy contact was made. Weak enemy infantry forces 3 km north-west of Djedeida. He the company was met by heavy artillery fire from the heights north of Tebourba and repeated strafing attacks by enemy aircraft. Hauptmann von Nolde was killed by a artillery hit while trying to enter his tank. The attack was resumed against enemy tanks in the olive groves 5 km west of Djedeida. Thick growth of olive trees minimised fields of both vision and fire and enemy tanks had to be engaged at the closest distance (...)*

*General Lee tanks opened fire on the Tigers on ranges of 80 to 100 metres. Hits stuck in the armour but failed to penetrate (...) Two General Lee tanks were destroyed in a range of 150 metres. One Tiger lost through engine failure”*

In Northern Africa the Tigers were used along a vast and long frontline. This hampered their effectiveness, while their small number (often there were less than ten Tigers operational) limited their tactical value. Huge distances had to be covered – this and the heat of the North African desert caused a serious strain on the heavy German tanks and a severe drop of the operational readiness of s.Pz.Abt 501.

After the defeat at Stalingrad and the failure of Operation Citadel, the German Army had once and for all lost the initiative, and large-scale defensive operations were a thing of the past. On the Eastern Front, the overstretched

*A Tiger easily fording a small creek on the Eastern Front, in the summer, 1943*



**A Tiger stands ready in occupied Bozen, Italy, September 1943**

German defensive lines were faced with an enemy vastly superior in number of weapons and wealth of supplies and manpower.

In summer 1944, this critical situation reached its peak when the German Army Group centre collapsed during Operation Bagration. Along the Eastern Front, diminished German units were attempting to slow the Soviet advance with local counter attacks.

Yet even the German superiority in training and technology could only delay the Soviet march to victory. The appearance of new, heavy Soviet tanks with powerful guns like the JS-2 and the T-34/85 had changed the balance of power by reducing the range superiority of both the Tigers and the King Tigers tank guns and by outclassing most of the earlier and lighter German tank models

like the Panzer IV. Yet, even by the end of 1944, the nimbus of the Tiger still served as a weapon on its own right.

*- Soon after the appearance of the ‘Tigers’ most ‘Josef Stalins’ turn around and trying to avoid a gunnery battle.*

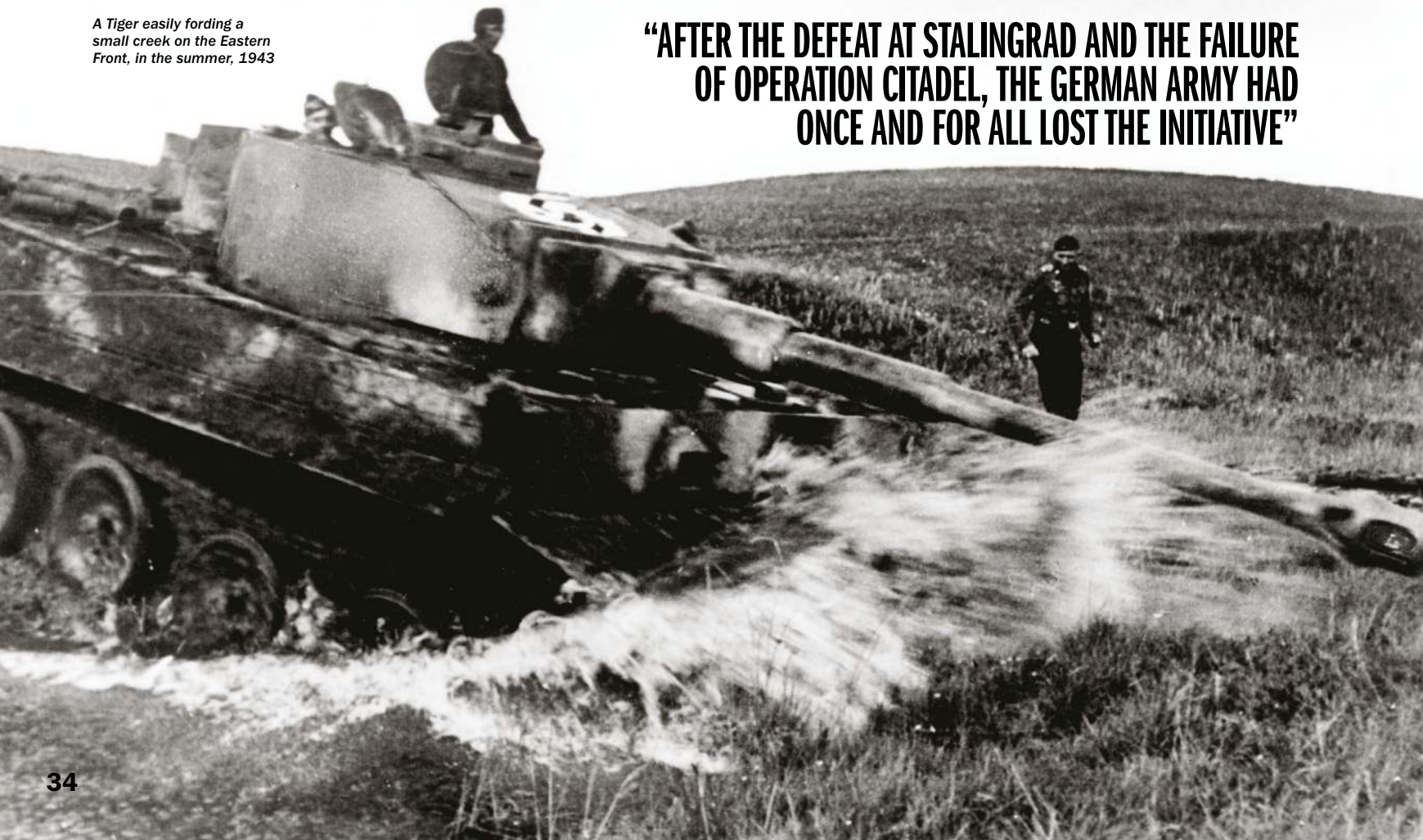
*- Usually ‘Josef Stalins’ only engage in a gun duel on greater ranges (over 2000 m) and only when they are in a flanking position.*

*- Often Russian crews bail out when the first shot has been fired at them.*

### **German experience report**

It was becoming increasingly difficult for the German Army to outweigh the enemy’s numerical advantages by superior tactics. The strain on men and machine was terrible, and

**“AFTER THE DEFEAT AT STALINGRAD AND THE FAILURE OF OPERATION CITADEL, THE GERMAN ARMY HAD ONCE AND FOR ALL LOST THE INITIATIVE”**



# THE TIGER'S STRIPES

THE COMPETING HENSCHEL AND PORSCHE FIRMS FOUND ADDITIONAL APPLICATIONS FOR THEIR EXPERIMENTATION THAT LED TO THE INTRODUCTION OF THE TIGER



## TIGER I NUMBERS PRODUCED: 1,350

On 20 April 1942, Adolf Hitler's birthday, Henschel and Porsche unveiled prototype designs for a new heavy tank that would eventually supplant the PzKpfw. IV, the backbone of the German panzer force.

The Henschel design was chosen and named PzKpfw. VI Ausf E, later earning the fearsome nickname Tiger I.

The new 56.9 tonne behemoth had been built with the prerequisite that its 9.9 tonne turret mount an adapted version of the 88mm multipurpose gun, a proven improvised tank killer in its field artillery/antiaircraft configuration. The Tiger I became a battlefield legend but suffered from an overly complex design.



## TIGER II NUMBERS PRODUCED: 492

By 1943, the imposing Tiger II was in development as the successor to the Tiger I. Again, Henschel won the contract with the German Armaments Ministry. At 63.5 tonnes, the Tiger II was significantly heavier, and though its armour was virtually impervious to enemy fire its ponderous weight overtaxed its inadequate 12-cylinder Maybach petrol powerplant. The Tiger II was so heavy that transport of any consequential distance required the use of railroad flatcars. Although its 88mm gun was lethal at great distances, the Tiger II was never produced in numbers significant enough to alter the outcome of World War II.



## FERDINAND (ELEFANT) NUMBERS PRODUCED: 91

When Porsche's Tiger I prototype was rejected in favour of the Henschel design in 1942, the company re-purposed those chassis manufactured as experimental tanks into heavy tank destroyers. The result was the massive Ferdinand tank destroyer, named after its designer Ferdinand Porsche. Weighing 65 tonnes and introduced in 1943, the Ferdinand mounted the 88mm KwK 43 L/71 gun and carried a crew of six, including two loaders, in an enclosed hull. Combat experience resulted in modification of 50 surviving Ferdinands in 1944. Nicknamed Elefant, these vehicles were improved with an MG 34 machine gun, anti-mine zimmerit paste, and commander's cupola.



## JAGDPANZER VI JAGDTIGER NUMBERS PRODUCED: 88

The fulfilment of an Armaments Ministry requirement that all new tank designs be accompanied by a similar tank destroyer configuration spawned the development of the Jagdpanzer VI Jagdtiger, or Hunting Tiger. The Henschel chassis was topped with a superstructure rather than a traversing turret, and the 128mm Pak 44 L/55 gun, the heaviest anti-tank weapon of World War II, was modified to fit. Both Henschel and Porsche contributed suspension systems, Henschel with nine road wheels and Porsche eight. The Jagdtiger weighed an incredible 70.6 tonnes. Like other German heavy tanks of the period, it was underpowered and mechanical breakdowns were common.



## STURMTIGER NUMBERS PRODUCED: 19

Built atop the Tiger I chassis and mounting a 380mm RW 61 rocket launcher, the Sturmtiger, or Assault Tiger, was developed in 1943 as an infantry support weapon. In theory, an urban assault vehicle had merit; however, by the time the first of only a handful of Sturmtigers was completed Germany was in retreat on two fronts. Limited ammunition capacity led to the need for an armoured ammunition carrier to accompany the Sturmtiger during deployment. Only one of these carriers was completed. In a collaborative effort, Krupp manufactured the hulls, while Henschel added the chassis, and Alkett built the superstructure.

## HUNTING WITH THE TIGER

OTTO CARIUS DESCRIBES HIS EXPERIENCES SERVING WITH THE HEAVY PANZER

"From the start we had to cope with technical problems. We first used Tigers at Lake Ladoga, near the Volkhov. The terrain was totally unsuitable for tanks, and it was a freezing cold winter. All Tigers broke down! But things like that happen with every new technology.

"Even though it drove smoothly like a car, the most significant factor in a Tiger's and King Tiger's reliability was the capability of the driver. An experienced driver could reduce technical issues to an absolute minimum. I usually had experienced drivers but later when we switched to Jagdtigers they were a catastrophe. In the hands of an experienced crew and with regular technical servicing the Tigers were just as good and reliable as any other tank.

"As a rule of thumb one ideally had to service the tank for 10 minutes for every 60 minutes of operational use. Yet, in the later stages of the war when supplies ran low and we did not have the luxuries of trained crews and personnel anymore, that became increasingly difficult and more and more Tigers were lost. Mostly not by enemy fire. We just had to leave them behind. In general the Tiger was an excellent



weapon with which you could engage enemy armour on ranges where you did not risk to be hit yourself. I have often seen T-34s destroyed on ranges over 3,000 metres. With the long 8.8 of the King Tiger and especially the 12.8cm gun of our Jagdtigers we had the absolute superiority in firepower, although the Jagdtiger was far from being a good 'tank'. We once had to fire through the walls of a well made house to score a hit on the IS-2 tank standing behind it. Went clean through. Tremendous firepower."

**"I HAVE OFTEN SEEN T-34S  
DESTROYED ON RANGES  
OVER 3,000 METRES"**

**OTTO CARIUS  
(S.PZ.ABT. 502)**

**VICTORIES: 150-200 TANKS DESTROYED**



# FACTORY FLOOR

**PRODUCTION ISSUES CONTRIBUTED TO THE LIMITED SUCCESS OF THE TIGER TANK, AS THE FORTUNES OF WAR TURNED AGAINST NAZI GERMANY**

The German penchant for over-engineering and precision craftsmanship, disruptions due to relentless Allied bombing, excessive costs that strained a wartime economy, and chronic shortages of critical raw materials conspired to limit the production and performance of the Tiger tank and its progeny during World War II.

While the Tiger earned a reputation second to none among the legendary tanks of the 20th century, fewer than 2,000 Tiger I and Tiger II tanks were completed from 1942 through 1945. In comparison, the United States produced nearly 50,000 M4 Sherman tanks and Soviet factories manufactured more than 60,000 of the superb T-34 and T-34/85 tanks. Although the Tiger may have held a decided advantage in tank versus tank combat, the sheer weight of Allied numbers prevailed. The battle of the tanks was won on the assembly line.

Despite the innovations inherent in the Tiger I and Tiger II, including the highly effective 88mm main weapon, accurate optics for superior targeting, armour and design elements that increased survivability, power steering, and a semiautomatic transmission, the Tigers were consistently underpowered. Their Maybach engines could not deliver the horsepower to allow top cross-country speeds over 20 to 25 kilometres per hour and were prone to mechanical failure. Excessive fuel consumption limited the Tiger's range as well.

The construction of a single Tiger II required a staggering 300,000 man-hours, while the cost of a Tiger I was roughly 251,000 Reichsmarks, more than double that of a PzKpfw. IV, the workhorse of Panzer formations throughout World War II. Therefore, many analysts would deem the return on the Tiger investment as well short of break even. Compounding the challenges of production and deployment was the simple fact that the Tiger and its variants emerged too late to tip the balance of combat power in favour of the Axis.

*A factory worker welds components of the overlapping wheel system utilised in the Tiger I and Tiger II heavy tanks*



*Crewmen work on the engine of a Tiger tank in the field. This sight was quite common amid mechanical failures*



due to the lack of supplies, replacements and material the casualties of the German heavy tank units began to rise.

*"Incessant action. On 26 September not a single Tiger was operational. Everyone thinks the Tiger is invulnerable! Because of that it's wrongly used: 500 metres from front, 1,500 metres from the sides. [There are] major problems when operating with infantry. These are not assault guns! Huge strain on the assistant gunners, 9 unconscious! Only 5 towing vehicles available instead of 13. Procurement of spare parts increasingly difficult. Repair shop crews have no experience. No stock of spare parts, the electrical welding kit missing"*

**- Major Lange, s.Pz.Abt 506, 15.01.1944**

Yet all those problems aside, the unit managed to destroy 213 enemy tanks, 194 anti-tank guns within a period of three months while having an average combat strength of only 14 Tigers and while losing only two Tigers in combat. By 14 January none of the Tigers in Lange's unit was still operational. The last two Tigers had covered distances of 340 kilometres before finally breaking down. In average the other Tigers had lasted 250 kilometres – while being in constant action for the whole distance, with no time for technical servicing or repairs. No Tiger had to be left behind, none had to be destroyed by its crew.

Even in the final days of the war, small units on Tigers on the Eastern Front managed again and again to turn the tide and to delay and stop advances of far superior Soviet forces. On 19 April 1945, Soviet forces were

pressing forward to force a breakthrough to the Reichshauptstadt Berlin. Operating west of the city was s.SS-Panzer-Abteilung 503 operating the enormous King Tiger, the Panzerkampfwagen Vlb. In a series of engagements that can be classed as one of the final tank battles of the World War II, the few King Tigers of s.SS-Pz.Abt 503 proved for a last time that if used correctly and operated by experienced crews, the huge war machine was still master of the battlefield. Holding the high ground in the hilly terrain northeast of the town of Klosterdorf King Tiger 314 (SS-Unterscharführer Diers) spotted 13 Soviet T-34/85 tanks approaching his position. Within 15 minutes he had destroyed all of them.

Damaged during the engagement Diers had to withdraw, but had temporarily halted the Soviet advance. About the same time near Grunow five other King Tigers of the unit met another flood of Soviet armour with a withering hail of gunfire from their long 8.8cm guns.

When ammunition supplies began to run out, a reserve of three more King Tigers (under SS-Oberscharführer Körner) were brought forward to assist the destruction work. In total they destroyed about 105 Soviet tanks. These losses alone account for 14 per cent of the overall tank losses for the 1st Belorussian Front during the Berlin Operation. One King Tiger was lost to a barrage of Soviet Katyusha rockets. Only a short time later SS-Oberscharführer Körner, in command of a platoon of three King Tigers, was in action again during a counter attack in the area of Bollersdorf where he spotted two columns of over 30 IS-2 and over 100 T-35/85 tanks assembling for an attack. In the short engagement that followed all IS-2 tanks and a number of T-34/85s were knocked out, Körner

**"WHILE TIGER UNITS IN RUSSIA TRIED TO STEM THE SOVIET ADVANCE AND REGULARLY SUCCEEDED IN DOING SO, THE SITUATION ON THE WESTERN FRONT IN ITALY AND FRANCE WAS A LOT DIFFERENT"**



alone claiming 39 of the kills while his friend and comrade Harrer claimed a further 25.

In the late afternoon, four King Tigers defeated another Soviet tank attack, destroying a further 30 T-34s before repelling an assault by swarms of Soviet infantry. During the night, with the battlefield lit up by illumination flares, the fighting continued and more Soviet tanks were picked off by the precise and powerful guns of the Tigers. From 21 April, s.SS-Pz.Abt 503s King Tiger saw action in Berlin, breaking up various Red Army assaults within the city and destroying 15 tanks on that day alone, most of them at what can be considered point-blank ranges.

While Tiger units in the east tried to stem the Soviet advance and regularly succeeded in doing so, the situation on the Western Front in Italy and France was a lot different. American and British troops were far more capable of adapting to German tactics and strategy and were able to repel every German attack by making use of their superior numbers, supplies and, most importantly, their aerial superiority.

In the west, German armour was hardly able to move in daylight without risking destruction by the ever-present Allied *Jabos* (Jagdbomber/ fighter-bomber) – the combined arms tactics developed by the Germans and so successfully used by them in 1939-41 were now being turned against them. Wherever Americans or British troops planned an attack it was prepared by intense artillery strikes and air attacks, when the Germans tried to do the same, their efforts were destroyed by the same means. In the Ardennes, the hilly terrain further exacerbated the mechanical difficulties of the King Tigers. The soft-surfaced, narrow roads were also insufficient for such large, heavy vehicles attempting to move quickly. For this



**Above:** A knocked-out Tiger and a dead crew member on the Eastern Front. Tigers were largely successful but could not tip the balance against huge Russian numbers

reason, both heavy tank battalions were largely ineffective during the Battle of the Bulge. Because of breakdowns, problems in supply, and the restrictive terrain, likely only a handful of Allied tanks, possibly as few as 20, were destroyed by Tiger units during the battle.

*"Of course we could take on eight or ten Sherman tanks when the situation demanded it. Yet they always had an eleventh or twelfth available. Our fighter planes were nowhere to be seen. We could only move by night. They had all the ammunition – we had none and had to choose our targets carefully. Each shot had to count. We were outnumbered, outgunned and lacked everything"*

**- Hermann Wehnmann, s.Pz.Abt 503**

Both the Tiger and the King Tiger, though expensive and time-consuming to produce, proved to be excellent tanks that could withstand many large-caliber hits while still remaining operational. The low number of Tigers destroyed by direct enemy action is proof of its resilience. It was, however, a very maintenance-intensive vehicle, often forcing German units to operate with only a fraction of the authorised vehicle strength. However, the handful of vehicles operational, especially in the defense and even late in the war, proved many times that they were capable of locally wreaking havoc on enemy armoured units.

**Tigers make their way across the scarred battlefield south of Lake Ladoga, September 1942. Difficult terrain made it incredibly difficult for the Tigers to operate effectively**





# THE TIGER COLLECTION

## THE TANKS, THE TERROR & THE TRUTH

THE TANK MUSEUM AND WORLD OF TANKS PRESENT A NEW, UNIQUE EXHIBITION THAT UNIFIES EVERY MEMBER OF THE TIGER FAMILY FOR THE FIRST TIME EVER

In a world-first, The Tiger Collection is a thrilling new exhibition where tank-lovers can explore every iteration of this iconic behemoth – including the museum’s own Tiger 131 – all under one roof. Opened in the spring of 2017, the exhibition also presents first-hand veteran testimony, from men who fought both alongside and against Tiger tanks during WWII.

As one member of the Tiger family is physically absent from the exhibition (the Sturmtiger), video game developer and publisher Wargaming is stepping in with cutting-edge augmented reality technology to fill the gap. This will provide visitors with a hyper-real Sturmtiger CG model that can be manipulated and explored both in and out, all in a virtual reality setting.

Scheduled to remain open for at least two years, the collection is also set to be a firm favourite at the upcoming Tankfest 2017, presented by *World Of Tanks*. Here The Tank Museum’s Roz Skellorn explains more.

### WHAT WAS THE IDEA BEHIND BRINGING TOGETHER EVERY TYPE OF TIGER IN THE ONE EXHIBITION?

The Tigers are a particularly popular family of tanks and with WWII veterans starting to leave us, we decided that the time to do a really popular WWII exhibition was now. We know that people absolutely love the Tigers and we’ve been drawing people in from all

over the world to see this exhibition. It’s the first time it’s ever been done and having them side by side you can see that they are a family. You can see the different developments that happened and how they’re related.

Unfortunately we couldn’t get the sixth member of the family, which was the Sturmtiger. *World Of Tanks* is actually using pioneering technology and [the developers] are building us a Sturmtiger in augmented reality to replace the fact that it’s not here. When it’s up and working, hopefully in time for Tankfest, people will be able to use a device to see the Sturmtiger as if it’s actually there. They can move around it and see inside it, it’s going to be absolutely incredible. It’s a shame we couldn’t get all of the actual tanks but it’s nice to have the virtual augmented one in place of it.

We’ve also done a lot of WWII veteran interviews for this. We’ve had interviews with German and British veterans and the basic idea is to see what their experiences with the Tigers were. Ultimately, we thought that if we could do this exhibition we could bring people to the subject and it’s something that they are going to want to see.

### CAN YOU DESCRIBE THE DIFFERENT ASPECTS OF THE EXHIBITION?

We’ve decided to do it quite sparse to give visitors the full impact of these massive machines and how intimidating they look. They are absolutely huge; especially the ‘King’ Tigers and you can understand why British crews would be terrified in their relatively small Shermans. Coming up against these massive beasts would have been terrifying but the psychological fear was far more real than reality. We’ve also got a few artefacts in a case at the end of the exhibition that relate to the Tiger, such as parts of engines and equipment.

The main thing aside from the vehicles is the veteran interviews. You can hear from British veterans, one of whom is sadly no longer with us, as well as German veterans. For me, listening to the Germans is fascinating because you usually never hear from them so to hear their perspective about what it was actually like to fight in a Tiger is quite unique.

We also have a number of screens around where you can explore the tanks in far more detail. There’s archive footage, images and other things that relate to the battlefield

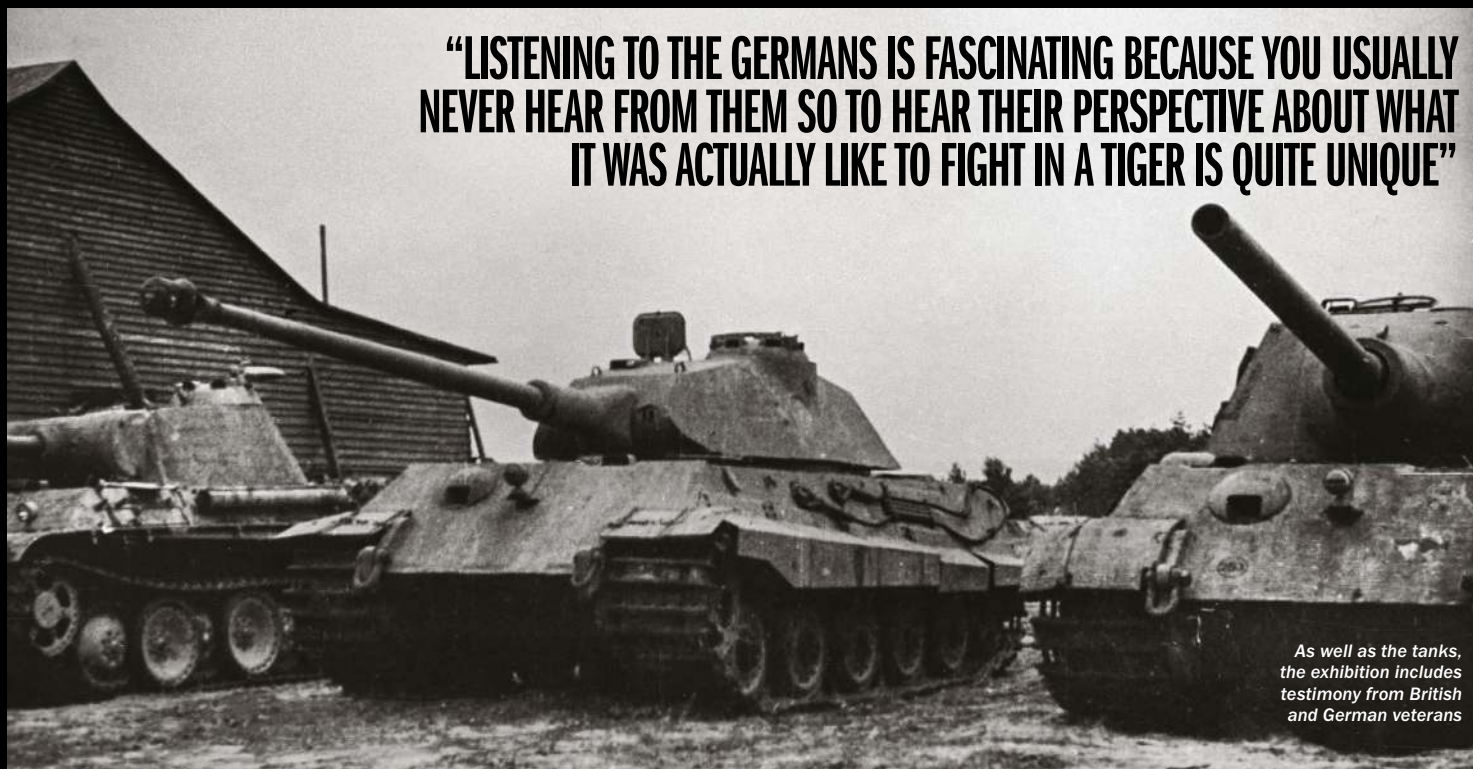
**“I THINK THE TIGERS OFTEN GET A MYTHICAL STATUS BECAUSE THEY ARE SUCH LOVELY MACHINES AND WELL MADE AND IT’S FORGOTTEN THAT PEOPLE ACTUALLY WENT TO WAR IN THEM”**



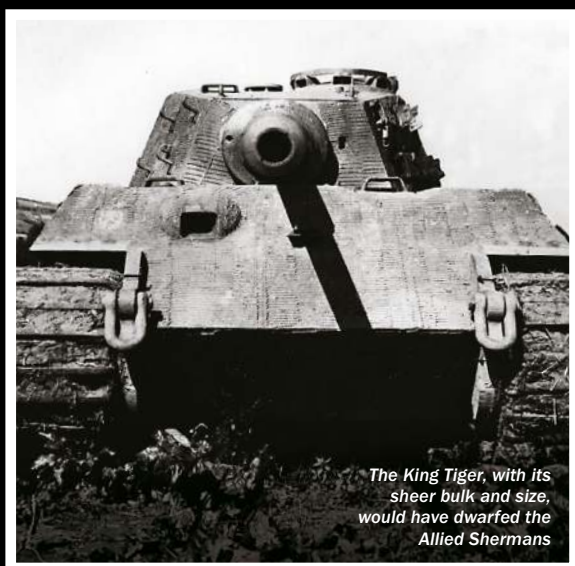
The new exhibition enables visitors to see these iconic war machines up-close



**“LISTENING TO THE GERMANS IS FASCINATING BECAUSE YOU USUALLY NEVER HEAR FROM THEM SO TO HEAR THEIR PERSPECTIVE ABOUT WHAT IT WAS ACTUALLY LIKE TO FIGHT IN A TIGER IS QUITE UNIQUE”**



*As well as the tanks, the exhibition includes testimony from British and German veterans*



*The King Tiger, with its sheer bulk and size, would have dwarfed the Allied Shermans*

history of the tanks. Nevertheless, having lined up the Tigers next to each other in this sparse environment really demonstrates their full impact.

**HOW IMPORTANT WAS IT TO GET HOLD OF VETERANS' AUDIO TESTIMONIES TO USE IN THE EXHIBITION?**

We're making a concerted effort to get all of the WWII veterans that we can possibly find and get them recorded. They're the people who were there and the ones who know what they are talking about. They give the real impact for visitors to hear what it was really like and what the realities of war are. I think the Tigers often get a mythical status because they are such lovely machines and well made and it's forgotten that people actually went to war in them. The veterans give you that reality check and hearing from both sides of the divide really was fascinating.

**IN YOUR OPINION, WHAT IS THE MOST SIGNIFICANT TIGER ON DISPLAY AND FOR WHAT REASON?**

For the museum it's definitely Tiger 131, which is the only running Tiger 1 in the world. It was captured in Tunisia in 1943 and visited by Winston Churchill and King George VI. The idea of capturing a Tiger was a really big deal for the Allies, they knew this thing was out there and they wanted to get their hands on it. The Germans went to all sorts of lengths to make sure the Allies didn't capture one so if the crews ever had to abandon their tank they were instructed to blow it up. We're not really sure why but for whatever reason Tiger 131 was not blown up so it's as original as it can be. We've spent an awful lot of time and money restoring it to running order and people come from all over the world to see it. We have our own 'Tiger Day' and it's a really special piece in our collection because it's completely unique.



*The exhibition runs for at least two years, giving you plenty of opportunity to visit*



*The stark backdrop ensures no distractions from the tanks*



Mass multi-player online game *World Of Tanks* is the main sponsor of The Tank Collection, unifying the Tiger family for the first time ever. Visit [worldoftanks.com](http://worldoftanks.com) for more information.

**THE TANK MUSEUM**

Museum opening times are 10am to 5pm daily, for more information visit [www.tankmuseum.org](http://www.tankmuseum.org)