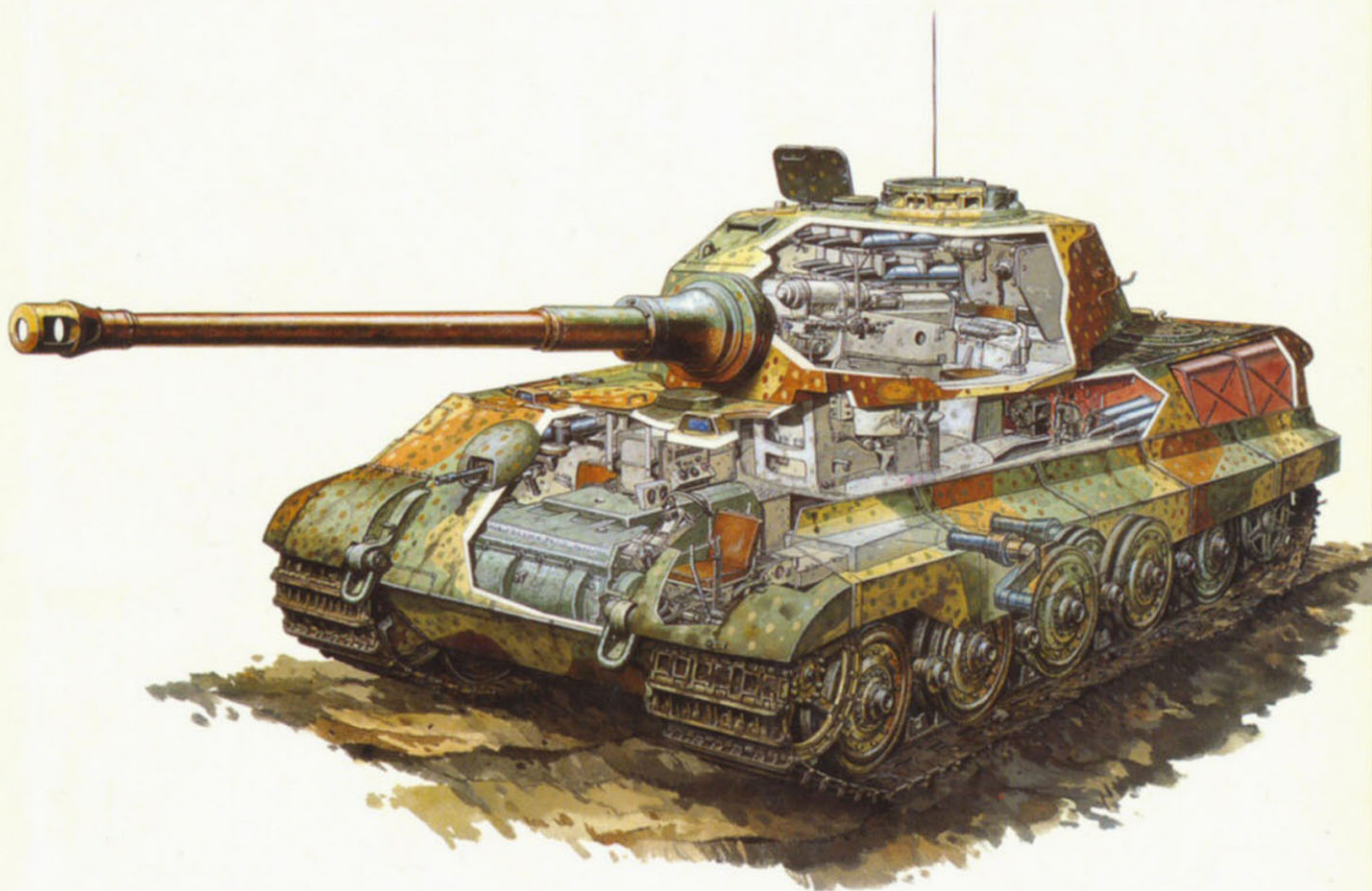


KINGTIGER

HEAVY TANK
1942-1945



TOM JENTZ HILARY DOYLE PETER SARSON

EDITOR: LEE JOHNSON

OSPREY
MILITARY

NEW VANGUARD

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**HEAVY TANK
1942-1945**

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Editor's Note

Although 'Kingtiger' was never the official German designation for the Tiger II it is the name by which the tank is most popularly known. As such it forms the title of this volume. Throughout the text the strictly correct title of Tiger II is used.

Readers may wish to study this title in conjunction with the following Osprey publications:

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DESIGN AND DEVELOPMENT

Development of a heavy tank had already been initiated in 1937 by a contract awarded to the firm of Henschel und Sohn, Kassel. This was followed in 1939 by Dr.ing.h.c.F. Porsche K.G. of Stuttgart-Zuffenhausen initiating their own unique designs. The innovative Porsche designs, featuring gasoline-electric drives, had the backing of the politicians. The Henschel designs were based on specifications created by the old school of technocrats in Wa Prüf 6 of the *Waffenamt* (the tank design office in the ordnance department).

Both Porsche and Henschel were responsible only for the chassis and its automotive features. Turret and gun design was the speciality of Fried.Krupp A.G., Essen.

Months before the Russian campaign started on 22 June 1941, Henschel was working on a VK 36.01 (fully tracked, 36-ton weight class, first model) chassis. Porsche was working on a VK 45.01 chassis. Krupp had designed the turret with their 8.8 cm Kw.K. (L/56) (tank gun) for the VK 45.01. This was the state of heavy tank development when a meeting was called on 26 May 1941.

During that meeting the key decisions were made that initiated the creation of the Tiger II. However, no action plan or end goal had been clearly specified that laid down a clear design trail to be followed. Matters were further complicated due to interfering factors from competing organisations and companies, each with their own ideas and goals. Therefore, the design trail took a few diversions before the Tiger II, as we now know it, was finally produced.

Looking back at this design trail we can see that it follows a path beginning with the selection of a more effective main gun. The design of this gun as the 8.8 cm Kw.K. 43 (L/71). The development

of a new VK 45.02 (P) chassis designed by Porsche, and the development of a new VK 45.03 (H) chassis designed by Henschel. Finally the trail ends with the turrets designed by Krupp.

In 22 years of research, the authors have unearthed thousands of original documents from: the design firms of Krupp, Henschel and Porsche; the *Waffenamt*; the office of the Generalinspekteur der Panzertruppen (Guderian); and the units that used the Tigers in combat. This book is based solely on the contents of these original documents. Excerpts from several documents are presented as quoted translations to relay the atmosphere and attitudes present at the time. The documentary research is backed by observations made by the authors climbing over, under, around and through all seven Tiger IIs that still exist in the west. Due to the many misinterpretations in published material and inaccuracies in reports prepared by the Allied Intelligence Units during the war and immediate postwar period these have not been used as the basis of this book.

A more effective main gun

The Tiger II saga began at a meeting with Hitler on 26 May 1941, attended by the key personnel



Tiger II, Prototype Fgst. Nr. VI (Chassis No. VI) with the turret produced for the Tiger P2 was accepted by the Waffenamt in November 1943. The three prototypes had the monobloc (single piece)

gun barrel and were painted in overall dark yellow. Zimmerit was not applied. The large pot visible on the rear deck is the cover for the deep fording extension tubes. (Bundesarchiv)



Another view of Fgst.Nr. VI. The pistol ports on both sides of the turret and hatch on the left side were welded closed before these turrets were used on the Tiger II. Close in defence was provided by the Nahverteidigungswaffe on

the roof while the cartridge ejection hatch was located in the rear sloped roof of the turret. The drive sprocket still has 18 teeth. The flat mudflaps were fitted only on the three prototypes. (Bundesarchiv)

instrumental in directing Panzer development: Reichsminister für Bewaffnung und Munition Dr Todt, Col. Phillips from Waffenamt, Lt.Col. von Wilcke and Oberbaurat Kniepkamp from Wa Prüf 6, Reichsamtleiter Saur, and Prof. Dr Porsche. After reviewing the current status of and proposals for tank development, Hitler specified that the following additional measures were necessary.

‘While it was decided that for the interim a Panzer with a 5 cm Kw.K. (tank gun) could still be employed with success, a spearhead consisting of about 20 heavy Panzers was to be immediately created for each Panzer-Division. These heavy Panzers were to have an increased ability to penetrate enemy tanks; possess heavier armour than had been previously achieved; and attain a maximum speed of at least 40 km/h.

‘To achieve the first of these goals, the effectiveness of the existing 8.8 cm Kw.K. and its armour-piercing round were to be increased, so

that 100 mm thick armour plate could be penetrated at a range of about 1500 m. The 88 mm had originally been developed strictly for anti-aircraft purposes but had proven itself in an anti-tank role. Further development of this weapon as a tank gun appeared possible and was to be expedited.

‘Design and fabrication of both of the heavy Panzers, currently under development by Prof. Dr Porsche and the firm of Henschel und Sohn, were to be accelerated. As previously planned, an 88 mm gun was still to be mounted in a turret on the Porsche-Panzer, but the effectiveness of the gun was to be increased to meet the above specification. The tapered bore 7.5 cm Waffe 0725 was to be used in the Henschel-Panzer. Subsequently, mass production of the Waffe 0725 was only to occur if a satisfactory stockpile of tungsten was available for manufacturing ammunition. Consequently, installation of the 88 mm gun in a turret for the Henschel-Panzer was also to be investigated.’

Based on these decisions, the firm of Dr.ing.h.c.F. Porsche K.G. was commissioned by Wa Prüf 6, on 21 June 1941, to determine if it was possible to mount the 8.8 cm Flak 41 in the turret for the Porsche VK 45.01 (P). The turret had been originally designed by Krupp to house its 8.8 cm Kw.K. (L/56) with a crew of three:

commander, gunner and loader. Porsche responded by telegram on 10 September, that only the L/56 could be considered for the VK 45.01 (P).

Comparison of characteristics between the 8.8 cm Kw.K. 36 and the 8.8 cm Flak 41 quickly reveals the difficulties created by mounting the longer gun in a turret designed for the shorter gun. Even if a gun mount could have been designed to allow the physical installation of the longer Flak 41, there remained the overwhelming problems of balancing the gun, protecting the very long recoil cylinders, traversing the resulting imbalanced turret, and loading the much longer rounds (1200 mm versus 931 mm).

For Krupp, these mere physical problems palled in comparison to the utterly undesirable task of mounting an arch rival's gun (Flak 41 designed by Rheinmetall-Borsig) in their turret. The two firms Krupp and Rheinmetall-Borsig were long-standing competitors for armaments contracts, both foreign and domestic. When Krupp was asked a simple question as to whether the Flak 41 would fit in their turret, they gave an equally simple and honest reply, 'no'.

Dr Todt, Reichsminister für Bewaffnung und Munition, upon learning of this situation, created a furore by sending the following letter dated 23 September 1941, to Gen. Ritter von Leeb, head of the Waffenamt:

'The Waffenamt has determined, that a turret from Henschel with a turret ring diameter of 1900 mm is to be mounted on the Porsche-Panzer instead of the turret specified by Prof. Dr Porsche with a 2000 mm turret ring diameter. Ever since Prof. Dr Porsche received a design commission from Hitler, I can not lose the impression that the Waffenamt is defending their prestige, so that in the end a Waffenamt Panzer (from Henschel) will be constructed. The Flak 41 can hardly be installed in a turret with a 1900 mm turret ring. I must report to you, that every time I see Hitler he repeatedly asks, if in reality the highly effective Flak 41 will be installed in the Porsche-Panzer. Prof. Dr Porsche has assured me, that he is pursuing the possible installation of the Flak 41. I can not relieve him of this problem and accept the excuse, that the Flak 41 can not be installed,

because the Waffenamt made arrangements for a narrower turret.

'Hitler does not feel confident that another 88 mm gun design can be used instead of the Flak 41. Hitler wants the Flak 41 installed in the new heavy Panzer without any degrading modifications. I bring to your attention today, that we will have to expect the strongest objections from Hitler, if one day during the first demonstration, the Panzer has a gun other than the Flak 41.

'As Reichsminister für Bewaffnung und Munition, for myself I am convinced, and also because I am bound to implement the will of Hitler, that there is no question that a gun other than the Flak 41 is suitable for the heavy Panzer.

'Because I am under a directive from Hitler to personally pursue this matter, I request that fundamental changes to the programme, such as the elimination of the Porsche turret in favour of the Henschel turret, not be approved without my notification.'

In a separate letter to Col. Schmudt, Hitler's adjutant, on 23 September 1941, Dr Todt ensured that any opposition to his position would be stifled and left no doubt as to where his allegiance lay as follows:

'For your information, I have enclosed a letter written today to the head of the Waffenamt. I request that other parties be prevented from



Bovington Museum has Fgst.Nr. V2 on display. As a test vehicle it has had the single link track Zg 75/800/152 fitted. This track was introduced in early 1945. The 18-tooth

sprocket was reintroduced at the same time. This museum exhibit is unfortunately missing the commander's cupola and other parts.(Author)



presenting differing views of this situation to Hitler. I myself am convinced, exactly as Hitler, that the new heavy Panzer may receive no other gun than the Flak 41 and I can not take part in any attempt to divert from the goal ordered by Hitler.'

Having been accused of gross negligence for the unjustifiable purpose of protecting their reputation, the Waffenamt initiated the hunt for the guilty. Gen. Leeb passed Dr Todt's letter on to Col. Fichtner, head of Wa Prüf 6, with orders to answer the specific charges. Fichtner responded on 27 September:

'Wa Prüf 6 has never directed the reduction of the turret ring diameter for the turret for the Porsche-Panzer. The reduction from the original plans by Prof. Dr Porsche for a turret with 2000 mm diameter to the present 1850 mm is solely and exclusively the result of development work by Krupp.'

'In the spring of 1941, in line with the programme to increase weapons capabilities for Panzers, the installation of the 8.8 cm Kw.K. (L/56) was planned for the Porsche-Panzer.

ABOVE AND RIGHT *Under test at Kummersdorf, as indicated by the test number 211 enclosed in the circle on the front plate. This Tiger was produced in*

April and delivered to Kummersdorf in May 1944. Zimmerit was applied and the Tiger is painted overall dark yellow. (Bundesarchiv)

Prof. Dr Porsche directly contracted with Krupp for the turret for this Panzer which was developed in close co-operation by both of these firms. In contrast to the usual procedure, the Waffenamt did not award a development contract to Krupp.

'In a meeting on 25 July 1941, I informed Prof. Dr Porsche that I was not satisfied with the Krupp turret and for the future was pursuing an improved solution, that would be equally suitable for both the Porsche and Henschel Panzers.

'The firms of Krupp and Rheinmetall are each to receive a contract to present Wa Prüf 6 with conceptual design projects for a turret fitted with the 8.8 cm Flak 41 for the Pz.Kpfw. VK 45.01 (Porsche and Henschel).

'I ask to be allowed to add, that there is no question of a matter of prestige regarding Wa Prüf 6, but only the desire to make available in a timely manner, a large number of the best Panzers through utilisation of all available intellect and material.

Krupp was not invited to respond to the accusations that they had designed a turret with a smaller diameter than originally requested by Porsche. However, a thorough review of surviving correspondence reveals that Krupp was innocent. On 13 May 1941, Nibelungenwerk, G.m.b.H., acting on behalf of Dr.ing.h.c.F. Porsche K.G., issued an order to Krupp for six turrets. These turrets were to have a turret ring diameter of 1900 mm and be complete with 8.8 cm Kw.K. (L/56) for the Pz.Kpfw. VI (Porsche). Prior to the issue of this order, representatives from Krupp met with Porsche on 2 May 1941 to discuss the detailed specifications for the turret and arrange for delivery of the full-scale model. On 24 April 1941, Krupp had also informed Dr Hacker of the

Reichsministerium für Bewaffnung und Munition an Nibelungenwerk that the price for each of the six turrets with a turret ring diameter of 1900 mm, complete with 8.8 cm Kw.K. (L/56), would be 110,000 Reichsmarks.

Krupp did not, as accused, reduce the turret ring diameter during development of the design, but had initially and openly specified the dimension of 1900 mm during the conceptual design stage. The accusers, Wa Prüf 6, did not have access to this evidence and had merely leapt to the conclusion that Krupp, being responsible for the turret design, was therefore at fault.

In fact, Porsche did not originally ask for a turret with a 2000 mm diameter turret ring. Porsche first made this request after it was learned that the 8.8 cm Flak 41 would not fit into the available turret design.

Having successfully implicated the innocent and declared their undying devotion to the cause, Wa Prüf 6 had still not achieved the real goal, which was a turret designed to mount the long 88 mm gun that would be ready for production by the spring of 1942. Therefore, the decision was made to complete the first 100 VK 45.01 (P) as originally planned with turrets designed and constructed by Krupp with their 8.8 cm Kw.K. (L/56) until the longer gun and new turret became available.

Starting with vehicle number 101, the production series was to be converted to the longer 88 mm gun.

Krupp's 8.8 cm Kw.K. 43 (L/71)

Following the review of conceptual designs, on 5 February 1943, Krupp was awarded the contract by Wa Prüf 4 (the gun design office) for the development of the 8.8 cm Kw.K. 43 (L/71). Having been previously designated as the 8.8 cm Kw.K. 42 (Gerät 5-0808), the designation was officially changed to 8.8 cm Kw.K. 43 (L/71) (Gerät 5-0808) on 29 January 1943.

The only similarity between this gun designed by Krupp and the Rheinmetall-Borsig Flak 41 was that they could both achieve close to the same penetration when the same shell was fired with the same initial muzzle velocity. All the other characteristics of the two guns were different.



Table 1: Comparison of the 88 mm guns

<i>Name</i>	<i>Kw.K. 36</i>	<i>Flak 41</i>	<i>Kw.K. 43</i>
Gun length (mm)	4930	6548	6298
Length in calibres	56	74	71
Round length (mm)			
Sprgr.Patr. (HE)	931	1200	1167
Pzgr.Patr.39 (AT)	873	1158	1125
Cartridge case (mm)	570	855	822

Following the main specification to achieve equivalent armour penetration, Krupp had completely redesigned the gun for mounting in a tank turret. As compared to the Flak 41 (L/74), the (L/71) was shorter with different rifling and had a muzzle brake to retard recoil. In addition it had shorter, fatter recoil cylinders to fit inside a turret, had an air blast system fitted to evacuate fumes from the gun directly after firing and chambered a shorter (but fatter) cartridge case for easier loading inside a turret.

While the first two trial guns, V1 and V2 for the 8.8 cm Kw.K. 43, were monobloc, the third trial gun, V3, had already been fabricated following the sectional monobloc design. The multiple piece barrel of the sectional monobloc design improved the life of the gun and simplified manufacturing.

While both Krupp and Rheinmetall-Borsig were requested to submit conceptual designs for a turret with the long 88 mm gun, Krupp was contracted by the Wa Prüf 6 to complete the detailed design. Krupp created a single turret design that with minor differences was equally suitable for mounting on either the Porsche VK 45.02 (P) or the Henschel VK 45.03 (H). The main difference between the design for the two turrets was the turret traverse drives. When fitted on the Porsche VK 45.02 (P), the turret was to have an electric motor drive but when fitted on the Henschel VK 45.03 (H) it was to have a hydraulic drive.

The Porsche VK 45.02 (P) chassis

Porsche redesigned the chassis to mount the turret for the 8.8 cm Kw.K. (L/71) and to increase protection by sloping the front armour plates. The new design was specified as the Typ 180 by

Porsche. The hull was fabricated using 80 mm armour plate for the front, sides and rear. The front upper hull was sloped at 45 degrees and the front lower hull at 35 degrees. This provided infinitely better protection than the predecessor with an upright 100 mm driver front plate.

At this time, ball mounts for a hull machine gun and periscopes for the driver had not been perfected for use with the sloping glacis plate. At the conceptual design stage, the integrity of the glacis plate was violated by penetrations for the driver's visor and an aperture for the hull machine gun. A thick armour belt around the top of the hull effectively protected the turret ring.

As was his trademark for tank power trains, Porsche again specified a gasoline-electric drive for the Typ 180. Power was provided by twin Porsche Typ 101/3 air-cooled, 10-cylinder motors generating 300 metric hp at 2200 rpm. Each motor was coupled to an electric generator. The output of the generators was fed to Siemens electric motors which independently powered rear drive sprockets for each track. The 65 metric ton Panzer was limited to a maximum speed of 35 km/h and a maximum cruising range of 157 kms.

The suspension was provided by longitudinal torsion bars combined with toggle levers to dampen cyclic swinging induced to the paired roadwheels. This suspension consisted of three pairs of steel-tyred rubber cushioned roadwheels as used on the 'Ferdinand' Panzer Jäger with the 8.8 cm Pak 43/2 (L/71) (tank destroyer). The track width of 640 mm with a ground contact length of 4115 m resulted in a very high ground pressure of 1.22 kg/cm².

Due to the lead time needed to order and fabricate components, contracts for assembly of 100 Porsche Typ 180 (Fgst.Nr. 150101-150200)

were already issued in February 1942. The Porsche Typ 180 was designated by Wa Prüf 6 as the VK 45.02 (P) sometime before April 1942.

The first five vehicles complete with turret were to have been accepted and delivered by Nibelungenwerk in March 1943. A further ten were expected in April, with production continuing at the rate of 15 per month. Because of continuing problems with the drive train and suspension, the contracts for assembly of the production series were cancelled on 3 November 1942. New contracts were issued by Wa Prüf 6 for the assembly of a reduced order of only three prototype vehicles.

By October 1942, Porsche had created additional automotive concepts for the VK 45.02 (P) as Typ 180B, 181A, 181B and 181C. The basic chassis for all these models remained unchanged; however, alternative designs were proposed for the power train. The Typ 180B was hardly altered from the Typ 180A. Typ 101/4 motors replaced the Typ 101/3 motors. The Typ 101/4 motors were only a slightly modified version of the Typ 101/3 motors with new material for the piston connecting rods and a new method for mounting the oil cooler. A further proposal by Porsche to mount the turret in the rear and the entire drive train forward did not advance beyond a few drawings.

While the Typ 180 series had gasoline-electrical drives, the Typ 181 series were to have a Voith II hydraulic drive powered as follows. Typ 181A with two Porsche Typ 101/4 gasoline motors. Each 10-cylinder motor with a swept volume of 15,000 cc delivered 300 metric hp at 2000 rpm. Typ 181B with two Porsche-Deutz Typ 180/1 diesel motors. Each 16-cylinder motor with a swept volume of 19,600 cc delivered 370 metric hp at 2000 rpm. Typ 181C with a Porsche Typ 180/2 diesel motor. The 16-cylinder motor with a swept volume of 37,000 cc delivered 700 metric hp at 2000 rpm. With the Typ 181 series a wider track (700 mm instead of 640 mm) was to be used to decrease the ground pressure to 1.12 kg/cm².

Krupp received a contract on 25 January 1943 to fabricate and assemble three operational turrets fitted with 8.8 cm Kw.K. 43 (L/71) along with three armoured hulls for the Pz.Kpfw. Tiger P2 (VK 45.02 (P)) to be delivered to Nibelungenwerk in Austria. Krupp reported on 28 January that the three hulls for the Tiger P2 prototypes had already been delivered to Nibelungenwerk and the armour components for the three turrets had already been completed.

On 17 February 1943, Prof. Dr Porsche reported that three prototype Pz.Kpfw. Tiger P2s



Versuchs Nr. V8 was also one of the production Tiger IIs tested by the Waffenamt. The test number 212 is on the right hand side mudguard under the shadow cast by the gun. Here we see tests on recovery methods for this new type of heavy tank. (Bundesarchiv)



Tiger II of the Panzer Ersatz und Ausbildungs Abteilung 500 (Replacement and Training Battalion 500) on the firing range. The camouflage colours of green and red brown have been sprayed in wide bands over the base dark yellow.

In the foreground is Tiger call sign '324' which has a monobloc gun barrel but new exhaust pipes and no provision for deep fording. In the background '323' has the sectional gun which was introduced from May 1944. (Bundesarchiv)

(VK 45.02 (P)) with electric drives and new suspensions were being assembled in Nibelungenwerk. Prof. Dr Porsche also stated that as planned the subsequent production series vehicles would receive hydraulic drives, a new suspension, air-cooled 900 metric hp diesel motors, thicker armour and heavier armament. At this time, the production series was not expected to occur until far in the future.

Prof. Dr Porsche's influence decreased substantially in December 1943 when he was succeeded, as the president of the Panzer Kommission, by Dr Stiele von Heydekampf, general manager at Henschel. In a post-war interrogation, Dr Heydekampf revealed:

'Dr Porsche had been in disfavour for some time owing to the unsatisfactory performance of tanks of his design. The many changes he demanded, and the fact that when a new weapon was requested, he proposed a completely new and unorthodox design without regard to the use of existing production facilities or past experience, were retarding production.'

The fate of the three Tiger P2 prototypes is partially revealed in a status update from Krupp on 25 April 1944. Krupp reported that one of the three Tiger P2 prototype turrets had been assembled. Components for both of the other turrets had been assembled but supplemental equipment wasn't available. Krupp was then ordered to convert the three VK 45.02 (P) turrets for installation on Henschel VK 45.03 (H) production series chassis. On 22 August, Krupp reported that the ordered work on the three turrets had been completed.

The Henschel VK 45.03 (H) chassis
Directly after the 26 May 1941 meeting, Wa Prüf

6 awarded Henschel with an order dated 28 May 1941 to develop a new chassis design capable of mounting a turret with the long 88 mm gun. However, higher priority was immediately assigned to completing the order for designing the VK 36.01.

After cancellation of the VK 36.01, priority was shifted to developing the VK 45.01 (H). Henschel's resources were entirely consumed in completing the design and arranging for assembly. The Pz.Kpfw. VI, VK 45.01 (H), Tiger (H) Ausführung H1 (with the 8.8 cm Kw.K. 36 (L/56)) was to be followed by the Ausführung H2 (with the 7.5 cm Kw.K. (L/70)). The Pz.Kpfw. VI Ausführung H2 was dropped in July 1942. Only after the cancellation of the Porsche-Tiger production series, did Henschel initiate an expedited programme in November 1942, to develop an upgraded chassis for a turret housing the 8.8 cm Kw.K. 43 (L/71). Originally, the design to be fitted with the long 8.8 cm was known as the Tiger H3 (VK 45.03 (H)). Henschel was urged to complete the development and get production started as quickly as possible, as a replacement for the Tiger H1 with the shorter 8.8 cm Kw.K. (L/56).

However, any attempt to quickly finish the design was stifled by demands for changes to the basic specifications. On 3 January 1943, Hitler decided that, prior to any production, the armour thicknesses for the Tigers currently undergoing design were to be increased to 150 mm on the front with 80 mm thick sides. Additionally, the automotive specifications were all changed in a meeting on 17 February 1943 attended by the heads of the key agencies responsible for design and production: Saur from Reichsministerium für Bewaffnung und Munition; Porsche and Thomale from the Panzer Kommission; Holzhaeuer, Wilcke, Crohn und Rau from Wa Prüf 6; Phillips from Waffenamt; Freyberg from Alkett; Rohland from Hauptausschuss-Panzer; and Woelfert from Krupp.

Significant by his absence, the representative from Henschel, responsible for the detailed design of the Tiger H3 chassis, had not attended this meeting.

The key decisions were aimed at standardisation of as many components as possible for use in both

the Tiger H3 and the Panther II. The standardised components were to include the Zahnradfabrik AK 7-200 Schaltgetriebe (transmission), the Maybach-Motor HL 230 with cooling system, steel-tyred roadwheels (seven on the Panther II, nine on the Tiger H3), and the 660 mm wide tracks to be used as the only track for the Panther II and as the rail transport track for the Tiger H3.

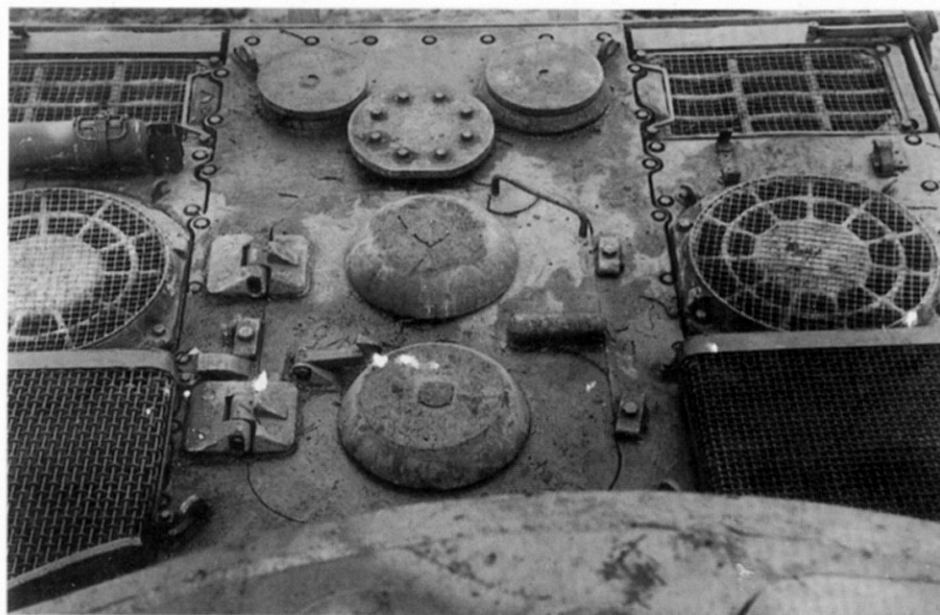
Porsche held the opinion that single radius steering gears would be adequate. However, double radius steering gears were to be utilised in the production series if they could be successfully tested and were ready for series production. Double radius steering resulted in a wider range of curves that the vehicle could negotiate. However, with an increase in the number of moving parts and their smaller dimensions, the double radius steering was more likely to break down than the simpler single radius steering designs.

Dr Aders, head of the tank design department at Henschel, was later to remark that the decision to share the same components with the Panther II had delayed completion of the Tiger H3 design by three months. He further implied that requiring standardisation had been a mistake because design of the Panther II had also been delayed. Series production of the Panther II was subsequently cancelled.

Due to problems with the Zahnradfabrik AK 7-200 transmission experienced in the lighter Panther I, the Maybach Olvar 40 12 16 Schaltgetriebe (transmission) from the VK 45.01 (H)



Close-up of '323' with '324' in the background. This gives a clear view of the sectional gun. (Bundesarchiv)



The engine deck after the elimination of the deep fording gear. The rear central bolted cover protects the opening where the air intake tubes were fitted. (Author)

was selected, modified and accepted for installation in the VK 45.03 (H). An important modification to the transmission was made to eliminate many problems experienced with the original version of the Olvar 40 12 16. These problems, created by the internally mounted auxiliary drivegears for the turret traverse, were eliminated by removing the auxiliary drive from inside the transmission housing, creating the Ausführung B (Model B) of the Olvar 40 12 16.

The new hull design for the VK 45.03 (H) consisted of sloping plates for increased protection. The front glacis plate was 150 mm at 50 degrees, front nose plate 100 mm at 50 degrees, superstructure side plates 80 mm at 25 degrees, hull side plates 80 mm at 0 degrees vertical, tail plate 80 mm at 30 degrees, deck plates 40 mm at 90 degrees horizontal, front belly plate 40 mm horizontal and rear belly plate 25 mm horizontal.

A large rectangular cover plate, fitted in the deck of the hull, in front of the turret, could be lifted to remove the transmission and steering units for maintenance without having to remove the turret. There was a large, hinged rectangular hatch over the motor and the entire rear deck could be removed for maintenance of the motor, cooling system and fuel system.

Forty-eight rounds of ammunition for the main gun were stored horizontally in panniers on each side of the hull. The rounds were stowed in three groups (six, seven and 11 rounds) on both sides. Each group was separated by 20 mm plates and covered by sliding metal panels. An additional ten to 16 rounds were stacked loose on the turret floor.

A rotating periscope was provided for the driver to use when buttoned up. His seat, steering controls and accelerator pedal were height adjustable to allow freedom and ease of driving with the head protruding from the open hatch. The radio operator had a Kugelzielfernrohr 2 (sighting telescope) to aim the ball mounted M.G.34 and a periscope in the roof fixed at an angle of 16 degrees to the right front.

The drive train consisted of a high performance Maybach HL 230 P30, a 12-cylinder motor delivering 750 metric hp at 3000 rpm, through an 8-speed Maybach Olvar 40 12 16 B transmission on to the Henschel L 801 double radius steering gear and final drives, designed to provide a maximum speed of 41.5 km/h. Transverse torsion bar suspension was used. The combat weight of 68.5 metric tons was distributed over nine sets of gestaffelte (overlapping) 800 mm diameter steel-tired, rubber cushioned roadwheels per side. The

unlubricated, double link, combat tracks were 800 mm wide thus providing an acceptable ground pressure (when the tracks sank to 20 cm) of 0.76 kg/cm².

Krupp Turrets

Following cancellation of the Tiger P2 production series, it was determined on 7 December 1942 that many components ordered for the P2-Turm (nowadays commonly known as the 'Porsche' turret) could be used without modification in the H3-Turm. Fabrication of components for the P2-Turm was well under way at Krupp who had the contract for turret fabrication and assembly for the Porsche Tigers. Krupp was to finish assembly of most components prior to delivery to the firm of Wegmann in Kassel.

Except for the prototype turrets, Wegmann was contracted to complete the assembly of all the turrets for the Tiger H3. The finished turrets were then sent to the nearby Henschel factory, also in Kassel, for mounting on the chassis completed by Henschel.

On 15 January 1943, Krupp reported that the first prototype turret for the Tiger H3, complete with gun and periscope-cupola, was to be sent to Kammersdorf on 2 February for inspection and serviceability testing of the internal fittings. The second prototype turret, completely outfitted internally but with a short gun tube, was to be used in firing trials to determine its vulnerability.

At this time about 20 of the turrets that had been ordered for the Tiger P2 series were being machined. Further turrets were being treated in the armour foundry so that in a short time the completion of about 40 to 50 turret housings could be expected. Sufficient armour plates for an additional 50 turrets were already available. To avoid delays during the production run, a decision was urgently needed as to whether to continue fabrication of 50 additional turrets using the previous design, or immediately convert to fabricating a new turret with a strengthened front, without the side bulge for the commander's cupola.

An investigation had been conducted to eliminate the shot trap created by the underside of the curved front of the older design. Changing the angle of

the lower turret front to 20 degrees would result in an inability to open the hatches for the driver and radio operator when the turret was positioned between 10 and 2 o'clock. Increasing the height of the lowest forward edge of the turret to 110 mm above the deck, still resulted in a depressed gun shield interfering with the turning radius of the hatches. Therefore, the existing rounded shape of the Tiger P2 turret front was retained.

Questions on the new turret design had still not



ABOVE *British prisoners of war make a delivery to troops of the 1. Kompanie, Schwere Heeres Panzer Abteilung 503 in France, July 1944. Tiger II '114'*

shows the cut-out in the top of the front armour plate which allowed an adequate field of view for the radio operator's periscope. (Bundesarchiv)



ABOVE *Tiger II '114' with its turret traversed forward allows us to see the monocular sight TZF 9d which replaced the TZF*

9b/1 binocular sight from May 1944. The second opening for the previous sight has been plugged. (Bundesarchiv)



This sequence shows troops of the 3. Kompanie, Schwere Heeres Panzer Abteilung 501 preparing their Tiger II for the front. Delivered painted in the base dark yellow the crew spray on the camouflage

pattern of dark green and red brown. This is one of the first Tiger IIs with the new series turret. It does not have hangers for the spare track links so was produced in June or early July 1944. (Bundesarchiv)

been settled in January 1943. Strengthening the turret front to 180 mm would result in an increased weight of 500 kgs when compared to a design with a 150 mm front plate at 50 degrees from vertical. The bulge for the commander's cupola could be removed if the angle of the turret side was reduced from 30 to 21 degrees and the cupola relocated to a position 50 mm closer to the turret centreline. At the new angle, by leaving the armour thickness of the turret side at 80 mm, the increased turret weight would be 400 kgs. If, as a result of reducing the angle of the turret sides to 21



degrees, the equivalent armour protection was to be maintained, the wall thickness would need to be increased from 80 to 90 mm, adding a further 500 kgs to the weight of the turret. Decisions on these alternative design options were urgently needed.

On 17 February 1943, Krupp was informed by Lt.Col. Crohn of Wa Prüf 6, that they were only authorised to complete the 50 Tiger P2 turrets that had already been fabricated with curved armour plates. As demanded by Wa Prüf 6, the strengthened turret with sloped frontplate was to be used starting with the 51st Tiger H3.

The 'Porsche' Turret

The original 'Porsche' turret was purposefully designed in order to move the gun trunnions forward. As a result of the front overhang adequate room was gained between the gun breech and the turret race to allow for gun recoil, spent cartridge

ejection and loading the long main gun rounds.

Along with the sloping sides and roof, the rounded, 100 mm thick turret front presented a very difficult target for enemy gunners. To aid in balancing the turret, which was necessary for reduction in the power needed to traverse the turret when the tank wasn't level, the rear of the turret was extended to act as a counterweight. Secondly, this extra space created in the turret rear provided easy access to main gun rounds stored in ready racks. The loader's task of manoeuvring the long rounds within the cramped confines of the turret was simplified by pointing the nose of the ammunition toward the gun breech.

To increase the effective armour protection, the 80 mm thick turret sides were sloped inward at an angle of 30 degrees from the vertical. This decreased the width of the turret roof, necessitating the incorporation of a bulge in the left side to accommodate the commander's periscope cupola. The commander had a pivoting hatch in the cupola, the loader had a hatch directly overhead and an escape hatch countersprung by torsion bars was provided in the turret rear. The rear of the turret could be unbolted to allow removal of all the internal components, including the gun, without dismounting the turret itself.

Adequate vision devices were provided with a binocular Turmzielfernrohr 9b/1 sighting telescope for the gunner, a fixed periscope for the loader, and all-round periscopes in the cupola for the commander. The pistol port with plug and a spent cartridge case ejection port, originally cut into the left turret side, were welded shut and covered with a Zimmerit anti-magnetic coating before leaving the assembly factory. The spent cartridge case ejection port was relocated to the turret roof behind the armoured guard for the extractor fan.

The need for the pistol port was eliminated with the addition of the Nahverteidigungswaffe (close defence weapon) mounted in the turret roof. With 360 degrees traverse, the Nahverteidigungswaffe could be used to fire grenades, smoke and signal rounds. Secondary armament was provided by an M.G. 34 mounted coaxially to the right of the main gun. A second M.G. 34 could be mounted on the cupola ring for anti-aircraft defence.

The series turret

The new Serienturm (series turret) designed for the Tiger H3 had a 180 mm thick front plate, 80 mm sidewalls, and 40 mm roof. The gun mantle was specifically designed to be immune to attack or being jammed. This new design did not



After completing the camouflage the crew fit the armoured mudguards. The call sign '300' in black, according to regulations, is still to be outlined in white. The spare track hangers show that this Tiger II was produced in July 1944. (Bundesarchiv)

create high explosive blast pockets and prevented deflection of projectiles down on to the deck.

The new hatch in the turret rear could be removed to allow the disassembling of all the components inside the turret.

The shallower angle of the sidewalls allowed more room for storage of ammunition in the ready racks in the turret rear, 22 rounds versus 16 in the 'Porsche' turret. The components on the turret roof remained the same as before. Slight improvements were made by relocating the Nahverteidigungswaffe forward to allow unobstructed use, the exhaust fan directly over the gun breech, and the loader's hatch farther to the rear.

OFFICIAL DESIGNATIONS

16 March 1943 was the first date that the name Tiger II was officially used in place of Tiger H3. The official designations Panzerkampfwagen Tiger Ausf. B and Panzerbefehlswagen Tiger Ausf. B (for the command version) originated in a Wa Prüf 6 order dated 2 June 1943. The official designation was frequently shortened to Tiger B. The full titles Panzerkampfwagen Tiger (8.8 cm) (Sd.Kfz. 182) Ausf. B and Panzerbefehlswagen Tiger (Sd.Kfz. 267 und 268) Ausf. B were specified by the Inspekteur der Panzertruppen for use in training and maintenance manuals, as well as in the K.St.N. (organisation and equipment tables).

The suggestive name Königstiger (King Tiger) was an unofficial designation first used in early January 1945 in a monthly production report from the Speer Ministry. This was never an officially accepted designation during the war by either the Panzertruppen or the Waffenamt.

Panzerbefehlswagen Tiger

The command version of the Tiger II, the Pz.Bef.Wg. Tiger Ausf. B carried only 63 rounds for the main gun due to the space needed to mount the additional radio sets and equipment. As usual two versions of the Panzerbefehlswagen were planned.

The Sd.Kfz. 267 was outfitted with a FuG 8 (30 watt transmitter and medium wave receiver, operating the frequency band 0.83 to 3 MHz) in the turret and the normal FuG 5 (10 watt transmitter and ultra short wave receiver operating in the frequency band 27.2 to 33.4 MHz). This Panzerbefehlswagen can be identified by an Antennenfuss Nr. 1 (Antenna base) (104 mm base diameter) mounted on an insulator protected by a large armoured cylinder fitted in the centre of the rear deck in the position formerly occupied by the deep wading equipment. A Sternantenne D (Star antenna) for the FuG 8 was fitted to this base. The 2-metre rod antenna mounted on the turret roof was for the FuG 5.

The Sd.Kfz. 268 was outfitted with a FuG 7 (20 watt transmitter and ultra short wave receiver for the frequency band 42.1 to 47.8 MHz) and the FuG 5. This Panzerbefehlswagen can be identified by the 1.4-metre rod antenna for the FuG 7



ABOVE AND BELOW From an official manual: photographs of a Tiger II ready for

transportation by rail. The tracks are the narrow transport track. (Author)



mounted on the rear deck. The 2-metre rod antenna for the FuG 5 was mounted on the turret roof.

Production history

Following an initial order for three prototype chassis, an initial production series of 176 Tiger II was ordered in October 1942. Following cancellation of the Porsche Tigers in November 1942, the contract was quickly expanded by an additional 350. Later extensions to the contracts increased the total order to over 1500.

In accordance with the original production plans from October 1942, the first Tiger II was to be completed in September 1943. The number produced each month was to be expanded to reach a target of 50 per month in May 1944. This production schedule satisfied the Inspekteur der Panzertruppen who wanted 100 Tiger IIs available for a spring offensive in 1944.

Due to delays, the first prototype Fgst.Nr. V1 was accepted by the Waffenamts inspector in November 1943. Two further prototypes, Fgst.Nr. V2 and V3, and the first three production series Tiger IIs (Fgst.Nr. 280001–280003) were accepted in January 1944. The production run continued through March 1945 for a total of three prototypes and 489

production series Tiger IIs produced by Henschel.

Production at Henschel was severely disrupted by a series of five bombing raids on 22, 27 and 28 September and 2 and 7 October. A total of 2906 tons of high explosive and 1792 tons of incendiary bombs were dropped with the Henschel plant as the intended target. This destroyed 95 per cent of the total floor area of the Henschel plant. A further bombing raid on 15 December, again aimed at the factory, delayed recovery.

In addition, heavy area bombing raids on Kassel and vicinity, resulting in further disruptions to Tiger II production, occurred during the period of 22 and 23 October, and 30 December 1944 to 1 January 1945.

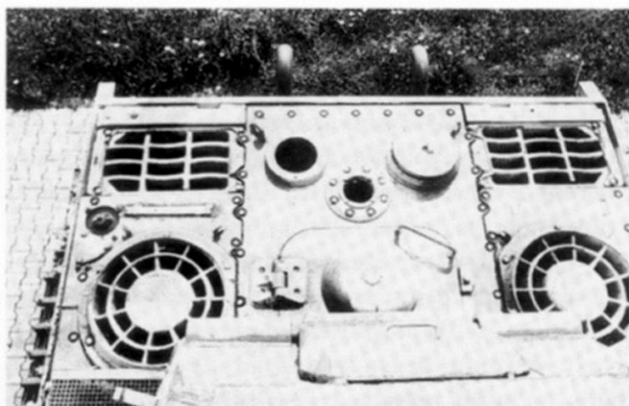
The bombing campaign had caused the loss in production of at least 657 Tiger IIs (940 planned versus 283 produced) during the period from September 1944 to March 1945. Henschel ceased all tank production by the end of March 1945.

Modifications

As with all series of German Panzers, modifications were frequently introduced during the production runs. The driving forces causing these modifications fall into the broad categories of

Table 2: Tiger II production statistics

<i>Month & year</i>	<i>Monthly goal</i>	<i>Accepted by inspector</i>	<i>Delivered for issue</i>		
			<i>Normal</i>	<i>Befehls</i>	<i>Rebuilt</i>
Oct '43	0	0	0	0	0
Nov '43	1	1	0	0	0
Dec '43	2	0	0	0	0
Jan '44	3	5	0	0	0
Feb '44	5	5	5	0	0
Mar '44	6	6	1	0	0
Apr '44	12	6	6	0	0
May '44	20	15	19	0	0
Jun '44	25	32	24	0	0
Jul '44	45	45	46	3	0
Aug '44	80	94	74	3	0
Sep '44	100	63	82	4	0
Oct '44	120	26	13	0	0
Nov '44	40	26	28	3	4
Dec '44	60	56	47	4	0
Jan '45	60	40	40	0	2
Feb '45	35	42	32	3	1
Mar '45	45	30	25	0	6
Total	659	492	442	20	13



Rear engine deck of Tiger II Fgst.Nr. 280215, produced in early September 1944, shows the layout of the

cover for the deep fording air intake. This Tiger is on display in Thun, Switzerland. (Author)

improved automotive performance; increased firepower; additional protection; simplified designs for easier manufacturing; or forced by shortages.

The following modifications were selected as those that would have the greatest interest to modellers, historians and armour enthusiasts. The numerous changes associated with replacing seals and gaskets, changing bolt sizes, and improving interior drive train components were of significant value in improving mechanical reliability but have not been listed due to their location inside components or their small size. Each of these modifications by itself did not substantially alter the appearance or tactical capability of the Tiger II.

In some cases, several months elapsed between the first appearance of a modification and the time that it was present on all new production Tiger IIs. This was due to 'last-in, first-out' tendencies. This was caused by the storage of a shipment of newer parts which covered, buried or made inaccessible the stockpile of older parts. The newer parts being easier to obtain were used first until their removal allowed access to the older parts. An example of this phenomenon is shown with two Tiger IIs now present in museums. The Tiger II (Fgst.Nr. 280101, produced in July 1944) now at the Panzer Museum in Munster, Germany, has turret number 280110 which was mounted close to the correct sequence. However, the Tiger II (Fgst.Nr. 280243, produced in September 1944) belonging to the Ordnance Museum at Aberdeen has turret

number 280093, which should have been mounted on a Tiger II produced three months earlier. (No, it wasn't changed after capture, the correct numbers are on the original turret serial number plate.)

The modifications are listed in the chronological order in which the changes occurred. The highlighted month is the first month in which the modification was present on Tiger II leaving the factory. When exact dates or Fgst.Nr. are known for the start of a new modification, they have been listed. In the other cases, all that is certain is that the change first described occurred on Tiger IIs completed at the factory sometime during the specified month.

January 1944

Curved front fenders with fixed form fitting sideplates replaced the flat front fenders with hinged sideplates that were installed on the three prototypes, with the start of the production series from Fgst.Nr. 280001.

The Zimmerit anti-magnetic coating was applied to the production series Tiger IIs starting with Fgst.Nr. 280001, but not to the three prototypes V1, V2 and V3.

February 1944

To prevent hot exhaust gases from being sucked into the cooling system, the upright exhaust pipes with deflector were replaced by exhaust pipes bent to direct the exhaust away from the Tiger. The sheet metal heat shield that had surrounded the upright exhaust pipes was no longer mounted. This modification had already been tested on the three prototypes but was not present on several of the first production series Tiger IIs.

Starting in February, a Kuhlwasserheizgerät (engine coolant heater) was installed on the left side of the Maybach HL 230 P30 engine. An access port for a blow-torch was located on the tail plate below the armoured guard for the left exhaust pipe. When not in use, the access port was covered by an oval-shaped armoured cover secured by two bolts. The Kuhlwasserheizgerät was used in the winter for preheating the coolant before an attempt was made to start the engine.

May 1944

The original operational track Geländekette Gg 24/800/300 design for the Tiger II had double track links, consisting of the main link, a connecting link with three end connectors, and two track pins. This design allowed the same track to be mounted on both the left and right side without causing the vehicle to pull to one side. Each double link weighed 62.7 kgs and was driven by a sprocket with 18 teeth. This double link design was very loose, with little resistance to bending, and therefore little power was wasted in driving the tracks. However, this original track design was prone to climbing on to the sprocket and thereby being jammed or thrown. Due to the variations in the track pitch between links, the sprocket teeth wore unevenly, which was an indication of destructive stresses to the internal drive train components.

A new double link Geländekette (operational track), having a cast connecting link without a guide horn, was installed by Henschel starting by May 1944. This new design was not as flexible as the old and resisted sideways motion. Only the main link was engaged by the nine-tooth drive sprocket. This new operational track was backfitted to Tiger II produced prior to May 1944.

The monocular Turmzielfernrohr 9d (sighting telescope) replaced the previously used binocular Turmzielfernrohr 9b/1. An armour plug was welded in place to close the second sight aperture that had been cut into the face of the 'Porsche' turrets.

The original production version of the 8.8 cm Kw.K. 43 (L/71) consisted of a one-piece monobloc gun tube. Starting in May 1944 this was gradually replaced by a two-piece sectional monobloc gun tube that was easier to produce in quantity with no degradation in the performance. A lighter, smaller muzzle brake was fitted to the sectional monobloc guns.

June 1944

The demand for deep fording equipment was not relaxed until mid 1944. The reason given for abandonment of total submersion was that it was thought that rivers would have to be waded until it was discovered that the standard 16-ton engineer bridge could carry the Tiger II. The deep fording

equipment was actually only installed in several Tiger II for experimental testing. For most Tiger II built before and all built after June 1944, the hinged bell shaped armoured cover was replaced by a wire mesh screen installed over the air intake hole that had been originally cut into the deck for the telescoping air intake pipe.

By order dated 17 February 1943, from Lt.Col. Crohn of Wa Prüf 6, Krupp was only authorised to complete 50 of the 'Porsche' turrets for which the curved armour plates had already been formed. Three additional turrets originally ordered for Porsche prototypes were also converted by Krupp for mounting on Henschel chassis from April to August 1944.

Turrets with the strengthened, sloping frontplate, without the bulge for the commander's cupola, were designed by Krupp and mounted on Tiger IIs starting with Fgst.Nr. 280048 in June 1944.

Three Pilsen (cylindrical sockets) were welded to the turret roof to be used in securing the base of a 2t Kran (jib boom). The 2t Kran could be used to lift the decking and drive train components from the vehicle on which it was mounted or be used to lift components from an adjacent vehicle. A general order from June 1944 authorised backfitting to Tiger IIs that had originally been produced without this modification.

July 1944

Starting in July 1944, hangers and fasteners to mount replacement double track links were welded fore and aft on both turret sides. In November 1944, permission was given to the troops to backfit this modification for Tiger IIs with both turret types. This modification was first authorised by Lt.Col. Crohn on 8 May 1944 after extensive firing trials had been conducted to determine the effect extra track links had on the protection provided by the 80 mm armour plate. The results were that on vertical and up to 10-degree sloped plates, the protection afforded against penetration by medium calibre anti-tank rounds was actually reduced. At 30 degrees and greater sloped plates, the afforded protection increased. At angles between 10 and 30 degrees, there was no change in the afforded protection.

August 1944

The narrower (660 mm wide) transport tracks were carried on the Ssyms-Wagen for rail transport of the Tiger IIs. To readily distinguish the transport tracks used for the Tiger II from those used for the Tiger I, two or three out of every ten links were to be painted red. This change was to have been completed within four to six weeks after issuing the general order on 3 August 1944.

To comply with a general order dated 19 August 1944, all Tiger IIs were to be painted with a standardised camouflage pattern prior to being shipped from the Henschel factory. Every effort was to be made to deliver part of the August consignment of Tiger IIs with this new 'ambush' camouflage pattern. Patches of olive green (RAL 6003) and red brown (RAL 8017) paint were spray painted over the dark yellow (RAL 7028) base coat. Prior to this, the Tiger IIs were all delivered with a base coat of dark yellow (RAL 7028) paint covering the red primer undercoat and Zimmerit and each individual unit applied its own camouflage colours.

To simplify production, starting with Fgst.Nr. 280177, the inside of the Tiger II was no longer coated with Elfenbein (ivory) paint, but merely left with only the basic coat of red oxide primer that had been applied by the armour manufacturers.

September 1944

By an order dated 9 September 1944 the Zimmerit anti-magnetic coating was no longer to be applied at the factory to new production tanks. This was followed by an order dated 7 October 1944 directed at the troops not to apply Zimmerit to Panzers they received without this coating. These orders were based on rumours that the Zimmerit caught fire from shell hits which could cause the loss of the tank even if the shells did not penetrate. Tests conducted in November, firing armour piercing, HEAT and white phosphorus shells at two captured T34s coated with Zimmerit, did not in any case result in setting a tank on fire. However, the orders to stop applying Zimmerit were never rescinded and all Tiger IIs delivered after mid September 1944 did not receive a coating of Zimmerit.



The Schwere Heeres Panzer Abteilung 503 was pulled out of France on 9 September 1944 with only two of its original 26 Tiger IIs intact. At Sennelager in Paderborn on 19 and 22 September it was issued

with 43 new tiger IIs. '300' the company commander's vehicle, still has Zimmerit but the two Tiger IIs behind the commander's head no longer have the Zimmerit. (US official)

By another order dated 9 October 1944, thinner paint was to be applied at the factory than had been previously used for painting the Tiger IIs that had been covered with Zimmerit.

By an order dated 31 October 1944, Henschel was to cease covering the external surface of the Tigers with a base coat of dark yellow (RAL 7028). Before leaving Henschel, the Tiger IIs were to be painted with a camouflage pattern using patches of dark yellow (RAL 7028), red brown (RAL 8017) and olive green (RAL 6003) applied directly to the basic red oxide primer. If dark yellow was not available, Feldgrau could be used as a substitute, but only sparingly.

Already prior to this order in September 1944, Tiger II had left the factory without the base coat of dark yellow, with large areas of red primer that hadn't been covered with paint. The areas that had been covered had a very thin coat of camouflage paint.

Starting with Tiger II, Fgst.Nr. 280255, completed on or about 15 September 1944, a circular plate was bolted over the opening in the rear deck originally intended for the telescoping air intake pipe to prevent shell splinters from penetrating the fuel tank mounted directly below this opening. This modification was authorised to be backfitted by the troops.

October 1944

The mounting brackets for the 20-ton Wagenwinden (jack) were no longer welded on the rear since Wagenwinden were no longer issued with the Tiger II.

December 1944

At the end of November 1944, the armour manufacturers (D.H.H.V., Krupp and Skoda) were to cover all armour components with a base coat of dark green (RAL 6003) paint prior to delivering the components to Henschel or Wegmann for use in assembly. Not waiting for the backlog of already delivered parts to be exhausted, on 20 December 1944, the Waffenamt ordered Henschel to immediately begin painting the external surfaces of the Tiger II with a base coat of dark green (RAL 6003) paint. The camouflage pattern with sharp contours was to be applied using red brown (RAL 8017) and dark yellow (RAL 7028) paint.

The Waffenamt approved a modification for mounting plates over the air intake gratings on the rear deck to prevent entry of shell splinters or bullets from strafing aircraft. This modification was completed on one Tiger II belonging to the Waffenamt. From pictorial evidence, these plates were not installed by Henschel at the factory, and there is no evidence that the modification was attempted by the troops.

January 1945

In September 1944 the armour manufacturers were ordered to initiate a modification by welding an inverted U-shaped guard over the sight aperture. This guard was designed to prevent rain from fouling the gun sight. Extending well beyond the turret face, the guard also reduced the angle at which the gunner would be blinded when trying to aim in the direction of a rising or setting sun. Due to the backlog of turrets already delivered by the armour manufacturers, this modification did not routinely appear until after January 1945.

March 1945

A new single link design for the wider operational tracks Geländekette Kgs 73/800/152 was accepted for production toward the end of November 1944.



ABOVE AND TOP On 12 October 1944 the s.PzAbt. 503 was shipped to Hungary to support Szálasi's 'Arrow Cross' movement in their coup against the Horthy Government which was trying to withdraw from the war. 15 October 1944 '233'

on duty in the Várhegy (Castle hill) over looking the Danube. The bracket mount for the Fliegerbeschussgerät (anti-aircraft machine-gun) is clamped in place on the cupola ring. (Bundesarchiv)

This new track, again driven by an 18 tooth sprocket, was available for Tiger II completed by Henschel in March 1945.

Factory modifications

The following modifications appeared on a Tiger II turret that was captured in the factory but had never been mounted on an operational tank. Other completed turrets that had not been mounted on Tiger IIs, which were also captured in the factory, did not have these three latest modifications.



Close-up of the gun and mantlet front of a Henschel turret clearly showing the coating of

Zimmerit paste and the spare track links on the side of the turret. (Bundesarchiv)

Three sets of hangers and fasteners were welded fore and aft on each turret side to each hold one spare Geländekette Kgs 73/800/152 track link. These replaced the two sets of hangers and fasteners designed for the earlier double link track links.

A ring for the clamped-on anti-aircraft machine-gun mount was no longer welded above the periscope guards on the commander's cupola. In its place, a double arm variation was to be fastened to

a mount welded in place at the base of the cupola.

Five steel loops were welded to each turret side. These loops were to be used for holding tree branches carried for additional camouflage.

On 28 February 1945, the armour manufacturers were asked when turrets modified to mount Entfernungsmesser (range finders) would be produced. D.H.H.V. stated that they would strive to complete their first turret by 31 March and Krupp promised to start with their 601st turret planned for mid July 1945. Therefore, the effort was initiated too late to complete any Tiger IIs with range-finders before the factory in Kassel fell into the hands of Allied troops.

Henschel sent a change order to the armour manufacturers dated 12 December 1944, to enlarge the opening on the rear deck for improved access to the motor. The larger opening was to be covered by a three-piece hatch. Each separately hinged section had an air inlet cowling. The air intake gratings above the radiators were to be covered with a finer wire mesh screen. The armour manufacturers were allowed to complete rear decks to the previous design specifications until all parts were exhausted prior to switching to manufacturing rear decks of the new design.



German and Hungarian troops examine a Tiger II of the s.Pz.Abt. 503 on duty near the site of the current Hungarian Military History Museum and Institute. (Bundesarchiv)

Table 3: Armour penetration

	<i>Pzgr.39/43</i>	<i>Pzgr.40/43</i>	<i>Gr.39/3 HL</i>
Shell weight	10.2 kgs	7.3 kgs	7.65 kgs
Initial velocity	1000 m/sec.	1030 m/sec.	600 m/sec.
Range			
100 m	202 mm	238 mm	90 mm
500 m	185 mm	217 mm	90 mm
1000 m	165 mm	193 mm	90 mm
1500 m	148 mm	171 mm	90 mm
2000 m	132 mm	153 mm	90 mm

Based on a common two to six months' backlog of partially completed component parts and the fact that enough armour components had already been delivered to complete all 489 Tiger IIs produced by Henschel, it is highly unlikely, but possible, that a few Tiger IIs were produced with the new rear deck with three hatches over the motor compartment.

FIREPOWER

The effectiveness of firepower that can be delivered by the main gun is dependent upon the penetration ability of the armour piercing rounds, inherent accuracy of the gun, characteristics of the gun sights and ability to get quickly and accurately on target.

Penetration statistics for armour plate were expressed in terms of the thickness in mm that could be penetrated when laid back at an angle from the vertical of 30 degrees. The penetrating

ability of armour piercing rounds fired from the 8.8 cm Kw.K. 43 (L/71) was determined by tests conducted at firing ranges which proved that the results shown in Table 3 could be achieved.

Of the total ammunition load of 86 rounds (80 for the Tiger II with 'Porsche' turrets), the recommended ratio was 50 per cent Pzgr.39/43 (armour piercing, capped, ballistic capped with explosive filler and tracer) and 50 per cent Sprgr. (high explosive shells).

Occasionally, when available, a few rounds of Pzgr.40/43 (high velocity, sub-calibre, tungsten core) were carried for use against the heaviest armoured Russian tanks and tank destroyers. The Pzgr.40/43, without an explosive filler charge, was not as lethal after penetration as the Pzgr.39/43. A fourth type of round was the Gr.39/43 HL (HEAT) which was based on the hollow charge principle. With far less penetrating ability, the Gr.39/43 HL was also less accurate and much less destructive than the Pzgr.39/43. However, the Gr.39/43 HL could be carried in place of Sprgr.,

Table 4: Accuracy

<i>Ammunition:</i>	<i>Pzgr.39/43</i>		<i>Pzgr.40/43</i>	
	<i>Practice %</i>	<i>Combat %</i>	<i>Practice %</i>	<i>Combat %</i>
<i>Range</i>				
100 m	100	100	100	100
500 m	100	100	100	100
1000 m	100	85	100	89
1500 m	95	61	97	66
2000 m	85	43	89	47
2500 m	74	30	78	34
3000 m	61	23	66	25
3500 m	51	17	—	—
4000 m	42	13	—	—



The Tiger II '200' of the commander of 2. Kompanie s.Pz.Abt. 503 crossing a barricade installed by Hungarians who supported the old regime. The s.Pz.Abt. 503 subsequently

became part of the Panzer Korps 'Feldherrenhalle' on 21 December 1944 and was renamed s.Pz.Abt. 'Feldherrenhalle'. (Bundesarchiv)

and used as either an anti-tank round or as an effective high explosive round against soft targets.

The 8.8 cm Kw.K. 43 (L/71) was a very accurate gun capable of first-round hits at ranges exceeding 1000 m. The estimated accuracy is given as the probability (in percentage) of hitting a target 2 m high and 2.5 m wide, representing the target presented by the front of an opposing tank. These tables are based on the assumption that the actual range to the target has been determined. Firing on the practice range was obviously more accurate than was normally obtained due to the stress of combat conditions. This difference was reflected in the accuracy tables from an original manual on the 8.8 cm Kw.K. 43 (L/71) shown in Table 4.

The sight for most of the Tiger IIs that actually got into combat was the articulated, monocular Turmzielfernrohr 9d mounted parallel and on the same axis as the main gun. The gunner could select two magnifications, 3 x and 6 x. The lower magnification provided a wider field of view for target identification. The higher magnification assisted in precise aiming at long ranges.

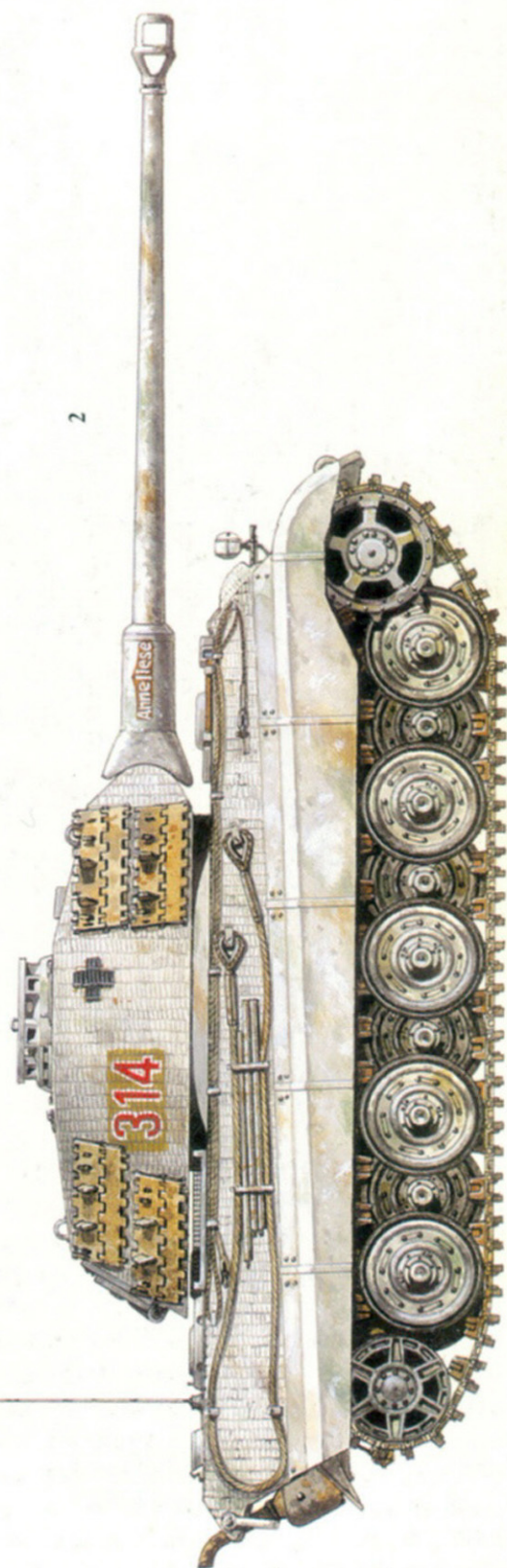
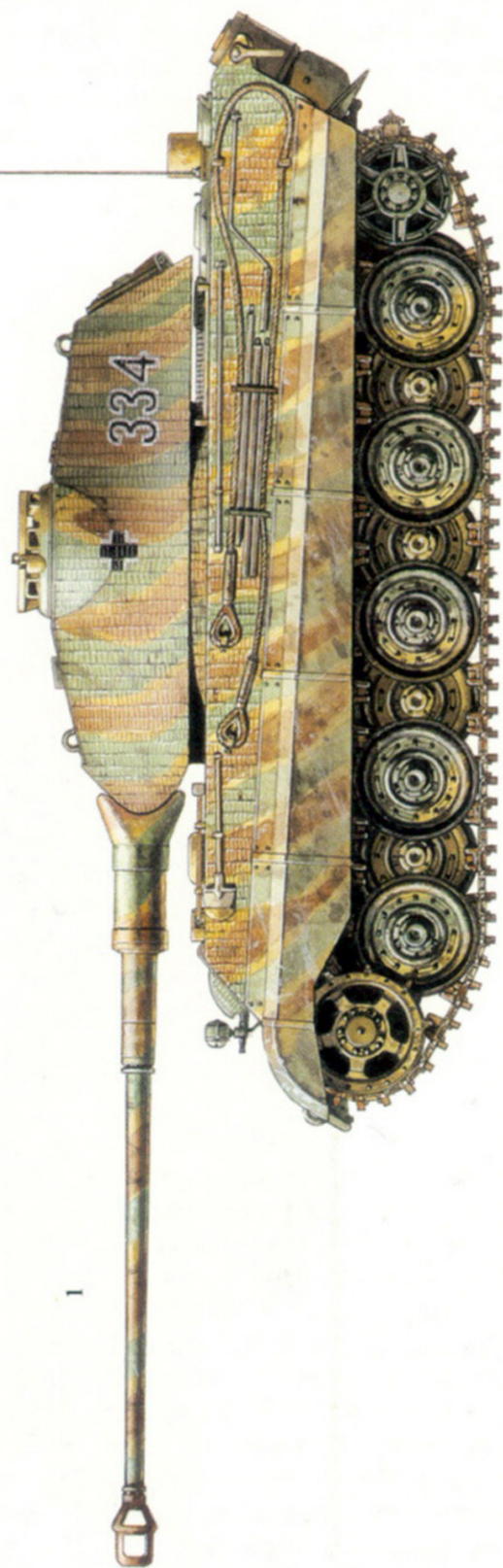
Looking through the sight the gunner saw seven triangles in the sight reticle pattern each separated by 4 mm. Placing the target on the point of a triangle allowed the gunner to aim without obstructing the view of the target. The distances between triangles were used to lead moving targets. The triangle height and separation distances in mm were also used as an aid in estimating the range to a target.

Two adjustable range scales allowed the gunner to register the exact range to the target. The range scale for the Pzgr.39/43 was graduated at 100 m intervals out to a range of 3000 m and the second range scale for the Sprgr.43 was graduated out to a range of 5000 m.

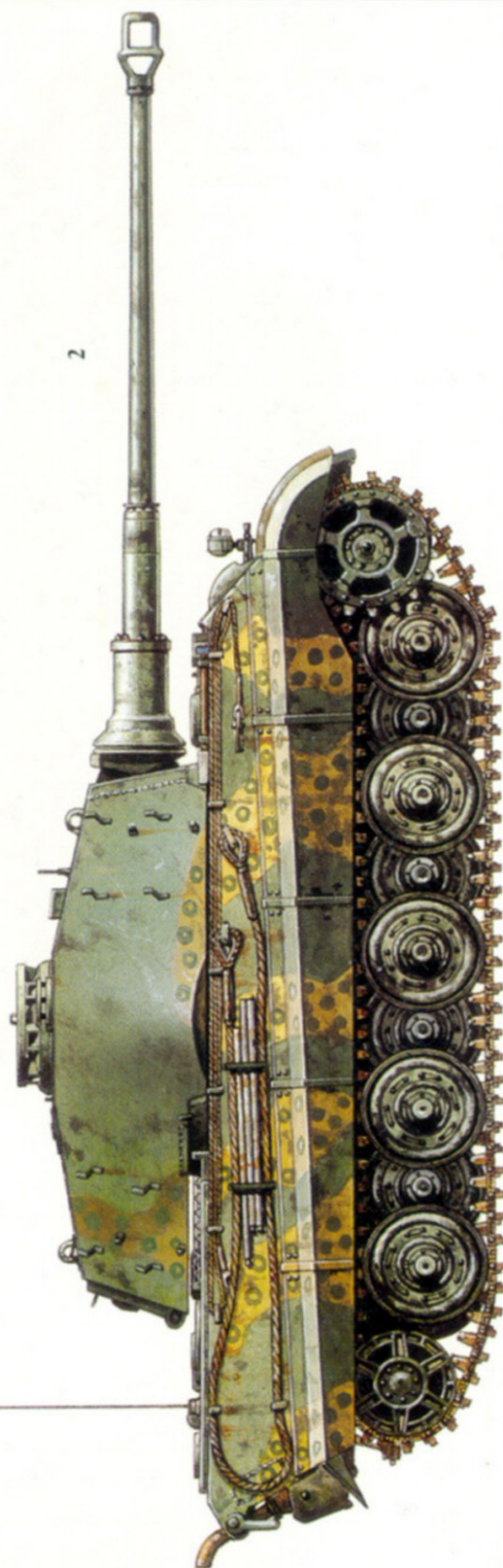
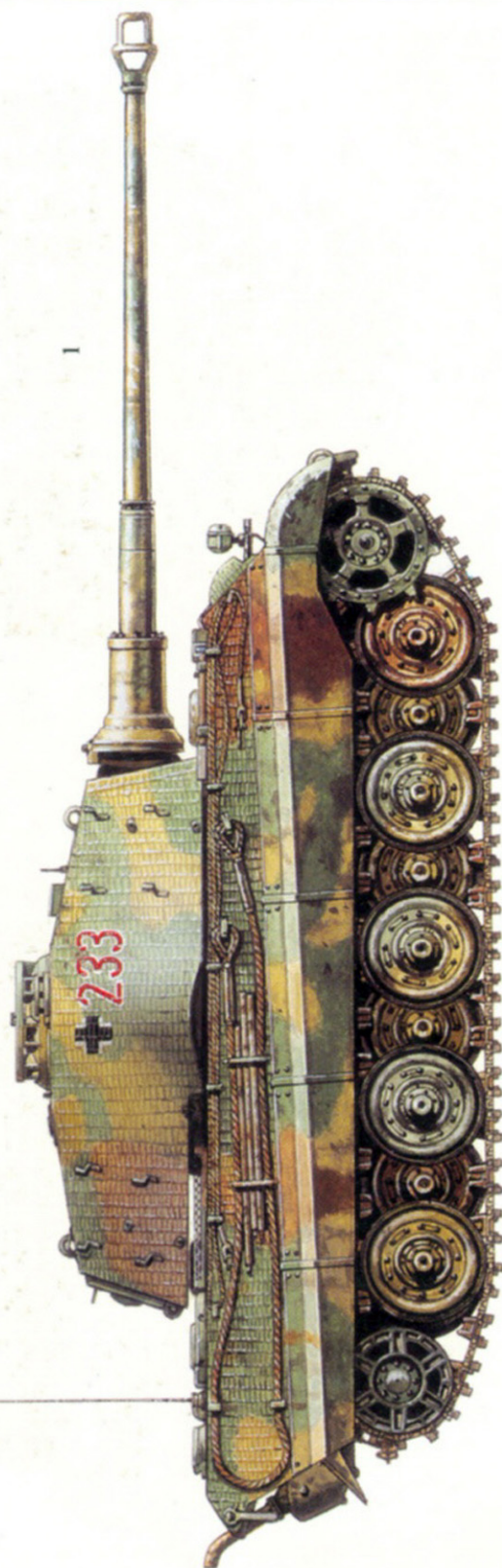
To quickly traverse on to a target, the Tiger II was outfitted with a hydraulic motor for the turret drive. The speed at which the turret was traversed under power was dependent on the engine speed and selection of a low or high range by the gunner. With the high range power traverse engaged and the engine turning over at 2000 rpm, the turret could be traversed through 360 degrees in 19 seconds. At the maximum allowable engine speed of 3000 rpm, the turret could be traversed 360 degrees in less than ten seconds. The hydraulic traverse enabled coarse laying in order for the gunner to quickly get the selected target within the sight picture.

Fine adjustment was accomplished using the gunner's hand traverse and hand elevation wheels. If the power traverse failed, the turret could be traversed by hand by the gunner, assisted by the loader using an auxiliary hand traverse. The gear ratios for the hand traverse resulted in comparatively easy hand traverse by one man, even when the tank was on a three-degree slope.

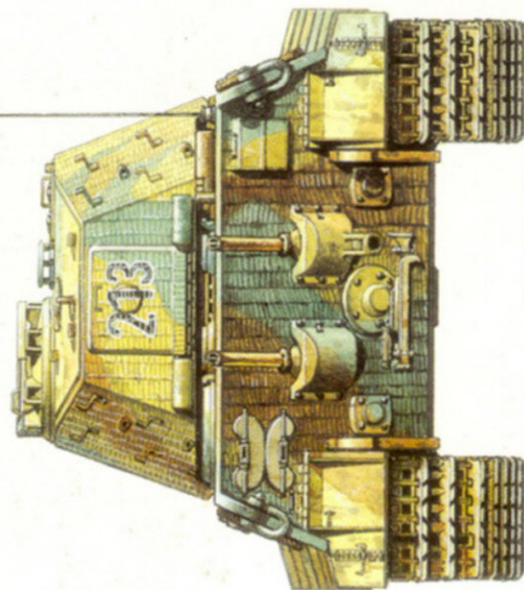
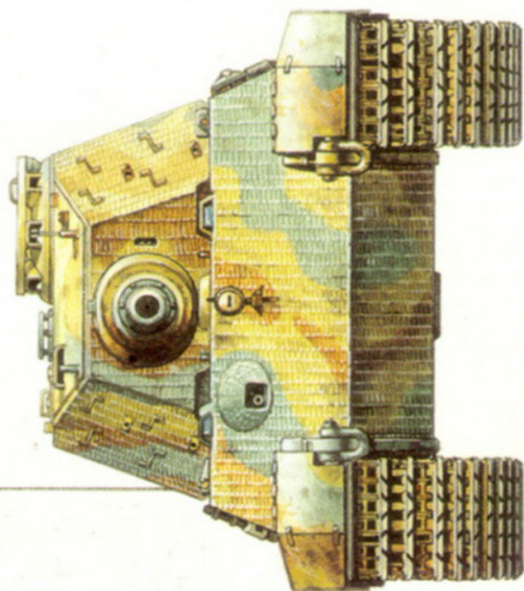
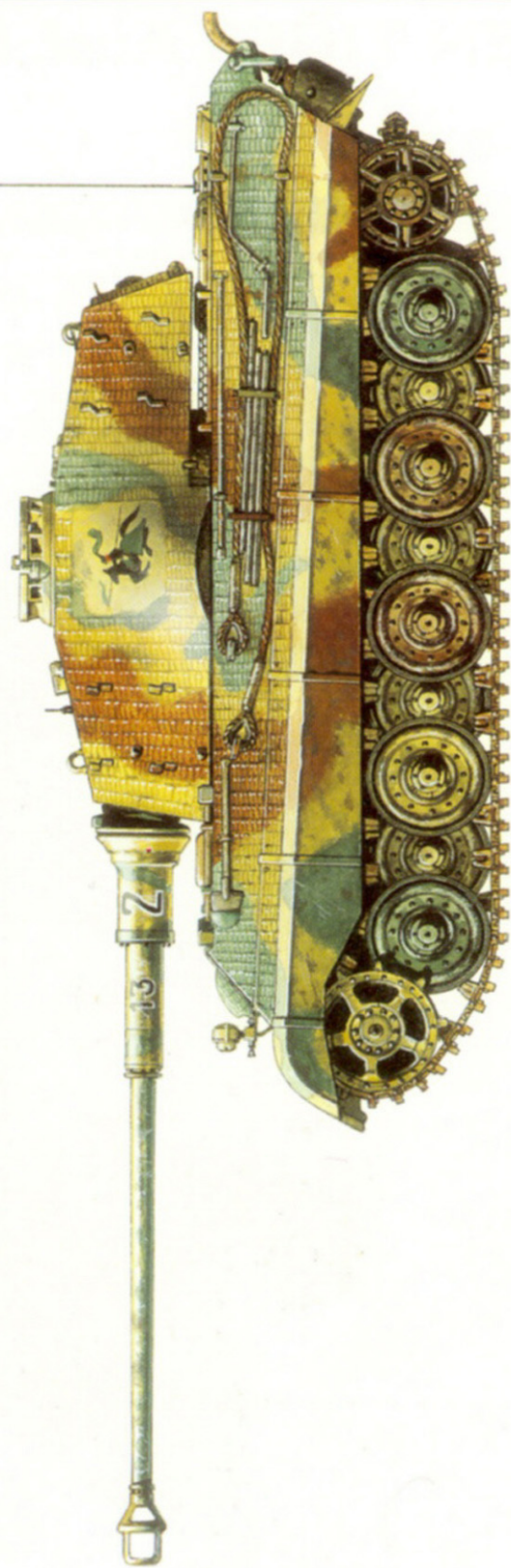
- 1: Tiger II, 'Porsche Turm', Pz.Ers-u-Ausb. Abt. 500
 2: Tiger II, 'Porsche Turm', s.Pz.Abt. 503, Russia, Winter 1944-45



1: Tiger II, s.Pz.Abt. 503, Budapest, October 1944
2: Tiger II, s.Pz.Abt. 511, May 1945



Tiger II, s.Pz.Abt. 505, Thüringen, 1944



PANZERKAMPFWAGEN TIGER Ausf. B, 'Henschel Turm'

SPECIFICATIONS

Crew: 5
Combat weight: 69,800 kg
Power-to-weight ratio: 10.7 metric Hp/ton
Hull length: 6.400 m
Overall length: 10.286 m
Width: 3.755 m
Engine: Maybach HL 230 P30 V12 petrol, 700 Hp

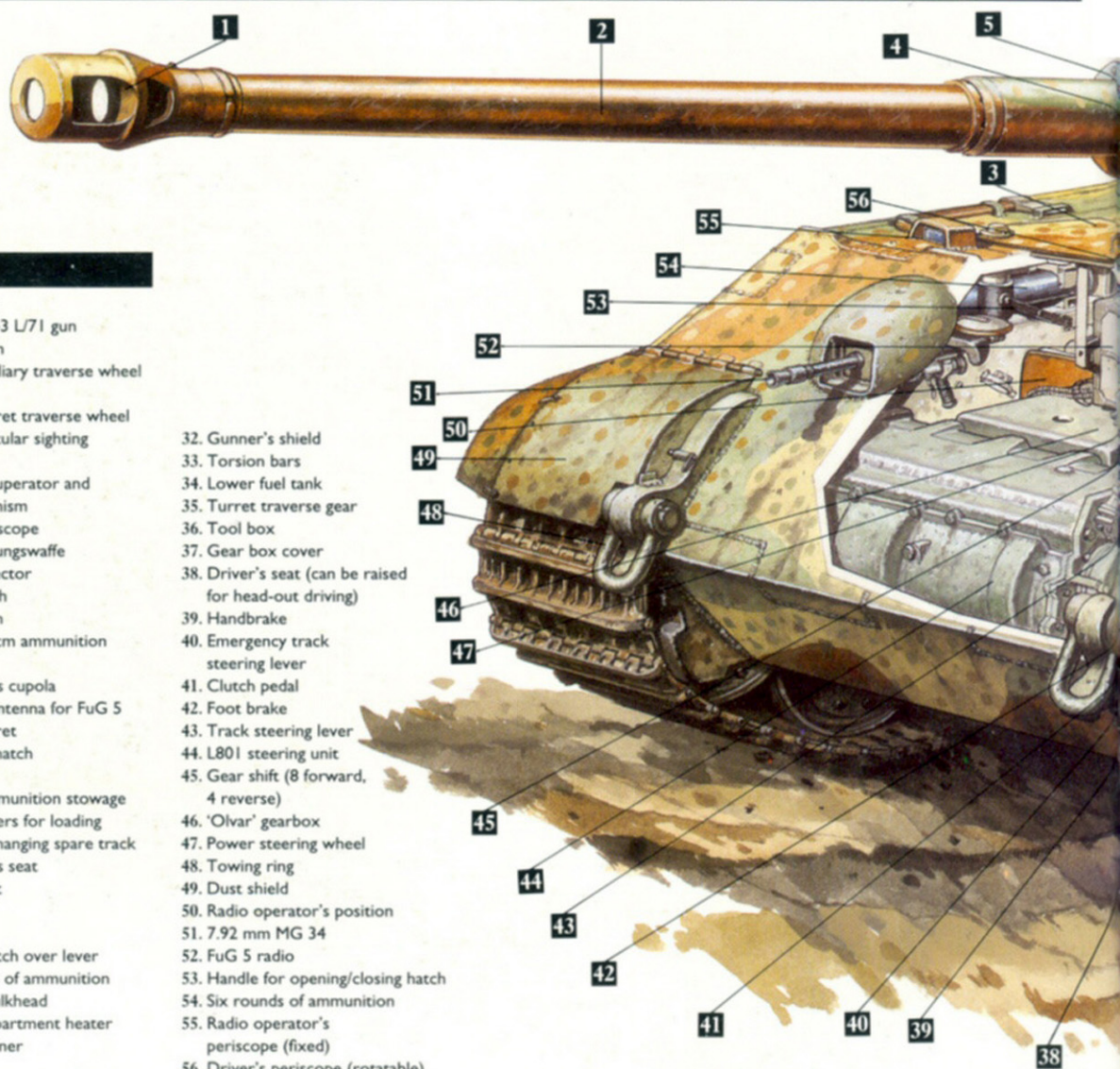
Transmission: Maybach Olvar Typ OG 40 12 16 B, 8 forward, 4 reverse
Fuel capacity: 860 litres
Max. speed (road): 38 kph
Max. speed (cross-country): 15-20 kph
Best cruising speed: 38 kph
Max. range: 170 Km at cruising speed

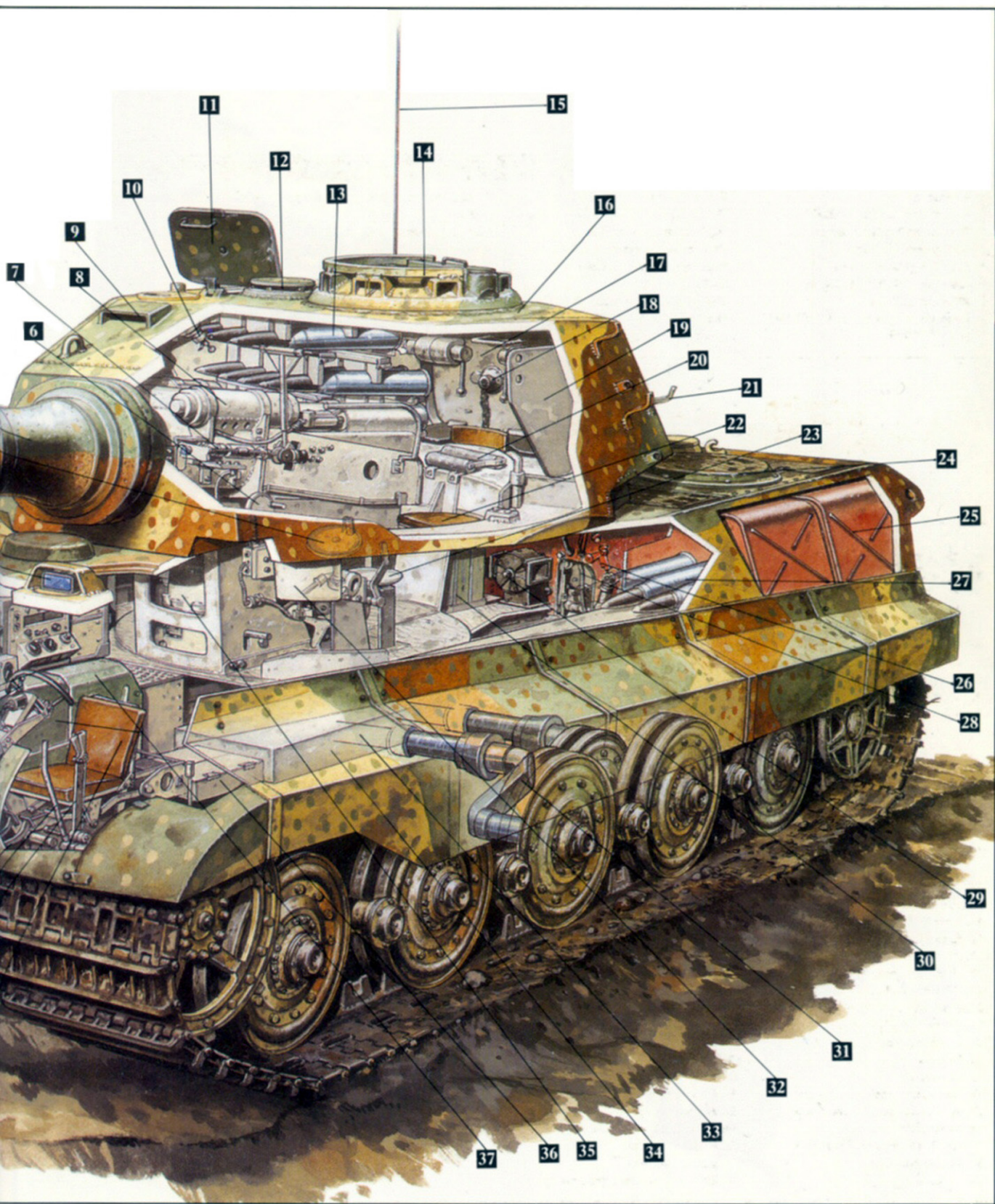
Fuel consumption: 500 litres per 100km
Fording depth: 1.60 m
Armament: 8.8 cm KwK 43 L/71
Main gun ammunition: 8.8 cm PzGr 39/40 (Armour-piercing, tungsten core)
 8.8 cm PzGr 40/43 (Armour-piercing, tungsten core)

8.8 cm SprGr 43 (High explosive)
 8.8cm HIGr 39 (Hollow charge)
Muzzle velocity: 1000 m/sec (PzGr 39/43)
Max. effective range: 10,000 m (SprGr 40/43)
Stowed main gun rounds: 84
Gun depression/elevation: -8 degrees/ +15 degrees

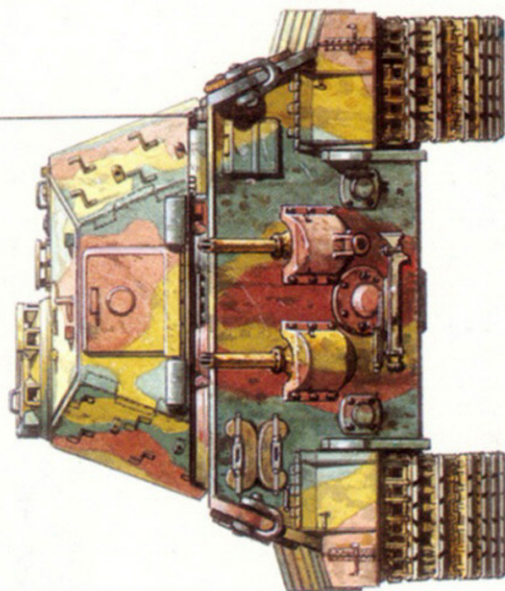
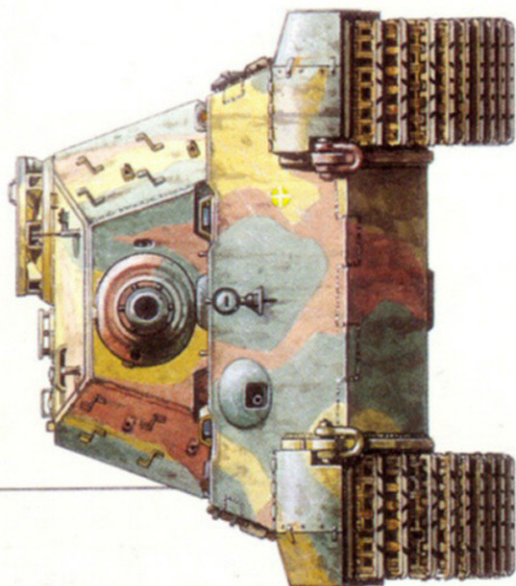
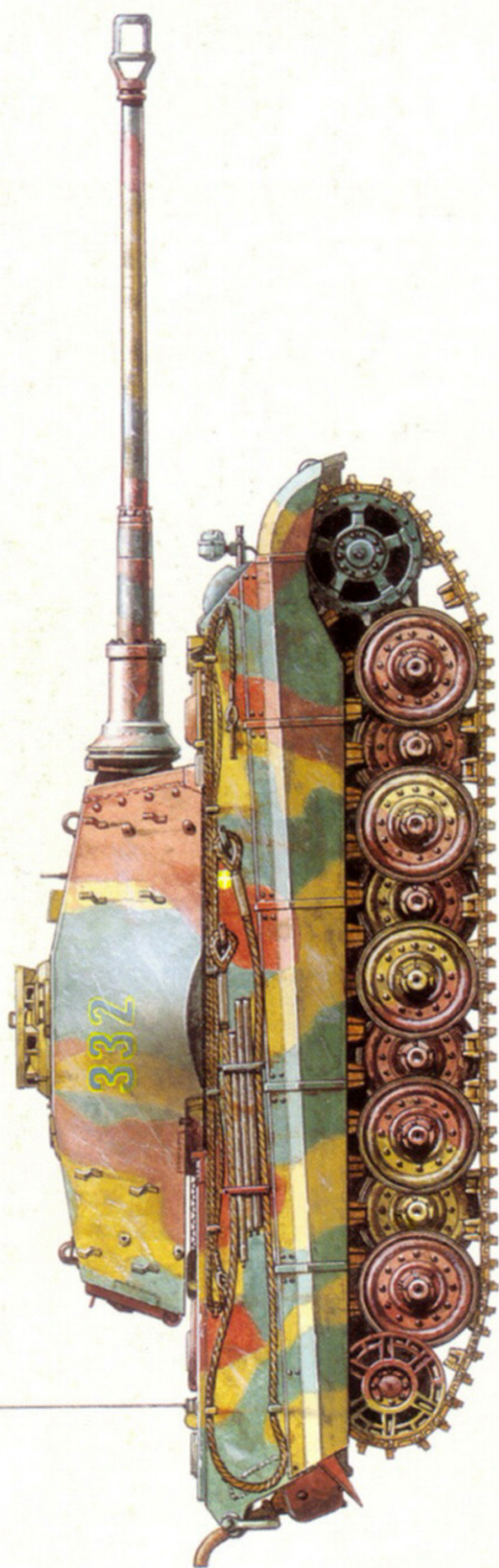
KEY

1. Muzzle brake
2. 8.8 cm KwK43 L/71 gun
3. Driver's hatch
4. Loader's auxiliary traverse wheel
5. Gun mantlet
6. Gunner's turret traverse wheel
7. TzF9b monocular sighting telescope
8. Main gun recuperator and recoil mechanism
9. Loader's periscope
10. Nahverteidigungswaffe 'S' mine projector
11. Loader's hatch
12. Ventilating fan
13. Racks of 8.8 cm ammunition (steel cased)
14. Commander's cupola
15. Two metre antenna for FuG 5
16. Henschel turret
17. Rear escape hatch
18. Pistol port
19. Shield for ammunition stowage
20. Wooden rollers for loading
21. Brackets for hanging spare track
22. Commander's seat
23. Gunner's seat
24. Fan cover
25. Fuel tanks
26. Fuel tank switch over lever
27. Seven rounds of ammunition
28. Armoured bulkhead
29. Fighting compartment heater
30. Water container
31. Swing arm
32. Gunner's shield
33. Torsion bars
34. Lower fuel tank
35. Turret traverse gear
36. Tool box
37. Gear box cover
38. Driver's seat (can be raised for head-out driving)
39. Handbrake
40. Emergency track steering lever
41. Clutch pedal
42. Foot brake
43. Track steering lever
44. L801 steering unit
45. Gear shift (8 forward, 4 reverse)
46. 'Olvar' gearbox
47. Power steering wheel
48. Towing ring
49. Dust shield
50. Radio operator's position
51. 7.92 mm MG 34
52. FuG 5 radio
53. Handle for opening/closing hatch
54. Six rounds of ammunition
55. Radio operator's periscope (fixed)
56. Driver's periscope (rotatable)

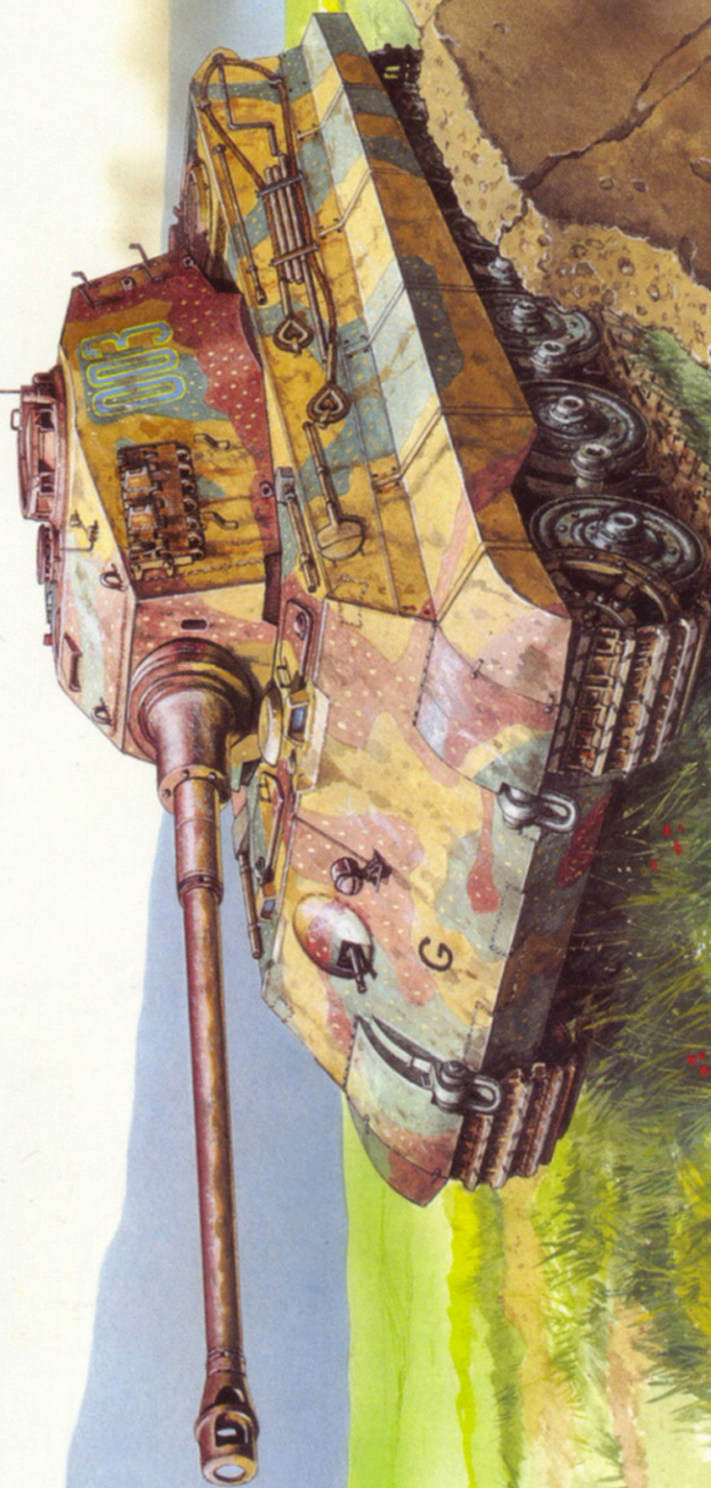




Tiger II, s.SS Pz.Abt. 501, Ardennes, December 1944

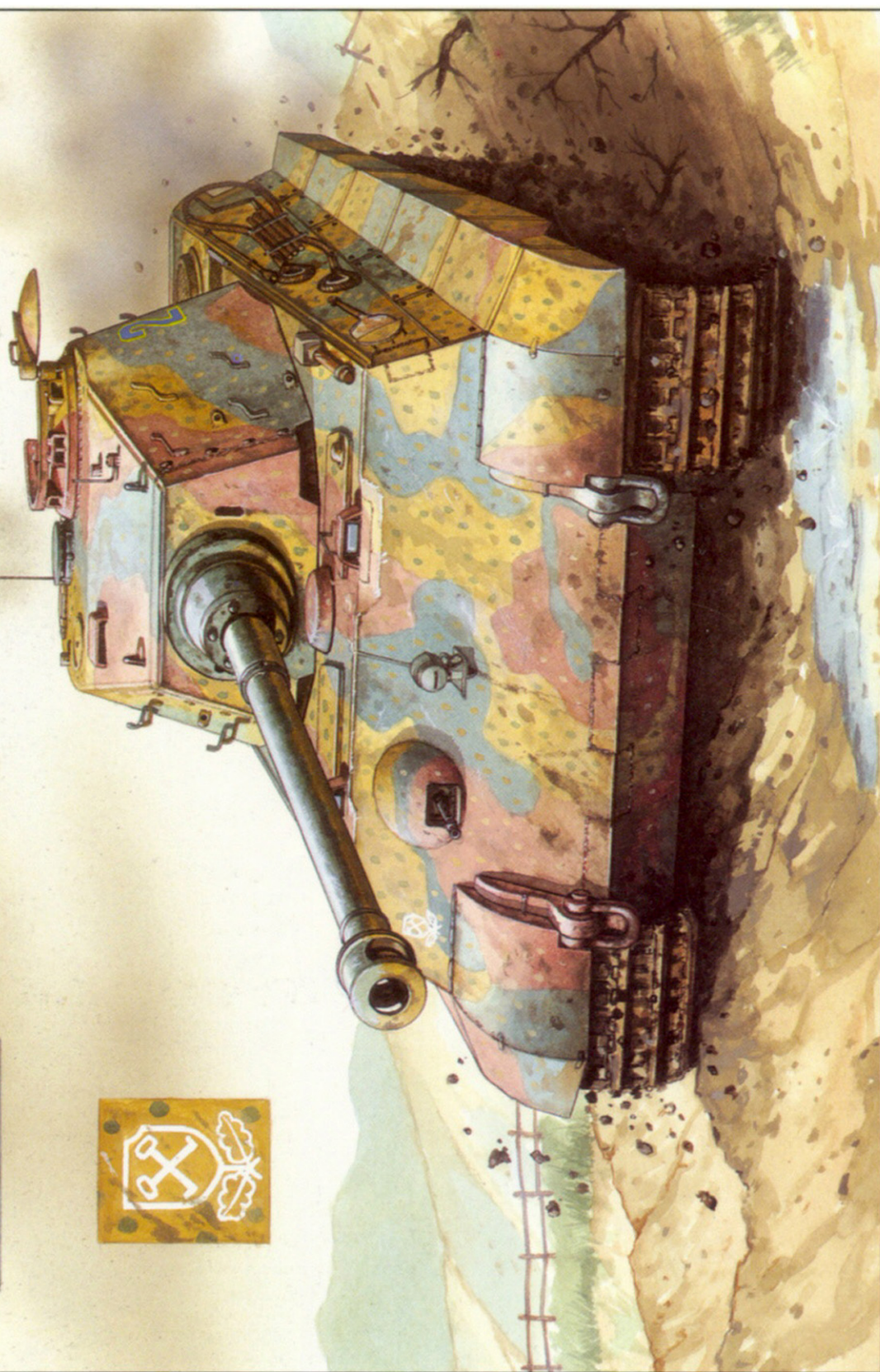


Tiger II, Stabskompanie, s.SS Pz.Abr. 501, Ardennes, December 1944



Tiger II, s.SS Pz.Abt. 501, Ardennes, December 1944

204





Tiger II '204' of the Schwere SS Panzer Abteilung 501 was captured intact at So l'Hesse near La Gleize by the American forces after the Ardennes Offensive. It had been driven several kilometres on the way to a rail head

when it broke down on the hill at Neuville. It was eventually pushed off the road and destroyed. The base colour was red primer with camouflage stripes and patches of yellow and dark green with spots of yellow and green. (US official)

MOBILITY

Numerous statements have been made that the Tiger II was too heavy, too big, too slow, ungainly, unmanoeuvrable, etc. One is left with the impression that it was lucky to move at all. These banal generalities, stated as incontrovertible facts, are never substantiated by actual specifications,

test reports or after-action accounts from the units that used the Tiger II. In spite of these frequently repeated remarks, the capability of the Tiger II

Table 5: Performance

Maximum speed	41.5 km/h
Maximum sustained speed	38 km/h
Average cross-country speed	15-20 km/h
Radius of action, road	170 km
Radius of action, cross-country	120 km
Smallest turning radius	2.08 m
Maximum turning radius	114 m
Trench crossing	2.5 m
Fording	1.6 m
Step climbing	0.85 m
Gradient climbing	35 degrees
Ground clearance	0.5 m
Ground pressure	0.78 kg/cm ²
Power to weight ratio	10.7 metric hp/ton

Penetration Table 1: Cromwell, Churchill

	<i>Tiger II vs Cromwell (8.8 cm Kw.K.)</i>	<i>Cromwell vs Tiger II (75 mm M3)</i>	<i>Tiger II vs Churchill (8.8 cm Kw.K.)</i>	<i>Churchill vs Tiger II (75 mm M3)</i>
Front: Turret	3500 m +	0 m	3500 m +	0 m
Mantle	3500 m +	0 m	3500 m +	0 m
Glacis	3500 m +	0 m	3500 m	0 m
Nose	3500 m +	0 m	3400 m	0 m
Side: Turret	3500 m +	0 m	3500 m +	0 m
Super	3500 m +	0 m	3500 m +	0 m
Hull	3500 m +	100 m	3500 m +	100 m
Rear: Turret	3500 m +	0 m	3500 m +	0 m
Hull	3500 m +	0 m	3500 m +	0 m

Penetration Table 2: Sherman A2, Sherman A4

	<i>Tiger II vs Sherman A2 (8.8 cm Kw.K.)</i>	<i>Sherman A2 vs Tiger II (75 mm M3)</i>	<i>Tiger II vs Sherman A4 (8.8 cm Kw.K.)</i>	<i>Sherman A4 vs Tiger II (76 mm M1A1)</i>
Front: Turret	3500 m +	0 m	3500 m +	0 m
Mantle	2600 m	0 m	2600 m	0 m
Glacis	2000 m	0 m	2000 m	0 m
Nose	3500 m +	0 m	3500 m +	0 m
Side: Turret	3500 m +	0 m	3500 m +	1100 m
Super	3500 m +	0 m	3500 m +	900 m
Hull	3500 m +	100 m	3500 m +	1800 m
Rear: Turret	3500 m +	0 m	3500 m +	400 m
Hull	3500 m +	0 m	3500 m +	400 m

to negotiate obstacles and cross terrain was equivalent to or better than most German and allied tanks as shown by the performance specifications in Table 5.

The Tiger II initially experienced numerous automotive problems which required a continuous series of minor modifications to correct. These problems can be traced to two main causes: leaking

seals and gaskets and an overtaxed drive train originally designed for a 40 metric ton vehicle. The problem of keeping a Tiger II in running condition was compounded by a shortage of skilled drivers many of whom may have never experienced driving any vehicle prior to entering the service. In addition they were provided only limited driver's training, and then usually on a

*A typical Tiger II built from January 1945 had the inverted 'U'-shaped guard over the sight aperture.
(Author)*





American investigators examining turrets awaiting mounting on a Tiger II chassis at the factory in Kassel in April 1945. All are painted in dark green; the one being examined is that of a

Panzerbefehlswagen Tiger II – note the Antennafuss Nr. 1 (Aerial mount No. 1) on the roof. The turrets in the background no longer have the ring for the Fliegerbeschussgerät welded to the cupola. (US official)

different type of Panzer, and received their own Tiger II usually within a few days before being shipped by rail to the front.

The first five production series Tiger IIs (Fgst.Nr. 280001–280005) issued to the Panzer Lehr Division were in such poor automotive condition that they were destroyed to prevent capture without having been used in combat. The first unit, s.Pz.Abt. 501 sent to the Eastern Front outfitted with Tiger IIs, arrived at the front with only eight out of 45 operational, mainly due to the failure of the final drives.

S.Pz.Abt. 505, who were issued their Tiger IIs in July and August 1944, reported that three factory-fresh Tiger IIs burnt out totally due to leaks in the engine compartment. Several other Tiger IIs had experienced smaller fires. The 505th worked closely with Henschel technical representatives to correct many of the deficiencies before being sent to the Eastern Front.

But, with mature drivers, taking required maintenance halts, and modification of key automotive components, the Tiger II could be maintained in a satisfactory operational condition. The statistics

Penetration Table 3: T34/85, JS 122

	<i>Tiger II vs T34/85 (8.8 cm Kw.K.)</i>	<i>T34/85 vs Tiger II (85 mm S53)</i>	<i>Tiger II vs JS 122 (8.8 cm Kw.K.)</i>	<i>JS 122 vs Tiger II (122 mm A19)</i>
Front: Turret	3500 m +	0 m	2300 m	0 m
Mantle	2800 m	0 m	1800 m	0 m
Glacis	2600 m	0 m	2100 m	0 m
Nose	2600 m	0 m	2600 m	0 m
Side: Turret	3500 m +	800 m	3400 m	1800 m
Super	3500 m +	500 m	3400 m	1400 m
Hull	3500 m +	1600 m	3500 m +	2900 m
Rear: Turret	3500 m +	100 m	1800 m	900 m
Hull	3500 m +	100 m	2500 m	900 m

Penetration Table 4: British guns

	<i>6-pdr. APCBC</i>	<i>6-pdr. APSV (DS)</i>	<i>17-pdr APCBC</i>	<i>17-pdr. APSV (DS)</i>
Front: Turret	0 yds	0 yds	0 yds	1100 yds
Glacis	0 yds	0 yds	0 yds	0 yds
Nose	0 yds	0 yds	0 yds	1200 yds
Side: Turret	200 yds	1600 yds	2900 yds	2000 + yds
Super	0 yds	1400 yds	2600 yds	2000 + yds
Hull	1000 yds	2000 yds	3000+ yds	2000 + yds
Rear: Turret	200 yds	1600 yds	2900 yds	2000 + yds
Hull	0 yds	900 yds	2200 yds	2000 + yds

compiled from status reports for 15 March 1945 show that 59 per cent of the Tigers with front line units were operational. This was about equal to the Pz.Kpfw. IV at 62 per cent operational and much better than the Panther at only 48 per cent.

The authors paid a visit to the Tiger II (Fgst.Nr. 280273, produced in October 1944) now located in the Ardennes in the village of La Gleize. Driving a modern car to the village on the narrow, steep and sharply curved roads, had required frequent use of low gears. That Tiger IIs had managed to make this same trip in the winter was indeed an impressive testimony to both their manoeuvrability and mobility.

BATTLEFIELD SURVIVABILITY

Along with the extremely effective main gun, the Tiger II's major asset was the thick frontal armour. Even the side and rear armour protection was sufficient to eliminate any serious threat from the American 75 mm or the Russian 76 mm tank guns. The penetration tables extracted from a Wa Prüf 1 report dated 5 October 1944 relate the relative ability of the major opponents to penetrate the Tiger II and vice versa. The penetration ranges were determined based on the assumption that the target tank stood at a side angle of 30 degrees to the incoming round. The Tiger II represented has the production series turret.

It is quite obvious that no Allied tankers made a living by attempting to engage Tiger IIs from the front. The original report did not show the effectiveness of British tank guns against the Tiger II. This was found in an R.A.C. 3.d. secret document dated February 1945 as shown in Penetration Table 4.

The front of the turret and lower hull of the Tiger II could theoretically be penetrated using the 17-pdr. firing a special tungsten armour piercing, super velocity, discarding sabot round. These rounds were not especially accurate, they did not

have an explosive filler for blast effect after penetration, and ricocheted off steep angles like the lower hull front of the Tiger II. The authors have been unable to find any photographs or other proof of the frontal armour of Tiger IIs being penetrated during combat.

OPERATIONAL HISTORY

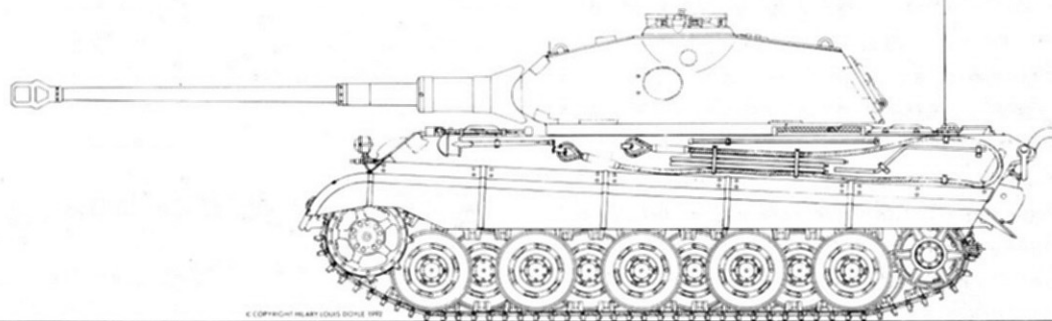
Tiger IIs were to be issued only to the Schwere Panzer Abteilung (heavy tank battalion) of either the Heeres (Army) or SS. The only exceptions to this rule were those issued for research (Waffenamt), training (Ersatzheer) and the first five production series Tiger IIs to a unit subordinate to the Panzer Lehr Division.

The standard organisation called for 45 per Abteilung, three Panzerbefehlswagen Tigers with the headquarters and 14 Tigers in each of three companies. Each company was further subdivided, with two for the headquarters section and four for each of the three platoons.

Virtually the entire production run was devoted to filling units to their full complement before sending them to the front. Only in 1945 were units sent into action short of their fully authorised complement of Tiger IIs.

Very rarely were replacements sent to units at the front. Replacements were only sent to three Abteilung, the 506th, the SS 501st, and Feldherrnhalle. A total of 194 Tiger IIs were issued to units that fought in the west, 274 for the east, 15 to the Waffenamt, and 13 to the Ersatzheer.

The history of all the Schwere Panzer Abteilung that were issued Tiger IIs includes the exact dates and the number of Tiger IIs that each received. The status reports reveal how successful the units were in maintaining operational Tiger IIs ready for combat and the rate at which losses occurred. The units are arranged in the order in which they were sent to the Western or Eastern Front.



Units sent to the Western Front

Panzer Kompanie (Funklenk) 316

The first unit to receive Tiger IIs for employment on the Western Front was the Pz.Kp.(FKL) 316 attached to the Panzer Lehr Division. This unit was issued the first five production Tiger IIs (Fgst.Nr. 280001–280005) which were sent to the unit on 14 March 1944. These five Tiger IIs were never employed in action and were destroyed to prevent capture.

Schwere Heeres Panzer Abteilung 503

The second unit sent to the west with Tiger IIs was s.H.Pz.Abt. 503, which was ordered to return from the Eastern Front to rest and refit on 25 May 1944. Before the Allied landing at Normandy, the 503rd was selected for employment in the west due to its complement of Tiger IIs. This was not because there was a more urgent need for Tiger II in the west than the east. The Tiger IIs were still experiencing numerous automotive failures and were to be kept closer to the source of repair parts and factory personnel. These same automotive problems caused delays in production and resulted in the 503rd receiving only 12 Tiger IIs (Fgst.Nr. 280023–280035, shipped from the ordnance depot on 12 June) along with 33 Tiger Is to fill their authorised strength of 45 Tigers.

• Outfitted at the training grounds in Ohrdruf, the 503rd was loaded on eight trains and

A 1:76 scale left side of Tiger II with sectional gun barrel without deep fording equipment (Author)

transported to the Western Front starting on 27 June. The eight trains were all unloaded at Dreux, France, by 7 July, and proceeded to the front by road marches, first engaging in combat on 11 July. The operational status of the Tigers during the battles in Normandy were reported as:

11 July

Operational: 23.

In repair: 18.

12 July

Operational: 32.

In repair: 13.

Total: 45.

16 July

Operational: 40.

In repair: 5.

Total: 45.

25 July

Operational: 20.

In repair: 8.

29 July

Operational: 15.

In repair: 7.

1 August

Operational: 13.

In repair: 16.

6 August

Operational: 11.

The 3. Kompanie of the 503rd had been ordered to refit with a full complement of 14 Tiger IIs which were shipped to the unit from the ordnance depot on 27 and 29 July. Five of the Tiger IIs were loaded and transported to the Western Front on 11 August. These were lost on the south side of the River Seine. Another seven Tiger IIs on the north side of the Seine were lost in August and September 1944. Two of the Tiger IIs managed to survive and returned to the training grounds for further employment.

1. Kompanie/Schwere SS Panzer Abteilung 101

Having lost 15 of their 45 Tiger Is in combat on the Invasion Front in Normandy before 5 July, the 1. Kompanie was pulled out of the front to refit. The unit received 14 Tiger IIs (Fgst.Nr. 280092–280112) that were shipped from the ordnance depot between 28 July and 1 August. Sent by train to the Western Front, these 14 Tiger IIs were quickly lost during the massive retreats in France in August and early September 1944.

Schwere Heeres Panzer Abteilung 506

The s.H.Pz.Abt. 506 was ordered on 15 August 1944 to return from the Eastern Front to reorganise and rebuild at Paderborn. Their 45 Tiger IIs were shipped from the ordnance depot between 20 August and 12 September. Loaded on trains on 22 September, the 506th was sent to Holland to help repulse the British spearhead at Arnhem. Reporting 33 operational and ten in repair on 1 October, the 506th was reloaded on trains on 3 October and transferred to the front via Aachen. The operational status was reported as:

20 October

Operational: 10

In repair: 27

Total: 37

Six had been lost in combat and two returned to Germany for major repairs.

31 October

Operational: 35

In repair: 2

Total: 37

2 November

Operational: 36

In repair: 3

Total: 39

Two replacements had arrived from the 502.SS

10 November

Operational: 36

In repair: 3

Total: 39

1 December

Operational: 11

In repair: 13

Total: 29

8 December

Six replacements were shipped from the ordnance depot, arrived 10 December.

10 December

Operational: 28

In repair: 7

Total: 35

13 December

An additional six replacements were shipped from the ordnance depot

25 December

Operational: 36

In repair: 11

Total: 48

In addition to the six

replacement Tiger IIs, the rest of s.Pz.Kp. Hummel (renamed as the 4. Kompanie) with their Tiger Is had joined the 506th

15 January

Operational: 17

In repair: 27

Total: 44

Four lost since

8 January.

1 February

Operational: 0

In repair: 26

5 February

Operational: 0

In repair: 30

Total: 30

17 reported as lost since 8 January.

5 March

Operational status unknown.

Total: 20

6 March

Operational status unknown.

Total: 7

12 March

13 replacements from depot were reported as received by the unit on 30 March.

15 March

Operational: 2

In repair: 16

Total: 18

5 April

Operational: 7

In repair: 0

Total: 7

Schwere SS Panzer Abteilung 501

The s.SS Pz.Abt. 101 (later renamed 501) was ordered on 9 September 1944 to transfer to Senelager to rest and refit. At first it was planned to outfit the battalion with two companies of Tiger II and one company of Jagdtigers. On 4 November, Hitler ordered that none of the Jagdtigers were to be issued to Tiger battalions. Therefore, the SS Tiger Abteilung was ordered to outfit the third company with Tiger Is. This order was later rescinded and the third company was also outfitted with Tiger IIs.

Due to the severe production problems, only six Tiger IIs had been sent to the SS 501st from the ordnance depot on 17 and 18 October. A further eight were shipped on 11 November, for a total of 14 by the SS 501st, sufficient to outfit one company. Finally 20 were shipped between 26 November and 3 December. These 34 Tiger IIs were all that were available for issue from the ordnance depot before the SS 501st was loaded on trains and sent to the Western Front on 5 December.

Previously 11 Tiger IIs had been sent to the 509th from the ordnance depot between 28

September and 3 October. Due to the bombing campaign against Henschel, the SS 501st were short of 11 Tiger IIs. Therefore, the 11 Tiger IIs previously issued to the 509th were confiscated at the last minute and turned over to the s.SS Pz.Abt. 501. The Tiger II (Fgst.Nr. 280243, completed at Henschel on 8 September 1944), now in the collection of the Aberdeen Ordnance Museum, was one of these 11. This explains the puzzle of why the tactical markings of the 509th were on a Tiger II captured in Belgium from the s.SS Pz.Abt. 501.

The SS 501st sent to the Western Front as a key unit for the Ardennes Offensive, unloaded the last of ten trains at Liblau-Euskirchen on 9 December. The SS 501st reported the loss of 13 Tiger IIs during fighting in December before a status report dated 15 January revealed a total of 31 Tiger IIs of which 18 were operational. As ordered on 24 January 1945, the SS 501st was transferred to the Eastern Front with the I. SS Panzer Korps.

Schwere Heeres Panzer Abteilung 507

The s.H.Pz.Abt. 507 was ordered to return from the Eastern Front to Sennelager on 25 February 1945 to rebuild with Tiger IIs. The unit received four Tiger IIs on 9 March, 11 on 22 March and the last six on 31 March. They also acquired six Tiger IIs that had been previously issued to the 510th and 511th, to make a total of 21. The front came to the 507th, deployed in the defence of the local area.

3. Kp./s.H.Pz.Abt. 510 and

3. Kp./s.H.Pz.Abt. 511

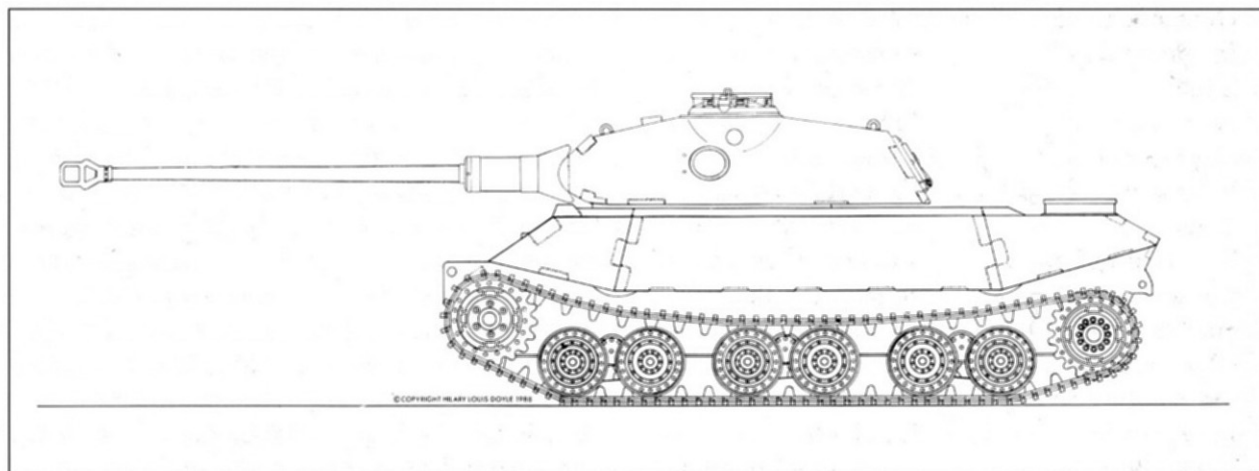
The last 13 Tiger IIs produced by Henschel were picked up directly from the factory on 31 March, by crews of the 3. Kompanie/Tiger Abt. 510 and 3. Kompanie/Tiger Abt. 511. On 31 March, they reported that each company possessed eight Tiger IIs. Of these 12 were brand new productions from Henschel along with three older Tiger IIs from the Waffenamt at Sennelager and one older Tiger II from the Waffenamt at Northheim. On 1 April they engaged in combat with seven Tiger IIs per company in Kassel, reporting that three further Tiger IIs had been lost due to bomb damage.

Ersatzheer and Waffenamt

Other units from the Ersatzheer and the Waffenamt were quickly thrown together at the last minute to defend the local areas as the front came to them. Virtually all operational Tiger IIs that had been issued for research or training were thrown into the fray at the end of the war. These units included Panzer Kompanie Kammersdorf with a Tiger II and a Porsche Tiger with an 8.8 cm Kw.K. (L/71) on 31 March 1945 and the Panzer Abteilung 500 (Paderborn) with 17 Tigers (both Is and IIs) on 2 April 1945.

A 1:76 scale left side view of the Tiger P2 for which

the 'Porsche Turm' was originally designed.



Units sent to the Eastern Front

Schwere Heeres Panzer Abteilung 501

The first unit to be outfitted with Tiger IIs and sent to the Eastern Front was the s.H.Pz.Abt. 501. Having been decimated by 3 July, the remnants were ordered to reform and refit at the troop training area Ohrdruf. Issued 45 Tiger IIs between 7 July and 7 August, the 501st was ordered to join Heeres Gruppe Nordukraine (army group) on 6 August. It reported the unit status as:

1 September

Operational: 25.
In repair: 5.

1 October

Operational: 34.
In repair: 16.
Total: 50.
The 501st had absorbed the remaining Tiger Is from s.H.Pz.Abt. 509 before the 509th returned to Germany to refit.

1 November

Operational: 49.
In repair: 4.
Total: 53.

1 December

Operational: 51.
In repair: 2.
Total: 53.
Assigned to the XXIV Panzer Korps, the 501st was renamed to s.Pz.Abt. 424 by orders dated 19 December 1944.

12 January

Operational status unknown.
Total: 52.

The 424th was overwhelmed during the Russian winter offensive and ordered to be disbanded and used to create the s.Pz.Jg.Abt. 512 by orders dated 11 February 1945.

Schwere Heeres Panzer Abteilung 505

The s.Pz.Abt. 505 was ordered out of the Eastern Front on 7 July to rest and reorganise at the troop training grounds at Ohrdruf. The 505th were sent their first six Tiger IIs from the ordnance depot on 26 July. Of these, two were traded with the 501st and two others had immediate automotive failures. The other 39 Tiger IIs were shipped from the ordnance depot between 10 and 29 August. Immediately losing

three to fires due to leaks in the engine compartment, the 505th received replacements from those that had been issued to the Ersatzheer. Loaded on trains on 9 September, the 505th arrived on the Eastern Front at Nasielsk on 11 September. The operational status was:

12 September

Operational: 38.

1 October

Operational: 44.
In repair: 1.
Total: 45.

1 November

Operational: 18.
In repair: 19.
Total: 37.

1 December

Operational: 30.
In repair: 7.
Total: 37.

1 January

Operational: 34.
In repair: 1.

15 January

Operational: 34.
In repair: 3.

5 February

Operational status unknown.

Total of 12 Tiger IIs plus four Tiger Is recently acquired from the 502nd. 19 Tiger IIs had recently been lost.

15 March

Operational: 12.
In repair: 1.
Total: 13.

4 April

Operational: 12.
In repair: 0.
Total: 12.

Schwere Heeres Panzer Abteilung 503

On 9 September, the s.Pz.Abt. 503 was ordered out of the west to rest and refit at Sennelager by Paderborn. Their 45 Tiger IIs were shipped from the ordnance depot between 19 and 22 September. Loaded on trains on 12 October, the 503rd was unloaded in Budapest, Hungary on 14 October. The operational strength was reported as:

1 November

Operational: 18.
In repair: 19.

1 December

Operational: 11.
In repair: 3.

15 December

Operational: 17.
In repair: 11.
Total: 28.

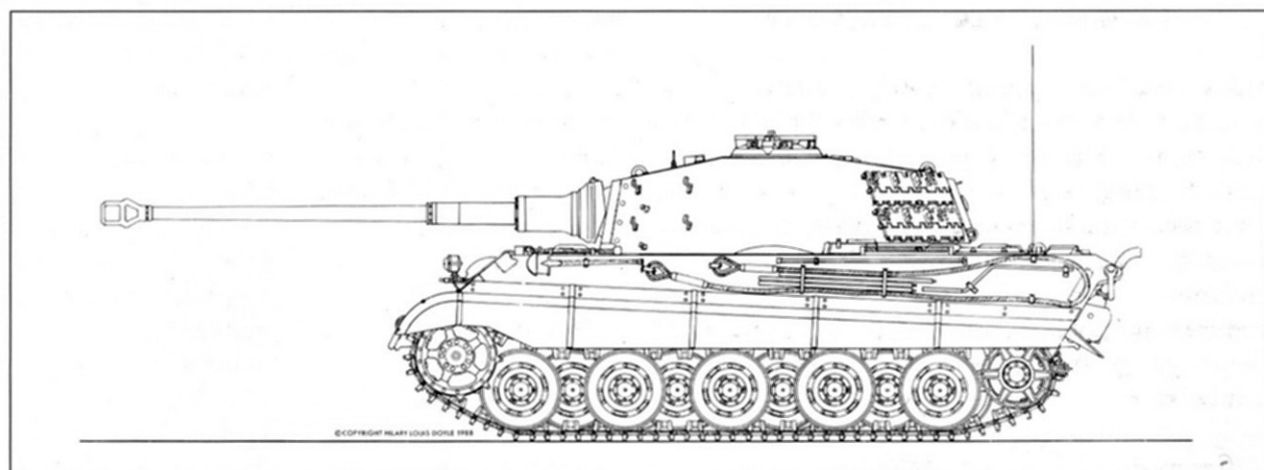
The 503rd was renamed s.Pz.Abt. Feldherrnhalle by an order dated 21 December 1944.

1 January

Operational: 10.
In repair: 8.

15 January

Operational: 5.

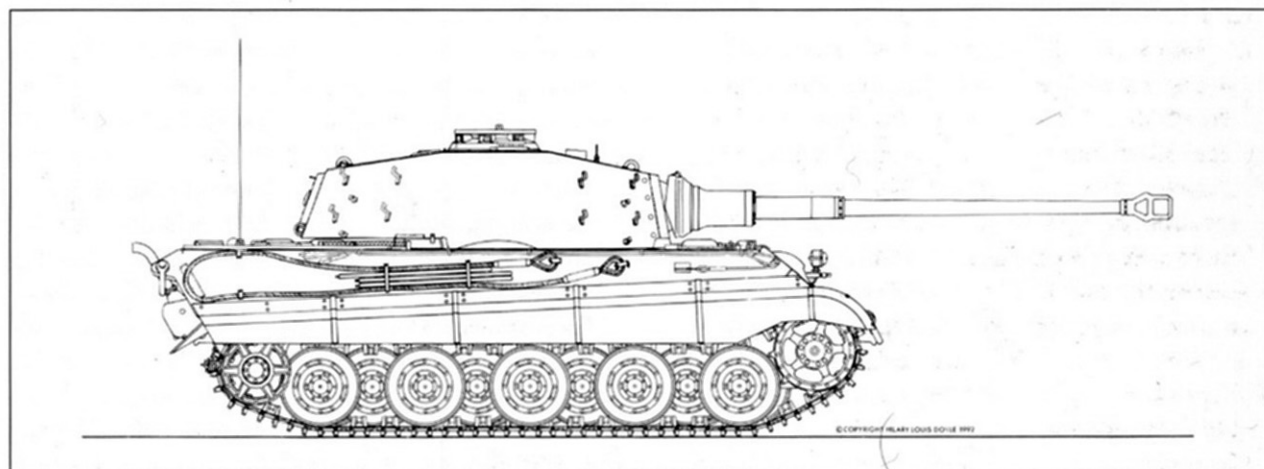


ABOVE A 1:76 scale left side drawing of Tiger II

with 'Serien Turm'.
(Author).

BELOW A 1:76 scale right side drawing of Tiger II

with 'Serien Turm'.
(Author)



In repair: 18.
Total: 23.
31 January
Operational: 9.
17 February
Operational: 25.
11 March
Shipped five
replacement Tiger
IIs from the

ordnance depot
15 March
Operational: 19.
In repair: 7.
Total: 26.
5 April
Operational: 13.
In repair: 18.
Total: 31.

Schwere Heeres Panzer Abteilung 509

The s.H.Pz.Abt. 509 had already been pulled out of the Eastern Front to rest and refit in September 1944. It was issued 11 Tiger IIs in September that were turned over to the SS 501st. After

experiencing further delays in outfitting due to the severe interruptions in production at Henschel, the 509th was sent 45 Tiger IIs from the ordnance depot between 5 December 1944 and 1 January 1945. Loaded on trains on 12 January and sent to Hungary, the 509th re-entered combat on 18 January. Their operational status was reported as:

1 February
Operational: 11.
In repair: 27.
Total: 38.

8 February
A total of ten had
been lost since

18 January.
1 March
Operational: 25.
In repair: 10.
Total: 35.
4 March
Operational: 32

<i>15 March</i>	22 lost since 16
Operational: 8	March.
In repair: 27	<i>5 April</i>
Total: 35	Operational: 8.
<i>1 April</i>	In repair: 9
Operational: 3.	Total: 17
In repair: 10.	Five belonged to the
Total 13	s.SS Pz.Abt.501

Schwere SS Panzer Abteilung 501

The SS 501st with 26 Tiger IIs was transferred with the I. SS Panzer Korps to the Eastern Front. Six replacements shipped from the ordnance depot on 22 January, and a further 13 replacements on 10 February, completed their complement of 45 Tiger IIs. The operational status reports reveal:

<i>1 February</i>	Plus 19 on the way
Operational: 23.	as replacements
In repair: 3.	<i>15 March</i>
Total: 26.	Operational: 8
<i>8 February</i>	In repair: 24
Operational: 15	Total: 32.
In repair: 11.	<i>17 March</i>
Total: 26.	Operational: 9.

By 1 April, the SS s.Pz.Abt. 501 was back in Germany to rest and refit at Sennelager near Paderborn.

Schwere SS Panzer Abteilung 503

The s.SS Pz.Abt. 103, formed in November 1943, and later renamed the 503rd, was unusually detained at the training grounds for over a year before being sent to a front. They had been issued a few Tiger Is that were later given to other units. Finally on 19 October the 503rd was sent four Tiger IIs from the ordnance depot which they kept. This was later expanded by an additional six Tiger IIs acquired from the SS 502nd. Additional shipments of 29 new Tiger IIs were made from the ordnance depot between 11 and 25 January 1945. With a total of 39 (instead of the full complement of 45), the SS 503rd loaded on to trains on 27 January and were sent to the Eastern Front in the Heeres Gruppe Weichsel sector. Their operational status was reported as:

<i>12 February</i>	Part of the Abteilung
Operational: 16.	under Heeres
In repair: 23.	Gruppe Nord.
Total: 39.	<i>10 April</i>
<i>15 February</i>	Operational: 9.
Operational: 17.	In repair: 3.
In repair: 21.	Total: 12.
<i>28 February</i>	Part of the Abteilung
Operational: 14.	under Heeres
In repair: 25.	Gruppe Weichsel.
Total: 39.	<i>15 April</i>
<i>20 March</i>	Operational: 10.
Operational: 2.	In repair: 2.
In repair: 4.	Total: 12.
Total: 6.	

Schwere SS Panzer Abteilung 502

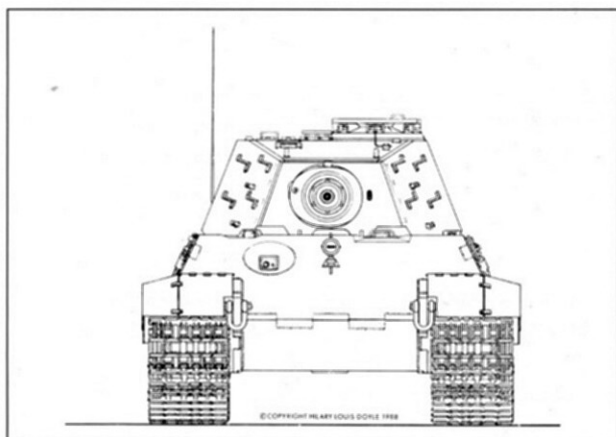
The s.SS Pz.Abt. 102 (later renamed 502) was ordered on 9 September 1944 to transfer to Sennelager to rest and refit. Due to the shortage, the issue of Tiger IIs was slow in coming. Six Tiger IIs sent to the unit from the ordnance depot on 27 December were passed along to the sister unit SS 503rd. Finally 31 Tiger IIs were shipped from the ordnance depot between 14 February and 6 March 1945. The SS 503rd was transported to the Eastern Front to Heeres Gruppe Mitte starting in mid March, logging their first engagement in combat at Sachsendorf on 22 March. Their operational status was reported as:

<i>10 April</i>	<i>15 April</i>
Operational: 28.	Operational: 29.
In repair: 2.	In repair: 1.
Total: 30.	Total: 30.
	<i>27 April</i>
	Operational: 5.

THE PLATES

Plate A1: Tiger II 'Porsche Turm', Panzer Ersatz und Ausbildungs Abteilung 500.

The Panzer Ersatz und Ausbildungs 500 (Replacement and Training Battalion 500) was



*A 1:76 scale front view
drawing of Tiger II* with 'Serien Turm'.
(Author)

equipped with some of the earliest production Tiger IIs. At this period all Tiger IIs were coated in Zimmerit. For camouflage the troops were issued with 2 Kgs of dark green, and red-brown paste which could be diluted with any petroleum based liquid or even water and applied with a spray in broad stripes and patches on top of the base dark yellow.

The regulations stated that the call sign numbers were to be made up of numbers 30 cm high. The numbers was to be three cm wide black outlined in one cm of white. The first number is the Kompanie (Company) one to three. For Tiger IIs in each company, the second digit is the Zug (Platoon), one to three, and the third is the tank number, one to four,. On the Company commander's and deputy commander's Tigers the second digit was 0 and the third 0, 1 or 2. (There were 14 Tiger IIs per company). The Stabskompanie (Staff company) of each s.Pz.Abt. (heavy tank Battalion) had three Tiger IIs or Panzerbefehlswagen Tiger IIs. These, normally had the numbers 001 to 003 or in some units the roman numerals I, II, and III were used. There was a total of 45 Tiger IIs per sPzAbt (3 + 14 + 14 + 14).

Plate A2: Tiger II 'Porsche Turm', Schwere Panzer Abteilung 503, Russia, Winter 1944-45.

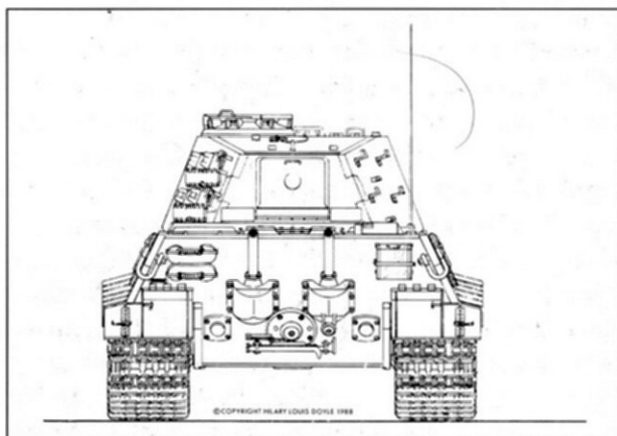
Tiger IIs of the s.Pz.Abt. 503 fought in France against the Allied forces in the Summer of 1944. Their Tigers were painted similar to that in A1.

When pulled out of France on 9 September 1944 s.Pz.Abt. 503 was only able to save two of its 'Porsche' turreted Tigers. Tiger '314' subsequently served in Russia during the Winter of 1944-45. The hangers for spare track links were retro-fitted. In Winter the troops were issued with water based whitewash which they used to cover the tank in snowy conditions. This whitewash could be cleaned off when conditions changed. The original tactical signs and markings were not covered.

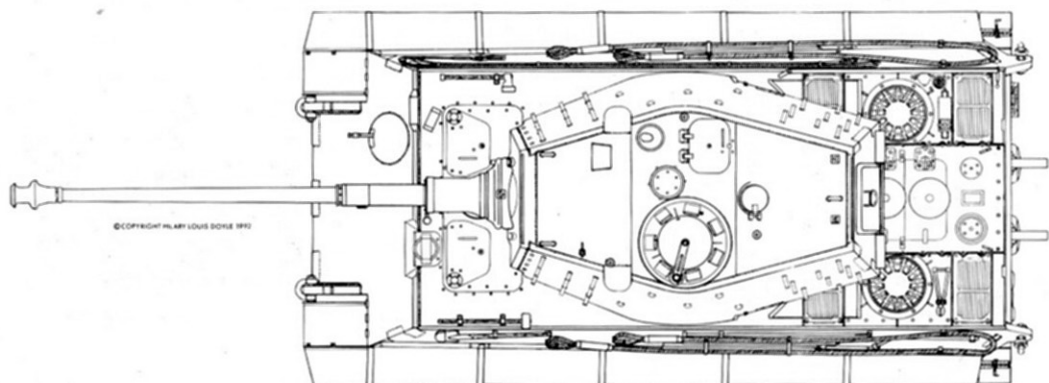
Plate B1: Tiger II, Schwere Panzer Abteilung 503, Budapest, October 1944

After returning from France on 9 September 1944 the s.Pz.Abt. 503 was re-equipped with 43 new Tiger IIs with the series (Henschel) turret. These were delivered in two batches on 19 and 22 September. A month later s.Pz.Abt. 503 was shipped east to Hungary in support of the Szálasi coup helping to remove the Hungarian Government which was planning to leaving the war. On 15 October 1944, Tiger '233' was on duty at the Várhegy (Castle hill), Budapest.

Most of the new Tiger IIs delivered to s.Pz.Abt. 503 were coated with Zimmerit but some of Tigers being delivered lacked the anti-magnetic coating. By order dated 19 August 1944 all Tiger IIs were to be painted at the factory in a standardised camouflage pattern. Patches of olive green (RAL 6003) and red-brown (RAL



*A 1:76 scale rear view
drawing of Tiger II* with 'Serien Turm'.
(Author)



8017) were to be spray painted over the dark yellow (RAL 7028) base coat. The number '233' shows this to be from the 2 Kp./3 Zug. and it is their third Tiger II.

Plate B2: Tiger II, Schwere Panzer Abteilung 511, May 1945.

The 3 Kompanie s.Pz.Abt. 511 picked up some of the last Tiger IIs from the Henschel factory on 31 March 1945. No markings or call sign had been applied to this Tiger, destroyed in May 1945. The base paint was dark green with patches and stripes of dark yellow overpainted along with circles and spots of dark green. as one of the last Tiger IIs built it has the new drive sprocket with 18 large teeth to accommodate the new single link Kg.73/880/152 track. An example of this track is

A 1:76 scale plan view drawing of Tiger II

*with 'Serien Turn'.
(Author)*

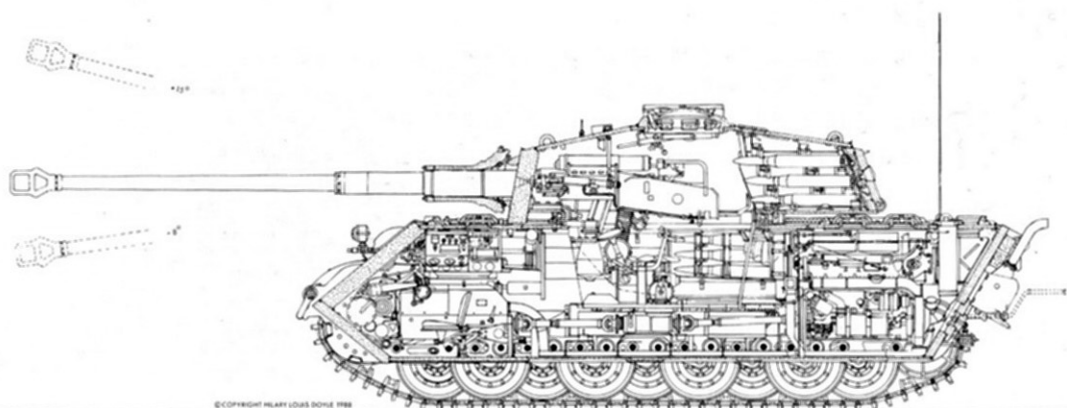
to be seen on the Tiger II (Fgst. Nr. V2) test vehicle which is on display in the Bovington Tank Museum.

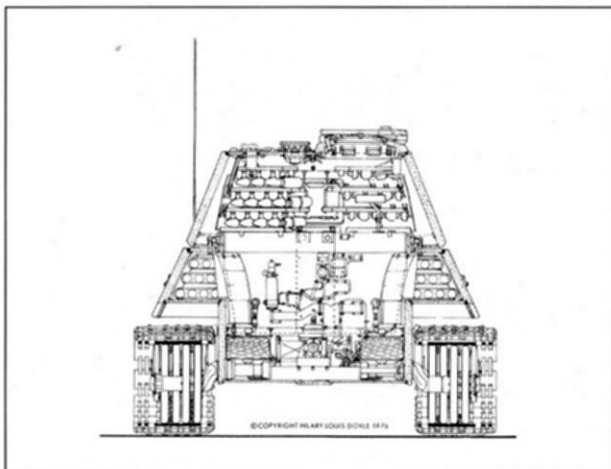
Plate C: Tiger II, Schwere Panzer Abteilung 505, Thüringen, 1944.

The most spectacular non-regulation markings that were applied to Tiger IIs were those of the s.Pz.Abt. 505. This unit received its Tiger IIs during rest and refit in Ohrdruf (Thüringen) in July and late August 1944. They removed a rectangle

A 1:76 scale left section view drawing of Tiger II

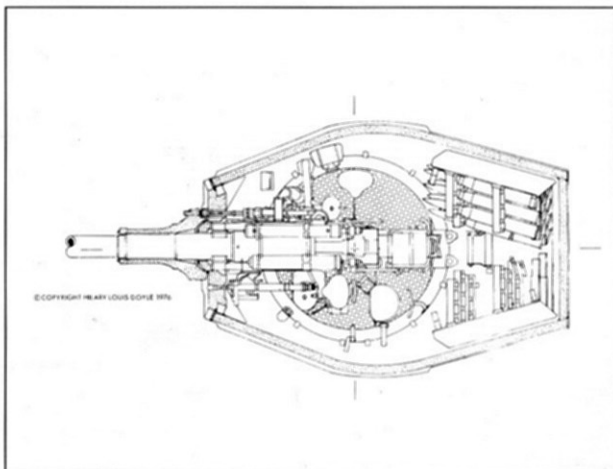
*with 'Serien Turn'.
(Author)*





A 1:76 scale cross section drawing showing the firewall at the rear of the

fighting compartment of Tiger II with 'Serien Turm'. (Author)



A 1:76 scale plan section drawing of the Tiger II 'Serien Turm'. (Author)

of Zimmerit from the turret side and therein painted their unit emblem, the knight on a charger. The exact colours of this emblem cannot be confirmed at this time as there may have been different colours for each company. The call sign, normally on the turret side was painted on the gun mantlet and barrel. The Kompanie number on the mantlet and the Zug and vehicle number on the gun barrel all in black outlined in white. The call sign '213' was repeated on the turret rear escape hatch. Tiger IIs of the Stabskompanie used

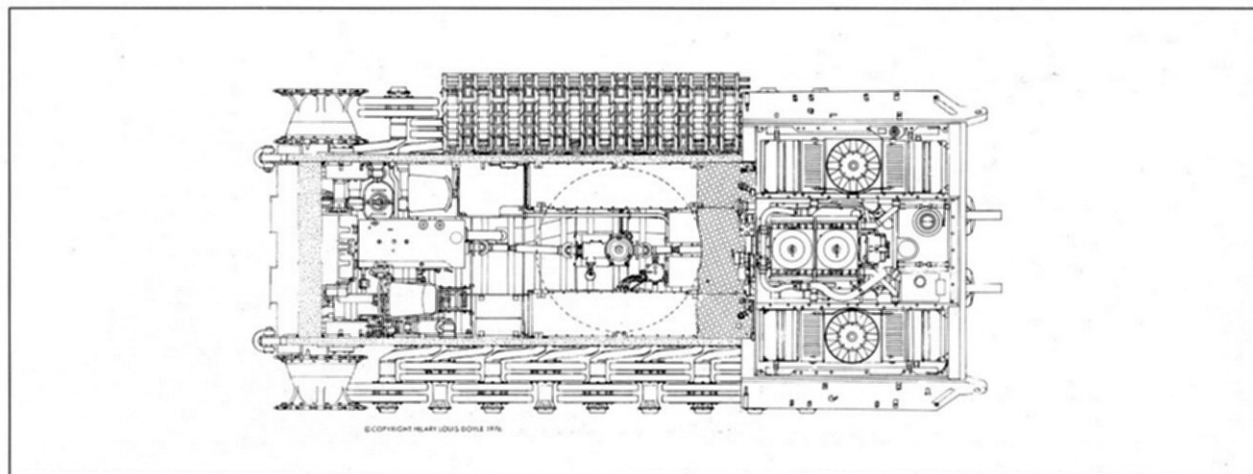
the roman numerals I, II, and III similarly located.

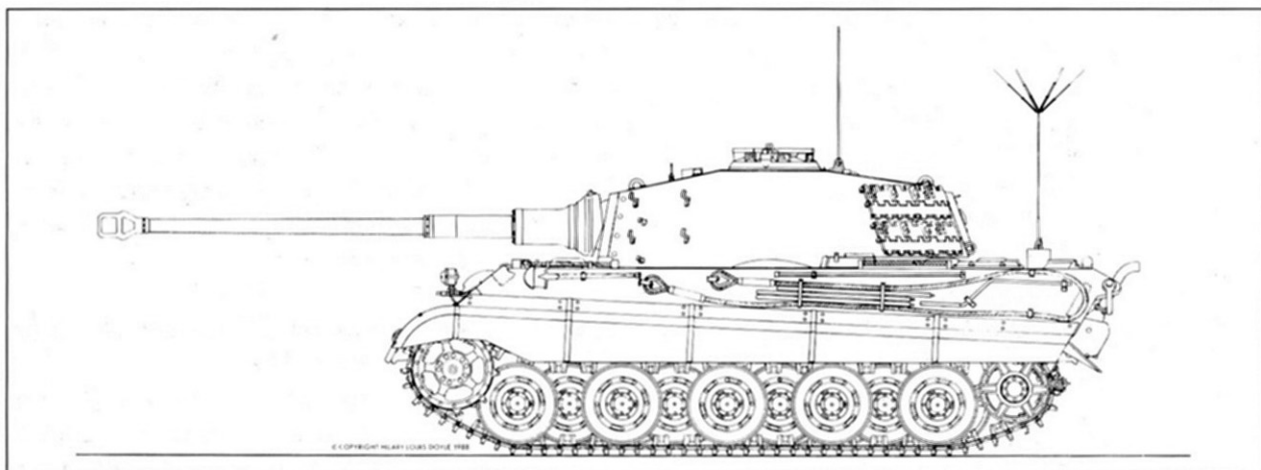
Plate D: *Panzerkampfwagen Tiger Ausf. B, 'Henschel Turm'.*

The cutaway of a Tiger II shows the fighting compartment painted in Elfenbein (Ivory). The motor compartment was left in the red primer undercoat. To simplify production, from Tiger II Fgst. Nr. 280177, the interior surfaces were not to be painted in Elfenbein. This meant that the red primer undercoat used by the armour manufacturers was the dominant colour. Certain other sub-assembly firms used Feldgrau (grey-

A 1:76 scale plan section drawing of

Tiger II chassis. (Author)





green) on the items they manufactured. The fire extinguisher on the firewall between motor and fighting compartment was bright red.

The camouflage was applied at the factory and consists of base red primer with overpainted stripes and patches of dark yellow and dark green (RAL 6003) with sharp outlines. To simulate sunlight passing through foliage all dark areas were painted with spots of dark yellow. Spots of green and red-brown were applied to the dark yellow areas, green nearest the green areas and red-brown near the red primer base.

The 8.8 cm Panzergranatpatrone (armour-

A 1:76 scale left side drawing of Panzerbefehlswagen Tiger II. The antenna on the turret is

for the FuG 5 while the Star antenna on the rear deck is for the FuG 8. (Author)

piercing cartridge) was identified by having the projectile painted black with a white cap. The 8.8 cm Sprenggranatpatrone (Explosive cartridge) was identified by having the projectile painted in Feldgrau (field green) or olive green. By this period the majority of German ammunition was being manufactured with steel rather than brass shell cases due to the Reich's chronic shortage of raw materials.

A 1:76 scale plan view drawing of Tiger II with the final modifications

ordered for the production series, integrated range-finder, cupola without the

Fliegerbeschussgerät ring, three hangers for the new single link track, five loops for

camouflage attachment and the new rear deck over the motor compartment (Author)

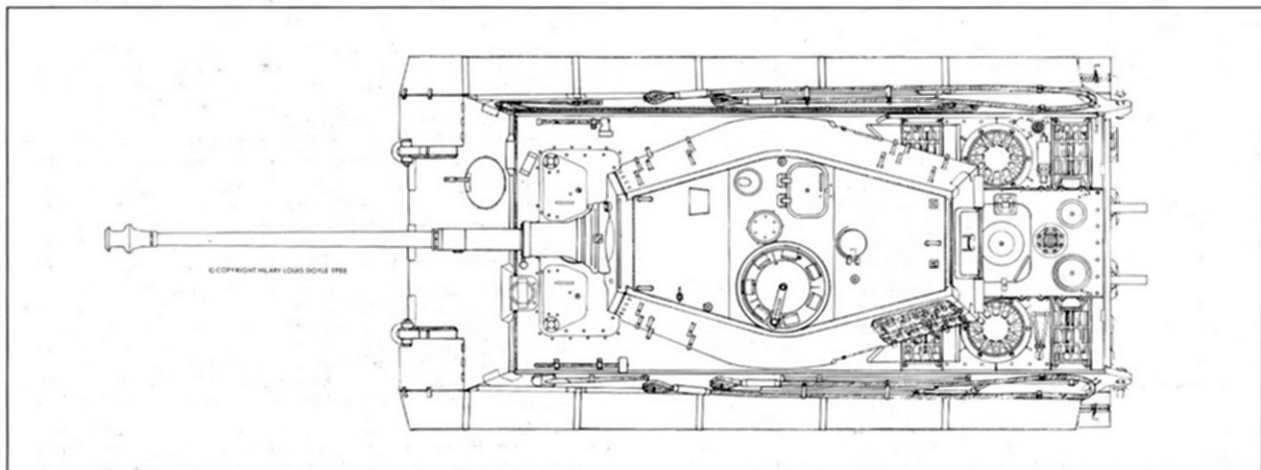


Plate E: Tiger II, Schwere SS Panzer Abteilung 501, Ardennes, December 1944.

The Tiger II now on display at the Armor Proving Ground, Aberdeen, Maryland was captured from the s.SS Pz.Abt. 501. However, it was originally issued to the s.Pz.Abt. 509 and then handed over to the s.SS Pz.Abt. 501 to complete their establishment of 45 Tiger IIs for the Ardennes offensive. The s.SS Pz.Abt. 501 did not delete the markings of the s.Pz.Abt. 509, a yellow circle enclosing a white cross on the glacis plate, left upper rear of the tail plate and on both sides of the superstructure. They did however, apply their call sign numbers, blue outlined in yellow, but the number was five centimetres wide rather than the regulation three. While the base paint is red primer with patches of dark yellow and dark green the amount of green overpainted was considerable.

Plate F: Tiger II, Stabskompanie, Schwere SS Panzer Abteilung 501, Ardennes, December 1944.

The third Tiger II of the Stabskompanie (Staff company) of s.SS Pz.Abt. 501 (Formerly s.SS Pz.Abt. 101) as it appeared in the Ardennes. The call sign '003' is blue outlined in yellow. It has the

letter 'G' painted in black on the glacis plate. This Tiger II was immobilised on the road to Stavelot where it was set on fire by its crew before they withdrew. The base colour is typical of the period, red primer with stripes and patches of dark yellow and dark green overpainted. Spots of yellow and green completed the so-called 'ambush' camouflage pattern.

Plate G: Tiger II, schwere SS Panzer Abteilung 501 Ardennes, December 1944.

Tiger '204' of 2 Kompanie, s.SS Pz.Abt. 501 was found intact at So l'Hesse near La Gleize, Belgium by the Americans in the aftermath of the Ardennes offensive. After minor repairs it was refuelled and driven eight kilometres before breaking down on the hill at Neuville on the way to a rail head. As it was impossible to repair it was abandoned and Tiger '332' was shipped to the USA instead. The colour scheme is typical 'ambush'; a base of red primer with stripes and patches of yellow and dark green overpainted. Spots of yellow and green complete camouflage pattern. The call sign is blue outlined in yellow. The unit emblem, crossed keys in a shield, is painted on the upper right side of the glacis.

Notes sur les planches en couleur

A1 Cette unité est équipée de quelques unes des productions les plus anciennes de Tiger II. A cette époque tous les Tiger II étaient revêtis de zimmerit. On utilisait la peinture vert-forcé comme camouflage, appliquée en rayures larges et en pièces par dessus le jaune-forcé de base. A2 Les Tiger II des s.Pz.Abt. 503 combattait en France contre les alliés pendant l'été de 1944. Les Tiger '314' ont aussi servi en Russie pendant l'hiver 1944-45. Pendant l'hiver, on équipait les troupes avec du blanc de chaux pour qu'ils puissent camoufler les chars en temps de neige.

B1 En octobre 1944 la s.Pz.Abt. 503 est expédiée en Hongrie pour soutenir le coup pro-Allemand. Le 15 octobre le Tiger II '233' est de service à Várhegy à Budapest. Le num'rotage désigne ce char comme étant le troisième, de la troisième section, et appartenant à la deuxième compagnie. B2 On ne trouve aucun marquage appliqué à ce Tiger II détruit en mai 1944. Étant un des derniers Tiger II, on y trouve le nouveau pignon de transmission avec 18 grandes dents avec le nouveau maillon unique.

C Les marquages les plus spectaculaires non-réguliers sont ceux du s.Pz.Abt. 505. L'insigne de l'unité figure un chevalier sur un chargeur. Les couleurs de cet insigne ne peuvent être confirmées car il y existe sans doute plusieurs couleurs pour chaque compagnie. On trouve généralement cet insigne illustré sur une pièce sur le côté de la tourelle d'où on a enlevé le zimmerit.

D Ce schéma illustre le compartiment de combat peint en couleur ivoire. Le compartiment de moteur est peint avec un apprêt rouge. Le camouflage appliqué à l'usine consiste d'une base d'apprêt rouge avec des rayures et des pièces jaune-forcé. Les points verts, rouges et marrons sont appliqués aux endroits jaune-forcé, en vert près des endroits verts et rouge-forcé à côté de la base d'apprêt rouge.

E Le Tiger II est capturé par les s.SS Pz.Abt. 509 puis remis aux s.SS Pz.Abt. 501 pour l'offensive des Ardennes. Ce véhicule porte donc les deux marquages des unités, c'est à dire le cercle jaune qui entoure la croix blanche des 509, puis les chiffres indicatifs bleus à contour jaune des 501.

Farbtafeln

A1 Diese Einheit fuhr mit einigen Tiger II-Panzern aus der allerersten Produktion. Damals waren alle Tiger II mit Zimmerit gestrichen. Die Tarnung erfolgte durch rotbraune Farbe, die in breiten Streifen und Flecken auf dem dunkelgelben Untergrund aufgetragen wurde. A2 Tiger II der s.Pz.Abt. 503 wurden im Sommer 1944 in Frankreich gegen die Alliierten eingesetzt. Tiger '314' waren später in Rußland im Winter 1944-45 im Einsatz. Im Winter erhielten die Truppen wasserbasierte weiße Farbe, um die Panzer unter Schneebedingungen tarnen zu können.

B1 Im Oktober 1944 wurde die s.Pz.Abt. 503 zur Unterstützung des deutschen Aufstands nach Ungarn gesandt. Am 15. Oktober war dieser Tiger '233' im Einsatz auf dem Várhegy (Burgberg) in Budapest. Die Numerierung besagt, daß es sich hier um den 3. Panzer des 3. Zugs der 2. Kompanie handelt. B2 Keinerlei Markierungen zeigt dieser Panzer, der im Mai 1945 vernichtet wurde; als einer der letzten Tiger II, die gebaut wurden, hat er das neue Kettenrad mit 18 großen Zähnen für die neue einspurige Raupenkette.

C Die spektakulärsten und nicht-vorschriftsmäßigen Markierungen waren die der s.Pz.Abt. 505. Emblem war ein Ritter hoch zu Roß; die genauen Farben können zur Zeit nicht bestätigt werden, da sie möglicherweise für jede Kompanie anders waren. Das Emblem wurde meist an der Seite des Turms auf einer Stelle aufgetragen, von der der Zimmerit-Anstrich entfernt wurde.

D Der Querschnitt zeigt das Kampfabteil, gestrichen in Elfenbein. Der Motorraum wurde in der roten Grundfarbe belassen. Der Tarnanstrich wurde schon im Werk angefertigt - rote Grundfarbe mit Streifen und Flecken in Dunkelgelb und Dunkelgrün. Um durch Laub einfallendes Sonnenlicht zu simulieren, wurden alle dunklen Stellen mit dunkelgelben Flecken bemalt. Grüne, rote und braune Tupfen wurden auf die dunkelgelben Flächen gemalt - grüne nahe den grünen Flächen und rote und braune nahe der Grundfarbe.

E Dieser Tiger II der s.SS Pz.Abt. 501 wurde erbeutet. Er war ursprünglich der s.SS Pz.Abt. 509 gegeben worden und wurde dann der s.Pz.Abt. 501 für die Ardennen-Offensive zugeteilt. Daher zeigt dieser Panzer die Markierungen

F Le troisième Tiger II de la compagnie des s.SS Pz.Abt. 501 comme il apparaît des les Ardennes. Ce Tiger II est immobilisé sur la route de Stavelot lorsque son équipage y met le feu avant de se retirer. La couleur de base est un apprêt rouge avec des pièces et des rayures jaune-foncé et vert-foncé. Les points complètent le plan 'd'embuscade'.

G Les troupes américaines trouvent le Tiger 204 intact à So L'Hesse près de La Gleize après l'offensive des Ardennes. Après de petites réparations, on fait le plein de carburant et on conduit pendant encore 8km avant de tomber en panne de nouveau sur la colline à Neuville. Impossible de le réparer, on l'abandonne. L'insigne de l'unité, les clés croisées à l'intérieur d'un blason, est appliqué sur le haut du côté droit du glacis.

beider Einheiten - das weiße Kreuz im gelben Kreis (509), und die blauen Rufzeichen-Zahlen mit gelber Umrandung (501).

F Der dritte Tiger II der Stabskompanie der s.SS Pz.Abt. 501, wie er in den Ardennen erschien. Er wurde auf der Straße nach Stavelot beschädigt, und seine Besatzung steckte ihn in Brand, ehe sie sich zurückzog. Er zeigt dunkelgelbe und dunkelgrüne Streifen und Flecken auf der roten Grundfarbe. Die Tupfen ergänzen das 'Hinterhalt'-Motiv.

G Dieser Tiger '204' wurde intakt in So l'Hesse bei La Gleize von US-Truppen nach der Ardennen-Offensive aufgefunden. Nach kleineren Reparaturen wurde er aufgetankt und 8km gefahren, bis er auf dem Hügel von Neuville steckenblieb. Reparaturen erwiesen sich als unmöglich, und er wurde stengelassen. Das Emblem, gekreuzte Schlüssel auf dem Schild, befindet sich oben rechts.

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