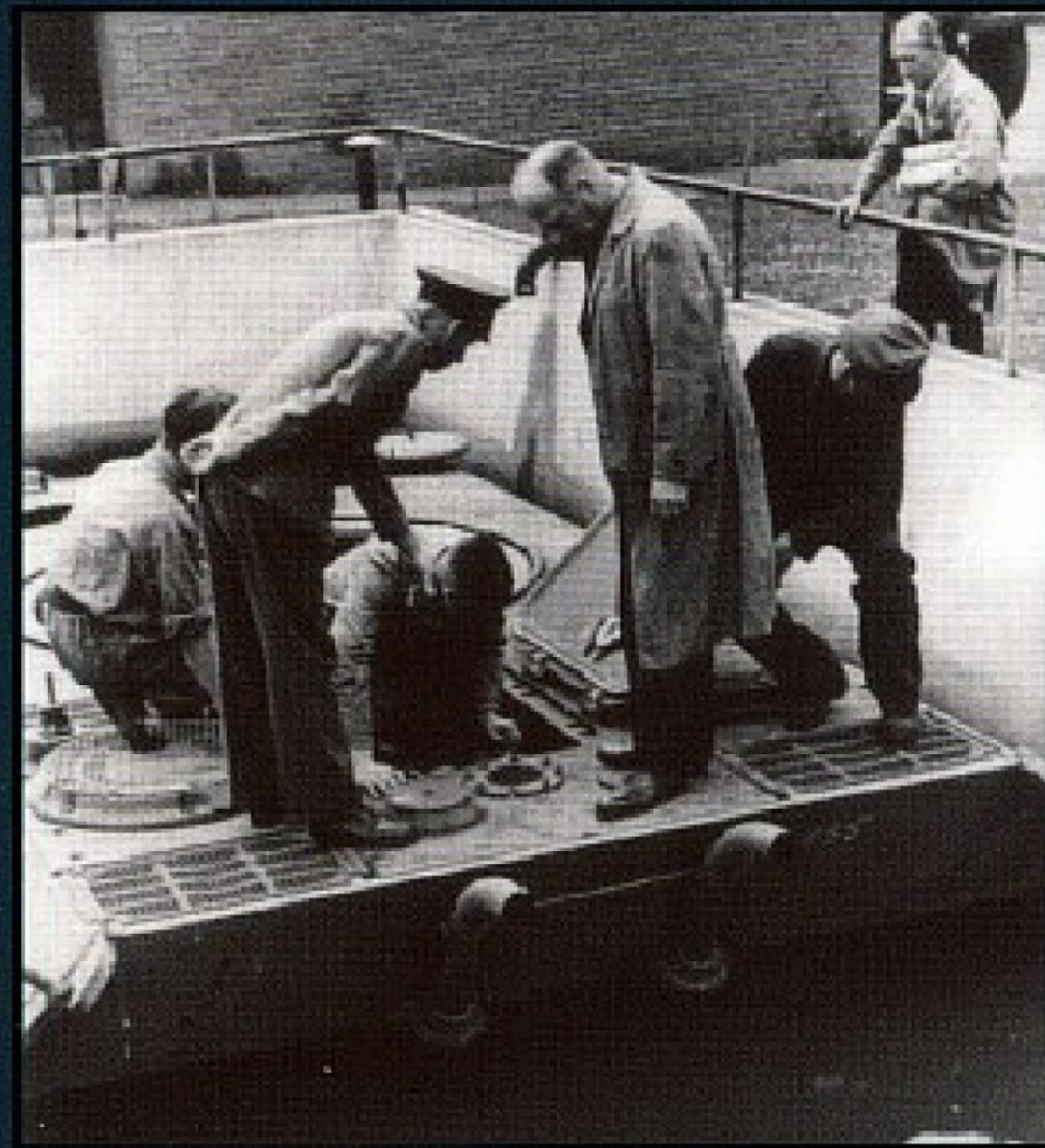
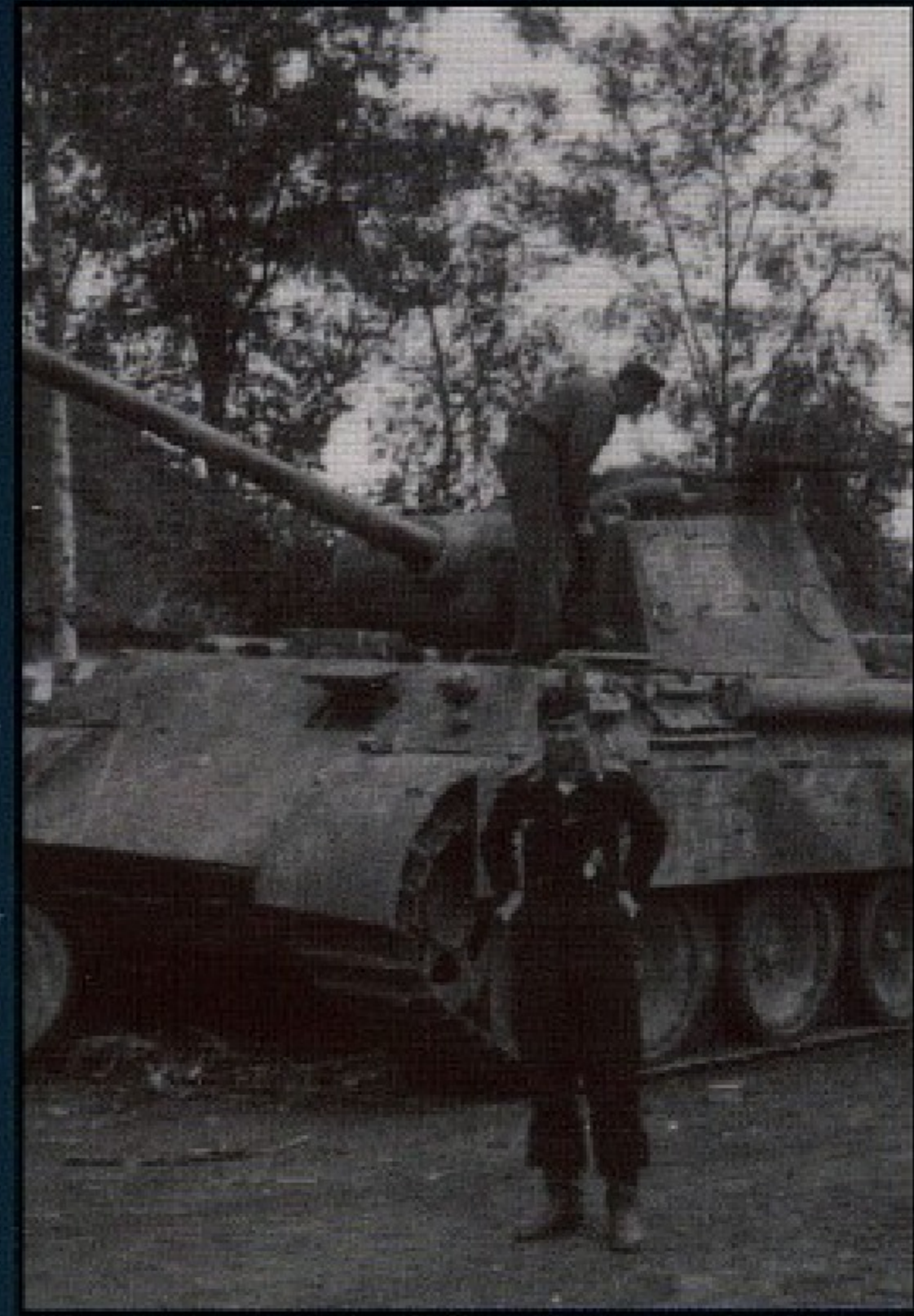


HISTORY FILE

N°001



PANTHER

Panzerkampfwagen V (SS. Kfz. 171)



History File

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PANTHER PANZERKAMPFWAGEN V (SD.KFZ. 171)

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Panther *Panzerkampfwagen V (Sd.Kfz. 171)*

Was this a revolutionary tank?


"The enemy deploys a new tank! The shape is similar to that of our 'Tridsatchedverka' (T-34). The tank is heavy, the estimated weight is 40-50 tons. Probably, the main gun is the 8,8 cm FLAK. We have suffered casualties from ranges exceeding 2000 metres..."

Radio message dated July 8th, 1943, Kursk bulge, from an unknown radio operator. Source Russian Central Armoured Corp Museum, Moscow, via S. Netrobenko.

his is how the Russian soldiers lived through their first encounter with the legendary Panzerkampfwagen V Panther. It was not a total surprise as intelligence had reported the existence of this new weapon. The baptism of fire of the new tank was not trouble free as reported in several historical documents. A few technical problems and tactical issues caused more than a headache to the Germans who could only appreciate the qualities of the new tank after addressing the problems.

Once the initial bugs were worked out, the Panther set a new worldwide standard in firepower and protection. The Panther was developed to substitute the Pz.Kpfw. IV and production was started in a hurry. But was this new tank able to meet the growing needs of the German Army? What were its strengths and weaknesses?

The Challenge - June 1941

peration Barbarossa, the attack on the Soviet Union, was a much criticized endeavour. The German military

establishment knew that the Army was not ready for this "Napoleonic" enterprise. Hitler did not care and despite his staff judgement and darkest forecasts, the first weeks of the invasion were a success. The progress of the massive attack confirmed Hitler's line of action and Churchill's worst nightmares. At the time the Soviets fielded the largest armoured force in the World, some 22,000 tanks, the vast majority of these were obsolete. Even worse were the effects of the reorganization of the Red Army. Stalin's purges in the 30's had caused the loss of valuable human resources especially in the senior officer ranks, affecting the combat efficiency of the Army for a long time.

The lack of experienced field grade and staff officers soon led to disaster at both combat and strategic levels. The demoralized, ill equipped and poorly led Russian forces encountered at the border were no match for a highly efficient, well organized and led army such as the Wehrmacht.

By August 22nd, 1941, the German Army had claimed the destruction of 14,079

tanks.

After the Russians initial weakness was stabilised, they were quickly learning at their expense the trade of modern warfare. To the surprise of the Germans, modern enemy tanks and self propelled guns soon began to appear on the battlefield.

The Soviet philosophy in tank design had two distinct courses of action dating from before the beginning of the war. One theory preferred the development of conventional heavy tanks which would lead to the KV 1 and KV 2 in use since 1941. The other would favour the development of the Christie equipped BT series light tanks. One of the designers, Tarschinov, took a different course, designing a brand new hull, first realized in the prototype A-20. Further development brought to the A-30, which had an armour able to withstand piercing from 76,2 mm calibre AT weapons. Two other engineers working with Tarschinov, Koschkin and Morosov, developed a new running gear. This combination was powered with the same diesel engine used on the T-32, giving birth to the prototype of the famous T-34.

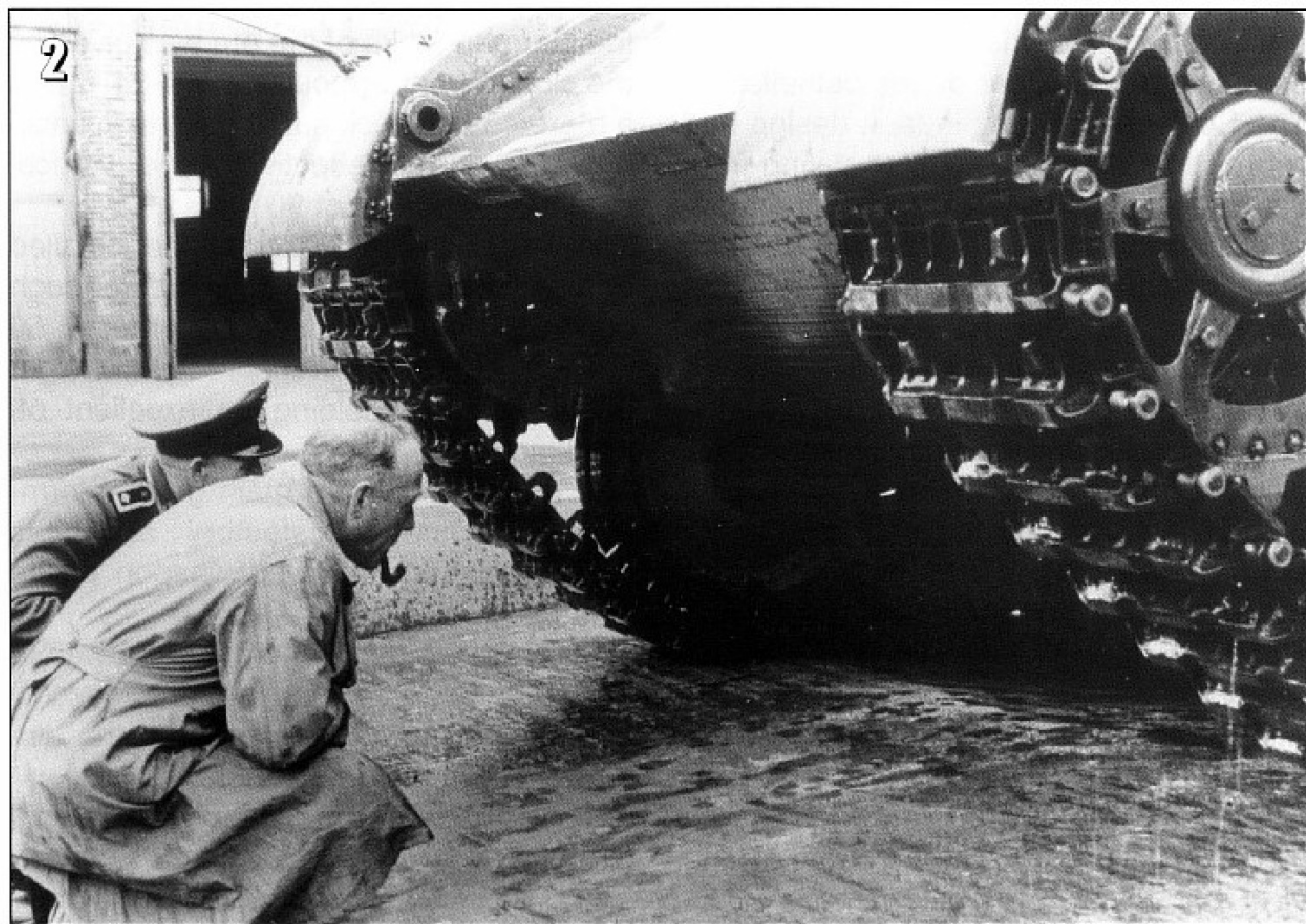
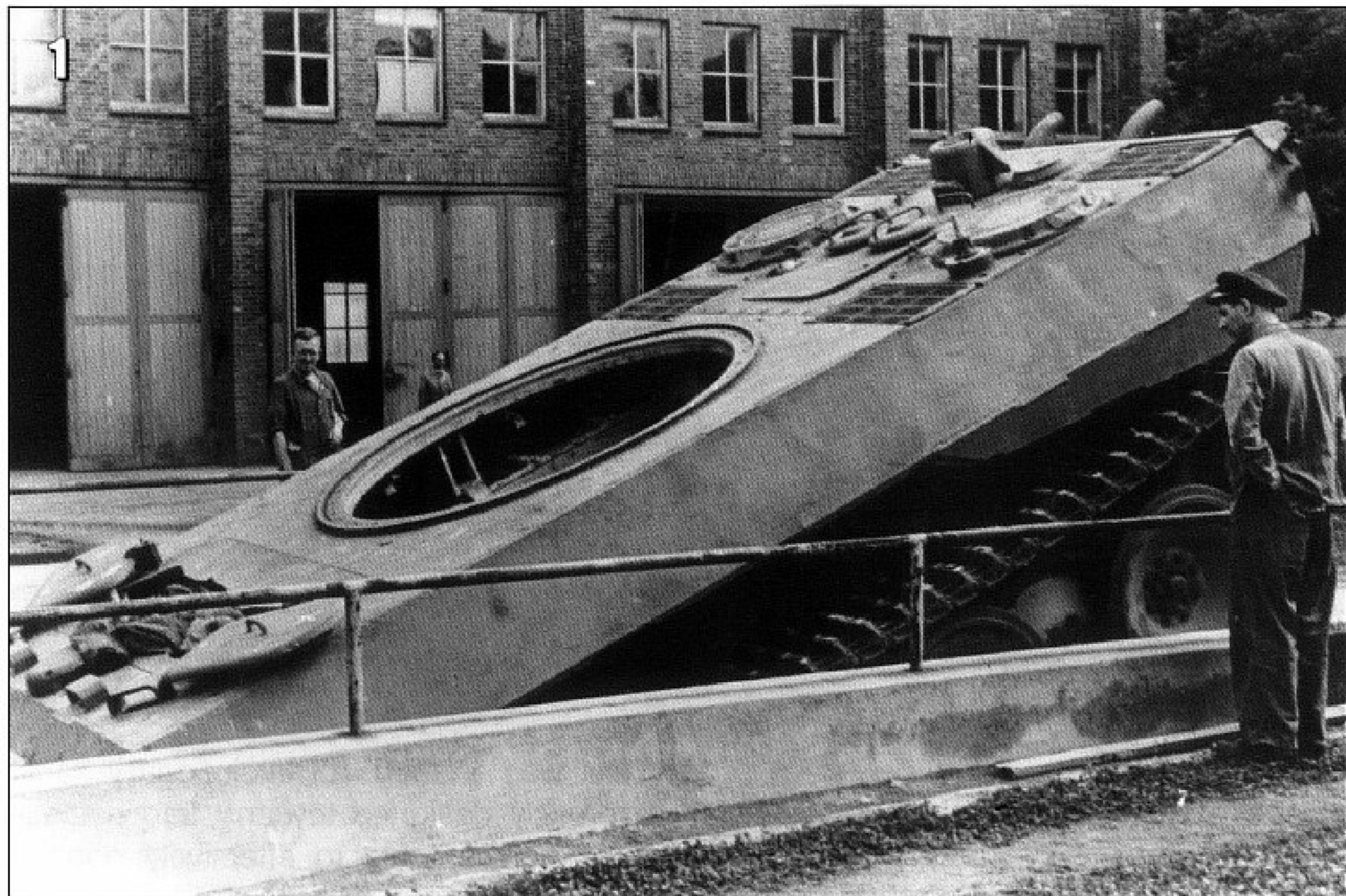
This was indeed a revolutionary tank, expressly designed to carry into battle a main gun suitable to effectively engage the enemy AFVs.

The single most important advantage over the German tanks of the era was given by the sloped front armour of the T-34. It was a mere 45 mm thick but, thanks to its inclination, was as effective as a vertical mounted thickness of 90 mm.

The V-12, 500 Hp Diesel engine installed on a 26 ton tank could deliver enough power to allow speeds in the order of 50 km/h. 56 cm wide tracks spread the weight on the ground yielding an excellent off road mobility.

The original 76,2 mm main gun performance was not satisfactory and was replaced by an improved weapon of the same calibre.

The first mass deployment of T-34 was to reinforce the central sector of the Moscow front, achieving total surprise on the dismayed German commanders.



4



4- One of the first Panthers at the MAN works in Nuremberg in January 1943. The tank was probably painted in red oxide primer or panzer grey. The small gutters for the turret openings and the brackets for the side plates are missing from this tank. (Y. Kadari)

5- One of the first operational Panther Ausf. D on the Grafenwöhr proving ground. These early tanks were fitted with a tool box on the right side of the hull. (W. Kriegel)

1- A Panther about to be immersed in a water tank to check for leaks. It is difficult to tell the tank finish, probably red oxide primer or panzer grey. This tank should be equipped with a Maybach HL 230 power pack (note the double air vent on the engine deck), the installation of which started in 1943. Since this tank hull is devoid of many details, it could be a model shop vehicle used for testing. (Anderson)

2- Inspection to the lower front part of the hull. The sides of the hull with the openings for the torsion bars were critical points for leaks. (Anderson)

3- MAN and military personnel perform a visual inspection for leaks inside the engine bay of a Panther. The armoured cover of the air vent is not installed, probably to allow the removal of the engine hatch. It can be noted that many of the brackets and accessories normally attached to the back of the tank are missing. (Anderson)

5





6- Out to the field! The crew of this Panther from either, Panzerabteilung 51 or 52, looks like it is waiting for some action. On the mantlet there are the two holes for the binocular aiming scope. The first 250 Panthers left the factory with the Maybach HL210 engine, which turned out not to be powerful enough for this large tank. (D. Terlisten)



7- Pz.Abt. 52's tank number 721 at Kursk, showing many of the characteristics of the early production. The Zimmerit compound has not been applied and the turret bears the outfit distinctive insignia, a wide open mouth panther. The camouflage is a pattern of irregular dark green stripes on a dark yellow base. Note how the tracks have polished the edge of the rim of the roadwheels. (J. Wilhelm)

8- Another of the Pz.Abt. 52 tank in a well spread out road convoy. The security measure denotes the closeness to the front and the need to prevent losses in the event of air raids. These tanks have not seen combat yet, they look brand new. (Anderson)



9



9- The Panther "121"s commander scans the sky. The turret tactical numbers do not have the usual white trims, probably in an attempt to improve the camouflage of the tank. Two wooden crates are on the engine deck. (Anderson)

10



10- Russian POWs wait to be evacuated next to a Panther of the Pz.Abt. 51. Looks like the radioman is busy with his wireless set. By the first half of 1943, smoke dischargers had been installed on every German tank only to be abandoned shortly after because they were too vulnerable to small arms fire. (Kh. Münch)



The battle for the Kursk bulge had a slow start. In a lull of the fighting, the crew of command tank "III/K" observes the horizon. The Panther in the background looks damaged and smoke billows in the distance. (Kh. Münch)

A nice shot of the Panther "245", Pz.Abt. 51. What this crew-member is trying to do will remain a mystery. The gutters installed on this tank identify it as a late Ausf. D. Looks like this tank has not seen any combat yet. (D. Terlisten)

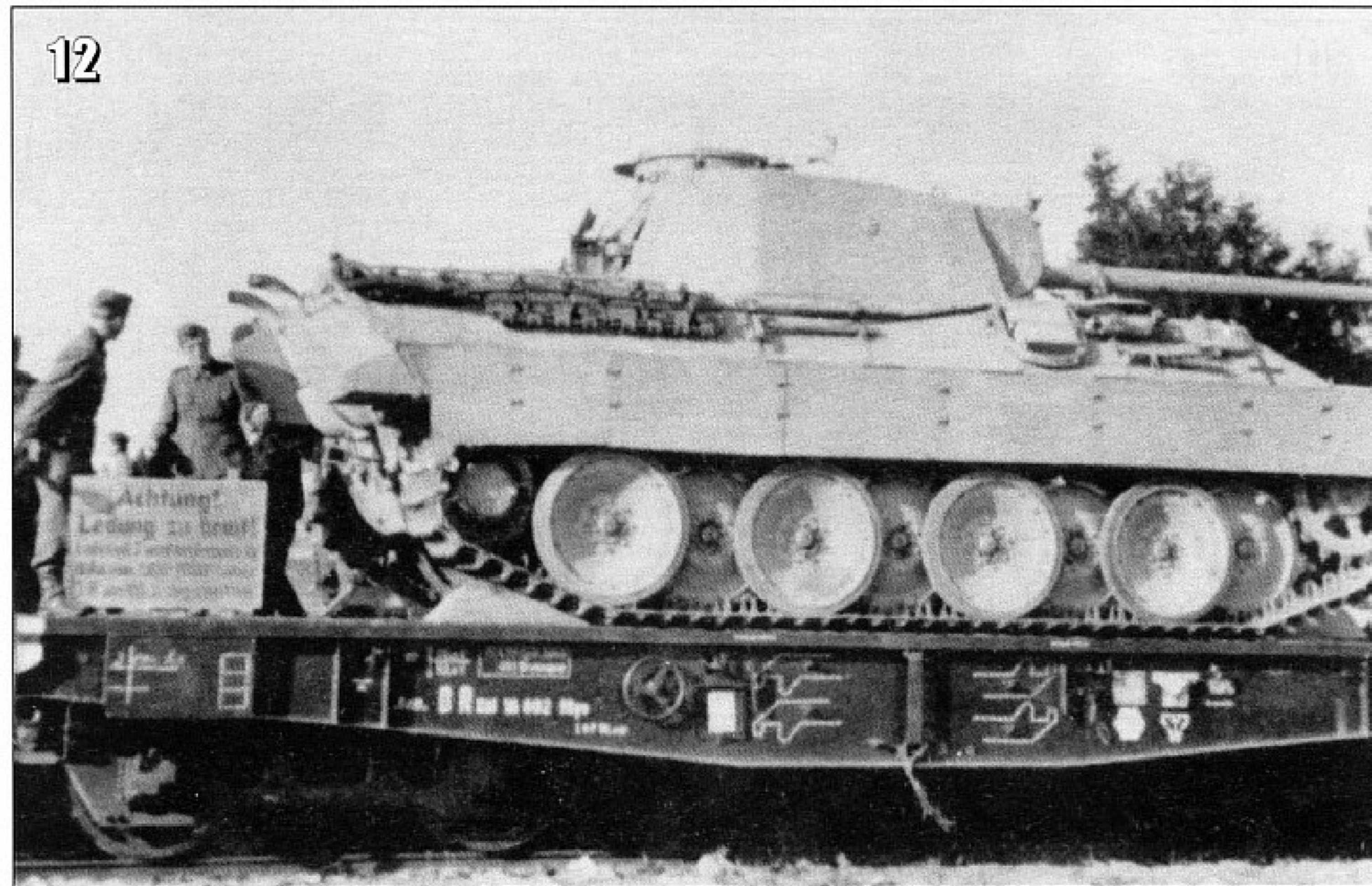


11



11- This Panther belonging to Pz.Abt. 52 was captured and recovered by the Soviets after the battle. (S. Netrebenko)

12



12- Railroad transport of the new heavy tanks was troublesome. To be loaded on flatbed cars, Tiger tanks had to install narrower tracks. Panthers were as wide as allowed but warning boards had to be installed to warn the railway personnel about the dimensions of the load. This tank looks like it has just come out of the assembly line. (M. Verhaaf)

13



13- A late Ausf. D Panther in the summer 1943. The right headlight and the smoke dischargers brackets are missing. A rail for the AA MG34 is installed on the tank commander's cupola. This tank, which does not sport a camouflage paint job, is probably just being delivered. (S. Clark)

14



14- The right side of the same tank. The side armoured apron supports are missing, probably to allow for railroad transportation. (S. Clark)

15



15- The lack of the side armoured aprons and the armoured vent outline on the rear deck are in evidence on this, run of the mill, mid production Ausf D. (M. Zöllner)



16- Panther "A13" is an early production Ausf. D (no gutters, two headlights, early running gear wheels, no smoke dischargers). This tank has a field applied coat of Zimmerit as it was commonly done after September 1943. The armoured vent is visible on the engine deck. (R. Michulec)



17- A nice photo of a late Ausf. D, built after July, 1943. The side aprons are covered with Zimmerit compound. Unusually, tactical codes on the turret are painted over. A number of brackets have been welded on the turret side to support track sections, a common expedient to improve the thin side armour. (D. Terlisten)

The news was soon relayed back through the chain of command. After some extensive testing of a captured T-34, the German Waffenamt (the branch in charge of selection and production of the armament) blocked the developing of any tank up to 30 tons. Even Hitler had something to say about the situation and in a speech to the German Chancellery on November 29th 1941, he commented: "The experience in the Eastern Campaign has shown that we are at a turning point. Our AT weapons have been made ineffective by a part of the Soviet armoured forces. The protection of our tanks is not enough anymore against the Russian anti-tank weapons. Since tanks with little protection are useless, it is necessary to improve the armour even if this will sacrifice mobility".

The first reaction to the new contingency was a contract awarded to Rheinmetall to develop a new gun able to pierce armour thicknesses of 140 mm at 1000 metres. By the end of November 1941 Daimler and MAN were asked to submit projects for a new tank of the weight of 35 tons to mount the new gun.

After the compared testing of the two prototypes, the MAN entered VK 3002 (M) was considered superior to the incomplete Daimler model VK 3001 (D) and was awarded a contract for production. The Daimler-Benz prototype, which was very similar to the T-34, had to compete with the superior range and fording without preparation capacity of the VK 3002 (M) which also provided a better platform for the main armament. The Daimler turret required more time to be developed and would not have been ready before December 1942.

Apart from that, the MAN model could have been pressed into production sooner.

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18- Panther "16" being demonstrated to allied troops (probably Cossacks). The factory applied Zimmerit indicates that this tank was probably made at MAN after September 1943. (S. Clark)

This Panzerbefehlswagen (command tank) displays all the late "D"s features. The turret spent cases port has been deleted and the gutters are fitted. This tank is fitted with an AA MG rail on the commander's cupola and second type road wheels. The Zimmerit compound was applied at the factory. (Anderson)



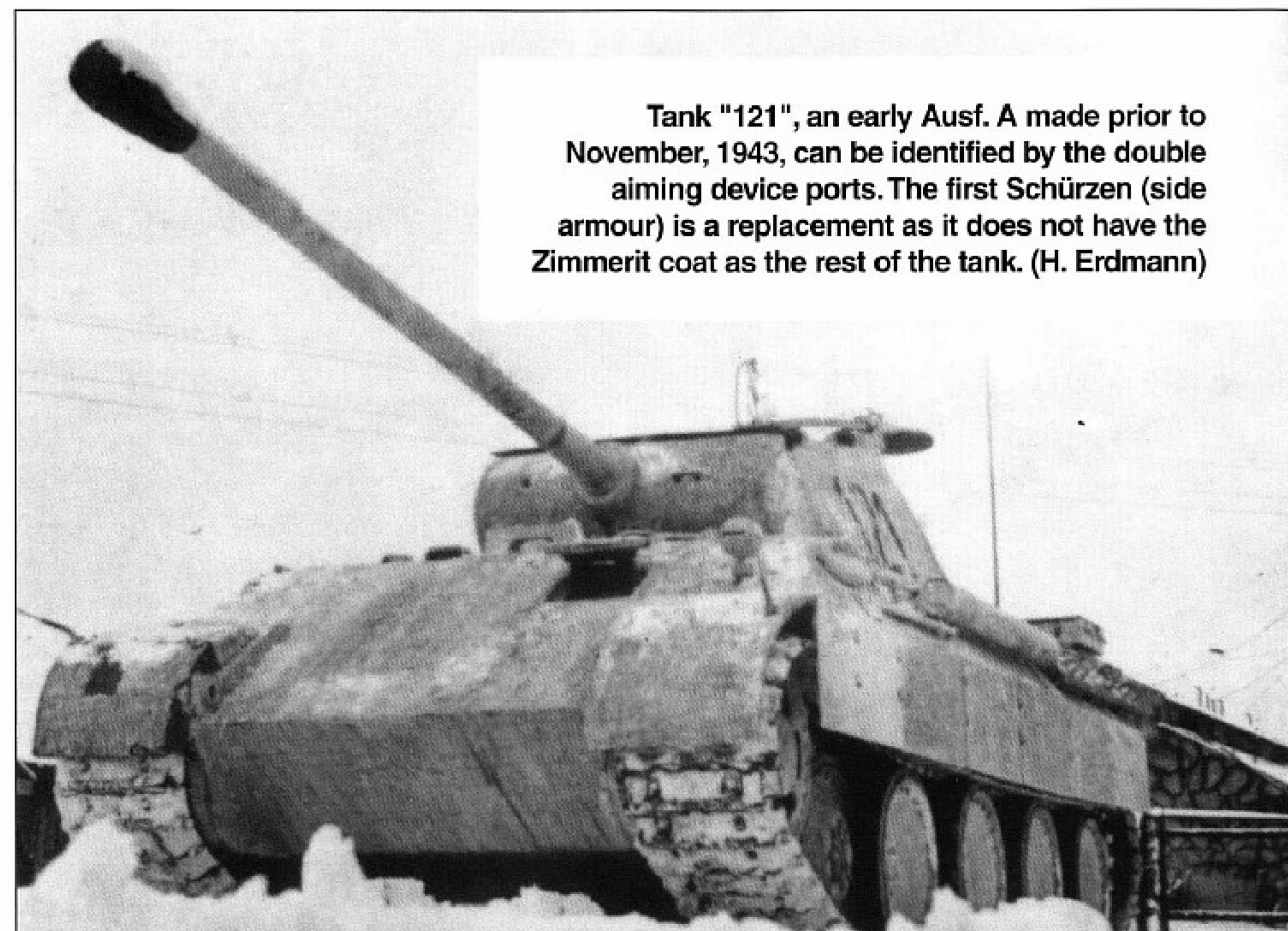


19- This winter 1943/44 captured Ausf. A does not show any major external damage. Note that this tank has an improved commander's cupola installed. As it was common with most Ausf. A, this tank's vertical surfaces have been covered in Zimmerit compound. The turret tactical numbers have been hastily painted on by the former owners. (S. Netrebenko)



20- Another captured early Ausf. The turret is covered with a Zimmerit coat.
(S. Netrobenko)

21- The average life of command tanks was noticeably longer than other AFVs. This Pz.Bfls.Wg. Panther was photographed in January 1944 near Slatopol. Looks like that Zimmerit was never applied on this tank. The washed out winter camouflage and unusual installation of the wireless aerials are noteworthy. A 2 m aerial is installed on the turret roof in place of the standard 1,4 m antenna. The aerial with the radial directors is installed on the side rather than on the rear deck. (J. Wilhelm)



Tank "121", an early Ausf. A made prior to November, 1943, can be identified by the double aiming device ports. The first Schürzen (side armour) is a replacement as it does not have the Zimmerit coat as the rest of the tank. (H. Erdmann)



Another early Panther near Panschevo. The smoke dischargers were taken off to make space for the spare "protective" track sections. The toolbox on the side seems to be a field expedient. There is no Zimmerit compound on this tank (J. Wilhelm)



22- More tanks from the same unit A m. SPW is moving on the foreground. Close cooperation between tank forces and Panzergrenadiere (mechanised infantry) was the key of the German ground combat tactics. (J. Wilhelm)



23- Tank "I 02", a Pz.BfIs.Wg Panther, displays all the characteristics of the early Ausf. D's. The smoke dischargers and the side toolbox are present. The additional wireless aerial is installed on the turret roof. Some large wooden crates are stowed on the engine deck. (J. Wilhelm)

The first production models should have been ready in the first half of 1942 but were delivered only in the Autumn for testing, by the "Wa. Pruf. 6", on the proving range of Berka near Eisenach.

Protection

The Panther (as the new tank had been called since the beginning of 1942) had a rather large hull. All the front and side armour plates were sloped and the rear plate was tilted backwards. Eight large interleaved road wheels on each side of the hull distributed the tank weight on a wide surface allowing for a good flotation over rough terrain but complicating maintenance. Each boogie wheel was connected by a radial arm to its independent torsion bar which was compensated in turn by another, counteracting, torsion bar. As is often the case with tank projects, the specified 30 tons were soon exceeded and the production tank weighed almost 46 tons.

The front glacis armoured plates were 80 mm thick, the side armoured plates 40 mm.

The turret was placed in the centre of the upper superstructure. The front 100 mm thick armour was vertical while the sides and rear 45 mm thick armoured plates were sloped. The front glacis armour turned out to be able to withstand typical combat condition being pierced only on rare occasions. Many of the pictures showing Panthers with heavy damage on the front plates depict the results of very close range target practice, an activity entertained by many Allied tankers every time the hulk of a German tank was available. The combat accounts and memoirs of many Allied tankers put things in the correct perspective...

Even if the 45/40 mm side armour was the weakest point of the project, any

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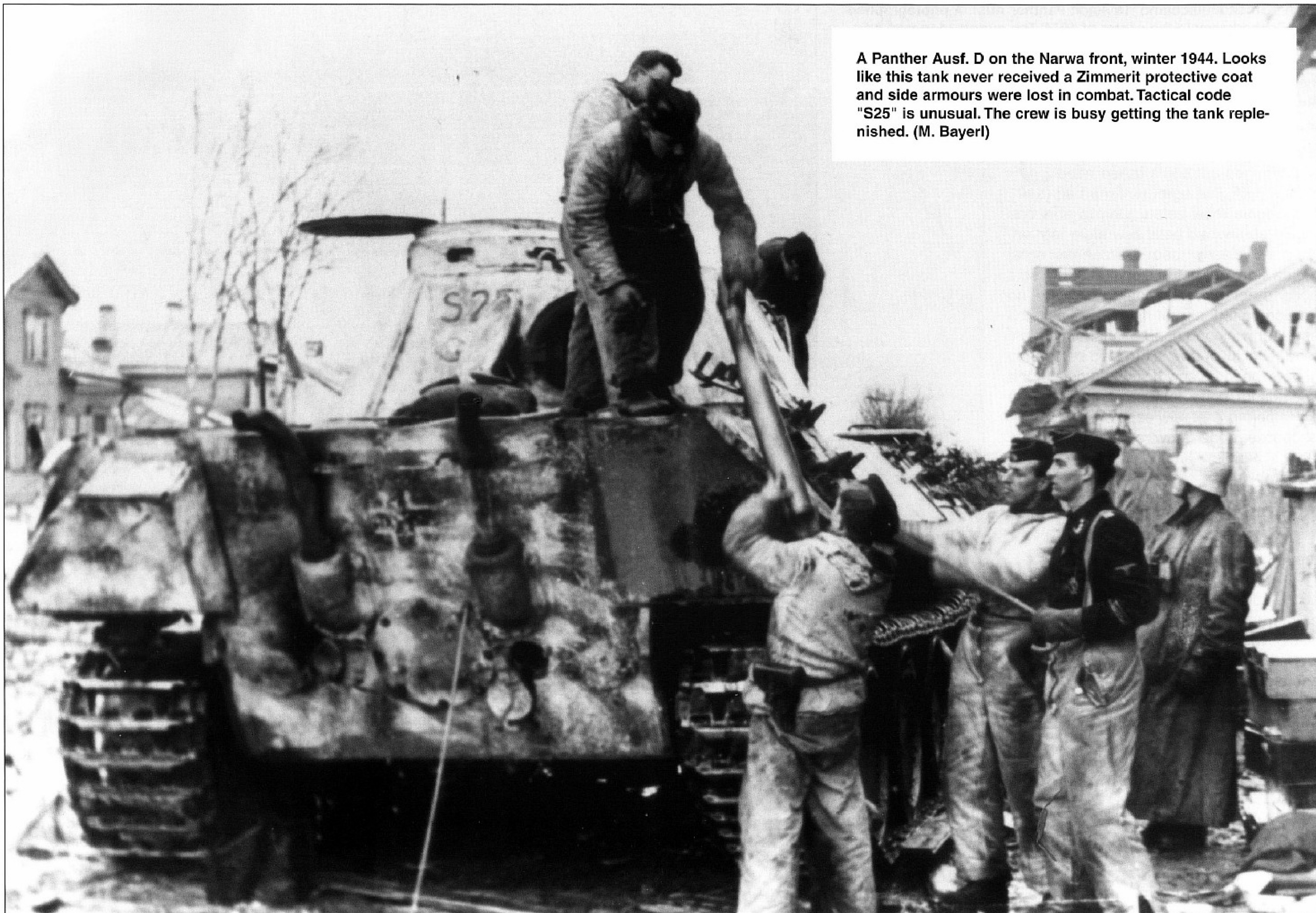
24- A "Grossdeutschland" Division Panther Ausf. A photographed near Tscherkassy in the winter of 1944. The cupola mounted AA MG rests on its rail and spare track sections improve the turret sides' protection. The tactical numbers have also been painted on the turret rear, a logical solution seldom observed in period photos. (B. Jurisch)



25



25- Another "GD" Panther ready for action. Clusters of infantrymen huddled on the back of the tank. A single artillery shell could wipe out the whole lot. In winter, if APCs were not available, it was almost impossible for the Panzergrenadiere to follow the advancing tanks. The purpose of the post by the tank driver's hatch is a mystery. (Anderson)



A Panther Ausf. D on the Narwa front, winter 1944. Looks like this tank never received a Zimmerit protective coat and side armours were lost in combat. Tactical code "S25" is unusual. The crew is busy getting the tank replenished. (M. Bayerl)



26- A picture is often worth a thousand words! Work being performed on a Panther Ausf. D in some very difficult conditions, during the winter of 1944. This tank hull looks badly damaged by AT weapons and it is probably being disassembled to salvage any useful parts. The lack of spares often led to cannibalisation of inefficient tanks to maintain the readiness levels of the armoured units. (Anderson)



27- Another Ausf. A during the winter of 1944. The mud plastered running gear would indicate that snow is melting, transforming Russia into a mud hole hampering military operations for a long time. If the temperature dropped, the Panther running gear could be blocked by frozen mud. The front fenders look unusually larger on this tank. (J. Wilhelm)



28- A Panther command tank waiting for the enemy in the winter of 1944. The worn winter camo is washing off with the first spring rain, an advantage when the season changed. The antenna fitted with the radial directors is not installed. This could be the Air Cooperation Officer tank. (R. Michulec)



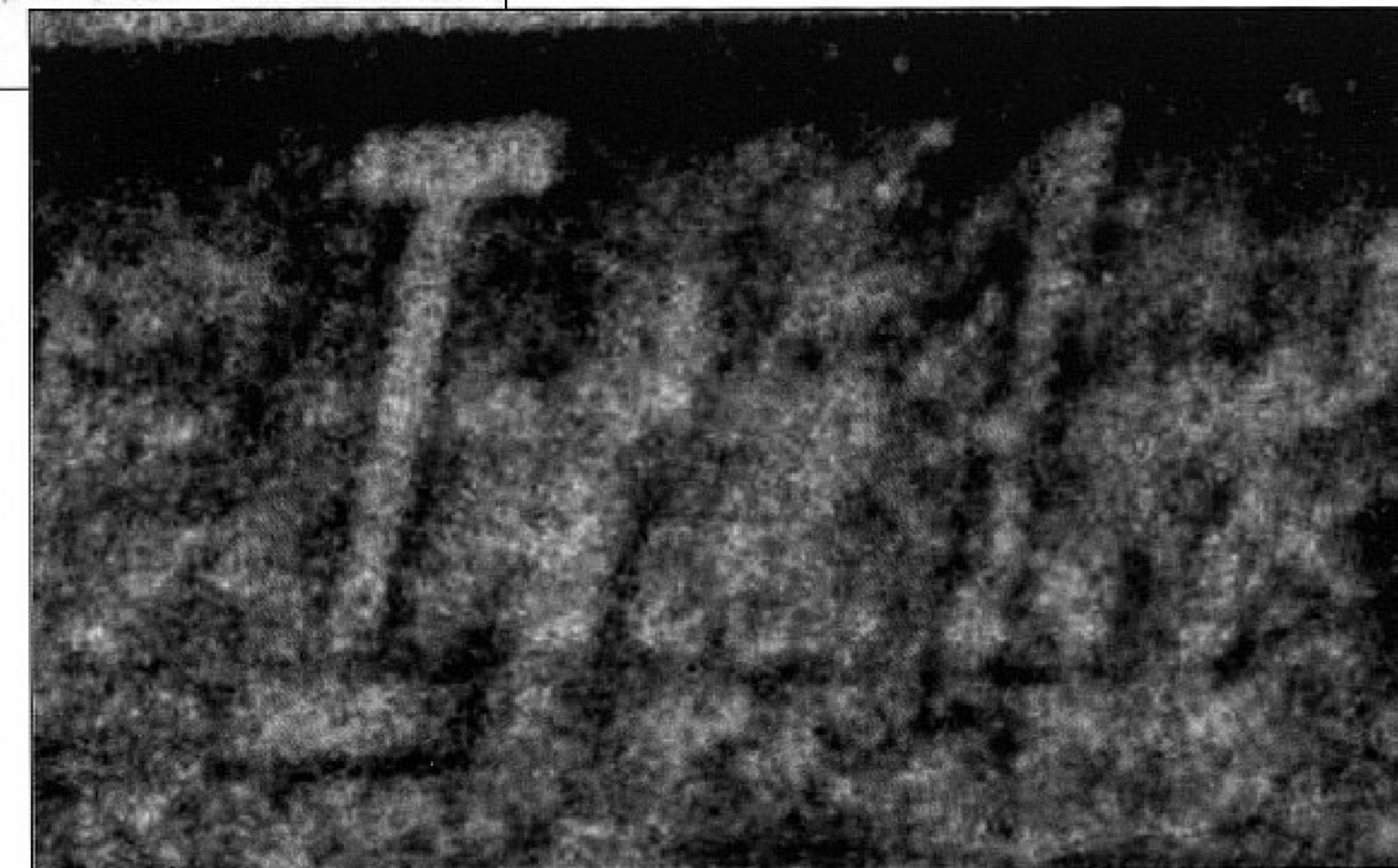
29- This Panther Ausf. D command tank, tactical code "I 01" is bogged down. Two other tanks are trying to drag this Panther out of the ditch. (H. Erdmann)

increase would have been impossible affecting both weight and mobility. Panthers surprised with their flanks unprotected would become an easy prey to the Allied AT gunners as all the medium AT guns then in service (the Russian 76,2 mm, the British 6 pdr. and the US 75mm M3) could pierce the side armour at normal combat ranges.

Mobility and performances

The Panther power pack was the most powerful tank engine of its time. The original Maybach HL210 used on the first production run was able to deliver 650 Hp. The power rating was increased to 700 Hp shortly after the beginning of mass production with the model HL230, but the actual power delivered was limited to 650 Hp to prevent failures due to overcharging the power pack. Maximum speed was 46 km/h obtainable with a good acceleration capability. The Panther overall performance was very good but costly. Off road fuel consumption was high allowing a 100 km range. Its main enemy, the T-34, could reach 300 km.

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30- In this dramatic still picture, a photographer next to a Panther shoots the shells impact points in the background. Sparsely wooded areas like these could be very dangerous for tanks operating without supporting infantry. (H. Hoppe)



31- A brand new Ausf. A ready to be shipped to the Eastern Front, Spring of 1944. The side armour and their brackets will be installed upon arrival. Panther tanks were exactly as wide as the maximum clearance allowed for railroad transportation. (Verhaaf)

Another Panther loaded on a railway flatbed car. The crew of this Ausf. A has moved the cleaning staffs tube on the engine deck, in what will become a widespread field modification. Note the Zimmerit coat and camouflage paint job. (Anderson)



32



32- Summer of 1944 on the Eastern Front. This late Ausf. A crosses some dusty terrain. This tank, code "212", has a log tied on the left side of the hull. (R. Michulec)

33



33- Somewhere... else in Europe! Several Panther Ausf. D's on the Mailly-le-Camp training ground in France in the Spring of 1944. These tanks have been coated with Zimmerit and are camouflaged. (H. Bernhardt)

34



34- The 8th Tank Company Commanding Officer briefs the commander of a Panzergrenadiere Company on the field. By its tactical code (800) this Panther Ausf. A is a command tank. Unusually, it does not have any extra aerial installed. Both the vehicles in this photo have suffered some light combat damage. (R. Michulec)



35- A souvenir while on duty for the Fatherland! Four German tankers and their Panther Ausf. A. Even if the tank turret is covered with a tarp, the camouflage pattern is clearly visible. The side armours are missing but their brackets are plainly still in place. (D. Terlisten)

36- The unit commander supervising a training session. The side armours are missing from this tank and the field applied Zimmerit coat has completely covered the vehicle except for the vertical areas beneath the spare track sections. (H. Bernhardt)

37- Back to the barracks. This Panther was fitted with a firing simulator. The bracket, probably supporting a MG34 fed with tracers, is still installed on the gun barrel. (H. Bernhardt)



38- The Commander's "mount" is undergoing some repair. The tactical code "R01" has been painted on the spare track sections carried on the turret sides. The empty radiant directing aerial mast base is visible on the engine deck. This photo was shot in Hungary in late Summer 1944. (Anderson)



39- Another damaged Panther Ausf. A in Hungary, 1944. Trying to improve the protection of one of the Panthers weakest spots, the crew of this tank has covered the turret sides with spare track sections. (Anderson)

40- This Panther, belonging to Pz.Gren.Div "Grossdeutschland" was photographed near Wilkowschken, during the Autumn of 1944. Note the camouflage pattern and Zimmerit compound applied on this late Ausf. A. The turret is fitted for the spare track sections. Two spare running gear wheels are carried on the rear sides of the hull. (Anderson)



41



41- Close up of a Panther turret, probably an Ausf. A. This vehicle, coded "K 01" is a command tank as evidenced by the antenna mast. (R. Michulec)

43- Changing setting, this Panther Ausf. A was photographed in Italy. Even if, on this front, there was a much higher risk than in Russia of being attacked by fighter-bombers, the crew of this tank seems confident that nothing will happen. (M. Zöllner)

42



42- An Ausf. A from the same unit somewhere on the Eastern Front. The tank commander is listening to his earpiece with one ear and what is going on in the "real World" with the other. Enemy tanks are burning in the background. This Panther has lost some of its Schürzen. (Anderson)





44- American soldiers inspect a Panther Ausf. A in Italy. Attending classes organized to improve the knowledge of enemy material was a frequent occurrence for Allied tankers. (Y. Kadari)

45- This Ausf. A was destroyed in Italy. One AP shot has pierced the turret. This tank has received more hits on its sides. (Anderson)

46- Still in Italy, Polish troops inspect a destroyed Panther Ausf. A. A single hit is barely visible under the turret tactical code. Looks like this tank was hit by either artillery or fighter-bombers as the surrounding explosions have partially covered it with dirt. (M. Kaludow)

47- Other combat ready Ausf. G on their way to the front. These tanks appear to be brand new and are devoid of any camouflage pattern. The front plate opening for the hull MG has been sealed with a plug. (D. Terlisten)

48- This brand new Ausf. G is being shipped on a flatbed car in the late Summer of 1944. The dark sand yellow colour the tank was delivered in reflects sunlight; a camouflage pattern will be applied as soon as it reaches its unit. (S. Clark)

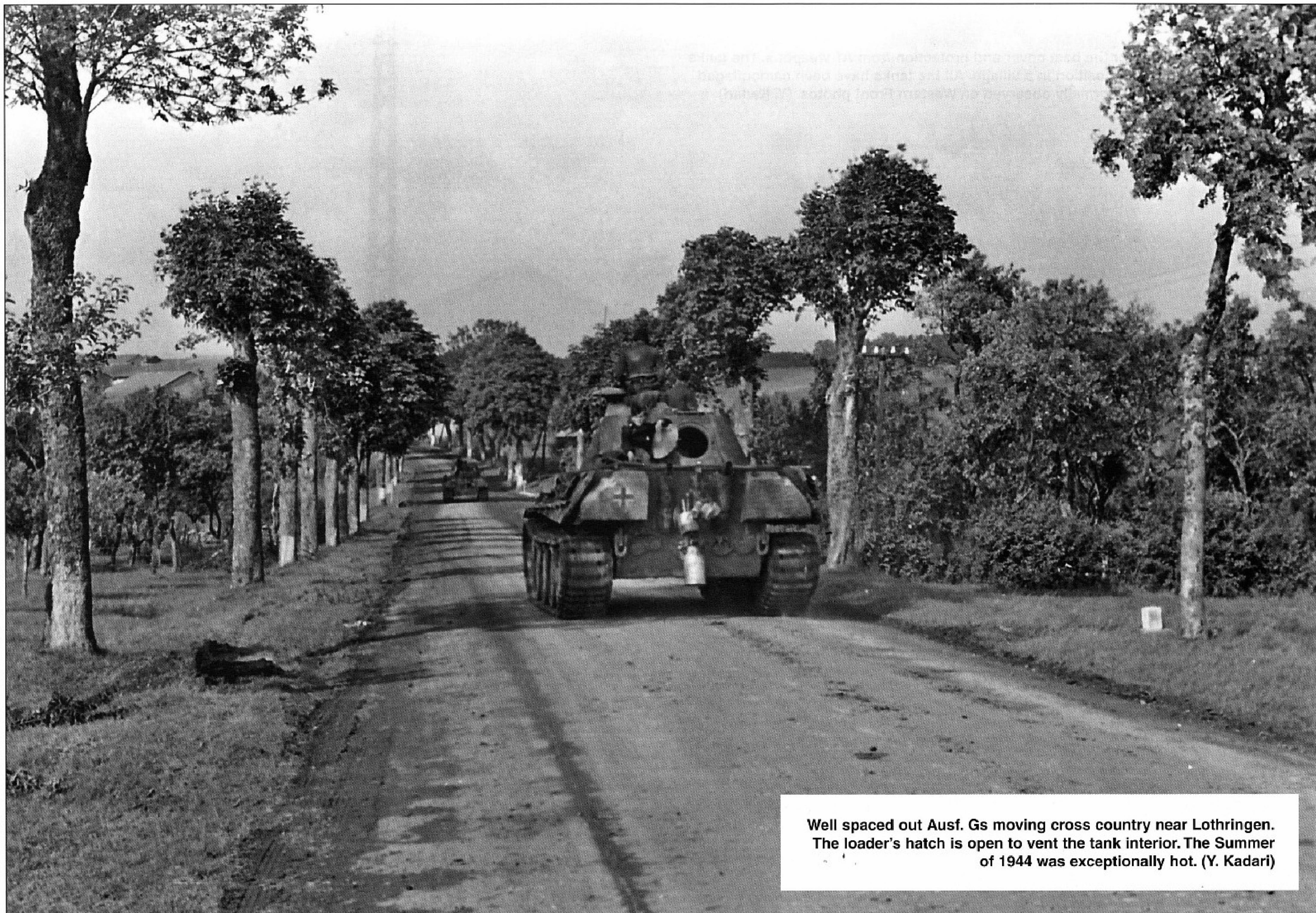




49- Under cover of some trees, this Ausf. G is ready for an ambush. The rather large turret tactical codes are very prominent on this plain dark sand yellow tank. Besides a few scuffs on the Schürzen, this Panther appears to be new. (R. Michulec)

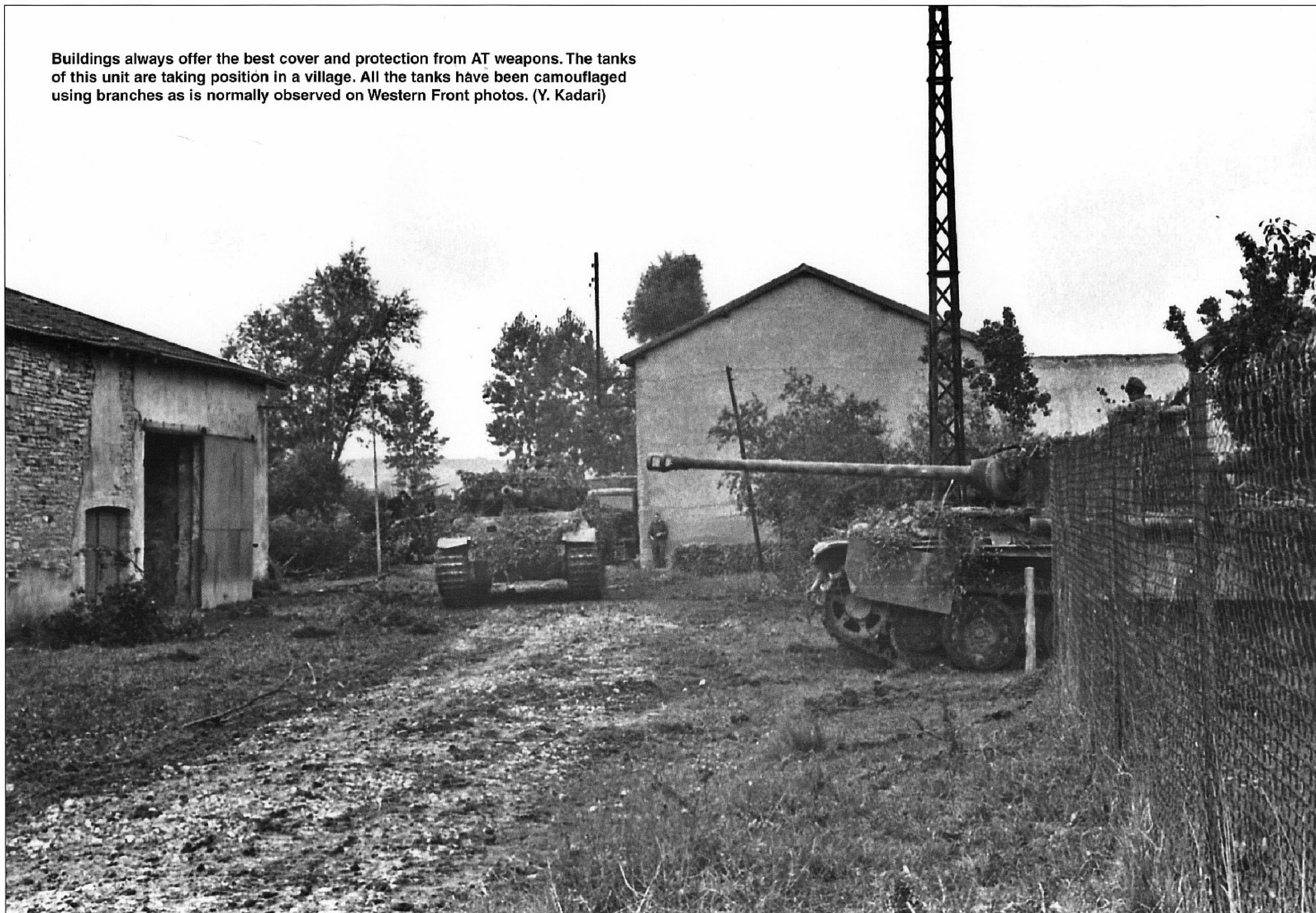
50- In another shot from the Eastern Front, infantrymen are waiting for action supported by two Panther Ausf. Gs. The vehicle on the background is a command tank. (R. Michulec)

51- Another Panther Ausf. G command tank. Tank "I 02" has all the possible combinations of aerials installed rather than the more common two sets normally installed. (R. Michulec)



Well spaced out Ausf. Gs moving cross country near Lothringen.
The loader's hatch is open to vent the tank interior. The Summer
of 1944 was exceptionally hot. (Y. Kadari)

Buildings always offer the best cover and protection from AT weapons. The tanks of this unit are taking position in a village. All the tanks have been camouflaged using branches as is normally observed on Western Front photos. (Y. Kadari)



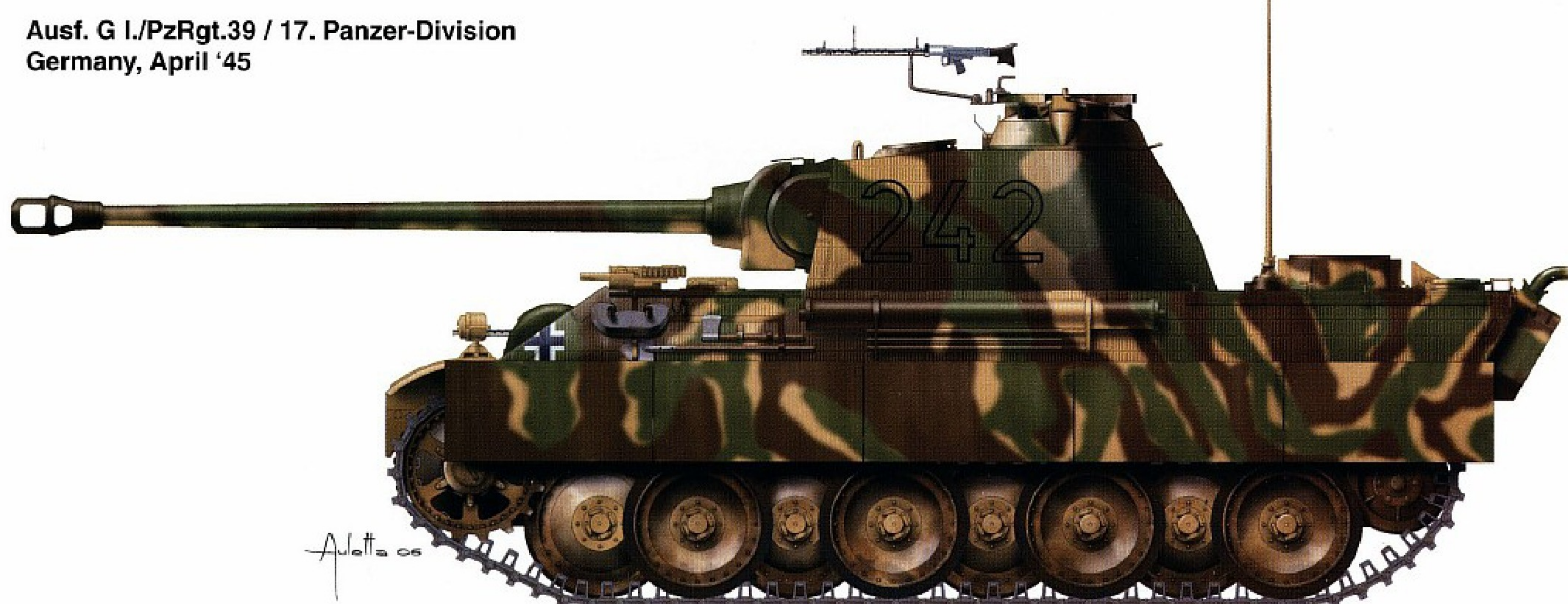
Ausf. G Unknown Unit
Warsaw, Poland, July '44



Ausf. G Unknown Unit
Germany, December '44



Ausf. G I./PzRgt.39 / 17. Panzer-Division
Germany, April '45



Ausf. D PzGrenDiv. "Grossdeutschland"
Karachev, Eastern Front, August '43



Ausf. A 1st Battalion, Panzer-Regiment "Grossdeutschland"
Eastern Front, Late Summer '44

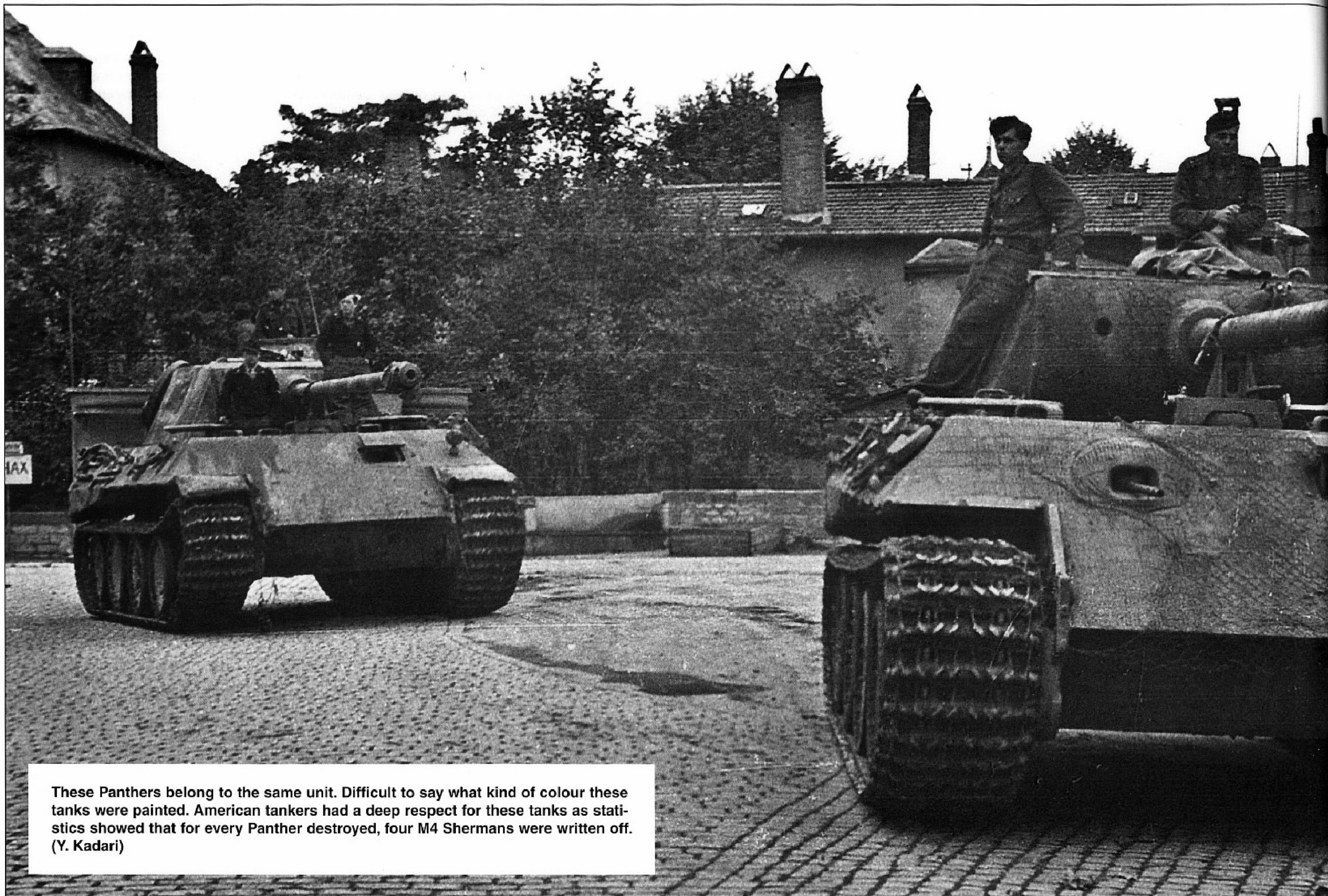


Ausf. A SS Panzer-Division "Totenkopf"
Warsaw, Poland, August '44



The Panzers are moving through the village. The civilian population was never very keen in having tanks around because of their tendency to attract fire! The branches used as an improvised camouflage would be a lot more effective in a sparsely wooded area. (Y. Kadari)





These Panthers belong to the same unit. Difficult to say what kind of colour these tanks were painted. American tankers had a deep respect for these tanks as statistics showed that for every Panther destroyed, four M4 Shermans were written off. (Y. Kadari)



52- Two well camouflaged tanks move carefully from a tree patch to another. The Panther on the left has the AA MG installed, the one on the right has a steel cable fitted to the front towing clevis. (Y. Kadari)

53



53- This M4 was completely burnt out. The Sherman's 75 mm M3 main gun could not cause any harm to the Panther front plate while the German 7,5 cm KWK 42 L/70 could destroy a Sherman at ranges exceeding 2500m. (Y. Kadari)

54- After the battle! A derelict M4 lies next to three M5 light tanks. On open ground, the American tanks were easy preys for the German Panthers. (Y. Kadari)

55- This photo shows the single AP hit on the turret rear that started a fire, setting off the tank's ammunition. (Y. Kadari)

54





56



56- This M5 was hit twice in the rear part of the hull. Note the field made turret basket. (Y. Kadari)

57- Another view of a burnt out M4 Sherman. (Y. Kadari)

57





58- In this propaganda staged picture, German tankers inspect a blazing enemy tank. With the possibility that the fire might set off the tank's ammunition, nobody would risk getting too close to a burning AFV. (Y. Kadari)



59- Looking for the hits on the prey! A proud tanker shows his comrades and the PK operator the hits he scored on his target. (Y. Kadari)

60- This Panzer IV was destroyed by an internal explosion. The upper part of the hull and the turret were blown to bits. (Y. Kadari)



61



61- A Panther Ausf. A belonging to the "Wiking" Division on the Eastern Front. Looks like an AT mine has caused extensive damage to the right running gear which will require a long time off the line to repair. Use of landmines was particularly effective against German AFVs. (Anderson)

The running gear comprised of rubber rimmed large diameter wheels and torsion bar suspensions was extremely effective. A comparison made with the Rheinmetall Leopard, some 20 years after the end of the war, showed that the Panther running gear was superior to that of the new tank. This type of running gear added protection to the lower sides of the hull but was delicate and difficult to service. Heavy mine damage was very difficult to repair in the field.

L'armamento

The Panther main armament was the 7,5 cm KWK 42 L/70. This excellent high velocity gun could employ high explosive armour piercing (HEAP) Model 39 and 40 shells or the high explosive (HE) Model 42 shell.

The Panzergranate 39 was the German standard AP shell and could pierce 111 mm at 1000 m; A delayed fuse

explosive charge was timed to go off inside the enemy tank to complete the target destruction.

The Panzergranate 40 was used at short and medium ranges against heavily protected targets, like heavy tanks. It had a high density tungsten carbide core enabling it to pierce 150 mm armour plates. The tungsten shortage never allowed the German industry to produce the required numbers of this type of AP ammunition but, as combat experience would show, the Model 39 was more than enough in the vast majority of combat conditions.

The Sprenggranate 42 was intended to be used against unprotected targets even if the relatively small calibre of the Panther gun did not allow it to be very effective. The precision of the KWK 42 gun was legendary. The average hit ratio on the 1000 m range was 97% using the Panzergranate 39.

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62



62- A 5th SS Pz.Rgt Panther passes in front of a wounded horse in this dramatic Spring 1944 photograph. (Anderson)

63



63- "Wiking" Division's Panzergrenadiere getting ready for combat. The tank of the Deputy Regimental Commander is in the background. (Anderson)

64- Broken tracks..! The crew of this Panther Ausf. A working to repair the sprocket wheel. The weight of the track itself could make this task very difficult to perform. (Anderson)

64



65



65- Tank "800" covers the progression of a long line of infantrymen. This tank was coated in Zimmerit and has received one of the wide array of different three colour camouflage patterns adopted by the "Wiking" Division. Timber carried on the engine deck was a common practice. (Anderson)

66- A Panther Auf. A with a characteristic camouflaged paint job passes by a Pionier-SPW (Sd.Kfz. 251/7). (Anderson)

66





67- Tank "613" cautiously moving around a tall sand dune. Also this tank sports an elaborate camo pattern. The 5th SS Pz.Rgt. had one of the few " 'Second' Battalion " (II Abteilung), with companies numbered 5th to 8th. (Anderson)



68- The Panther was a big tank. The German industry had designed a well balanced tank even if the main gun calibre was relatively small, installing the 7,5 cm gun on a 46 ton tank. The Soviets, in turn, had equipped the JS II (which was the same weight) with a much bigger 122 mm weapon! (Anderson)

69- "II02", a command tank, passes through a Eastern Poland village. There are no aerals installed on this Panther which is probably shifting position far from the front line. (Anderson)





70- The Panther on the left was hit on the front glacis plate. The tilted tank indicates that there might be more damage to the left running gear. Trying to repair this tank on the spot looks impossible. Another Panther, also an Ausf. A, being driven up to attempt towing. (Anderson)

The high velocity at the muzzle of the shell yielded a very straight trajectory and short flight time allowing engaging targets at 2000m in normal combat conditions. Very skilled gunners could engage and destroy targets at ranges of up to 2500 and in some cases up to 3000 m. The HE shell had a 56% average hit ratio at 1000 m.

The KWK 42 was a very effective anti tank weapon. The limited availability of the Panzergranate 40 never impaired the efficiency of this gun which remained at the top of its class up to the end of the war. As further evidence of its success, a French made, slightly improved, version of this weapon is still in use on several armoured cars, light and medium tanks all over the world.

Panthers in battle

There are still several gaps in trying to assess the Panther baptism of fire and the problems that afflicted the first performance of the new tank. As we previously mention, many of the problems were known before the clash at Kursk. The main causes and failure that would stop the tank can be listed as follows:

The transmission gear could not bear combat condition work loads;

Brakes and clutches tended to build up too much heat and break down;

Leaks in the fuel pumps often started engine fires;

The early engine types, often overloaded, would easily break down;

The turret could not traverse when the tank was tilted.

The Summer offensive against the Kursk bulge was considered the most important for the conduct of the operations on the entire Eastern Front. To improve the chances of success two new outfits, the Panzer-Abteilung 51 and 52, were organ-

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71



71- Tank "833" was a powerful machine! Note the Zimmerit applied on this early Ausf. A. The left headlight is gone as are the side armours. Only the brackets are still in place. (Anderson)

72



72- Officers briefing. This Ausf. A has mud plastered roadwheels and only part of its side armours left. The turret Zimmerit coat is chipped in several places and the usual pieces of timber are carried on the engine deck. (Anderson)





73- This late Panzerbefehlswagen Panther Ausf. D, has its engine deck loaded with the usual timber, a railroad tie and a 200 litre drum. The tank camouflage has been improved by using some branches. (Anderson)

74- "Wiking" tankers inspect the casualties of the last fight. This Panther caught fire after it was hit three times in the turret sides. The front hatch plate was blown away from the tank ripping off the bolt heads. (Anderson)

75- The Panther was not invulnerable as demonstrated by this AP hit on the mantlet. This Panther Ausf. A was equipped with a monocular Tzf 12a aiming device. (Anderson)





76- The 7,5 cm KWK 42 L/70 was a very efficient gun which required proper maintenance. The Germans had developed smokeless propelling charges of excellent quality that hardly left any fouling deposit in the bores. It was otherwise necessary to perform all the periodic cleaning and lubricating servicing. (Anderson)

77- A Panther Ausf. A passes next to an m. SPW. The use of APC greatly improved efficiency in tank-infantry cooperation. (Anderson)

78- High ranking officers from the Pz.Rgt. 5 "Wiking" studying their maps. A command tank offers the backdrop to this photo. (Anderson)

ized in the beginning of 1943 and equipped with the new tank. Training started at once but was soon interrupted to recall some of the tanks to the MAN plant to be fitted with the latest upgrades.

In June 1943 both units, each one equipped with 96 tanks, were shipped to the Eastern Front. The attack started at dawn on July 4th. The Russian intelligence had gathered enough information on the assault to spoil the German surprise. Huge tank clashes took place both north and south of Kursk lasting several days with uncertain results. What is known for sure is that by the end of the first day of the battle there were only 40 out of the 200 deployed Panthers still in operational conditions. Most of the casualties resulted from technical failures and AT mines. Some tactical mistakes contributed to the loss of several of the precious new tanks, a part of which was recovered and repaired.

One of the veterans, Gefreite (Corporal) Werner Kreigel remembers: "We were very nervous. We all had big expectations for the new tank... On July 3rd we had some problems. There were some sabotage attempts. We found screws and steel wool in the engine oil tanks. All the HiWis (Russian volunteers) were sent away. Our officers were worried about the fact that it looked like Ivan (the Russians) knew everything about our plans... As a tank driver I was often busy servicing the engine... We left at dawn on the 5th, we went north, towards Kursk. The Russian defences on the Voronesch front were terrifying. There were land mines everywhere. Our first assault was stopped by a minefield. We lost a track. Under cover of our artillery fire we were able to recover two tanks, including mine... When we were back to safety, our

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79- Another day in the field. A Panther Ausf. A shows how a large wavy camouflage pattern could disrupt the tank outline. (Anderson)

Looking at the same tank, but from the other side. Thanks to the combination of firepower, mobility and protection, the Panther was a very efficient tank. Note the dimension of the long barrellled 7,5 cm gun. (Anderson)





Ambush position in a courtyard. After the first few shots, the tank would move to an alternate position out of enemy sight. (Anderson)

80



80- The Bergepanther recovery tank, was the most important member of the Panther family. This was the only example of purpose built, recovery vehicles in Germany during WWII. A Bergepanther was powerful enough to tow a Panther or Tiger I or II. (M. Kolomietz)

81- The Bergepanther was a very efficient recovery vehicle. Production of standard AFV was prioritised over that of this specialized version of the Panther. Besides its towing capacity, the Bergepanther was fitted with a boom crane and a hull mounted 40 ton winch that could be increased to 80 ton. (M. Kolomietz)

reserve forces started another assault. The day ended in disaster. Only 22 Panthers were still operational. Another thirty were considered total losses. A lot of my comrades complained about engine fires. In fact the engine bay was sealed so well for the fording preparation that it prevented proper cooling causing the engines to overheat... On July 8th we attacked Obojan, south of Kursk. An AT rifle shot struck our commander's cupola. We attacked with the hatches open, one of them with a hole through it. My tank commander still has the bullet as a souvenir... We lost one tank to a heavy Self Propelled Gun (SU-152), the turret was ripped out of it. We clashed with American made tanks (M3A3 Lee), without problems... We were able to destroy T-34 at ranges over 2000m..."

The baptism of fire at Kursk also

showed some technical and tactical limitations. The Panther front armour was very good and, after the battle, it was noted that the Russian 76,2 mm guns had not been able to pierce it once. The thinner side armour did not work as well as the Soviets were able to destroy several Panthers with direct hits on the sides, often resulting in fires and the loss of the entire crew.

The crews lacked proper training. The untried tank drivers worsened the problems caused by the troublesome and undersized transmission and clutches of the new tank. Tank commanders and gunners did not exploit the tactical advantages offered by the new weapon. In general the poor performance of the young German tankers was largely due to the fact that they went to battle without any previous combat experience.

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81



82- Panther turrets were often used in a number of static defense installations. This turret salvaged from a Panther Ausf. D, was used on the Gothic Line in Central Italy. Use of these small fortresses turned out to be a very effective tactic. A striking paradox when comparing to the Blitzkrieg (B. Auerbach)



83- This Panther turret was used as a static defense position in Berlin. This kind of installations were very effective even if their use often meant a one way ticket to a better world for its crew. (S. Netrebenko)



85



84- Hastily organized Combat Teams became a common occurrence in the last weeks of the war. In this photo, a mixed bag unit is on the move near the Oder River in the Spring of 1945. A convoy of le.SPW and a self propelled light howitzers battery move along to a Panther Ausf. A. Amazingly these heterogeneous units were able to achieve several local successes in counterattacks. (M. Zöllner)

85- Members of a Volkssturm unit practice AT tactics with tanks, in this case, a Panther Ausf. G. All the able bodied men between 16 and 60 year old were enlisted and sent to fight in one last doubtful stand of a lost war. (Anderson)

86- With a grin on his face, this Volkssturm member places a dummy hollow charge on a Panther turret. In real combat a likely situation would be devastating to any AFV. It is debatable if a poorly trained elderly man would be able to make it! (Anderson)

86





87- The burnt out hulk of this Panther Ausf. A in front of Cologne cathedral is evidence of the very hard fight of the last few days of the war. Allied tankers feared German armour in close quarter combat in built up areas where air supremacy could not provide an effective support to ground troops. (Anderson)

The biggest technical problems were related to the fuel system and the tendency of the engine to overheat. Another problem to solve was the supply of air to the engine. Corporal Kriegel remembers:

"Our convoy was passing through a pinewood. One after another, all the tank engines stopped. We soon found that the vibrations of the heavy tanks had caused the pine needles to fall from the trees. The thick layer of fallen pine needles forming on the engine deck had clogged up all the air intakes. Without air feed all the engines went dead! We had to punch holes into the bottom of some buckets and place them on the air intakes..."

The first combat experience soon led to several improvement proposals that were eventually pressed into production.

The early type of commander's cupola, cylindrical with vision slots, easily damaged by AT weapons, was replaced on the Ausf. A version by a lower profile cast type with built in periscopes. Later a protected ball mount was designed for the glacis mounted MG. Engine cooling was improved by adding forced draft fans on the engine deck. Dozens of smaller improvements to the mechanical and electric auxiliaries greatly improved the overall reliability of the tank, matching and surpassing that of the Tiger. Now that combat experienced crews were available, great care was taken to better theoretical and practical training of the new tankers.

Starting in September 1943, Panthers started receiving the application of Zimmerit compound. Almost all the Ausf. A and some of the Ausf. G production left the factory with the Zimmerit coat until, in September 1944, the application of the anti-magnetic protection was

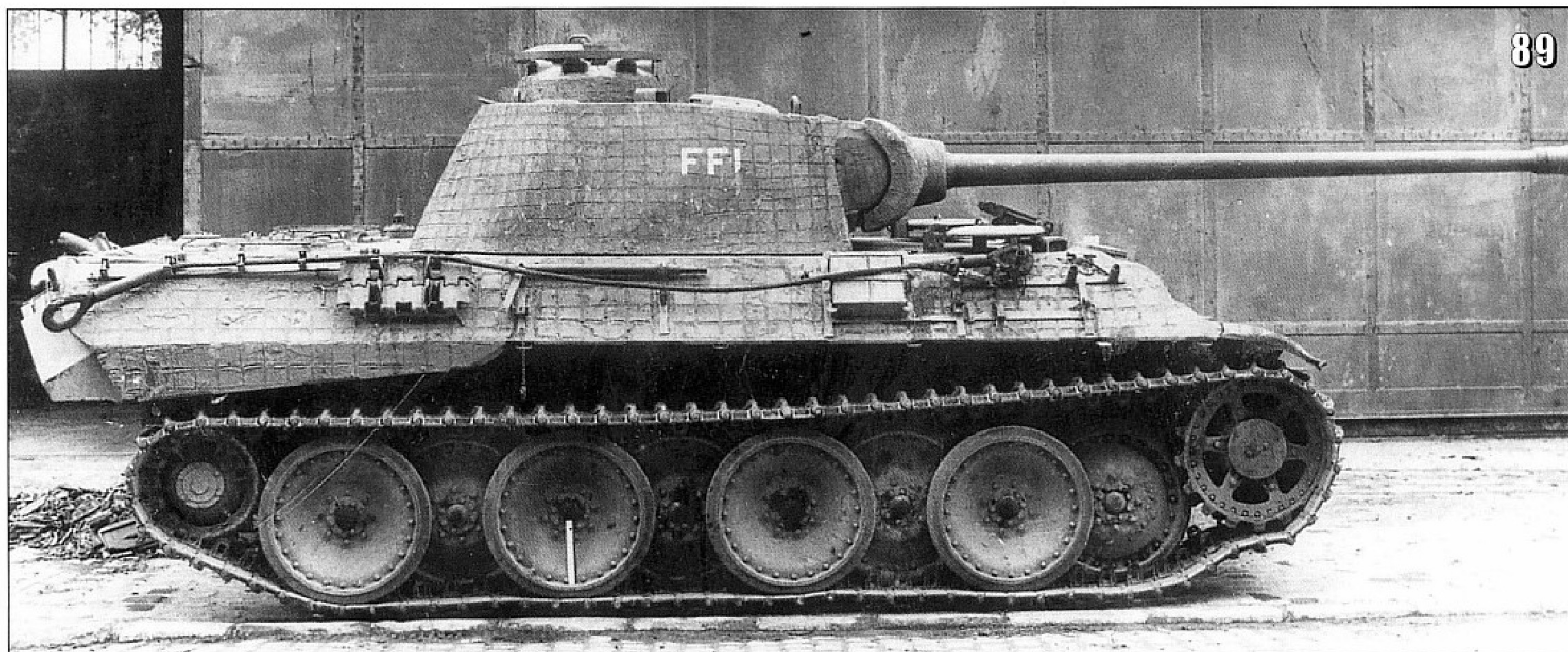
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88



88- A Panther near Berlin in April, 1945. This Ausf. G was brand new. Towards the end of the war many tanks left the factory with incomplete fittings and equipment missing. (Anderson)

89- Some Panthers Ausf. A like this one were reclaimed from captured material dumps and used by the Free French Forces. After the end of the war the French Army organized part of a couple of tank regiments with captured Panthers. (M. Kaludow)





90- Despite having gone through some rough times the look of this Panther is remarkably good. (M. Kaludow)

superseded. A number of tanks produced earlier had received the compound application on the field and at depots during periodic maintenance. One can argue about the real efficiency of the Zimmerit compound. For sure the German Wehrmacht was the only army in the world to develop and use anti-magnetic protection applied on the production line. The employment of this compound puzzled the Allies which, as Robert Pertuss, the engineer that designed the Tiger Ausf. E and Ausf. B, recalls:

"When the British intelligence officers entered the Henschel factory in Kassel, they were a lot more interested in this laughable concrete mixture than our very sophisticated Panzer... I was interrogated for hours on the Zimmerit..."

In 1944, the Pz.Kpfw. IV was still the backbone of the German armoured forces even if its substitute had been in production for over a year. The German army was withdrawing on all fronts and, even if there were very successful counterattacks on the advancing Soviets, these were devised to relieve the pressure from the withdrawing forces. Largest offensive operations would start with the most amazing results only to fold for the lack of resource shortly after. The IV SS Panzerkorps destroyed the Russian Second Armoured Army north-east of Warsaw while on the South Front the Germans were conducting one large delaying action to tie up the most Allied Forces possible.

Panther Ausf. G

The appearance of the Ausf. G brought an increment in the side armour to 50 mm but the higher sloping angle did not really bring an improvement in protection. At the same time the enemy

was able to field sufficient numbers of the latest more powerful AT guns. Even in this new scenario, the Panther was still a valid opponent, especially when operated by veteran crews, as reported by a number of Allied studies. The superiority of the Panther was undisputed. The German industry could not keep up with replacing the ever increasing battlefield losses. The scarce availability of raw materials defeated the German armoured forces causing enormous problems in maintaining a steady supply of ammunition and fuel, not to mention spares.

Notwithstanding heroic but useless fighting, when the last big German offensive in the Ardennes forests lost its momentum, with the beginning of 1945 the end of the war was felt nearer than ever. Not being able to regain the initiative the German counterattacks were getting weaker.

Despite the general situation, "Grossdeutschland" Division veteran Lt Berger, recalls:

"At the beginning of April, before we withdrew to Austria, we engaged the Russians one last time near Kustrin, in Eastern Prussia, with a mixed bag combat team of six Panthers and four Pz.Kpfw. IV. Three of the Panthers engaged the enemy. Hidden by the banks of a river, the Panthers destroyed one by one 11 T-34, a few SPGs (probably new and powerful SU-100) and 5 JS-2 Stalin, forcing the Soviets to withdraw. This delaying action was a success. It took the enemy 12 hours to reorganize allowing our troops to withdraw to safety.

At this stage of the war, the Panther was a reliable and highly efficient weapon system. It was superior to almost all the enemy tanks and could further benefit from some of the newest devel-

91- The effectiveness of the Panther was universally recognized by friend and foe alike. Comparing it with the American M4 series, the German design's only shortcoming was difficult maintenance worsened by the lack of spares. (M. Kaludow)



Several Panthers were used for propaganda purposes by the Soviets in the last part of the war. (S. Netrebenko)



The United States Army tested briefly some of the captured Panthers.

These tanks were later released for display in training facilities and museums like the Aberdeen PG or the Patton museum.

The British Army conducted a long programme of tests and trials with the Panther and its specialized versions Bergenpanther and Jagdpanther, reopening the assembly lines to complete a few tanks. Most of these tanks ended their careers as static targets on the firing ranges.

oped technologies. Night vision combat equipment had already been successfully tested on Panthers.

At the moment of the capitulation of Germany there were a number of small armoured "Kampfgruppe" often based on Panthers and Jagdpanthers conducting delaying actions on both fronts.

Panther Ausf. F

Further improvements to the Panther interested the turret. A smaller turret was designed to provide a thicker armour without weight increase. Compared to the standard Panther Ausf. G, the new turret had a smaller side cross section, front

armour sloped at a greater angle, was less expensive and took less time to make.

A stereoscopic range finder improved target acquisition along with an improved night combat capability given by the possibility to mount infrared night vision devices (a technology in which the Germans excelled).

Panther II

In 1943 a new hull for the Panther was designed in order to improve the protection. The running gear was reinforced and used the Tiger Ausf. B transport tracks. By the end of the war only two pro-

totype hulls were made and the new model never reached the production line.

Panthers After World War II

During the war, the Red Army pressed into service large quantities of captured tanks but, as the war ended, the availability of newly made standard tanks quickly phased out the foreign supplied or captured models.

The French army organized a few armoured regiments with captured Panthers. The German tank served for a few years on French soil until all the Panthers were withdrawn from the last outfits so equipped, in 1950.



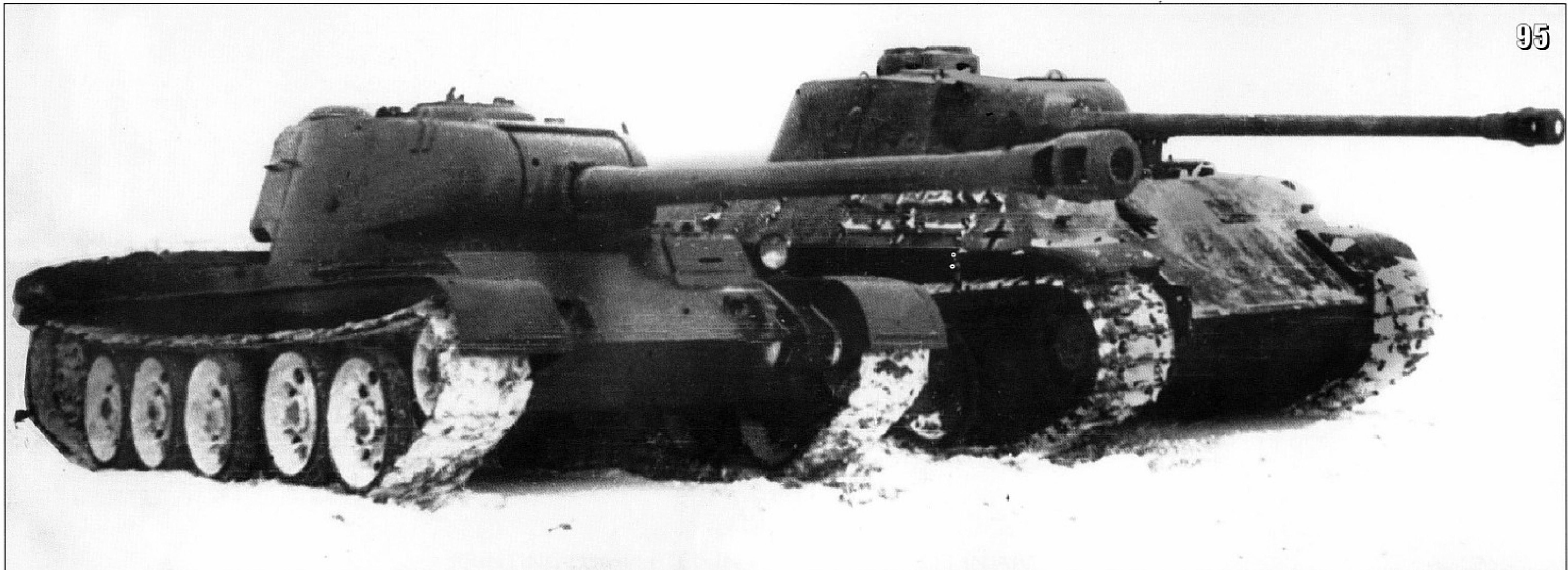
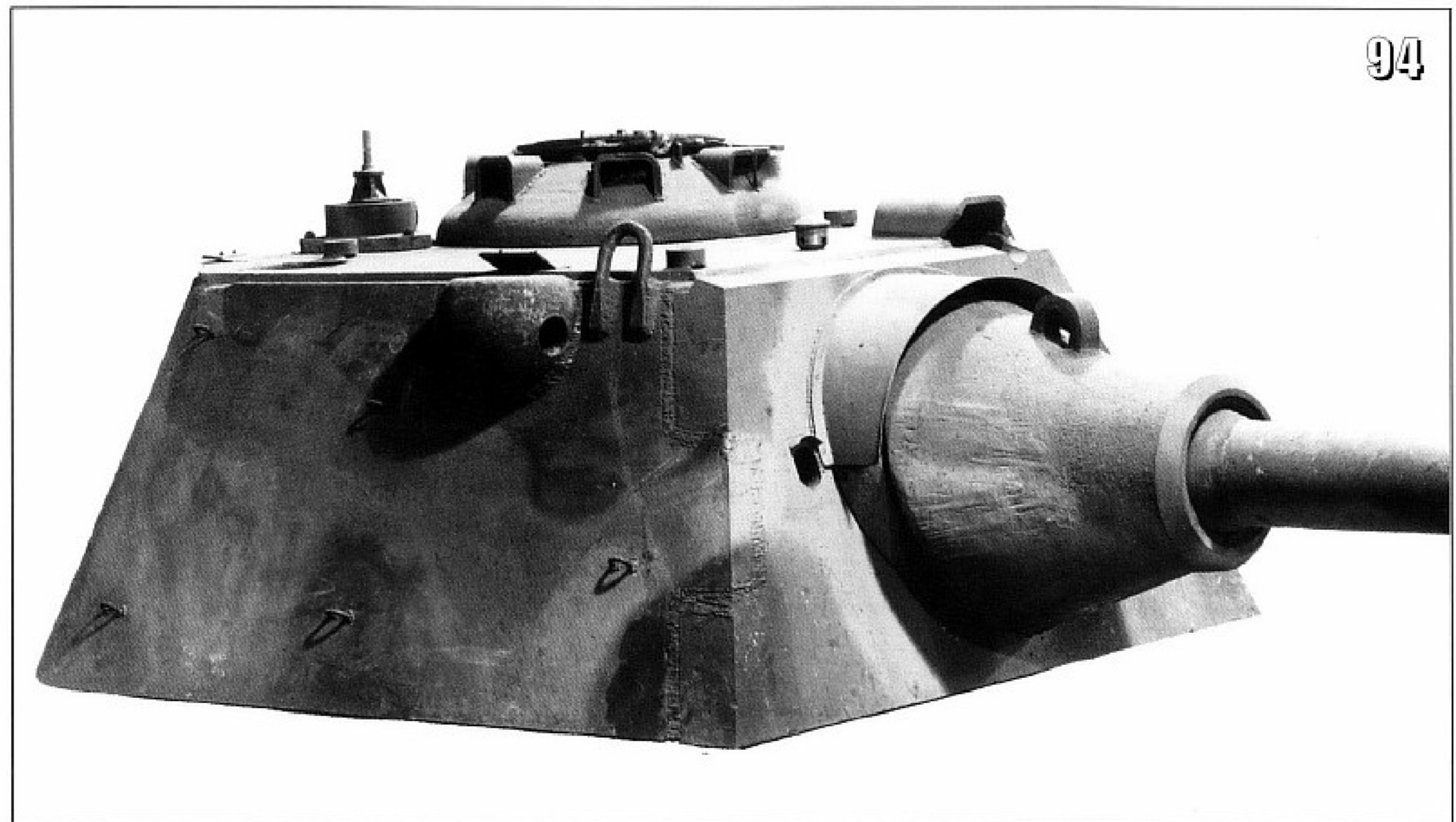
92- By the end of the war, delivery from the Russian arsenals were exceeding the Red Army's need for tanks. The Panthers pressed in service were quickly phased out.
(S. Netrebenko)



93- The panther was thoroughly tested and studied by the US Army. This early Ausf. A is being recovered and loaded on a Dragon Wagon, in Grafenwöhr. (Anderson)

94- The "Schmalturm" (small turret) was supposed to improve protection and reduce manufacturing time. This turret was designed to be equipped with a stereoscopic range finder, a very advanced solution for its time. (Anderson)

95- This interesting photograph shows a Panther Ausf. A next to the latest war-time development of the Red Army, the T-44. This mock-up was equipped with the same 122mm A 19 gun used on the JS II series. The standard postwar MBT will eventually, be fitted with a 100mm main gun. (Y. Kadari)



HISTORY FILE PANTHER

Panzerkampfwagen V (85 tfs. 1941)

