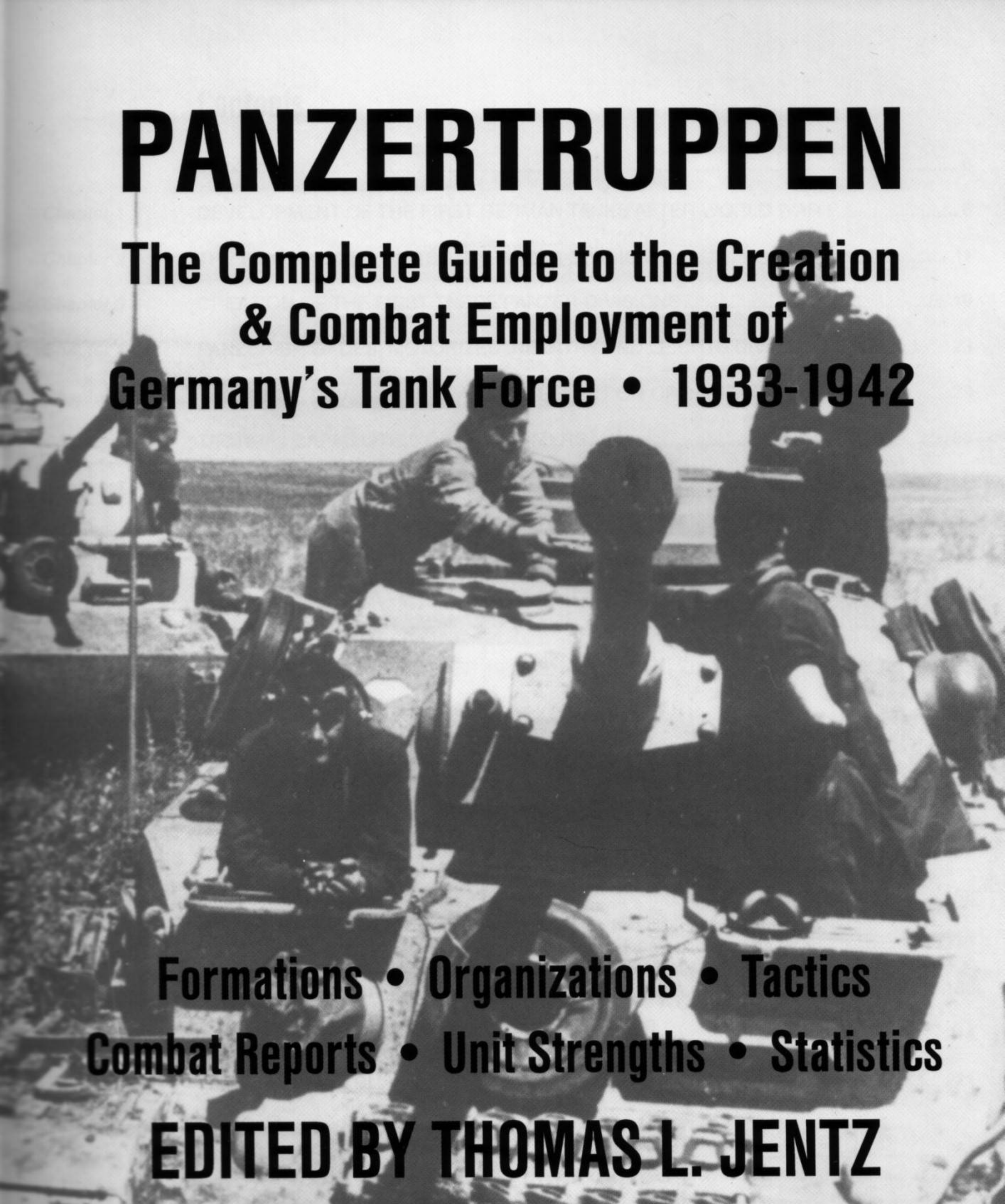
PANZERTRUPPEN

The Complete Guide to the Creation & Combat Employment of Germany's Tank Force • 1933-1942



Formations • Organizations • Tactics
Combat Reports • Unit Strengths • Statistics

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Schiffer Military History
Atglen, PA

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INTRODUCTION

In September of 1939, the world was astounded by Germany's ability to defeat Poland in less than a month. With the world still puzzled by the suddenness of this event, Denmark, Norway, Holland, Belgium, and France fell in rapid succession to the German onslaught, leaving Britain in shock. Greece and Yugoslavia were rapidly overrun during April of 1941, while German-Italian forces advanced rapidly in North Africa. Russia's turn was next, when German forces began pulverizing their forces in June of 1941. How had Germany achieved victory after victory, often against numerically superior enemy forces? The answer came in two words, Panzer and Blitzkrieg.

When and how had Germany built its Panzer forces and trained them for the Blitzkrieg? When was each Panzer unit formed? What was their organization? Why were Panzer units distributed among the **Panzer-Divisions**, **leichte Divisions**, and **Armee-Korps**? When were the various types of Panzers developed? What were their armament, armor protection, and capability? How many of each type were produced? What tactics did they use? How successful were they in combat? The answers to these and other related questions are contained in this book.

Many other books have successfully covered the Panzertruppen at division, corps, army, and army group level. These have dealt with the strategic decisions of the high command, the successes and the mistakes. A listing of other books on the Panzertruppen that I recommend are listed as an Appendix. After reading many of these published accounts, I was still left with many unanswered questions. How many Panzers were actually available with each unit at the start of each campaign? What tactics were used by the smaller units from platoons up to regiments? How did they defeat enemy tanks that had better guns and armor?

The answers to all of these questions were obtained by digging through original records for the past twenty-five years. The content of this book is derived solely from these original records consisting of war diaries, reports, and technical and tactical manuals written during the war. No attempt has been made to analyze the content or to interject personal opinion. The story is told as recorded by those responsible for decisions in developing the Panzertruppen and by those who fought in the Panzers. The only editing of reports was done to eliminate information that was not pertinent to understanding development or tactics of the Panzers and Panzer units.

In his book "Panzer Leader", General Heinz Guderian recounted his memories of the formation of the **Panzertruppen**. Written at the level of high command decisions, this account left many questions unanswered concerning details on tactical and technical development. General Guderian obviously did not get along with General Beck, **Chef der Generalstab des Heeres** (Chief of Staff of the Army), who he considered to be an obstruction in carrying out his farsighted plans. Therefore, both sides of the story are revealed in correspondence between General Beck, General Lutz (head of **Inspektorat 6** and Guderian's boss), General Fromm (head of the **Allgemeine Heeresamt** (general army department) who was over General Lutz), and General Liese (head of the **Heeres Waffenamt** (army ordnance department) responsible for technical development), as they argued over which direction to take in the procurement of equipment, the creation of new units, and the organization of these units.

In presenting how the Panzers fared in combat, only original combat and experience reports were used to relate the thoughts of the troops that fought in the Panzers. This establishes a foundation for the reader to evaluate their performance free from the influence of assumptions, generalities, opinions, and other uninformed statements expressed by armchair armor experts. The reader should be aware many of these original experience reports are biased in that they do not describe routine activity but were written to relate the unusual. Most of the German reports were written with the motive of initiating improvements to the Panzers or changing tactics.

Throughout this book, I have retained the names of the Panzers, Panzer units, rank, and title as they were used in the original reports. These names can not be translated with-

out loss of identity and meaning. As each new name is introduced, the American equivalent is included in parenthesis when the equivalency is not obvious (i.e. **Division, Brigade, Regiment, Bataillon, Kompanie**). **Panzer-Abteilung** frequently is mistranslated as being a detachment or a unit. It is not a German battalion which at the time consisted of five companies. With its two to four **Panzer-Kompanien** under command, it is roughly the equivalent of an American tank battalion. To somewhat ease the impact of German terms on the English speaking reader, I have inserted hyphens to break up some of the longer names and have blatantly hacked off suffixes that are normally appended to German nouns. A glossary of terms is included as Appendix F.

Over 30 years have passed since my first pilgrimage to the ordnance museum at Aberdeen in search of original sources of data on tanks. While stationed at Fort Knox, I frequently visited the Patton Museum to climb in the tanks and to search for documents. Trained as a tanker, I was sent to Germany in 1966. While in D Troop of the 2nd Armored Cavalry Regiment, I did my part in defending the free world against communist aggression. It was during this period that I acquired sufficient proficiency in the German language to begin to exploit the sources of data in that language. Realizing that there weren't too many job opportunities open to tank gunners in the civilian world, I decided a career change was in order. I attended nuclear power school at Fort Belvoir and was trained as a nuclear power plant operator/health physicist. The engineer library, TAGO library in the Pentagon, the Library of Congress, and again the ordnance museum in Aberdeen were all readily accessible.

One day at the Library of Congress, after I had stumbled onto a few original documents in German, a librarian informed me that most of these documents were available at the National Archives. I'd finally hit the mother lode. Many thanks are due to George Wagner (now retired) of the Captured Records Section for his advice and guidance in digging my way through the mountain of available records. I would also like to thank his replacement, Robin Cochsen, who has been a great help in locating the odd box of records. George informed me that while many of the records were on microfilm, many were returned to Germany without being copied. Therefore, starting in 1973, numerous treks have been made to the Bildarchiv in Koblenz and the Militaerarchiv in Freiburg. Thanks are also due to Heer Meyer and Heer Loos at the Militaerarchiv and Heer Nielges and Frau Kuhl at the Bildarchiv for their friendly assistance in extracting data from the massive collection of documents and photographs.

During that first trip to the Bildarchiv in Koblenz in April 1973, I ran into a chap from Ireland by name of Hilary Louis Doyle who already had a reputation as a creator of fine scale prints. Over dinner we discussed many of the great unknowns, like how many Panzers were built by the Czechs. Since then, Hilary and I have made many trips to the numerous museums, corporate archives, and private collections in Europe. These trips have been the most rewarding of experiences because of the many friendships that have developed over the years with those who also have an avid interest in the history of armor in World War II. These friends include Werner Regenberg, Karlheinz Muench, Leo Niehorster, Marcus Jaugitz, and Juergen Wilhelm, who have all been helpful in sharing research material and providing copies of rare photographs. It is always rewarding to dig through the records at The Tank Museum aided by David Fletcher, who is the foremost author on British armoured vehicles. Special thanks are also due to our friend Walter J. Spielberger, the leader in publishing books on German armored vehicles, for sharing his collection of research material and photographs.

The research was the fun part, providing constant rewards as long-sought-after facts and figures were finally discovered. The hard part was beating the data into some semblance of order and the tedious hours of translation so that the information would be made available to the many interested readers who don't have a command of the German language. World-renowned Peter Frandsen is thanked for his efforts in reviewing the manuscript as an elected representative for the average armor enthusiast. Thanks are also due to professional proofreader Stanley Thawley for his role in "degermanizing" sentence structure in the translations.

Any difficulty you may find while attempting to read through this book as if it was a light work of fiction is entirely your own fault for even attempting to embark on such an endeavor. It took over five times the length of World War II to compile this information. There is much more information contained in these two volumes than any single person actively involved with the Panzertruppen knew at the time. It is impossible for the most casual observer to even start to comprehend the most obvious facts after a few hours of light reading. Don't be quick to jump to conclusions. Keep an open mind, absorb the information at face value, and then apply it to analyze and understand how armored battles were fought in World War II.

This book is intended for those interested in facts and figures. As such it should be studied in conjunction with many other fine books on the subject. Your reward will be new discoveries on practically every page that debunk the old myths, propaganda, and erroneous military intelligence which have been insidiously infiltrated into our common knowledge and many published histories on World War II.

As work on this book progressed it became apparent that the story of the Panzertruppen was divided into two distinctly separate phases; offensive and defensive. This first volume presents the offensive phase up to October 1942. A second volume will cover the defensive phase to the end of the War.

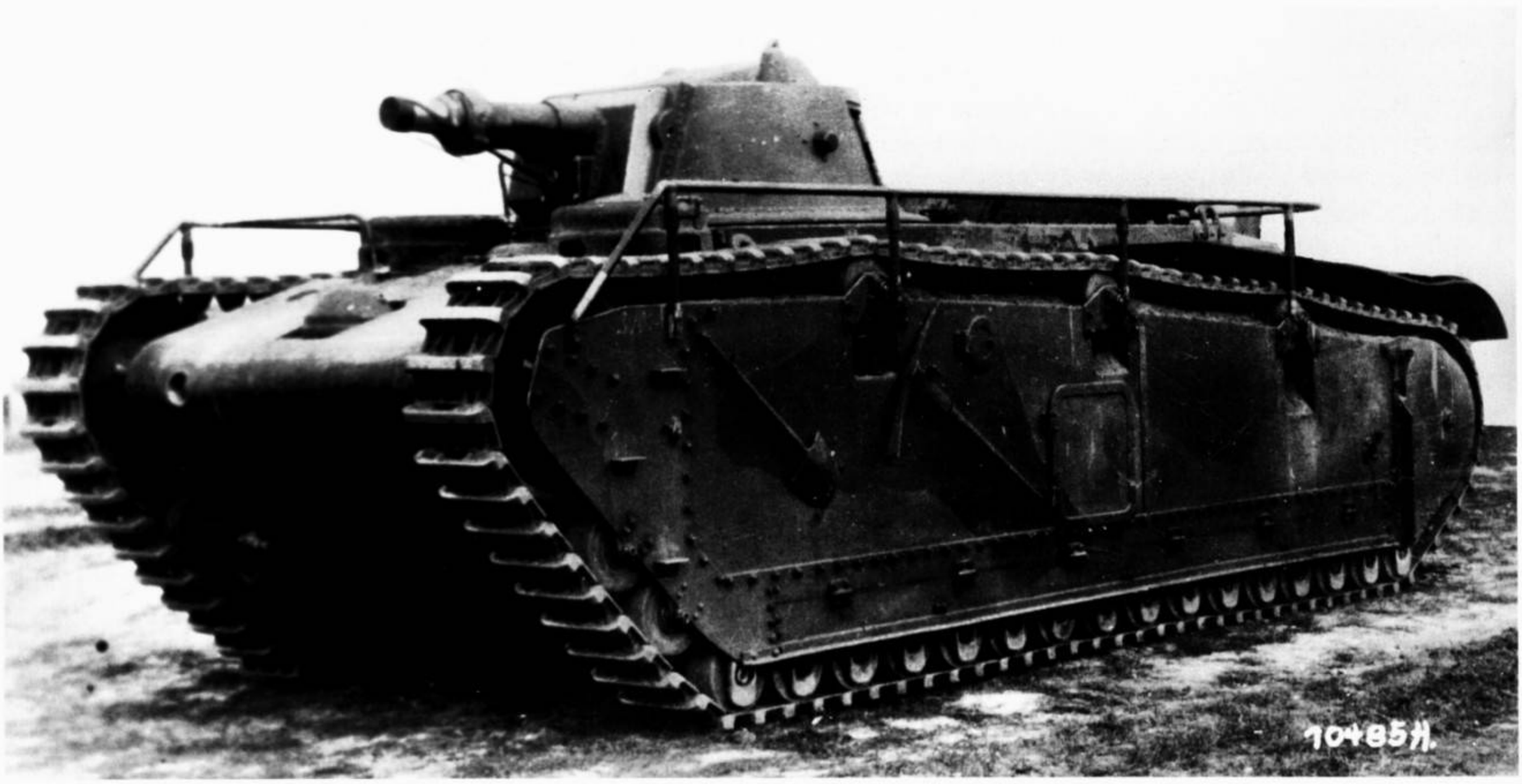
1

Development of the First German Tanks after World War I

It wasn't that tanks had won World War I all by themselves, nor would they win wars by themselves in the future, but the Allied victory would have been much costlier and may not have been achieved without tanks. Therefore, the Versailles Treaty clearly specified that Germany was forbidden from producing or importing **Panzerwagen**, tanks, or any other vehicles which could be employed as tanks. Such restrictions simply magnified the importance of having tanks in any modern army.

Long before the Nazi era, detailed technical specifications were laid down in April 1926 for a tank disguised by the code name **Armeewagen 20**. In March 1927, contracts for design and production of two experimental tanks were awarded to each of three firms: Daimler-Benz, Krupp and Rheinmetall. Code named **Grosstraktor**, each tank was to be automotively operational with a working 7.5 cm gun in a fully traversable turret, but soft steel was used for the body instead of armor plate. Assembly of all six of these **Grosstraktor** began in secrecy at Rheinmetall, Unterluess in August 1928. The six **Grosstraktor** were completed in July 1929, accepted by the **Heeres** (German army), and transported to a training/proving grounds at Kama (near Kazan) in Russia.

Design specifications for a lighter tank, code named **Leichttraktor**, were established by May 1928. In October 1928, contracts were awarded to both Krupp and Rheinmetall



One of the six **Grosstraktor** that were assembled in 1929 and transported to Kama in Russia for secret testing and training. (CHY)

The Rheinmetall version of the **Leichttrakor**. Four **Leichttrakor** were assembled in 1930 and also transported to Kama in Russia for secret testing and training. (CHY)

for each to design and produce two 6-ton experimental tanks with 3.7 cm guns in fully traversable turrets. Assembly of the four **Leichttraktor** was completed in secrecy at Rheinmetall, Unterluess in May 1930 and they were transported to Kama, arriving in June 1930.

The soft steel experimental tanks had a rear drive sprocket that was unacceptable because tracks were easily thrown when trying to turn in soft ground. Therefore, the specification for the small tank currently under development (code named the **Kleintraktor**) was changed in September 1931 to require that the drive be mounted forward and the engine in the rear. To decrease time and gain experience, a decision was made to base the design on an existing tank chassis, which was then purchased directly from Carden-Lloyd. In March 1932, Krupp was awarded a contract for production of a single experimental **Kleintraktor** chassis which was completed and accepted in September 1932. In October 1932, the decision was made that the only armament for this small tank was to be twin machine guns. A 2 cm gun wasn't expected to be mounted for perhaps another two years.

In March 1933 Krupp was awarded a contract to produce one **Kleintraktor** chassis in armor plate, followed in May with a contract for four **Kleintraktor** chassis in soft steel to be used for troop trials. In July 1933, Krupp was awarded a contract to produce 135 chassis in armor plate in the first production series for the **Kleintraktor** design. The vehicles in the production series were code named **Landwirtschaftlicher Schlepper** (abbreviated as **La.S.**). Without a superstructure or turret, and painted **Feldgrau** like a non combat vehicle instead of the three-tone camouflage colors, the **La.S.** chassis could be claimed to be the agriculture tractor implied by its code name. To establish a wider base of assembly firms capable of producing tanks, contracts were awarded for three **La.S.** chassis in armor plate to be produced by each of five additional firms (Daimler-Benz, Krupp-Grusonwerk, Henschel, Maschinenfabrik-Augsberg-Nuernburg, Rheinmetall). The four **Kleintraktor** chassis were completed, inspected, and accepted for delivery to the **Kraftfahrversuchsstab** (automotive experimental staff) in Doeberitz in August 1933.

Further attempts to design a medium tank were initiated in 1932. In October 1932, basic specifications for a new **mittlerer Traktor** (medium tank) were established for a new 15 ton tank with a 7.5 cm gun and armor thick enough to protect against hits from 20 mm armor piercing rounds. By February 1933, it was decided to arm the new tank with a twin gun mount in the turret consisting of a 7.5 cm and a 3.7 cm gun. The code name for this tank was changed to **Neubau Fahrzeug** in October 1933.

Rheinmetall was awarded contracts to complete two experimental chassis and an experimental turret in soft steel. Krupp was awarded a contract to design and construct a single turret in soft steel. Rheinmetall mounted the 3.7 cm gun above the 7.5 cm gun while Krupp designed their turret with the two guns side by side. **Neubau Fahrzeug Nr.1** with the turret

Forerunner of the **Pz.Kpfw.I**, the first experimental **Kleintraktor** was completed by Krupp and accepted by the **Heeres** in September 1932. (BA)

designed/constructed by Rheinmetall was completed in 1934. **Neubau Fahrzeug Nr.2** with the chassis designed/constructed by Rheinmetall and a turret designed/constructed by Krupp was completed in 1935. Three additional **Neubau Fahrzeug** in armor plate were ordered with Rheinmetall chassis and Krupp turrets and were completed in 1936.

Thus, by the time Germany created their first Panzer unit in November 1933, they were in possession of four **Grosstraktor** (the two from Daimler-Benz were not functional), four **Leichttraktor**, and six **Kleintraktor** chassis. Only the improved **Kleintraktor** design as the **La.S.** was sufficiently advanced to support mass production.

The next phase in the development of a medium tank resulted in the multi-turreted **Neubau Fahrzeug**. The chassis for this second experimental N**eubau Fahrzeug** was completed by Rheinmetall and the turret was designed and completed by Krupp in 1935. (WJS)

2

The First Panzer Units and Panzer-Division

In addition to testing experimental tanks in Russia, personnel had been sent to Kama to learn to operate tanks and for tactical training. This created a nucleus of officers and non-commissioned officers who were available to form the cadre for tank units in the future. As far back as 1928, the **Reichswehr** five-year plans had specified that tank companies would be created within the next three to five years.

Finally, 15 years after the end of World War I, the first Panzer training unit was formed on 1 November 1933 and given the code name **Kraftfahrlehrkommando Zossen** (motorized training command stationed in Zossen). It was made up of personnel who had taken part in the secret training in Russia near Kazan. At the time of its formation, this unit only consisted of one **Lehrtrupp** (training company). This single company was to be expanded, first to an **Abteilung** (battalion), then to a regiment, followed by a second regiment. At first the expansion was carried out by a skeletal core of officers and non-commissioned officers who formed the cadre for units that would be filled with recruits in the Fall of 1934.

Only four **Grosstraktor**, four **Leichttraktor**, and six **Kleintraktor** chassis were available in the entire inventory at the time of the formation of the first company on 1 November 1933. Many of these were being testing and modified and therefore were not available to the troops for training. Delivery of 150 **Schulfahrgestell** (tank chassis for driver's training) to **Kraftfahrlehrkommando Zossen** commenced in January 1934.

On 1 September 1934, the **Reichsminister** issued a directive on cover names for army units. Based on external political reasons, the **Fuehrer und Reichskanzler** had directed that rebuilding the **Heeres** must be accomplished under complete secrecy. Starting on 1 October 1934, all **Heeres** units were to be titled with the name of their weapons branch followed by the name of the location where they were garrisoned. Titles with numbers were to be dropped as of 1 October 1934. At this time, the cover names and the planned final titles for the **Kraftfahr-Kampftruppen** (Motorized Combat Troops) were:

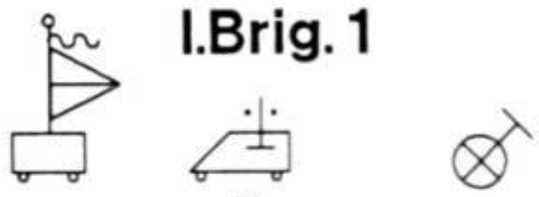
Cover Name	Final Titles
3.Kavallerie-Division	**Division-Kommando leichte Division**
Kraftfahrlehrstab	**Kampfwagen-Brigade 1**
Kraftfahrlehrkommando Zossen	**Kampfwagen-Regiment 1**
I./Kf.Lehr-Kdo. Zossen	**I.Kampfwagen-Abteilung**
II./Kf.Lehr-Kdo. Zossen	**II.Kampfwagen-Abteilung**
Kraftfahrlehrkommando Ohrdruf	**Kampfwagen-Regiment 2**
I./Kf.Lehr-Kdo. Ohrdruf	**I.Kampfwagen-Abteilung**
II./Kf.Lehr-Kdo. Ohrdruf	**II.Kampfwagen-Abteilung**

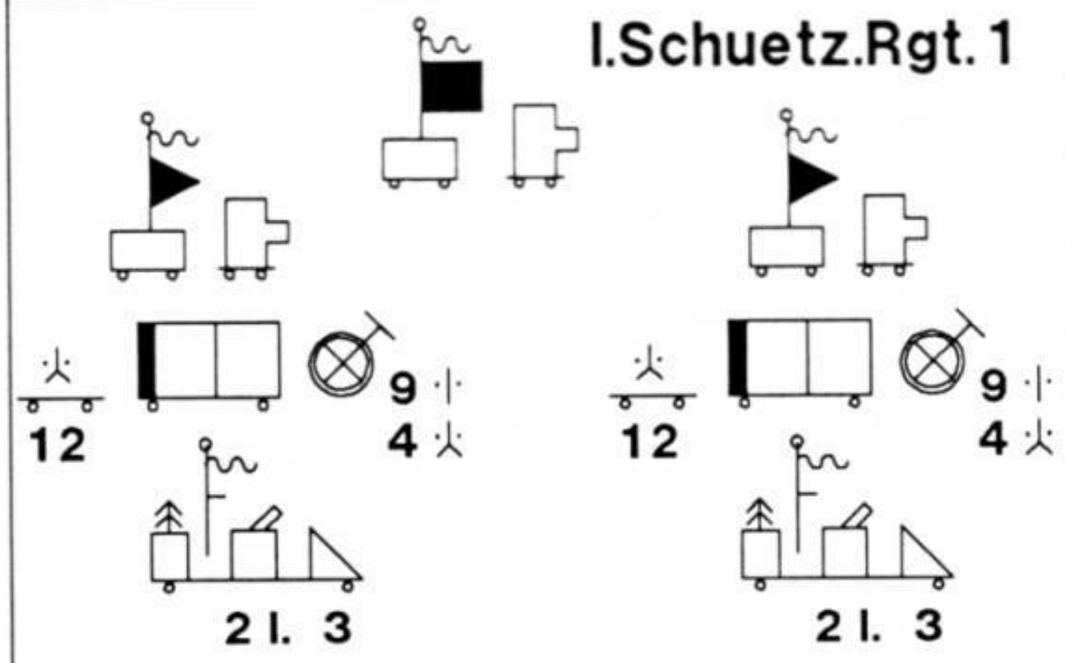
An organization chart for a **"Versuchs Panzer-Division 1934/35"** (experimental armored division) was distributed within the **Heeres** on 12 October 1934. As shown on the organization chart, the two armored regiments were to be supported by a **leichte Schuetzen-Regiment** (light motorized infantry regiment), a **Kradschuetzen-Bataillon** (motorcycle battalion), a **Kampfwagen-Abwehr-Abteilung** (anti-tank battalion), an **Aufklaerung-Abteilung** (reconnaissance battalion), a **leichte Artillerie-Regiment** (light artillery regiment), a **leichte Division-Nachrichten-Abteilung** (light divisional signals battalion), and a **leichte Pionier-Kompanie** (light combat engineer company). The plan for a self-propelled artillery battalion was especially progressive for the period.

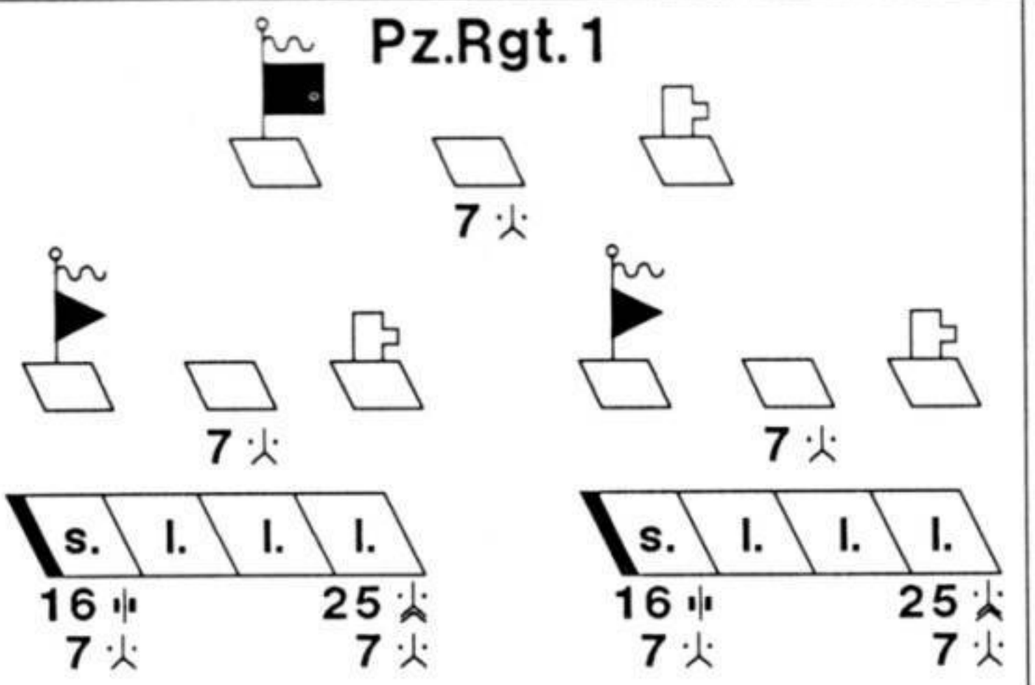
The first phase of the secret expansion program for the **Heeres** occurred on 1 November 1934. **Kraftfahrlehrkommando Zossen** had been expanded into a full regiment with two **Abteilungen**, and **Kraftfahrlehrkommando Ohrdruf** was created as a full regiment with two **Abteilungen**.

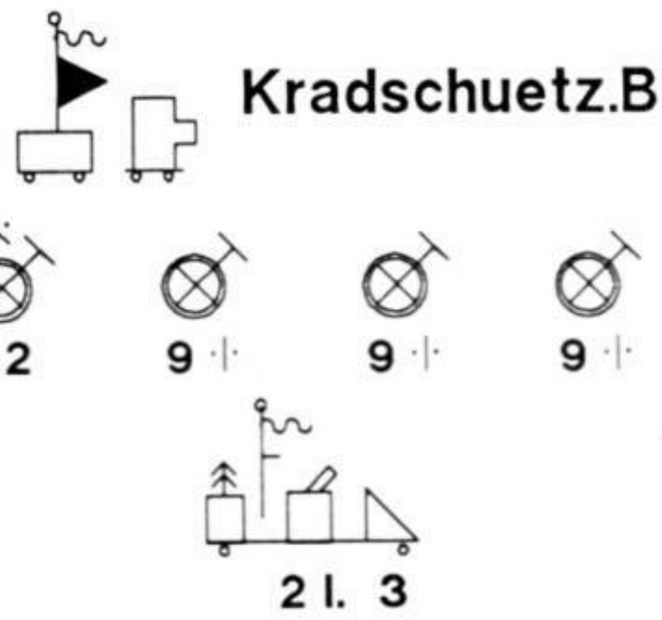
On 1 February 1935, the **Chef der Heeresleitung** issued a directive that the following names could be used internally within the **Heeres** for units in the **Kraftfahrtruppe**:

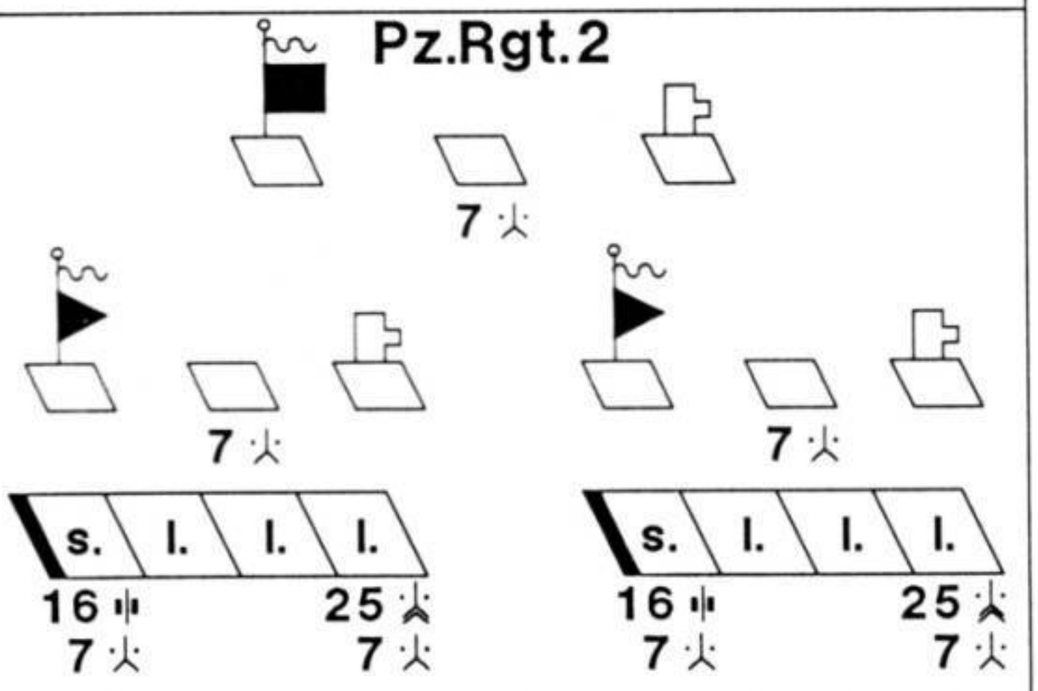
Versuchs - Panzerdivision 1934/35

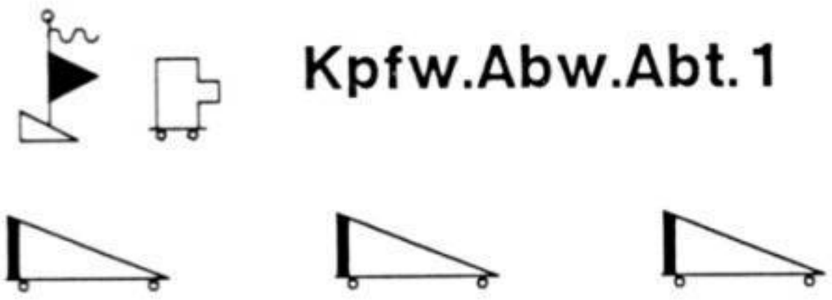


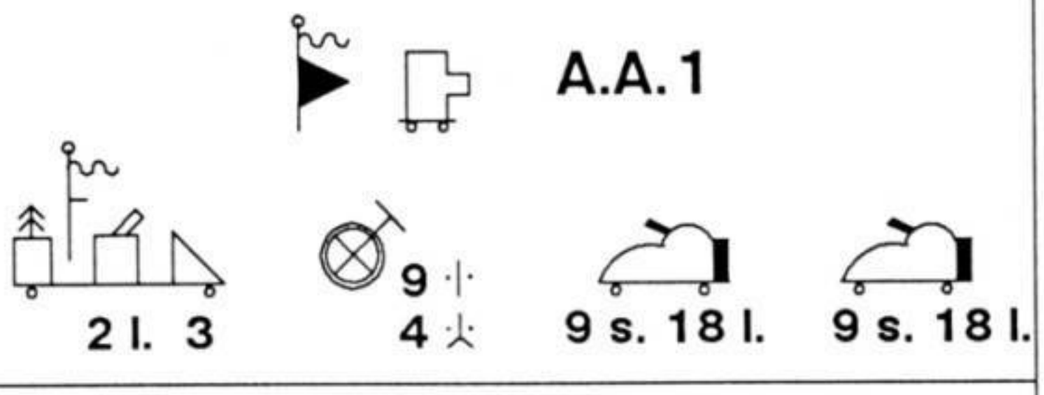


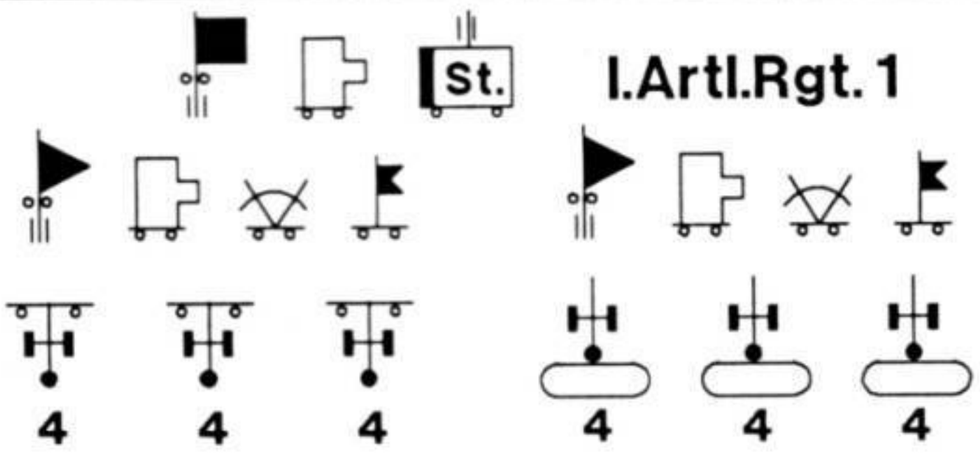


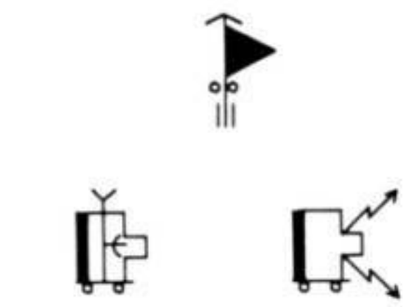


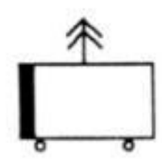










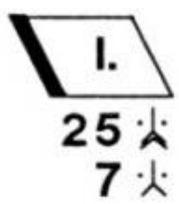


KEY TO SYMBOLS USED IN THE ORGANIZATION CHART FOR THE VERSUCHS-PANZERDIVISION 1934/35

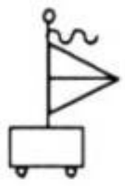
Panzer-Division Headquarters

Light Panzer Platoon
with 7 M.G.Kpfw.

Panzer-Brigade Headquarters

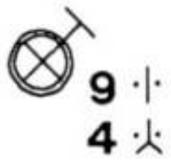


Light Panzer Company
with 25 3.7 cm Gesch.Kpfw.
(or 2 cm M.G.Kpfw) and
7 M.G.Kpfw.

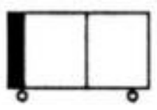


Infantry Brigade Headquarters

Recon Platoon with 7 M.G.Kw.



Motorcycle Company with
9 light and 4 heavy machine guns

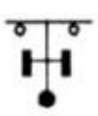


Motorized Infantry Company

Anti-Tank Company with
9 3.7 cm anti-tank guns

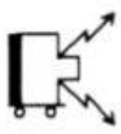
Artillery Regiment Headquarters

Motorized Survey Troop



Light Field Howitzer Battery
with 4 10.5 cm howitzers
towed by motor vehicles

Headquarters for a light
Division Signals Battalion

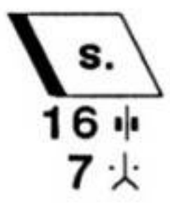


Motorized Radio Company

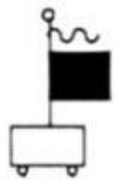
Motorcycle Messenger Platoon

Signals Platoon for a
Panzer-Regiment or Abteilung

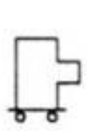
Panzer-Regiment Headquarters



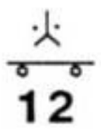
Heavy Panzer Company
with 16 7.5 cm Gesch.Kpfw.
and 7 M.G.Kpfw.



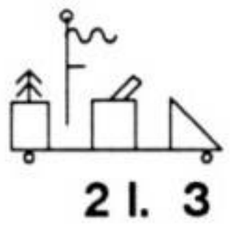
Infantry Regiment Headquarters



Signals Platoon



Machine Gun Company

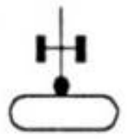


Heavy Infantry Company with
anti-tank platoon, light mortar
platoon and engineer platoon

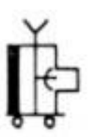
Armored Car Company with
6 Pzkw. and 18 M.G.Kw. of which
4 with radio sets without M.G.

Headquarters Company for an
Artillery Regiment

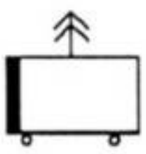
Motorized Weather Platoon



Light Field Howitzer Battery
with 4 10.5 cm howitzers
on self-propelled mounts



Motorized Telephone Company



Light Combat Engineer Company

Panzer-Division
Panzer-Brigade 1
Panzer-Regiments 1
I.Abteilung/Panzer-Regiments 1
1.,2.,3.,4.(m)Pz.Kp./Pz.Rgt.1
II.Abteilung/Panzer-Regiments 1
5.,6.,7.,8.(m)Pz.Kp./Pz.Rgt.1
Panzer-Regiments 2
I.Abteilung/Panzer-Regiments 2
1.,2.,3.,4.(m)Pz.Kp./Pz.Rgt.2
II.Abteilung/Panzer-Regiments 2
5.,6.,7.,8.(m)Pz.Kp./Pz.Rgt.2

These new titles were not to be used openly by the **Reichheeres** until after secrecy was lifted. Until then, these new titles were to be used only when writing new manuals, during tactical exercises, etc.

The first trial exercise of the first **Panzer-Division** (organized as shown in the chart) was conducted at the training grounds near Munster in August 1935. General Lutz, commander of the **Kommando der Panzertruppen**, signed the experience report from which the following excerpts relate the details of the organization and lessons learned from this historically significant event:

The trial exercise was intended to gain experience in tactics, organization, weapons, and equipment for a **Panzer-Division** assembled for the first time that had been created solely on the basis of theoretical considerations. For this exercise, 12,953 officers and men, 4025 wheeled vehicles and 481 tracked vehicles were assembled and organized as shown in the organization chart.

By 1 August 1935, 318 **M.G.-Panzerwagen** along with 15 **leichte (Funk) Panzerwagen** had been produced[1]. The latter were created by mounting a fixed superstructure on a

[1]The names that we commonly know the German Panzers by today first came into use as tactical names much later on 3 April 1936:

Tactical Name	Design Code Name
Panzerkampfwagen I (M.G.) (Sd.Kfz.101)	**La.S.**
Panzerkampfwagen II (2 cm) (Sd.Kfz.121)	**La.S.100**
Panzerkampfwagen III (3.7 cm) (Sd.Kfz.141)	**Z.W.**
Panzerkampfwagen IV (7.5 cm) (Vskfz.622)	**B.W.**

The first **Panzer-Division** was assembled at the Munster training ground in August 1935. The four **Grosstraktor** and a **Neubau Fahrzeug** shown on the right were part of the simulated **schwere Panzer-Kompanie**. One of three rare **Fuehrer-Panzerwagen** is shown in the background. (WJS)

Organization of the 1.Panzer-Division in August 1935

Fifteen **leichte (Funk) Panzerwagen** were outfitted with transmitting radio sets for command and control by the **Panzer-Abteilung** and **Panzer-Kompanie** commanders. These were created by mounting a fixed superstructure on a normal **2./La.S.** chassis. (CHY)

normal **La.S.** chassis and outfitting them with both transmitting and receiving radio sets. Normal **M.G.-Panzerwagen** were outfitted with only a receiving radio set. In addition, three "**Fuehrer-Panzerwagen**" (fully tracked command vehicles) equipped with sending and receiving radio sets were assigned to the brigade and regimental commanders. To simulate a **schwere Panzer-Kompanie**, 4 **Grosstraktor**, 3 **Leichttraktor** and 2 **Neubau Fahrzeuge** were assembled in the 8.**Kompanie** of **Kraftfahrlehrkommando Zossen**. Many of the 150 **Schulfahrgestelle** (also known as the **Krupp-Traktor**) produced as the **1.Serie La.S.** were used to help fill the units to the desired strength during the exercise.

The distance covered by all the Panzers during the exercise amounted to 275,000 kilometers, or an average of about 600 kilometers by each of the 481 Panzers. Only 27 mechanical breakdowns occurred, equaling 5.6 percent. This minimal loss was attributed to factory-fresh equipment as well as to maintenance services who were able to repair Panzers with minor damage overnight.

*Currently equipping the **Panzer-Regiments** with **M.G.-Kampfwagen** is an emergency solution. **Kampfwagen** with armor-defeating weapons and **Kampfwagen** with 7.5 cm guns are necessary. A **Panzer-Abteilung** should then be organized with:*

Note continued from page 14: Prior to this, the common name for tanks had evolved from **Panzerwagen** to **Kampfwagen** and then into **Panzerkampfwagen**. There were also numerous abbreviations and modifiers. They all mean the same thing: a fully tracked armored vehicle with the main armament mounted in a turret that can traverse 360 degrees.

*3 **leichte Kompanien** (**M.G.-Kampfwagen** mixed with **Kampfwagen** with armor-defeating weapons) and*
*1 **schwere Kompanie**: **Kampfwagen** with 7.5 cm guns.*

*The question of organizing the **Panzer-Brigade** in trifoil will be examined in the future. The following organizational structure can be considered:*

*2 **Panzer-Regiments** each with 3 **Panzer-Abteilungen***
*3 **Panzer-Regiments** each with 2 **Panzer-Abteilungen***
*3 **Panzer-Regiments** each with 3 **Panzer-Abteilungen***

*Based on command flexibility as well as the range of the radio sets, the current number of **Kampfwagen** within a brigade can hardly be increased significantly. Therefore, the only option that remains is to reduce the company strength so that the trifoil organization can be accomplished without significantly increasing the number of **Kampfwagen**.*

*Whether a decrease from 7 to 5 **Kampfwagen** in each platoon appears acceptable and suitable can first be determined after further tests. From previous experience, a **Panzer-Kompanie** at full strength with 32 **Kampfwagen** can be commanded without difficulty.*

*In addition, with 32 **Kampfwagen** the **Panzer-Kompanie** still has sufficient offensive force even after losses occur.*

*In every case, organizing the brigade with three regiments each with three **Abteilungen** results in too high a number of **Kampfwagen** and therefore can't be considered viable. Therefore it appears that organizing the brigade with three regiments each with two **Abteilungen** must be considered as the most advantageous.*

Based on the experience gained in this exercise it may be concluded that:

*• A **Panzer-Division**, assembled essentially like the exercise division, appears to be operationally suitable. Nothing of significance should be changed in the organization until further, detailed experience is available.*

*The combination of a **Panzer-Brigade** and a **Schuetzen-Brigade** (motorized infantry brigade) qualifies the **Panzer-Division** to accomplish many combat tasks in which both types of units complement each other.*

Crews mounting up. The driver of the **M.G.-Panzerwagen** used the hatch on the superstructure side and the commander used the turret hatch. (WJS)

Outfitted with only a receiving radio set, signal flags were the primary method for the commanders of these **M.G.-Panzerwagen** to relay commands. (WJS)

*• The speed of the **Panzer-Division** on the march and in combat makes command and the timely determination of our own and the enemy situation difficult. Close cooperation with aircraft is therefore necessary for command, reconnaissance, and combat.*

*• Only the employment of **Kampfwagen** in depth promises success. About three kilometers wide is viewed as the smallest front for employment of an entire **Panzer-Division.***

*• Employment of a single **Panzer-Abteilung** or **Panzer-Regiment** will only be suitable in rare cases. It will mostly have a chance of success against limited objectives. Against long-range objectives, these smaller units can hardly cope with the defense.*

*• In general, the equipment has proven its worth. The capabilities of the vehicles and their mobility are good. The **M.G.-Kampfwagen** are a very useful and effective weapon. However, it may not be overlooked that armor-defeating weapons and weapons firing high explosives must be obtained.*

• Ultra-short-wave radio sets with the same range should replace the current 100 watt and 30 watt sets. This is necessary so that enemy listening services will not be able to hinder the use of radios during the approach march. When engaged with the enemy, radio traffic is often the only means for quick and secure command of motorized units. Because the commanders need to be near the head of their units, armored command and signal vehicles are absolutely necessary.

3

Creation of the First Three Panzer-Divisions

On 1 September 1934, the **Chef der Heeresleitung** approved a second **Panzer-Division** to be created by 1 October 1935. General Beck requested that the preliminary work needed to support the formation of this division begin immediately.

On 18 January 1935, the **Inspekteur fuer Heeresmotorisierung** (**In 6**), General Lutz, stated that creation of the ***three Panzer-Divisions and three independent Panzer-Brigades*** that were planned should be accelerated and proposed that the following units be created by 1 October 1935:

Stab 1.Panzer-Division on 1Oct35
  Stab 1.Panzer-Brigade on 1Oct35
    Panzer-Regiment 1 on 1Nov34
    Panzer-Regiment 3 on 1Oct35
Stab 2.Panzer-Division on 1Nov34
  Stab 2.Panzer-Brigade on 1Oct35
    Panzer-Regiment 2 on 1Nov34
    Panzer-Regiment 4 on 1Oct35
Stab 3.Panzer-Division on 1Oct35
  Stab 3.Panzer-Brigade on 1Oct35
    Panzer-Regiment 5 on 1Oct35
    Panzer-Regiment 6 on 1Oct35

General Lutz stated that creation of a **Division-Stab** (headquarters) for each **Panzer-Division** in the Fall of 1935 was necessary in order to ensure that the newly created units receive guidance that was absolutely necessary. The equipment necessary for training could be supplied by the time these units were assembled. The **leichte Zug** for each head-

MG-Panzerwagen from the **II.Abteilung/Panzer-Regiment 6** on parade. (RAC)

quarters was to be equipped with 7 **M.G.Panzerwagen**. At first each company was to be equipped with only 17 **M.G.Panzerwagen**. Panzers were to be issued to the **1.** and **2.Panzer-Division** starting in January and continuing through December 1935. On 1 October 1935, each **Panzer-Kompanie** of **Panzer-Regiment 5** and **6** could be issued 10 **M.G.Kampfwagen (Schulfahrgestell)**. Further issue of Panzers to the **3.Panzer-Division** was to occur in October through December 1935. The **1.** and **2.Panzer-Division** were to be combat ready with **M.G.Panzerwagen** on 1 April 1936, the **3.Panzer-Division** about a half year later. At first only **M.G.Panzerwagen** would be available. **Panzer-Divisions** were projected to be in possession of 140 **Panzerwagen** with 3.7 cm guns and 10 **Panzerwagen** with 7.5 cm guns by April 1937.

On 5 February 1935, the **Heeres-Personalamt** stated that there only were sufficient officers to create the headquarters for three regiments. Since only parts of the three **Panzer-Divisions** could be created, it was suggested that the creation of the headquarters for the third **Panzer-Division** be delayed, and that the third **Panzer-Brigade** be placed under one of the other commands.

On 28 February 1935, the following schedule was proposed for creating additional Panzer units:

Date	Pz.Div.Stab	Pz.Brig.Stab	Pz.Rgt.Stab	Pz.Abt.
1.11.34	1	1	2	4
Total: 1 **Panzer-Division**				
1.11.35	2	3	6	12
Total: 2 **Panzer-Divisions** and 1 reinforced **Panzer-Brigade**				
1.11.36	3	3	6	12
Total: 3 **Panzer-Divisions**				
1.11.37	3	4	8	16
Total: 3 **Panzer-Divisions** and 1 **Panzer-Brigade**				
1.11.38	3	5 - 6	10 - 12	20 - 24
Total: 3 **Panzer-Divisions** and 2 or 3 **Panzer-Brigades**				

In a move to continue motorization of the **Kavallerie**, the **Reichsminister** directed that three **Reiter-Regiments** were to be utilized for creation of Panzer units, possibly by 1 April 1935.

On 20 February 1935, it was proposed that a **Panzer-Brigade** (consisting of two **Panzer-Regiments** each with two **Panzer-Abteilungen**) be created from the **Kavallerie**. On 27 March 1935, the **Chef der Heeresleitung** ordered that the personnel from the **Reiter-Regiments** to be used in creating four **Panzer-Abteilungen** were to come under the command of the **Inspekteurs der Kraftfahrtruppen** effective 15 May 1935. Effective 1 May 1935, **Reiter-Regiment 12** was assigned to the **Kraftfahrtruppen** to begin their training.

On 17 April 1935, the **Chef der Heeresleitung** recorded the following main points for the high command meeting to be held on 24 April 1935 dealing with the **Heeres** expansion in 1935:

- 24 **Infanterie-Divisions** and 3 **Panzer-Divisions** were to be created.
- The **Landespolizei** (with the exception of the demilitarized zone and **Landespolizei Gruppe General Goering**) were to be assimilated into the **Heeres**.
- As planned, the **Kavallerie-Korps** and the **Kavallerie-Divisions** were to be disbanded effective 1 April 1936. The **Reiter-Regiments** were to be attached to **Armee-Korps**.

The cover names hiding the fact that there were three **Panzer-Divisions** was to be dropped when the expansion program for 1935 went into effect on 15 October 1935.[2]

On 4 May 1935, Oberst Guderian, **Chef des Stabes des Inspektion der Kraftfahrtruppen**, sent the **Chef der Heeresleitung** the following opinion on locating the garrisons for the Panzer units:

*"In light of the development of the political situation and the resulting adjustment of main defensive points for German forces on the western border, it appears that the previous plans for garrisoning the Panzer forces should be reviewed. The plans for the **1.Panzer-Division** (Weimar) and **3.Panzer-Division** (Berlin) have been settled and therefore should not be reconsidered. When considering that three **Panzer-Divisions** and three **Panzer-Brigades** are to be formed by 1938, it may be concluded that the **3.Panzer-Division** be viewed as providing sufficient defense for the East.*

*In addition, the **1.Panzer-Division** is favorably located for employment toward either the south or east.*

*In comparison, it appears that the desired defensive strength in the West has not yet been achieved. The **2.Panzer-Division** (Wuerzburg), to be created in the Fall, is to be located at first with one **Panzer-Regiment** in Ohrdruf and the*

[2]The effective date for the second phase of the expansion program had been moved back from 1 October to 15 October 1935. This date, 15 October 1935, is often claimed to be the birthdate of the **Panzertruppen**. As is readily evident from the original records, this is merely the date in which the existence of the **Panzertruppen** was openly revealed to the world. At the time it was the only date that could be admitted as the birthday. The use of any earlier date would have revealed that **Panzertruppen** units had previously existed in secret.

*other **Panzer-Regiment** in Sachsen. It is the opinion of the **Inspektion** that an urgent need exists to expeditiously concentrate this division in the region of Meinigen-Wuerzburg-Bamberg. This means that completion of the necessary buildings for the garrisons (especially in Bamberg) is urgently needed.*

*In addition, the **Inspektion** believes that a French attack expected to occur in the direction of the Neckar River will cause complications that will be very quickly felt within two or three days. Therefore, it is suggested that the **4.Panzer-Brigade** should be raised in 1936 and garrisoned in the region of Ludwigsburg-Tuebingen-Reutlingen. This would guarantee that this Brigade and the Panzer forces stationed around Wuerzburg and Bamberg will flank the French attack when the opponent advances frontally toward the Neckar position.*

This proposal means that reconnoitering the area and detailed decisions on the garrisons must be accelerated in order to locate the units in operationally preferred regions.

*Because they are not urgent, decisions on the location of additional **Panzer-Brigades** that are to be created in the future (after 1937) can still be withheld. The proposed locations for these two **Panzer-Brigades** are the region by Wetzlar-Marburg and the region by Minden-Paderborn. When considering these locations, please refer to the proposal dated 1 August 1934 that was sent to the **Truppenamt** recommending the garrisons for a total of nine **Panzer-Divisions**."*

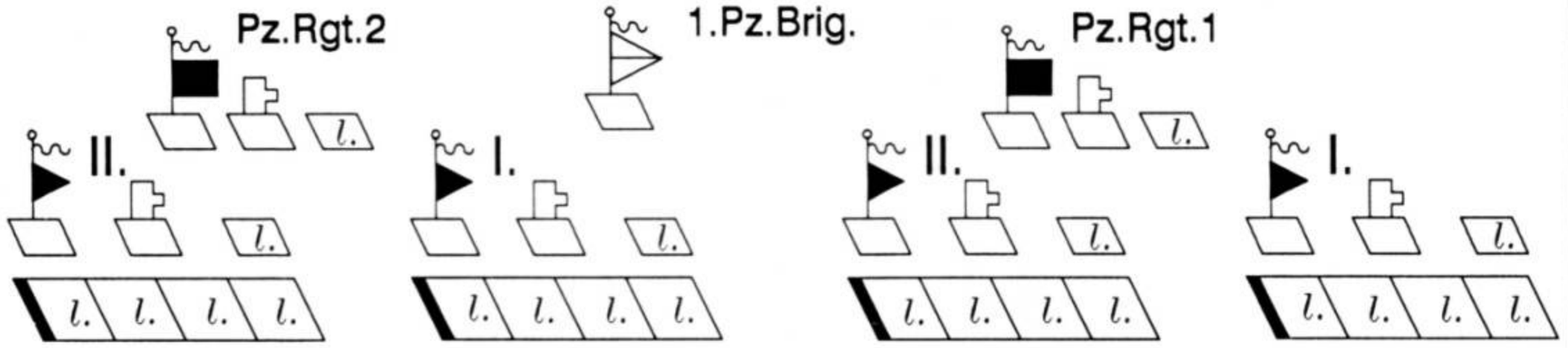
Effective 15 October 1935, the second phase of the expansion program for the **Heeres** was carried out with the creation of the following Panzer units:

Kommando d. Panzer Truppen
- **1.Panzer-Division**
  - **1.Panzer-Brigade**
    - **Panzer-Regiment 1** (mostly from **Pz.Rgt.2**)
    - **Panzer-Regiment 2** (mostly from **Reiter-Rgt.7**)
- **2.Panzer-Division**
  - **2.Panzer-Brigade**
    - **Panzer-Regiment 3** (mostly from **Reiter-Rgt.12**)
    - **Panzer-Regiment 4** (mostly from **Pz.Rgt.2**)
- **3.Panzer-Division**
  - **3.Panzer-Brigade**
    - **Panzer-Regiment 5** (mostly from **Pz.Rgt.1**)
    - **Panzer-Regiment 6** (mostly from **Reiter-Rgt.4**)

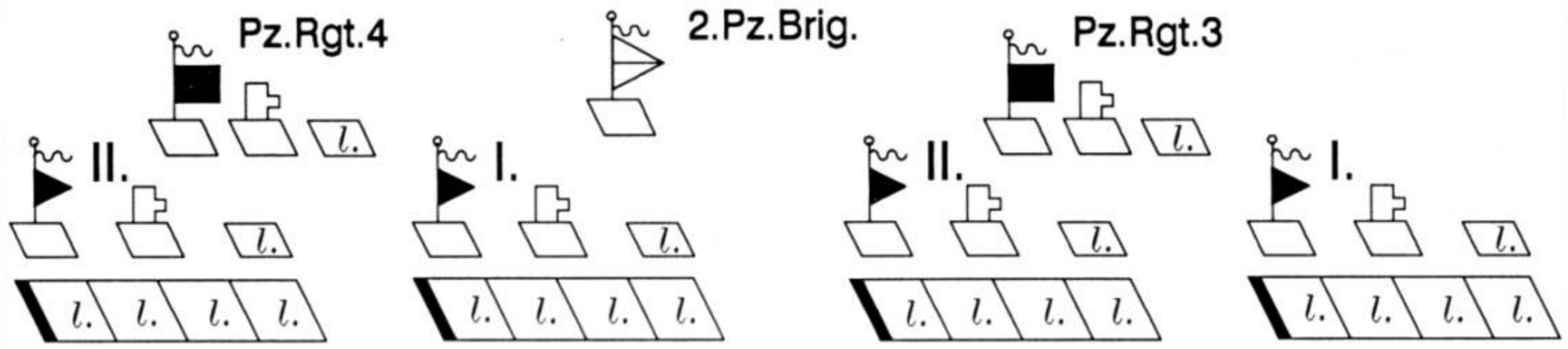
The goals had been realized for establishing the **Panzertruppen** as a separate arm of the service under their own command along with concentrating the Panzers in division-sized units capable of strategically decisive engagements.

ORGANIZATION OF THE PANZER UNITS
EFFECTIVE 15 OCTOBER 1935

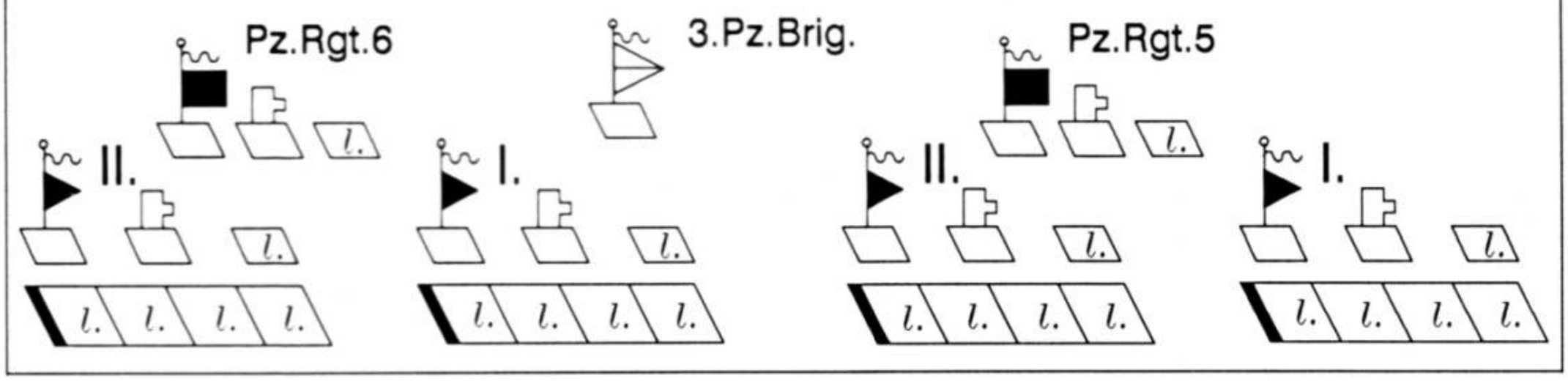
1.Panzer-Division



2.Panzer-Division



3.Panzer-Division



4

Panzer-Brigades, Motorized Infantry and Leichte Divisions

Plans had been established to create independent **Panzer-Brigades** instead of **Panzer-Divisions** during future phases of the expansion program. In addition, four infantry divisions were to be motorized and three **leichte Divisions** created. Guderian considered this period to be a major setback in the development of the **Panzertruppen**. The following excerpts from original documents relate the reasons why additional **Panzer-Divisions** weren't formed during 1936 and 1937. Both General Lutz and Oberst Guderian were aware at the time of plans for the further expansion of the **Panzertruppen** in the form of **Panzer-Brigades**, as revealed in correspondence written by General Lutz dated 18 January 1935 and Oberst Guderian dated 4 May 1935.

On 26 April 1935, the **Truppenamt** had prepared a proposal for further expansion of the Heeres in 1936 and 1937 calling for 12 **Armee-Korps**, 29 **Infanterie-Divisions**, 1 reinforced **Gebirgs-Jaeger-Brigade**, 3 **Panzer-Divisions**, 1 **Kavallerie-Brigade**, **Korpstruppen**, and **Heerestruppen** by the end of 1937. The **Truppenamt** did not plan for any additional Panzer units to be raised in 1936. One **Panzer-Brigade** was to be added in 1937.

On 10 July 1935, plans for expansion of the **Heeres** during the period 1936 through 1939 called for creating three independent **Panzer-Brigades** as **Heerestruppen**, one per year in 1937, 1938, and 1939.

On 15 November 1935, **Generalstab des Heeres** noted that the plans to create new Panzer units had to be accelerated due to an increase in the tank forces in the foreign armies. Instead of one **Panzer-Brigade** each year in 1937 and 1938, two **Panzer-Brigades** were to be created in 1937 for the **V.Armee-Korps** and **XI.Armee-Korps**. The previous goal had been the formation of three independent **Panzer-Brigades** as **Heerestruppen**. Already in 1934, the **Generalstab des Heeres** had requested that one **Panzer-Abteilung** be created for each **Infanterie-Division**. The **Generalstab des Heeres** stated that this requirement must again be raised with a new end goal of six **Panzer-Brigades** (consisting of 12 **Panzer-Regiments** each with 3 **Panzer-Abteilungen**).

On 5 December 1935, consideration was being given to raising the **4.Panzer-Brigade** already in 1936. The ongoing **Kampfwagen** procurement program was expected to fill the existing three **Panzer-Brigades** by 1 April 1937. But these would still be the **M.G.Kampfwagen (La.S.)**, which was considered to be an inadequate Panzer.

At the earliest, Panzers and other vehicles for the **4.Panzer-Brigade** could be available during the Winter of 1937/1938 at a cost of 95.9 million **Reichsmarks**.

On 30 December 1935, the **Generalstab des Heeres** sent the **Oberbefehlshaber des Heeres** the following report Nr.2655/34:

*Considerations for Increasing the Offensive Power of the **Heeres***

I. The current expansion plan and the organization of the Heeres are based on the requirement to first create the defensive force necessary for a multiple-front war. Deliberations regarding an increase in offensive forces for the army leads to the question as to whether their increase is not contrary to the first requirement. Then the strategic defence would be successful only if it could also be directed offensively. This means that an increase in the attack forces also strengthens the defensive forces.

II. A review of the current expansion plan for the offensive capability of our army reveals the following potential improvements:

*A. Increase the number of planned Panzer units (currently three **Panzer-Brigades** with 12 **Panzer-Abteilungen** in addition to the three **Panzer-Brigades** in the **Panzer-Divisions**) to ensure the necessary offensive forces for the wartime army.*

B. Convert infantry divisions into partially motorized divisions to increase operational and tactical mobility.

III. In addition, deliberations appear to be necessary in regard to increasing the capabilities of pure Panzer units by temporarily attaching mobile infantry units (such as motorized infantry regiments) and also in regard to the organization of the infantry.

IV. ***Kampfwagen***

A. The ideal goal could be viewed as having one ***Panzer-Abteilung*** *available for every active and reserve division of the army. In addition, the high command would still possess a sufficient number of* ***Panzer-Brigades*** *to deploy to decisive points or use for operational employment. This requirement would necessitate that 66* ***Panzer-Abteilungen*** *be created during peacetime just to cover the planned divisions. Such an equipping can only be viewed as an ideal requirement due to the high costs of maintaining this force. Just as small a possibility appears to be peacetime stockpiling of material for mobilizing Panzer units due to the rapid aging of these devices and the high proficiency needed for these units, if one should be inclined to commit to the large expenditure.*

B. As a realistic goal which must and can be achieved, one would plan for the creation of a sufficient number of ***Panzer-Abteilung*** *to outfit every peacetime* ***Armee-Korps*** *with one* ***Panzer-Brigade*** *consisting of two regiments each with two battalions (this means creating 48* ***Panzer-Abteilung*** *for 12* ***Armee-Korps****), or to create one* ***Panzer-Abteilung*** *for each of the 24* ***Armee-Korps*** *of the future mobilized army plus 24* ***Panzer-Abteilung*** *concentrated into regiments and brigades available as* ***Heerestruppen****. This also would result in a total of 48* ***Panzer-Abteilung****.*

In any case, such an increase in the number of ***Panzer-Abteilung*** *must be considered in light of the 12 anti-tank battalions that are already planned. one for each* ***Armee-Korps****. As long as they are outfitted with armor-penetrating weapons, Panzers can replace anti-tank guns. The reduction could be risked so long as conditions are met that a number of anti-tank battalions remain as* ***Heerestruppen*** *in the event of war.*

Investigations still need to be conducted to confirm that the three main roles of the ***Panzertruppen*** *(supporting the infantry attack ("Infantry Tank"), combating other tanks, and self-sufficient operational employment in organizations with other motorized weapons) can be achieved by the same* ***Kampfwagen*** *types in the same ratios as established in the current and planned* ***Panzer-Abteilungen*** *or whether differences in organization and types can't be prevented.*

C. Proposal for the Peacetime Army

As the next goal, it is proposed that, in addition to the three ***Panzer-Divisions****, each* ***Armee-Korps*** *of the peacetime army be provided with one* ***Panzer-Regiment*** *consisting of three* ***Panzer-Abteilungen****. 12* ***Armee-Korps*** *= 12* ***Panzer-Regiments*** *= 36* ***Panzer-Abteilungen*** *(instead of the previous 12) plus 3* ***Panzer-Divisions*** *= 6* ***Panzer-Regiments*** *= 12* ***Panzer-Abteilungen*** *for a total of 48* ***Panzer-Abteilungen****.*

The 12 ***Panzer-Regiments*** *that don't belong to* ***Panzer-Divisions*** *are to be concentrated in* ***Panzer-Brigades****. They are to be attached to the* ***Armee-Korps*** *in the area in which the mass of each individual* ***Panzer-Brigade*** *is located. The expansion plan would be:*

Date	*Available No. of* ***Abt.***	*Newly Created No. of* ***Abt.***	*Total No. of* ***Abt.***
1Oct36	*12*	*4*	*16*
1Oct37	*16*	*8*	*24*
1Oct38	*24*	*12*	*36*
1Oct39	*36*	*12*	*48*

This expansion plan can be stretched out to 1 October 1940 if forced by the personnel, material, or technical situation.

V. Increasing Operational and Tactical Mobility by Employment of Panzer Units.

A. The requirement to increase the number of Panzer units is derived from the view that a frontal attack against an opponent, that is not very inferior, and is established in favorable terrain ready for combat, can hardly be expected to succeed without tank support.

In addition, an attack on a distant objective can be viewed as having a chance of success only if strong Panzer units are employed. The ***Panzer-Division*** *appears to be best suited for this type of action. Or, as a minimum, Panzer units that are organized in the same way as* ***Panzer-Divisions*** *so that their infantry quickly follow at the same speed as the Panzers in order to hold the ground or to completely exploit the gain.*

The offensive strike force of a ***Panzer-Division****, as currently organized, must first be proven through practical experience. So long as the army is restricted to 36 divisions, further formation of* ***Panzer-Divisions*** *is prevented, except at the cost of infantry divisions. This results in the necessity to create the additional units as* ***Panzer-Brigades****.*

B. If one goes by previous experience, in order to accomplish their assigned tasks, every ***Panzer-Brigade*** *should be accompanied by approximately one reinforced motorized infantry regiment.*

This results in the need for nine reinforced motorized infantry regiments for the nine ***Panzer-Brigades*** *available in the peacetime army (including the three in the* ***Panzer-Divisions****), of which three motorized infantry regiments are already available in the* ***Panzer-Divisions****.*

In reply to clarifications requested by the **Oberkommando des Heeres**, the **Generalstab des Heeres** responded on 22 January 1936:

Based on the proposal presented by the ***Generalstab****, the final goal is foreseen to be 6* ***Panzer-Brigades*** *each with 3* ***Panzer-Regiments*** *totaling 36* ***Panzer-Abteilung*** *as* ***Heerestruppen****. Divided among the* ***Armee-Korps*** *it is thought that at the final goal (with the exception of the* ***I.****,* ***II.*** *and* ***VII.Armee-Korps****) one* ***Panzer-Brigade*** *would be located in the area of each* ***Armee-Korps*** *as follows:*

I.A.K.	*1* ***Pz.Abteilung***
III.A.K.	***3.Pz.Brig.*** *of the* ***3.Pz.Div.***
IV.A.K.	*1* ***Pz.Brig.***
V.A.K.	***4.Pz.Brig.*** *(to be formed in 1936)*
VI A.K.	*1* ***Pz.Brig.***
VIII.A.K.	*1* ***Pz.Brig.***
IX.A.K.	***1.Pz.Brig.*** *of the* ***1.Pz.Div.***
X.A.K.	*1* ***Pz.Brig.***
XI.A.K.	*1* ***Pz.Brig.***
XII.A.K.	***2.Pz.Brig.*** *of the* ***2.Pz.Div.***

No ***Panzer-Brigades*** *are planned for the* ***II.Armee-Korps*** *due to sparse population, or in the* ***VII.Armee-Korps*** *since it doesn't have a training ground. It is admitted that part of the* ***Panzer-Brigades*** *of the* ***X.*** *or* ***V.Armee-Korps*** *could be located in these* ***Wehrkreise*** *(army districts).*

*The expansion is planned so that as soon as possible, Panzer units (****Abteilung*** *or* ***Regiment****) would be available in all* ***Armee-Korps*** *from which brigades will later be created. Dispersing the* ***Panzer-Regiments*** *among the* ***Wehrkreise*** *should ensure the organic development of the brigades and place all* ***Armee-Korps*** *as early as possible in a position to train the anti-tank units with their own* ***Panzer-Abteilungen****.*

In response to report Nr. 2655/34 by the **Generalstab des Heeres**, the **Allgemeines Heeresamt** sent the following report Nr. 5000/35 dated 22 January 1936 to General Beck, the **Chef des Generalstabs des Heeres**:

Allgemeine Heeresamt *will support every measure that results in an increase in the offensive power of the army.*

I. ***Kampfwagen*** *Units - The main task of the* ***Kampfwagen*** *is and remains the support of the infantry attack, regardless if the infantry attacks frontally or by enveloping, if they attack on foot or in vehicles. Accordingly, combat against live targets is the first priority. Combating enemy tanks first comes into question if the enemy supports these live targets with tanks.*

But that will seldom be the case. If the enemy employs its tanks in the essential area, you can't dismiss the idea that our attack sector was very unluckily chosen. A desired tank versus tank battle appears very unlikely. The weapon is too expensive and the risk too great.

Machine guns are the most effective against live targets, the 3.7 cm gun against tanks. Within recognized limits, the 2 cm gun can be used against tanks. Indeed, even the machine gun can be used against tanks if it is supplied with ***S.m.K.H.*** *(special hard core) ammunition.*

A ***Kampfwagen*** *with a 3.7 cm gun and two or three machine guns appears to be the most suitable in meeting all the requirements.*

However, its disadvantages include too large an external area and therefore too large a target area, the weight is too high, and the price is too expensive.

Employment of Panzer units instead of the current anti-tank battalions solely for anti-tank purposes must be rejected. There are less costly weapons that have the same ability.

The ***Kampfwagen*** *is a weapon that must be employed in mass and utilize surprise.*

Therefore, Panzer units belong to the ***Heerestruppen****. It would be wasteful and a misapplication to attach a* ***Panzer-Abteilung*** *to almost every division because mass employment and surprise are prerequisites for success.*

Peacetime Organization - The existence of ***Panzer-Divisions*** *in the present form is deemed to be false. From a basis of camouflage and surprise,* ***Panzer-Abteilung*** *should be dispersed to individual divisions. This would mislead the enemy to false assumptions on the future operations and tactical employment. Attaching a* ***Panzer-Abteilung*** *to an infantry division would have the advantage of training the other branches, especially the infantry, in coordination with tanks and defense against them.*

To completely guarantee training of the tank crews, it is preferred to concentrate the regiments in several divisions.

Brigade headquarters are deemed necessary to provide direction for this arm.

Including the current three ***Panzer-Brigades****, more than 18* ***Regiments*** *each with two* ***Abteilungen*** *(36 in total) would not be possible. These already cost 243 million* ***Reichsmarks*** *per year. The demand of the* ***Generalstabs*** *for 48* ***Panzer-Abteilungen*** *would increase expenditures by 81 million* ***Reichsmarks*** *to 324 million* ***Reichsmarks****.*

II. Partially Motorized Divisions - While the infantry usually march on foot, all other units in the division are motorized. The ***Generalstab*** *himself has declared that command of the current infantry divisions is very difficult due to the mixture of horses and motor vehicles for towing artillery. Command of partially motorized divisions would be untenable.*

The opinions of the ***Allgemeines Heeresamt*** *on the proposals by the* ***Generalstabes*** *are:*

Partially motorized divisions should not be approved. Creation of Panzer units up to a total of 36 ***Panzer-Abteilungen*** *and six to nine additional motorized infantry regiments is concurred with.*

In the following report Nr. 162/36 dated 30 January 1936, General Beck, **Chef des Generalstabes des Heeres**, responded to the **Allgemeines Heeresamt** report Nr. 5000/35:

I. Panzer Units - My position on organization and outfitting of Panzer units has not changed after considering the latest opinions from the ***Allgemeines Heeresamt****.*

Support of an infantry attack is one of the tasks for tanks. This conclusion can be supported by information from other military powers that have greater experience. The technical form and organization of Panzer units must be based upon combat with enemy tanks in addition to combating live targets and anti-tank weapons. It cannot be argued that a tank with a stronger armor-defeating weapon is inferior to a tank without or with an insufficient armor-defeating weapon. A 3.7 cm caliber gun is necessary for engaging the newer tanks with 25 mm thick armor and up. I must therefore stick to my

*requirement that at least two-thirds of the **Kampfwagen** in the light company be outfitted with the 3.7 cm gun. This is necessary because other countries are outfitting their tanks with armor-defeating weapons to give their own tank branch morale supremacy, without which they cannot rise to the difficulty of their assignments. Therefore, other considerations such as higher purchase and maintenance costs have to be shoved to the background. That it is possible to produce tanks with strong armor protection without excessively large external measurements and high weight is proven by the new French Char D tank.*

*As was already addressed, less thought can be given to attaching a **Panzer-Abteilung** to an infantry division since direct cooperation with infantry units is but one of the tasks for the **Panzertruppen**. This leads me to the conclusion that it will not be useful to assign the **Panzer-Regiments** to infantry divisions in the peacetime organization. I still withhold final judgment on whether the concentration of a number of **Panzer-Abteilungen** in **Panzer-Divisions** last year is correct or false. But I believe that it can be established that the exercises of the **Panzertruppen** last summer at the Munster training grounds, as well as developments by the other countries, provide a secure foundation for creation of **Panzer-Divisions** already in peacetime as units capable of accomplishing strategic tasks.*

*For **Panzer-Regiments** that are newly formed in the future, I maintain that the most practical solution is to attach them to **Armee-Korps** because of training reasons and their foreseeable use in war concentrated in **Panzer-Brigades**. The necessary training and cooperation with the infantry divisions is also achieved, as is the uniformity of the training which the **Inspekteur der Kraftfahrkampftruppe** oversees. During a war, these Panzer units will be assigned as **Heerestruppen**.*

*In consideration of the importance of Panzers for offensive power in the modern army and because of our military-political situation, the established number of 48 **Panzer-Abteilungen** are necessary and can't be reduced due to costs.*

*The schedule for the planned formation of new units is presented in my report of 9 January. Report Nr.14/36 dated 15 January 1936 from the **Heereswaffenamt** states that in regard to production there are no insurmountable difficulties.*

*II. Partially Motorized Divisions - The partial motorizing of four divisions requested by me is the first, quick, inexpensive, and achievable step towards obtaining motorized divisions (**divisions automobiles** in the French Army). This type of division is necessary for rapid-approach marches, to guarantee the moment of surprise, to prevent aircraft-harassed rail transport, and to have quick mobile reserves in the hands of the high command.*

*Without changes to previous plans, their creation is possible during 1936/39 if the decision is made very soon. In consideration of the present expansion situation, I have proposed the **13., 20., 24.** and **29.Infanterie-Divisions** to the **Oberkommando des Heeres.***

On 3 March 1936, General Lutz as **Kommando der Panzertruppen** wrote to the **Generalstab des Heeres**: *With respect to the planned increase in Panzer units, it is suggested that **Panzer-Regiment 7** and **8** be immediately created in the Fall of 1936 with six instead of eight companies in order to create a wider base for expansion during the following year.*

In notes for a meeting on the creation of four motorized divisions, the **Generalstab des Heeres** recorded on 6 May 1936:

*The purpose of creating fully motorized Divisions in addition to the **Panzer-Divisions** is to possess fast, maneuverable units for operational employment that have the same capability as infantry divisions and are immediately ready to move. They can be concentrated in mobile armies or be used as rapid mobile reserves. The following divisions are chosen for full motorization: **2. Division** (Stettin), **13. Division** (Magdeburg), **20. Division** (Hamburg), and **29. Division** (Erfurt).*

On 15 June 1936, the **Generalstab des Heeres** wrote to the **Oberbefehlshaber des Heeres** on the subject of formation of **leichte Divisions** (light divisions):

*I. The necessity for creating **leichte Divisions** is fundamentally recognized. Due to its organization and weapons, a **leichte Division** is capable of taking over the tasks of the former army cavalry.*

***Generalstab des Heeres** maintains that three of this type of **leichte Division** are necessary and recommends that their formation be included in the previous expansion program. Consolidation of the three **leichte Divisions** under a special **Korpskommando** is suggested.*

*II. The suggested distribution of the three **leichte Divisions**:*

***1. leichte Division** in **W.K.VI** by Dortmund*
***2. leichte Division** in **W.K.III** south of Berlin*
***3. leichte Division** in **W.K.IV** Halle-Wittenberg*

III. The suggested schedule for their formation is:

***1. leichte Division** in the Fall of 1937*
***2. leichte Division** in the Fall of 1938*
***3. leichte Division** in the Fall of 1939*

*Formation of the **1. leichte Division** already in the Fall of 1937 is made possible by the intended acquisition of additional **Panzerkampfwagen**. Additional units that need to be created include two **Panzer-Abteilungen**, three motorized infantry battalions, one motorcycle battalion, one combat engineer battalion, and one signals company.*

On 17 June 1936, the **Generalstab des Heeres** announced that the **Oberkommando des Heeres** had elected to create the **1. leichte Division** in the Fall of 1937 in

Wehrkreis VI. The organization of this **leichte Division** had been reduced to only one **Panzer-Abteilung** with a single motorized infantry regiment, combat engineer battalion, and mixed signals company.

In August 1936, the **Generalstab des Heeres** wrote to the **Kommando der Panzertruppe** on the subject of light units:

*Instead of creating **Panzer-Divisions**, the **Oberkommando des Heeres** intends to create a light motorized unit in the Fall of 1937. The **Oberkommando des Heeres** requests that the **Kommando der Panzertruppe** review the intended organization for this unit under consideration and take a position on the following opinions:*

*The employment of the **leichte Division** is like the former army cavalry with the exception of decisive battles. The following tasks are planned for the **leichte Division**:*

- *Reconnaissance beyond the front lines,*
- *As a motorized unit under army control, reconnaissance attacks against enemy reconnaissance units or advanced troops,*
- *Screen the front and flanks*
- *Conduct delaying actions*
- *Close gaps*
- *Quickly occupy important sectors*
- *Pursue and overtake retreating enemy forces*

*As compared to **Panzer-Divisions**, which are planned for employment in decisive battles and breaking through enemy defenses.*

*Compared to a fully motorized infantry division, the **leichte Division** will have all the combat units that can move cross-country, be more mobile, and possess a somewhat stronger reconnaissance force. Therefore, combat capability of the **leichte Division** is inferior to a fully motorized division, especially in terms of offensive strength.*

*The **leichte Division** is to consist of a **Panzer-Abteilung** with 4 **leichte Panzer-Kompanien** (normal organization and equipment, no **7.5 cm Pz.Kpfw.**), an infantry regiment with three battalions, a reconnaissance regiment with two battalions, an artillery regiment with two battalions, and an anti-tank battalion of three companies.*

5

Technical Development and its Effect on Organization

Thanks to arguments that ensued between General Beck as **Chef des Generalstab des Heeres** and General Lutz as **Inspekteur der Kraftfahrkampftruppen und fuer Heeresmotorisierung (In 6)**, many fundamental concepts dealing with Panzer production and **Panzer-Kompanie** organization are recorded in surviving correspondence. General Liese as **Chef des Heeres Waffenamt** and General Fromm as **Chef des Allgemeine Heeresamt** also became involved and provided insight into the tactical capabilities of the Panzers and intricacies associated with getting a new Panzer design into mass production.

On 20 December 1935, General Lutz, the **Inspekteur der Kraftfahrkampftruppen und fuer Heeresmotorisierung**, sent the following report to the **Oberbefehlshaber des Heeres** dealing with the plans for outfitting Panzer units:

*1. The creation of six **Panzer-Brigades** is planned to occur by 1 October 1938. That is twelve **Panzer-Regiments**.*

2. Their organization is to consist of:

Panzer-Regiment: Stab mit Nachrichten Zug und leichtem Zug
2 Abteilungen
Panzer-Abteilung: Stab mit Nachrichten Zug und leichtem Zug
3 leichte Kompanien
1 schwere Kompanie
Leichte Panzer-Kompanie:Kompanie-Trupp
3 Zuege M.G.Pz.Kpf.Wg.
1 Zug 3,7 cm Geschuetz Pz.Kpf.Wg.
Schwere Panzer-Kompanie: Kompanie-Trupp
3 Zuege 7,5 cm Geschuetz Pz.Kpf.Wg.
1 Zug M.G.Pz.Kpf.Wg.

3. Equipping Panzer Units

Based on deliberation and previous experience, the current wishes are:

Unit	***M.G. Pz.Kpf.Wg.***	***2 cm Gesch. Pz.Kpf.Wg.***	***3,7 cm Gesch. Pz.Kpf.Wg.***	***7,5 cm Gesch. Pz.Kpf.Wg.***	***Befehls- Pz.Kpf.Wg.***
Stab Pz.Brig.	*7 [1]*		*1*		
Stab Pz.Rgt.	*7 [1]*		*1*		*2 [2]*
Stab Pz.Abt.	*7 [1]*		*1*		*2 [2]*
l.Pz.Kp.	*18 [3]*	*6 [3]*	*6 [4]*		
s.Pz.Kp.	*7*			*10 [5]*	

Notes:

*[1] **leichte Panzer Zug***

*[2] **Pz.Kpf.Wg.** with special radio equipment, armed with a machine gun*

*[3] 3 **Zuege** with each 5 **M.G.** and 2 **2 cm Geschuetz Pz.Kpf.Wg.** and 3 **M.G.Pz.Kpf.Wg.** for the **Kompanie Trupp***

*[4] 1 **Zug** with 5 **Pz.Kpf.Wg.** and 1 **Pz.Kpf.Wg.** for the **Kompanie** commander*

*[5] 3 **Zuege** each with 3 **Pz.Kpf.Wg.** and 1 **Pz.Kpf.Wg.** for the **Kompanie** commander*

Equipment for Panzer units can be changed in the future based on practical, tactical, and technical experience.

The above organization won't be accomplished for twelve ***Panzer-Regiments*** *by 1 October 1938. The technical development situation will not allow production of* ***3.7 cm*** *and* ***7.5 cm Geschuetz Pz.Kpf.Wg.***

In the meantime, acquisition of large numbers of ***2 cm Gesch.Pz.Kpf.Wg.*** *has been initiated to add armor-defeating weapons as soon as possible to Panzer units that are currently outfitted only with* ***M.G.Pz.Kpf.Wg.***

4. The six ***Panzer-Regiments*** *that have already been created will be outfitted with 120* ***M.G.Pz.Kpf.Wg.*** *each (15 per* ***Panzer-Kompanie****) by the end of December 1935.*

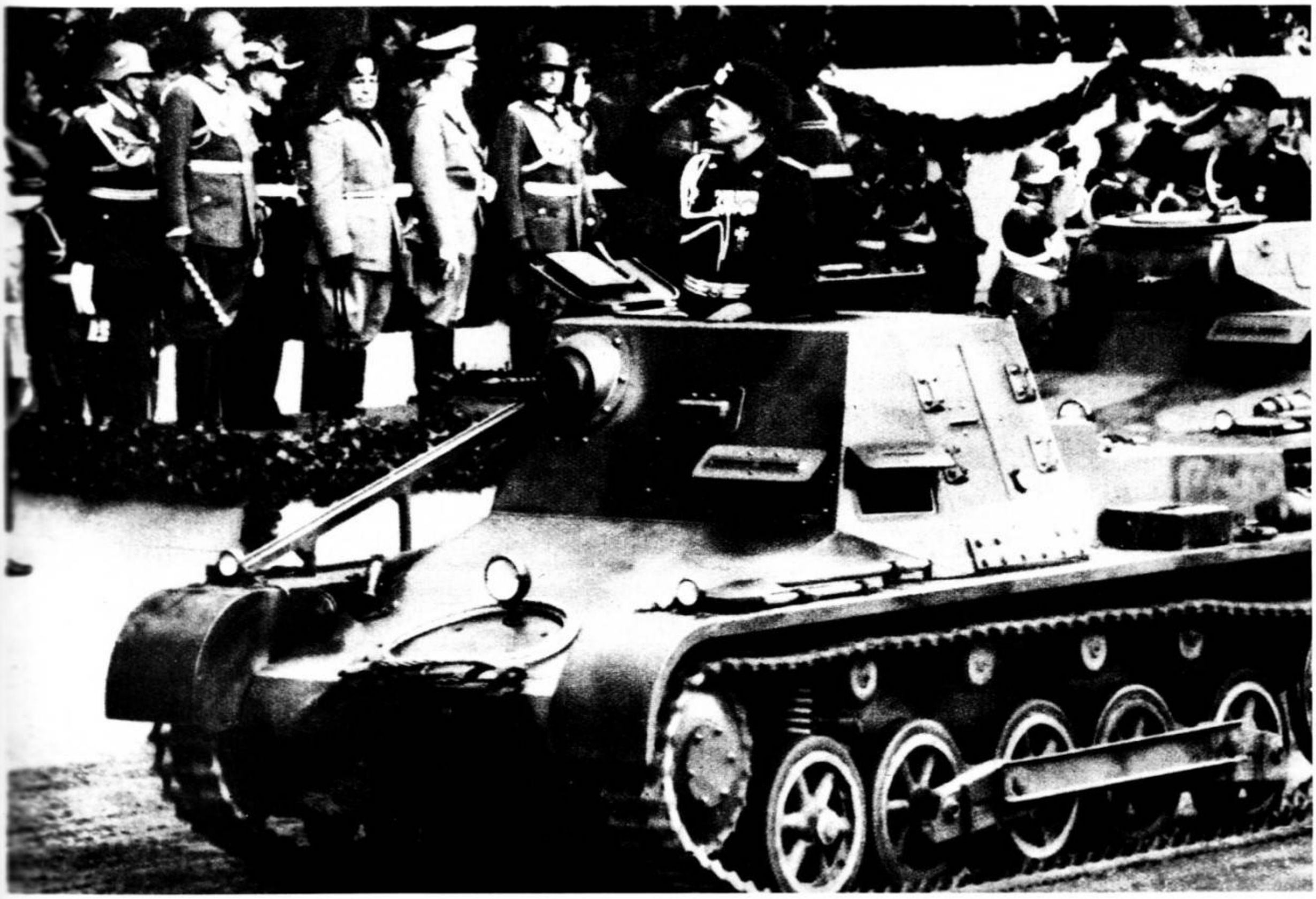
5. By continuing the present rate of delivery, a total of 1,325 ***M.G.Pz.Kpf.Wg.*** *and 75* ***2 cm Gesch.Pz.Kpf.Wg.*** *will be available on 1 October 1935. This will allow the Panzer units (four* ***Panzer-Brigades*** *with 64* ***Panzer-Kompanien****) to be outfitted with 21* ***M.G.Pz.Kpf.Wg.*** *per* ***Kompanie****. The 75* ***2 cm Geschuetz Pz.Kpf.Wg.*** *will be suitably distributed to 25 platoons that will be incorporated as the* ***4.Zug*** *in 24* ***leichten Panzer-Kompanien*** *in four* ***Panzer-Regiments****.*

6. Based on equipment development and production capacity, it is expected that 2,325 ***M.G.Pz.Kpf.Wg.****, 750* ***2 cm Geschuetz Pz.Kpf.Wg.****, 153* ***3,7 cm Geschuetz Pz.Kpf.Wg.****, 100* ***7,5 cm Geschuetz Pz.Kpf.Wg.****, and 72* ***Befehls-Pz.Kpf.Wg.*** *will be delivered by 1 October 1938.*

In response to the 20 December 1935 report from General Lutz on organizing Panzer units, General Beck, **Chef des Generalstabes des Heeres**, sent the following report to the **Allgemeine Heeresamt** and the **Heeres Waffenamt** on 9 January 1936:

1. At this time, because our practical experience is insufficient, deliberations on equipment and organization of Panzer units can only be based on theory. Equipment and organizations should be considered from countries that have gathered practical experience and did not have restrictions on weapons during the 15 years following the war.

Study of the French organization and equipment appears to be especially valuable. The British tank units organization and equipment may in part be adjusted for allowances and requirements for a colonial war.



As an interim measure, a decision was made in 1935 to produce 72 **Befehls-Panzerkampfwagen**, one for each **Panzer-Kompanie**, **Abteilung**, **Regiment**, **Brigade**, and **Division** commander. Later renamed **kleine Panzerbefehlswagen**, they were outfitted with one transmitting and two receiving radio sets. (RAC)

In addition, every decision related to equipment and organization of our Panzer units must be made free from the current restricted production capacity. As a final goal, the primary consideration is to be given to tasks assigned to the Panzer units by the high command and the resulting combat assignments in light of the tanks with which enemy armies are being equipped. Our equipment should be procured as quickly as possible to meet this final goal. Because our industry is still not in a position to deliver the most suitable types of tanks that meet the high command's specifications, every deviation from this final goal can only be viewed as a temporary emergency solution.

2. The three main tasks of the Panzers are supporting infantry, operating in units with other mobile weapons, and combating tanks. A final decision cannot yet be made as to whether a single type of ***Panzerkampfwagen*** *can be used for all three of these tasks. In view of the high cost of tanks, one would strive for the same type of tank for all combat applications.*

Regardless of the tasks assigned to the ***Panzertruppen****, based on the composition of the enemy forces, it must be calculated that enemy tanks may be encountered at any time. Therefore,* ***Generalstab des Heeres*** *maintains the view that the proposed organization with 57 percent* ***M.G.Pz.Kpf.Wg.*** *in a Panzer unit in no way supports a conclusion that they have a chance of success in combat against enemy tanks.* ***Generalstab des Heeres*** *maintains the position that as a minimum all tanks must be equipped so that they can be employed with a chance of success in combating enemy tanks.*

3. At this time tanks armed with a 2 cm automatic gun are the lightest anti-tank weapon of any value but these are inadequate for defeating the expected armor protection. Therefore, most of the ***Panzerkampfwagen*** *should be equipped with the 3.7 cm gun.*

In addition, the foreign designs, namely the French (introduction of the Char D tank), reveal that priority was given to gun-armed tanks.

The point still remains that Panzer units must also be equipped with lighter tanks. A machine gun may still be sufficient armament for scouting tanks. However, the ***2 cm M.G.Pz.Kpf.Wg.*** *would be considered a better solution.*

4. Relative to the organization and equipment of the individual Panzer units, the ***Generalstab des Heeres*** *takes the following positions:*

a. ***Panzer-Regiments***

The decision as to whether a ***Panzer-Regiment*** *should have two or three* ***Panzer-Abteilungen*** *must be based on additional experience to be gained during the next several years. The* ***Generalstab des Heeres*** *is of the view that the organization of* ***Panzer-Regiments*** *with two* ***Panzer-Abteilungen*** *is correct. However, a* ***Panzer-Brigade*** *should consist of three* ***Panzer-Regiments****. In a tank attack, regardless if it is supporting infantry or employed in operational combat, the reserve belongs in the hands of the higher commander, that is to the* ***Panzer-Brigade****.*

The ***Brigade-Stab*** *and* ***Regiments-Stab*** *must each possess an* ***Erkundungs-Zug*** *(scout platoon) with five Panzers.*

b. ***Panzer-Abteilung***

Generalstab des Heeres *concurs with its organization with a* ***Stab****, with* ***Nachrichten-Zug*** *(signals platoon) and* ***Erkundungs-Zug*** *(scout platoon), three* ***leichten Panzer-Kompanien****, and one* ***schweren Panzer-Kompanie****.*

c. The desired company organization with 30 Panzers also appears to be too many to control. Also in this case, further experience must be awaited.

The French organization for their tank companies consists of:

In the light tank battalion (Type N.E.)
3 combat platoons each with 5 tanks
1 reserve platoon
In the tank battalion (Type D)
4 combat platoons each with 3 tanks
1 reserve platoon

Based on current experience, ***Generalstab des Heeres*** *maintains that the following organization is suitable for the* ***leichte Panzer-Kompanie****:*

1 company commander tank = 1 ***3,7 cm Gesch.Pz.Kpf. Wg.***
1.Zug *for recon and scouting = 5* ***M.G.*** *or* ***2 cm Pz.Kpf. Wg.***
2.-4.Zug *each with 5 tanks = 15* ***3,7 cm Gesch.Pz.Kpf. Wg.***

In addition, an allotment of about five tanks as a reserve for each company appears to be necessary. Or, following the French practice, a special ***Stabskompanie*** *for each* ***Panzer-Abteilung*** *should be established with a maintenance platoon, replacement platoon, and supply platoon.*

The ***schwere Panzer-Kompanie*** *remains in the hands of the* ***Abteilung*** *commander and doesn't need a scout platoon. They should have one* ***7.5 cm Geschuetz Pz.Kpf.Wg.*** *for the company commander and twelve* ***7.5 cm Geschuetz Pz.Kpf.Wg.****, three each in the* ***1.*** *through* ***4.Zug****.*

5. ***Generalstab des Heeres*** *has presented a proposal, distributed to the* ***Allgemeine Heeresamt*** *and* ***Heeres Waffenamt****, on the timely increase of the* ***Panzertruppe****. Correspondingly, a program must be created for production.*

As stated in this proposal, by the end of 1938, 855 ***M.G.Panzerkampfwagen*** *are needed as scout tanks to fill the above-stated organization. In contrast to the proposal of* ***Inspekteur 6****,* ***Generalstab des Heeres*** *is of the opinion that the inventory of 1325* ***M.G. Panzerkampfwagen*** *that will be available on 1 October 1936 should not be exceeded by further contracts. This type of order far exceeds the allowable number. Because of especially high costs, further production can be justified only if the industry cannot be occupied in producing something better.*

Therefore, it is urgent that the requirement be initiated to increase the involvement of the industry in the design and delivery of heavier tanks and that assembly of Panzers with 3.7 cm guns should be immediately accelerated.

*All other equipment, including increased delivery of **2 cm M.G.Kampfwagen**, can only be regarded as an emergency solution. If the occasion arises, the troops should also be informed of this.*

*6. I plan to hold a meeting on the above questions at the end of January and request that the **Heeres Waffenamt** and **Allgemeine Heeresamt** state their position by 15 January.*

In response to the above request from **Chef des Generalstab des Heeres**, the **Allgemeine Heeresamt** replied on 15 January 1936:

*1. Strength of the **Panzertruppe***

*The **Allgemeine Heeresamt** is of the opinion that the formation of 12 **Panzer-Brigades** (48 **Panzer-Abteilungen**) can't be achieved due to financial causes and therefore proposes to begin with the formation of 9 **Panzer-Brigades** (36 **Panzer-Abteilungen**) according to the following plan:*

Available	*3 **Pz.Brig.** (12 **Pz.Abt.**)*
1 Oct 36	*4 **Pz.Brig.** (16 **Pz.Abt.**)*
1 Oct 37	*5 **Pz.Brig.** (20 **Pz.Abt.**)*
1 Oct 38	*7 **Pz.Brig.** (28 **Pz.Abt.**)*
1 Oct 39	*9 **Pz.Brig.** (36 **Pz.Abt.**)*

*The **Allgemeine Heeresamt** believes that accelerated expansion - as much as it is desired - will result in an unacceptable decline in the value of the **Panzertruppe** that can't be justified.*

*If by applying additional money it will be possible to form three additional **Panzer-Brigades**, formation of their 12 **Panzer-Abteilungen** should be planned for the years 1940 and 1941.*

*2. Outfitting the **Panzertruppe** with **Panzerkampfwagen***

*The two main tasks of the **Panzertruppe** are combating live targets (in cooperation with the infantry) and combating armored targets (tank battles and tank defense). The first task requires a machine gun. The second task requires armor-defeating guns as the main weapon.*

Considering the current enemy status, it is not necessary to create a specialized Panzer unit for each of these tasks. Due to the financial situation it does not appear to be possible to create specialized Panzer units. Therefore, Panzer units must be organized and armed following a uniform pattern.

*As the enemy situation exists today and will remain for years, the importance of combating live targets appears to be at least equivalent to the necessity for combating armored targets. From this basis, **Allgemeine Heeresamt** cannot concur with the opinion of the **Generalstab des Heeres** that it is necessary to outfit every Panzer with an armor-defeating weapon.*

*In addition, it must be stressed that for the same price as one **3.7 Pz.Kpf.Wg.**, three **M.G.Pz.Kpf.Wg.** can be acquired. Three **M.G.Pz.Kpf.Wg.** carry 6 machine guns into combat. One **3.7 Pz.Kpf.Wg.** carries 2 machine guns plus a gun that is not very effective against live targets.*

*One **3.7 Pz.Kpf.Wg.** (18 ton material, 150,000 **Reichsmarks**) presents a significantly larger target than one **M.G.Pz.Kpf.Wg.** and can be knocked out of action by one hit. At least three hits are required to knock out three **M.G.Pz.Kpf.Wg.** (about 16 tons of material, 150,000 **Reichsmarks**).*

*In closing, it cannot remain unstated that by supplying **S.m.K.H.** ammunition to the **M.G.Pz.Kpf.Wg.** a certain armor-defeating value must be acknowledged.*

3. Organization

*The **Allgemeine Heeresamt** proposes to initially organize each **Panzer-Brigade** with two **Panzer-Regiments** and wait for further trials. The **Allgemeine Heeresamt** is in agreement with the organization of the **Panzer-Regiment** with two **Panzer-Abteilungen** and each **Panzer-Abteilung** with three **leichten** and one **schweren Panzer-Kompanie**. For the organization of the **leichten Kompanie**, the **Allgemeine Heeresamt** agrees with the opinion of **Generalstab des Heeres** that each **Zug** (platoon) should have five instead of seven Panzers.*

*In consideration of the above statements, the following equipment is proposed for the **leichte Panzer-Kompanie**:*

Kompanietrupp
- *1 **Kompanie-Fuehrer-Wagen***
- *1 **3,7 cm Pz.Kpf.Wg.***
- *2 **M.G.Pz.Kpf.Wg.***

*3 **leichte Zuege** each with*
- *2 **M.G.Pz.Kpf.Wg.***
- *2 **2 cm Pz.Kpf.Wg.***
- *1 **Zugfuehrer-Wagen***

*1 **schwere Zug** with*
- *5 **3,7 cm Pz.Kpf.Wg.***

***Ersatzstaffel** with*
- *2 **M.G.Pz.Kpf.Wg.***
- *2 **2 cm Pz.Kpf.Wg.***
- *2 **3,7 cm Pz.Kpf.Wg.***

*(Maybe later, if it is possible to build smaller size radio sets, the **Kompanie-** and **Zugfuehrer-Wagen** can be outfitted with a 2 cm gun).*

*This proposal results in equipping the combat elements of the **leichte Panzer-Kompanie** (without reserve) with a ratio of 12 **M.G.Pz.Kpf.Wg.** to 12 **Pz.Kpf.Wg.** with armor-defeating weapons. (A ratio of 14 to 16 when reserves are included.) This ratio increases to the advantage of the armor-defeating weapons if the **Kompanie-** and **Zugfuehrer-Wagen** can later receive a 2 cm gun.*

*Whether or not the **schwere 4.Kompanie** is to be formed with three or four **Zuegen** (platoons) each with three **7,5 cm Pz.Kpf.Wg.** can still be based on results obtained from future trials. A **leichten Zug** with five **M.G.Pz.Kpf.Wg.** for scouting and communication purposes cannot be given up.*

Initially, each **Panzer-Zug** (platoon) was authorized to possess seven **Pz.Kpfw.I**. On the insistence of the C**hef des Generalstab des Heeres**, the maximum number of Panzers in each platoon was reduced to five. (WJS)

4. Production Capability

*The numbers provided by the **Heeres Waffenamt** in the 20 December 1935 report represent the highest production capacity up to 1 October 1938. Based on the status of equipment development and the production capacity, there is no way to increase the production of heavier Panzers by reducing the production of **M.G.Pz.Kpf.Wg.** by 1 October 1938.*

*Under these conditions, the **Allgemeine Heeresamt** believes it to be correct to exploit production capacity with light Panzers in order to equip the troops with Panzers within the achievable limits. In addition these Panzers will be needed later to equip newly formed **Panzer-Brigades**.*

*5. On the basis of the above statements, it is requested that the question of organization and equipment first be decided between the **Generalstab des Heeres** and the **Allgemeine Heeresamt** and then the capability for production be clarified by pulling in the **Heeres Waffenamt**.*

In response to the request by the **Chef des Generalstab des Heeres** for a position paper, as drafted by **Wa Prw 6**, General Liese of the **Heeres Waffenamt** replied on 15 January 1936:

*The following position paper will cover only the technical and production questions on the types of **Panzerkampfwagen** but will not go into the pure organizational and tactical questions. A position on the selection of types can first be taken after careful consideration of weapons capability and armor protection.*

A far-reaching program can be selected only if all financial prerequisites are binding during the planned period up to 1 October 1940. With this in place, the firms can be guaranteed binding instructions for preparations for production, build-up of workers, and completion of contracts.

*In your report it is repeatedly emphasized that "our industry is still not in a position to produce the types of **Panzerkampfwagen** that satisfactorily meet the requirements of the leaders" and that "a requirement be immediately initiated for an increasing role by industry in the design and delivery of heavy **Panzerkampfwagen**." In reply it must be remarked that the prerequisites for production of a new **Panzerkampfwagen** are:*

- *Completion of the design*
- *Acquisition of the required machine tools*
- *Available experienced work force*

The Panzer design status stands as follows:

	M.G. Pz.Kpf.Wg.	***2cm M.G. Pz.Kpf.Wg.***	***3.7cm Gesch. Pz.Kpf.Wg.***	***7.5cm Gesch. Pz.Kpf.Wg.***
Design began or Contract from A.H.A.	*1930*	*27Jan34*	*27Jan34*	*25Feb35*
Permission to design using a wooden model	*—*	*12Oct34*	*12Oct34*	*25Feb35*
First experimental model	*Aug32*	*Feb35*	*Aug35*	*May36*
Contracts distributed for a 0-Series	*Jul33*	*Oct35*	*Dec35*	*—*
Deliveries of the 0-Series begin	*May34*	*Apr36*	*Oct36*	*—*
Begin the 1.Series	*Feb35*	*Oct36*	*—*	*—*

*It is necessary to compare these dates against each other to realize that completion of the design for the 2 cm, 3.7 cm and 7.5 cm types can in no way be guaranteed. If the relatively simple **La.S.** based upon a foreign design required the period noted above, then for entirely new problems associated with larger Panzers, a mature design for serial production could not have been achieved in the time that has elapsed since the initial order for these types.*

In comparison, the Volkswagen has now been designed for two and one-half years, the firm of Opel needs a minimum of two years to bring out a new type of automobile, and the same two years are needed to create a new motor. During the war, two and one-half years were needed to produce 15 tanks.[1]

*Under the technical direction of the **Heeres Waffenamt**, the experimental models for our Panzers are built by a large number of well-known firms (M.A.N., Daimler, Rheinmetall, Krupp, Henschel). It is necessary to test all of these experi-*

[1]Actually 20 A7Vs were produced by Germany in World War I.

mental models over a long distance. In addition, it is absolutely necessary to detect and correct any weakness in the design by subjecting a model to test firing and explosions. The time needed for these tests is lengthy. Failures occur, parts disassembly requires a long time, the problem must be found, and the design modifications initiated, followed by reassembly and further testing. Tests of the replaced part must start again at 0 mileage.

With help from the firms and the proving grounds in Kummersdorf, completely utilizing every day and nighttime hour, the ***Heeres Waffenamt*** *continuously attempts to reduce the period needed for testing.*

Based on experience with the ***M.G.-Panzerkampfwagen****, conversion to series production is certain to bring considerable difficulties that must be overcome on a case-by-case basis. Similar problems have been experienced throughout the entire weapons field. Therefore all schedules for the creation of a new series can be given only under the stated prerequisites.*

When industry can deliver heavy ***Panzerkampfwagen*** *types is not the only concern. The first prerequisite must be that a mature design has been created. If the schedule for series production is rushed, backfit modifications are unpreventable and expensive, as far as they are even possible. The combat value of the Panzer may be reduced to scrap value. This would also result in delaying systematical development of equipment that is technically superior to foreign equipment.*

b. Acquisition of production machines

The overwhelming demand for the ***3.7 cm Panzerkampfwagen*** *results in production preparations shifting to create heavier machines. If sufficient resources were allocated to preparation for production, a mature design could theoretically be produced in any amount ordered. Numerous examples for comparison are available from Ford, General Motors, and Opel, and other industrial areas. Nevertheless, as long as a model design is not finalized - and been subjected in advance to thorough and exhaustive tests - the assembly factory must remain flexible. In no case may the assembly factory have a structure of the type present in the above-named firms.*[2]

Preparations for production of machines needed for the program are covered by the orders for mobilization preparations. They were initiated a long time ago, and preparations have been achieved to increase the current rate of production from 80 ***La.S.*** *units per month up to about 250* ***La.S.*** *units per month. Conversion to mainly* ***3.7 cm Geschuetz-Panzerkampfwagen*** *requires further enormous expenditures for machine tools amounting to about 20 million* ***Reichsmarks*** *per factory. If acquisition of the material is quickly approved, it will take until 1 April 1937 to acquire the extra large machines that are needed as a prerequisite to series production of the larger types of Panzers.*

c. Availability of experienced workforce

It is necessary for the currently available core of production engineers, master craftsman, and workers to remain occupied awaiting series production of the larger types of Panzers. This requires that the ***M.G.-Pz.Kpf.Wg.*** *and* ***2 cm M.G.-Pz.Kpf.Wg.*** *remain in production until the larger Panzers enter production. If this doesn't happen and a gap of only several months occurs, the same difficulties will occur at the beginning of the series production of the larger types as happened during production of the* ***M.G.-Pz.Kpf.Wg.*** *in the Fall of 1934. Up to now, the sale of the* ***M.G.-Pz.Kpf.Wg.*** *to foreign countries has not been permitted by the* ***Allgemeine Heeresamt****. It should be considered whether the number of* ***M.G.-Pz.Kpf.Wg.*** *produced above our needs can possibly be placed for export.*

Production in series runs as follows: From the ***0 (Versuchs) Serie****, a* ***1.Serie****, then a 2., 3., 4., and so on Series are produced. The production schedule is governed by the experience of the preliminary trials. It must be emphasized that in accordance with this program, a preliminary troop trial will not occur. The* ***0-Serie*** *will be produced at the same time as the troop trial, with all the resulting consequences. Because the production must occur without gaps, problems identified in the* ***0-Serie*** *can't be corrected in the* ***1.-Serie*** *which immediately follows, but at the earliest in the* ***2.Serie****. Knowledge gained in the* ***1.Serie*** *would at the earliest be introduced into the* ***3.Serie****, and so on. All of these series cannot be too small, because orders for materials requires at least 6 months lead time.*

It is illuminating that with advancing trials from series to series, the power train reliability of the vehicle increases. Therefore, it is more suitable to order the majority of the Panzers at the end of the development program instead of at the beginning.

Frequent changes in design will be necessary during the initial series. The necessity for modifications will always decrease with increasing design maturity. Because of the demand for quick delivery and monetary reasons, it must be warned that production will be rushed at the start of the series production.

In summary, the machine tools required for the large-scale production of heavier types of ***Panzerkampfwagen*** *can be delivered by 1 April 1937. By this time the drawing sets for the production of the* ***3.7 cm Geschuetz-Pz.Kpf.Wg.*** *will be completed based on information gained from the experimental models.*

[2]The Waffenamt rejected the "assembly line" firms on the basis that their methods were too inflexible to produce tanks with immature designs. In postwar literature, political affiliation has always been given as the excuse for not awarding tank production contracts to Ford and Opel. But Ford and Opel were entrusted with producing tens of thousands of trucks which were just as important to the war effort. This evidence shows that Waffenamt was not disposed to awarding them tank production contracts on technical grounds. None of the firms that were awarded tank production contracts actually used true "assembly line" techniques like those applied by Ford, and therefore production of Panzers was handicapped throughout the war.

Schulfahrzeuge (training vehicles) were obtained for driver's training. Later in 1939, they were also employed in the **Instandsetzungs-Trupp** (maintenance section) and were officially known as **Pz.Kpfw.I ohne Aufbau** (without superstructure). (BA)

A large series is to be contracted on 1 April 1937, with deliveries to the troops starting on 1 January 1938 at a rate of about 100 ***3.7 cm Pz.Kpf.Wg.*** *per month and a total of about 3000 by 1 October 1940.*

The ***0-Serie*** *and a* ***1.Serie*** *produced by Daimler-Benz can be delivered to the troops by 1 January 1938. The extent of these deliveries is governed by the technical development and cannot be predicted at this time.*

The first experimental model of a ***7.5 cm Geschuetz-Panzerkampfwagen*** *has not been completed. The same schedule that applies to the* ***3.7 cm Geschuetz-Panzer-kampfwagen*** *also applies to the* ***7.5 cm Geschuetz-Panzer-kampfwagen*** *but delayed by about six months.*

In accordance with the orders from the ***Allgemeine Heeresamt****, contracts have been placed for 1500* ***M.G.Pz. Kpf.Wg.*** *and 75* ***2 cm M.G.Pz.Kpf.Wg.*** *It is not possible to reduce the number contracted to 1369 vehicles. Instead, further orders for these types of Panzers are necessary to establish production capacity for the 3.7 and 7.5 cm types that are to follow. By 1 January 1938, about 2500 of these* ***M.G.*** *and* ***2 cm M.G.Pz.Kpf.Wg.*** *will be available. Contracted* ***Schulfahrzeuge*** *(training vehicles) have not been included in these numbers.*

The ***Heeres Waffenamt*** *will continuously try to reduce the number of these undesired types of Panzers from the production orders. The opportunity to perform advanced work on the heavier types instead of producing the smaller types is to be exploited. The current status of the first trials of the heavier types does not allow any way of knowing to what extent these measures will work out.*

In no way can it be calculated that ***3.7*** *and* ***7.5 cm Geschuetz-Pz.Kpf.Wg.*** *will be available to fill the planned expansion on 1 October 1936 and 1937. With the exception of* ***3.7 cm Geschuetz-Pz.Kpf.Wg.*** *from the* ***0.Serie*** *and* ***1.Serie****, large deliveries to the troops will begin after 1 January 1938.*

In response to the **Allgemeine Heeresamt**, General Beck, **Chef des Generalstab des Heeres** replied on 21 January 1936:

*The **Generalstab** views the tasks suitable for Panzer units as follows:*

- *Frontal attacks in cooperation with other large units,*
- *Exploit penetrations to achieve a complete breakthrough*
- *Attack the wings and flanks*
- *Counterattacks in large operations.*

*2. The primary consideration for accomplishing these tasks is that the Panzer units are suitable for combating enemy infantry (including their heavy weapons) and artillery as well as fighting enemy tanks. It must be considered that combat with enemy tanks will be the rule, not the exception. Combat tasks assigned to the **Panzerkampfwagen** will often occur consecutively or simultaneously.*

*3. The **Generalstab** concurs with the statements of the **Allgemeine Heeresamt** that Panzer units will initially be uniformly organized and armed. Final decisions can be made after additional practical experience is available.*

*However, considering the enemy status, the **Generalstab** believes that a far-reaching program to equip the Panzer units with armor-defeating weapons is necessary. Again, the development of French tank units must be pointed out. The French are currently outfitting half of their light tank battalions with Char D or D1 tanks and will then have mixed light battalions with a ratio of three gun-armed tanks to two machine gun-armed tanks and light battalions that are equipped only with tanks armed with 4.7 cm guns.*

In addition, as revealed in foreign literature, it must be calculated that the French are increasingly converting to heavier armed tanks. It appears necessary to change the equipment of our Panzer units in order to counteract this development.

*The armament of our Panzer units must guarantee that they have a good chance of success against this type of enemy unit while carrying out all of their combat tasks. The **Generalstab** is therefore of the opinion that the final goal must be that two-thirds of all the **leichten Panzerkampfwagen** must be equipped with an armor-defeating weapon with sufficient capability (that is the 3.7 cm gun).*

*4. One of these requirements, suitable equipment for the Panzer units, is not possible before 1 October 1938 due to production restrictions as stated in the **Heeres Waffenamt** report. But it appears necessary and also possible to convert the production capacity as soon as possible to the necessary final goal in order to achieve one of the requirements to have suitable equipment in our Panzer units at least within several years. In the meantime, considering the constraints of the production situation as proposed by the **Heeres Waffenamt**, an interim solution must be accepted.*

*5. In accordance with the expansion plan for the **Panzertruppen** presented to the **Oberbefehlshaber der Heeres** by the **Generalstab**, the following Panzer units should be available on:*

1 Oct 36	*16 **Panzer-Abteilungen***
1 Oct 37	*22 **Panzer-Abteilungen***
1 Oct 38	*30 **Panzer-Abteilungen***
1 Oct 39	*36 **Panzer-Abteilungen***

Without doubt, the question of costs is important when considering the entire question. However, costs cannot be allowed to govern the final decision.

*A comparison does not appear to be possible between the number of **Panzerkampfwagen** (M.G. or 3.7) that can be acquired for the same expenditure of funds and the necessary number of hits to knock them out of action. The opinion of the **Generalstab** is based on arming our **Panzerkampfwagen** so that they can withstand combat against enemy tanks.*

*The interim organization of **Panzer-Brigades** with two **Panzer-Regiments** is concurred with. Further experience must be awaited.*

*Equipping the **leichten Panzer-Kompanie** with over 25 **Panzerkampfwagen** (including reserves) does not appear suitable. Four **Panzerkampfwagen** are too many for the **Kompanie-Trupp**.*

*On the question of the mixture of Panzer types in the **leichten Panzer-Zuege** (M.G. and armor-defeating weapons), a position will be withheld until the basic question of the ratio of M.G. to armor-defeating weapons is determined.*

*No considerations stand against providing a **leichten Panzer-Zug** to the **schwere Panzer-Kompanie**. Also, further practical experience must be awaited.*

*The **Generalstab** maintains that a decision by the **Oberbefehlshaber des Heeres** will soon be necessary. A special meeting between the **Allgemeine Heeresamt** and the **Generalstab** should be held to achieve agreement on details.*

On 28 January 1936, the **Allgemeine Heeresamt** addressed their comments on the 15 January 1936 memorandum from **Wa Prw 6** to the **Chef des Generalstab des Heeres** as follows:

*1. The **Allgemeine Heeresamt** understands that the **Wa Prw 6** report claims that the **3.7 cm Geschuetz-Pz.Kpf.Wg.** will be ripe for production and that production of 100 **Panzerkampfwagen** per month of this type can be justified after 1 January 1938.*

*The first two experimental models of a **3.7 cm Geschuetz Pz.Kpf.Wg.** are currently being tested. From a technical standpoint, these two experimental pieces in no way constitute a sufficiently wide basis for immediate production of several hundred **Panzerkampfwagen** at a price of about 150,000 **Reichsmarks** each.*

*By 1 April 1937, 25 **3.7 cm Gesch.Pz.Kpf.Wg.** are to be delivered to the troops. These are from the **0-Serie**, suitably referred to as a "**Versuchsserie**" (experimental series). The Panzer of this "**Versuchsserie**" will certainly still have faults*

*that must be found and corrected before mass production can be started. Based on the difficulty of the task - all previous experiences point to this view - one should not expect that the technical evaluation of the "**Versuchsserie**" will be completed before the Fall of 1937. In addition, the tactical evaluation can have a significant influence on the detailed technical design of the Panzers. The tactical evaluation should be completed during the Summer of 1937.*

*After completion of the technical and tactical tests of the **3.7 cm Geschuetz-Panzerkampfwagen** of the "**Versuchsserie**", the sets of drawings can be completed starting in the Fall of 1937. From experience these drawings take about four months. Therefore, the drawings can be at the production firms about the turn of the year 1937/1938. Production can start only after distribution of the drawing sets. Then it takes another nine months before the first piece can be delivered from a large series. Therefore, the first **3.7 cm Geschuetz-Panzerkampfwagen** from a large series will be received by the troops at the earliest in the Fall of 1938.*

*The **Allgemeine Heeresamt** believes that from the technical viewpoint they have still reported an optimistic summary of the situation. Therefore, according to the determination of the **Allgemeine Heeresamt**, the available financial budget can't be used for acquiring a large number of Panzers that can very easily fail due to the lack of technical maturity.*

*2. The same statements apply to the **7.5 cm Geschuetz-Panzerkampfwagen**, with the exception that its schedule is expected to be about six months later.*

*3. If the heavy types of Panzers currently under development will take one and one-half to two years before they are ripe for large-scale production, the **Allgemeine Heeresamt** concludes that it will be suitable or indeed necessary for the **Heeres Waffenamt** to already initiate preparations for production. In no way can the delays be allowed to occur because of untimely or insufficient preparation of the factories for production of a large series of mature Panzers.*

In view of insufficient practical experience in combat and in the organization of the Panzer units, preparations for production must be flexible. This means that it must remain possible to shift the priority from production of one Panzer type to another type.

*4. The **Allgemeine Heeresamt** is certain that a situation can occur that forces taking unavoidable risks. But in such a case one must recognize that the rushed production of Panzers of a type that have not been completely developed can result in the acquired Panzers not fulfilling expectations and their worth possibly declining to scrap value.*

*The directive from the **Oberbefehlshaber der Heeres** that high value combat equipment may first be produced in large series if it is actually mature for production is brought to your attention.*

*5. In closing, it should still be remarked that Panzer units only equipped with **M.G.** and **2 cm M.G.-Pz.Kpf.Wg.** have a very noteworthy combat value.*

In response to the **Allgemeine Heeresamt** memorandum dated 28 January 1936, General Beck replied on 10 February 1936:

*1. The **Generalstab** concurs with the **Allgemeine Heeresamt** statements regarding the production maturity of the heavy Panzers. It appears to be increasingly necessary to make preparations for mass production so that delays don't occur. Then mass production of heavy Panzers could be initiated if the foreign political situation changes before 1938.*

*2. The **Generalstab** also concurs with the **Allgemeine Heeresamt** opinion that these production preparations must be flexible in regard to the further possibility for design changes to the heavier armed Panzers (3.7 and 5 cm).*

*In consideration of the final goal established by **Generalstab** that it is necessary to equip Panzer units with armor-defeating weapons, in the interim, only so many **2 cm Pz.Kpfw.** and **M.G.Pz.Kpfw.** are to be produced as required to maintain a prepared industry.*

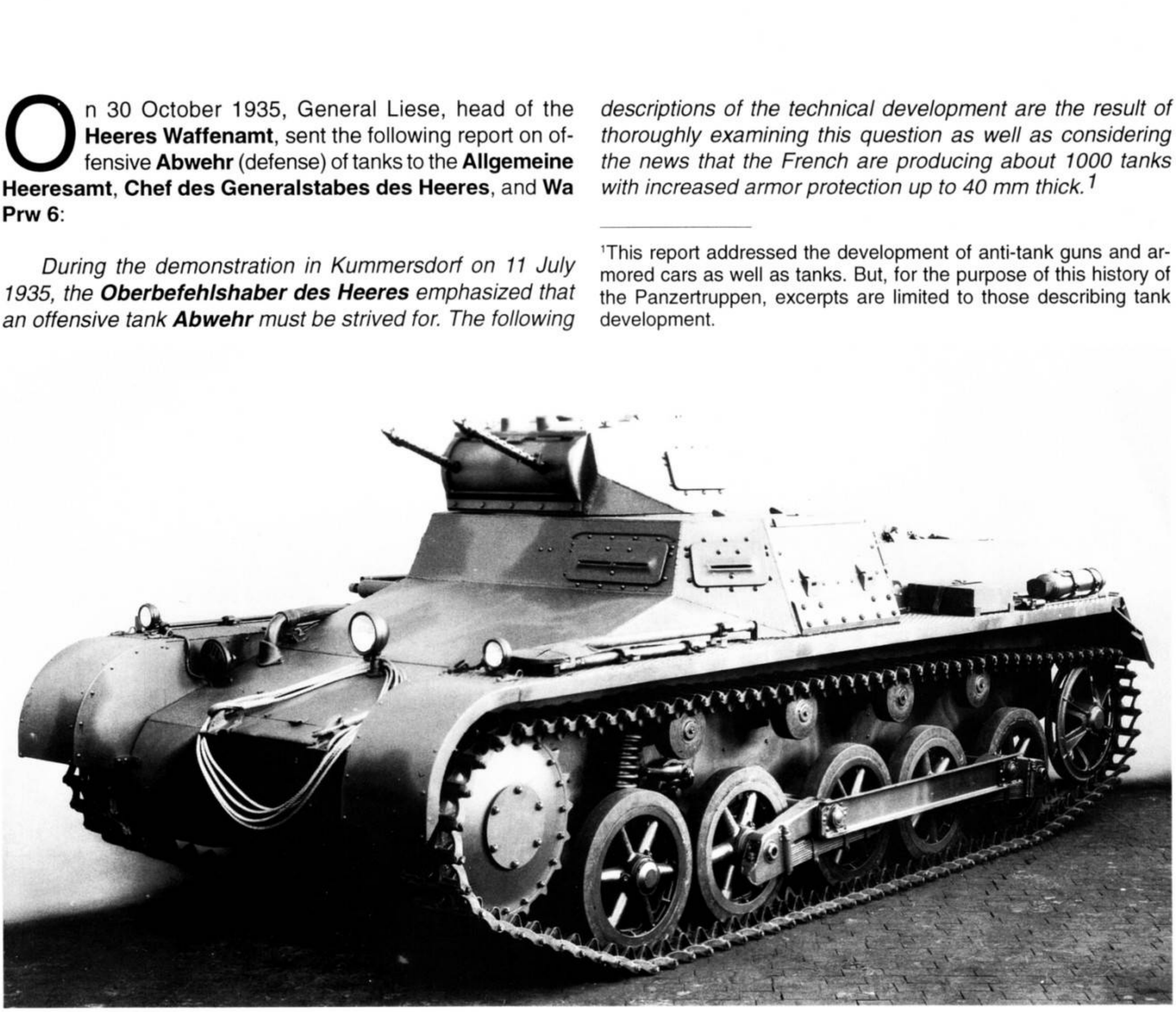
6

Tactical Capabilities of the Panzers

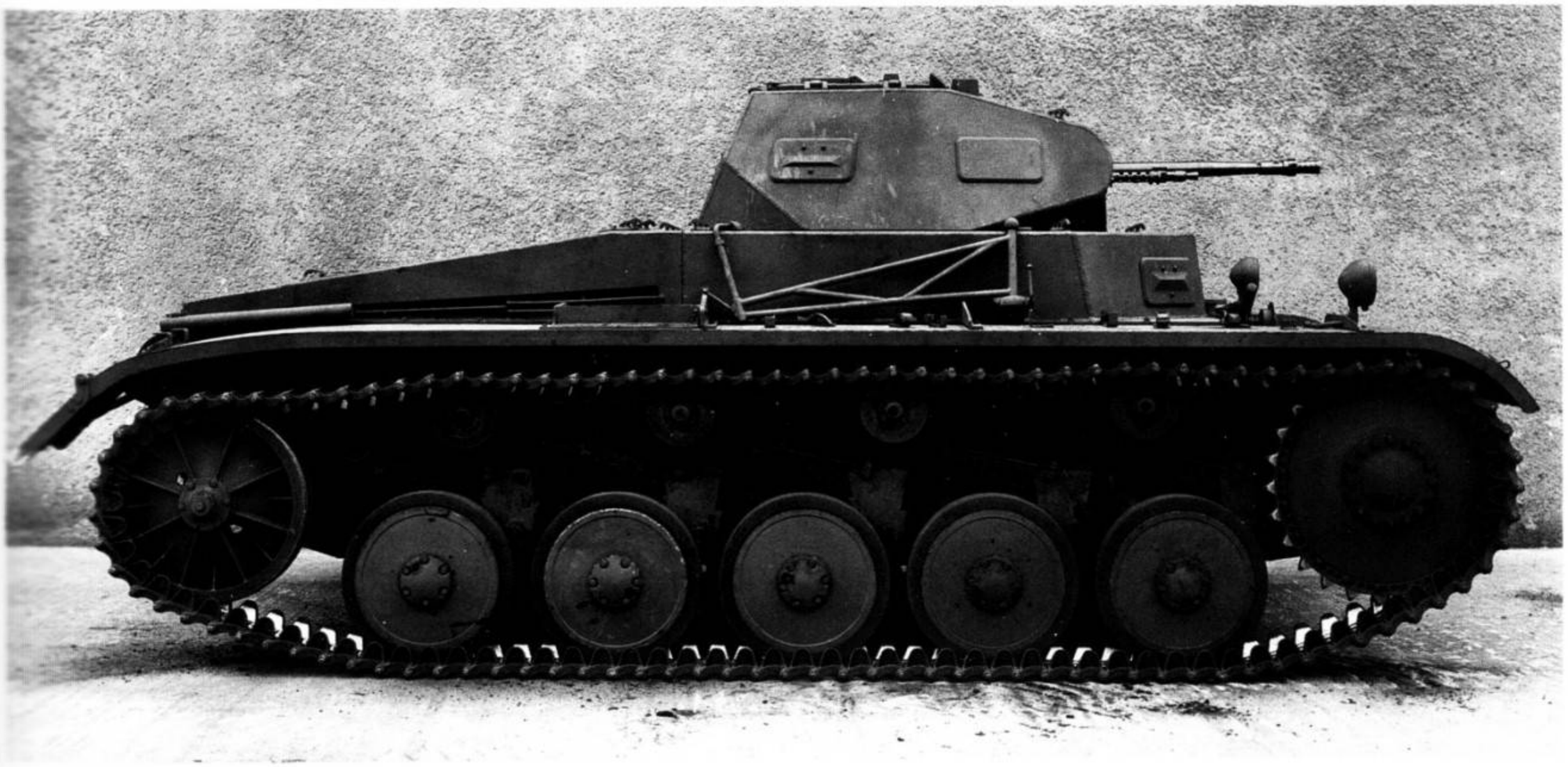
On 30 October 1935, General Liese, head of the **Heeres Waffenamt**, sent the following report on offensive **Abwehr** (defense) of tanks to the **Allgemeine Heeresamt**, **Chef des Generalstabes des Heeres**, and **Wa Prw 6**:

*During the demonstration in Kummersdorf on 11 July 1935, the **Oberbefehlshaber des Heeres** emphasized that an offensive tank **Abwehr** must be strived for. The following descriptions of the technical development are the result of thoroughly examining this question as well as considering the news that the French are producing about 1000 tanks with increased armor protection up to 40 mm thick.*[1]

[1]This report addressed the development of anti-tank guns and armored cars as well as tanks. But, for the purpose of this history of the Panzertruppen, excerpts are limited to those describing tank development.



The **M.G.-Panzerwagen (La.S.)** was armed with twin machine guns in a hand traversable turret. Armor protection was designed for protection against **S.m.K.** (solid core bullets) fired at close range on the ground from machine guns or rifles. This is a **Pz.Kpfw.I Ausf.B** with a six cylinder Maybach engine. (WJS)



The **M.G.-Panzerwagen (2 cm) (La.S.100)** was armed with a **2 cm Kw.K.30** gun and a **M.G.34** in a hand traversable turret. As originally produced, the armor was designed for protection only against **S.m.K.** bullets. This is a **Pz.Kpfw.II Ausf.A** with an anti-aircraft machine gun mount on the right superstructure side. (WJS)

The **Zugfuehrerwagen (Z.W.)** was armed with a **3.7 cm Kw.K. L/45** gun and two **M.G.34s** in a hand traversable turret. The armor on the **Pz.Kpfw.III Ausf.A** to **Ausf.D** was designed for protection only against **S.m.K.** bullets. The **Pz.Kpfw.III Ausf.E, F** and **G** had 30 mm thick armor on the front and sides. This is a **Pz.Kpfw.III Ausf.D** with an anti-aircraft machine gun mount on the left superstructure side. (WJS)

1. **M.G.-Panzerwagen (La.S.)**

The **M.G.-Panzerwagen**, outfitted only with two 7.9 mm machine guns, is the least suitable of all the developed Panzers for offensive **Abwehr**. However, by using **S.m.K.H.** (special hard core) ammunition it can be used against armored cars and tanks protected by armor designed to be invulnerable to **S.m.K.** (steel core ammunition) attack.

2. **M.G.-Panzerwagen (2 cm) (La.S.100)**

The muzzle velocity of the 2 cm gun mounted in this tank is 765 meters/second. The **2 cm Panzergranate** (armor-piercing shell) fired at this initial velocity can penetrate up to 10 mm thick armor plate at a range of 700 meters when striking the plate at an angle of 30^{o}.

This Panzer can engage all armored cars with success. Also, it is fully combat functional against tanks with the same armor as itself (maximum thickness of 14 mm). Against old, light Renault M17 and M18 tanks (thickest armor 22 mm), which may be expected in large numbers (about 3000) upon mobilization, effective hits should be expected at ranges less than 700 meters and striking angles less than 30^{o}.

Against the light Renault NC 37 and NC 31 tanks (armor up to 30 mm on the front and part of the side) or especially against the 1000 tanks with 40 mm armor, the 2 cm gun on the **La.S.100** is practically worthless. This also applies to a greater degree to heavy French (2 C, 3 C and D) tanks with weights between 70 and 90 tons.

The first experimental **La.S.100** have been operational since early July 1935. An experimental series of 79 will be delivered to the troops between April and September 1936. If further testing runs normally, large-scale delivery of this Panzer can begin on 1 April 1937.

3. **Zugfuehrerwagen (Z.W.)**

The initial velocity for the current 3.7 cm gun (same characteristics as the 3.7 cm anti-tank gun L/45) planned for this Panzer is 740 meters/second. At a striking angle of 30^{o} at a range of 700 meters, 22 mm thick armor plate can be penetrated. This is sufficient at this range for defeating the armor of the Renault NC 27 and NC 31 with the exception of the stronger armored (30 mm) crew compartment. At shorter ranges and smaller striking angles, it is also expected to be effective against 30 mm armor.

The first experimental **Z.W.** with a 3.7 cm gun is scheduled to be completed on 1 November 1935. In consideration of the expected increase in armor thickness in the new French design, an attempt should be made to increase penetration from 22 to 27 mm at 700 meters at 30^{o} by mounting the 3.7 cm anti-tank gun L/65 instead of L/45. A 40 mm thick armor plate (as expected in the new French tanks) will be penetrated at ranges up to 100 meters at an angle of 30^{o} and penetrated at ranges up to 350 meters at an angle of 0^{o}.

Mounting a 3.7 cm anti-tank gun L/65 with a muzzle brake instead of the L/45 gun still requires thorough experiments. These must first clarify if the barrel protruding beyond the vehicles profile does not have disadvantages (damaged when running over small trees, etc.) and if the driver sitting under the barrel will not be overly bothered by the powder gases coming out of the muzzle brake. Also, the increased performance of the L/65 anti-tank gun requires a different (longer) shell casing than that used in the L/45 anti-tank gun. The ability to supply the same ammunition for both the 3.7 cm tank and anti-tank guns would then be lost.

It is estimated that mounting the 5 cm anti-tank gun (recently proposed for development) will significantly increase the diameter of the turret, so that a new chassis would need to be developed. Therefore, it is recommended that we wait until presentation of the design for the 5 cm anti-tank gun.

4. **Begleitwagen (B.W.)**

The 7.5 cm gun in this Panzer with a gun-tube length of L/21 has a muzzle velocity of 430 meters/second. At this initial muzzle velocity the **7.5 cm Panzergranate** can penetrate a 43 mm thick armor plate at a range of 700 meters at a striking angle of 30^{o}. Solely based on penetration ability, the **B.W.** is completely equivalent to the new French tanks. According to theoretical statements it is possible that the expected accuracy is poor due to the curved flight path caused by the low initial velocity. This should be tested in practical trials at Putlos.

Always keep in mind that technically the **B.W.** is completely equivalent to all of the expected tanks with the exception of the heaviest Char 2 C, 3 C, and D.

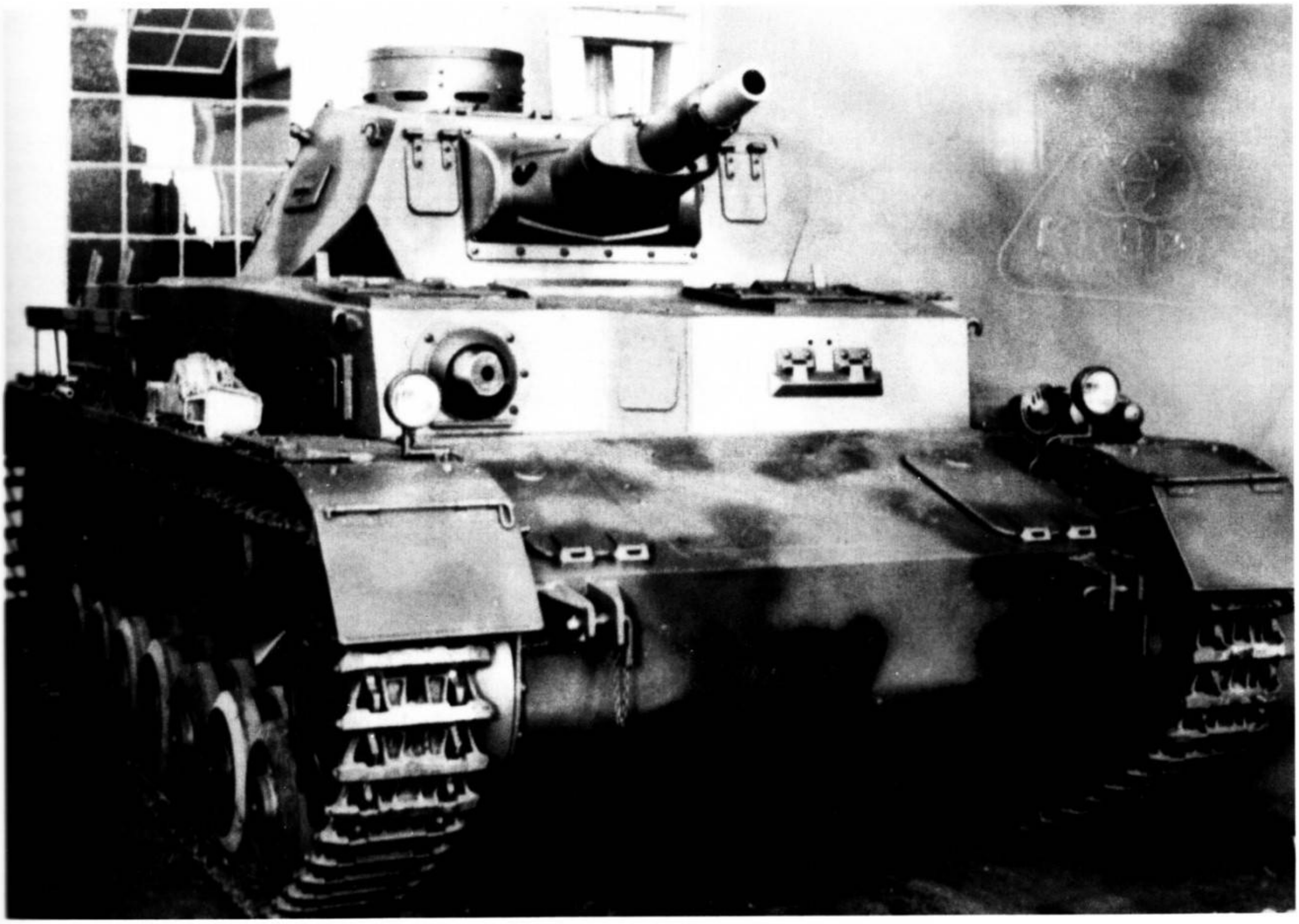
The initial velocity of the 7.5 cm gun must be increased to about 650 meters/second to be effective against the Char 2 C, 3 C and D. This type of increase requires a completely new Panzer. Based on rough calculations, a weight of at least 30 tons would be reached with armor up to 20 mm thick (still not fully protected against 2 cm guns). The **Oberbefehlshaber des Heeres** recently spoke against this type of tank.

5. **10.5 cm Panzerwagen (Nebeltank)**

This Panzer should be designed mainly for the purpose of establishing a smokescreen in front of enemy tanks. In addition, it should also fire a fully functional **Splittergranate** (high-explosive fragmentation shell) against suitable targets. The desire to use the same chassis as the **B.W.** led to a reduction of the initial velocity to 230 meters/second, which is sufficient for the designated original purpose. If in addition to the **Nebelgranate** (smoke shell) and **Splittergranate** (high-explosive fragmentation shell), a third shell type, the **Panzergranate** (armor-piercing shell), is planned, which from the standpoint of internal ammunition load and supply is not unthinkable, it could penetrate 25 mm at a 700-meter range, striking at an angle of 30^{o}. Technically, this Panzer is also capable of combating all French tanks with the exception of the 40 mm thick armor on the newer tanks and the heavy tanks. Due to the curve of the trajectory, concerns about low accuracy also apply to this gun.

The potential for offensive employment increases for all of these Panzers if the 7.9 mm machine guns have **S.m.K.H.** ammunition.

If one summarizes the conclusions from the above description, one may state that technically the previously developed Panzers are thoroughly suitable for offensive tank combat against all but the heaviest French tanks. The prerequi-



The **Begleitwagen (B.W.)** was armed with a **7.5 cm Kw.K. L/24** gun and a **M.G.34** in the turret traversed by hand or electric motor. The armor protection for the **Pz.Kpfw.IV Ausf.A** was designed for protection only against **S.m.K.** bullets. The **Pz.Kpfw.IV Ausf.B** and **C** had 30 mm thick armor on the front but only 14.5 mm thick armor on the sides and rear. (WJS)

site is that they are available in sufficient numbers to create a sufficient number of suitable formations that are located not too far behind the front to compensate for their low operational mobility (maximal speed on the roads of about 30 kilometers/hour).

Requests:

1. Confirm that development of a medium Panzer weighing about 30 tons with a 7.5 cm gun (muzzle velocity of 650 meters/second) can be dropped.

2. Permission to develop a 5 cm anti-tank gun capable of penetrating 40 mm thick armor struck at an angle of 30° at a range of 700 meters. As already explained, the question of whether a Panzer with this gun should also be developed can still be delayed.

On 23 March 1936, **Wa Prw 6** of the **Heeres Waffenamt** wrote the following memorandum on the development of Panzers:

*The **Heeres Waffenamt** in memorandum Nr.14/36 Wa Prw 6 dated 15 January 1936 had taken a position on the production part of the question. This position is expanded by the following review of the technical attributes of individual types of Panzers and their ability to undertake important combat tasks.*

*The three main tasks for the **Panzertruppe** are supporting the infantry attack, anti-tank defense, and self-sufficient operational employment in units with other mobile weapons.*

1. Panzers Supporting an Infantry Attack

The classical assignment for tanks is subduing machine guns that dominate the battlefield while crossing all types of terrain obstacles. Therefore, the three primary attributes for these tanks should be armored against machine gun fire, armed with a machine gun and guns to engage live targets, and high cross-country mobility with the capability to cross wire entanglements and trenches. For this original role, speed and action radius play a completely secondary role.

The development of anti-tank weapons and passive anti-tank measures have strongly encroached upon the initially

unlimited superiority of tanks in this form of combat. The remedies for anti-tank weapons are thicker armor, high speed, maneuverability, and appearance in large numbers. To overcome a few of the passive anti-tank measures (such as obstacles), improve the capability to cross trenches and vertical steps.

Cross-country speed during attacks is not restricted solely by how powerful the motor is. It is limited by poor vision and the danger of driving into natural or man-made obstacles. Seemingly unanimously, foreign countries hold 10, at the most 15, kilometers per hour as the highest speed during an attack. Defense against anti-tank weapons by maneuvering has improved by about 100 percent since the World War. However, at speeds of 10 to 15 kilometers per hour, it cannot be referred to as decisive.

Table 1 includes a summary of the foreign anti-tank guns and their calculated penetration ability at a range of 600 meters when the rounds strike at an angle of 30 degrees. As derived from Table 1, defence against all of the foreign anti-tank guns at 600 meters range and an angle of 30 degrees is first achieved with an armor greater than 40 mm thick. To effectively protect our ***Panzerkampfwagen*** *against anti-tank guns, the requirement would have to be that they can't be penetrated at a range of 100 meters at an angle of 0 degrees. This type of protection requires armor thicknesses resulting in weight that is impossible for our* ***Panzerkampfwagen*** *to carry because they are restricted to a maximum weight of 8 or 18 tons by the carrying capacity of bridges.*

Fully automatic anti-tank guns are especially dangerous. They are substantially superior to single-shot weapons in their ability to hit single vehicle targets, to swiftly change targets, and to find the range. The number of Panzers that can be knocked out by an automatic gun in the short time of an attack is considerably greater than can be achieved by a single-shot weapon.

Anti-tank weapons in the forward infantry zone must be low in height, easily transportable, and simple to handle. They must be available in large numbers.

The most capable weapon that is known to have been developed which meets the desired attributes for mass employment in the forward infantry zone is the French 25 mm Hotchkiss machine cannon.

The German 3.7 cm automatic ***Flak 35*** *has significantly higher armor-penetration ability. Due to its height and weight, however, it is not suitable for the forward infantry zone.*

One must also require that at least some of the Panzers used to support infantry have sufficient armor to withstand hits from the 25 mm automatic Hotchkiss.

*During development of our Panzers (****M.G.****, ****2 cm****, ****3.7 cm****, and* ***7.5 cm Pz.Kpf.Wg.****) within the weight limitation of 8 and 18 tons, we concentrated on:*

• High power ratio (horsepower/ton) to achieve good average speed and maneuverability,

*• Dividing the combat tasks in the tank among the commander, gunner, radio operator, and driver (****2 cm Pz.Kpf.Wg.*** *has a three-man crew; the* ***3.7 cm*** *and* ***7.5 cm Pz.Kpf.Wg.*** *each has a five-man crew).*

The result was armor protection for the ***M.G.****,* ***2 cm****, and* ***7.5 cm Pz.Kpf.Wg.*** *that will protect against* ***S.m.K.*** *rounds fired on the ground at all ranges.*

The solution strived for with the ***3.7 cm Pz.Kpf.Wg.*** *is sufficient frontal armor to protect against the French 25 mm Hotchkiss gun firing at 100 meters and striking at 0 degrees. Other locations are to be protected against* ***S.m.K.*** *rounds fired at all ranges. Several important areas (motor, etc.) are to be protected against hits from 2 cm caliber weapons. The decision on armor protection can first occur after satisfactory results are achieved in the experiments that have already been initiated to determine penetration ability with a copy of the French 2.5 cm gun and ammunition. In addition, there is ongoing development of cemented (face hardened) armor plates and welding experiments with this cemented armor plate.*

If the ***3.7 cm Pz.Kpf.Wg.*** *is held to the 18 ton weight limit, thicker armor protection can be achieved only by a weaker motor, lower speed, shorter action radius, fewer crew, and decreased weapons capability. This would result in a new design that would hardly be suitable for operational employment.*

If one considers the ***Panzerkampfwagen*** *question from the standpoint of weapons capabilities, the following types are suitable for infantry support:*

• The ***M.G.-Pz.Kpf.Wg.*** *with 2 machine guns (****M.G.13****)*

• The ***2 cm M.G.-Pz.Kpf.Wg.*** *with 1 machine gun (****M.G.34****)*

• The ***3,7 cm Geschuetz-Pz.Kpf.Wg.*** *with 3 machine guns (****M.G.34****)*

A high fragmentation effect against live targets shouldn't be expected from the ***3.7 cm Sprenggranate*** *(high-explosive round).*

• The ***7.5 cm Geschuetz-Pz.Kpf.Wg.*** *with its* ***Sprenggranate*** *is especially useful for combating targets under or behind cover (machine gun nests, mortars, anti-tank guns).*

Comparison of the four types produces the following picture:

• The ***M.G.-Pz.Kpf.Wg.*** *is very suitable from the standpoint of weapons effectiveness (2 machine guns). In addition, the disadvantage of its thin armor (only protects against* ***S.m.K.****) is in part balanced by the advantage of its smaller target area and lower price (mass production).*

• The ***2 cm M.G.-Pz.Kpf.Wg.*** *has an* ***M.G.34*** *with a higher rate of fire, is maneuverable, has a good power-to-weight ratio, has an armor-penetrating weapon, and costs 50 percent of the* ***3.7 cm Geschuetz-Pz.Kpf.Wg.***

• The ***3.7 cm Geschuetz-Pz.Kpf.Wg.*** *is good in terms of pure weapon effectiveness (one 3.7 cm gun and three machine guns) and it is the best of the four types in terms of armor protection against* ***S.m.K.*** *rounds and armor-piercing*

rounds of up to 2 cm (maybe in part against 2.5 cm).

• The **7.5 cm Geschuetz-Pz.Kpf.Wg.** in terms of weapons effectiveness, especially against the heavy infantry weapons and anti-tank guns, and its thin armor (protects only against **S.m.K.**) is appropriate for employment in the second line of a tank attack supporting the infantry.

2. Employing Panzers for Anti-Tank Defense

Panzers may be required to defend against counterattacking enemy tanks at any time during offensive operations. In addition, tanks with armor-penetrating weapons are valuable reserves for the commander to use in defending against enemy tank attacks. Therefore, a considerable percentage of the Panzers must be equipped with an armor-penetrating weapon.

Table 2 presents a summary of the currently known data on the armor and weapons of the most important foreign tanks.

Analysis using the Table 2 data reveals the following:

• The **M.G.-Pz.Kpf.Wg.** with **S.m.K.H.** (hard core) ammunition is limited to combating weakly armored foreign tanks.

• The **2 cm M.G.-Pz.Kpf.Wg.** can knock out all foreign tanks in service with the exception of the Char 3C and D. The 2 cm is effective only against several foreign tanks with heavier armor at ranges shorter than 600 meters or at striking angles less than 30 degrees. The turret and sides of the Char D1 can be successfully engaged at an angle of 30 degrees at ranges up to 100 meters. At 0 degrees the turret can be penetrated at ranges up to 500 meters and hull sides at ranges up to 700 meters. In comparison, the 3.7 cm caliber is superior to the 2 cm at all ranges when striking at an angle of 30 degrees and at an ranges over 600 meters when striking at an angle of 0 degrees.

• The **3.7 cm Geschuetz L/45** can also successfully penetrate the turret and side of the French Char D1 tank up to a range of 600 meters at an angle of 20 degrees, and up to a range of 500 meters at an angle of 30 degrees.

• The gun in the **7.5 cm Geschuetz-Pz.Kpf.Wg.** (L/24 with an muzzle velocity of 440 meters/second) can successfully penetrate all parts of the Char D1. It can also successfully engage the French Char 3C and Char D with the exception of their frontal armor.

Up to now, information is not available on the quality of armor for foreign tanks. Therefore, homogeneous armor plates have been assumed with a hardness of 120 kg/mm^2 for calibers over 2 cm, and a hardness of 180 kg/mm^2 for 7.92 mm. Should cemented armor plates be used for enemy tanks, the penetrating ability of our armor-piercing rounds will be reduced. In the meantime, ongoing experiments appear promising. By improving the round design, the advantage of cemented armor plates can be neutralized and their effectiveness against normal homogeneous armor plates can be increased.

3. Employment of Panzers in Self-Sufficient Operational Tasks in Units with other Motorized Troops.

Equipping the infantry with a large number of machine guns has threatened to suppress all free movement on the battlefield. This same measure decreased the combat power of the cavalry. On the other hand, the rapid increase in motorization has led in a straight line to a requirement for fast mobile motorized armored units with high combat power. Therefore, more and more, tank design priorities are changing from its original purpose as an assault vehicle for infantry to a self-sufficient weapon with large operational objectives as the core troops of motorized units.

All four types of Panzers are fully suitable and necessary for operational assignments. Combating live targets comes into consideration as well as engaging enemy tanks. In the original plans, the four types of Panzers were intended mainly for employment within the **Panzer-Divisions**. That also meant that they were planned for operational employment and were developed with this in mind.

The priority requirements are good average speed, maneuverability, a large radius of action, and division of the combat tasks among the crew. In consideration of the 8 or 18 ton weight limit, less value must be placed on the armor.

The development of anti-tank weapons in recent years has awakened a conscious concern. Automatic weapons firing **S.m.K.H.** rounds or armor-piercing rounds in the caliber from 20 or 25 mm upward are hazardous to our Panzers which were protected only against **S.m.K.** With different ammunition, these anti-tank weapons can double as anti-aircraft defense. One must therefore calculate that during every serious engagement with the enemy, this type of weapon will appear in number.

It points out the danger that in the future lightly armored **Panzerkampfwagen** will remain pinned down under the fire of heavy automatic weapons, just as in the last war the infantry and cavalry were forced to ground or held in check by individual machine guns. Among the known enemy anti-tank weapons, the **Waffenamt** views the French 25 mm Hotchkiss automatic cannon as the most important and dangerous at this time.

These weapons can be overcome only if at least part of the **Panzerkampfwagen** has sufficiently strong armor and ruthlessly charges to subdue these weapons in the same way that the **Panzerkampfwagen** protected against **S.m.K.** dispatches machine guns firing normal **S.m.K.** ammunition.

This requirement applies not only to **Panzerkampfwagen** supporting an infantry attack, but just as much to anti-tank defence and operational employment.

The **Heeres Waffenamt** has the opinion that, based on the above points, it is necessary to conduct a thorough reexamination of the question of armor protection.

TABLE 1: **THE MOST IMPORTANT FOREIGN ANTI-TANK GUNS**
Calculated Armor Penetration Ability

Country	Name	Shell Type and Weight (kg)	Muzzle Velocity (m/sec)	Penetration at 600m 30°
America	37 mm M1	Pz.Gr. 0.546	609	17 mm
Austria	47 mm Boehler	Pz.Gr. 1.45	670	28 mm
Belgium	47 mm F.R.C.	Pz.Gr. 1.55	600	26 mm
Denmark	37 mm Madsen	Pz.Gr. 0.8	900	33 mm
England	40 mm Vickers	Pz.Gr. 0.913	720	26 mm
France	25 mm Hotchkiss	Tungsten 0.30	900	30 mm
Poland	47 mm Pocisk	Pz.Gr. 1.65	433	18 mm
Russia	47 mm Hotchkiss	Pz.Gr. 1.5	900	40 mm
Sweden	37 mm Bofors	Pz.Gr. 0.7	800	26 mm
Swiss	47 mm V.V.	Pz.Gr. 1.45	640	27 mm

TABLE 2: **FOREIGN TANKS KNOWN TO GERMANY IN MARCH 1936**

Country	Name	Weapons	Turret	Armor Thicknesses (mm) Front	Side	Rear
France	Renault M 17	37 mm or 1 M.G.	22	8-16	16	8-16
	Renault D 1	47 mm + 1 M.G.	25	14-30	25	20
	Char 3 C	155 mm + 12 M.G.	35	50	30	30
	Char D	155 mm + 11 M.G.	35	50	35	30
England	C.L.M.6	47 mm or 1 M.G.	-	9	6	6
	Light Tank	1 M.G.	13	13	13	8
	V.A. 12 ton	47 mm + 5 M.G.	8	8	8	8
	V.A. 16 ton	47 mm + 5 M.G.	20	20	13	-
Italy	Fiat Ansaldo	1 M.G.	13	8-13	8	8
	Fiat 3000 B	37 mm or 2 M.G.	16	8-16	16	16
Poland	TK 3	1 M.G.	8	8	6	8
Russia	Russ. C.L.	1 M.G.	10	10	10	10
	MS 1	37 mm + 1 M.G.	14	14	12	12
	V.A. 6 ton	37 mm + 1 M.G.	14	14	10	10

7

Panzers in the Spanish Civil War

In October 1936, the first contingent of 32 **Pz.Kpfw.I** along with a single **kl.Pz.Bef.Wg.** landed in Spain. German crews detached from the army were sent to Spain under the command of Oberstleutnant Thoma. These crews served as advisors, instructors, transport drivers, and mechanics. Unlike Luftwaffe pilots, German tank crews were sent to provide support services and were not to engage in combat. By 30 October, Panzers with Spanish crews were engaged in combat in support of Franco's forces.

The commander of Gruppe Thoma sent back the following report written at Cubas near Madrid on 6 December 1936:

Spanish crews provided with both **Pz.Kpfw.I Ausf.A** and **Ausf.B** were trained by the Germans at Cubas near Madrid. (NA)

*Experience from Combat between the German **M.G.-Panzer** and Russian Gun Tanks.*

*From the beginning, the principle that a gun-armed tank is superior to the **M.G.-Panzer** was already known and has not been doubted since the World War.*

*During the first few days of combat, our **M.G.-Panzer** equalized this disadvantage by using special **S.m.K.H.** ammunition whenever Russian tanks appeared. Because of their tank losses the Reds quickly noticed that these rounds cleanly penetrated Russian tanks at ranges up to about 120 to 150 meters. Based on locally conducted tests, this special ammunition doesn't penetrate Russian armor at a range of 200 meters. The bullet left only an indentation mark.*

*Countermeasures against the unpleasant effects of the special ammunition were very simple and immediately applied. The Russian tanks no longer advanced to close the range. As soon as they noticed the **M.G.-Panzer** they usually remained over 1000 meters away. At this range, while stationary, they fired very accurately with their good gun. They took up positions mainly in courtyards where, because of their height, they could fire over the walls. Then they traversed the turret to the rear so that they wouldn't be as quickly recognized. In open terrain, whenever possible they dashed along the hollows and only appeared with the turret firing over the ridges. Also, in these cases they remained at long range.*

Special ammunition was useless at this range. In addition, the target was difficult to hit, as in no instance could our own Panzers remain stationary. If they remained stationary, they were hit. Several Panzer were knocked out of action in this way with loss of the crew.

*Also the **Pak** (anti-tank gun) can't aim at the long range targets because the sight ends at 900 meters. Shooting without the sight at long range has very low accuracy. In addition, the rounds have a reduced penetrating ability at long ranges. The gunsights in Russian tanks allow targets to be engaged at up to 3000 meters.*

*We were forced to attach five **Paks** to each **Panzer-Kompanie** to at least provide some protection against the Russian guns. The effect was minimal because understanding of these new Panzer and **Pak** weapons is extremely deficient. In spite of all the training, they already started shooting at ranges far over 1000 meters, especially at the insistence of the group commander.*

*The result is that, compared to the **M.G.-Panzer**, the gun-armed tank is very superior after the Russian tanks avoided close ranges. The special ammunition and **Paks** were rendered ineffective.*

*Therefore the requirement for a gun-armed tank is urgent, and an attempt must be made to install the **2 cm Kw.K.30** gun from the armored cars in case a tank gun hasn't yet been developed. Further expedient solutions are:*

1. Using the 7.5 cm infantry gun, which can be employed up to a range of 3000 meters.

*2. Mounting tracks on armored cars, since the **2 cm Kw.K.30** gun can engage Russian tanks at a range of at least 900 meters.*

*3. Installing a reticle in a gunsight for the **Pak** with a range of at least up to 1500 meters, not just 900 meters. However, the penetrating force won't be sufficient at the longer range.*

General Fuller (credited with formulating the idea of mobile warfare) expressed his opinion in an article published in the "Times" on 8 April 1937:

The three types of tanks that I have seen in Spain, Italian, German, and Russian, are not the result of tactical study but are merely cheap mass production.

From the standpoint of mechanization, up to now this war has proven my opinion that the light tank is absolutely no combat machine. It is an unimportant armored recon vehicle, that could be made very effective if the chassis was lengthened. In its current form in difficult terrain, the light tank resembles a destroyer in heavy seas. In addition, the interior space for the crew is so restricted that inside one feels like the inside of a mobile coffin. This can hardly be good for morale.

The French opinion was published on 20 April 1937 in "L'Intransigeant":

The German tanks were a major disappointment (two-man crew, 50 kilometers per hour, two machine guns, almost worthless armor).

No defense against enemy anti-tank guns or against bullets from hand-held weapons. This experience gives the German high command a real case to reconsider.

The German Panzer division has failed before it was even put into service.

The French tanks, slower but much better protected, remain "King of the Battlefield."

The German Panzers were given, not sold, to Spain, and therefore left behind no trace in the detailed export records from 1936 through 1939. Most published accounts give a figure of about 150 **Pz.Kpfw.I** sent to Spain. However, based on the total number produced and inventory reports, a maximum of 4 **kl.Pz.Bef.Wg.** and 88 **Pz.Kpfw.I** could have been sent to Spain. Of these, about half were **Pz.Kpfw.I Ausf.A** and half **Ausf.B**. No evidence has been found in original records that a single **Pz.Kpfw.II** was sent to Spain.

Further details and lessons learned were recorded in the official report on the Spanish Civil War from the **Generalstab des Heeres** dated 30 March 1939:

At the end of October 1938, two Panzer battalions were available each with three companies. One company of each battalion was equipped with captured Russian tanks. The companies equipped with German tanks each consisted of 16 Panzers.

One of four **kleine Panzerbefehlswagen** sent to Spain. The nationalist insignia is painted on the front and a recognition symbol for aircraft painted on the superstructure roof. (NA)

The German tank transport column consisted of a medium cross-country Wanderer car, two BMW motorcycles with sidecars, 14 Vomag diesel trucks, 10 Buessing diesel trucks, 19 low boy trailers, and four mobile loading ramps.

*German **M.G.-Panzer** were never used in action in a battalion-size unit. Usually in small packets, the Panzers were attached directly to and escorted the infantry as armored heavy infantry weapons.*

*Based on the judgment of the troops and their achievement in the **Pz.Kpfw.I Krupp** covering 5000 to 8000 kilometers each and the **Pz.Kpfw.I Maybach** covering 2000 to 4000 kilometers each, they were a success from the viewpoint of mechanical reliability.*

*Light tanks are useful only with flamethrowers, since they can't hit anything by firing their machine guns while moving. However, they themselves are vulnerable to machine guns firing special ammunition. The nozzle for the small flamethrower can be readily secured in the right-hand machine gun mount in the **Pz.Kpfw.I**. However, a longer range is desired because relatively high losses occur to the crews.*

In general the Panzers employed in Spain in small numbers and without other supporting weapons has mainly been shown to be inferior, very seldom superior to the anti-tank defense that also were only available in small numbers.

The 45 mm gun of the Russian tanks shoots high-explosive shells in an arcing flight path. The effectiveness of these shells is unsatisfactory. It also shoots armor-piercing shells at a flatter trajectory. Due to poor steel quality, the penetrating ability of the Russian armor-piercing shells is significantly lower than the corresponding German armor-piercing shells. The Russian AP shells can only penetrate 40 mm armor plate at a range of 100 meters. In addition, up to 75 percent of the base fuses fail to detonate.

Initially, relatives of the first family had volunteered for the tank troops in Franco's army. However, as the first losses occurred and it became known what the inside of a burned-out tank looked like, a swift reversal of the original enthusiasm set in. Today, in addition to inspired tank crews, captured Russian tanks are manned by pardoned criminals or Spaniards who have been given a choice between a prison sentence or one attack trip in a tank.

8

Expansion of the Panzertruppen - from 1936 to 1 September 1939

THIRD PHASE OF THE HEERES EXPANSION PROGRAM - 6 OCTOBER 1936

Only two additional **Panzer-Regiments** were created in the third phase of the **Heeres** expansion program effective 6 October 1936. Creation of a headquarters for a fourth **Panzer-Brigade** was postponed. As shown on the organization chart, **Panzer-Regiment 7** was assigned to the **1.Panzer-Brigade** under the **1.Panzer-Division**, and **Panzer-Regiment 8** was assigned to the **3.Panzer-Brigade** under the **3.Panzer-Division**.

In addition to 1212 **Pz.Kpfw.I**, only 5 **Pz.Kpfw.II** and 40 **kl.Pz.Bef.Wg.** had been issued to the Panzer units by 1 October 1936. By 8 October 1936, contracts had been placed for the production of 1175 **Pz.Kpfw.I Ausf.A**, 403 **Pz.Kpfw.I Ausf.B**, 460 **Pz.Kpfw.II Ausf.a - A**, 65 **Pz.Kpfw.III Ausf.A - D**, 35 **Pz.Kpfw.IV Ausf.A**, 180 **kl.Pz.Bef.Wg.**, and 30 **gr.Pz.Bef.Wg. Ausf.A**. As can be seen by the Panzer Inventory Reports, the contracts for the **Pz.Kpfw.III**, **Pz.Kpfw.IV**, and **gr.Pz.Bef.Wg.** weren't filled until 1938.

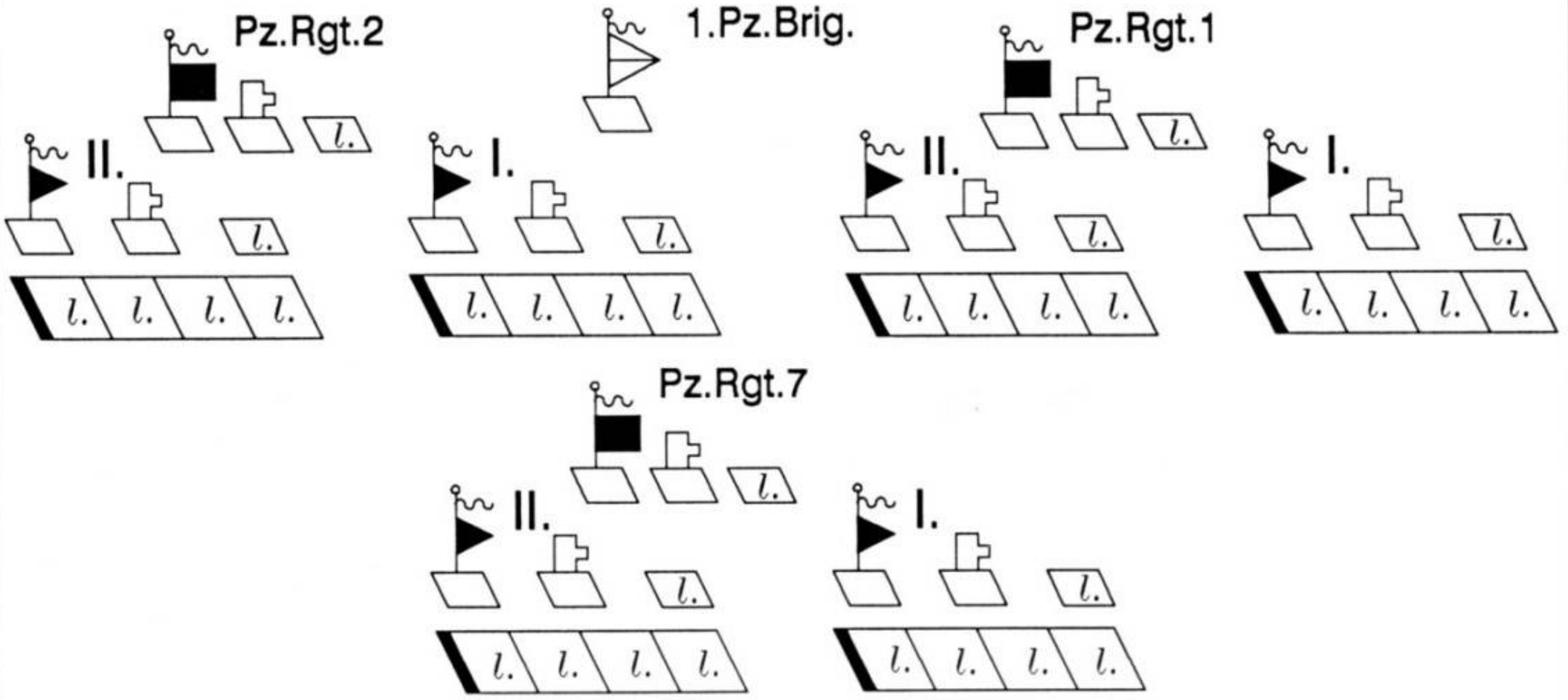
PANZER INVENTORY REPORTS

	Panzerkampfwagen				LTM		Pz.Bef.Wg.	
	I	II	III	IV	35	38	kl.	gr.
1Aug35	318							
1Jan36	720							
1Jun36	1065							
1Oct36	1212	5					40	
1May37	1411	115					72	
1Oct37	1468	238	12				163	
1Jan38	1469	314	23	3			180	
1Apr38	1468	443	43	30			180	
1Jul38	1468	626	56	46			180	
1Oct38	1468	823	59	76			180	2
1Mar39	1446	1094	60	137			180	30
1Sep39	1445	1223	98	211	202	78	180	35

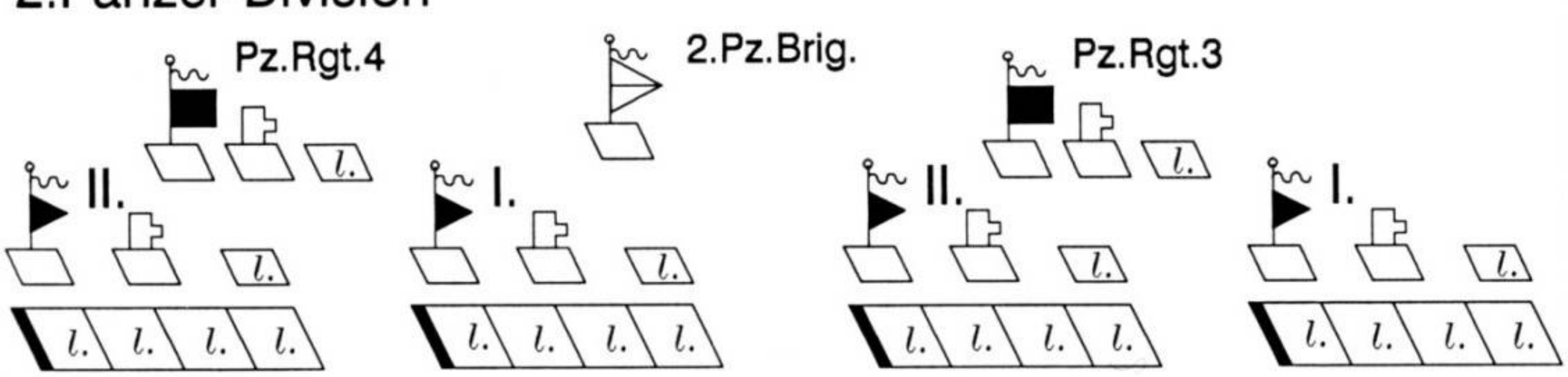
With the advent of more than one type of Panzer, new organization charts were needed as guidance for the equipment that each unit was authorized to possess and could be expected to obtain during the expansion year. These were published in the form of **Kriegsstaerkenachweisungen** (abbreviated as **K.St.N.**) and **Kriegsausrustungsnachweisungen** (abbreviated as **K.A.N.**) with specific identification numbers for each type of unit. The **K.St.N.** established the organization, personnel, weapons and vehicles authorized for each unit. The **K.A.N.** consisted of detailed lists of all of the equipment that a unit was authorized to possess. **K.St.N./K.A.N.** for expansion year 1936 were dated 1 December 1936. Unfortunately, the **Heeres** ordered the troops to destroy copies of these documents when they were superseded in the following year, and none of the 1936 **K.St.N./K.A.N.** have survived in the archives.

ORGANIZATION OF THE PANZER UNITS
EFFECTIVE 6 OCTOBER 1936

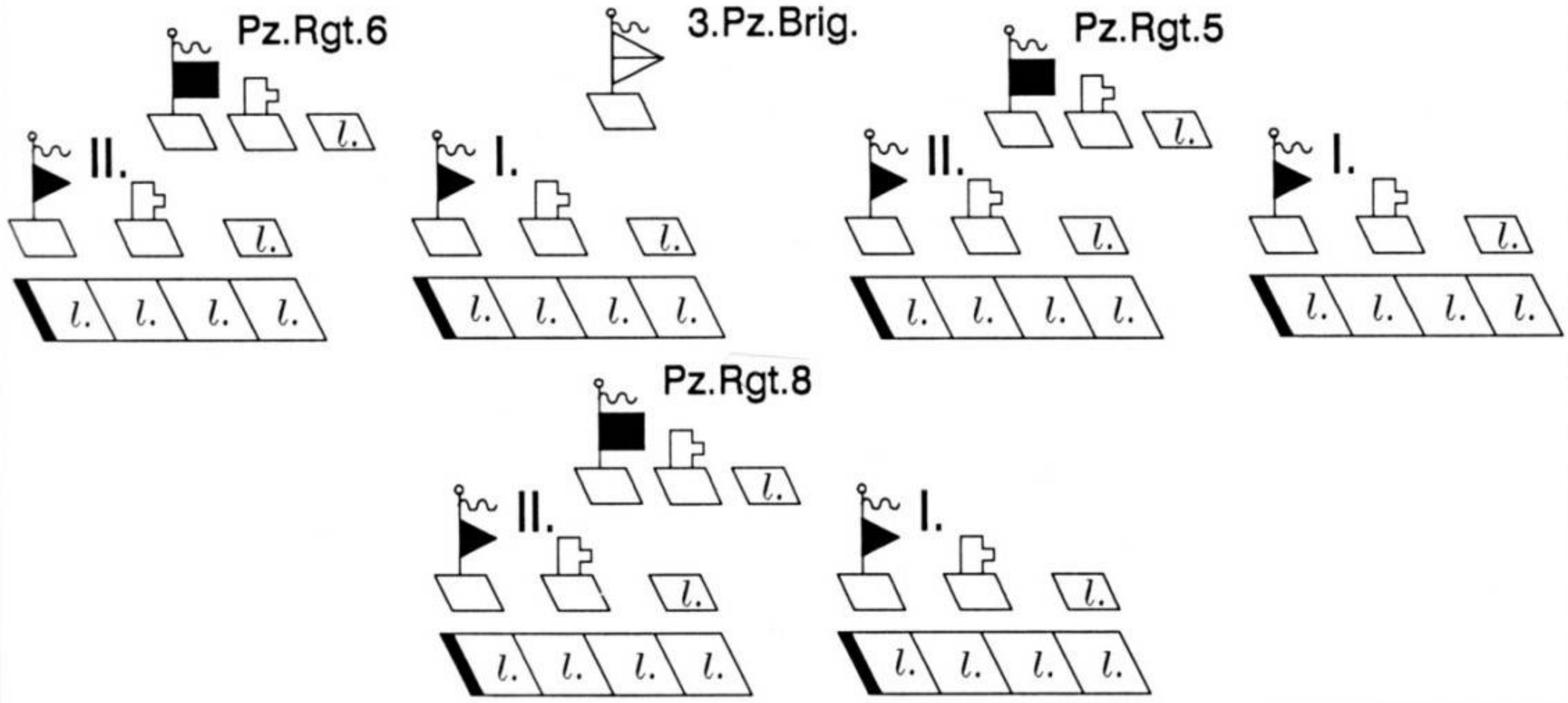
1.Panzer-Division



2.Panzer-Division



3.Panzer-Division



An idea of the organization of a **leichte Panzer-Kompanie** during this period can be derived from a report dated 6 October 1936 listing the basic equipment requirements for a mobilized **Heeres** (including the **Ersatzheer** - reserve army), including 1718 **Pz.Kpfw.I**, 433 **Pz.Kpfw.II**, 6 **Pz.Kpfw.III**, 6 **Pz.Kpfw.IV**, 147 **kl.Pz.Bef.Wg.**, and 21 **Pz.Bef.Wg.** Analysis of these numbers shows that each **leichte Panzer-Kompanie** would have been authorized only one **kl.Pz.Bef.Wg.** and three to five **Pz.Kpfw.II**, with **Pz.Kpfw.I** still making up the balance. At the time, it was common for one Panzer unit to be experimentally outfitted with the organization proposed for the following year. This accounts for the 6 **Pz.Kpfw.III** and 6 **Pz.Kpfw.IV** listed on the report.

FOURTH PHASE OF THE HEERES EXPANSION PROGRAM - 12 OCTOBER 1937

On 6 November 1936, the **Generalstab des Heeres** issued orders for the fourth phase of the **Heeres** expansion program in 1937 to include the formation of four motorized infantry divisions, the **1.leichte Division**, and to create six **Panzer-Abteilungen** as independent **Heerestruppen** attached to **Armee-Korps**.

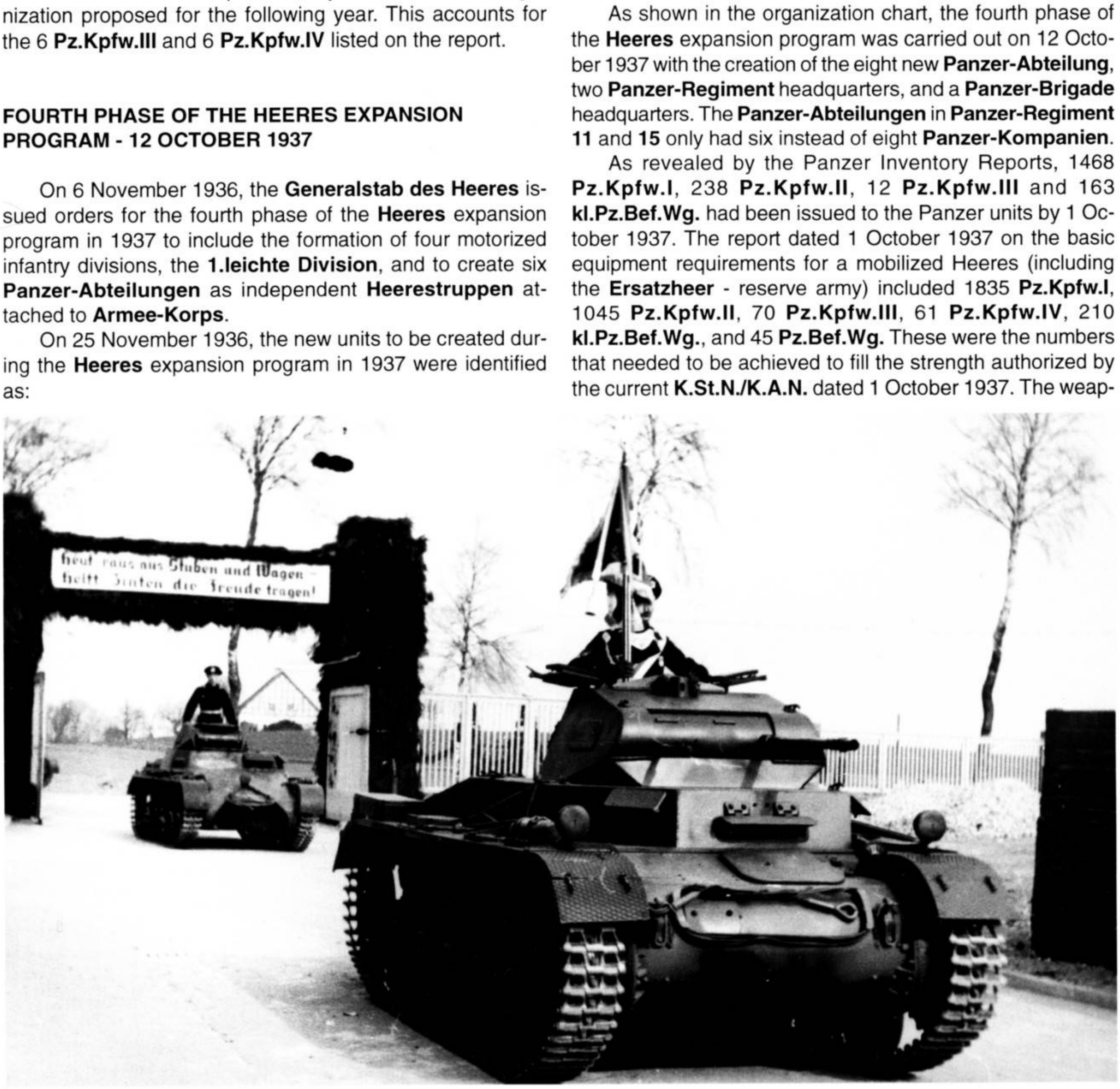
On 25 November 1936, the new units to be created during the **Heeres** expansion program in 1937 were identified as:

I.Abteilung/Panzer-Regiment 10 in **Wehrkreis I**
Panzer-Regiment 11 in **Wehrkreis VI**
Panzer-Regiment 15 in **Wehrkreis VIII**
I.Abteilung/Panzer-Regiment 23 in **Wehrkreis XII**
Stab Panzer-Brigade 4 in **Wehrkreis V**
Panzer-Abteilung 65 in the **1.leichte Brigade**

A correction to the original report replaced the **I.Abteilung/Panzer-Regiment 23** in **Wehrkreis XII** with the **I.Abteilung/Panzer-Regiment 25** in **Wehrkreis VII**.

As shown in the organization chart, the fourth phase of the **Heeres** expansion program was carried out on 12 October 1937 with the creation of the eight new **Panzer-Abteilung**, two **Panzer-Regiment** headquarters, and a **Panzer-Brigade** headquarters. The **Panzer-Abteilungen** in **Panzer-Regiment 11** and **15** only had six instead of eight **Panzer-Kompanien**.

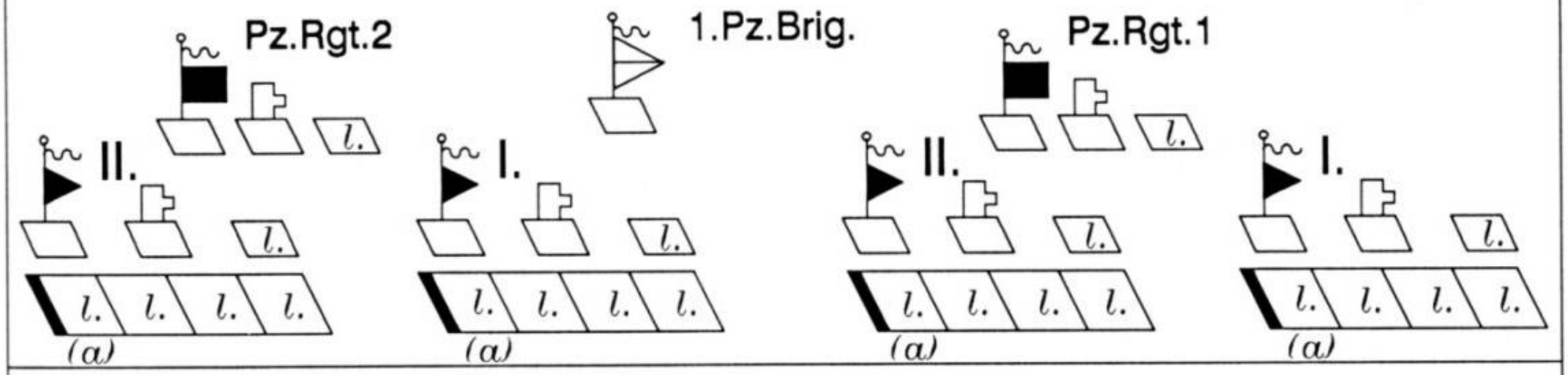
As revealed by the Panzer Inventory Reports, 1468 **Pz.Kpfw.I**, 238 **Pz.Kpfw.II**, 12 **Pz.Kpfw.III** and 163 **kl.Pz.Bef.Wg.** had been issued to the Panzer units by 1 October 1937. The report dated 1 October 1937 on the basic equipment requirements for a mobilized Heeres (including the **Ersatzheer** - reserve army) included 1835 **Pz.Kpfw.I**, 1045 **Pz.Kpfw.II**, 70 **Pz.Kpfw.III**, 61 **Pz.Kpfw.IV**, 210 **kl.Pz.Bef.Wg.**, and 45 **Pz.Bef.Wg.** These were the numbers that needed to be achieved to fill the strength authorized by the current **K.St.N./K.A.N.** dated 1 October 1937. The weap-



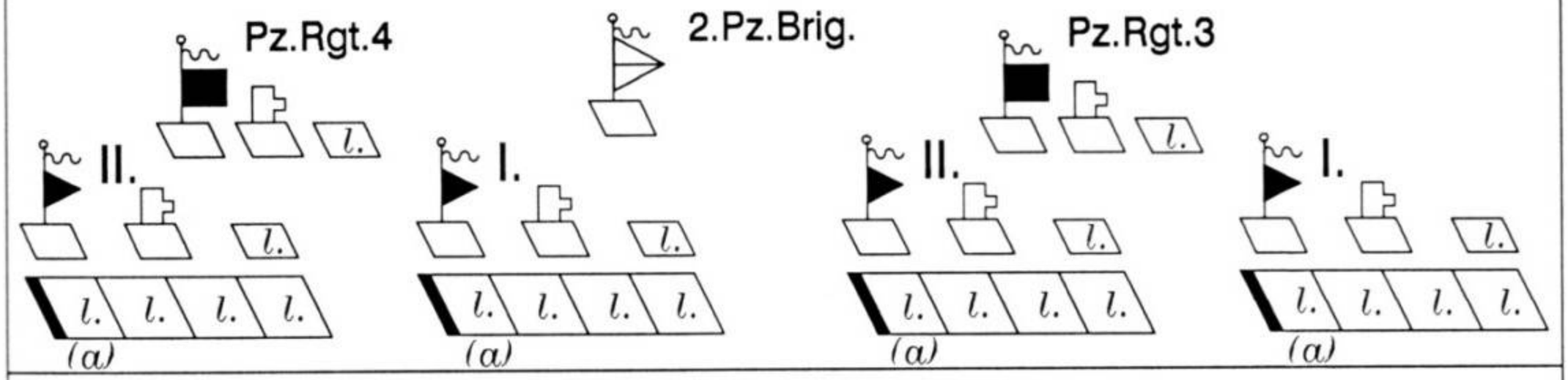
A **Pz.Kpfw.II Ausf.B** followed by a **Pz.Kpfw.I Ausf.B** with the **I.Abteilung/Panzer-Regiment 10** stationed at Zinten. (WJS)

ORGANIZATION OF THE PANZER UNITS
EFFECTIVE 12 OCTOBER 1937

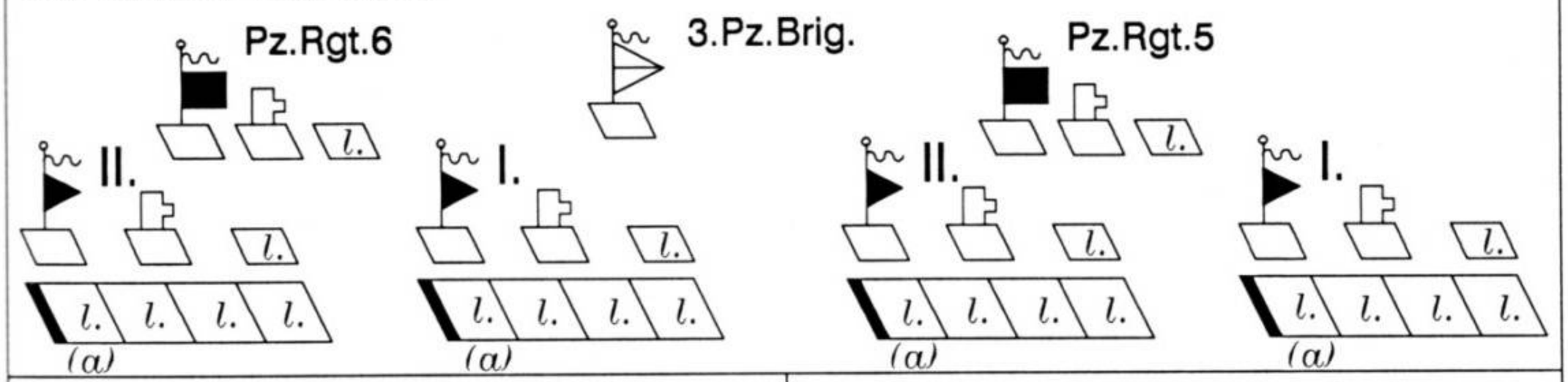
1.Panzer-Division



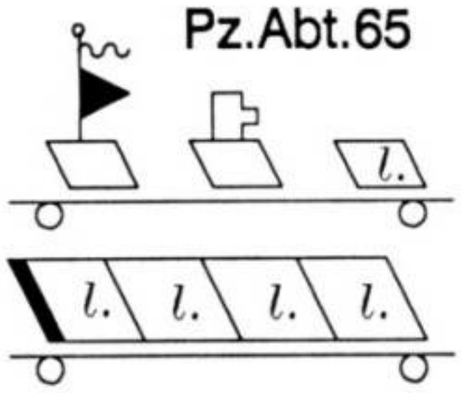
2.Panzer-Division



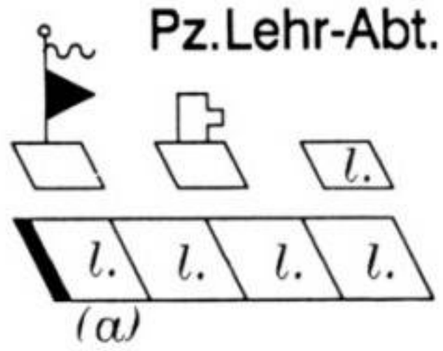
3.Panzer-Division



1.leichte-Brigade

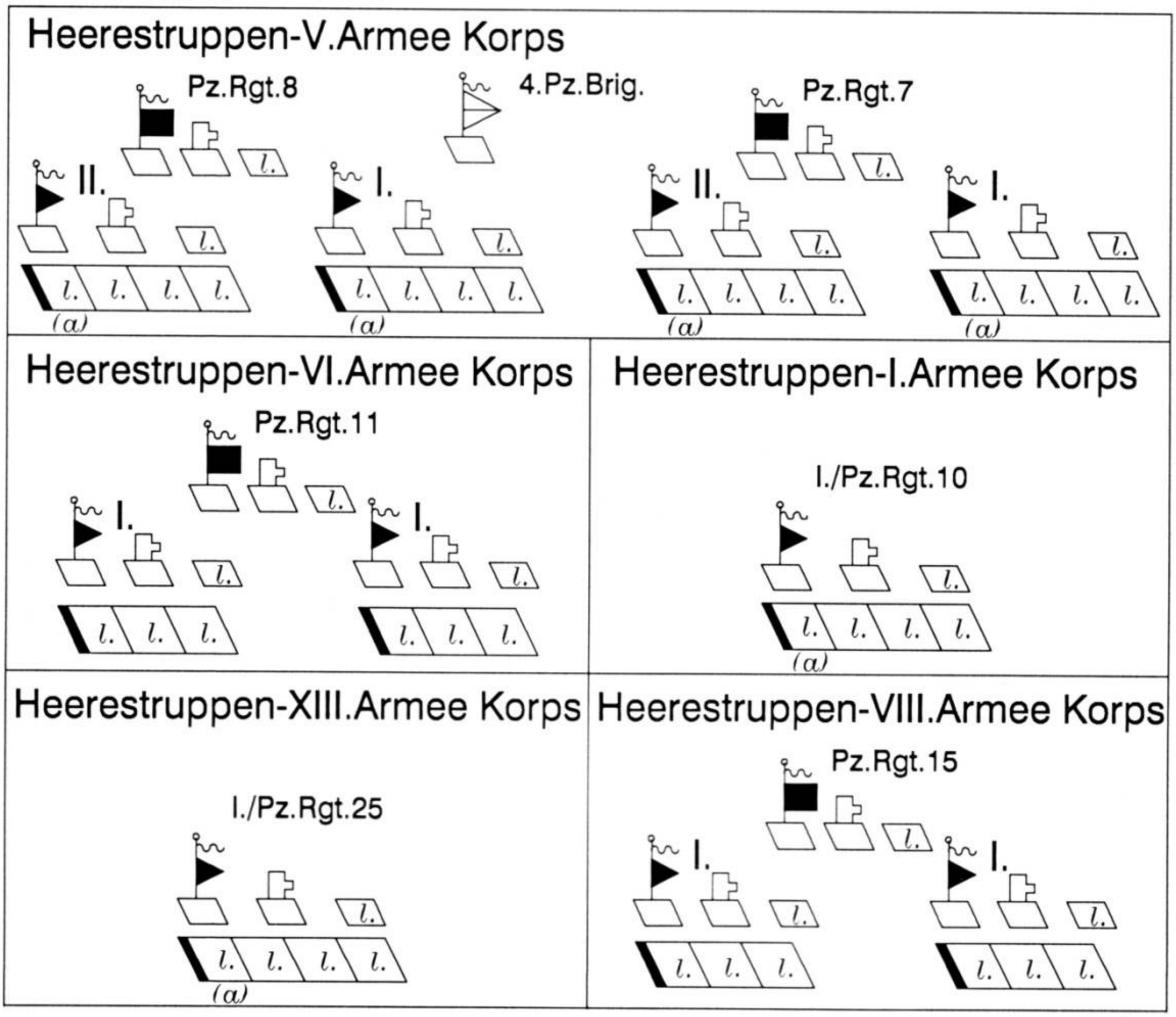


Lehr und Versuchstruppen



ORGANIZATION OF THE PANZER UNITS

EFFECTIVE 12 OCTOBER 1937



ons and vehicles authorized by the **K.St.N.** weren't expected to be available on the effective date of the **K.St.N.**. The **Heeres** planned to fill the units to their authorized strength in time for unit training commencing in the Spring of the following year.

The following **K.St.N./K.A.N.** for each **Panzer-Regiment** went into effect on 1 October 1937:

K.St.N.	Date	Subunit Name
1103	1Oct37	**Stab Panzer-Regiments**
1194	1Oct37	**Nachrichten-Zug Stab Panzer-Regiments**
1168	1Oct37	**leichte Panzer-Zug**
1107	1Oct37	**Stab Panzer-Abteilung**
1195	1Oct37	**Nachrichten-Zug Stab Panzer-Abteilung**
1171	1Oct37	**leichte Panzer-Kompanie**
1175	1Oct37	**leichte Panzer-Kompanie (a)**

No Panzers were authorized under **K.St.N.1103** and **1107**. All of the Panzers under the **Stab** for the **Panzer-Regiments** and **Panzer-Abteilungen** were assigned to their **Nachrichten-Zug** and **leichte Panzer-Zug**. The subunits' organization and authorized number of Panzers are shown on the silhouette charts. The same **K.St.N.1168** applied to the **leichte Panzer-Zug** assigned to the **Stab Panzer-Regiments** and to the **Stab Panzer-Abteilung**. **K.St.N.1175** for the **leichte Panzer-Kompanie (a)** (the forerunner of the **mittlere Panzer-Kompanie**) was activated for the first time on 1 October 1937.

Nachrichtenzug (mot) des Stabes einer Panzer-Regiment
K.St.N.1194 v. 1.10.1937

PzBefWg

PzBefWg

PzKpfwII

leichter Panzerzug
K.St.N.1168 v. 1.10.1937

klPzBefWg

PzKpfwII

PzKpfwI

PzKpfwII

PzKpfwI

Nachrichtenzug (mot) einer Panzer-Abteilung
K.St.N.1195 v. 1.10.1937

klPzBefWg

klPzBefWg

PzKpfwIII

leichte Panzerkompanie

K.St.N. 1171 v. 1.10.1937

Kp.Tr.	klPzBefWg	PzKpfwII	PzKpfwI	PzKpfwI	
1. Zug	PzKpfwII	PzKpfwI	PzKpfwI	PzKpfwI	PzKpfwI
2. Zug	PzKpfwII	PzKpfwI	PzKpfwI	PzKpfwI	PzKpfwI
3. Zug	PzKpfwII	PzKpfwI	PzKpfwI	PzKpfwI	PzKpfwI
4. Zug	PzKpfwII	PzKpfwII	PzKpfwII	PzKpfwII	PzKpfwII
Ersatz– Staffel	PzKpfwI	PzKpfwI			

leichte Panzerkompanie a

K.St.N. 1175 v. 1.10.1937

Kp.Tr.	klPzBefWg	PzKpfwII	PzKpfwI	PzKpfwI	
1. Zug	PzKpfwII	PzKpfwI	PzKpfwI	PzKpfwI	PzKpfwI
2. Zug	PzKpfwII	PzKpfwI	PzKpfwI	PzKpfwI	PzKpfwI
3. Zug	PzKpfwIII	PzKpfwIII	PzKpfwIII		
4. Zug	PzKpfwIV	PzKpfwIV	PzKpfwIV		
Ersatz– Staffel	PzKpfwIV	PzKpfwI			

A **Panzer-Abteilung (verlastet)** (transported) was created for the first time on 12 October 1937 with the following new **K.St.N./K.A.N**:

K.St.N.	Date	Subunit Name
1110	1Oct37	**Stab Panzer-Abteilung (verlastet)**
1169	1Oct37	**leichte Panzer-Zug (verlastet)**
1193	1Oct37	**Nachrichten-Zug Stab Panzer-Abteilung (verlastet)**
1173	1Oct37	**leichte Panzer-Kompanie (verlastet)**

Each unit had the same number of Panzers as authorized for a normal **Panzer-Abteilung** with **K.St.N.1107**, **1168**, **1195**, and **1171**. The difference was that each subunit in the **Panzer-Abteilung (verlastet)** was authorized to have a sufficient number of **schwere Lastkraftwagen** (heavy trucks) and **Tiefladeanhaenger** (low-bed trailers) to transport all of their Panzers.

FIFTH PHASE OF THE HEERES EXPANSION PROGRAM - 10 NOVEMBER 1938

The initial plans for the fifth phase of the **Heeres** expansion program called for the formation of the following new units in 1938:

I.Abteilung/Panzer-Regiment 27 in the **II.Armee-Korps**
I.Abteilung/Panzer-Regiment 29 in the **III.Armee-Korps**
I.Abteilung/Panzer-Regiment 32 in the **IV.Armee-Korps**
I.Abteilung/Panzer-Regiment 13 in the **VII.Armee-Korps**
I.Abteilung/Panzer-Regiment 17 in the **IX.Armee-Korps**
I.Abteilung/Panzer-Regiment 19 in the **X.Armee-Korps**
I.Abteilung/Panzer-Regiment 23 in the **XII.Armee-Korps**
Panzer-Abteilung 66 for the **2.leichte Brigade**
Panzer-Abteilung 67 for the **3.leichte Brigade**
2 new **Panzer-Kompanien** for **Panzer-Regiment 11**
2 new **Panzer-Kompanien** for **Panzer-Regiment 15**

As foreseen on 8 March 1938, the organization of the Panzer units was planned to appear as follows, following implementation of the fifth phase of the **Heeres** expansion program:

Korps	Division	Brigade	Regiment/Abteilung
I.A.K.			I./Pz.Rgt.10
II.A.K.			I./Pz.Rgt.27
III.A.K.			I./Pz.Rgt.29
IV.A.K.			I./Pz.Rgt.31
V.A.K.		4.Pz.Brig.	Pz.Rgt.7 und 8
VI.A.K.			Pz.Rgt.11
VII.A.K.			I./Pz.Rgt.13
VIII.A.K.			Pz.Rgt.15
IX.A.K.			I./Pz.Rgt.17
X.A.K.			I./Pz.Rgt.19
XI.A.K.			None
XII.A.K.			I./Pz.Rgt.23
XIII.A.K.			I./Pz.Rgt.25
XIV.A.K.			None
XV.A.K.		1.l.Brig.	Pz.Abt.65
		2.l.Brig.	Pz.Abt.66
		3.l.Brig.	Pz.Abt.67
XVI.A.K.	1.Pz.Div.	1.Pz.Brig.	Pz.Rgt.1 und 2
	3.Pz.Div.	3.Pz.Brig.	Pz.Rgt.5 und 6
	4.Pz.Div.	5.Pz.Brig.	Pz.Rgt.35 und 36
H.Kdo.5	4.l.Div.		Pz.Abt.33
	2.Pz.Div.	2.Pz.Brig.	Pz.Rgt.3 und 4
Lehr und Versuchstruppen			Pz.Lehr Abt.

This was the first indication that a fourth **Panzer-Division** was being formed. The **4.leichte Division** with **Panzer-Abteilung 33** was obtained as a result of incorporating the Austrian **schnelle Division** into the **Heeres**.

On 22 March 1938, the **Generalstab des Heeres** ordered that the **1.leichte Brigade** be renamed as the **1.leichte Division**, the **2.leichte Brigade** as the **2.leichte Division**, and the **3.leichte Brigade** as the **3.leichte Division**.

On 12 July 1938, the following changes to the plans for the fifth phase of the **Heeres** expansion program were made by the **Generalstab des Heeres**:

- The effective date for creating new units was changed from 6 October to 3 November 1938.
- Four **Heerestruppen Panzer-Abteilungen** were deleted (**I./Pz.Rgt.13**, **I./Pz.Rgt.17**, **I./Pz.Rgt.19**, and **I./Pz.Rgt.29**)
- Two new **Panzer-Brigade** headquarters were to be formed (**6.Pz.Brig. Stab und Nachr.Zug** and **8.Pz.Brig. Stab und Nachr.Zug**)
- Two new **Panzer-Regiment** headquarters were to be formed (**Pz.Rgt.25 Stab, Nachr.Zug, und I.Zug** and **Pz.Rgt.31 Stab, Nachr.Zug und I.Zug**)
- **Pz.Rgt.11** was to be assigned to the **6.Pz.Brig.**, **Pz.Rgt.15** and **Pz.Rgt.31** to the **8.Pz.Brig.**
- The **I./Pz.Rgt.23** was to be assigned to **Pz.Rgt.25**, the **I./Pz.Rgt.25** to **Pz.Rgt.25**, the **I./Pz.Abt.27** to **Pz.Rgt.31**, and the **I./Pz.Abt.31** to **Pz.Rgt.31**

On 22 October 1938, the **Generalstab des Heeres** ordered the creation of a fifth **leichte Division** to be raised on 24 November 1938 by the **VIII.Armee-Korps**. This **5.leichte Division** was to be given **Panzer-Regiment 31**, consisting of the **I.Abt./Pz.Rgt.31** and the **II.Abt./Pz.Rgt.31** (formerly **I.Abt./Pz.Rgt.23**).

On 10 November 1938, this order was changed to create a fifth **Panzer-Division**. The **5.leichte Division** was to be

created as the **5.Panzer-Division** with the following trial organization: **Division Stab**, **Panzer-Brigade 8** with **Panzer-Regiment 15** and **Panzer-Regiment 31**, a **Schuetzen-Regiment**, an **Aufklaerungs-Abteilung**, **Artillerie-Regiment 116**, a **Panzer-Abwehr-Abteilung** and a **Pionier-Abteilung**. **Panzer-Regiment 31** was to consist of the **I.Abt./Pz.Rgt.31** and the **II./Pz.Rgt.31** (formerly **I.Abt./Pz.Rgt.27**)

As shown in the organization chart, the fifth phase of the **Heeres** expansion program was carried out on 10 November 1938 with the creation of nine new **Panzer-Abteilung**, four new **Panzer-Regiment** headquarters, three new **Panzer-Brigade** headquarters, two new **Panzer-Division** headquarters, and two new **leichte Division** headquarters. Two new **Panzer-Kompanien** were added to both **Panzer-Regiment 11** and **Panzer-Regiment 15**.

As revealed by the Panzer Inventory Reports, 1468 **Pz.Kpfw.I**, 823 **Pz.Kpfw.II**, 59 **Pz.Kpfw.III**, 76 **Pz.Kpfw.IV**, 180 **kl.Pz.Bef.Wg.**, and 2 **Pz.Bef.Wg.** had been issued to Panzer units by 1 October 1938.

The organization for the **Panzer-Regiments** that became effective on 1 October 1938 was:

K.St.N.	Date	Subunit Name
1103	1Oct37	**Stab Panzer-Regiments**
1194	1Oct37	**Nachrichten-Zug Stab Panzer-Regiments**
1168	1Oct37	**leichte Panzer-Zug**
1107	1Oct38	**Stab Panzer-Abteilung**
1195	1Oct38	**Nachrichten-Zug Stab Panzer-Abteilung**
1171	1Oct38	**leichte Panzer-Kompanie**
1175	1Oct38	**leichte Panzer-Kompanie (a)**
1178	1Oct38	**Staffel Panzer-Abteilung**

K.St.N.1103, **1168**, and **1194** remained unchanged from 1937. while **K.St.N.1171** and **1175** were changed to reflect an increase in the number of **Pz.Kpfw.II** that were available and on order. A **Staffel** came into effect on 1 October 1938 which consolidated the reserve Panzers under each **Panzer-Abteilung** instead of within each **Panzer-Kompanie.** The subunits' organization and authorized number of Panzers are shown on the silhouette charts.

The organization for the **Panzer-Abteilung (verlastet)** that became effective on 1 October 1938 was:

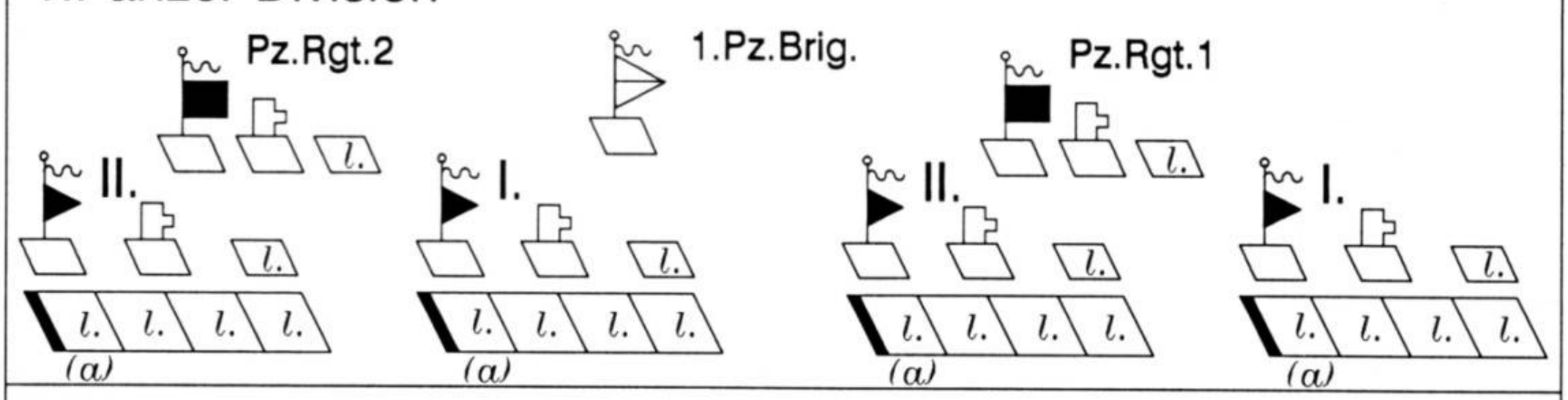
K.St.N.	Date	Subunit Name
1110	1Oct38	**Stab Panzer-Abteilung (verlastet)**
1169	1Oct37	**leichte Panzer-Zug (verlastet)**
1193	1Oct38	**Nachrichten-Zug Stab Panzer-Abteilung (verlastet)**
1173	1Oct38	**leichte Panzer-Kompanie (verlastet)**
1180	1Oct38	**Staffel Panzer-Abteilung (verlastet)**

Each unit had the same number of Panzers that were authorized by **K.St.N.1107**, **1168**, **1195**, and **1171** for a normal **Panzer-Abteilung** with the exception of the **Staffel** under **K.St.N.1180** which had three **Pz.Kpfw.I** and three **Pz.Kpfw.II**. In addition, the **K.St.N.** for a **Panzer-Abteilung (verlastet)** included a sufficient number of heavy trucks and trailers to transport all of their Panzers.

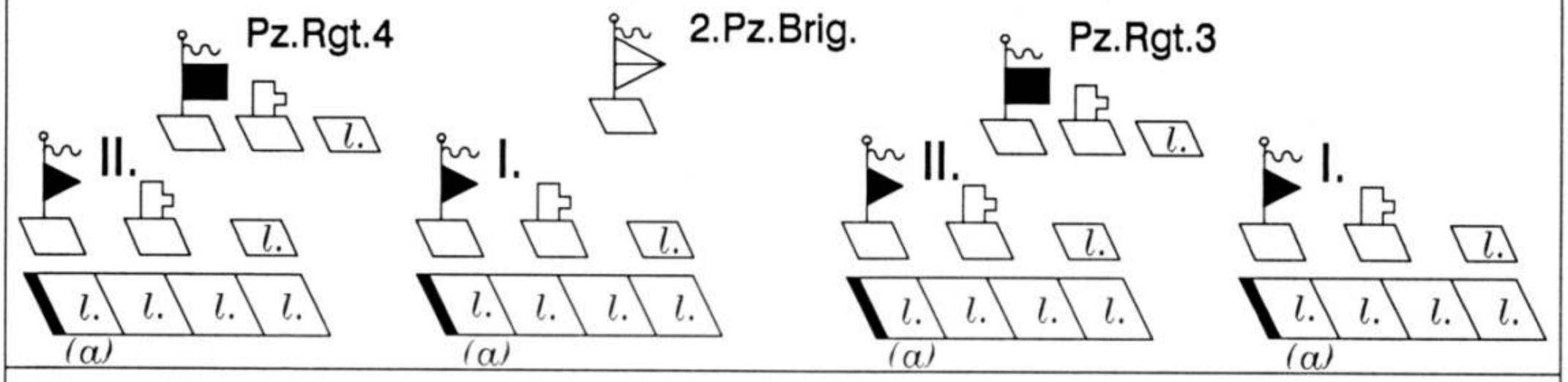
A **Panzer-Abteilung (verlastet)** (transported on trucks and trailers) on parade in Berlin in 1939. These units possessed a mixture of **Pz.Kpfw.I** and **Pz.Kpfw.II** of all **Ausfuehrungen** (models) not just **Pz.Kpfw.II Ausf.D**. (WJS)

ORGANIZATION OF THE PANZER UNITS
EFFECTIVE 10 NOVEMBER 1938

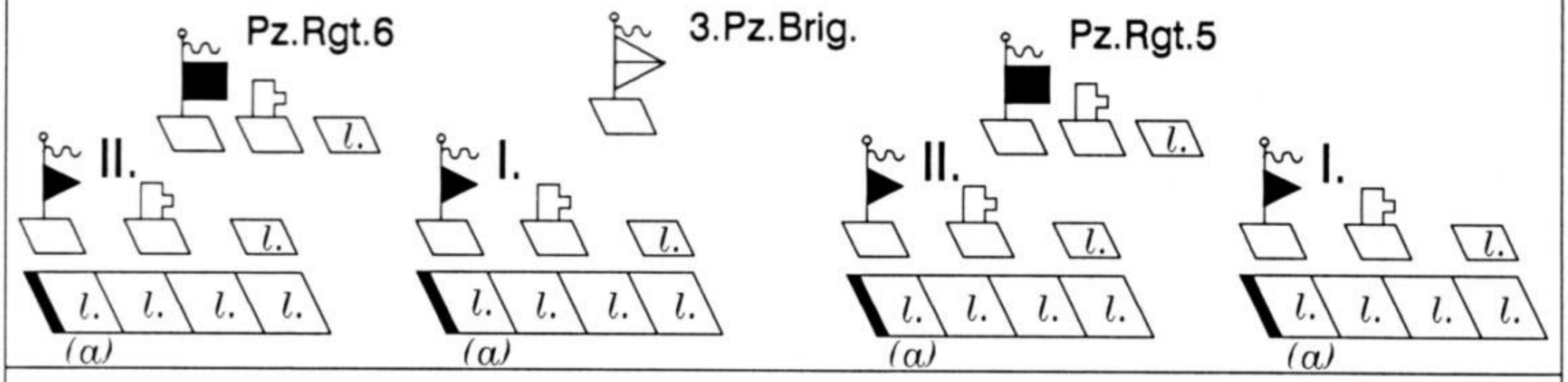
1.Panzer-Division



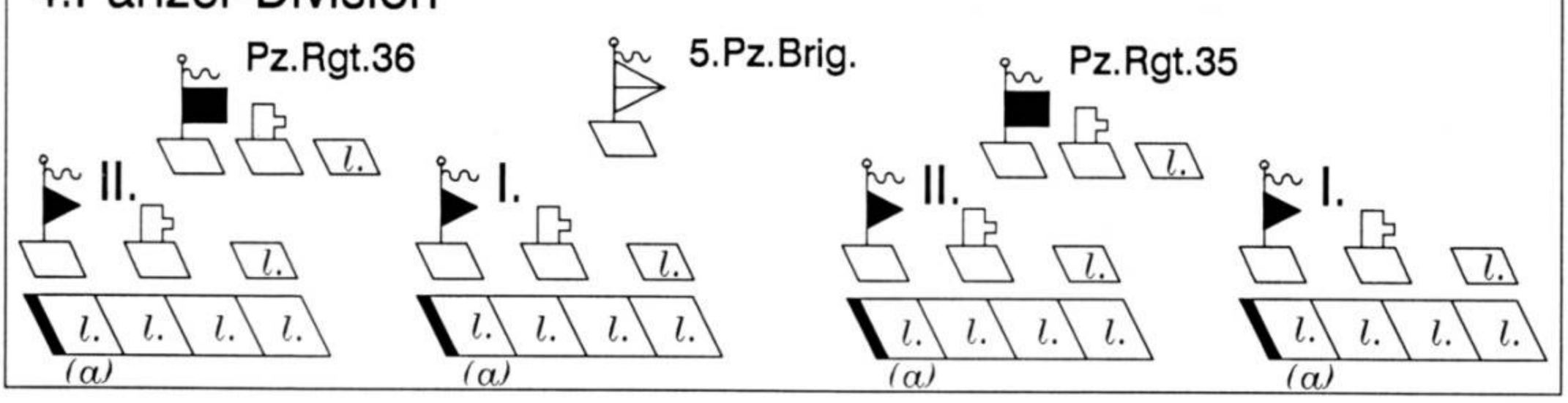
2.Panzer-Division



3.Panzer-Division

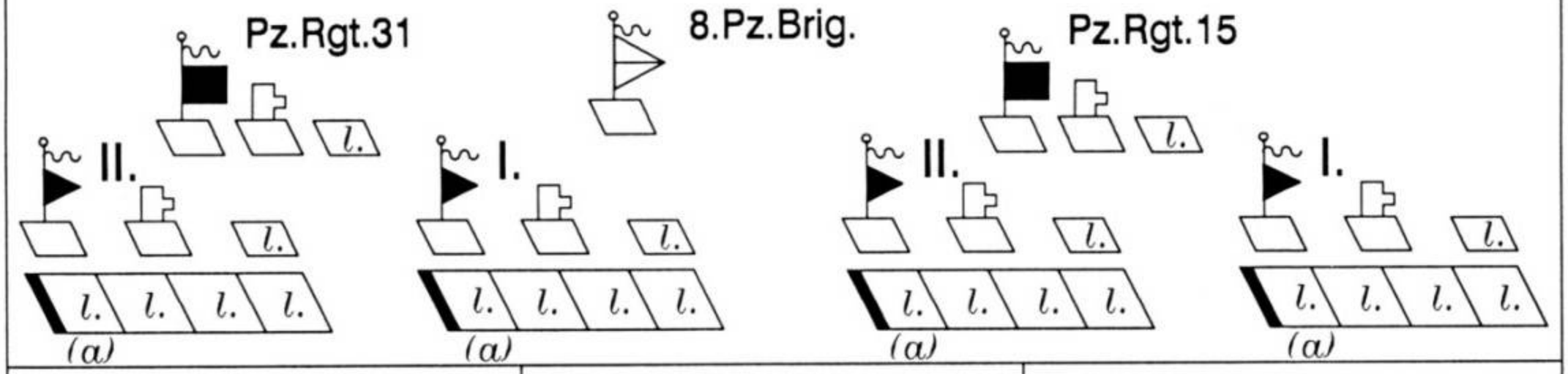


4.Panzer-Division

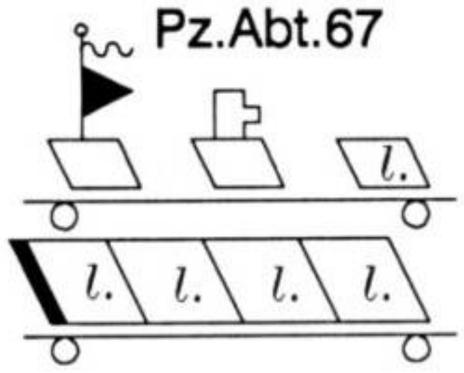


ORGANIZATION OF THE PANZER UNITS EFFECTIVE 10 NOVEMBER 1938

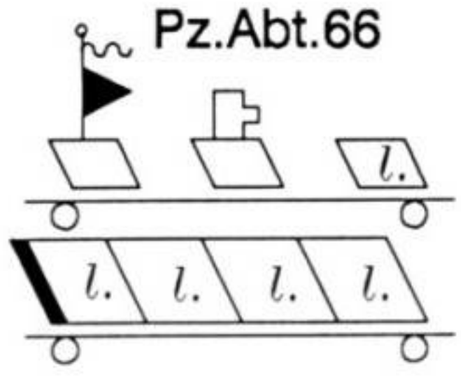
5.Panzer-Division (Ordered to be created 10 Nov 38)



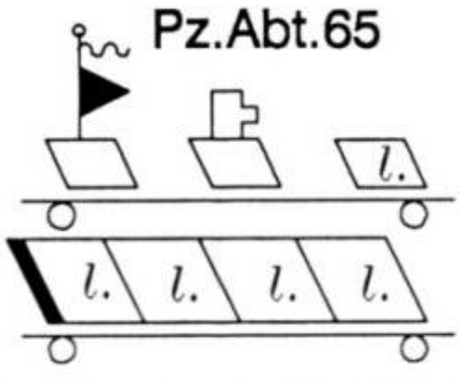
3.leichte-Division



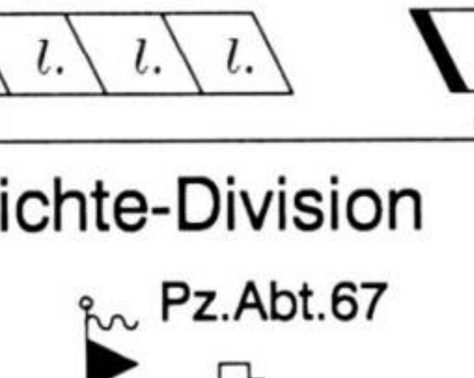
2.leichte-Division



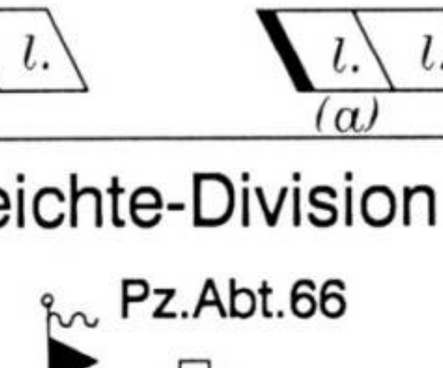
1.leichte-Division



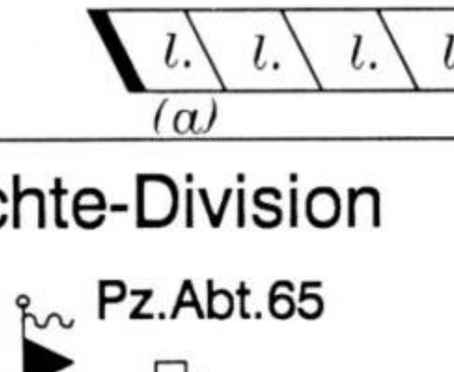
4.leichte-Division



Lehr und Versuchstruppen



Heerestruppen



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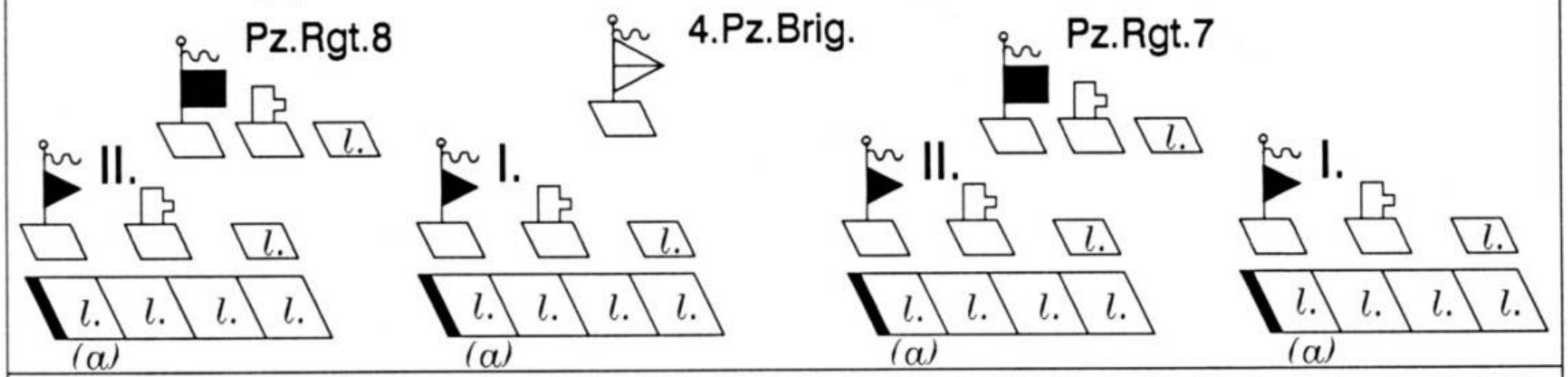

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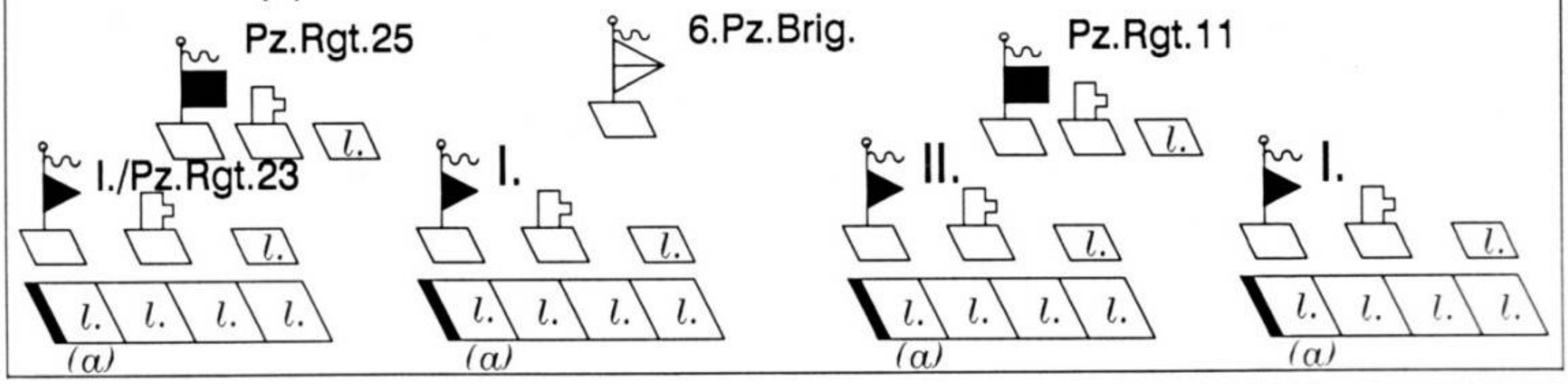


Nachrichtenzug (mot) des Stabes einer Panzer-Regiment
K.St.N.1194 v. 1.10.1937

leichter Panzerzug
K.St.N.1168 v. 1.10.1937

Nachrichtenzug (mot) einer Panzer-Abteilung
K.St.N.1195 v. 1.10.1938

Staffel einer Panzer-Abteilung
K.St.N.1178 v. 1.10.38

leichte Panzerkompanie

K.St.N. 1171 v. 1.10.1938

Kp.Tr.	klPzBefWg	PzKpfwII	PzKpfwII	PzKpfwII	
1. Zug	PzKpfwII	PzKpfwI	PzKpfwI	PzKpfwI	PzKpfwI
2. Zug	PzKpfwII	PzKpfwI	PzKpfwI	PzKpfwI	PzKpfwI
3. Zug	PzKpfwII	PzKpfwI	PzKpfwI	PzKpfwI	PzKpfwI
4. Zug	PzKpfwII	PzKpfwII	PzKpfwII	PzKpfwII	PzKpfwII

leichte Panzerkompanie a

K.St.N. 1175 v. 1.10.1938

Kp.Tr.	klPzBefWg	PzKpfwIV	PzKpfwIV	PzKpfwII
1. Zug	PzKpfwII	PzKpfwII	PzKpfwII	
2. Zug	PzKpfwII	PzKpfwII	PzKpfwII	
3. Zug	PzKpfwIII	PzKpfwIII	PzKpfwIII	
4. Zug	PzKpfwIV	PzKpfwIV	PzKpfwIV	

REALIGNMENT FOR OFFENSIVE POWER

Cancellation of many of the independent **Panzer-Abteilungen** and their consolidation into **Panzer-Brigades** in two new **Panzer-Divisions** had come about due to emphasis on offensive strength. Prior to this, development of the **Heeres** had run closely parallel to the development of mechanized organizations in the French Army. General Beck had resigned as **Chef des Generalstabes des Heeres** in September 1938 and was replaced by General Halder. On 20 November 1938, Guderian accepted the position as **Chef der Schnellen Truppen** and was promoted to General.

Basic plans for realignment toward offensive power were established by the **Oberbefehlshaber des Heeres**, General von Brauchitsch, in the following memorandum dated 24 November 1938 distributed to the **Chef des Generalstabes des Heeres**, **Chef des Allgemeine Heeresamtes**, **Chef des Heerespersonalamtes**, **Chef des Heereswaffenamtes**, **Chef der schnellen Truppen**, and **Generalbevollmaechtigten fuer das gesamte Kraftfahr-wesen**:

I present the following guidelines as a working directive for the further development planned for all motorized troops:

I. Assigned Tasks

*A. **Panzer-Divisions** are to accomplish the following tasks:*

1. At the start of a war, they should be sent to operationally important positions, surprisingly occupy strategically important sectors, or lead the mass of the army in decisive operations.

2. During the war, employment in similar ways as in 1.

3. Widen and exploit breakthroughs created by infantry divisions in an enemy defensive front

*4. Reserve for the **Oberkommando des Heeres** for employment in major counterattacks.*

*B. For other **schnellen Truppen**.*

*1. The **Heeres Panzer-Brigaden**. The **Panzer-Brigades** are **Heerestruppen**. They should help prepare the way for infantry divisions or be employed in conjunction with the motorized infantry divisions.*

*2. In addition to the **Heeres Panzer-Brigades**, several **schwere Panzer-Kompanien** (heavy tank companies) are to be created and assigned the task of supporting infantry attacks against fortifications.*

*3. The **Heeres Aufklaerungs-Abteilungen (mot)** (independent reconnaissance battalions) are to be employed on operational reconnaissance or to support **Panzer-Divisions** or motorized infantry divisions.*

*4. **Division Aufklaerungs-Abteilungen**. Their task is to expand and increase the picture of the enemy (created by radio intercept, aerial reconnaissance, and operational reconnaissance) in their operational sector and to deliver tactical reconnaissance reports to aid the commander of the supported unit in achieving his tasks.*

*5. The mobile units attached to **Korps**.*

*A motorcycle battalion is planned for each of the **I. - XIII.** and the **XVII.Armee-Korps**. These should be used as mobile **Korpstruppe**. For example, to occupy important terrain features in advance of the marching troops, to open a gap in a decisive position for reconnaissance, or as direct support for the concentrated divisions. They are to follow the **Aufklaerungs-Abteilungen** and be a mobile tactical reserve for the **Korps**.*

*6. The **1.Kavallerie-Division** in Ostpreussen is planned as a reconnaissance and combat force in the context of the special conditions in the East.*

*C. The **Infanterie-Division (mot)** is planned for self sufficient employment - or in combination with **Panzer-Divisions** - as fast mobile units. They should be capable of attacking the enemy, the same as an infantry division. They can also be employed as rapid mobile operational reserves to decisive positions.*

*D. **The Heeres Transport-Regiments** have the task of transporting infantry divisions independently of the railway. They are not intended to transport surplus supplies that can't be handled by the railway.*

II. The following organizational guidelines are based on the tasks described above:

*A. Nine **Panzer-Divisions** are planned as the final goal. The four available **leichte Divisions** are to be converted to **Panzer-Divisions** in the Fall of 1939. The following basic requirements are established for the final formation of the **Panzer-Divisions**:*

1. High maneuverability, especially the Kampfwagen,

2. High offensive power,

3. Flexibility of the unit and the command,

4. Sufficient armor protection for the vehicles.

*The **Kampfwagen** should withstand the attack of anti-tank weapons of the infantry (if possible also 3.7 cm guns)*

*Motorized infantry vehicles should withstand the attack of infantry weapons (if possible also **S.m.K.** (steel core bullets)).*

5.Large radius of action for all vehicles,

6.Ready for immediate action during peacetime.

*The ratio of Panzer forces to infantry and artillery in the final organization of the **Panzer-Division** will be determined by the requirement for maximum mobility with the strongest combat force. In addition, examine the possibility of concentrating at the **Korps** level the supply base for the services that burden **Panzer-Divisions**.*

*B. The other **schnellen Truppen***

*1. The **Heeres Panzer-Brigades** organization follows the same basic guidelines established for the **Panzer-Brigades** in the **Panzer-Divisions**. Increased firepower and increased armor protection (if possible against 4.7 cm anti-tank guns) has priority over mobility and action radius.*

*2. For **schwere Panzer-Kompanien** that are to engage fortifications, equipping them with **Panzerkampfwagen schwerster Art** is planned.*

*3. The **Heeres Aufklaerungs-Abteilungen (mot)** are to be organized so that they can accomplish their assigned tasks over long distances, even when detached from larger units, and transmission of messages is to be ensured. The final goal is simplification of their organization and thereby an attempt to increase the mobility of the **Abteilung** and its command. In addition, full cross-country mobility for all motor vehicles and replacement of the towed anti-tank guns with a self-propelled carriage are planned.*

*4. The **Divisions Aufklaerungs-Abteilungen** are available during peacetime in the **Panzer-Divisions**, **Infanterie-Division (mot)** and **Gebirgs-Division** (mountain divisions). They aren't available in peacetime in the infantry divisions but will be created from the **I.(eiter) Abteilungen** of the **Korps-Kavallerie-Regiments**. Their organization is so planned that they can achieve their task of tactical reconnaissance in the immediate sector of their division. A pure, simple organization, complete cross-country mobility, and thereby high maneuverability are to be strived for.*

*5. Mobile **Korpstruppen** - The **II.(Radfahr) Abteilungen** (bicycle battalion) of the **Korps-Kavallerie-Regiments** in the **I.-XIII.** and **XVII.Armee-Korps** are to be converted to **Kradschuetzen-Abteilungen** (motorcycle battalions) beginning in the Fall of 1939.*

*6. **Kavallerie-Division Ostpreussen** - Beginning in the Fall of 1939, the **1.Kavallerie-Brigade** is to be expanded into a **Kavallerie-Division** with four regiments. Its organization is to be examined to increase its combat effectiveness.*

*C. The final organization of the **Infanterie-Division (mot)** is to have higher maneuverability and flexible command. In addition, an organization with 6 motorized infantry battalions (instead of the current 9) with supporting weapons is to be tested.*

*D. Equipment needed for the **Heeres Transport-Regiments** is to be stockpiled during peacetime. The supply columns of the **Heeres Transport-Regiments** must be capable in part of transporting both men and vehicles, in part of towing vehicles especially artillery. All vehicles will be required to be commercial vehicles and possibly possess high cross country ability.*

III. The following quidelines apply to personnel management and training:

*The **Panzertruppe** must consist of troops that are infused with the highest daring. Their development as an elite unit must be ensured with regard to offensive spirit, ardor, inner and outer fine deportment, and dependability. For this, and to achieve maximum state of readiness for action in the **Panzer-Divisions**, a third voluntary service year for the members of the **Panzer-Division** is to be considered.*

*In the **Kavallerie**, it is necessary to develop an offensive spirit, skill, and self-sufficient handling of independent assignments in vast areas.*

*The officer corps of the **Kavallerie**, the **Aufklaerungs-Abteilung (mot)**, and the **Schuetzen-Regiments** of the **Panzer-Divisions** is to be interchangeable.*

IV. During the development of the motorization of the army, the following requirements are to be intensely pursued:

- *Reduction in number of types,*
- *Adoption of commercial vehicle designs and parts,*
- *Development of the diesel motor. By modifying the current exhaust it must be made useable for longer driving in supply columns.*
- *Development of motors fueled by coal dust,*
- *Improvement in fuel supply facilities*
- *Simplification of repair parts for all special vehicles*
- *Ammunition, medics, and supplies transported by tracked vehicles on the battlefield.*

The 1934 proposal by Guderian to create nine **Panzer-Divisions** was finally being implemented. In report Nr.500/39 dated 24 February 1939, the **Generalstab des Heeres** planned the reorganization in the sixth phase of the **Heeres** expansion program to take place in the Fall of 1939 as follows:

XV.A.K.	**1. und 4. Pz.Div.**
	6.Pz.Div. (previously **1.le.Div.**) with **Pz.Rgt.11** and **I./Pz.Rgt.12** (previously **Pz.Abt.65**)
	7.Pz.Div. (previously **2.le.Div.**) with **Pz.Brig.5**, **Pz.Rgt.35** and **I./Pz.Rgt.34** (previously **Pz.Abt.66**)
XVI.A.K.	**3.Pz.Div.**
	5.Pz.Div. with **Pz.Rgt.31** and newly created **I./Pz.Rgt.30**
	8.Pz.Div. (previously **3.le.Div.**) with **Pz.Brig.8**, **Pz.Rgt.15** and **I./Pz.Rgt.16** (previously **Pz.Abt.67**)
XIX.A.K.	**2.Pz.Div.**
	9.Pz.Div. (previously **4.le.Div.**) with **Pz.Rgt.33** (one newly created **Pz.Abt.** and previous **Pz.Abt.33**) and newly created **I./Pz.Rgt.32**

All of the previous **leichte Divisions** were to receive three **Panzer-Abteilungen**. The previous intention to further expand the **Heeres Panzer-Brigaden** had to be temporarily delayed. **Panzer-Brigade 4** was to be attached to the **4.Panzer-Division**.

As revealed by the Panzer Inventory Reports, 1446 **Pz.Kpfw.I**, 1094 **Pz.Kpfw.II**, 60 **Pz.Kpfw.III**, 137 **Pz.Kpfw.IV**, 180 **kl.Pz.Bef.Wg.**, and 30 **Pz.Bef.Wg.** were available with Panzer units on 1 March 1939. In response to the change in the Panzer inventory, expected production, and number of Panzer units, **K.St.N./K.A.N.1171**, **1175**, and **1178** were al-

tered effective 1 March 1939. The organization for the **Panzer-Regiments** that became effective on 1 March 1939 was:

K.St.N.	Date	Subunit Name
1103	1Oct37	**Stab Panzer-Regiments**
1194	1Oct37	**Nachrichten-Zug Stab Panzer-Regiments**
1168	1Oct37	**leichte Panzer-Zug**
1107	1Oct38	**Stab Panzer-Abteilung**
1195	1Oct38	**Nachrichten-Zug Stab Panzer-Abteilung**
1171	1Mar39	**leichte Panzer-Kompanie**
1175	1Mar39	**leichte Panzer-Kompanie (a)**
1178	1Mar39	**Staffel Panzer-Abteilung**

The subunits' organization and authorized number of Panzers are shown on the silhouette charts. The organization for the **Panzer-Abteilung (verlastet)** remained unchanged from 1 October 1938.

After the occupation of Czechoslovakia, on 28 March 1939 the **Generalstab des Heeres** ordered:

*The **10.Panzer-Division** is to be created as an occupational force in the Protektorat Boehmen-Maehren. The units under its command are to be exchanged every four months. The first units that are to be assigned to the **10.Panzer-Division** are one **Infanterie-Regiment (mot)** and an **Aufklaerung-Abteilung (mot)** from the **20.Infanterie-Division**, **Panzer-Regiment 8** from the **4.Panzer-Brigade**, **I./Aufklaerungs-Regiment 8** from the **3.leichte-Brigade** and **Pionier-Bataillon 43** from the **III.Armee-Korps**.*

On 1 April 1939, the **Generalstab des Heeres** ordered that the sixth phase of the **Heeres** expansion program was to be carried out on 19 September 1939. The **Panzertruppen** were to be reorganized effective 19 September 1939 as follows:

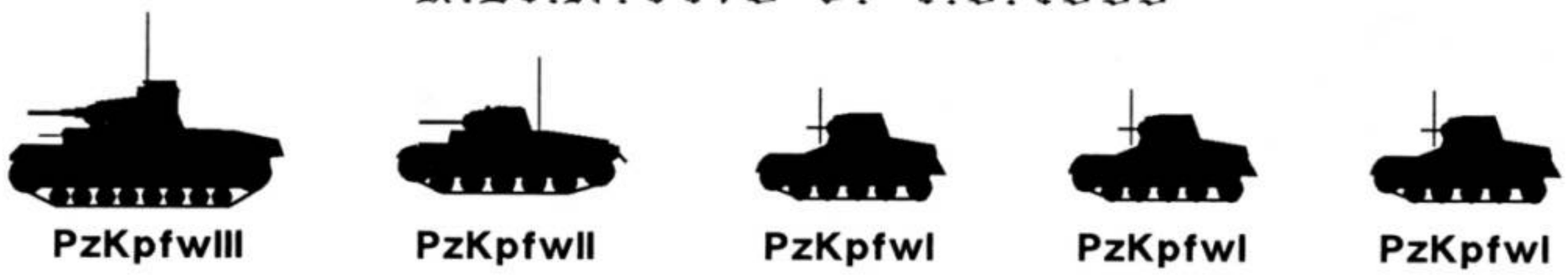
Korps	Division	Brigade	Regiment/Abteilung
I.A.K.			I./Pz.Rgt.10
XIV.A.K.	6.Pz.Div.		Pz.Rgt.11 with I/11, II/11, and I/12 (I/12 was 65)
XV.A.K.	1.Pz.Div.	1.Pz.Brig.	Pz.Rgt.1 und 2
XV.A.K.	4.Pz.Div.	6.Pz.Brig.	Pz.Rgt.36 with I/36, II/36, and I/23
XV.A.K.		4.Pz.Brig.	Pz.Rgt.7 and 8
XV.A.K.	7.Pz.Div.	5.Pz.Brig.	Pz.Rgt.25 and 35 (II/25 was 66)
XVI.A.K.	3.Pz.Div.	3.Pz.Brig.	Pz.Rgt.5 und 6
XVI A.K.	5.Pz.Div.		Pz.Rgt.31 with I/31, II/31 and I/30
XVI A.K.	8.Pz.Div.	8.Pz.Brig.	Pz.Rgt.15 with I/15, II/15 and I/16 (I/16 was 67)
XIX A.K.	2.Pz.Div.	2.Pz.Brig.	Pz.Rgt.3 und 4
XIX A.K.	9.Pz.Div.		Pz.Rgt.33 with I/33 II/33 and I/32 (I/33 was 33)
Versuchs und Lehrtruppen			Pz.Lehr Abt.

Nachrichtenzug (mot) des Stabes einer Panzer-Regiment
K.St.N.1194 v. 1.10.1937

leichter Panzerzug
K.St.N.1168 v. 1.10.1937

Nachrichtenzug (mot) einer Panzer-Abteilung
K.St.N.1195 v. 1.10.1938

Staffel einer Panzer-Abteilung
K.St.N.1178 v. 1.3.1939



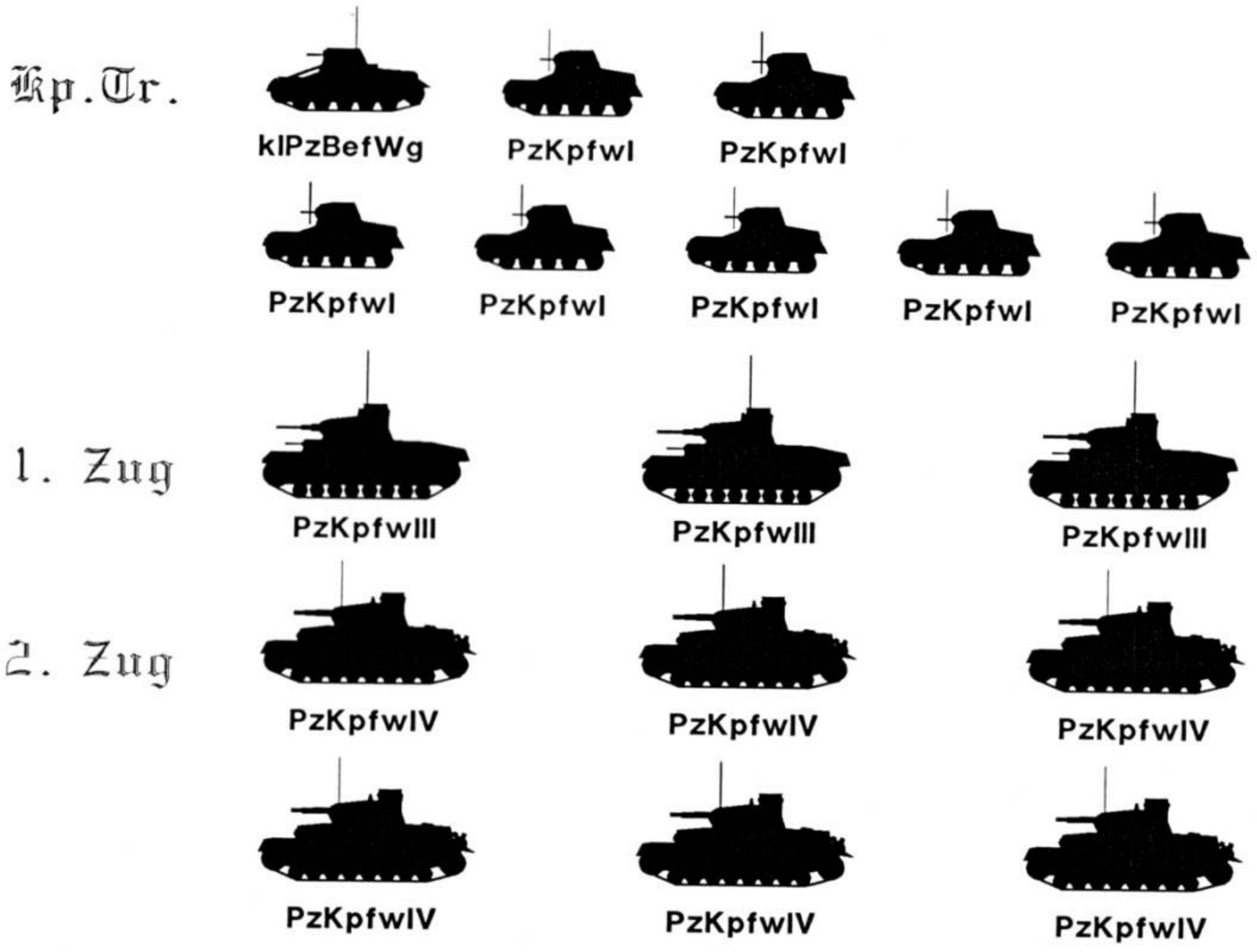
leichte Panzerkompanie

K.St.N. 1171 v. 1.3.1939

Kp.Tr.	klPzBefWg	PzKpfwII	PzKpfwI	PzKpfwI	
1. Zug	PzKpfwII	PzKpfwII	PzKpfwI	PzKpfwII	PzKpfwI
2. Zug	PzKpfwII	PzKpfwII	PzKpfwI	PzKpfwII	PzKpfwI
3. Zug	PzKpfwII	PzKpfwII	PzKpfwI	PzKpfwII	PzKpfwI
4. Zug	PzKpfwII	PzKpfwII	PzKpfwII	PzKpfwII	PzKpfwII

leichte Panzerkompanie a

K.St.N. 1175 v. 1.3.1939



These plans were partially implemented when they were disrupted by the start of World War II on 1 September 1939.

A new set of **Sonder** (special) **K.St.N./K.A.N.** officially dated 1 September 1939 had already been drafted by July. Specific orders were cut by July 1939 authorizing **Panzer-Regiment 1**, **Panzer-Regiment 2**, **Panzer-Regiment 11**, **Panzer-Abteilung 65**, and the **Panzer-Lehr-Abteilung** to be reorganized and equipped in accordance with these **Sonder K.St.N.** dated 1 September 1939. The **K.St.N./K.A.N.** in effect for each of these Panzer units were:

K.St.N.	Date	Subunit Name
1103(Sd)	1Sep39	**Stab Panzer-Regiments (Sd.Ausf.)**
1194(Sd)	1Sep39	**Nachrichten-Zug Stab Panzer-Regiments**
1168(Sd)	1Sep39	**leichte Panzer-Zug**
1107(Sd)	1Sep39	**Stab Panzer-Abteilung (Sd.Ausf.)**
1150(Sd)	1Sep39	**Stabskompanie Panzer-Abteilung (Sd.Ausf.)**
1171(Sd)	1Sep39	**leichte Panzer-Kompanie (Sd)**
1175(Sd)	1Sep39	**mittlere Panzer-Kompanie (Sd)**
1178(Sd)	1Sep39	**Staffel Panzer-Abteilung (Sd.Ausf.)**

The subunits' organization and authorized number of Panzers are shown on the silhouette charts.

The gun-armed tanks acquired as a result of the occupation of Czechoslovakia were issued to **Panzer-Regiment 11** and **Panzer-Regiment 65**. On 5 June 1939, **Panzer-Abteilung 65** reported that they had 64 **Typ L.T.35 (S-IIa)**. **Panzer-Abteilung 65** was no longer "**Verlastet**" after it returned the 52 **schwere Lastkraftwagen** (heavy trucks) and 50 **Tiefladeanhaenger** (low-bed trailers) that had been used to transport their Panzers. On 22 July 1939, **Panzer-Regiment 11** reported that they had 122 "Skoda-Panzer". The official title given to the tanks that had been produced by Skoda and Ceskomoravska-Kolben-Danek (C.K.D.) for the Czechoslovak Army was **Panzerkampfwagen L.T.M.35**.

In Czech service this tank had been manned by a crew of three: a commander/gunner, a driver, and a radio operator. In German service, a loader was added to increase the rate of fire. The **L.T.M.35** took the place of the **Pz.Kpfw.III** and **gr.Pz.Bef.Wg.** within the organizations as authorized by the **K.St.N./K.A.N.**

Each **Pz.Kpfw.L.T.M.35** accepted into service by the **Heeres** had to undergo an important automotive modification and were modified for installation of German radio sets. Each **L.T.M.35** issued to a **Panzer-Abteilung** or **leichte-Panzer-Kompanie** had racks installed to mount both the **FuG 5** (10 watt transmitter and receiver) and **FuG 2** (receiver only) radio sets along with the three rectifiers. In this way they could be assigned to any position within the **Panzer-Abteilung,** be it within the platoon, for the platoon leader, for the company commander, or as a **Panzerbefehlswagen** for the **Panzer-Abteilung** commander.

Two **L.T.M.35** issued to the **Panzer-Regiment Stab** and seven **L.T.M.35** issued to the **Panzer-Brigade Nachrichten-Zug** in **Nachrichten-Abteilung 82** were converted to

A **Pz.Kpfw.L.T.M.35** newly acquired from the Czech army in March 1939 still has the original Czech camouflage pattern. In German service, a loader was added to increase the rate of fire. The **L.T.M.35** was modified to install German radio sets. (WJS)

Pz.Bef.Wg. (Sd.Kfz.267 und 268) by mounting **FuG8** (30 watt transmitter and receiver) and **FuG7** (20 watt transmitter and receiver) as well as **FuG5** radio sets.

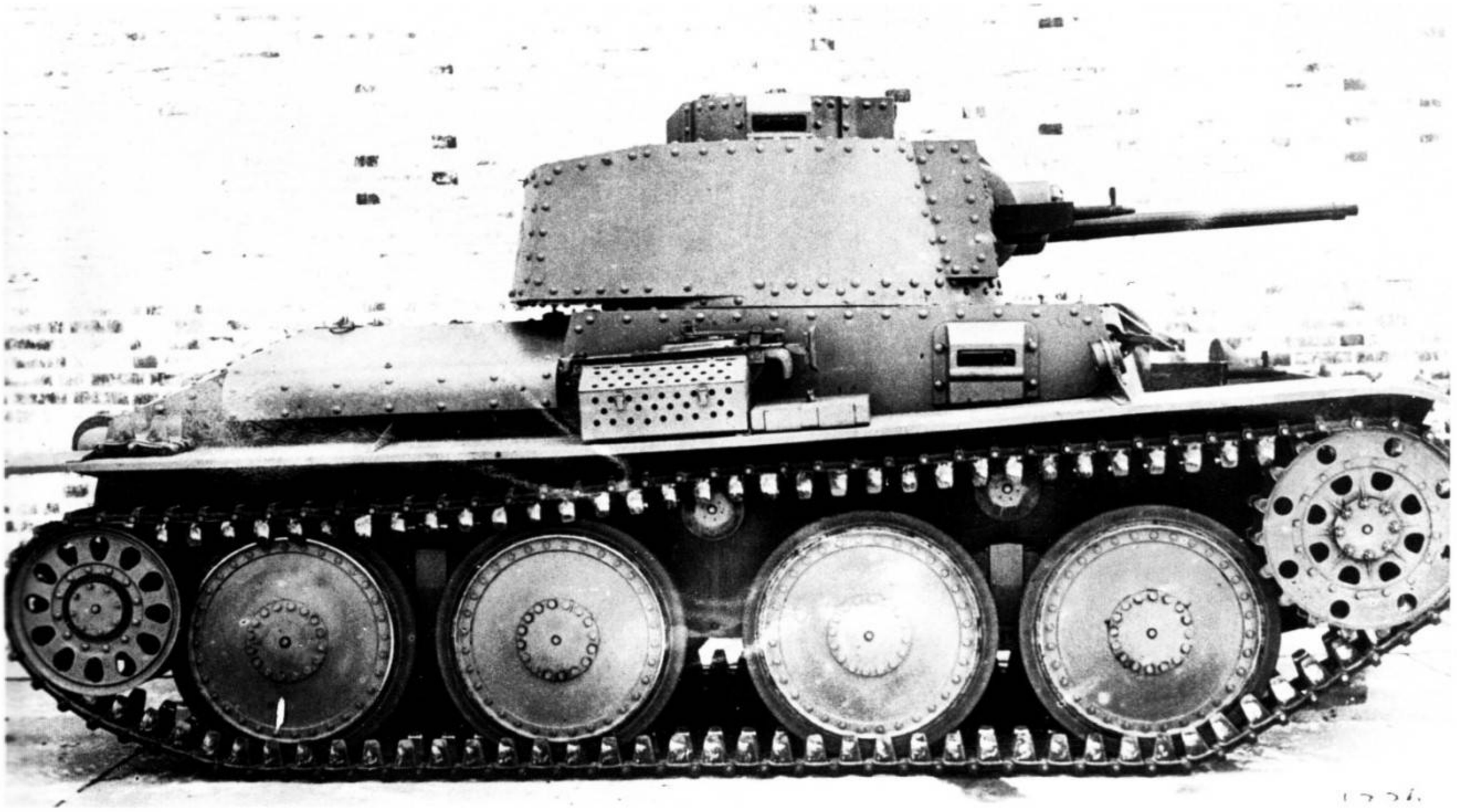
C.K.D. had also completed the design and was preparing to start production of the first series of "TNH-P" tanks when it was occupied in March 1939. C.K.D. received contracts to produce for the **Heeres** this series of tanks, which were officially known at the time as **Panzerkampfwagen L.T.M.38**. As **Pz.Kpfw.L.T.M.38** were produced and accepted, they were issued to **Panzer-Abteilung (verlastet) 67** under the **3.leichte Division**.

The official names for the Panzers produced by the Czechs were changed to **Panzerkampfwagen 35(t)** and **Panzerkampfwagen 38(t)** on 16 January 1940, as authorized by **Inspektorat 6**.

The following unique record accounted for the exact assignment of every Panzer in the Heeres inventory effective 15 August 1939, directly before the units were activated for war:

	Panzerkampfwagen				Panzerbefehlswagen		
Unit	I	II	III	IV	265	267	268
Pz.Rgt.1	48	62	16	28	5	1	
Pz.Rgt.2	63	62	8	28	5	1	
Pz.Rgt.3	84	81	3	9	10	1	
Pz.Rgt.4	84	81	3	9	10	1	
Pz.Rgt.5	84	81	3	9	10	1	
Pz.Rgt.6	84	81	3	9	10	1	
Pz.Rgt.7	84	81	3	9	10	1	
Pz.Rgt.8	84	81	3	8	10	1	
Pz.Rgt.11	84	55	117t	28	10	1	
Pz.Rgt.15	84	81	3	6	10	1	
Pz.Rgt.31	84	66		6	10	1	
Pz.Rgt.35	102	66		6	10	1	
Pz.Rgt.36	101	66		6	10	1	
Stb.Pz.Rgt.25					1		
I./Pz.Rgt.25	39	33		3	5		
I./Pz.Rgt.23	40	33		3	5		
I./Pz.Rgt.10	41	39	3	4	5		
Pz.Abt.(verl) 33	54	30			6		
Pz.Abt.65	53	25	57t	14	6		
Pz.Abt.(verl) 66	54	42			6		
Pz.Abt.(verl) 67	50	42	57t		6		
Pz.Nachr.Abt.37					2	2	1
Pz.Nachr.Abt.38					2	2	1
Pz.Nachr.Abt.39					2	2	1
Pz.Nachr.Abt.77					3	1	1
Pz.Nachr.Abt.79					3	1	1
4.Pz.Brig.					3	1	1
6.Pz.Brig.						3	1
Pz.Lehr-Abt.	18	30	40	14	2		
Schiesslehrgang	8	10	4	5	1		
Techn.Uffz.Lehrg.	2						
Pi.Batl.38	8						
Pi.Batl.62	7						
Pi.Lehr u.V.Batl.	1						
Total:	1445	1228	92*	204	180	24	6

*plus 174 L.T.M.35 and 57 L.T.M.38.



The **Pz.Kpfw.L.T.M.38** had been designed but not produced before the occupation of Czechoslovakia in March 1939. Preparations had been made to produce an initial series of 150 for the Czech army. These were completed and delivered to the **Heeres** starting in May 1939. (WJS)

The following mobilization directive from the **Oberkommandos des Heeres** dated 1 July 1938 was effective for the period from 16 October 1938 to 31 March 1940:

Panzertruppe

During mobilization, units are to be activated as follows:

*a. Each **Panzer-Regiment** with six companies*
*(4 **I.Panz.Kp.**, 2 **I.Panz.Kp.a**)*

*b. Each independent **Panzer-Abteilung** with three companies*
*(2 **I.Panz.Kp.**, 1 **I.Panz.Kp.a**)*

*c. Each **Panzer-Abteilung (verlastet)** with three companies*
*(3 **I.Panz.Kp.(verl.)**)*

*Each unit is to bring its strength in armored and other vehicles up to the equipment authorized by its **K.St.N.** Equipment in the companies that is left behind can be used to fill the mobilized unit. In no case may more equipment be taken along than authorized by the **K.St.N. Panzer-Ersatz-Abteilungen** are to be formed from the peacetime **leichte Panzer-Kompanien** that are left behind.*

Upon being activated for war in August 1939, the Panzer units left behind 260 **Pz.Kpfw.I**, 67 **Pz.Kpfw.II**, 11 **Pz.Kpfw.III**, 34 **Pz.Kpfw.35t**, 5 **Pz.Kpfw.38t**, 11 **Pz.Kpfw.IV**, and 20 **kl.Pz.Bef.Wg.** with **Panzer-Ersatz-Abteilungen** created from the fourth peacetime **leichte Panzer-Kompanie** from each **Panzer-Abteilung**. These **leichte Panzer-Ersatz-Kompanien** were organized in accordance with **K.St.N.6561** dated 1 October 1938.

Nachrichtenzug (mot) des Stabes einer Panzer-Regiment
K.St.N. 1194(Sd.) v. 1.9.1939

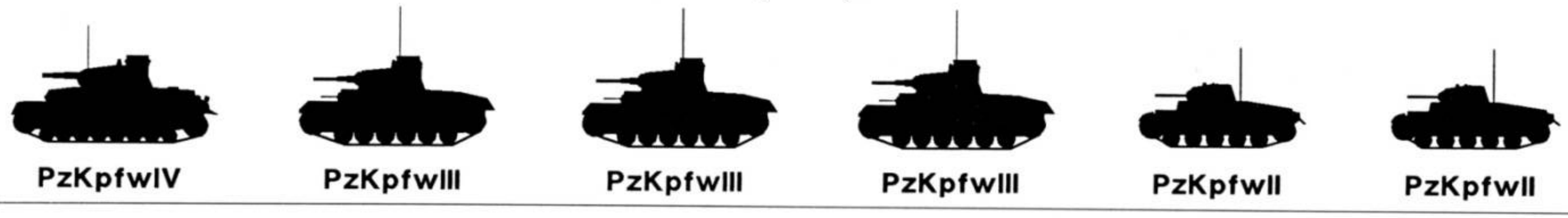
leichter Panzerzug
K.St.N. 1168(Sd.) v. 1.9.1939

Stabskompanie einer Panzer-Abteilung
K.St.N. 1150(Sd.) v. 1.9.1939

N.Zug

1.Zug

Staffel einer Panzer-Abteilung
K.St.N. 1178(Sd.) v. 1.9.1939



leichte Panzerkompanie

K.St.N. 1171 (Sd.) v. 1.9.1939

Kp.Tr.

PzKpfwIII

PzKpfwIII

le. Zug

PzKpfwII

PzKpfwII

PzKpfwII

PzKpfwII

PzKpfwII

1. Zug

PzKpfwIII

PzKpfwIII

PzKpfwIII

PzKpfwIII

PzKpfwIII

2. Zug

PzKpfwIII

PzKpfwIII

PzKpfwIII

PzKpfwIII

PzKpfwIII

3. Zug

PzKpfwIII

PzKpfwIII

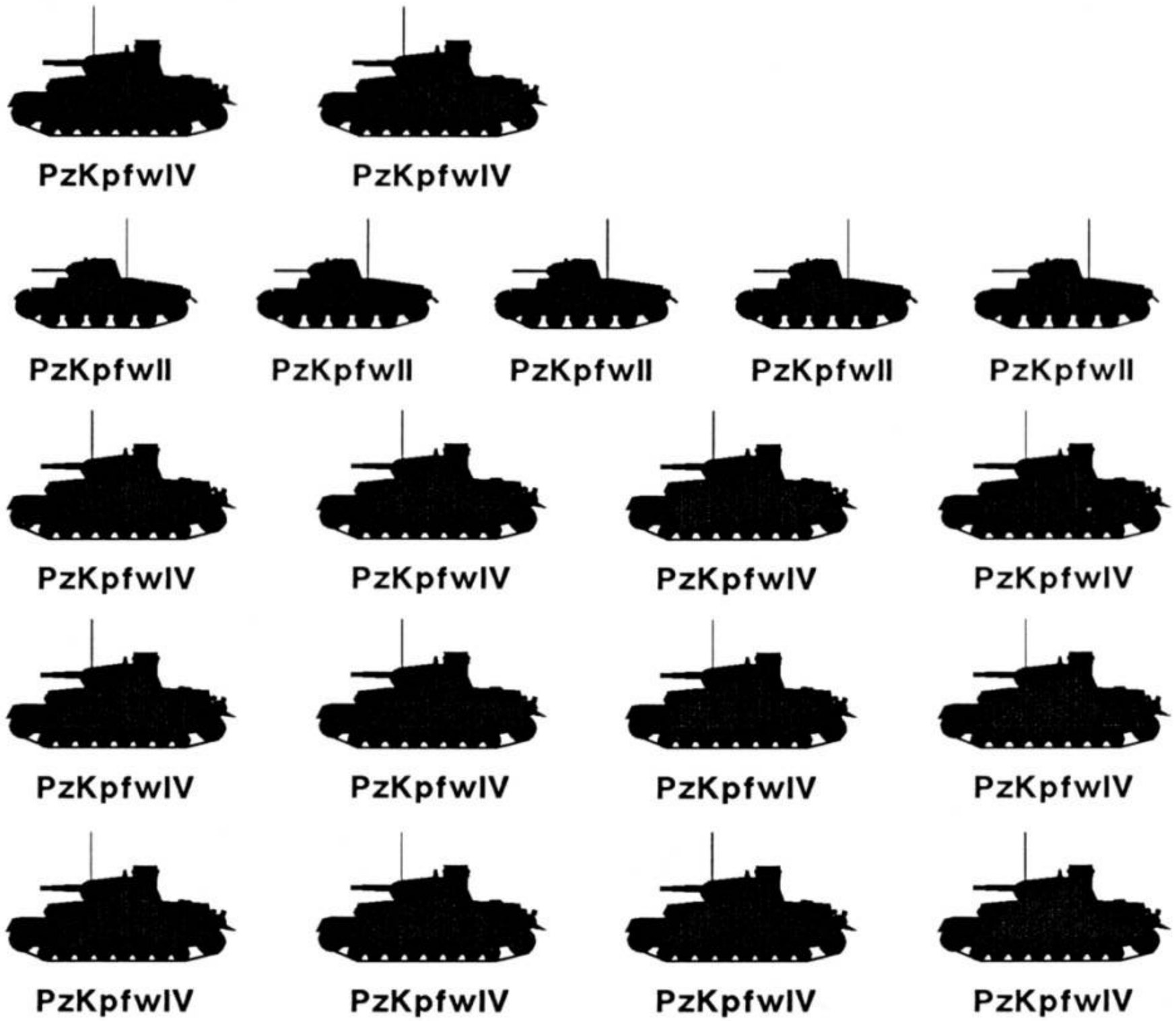
PzKpfwIII

PzKpfwIII

PzKpfwIII

mittlere Panzerkompanie

K.St.N. 1175(Sd.) v. 1.9.1939



leichte Panzer–Ersatz–Kompanie

K.St.N.6561 v. 1.10.1938

1. Zug

klPzBefWg | PzKpfwI | PzKpfwI | PzKpfwI | PzKpfwI | PzKpfwI

2. Zug

PzKpfwII | PzKpfwII | PzKpfwII

3. Zug

PzKpfwIII | PzKpfwIII | PzKpfwIII

4. Zug

PzKpfwIV | PzKpfwIV | PzKpfwIV

9

Tactics Employed by a Panzer-Kompanie

D645, dated 1 March 1939, was the "Training Directive for the **leichte** and **mittlere Panzer-Kompanie 1939** in Combat" that was used by the **Panzertruppen** during the campaigns in Poland, Denmark, Norway, Belgium, Holland, and France. It provides details on exactly how the **Panzertruppen** fought at the small unit level that can't be found in other documents. These instructions were drilled into the Panzer crews. They became so familiar with these basic tactics that they were rarely mentioned in combat or experience reports, except when they didn't work or improved tactics were found.

Part A - **Leichte Panzer-Kompanie 1939**

I. Organization

1. During 1939 the combat echelon of the **leichte Panzer-Kompanie** will be equipped as follows:

Kompanietrupp:	**1 kl.Pz.Bef.Wg., 2 Pz.Kpfw.I, 1 Pz.Kpfw.II**
1.Zug:	**2 Pz.Kpfw.I, 3 Pz.Kpfw.II**
2.Zug:	**2 Pz.Kpfw.I, 3 Pz.Kpfw.II**
3.Zug:	**2 Pz.Kpfw.I, 3 Pz.Kpfw.II**
4.Zug:	**5 Pz.Kpfw.II**

This company carries 16 **M.G.13k** machine guns, 16 **M.G.34** machine guns and 16 **2 cm Kw.K.30** tank guns into combat.

This is the equipment on which to base training as long as the company hasn't already been equipped with **Pz.Kpfw.III**. Missing **Pz.Kpfw.II** are to be replaced by **Pz.Kpfw.I**.

II. Strength, Combat Value, Assigned Tasks

2. A **leichte Panzer-Kompanie** with this equipment does not have the combat value of the **leichte Panzer-Kompanie** described in the manual D76 "Panzer Attack with an Infantry Division". Its employment must be reduced and tactics adjusted accordingly.

3. All platoons of the combat echelon of the **leichte Panzer -Kompanie 1939** are equally capable and qualified to engage unarmored targets that appear in their sector. Armored opponents can be engaged with the **Pz.Kpfw.II**. Medium Panzer platoons will often assist in engaging armored targets.

4. The **Pz.Kpfw.I** can engage live targets with its machine guns. The **Pz.Kpfw.II** can engage live targets with its machine gun and can engage tanks, other armored vehicles, and weapons protected by armor shields with the **2 cm Kw.K.30**.

III. Combat Principles

5. The main combat method employed by a **Panzer-Kompanie** is for it to attack. In addition, the **Panzer-Kompanie** can hold conquered territory for a limited time in the same way as mobile machine guns.

6. The attack is executed utilizing mutual supporting fire by continuously alternating between fire and movement. Movement serves to carry fire on and into the enemy. Movements are to be rapidly executed. Panzers are not to fire on the move. Firing when stationary is more effective and therefore should be attempted.

7. Wide attack formations make it possible to bring many weapons into use. Its limitation is based on the requirements for mutual fire support. Maintaining control of the company must be guaranteed. The necessary depth for an attack is achieved by employing the **Panzer-Kompanien** or **Panzer-Abteilung** one after the other in lines and waves.

As determined by the situation and terrain, mutual covering fire will be provided within the platoons, company, or from attached medium platoons.

A hull-down position or hidden fire position is especially useful for providing fire support.

If fire support is provided from within the company, the assigned fire support elements (moving by bounds) are to follow so closely behind the forward platoons that they are always in position to engage in the battle.

8. Engagement of the **leichte Panzer-Kompanie** is built upon engagement of the platoons. The cohesion of the platoon must always be guaranteed so that the company can be quickly reassembled.

Special value is to be placed on training the platoon. It forms the basis for the training of the larger units (**Panzer-Kompanie, Abteilung, Regiment, Brigade**). Combat formations and movements must be repetitiously exercised.

9. Based on the terrain and situation, company and platoon commanders select positions where they can best direct their units during combat. Before an engagement they should be at the head of their unit.

They command by radio messages, flag signals, firing directional shots (mainly with the **2 cm Kw.K.**), or by example. The platoon leader maintains contact by radio with the company commander. The individual Panzers must always remain in radio and sight contact with their the platoon leader.

10. The attack should surprisingly charge forward. Thorough preparations are desirable including: conducting combat reconnaissance, scouting the terrain, utilizing reconnaissance and scouting reports from all other arms including aerial reconnaissance, thoroughly studying maps, removing known and accessible terrain obstacles, preparing and transporting fascines, planks, etc. to cross unexpected terrain obstacles, and clearing known minefields. All preparations are to be quickly completed and carefully disguised in order to preserve the element of surprise.

11. Support of the Panzer attack by other arms (especially by artillery, combat engineers, and motorized infantry) is indispensable.

The main task of the artillery is to eliminate or at least subdue known or suspected enemy anti-tank weapons and artillery. Contact with the artillery is usually the task of the **Panzer-Abteilung** commander. A discussion with the artillery commander before the attack should cover the following points:

a. Information on the terrain, recognition points for direction, routes to be taken by the Panzers.

b. Where and when artillery support is to occur during assembly, during the approach march, during and after breakthrough, on the flanks, or on the area attacked by the Panzers.

c. Schedule and control artillery fire on the attack zone. Where will high explosives or smoke be used? The density of the smokescreen is based on wind direction and whether it is laid in front of the zone attacked by the Panzers or to screen the flanks.

The **Panzertruppe** are to initiate requests for artillery fire support consisting of high explosives and smoke. The artillery are to explain if and what is possible.

The task of the combat engineers is to open a path through terrain and enemy obstacles for the Panzers and to mark the cleared gaps through minefields or other obstacles.

The motorized infantry is to immediately exploit the success of the Panzers and break the last enemy resistance.

12. Coordination with the supporting arms is to be established in advance by orders from the unit commander. These orders should include the following essential points:

a. Enemy situation, especially anti-tank weapons

b. Brief description of the terrain (own and enemy's)

c. Tasks assigned to the unit (own forward line, combat situation, attack formation of the infantry and artillery)

d. Combat assignment for the Panzers

e. Where and when support from other arms (infantry, artillery, combat engineers, anti-tank guns, aircraft) is planned (during the approach, during breakthrough, after breakthrough on the flanks or in the attack zone).

13. For engagements without advance planning, the Panzer unit won't know many details about the situation. In this case, in addition to proper attack orders, as a minimum it is necessary to inform personnel down to the lowest ranking leader about the situation and tasks of our infantry, especially the forward infantry line, previously discovered locations of enemy weapons, and the nature of the terrain (passable routes).

Then, the attack order can be brief and contain only the following essential points: information on when the first indication of a change occurred in the enemy and our own troops, assigned combat tasks, organization and assignment of each element, coordination with the other arms (especially if and for how long artillery fire is to hit in the attack zone and on the flanks), how the fight is to be conducted, fire support on the routes of advance, combat reconnaissance, and actions after reaching the attack objective.

14. Based on the situation, the **leichte Panzer-Kompanie** can receive the following combat assignments:

a. Subduing enemy anti-tank weapons followed by attacking the enemy artillery.

b. Subduing the infantry resistance.

c. In direct cooperation with the motorized infantry, eliminating any remaining enemy resistance.

d. Breaking through into the heart of the enemy battle zone.

The combat methods that are applied are to be based on these assigned tasks. Advancing by bounds is frequently recommended.

15. If the **leichte Panzer-Kompanie** has the task of subduing enemy anti-tank weapons along a specific route or sector, followed by attacking the enemy artillery, it should en-

gage other targets (such as enemy infantry) only to the extent that this does not interfere with completion of the main task or can be accomplished without delays.

Panzers receiving direct fire from anti-tank weapons attempt to reduce the effect of the enemy fire by utilizing cover or by constantly changing speed and direction. If this is not possible, the Panzers while firing should charge the anti-tank gun at high speed. Neighboring Panzers of the platoon and the rearward elements assigned fire support are to halt (and supported by the artillery and heavy infantry weapons) and subdue the enemy from hidden or commanding positions with coordinated fire, while the rest of the Panzers of the platoon or the company fall on the opponent from the flank and destroy him.

16. An attack against artillery is conducted following the same guidelines as an attack against anti-tank weapons. Quick moves to the flanks and constant changes in speed and direction promise exceptional results. Artillery can't follow the movement of Panzers as fast as anti-tank weapons.

17. If the **leichte Panzer-Kompanie** has been assigned the task of eliminating enemy infantry, in general the platoons and individual Panzers seek out the opponent along their ordered advance route and engage him until he is destroyed. The interval between Panzers is determined by the lay of the land and available cover. The chosen interval should permit completely cleaning out the traversed area. In general, Panzers can't be damaged by infantry weapons and therefore the firefight can be conducted at close range. The platoon leader must constantly be ready to redirect the action of his complete platoon, for example, to engage nests of resistance or to support the neighboring platoons by flanking fire.

If enemy anti-tank weapons appear during the fight, the priority changes to engaging these weapons until they are destroyed.

Combating enemy infantry can continue after the enemy anti-tank weapons are destroyed. If segments of enemy infantry are bypassed during the engagement with the enemy anti-tank guns, they are to be left for following elements to clean out. Turning and firing back toward our own front endangers our own infantry.

18. If a **leichte Panzer-Kompanie** is used to directly support an infantry attack, normally it will remain attached until the combat assignment is accomplished. Its task is to destroy enemy weapons (mainly machine gun nests and heavy infantry weapons) that directly hinder the infantry attack.

Close and continuous contact with the infantry commander remains a prerequisite for success. Preparatory discussions are to cover the following points:

a. Enemy situation, especially enemy tanks

b. Location of our forward line, attack formation, and combat situation of our infantry.

c. Information on the terrain with special attention to known obstacles and recognizable points. How far can Panzers advance hidden from enemy observation?

d. Where and when during the approach and breakthrough is support from heavy infantry weapons to be expected?

Continuous observation of the battlefield and understanding of the methods used in infantry actions are just as necessary for a Panzer commander as swift decisiveness and a responsible character.

Known enemy positions are to be attacked and destroyed before our own infantry leave cover. Infantry are to be assisted in crossing open terrain and advancing against domineering heights, village, or wood lines by Panzers first advancing and pinning down the enemy.

In addition, the **leichte Panzer-Kompanie** is to move in or directly behind the forward elements (utilizing terrain from cover to cover) to guard the advance of the attacking infantry. Where enemy resistance hinders the infantry advance, all or part of the **leichte Panzer-Kompanie** breaks off to destroy the enemy by close-range fire. Then the engaged Panzers seek to renew contact with the following infantry.

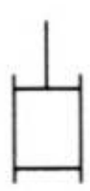
19. Every **Panzer-Kompanie** that has reached its objective sets up security, sends out combat reconnaissance patrols, and if nothing else is ordered, positions itself under cover ready for further assignments. The **Panzer-Kompanie** must be in position to defend the newly taken area at all times. The platoons are distributed under cover with good fields of fire for each Panzer where they can provide mutual fire support. The **Panzer-Kompanie** must be able to attack at any time from this position.

20. **Leichte Panzer-Kompanien** that are not positioned in the front line of their wave during the attack adapt formations suitable to the situation and terrain. As far as possible, they are to engage every enemy identified from their assigned positions. In general, only after orders are received from the assigned command will the **leichte Panzer-Kompanie** engage in combat in the forward line.

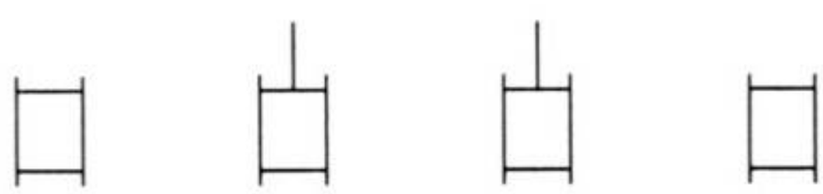
If the company commander observes that a sudden change in the situation requires employment of his company (such as exploiting an especially favorable opportunity, repulsing a hazard to the front line, or repulsing a menace to the flanks) and if a request for orders isn't possible, he can commit his company based on his own decision. A report is to be made as soon as possible to the higher command.

21. Engagements with enemy tanks are to be conducted in the forward line by the **Pz.Kpfw.II**. Guidelines for conducting tank versus tank battles are contained in Section C.

FORMATIONS FOR THE PANZER ZUG



REIHE



LINIE

The Reihe was used for marches and assembly.

The Linie was used for assembly.

The Doppelreihe was used for approach marches.

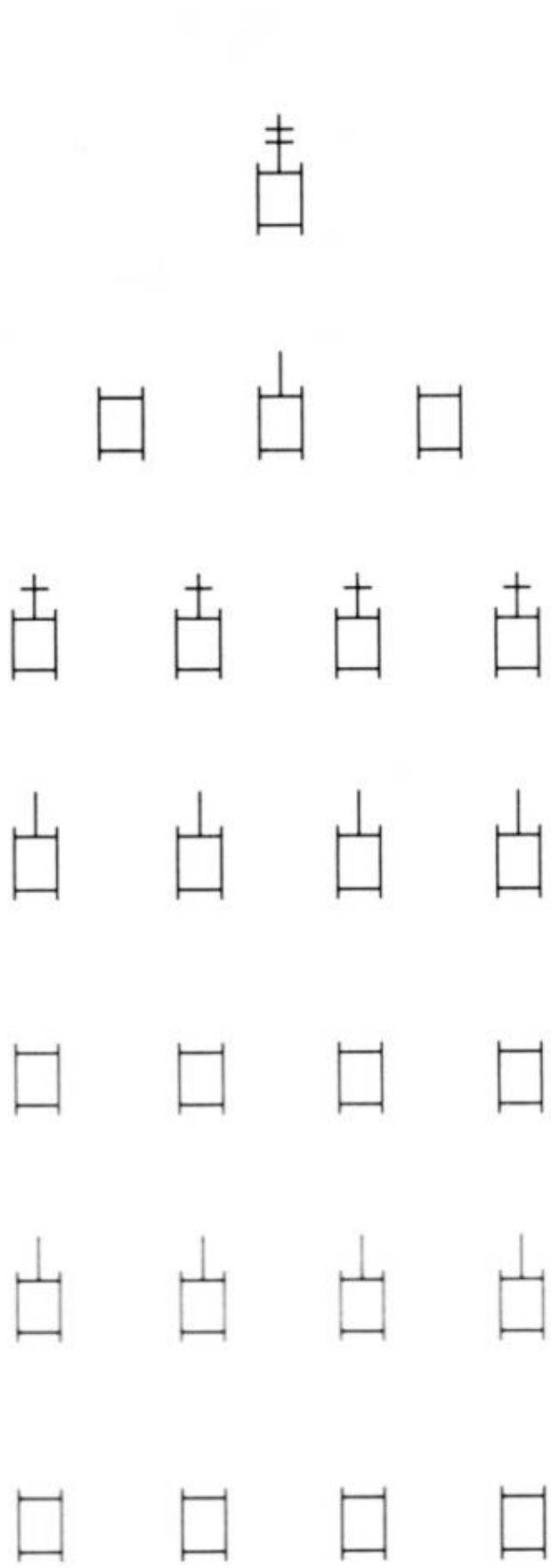
The Keil was the most useful attack formation.

The intervals between Pz.Kpfw. during marches and attacks were 25 meters to the front and 50 meters to the side. Intervals could be changed depending on the terrain, weather, and enemy situation. During combat the Zugfuehrer (platoon leader) was to move to a position within the formation from where he could best direct the platoon based on the terrain and situation.

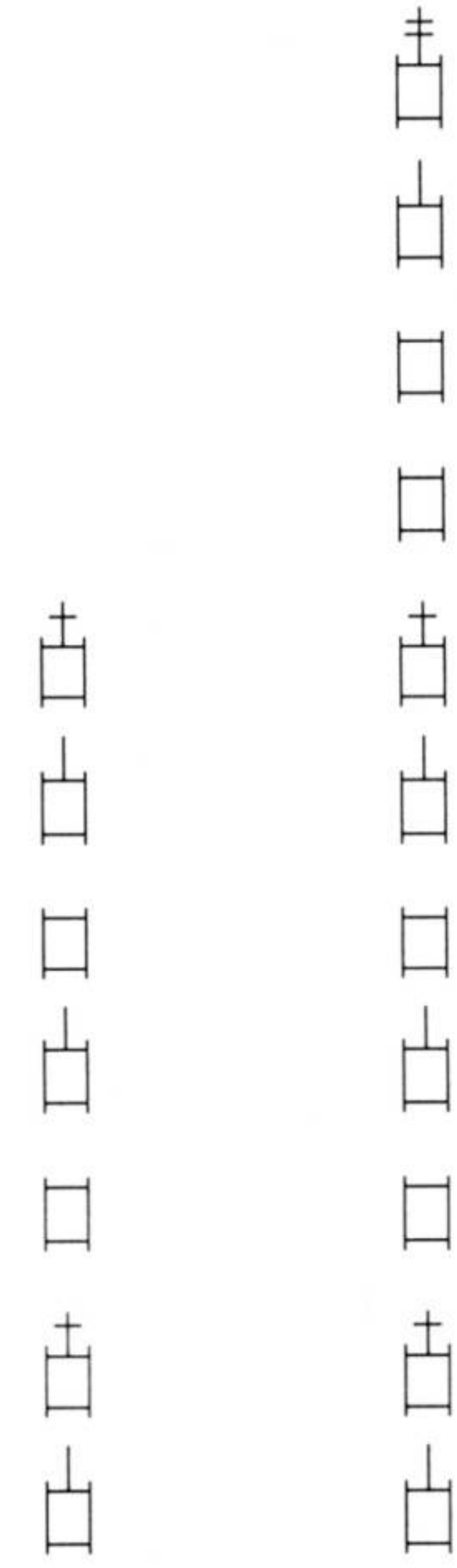
DOPPELREIHE

KEIL

FORMATIONS FOR THE PANZER KOMPANIE



KOLONNE



DOPPELREIHE

The Kolonne was used for assembly.

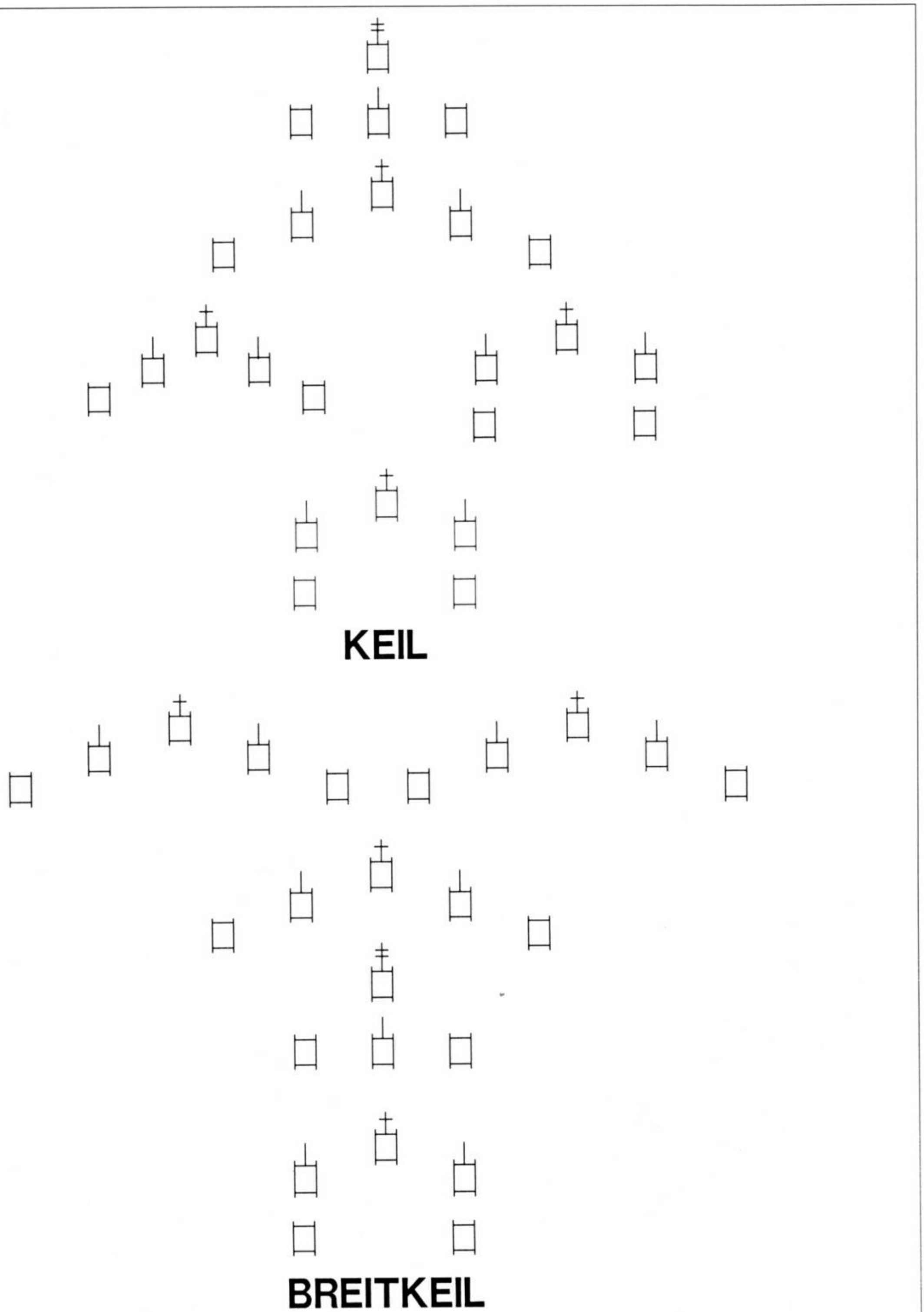
The Reihe was used for road marches.

The Doppelreihe was used for approach marches.

The Keil was used as a narrow attack formation.

The Breitkeil was the most useful attack formation.

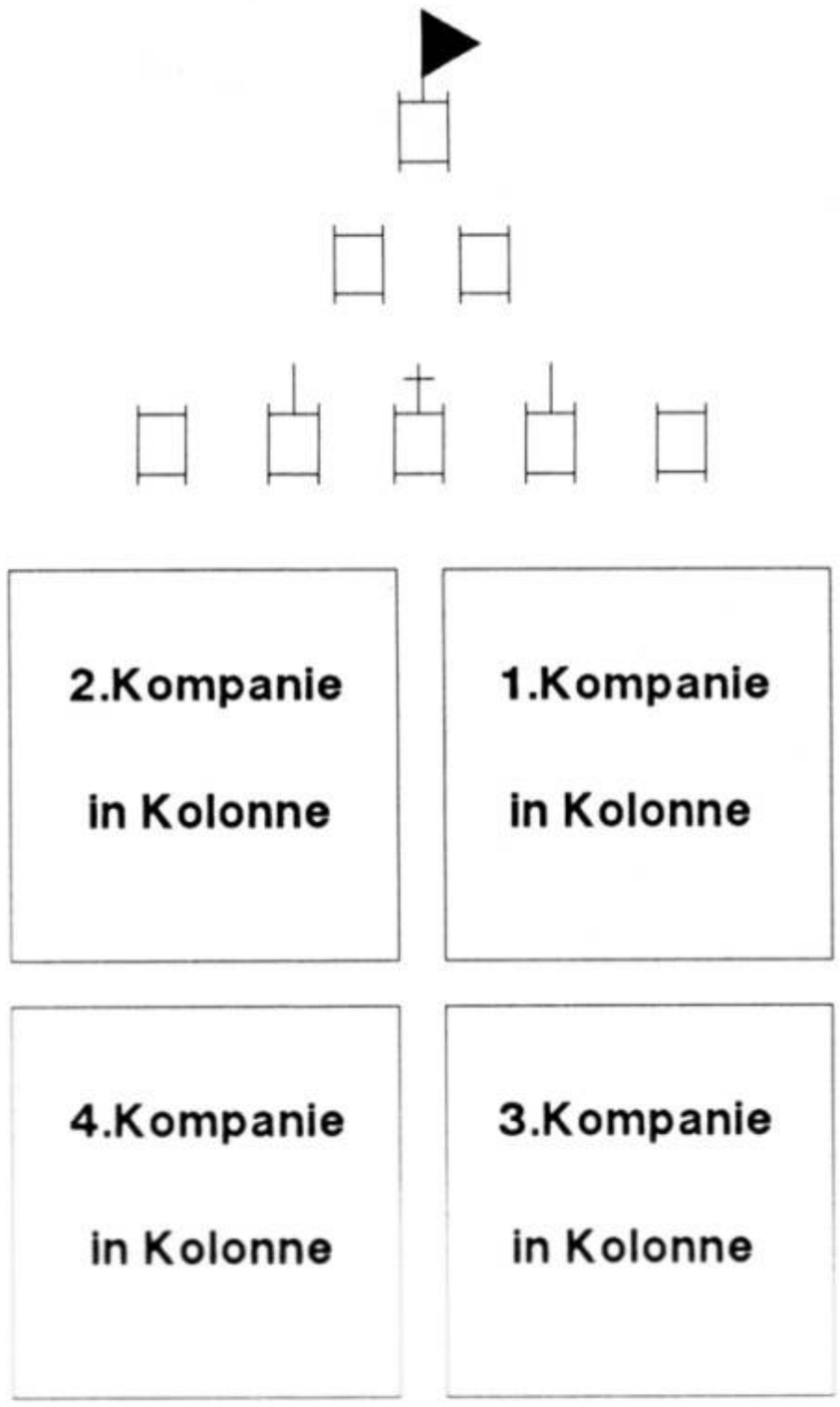
In the Breitkeil attack formation, the Kompanie occupied an area about 450 meters wide and 450 meters deep when proper intervals of 25 meters behind and 50 meters between Panzers were maintained and each Zug (platoon) spaced at 100 meter intervals.



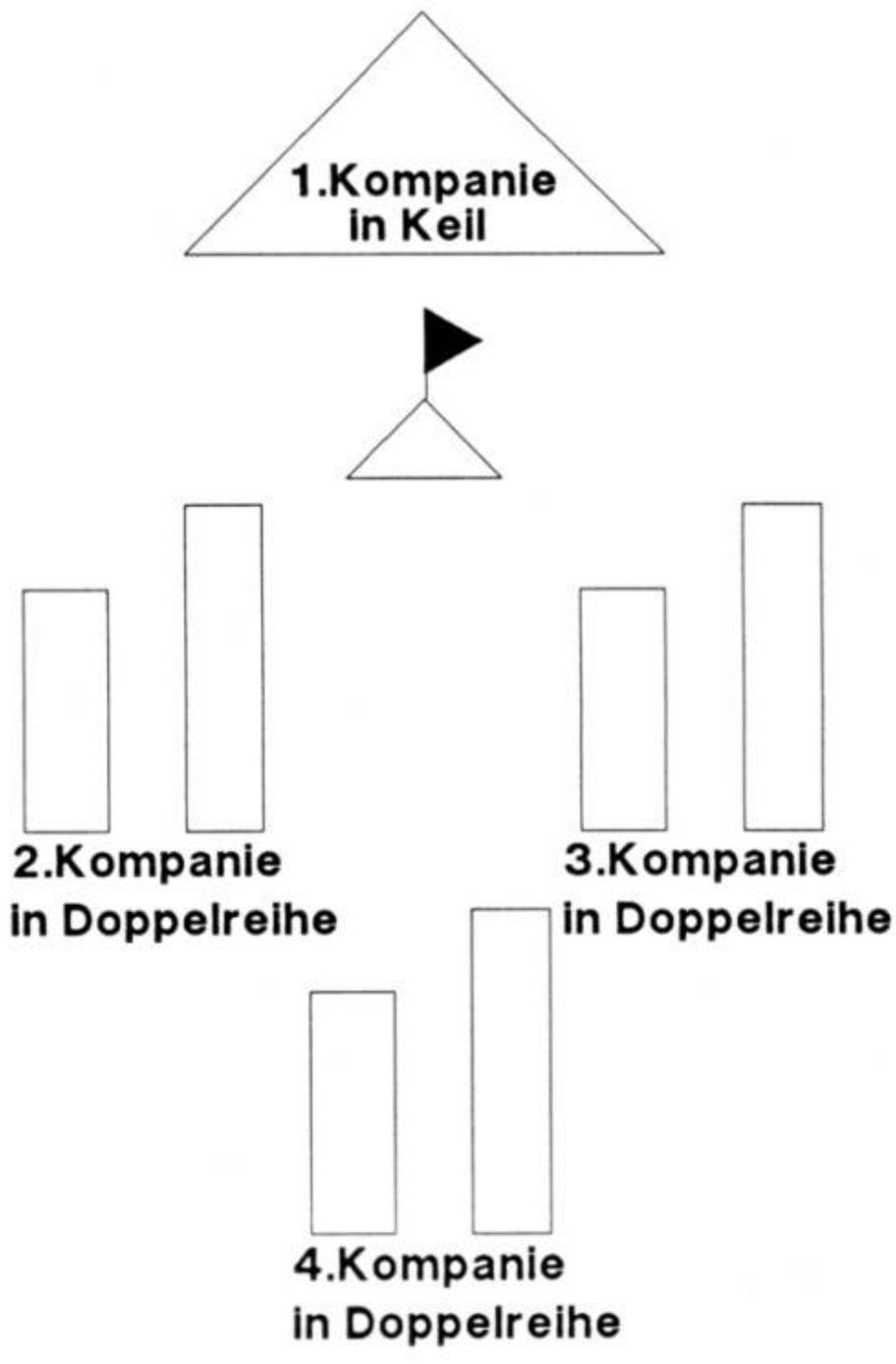
KEIL

BREITKEIL

FORMATIONS FOR THE PANZER ABTEILUNG



KOLONNE



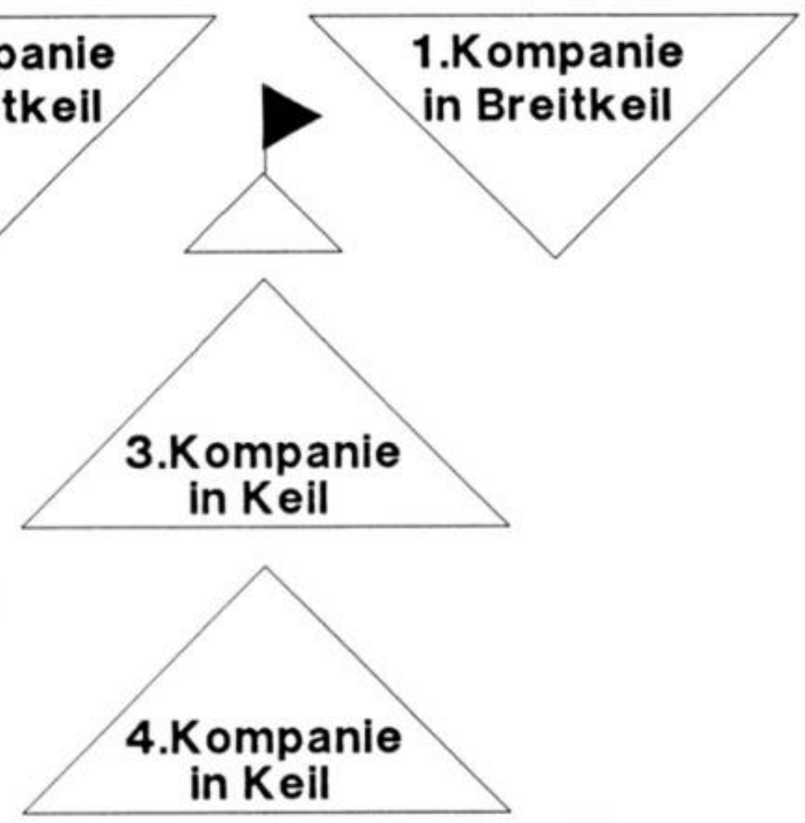
KEIL

The Kolonne was used for assembly.

The Reihe was used for road marches.

The Keil was used as a narrow attack formation 500 meters wide and 1800 meters deep.

The Breitkeil was the most useful attack formation at 1000 meters wide and 1300 meters deep.



BREITKEIL

Part B - **mittlere Panzer-Kompanie 1939**

(At the start of the war, most **mittlere Panzer-Kompanien** were still designated as the "**leichte Panzer-Kompanie (a)**".)

I. Organization

22. During 1939 the combat echelon of the **mittlere Panzer-Kompanie** will be equipped as follows:

Kompanietrupp: 1 kl.Pz.Bef.Wg., 7 Pz.Kpfw.I
one **Zug:** **3 Pz.Kpfw.III**
one **Zug:** **4 to 6 Pz.Kpfw.IV**

This company carries 32 to 36 machine guns, three **3.7 cm Kw.K.** tank guns, and four to six **7.5 cm Kw.K.** tank guns into combat.

II. Strength, Combat Value, Assigned Tasks

23. Employment and combat value are related to the types of Panzers assigned to each individual platoon.

24. Based on their weapons, all elements of the combat echelon are capable and qualified for engaging unarmored targets that appear in their sector. In addition, the **Pz.Kpfw.III** and **Pz.Kpfw.IV** can engage opponents protected by armor and targets at medium and long ranges.

25. **Pz.Kpfw.I**, **III**, and **IV** can engage live targets with their machine guns and tanks and weapons protected by armor shields with **Panzergranaten** (armor-piercing shells). In addition, the **Pz.Kpfw.IV** can engage live targets with **Sprenggranaten** (high-explosive fragmentation shells). The **Pz.Kpfw.IV** carries **Nebelgranaten** (smoke shells) which can be used to temporarily blind the opponent.

The main gun ammunition supply carried in the **Pz.Kpfw.III** and the **Pz.Kpfw.IV** is limited and generally can't be replaced during a fight. Therefore, it should always be determined if the task can be successfully completed using machine guns. The main guns may be used only when machine guns are inadequate for the task.

III. Combat Principles

26. The basic guidelines in Part A also apply to conducting operations with the **mittlere Panzer-Kompanie**. Knowledge and mastery of these guidelines are prerequisite conditions for employment of the **mittlere Panzer-Kompanie**.

27. Within the **Panzer-Abteilung** only the **mittlere Panzer-Kompanie 1939** is equipped with guns. Therefore they are to be employed where it is perceived that they are most needed.

Fundamentally, the **leichte Panzer-Kompanien** in the front line are to engage enemy tanks and anti-tank guns during an attack. Because of their guns the **mittlere Panzer-Kompanie** is especially suitable for supporting the lighter Panzers in the front line.

It can be useful to employ the **mittlere Panzer-Kompanie** within the first wave of the **Panzer-Abteilung**, instead of always in its usual position as the second wave.

When employed in the second wave, flanking targets that can endanger the Panzer attack are to be engaged only at close and medium ranges to eliminate the danger of hitting your own Panzers located further forward.

28. The following conditions must exist for employing the **mittlere Panzer-Kompanie** together as a single unit: open terrain, firing positions on higher ground or gaps in the advanced companies, and an attack width of the **Panzer-Abteilung** that is not too wide (not over 1200 meters).

As a rule, at the start of an attack the **mittlere Panzer-Kompanie** should be brought into a firing position where the other companies can advance under its covering fire. Good camouflage and simultaneously opening fire increase the surprise.

The **mittlere Panzer-Kompanie** is to follow the supported **leichte Panzer-Kompanien** so closely that they can engage in the battle at any time.

29. Many times the terrain or the attack width will stipulate that the **mittlere Panzer-Kompanie** is deployed by platoons. In this case, individual platoons or sections will be attached to and receive their combat instructions from the **leichte Panzer-Kompanien**. Attaching single Panzers is forbidden.

The remaining platoons will either follow under the company commander at the disposition of the **Panzer-Abteilung** commander or be concentrated for employment in locations where attack width, combat situation, or the main objective of the **Panzer-Abteilung** commander may require.

If they follow at the disposal of the **Panzer-Abteilung** commander, they must be ready to attack at any time to support the **Panzer-Kompanien** in the front line.

The company commander of the **mittlere Panzer-Kompanie** advances where most of his company is engaged.

30. If anti-tank weapons or other weapons hindering the attack can't de destroyed by machine gun fire, they should immediately be taken under rapid fire and subdued by elements assigned from the **mittlere Panzer-Kompanie**. In general, each Panzer independently opens fire. The platoon leader must still be in a position to concentrate the fire of his platoon against specific targets. Accurate fire saves ammunition.

If the target can't be pinpointed, a few smoke shells can be used to blind the opponent so that he can be attacked and destroyed by the **leichte Panzer-Kompanie** in the front line.

31. If targets appear that endanger the Panzer attack when the medium Panzers are in the midst of changing posi-

tions, the medium Panzers should move at high speed to the next firing positions and join in the fight. They are not allowed to wait for specific orders.

32. Company and platoon leaders command through radio message orders, signal flags and, in favorable conditions, with directional fire from the 7.5 cm or 3.7 cm guns. If the **mittlere Panzer-Kompanie** is employed together as a single unit, the company commander maintains radio contact with the **Panzer-Abteilung** commander, the platoon leader with the company commander, and the individual Panzers with the platoon leader. When elements are attached to other **Panzer-Kompanien**, they are to maintain radio contact with the leader of the unit to which they are attached.

33. In addition to the **Pz.Kpfw.II**, the **Pz.Kpfw.III** and **Pz.Kpfw.IV** are especially well suited for engaging enemy tanks. If it comes to a battle against enemy tanks, all **Pz.Kpfw.III** and **Pz.Kpfw.IV** must quickly join the action.

Guidelines for conducting tank versus tank battles are discussed in Part C.

34. If conquered territory is to be held, the medium platoons are to form the backbone of the defense. The platoons are distributed in the terrain so that individual Panzers have a long-range field of fire. It will often be necessary to intersperse them among the **leichte Panzer-Kompanien**.

Part C - Tank versus Tank Combat

I. General Principles

35. The decisive factors in tank versus tank combat are:

a. Knowledge of automotive and weapons capabilities.

b. Timely recognition and identification of the strength and direction of the enemy tank attack.

c. A lighting fast grasp of the situation and terrain as well as immediate action at all command levels.

The commander must travel at the point or in front of his command (commanders of rear lines or waves must travel in front of their command close behind the front units) in order to rapidly and personally observe the situation and terrain. Waiting for reports and delaying the engagement usually results in casualties to the forward line and allow the enemy to defeat our own Panzer units in sequence with superior forces.

36. The battle is to be conducted by movement and fire. The purpose of movement is to take the enemy tanks by surprise from an unexpected direction under concentrated superior firepower delivered by armor-defeating weapons and destroy them.

37. In general, the initial tasks of the forward waves and lines are to stop the enemy movement by fire and to conduct combat reconnaissance (determine the enemy flank and any accompanying enemy formations that may be following or on the flanks). This information is used to decide the engagement of rearward lines and waves. The situation, terrain, and weather are decisive in determining if they are to attack the forward elements, the flank, or the rear of the enemy tank force.

38. Target recognition and good training can make up for an inferiority in number and weapons. An attempt must be made to gain fire superiority at least at one location, even when our own forces are weaker.

39. The side which first builds superior firepower and first hits will win. In most cases, nothing more can be ordered when elements are attacked in the front or flank unexpectedly. The necessary defense has to be carried out automatically without orders. This is an essential objective of platoon and company training.

40. Concentrated fire on the enemy commander and signals tanks (knowledge of the organization and combat methods of the enemy) destroys their cohesion.

41. In difficult situations - especially during unexpected engagements - a smoke screen immediately fired in front of the enemy provides protection against aimed fire and provides time to establish a fire front.

42. Panzers with smaller caliber guns close to effective range with the enemy under the protection of the longer range, larger caliber gun armed Panzers. Firing beyond effective range is a waste of ammunition and quickly results in ammunition shortages. The **mittlere Panzer-Kompanien** in the rear wave are to be employed as a concentrated unit.

43. Tasks for the **M.G.-Pz.Kpfw.** include securing the flanks and combat reconnaissance, especially on the enemy wing. When both opponents engage with **leichte Panzer-Kompanien**, the **M.G.-Pz.Kpfw.** are to follow the gun-armed Panzers utilizing any cover offered by the terrain.

44. Firing is most effective from stationary Panzers. Panzers that aren't being fired on, and have a good field of fire, fire when halted. Panzers without a field of fire are to use their high speed to gain a suitable position. All available cover is to be utilized when firing while halted.

If the enemy gains fire superiority, the Panzers are to leave their firing position and, utilizing available cover, drive at high speed to a new firing position. Elements that are not under enemy fire are to provide covering fire.

45. As soon as enemy tanks fire, immediately abandon the current task, attack the enemy tanks and destroy them by using all available armor-defeating weapons. The more powerful and the swifter the attack, the faster the enemy tanks will be destroyed. The enemy tanks must be quickly destroyed to win a free hand for continuing the original task.

46. The commander must attempt to maintain tight control of his unit to be able to send it against the enemy so that all weapons are utilized to full effectiveness and attack at the decisive moment.

Platoons and individual tanks are not allowed to separate from their units in order to prevent them from being destroyed by enemy superiority. Mutual covering fire!

Ramming even smaller enemy tanks is pointless. This usually results in damaging and immobilizing the ramming Panzer.

47. Anti-tank units and artillery as well as heavy infantry weapons are to join in the battle against enemy tanks in accordance with their capabilities. Especially, mobile anti-tank weapons are to follow our own Panzers closely.

48. Fooling the enemy tanks steers their attention away from our main force and assists our own attack.

49. Constantly attempt to keep the sun to the rear and the wind from the front (prevents dust and smoke interference). During battle, cause the enemy tanks to turn so that they show their sides.

50. Rear units advancing under covering fire from the forward line utilize the terrain to attack, envelop the enemy, take them under concentrated fire, and destroy them in close combat.

51. Attacks against the enemy flanks or rear are the most effective. Use combat reconnaissance especially when fighting in the enemy zone. Combat reconnaissance prevents unexpected encounters with enemy resistance and prevents being enveloped by enemy tanks. In addition, cooperation with our own anti-tank weapons can be very advantageous.

52. A disengaging enemy is to be recklessly pursued. Above all, high speed is necessary to envelop and cut off his retreat route. Securing against ambush, conducting combat reconnaissance, and scouting terrain may not be forgotten. Cooperation with aircraft is especially important.

II. The Battle

53. In principle, three cases are to be differentiated in tank versus tank combat:

1. Our Panzers and enemy tanks unexpectedly encounter each other
2. Our Panzers are attacked by surprise by the enemy
3. Our Panzers conduct a surprise attack against the enemy

54. In each of these three cases, the tactics employed by the **Panzer-Kompanie** or **Panzer-Abteilung** are dependant upon whether the Panzers involved are in the front or in a rear line.

Our Panzers and Enemy Tanks Unexpectedly Encounter Each Other

55. In this case, the initial conditions are the same for both opponents. Swift reaction will guarantee gaining superiority.

a. Panzer units in the front line:

56. If the enemy is promptly recognized, immediately attempt to bring all available armor-defeating weapons into action at effective ranges, firing while stationary.

57. If the range is too long, the front wave is to charge at high speed, utilizing all available cover to close within effective range of the enemy tank unit. Covering fire or a smoke screen is to be attempted by the medium Panzers. Simplify all movements to hasten the start of effective fire.

58. Let the enemy advance against our favorable firing positions.

59. In a frontal engagement, all Panzers in the forward **Panzer-Kompanien** with armor-defeating weapons move to locations where they can fire at the enemy. **M.G.-Pz.Kpfw.** provide security and reconnaissance. When both opponents engage in battle, **M.G.-Pz.Kpfw.** take full cover.

60. If the enemy advances against a flank, build the "**Reihe**" formation, turned toward the threatened side or advanced toward the flank. To present a smaller target, as soon as possible, from the "**Reihe**" formation, establish a front facing the enemy.

61. If the enemy has the advantage and opens effective fire first, units that find themselves without cover are to pull back, zigzagging, and seek firing positions in favorable terrain. Elements that aren't receiving enemy fire provide covering fire.

The battle is then conducted as related in Paragraphs 57 through 60.

62. Every Panzer that identifies enemy tanks is to give the established signal and direct the unit toward the threatened direction by corresponding actions (rapid fire or advancing toward the enemy).

The leader of the front unit immediately reports the enemy tank situation to the higher command by radio.

b. Panzer units in the rear of the first wave:

63. In general, rear units remain in the hands of the **Panzer-Kompanie** or **Panzer-Abteilung** commander. Rear units provide help by enveloping the enemy, extending the front, or compensating for reverses to the forward line.

64. Units closely following behind the front line may not hesitate to join in the battle independently. Waiting on orders costs too much time and can lead to destruction of the forward line. The **Panzer-Kompanie** commander must decide whether to reinforce or extend the front line, or to attack the enemy flank. The **Panzer-Kompanie** commander reports the selected action by radio to his commander and the commander of the forward line.

65. Rear units that identify enemy tanks on their flanks react the same as units in the front line. In addition, in this case, rear units are to react swiftly, give the established signal, and report the situation. Inform our own anti-tank unit.

c. Panzer units in the rear wave:

66. In most cases, Panzers in the rear waves will be committed in order to bring the tank battle to a decisive conclusion. Resolute command brings victory.

67. Units in the rear wave that identify enemy tanks on their flank react independently, the same as units in the front wave (Refer to Paragraph 65). Timely use of our anti-tank forces and artillery aids in maintaining the Panzers' mobility.

68. If enemy tanks are observed and orders aren't received, the **Panzer-Abteilung** commander makes the decision independently. They must attack when the enemy is so strong that the front wave is endangered if the rear wave is not committed.

69. In most cases, the rear waves attempt to flank the enemy. Exploiting speed and terrain, the attack is carried forward on a wide front against the deep flank of the enemy tank force.

70. The decision as to where to strike cannot wait for lengthy terrain scouting. Swift action is usually more decisive than an attack that is delayed awaiting lengthy scouting or delayed due to a long detour to gain an attack direction that is presumed to be especially favorable. Our own flanks must be especially protected during every flank attack.

Our Panzers Are Attacked by Enemy Tanks by Surprise

71. This case is the least favorable because the enemy surprisingly attacks when the attention of our Panzers is directed toward the accomplishment of their combat mission.

72. Many times, at least some elements of the enemy will take up covered positions and let our Panzers advance into his fire zone. These hidden elements can only be identified with difficulty. Because they are usually hull down, only the turret is seen and is difficult to hit.

73. When units find themselves in such a situation, it is usually better to pull back from the enemy's superior firepower - if possible under smoke screen from the medium Panzers - and advance against the enemy flank from the next available cover. If this is not possible, implement the same tactics described in Paragraph 61.

a. Panzer units in the front line:

74. Every Panzer positioned in cover or not receiving fire immediately opens fire to cover the enemy tanks and thereby make it possible for other Panzers to maneuver. Covering the enemy with smoke allows movement to the side and can be used to create a fire front in an unexpected location.

75. Continue the battle as related in Paragraphs 56 through 62.

b. Panzer units at the rear of the first wave:

76. Rear units that are attacked by surprise react the same way as the forward units.

77. Directly opposing, frontally attacking enemy are engaged the same as related in Paragraphs 63 through 65. Maximum speed is demanded to relieve the forward line.

78. It is especially important to swiftly identify and subdue enemy elements that are firing from hidden positions. Request artillery support from the forward observer.

c. Panzer units in rear wave:

79. If they themselves are attacked, elements in the rear wave react the same as the first wave.

80. If the front wave is attacked, the commander of the rear wave decides if, which elements, and in which direction his units should attack. Employment of these elements follows the tactics described in Paragraphs 66 through 70. Commitment of the **mittlere Panzer-Kompanie** is urgent.

Our Panzers Conduct a Surprise Attack Against the Enemy

81. Surprise is an essential prerequisite for success. Surprise can be achieved only through good camouflage, good combat reconnaissance, and good contact with reconnaissance units, especially aircraft.

82. The troops must be trained to rapidly deploy into commanding positions from an advancing formation and surprise the enemy with aimed fire. The correct choice of hidden or hull-down positions is to be carefully practiced. Every Panzer

commander and driver are to be taught to read the terrain during individual instruction.

83. Fire control is based on determination of the range, fire distribution or concentration, and above all, the moment for opening fire. Surprise attacks are to be carefully practiced.

84. Essential combat principles are:

- Tie down the enemy front from hidden or hull-down positions,
- Choose alternate positions in case of effective enemy fire,
- Lead the reserves to attack the flanks,
- Pursue until the opponent is destroyed.

85. Employing Panzers in a counterattack is executed from the same point of view as the principles for tank versus tank combat. The fire front can often be built or in all cases can be reinforced by anti-tank units.

Coordination with Other Arms in the Tank Battle

86. As far as possible, all other weapons have to support the battle of their own Panzers.

87. Infantry provide support by observation and reconnaissance. Motorized infantry remain under cover in the area of the tank battle. Other elements, including the heavy infantry weapons, engage identified enemy anti-tank weapons.

88. The main part of the anti-tank weapons should face toward the enemy tanks. Elements should secure the flanks of our own Panzers against tanks and anti-tank guns.

89. Artillery take enemy tanks under concentrated fire. Especially suitable are terrain features that constrict the tanks' movement, such as gaps between woods that they must pass through or obstacles on which tanks will be delayed. The artillery pins down identified enemy anti-tank guns and hinders the employment of new anti-tank units.

90. The combat engineers can achieve surprising results by swiftly laying mine barriers.

91. Aircraft scout for enemy tank forces and warn their own Panzer units. They report by radio and signal the direction of attack and strength of the identified enemy tanks.

10

Fall Weiss - 1 September 1939

Germany attacked Poland on 1 September 1939 as laid out in plans codenamed "**Fall Weiss.**" As shown in the order of battle, the seven **Panzer-Divisions**, four **leichte-Divisions** and two independent **Panzer-Abteilung** were dispersed across five armies. The actual strength of each Panzer unit on the first day of the war is shown in the Organization and Strength diagram. Upon being activated for war, each **Panzer-Abteilung** had left one **leichte-Panzer-Kompanie** behind in newly formed reserve **Panzer-Ersatz-Abteilungen** (Panzer replacement battalions). At this time the standard organization of an activated **Panzer-Abteilung** was three **Panzer-Kompanien**.

The number of Panzers available in the entire German army on 1 September 1939 was:

	Pz.I	Pz.II	Pz.35t	Pz.38t	Pz.III	Pz.IV	Pz.Bef.
Total Inventory:	1445	1223	202	78	98	211	215
With the **Feldheer**:	1026	1151	164	57	87	197	177
With the **Ersatzheer**:	260	67	34	5	11	11	20

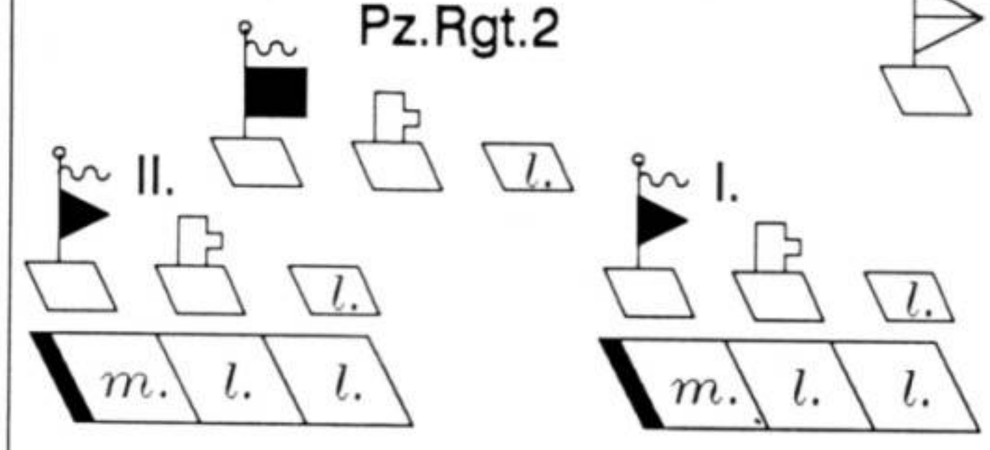
Pz.Kpfw.L.T.M.38 of the **2.Kompanie/Panzer-Abteilung 67** being moved to the staging area on 20 August 1939. (WJS)

Pz.Kpfw.IIs and **Pz.Kpfw.Is** prepare to leave Gross Born. (WR)

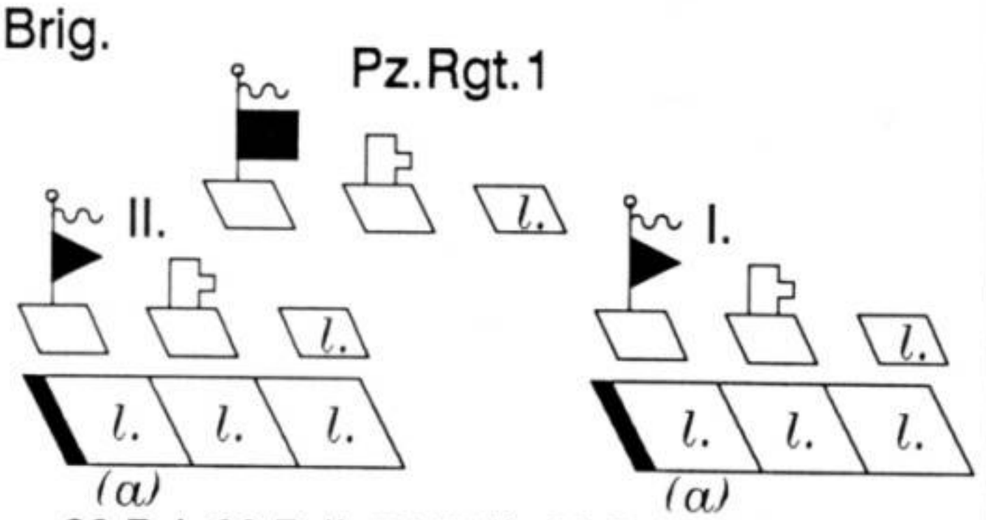
A column of **Pz.Kpfw.Is** and **Pz.Kpfw.IIs** from **Panzer-Regiment 7** in Poland. The white identification cross was normally painted on the turret front, not the superstructure front. (WR)

ORGANIZATION AND STRENGTH OF PANZER UNITS
FALL WEISS - 1 SEPTEMBER 1939

1.Panzer-Division

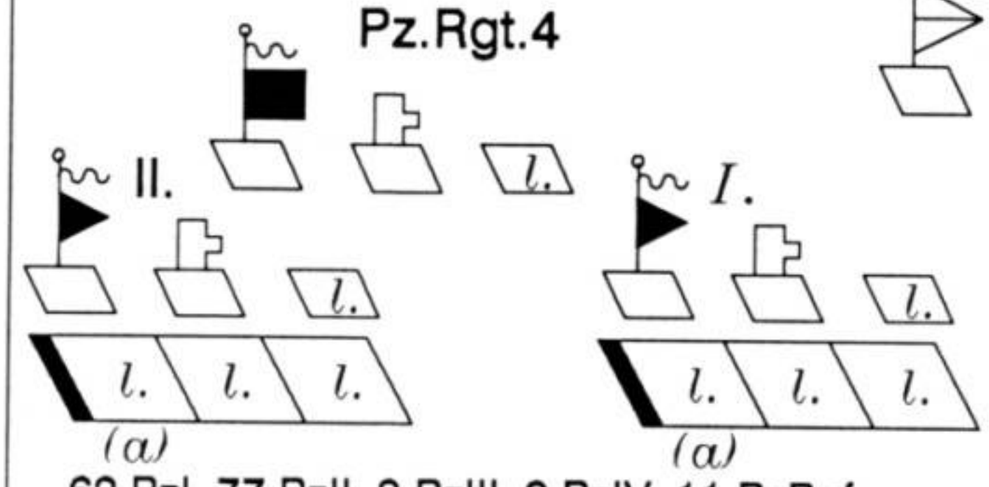


54 PzI, 62 PzII, 6 PzIII, 28 PzIV, 6 PzBef

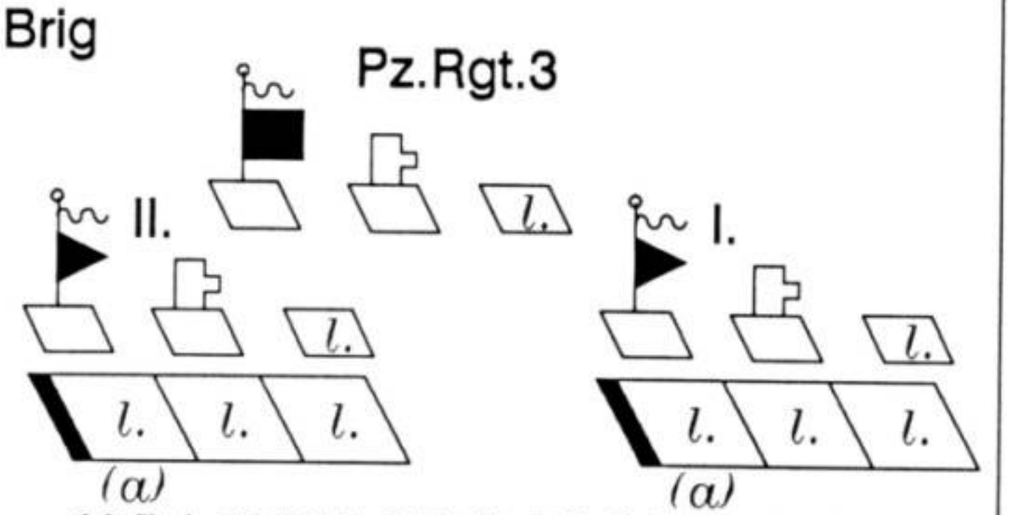


39 PzI, 60 PzII, 20 PzIII, 28 PzIV, 6 PzBef

2.Panzer-Division



62 PzI, 77 PzII, 3 PzIII, 9 PzIV, 11 PzBef



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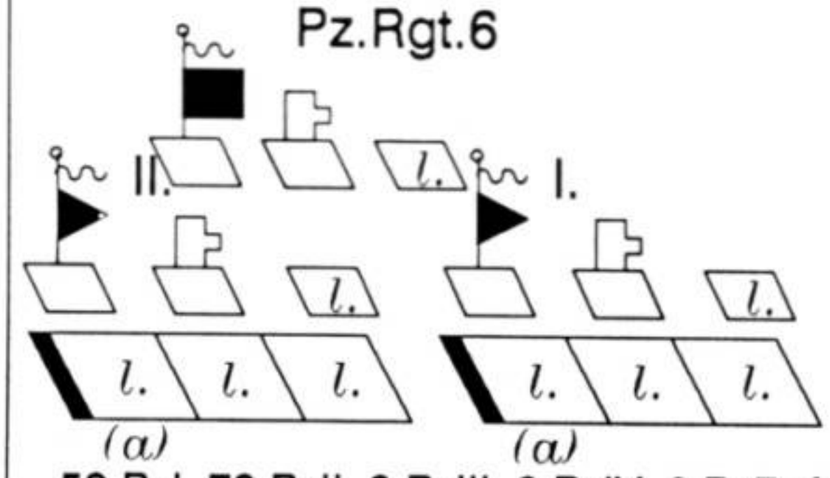
3.Panzer-Division



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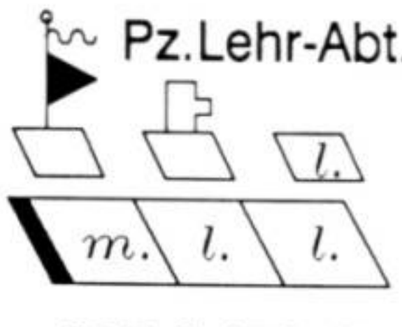
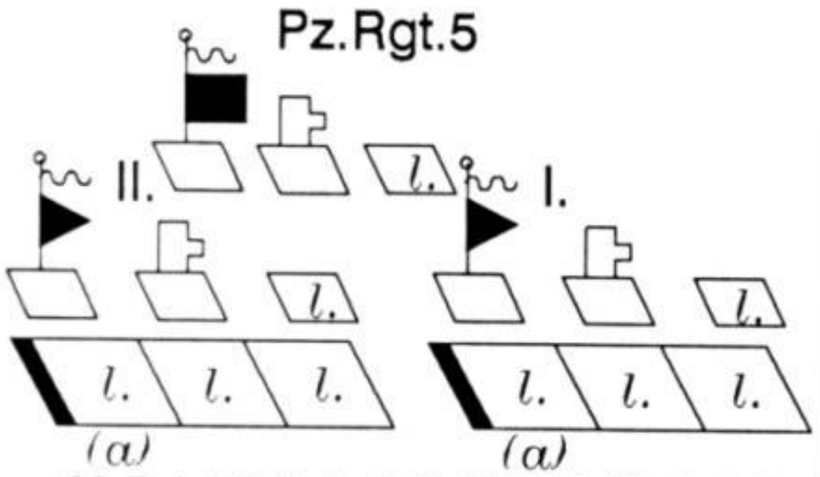
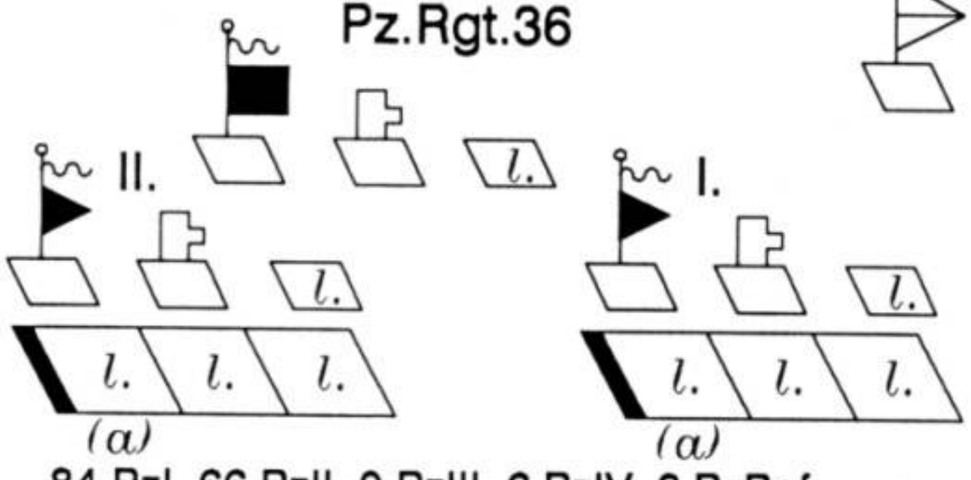


20 PzII, 37 PzIII,
14 PzIV, 2 PzBef



63 PzI, 77 PzII, 3 PzIII, 9 PzIV, 8 PzBef

4.Panzer-Division



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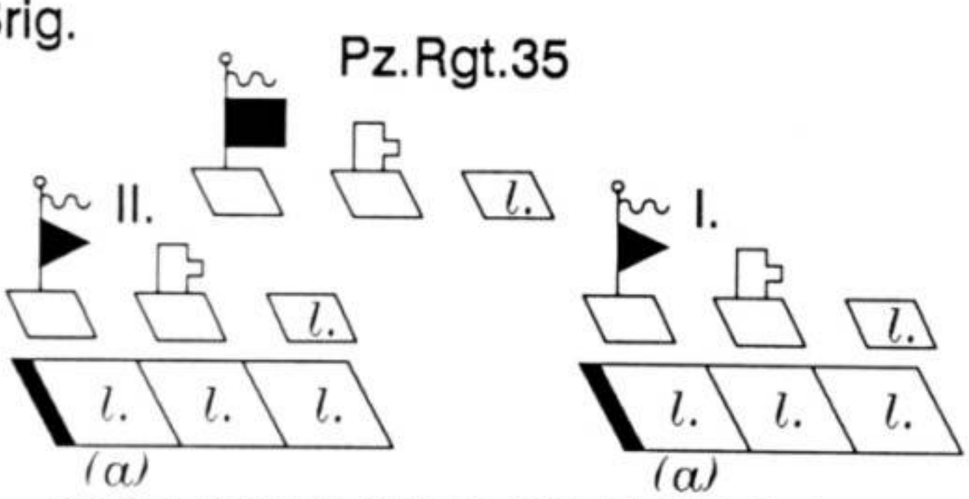
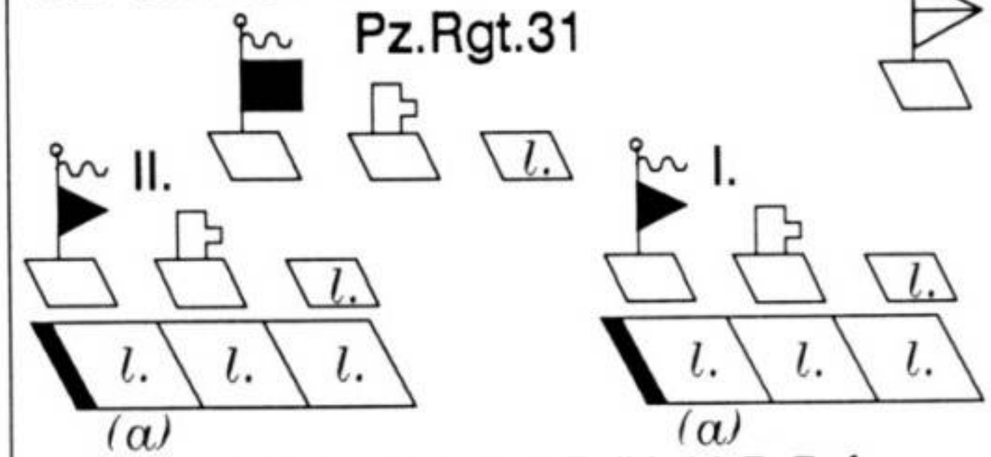


99 PzI, 64 PzII, 0 PzIII, 6 PzIV, 8 PzBef

ORGANIZATION AND STRENGTH OF PANZER UNITS
FALL WEISS - 1 SEPTEMBER 1939

5.Panzer-Division



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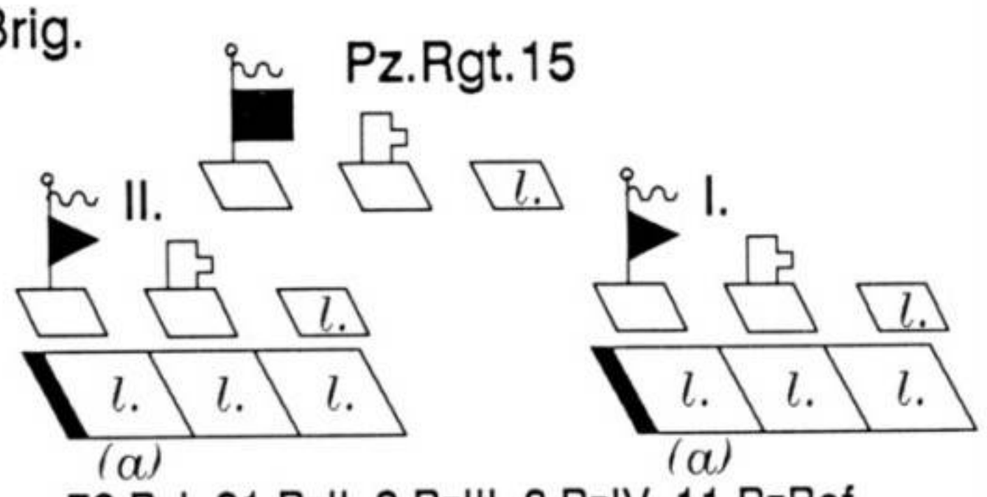
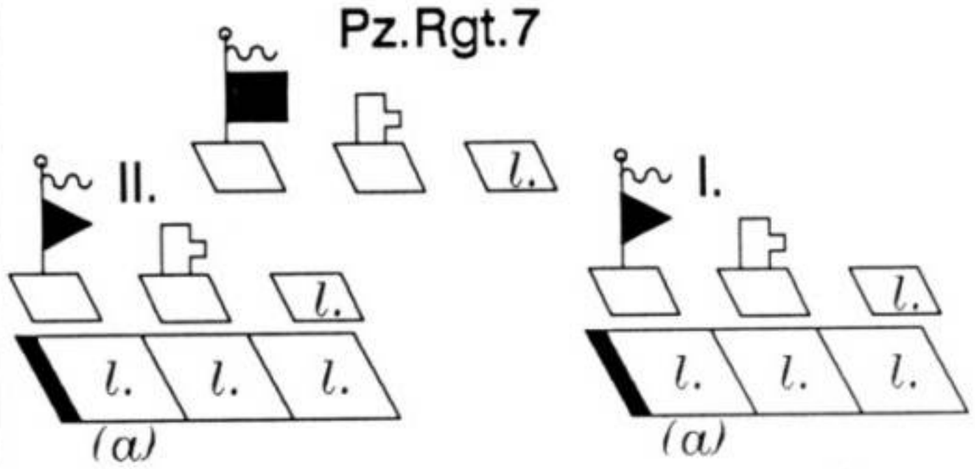


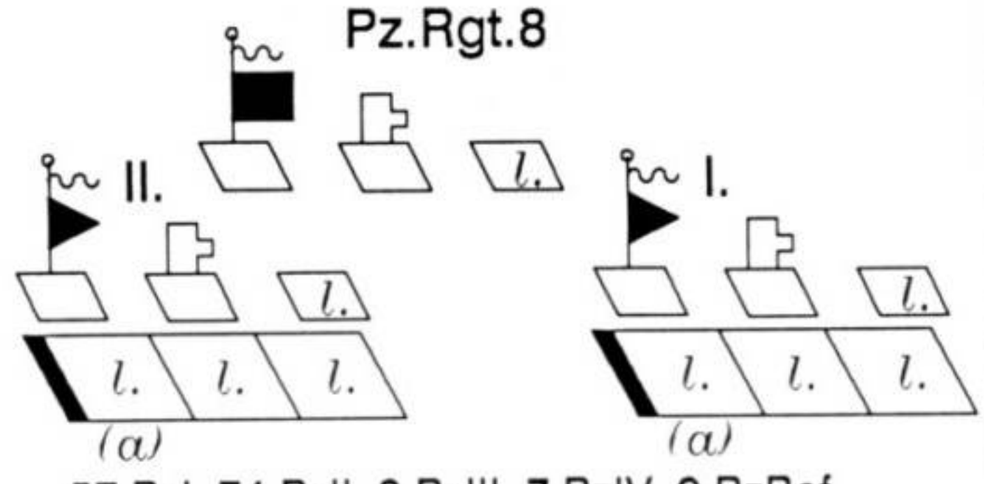
72 PzI, 81 PzII, 3 PzIII, 8 PzIV, 11 PzBef

Panzer-Division Kempf



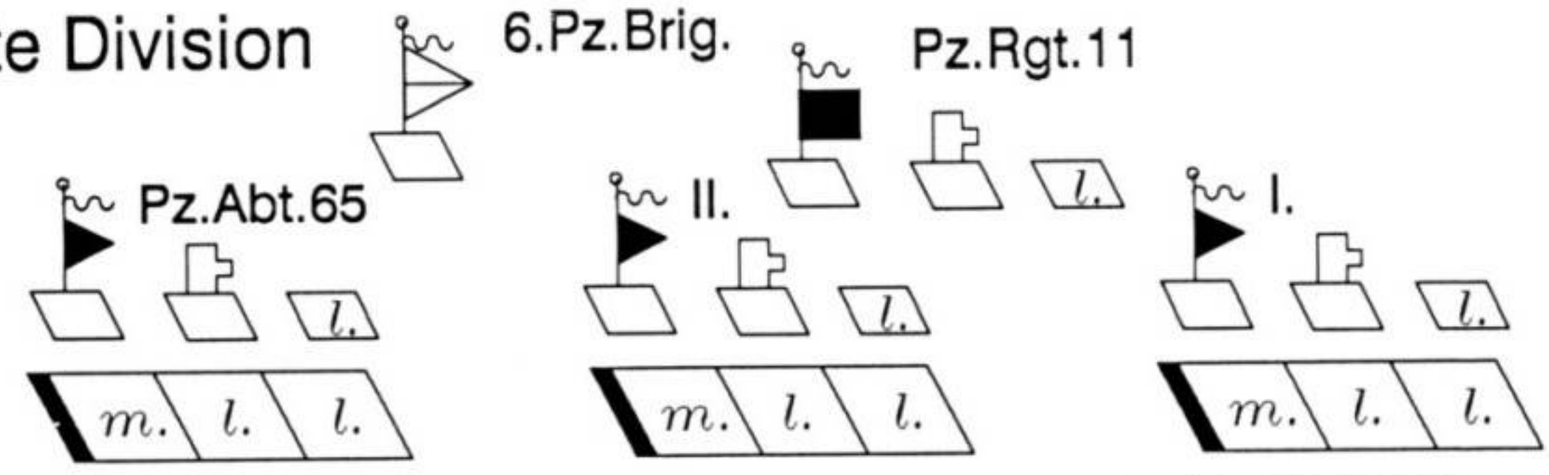
61 PzI, 81 PzII, 3 PzIII, 9 PzIV, 10 PzBef

10.Panzer-Division



57 PzI, 74 PzII, 3 PzIII, 7 PzIV, 9 PzBef

1. leichte Division



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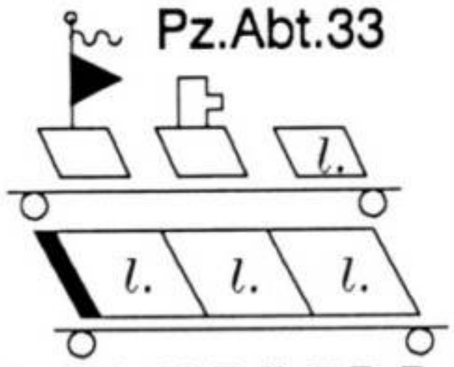
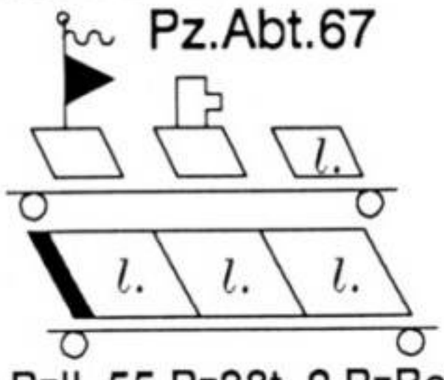
45 PzII, 75 Pz35t, 27 PzIV, 6 PzBef35t

4.leichte Division



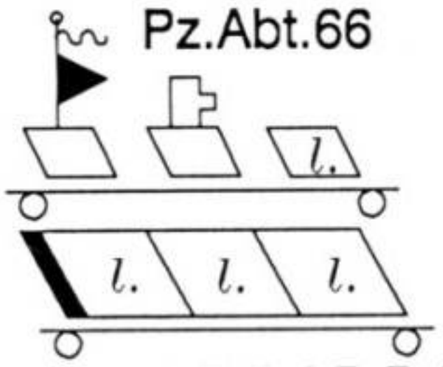
34 PzI, 23 PzII, 5 PzBef

3.leichte Division



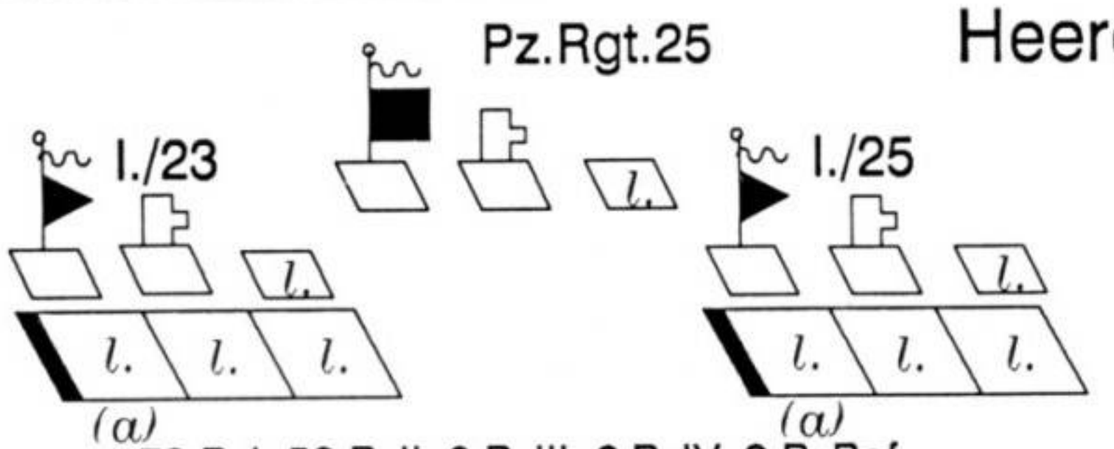
23 PzII, 55 Pz38t, 2 PzBef38t

2.leichte Division

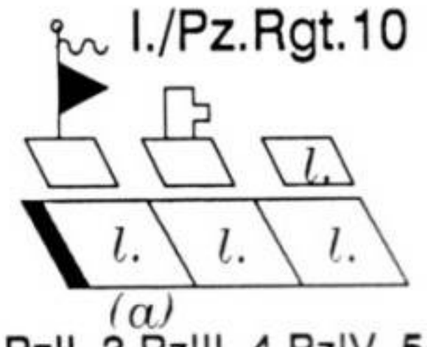


41 PzI, 42 PzII, 2 PzBef

Heeres Truppen

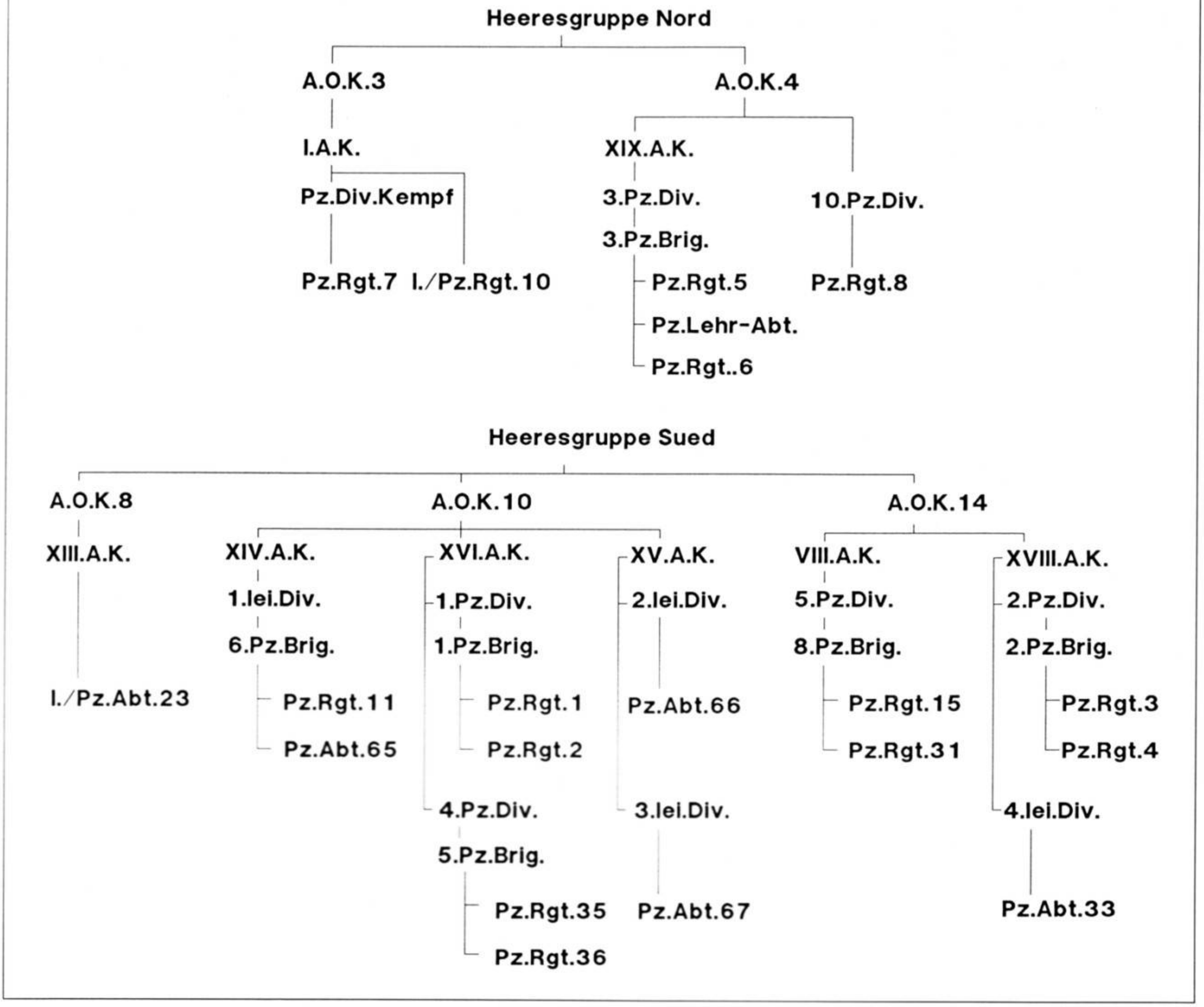


78 PzI, 58 PzII, 0 PzIII, 6 PzIV, 9 PzBef



28 PzI, 34 PzII, 3 PzIII, 4 PzIV, 5 PzBef

ORDER OF BATTLE 1 SEPTEMBER 1939



The rest of the Panzers, those that were not with the activated Panzer units in the **Feldheer** or with reserve, training, or experimenting units in the **Ersatzheer**, were in a **Heeres Zeugamt** (army ordnance depot). As ordered by the **Chef Generalstab des Heeres** on 10 September 1939, replacement Panzers from new acquisition or repaired in Germany were no longer to be sent to Poland. Based on the inventory available in the **Heeres Zeugamt** reported on 27 September 1939, no replacement Panzers had been sent to Poland.

Because very few **Pz.Kpfw.III** were available, some units, like **Panzer-Regiment 35** and **36** in the **4.Panzer-Division**, didn't possess a single one. The **Pz.Kpfw.I** and **Pz.Kpfw.II** bore the brunt of the fighting supported by the **Pz.Kpfw.IV**. Their success and problems that were encountered are related in the following excerpts from combat and experience reports written during or directly following the campaign.

On the opening day **Panzer-Regiment 7** supported an infantry attack on the fortifications north of Mlawa. As recorded in the war diary of the **I.Armee-Korps**:

*The attack by **Panzer-Regiment 7** surprisingly ran onto a barricade constructed from railroad tracks. This barricade had not appeared on the aerial photographs and therefore was unknown. Several Panzers remained hung up in this barricade. Fired on by the defenders, the **Panzer-Abteilungen** turned west, losing additional Panzers while driving along the barrier trying to find a gap. This attempt failed. Since losses were increasing, **Panzer-Regiment 7** had*

pulled back and assembled in a wood-lot by 1545 hours. This resulted in the infantry attack being left pinned down under enemy fire.

At 1645 hours, ***Armee Oberkommando 3*** *was briefed on how the Panzer attack had gone. At 1830 hours,* ***Panzer-Division Kempf*** *reported: "The attack was a disaster. Terrible losses of Panzers, number unknown. An attack here is hopeless."*

A total of 72 Panzers were reported as having been lost at Mlawa out of 164 Panzers with which **Panzer-Regiment 7** started the campaign. However, the battle at Mlawa was an exception. The rest of the Panzer units quickly overwhelmed any resistance near the border and pushed forward.

Possessing only four battalions of gun-armed tanks, the Poles relied mainly upon anti-tank guns to stop the Panzers. Encountering anti-tank guns early in the campaign, **Panzer-Regiment 4** related in their war diary:

At 0800 hours on 2 September the Regiment started to attack. While advancing, anti-tank gun and machine gun fire was received from the heights of Wysoka. The ***II.Abteilung*** *was sent to the right beside the* ***I.Abteilung*** *and the heights were attacked on a wide front. At the same time, Point 365 was knocked out by well-placed fire from the* ***Pz.Kpfw.IV****s. The Regiment managed to subdue the anti-tank defense (6 Bofors guns) and gained the Wysoka heights without substantial losses. The enemy artillery fire hitting the Regiment was stopped by knocking out the artillery observer in a house on Point 539. The very flexible and exact fire from the* ***Pz.Kpfw.IV*** *deserved special recognition.*

The advance of the Panzer units continued at a fast pace. Fighting during this period of the campaign is typified by the following account of the **5.Kompanie/Panzer-Regiment 4** of combat at Zabno and Olesno on 8 September 1939:

Orders: Cross the Dunajec at Tarnow and advance northwest to the Biscupice - Zabno area. Destroy any enemy found there in order to relieve our troops fighting on the west bank of the Dunajec at Biscupice.

The ***Kradschuetzen-Kompanie Weike*** *(motorcycle company) of* ***Aufklaerung-Abteilung 5*** *joined up with the Panzers about 2 kilometers south of Zabno. Directly after passing through Zabno, heading north, the point reported: "Enemy column moving from west to east." The* ***Panzer-Kompanie*** *immediately attacked from the march and destroyed the enemy within several minutes. As soon as they spotted the Panzer attack, the Poles brought several machine guns and two infantry guns into position. The motorcycle company quickly followed the Panzers, but didn't get into action due to the swiftness of the Panzer attack. Covered by the Panzers, the motorcycle company gathered up the rest of the defeated enemy. The enemy unit had been a reinforced Polish heavy machine gun company. Fourteen heavy machine guns, horses, combat vehicles, and 40 to 50 prisoners were captured without suffering any losses.*

Since ***Aufklaerung-Abteilung 5*** *was still far behind, Oberleutnant Gomille and Weike decided to take and occupy the bridge over the canal 300 meters east of Targowisko to prevent the enemy from using the bridge. There they received orders to advance to Olesno and proceeded in the following formation: one* ***Pz.Kpfw.IV*** *platoon, one motorcycle platoon, the rest of the* ***Panzer-Kompanie****, the rest of the motorcycle company. They arrived at the southeast entrance to Olesno about 800 meters west of the church at 1300 hours.*

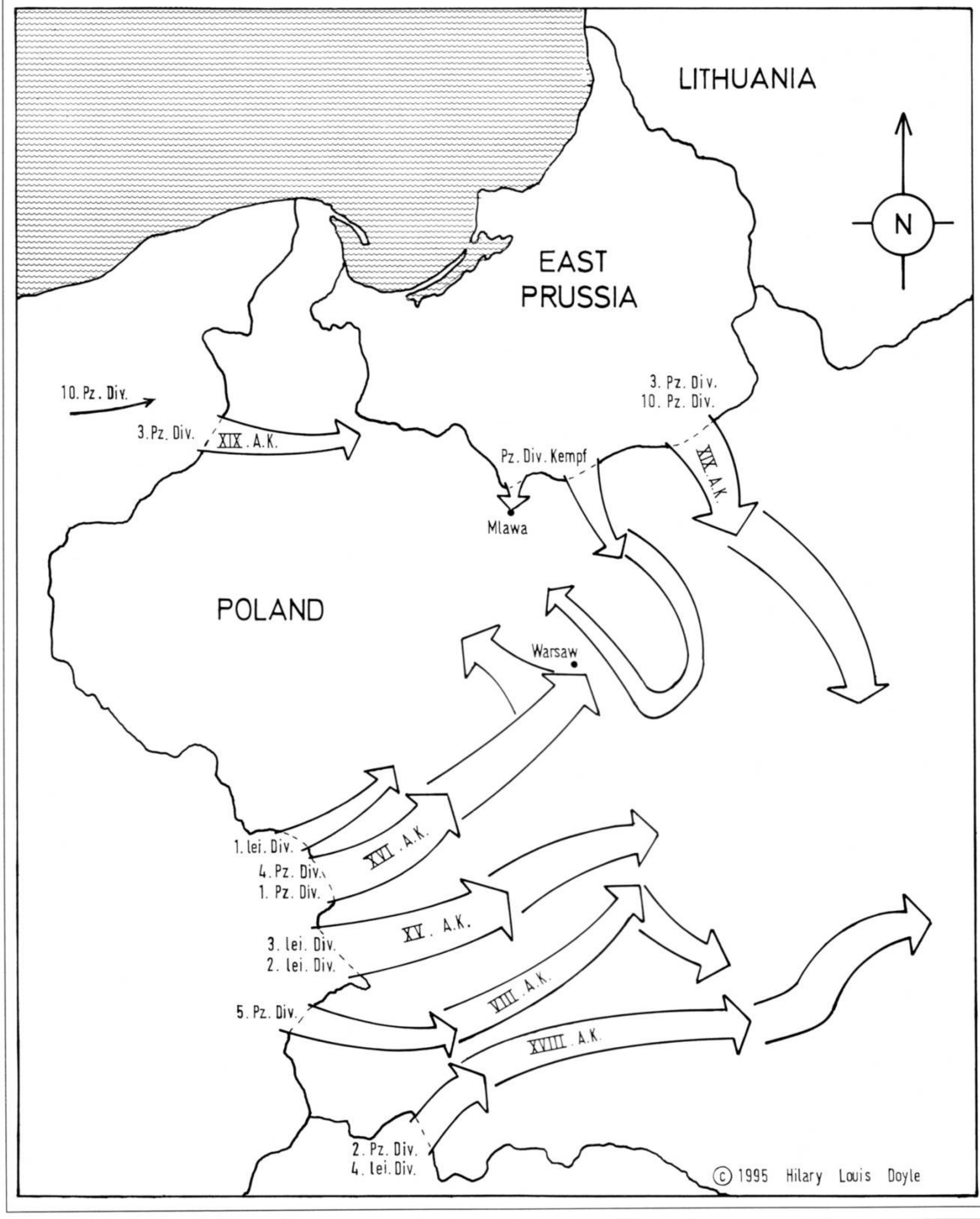
Following radioed orders, the point platoon advanced up to the crossing on the rail line 800 meters east of the Olesno church, while the rest of the Panzer and motorcycle companies attempted to break into the village from the south and west. As soon as Panzers appeared, Clerics disappeared into the church. Signals were immediately observed from the church tower. Then machine guns opened fire on us, quickly followed by artillery fire. The observers in the church tower were immediately knocked out of action by two 7.5 cm shells.

At the same time, the ***Pz.Kpfw.IV*** *platoon spotted a reinforced enemy battery that was trying to get into action. A 15.5 cm howitzer and a 7.5 cm field gun were already firing. The* ***Pz.Kpfw.IVs*** *immediate attack completely destroyed the enemy within moments. The enemy wreckage lay in a 400-meter-long stretch. Without suffering any loss, two 7.5 cm field guns, two 15.5 cm howitzers, machine guns, anti-tank rifles, 160 horses, a large number of prisoners including a major and first lieutenant were captured.*

The first unit to reach Warsaw, **Panzer-Regiment 35** attempted to take the city. Repulsed, they then encountered significant problems holding off the "surrounded" infantry divisions as related by the following excerpts from the **Panzer-Regiment 35** war diary:

At dawn, the attack order went out to advance on Warsaw. It was 9 September 1939. The regimental commander ordered the ***I.Abteilung*** *with supporting infantry to enter the city. The* ***II.Abteilung*** *was to remain in reserve to break through the next defensive position encountered. The attack was supported by strong artillery fire on the south and southwest part of the city where it was expected that the enemy had moved in with stronger forces since yesterday.*

After artillery fire hit the city, at 0700 hours the I.Abteilung advanced to the assault. The mounted motorized infantry followed closely. The Panzers advanced unhindered over the road bridge but then the city defended itself with the courage of the desperate. In cooperation with the combat engineers, the first barricade was crossed and cleared away. Then a second barricade fell. But then the attack halted under anti-tank gun fire. The motorized infantry didn't follow. Their advance was prevented by machine gun fire spitting flat along the ground and hand grenades thrown from basements and upper floors. The enveloping dust made it difficult to maintain contact.


LITHUANIA
N
EAST
PRUSSIA
10. Pz. Div.
3. Pz. Div.
XIX. A.K.
Pz. Div. Kempf
Mlawa
3. Pz. Div.
10. Pz. Div.
XIX. A.K.
POLAND
Warsaw
1. lei. Div.
4. Pz. Div.
1. Pz. Div.
XVI. A.K.
XV. A.K.
3. lei. Div.
2. lei. Div.
5. Pz. Div.
VIII. A.K.
XVIII. A.K.
2. Pz. Div.
4. lei. Div.
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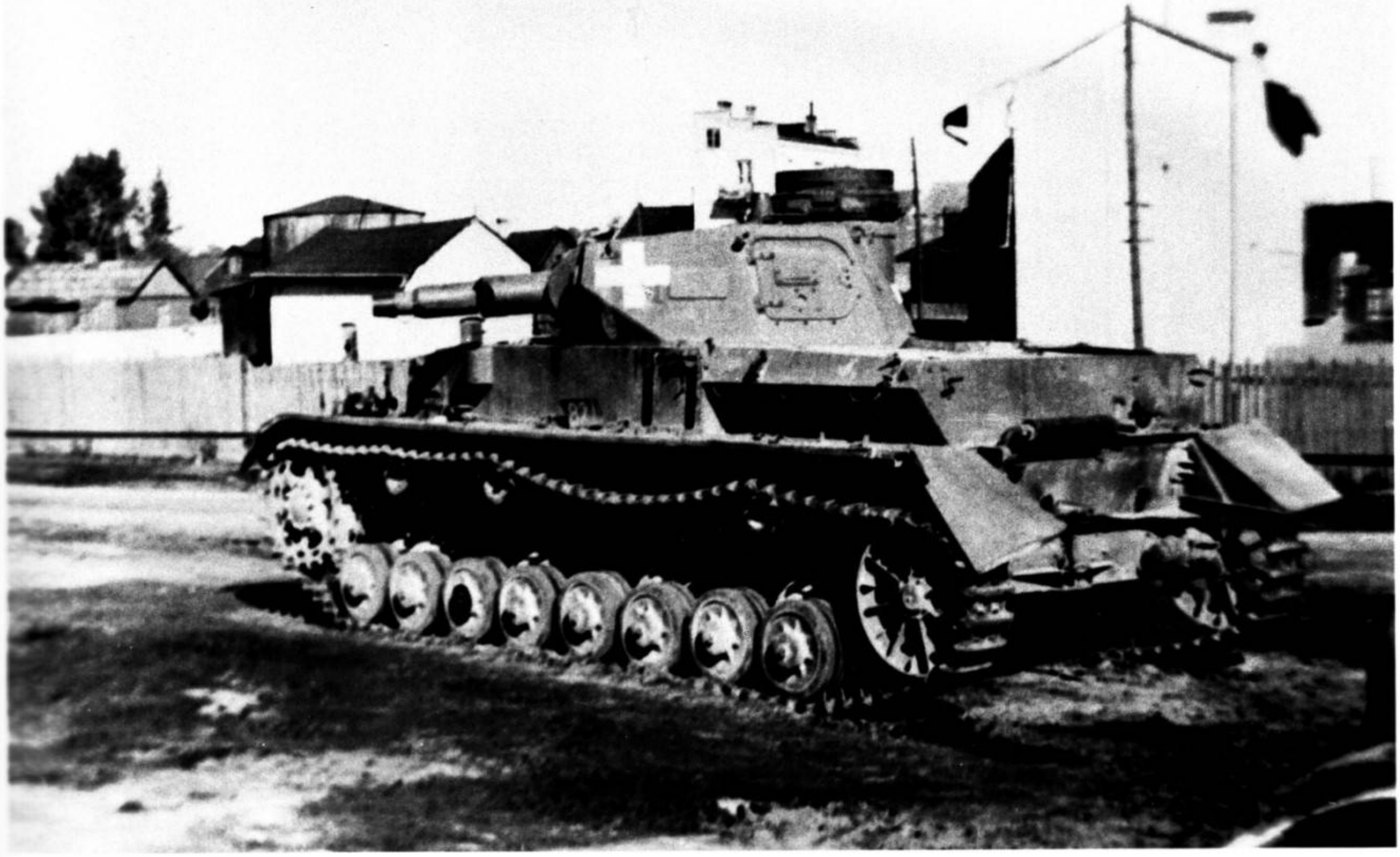
With two platoons on the left of the main street, Leutnant Esser managed to advance through side roads and gardens to the rail line. But his attempt was stopped by Polish anti-tank guns. After his radio was hit, Feldwebel Ziegler took command of the remaining Panzers. He almost reached the main train station and then had to turn back.

Fighting alone, Leutnant Lange got through to the enemy artillery. He also didn't have infantry support. Running underneath his fire, brave Poles threw prepared explosive charges against the tracks which tore off a wheel. The turret couldn't traverse. It had been jammed by a section of falling wall. Nothing remained except to fight his way back.

Leutnant Claas, the commander of the lead company, attacked along the main street. His Panzer was hit by an exceptionally well camouflaged gun on the right side of the road. The driver wanted to turn back, but Leutnant Claas ordered him to drive further. The next hit set the Panzer on fire. Claas and his radio operator managed to get out but were then both severely wounded. Oberleutnant Guderian's Panzer was immobilized by the same gun. Guderian jumped out and entered a garden through a courtyard door. There he found the Panzer of Leutnant von Diergardt. He advanced with this Panzer and an attached platoon of motorized infantry. Later, after the order to disengage was given, he ensured an orderly retirement.

*At about 0900 hours, the regimental commander drove back and ordered the **II.Abteilung** to advance to the right of the main street. It appeared to him that the opponent's defense was less organized there. At first the **II.Abteilung** managed to make a significant advance. Cabbage fields and fences were overrun. The Panzers climbed over abandoned defenses. Then a park was encountered that established the limit of their advance. Following the Panzers, mounted motorized infantry received strong machine gun and rifle fire from the tall buildings to their left and from the edge of the park. They had to swiftly dismount and were forced to take cover. The vehicles went up in flames. The **II.Abteilung** advanced toward the park and was repulsed by anti-tank fire. The Panzer of Oberleutnant Morgenroth, commander of the **8.Kompanie**, was knocked out by anti-tank gun fire. He climbed into another Panzer and within minutes was killed by another hit. Two platoons charged into the woods to clear out the enemy. Only three Panzers came back.*

*About 1100 hours, the order was given to fall back. Hauptmann von Laucher had contacted the **II.Abteilung** commander by radio from the Brigade. The Panzer of the regimental commander had ran over a mine without any of the crew being wounded. The first Panzers drove back to the assembly point. At first the number was frighteningly low, but during the afternoon it grew to 91 Panzers, of which only 57*



A **Pz.Kpfw.IV** from the **8.Kompanie/Panzer-Regiment 35** that has been damaged. The 3rd return roller and the exhaust muffler are missing. (KHM)

*were combat operational. Only a single **Pz.Kpfw.IV** remained operational in the regiment. The regimental commander noted in the combat report that overhaul of the Panzers was urgently needed by bringing up the trains and maintenance company.*

During the afternoon, additional men assembled at the regiment. Among others, having fought his way back through the Polish lines Leutnant Reibig, who had been missing since his Panzer had been shot up, reappeared.

The combat spirit of the troops was unshaken even though the attack on the city was repulsed by the Poles. Everyone knew that time worked for us. Their resistance can't last long after the other divisions arrive. Anger over the repulsed attack was relieved in independent actions. In the afternoon, Leutnant Rauschenbach captured the crew of a machine gun that had continually fired on rear elements. Under enemy fire, Oberleutnant Rachfall blew up mines that had created a barrier during the morning. It was then possible to retrieve a Panzer that had stood surrounded by mines. A further Panzer, a car, and a motorcycle were towed back to our lines.

*Losses to **Panzer-Regiment 35** from this attack amounted to 8 dead and 15 wounded. Only 57 were combat operational out of the 120 Panzers that started in the morning. Thirty Panzers remained lost.*

At 1700 hours, the first section of the regiment disengaged from the enemy and pulled back to Opacz where men and material could rest and refit. The first chapter of the Polish campaign came to a close. Within 8 days, the division had covered 400 kilometers, mostly over unbelievably bad roads, defeated the enemy wherever he was met, and were the first to reach Warsaw the heart of the enemy country.

*The regiment was relatively well quartered at Opacz. On the morning of **10 September** all energy was directed toward repairing the vehicles to exploit the promised rest period.*

*At 1300 hours, the Regiment advanced to arrive at and set up a defense along a line from the Osiedle crossroads south to Wawrzyszew-Gorce-Blizne. The **I.Abteilung** was given the left sector, the **II.Abteilung** the right sector so that units were positioned as follows: The regiment headquarters was at the south fork of the crossroads in Osiedle, **I.Abteilung** headquarters, **2.Kompanie** and **4.Kompanie** on the north edge of Osiedle, **1.Kompanie** at first on the west edge of Wawrzyszew, later at the traffic circle south of Wawrzyszew, **8.Kompanie** in the artillery barracks on the eastern exit from Osiedle, **6.Kompanie** on the crossroads west of Gorce, **5.Kompanie** in Groty, and the **II.Abteilung** headquarters in Blizne.*

*In the early afternoon, two Panzers of the **5.Kompanie** fell into enemy hands during the first combat activity. A platoon of the **5.Kompanie** had been sent on reconnaissance along the road toward Warsaw. It encountered a barricade and two Panzers were knocked out that had gone too far forward. The rest returned. Leutnant Malguth wanted to use the entire company to capture the barricade in order to retrieve the Panzers. However, the **Abteilung** commander ordered them back to the defense line so that additional Panzers wouldn't be gambled because the regiment strength was already low.*

During the night, led by Leutnant Malguth an assault troop attempt didn't achieve the desired results. As later determined after the occupation of Warsaw, both Panzers had driven too close to the barricade and were eliminated by direct hits from artillery. One of the crew later died in a Polish hospital. Another crew member returned to the regiment after Warsaw surrendered.

*Toward evening two additional Panzers were lost. Disregarding their ordered assignment, the **1.Kompanie** advanced up to the western edge of Warwyszew because they couldn't observe anything from the crossroads. Shortly after they arrived, Poles attempted to sneak through to Warsaw in troops of 20 to 30 men. Several machine gun rounds convinced them to throw away their weapons and approach with hands in the air. Directly after being searched for the last bullet, the Poles were sent back west, scared off by sharp commands. In this pressing situation no one could be spared to guard prisoners. A mountain of rifles, machine gun ammunition, an anti-aircraft gun, and a cannon were captured.*

*At sundown the platoon leader briefed the men on their disposition for the night. A Leutnant from **Panzer-Regiment 36** appeared from the west with about 200 prisoners. He ordered that they be disarmed. At the same time, five Panzers drove up from the east, where an anti-tank unit was supposed to be defending. For a moment confusion reigned. Are they ours or are they enemy vehicles? Then 3,7 cm shells rained down on the defending platoon. Two Panzers were immobilized by hits. Two other Panzers drove into the graveyard. The rest of the **1.Kompanie** pulled back. The Leutnant from **Panzer-Regiment 36** was killed.*

*The **Abteilung** commander himself led an assault troop to retrieve the Panzers during the night, but only managed to bring one back. During the following morning another was retrieved. Two other Panzers had been taken away by the opponent during the night.*

*11 September 1939 passed quietly other than continuous fire-fights by the **5.Kompanie** and **8.Kompanie** in their exposed positions. The defenders on the north edge of Osiedle were pulled back during the evening, because a deserter stated that a Polish attack was expected during the night and at dawn. Every man was employed to strengthen the weak line. Still, the night passed quietly.*

*However, a heavy trial occurred on 12 September. At first, trucks from a Panzer platoon were missing. Then a major part of a Polish division attacked the **Leibstandarte**. This attack was only stopped with great effort after the defenders had been forced back. At the same time, **Infanterie-Regiment 82** was attacked by Poles from Warsaw. The enemy penetrated as far as the regimental command post before being brought to a halt. Then a report came in that the commander of the combat trains, Hauptmann Schell, had captured seven Polish tanks. This was an indication that even in the rear strong fragments of Polish troops recognized that their time was up and picked up the courage to take action.*

Pz.Kpfw.IIs from **Panzer-Regiment 35** in Poland. The white identification crosses are painted on all four turret sides. (KHM)

At 0430 hours on 13 September, the regiment moved to Strzykuly to prepare for an attack together with the ***Leibstandarte*** *that afternoon toward the west. 14 and 15 September were rest days.*

At 0500 hours on 16 September, the regiment moved off (to attack across the Bzura). The commander drove forward to scout crossing points. The Panzers crept down the steep bank and waded through the shallow water. On the far bank they took up positions prepared to continue the attack. An infantry company crossed over the foot bridge and surrounded the Panzers on both the right and left. The attack was to start at 0700 hours. Still no orders came at 0800 or at 0900. It began to rain lightly. Here and there a shot cracked, breaking the silence. Then at 1100 hours, the unnerving waiting time was over. The men's spirits picked up. They talked about the division being pulled out and transported back home for refurbishing after a successful attack. The regiment started to move. The ***I.Abteilung*** *attacked left of Borki and north of Zukowka past Bibijampo to reach the road from Mlodzieszyn to Ruszki. The regimental headquarters followed the* ***I.Abteilung****. With the same objective, the* ***II.Abteilung*** *attacked out of the southern part of Zukowka and further west. The infantry followed behind. The attack of the* ***I.Abteilung*** *advanced well. The enemy in Bibijampo suffered heavy losses, partially from artillery fire, partially from Panzers. After the drive through Juljopol, two guns were captured. Already arriving at the line Mlodzieszyn-Ruszki by 1230 hours, the Abteilung destroyed fleeing enemy columns and a bicycle company. Two companies from the* ***II.Batallion/Leibstandarte Adolf Hitler*** *and the* ***5.Kompanie/Schuetzen-Regiment 12*** *were at the front. They held the captured territory in cooperation with the Panzers.*

At first the ***II.Abteilung*** *ran into strong enemy forces near Adamowa and inflicted heavy losses. But, hidden in small wood-lots, enemy anti-tank guns almost completely wiped out the* ***6.Kompanie****. Leutnant von Cossel was severely wounded when hit in the throat as he looked out of his Panzer to orient himself. The* ***II.Abteilung*** *didn't reach their objective until 1400 hours.*

After the first fright caused by the Panzer attack had subsided, the will to break out to the east again governed the enemy. Brave attacks by a large number of Poles attempted to throw the Germans back. The chances were good. The attack was carried forward in a narrow wedge. Elements of the ***1.Panzer-Division*** *that were to meet up with the regiment at Ruszki never appeared. Apparently, they had equally stubborn opponents facing them.*

The ***I.Abteilung*** *was forced to leave Ruszki after suffering heavy losses caused by concentrated enemy artillery fire. One could clearly hear machine gun and rifle fire deep in the*

A **Panzerbefehlswagen Ausf.D** being refueled. (WS)

right and left flanks. Those that were in front had an unpleasant feeling that they were already cut off. Could these flank attacks be stopped? Ammunition in the Panzers was low. The requested artillery support didn't occur. Contact with the division was lost. Artillery struck the regiment from north and south. The Panzers drove behind straw stacks in an attempt to exploit even the smallest bit of cover. New masses of enemy gathering at Ruszki were observed through the sights. Machine guns hammered across. From somewhere came the answer. The bullets ricocheted off stone piles and the road.

Desperate enemy attacks were broken up by the infantry and Panzers again and again. After three hours, at about 1700 hours, the order to retreat was received by radio. The infantry disengaged from the enemy under covering fire from the Panzers. The captured guns were blown up.

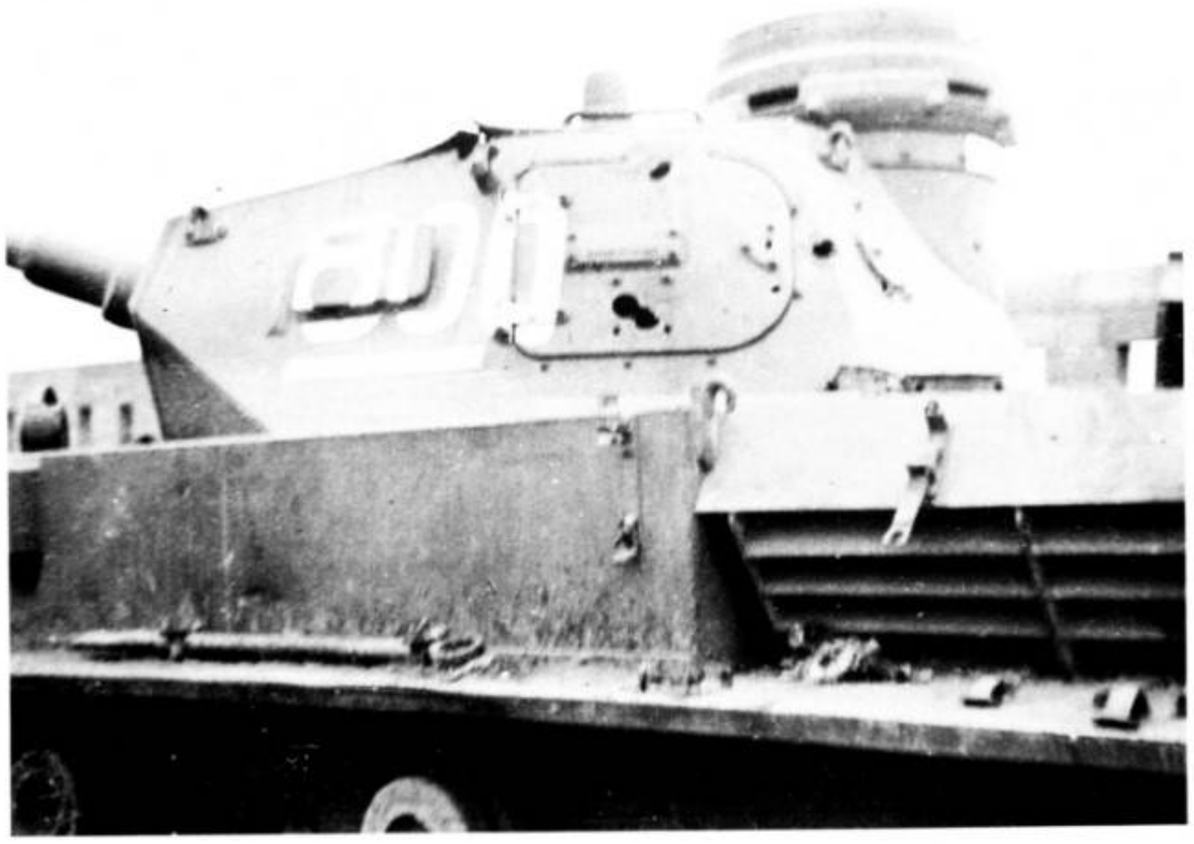
While driving through Juljopol, the regimental headquarters and ***I.Abteilung*** *were fired on from the north side of the village. The delay between the gun being fired and the shell detonating was very short. But, the gun still couldn't be found. Houses began to burn. Since everyone else had already pulled back, the motorcyclist and Panzers pulled out of this boiling witches' cauldron across the fields toward Bibijampo.*

This day had cost ***Panzer-Regiment 35*** *significant losses, 16 dead, 19 wounded, 14 missing in action, and 23 Panzers. The regiment still had about 65 combat-operational Panzers.*

During the early morning of 17 September, a call for help came from an artillery battalion to the right of the regiment. Based on this report, the situation appeared to be serious. The ***2.Kompanie*** *under Leutnant Esser immediately advanced toward Mistrzewice where the opponent was reported to be massing. However, the company encountered only a few enemy. Instead, they were actively engaged by anti-tank guns from the south bank of the Bzura south of Konary. They lost four Panzers to direct hits from anti-tank guns and two men were wounded.*

The ***1.Panzer-Division*** *was to attack Ruszki and to the northwest to drive the Poles away from the Bzura and cut off their way east. During the afternoon the regiment was pulled out and sent to a rest area by Teresin and Topolowa. Before they pulled out, the* ***2.*** *and* ***4.Kompanie*** *supported an attack by an* ***SS*** *batallion to improve their position. The* ***2.Kompanie*** *took Mistrzewice without much opposition. The* ***4.Kompanie*** *advanced to Juljopol and captured a Polish battery, a heavy anti-aircraft gun, two 3.7 cm anti-aircraft guns, and two mortars. This success didn't balance out the loss of many friends and a large number of Panzers. The combat strength of the regiment had sunk to 60 combat operational Panzers.*

During the evening of 17 September, the regiment moved to Teresin and Topolowa. Leutnants Malguth, Phluegel and von Diergardt drove back along the path taken during the attack to determine what could still be recovered from the abandoned Panzers. Most of them were blown up by the Poles and were not repairable. The missing in action, including Leutnant Diebisch, were all found dead.



The turret side of this **Pz.Kpfw.IV** (tactical number 800) has been penetrated by four hits from anti-tank guns. The armor designed for protection against **S.m.K.** bullets was not intended to withstand this type of punishment. (WS)

This was not the only unit to run into trouble. Leutnant Meyer from **Panzer-Regiment 4** reported on the action that occurred while returning to his company with repaired Panzers:

On 15 September 1939, I drove from Prczeworsk to Zamosc with a ***Pz.Kpfw.IV****,* ***Pz.Kpfw.III*** *and two* ***Pz.Kpfw.I Ausf.A****. About 1 kilometer west of Dachnow, I drove past the command post of* ***Infanterie-Regiment 130*** *and was requested to support an infantry attack against Polish forces who had attacked the regiment from out of the woods northwest of Dachnow. I received orders from the regimental commander to leave both* ***Pz.Kpfw.I Ausf.A*** *at the command post and with both heavy Panzers to reconnoiter through Dachnow toward Oleszyce. Coming from there, a bicycle rider reported that Oleszyce was clear of enemy. The previous orders were dropped. With both heavy Panzer I then supported an attack of the* ***1.Kompanie/Infanterie-Regiment 130*** *against the enemy-occupied woods. After contact had been made with the company commander, I started to attack. But, after about 400 meters, I recognized that the infantry company wasn't following. At the same time I came under very strong Polish artillery fire. I decided not to advance closer to the woods but turned south and combed through the village for enemy infantry. Because of strong fire from anti-tank rifles in houses and trees, I shot up the entire western part of the village, setting it on fire. However, due to the increased enemy artillery fire, I pulled out and drove back to the command post of* ***Infanterie-Regiment 130****. I again received orders to attack north with the* ***1.Kompanie****. As I drove through the village for the second time, I was again heavily shot at. I then set part of the east side of Dachnow on fire. After renewed discussion with the commander of the* ***1.Kompanie****, we were assigned to drive forward on the road to the next ridge and cover the rear and flanks of the infantry. Since the* ***1.Kompanie*** *never*

Pz.Kpfw.III Ausf.D (tactical number 242) crossing over a temporary bridge erected by the **Pioniere** on 19 September 1939. The identification cross on the turret side has been completely painted over with a subdued color. (WJS)

*received any fire, I remained with my **Pz.Kpfw.IV** on guard and sent the **Pz.Kpfw.III** back to the command post to bring the **Pz.Kpfw.I Ausf.A** back to me and to request to be released from the regiment to continue our trip.*

*In the interim, the following had occurred. Both **Pz.Kpfw.I Ausf.A** were sent into action along the wood line with four **Pz.Kpfw.II**. They were supposed to dispatch enemy machine gunners and sharpshooters in trees and help the **III.Infanterie-Batallion** attack. As the Panzers encountered a stream that couldn't be crossed, they received strong anti-tank gun fire from the wood line. Suffering heavy losses, they were forced to turn back. The two **Pz.Kpfw.I Ausf.A** of my company were damaged by hits from the anti-tank guns. Therefore, I continued to return to Zamosc with the **Pz.Kpfw.IV** and **III**. Losses included three dead and three wounded.*

The Russians attacked Poland on 17 September 1939. However this did not cause the Poles to cease resistance. As recorded in the following combat report, **Panzer-Regiment 4** was still having problems with retreating enemy columns:

*At 0110 hours on **19 September 1939**, the lead platoon of the **5.Kompanie/Panzer-Regiment 4** with five **Pz.Kpfw.II** and a **Pz.Kpfw.IV** encountered the enemy at the entrance to the village of Narol and were shot at by machine guns, anti-tank rifles and anti-tank guns. The lead Panzer, immobilized by hits in the idler wheel and track, had to be abandoned. This Panzer was rendered inoperable by a round fired from the **Pz.Kpfw.IV**. An attack against Narol by the **5.Kompanie** was not possible at night. The situation was complicated by woods and marsh on both sides of the road. The Regiment pulled back to a defensive position 2.5 kilometers west of Belzec.*

*At 0240 hours, sounds of battle were heard in and around Belzec. Several houses went up in flames. As the machine gun and infantry fire increased in intensity, the regimental commander sent three **Pz.Kpfw.I** on reconnaissance toward Belzec. Part of the combat trains, regimental headquarters, the **1.Kompanie**, and **5.Kompanie** left behind in Belzec, a total of two officers and 60 men observed a column advancing from Tomaszow, called to them, and immediately opened fire when they were identified as Poles. The Polish infantry battalion attacked with machine guns and two anti-tank guns but were thrown back with heavy losses. The twin anti-aircraft machine guns mounted on a vehicle were especially effective.*

The first of the Panzers that had been sent was immediately knocked out by three hits from anti-tank guns. The gunner was hit in the second. The third came back as ordered and reported to the regimental commander that the combat trains were in a very menacing situation.

The regimental commander decided to attack and clean out the village. At 0430 hours, the attack started. By 0600 hours, the village was securely in our hands and the road from Belzec to Tomaszow clear of enemy.

However, many of the engagements were not very hazardous for the Panzers as related in the combat report for the **2.Kompanie/Panzer-Regiment 4**:

*On 19 September 1939, the **2.Kompanie/Panzer-Regiment 4** had a successful engagement in Kamionka. The company received an assignment to capture the barracks and train station. A company of motorized infantry were attached. As they searched through the barracks, a train left the station in Kamionka traveling in the direction of Lemberg and passed close to the barracks. The train was engaged at long range by a **Pz.Kpfw.III** and forced to uncouple part of the train at the station.*

*The moving train was fired on by a **Pz.Kpfw.I** and **II**. Steam lines were damaged so that the train could only continue moving at slow speed. The available elements from the company, a **Pz.Kpfw.I, II, III**, and **IV** and all available motorized infantry were sent on the chase.*

*After about 2 kilometers, during which soldiers, railroad officials, and civilians continued to jump from the train and were captured, a hit from the **Pz.Kpfw.IV** forced the train to uncouple another section. After a further 6 kilometer chase by the **Pz.Kpfw.III** and **IV**, at times driving at speeds in excess of 40 kilometers per hour, the train was finally brought to a stop.*

After the campaign, the **Panzer-Divisions** were sent a questionnaire requesting specific information on tactical problems that had been encountered such as attacking bunker lines, fighting in forests, fighting in cities, remarks and recommendations for improving equipment and organizations. The following excerpts from the experience report from **Panzer-Regiment 8** provide insight into the tactics employed and lessons learned:

I. Attacking a Bunker Line

*Example: At Wizna on 9 September 1939, the infantry were pinned down in front of the second bunker line. The **Panzer-Regiment** was committed to pull the infantry forward. No information was available at the infantry regiment command post on the layout or number of enemy bunkers. Therefore, the outcome depended solely on good luck. The attack was not coordinated between the individual arms. In addition, the marshy area in front of the bunkers was not scouted to determine whether it could be crossed by the Panzers. The heavier Panzers didn't take part because a bridge hadn't been completed. The attack was successful in spite of all these things.*

Reason: No enemy artillery or mine fields. The bunker crews didn't count on German determination.

Lesson: While it succeeded once, it is probably not repeatable. This should not be used as an example for improving tactical guidelines for initiating and conducting Panzer attacks against bunkers.

Two **Pz.Kpfw.IIs** with the center of the identification crosses painted in a subdued color. (NA)

II. Combat in Forest

First Example: Employing Panzers to clear out the woods on the flanks of the route of advance. Employment of Panzers in the woods was totally ineffective because the opponent pulled back along the trails and reappeared after the Panzers had passed.

Lesson: Position Panzers around the woods. Then, the infantry should push through on a wide front.

Second Example: Envelopment of the surrounded 18th Polish Division together with other infantry on the rail line north of Nowa Wies on 14 September 1939. The width of the front was about 20 kilometers. The task was accomplished by dividing the ***Panzer-Abteilung*** *into small battle groups pushed forward for combat reconnaissance. The infantry remained behind. The opponent had hidden strong anti-tank forces on the edge of the woods. These inflicted damaging losses to the Panzers and caused the Panzers to be pulled back to the main defense line.*

Lesson: Defense on a wide front with small battle groups of motorized infantry and Panzers must be accomplished by concentrating these groups at one location from where they are in position for offensive operations. Strong reconnaissance is necessary to achieve this. Additional directions for training in this type of combat are necessary.

III. Combat in Cities

Example: Brest-Litowsk on 14 September 1939. Panzers attacked across the expansive railyard and into the city without any previous scouting and without an accurate city map. In spite of being surprised, the opponent put up a defense with numerous guns, anti-tank guns and old tanks. The breakthrough succeeded and the objective, a bridge over the river beside the Bug River, was reached.

Causes: The opponent didn't have artillery. Due to the surprise attack, he did not have time to lay mine fields or erect barricades. In spite of being strong, most of the anti-tank defense was destroyed during the advance. The charge of the Panzer attack over terrain that would never have been considered possible in peacetime (railyard and city) was victorious due to the swiftness of the break-in.

Lesson: In spite of this, combat in cities requires scouting by infantry and combat reconnaissance. Detailed city maps belong in every Panzer. Artillery must protect the flanks. The smoke laid down on the Citadel was too short and at the wrong time. Infantry must follow more quickly. Panzers must be pulled back out of the city before sundown or they will get lost.

IV. Movement and Employment of the ***Panzer-Division***

Example: Advance from Wizna to Brest. In the lead, with a ***Panzer-Abteilung*** *at the point and without accompanying motorized infantry, the* ***Panzer-Regiment*** *ran into the main body of the* ***Aufklaerung-Abteilung*** *pinned down at Wysockie - Masowieckie. The* ***Panzer-Regiment*** *attack, conducted directly from the march, was successful in driving through the city and overrunning the few opponents.*

Lessons: We were not repulsed only because the opponent didn't have any troops at hand for a counter-thrust. The tactical doctrine should not be changed. Motorized infantry belong in the advance guard of a ***Panzer-Division*** *so that they can immediately follow the Panzer breakthrough and occupy the area.*

A **kleine Panzerbefehlswagen** with a pennant flying from the radio antenna. Its only armament was the machine gun in the ball mount on the superstructure front. (CHY)

V. Organization and Equipment

The ***leichte Kompanie (a)*** *suffers from being composed of all the different types of Panzers with diverse technical and tactical capabilities. As is known, this heavy company is still not sufficiently outfitted.*

The ***Pz.Kpfw.I*** *is outdated. As the most urgent improvement, the* ***Pz.Kpfw.II*** *must have improved vision devices. The* ***Pz.Kpfw.III*** *and* ***IV*** *are good but they must have heavier armor. The* ***kl.Pz.Bef.Wg.*** *must have a traversable turret. It is relatively helpless in combat.*

The current complicated models of radio equipment for communication between the ***Panzer-Regiment*** *and* ***Abteilung*** *are not very useful. The commander of the regiment must be able to speak directly to the commander of the* ***Abteilung****. Presently, inside the noisy Panzer, the commander must shout to make himself understood to the signals officer, the signals officer transmits the orders by radio to the* ***Abteilung*** *signals officer, then the* ***Abteilung*** *signals officer must shout the orders to the* ***Abteilung*** *commander.*

VI. Armament:

Increase the issue of modern machine pistols. The ***M.G.34*** *must be flexibly mounted, or numerous stoppages occur. The* ***2 cm Kw.K.30*** *tank gun is very good. Issue of high explosive ammunition is urgently needed. The* ***3.7 cm*** *and* ***7.5 cm Kw.K.*** *tank guns have proven to be successful. Hand grenades and explosives need to be issued to the Panzer crews.*

Plans had been made long before the Polish campaign to reorganize the four **leichte-Divisions** into **Panzer-Divisions** in the Fall of 1939. The campaign merely delayed carrying out these plans by several months. Three of these **leichte-Divisions** still had **Panzer-Abteilung (verlastet)**, that is, their Panzers were transported on trucks and trailers. The following experience report from the **2.leichte-Division** concurs with the pre-war determination by Guderian and others that the **leichte-Divisions** were not a great idea:

I. Tactical.

*Throughout the campaign, from the time the border was crossed until the return to Germany, the **Panzer-Abteilung** was usually pulled along advancing by bounds behind the division or marched as the next to the last group in front of the supply trains. Inclusion of the **Panzer-Abteilung** within a motorized infantry column severely impeded the advance of these units. Bridges - especially those blown and quickly rebuilt - with low load-carrying capacity that could be crossed by all other vehicles of the division, could be crossed only by unloading the **Panzer-Abteilung** or crossed separately by the towing vehicle and low boy trailer. Delays were the unavoidable result of transporting the Panzers loaded on trucks and trailers.*

It is only useful to attach Panzers to the commander of the advanced guard in specific situations. The speed of the advance suffers from such employment. Assigning Panzers can be useful if contact with the enemy will soon occur, if the enemy has occupied the woods or wood line, or if it comes to establishing and holding bridgeheads at river crossings. In such cases, the supply vehicles for the Panzers are to be left behind.

The strength of the unit attached to the advance guard or to another combat group varies between a platoon and a company in accordance with the specific situation.

*In general during attacks, the **Panzer-Abteilung** was held back as division reserve. In most cases they were then later employed as a body to refloat a halted infantry attack by frontal attack, or independent of the infantry, to attack the enemy in the flanks and rear.*

*In unfavorable terrain, especially in the many actions of the division in the woods, the Panzers must often be divided up among the combat groups. They help the infantry to advance and make it possible to penetrate through the woods by pinning down the enemy on the trails, clearings, and wood lines. The attached Panzer unit shouldn't be reduced below company strength. Employment of an isolated company must be the exception. Employment of the entire **Panzer-Abteilung** at one location is always worth attempting.*

Cooperation between Panzers and infantry was exceptional. They quickly learned to cooperate without difficulty. In most cases the Panzers were closely coupled with the infantry and aided in their success.

Cooperation with the heavy infantry weapons is more important than cooperation with artillery and combat engineers. This wasn't achieved. The heavy infantry weapons must quickly destroy the enemy anti-tank weapons and advance directly behind their own Panzers. This was possible in Poland, because it was rare for enemy artillery or enemy tanks to appear. For the most part, artillery is usually not in a situation to quickly eliminate such point targets. In general, the task of the artillery is to provide support from occupied villages. Situations in which the Panzers worked with the combat engineers did not occur in this division. Panzer attacks in coordination with aircraft also did not occur.

The place for the commander of Panzer units is at the front. He can command his unit only if he travels in the lead. Relaying commands by radio often failed. This was replaced by flag signals and personnel example by the commander.

*II. Organization of the **Panzer-Abteilung***

***Panzer-Abteilung 66** was only outfitted with **Pz.Kpfw.I** and **Pz.Kpfw.II**. These are not sufficiently armored. Their fire power is too low. The absence of any **Pz.Kpfw.III** and **Pz.Kpfw.IV** made itself very noticeable. If only a small number of **Pz.Kpfw.IV** had been assigned, it would have been possible to combat enemy anti-tank nests that often caused heavy losses in men and vehicles. The **Pz.Kpfw.IV** could quickly deal with the anti-tank guns at a range at which enemy anti-tank rifles would be ineffective.*

*The trial scouting platoon belonging to the **Panzer-Abteilung** proved successful. It is proposed that it be retained as a standard sub-unit in the **Abteilung** headquarters.*

*The trial combat engineer platoon belonging to the **Panzer-Abteilung** didn't get into action. This unit doesn't appear to be necessary. The rare cases in which the divisional combat engineers couldn't aid the Panzer advance due to other employment (bridge building, clearing mines) is not sufficient cause for the **Panzer-Abteilung** to have their own engineer platoon. However, carrying identification signs that could be fastened in place by any Panzer crew member, proved necessary.*

III. Technical

*The armor of the **Pz.Kpfw.I** and **Pz.Kpfw.II** is too light. At a range of 100 meters, the Polish anti-tank rifle cleanly penetrated the front of both the **Pz.Kpfw.I** and the **Pz.Kpfw.II**.*

*It is proposed that the **Panzer-Abteilung** of a **leichte Division** be equipped with only one standard type of Panzer with armor like the **Pz.Kpfw.III** and **Pz.Kpfw.IV** and a mixture of armament (2 cm, 3.7 cm and 7.5 cm guns) within each company. With lighter armament, this standard Panzer could also be employed as the most suitable reconnaissance vehicle for **Panzer-Divisions**.*

*In addition, a standard reconnaissance vehicle for both **Panzer-**and **leichte Divisions** should be developed with emphasis on cross-country maneuverability and steering in reverse, instead of speed. If a fully tracked Panzer or a wheel-cum-track vehicle is preferred depends on specifications for ground reconnaissance.*

Three **Pz.Kpfw.L.T.M.35** with the **I.Abteilung/Panzer-Regiment 11**. Very few of the **Pz.Kpfw.L.T.M.35** were damaged in combat, however, they suffered a very high percentage of mechanical breakdowns. (WS)

Where armored cars were restricted to trails as they were in Poland, vehicles that are only usable on roads or trails are worthless for reconnaissance. The standard reconnaissance vehicle must be maneuverable across country in order to carry out reconnaissance in all terrain, not just on roads and trails.

Losses of Panzers sustained during the campaign for the period from 1 to 25 September 1939 were reported to each army headquarters as follows:

	All Types	Pz.35t	Pz.38t	Pz.III	Pz.IV
A.O.K.3	66			5	5
A.O.K.4	4				
A.O.K.8	15		7		1
A.O.K.10	273	77		11	31
A.O.K.14	61			3	7

These were Panzers that had been damaged by enemy action or mechanically broken down and couldn't be repaired by the field workshops. The most significant losses had occurred in the **1.** and **4.Panzer-Division** and the **1.leichte Division**. They reported the following losses for the period 1 through 25 September 1939:

	Pz.I	Pz.II	Pz.35t	Pz.III	Pz.IV	Pz.Bef.
1.Pz.Div.	25	29		11	16	4
4.Pz.Div.	46	33			6	9
1.lei.Div.		8	77		9	

Many of the Panzers reported as losses during the campaign were returned to the assembly plants for repairs. A shortage of parts caused by the demand to quickly repair these Panzers was the excuse used for the drop in production of new Panzers in November 1939. Very few of the **Pz.Kpfw.35(t)** had been damaged in combat, and losses were mainly mechanical breakdowns. After reassessment, the number of total writeoffs due to the campaign in Poland were reported as 89 **Pz.Kpfw.I**, 83 **Pz.Kpfw.II**, 7 **Pz.Kpfw.35(t)**, 7 **Pz.Kpfw.38(t)**, 26 **Pz.Kpfw.III**, 19 **Pz.Kpfw.IV**, and 5 **Pz.Bef.Wg**.

11

Reorganization - October 1939 to May 1940

Long before the campaign in Poland, the decision had been made to convert all four **leichte Divisions** into **Panzer-Divisions**. During this process, all remaining independent **Panzer-Abteilungen** that had been **Heerestruppen** were assigned as organic units in **Panzer-Divisions**. On 12 September 1939 the **1.leichte Division** was renamed the **6.Panzer-Division**. It was already in possession of **Panzer-Regiment 11** with **Panzer-Abteilung 65**. This unit remained the only **Panzer-Regiment** outfitted with the **Pz.Kpfw.35(t)**.

A **Pz.Kpfw.II** of the **2.Panzer-Brigade** being refueled. In response to losses caused by anti-tank rifles in Poland, **Pz.Kpfw.IIs** were modified by bolting additional armor onto the turret, superstructure and hull front to bring it up to the equivalent protection of 30 mm. The new identification cross **Balkankreuz** was to be painted on the superstructure sides and rear instead of on the turret as ordered in the **A.H.M.** dated 26 October 1939. (WS)

The **2.leichte Division** was renamed the **7.Panzer-Division** on 18 October 1939. **Panzer-Regiment 25** with **Panzer-Abteilung 66** was placed under its command. The **I.Abteilung/Panzer-Regiment 23** was renamed the **II.Abteilung/Panzer-Regiment 25**. **Panzer-Regiment 25** began to convert to 17 **Pz.Kpfw.38(t)** in each **leichte Panzer-Kompanie** starting in February 1940. This conversion hadn't been completed in time for the start of the campaign in the West, resulting in **Panzer-Regiment 25** still taking numerous **Pz.Kpfw.I** into combat.

The **3.leichte Division** was renamed the **8.Panzer-Division** on 16 October 1939. It received the newly created **Panzer-Regiment 10** and retained **Panzer-Abteilung 67**. The **II.Abteilung/Panzer-Regiment 10** along with the **Regiment Stab und Stabskompanie** were raised on 20 October 1939. The **leichte Panzer-Kompanien** of all three **Panzer-Abteilungen** under **Panzer-Regiment 10** were outfitted with 17 **Pz.Kpfw.38(t)**.

The **4.leichte Division** was renamed the **9.Panzer-Division** on 3 January 1940. The **Panzer-Lehr-Abteilung** was renamed as the **I.Abteilung/Panzer-Regiment 33**. **Panzer-Abteilung 33** was renamed the **II.Abteilung/Panzer-Regiment 33** and the **Regiments Stab und Stabskompanie** were created.

Panzer-Division "Kempf" was disbanded. Its headquarters reverted back to **Stab 4.Panzer-Brigade**, which was assigned to the **10.Panzer-Division** with **Panzer-Regiments 7** and **8** under command.

As shown on the following strength report for 1 January 1940, production and repairs had been sufficient to fill the units up to the strengths authorized by the normal **K.St.N.** dated 1 March 1939:

PANZERKAMPFWAGEN INVENTORY ON 1JAN40

	I	II	III	IV	Bef.
1.Pz.Div.					
Pz.Rgt.1	33	48	28	20	18
Pz.Rgt.2	42	48	10	20	
2.Pz.Div.					
Pz.Rgt.3	55	70	6	10	25
Pz.Rgt.4	62	73	7	10	
3.Pz.Div.					
Pz.Rgt.5	67	71	6	10	28
Pz.Rgt.6	58	66	6	10	
4.Pz.Div.					
Pz.Rgt.35	69	55	6	10	26
Pz.Rgt.36	56	58	6	10	
5.Pz.Div.					
Pz.Rgt.15	58	70	7	10	25
Pz.Rgt.31	76	59	6	10	
6.Pz.Div.					
Pz.Rgt.11		44	71t	20	11t
Pz.Abt.65		17	35t	11	
7.Pz.Div.					
Pz.Rgt.25	66	57	6	10	17
Pz.Abt.66	47	41	4	4	
8.Pz.Div.					
Pz.Rgt.10		21	91t		12t
Pz.Abt.67	11	34	35t	14	
10.Pz.Div.					
Pz.Rgt.7	55	66	6	10	32
Pz.Rgt.8	58	55	6	9	
4.lei.Div.					
Pz.Abt.33	25	33	4	4	9
Pz.Lehr.Abt.		24	36	11	
Total:	838	1010	150*	213	203

*plus 106 Pz.Kpfw.35(t) and 126 Pz.Kpfw.38(t)

Several of the units (**Panzer-Regiment 1**, **Panzer-Regiment 10**, **Panzer-Regiment 11**, **Panzer-Abteilung 65**, **Panzer-Abteilung 67**, and the **Panzer-Lehr-Abteilung**) had been authorized organizations in accordance with the **K.St.N.(Sd)** dated 1 September 1939.

The reasons for not starting an offensive in the Winter were related by a report dated 10 January 1940 on the experience of the **5.Panzer-Division** during the first Winter march. They had traveled 120 kilometers through mountainous country in temperatures averaging minus 20 degrees C over roads partially covered by a thin crust of ice about 1 centimeter thick.

The Panzers had been issued an insufficient number of skid-preventing grousers. These grousers worked in packed snow, but the Panzers easily slid sideways on icy roads. Grousers caused an abnormally high number of track links and pins to break. At high speeds, the springs of the **Pz.Kpfw.III** and **Pz.Kpfw.IV** became very hot. Several telescoping shock absorbers on **Pz.Kpfw.III** were broken and sometimes became too hot to touch.

The armor, especially the weld seams, became brittle due to the cold, so that minor blows, such as bumping into trees, caused weld seams to open. On several Panzers, almost the entire final drive was broken off.

Out of the entire **5.Panzer-Division**, 28 **Pz.Kpfw.I**, 20 **Pz.Kpfw.II**, 5 **Pz.Kpfw.III**, and **7 Pz.Kpfw.IV** broke down during the march. Twenty percent of breakdowns were caused by general mechanical problems, 20 percent were due to the cold, and the rest were due to accidents and skidding on icy roads. With the exception of one **Pz.Kpfw.III** and two **Pz.Kpfw.II** written off as total losses, all the rest had been repaired by 20 January 1940.

On 21 February 1940, **Panzer-Regiments 2, 3, 4, 7 und 8** were authorized to reorganize in accordance with the **Sonder K.St.N.** dated 1 September 1939. However, an insufficient number had been or would in the near future be produced to fill each **leichte Panzer-Kompanie** with 17 **Pz.Kpfw.III** and each **mittlere Panzer-Kompanie** with 14

leichte Panzerkompanie

Gliederung v. 21.2.1940

Kp.Tr.	PzKpfwIII	PzKpfwII	PzKpfwII	klPzBefWg	
1. Zug	PzKpfwII	PzKpfwII	PzKpfwII	PzKpfwI	PzKpfwI
2. Zug	PzKpfwII	PzKpfwII	PzKpfwII	PzKpfwI	PzKpfwI
3. Zug	PzKpfwIII		PzKpfwIII		PzKpfwIII
4. Zug	PzKpfwIII		PzKpfwIII		PzKpfwIII

mittlere Panzerkompanie

Gliederung v. 21.2.1940

PzKpfwIV

PzKpfwII

klPzBefWg

Kp.Tr.

PzKpfwII

PzKpfwII

PzKpfwII

PzKpfwII

PzKpfwII

le. Zug

PzKpfwIV

PzKpfwIV

PzKpfwIV

PzKpfwIV

1. Zug

PzKpfwIV

PzKpfwIV

PzKpfwIV

2. Zug

Pz.Kpfw.IV. Therefore, they were ordered to adopt the **Gliederung** shown on the silhouette charts, with seven **Pz.Kpfw.III** in each **leichte Panzer-Kompanie** and eight **Pz.Kpfw.IV** in each **mittlere Panzer-Kompanie**. As additional **Pz.Kpfw.III und IV** were produced, they were issued to the **Panzer-Regiments** in the **3.**, **4.**, und **5.Panzer-Divisions**. The **5.Panzer-Division** had received most of the Panzers needed to meet this new organization, but the **3.** und **4.Panzer-Divisions** had received only a few new **Pz.Kpfw.III und IV** before heading west on 10 May 1940.

In February through April 1940, any **Pz.Kpfw.III Ausf.A - D** that had survived Poland with the Panzer units were turned in and replaced with new **Pz.Kpfw.III Ausf.E** and **Ausf.F** with 30 mm thick armor on the front and sides. The 43 **Pz.Kpfw.II Ausf.D** that had been issued to **Panzer-Abteilung (verlastet) 66 und 67** were turned in for conversion to **Flammpanzer** and replaced with normal **Pz.Kpfw.II Ausf.c - C.**

On 1 March 1940, orders were cut to create the first **Flammpanzer-Abteilung** (armored flamethrower battalion), **Panzer-Abteilung (F) 100** at the **Panzertruppen-Schule** in Wunsdorf with the following organization: **Stab Panzer-Abteilung (F)** with **K.St.N.1110** dated 28Feb40, **Stabskompanie Panzer-Abteilung (F)** with **K.St.N.1151** dated 28Feb40, **Staffel Panzer-Abteilung (F)** with **K.St.N.1179** dated 28Feb40, and three **Panzer-Kompanie (F)** with **K.St.N.1177** dated 28Feb40.

This initial order specified that the unit was to be trained and ready for combat on 10 July 1940. This reveals that there was no intention of preparing an armored flamethrower unit for the planned offensive in the West in May 1940. The headquarters for **Panzer-Abteilung (F) 100** was officially established on 5 March 1940, followed by the three companies on 21 March 1940. A second **Flammpanzer-Abteilung**, **Panzer-Abteilung (F) 101**, was established on 4 May 1940. During this same period the **1.Kompanie** was created on 26 April, the **2.Kompanie** on 10 May and the **3.Kompanie** on 1 May 1940.

Panzer-Abteilung z.b.V.40 was quickly assembled by 10 March 1940 to support Operation "**Weseruebung**" in Denmark and Norway. It was formed from three **leichte Panzer-Kompanien** given up by each of three **Panzer-Regiments**. Each of these **leichte Panzer-Kompanie** had only three platoons, having been ordered to leave their fourth platoon behind with their parent regiment.

During February through April 1940, all **Pz.Kpfw.III Ausf.A** to **Ausf.D** were replaced in the active units with **Pz.Kpfw.III Ausf.E** and **Ausf.F** with the thicker 30 mm front and side armor protection. (MJ)

12

Operation Weseruebung - 9 April 1940

To support Operation "**Weseruebung**", **Panzer-Abteilung z.b.V.40** was formed in early March 1940 from three **leichte Panzer-Kompanien** given up by each of three **Panzer-Regiments**. Each **leichte Panzer-Kompanie** had only three platoons. Most of the Panzers were **Pz.Kpfw.I**. Only a few of the **Pz.Kpfw.II** had been modified with reinforced armor. Later, after 25 April 1940, two additional platoons (each with one **Pz.Kpfw.II** and four **Pz.Kpfw.I**) were sent to **Panzer-Abteilung z.b.V.40** to replace Panzers lost in action.

At the start of the operation on 9 April 1940, the **Stab**, **1.** and **2.Kompanie** of **Panzer-Abteilung z.b.V.40** were sent into Denmark. The **3.Kompanie/Panzer-Abteilung z.b.V.40** was shipped directly to Norway. On 17 April 1940, the steamship "Urundi" ran aground with a **Pz.Kpfw.I** and a **Pz.Kpfw.II** from the **3.Kompanie** on board. Shipped over in the third transport company, the rest of the **3.Kompanie** had reached Oldenburg on 17 April 1940. Destined for Oslo in the first transport convoy, the ship "Antaris H" had sunk with five Panzers on board.

Named after their platoon leader Oberleutnant Horstmann, **Panzerzug Horstmann** with three **Neubau-Pz.Kpfw.IV** was attached to **Panzer-Abteilung z.b.V.40**. Shipped directly from Germany, it was unloaded in Oslo during the morning of 19 April and paraded through the city before setting off in the direction of Konigsvingen Elverum. **Panzerzug Horstmann** was attached to the **196.Infanterie-Division** and sent toward Hamar on the morning of 20 April 1940.

After crossing Denmark, the **Stab**, **1.** and **2.Kompanie** of **Panzer-Abteilung z.b.V.40** were loaded on ships. These left Denmark on 20 April and had completed unloading in Oslo by 24 April 1940.

The first detailed strength report dated 24 April 1940 reveals **Panzer-Abteilung z.b.V.40** employed in Norway as follows:

- **1.leichte Panzer-Kompanie** led by Hauptmann von Burstin attached to **Kampfgruppe Fischer** (**Infanterie-Regiment 340**) with one broken down **Pz.Kpfw.IV**, five **Pz.Kpfw.II**, twelve **Pz.Kpfw.I** and two **kl.Pz.Bef.Wg**.
- Oberleutnant Preiss near Lillehammer attached to the **196.Infanterie-Division** with two **Pz.Kpfw.IV** (of which one broken down), three **Pz.Kpfw.II**, three **Pz.Kpfw.I**, and one **kl.Pz.Bef.Wg.**
- **3.leichte Panzer-Kompanie** led by Hauptmann Niedrieck attached to the **163.Infanterie-Division** with six **Pz.Kpfw.II**, 5 **Pz.Kpfw.I**, and one **kl.Pz.Bef.Wg.**
- One platoon of the **2.leichte Panzer-Kompanie** led by Oberleutnant Reibig with one **Pz.Kpfw.II** and four **Pz.Kpfw.I**
- **2.leichte Panzer-Kompanie** (minus one platoon) led by Hauptmann Toelke still in Oslo with three **Pz.Kpfw.II** and five **Pz.Kpfw.I**.
- A total of 3 **Neubau-Pz.Kpfw.IV**, 18 **Pz.Kpfw.II**, 29 **Pz.Kpfw.I** and 4 **kl.Pz.Bef.Wg.** under **Panzer-Abteilung z.b.V.40**.

The commander of **Panzer-Abteilung z.b.V.40** wrote a detailed 13-page report dated 18 July 1940 on their experiences and lessons learned in Norway. The following excerpts reveal the problems of fighting with Panzers in difficult mountainous terrain:

*As the experience in Denmark had already shown, one must continuously calculate on the enemy possessing anti-tank weapons. The British anti-tank rifle and the French 25 mm Hotchkiss anti-tank gun were used in Norway. The armor of all Panzers, (**Pz.Kpfw.I**, **Pz.Kpfw.II**, and **Neubau-Pz.Kpfw.IV**) was penetrated by both of these weapons.*

During action in Norway the following experience had been gained on employment of Panzers in mountainous terrain. The opportunities for using Panzers in the mountains are limited by road and terrain conditions as well as weather

The crew of one of the three **Neubau-Pz.Kpfw.IV** employed in Norway. The commander of **Panzer-Abteilung z.b.V.40** liked the multiple turret feature because of the ability to simultaneously engage targets to the front and the sides. (RAC)

and time of year. Deep snow, steep mountain slopes, thick forest, rocky and marshy areas on both sides of the roads or trails as well as defiles restrict the Panzers to the roads and solid trails. Steep inclines, numerous curves, icy roads, or muddy trails as well as snowstorms and fog reduce the speed of advance. Even in summer the use of Panzers off the road will only be possible in limited conditions.

As the employment in Norway had actually shown, it is indeed entirely possible to use Panzers even under the most difficult conditions by providing the necessary support within the Panzer unit and from other branches of the service. The terrain, road and weather conditions are all advantageous for the defender. Using barriers of all types (road barricades, fallen trees, boulders, and blowing bridges) it is easily possible for the enemy to hold up the advance of the Panzers. These barriers are manned on both sides. Ski patrols interfere with their clearance. Therefore it is necessary that the Panzers be escorted by pioneer and infantry units to clear away barriers under covering fire from the Panzers, heavy infantry weapons, or artillery. These tasks will best be accomplished by motorized or motorcycle infantry and motorized pioneers that can follow the advance of the Panzers. It was often shown that quickly pursuing the enemy hindered them from erecting barriers or setting off explosives.

*Being tied to the road resulted in the employment of a **Panzer-Zug** (of five Panzers) at the head of the battle group as being completely sufficient. Experience showed that three Panzers could complete the assignment if a **Pz.Kpfw.II** drove in the lead because the actual and morale effect with the **2 cm Kw.K.** tank gun was significant.*

*Battles at barriers demonstrated the significant effect of the **Pz.Kpfw.II** and its superiority with the **2 cm Kw.K** tank gun. If the barrier was defended with anti-tank guns or artillery, the **2 cm Kw.K.** tank gun was an effective weapon for combating them. It was successful firing **Sprenggranaten** (high-explosive shells), especially through the effect on the morale of the defending infantry. Firing the **2 cm Kw.K.** tank gun at barricades constructed from boulders quickly brought success due to the resulting effect caused by stone fragments. The barricades themselves could often be shoved aside or climbed over by the Panzers. In other cases, the barrier was cleared away under covering fire from the Panzers. Under covering fire, some barriers could be quickly circumvented by the infantry.*

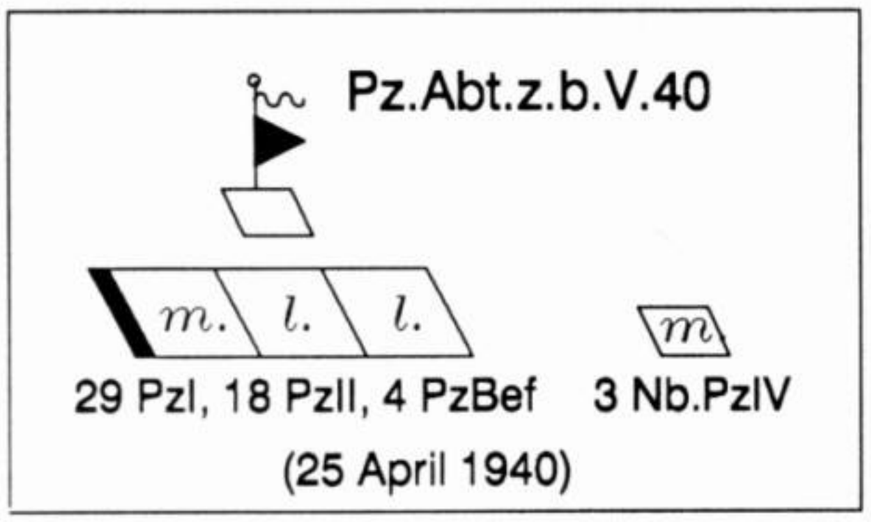
Battles in the forest, with trees that were close together, thick underbrush, and stone outcrops, usually restricted the Panzers to the roads and trails. Long barricades created by felling trees made it impossible to advance. The use of Panzers was therefore reduced to defense of those clearing away the barricades.

During battles in towns, settlements and single farmsteads that had been occupied by the enemy, the opponent could be quickly convinced to clear out, especially when fired at by the ***2 cm Kw.K*** *tank gun. As a result, houses were set on fire, which couldn't be prevented. The necessity to fire at houses that commanded the roads, even when the opponent hadn't already opened fire from them, came from the experience that occupants with anti-tank weapons (British anti-tank rifles and French 25 mm Hotchkiss anti-tank guns) let the Panzers advance to close range before suddenly opening fire. In addition, the enemy occupying the houses with machine guns would let the Panzers pass and then open fire on the following infantry.*

Under covering fire from the Panzers, in most cases the infantry managed to quickly occupy a town. When the enemy recognized that he was being fired at in the houses, they quickly cleared out of the town so that it was usually necessary to fire at houses only at the entry to the town. During the development of an action the enemy would often avoid defending from inside houses, which undoubtedly was caused by the destructive effect of the ***2 cm Kw.K.*** *or also the* ***3.7 cm*** *and* ***7.5 cm Kanone*** *tank guns.*

When combating defensive positions in the mountains where the defenders could take all the roads and trails under fire, the Panzers were the only effective means of engaging

ORGANIZATION AND STRENGTH



A **Neubau-Pz.Kpfw.IV** in Norway. The 20 watt transmitting radio set was mounted in the rear of the turret. (RAC)

This **Pz.Kpfw.II** with the **3.Kompanie/Panzer-Abteilung z.b.V.40** in Norway still had the tactical markings from the unit used to create it, the **5.Kompanie/Panzer-Regiment 15**. This is one of the majority of **Pz.Kpfw.IIs** in **Panzer-Abteilung z.b.V.40** that hadn't been modified by bolting 20 mm additional armor to the front. (BA)

them. With their armor protection, the Panzers could advance to a suitable firing range and take the machine guns and sharpshooters nested among boulders under aimed fire. Often the targets couldn't be found and the slopes where the enemy was expected to be hiding were sprayed with fire. Then the enemy usually cleared out of these positions.

*Experience with the **Neubau-Pz.Kpfw.IV** revealed that heavy Panzers could also be used in mountains with exceptional success. In spite of statements in official documents, all bridges could be crossed even when their weight classification was usually only 5 tons or lower. These **Neubau-Pz.Kpfw.IV** could also drive on narrow roads if in numerous locations opposing traffic wasn't possible. In most cases where Panzers had been employed, the artillery couldn't get into position and brought into action in a timely manner. But the **Neubau-Pz.Kpfw.IV** could completely replace the artillery. It was sufficient when one or two of these **Neubau-Pz.Kpfw.IV** were available with each lead element, followed by the other Panzers. The 7.5 cm tank gun opened fire on any enemy that was stubbornly defending.*

*The effect of the **2 cm Kw.K.** tank gun was good and successful. But the 7.5 cm shells had a destructive effect wherever they were fired. Even in fighting in the mountains with difficult roads, trails, and low carrying capacity bridges, the employment of the **Neubau-Pz.Kpfw.IV** is possible and its destructive effect quickly brings a successful conclusion to the action.*

*All of the weapons mounted in the Panzers do not have sufficient elevation for fighting in mountains. Frequently, the enemy sitting on steep slopes couldn't be effectively fought. The **Pz.kpfw.I** and **II** can't fire to the front and at the same time fire to the right or left up or down a slope. While the enemy in front behind barricades needed to be taken under fire, at the same time the enemy on both sides of the road were pinning down the following infantry with machine gun fire. In these situations, the **Neubau-Pz.Kpfw.IV** (with multiple turrets) had completely proven its value.*

Because it is especially difficult to observe where shots are hitting in the mountains, the ratio of tracer to normal rounds must be one to one for machine gun ammunition. This must be done even with the danger that tracer ammunition will set houses on fire. In one location the division to which the Panzers were attached forbade firing tracer ammunition. Without tracers it was impossible to observe from inside the Panzer where the machine gun fire was hitting. This resulted in the weapon's effectiveness being practically eliminated.

***Nebelmunition** (smoke shells) that can only be fired from the **7.5 cm Kanone** of the **Pz.Kpfw.IV** are absolutely necessary to blind the enemy on the slopes and eliminate his effective fire. This is the basis for the requirement to employ*

A **Pz.Kpfw.I Ausf.A** also with the **3.Kompanie/Panzer-Abteilung z.b.V.40** in Norway. The tree may have been felled in an attempt to impede the units progress. (BA)

The remains of a **Neubau-Pz.Kpfw.IV** that was destroyed after becoming mired and breaking down in a swampy area. (RAC)

Pz.Kpfw.IV *in combat in the mountains. Resupplying the individual Panzer units scattered among the battle groups with special ammunition (2 cm, 3.7 cm, 7.5 cm and tracer) and special rations (such as* ***Schokakola****) was difficult.*

The workshop platoon was set up in Hamar. Broken down and damaged Panzers were either towed there or repaired on the spot by mobile repair troops. Difficulties arose from the shortage of repair parts when the need was greatly increased as a result of the difficult terrain. Several Panzers were cannibalized to obtain the repair parts necessary to maintain the highest possible number of operational Panzers. In this situation it was necessary, but should be considered an exception. Instead, the necessary supply of repair parts (tracks, brake linings, roadwheels, motors) must be provided. Mechanical breakdown of Panzers will always increase with long-distance objectives. As an example, the Panzer unit sent to Drontheim arrived without a single operational Panzer.

At the close of Panzer operations in Norway, most of **Panzer-Abteilung z.b.V.40** was located in Oslo with the exception of the six **Pz.Kpfw.I**, five **Pz.Kpfw.II**, and one **kl.Pz.Bef.Wg.** with the **1.Kompanie** in central Norway. **Panzer-Abteilung z.b.V.40** reported its strength on 16 May 1940 as follows:

	Pz.Kpfw.I	**Pz.Kpfw.II**	**kl.Pz.Bef.Wg.**	**Neubau-Pz.Kpfw.IV**
1.Kp.	8	7	3	
2.Kp.	8	4		
3.Kp.	5	5	1	
Zug Walter	4	1		
Zug Meier	4	1		
Zug Putlos				3
Total:	29	18	4	3

After breaking down, one **Neubau-Pz.Kpfw.IV** had been demolished with explosives. Only three of the five **Neubau-Pz.Kpfw.IV** had been manufactured with armor plate. The replacement **Neubau-Pz.Kpfw.IV** that was shipped to Norway had been manufactured using soft steel plate. It appears from their strength reports that **Panzer-Abteilung z.b.V.40** lost one **Neubau-Pz.Kpfw.IV**, two **Pz.Kpfw.II**, and eight **Pz.Kpfw.I** as total writeoffs.

13

Fall Gelb - 10 May 1940

On 10 May 1940, the Sitzkrieg was over. German forces rolled forward across the borders of Holland, Belgium, and Luxembourg in accordance with plans codenamed "**Fall Gelb**." As shown in the Order of Battle, seven of the ten **Panzer-Divisions** were concentrated in **Heeresgruppe A**. This concentrated force was to create bridgeheads over the Meuse, break out to the west, and drive a deep wedge into the French forces. The **3.** and **4.Panzer-Divisions** were sent into Belgium to guard the right flank and take on the French mechanized cavalry. On the far right, 9.**Panzer-Division** was sent to rapidly break any resistance in Holland.

Pz.Kpfw.IIIs being refueled from a 200 liter drum. (NA)

A **Pz.Kpfw.I Ausf.B** with the **8.Kompanie/Panzer-Regiment 1** demonstrating the antenna being lowered by an internal mechanism as the turret is traversed to the right. This prevented the antenna from being shot away by the Panzers own machine guns. (NA)

The total inventory of Panzers in the **Heeres** on 1 May 1940 was 1077 **Pz.Kpfw.I**, 1092 **Pz.Kpfw.II**, 143 **Pz.Kpfw.35(t)**, 238 **Pz.Kpfw.38(t)**, 381 **Pz.Kpfw.III**, 290 **Pz.Kpfw.IV**, and 244 **Pz.Bef.Wg.** The actual strength of each **Panzer-Regiment** before the start of the campaign is shown in the Organization and Strength diagram. Each of the seven concentrated **Panzer-Divisions** had received a higher allotment of gun-armed Panzers. Panzer units in the **3.** and **4.Panzer-Division** were still outfitted mainly with **Pz.Kpfw.I** and **II**. Their few **Pz.Kpfw.III** and **IV** were still held mainly by the **mittlere Panzer-Kompanie**. **Panzer-Regiment 33** in the **9.Panzer-Division** had only two **Panzer-Abteilungen**. The **I.Abteilung** had been created from the **Panzer-Lehr-Abteilung** and it therefore had a full complement of **Pz.Kpfw.III** and **IV**. However, the **II.Abteilung** (the former **Panzer-Abteilung 33**) still only had **Pz.Kpfw.I** and **II** in the two **leichte-Panzer-Kompanien** with the few **Pz.Kpfw.III** and **IV** in the **mittlere Panzer-Kompanie**.

The French forces quickly responded with their mechanized cavalry forces, charging across Belgium to meet the German onslaught. This resulted in the first major tank versus tank battle of the war. The French **3e division legere Mecanique** with a strength of about 90 Somua and 140 Hotchkiss tanks encountered the **3.** and **4.Panzer-Divisions**. Details of the ensuing tank versus tank combat were recorded by the commander of **Panzer-Regiment 35**, Oberst Eberbach, in the following experience report:

I. Panzer Battle south of Hannut on 12 May 1940

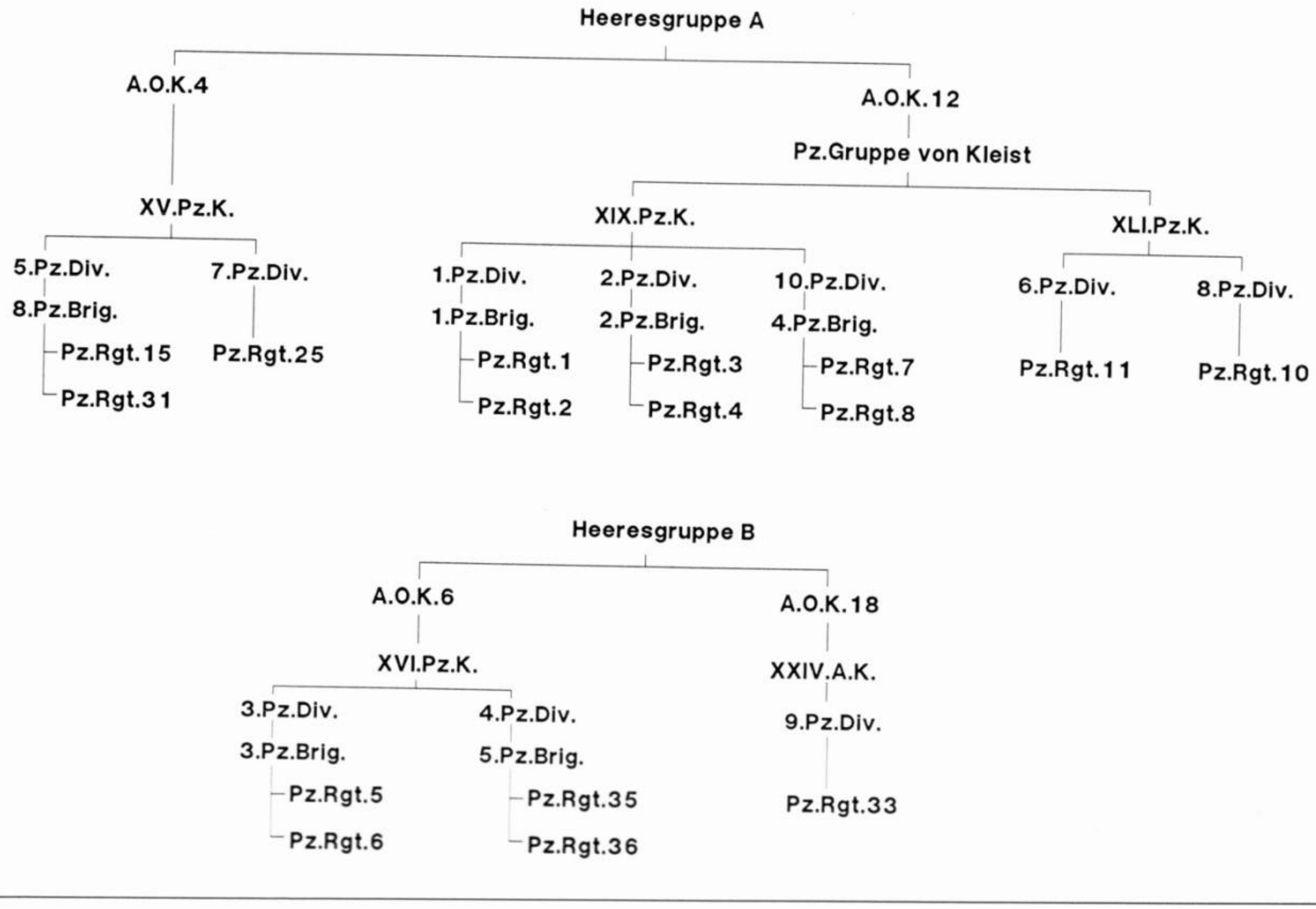
*The **5.Kompanie** was sent to the west of Hannut to set up a defense. Upon leaving the village the **5.Kompanie** encountered 11 enemy Hotchkiss tanks. During the ensuing engagement, eight enemy tanks were knocked out mainly with the 3.7 cm tank guns of the **Pz.Kpfw.IIIs**.*

Most of the tanks were knocked out by Leutnant Euler, several by Oberleutnant Lekschat. Sent out by the Abteilung to determine the situation, Oberleutnant Malguth joined in the battle and set three tanks out of action with his 2 cm tank gun. Impressed by the effect of our weapons, some of the French crews abandoned their tanks.

*As shown by the following examples, the ability to see out of the enemy tanks appears to be poor. Even though some of these enemy tanks (three) were positioned well camouflaged in a hedge, they let our Panzer (Leutnant Euler) approach across an open pasture to within 80 to 100 meters without opening fire. When Leutnant Euler in his **Pz.Kpfw.III** spotted the well-camouflaged enemy tanks, he got off the first shot. In another case, a **Pz.Kpfw.III** (Oberleutnant Lekschat) drove up to within 120 meters of an enemy tank directly facing him on the road without the enemy tank immediately opening fire.*

*As he drove past an enemy tank at a range of 100 meters, Oberleutnant Malguth observed that the speed of the enemy tank's traversing mechanism was too slow to follow the **Pz.Kpfw.II**. Because of this, the enemy tank did not get off a shot.*

ORDER OF BATTLE - 10 MAY 1940



The enemy tanks are slow and especially sluggish when turning. Already during this battle, tanks were knocked out mainly because they didn't get away due to slow turning maneuvers and were shot up from the side.

The armor is extraordinarily good, both in thickness and in quality. At only small deviations from perpendicular, the 3.7 cm tank gun shells bounce off, even at close range (100 meters). This was mainly due to the rounded construction of the armor, where armor is automatically thicker when hit at an angle.

The enemy tanks behave leaderless, aimless, badly commanded, tactically inferior, and try to get away soon.

Losses to the ***5.Kompanie*** *were caused mainly by anti-tank guns.*

In a defensive position on the northeast edge of Hannut, the ***6.Kompanie*** *shot up two enemy tanks at a range of 80 to 100 meters. These tanks had previously knocked out an* ***8.Kompanie Pz.Kpfw.IV*** *by hitting the driver's side visor. One tank was knocked out by hits in the side from a 2 cm tank gun. The other tank was knocked out when hit in the rear. A* ***Pz.Kpfw.II*** *shot up an armored car at a range of 600 meters.*

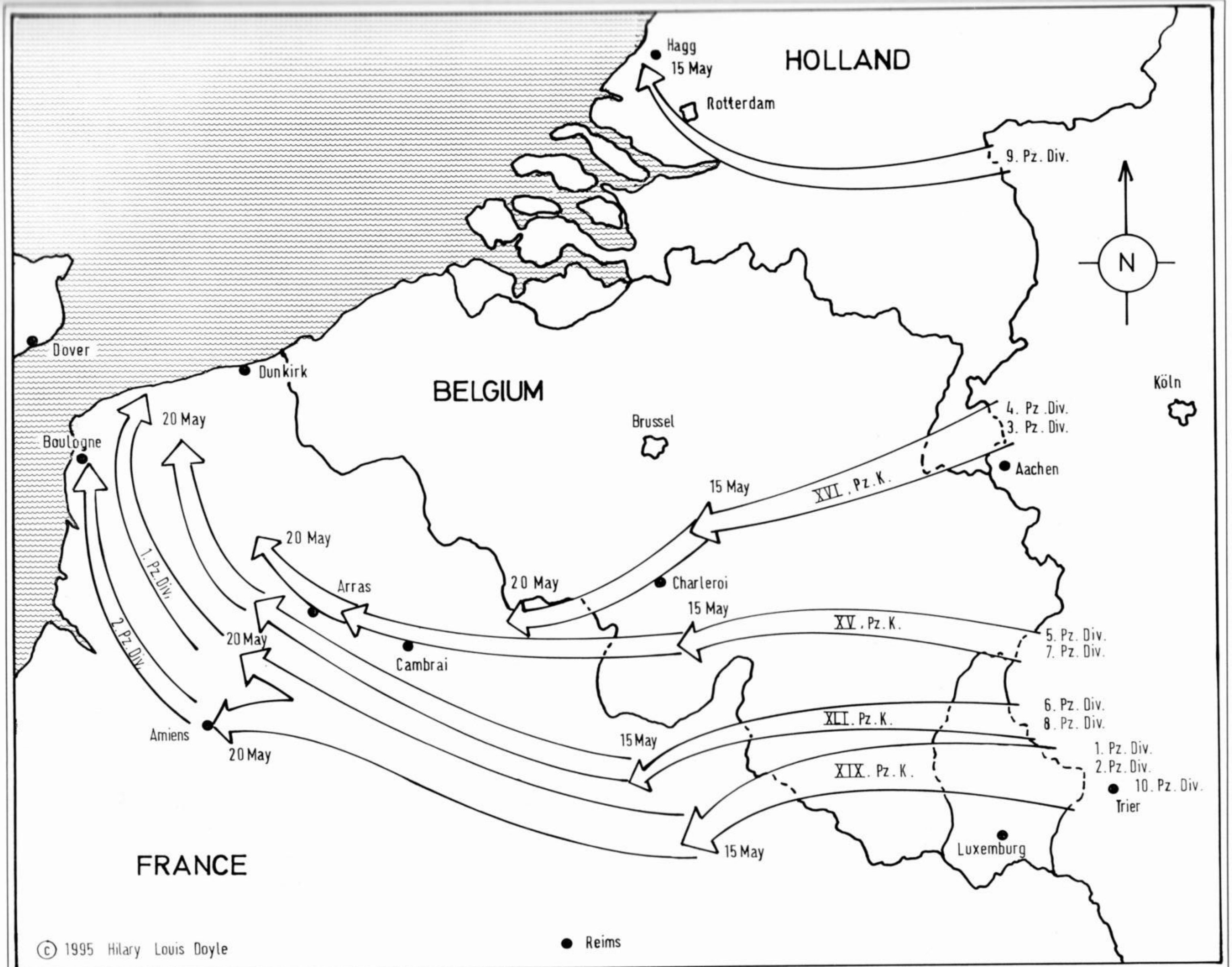
While breaking through a wall, one ***Pz.Kpfw.II*** *of the* ***leichte Zug*** *was knocked out by enemy tanks at a range of 10 to 20 meters. The crew was incapacitated by fragments. In reverse gear, the Panzer rolled back. Apparently the gun had jammed while loading.*

In general, our Panzer gunners see more because they observe with open hatches, identify targets, and then first go to the gunsight to fire.

The ***Pz.Kpfw.II*** *armor wasn't shattered when penetrated at a range of 400 meters by a 3.7 cm enemy tank gun. The resulting wounded were not badly hurt because of the insignificant fragmenting effect.*

Advancing through Thisnes to the west of Hannut during the evening, the ***I.Abteilung*** *encountered enemy tanks behind barricades. Four French Hotchkiss tanks were shot up during the battle in the village.*

Returning at dusk to bring up motorized infantry, the regimental commander encountered three enemy tanks which knocked out his ***Panzerbefehlswagen*** *at close range. Numerous hits on the enemy tanks at close range by the 2 cm tank guns of the regimental adjutant's* ***Pz.Kpfw.II*** *and another* ***Pz.Kpfw.II*** *did not cause any observable effect. In the dark, these enemy tanks got in among the* ***3.Kompanie/Panzer-***


HOLLAND
Hagg
15 May
Rotterdam
9. Pz. Div.
N
Dover
Dunkirk
BELGIUM
Köln
Brussel
4. Pz. Div.
3. Pz. Div.
Boulogne
20 May
Aachen
15 May
XVI. Pz. K.
1. Pz. Div.
2. Pz. Div.
20 May
Arras
20 May
Charleroi
15 May
XV. Pz. K.
5. Pz. Div.
7. Pz. Div.
20 May
Cambrai
6. Pz. Div.
8. Pz. Div.
XLI. Pz. K.
Amiens
15 May
20 May
1. Pz. Div.
2. Pz. Div.
XIX. Pz. K.
10. Pz. Div.
Trier
15 May
Luxemburg
FRANCE
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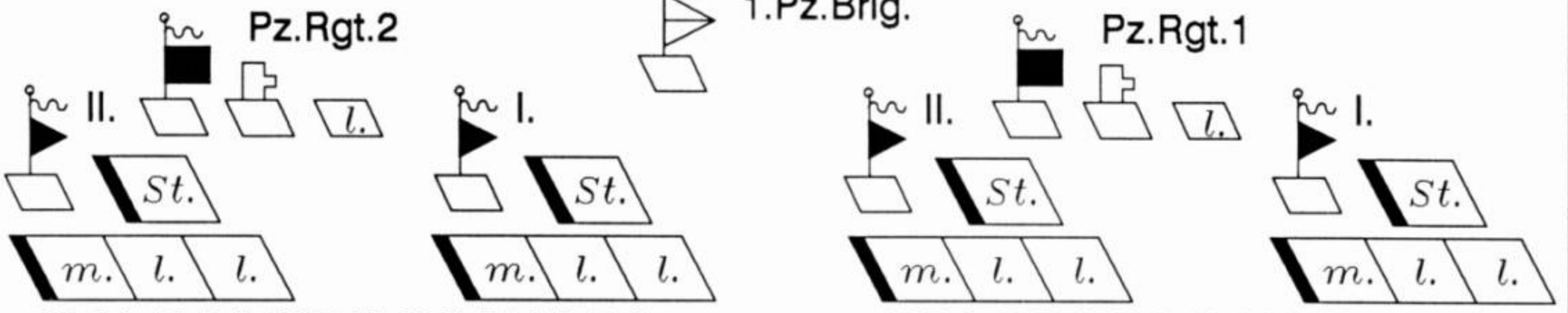
Reims

ORGANIZATION AND STRENGTH OF PANZER UNITS
FALL GELB - 10 MAY 1940

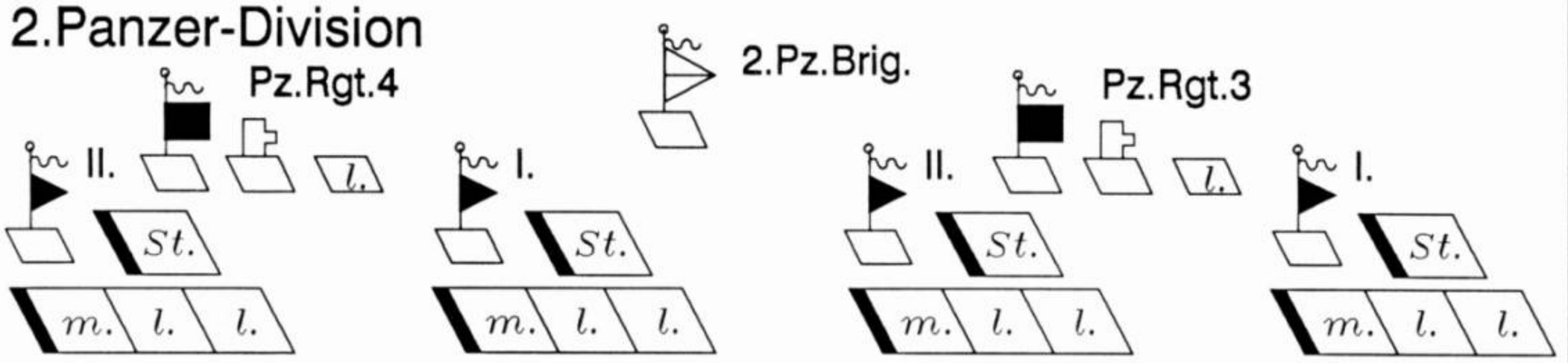
1.Panzer-Division



26 PzI, 49 PzII, 30 PzIII, 20 PzIV, 4 PzBef

26 PzI, 49 PzII, 28 PzIII, 20 PzIV, 4 PzBef

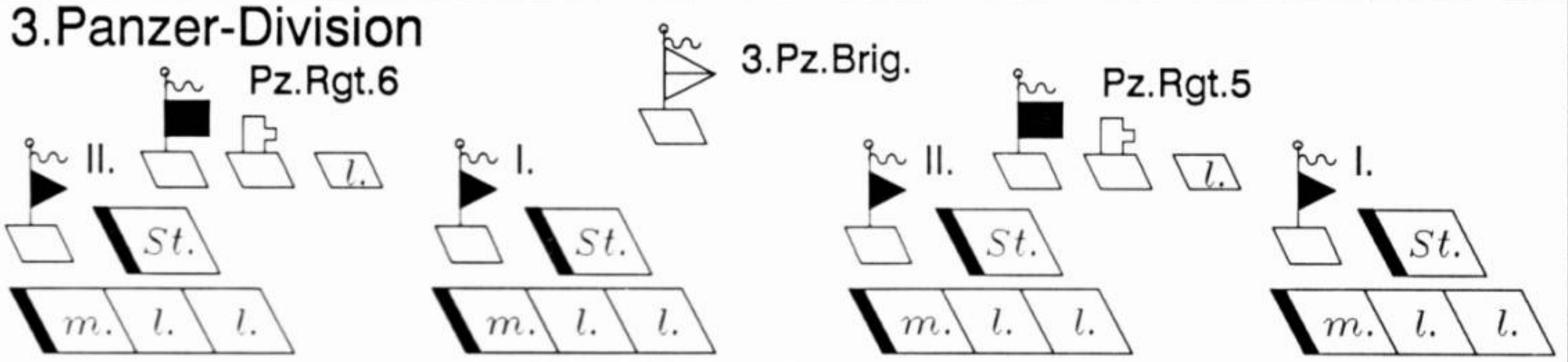
2.Panzer-Division



23 PzI, 60 PzII, 29 PzIII, 16 PzIV, 8 PzBef

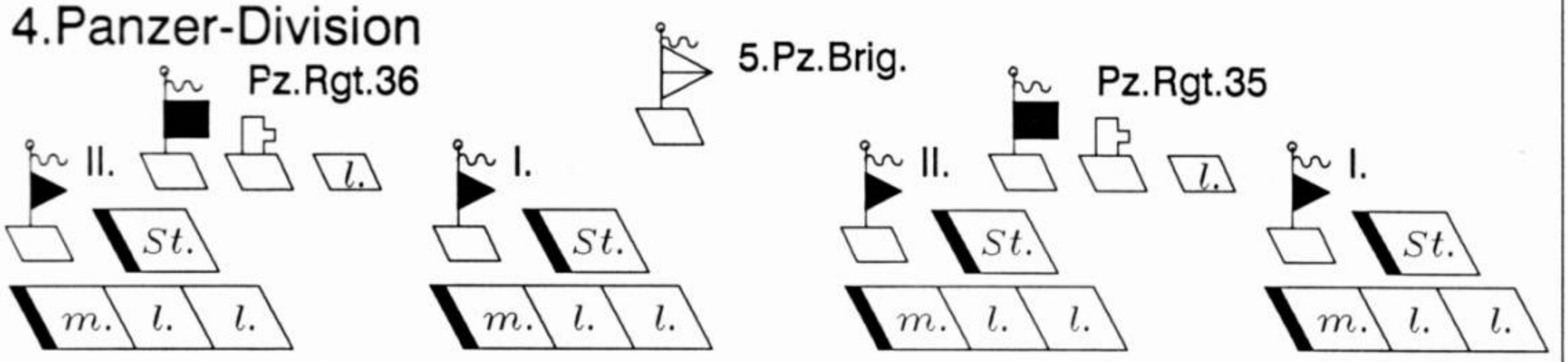
22 PzI, 55 PzII, 29 PzIII, 16 PzIV, 8 PzBef

3.Panzer-Division



117 PzI, 129 PzII, 42 PzIII, 26 PzIV, 27 PzBef

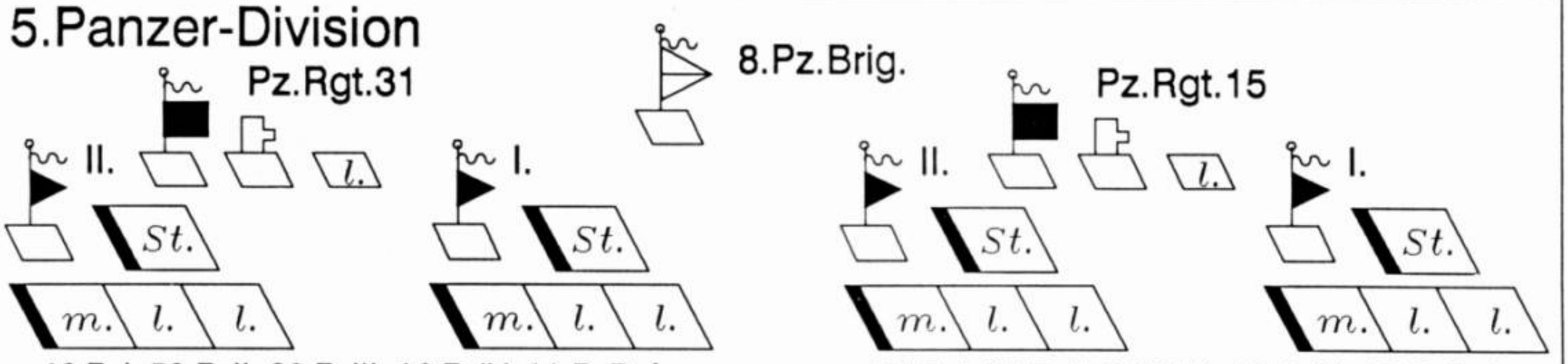
4.Panzer-Division



66 PzI, 55 PzII, 20 PzIII, 12 PzIV, 5 PzBef

69 PzI, 50 PzII, 20 PzIII, 12 PzIV, 5 PzBef

5.Panzer-Division

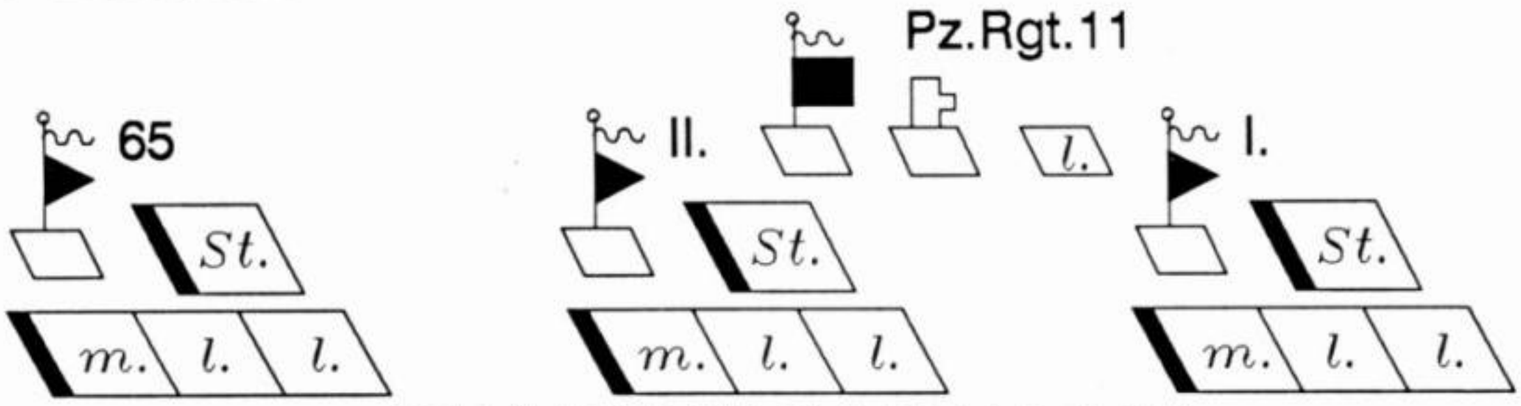


46 PzI, 59 PzII, 28 PzIII, 16 PzIV, 11 PzBef

51 PzI, 61 PzII, 24 PzIII, 16 PzIV, 15 PzBef

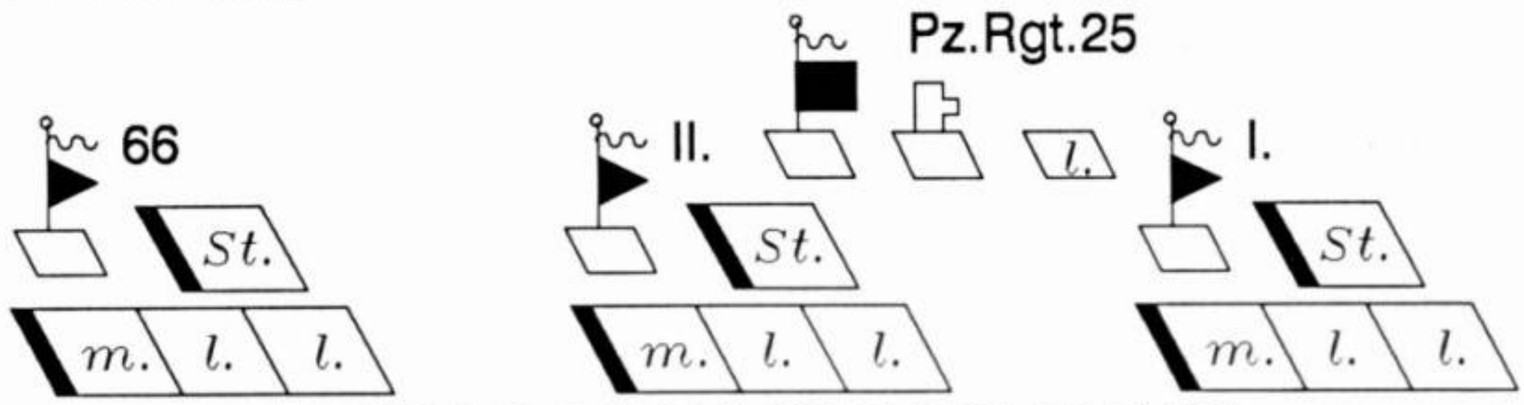
ORGANIZATION AND STRENGTH OF PANZER UNITS
FALL GELB - 10 MAY 1940

6.Panzer-Division



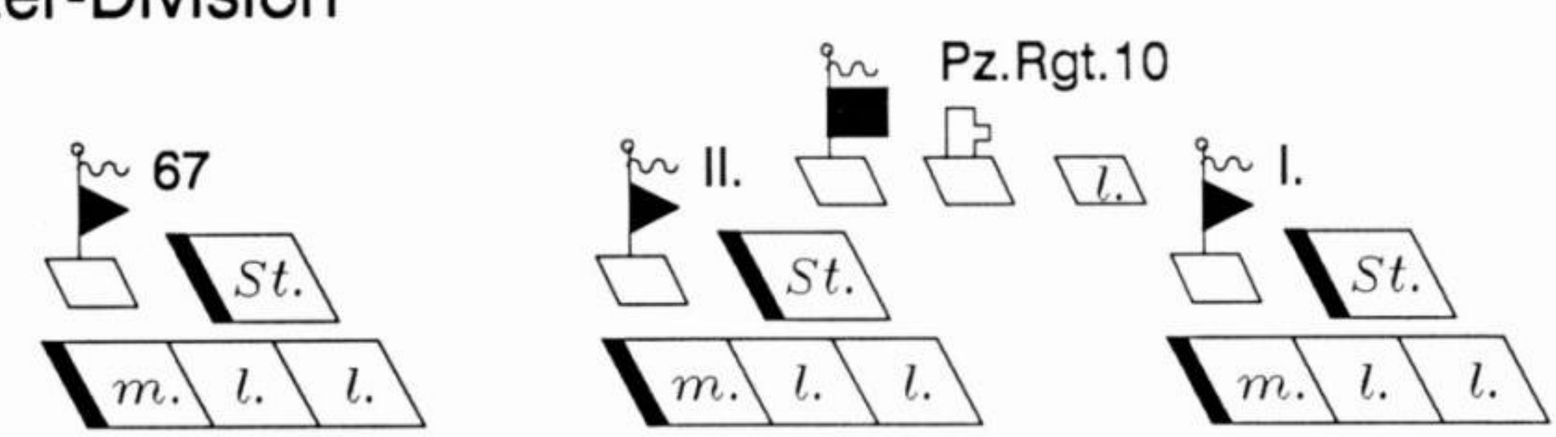
60 PzII, 118 Pz35t, 31 PzIV, 14 PzBef35t

7.Panzer-Division



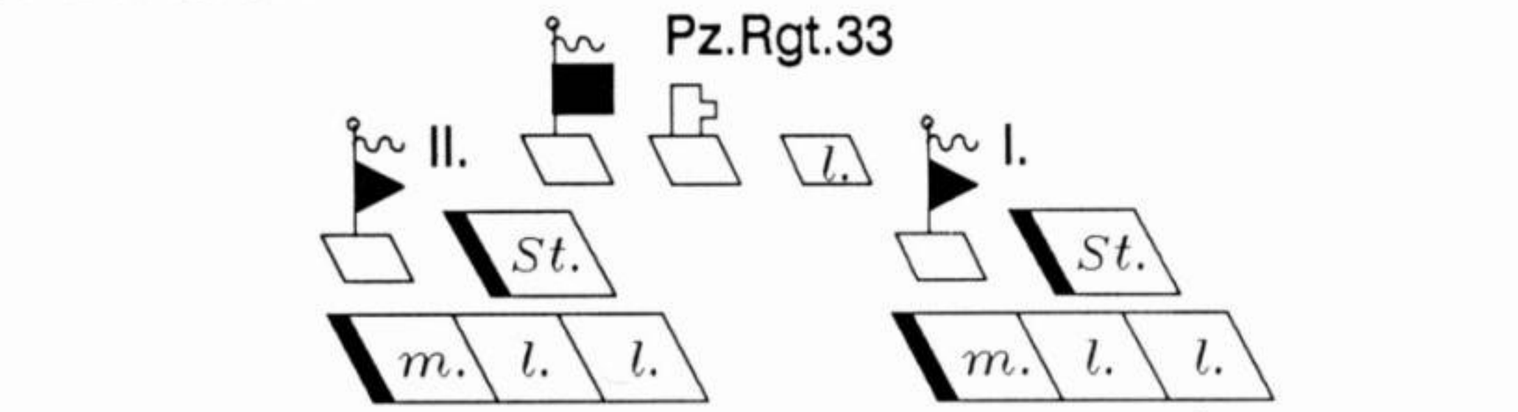
34 PzI, 68 PzII, 91 Pz38t, 24 PzIV, 8 PzBef38t

8.Panzer-Division



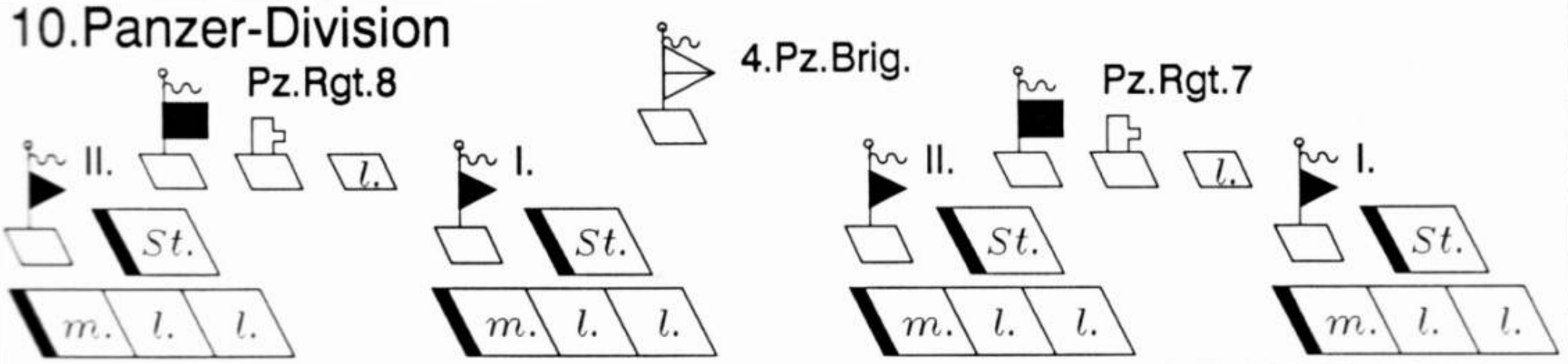
58 PzII, 116 Pz38t, 23 PzIV, 15 PzBef38t

9.Panzer-Division



30 PzI, 54 PzII, 41 PzIII, 16 PzIV, 12 PzBef

10.Panzer-Division



22 PzI, 55 PzII, 29 PzIII, 16 PzIV, 9 PzBef

22 PzI, 58 PzII, 29 PzIII, 16 PzIV, 9 PzBef

The **4.Panzer-Division** was one of the last two units to be built up for the offensive and only had 40 **Pz.Kpfw.IIIs** at the start of the campaign. This photo taken on 13 May 1940 shows a **Pz.Kpfw.III** of the **4.Panzer-Division** passing through a gap in a road block that was cleared by the **Pioniere**. (BA)

***Regiment 35**. Since they didn't fire, they weren't recognized for a while as enemy tanks. One tank was knocked out at a range of 20 meters by a 2 cm tank gun, one was dispatched by a hand grenade, and the third got away in the darkness.*

The total results for the day were at least 17 French tanks knocked out.

II. Panzer battle at Merdorp on 13 May 1940

*During the battle by Merdorp, in the front line the **Pz.Kpfw.III** and **IV** of the **8.Kompanie** started a fire fight with readily identifiable tanks on the east edge of Merdorp at a range of about 1000 meters. Hits were observed from **Pz.Kpfw.IVs** firing while stationary at stationary targets. The effect couldn't be readily determined because the regiment didn't move through Merdorp. On the contrary, several 7.5 cm armor-piercing shells were clearly seen to bounce off. The enemy tanks presented their front. As the action progressed, the fire fight was again taken up at about 600 meters against stationary enemy tanks showing both their front and wide side. Direct hits were obtained to good effect. Three enemy tanks lay knocked out, one catching fire.*

After this, two enemy tanks driving from left to right were fired on at a range of 900 meters. At first it was observed that we fired too short and with too little lead (speed of the enemy tanks about 15 to 20 km/hr). With 15 to 20 rounds, both were knocked out after driving about 100 meters.

After the regiment moved past the north edge of Merdorp, 11 enemy tanks came out of Merdorp and attacked the following motorized infantry. The I.Abteilung immediately turned about and fired at the enemy tanks at a range of 400 to 600 meters. Eight enemy tanks remained stationary; three escaped.

An enemy tank climbing a rise was shot at by 2 cm, 3.7 cm, and 7.5 cm tank guns at a range of about 800 meters. A large number of hits, including 7.5 cm, were readily observed. The tank wasn't stopped by these hits and disappeared behind the rise. Later it was found undamaged, stuck in a defile. Gouges left by a large number of hits were evident. It was a Somua with very strong armor, a 4.7 cm gun, and one machine gun.

When they reached the height between Jandrain and Jandrenouille, the regiment came under fire from enemy tanks

on the next height to the west, from anti-tank guns in Jandrenouille, and from machine guns in Jandrain. The regiment couldn't advance further due to ammunition shortages (it had fired too often at ranges over 800 meters). The ***3.Kompanie/Panzer-Regiment 35*** *and scouting platoon, sent to clean out Jandrain, knocked out five Hotchkiss tanks at close range with the 2 cm tank guns, took over 400 prisoners, and captured four anti-tank guns and numerous machine guns.*

During the further advance, three French tanks were captured as a result of a fire fight against enemy tanks on the height 800 meters west of the water tower south of Jandrain.

The total results for the day were at least 22 French tanks knocked out.

III. Panzer Battle at Perwez-Malprouve on 14 May 1940

I.Abteilung *destroyed two light armored cars that were behind a barricade at Perwez.*

Panzer-Regiment 36 *encountered tanks standing on the north edge of Bois de Grand-Leez. The* ***I.Abteilung/Panzer-Regiment 35*** *swung in and together with elements from the* ***II.Abteilung****, fought the enemy. Six enemy tanks remained stationary.*

North of Malprouve, the ***2.Kompanie/Panzer-Regiment 35*** *observed a large enemy armored car driving on the road toward Gemblou and shot it to scrap.*

Oberleutnant Krause, leader of the ***Pionier Zug II.Abteilung/Panzer-Regiment 35****, encountered about 20 enemy tanks at the edge of the woods southeast of Malprouve. At the moment they climbed out of a roadside ditch, he shot up four of these Hotchkiss tanks with a captured Belgium anti-tank gun. He immobilized the command tank (a Somua) by personally throwing a charge against the tracks.*

Total results for the day were 14 French tanks knocked out.

IV. Results from 12 through 14 May 1940

17 enemy tanks on 12 May, 22 on 13 May 22, and 14 on 14 May for a total of 53 enemy tanks knocked out.

V. Experience

A. Equipment:

With their greater maneuverability, cross-country mobility, and speed, the German ***Pz.Kpfw.III*** *and* ***IV*** *are superior to all French tanks (other than the super heavy). This superiority will be complete by significantly improving the armor and equipping the* ***Pz.Kpfw.III*** *with the 5 cm tank gun. After which, both of these Panzers could be referred to as excellent. The French Somua tank is superior to our* ***Pz.Kpfw.III*** *in both its armor and armament (4.7 cm gun). Its lack of mobility and maneuverability negates these advantages. The French Hotchkiss tank is superior only in regard to its armor.*

Outfitting the regiment with a larger number of ***Pz.Kpfw.III*** *and* ***IV*** *should have been achieved before it was sent into action. There were only 32 in the entire regiment, of which two factory-fresh Panzers immediately required repairs. Only 20* ***Pz.Kpfw.III*** *and* ***IV*** *were operational during the action at Merdorp. The regiment would certainly have had very many fewer losses.*

The ***Pz.Kpfw.II*** *should still be retained in the companies for special tasks (combat reconnaissance). Outfitting it with the exceptional French 2.5 cm gun with tungsten armor-piercing rounds would convert it to a first class Panzer, especially if vision was improved by installing a commander's cupola. The* ***2 cm Kw.K.*** *tank gun is first effective against the Hotchkiss tank at ranges under 200 meters. Unfortunately, the* ***Pz.Kpfw.IIs*** *in the regiment did not receive the additional armor modification before the start of this campaign. This deficiency had to be made up for by the courage of the crews and paid for through the loss of men and equipment.*

The French 2.5 cm anti-tank gun can penetrate the armor at any location on the ***Pz.Kpfw.III*** *at ranges up to 500 meters. The French 4.7 cm anti-tank gun is an exceptional weapon that is effective and can penetrate the* ***Pz.Kpfw.III*** *even at 1500 meterThe radio equipment in the German tanks is superior. Enemy interference of German radio transmissions has not yet been noticed.*

B. Tactical

In every action, the French have never directly attacked. They employed their tanks as mobile anti-tank guns and thereby enjoyed all the advantages of defense such as concealed positions in village and wood lines or directly behind a ridge line. They disengaged smartly. If one charged past, they attacked the following infantry.

At Merdorp enemy tanks were encountered in battalion strength (one company Merdorp, one company Jandrain, and one company west of the water tower). The tanks shot up the day before at Hannut could also have been from the same battalion. The tanks knocked out the next day at Malprouve apparently belonged to a different battalion.

The French tanks at Merdorp and Jandrain did not mutually support each other. Also, in other cases cooperation was lacking. The cause is unknown. These facts made our success possible.

The French gunnery training was inferior to the German. Perhaps this was associated with their poor vision.

The French tanks were frequently employed together with French anti-tank guns.

Overall, courageous charges by German Panzers on a zig-zag course and engagements from the flank have led to success.

With the exception of shots fired to show direction, Pz.Kpfw.IIIs and ***IVs*** *should first open fire at ranges not exceeding 600 meters, the* ***Pz.Kpfw.IIs*** *at 200 meters. If not, ammunition is wasted.*

The decisive cause for the German success in battle against French tanks was the fact that the French always fought against the regiment only with a small number of tanks. Therefore it was possible to destroy them with the concentrated fire of our relatively few armor-defeating weapons. It could lead to a very difficult situation if the French employed a large number of Somua tanks against us.

The 13 mm thick armor was designed to withstand hits from armor piercing rounds fired by small arms, not large caliber anti-tank rounds. The driver's plate of this **Pz.Kpfw.I Ausf.A** from the **5.Panzer-Division** has been shattered by a hit. (KHM)

A double column of **Pz.Kpfw.Is**, **Pz.Kpfw.IIs**, and **Pz.Kpfw.IIIs** advancing toward Cambrai on a country road followed by a **Pz.Bef.Wg.** and a **Funkwagen**. (Koenig)

Morale. Altogether, the German crews' morale was superior in their zeal to attack and better leadership and training. But the value of the French crews should be fully recognized. Great courage was shown by dismounted French tank crews who still shot at the German crews with pistols.

Combat reports from the **5.Kompanie/Panzer-Regiment 1** reveal the details of combat encountered while advancing with Guderian's Korps to establish bridgeheads over the Meuse:

*About 0500 hours on 12 May 1940, the **4.Zug** of the **5.Kompanie** received an order to report to the **I.Bataillon/Schuetzen-Regiment 1**. In cooperation with infantry, they were assigned to clear out the village of Bouillon and capture the heights that lay south of Semois.*

*As the **4.Zug** waited for the infantry, they were suddenly fired on by French batteries. Four hits lay directly in the road. Feldwebel Zentgraf was lightly wounded on his hand. The platoon took full cover beside the road. While the platoon was still waiting for the infantry, as ordered by the platoon leader, several of the Panzer crew searched through a house standing beside the road and took nine French prisoners in the basement.*

Shortly after 0800 hours the forward elements of the infantry arrived, the platoon carried the infantry into Bouillon. After a short fire fight with scattered enemy elements near the destroyed Semois bridge, on orders from the platoon leader, the river was crossed at a ford. On the south bank the platoon provided a rear guard for a platoon from the 7.Kompanie. The burning south end of Bouillon was then cleaned out.

*The **4.Zug** of the **5.Kompanie** met together with the platoon from the **7.Kompanie** to take and occupy the heights south of Bouillon. At a crossroads, the platoon came under machine gun and anti-tank gun fire. The **4.Zug** returned the fire and in coordination with the platoon of the **7.Kompanie** knocked out the enemy anti-tank gun and shot up a French artillery battery. In spite of the infantry not following, both platoons then attacked the wood line, destroying several machine gun nests as they approached. Our own artillery supported this attempt. The platoon held the heights until the infantry arrived at about 1000 hours and remained there until about midday.*

*In action with the regiment south of the Bois de la Marsel, attacking Bulson and Marsoncelle, on 14 May 1940, the **5.Kompanie/Panzer-Regiment 1** was positioned on the right wing in the second wave near the **II.Abteilung**. The **5.Kompanie** knew that enemy tanks, also attacking to the north, could be encountered in the area around Bulson.*

*The **5.Kompanie** positioned all of the armor-defeating weapons at the front of the formation, loaded **S.m.K.H.** as a precaution, and took up the **Breitkeil** formation. The **Pz.Kpfw.Is** were gathered under one platoon leader and fol-*

The 20 mm additional armor bolted to the front of the turret, superstructure, and hull of the **Pz.Kpfw.II** was successful in providing some additional protection against hits from 25 mm and 37 mm classes of anti-tank weapons. (BA)

*lowed at a short interval. After elimination of several nests of enemy infantry that had survived the first wave, the leading elements of the company spotted several enemy tanks driving from Chemery toward Maisoncelle et Villers. The Panzers opened fire at a range of about 800 meters. Several hits were observed but destructive effect was not noticeable. The company commander saw several tracer shells bounce off. Our firepower caused the enemy tanks to panic and flee toward Maisoncelle et Villers and Chemery, where they were driven on the one hand into the fire from the 7.Kom**panie** and on the other hand into the fire from **Panzer-Regiment 2**, resulting in their destruction. The **5.Kompanie** together with the **Abteilung-Stab** took about 30 prisoners on the west side of Maisoncelle et Villers.*

*Then the **5.Kompanie** received an order to assemble in Chemery. Up to now, four Panzers had fallen out due to mechanical problems. Several enemy bombers attacked the **5.Kompanie** during their advance through Chemery. No losses occurred because the proper intervals had been maintained between Panzers.*

*During the afternoon, the **5.Kompanie**, which had moved up to Malmy, received an assignment to attack north of Vendresse to relieve the **I.Abteilung** which was engaged in heavy combat. The **5.Kompanie** started without delay, together with the **8.Kompanie**, followed by the **7.Kompanie**. The **5.Kompanie** left Malmy in the **Doppelreihe** formation, and later reformed into the **Breitkeil**. On the gentle slope northeast of Vendresse, the **5.Kompanie** came under fire from anti-tank guns, anti-tank rifles, and machine guns. Quickly charging and immediately hitting the forward elements so impressed the French that some of them fled and were shot down. Others gave themselves up. Those that sought cover in clumps of bushes and foxholes were killed.*

*The terrain north of Vendresse was very difficult due to many sinkholes and steep banks. A series of Panzers fell out due to damage caused by crossing these obstacles. Then, the **5.Kompanie** lengthened the fire front on the right wing of the **I.Abteilung** and advanced farther forward as they saw that **Pz.Kpfw.IIIs** and **IVs** took up positions.*

*The **5.Kompanie** went along the wood line and cleared out the enemy. About 1000 meters northwest of Vendresse, the **5.Kompanie,** whose left flank was uncovered, suddenly came under fire from eight anti-tank guns at a range of 6 to 800 meters. Only a few of the Panzers of the **5.Kompanie** were still combat operational. Nevertheless, these immediately began to fire. Several anti-tank guns positioned on the left of the road were silenced. Almost all of the Panzers were hit or fired on by anti-tank guns that were difficult to spot or not spotted at all in the woods on the right. The company commander was temporarily incapacitated. He was sprayed again and again by irritant gas hitting him in the face and eyes from anti-tank shells shattering on the armor. He signaled the order to pull back. At 1000 meters in front of the **Abteilung**, only 5 **Pz.Kpfw.II** were left still firing at an opposing superior force of anti-tank guns. The assignment to relieve the **I.Abteilung** had been achieved.*

This crew member from the **5.Kompanie/Panzer-Regiment 7** in the **10.Panzer-Division** appears to be upset at the damage caused to the tracks, roadwheels, and suspension of his **Pz.Kpfw.III**. The divisional tactical sign, a slanting bar, was painted on the front of the hull. (BA)

A **Pz.Kpfw.IV Ausf.B** followed by a **Pz.Kpfw.II** advancing south of Sedan in May 1940. The **7.5 cm Kw.K. L/24** on the **Pz.Kpfw.IV** proved to be the most effective weapon in the **Panzer-Abteilung** for knocking out enemy tanks. (BA)

*It turned out that damage to the Panzers caused by hits from anti-tank guns was only insignificant. Still in possession of eight Panzers, the **5.Kompanie** assembled in the depression north of Vendresse. Three crews had been forced to abandon their **Pz.Kpfw.IIs**. The crews crept back and retrieved their Panzers during the late afternoon when the opponent began to clear out of his position.*

*On 15 May 1940, the **5.Kompanie/Panzer-Regiment 1** received an assignment to send a platoon to reconnoitre the road for a planned enveloping advance through Omont - Ferne "Quatre Vents" 219 - Baalons - toward Bouvellemont. In addition, all obstacles were to be found and they were to determine if Bouvellemont was occupied by the enemy.*

*Under the command of Leutnant Poll, the **1.Zug** with two **Pz.Kpfw.II** and two **Pz.Kpfw.Ib** immediately started and moved on the flank and in the rear of the enemy still fighting hard in and around Chagny. After about 4 kilometers, a rail barricade was encountered near Point 219 in the area of Ferne Quatre Vents. The **1.Zug** ran across a fully undamaged abandoned baggage supply wagon in the woods after Froimont - Baalons. Several freed mules and horses were standing around in a clearing in the woods. A large amount of combat equipment pointed to their probable retreat to the north.*

*An enemy messenger on horseback suddenly sprang up near the first houses in Froimont and quickly turned and disappeared out of sight in the direction of Bouvellemont. A field telephone cable was found and destroyed on the same trail. The **1.Zug** encountered two street barricades erected in the middle of town to which a tall pile of farm equipment had been added. The side toward the enemy appeared to be mined. Loud sounds of combat rang out from Bouvellemont. Because the reconnaissance assignment had been completed, the **1.Zug** turned back to return to the **5.Kompanie** at Omont. The reports were clearly transmitted by radio over a distance of 8 to 10 kilometers.*

In one of their rare encounters with enemy tanks, **Panzer-Regiment 4** recorded:

*Toward 1500 hours on 15 May 1940, with the **II.Abteilung/Panzer-Regiment 4** in the lead, the regiment started to advance through Boulzicourt, Paix-Terron, Launois to Wasigny.*

A **Pz.Kpfw.IV Ausf.D** in the **9.Panzer-Division** advanced through Holland before being sent south to join the pursuit to the channel. The divisional tactical sign, two Xs, were stencilled on the front, above and to the left of the driver's visor. (BA)

After taking care of resistance in Boulzicourt, strong resistance from bunkers and anti-tank guns behind barricades was broken at Paix-Terron and Montigny. Eight Renault tanks were knocked out during a short fight.

In Launois, the lead company encountered an anti-tank gun barricade and a company of 21 Renault tanks. These were immediately attacked and 20 tanks were destroyed and shot into flames.

Not a single Panzer was lost in exchange for destroying 28 enemy Renault tanks. Our losses were one dead and seven wounded.

However, in other engagements the losses were not insignificant as shown in the combat report from the **4.Kompanie/Panzer Regiment 1** on the Battle at Tourteron on 16 May 1940:

Because of the possibility of an enemy tank attack from the left flank, the regiment formed a leaguer east of the village during the night of 15/16 May. On 15 May, the motorized infantry and other units fought around the crossing at Chagny. Plans to strike at Louvergny during the morning of 16 May were changed because the opponent had retreated during the night.

*The lead elements for this days advance consisted of the **3.Kompanie/Kradschuetzen-Battalion 1** and the **4.Kompanie/Panzer-Regiment 1** with 3 **Pz.Kpfw.II** and 3 **Pz.Kpfw.IV** (Kühne, Meier, Mattersteig, Komp.Chef, Lucas, Ewaldt). From Chagny onward, Lucas and Ewaldt reconnoitered the left flank where enemy tanks were reported to have been seen. After not spotting any enemy, they were recalled by radio. Ewaldt's Panzer broke down near Chagny. Lucas rejoined the lead in La Sabotterie. A platoon of motorcycle infantry entering the village from the right ran into our lead elements and was captured. The advance continued. Before the lead elements reached the crossroads between La Sabotterie and Tourteron, three French armored cars and two motorcycles traveling at high speed turned onto our route and fled in the direction of Tourteron. They were fired at by the lead vehicles, apparently without effect.*

*As the lead elements (2 **Pz.Kpfw.II**, 1 **Pz.Kpfw.IV**) approached Tourteron, they received anti-tank gun and machine gun fire from Tourteron and from the heights on both sides of Tourteron. Further advance on the road was impossible. The*

*Panzers fired at the identified targets and then slowly pulled back. The commander of the motorcycle company agreed that the **Pz.Kpfw.IV** would take up a position on the height by Tourteron and the motorcycle infantry would enter the city under their covering fire. The **Pz.Kpfw.II** remained in defensive positions by the road. The **Pz.Kpfw.IV** succeeded in driving off the enemy armored cars. A light tank and an armored ammunition carrier were destroyed. The advance continued after mines were cleared from the city by the motorcycle infantry. The commander's **Pz.Kpfw.IV** fell out because it had received two hits, one of which damaged the gun. This left only three **Pz.Kpfw.II** (**I.Zug**) and one **Pz.Kpfw.IV** (Lt.Lucas).*

*The advance continued in the old order, reconnaissance patrol from the motorcycle infantry, Panzers, and motorcycle company. Strong resistance was encountered at Sorcy-Bauthemont. A **Pz.Kpfw.II** was hit several times by anti-tank guns. The crew had to bail out. The Panzer was hit again by anti-tank gun fire, altogether 19 times. The only **Pz.Kpfw.IV** opened fire and silenced the anti-tank gun. After all of the **Spreng-** and **Panzergranaten** were fired to cover the retreat, smoke rounds were laid down along the edge of the village. The crew also had to abandon the **Pz.Kpfw.IV** since it had mechanically broken down and the gun fell apart after firing the last round. Motorized infantry took on the defense of the Panzer. The **Abteilung** sent Panzers from the **2.Kompanie** which arrived to retrieve the **4.Kompanie**. After enemy resistance was broken, it was found out that an anti-tank company with motorcycle infantry had been in position in the village.*

Hauptmann Huschenbeth, company commander of the **7.Kompanie/Panzer-Regiment 1**, wrote the following report on the battle at Mortiers on 17 May 1940 in which **Pz.Kpfw.IIIs** succeeded in knocking out a French Char B1 bis tank:

*On the morning of 17 May, the **II.Abteilung/Panzer-Regiment 1** was located in Mortiers with front facing west with the **5.Kompanie** on the right, **7.Kompanie** in the middle, and the **8.Kompanie** on the left. The advance of the last few days was to continue in the morning with the lead elements leaving Dercy at 0800 hours. The **II.Abteilung/Panzer-Regiment 1** was at the end of the point guard with the **7.Kompanie** bringing up the rear.*

*The advance only went slowly forward, delays occurring caused by reorganization. Toward midday, the **7.Kompanie** was preparing to start when the alarm call came in "Enemy tanks from the front!" The **7.Kompanie** was located in a garden on the west side next to the Crecy to Serra road with three **Pz.Kpfw.III** facing west toward the enemy and three **Pz.Kpfw.III** in defensive positions to the rear.*

*Slowly but steadily a heavy French B2 tank approached. Shortly before this a motorcycle messenger was brought in who had been seriously wounded by machine gun fire from the French tank. The **Pz.Kpfw.III** opened fire, scored hits, but without effect. The French tank soon rolled past the first houses where the **7.Kompanie** was located, when he was also fired at and hit by Panzers that were in rearward positions.*

*Returning fire, he continued unbothered on his way. We observed that our **3.7 cm Panzergranaten** were not penetrating.*

*The French tank destroyed a light armored car and came to a halt on the road among a small group of houses. Here he was engaged by a **2 cm Flak** gun, by engineers and infantry with hand grenades and armor-piercing ammunition, however without any decisive effect.*

*The company commander decided to attack with the entire company (two platoons of **Pz.Kpfw.III**) and destroy the French tank from the rear. The Adjutant of the **II.Abteilung** held back one platoon for defense toward the west, so that only three Panzers were sent into battle. At a range of 200 to 250 meters directly behind the enemy tank, the company commander's **Pz.Kpfw.III** fired round after round at the perpendicular rear plate. The other two **Pz.Kpfw.IIIs** fired mainly at the turret. The French tank continued to fire around without any apparent plan and then destroyed a passenger car, fortunately without any men being injured.*

*The crew (one officer and four men) abandoned their B2 tank. Two of the crew had been wounded in the face by fragments. Completely saturated by hits, none of the 7.5 cm, 3,7 cm, 2 cm, and **S.m.K.(H)** had been effective in penetrating. Only one hit from a 3.7 cm had cleanly penetrated into the motor compartment and immobilized the tank.*

*The **7.Kompanie** successfully ended this second tank battle without any losses, and prevented further enemy advances and large losses to the other weapons.*

A further tank attack was reported, but it turned out to be false.

The following tactics were learned for combating this type of tank:

1. If the opponent can be allowed to approach:

a. From hidden positions fire the 3.7 cm gun to knock out the enemy tanks gun. The light Panzers are to remain totally camouflaged under cover, suppressing all movement and fire.

b. Fire the 3.7 cm gun at the flat plates on the rear. Penetration will be achieved after several hits and will be effective in destroying the crew.

2. If the heavy tanks are unexpectedly encountered:

a. All light Panzers retreat and take cover.

*b. The **Pz.Kpfw.IIIs** take up good positions and knock out the gun by accurately aimed fire from the 3.7 cm tank gun.*

c. Panzers in unfavorable positions should pull out (with or without smoke), so that the enemy tank will turn in their direction and can be engaged from the rear by concentrated fire from another platoon.

The defense of the village was organized based on this plan until the advance toward Hamegicourt started in late afternoon.

Having driven a deep wedge into the French and British forces, the Panzers under Guderian continued to advance toward the channel, reached by elements from the **2.Panzer-Division** on 20 May 1940. Guderian's forces then turned north toward the channel ports. The **5.Kompanie/Panzer-Regiment 1** recorded their actions in attempting to prevent enemy forces from getting away:

*Toward 2130 hours, on 22 May 1940, west of Courteaux, the company commander received an assignment to join up with the **III.Bataillon/Schuetzen-Regiment 4** and attack the train station at Desvres to prevent the opponent from loading troop trains. This accomplished, they were to bypass the village and reach the woods north of Desvres. Three **Pz.Kpfw.IVs** were attached to the company. The **5.Kompanie** took up formation and started forward. Very soon it became apparent that contact with the motorized infantry was impossible. The motorized infantry were forced to take cover by machine gun fire and didn't react when called. Since there was no time to wait (the sun was going down), the company commander decided to continue on with the **5.Kompanie** in the expectation that the motorized infantry would follow. During the entire duration of the attack, the motorized infantry were not seen and support from the motorized infantry regiment was not noticed.*

*The **5.Kompanie** moved forward and wound up on the steep bank south of the railyard. There the Panzers came under especially heavy machine gun fire. Because of the sun and the dust and smoke being raised we couldn't see any enemy. The Panzer crews were completely blinded by the sun. The company commander decided to drive down the steep bank even though it was obvious that all of the Panzers wouldn't get down without suffering mechanical damage. This measure was also necessary because the train station area was not visible due to being overgrown with brush and saplings.*

*While driving down, the company came under fire from all sides. Only about 10 **Pz.Kpfw.Is** and **IIs** and one **Pz.Kpfw.IV** were still operational after losses occurred as a result of mechanical damage and hits from anti-tank guns. A heavy battle took place with anti-tank guns and infantry on the rail line on which a fully loaded transport train with locomotive stood ready to depart. The anti-tank guns were knocked out of action by all of the Panzers firing. The **Pz.Kpfw.IV** supported the battle and caused the locomotive to explode. All of the light Panzers were hit by anti-tank guns, which in most cases did not penetrate because they hit at an angle or hit thickly armored locations. A platoon leader's Panzer was hit eight times, the company commander's Panzer five times. The company commander was lightly wounded and for a short time had to pass command to a platoon leader. A noncom in the company was severely wounded by two hits from anti-tank guns.*

*The enemy cleared out of his positions and fled, leaving his weapons and much equipment behind. Because darkness fell and the battle had been reported to the Abteil**ung**, under orders the company didn't advance further but took up defensive positions after firing at the transport train, part of which caught fire.*

*On orders from the **Abteilung** the **5.Kompanie** returned to their starting position when the reconnaissance troop from the motorized infantry arrived in Desvres.*

A classical action by **Pz.Kpfw.IVs** assisting motorized infantry is recorded in the report from the **4.Kompanie/Panzer-Regiment 1** on the action at Andres and St.Folquin on 23 May 1940:

*To continue the advance, the **4.Kompanie** was placed in the advance guard under the **II.Bataillon/Schuetzen-Regiment 1**. At Champagnes the point ran into the first enemy resistance, which was very quickly broken. Lucas' platoon fired delay fuzed **Sprenggranaten** into the houses, causing the French to quickly leave the village with hands raised to give themselves up. About 300 prisoners were taken. In the meantime, two **Pz.Kpfw.IVs** knocked out an enemy battery.*

*The point again encountered resistance at Andres. In spite of this, the **2.Zug** with a section of motorcycle infantry pushed through the village and drove as far as the canal Le Pont sans Pareil. The **4.Kompanie** was ordered to the front and quickly followed the **2.Zug** because it was reported that trains were being loaded at the station in Le Pont sans Pareil. Driving through the city, the rear of an enemy armored car was seen disappearing in a northeasterly direction. Two freight trains loaded with British and French were shot up at the station.*

In the interim, the lead company pushed over the canal and knocked out a 4.7 cm anti-tank gun. A heavy downpour interfered with the Panzer attack. British tanks followed by a truck convoy suddenly appeared from the right in front of the advance guard. This column was quickly shot up.

In the meantime, several motorized infantry companies arrived, strengthened and expanded the bridgehead to the north. The Panzers reinforced the defenders. The battle dissolved into individual short engagements. British trucks appeared, apparently wanting to load at the train station in Ardres.

*Then came the order to advance to Boubourg-Ville. The 4.Kompanie remained attached to the advance guard. The **3.Zug**, commanded by Feldwebel Naumann, was attached to the lead elements. Weak enemy resistance was eliminated by the lead elements. The enemy first put up heavy resistance at St.Folquin and stopped the advance. The leader of the **3.Zug** reported by radio that the lead group of motorcycle infantry had spotted anti-tank guns on the road about 800 meters east of St.Folquin. He could not approach. The company commander ordered him to ask the infantry to knock out the anti-tank guns under his fire support. While this was occurring, the leader of the **Kampfgruppe** ordered a **Pz.Kpfw.IV** from the **2.Zug** forward to knock out a mortar*

*that was holding up the advance of the infantry along the road to Bourbourg-Ville. About 400 to 500 meters on this side of the bridge at the edge of St.Folquin, the **Pz.Kpfw.IV** was hit by anti-tank gun fire from a range of 200 meters. Driver and radio operator were severely wounded; the crew bailed out.*

The enemy laid heavy artillery and mortar fire on the bridge without regard to the fleeing, panicked civilians. Horrifying scenes were played out at St.Folquin. Fleeing civilians and the retreating infantry hindered the Panzers' maneuvers.

*To get the attack moving again, a section of **Pz.Kpfw.IVs** and the company commander's **Pz.Kpfw.IV** were sent in alongside the main road. Infantry followed the Panzers. The woods and edge of the village where the enemy hid were combed by machine gun and cannon fire. The attack halted at the canal east of the city because the Panzers couldn't see due to the failing light. At about 2300 hours, in total darkness, the company had difficulty driving back to the Abte**ilung**.*

French and British forces had been enveloped and were gradually being pushed back toward Dunkirk. The **8.Kompanie/Panzer-Regiment 1** were assigned to provide support to infantry establishing a bridgehead across a canal near St. Folouin on 24 May 1940:

*A platoon of the **4. Kompanie** (**2.Zug**) attached to the **8. Kompanie** were to assist the infantry in widening the bridgehead. Scouting for this assignment was completed by Leutnant v.Villebois and Leutnant Lucas during the morning.*

*The first canal, which had already been taken on the previous day, was crossed without difficulty. The Panzers provided covering fire for the infantry so that they could approach the second canal. Then the Panzers drove up to the canal and from the near bank provided covering fire for crossing the canal and expanding the bridgehead. The attack rolled smoothly forward at first, then halted because the infantry had to cross the canal in floating sacks. In the interim, the **Pz.Kpfw.IVs** shot up one house after another in which the French had set up machine gun nests. In this undertaking, the **Pz.Kpfw.IVs** had been given a task that absolutely belonged to artillery for close cooperation with the infantry. The assignment was successfully completed. The infantry managed to expand the bridgehead without taking any losses.*

In defending the area around Dunkirk, the French and British were still fighting back, as recorded in a combat report from the **6.Kompanie/Panzer-Regiment 3**:

*On 28 May 1940, the **6.Kompanie** together with the **I.Bataillon/SS-Leibstandarte Adolf Hitler** were sent from Equelbecq to Wormont to free elements of the **SS-Leibstandarte Adolf Hitler** who with their commander SS-Obergruppenfuehrer Dietrich were surrounded in the village. At first a reinforced platoon, consisting of two **Pz.Kpfw.III** and three **Pz.Kpfw.II**, was sent in under the command of Leutnant Cords. As the reinforced platoon advanced from the west toward Wormhout, they were fired on by 2.5 cm and 4.7 cm anti-tank guns which prevented any further advance. Leutnant Cords was severely wounded. In addition, the company lost three dead and three wounded. Only one **Pz.Kpfw.II** remained undamaged.*

*After the report of these losses was received, under the command of the company commander, the rest of the 6.**Kompanie**, consisting of three **Pz.Kpfw.III**, the returning **Pz.Kpfw.II**, two **Pz.Kpfw.IVs** attached from the **8.Kompanie**, and a **Pz.Kpfw.II Zug** from the **5.Kompanie**, renewed the attack on the village.*

*The **Pz.Kpfw.II Zug** from the **5.Kompanie** circled west from the south. At the same time two **Pz.Kpfw.IIIs** of the **6.Kompanie** on the north side and one **Pz.Kpfw.III** with a **Pz.Kpfw.II** on the south side of the road approached the hedge surrounding the village. After the attack was over, it was determined that five anti-tank guns and numerous machine guns had been dug into this hedge. After reaching the hedge, the platoon under Janik proceeded further north along the street until reaching a park where he was halted by gasoline that had been poured onto the street and ignited. In the interim, after climbing over a street barricade, the commander's **Pz.Kpfw.III** and a **Pz.Kpfw.II** had reached their objective, the main road to Dunkirk. In the meantime the S**S** had occupied the village and freed Obergruppenfuehrer Dietrich. After reporting to the Abteilung, orders were issued to return.*

After the successful conclusion of the first phase of the campaign, on 4 June 1940, the commander of the **3.Panzer-Brigade,** Oberst Kuehn, wrote the following report about their combat experience in the West:

I. Tank versus Tank Combat

*The Brigade was in numerous battles with enemy tanks including the large battle on 13 May 1940 against the French 3rd mechanized Division. Altogether, the **3.Panzer-Brigade** confirmed 87 enemy tank kills. The Brigade has encountered the French R35, D2, Hotchkiss, and Somua as well as the British carriers and Carden Lloyd 1938. It hasn't been in action against the French B2.*

A. Effectiveness of our weapons against enemy tanks.

*The single really effective German weapon against French tanks is the **7.5 cm Kw.K.** tank gun firing **Panzergranate** (armor-piercing shells). The **3.7 cm Panzergranate** is ineffective against the Somua and D2 at normal combat ranges because it bounced off even when striking at favorable angles. In general, the 3.7 cm penetrated at ranges under 300 meters when striking at a perpendicular angle. The 3.7 **cm Panzergranate** did not meet expectations and was labeled as inadequate for use in battle against modern enemy tanks.*

*Direct hits scored with the **7.5 cm Sprenggranate** had no effect against the Somua at ranges of 600 to 800 meters with either contact or delayed fuzes.*

*The **2 cm Panzergranate** was ineffective in penetrating all the French tanks and merely caused morale effects. Both types of British tanks encountered were penetrated at all ranges by the **2 cm Panzergranaten**.*

*A considerable expenditure of ammunition occurred during the battles with enemy tanks as a result of the inadequate penetration ability of the 3.7 cm and 2 cm rounds. As an example, almost 100 percent of the 7.5 cm and 3.7 cm shells were fired during the major battle on 13 May. The **Brigade** had to be resupplied before they could continue.*

The German turret equipment with traversing mechanism, weapon mounts, and gun sights was completely successful. It is far superior to the French. This made superior German fire power possible, resulting in the superiority of German Panzers over French tanks.

B. The enemy weapons effectiveness against our Panzers was low due to the poor ability to shoot from French tanks. Other than this, the effectiveness of the French 4.7 cm tank gun was very good. This gun penetrated all German Panzers on all locations at ranges up to 600 meters.

The short 3.7 cm tank gun was worthless. The French turret features were primitive in comparison to German. The gun couldn't be fired while moving and had only a slow rate of fire when stationary. Aiming at targets moving across the front is more difficult than in the German Panzers.

C. Tactical Lessons

*Tank versus Panzer combat was conducted using the **Pz.Kpfw.II**, **III**, and **IV**. The **Pz.Kpfw.IV** bore the main effort because only hits with its **Panzergranaten** penetrated with certainty. The **Pz.Kpfw.III** had to close the range before the 3.7 cm tank gun could penetrate.*

Even though penetration of French tanks was never achieved by the 2 cm tank gun, hits from bursts fired from the 2 cm tank gun frequently caused the enemy crews to raise a white rag or to bail out and quit fighting.

Basically, the fire fight was conducted while stationary. The incredibly poor shooting ability of the French tanks made it possible for our Panzers to advance in zig-zag path to closer and more favorable firing positions and thereby carry the attack forward.

The French crews displayed poor combat morale. Opposite to the German tanks, they never sought a tank engagement. The German Panzer crews possess a feeling of absolute superiority over the French tank forces.

II. Panzer versus Anti-Tank Guns

A. Effectiveness of Enemy Anti-Tank Guns against our Panzers.

*Accuracy of the anti-tank guns: the French 4.7 cm is good, the French 2.5 cm is very good, and the British 4 cm is excellent. Penetrating ability of the enemy anti-tank guns at favorable angles against all German Panzers: the French 4.7 cm is very good up to a range of 600 meters, the French 2.5 cm is very good up to a range of 400 meters (the frontal armor of the Pz.Kpf**w.III** was cleanly penetrated by the 2.5 cm. Experimental tests against captured tanks demonstrated that the 2.5 cm anti-tank gun was superior to the German **3.7 cm Pak**), the British 4 cm is excellent (better and more effective than the French 4.7 cm anti-tank gun) at ranges up to 800 meters. The British anti-tank rifle can possibly penetrate only the **Pz.Kpfw.I** or **II** at close ranges (little experience).*

B. Effectiveness of Panzers against Anti-Tank Guns

*By far the most effective weapon is the 7.5 cm tank gun with **Sprenggranaten**. Also, the **3.7 cm Sprenggranate** is especially effective (an increased supply is desired).*

*The 2 cm tank gun was proven to be especially effective in combating anti-tank guns. Magazines were loaded with a one to one ratio of **Panzergranaten** and **Sprenggranaten**.*

Smoke shells haven't been employed.

III. Panzers in action against motorized infantry have shown the absolute superiority of the Panzers in totally crippling the enemy motorized infantry so long as anti-tank guns weren't available.

*The drum magazines and rigid mounting of the **M.G.34** continuously caused stoppages and it is not a useful combat weapon.*

IV. Panzer Combat in Special Situations

Panzers are not suitable for combat in the woods and cities. Street fighting in the city of Merville showed that anti-tank guns could not be located when mounted in basement windows and positioned in rooms. Panzers were practically defenseless against such guns during street fighting.

*The **7.5 cm Sprenggranate** was most effective in subduing opponents in villages. The machine guns and 2 cm were almost worthless. It appears that a flamethrowing tank is necessary for engagements against nests of resistance in basements and houses.*

V. Wishes

The following requests are made based on the above experience:

Weapons

*Mounting a more effective weapon (4.7 or 5 cm) on the **Pz.Kpfw.III**, instead of the 3,7 cm tank gun, is urgently needed. In comparison to the rest, this request is viewed as having first priority and greatest urgency.*

*Because of continuous stoppages, the **M.G.34** is not usable in combat in its present form with drum magazines and fixed mounting. A solution is necessary.*

*Equipping the **Pz.Kpfw.IV** with three machine guns (like the **Pz.Kpfw.III**) is desired. Installing a rangefinder in the **Pz.Kpfw.IV** is also desired.*

Installing a machine gun or a machine pistol in a ball mount is desired for close defense toward the rear.

*The **grosse Panzerbefehlswagen** is not to be tolerated in its present form without effective weapons. It was shown that the **Panzerbefehlswagen** also needs a gun for self-defense, especially in tank fights and when anti-tank guns are*

The **3.7 cm Kw.K. L/45** on the **Pz.Kpfw.III Ausf.E** or **F** was intended to be the main anti-tank weapon in the **Panzer-Abteilung**. Due to production delays, even units that were outfitted the best such as the **1.**, **2.**, and **10.Panzer-Divisions** under Guderian, only had seven **Pz.Kpfw.III** in each **leichte Kompanie**. (BA)

Against the official general orders, this grosse **Panzerbefehlswagen Ausf.B** of the **1.Panzer-Division** had the national insignia, the **Balkankreuz**, displayed on the superstructure front. The photo was taken during the second phase of the campaign in June 1940 in Saint Dizier on the Marne river. (BA)

*encountered. It is proposed that the **Pz.Kpfw.III** be converted to a **Panzerbefehlswagen** by adding radio sets and be employed as such. The extendable antenna mast can be mounted on the outside instead of inside the Panzer.*

B. Armor

*The armor on the **Pz.Kpfw.III** and especially on the **Pz.Kpfw.IV** is inadequate. The **Pz.Kpfw.III** was penetrated through the front by the excellent French 2.5 cm anti-tank gun. This gun is difficult to spot because of the lack of a visible muzzle flash.*

*The additional armor on the **Pz.Kpfw.II** proved effective. The gun mantlet was penetrated several times; reinforcement is necessary.*

C. The speed of the German Panzers was proven to be completely effective. In the future, value should be placed on maintaining a minimum speed of 30 km/hr in normal terrain. Captured French tank and anti-tank crews have stated that the speed of the German Panzers was the main cause for difficulty in hitting them.

*In closing, the tactical principles of employment of the "**Panzer-Waffe**" have been proven.*

*The feeling of superiority by our **Panzertruppen** over the opponent is based primarily on our better combat morale, secondarily on our superior firepower. The armor on the German Panzers and the number of gun-armed tanks assigned to each unit is poorer and lower than in French tank forces. Relief is necessary in these areas.*

Starting on 27 May 1940, **Panzer-Divisions** were pulled out to rest and refit. With the exception of 18 Panzers issued to the **XVI.Korps**, no replacement Panzers had been sent to the units prior to the end of May. After these few had been issued, orders for issuing others were rescinded at the last minute. The decision was made to clarify the entire situation prior to making decisions on who received what replacements.

The following losses had been reported at the end of May: 101 Pz.**Kpfw.I**, 150 **Pz.Kpfw.II**, 44 **Pz.Kpfw.35(t)**, 43 **Pz.Kpfw.38(t)**, 84 **Pz.Kpfw.III**, 63 **Pz.Kpfw.IV** and 44 **Pz.Bef.Wg.** This total of 516 Panzers included those that could not be repaired within five days as well as those that were total write-offs. A total of 217 Panzers (48 **Pz.Kpfw.I**, 35 **Pz.Kpfw.35(t)**, 36 **Pz.Kpfw.38(t)**, 71 **Pz.Kpfw.III**, 19

Pz.Kpfw.IV, 8 **Pz.Bef.Wg.**) were sent to the front as replacements in May 1940. These replacements returned the **Panzer-Divisions** to about 80 percent of their strength at the start of the campaign. Further losses could be covered only by new production. Return of broken-down Panzers to Germany for major repair was not possible because of insufficient train connections.

The replacement Panzers had been issued to the **Panzer-Divisions** as shown in the following table:

	Pz.I	Pz.35t	Pz.38t	Pz.III	Pz.IV	Pz.Bef.	
1.Pz.Div.	4			18	4	2	on 3 June
2.Pz.Div.	6			10		2	on 3 June
3.Pz.Div.	5			1	2	1	by 20 May
4.Pz.Div.	5			2	2		by 20 May
5.Pz.Div.	6			13	4	1	on 2 June
6.Pz.Div.		35			4		on 3 June
7.Pz.Div.	2		20		1		on 2 June
8.Pz.Div.			16				on 3 June
9.Pz.Div.				2			on 3 June
10.Pz.Div.	8			19	2	2	

Each **leichte Kompanie** of **Panzer-Regiment 10** of the **8.Panzer-Division** and **Panzer-Regiment 25** of the **7.Panzer-Division** was outfitted with **Pz.Kpfw.38(t)** instead of the **Pz.Kpfw.III**. The armor penetrating capability of the **3.7 cm Kw.K.** mounted in the **Pz.Kpfw.38(t)** was not significantly better than that of the **3.7 cm Kw.K. L/45** in the **Pz.Kpfw.III**. (BA)

OVERLEAF: A **Pz.Kpfw.35(t)** of the **6.Panzer-Division** crossing a field of rye in June 1940 during the second phase of the campaign. The cupola lid could be locked in a partially opened position to allow the commander a better view. The accompanying infantry are apparently unconcerned that any action is eminent. (BA)

The second phase of the campaign codenamed "FALL ROT" started on 5 June 1940. The **Panzer-Divisions** had been reorganized into five corps as shown in the Order of Battle. The **XV.Korps** and **Panzer-Gruppe von Kleist** were tasked with breaking out of bridgeheads along rivers. The **XV.Korps** succeeded in breaking through. The French held against the attacks by **Panzer-Gruppe von Kleist**. Further to the east the **12.Armee** established bridgeheads over the Aisne on 9 June 1940. **Panzer-Gruppe Guderian** was to cross the Aisne at these bridgeheads on 10 June 1940. Details of fighting that occurred when the **1.Panzer-Division** broke through to the south are recorded in the following combat report from the **5.Kompanie/Panzer-Regiment 1**:

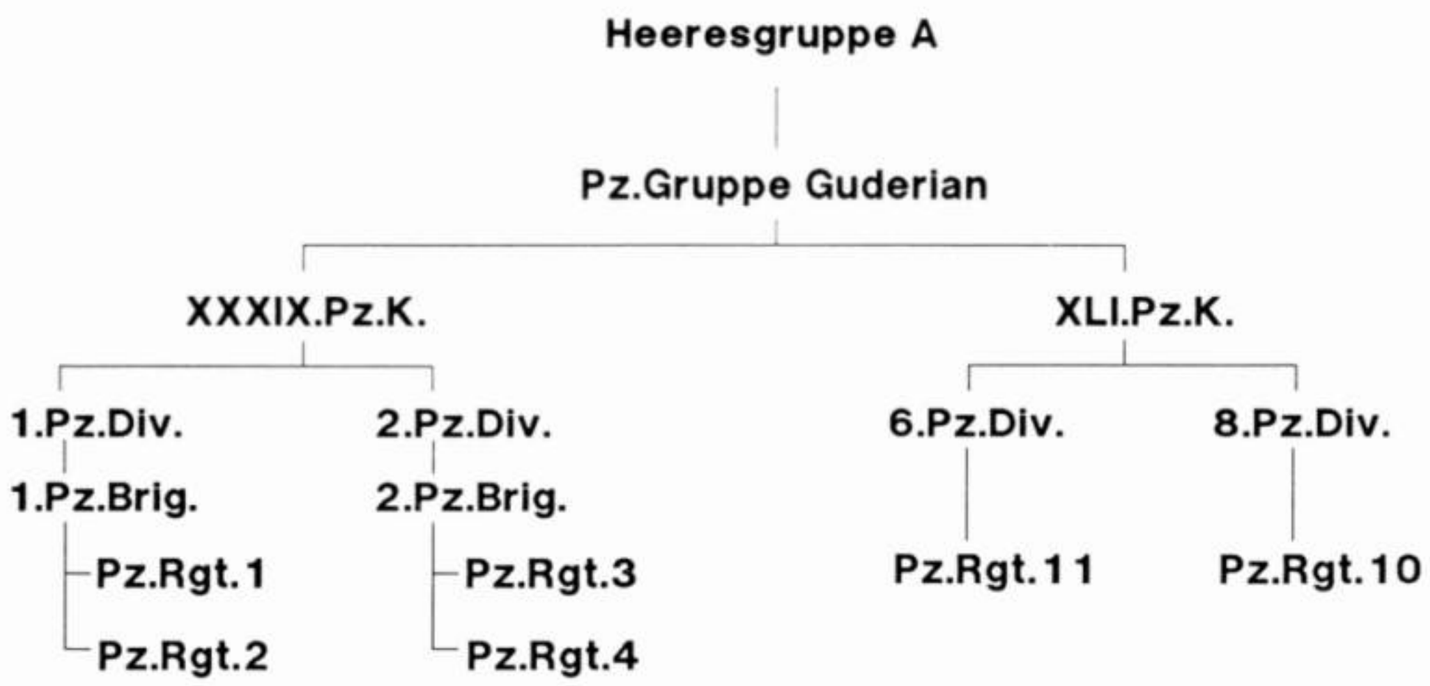
*At 0630 hours on 10 June 1940, the **5.Kompanie** started to attack with the rest of the **Abteilung**. The **5.Kompanie** was in the second line positioned to the left of the regiment but to the right of the **7.Kompanie**. At the start of the attack, the **3.Zug** was sent to defend the right flank to the rear of the **7.Kompanie**. The attack advanced east past Avanson toward Tagnon. Behind the **I.Abteilung**, which was heavily engaged by enemy fire, the **5.Kompanie** reached the area east of Neuflize without encountering any enemy activity. The **I.Abteilung** attempted to cross a stream at Alincourt and came to a halt due to difficulty crossing the terrain.*

*As it turned out that the stream was a barrier to Panzers, the commander of the **II.Abteilung** decided to search for a crossing by Neuflize and sent the **3.Zug** of the **5.Kompanie**, elements of the **7.Kompanie** and later the **Panzer-Pionier-Kompanie**.*

*At first the Panzers attempted to capture the bridge that was closed by a barrier of tank mines. This attempt failed due to the mines. Then the various platoons scouted for other crossing points but weren't successful. The arriving **Panzer-Pionier-Kompanie**, under covering fire from the platoons of the **5.** and **7.Kompanie**, cleared the mines and began to clean out the village along with the Panzers. After a short, heavy firefight, they advanced through the village, bypassing a second mine barrier and clearing the enemy out of the houses. Then the Ab**teilung** assembled for a new assignment southwest of Neuflize. The **5.** and **8.Kompanie** followed up through the village.*

While passing through the village, unnoticed, several enemy tanks entered Neuflize from the northwest. Alerted by

ORDER OF BATTLE - 5 JUNE 1940



A **Pz.Kpfw.III** that has been penetrated by numerous hits from both 25 mm and 47 mm armor piercing rounds. The outer gun mantlet has been knocked off the left turret front revealing the base 30 mm thick inner mantlet. (Boche)

the recurring noise of combat, the forward Panzers of the ***5.Kompanie*** *tried to determine where and why firing was occurring. The company commander's Panzer suddenly encountered an enemy tank that got off a shot, lightly wounding the company commander on the arm and head. The 5. and* ***8.Kompanie*** *quickly regained contact with the* ***Abteilung*** *because the enemy turned back toward the west followed by* ***Pz.Kpfw.IIIs*** *from the* ***7.Kompanie****.*

*The attack started again. The 5.****Kompanie*** *was now located forward to the left in the first line. The attack was carried forward up the valley in the direction of Juniville and later toward the southeast when the* ***5.Kompanie*** *went too far to the left because of the terrain. Here, the* ***5.Kompanie*** *encountered and destroyed enemy vehicles and supply columns located in the woods.*

After halting for about an hour to reorganize, the ***Abteilung*** *renewed the attack toward the road from Juniville to Aussonce. The* ***5.Kompanie*** *was on the left next to* ***Panzer-Regiment 2****. Under fire from the Panzers, several French motorcycle messengers attempted to reach Aussonce, but only a few succeeded. At this time, several enemy R35 and B1 tanks appeared on the wood line southeast of the road. They were first spotted and reported by the 5.****Kompanie****. The* ***Abteilung*** *established a fire front and engaged the enemy with all guns firing. It was quickly determined that the strong French armor not only withstood hits from* ***2 cm Panzergranaten*** *but also from the* ***3.7 cm*** *and* ***7.5 cm Panzergranaten****. Almost all of the hits rebounded. Even the new* ***Panzergranate 40*** *was ineffective because the range was over 300 meters.*

The enemy was completely blanketed by fire and blinded by the smoke and dust. Three French tanks were knocked out at close range when the French tanks attempted to close the range and our own Panzers advanced. The other enemy tanks pulled back into the woods.

While advancing on both sides of the road toward Aussonce, elements of the ***5.*** *and* ***4.Kompanie****, and* ***Panzer-Regiment 2****, again encountered enemy tanks that were firing out of the woods on the left. Fire was returned and a French tank was knocked out at close range.*

Because the units became mixed together during the battle, a halt was called to reorganize and the ***Abteilung*** *assembled on the south side of the road with the* ***5.Kompanie*** *on the left next to the woods, the rest in contact to the right.*

This **Pz.Kpfw.II** of the **3.Panzer-Division** was not sufficiently protected by the additional armor which did not cover the gun mantlet. The gun mantlet has been knocked in and the entire left turret side blown off at the weld seams. The tube laying on the fender had been used for communication between the commander and driver. (Boche)

Shells still fell in the woods, landing between Panzers, but didn't cause any damage. Fire was returned, resulting in sporadic unsettling firefights that didn't achieve any visible results. Several low-flying aircraft appeared but didn't attack.

*The **Abteilung** decided to clarify the situation and sent out a platoon of the **5.Kompanie** on combat reconnaissance. They were tasked with determining if it was possible to pass through the woods to the west of the **Abteilung**. The **5.Kompanie** sent the **4.Zug** (one **Pz.Kpfw.III**, two **Pz.Kpfw.II**, two **Pz.Kpfw.I**) on combat reconnaissance against the enemy tanks. The company commander followed the advancing platoon in order to immediately contact the **Abteilung** in an emergency. On their own volition, the **1.Zug** closely followed the advance to immediately help in an emergency, because the situation appeared to be entirely unclear.*

*The **4.Zug** encountered a 50-meter-wide and 150-meter-long clearing. As soon as they came out of the woods, they were fired on from both the left and right by enemy tanks in hull-down positions with their guns aimed at the wood line. Running into this ambush, the platoon leader's **Pz.Kpfw.III** was hit, destroying the transmitting radio set. Therefore, the platoon leader, Stabsfeldwebel Baer, couldn't report to the company or order his platoon to retreat. As a result the entire platoon wound up in the enemy fire. The company commander attempted to immediately report the situation to the Abteilung by radio. But neither the **Panzerbefehlswagen** of the **Abteilung** or the company commanders' Panzers in the **7.** and **8.Kompanie** picked up the transmission because of the woods.*

*While turning, the **Pz.Kpfw.III** was hit a second and third time by 4.7 cm shells. The gunner continued to return fire. Two others, a **Pz.Kpfw.II** and a **Pz.Kpfw.I**, received direct hits. The **Pz.Kpfw.III** was immobilized; the crew bailed out. The rest of the Panzers could turn and pulled back out of the fire. The company commander's Panzer and a **Pz.Kpfw.II** picked up the wounded crew from the **Pz.Kpfw.III**. The French tanks ceased fire.*

*In the meantime, the **1.Zug** to the left of the clearing encountered an enemy tank that was forced to retire when hit several times by 2 cm shells. Its destruction couldn't be de-*

Pz.Bef.Wg., **kl.Pz.Bef.Wg.**, and **Pz.Kpfw.IIIs** returned to the assembly plant of Daimler-Benz in Berlin-Marienfelde for major rebuild. (DB)

*termined with certainty. The **1.Zug** covered the retreat of the other Panzers.*

*The following losses occurred: one **Pz.Kpfw.III**, one **Pz.Kpfw.II**, and one **Pz.Kpfw.I** were knocked out by direct hits from 4.7 cm guns. Feldwebel Zentgraf was killed, Stabsfeldwebel Baer, Unteroffizier Vogt, Gefreiter Haasse, Obergefreiter Haenschroth were severely wounded, and two men were lightly wounded.*

*After this action, the **Abteilung** took up a defensive position west of the Juniville to Aussonce road where they spent the night.*

After **Panzer-Gruppe Guderian** succeeded in breaking through, **Panzer-Gruppe von Kleist** was shifted further east, broke through and joined the other Panzer units in cutting through to the south. The campaign was over 12 days later on 22 June 1940 when the French agreed to an armistice.

After the smoke cleared, the number of Panzers that were determined to be total write-offs or damaged beyond the ability to be repaired in field workshops amounted to:

	Pz.I	**Pz.II**	**Pz.35t**	**Pz.38t**	**Pz.III**	**Pz.IV**	**Pz.Bef.**
May 1940	142	194	45	43	110	77	38
June 1940	40	46	17	11	25	20	31

About 35 percent of the gun-armed Panzers had been lost during the campaign. The percentage of French and British tanks that were lost was significantly higher.

14

Reorganization - July 1940 to June 1941

Directly following the fall of France, preparations were initiated for an invasion of Britain. At first a single company of **Tauchpanzers** (submersible tanks) was formed on 13 July 1940 as an experimental unit. This was incorporated into one of the four **Tauch-Panzer-Abteilungen** (named A, B, C, and D) that were formed by 25 July 1940.

Each **Tauch-Panzer-Abteilung** had three **leichte Panzer-Kompanie b** organized in accordance with **K.St.N.1171b** dated 16 July 1940. Each **leichte Panzer-Kompanie b** was to be equipped with 12 **Pz.Kpfw.III(T)** and 4 **Pz.Kpfw.IV(T)** as well as 4 **Pz.Kpfw.II(S)** that were outfitted with floats to swim ashore. A total of 52 **Pz.Kpfw.II(S)**, 148 **Pz.Kpfw.III(T)**,

A **Pz.Kpfw.III** outfitted and tested as a **Tauchpanzer** for Operation **Seeloewe** in July/August 1940. Openings such as the commander's cupola, gun mantlet, machine gun ball mount, and driver's visor were sealed with watertight coverings. The snorkel tube was held above water by a buoy. (KHM)

and 48 **Pz.Kpfw.IV(T)** were created by modifying normal production Panzers in July and August 1940. After the invasion of Britain was called off in 1940, the four **Tauch-Panzer-Abteilungen** were renamed and consolidated under **Panzer-Brigade 1** in **Panzer-Regiment 18 und 28**.

The next phase in the development of the **Panzertruppen** involved doubling the number of **Panzer-Divisions**. These ten divisions were created as follows:

Name	From	On	With
11.Pz.Div.	**11.Sch.Brig.**	1Aug40	**Pz.Rgt.15** from the **5.Pz.Div.**
12.Pz.Div.	**2.Inf.Div.**	10Jan41	**Pz.Rgt.29** new on 1Oct40
13.Pz.Div.	**13.Inf.Div.**	11Oct40	**Pz.Rgt.4** from the **2.Pz.Div.**
14.Pz.Div.	**4.Inf.Div.**	15Aug40	**Pz.Rgt.36** from the **4.Pz.Div.**
15.Pz.Div.	**33.Inf.Div.**	11Nov40	**Pz.Rgt.8** from the **10.Pz.Div.**
16.Pz.Div.	**16.Inf.Div.**	2Aug40	**Pz.Rgt.2** from the **1.Pz.Div.**
17.Pz.Div.	**27.Inf.Div.**	10Oct40	**Pz.Rgt.39** new on 1Oct40
18.Pz.Div.	New	26Oct40	**Pz.Brig.1** with **Pz.Rgt.18 & 28**
19.Pz.Div.	**19.Inf.Div.**	1Nov40	**Pz.Rgt.27** new on 1Oct40
20.Pz.Div.	New	15Oct40	**Pz.Rgt.21** new on 1Oct40

The engine exhaust pipes of the **Pz.Kpfw.III (Tauch)** were extended and fitted with non-return valves. The cooling air exhaust louvers under the upper tail plate were sealed off with two large flaps. (KHM)

leichte Panzerkompanie b

K.St.N. 1171b (Behelfs) v. 16.7.1940

Kp.Tr.

PzKpfwIII

PzKpfwIII

PzKpfwII

PzKpfwII

PzKpfwII

PzKpfwII

1. Zug

PzKpfwIII

PzKpfwIII

PzKpfwIII

PzKpfwIII

PzKpfwIII

2. Zug

PzKpfwIII

PzKpfwIII

PzKpfwIII

PzKpfwIII

PzKpfwIII

3. Zug

PzKpfwIV

PzKpfwIV

PzKpfwIV

PzKpfwIV

leichte Panzer–Ersatz–Kompanie

K.St.N.6561 v. 1.4.1941

1. Zug

klPzBefWg | PzKpfwI | PzKpfwI | PzKpfwI | PzKpfwI | PzKpfwI

2. Zug

PzKpfwII | PzKpfwII | PzKpfwII

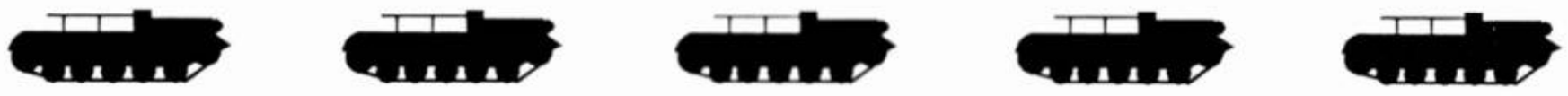
3. Zug

PzKpfwIII | PzKpfwIII | PzKpfwIII

4. Zug

PzKpfwIV | PzKpfwIV | PzKpfwIV

Fahrschule



PzKpfwI o.Aufbau | PzKpfwI o.Aufbau | PzKpfwI o.Aufbau | PzKpfwI o.Aufbau | PzKpfwI o.Aufbau

The **Panzer-Ersatz-Abteilungen** that had been formed upon activation for war were used to create the four new **Panzer-Regiments 21**, **27**, **29** and **39**. An order dated 15 November 1940 ordered that **Panzer-Ersatz-Abteilungen 1**, **4**, **5**, **7**, **10**, **11**, **15**, **25**, **33**, and **35** be recreated for the purpose of training replacement crews and as a base from which to form additional **Panzer-Abteilungen** in the future. Their companies were still organized in accordance with **K.St.N.6561** dated 1 October 1938 until the new **K.St.N.6561** dated 1 April 1941 was issued.

The following new set of **Sonder** (special) **K.St.N./K.A.N.** dated 1 February 1941 was published for reorganization of the **Panzer-Regiments**:

K.St.N.	Date	Subunit Name
1103(Sd	1Feb41	**Stab Panzer-Regiments (Sd.Ausf.)**
1194(Sd)	1Feb41	**Nachrichten-Zug Stab Panzer-Regiments**
1168(Sd)	1Feb41	**leichte Panzer-Zug**
1107(Sd)	1Feb41	**Stab Panzer-Abteilung (Sd.Ausf.)**
1150(Sd)	1Feb41	**Stabskompanie Panzer-Abteilung (Sd.Ausf.)**
1171(Sd)	1Feb41	**leichte Panzer-Kompanie (Sd)**
1175(Sd)	1Feb41	**mittlere Panzer-Kompanie (Sd)**
1178(Sd)	1Feb41	**Staffel Panzer-Abteilung (Sd.Ausf.)**

The subunits' organization and authorized number of Panzers are shown on the silhouette charts. These **K.St.N./K.A.N.** had not substantially changed in regard to the number of authorized Panzers in each subunit. The changes were associated with other types of equipment and number of personnel.

Panzer units did not automatically reorganize when a new set of **K.St.N./K.A.N.** became available. Before a unit could reorganize, orders were cut for each unit specifying applicable **K.St.N./K.A.N.** These orders did not fill the unit with new equipment. Separate sets of orders were cut for issuing any new Panzers. Although **K.St.N./K.A.N.1175(Sd)** for the **mittlere Panzer-Kompanie** authorized a total of 14 **Pz.Kpfw.IV**, in 1941, no unit was authorized by orders to establish a **3.Zug** or issued the four **Pz.Kpfw.IV** and other equipment needed to fill a **3.Zug**.

Panzer-Abteilung (F) 100 und 101 were outfitted with the **Pz.Kpfw.(F) (Sd.Kfz.122)** that had been produced by using the chassis from 85 **Pz.Kpfw.II Ausf.D** and 5 **Pz.Kpfw.II Ausf.E**. Before being sent into action, each **Panzer-Kompanie (F)** was organized in accordance with **K.St.N.1177** dated 1 February 1941 with a **Kompanie Trupp** of two **Pz.Kpfw.II (2 cm) (Sd.Kfz.121)**, three **Flammzügen** each with four **Pz.Kpfw.(F) (Sd.Kfz.122)**, and a **Waffenzug** with five **Pz.Kpfw.II (2 cm) (Sd.Kfz.121)**. The **Pz.Kpfw.II** issued to these units were normal **Pz.Kpfw.II Ausf.c - C**.

A third **Flammpanzer-Abteilung**, **Panzer-Abteilung (F) 102**, was formed on 20 June 1941 and issued all 24 **Pz.Kpfw.B2 (F)**. These were captured French Char B1 bis tanks that had been converted by removing the 75 mm gun and installing a flamethrower. This unit was created from two **schwere Flamm-Kompanie** organized in accordance with **K.St.N.1176** dated 30 May 1941. At the time they were created, each company had three normal **Pz.Kpfw.B2** with 75 mm guns in addition to the 12 **Pz.Kpfw.B2 (F)**.

Starting late in 1940, Panzer units were organized and issued captured French tanks known as **Beute-Panzer** (captured tanks). **Panzer-Regiment 201** was the first unit to be outfitted with **Beute-Panzer**. It was created on 10 December 1940 with two **Panzer-Abteilungen** each with three **leichte Panzer-Kompanien**. A second regiment, **Panzer-Regiment 202**, was formed on 10 February 1941. Both of these regiments were placed under the command of the **Stab Panzer-Brigade 100** that was created from **Stab Panzer-Brigade 8** on 1 March 1941.

On organization charts these units were designated with the letter "c" to differentiate them from normal units outfitted with German Panzers. The **Stabskompanie** for a **Panzer-Abteilung c** was organized under **K.St.N.1150c** dated 1Feb41 with two **Pz.Kpfw.35S** and one **Pz.Kpfw.38H** in the **Nachrichten-Zug** and one **Pz.Kpfw.35S** and four **Pz.Kpfw.38H** in the **leichte Zug**. The **leichte Panzer-Kompanie c** was organized under **K.St.N.1171c** dated 1 April 1941 with two **Pz.Kpfw.35S** in the **Kompanie Trupp** and one **Pz.Kpfw.35S** and four **Pz.Kpfw.38H** in each of three **Zuegen**.

The short-lived **Panzer-Abteilung 301** was formed with three companies on 27 January 1941 and issued **Beute-Panzer**. On 22 March 1941, it was renamed the **II.Abteilung/Panzer-Regiment 201**, taking the place of the original second **Abteilung**. On 7 March 1941, the headquarters and two companies of the original **II.Abteilung/Panzer-Regiment 201** had been pulled out and renamed **Panzer-Abteilung "Wolf"**. On 24 March 1941, this unit was renamed **Panzer-Abteilung 211** and subsequently sent to Finland. This was one of the few units with **Beute-Panzer** to see frontline combat service.

Due to the reversals suffered by the Italians, Germany decided to send a mobile force to Libya. By 12 February 1941, the **5.leichte Division** was quickly organized utilizing elements taken from the **3.Panzer-Division** and **Heerestruppen**. **Panzer-Regiment 5** had already been prepared for tropical employment in October 1940. Division headquarters was created out of the **Stab Panzer-Brigade 3**.

Having lost the **Stab Panzer-Brigade 3** and **Panzer-Regiment 6**, the **3.Panzer-Division** was ordered to be reorganized on 18 February 1941. It was given the **Stab Panzer-Brigade 5** from the **4.Panzer-Division** and the **I.Abteilung/Panzer-Regiment 28** from the **18.Panzer-Division.** This **Tauch-Panzer-Abteilung** was renamed the **III.Abteilung/Panzer-Regiment 6** and ordered to revert to the **K.St.N.** applicable to a normal **Panzer-Abteilung**.

Panzer-Brigade 1 assigned to the **18.Panzer-Division** was renamed **Panzer-Brigade 18** on 9 January 1941. After giving up an **Abteilung** to the **3.Panzer-Division**, effective

Nachrichtenzug (mot) des Stabes einer Panzer-Regiment
K.St.N.1194(Sd.) v. 1.2.1941

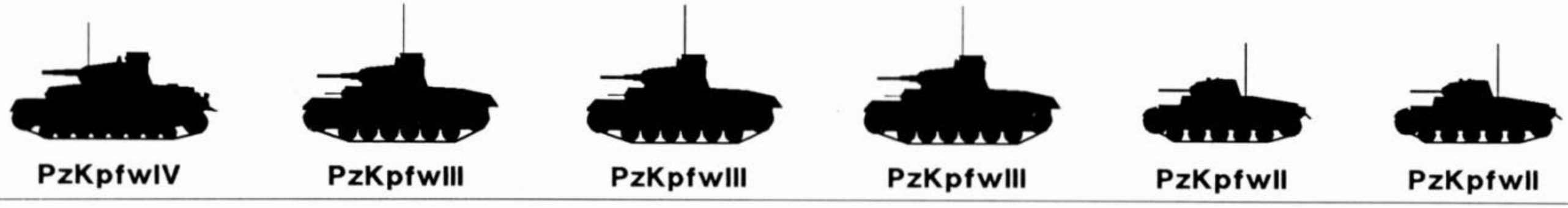
leichter Panzerzug
K.St.N.1168(Sd.) v. 1.2.1941

Stabskompanie einer Panzer-Abteilung
K.St.N.1150(Sd.) v. 1.2.1941

N.Zug

1.Zug

Staffel einer Panzer-Abteilung
K.St.N.1178(Sd.) v. 1.2.1941



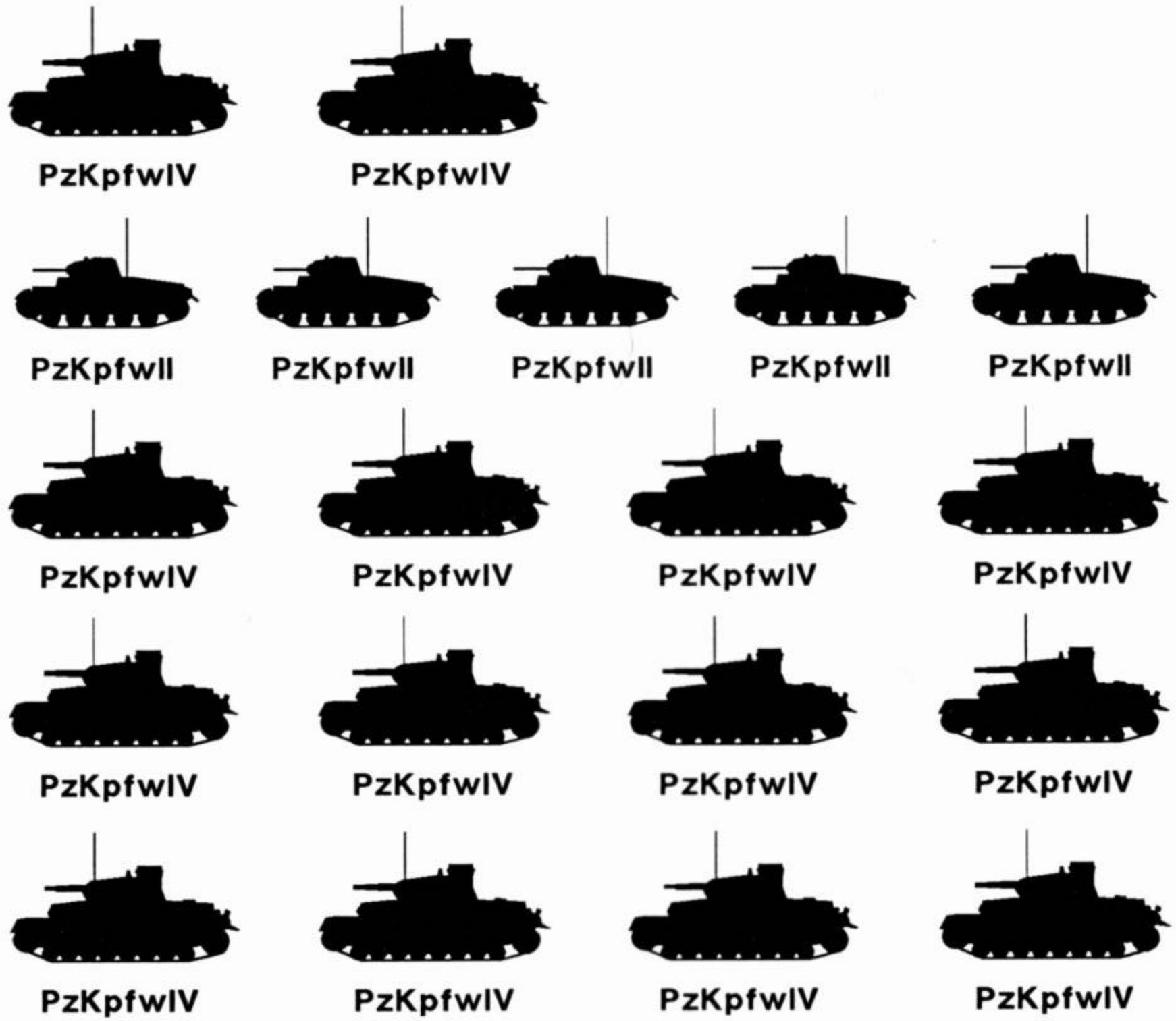
leichte Panzerkompanie

K.St.N. 1171 (Sd.) v. 1.2.1941

Kp.Tr.	PzKpfwIII	PzKpfwIII			
le. Zug	PzKpfwII	PzKpfwII	PzKpfwII	PzKpfwII	PzKpfwII
1. Zug	PzKpfwIII	PzKpfwIII	PzKpfwIII	PzKpfwIII	PzKpfwIII
2. Zug	PzKpfwIII	PzKpfwIII	PzKpfwIII	PzKpfwIII	PzKpfwIII
3. Zug	PzKpfwIII	PzKpfwIII	PzKpfwIII	PzKpfwIII	PzKpfwIII

mittlere Panzerkompanie

K.St.N. 1175(Sd.) v. 1.2.1941



March 1941, the **Stab Panzer-Regiment 28** was disbanded and the **II.Abteilung/Panzer-Regiment 28** was renamed **III.Abteilung/Panzer-Regiment 18**. On 3 May 1941, the **18.Panzer-Division** was ordered to convert **Panzer-Regiment 18** to the normal organization. Each **Panzer-Abteilung** was to have two **leichte Panzer-Kompanien** organized in accordance with **K.St.N.1171(Sd)** and one **mittlere Panzer-Kompanie** organized in accordance with **K.St.N.1175(Sd)**. The excess **Pz.Kpfw.I**, **III** and **IV** were to be retained. Additional **Pz.Kpfw.II** were not issued to make up the shortfall.

On 1 April 1941, the **Panzertruppen-Schule Wunsdorf** was ordered to prepare the **Panzer-Lehr-Abteilung** as a normal **Panzer-Abteilung** with two **leichte Panzer-Kompanien** (**K.St.N.1171(Sd)** dated 1Feb41) and one **mittlere Panzer-Kompanie** (**K.St.N.1175(Sd)** dated 1Feb41). This **Panzer-Lehr-Abteilung** was assigned to the **17.Panzer-Division** and renamed **III.Abteilung/Panzer-Regiment 39** on 1 June 1941.

15

Operation Marita - 6 April 1941

On 6 April 1941, German units moved into Greece as planned in Operation "**Marita**" and into Yugoslavia under "**Weisung 25.**" As shown in the Order of Battle a total of six **Panzer-Divisions** were involved. Their actual strength on the opening day of the campaign is shown in the Organization and Strength diagram. Only **Panzer-Regiment 3** and **Panzer-Regiment 10** had their full complement of 17 Panzers in each **leichte Panzer-Kompanie** as authorized by **K.St.N.1171**. The other four **Panzer-Regiments** (**15**, **31**, **33**, and **36**) had 12 **Pz.Kpfw.III** in each **leichte Panzer-Kompanie**. The **5.Kompanie/Panzer-Regiment 15** was organized as shown in the "**Gliederung**" chart. Records have not survived that specify in detail whether other **Panzer-Kompanien** followed this example. The more conventional organization for a **leichte Panzer-Kompanie** with 12 **Pz.Kpfw.III** was two **Pz.Kpfw.III** in the **Kompanie-Trupp** and five in each **Zug**.

Pz.Kpfw.III Ausf.F with the **1.Kompanie/Panzer-Regiment 31** in Greece in April 1941. Many of the **Pz.Kpfw.IIIs** that were used in the Balkan campaign were still outfitted with the **3.7 cm Kw.K.** (BA)

leichte Panzerkompanie

Gliederung 5.Kompanie/Panzer-Regiment 3 (6 April 1941)

Kp.Tr.

PzKpfwIII

le. Zug

PzKpfwII

PzKpfwII

PzKpfwII

PzKpfwII

PzKpfwII

1. Zug

PzKpfwIII

PzKpfwIII

PzKpfwIII

PzKpfwIII

PzKpfwIII

2. Zug

PzKpfwIII

PzKpfwIII

PzKpfwIII

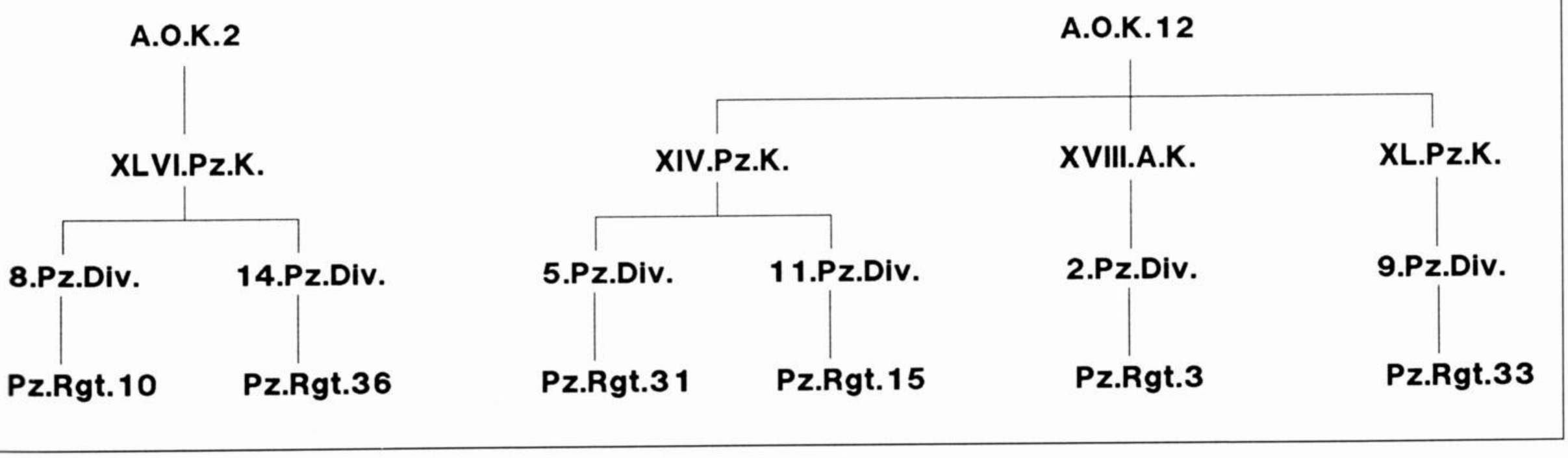
3. Zug

PzKpfwIII

PzKpfwIII

PzKpfwIII

ORDER OF BATTLE - 6 APRIL 1941



The problems of getting tanks through the difficult terrain was recorded in detail in the following combat report from the **I.Abteilung/Panzer-Regiment 3**:

*Until about 0900 hours on 15 April 1941, the **Abteilung** traveled with the regiment behind the infantry brigade, artillery, pioneers, bridge column, and supply services, from the Jida area (about 35 kilometers southeast of Edessa) toward Katerini. Lead elements of the division had already reached the Katerini area. About 0900 hours, the order was distributed for the regiment to pull forward. Recklessly, supported by traffic commanders from the division, the regiment made it. Several vehicles had the opportunity to be convinced that armor is harder than fenders and radiator grills on commercial trucks.*

*The head of the regiment arrived in Katerini at about 1430 hours. The **I.Abteilung** was attached to the **Kampfgruppe Oberst Balck** consisting of **I.Abteilung/Panzer-Regiment 3**, **II.Bataillon/Schuetzen-Regiment 304**, **Kradschuetz-Bataillon 2** and **Artillerie-Regiment 74**. The **Kampfgruppe** had the assignment of taking Pandelejmon, the rail line road to Platamonos, and break through to Tempital. **Kradschuetz-Bataillon 2** was already pinned down north of the Pandelejmon castle. About 1800 hours, the Panzers carried the attack farther forward against the castle. The entire **Abteilung** pulled up to within 1200 meters of the castle and provided covering fire for the **leichte Zug** of the **Abteilung**. The **leichte Zug** was the only available possibility for using a cart track to reach the castle. This attempt failed as all five of the **Pz.Kpfw.IIs** of the **leichte Zug** threw their tracks directly in front of the enemy defence lines. After dark, the platoon leader abandoned the Panzers and returned to the **Abteilung** with all of the crews, weapons, and equipment. These five **Pz.Kpfw.IIs** stood together in front of the enemy barricade and were not accessible by either party.*

*The defense against the Panzer attack was confined only to machine gun fire and heavy barrages from an artillery battery and mortars. The **Abteilung** didn't have any losses.*

*At 0900 hours on 16 April 1941, the **Abteilung** with the **2.Kompanie/Schuetzen-Regiment 2** renewed the attack on the castle. At the same time the **II.Bataillon/Schuetzen-Regiment 304** and **Kradschuetzen-Bataillon 2** attacked the castle. These units attacked flanking enemy positions in the mountains advancing by way of Skotina.*

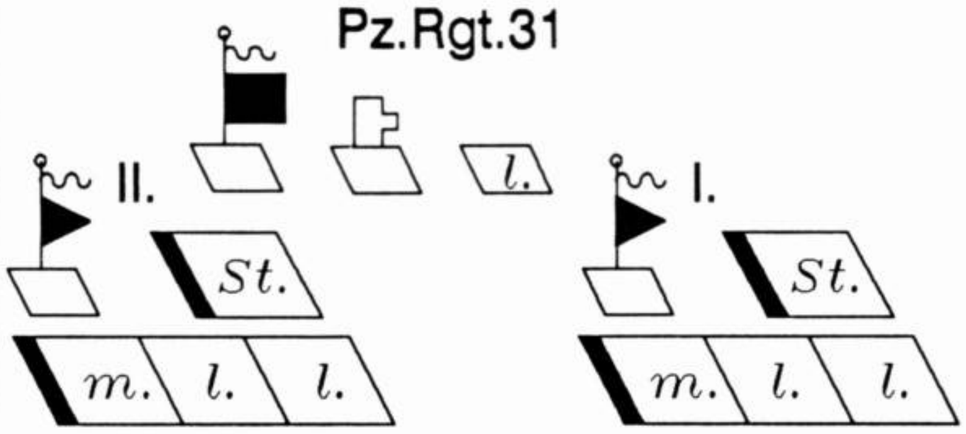
*The attack succeeded. The **1.Kompanie** lost one Panzer and the **3.Kompanie** lost two Panzers to mines that were scattered about the terrain. The reinforced **2.Kompanie** reached the rail line road without suffering any losses. From here, further advance was blocked because the enemy had blown up the rail line tunnel. It was also impossible to advance through the water. Therefore, all tracked vehicles had to be hauled over the trackless mountain. This took until 1100 hours the next morning.*

*At 1100 hours 17 April 1941, the **Abteilung** commander started the further advance toward the south with the reinforced **1.Kompanie**. Hauptmann v. Trotha received the assignment to follow with the rest of the **Abteilung** and the **M.T.W.-Kompanie** (motorized infantry company equipped with **Sd.Kfz.251** armored halftracks). The advance of the reinforced **1.Kompanie** occurred without delays and reached the area of the rail bridge up to the heights of the chapel and Tempi-Tal (about 6 kilometers northeast of Tempi). Here the **Aufklaerungs-Schwadron** of Graf Eltz of the **6.Gebirgs-Division** was already engaged in combat. This squadron attached itself to the **Abteilung** commander. They had found such ernest resistance in Tempital that without heavy weapons they weren't in position to advance farther south from two blown-up tunnels directly south of the chapel. Because the bridge shown on the map at the train station 6 kilometers west of Rapsani was still being built, no troops had advanced south of Pinios. Leutnant Schmitthemmer, the ordnance officer of the **Abteilung** and Leutnant Brunnenbusch of the **1.Kompanie** scouted to determine the possibility of crossing the Pinios with Panzers. This occurred. It started by sending the reinforced **1.Kompanie** across. By evening about four Panzers had been sent across. The crossing placed high*

ORGANIZATION AND STRENGTH OF PANZER UNITS

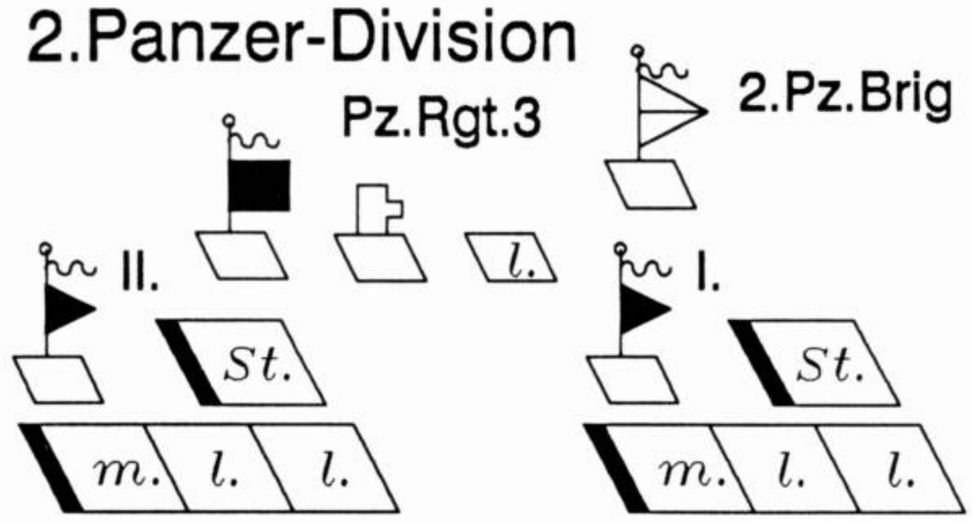
OPERATION MARITA - 6 APRIL 1941

5.Panzer-Division



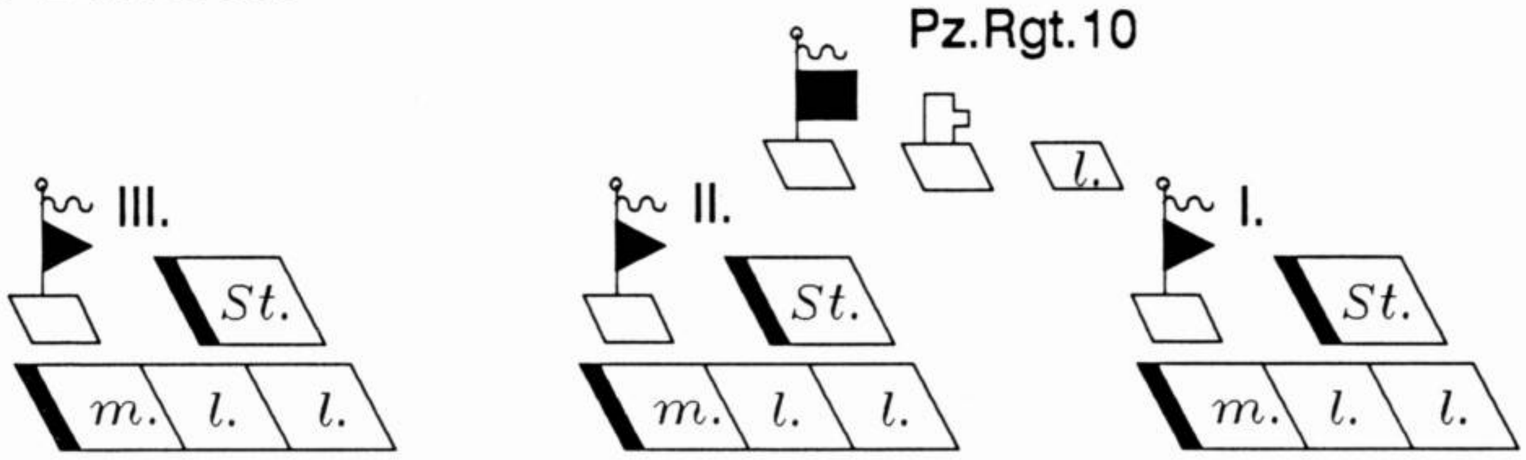
9 PzI, 40 PzII, 19 PzIII(37), 32 PzIII(5), 16 PzIV, 5 PzBef

2.Panzer-Division



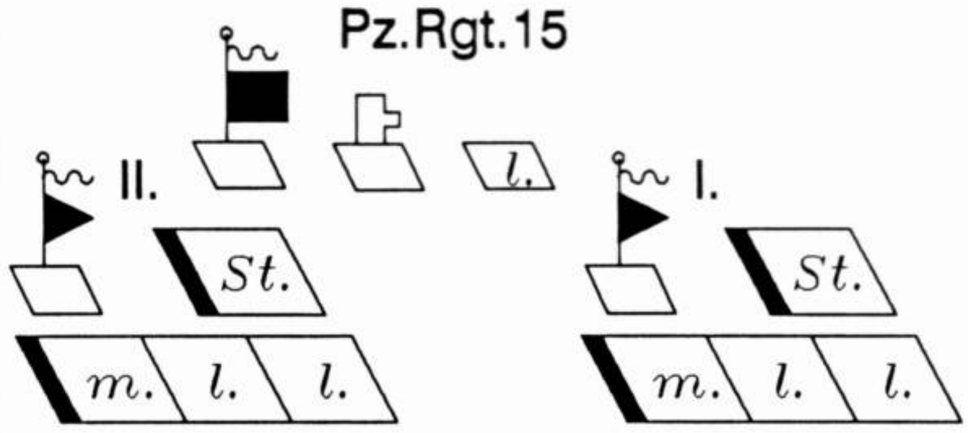
45 PzII, 27 PzIII(37), 44 PzIII(5), 20 PzIV, 6 PzBef

8.Panzer-Division



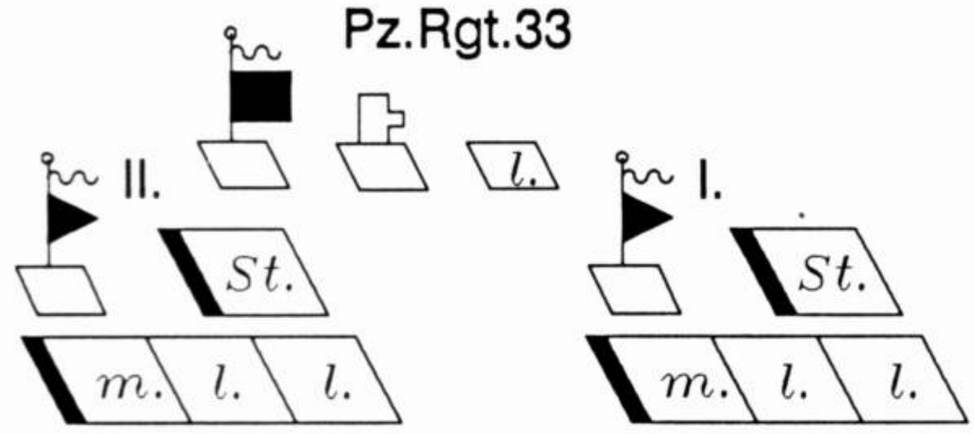
49 PzII, 125 Pz38t, 30 PzIV

11.Panzer-Division



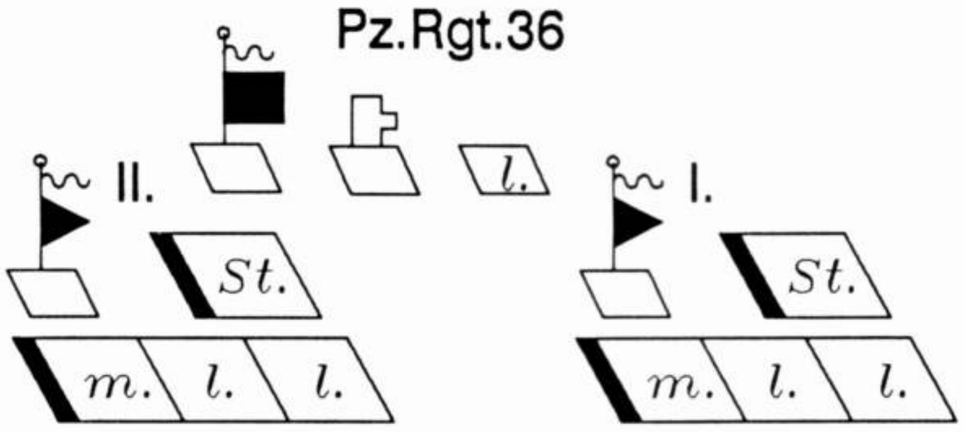
45 PzII, 25 PzIII(37), 26 PzIII(5), 16 PzIV, 14 PzBef

9.Panzer-Division



9 PzI, 36 PzII, 22 PzIII(37), 29 PzIII(5), 20 PzIV, 10 PzBef

14.Panzer-Division



45 PzII, 16 PzIII(37), 35 PzIV(5), 20 PzIV, 8 PzBef

demands on the skill of the crews. The steep, high rail line embankment had to be crossed, because the river was only shallow enough to be fordable at a very narrow sector. The Panzers that came through the ford remained stationary in the water.

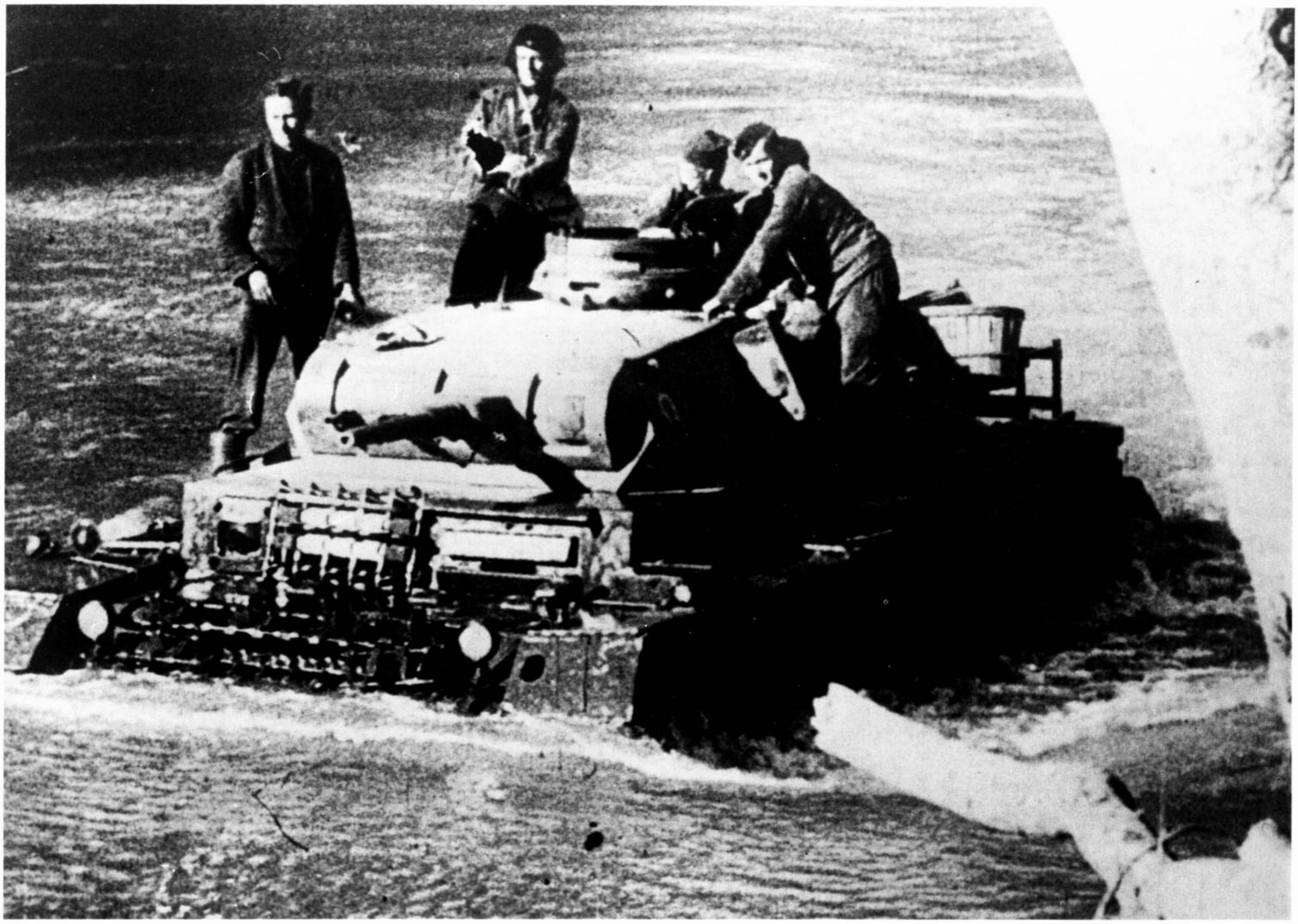
The Panzers couldn't advance along the south road because a deep gap had been blown in the road. Detouring in the water resulted in three Panzers stuck in the mud.

*The **Abteilung** commander was assigned by Oberst Balck to command all of the troops in the Pinios valley. At night the opponent fired heavy barrages from one battery. In the **Radfahr-Schwadron 8./800 Brandenburg** (these had positioned reconnaissance patrols to advance on the south side ahead of the **1.Kompanie**) and the **1.Kompanie**, three soldiers were killed, nine severely and eight lightly wounded.*

*At 0500 hours on 18 April 1941, the opponent in front of the **Radfahr-Schwadron** pulled back. They climbed after them and managed to get as far as about 2 kilometers northeast of Itia. The commander of the **I.Abteilung/Panzer-Regiment 3** determined that their further advance wasn't possible until the occupation of the south side was pushed forward. In the meantime, one platoon from the **7.Kompanie/Schuetzen-Regiment 304** had arrived on this side and took over the defense for the pioneer work at the gap blown in the road. After completion, this platoon together with two elements of the **8./800** and the six Panzers currently available with the **1.Kompanie** advanced toward Tempi. The attack went forward. About 80 prisoners were taken that were pulled out of the mountains. Directly northeast of Tempi, the road was again destroyed by detonation. The second lead Panzer had to halt and the **Pionier-Zug** of the **Abteilung** pulled forward. After scouting, it turned out that this barrier was crossable. An enemy anti-tank gun was positioned about 50 meters behind the barrier. Its crew was pinned down by machine gun fire from the northeast of Itis. The day before, the **2.M.T.W.-Kompanie/Schuetzen-Regiment 304** had been sent there. This unit was supposed to advance on a mountain trail from Rapsani and capture Itia. However, because of strong artillery fire and the terrain it couldn't advance any further.*

*As both lead Panzers (Leutnant Brunnenbusch and Feldwebel Weber) drove forward to attack the village of Tempi, each was hit twice by anti-tank gun fire that knocked them out of action. Of all of the crew members, only Feldwebel Weber was unscathed. Three of the crew were killed and the fourth severely burned. Four including Leutnant Brunnenbusch were severely wounded and one lightly wounded. This anti-tank gun was knocked out by an attack of the **7.Kompanie/Schuetzen-Regiment 304**. The wounded were*

A patrol of three **Pz.Kpfw.IIs** crossing a pass out of Bulgaria to take part in the Balkan campaign in April 1941. These **Pz.Kpfw.IIs** had all been modified by replacing the double lid hatch on the turret roof with a commander's cupola with periscopes. (BA)



When bridges were blown, the troops attempted to ford the rivers. This **Pz.Kpfw.III** of **Panzer-Regiment 3** was still making headway. Other Panzers drowned in the attempt. (BA)

*retrieved and cared for by the **Abteilung** and regiment doctors. Feldwebel Grzeschik, the driver of the company commander's Panzer, attempted to extinguish the fires in the burning tanks. This was so hindered that the ammunition exploded in both of the burning Panzers. After the company commander pulled up the remaining four Panzers in the **1.Kompanie**, the attack continued. Resistance by the artillery on the western edge of Tempi was broken. Evangelismos was reached and occupied at 1530 hours.*

*The regiment commander arrived in Tempi about 1630 hours and gave the **Abteilung** commander the order to continue to attack toward Larissa. In the meantime, the **2.Kompanie** had arrived in Tempi. The last vehicles of the **3.Kompanie** were still located at the river crossing. The **2.Kompanie** was employed as the lead company during the further attack. The **1.Kompanie** followed directly behind, delayed by the terrain and situation. During the evening attack, both companies were engaged and their fire power fully utilized. The advance was made by rushes. The few available infantry, about one third of the **7.Kompanie/Schuetzen-Regiment 304**, followed the Panzer attack on foot.*

*The next objective was Point 214, 7 kilometers south of Evangelismos. The objective was reached in spite of the enemy resistance consisting of artillery and machine guns. The artillery didn't cause any great damage. Only the Panzer of Leutnant Langhammer was hit which immobilized it. The guns were abandoned by the retiring crews and were captured by the **Abteilung**.*

*The next bound was to the crossroads east of Point 274. This was also reached. The danger of hitting our own troops, such as an advance unit of the **6.Gebirgs-Division**, grew very large. The **Abteilung** adjutant encountered a vehicle column that he first thought was one of ours. After about 10 paces he recognized British lying in trenches. He opened fire and they shot at him with machine guns and anti-tank rifles. He turned around and again met up with the **Abteilung**. The falling darkness caused the regimental commander to establish a leaguer about 1000 meters south of Point 274 to await the dawn of a new day.*

In the evening it was still possible to determine how panicked the retreat of the opponent was. Eight 4.7 cm anti-tank guns, eight 10.5 cm guns, numerous anti-tank rifles and ma-

chine guns, and altogether 120 prisoners were captured by the ***Abteilung****.*

In the morning at 0530 hours on 19 April 1941, with the infantry on foot in the lead, the rail line north of Larissa was crossed and Larissa was passed through by 0620 hours. During this advance the supply trucks of the British were welcome plunder for the ***Abteilung****. They had been without the field kitchen for three days and without rations except for what was captured. An enemy anti-aircraft battery was abandoned at the Larissa airfield. After arriving here, Hauptmann von Trotha was given the special assignment of following the opponent retreating through Nikea. He returned back after three hours with the report that he couldn't overtake the opponent; on the road lay loaded British trucks, all types of vehicles, and a large supply dump.*

During the battles from 14 to 19 April 1941, the ***Abteilung*** *lost four dead and 37 wounded. As for equipment, 2* ***Pz.Kpfw.IV*** *were total writeoffs due to mines. One* ***Pz.Kpfw.III*** *and three* ***Pz.Kpfw.IIs*** *were drowned in their attempt to ford the river. Three* ***Pz.Kpfw.IIs*** *and ten* ***Pz.Kpfw.IIIs*** *damaged by anti-tank and artillery fire may not be repairable by the unit. Three* ***Pz.Kpfw.IIs****, twelve* ***Pz.Kpfw.IIIs****, and two* ***Pz.Kpfw.IVs*** *mechanically broke down and can be repaired in three to eight days.*

Altogether, the ***Abteilung*** *captured one 10 ton tank, 10 machine-guns, twelve 4.7 cm anti-tank guns, eight 10.5 cm guns, four anti-aircraft guns, numerous machine guns and anti-tank rifles, about 200 trucks and cars, a large supply and fuel dump in Larissa and 400 prisoners.*

The Panzers had aided in accelerating the rate of the advance so that the campaign was over by the end of April 1941. The number of Panzers determined to be total writeoffs or damaged beyond the ability to be repaired in field workshops were reported as:

	Pz.I	Pz.II	Pz.38t	Pz.III	Pz.IV
2.Pz.Div.	3	2		8	2 (of which 5 were hit)
5.Pz.Div.	1			10	2 (of which 4 were hit)
8.Pz.Div.		5	7		2
9.Pz.Div.	3	5		3	2 (of which 8 were hit)
14.Pz.Div.		1			

But, more significant than any combat losses was the wear and tear on the Panzers that had been caused by driving up and down steep inclines and around hairpin turns in mountainous terrain. The **9.Panzer-Division** reported that in addition to other major component failures the brakes were completely worn out in all of their Panzers.

The **5.Panzer-Division** provided the **5.Kompanie/ Panzer-Regiment 31** to support the landing on Crete. This company was left on Crete and renamed as the **1.Kompanie/ Panzer-Abteilung Kreta**. **Panzer-Regiment 31** was in no shape to take part at the start of the offensive. On 21 June 1941, it only had 17 **Pz.Kpfw.III** and **6 Pz.Kpfw.IV**.

Tracked vehicles from **Panzer-Regiment 3** had been loaded on the ships "Marburg" and "Kybfels" for the return trip. Both ships were sunk by enemy action with the loss of all the Panzers on board.

16

Operation Sonnenblume - 1941

Following the reversals suffered by their Italian allies, German forces were sent to stabilize the situation in Libya. The newly organized **5.leichte Division** with **Panzer-Regiment 5** was the leading unit sent with the intention that it would be used to block further British advances. While loading on ships in Naples, the "Leverkusen" caught fire resulting in the loss of 10 **Pz.Kpfw.III** and 3 **Pz.Kpfw.IV**. The rest of **Panzer-Regiment 5**, consisting of 25 **Pz.Kpfw.I Ausf.A**, 45 **Pz.Kpfw.II**, 61 **Pz.Kpfw.III** (all with **5 cm Kw.K. L/42**, only a few **Ausf.H**), 17 **Pz.Kpfw.IV**, 3 **kl.Pz.Bef.Wg.**

The **5.Kompanie/Panzer-Regiment 5** of the **5.leichte Division** on the road to the front. As shown in this photo, most of the **Pz.Kpfw.IIIs** sent to North Africa with **Panzer-Regiment 5** were **Ausf.G** with only a few **Pz.Kpfw.III Ausf.H** and all had **5 cm Kw.K. L/42** guns. (RAC)

A **Pz.Kpfw.II** of the **2.Kompanie/Panzer-Regiment 5** of the **5.leichte Division** on board ship for transportation to Tripoli, Libya. Starting in the Fall of 1940, **Pz.Kpfw.IIs** were modified by mounting a commander's cupola on the turret in place of the split hatch and adding stowage boxes on the right fender. The **Pz.Kpfw.IIs** in **Panzer-Regiment 5** had extra armor bolted onto the gun mantle. (BA)

and 4 **gr.Pz.Bef.Wg.**, landed at Tripoli on 8 through 10 March 1941. After parading through Tripoli on 12 March, they were sent eastward along the coast road to the front.

The first action occurred on 31 March 1941 in the area around Marsa el Brega. The British having no intention of holding this exposed position gave the codeword "Laxative" to withdraw at 0900 hours. Following up the British rear guard, **Panzer-Regiment 5** ran into the 5th Battalion Royal Tank Regiment with 19 Mark IVA cruiser tanks late in the afternoon of 2 April. As recorded in the War Diary of the 5th RTR:

At 1732 hours, the approaching tanks opened fire, with setting sun directly behind them obscuring their position. C Squadron (with 9 Mk.IVAs) returned fire.

At 1745 hours, the battalion commander ordered withdrawal behind the next ridge. C Squadron acknowledged the order.

At 1750 hours, the battalion reformed behind a ridge approximately one mile north but enemy did not follow up. Enemy: Estimated strength 40 to 60 tanks, a number of field guns, and a large quantity of vehicles. Tanks mostly M13s with wireless masts on the sides and the leading tank carrying four flags on the aerial similar to our navigation flags. Some larger tanks.

Casualties: Unknown. Of the four tanks left in the Squadron, all four of them are sure they had several hits each and knocked out two or three each, a number catching on fire. The fact that this large force did not follow up the Battalion withdrawal to the next ridge can be taken as corroboration of their having suffered considerable casualties. Five Mark IVA tanks were lost and one damaged by a 47 mm shell entering the turret and preventing rotation.

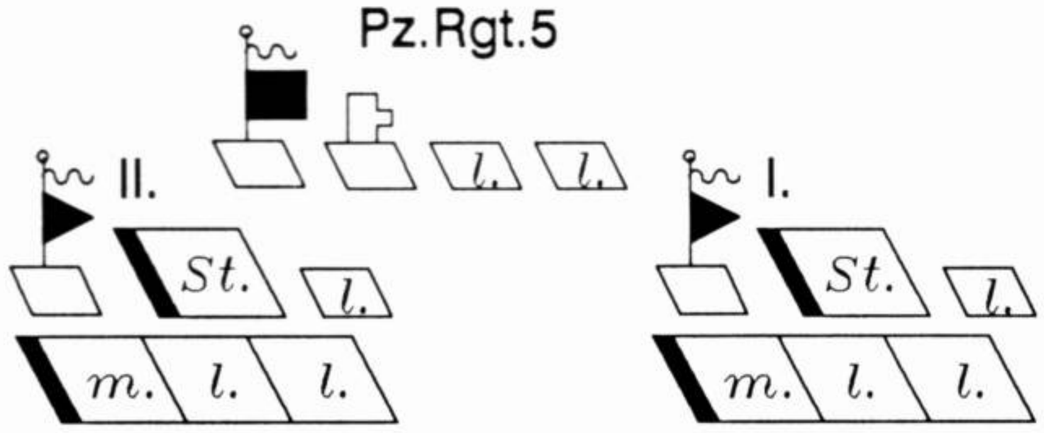
Panzer-Regiment 5 lost two **Pz.Kpfw.III** and a **Pz.Kpfw.IV** in this action. Shots had hit and penetrated the fuel tanks. In several cases this caused the Panzers to be burned out.

But the opposing force was an insignificant problem compared to the terrain. Rommel attempted the same maneuver that the British 7th Armoured Division had used in February to cut off the Italians, in reverse. Instead of being continuously delayed on roads through the mountains, **Panzer-Regi-**

ORGANIZATION AND STRENGTH OF PANZER UNITS

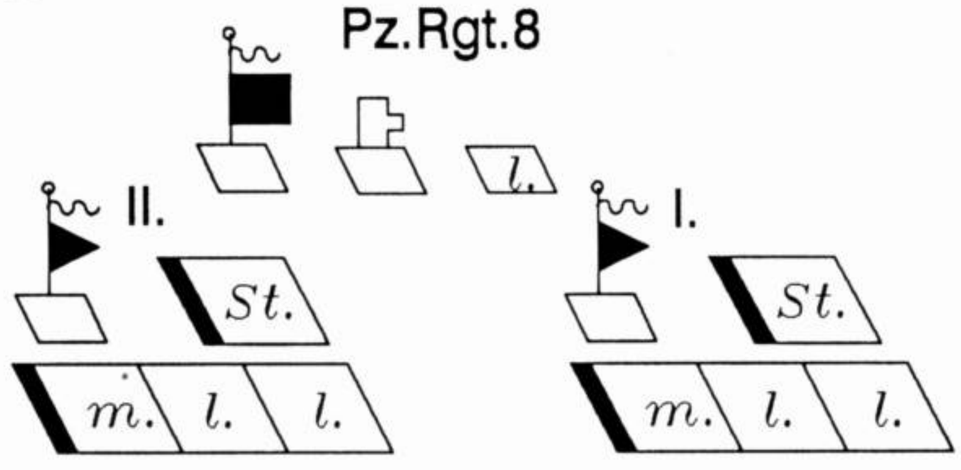
OPERATION SONNENBLUME

5.leichte-Division



25 PzI, 45 PzII, 71 PzIII(5cm), 20 PzIV, 7 PzBef

15.Panzer-Division



45 PzII, 71 PzIII(5cm), 20 PzIV, 10 PzBef

ment 5 moved cross-country toward Mechili and Tobruk. The outcome was reported on 5 May 1941 by the **Werkstatt-Kompanie** of **Panzer-Regiment 5**:

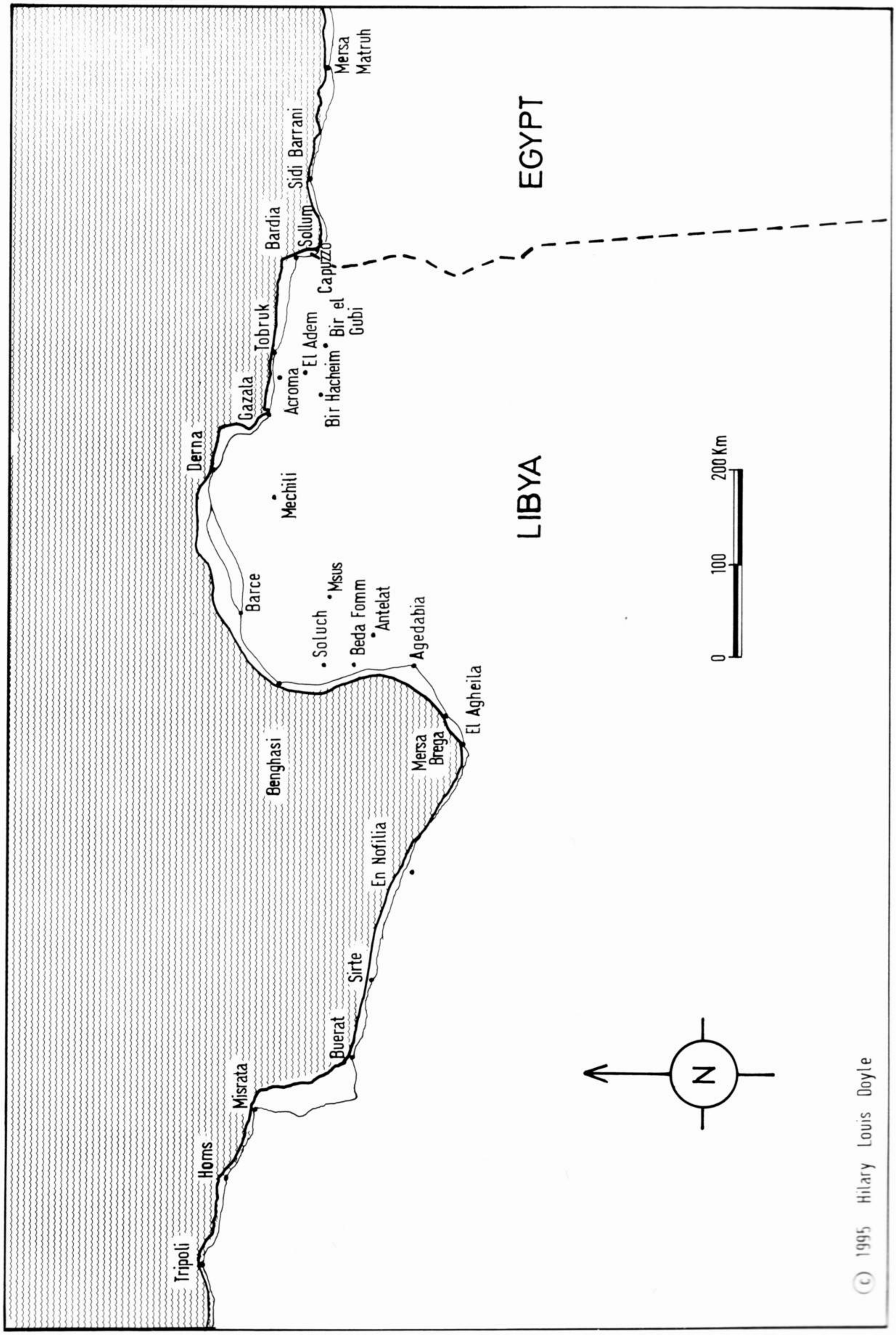
The average journey of 700 kilometers in the desert had a very adverse effect on the Panzers. Up to the time that the regiment moved into position before Tobruk, the following Panzers had been delivered to the two workshop companies because of severe motor and suspension damage: 12 out of 25 ***Pz.Kpfw.I****, 2 out of 3* ***kl.Pz.Bef.Wg.****, 19 out of 45* ***Pz.Kpfw.II****, 44 out of 65* ***Pz.Kpfw.III*** *and* ***gr.Pz.Bef.Wg.****, and 6 out of 17* ***Pz.Kpfw.IV****. In all 83 Panzers out of a total of 155. The reason the stretch of desert in the Trigh el Abd caused so much damage to the tanks was the high speed which tactical reasons demanded. Because of the necessary haste, parts of the route unsuitable for tanks could not be avoided.*

Of the 65 ***Pz.Kpfw.III*** *and* ***gr.Pz.Bef.Wg.*** *44 fell out during the desert march because of severe damage to the engines. The fault was always the same. The engine cut out and the oil pressure fell, and after fluctuating, finally fell to nothing. The engine stopped. If an attempt was made to drive on after the oil was changed, cylinders and pistons seized. Finally the connecting rod of the third or fourth piston broke. The cause was the same in each case. The crankshaft was clogged up by the fine dust as if with a paste, which caused a break in the oil circulation. Cylinders and pistons showed wear of as much as 6 mm. Out of the 83 broken-down Panzers, the workshop company changed engines in 58.*

The present air filters are entirely unsuitable for desert travel since it is impossible to stop the fine dust with them. Hence clogging of the crankshaft. The use of a dry felt filter such as is fitted on British cars, trucks, and tanks was proposed.

Fifty shock absorbers had become useless and were changed on the 65 ***Pz.Kpfw.III*** *and* ***gr.Pz.Bef.Wg.*** *Twenty broken springs and 16 shackles were changed on* ***Pz.Kpfw.IIs****. Spring and shock absorber failure was partially due to the bad going and partially due to mines. Lubrication of the auxiliary brakes was a common fault because of defective shims. Sixty instances in* ***Pz.Kpfw.IIIs*** *were due in part to bad inspection by the firms. The fan shafts had to be changed in 40 cases since the thrust bearing were defective. Difficulties arising from sand in the turret races were found in eight* ***Pz.Kpfw.IIIs****. Five Variorex transmissions had to be changed.*

Shrunk down to 25 operational Panzers, **Panzer-Regiment 5** attacked the southwest side of Tobruk at 1600 hours


EGYPT
LIBYA
Mersa Matruh
Sidi Barrani
Bardia
Sollum
Capuzzo
Tobruk
Gazala
Derna
Acroma
El Adem
Bir Hacheim
Bir el Gubi
Mechili
Barce
Soluch
Msus
Beda Fomm
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El Agheila
Mersa Brega
En Nofilia
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on 11 April. Their advance was unexpectedly held up by an impassable anti-tank ditch surrounding Tobruk. No crossing could be found on the 11th or on the 12th. Trying again on 14 April, they succeeded in getting inside the Tobruk perimeter defenses. The outcome of this attack is related in the following report from Oberst Olbrich, commander of **Panzer-Regiment 5**:

*In order to mislead the enemy, on the night of 12/13 April, engineers made a sham demolition of the anti-tank ditch on the western sector of the British positions around Tobruk. On the night of the 13th, **M.G.-Battalion 8** and engineers made a bridge-head at the road fork 7 kilometers south of Tobruk. Here, crossing points were to be created over the ditch for the subsequent attack by the Regiment.*

*A platoon from **Panzer-Jaeger-Abteilung 605** and a battery from **I./Flak 33** were attached to cooperate with the Regiment. The force was to assemble by 0230 hours on 14 April to the south of the bridgehead. The first attack was to be toward the north against Point 99. As the attack developed, the **I.Abteilung** with the platoon from **Panzer-Jaeger-Abteilung 605** was to advance to the Via Balbia and pursue the retreating enemy to the west. The **II.Abteilung** would turn off to the east and advance against Tobruk. While the Regiment was preparing, enemy artillery opened barrage fire on it, but no losses were inflicted.*

*At 0430 hours on 14 April, **Panzer-Regiment 5** with 38 Panzers (**II.Abteilung** leading, followed by the **I.Abteilung**), then three 4.7 cm self-propelled anti-tank guns from **Panzer-Jaeger Abteilung 605** crossed the bridgehead four kilometers west of the point it had originally been ordered to penetrate. On first contact with the enemy, a few elements of **M.G.-Battalion 8** came forward (2 1/2 platoons instead of 300 men). The situation seemed to be developing favorably, since we had the advantage of surprise. At 0530 hours, liaison between the tanks and machine gunners continued. But with the approach of dawn, anti-tank fire concentrated on the Regiment from all sides and the machine gunners were pinned down.*

At 0600 hours, the Regiment crossed Point 99 and prepared to advance on the Via Balbia. Completely alone, 6 kilometers deep in enemy territory, the Regiment came under direct artillery fire from near Fort Solara east of Point 99 and from Fort Ariente. The enemy advanced his anti-tank units on both flanks and to our rear succeeded in closing the gap where we had broken in. The Regiment was forced to defend itself in all directions. At the same instant, six enemy fighters came roaring down in a low-level attack and enemy bombers dropped heavy caliber bombs as well.

*While in this unpleasant situation, an attack was launched from the right rear by 14 enemy tanks. Among them two Mk.II infantry tanks were definitely identified. Orders were given to the I.Abteilung to engage their front and the **II.Abteilung** was to attack from the right flank. During the battle, enemy anti-tank fire grew more and more intense. Visibility was considerably reduced by bursting shells, burning tanks, and the smoke from shells, adding greatly to our difficulties. When the tank casualties had far exceeded unbearable proportions,*

Having broken through the defensive perimeter at Tobruk on 14 April 1941, **Panzer-Regiment 5** was subjected to counterattacks from all sides resulting in the loss of five **Pz.Kpfw.IVs** from the **8.Kompanie**. The turret probably blew off when the stowed ammunition went up. (RAC)

the Regiment began to retire in good order, firing in every direction and recovering the dead and wounded from the knocked-out tanks.

At 0800 hours, the gap in the anti-tank ditch, now held by the enemy, was reached. Upon our approach, they opened fire with their anti-tank guns and from well-camouflaged machine gun posts, concentrating their fire on the tanks as they were passing through the narrow gap. The 200 prisoners we had taken threw themselves on the ground to avoid the fire of their comrades, jumped into the ditch, and escaped. Several of our own men riding on the outside of the tanks were killed or wounded.

The ***I.Abteilung*** *was detailed to cover the retreat by opposing the fire of the enemy anti-tank and machine guns. Heavy, well-directed enemy artillery fire pursued the Regiment to a point about two kilometers southwest of the gap. Here the Regiment assembled, drew up its units in battle order, and prepared to repulse an enemy counterattack; however, this did not materialize. The enemy merely advanced a few tanks to the position where we had broken through.*

Thirty-eight Panzers entered the battle, 17 of which were destroyed by the enemy. Two officers were missing and 7 wounded, 21 men missing and 10 wounded. This amounted to a loss of 50 percent.

The last attempt in 1941 to take Tobruk was organized as a combined arms assault by elements of five divisions on the southwest sector. Starting early in the morning on 1 May, the perimeter defenses were breached and a series of concrete posts captured. However, a clean breakthrough was halted when the lead Panzers were immobilized by a mine field. In a personal diary, Leutnant Schorm of the **6.Kompanie/ Panzer-Regiment 5** related his experiences in the assault on Tobruk on 1 May 1941:

We intend to take Tobruk. My fourth attack on the town. Up at 0330 hours, leave at 0430 hours. We lose touch in the darkness and dust - and join up again. We file through the gap where many of our comrades have already fallen. Then we deploy at once - ***6.Kompanie*** *on the left,* ***5.Kompanie*** *on the right. Behind* ***Stab***, ***8.Kompanie*** *and* ***7.Kompanie****. The Regiment is now Hohmann's and consists of the* ***5.Kompanie*** *(previous* ***1.*** *and* ***2.****),* ***6.Kompanie*** *(****5.*** *and* ***6.****),* ***7.Kompanie*** *(the remainder),* ***8.Kompanie*** *(****4.*** *and* ***8.****), altogether about 80 tanks.*

The British artillery fires on us at once. We attack. No German patrol goes out in front to reconnoitre. Tier upon tier of guns boom out from the triangular fortification before us. The two light platoons of the company and my left section

A **Pz.Kpfw.III Ausf.F** with the **6.Kompanie/Panzer-Regiment 5** has a thin coat of camouflage paint smeared over the **Dunkelgrau** base coat of paint. Spare track links were fastened on the driver's front plate and hung from the tow shackles across the hull front in an attempt to improve protection. (BA)

*are to make a flanking movement. I attack. Radio message: "Commander of **6.Kompanie** hit on track." Then things happen suddenly. A frightful crash in front and to the right. Artillery shell hit? No? It must be a mine. Immediately send radio message: "Commander Schorm on a mine, try to turn round in your own tracks." Five meters back. New explosion -mine underneath to the left. Now it's all up with driving. Radio message: "On getting back, went on mine again. Now mounting Panzer 623." Back through the artillery fire for 100 meters. Got in. Radio order: "Tanks to pull back behind ridge." The men of the mined tank are all right. The enemy is attacking with tanks but will be put to flight.*

*Back carefully. Then with the last tank of the company and Leutnant Roskoll, I provide cover to the north. Nine **Pz.Kpfw.III** and three **Pz.Kpfw.II** in the **6.Kompanie** have had to abandon the fight owing to mines. In my platoon, the commander's and both of the section leaders' Panzers. Of course, the enemy went on shooting at us for some time.*

A slight change of position; forward - right - backward - left! With the commander's approval, I am to go with Leutnant Dim up in front to salvage tanks. While we are on the way, we are fired at by machine guns and anti-tank guns at 550-meter range. I silence them with high explosive shells and drive on the tracks of Panzer 624. I bring up the rear. Then the laborious work of salvaging begins. The anti-tank fire starts up again and has to be kept in check by Lt. Dim by constant machine gun fire. Leutnant Dim runs onto a mine and damages a track. At last, I move off slowly with Panzer 624 in tow, through the gap, and a further 800 meters. 250,000 Marks are saved! The crew is really delighted to have its tank back. Further back to the Abteilung. It is now late afternoon.

Dive-bombers and twin-engine fighters have been attacking the enemy constantly. In spite of this, the British repeatedly counter-thrust with tanks. As soon as the planes are gone, the artillery starts up furiously. It is beginning to grow dark. Which is friend, which is foe? Shots are being fired all over the place, often on one's own troops and on tanks in front which are on their way back.

Suddenly - a radio message! The British are attacking the gap with infantry. It is actually true. Two companies get off their motor lorries and form a skirmishing line. All sorts of light signals go up - green, red, white. The flares hiss down near our machine guns. It is already too dark to take aim. Well, the opponent's attack is a failure.

The little Fiat-Ansaldo tanks with flame throwers go up in front in order to clean out the triangle. Long streaks of flame from Masul oil, thick smoke, filthy stink! We cover until 2345 hours - then retire through the gap. It is a mad drive through the dust. At 0300 hours, had a snack beside the Panzer. Twenty-four hours shut up in the tank - with frightful cramps as a result and a thirst!

The **15.Panzer-Division** with **Panzer-Regiment 8** was sent to Libya as the second division for the **Deutsches Afrika-Korps**. **Panzer-Regiment 8** was shipped to Tripoli in three consecutive convoys. The **Stab** and **Stabskompanie** **I.Abteilung** and the **1.Kompanie** arrived on 24 April, the **Regiment Stab**, **2.**, **3.**, and **5.Kompanien** arrived on 2 May. The rest of the **II.Abteilung** with the **6.** and **7.Kompanie** arrived on 6 May 1941. The **Panzer-Regiment** was outfitted with 45 **Pz.Kpfw.II**, 71 **Pz.Kpfw.III** (all with **5 cm Kw.K. L/42**, most **Ausf.H**), 20 **Pz.Kpfw.IV**, 4 **kl.Pz.Bef.Wg.** and 6 **gr.Pz.Bef.Wg.**

After the failure to take Tobruk, attention was drawn to the Libyan/Egyptian border where British forces had moved up to challenge possession of the area. **II.Abteilung/Panzer-Regiment 5** commanded by Major Hohmann was sent to the border area, arriving on 11 May. **Stab I.Abteilung** and **1.Kompanie/Panzer-Regiment 8** arrived at the front on 9 May and was positioned in the area west northwest of Acroma. The **2.**, **3.**, and **5.Kompanien** arrived on 12 May.

On 15 May 1941, the British struck back at the border in Operation "Brevity". The 4th RTR (24 Mk.II infantry tanks) assisted the infantry in capturing Halfaya Pass and then advanced on Musaid and Capuzzo. The 2nd RTR (29 mixed cruiser tanks) swung out to guard the left flank and in the afternoon sent a squadron on patrol through Sidi Azeiz. The counterattack of the **II.Abteilung/Panzer-Regiment 5** with 27 operational Panzers was reported by Major Hohmann, the **II.Abteilung** commander as follows:

*The **Panzer-Abteilung** was alerted at 0600 hours. At 0710, the **Panzer-Abteilung** met up with a reconnaissance element several kilometers south of Point 206, then turned east and attacked a group of enemy tanks advancing toward Capuzzo (A Squadron and Headquarters 4th R.T.R. with eleven Mk.II infantry tanks and four Mk.VI light tanks). I sent the message: "British Mark II tanks are attacking. Request **8.8 cm Flak** to Capuzzo." The engagement with about 16 Mark II infantry tanks was obstinately fought. In this action two Mark II infantry tanks were observed to be immobilized. (They were later found and blown up on 16 May by Oberleutnant Gruen of **II./Panzer-Regiment 5**). We didn't manage to stop the enemy or to force him to turn away from his objective because of the negligible effect of our weapons. I couldn't implement the tactics that had the best chance of success against the Mark II tanks, concentrated fire at close range from several 5 cm tank guns, because of the small number of Panzers available. I only saw the risk of being forced to the west and cut off from the main battlefield. By radio message I then ordered: "Turn left, follow commander Meissel." The heavy tank combat made it difficult to break contact. Because of their high speed, the **Stab**, **5.Kompanie** and three Panzers from the **6.Kompanie** reached the border fence south of Capuzzo. The order was not received due to failure of a radio set resulting in about 14 Panzers of the **6.Kompanie** and **8.Kompanie** turning west. Having lost radio contact with the **Abteilung**, under the command of Hauptmann Mueller, they later moved back to Sidi Azeiz.*

*At 0825 hours, in the area of the border fence south of Capuzzo, a firefight again occurred between Mark II infantry tanks and the 12 Panzers remaining with **Panzer-Abteilung***

Panzer-Regiment 8 was shipped to Tripoli in April and May 1941. Most of their **Pz.Kpfw.IIIs** were **Ausf.H** with 30 mm face hardened armor plates bolted onto the front of the basic 30 mm armor plates. (WW)

***Hohmann**. The Mark II infantry tanks pulled back. One Mark II remained stationary behind the border fence. **Panzer-Abteilung Hohmann** slowly moved back toward Capuzzo and encountered truck-borne British infantry, which were forced to take cover by machine gun fire.*

At 0840 hours, I reported that Capuzzo had been occupied by the enemy and that the Panzers were out of ammunition. At 0915 hours, left with 10 operational Panzers, I pulled back to resupply with ammunition about 5 to 6 kilometers north of Capuzzo.

*At 1030 hours, the reconnaissance post at Sidi Azeiz reported that 12 Panzers had arrived and at 1110 hours reported that the Panzers had left to return to Bardia. This was the **6.** and **8.Kompanie** under Hauptmann Mueller, which didn't return to Bardia but was resupplied with ammunition about 10 to 11 kilometers north of Capuzzo.*

*At 1130 hours, **Panzer-Abteilung Hohmann** with the operational Panzers was ordered to move to the command post of Montemurro to enable the Italian Bersagliere Regiment to break contact with the enemy. The **Panzer-Abteilung** advanced to Montemurro. I drove to the command post and determined the situation. The opponent lay in front of Montemurro at about 300 to 400 meters. The Italian motorcycle infantry and artillery crew were pinned down by heavy fire. The artillery battery was out of ammunition.*

*I decided to move around to the southeast and to attack east of Capuzzo with an assault group. Under this protection, about 1330 hours, all elements of Montemurro managed to make a clean break away from the enemy. The attack eastward past Capuzzo eliminated numerous British. A major and 16 soldiers were captured by Oberleutnant von Huelsen, leader of the **leichte Zug** of **II./Panzer-Regiment 5.** They turned over their prisoners at 1432 hours. I reported that the assignment had been completed and retired to the north behind the border fence.*

***Panzer-Abteilung Hohmann** was then attached to **Gruppe Knabe** and met up with them and **8.8 cm Flak** guns at 1440 hours. At 1515 hours, I reported by radio: "Enemy tanks with the Trigh Capuzzo as their apparent objective were moving around to the north, about 6 kilometers to the west of **Gruppe Knabe** and Hohmann. Four additional heavy tanks were spotted advancing from the southeast toward Capuzzo. These can only be engaged with the **8.8 cm Flak**. Panzers with 7.5 cm are not available."*

*Since the opponent near and to the east of Capuzzo didn't advance any further, at 1600 hours I requested and received permission from the division to move to the area south of **Aufklaerung-Abteilung 3**. The Panzers needed to be urgently refueled and it was necessary to repair combat damage (tracks and road wheels had been hit by fire from enemy tanks and anti-tank rifles). At 1645, the **Panzer-Abteilung** moved back to the north toward Bardia to **Aufklaerung-Abteilung 3**.*

*My adjutant and I reported in person to the division command post. After receiving orders to advance to Point 206 and build a leaguer there, I left the division command post at 1715 hours. Returning to the Abteilung I briefed my company commanders and started to advance at 1830 hours. At 1845 hours, I received the radio message that the **Panzer-Aufklaerung-Abteilung 33** had been ordered to attack Sidi Azeiz. At 1907 hours, I received an order by radio to attack Sidi Azeiz and continued the advance. Directly in front of Point*

206 I spotted motorcycle infantry taking up defensive positions. I drove forward and asked Oberleutnant von Huelsen, leader of the ***leichte Zug*** *that was leading the* ***Abteilung*** *as point guard, to determine who the motorcycle infantry belonged to. He reported that they were the* ***Kradschuetzen-Kompanie/Aufklaerung-Abteilung 33****. It was now about 1920 hours. Rittm. von Meyer, their company commander, came to me and reported that the Abteilung wasn't advancing because of the strength of the opponent. He had received orders to advance from here, but had been fired at and taken up a defensive position. Immediately following, I spoke with Leutnant von Gienenth who came from* ***Aufklaerung-Abteilung 33****. He told me that the* ***Abteilung*** *wasn't getting forward. They had observed numerous enemy tanks, about 30.*

Shortly before, using binoculars I had identified 7 enemy tanks as Mark II north of the track. Under the impression of the enemy situation that I had obtained from my own observations and reports from ***Aufklaerung-Abteilung 33*** *and due to the failing light, I reported by radio to the division at 1930 hours: "****Gruppe Hohmann*** *is located on the track behind* ***Aufklaerung-Abteilung 33****.* ***Aufklaerung-Abteilung 33*** *not attacking. Clearly identified 7 Mark II north of Sidi Azeiz. Attack with available forces is not possible." I couldn't understand the repeated order to attack with reference to* ***8.8 cm Flak*** *because I didn't know about any* ***8.8 cm Flak*** *support. (At 1715 hours,* ***Aufklaerung-Abteilung 33*** *had reported that heavy enemy tanks had arrived near Sidi Azeiz, whereupon two* ***8.8 cm Flak*** *were sent to the* ***Aufklaerung-Abteilung 33*** *from Oberstleutnant Knabe).*

At 2045 hours, unsummoned I reported in person to the division command post and repeated that Mark II tanks had been spotted and that a breakthrough against these tanks couldn't be achieved. My concern was the total enemy situation reported by ***Aufklaerung-Abteilung 33*** *and the pitch-dark night (no moon, visibility at 5 to 6 meters). From previous encounters at Tobruk and today's fight, the appearance of Mark II tanks was known to me only too well. Maybe the repeated questions from the division commander were based on the fact that he had never seen a Mark II. In addition,* ***Aufklaerung-Abteilung 33*** *had reported at 1715 hours that they had also seen "heavy" enemy tanks at Sidi Azeiz. These could only have been Mark II tanks because all of the other types fall under the classification as light and medium tanks. The heavy cruiser is a medium tank.*

Having been ordered to move forward to Sidi Azeiz at about 1500 hours on 15 May, the **I.Abteilung/Panzer-Regiment 8** finally arrived at 0300 on the morning of 16 May 1941. They reported the area to be free of any enemy forces. Due to fuel shortages, they weren't able to continue the pursuit until the afternoon of 16 May. The 4th RTR pulled back leaving nine operational Mk.II infantry tanks to aid the defending British infantry at Halfaya. The 2nd RTR destroyed a broken-down **Pz.Kpfw.III** before they pulled out to the southeast. As a result of combat during the period from 13 to 16 May 1941,

One of the feared British Mark II Infantry Tanks known as Matildas belonging to the 4th Battalion Royal Tank Regiment was knocked out during Operation Battleaxe. It was in good enough condition to be returned to service by its captors, **Panzer-Regiment 8**. (KL)

the **II.Abteilung/Panzer-Regiment 5** lost two **Pz.Kpfw.III** and a **Pz.Kpfw.II** as total writeoffs. The British recovered all but four Mk.II infantry tanks that were captured.

On 26 May 1941, Operation "Skorpian" was mounted to drive the British forces back from the border and recover Halfaya Pass. The **I.Abteilung/Panzer-Regiment 5** had been pulled up to the border area and went into action with the **II.Abteilung/Panzer-Regiment 5** and **I.Abteilung/Panzer-Regiment 8** under Oberstleutnant Cramer. One **Pz.Kpfw.III** was destroyed on 26 May and seven Mk.II infantry tanks (of which three were usable) were captured when Halfaya Pass was retaken on the morning of 27 May.

The **II.Abteilung** with **6.** and **7.Kompanien** of **Panzer-Regiment 8** arrived in the forward area on 28 May. **Panzer-Regiment 8** remained in the border area and **Panzer-Regiment 5** sent back to el Adem near Tobruk.

Egged on by a cigar-smoking prime minister, the British again attacked in Operation "Battleaxe" on 15 June 1941. Having been alerted on 14 June by radio intercept that an attack was expected on 15 June, **Panzer-Regiment 8** prepared to meet the attack with 82 operational Panzers. The following account of the attempt to counterattack and to halt the advance of Mk.II infantry tanks was written by the commander of the **I.Abteilung/Panzer-Regiment 8**:

By 1030 hours on 15 June, the first day of the action ***Panzer-Regiment 8*** *was well up from their assembly area north of Capuzzo. By 1130 hours one company was already engaged on the frontier. Reinforced by a second company, it nevertheless had to withdraw before superior numbers. In doing this it ran out of ammunition, allowing the British to take Capuzzo.*

By this time two ***Pz.Kpfw.IIIs*** *had been knocked out and some others had fallen out with damage to their guns and engines. A third company was now called in to prevent the British from breaking through west of Capuzzo, but it also*

*had to retire. Later in the day the **I.** and **II.Abteilung/Panzer Regiment 8** attacked Capuzzo in succession, but failed to get through and withdrew before dark to a position near the Bardia road.*

*Next day, June 16, the regiment was ordered to attack Capuzzo once more, this time with both Abteilungen combined. The **I.Abteilung** had now only 6 **Pz.Kpfw.IV**, 4 **Pz.Kpfw.III** and 9 **Pz.Kpfw.II** of the 8 **Pz.Kpfw.IV**, 18 **Pz.Kpfw.III** and 13 **Pz.Kpfw.II** tanks with which it had started the battle. The British tanks struck out of the morning mist, and once more there were heavy casualties in the **3.Kompanie**. The commander of the **I.Abteilung** had his tank shot through twice by fire from infantry tanks at a range of 300 meters. The **I.Abteilung** had to withdraw with only three operational **Pz.Kpfw.III** and one **Pz.Kpfw.II**. It is clear that if the British tanks had been able to take Bardia, **Panzer Regiment 8** would have been finished. By the evening of the second day, two **Pz.Kpfw.II**, nine **Pz.Kpfw.III** and two **Pz.Kpfw.IV** had been repaired (the damage had been mostly to guns), and stood ready to defend Bardia.*

In the meantime, **Panzer-Regiment 5** with 96 operational Panzers (not counting **Pz.Kpfw.I** and **Pz.Bef.Wg.**) had been sent down from Tobruk on 15 June. The **I.Abteilung/Panzer-Regiment 5** in the lead was reported at 1930 hours to have attacked to relieve Point 208 and was located west of Point 206. During 16 May, **Panzer-Regiment 5** on the right flank contained and engaged the cruiser tanks of the 2nd and 6th RTR of the British 7th Armoured Brigade in a running battle for most of the day. Late on 16 May, **Panzer-Regiment 8** was sent across to the right flank. On 17 May, both **Panzer-Regiments** with supporting elements from their divisions encircled and attempted to cut off the retreating British forces. The British tanks that were still operational managed to slip through before the trap was closed. The British left behind 65 Mk.II infantry tanks and 29 cruiser tanks, of which 16 were the new Mk.VI "Crusaders." **Panzer-Regiment 5** lost two **Pz.Kpfw.II** and two **Pz.Kpfw.III** and **Panzer-Regiment 8** lost three **Pz.Kpfw.II**, four **Pz.Kpfw.III**, and one **Pz.Kpfw.IV** as total writeoffs.

Many of the Mk.II "Matilda" infantry tanks had fallen victim to the **8.8 cm Flak** guns of **I./Flak-Regiment 33** which expended 1,680 rounds of 8.8 cm ammunition and claimed to have knocked out 79 tanks. The **5.leichte-Division** captured five and the **15.Panzer-Division** captured seven operational Mk.II infantry tanks.

Ten **Pz.Kpfw.III** and three **Pz.Kpfw.IV** replacements had already arrived in April 1941 by **Panzer-Regiment 5** to replace those that had been destroyed in the fire on the ship "Leverkusen." For losses that **Panzer-Regiment 5** had sustained in April, 15 **Pz.Kpfw.III** and 5 **Pz.Kpfw.IV** replacements had been issued by 4 June 1941. By 30 June 1941, four **Pz.Kpfw.II** and six **Pz.Kpfw.III** were issued as replacements for those reported lost in Operation "Battleaxe" and another four **Pz.Kpfw.III** replacements were issued by 10 July 1941. Space on ships was at a premium and priority lists were es-

Pz.Kpfw.IIIs of the **6.Kompanie/Panzer-Regiment 5** ready for action. An air recognition flag is spread across the rear deck. (RAC)

tablished for shipment of all commodities, so these replacement tanks didn't actually arrive in Libya until August through October. They still had the long drive along the coast road from Tripoli to the front before arriving at their unit. No other replacement Panzers arrived for the **Deutsches Afrika-Korps** until 5 January 1942.

On 1 August 1941, the **Oberkommando des Heeres** ordered that the **5.leichte-Division** be reorganized into the **21.Panzer-Division**. This had no effect on **Panzer-Regiment 5**. On 15 September 1941, orders were issued to form two **leichte Panzer-Kompanien** for **Panzer-Regiment 5** and two for **Panzer-Regiment 8**. These were outfitted in Germany and weren't shipped to Libya until December 1941.

The rest of the summer and fall passed relatively uneventfully, the exception being Operation "**Sommernachtstraum**" in which the **21.Panzer-Division** conducted a major reconnaissance foray across the border into Egypt to hit and destroy any enemy forces in the area. The units left before dawn on 14 September and were to pull back behind the Sollum Front during the night of 14/15 September. The British units conducted a preplanned, orderly withdrawal before their advance. The **Panzer-Regiment** wasn't able to engage or trap any significant opponents. **Panzer-Regiment 5** lost two **Pz.Kpfw.III** as total writeoffs due to enemy action. As a result of damage and mechanical breakdown their operational strength was reduced from 34 **Pz.Kpfw.II**, 60 **Pz.Kpfw.III**, and 16 **Pz.Kpfw.IV** on 10 September down to 18, 42, and 11 respectively on 15 September 1941.

While the Germans prepared to attack the fortress of Tobruk, the British had built up for a major offensive. The British Operation "Crusader" came trundling across the border on 18 November 1941. **Panzer-Regiment 8** prepared for the assault on Tobruk was overstrength, with 42 **Pz.Kpfw.II**, 77 **Pz.Kpfw.III**, 21 **Pz.Kpfw.IV**, 4 **kl.Pz.Bef.Wg.**, 6 **gr.Pz.Bef.Wg**. and 5 captured "Matilda" Mk.II infantry tanks. On 17 November, **Panzer-Regiment 5** was at its alert position south of the Gasr el Arid airfield with a total of 35 **Pz.Kpfw.II**, 68 **Pz.Kpfw.III**, 17 **Pz.Kpfw.IV** and 4 **gr.Pz.Bef.Wg.**

The counterattacks against the advancing British armoured brigades are recounted in the following excerpts from the combat report of **Panzer-Regiment 5**:

*At 1630 hours on **18 November 1941**, the regiment sent the **1.Kompanie** in the direction of Sidi bu Chdigia to reinforce **Aufklaerungs-Gruppe Wechmarr**. The **1.Panzer-Kompanie** radioed back at 2030 hours that they had met the **Aufklaerungs-Gruppe** which was withdrawing to the southwest.*

*On the morning of **19 November 1941**, the **21.Panzer-Division** ordered that another (**2.Panzer-Kompanie**) be detached and sent to destroy enemy armored cars which had become stuck in front of **M.G.-Bataillon 8**.*

*At about 1200 hours, the division commander ordered the regiment to assemble as part of **Kampfgruppe Stephan** (**Panzer-Regiment 5** with the **II./Artillerie-Regiment 155** and the **3.Batterie/Flak-Regiment 18** attached) near Point 201 between **M.G.-Bataillon 8** and **II./Schuetzen-Regiment 104**. They were to advance south to the Trigh el Abd, turn east toward Sidi Omar, catch and eliminate the enemy tanks that had been reported by **Aufklaerung-Abteilung 3**.*

*After the swift return of the **2.Panzer-Kompanie**, at 1420 hours, the regiment started the move with the **II.Abteilung** leading and the **I.Abteilung** (without the **1.Panzer-Kompanie**) echeloned to the left rear. The **1.Kompanie** rejoined the regiment at 1545 hours.*

*About 1600 hours, the regiment met approximately 120 enemy tanks northwest of Gabr Sredi. As the heavy firefight proceeded, the enemy brought up additional tanks and equipment on the flanks, altogether approximately 180 tanks, two batteries of artillery, and mounted anti-tank gun. They were heavier on the left flank where the **I.Abteilung** was carrying the brunt of the fight. In the protracted battle until nightfall, the enemy was forced to retreat to the southeast. Twenty-one American tanks were knocked out by the regiment; two were knocked out by the **Flak-Batterie**.*

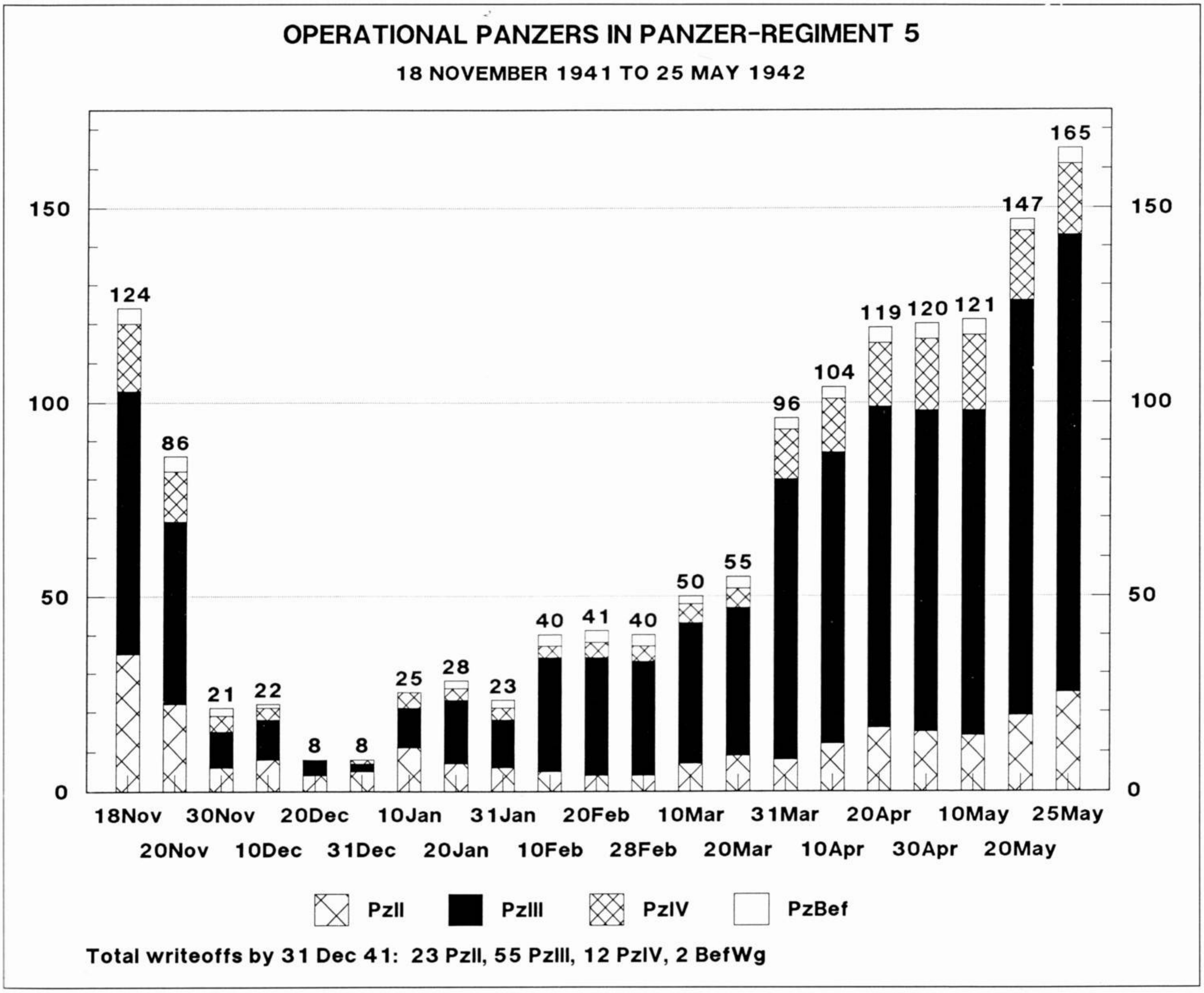
*The regiment leaguered with the idea of being able to attack in the previously ordered direction on 20 November. The regiment had lost two **Pz.Kpfw.III** as total writeoffs due to enemy action. A **Pz.Kpfw.II** that had been damaged by enemy action was also lost because it was in enemy-held territory and couldn't be towed away.*

Many other Panzers had broken down due to mechanical failure or had been damaged in action, as shown by the operational strength which had decreased to 24 **Pz.Kpfw.II**, 45 **Pz.Kpfw.III**, and 14 **Pz.Kpfw.IV** by the end of the day on 19 November 1941.

*At 0105 hours on **20 November 1941**, the regiment received orders to attack at 0600 hours an area 5 kilometers north of Sidi Omar. In the first light of dawn, the regiment's supply units arrived.*

At 0750 hours, the regiment turned to attack toward the southeast and after a short time again encountered the same British tank brigade reinforced with artillery as the day before. The opponent frequently changed position while fighting at long range. When the regiment advanced to a better fighting range, the enemy pulled back toward the southeast and tried to outflank the right wing of the regiment by extending the flanks. This fight, in which eight enemy tanks were eliminated, stretched out for an hour and a half.

*Then the regiment changed their direction of attack toward the east in order to reach the ordered objective. The reinforced **II.Abteilung**, positioned as the rear guard, was pursued for only a short time by the enemy. During this battle, due to enemy action the regiment lost a **Pz.Kpfw.III** as a total writeoff. Two **Pz.Kpfw.IIs** damaged by enemy action were also lost because they were in enemy-held territory and couldn't be towed away.*



On orders received at 1045 hours, the regiment turned northeast to fight enemy forces increasing in strength in front of ***Gruppe Knabe*** *(northeast of Bir el Kamarin). Contact was made around noon. Here the division commander ordered: Division to advance further to Gabr Lachen and take up defensive positions there ready to attack toward the south, southwest, and west.* ***Panzer-Regiment 5*** *to take up positions behind* ***Gruppe Knabe****.*

On the evening of 20 November 1941, the operational strength of **Panzer-Regiment 5** was reported as 22 **Pz.Kpfw.II**, 47 **Pz.Kpfw.III**, and 13 **Pz.Kpfw.IV**.

On ***21 November 1941****, the following order came from the division at 0115 hours:*

1. Enemy with strong reconnaissance forces is in front of ***Gruppe Knabe****. The* ***15.Panzer-Division*** *is in a tank battle by Gabr Saleh.*

2. ***21.Panzer-Division*** *will stand ready at Bir Uasr to attack on the right of the* ***15.Panzer-Division*** *at 0600 hours on 21 November.*

3. Move out of the present position at 0300 hours. ***Kampfgruppe Stephan*** *leading,* ***Gruppe Knabe*** *following.*

The regiment arrived at the attack position at 0600 hours. At 0630 hours, the division commander ordered: Immediately turn about. Middle line for the corps is Sidi bu Chdigia - Belhamed.

After a swift advance with ***I.Abteilung*** *in the lead and the* ***II.Abteilung*** *echeloned to the right rear, in the area of Bir el Mchiezen, the regiment encountered about 35 enemy tanks and several enemy batteries to the front and on the right flank. After several enemy tanks were knocked out, the opponent was forced to retire at 0930 hours. In the area westward of Bir Sciafsciaf the opponent, supported by anti-tank guns and artillery, stood and renewed the fight.*

*The **I.Abteilung** pushed forward toward the main enemy body to the northeast. Climbing the djebel in a fast charge, the enemy was thrown back and lost a large number of tanks. One **Pz.Kpfw.III** was lost in this action and burned out. The **I.Abteilung** was recalled to reassemble. The **II.Abteilung** was positioned on their left, so that contact was made with **Panzer-Regiment 8** and the direction of the attack held.*

*Running low on ammunition, the regiment couldn't continue the attack. The division promised supplies that arrived several hours later. While loading ammunition (only about one quarter of the needed supply was available), the enemy attacked out of the north with about 40 tanks and strong artillery support. **Panzer-Regiment 8** then climbed to the Trigh Capuzzo to hold up the enemy forces. **Panzer-Regiment 5** counterattacked and knocked out another number of enemy tanks with the last of their ammunition.*

*A total of 33 enemy tanks were destroyed by the regiment on 21 November in addition to the four tanks and an aircraft shot down by the **2.Batterie/Flak-Regiment 18**. The regiment had lost one **Pz.Kpfw.III** as a total writeoff due to enemy action. A **Pz.Kpfw.III** and a **Pz.Kpfw.II** that had broken down due to mechanical failure were also lost because they were in enemy-held territory and couldn't be towed away.*

The regiment moved to a new location northeast of Belhamed after dark.

On the evening of 21 November 1941, the operational strength of **Panzer-Regiment 5** was reported as 22 **Pz.Kpfw.II**, 34 **Pz.Kpfw.III**, and 11 **Pz.Kpfw.IV**.

*About 0730 hours on **22 November 1941**, the regiment received an order to swiftly move west of Belhamed, strike in the flank, and eliminate the enemy attacking **Gruppe Knabe** from the south in the area by Zaafran. When the regiment arrived at the ordered attack position, enemy tanks and columns were spotted to the south on the other side of the djebel east of Sidi Rezegh airfield. At the same time, **Gruppe Knabe** attacked toward the south with artillery support being provided from around Belhamed.*

*At 1300 hours, accompanied by the **Flak-Batterie**, the regiment moved west around Abiar el Amar and attacked the Sidi Rezegh airfield from the west. The **II.Abteilung** was in the lead, **I.Abteilung** next, and the **Flak-Batterie** following.*

*The opponent stood on the airfield with about 55 tanks, very many anti-tank guns, and one or two artillery batteries. During this firefight another 60 enemy tanks with strong artillery support attacked out of the south. The **II.Abteilung** formed up with their front facing the southeast. At the same time, with their front facing east and northeast, the **I.Abteilung** carried on the firefight with the strong enemy forces on the airfield. The **I.Abteilung** was flanked by anti-tank guns on the edge of the djebel.*

*Another enemy battle group of about 40 tanks advanced eastward to Bir bu Creinisa and attempted to get onto the rear of the regiment. They were stopped by the successful long-range fire from the **3.Batterie/Flak-Regiment 18** which knocked out two enemy tanks.*

*In the meantime, without the **1.Panzer-Kompanie**, which was supporting the **II.Abteilung** on the right wing of the regiment, the **I.Abteilung** fought through to the airfield. After connecting with **Gruppe Knabe**, the **I.Abteilung** made a fast charge to the southeast extending the front of the **II.Abteilung**. **Gruppe Knabe** cleaned up the djebel edge and halted the fire falling on the rear of the regiment. In spite of the heavy enemy artillery fire, the regiment pushed the enemy back toward the south and later formed a leaguer.*

*Enemy losses amounted to 19 tanks, four anti-tank guns and two artillery pieces. The regiment had lost one **Pz.Kpfw.III** as a total writeoff due to enemy action.*

On the evening of 22 November 1941, the operational strength of **Panzer-Regiment 5** was reported as 18 **Pz.Kpfw.II**, 32 **Pz.Kpfw.III**, and 7 **Pz.Kpfw.IV**.

*At 0300 hours on **23 November 1941**, the regiment was ordered to be at Point 155 at 0600 hours, eight kilometers west of the crossroads of the track out of Gambut on the Trigh Capuzzo. They were to be attached to the **15.Panzer-Division**.*

*During the move, the regiment received written orders from **15.Panzer-Division** and later a guidance officer from **Panzer-Regiment 8**. The officer misdirected the regiment so that it didn't go right as ordered but left past **Panzer-Regiment 8** which was standing ready to attack through Carmuset en Ubeidat toward Bir el Gubi. **Panzer-Regiment 5** swiftly advanced to win though to join up with **Panzer-Regiment 8**. The **I.Abteilung** was in the lead, the **II.Abteilung** following. During the move toward the south-southwest, detached enemy tanks, armored cars, and columns heading toward the southwest ran into the right flank of the regiment. The **II.Abteilung** took over the defense of the right flank. By halting only to fire, they didn't slow up the advance. About 0900 hours, the regiment arrived at an area south of Bir el Sreuil where they encountered about 16 enemy tanks, numerous armored cars, an artillery battery, and supply columns. After a short fight in which the enemy lost four tanks, they were chased off to the southwest. Three enemy tanks, five armored cars, a command vehicle, and several trucks became mired in a marshy area and left behind. Those that weren't captured were destroyed.*

*The regiment halted, set a defense toward the south and east, and at long range with the **Flak-Batterie** fought enemy tanks moving from the south to the east and in the left flank from the south to the northeast.*

*Around noon the regiment was briefed by the commander of the **15.Panzer-Division** on the situation and ordered to attack on the right of **Panzer-Regiment 8** in the direction of Point 179 east of Rugbet en Nbeidat.*

*After moving a few kilometers north-northeast, the **I.Abteilung** ran into enemy artillery fire and after 45 minutes*

changed direction. At 1515 hours, heavy artillery fire fell on the right flank of the right rearward echeloned ***II.Abteilung****. Shortly thereafter the right flank became entangled in a heavy fire fight with enemy tanks advancing from the right.*

In the meantime, the regiment had advanced to within 3000 meters of the enormous enemy vehicle concentration that was several kilometers wide north of Hareifat en Nbeidat. The 30 to 40 enemy tanks firing pulled back.

The regiment could only move slowly forward through very heavy anti-tank fire from the enemy columns that were supported by many batteries. The right flank of the regiment was stubbornly harassed by enemy tanks and guns mounted on trucks.

About 1600 hours, the ***I.Abteilung*** *charged forward and in a swift attack broke into the enemy, fighting under flanking fire from right and left, destroying enemy tanks, anti-tank guns and batteries. The* ***I.Abteilung*** *broke through the enemy positions and followed the retreating elements in the direction of Sidi Rezegh airfield, rolling up the area to the left as had been ordered by the division.*

During this time, the ***II.Abteilung*** *had thrown back the enemy tanks on the right and similarly broke into the enemy columns in a high-speed attack.*

Panzer-Regiment 5 *and about 15 Panzers from* ***Panzer-Regiment 8*** *assembled south of the airfield. After reporting the situation, the regimental commander received an order from Rommel to promptly move to a position toward the southwest and without rest quickly continue the attack and eliminate the enemy. Because this task required fuel, the empty Panzers of the regiment couldn't be brought forward until after nightfall.*

At 2200 hours, the regiment reported to the division: 11 ***Pz.Kpfw.II****, 16* ***Pz.Kpfw.III****, 2* ***Pz.Kpfw.IV****, and 3* ***gr.Pz.Bef.Wg.*** *are combat ready. Loaded ammunition and fuel. Unable to determine losses yet.*

The number of Panzers rose through the night and early in the morning when the disabled and those previously out of fuel came in.

On 23 November 1941, ***Panzer-Regiment 5*** *had destroyed 32 enemy tanks, 2 armored cars, 18 anti-tank guns, and three artillery batteries. In addition, they had captured three armored cars and a large number of vehicles and taken about 400 to 500 prisoners.*

The regiment had lost two ***Pz.Kpfw.IIIs*** *and a* ***Pz.Kpfw.IV*** *as total writeoffs due to enemy action. A* ***Pz.Kpfw.II*** *and three* ***Pz.Kpfw.IIIs*** *that had been damaged by enemy action were also lost because they were in enemy-held territory and couldn't be towed away.*

On the left of **Panzer-Regiment 5**, **Panzer-Regiment 8** charged into the 5th South African Brigade on the afternoon of 23 November 1941, recording the events as follows:

During the morning of 23 November, strong enemy columns had been successfully engaged and preparations made for the difficult attack in the afternoon. Already early in the morning, a high enough price was paid with the death of Major Fenski, the commander of the ***I.Abteilung****. The regimental commander, Oberstleutnant Cramer, had advanced deep in the rear of the enemy and wound up alone in his* ***Panzerbefehlswagen*** *in the middle of an enemy artillery position. Having obtained valuable reconnaissance information, he slugged his way through to the* ***I.Abteilung*** *in spite of several hits on his Panzer. Advancing toward Bir el Gubi, contact was made with the Italian Divisione corrazato "Ariete" about midday. The afternoon was to bring the heaviest battle of the campaign for the regiment.*

At 1430 hours, the ***Panzer-Regiment*** *located in the area of Sidi Muftah facing the north was ready to attack in the following formation:* ***Panzer-Regiment 8*** *on the left, the attached* ***Panzer-Regiment 5*** *with about 40 Panzers on the right. Both regiments were formed up in waves. The* ***I.Abteilung/Panzer-Regiment 8*** *followed by the* ***3.Batterie/Flak-Regiment 33*** *was in the first wave, the* ***II.Abteilung/Panzer-Regiment 8*** *was in the second wave.* ***Schuetzen-Regiment 115*** *mounted on vehicles was ordered to closely follow the* ***II.Abteilung/Panzer-Regiment 8****. This* ***Panzer-Abteilung*** *was to support the infantry and make it possible for them to break into the enemy position.* ***Schuetzen-Regiment 115*** *did not manage to close up with* ***Panzer-Regiment 8*** *in the assembly area. It remained stuck in the marshy area by Sidi Muftah under heavy artillery fire from the north and east.* ***Schuetzen-Regiment 200*** *was positioned ready to attack behind* ***Panzer-Regiment 5****.*

The division gave the order to advance at 1454 hours. The objective was the destruction of the South African division that was reinforced by strong tank units located in the area of Sghifet-Adeimat.

The enemy artillery fire, which had already caused significant disturbance in the assembly area, tremendously increased. Our own artillery couldn't silence it because the opponent waited in dug-in field positions that he could still improve during the day.

The Panzer attack rolled forward under the covering fire from our artillery. The regimental commander immediately recognized that the attack could only succeed and destruction of the opponent could only be possible if the reinforced ***Panzer-Regiment*** *maintained the ordered direction of attack toward the middle of the enemy's position without regard to threats from the flanks. He personally guided the* ***Panzer-Regiment*** *toward this objective and turned back every deviation by short commands over the radio. Already at 1530 hours, the* ***I.Abteilung/Panzer-Regiment 8*** *under the command of Hauptmann Kuemmel broke into the enemy and destroyed numerous defensive weapons. This break through crippled the opponent. He gave up wherever the Panzers stood. Fire from anti-tank and anti-aircraft guns in the front and flanks died out for minutes. However, the artillery fire on the* ***II.Abteilung/Panzer-Regiment 8*** *and the rear elements continued undisturbed. Hauptmann Kuemmel urgently radi-*

oed for infantry to be brought forward to comb the battlefield and take over the prisoners.

Finally, the mounted ***Schuetzen-Regiment 115*** *advanced from the left rear into the gap created by the* ***I.Abteilung/ Panzer-Regiment 8****. In the meantime, the* ***Panzer-Regiment*** *renewed their advance. The regimental commander had decided to relentlessly charge forward without waiting on the infantry.*

About 1600 hours, ***Panzer-Regiment 8*** *stood deep in the enemy. The* ***I.Abteilung*** *attacked to the north through the opponent's deep defensive zone. The* ***II.Abteilung*** *turned off to the northwest to give the infantry now lying behind them a breathing space and to counterattack to prevent an attack developing by 20 enemy tanks in the left flank of the division.*

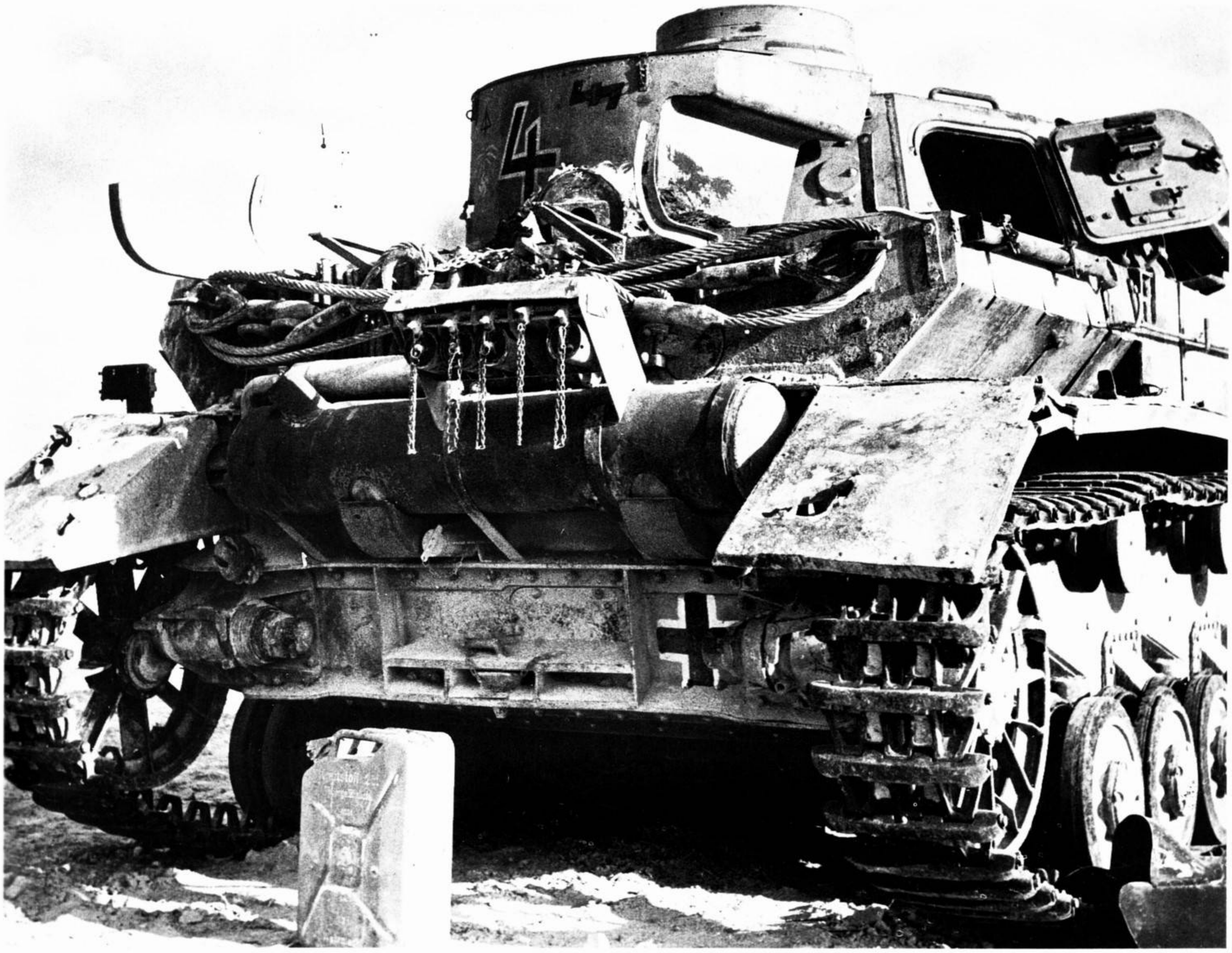
In the meantime, because of heavy fire from the defenders, the main body of ***Panzer-Regiment 5*** *had moved out of the way to the east. Only a few Panzers from* ***Panzer-Regiment 5*** *had closed up with Hauptmann Kuemmel. This evasive action occurred against the orders of Oberstleutnant Cramer and caused the attack to be pulled apart. Radio contact with* ***Panzer-Regiment 5*** *was lost at this time.*

Because of defending against enemy tank attacks and waiting for the infantry to come forward, the ***II.Abteilung/ Panzer-Regiment 8*** *couldn't follow the swiftly moving* ***I.Abteilung****. Therefore, the defensive fire of the opponent came back to life again and again. In spite of this, the* ***II.Abteilung*** *slowly chewed its way through to the north. Infinitely slowly for the Panzers, the infantry followed taking heavy losses from artillery, anti-tank and anti-aircraft gun fire on their unarmored vehicles. Part of their vehicles burned brightly.*

At about 1620 hours, fighting in the middle of the ***II.Abteilung****, the regimental commander obtained the following picture of the battle: His* ***I.Abteilung*** *had victoriously broken through the deep enemy defensive zone to the north with the objective of destroying the enemy artillery. His* ***II.Abteilung*** *stood echeloned to the left rear in a deep formation in the middle of the enemy and held out to enable the infantry to come up. Fire from this* ***Abteilung*** *suffocated all resistance within a close circle and destroyed numerous enemy tanks. The attached* ***Panzer-Regiment 5*** *that had now become completely separated to the right and was no longer to be counted upon.*

Shortly following, the regimental commander ordered Hauptmann Wahl, commander of the ***II.Abteilung****: "****II.Abteilung/Panzer-Regiment 8*** *turn about in the middle of the enemy and bring the infantry forward under all circumstances." In the middle of the firefight, this maneuver was exemplarily completed in spite of the fact that the three company commanders had fallen and many of our own Panzers were burning. Under heavy fire from the defenders, the attached* ***3.Flak-Batterie*** *from the* ***I.Abteilung/Flak-Regiment 33*** *calmly supported the break-out of the Panzers that were*

The **Pz.Kpfw.IV Ausf.E** of the commander of the **8.Kompanie/Panzer-Regiment 8** moving to an assembly area prior to an attack during Operation Crusader. Other **Pz.Kpfw.IVs** and a **kl.Pz.Bef.Wg.** are in the background. (WW)



This **Pz.kpfw.IV Ausf.D** of the **4.Kompanie/Panzer-Regiment 8** was knocked out during Operation Crusader. The tactical insignia for **Panzer-Regiment 8** (**Wolfsangel**), for **15.Panzer-Division** (crossed triangle), and the **Deutsches Afrikakorps** (**Palm und Hakenkreuz**) were stenciled onto the back of the turret stowage bin. (RAC)

*hard pressed by the enemy. The **II.Abteilung** managed to pull the infantry several hundred meters forward with this maneuver. But very quickly the **II.Abteilung** again stood alone, surrounded by the enemy.*

*The tough and sternly conducted resistance of the opponent continued. Artillery fire struck between the Panzers with undiminished strength. Without the infantry, the regimental commander now personally led his last reserves (consisting of the pioneers of the regiment mounted in armored half-tracks, the still available escort Panzers of the regimental headquarters, and the rest of the **II.Abteilung**) into battle to bring about a decisive victory for the day. In unheard-of sharp assaults, the regiment's pioneers pulled the crews of artillery pieces and anti-tank guns overrun by the Panzers out of their holes.*

*In the meantime, radio contact with the **I.Abteilung/Panzer-Regiment 8** had been lost at 1645 hours because a hit from an anti-tank gun had smashed the radio set of the **Abteilung** commander. Hauptmann Kuemmel accomplished his assignment leading out in front, standing erect in his Panzer, and commanding with a signal flag in his right hand. He reported at 1655 hours: "**I.Abteilung** has broken through to the Sidi Rezegh airfield. Contact has been established with the **21.Panzer-Division** attacking from the north." Now the intention by the regimental commander to have the **I.Abteilung** turn back in order to drive back to meet the **II.Abteilung** no longer needed to be accomplished.*

At 1700 hours, the opponent attempted to break out to the south and southeast with tanks and trucks. Only small elements of the totally decimated opponent managed to break out. He was too beaten to mount a counterattack.

*The decisive moment came before nightfall. The enemy resistance had wavered as a result of the breakthrough of the **I.Abteilung/Panzer-Regiment 8** and broken on the iron*

The **3.Kompanie/Panzer-Regiment 8** arrived at Benghazi on 19 December 1941 with 17 **Pz.Kpfw.III Ausf.J** and 5 **Pz.Kpfw.II Ausf.F**. These reinforcements aided in stopping the pursuit of the British 22nd Armoured Brigade. (RAC)

*front of the **II.Abteilung/Panzer-Regiment 8**. A vast quantity of tanks, artillery pieces, anti-tank guns, and trucks lay on the battle field. Over 1000 prisoners were taken turned over to the infantry before nightfall.*

*After dusk, the regiment assembled on the Sidi Rezegh airfield. The regimental commander with the **II.Abteilung** drove through the battlefield of the **I.Abteilung** that bore the markings of a hard fight.*

***Panzer-Regiment 8** had started the day with 32 **Pz.Kpfw.II**, 68 **Pz.Kpfw.III**, 16 **Pz.Kpfw.IV**, and 6 **Pz.Bef.Wg.** in operational condition. At the end of the day they were left with 18 **Pz.Kpfw.II**, 36 **Pz.Kpfw.III**, 7 **Pz.Kpfw.IV**, and 4 **Pz.Bef.Wg.** in operational condition. Losses due to enemy action and mechanical breakdown had amounted to 55 Panzers, of which 19 were total writeoffs.*

On 24 November 1941, both **Panzer-Regiments** with their divisions were sent by Rommel toward the border into the rear of the British forces. The British failing to panic and bolt, used the opportunity to resupply and regroup. Having failed to relieve pressure on the German and Italian units entrenched at the border, after a few days the **Panzer-Divisions** turned back to attack the British forces between the border and Tobruk. The strength of the **Panzer-Regiments** was continuously worn down through daily actions until unit strength was too low to achieve a decisive battle. Low on fuel and supplies, **Panzer Gruppe Afrika** pulled back from Tobruk. The **Panzer-Regiments** fought in numerous rearguard actions, allowing the remainder of the German and Italian forces to retreat back through Benghazi and Agedabia.

On 19 December 1941, reinforcements arrived. The **3.Kompanie/Panzer-Regiment 8** landed at Benghazi with 5 **Pz.Kpfw.II** and 17 **Pz.Kpfw.III** and the **7.Kompanie/Panzer-Regiment 8** landed at Tripoli with 6 **Pz.Kpfw.II** and 17 **Pz.Kpfw.III**. Ships carrying the **3.** and **7.Kompanien/Panzer-Regiment 5** were sunk on 19 December with the loss of 11 **Pz.Kpfw.II** and 34 **Pz.Kpfw.III**.

Bolstered by the arrival of the **3.Kompanie/Panzer-Regiment 8**, a composite force of **Panzer-Regiment 5** and **8** (with 11 **Pz.Kpfw.II**, 28 **Pz.Kpfw.III**, and 2 **Pz.Kpfw.IV** operational) struck back and decimated the pursuing British 22nd Armoured Brigade in battles on 28 and 30 December 1941. This setback checked the British pursuit. Altogether, the **Panzer-Regiments** had suffered permanent losses of 56 **Pz.Kpfw.II**, 105 **Pz.Kpfw.III**, 29 **Pz.Kpfw.IV**, and 5 **Pz.Bef.Wg.** as a result of the fighting in November and December 1941. The German and Italian units took up defensive positions near el Agheila waiting for reinforcements and supplies.

17

Operation Sonnenblume - 1942

A supply convoy arrived in Tripoli on 5 January 1942 with 54 Panzers on board. With these reinforcements **Panzer-Armee Afrika** went over to the offensive on 21 January 1942. Forces under the **Deutsches Afrika-Korps** left their positions by el Agheila and headed northeast up Wadi el Faregh to cut off the British forces from any escape route to the east. Most of the new Panzers had been given to **Panzer-Regiment 8,** which had 12 **Pz.Kpfw.II**, 61 **Pz.Kpfw.III**, 7 **Pz.Kpfw.IV**, and 1 **Pz.Bef.Wg.** operational on the evening of 20 January 1942. **Panzer-Regiment 5** only had an operational strength of 7 **Pz.Kpfw.II**, 16 **Pz.Kpfw.III**, 3 **Pz.Kpfw.IV**, and 2 **Pz.Bef.Wg.** at the start of the attack. Of these, 2 **Pz.Kpfw.II** and 5 **Pz.Kpfw.III** had been loaned to other units.

On the third day of this offensive, on 23 January, the British 2nd Armoured Brigade ran into the **Panzer-Regiment 5**, which recorded the action as follows:

*Elements were sent at dawn to reconnoitre Saunna and reported a large enemy concentration in the area and southwest of Saunna. The terrain west of the **21.Panzer-Division** was rapidly taken and enemy columns cleared out. Over 30 prisoners were brought in and several vehicles captured.*

*After it was reported that an enemy column with tanks was approaching from the south, the division commander ordered **Kampfgruppe Mildebrath** to advance to a ridgeline about four kilometers to the south and attack the opponent.*

The **Deutches Afrikakorps** was provided with sufficient replacements to put them overstrength in preparation for Operation Venezia, the assault on the British defensive system of mined boxes stretching inland from Gazala. Most of these reinforcements were **Pz.Kpfw.III Ausf.J** with **5 cm Kw.K. L/42** guns. (KL)

A few **Pz.Bef.Wg.** were also shipped as replacements and to outfit newly created signals units. This **Pz.Bef.Wg. Ausf.H** had a dummy gun that resembled the **5 cm Kw.K. L/42**. (RAC)

*For flank protection, a **Panzer-Jaeger-Kompanie** was positioned on the regiment's left flank, two **8.8 cm Flak** guns on the right flank.*

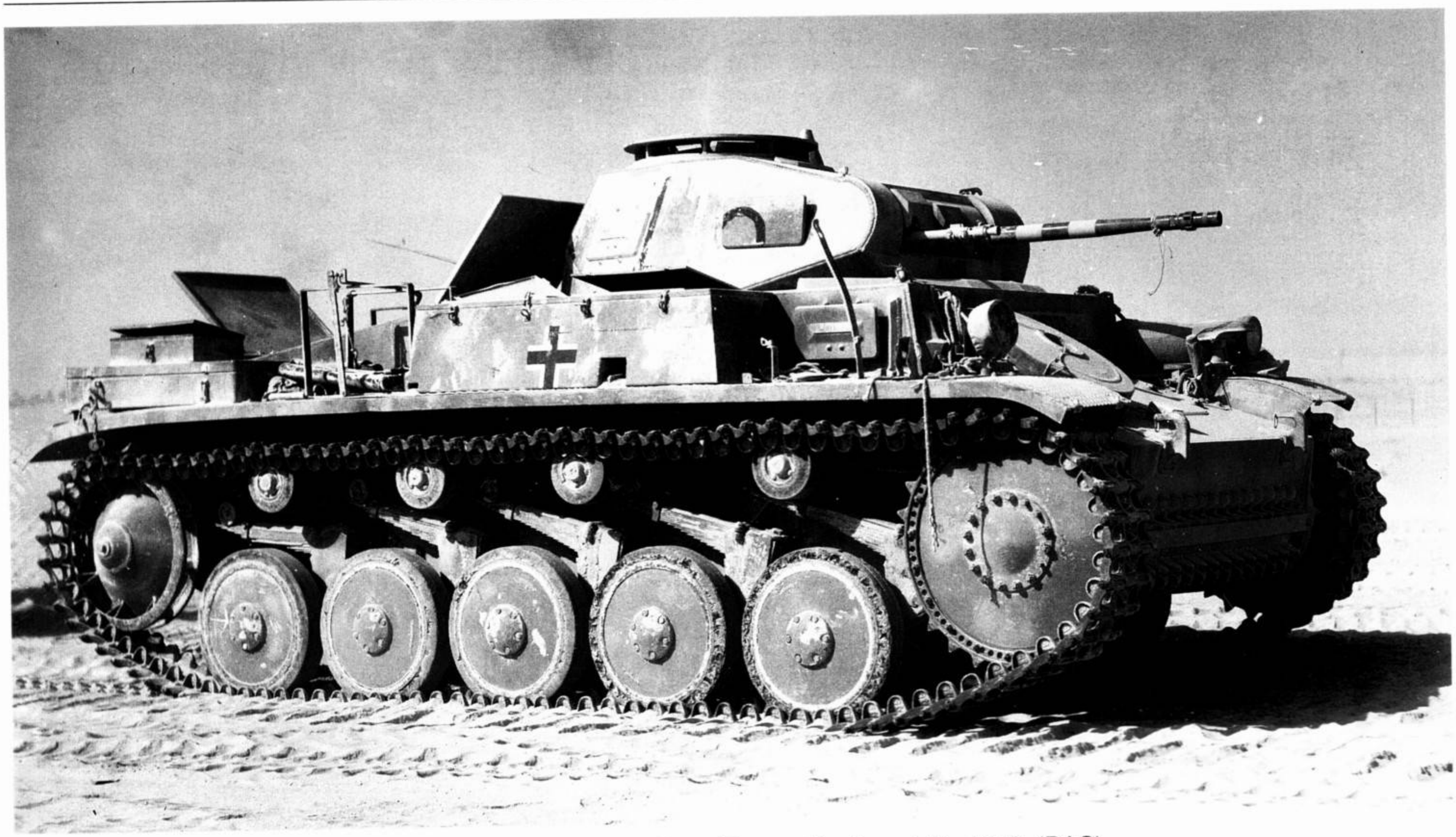
*At 1030 hours, driving fast, about 16 enemy tanks closed in and turned east when they bounced off the well-aimed fire from the right-hand **Panzer-Kompanie** under Oberleutnant Sandrock. The enemy tanks then ran into and were forced to turn back by excellent fire from the **Panzer-Jaeger-Kompanie** who had aggressively taken up positions to the left front. Then, the left-hand **Panzer-Kompanie** under Oberleutnant Rocholl joined in the firefight, pushed forward from their hull-down positions, and completed the destruction of the enemy force. Only a few enemy tanks managed to get away to the south along a depression.*

*Soon thereafter, a second wave of about 40 enemy tanks appeared on the opposite ridge line. Driving wildly, zig-zagging, they attacked into heavy fire from the defensive line established by **Kampfgruppe Mildebrath**. The firefight reached its climax. Only 13 **Pz.Kpfw.III** and 3 **Pz.Kpfw.IV** from the regiment took part. Standing like a wall, **Panzer-Kompanie Sandrock** carried the brunt of the attack. The enemy attack was split apart in the middle. Then, firing smoke rounds, the opponent attempted to envelop the right and left flanks. In spite of the high aggressive rate of fire from the **8.8 cm Flak** guns, the opponent managed to insert a strong force on the right flank in the gap between **Panzer-Regiment 5** and **M.G.Bataillon 8**. From here the opponent opened up with dangerous flanking fire.*

*Even though the opponent reinforced and closed the gap that had been created in front of the regiment with another 20 tanks, the **Kampfgruppen** commander decided to throw the left-hand **Panzer-Kompanie** into an attack on the right. **Panzer-Kompanie Rocholl** quickly completed the move in an exemplary fashion in spite of receiving heavy fire when they pulled out. The opponent was immediately subjected to heavy losses when **Panzer-Kompanie Rocholl** attacked on the right flank. The **Flak-Batterie** pulled back, reloaded ammunition, and in a short time took up better firing positions to hit back on the right. The opponent was beaten back by the concentrated fire from the Panzers and Flak guns. One **Pz.Kpfw.IV** and three **Pz.Kpfw.III** were damaged by enemy fire and fell out during this fight. Two **Pz.Kpfw.IV** caught on fire and were completely burned out after their ammunition exploded.*

***Kampfgruppe Mildebrath** had repulsed a breakthrough attempt by over 80 enemy tanks in far superior strength. The enemy pulled back to long range, leaving behind almost 30 tanks, some of them burning brightly on the battlefield. After this, the opponent only made forays with elements of their force which were immediately beaten back. **Panzer-Regiment 5** had scored 18 knocked-out tanks.*

*Then, in an attempt to circumvent and get onto the rear of the **21.Panzer-Division**, a strong enemy group of about 40 tanks and vehicles headed to the east and then turned north.*



This **Pz.Kpfw.II Ausf.F** was issued to the **leichte Zug/I.Abteilung/Panzer-Regiment 5** in 1942. (RAC)

*In response, on orders from the division, the left flank of the regiment was bent back. The **Panzer-Jaeger-Kompanie** was positioned further to the rear. Artillery fire was brought down on the opponent attempting to move to the northwest. This prevented the enemy groups flanking movement from developing.*

When the regiment was still occupied in regrouping at about 1400 hours, Rommel gave the order to immediately attack and take Saunnu by a circling move to the north.

***Kampfgruppe Mildebrath** broke contact with the opponent and quickly moved to the northeast overtaking the **M.G.Bataillon 8**, which had already moved off. **Kampfgruppe Mildebrath** then pivoted to the southeast on Saunnu. With two attack groups, the **21.Panzer-Division** attacked Saunna valley which was covered with enemy vehicles and tanks. **Panzer-Regiment 5** with the **Flak-Batterie** on the right. **M.G.Bataillon 8** with the **Panzer-Jaeger-Kompanie** on the left.*

*While the left group took up positions on the ridgeline, **Panzer-Regiment 5** attacked climbing out of the Wadi with 11 gun-armed Panzers. They were supported on the right flank by two **8.8 cm Flak** guns that had taken up forward firing positions.*

*When they turned into the valley, the Panzers were met by heavy artillery fire from two enemy batteries. The opponent attempted to break the attacks momentum by simultaneously counter attacking with 15 to 20 tanks. However, the enemy tanks were thrown back after a short, heavy firefight. Blanketing them with fire, **Panzer-Kompanie Sandrock** charged the enemy battery on the right, **Panzer-Kompanie Rocholl** charged the battery on the left. With counterbattery fire, gun for gun, the **Flak-Batterie** suppressed the enemy artillery. Even when one **Pz.Kpfw.III** and a **Pz.Kpfw.IV** were knocked out by direct hits from the artillery and two **Pz.Kpfw.III** were immobilized by hits from three concealed flanking enemy anti-tanks guns, both **Panzer-Kompanien** broke into the stubbornly firing batteries. The gun crews that weren't dead or wounded fled in panic. At the end, two enemy anti-tank guns were identified and destroyed.*

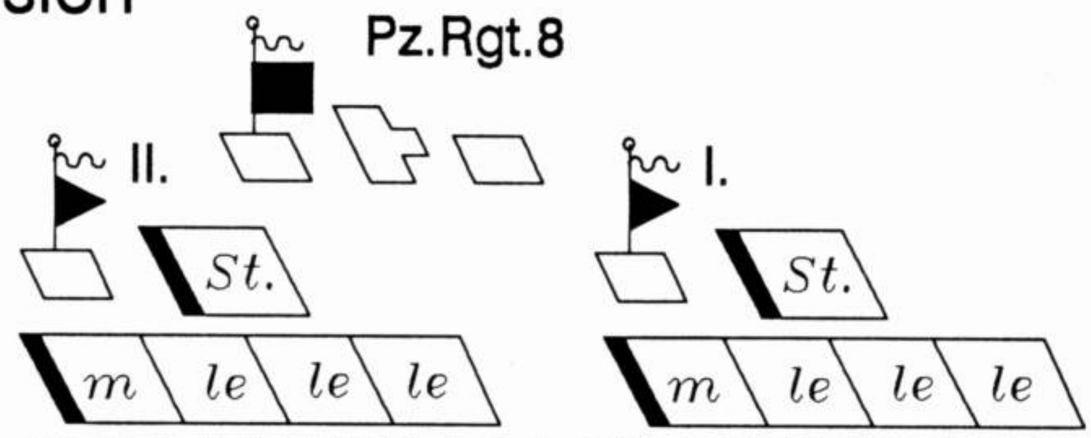
Enemy tanks and vehicles fled in complete disarray attempting to get away to the northeast out of the valley. The left-hand attack group of the division lay in their way.

*Several enemy tanks that still resisted were knocked out by the **Panzer-Kompanien** charging into the bunches of vehicle. Altogether, two officers, 35 men, and an armored car were captured. Twenty-three tanks, eight guns, and two anti-tank guns were destroyed.*

The British fell back toward Tobruk and established a heavily mined, defensive belt stretching from the coast near Gazala to inland by Bir Hacheim. Throughout the rest of the winter and into the spring, both opponents set about building up for a major offensive. A total of 20 **Pz.Kpfw.II**, 211 **Pz.Kpfw.III**, 49 **Pz.Kpfw.IV**, and 4 **Pz.Bef.Wg.** had been shipped as replacements in the period from January to May 1942. In addition, 10 **Pz.Kpfw.II** and 34 **Pz.Kpfw.III** were sent

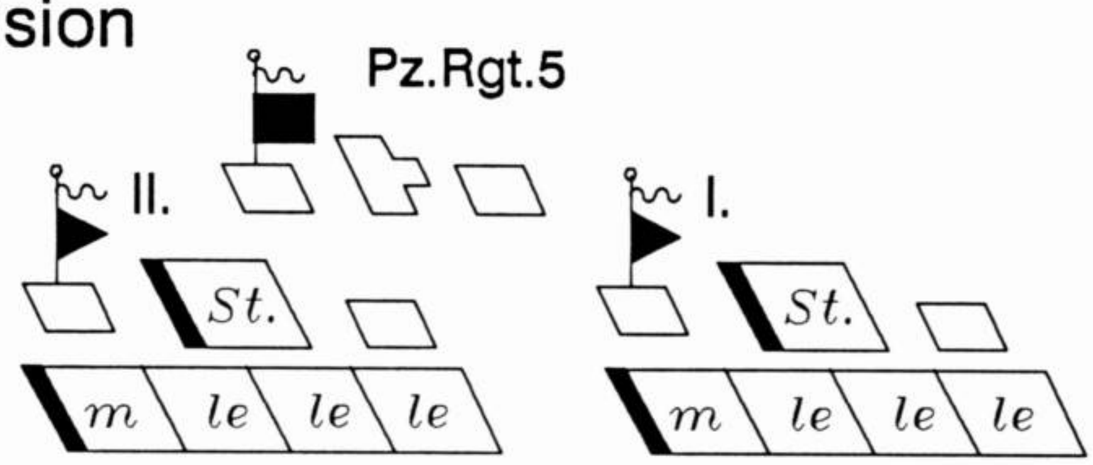
ORGANIZATION AND STRENGTH OF PANZER UNITS OPERATION VENEZIA - 25 MAY 1942

15.Panzer-Division



29 PzII, 131 PzIII(5kz), 3 PzIII(5lg), 22 PzIV(kz), 4 PzBef

21.Panzer-Division



29 PzII, 107 PzIII(5kz), 15 PzIII(5lg), 19 PzIV(kz), 4 PzBef

for the **3.** and **7.Kompanie/Panzer-Regiment 5**. As shown in the Organization and Strength diagram, the Panzer units in **Panzer-Armee Afrika** had received sufficient replacements to put them overstrength. In addition, they had formed a **Kampfstaffel** for both **Panzer-Armee Afrika** and the **Deutsches Afrika-Korps**.

Rommel struck first. The **II.Abteilung/Panzer-Regiment 5** staged a diversionary attack on the west side of the British defenses. While advancing during the night of 26/27 May 1942, Rommel staged an end run around the enemy defenses followed by an attack toward el Adem south of Tobruk. **Panzer-Regiment 8** ran directly into the awaiting British Armoured Brigades, engaging battalion after battalion in sequence. The toll on both sides was heavy but the British fell back. At the end of the first day of action at 0150 hours on 28 May, **Panzer-Regiment 8** reported that they were 10 kilometers southwest of Acroma with 13 **Pz.Kpfw.II**, 22 **Pz.Kpfw.III**, 1 **Pz.Kpfw.III Spezial**, 3 **Pz.Kpfw.IV**, and 2 **Pz.Bef.Wg** operational (compared to 24 **Pz.Kpfw.II**, 107 **Pz.Kpfw.III**, 3 **Pz.Kpfw.III Spezial**, 19 **Pz.Kpfw.IV**, and 2 **Pz.Bef.Wg.** operational on the evening of 25 May). At 0730 hours, they reported that they only had 60 rounds left for each Panzer and that armor-piercing ammunition was in short supply. An attack on Acroma was possible only if they were resupplied with a large allotment of ammunition. By the evening of 28 May 1942, their strength had slightly improved to 20 **Pz.Kpfw.II**, 31 **Pz.Kpfw.III**, 5 **Pz.Kpfw.IV** and 2 **Pz.Bef.Wg.** operational. Even with the high losses in Panzers (of which 23 were confirmed as total writeoffs), **Panzer-Regiment 8** had only 22 officers and men killed and 55 wounded in the period from 27 to 30 May.

Panzer-Regiment 5 fared better. Having not been involved in the destructive battles on 27 May, the **II.Abteilung/Panzer-Regiment 5** rejoined the regiment on the second day. In the evening report for 28 May 1942, **Panzer-Regiment 5** reported 13 **Pz.Kpfw.II**, 43 **Pz.Kpfw.III**, 8 **Pz.Kpfw.III Spezial**, 12 **Pz.Kpfw.IV**, 4 **Pz.Kpfw.IV Spezial**, and 3 **Pz.Bef.Wg.** Their total writeoffs for the day had been 7 **Pz.Kpfw.III**, 3 **Pz.Kpfw.IV**, and 1 **Pz.Bef.Wg.**

The Panzer crews were well aware of what they were getting into. An order of battle for the British forces had been distributed to the German forces prior to the attack. It included a fairly accurate depiction of the organization and tank strength of the British 2nd, 4th, and 22nd Armoured Brigades including the number of Grant tanks in each squadron. These were known to the Germans as the American "M III Pilot" tank. Their intelligence boys had found a photograph of the American M3 medium tank stamped with the word "Pilot", meaning pilot model, and thought that this was the name of the tank. On 1 June 1942, the **Deutsches Afrika-Korps** assembled a report on experience gained in fighting against the American **"M III Pilot"** tank. The report was based on the following replies to specific questions posed to their subordinate units. From **Panzer-Regiment 8**:

Effect of our weapons against the American Mark III (Pilot), known as the "Grant I" in a British manual:

a. Clean penetration of the side at a range of 500 meters

*when hit perpendicular to the surface by **5 cm Pzgr.38** rounds fired by the **5 cm Kw.K. L/42** or **L/60**.*

*b. Definitely determined to be penetrated from the front at a range of 200 to 300 meters by the **5 cm Kw.K. L/60**.*

*c. On 31 May, one Mark II (Matilda infantry tank) was knocked out at a range of 1400 meters by **7.5 cm Sondergranate rot** (hollow charge round) fired by a **Pz.Kpfw.IV**.*

d. Not a single penetration of the Mark III (American medium tank) was achieved at a range of 700 meters by any kind of 5 cm round.

2. Effect of the 7.5 cm tank gun in the American tank:

*a. Even when striking at sharp angles, penetrations were achieved on the front of the **Pz.Kpfw.III** and **Pz.Kpfw.IV** at ranges from 1200 to 1400 meters.*

*b. It cleanly penetrated the front of the **Pz.Kpfw.III** with additional armor (20 mm spaced armor in front of the 50 mm base plate) at a range of 500 to 600 meters.*

*3. Captured German 5 cm anti-tank guns penetrated the **Pz.Kpfw.III** with additional armor at ranges of 500 to 600 meters.*

4. Exact data on the American tank can't be given since we haven't had time. A report will follow as soon as possible.

And from the **21.Panzer-Division**:

Subject: M III "Pilot"

Armor on the front and the turret is about 80 mm thick, armor on the side is 40 mm thick. The turret is cast, hull riveted.

Effect of German armor-piercing weapons:

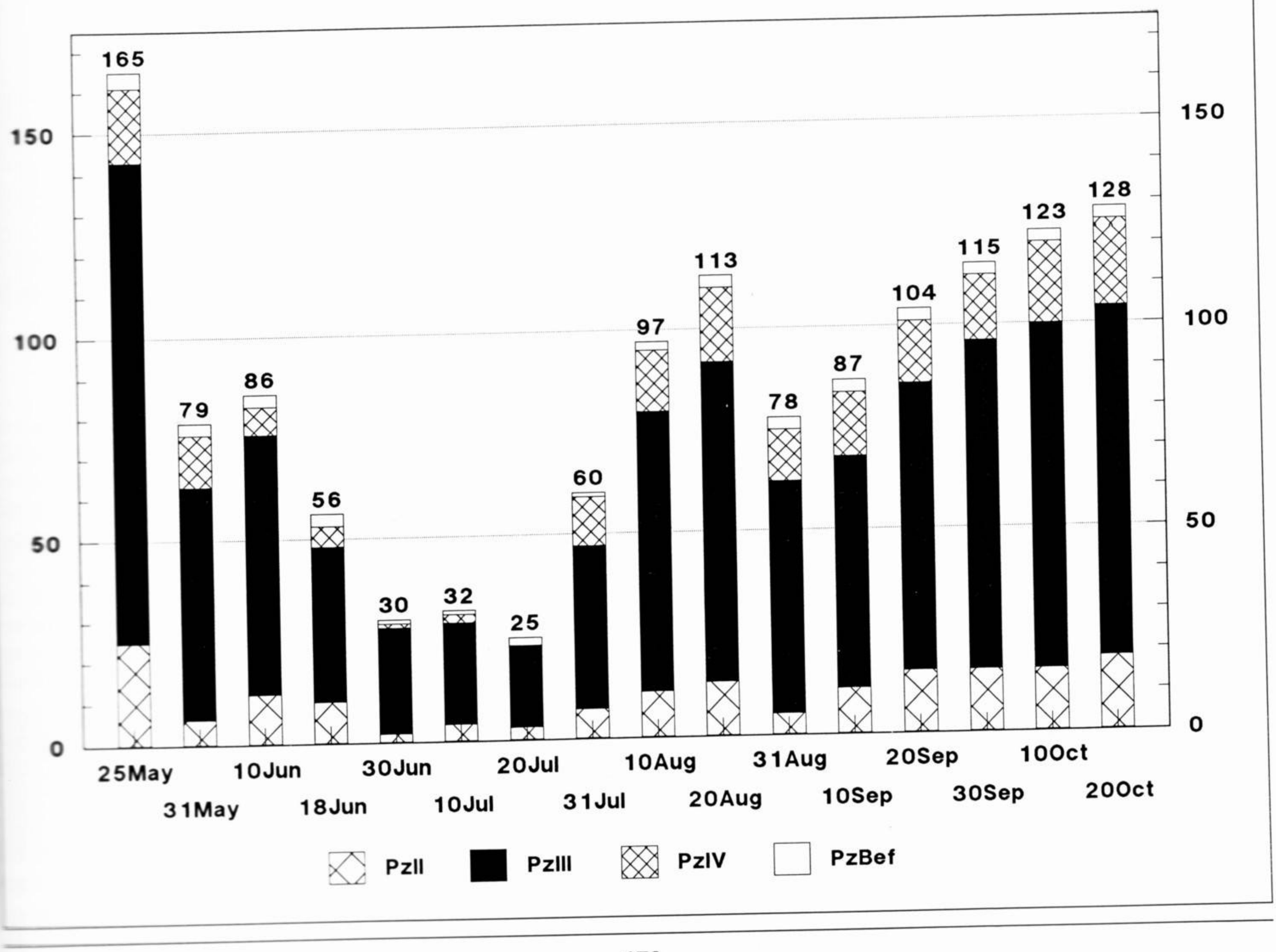
*a. The **5 cm Kw.K. kurz (L/42)** with **Pzgr.** penetrates the front at ranges under 600 meters and the sides at ranges under 800 meters.*

*b. No experience with the **5 cm Kw.K. lang (L/60)***

*c. No experience with **Pzgr.** fired by the **7.5 cm Kw.K. kurz (L/24)**. **Sprenggranaten** (high-explosive shells) are effective against the suspension components.*

OPERATIONAL PANZERS IN PANZER-REGIMENT 5

25 MAY to 20 OCTOBER 1942



One of the very few **Pz.Kpfw.III Ausf.J** with long barreled **5 cm Kw.K. L/60** guns sent to the **Deutsches Afrikakorps** in March 1942. This **Pz.Kpfw.III** is very rare in that it doesn't have spaced armor on the superstructure front, a modification introduced into series production at the same time as the longer gun. (RAC)

*d. No experience with the **5 cm Pak (L/60)**.*

*e. No experience with the **7.62 cm Pak(r)**.*

*f. No experience with the **8.8 cm Flak**.*

Since the hull is riveted, every hit has an effect by knocking rivets loose that fly into the fighting compartment. The opponent is used to showing their flanks during combat and continuously show their weak sides.

Weapons effectiveness for the "Pilot" tank:

a. The 3.7 cm tank gun in the turret is very good in both its effect and accuracy. It is the same weapon that was previously used in American tanks.

b. The accuracy of the 7.5 cm tank gun is average to good. The high-explosive shells have a very strong fragmentation effect. No experience with the armor-piercing rounds.

Panzer-Armee Afrika continued to be successful against the British forces, first creating gaps in the defensive mine belts, then eliminating a brigade box, taking out the end of the line at Bir Hacheim, winning major tank versus tank engagements, and then finally taking Tobruk on 20 June 1942. **Panzer-Armee Afrika** immediately headed into Egypt after the fall of Tobruk. They managed to take the defenses at Mersa Matruh but were worn down and finally stopped at el Alamein in early July.

Of the 425 Panzers that were available at the start of the campaign (including those in transit to the units), **Panzer-Armee Afrika** reported their losses for the period between 26 May and 20 July 1942 as 25 **Pz.Kpfw.II**, 161 **Pz.Kpfw.III (5 cm Kw.K. L/42)**, 14 **Pz.Kpfw.III Spezial (5 cm Kw.K. L/60)**, 29 **Pz.Kpfw.IV (7.5 cm Kw.K. L/24)**, 2 **Pz.Kpfw.IV Spezial (7.5 cm Kw.K.40 L/43)**, and 2 **Pz.Bef.Wg**. All of these 233 Panzers were burned out due to enemy action or so badly damaged as not to be repairable.

A report for the period from 25 May to 24 July 1942 gives the tank kills claimed by each unit within the **Deutsches Afrika-Korps**:

The most welcome replacements sent to the Deutsches Afrikakorps were 10 **Pz.Kpfw.IV Ausf.F2s** in May 1942. One brokedown in Italy and wasn't shipped until later. These two and the **Pz.Kpfw.III Ausf.J** with spaced armor arrived at the front for **Panzer-Regiment 8** during the middle of Operation Venezia. (WW)

Seventy-six **Pz.Kpfw.III Ausf.L** were shipped to North Africa in July and August 1942. This **Pz.Kpfw.III Ausf.L**, being passed by an Italian M14/41, has taken a break on the long road march on the coast road to the front. The crew fastened spare track sections and added sandbags on the front in an attempt to increase protection. (BA)

	Tanks	Armored Cars	Carriers
D.A.K. Kampfstaffel	12	1	3
Panzer-Regiment 8	417	59	27
Panzer-Grenadier-Regiment 115	92	27	40
Panzer-Artillerie-Regiment 33	47	18	12
Panzer-Pionier-Bataillon 33	11	3	20
Panzer-Jaeger-Abteilung 33	83	23	20
I.Abteilung/Flak-Regiment 43	187	17	7
3.Kompanie/Fla-Abteilung 617	8	4	4
Total for **15.Panzer-Division**:	845	151	130
Panzer-Regiment 5	345	56	36
Panzer-Grenadier-Regiment 104	64	21	34
Panzer-Artillerie-Regiment 155	19	8	17
I.Abteilung/Flak-Regiment 18	64	5	0
Panzer-Jaeger-Abteilung 39	22	0	8
Panzer-Pionier-Abteilung 200	8	2	31
Fla-Abteilung 617	9	5	10
Total for **21.Panzer-Division**:	531	97	136
Total for **D.A.K.**:	1388	249	269

Additional replacements were shipped to **Panzer-Armee Afrika** in July and August including 76 **Pz.Kpfw.III Ausf.Ls** with **5 cm Kw.K.L/60** guns and 20 **Pz.Kpfw.IV Ausf.Gs** with **7.5 cm Kw.K.40 L/43** guns. On 11 August the **Deutsches Afrika-Korps** reported on the tactical experience with the **Pz.Kpfw.IV** with the **7.5 cm Kw.K. L/43** along with suggested improvements:

*From the first time it was used, the **7.5 cm Kw.K.40** tank gun with its higher armor-penetrating power and accuracy showed that it was superior to all weapons that had previously been mounted in a Panzer. At ranges up to 1500 meters the armor-piercing shell penetrates the front of all of the American and British tank types (including the "Pilot") that have been used in the African theater of war. Accuracy decreases at ranges exceeding 1500 meters because observation of the target is hampered by the shimmering atmosphere. Lighter tank types have been destroyed at ranges up to 2000 meters when the view was clear.*

*The opponent quickly recognized the **Pz.Kpfw.IV Spezial** as being especially dangerous. Because of its distinctive form, it drew concentrated fire down on itself from aircraft, artillery, and anti-tank guns. It is therefore necessary to screen the **Pz.Kpfw.IV Spezial** with **Pz.Kpfw.IIIs**. In general, the **Pz.Kpfw.IV Spezial** should join in the firefight only after the appearance of targets that were worthwhile such as the "Pilot". Then flank protection is especially important. It therefore appears not to be useful to always employ the **Pz.Kpfw.IV Spezial** as a concentrated group.*

*It should not be employed in reconnaissance troops or for flank defense. It should only be assigned to **Schwerpunkt** tasks.*

It is usually incorrect to fire more than a few rounds from one position. The muzzle flash and the especially large dust cloud very quickly draw concentrated fire from the opponent's artillery.

*The **Pz.Kpfw.IV Spezial** should not be used as a command vehicle. However, it should be outfitted with both transmitting and receiving radio sets.*

*As long as the **Pz.Kpfw.IV Spezial** is only available in small numbers, during combat it is necessary to resupply them with ammunition brought to them in armored vehicles. The divisions are testing the possibility of delivering ammunition by using armored carriers, armored half-tracks or other armored vehicles.*

It is difficult to observe fire due to the muzzle flash and dust, especially in the desert.

Up to now, the long gun tube extending far past the front has not been a problem even in terrain cut through with many gullies.

Softer springs are desired for the suspension to reduce the rough impacts when driving in stony terrain.

Strengthen the armor plate on the turret roof and strengthen the superstructure. Install a shot deflector on the turret roof to protect the commander's cupola.

*Mount a travel lock on the front of the **Pz.Kpfw.IV** to hold the gun barrel in a depressed position. If possible, this travel lock should be releasable from inside the Panzer so that up*

to the last moment, the Panzer can be driven with the gun supported by the travel lock. Rearward impacts cause the gun tube to vibrate so strongly that the guide rings in the armored cover are knocked out.

Install ammunition racks on the turret floor in front and behind the foot rest for the commander.

Install another fume exhaust fan for improved and quicker discharge of burnt propellant fumes. Because of burnt propellant fumes, it is almost impossible to see out of the vision slits. In addition, the biting stench of the burnt propellant severely taxes the crew. For this same reason, it is necessary to quickly throw spent cartridges out of the fighting compartment.

On 30 August 1942 a liaison officer sent to **Panzer-Armee Afrika** from the **Heeres Waffenamt** reported on the experience with weapons including Panzers as follows:

*The new **Pz.Kpfw.III** with the **5 cm Kw.K. L/60** and the new **Pz.Kpfw.IV** with the **7.5 cm Kw.K.40 L/43** are rated above all other weapons as the best in meeting the modern requirements in desert warfare. This especially applies to the weapons effectiveness.*

The following requests for improvements are based on recent effectiveness of enemy weapons:

a. Heavier armor, especially on the front and top. (Attacks by armored strafing aircraft armed with armor defeating weapons of up to 4 cm caliber.)

*b. More effective anti-aircraft defense from the Panzers against these strafing aircraft. These Panzers must belong to the unit. Maybe **Panzerbefehlswagen** and **Panzerbeobachtungswagen** outfitted with the necessary weapons can be used.*

In comparison with the current enemy tanks that have been encountered (with equal number, German Panzers with German, British tanks with British crews):

*The **Pz.Kpfw.III** with the **5 cm Kw.K. L/42** is rated as superior to the British Mark II, III, IV, and VI.*

*The **Pz.Kpfw.III** with the **5 cm Kw.K. L/60** and the **Pz.Kpfw.IV** with the **7.5 cm Kw.K.40 L/43** are rated as superior to all enemy tanks including the American "Pilot".*

*It is the opinion of the troops that the **Pz.Kpfw.IV** with the **7.5 cm Kw.K. L/24** is not usable in tank versus tank battles in this theater of war.*

In their last major offensive, **Panzer-Armee Afrika** attacked the British defenses at el Alamein on 31 August 1942. Having received additional reinforcements and repaired many of the Panzers that were damaged or broken down, the operational strength of the **Panzer-Regiments** on the evening of 30 August was:

	Pz.II	Pz.III	Pz.IIISp	Pz.IV	Pz.IVSp	Pz.Bef.
Pz.Rgt.5	14	50	39	7	14	4
Pz.Rgt.8	15	43	34	3	13	2

The plan was to break through on a narrow front and then hook left to cut off the defender's retreat. While no German experience report has survived in the division, corps, or army records, the following very unique record of the action was preserved in translated intercepted radio transmissions:

31 August 1942

0610	*7-68:*	*60 or 70 enemy Mark III tanks are driving toward the north along our old position.*
	Kato:	*Various enemy tanks are now advancing toward me.*
	Reply:	*Engage and destroy them!*
0712	*Sita:*	*Right now about 12 tanks maybe more are coming toward us. Be prepared to give them a warm reception. But be careful. They are still 3500 yards away.*
0715	*Sita:*	*The tanks have halted and are shooting at me!*
0800		*A large column with 70 to 80 tanks in front are driving along the telegraph poles toward the northeast.*
0805		*I've already lost a tank but three of the crew are okay!*
0810	*Tiny:*	*I only have one tank left. Three are knocked out. But the crews are okay!*
	Sita:	*About another 20 enemy tanks have appeared at a range of 3000 yards. They're being fired at. They're Mark IIIs.*
0825	*Sita:*	*The Jerries have sent part of the column that I already reported back south. They are now coming down over the ridgeline with eight Mark IIIs. We must cover the mine field. Therefore you have to pull back a bit to the east!*
0840		*Is there any reason to bring your tank back? How is it damaged?*
	Reply:	*A direct hit through the vision slit. It is too far forward to recover it later!*
	Sita:	*I have lost another Sparrow (tank)!*
0930	*City IV:*	*Remain up there until all of the "Roberts" (guns) are moving out. Some of them have to be pulled out!*
	Reply:	*We've left a subunit behind for support and defense!*
0945	*Sita:*	*This subunit should not only cover the withdrawal of all friends but must also observe and report all enemy movement from up on the ridgeline.*
1040	*Tosu I:*	*Are enemy tanks already through the mine field?*
	Reply:	*No, the entire column with tanks is still lying in front of the mine field. I can't know if they have already prepared a gap or not!*
1010	*Sita:*	*The enemy artillery is starting to shoot. Hurry or we'll have still more losses!*

1410 *95 tanks are approaching. Get up on the ridgeline with your boys. You are free to engage in several minutes.*

1600 *The opponent is making himself difficult with heavy fire from different directions including 88s from the northwest. He was forced to partially change position and has requested that a smoke screen be laid down. I have the feeling that everything goes well and the opponent is not feeling very well. Slow withdrawal is the catch word!*

1 September 1942

0550 MMP: *24 tanks on the ridge are causing problems!*
CYL: *I can't send any "Roberts" (artillery)! You must get by without them!*
MMP: *20 tanks are coming at us out of the sun!*
CYL: *I can only see six standing opposite you. You should be able to finish them and then cooperate with Young!*
MMP: *Understood. But there are still more tanks behind these six. The other 50 tanks that drove northwest and attacked me yesterday have not been seen today. Did we or the enemy lay down smoke along the entire front?*
Reply: *The smoke was fired from left to right. I think that we did it ourselves!*
CYL: *Under cover from his little boys, MMP is taking his big boys away from the right flank and moving them to his left flank. Therefore his right flank is somewhat open.*
The enemy tanks appear to be concentrating between 4238/8738 and 4360/8738. There are about 60 tanks!

0555 CYL: *It doesn't look good for us over there on the rise. 20 tanks are threatening this place!*
MMP: *Yes, the bad boys are already on their way. Our little boys are trying to hold them off until help arrives!*

0655 EOP: *Two 88s are dug in near 438/871.*
CYL: *Four enemy tanks are heading north. MMP must take up a better position since his right flank will be threatened!*

0720 MMP: *We can see tanks east of us! That can be our friends.*
Reply: *Let me know what they do.*

0730 MMP: *It's now nine tanks that are coming towards me.*
CYL: *Friends are coming to you, but they are coming very slowly. Maybe friendly tanks that are holding the front toward the west.*

0840 YAB: *It was reported to me that if we advance somewhat we can throw out the Jerries be tween us and MMP and establish contact with MMP.*

0850 DBL: *We're being fired at by anti-tank guns from the left. We want to move back behind the ridge.*
Reply: *I would like you to move a bit forward but only if it can be done without losses.*

0930 BMM: *A large black fire just appeared on your extreme left. What is it?*
Reply: *I don't know!*

0940 BMM: *The enemy tanks are moving toward Point 100. That is northwest of me!*

1015 To Crow: *Move forward now, but carefully. You must stay left because the mine field is in the way. And make sure your weapons are loaded. A gun is located at 11 o'clock from me on a hill. That is an enemy gun!*

1020 Crow: *That gun on the hill is friendly. The danger is in front of us, 3000 yards past the hill. And we have it to do with Mark IIIs and Mark IVs.*
Bony III: *What the devil do we have in the left flank again?*

1027 Crow: *No friend. It's the mine field. The enemy Mark IIIs and Mark IVs are located 3000 yards to the left of us.*

1100 Bony III: *A new tank is on fire!*

1105 Bony IV: *I need a doctor. I'm pulling back!*
Crow: *I think I'll let you discharge smoke. It can't go on like this. I didn't think this would happen.*

1115 Crow: *You must pull back showing your front toward the direction from which the enemy is firing. In God's name be careful.*

1120 Baly: *Do you see the burning tank? Lay down smoke there. There, where one of our tanks is now blowing up. Lay smoke so that my wounded can pull back!*

1125 Charly: *I have two sick children but they are still runners. I'm sending them back to you.*

1130 Crow: *Don't go too far back. About on line with me!*

1200 Crow: *Do you think that you don't need to give any orders or do you want to win the bloody war alone? Faster, damn you. You should take up 100-yard intervals. You damn ass! You haven't achieved anything. You've lost nine tanks. If everyone was as slow as you, damit, its certain that the Germans will win the bloody war!*
III: *I've lost another tank. The damn 88s!*

1200 Bony: *I've lost my horse. Should I take the next one that I find?*
Crow: *Yes, damit, and as quick as possible!*

In spite of the problems that the British tankers were encountering, the German attack stalled out and failed to break through. Heavily hit by massive bombing attacks, **Panzer-Armee Afrika** gradually pulled back to reduce the size of their pocket. Only a few Panzers were lost or damaged as a result of the bombing, but bombing took a very heavy toll on the soft-skinned vehicles needed for offensive operations. In exchange for total writeoffs of 2 **Pz.Kpfw.II**, 5 **Pz.Kpfw.III**, 4 **Pz.Kpfw.III Spezial**, 1 **Pz.Kpfw.IV**, and 2 **Pz.Kpfw.IV Spezial**, **15.Panzer-Division** claimed the following kills of enemy tanks for the period from 31 August to 4 September 1942: 59 tanks by **Panzer-Regiment 8**, 8 tanks by **Panzer-Jaeger-Abteilung 33**, and 5 tanks by **Panzer-Artillerie-Regiment 33**.

But the score of tank kills was totally immaterial. The failure to break through the British defenses spelled an end to the era of German offensive operations in Libya and Egypt.

18

Operation Barbarossa - 22 June 1941

On 22 June 1941, German forces rolled across the border against the Russian forces as spelled out in plans codenamed "**Barbarossa**". As shown in the Order of Battle, 17 **Panzer-Divisions** were concentrated in four **Panzer-Gruppen**. **Panzer-Gruppe 4** under **Heeres-Gruppe Nord** was to head north toward Leningrad. **Panzer-Gruppen 2** and **3** under **Heeres-Gruppe Mitte** were to head east with the long range goal of Moscow. **Panzer-Gruppe 1** under **Heeres-Gruppe Sued** was to head east toward Kiew.

The Panzer inventory on 1 June 1941 for the entire **Heeres** was 877 **Pz.Kpfw.I**, 1074 **Pz.Kpfw.II**, 170 **Pz.Kpfw.35(t)**, 754 **Pz.Kpfw.38(t)**, 350 **Pz.Kpfw.III (3.7 cm Kw.K.)**, 1090 **Pz.Kpfw.III (5 cm Kw.K.)**, 517 **Pz.Kpfw.IV**, and 330 **Pz.Bef.Wg.** The actual strength of each **Panzer-Regiment** before the start of the campaign is shown in the Organization and Strength diagram. **Panzer-Gruppe 4** was the weakest, with each of its three **Panzer-Divisions** outfitted with a different type of Panzer. All of the **Pz.Kpfw.III** in the **1.Panzer-Division** had **5 cm Kw.K.L/42** guns. The **6.Panzer-Division** still had the only **Panzer-Regiment** with **Pz.Kpfw.35(t)**. The third division, **8.Panzer-Division** had three **Panzer-Abteilungen** with **Pz.Kpfw.38(t)**.

All four of the **Panzer-Divisions** in **Panzer-Gruppe 3** were outfitted with **Pz.Kpfw.38(t)** in their three **Panzer-Abteilungen**. Of the four, only the **7.Panzer-Division** had any combat experience. Its **Panzer-Regiment** had a total of nine **leichte** and three **mittlere Panzer-Kompanien**, giving it more Panzers than any other unit. Due to a shortage of **Pz.Kpfw.IIs,** each of the newer **Panzer-Divisions** (**12.**, **19.** and **20.**) had been issued 40 or more **Pz.Kpfw.I Ausf.A**.

The five **Panzer-Divisions** under Guderian in **Panzer-Gruppe 2** were the strongest formations. Three of the five **Panzer-Divisions** had three **Abteilungen** with **Pz.Kpfw.IIIs**. The other two, **4.Panzer-Division** and **10.Panzer-Division** with only two Abteilung, still had a full complement of 105 **Pz.Kpfw.IIIs** in six **leichte Panzer-Kompanien**. In addition to the **Tauchpanzers** that had been given to **Panzer-Regiment 18** and the **III.Abteilung/Panzer-Regiment 6** in 1940, **Panzer-Regiment 35** had received some **Tauchpanzers** (modified **Pz.Kpfw.III Ausf.G** and **H** and **Pz.Kpfw.IV Ausf.E**) in the Spring of 1941.

Panzer-Gruppe 1 had five **Panzer-Divisions** each with two **Panzer-Abteilungen**. **Panzer-Regiment 36** in the **14.Panzer-Division** had also been issued a number of **Tauchpanzers**. Each of the **Panzer-Regiments** still had a fairly high percentage of **Pz.Kpfw.III** with the **3.7 cm Kw.K. L/45**. On 7 June 1941, **Panzer-Regiment 33** which had been in the Balkans with the **9.Panzer-Division**, reported their operational readiness status as:

	Pz.I	Pz.II	Pz.III	Pz.IV.	Bef.Wg.
Repairable by 15 June:	7	19	19	12	7
Not repairable by 15 June:	1	13	19	5	3
Issued replacements:			34	3	3

They had asked for but didn't get additional replacements for those not repairable by 15 June. Among the 34 replacements that they had been issued were 11 of the first rebuilt **Pz.Kpfw.III Ausf.E**, **F**, and **G** upgunned to the **5 cm Kw.K. L/42**, given wider tracks, and had additional 30 mm thick armor plates bolted to the hull and superstructure front and hull rear. With these backfits, the upgunned, uparmored **Pz.Kpfw.III Ausf.E**, **F** and **G** were equivalent to a **Pz.Kpfw.III Ausf.H**.

An account of the fighting in the early phase of the campaign is provided by the following combat report from the **I.Abteilung/Panzer-Regiment 4** for the period from 23 June to 28 June 1941:

*On orders from the Regiment commander, the **Abteilung** moved south to about one kilometer southwest of Laskow and then turned east toward the crossing at Suchodoly. Coming down the slope, the **Abteilung** was fired on by anti-tank guns from half left out of the direction of Point 231. The Panzer of the **1.Kompanie** commander was hit by a 4.7 cm shell.*

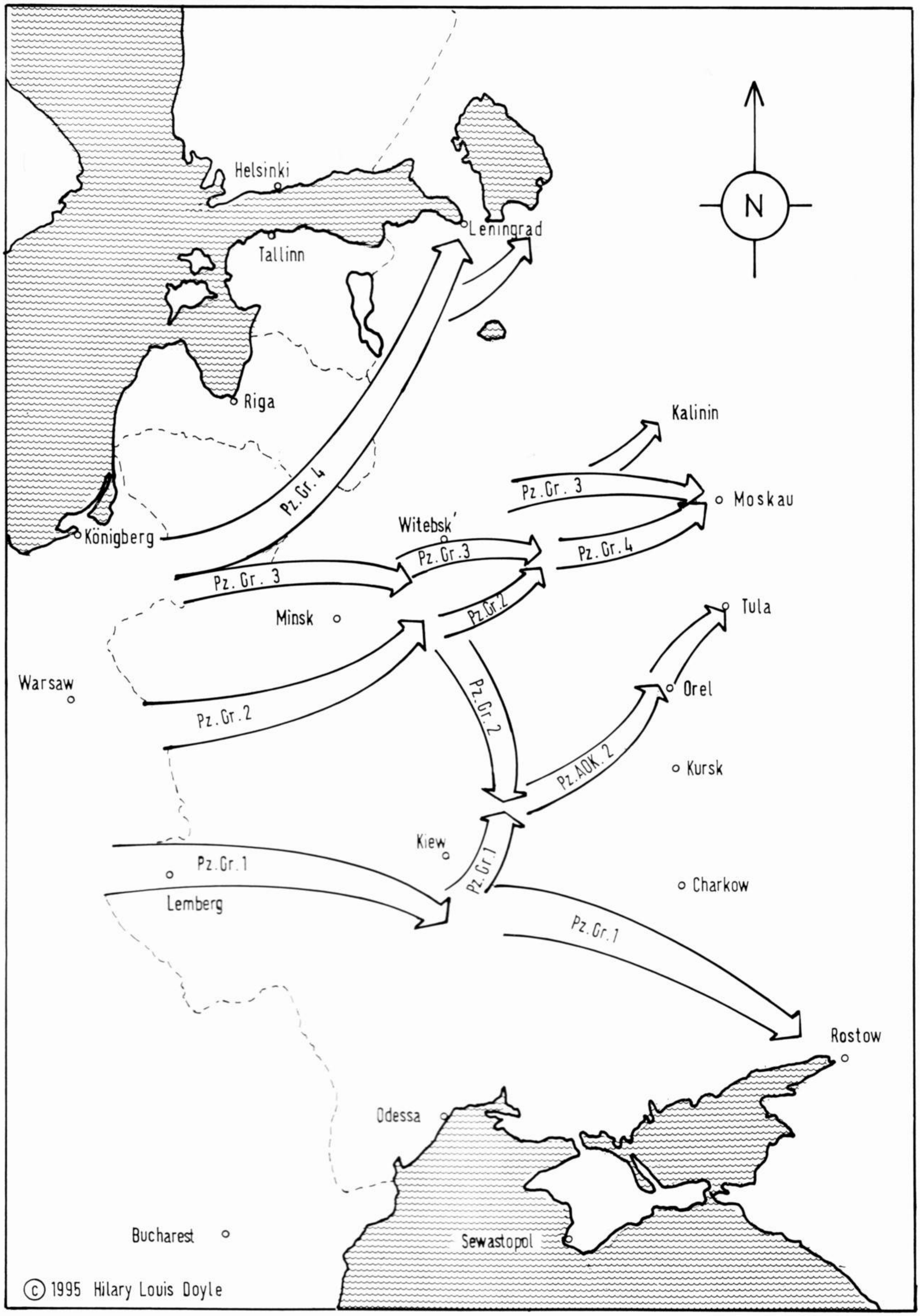
Pz.Kpfw.IIs and **Pz.Kpfw.IVs** of the **Panzer-Lehr-Abteilung** which was assigned and renamed as the **III.Abteilung/Panzer-Regiment 39** of the **17.Panzer-Division**. (WS)

*The Panzer was lightly damaged. Then the entire **2.Kompanie** was sent in to provide covering fire. The platoon under Leutnant Meier sent against the bridge became stuck in a marshy area. Then the **1.Kompanie** commander sent in Leutnant Noll's platoon and the **Abteilung** commander sent in Feldwebel Lindner's platoon against the crossing. They very quickly reported that the bridge was burning and the embankment to the bridge couldn't be driven across by Panzers. In the meantime, the **Abteilung** was subjected to well-placed fire from several Russian guns that wounded Obergefreiter Fisher. At dusk the **3.Kompanie** was brought back to the reverse slope. The **1.** and **2.Kompanie** remained scattered in a checker board pattern. The recovery of the three Panzer of Leutnant Meier's platoon that had become stuck was accomplished around 2130 hours. In this attempt, Feldwebel Schuessler and Obergefreiter Wittack were lightly wounded by machine gun fire. As night fell, the **3.Kompanie** was in a defensive position facing east on the reverse slope south of Laskow. The **1.** and **2.Kompanie** were pulled back behind the defense line. As far as possible, the Panzers were refueled from the drums of fuel that they had towed on trailers.*

24 June 1941

*After the **II.Abteilung** was moved forward through the narrows, the advance started: **1.Kompanie** in the first line, **2.Kompanie** directly following to provide covering fire, **3.Kompanie** as reserve for the commander and protection for the left flank. At the same time a report came in from aerial reconnaissance: Enemy tank concentration five kilometers south of Aleksandrowka. On line with Michalowka - Markewiecka, the **1.Kompanie** opened fire on at least five enemy tanks that were immediately destroyed. Because at the same time enemy artillery to the north were firing at the **Abteilung**, the regiment ordered that the artillery be attacked. For this action, the **3.Kompanie** was positioned to the left beside the **1.Kompanie** and in the area of Dabrowa knocked out an enemy artillery battery.*

During the further development of the attack, generally to the north against enemy artillery, about 200 meters south of the road, two motorized field batteries and a motorized


N
Helsinki
Leningrad
Tallinn
Riga
Königberg
Pz.Gr.4
Kalinin
Pz.Gr. 3
Moskau
Witebsk
Pz.Gr.3
Pz.Gr.4
Pz.Gr. 3
Minsk
Pz.Gr.2
Tula
Warsaw
Pz.Gr.2
Pz.Gr.2
Orel
Pz.AOK.2
Kursk
Kiew
Pz.Gr.1
Pz.Gr.1
Charkow
Lemberg
Pz.Gr.1
Rostow
Odessa
Bucharest
Sewastopol
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ORDER OF BATTLE - 22 JUNE 1941

Heeresgruppe Nord

- Pz.Gr.4
  - XLI.Pz.K.
    - 1.Pz.Div.
      - Pz.Rgt.1
    - 6.Pz.Div.
      - Pz.Rgt.11
  - LVI.Pz.K.
    - 8.Pz.Div.
      - Pz.Rgt.10

- A.O.K.Norwegen
  - XXXVI.A.K.
    - Pz.Abt.z.b.V.40
    - Pz.Abt.211

Heeresgruppe Mitte

- Pz.Gr.2
  - XXIV.Pz.K.
    - 3.Pz.Div.
      - Pz.Rgt.6
    - 4.Pz.Div.
      - Pz.Rgt.35
  - XLVI.Pz.K.
    - 10.Pz.Div.
      - Pz.Rgt.7
  - XLVII.Pz.K.
    - 17.Pz.Div.
      - Pz.Rgt.39
    - 18.Pz.Div.
      - Pz.Rgt.18
        - Pz.Abt.(F)100

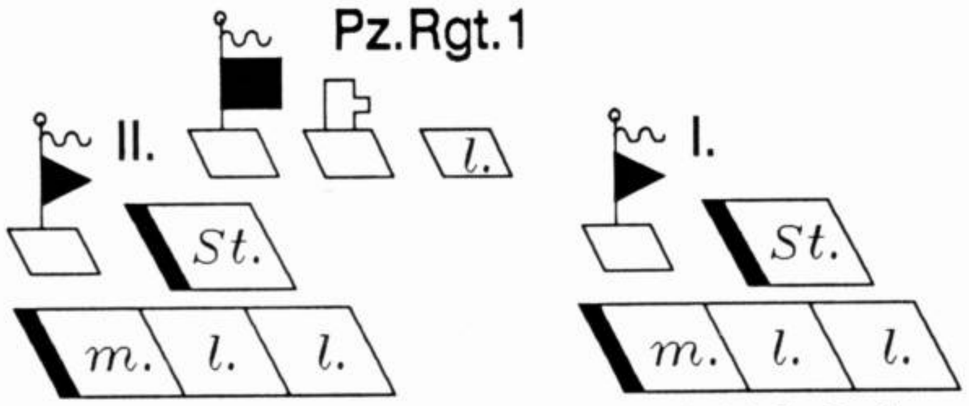
- Pz.Gr.3
  - XXXIX.Pz.K.
    - 7.Pz.Div.
      - Pz.Rgt.25
    - 20.Pz.Div.
      - Pz.Rgt.21
  - LVII.Pz.K.
    - 12.Pz.Div.
      - Pz.Rgt.29
    - 19.Pz.Div.
      - Pz.Rgt.27
  - Pz.Abt.(F)101

Heeresgruppe Sued

- Pz.Gr.1
  - 13.Pz.Div.
    - Pz.Rgt.4
  - III.Pz.K.
    - 14.Pz.Div.
      - Pz.Rgt.36
  - XIV.Pz.K.
    - 9.Pz.Div.
      - Pz.Rgt.33
    - 16.Pz.Div.
      - Pz.Rgt.2
  - XLVIII.Pz.K.
    - 11.Pz.Div.
      - Pz.Rgt.15

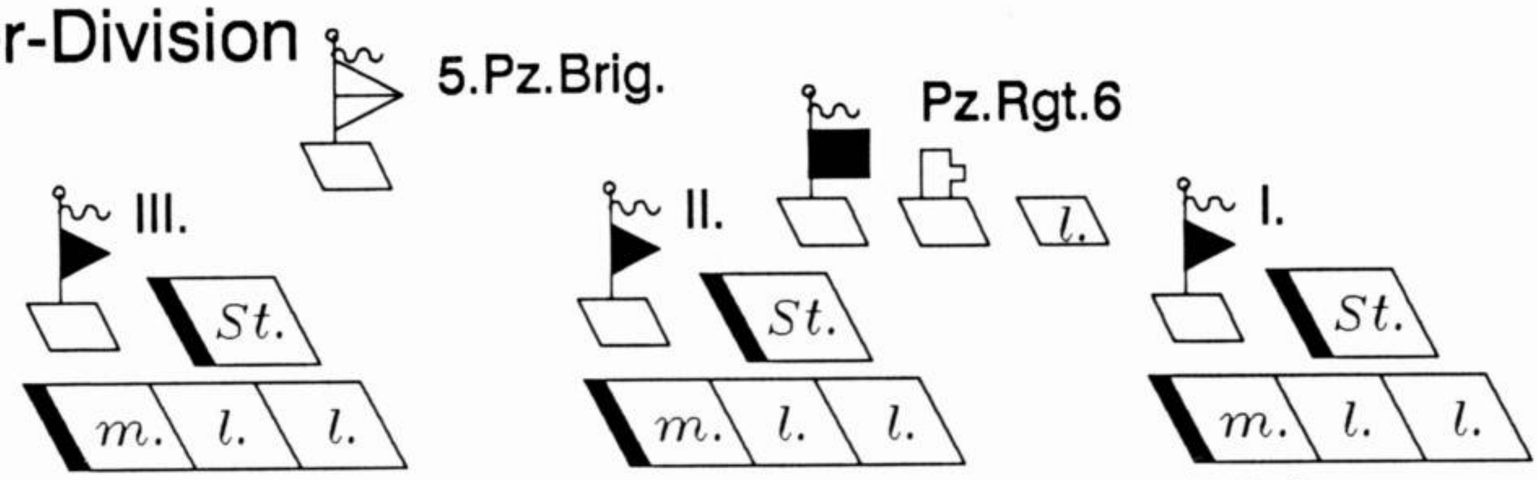
ORGANIZATION AND STRENGTH OF PANZER UNITS
OPERATION BARBAROSSA - 22 JUNE 1941

1.Panzer-Division



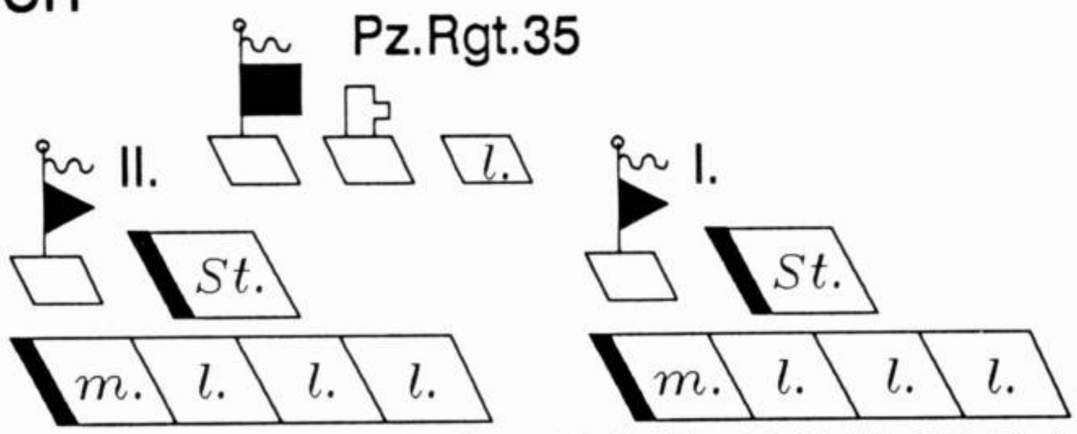
43 PzII, 71 PzIII(5), 20 PzIV, 11 PzBef

3.Panzer-Division



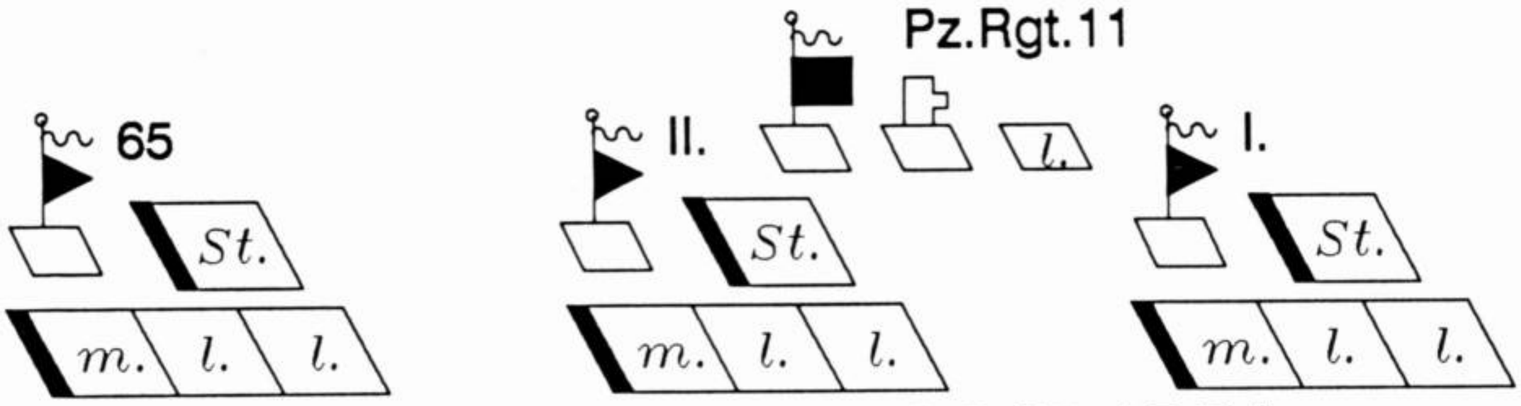
58 PzII, 29 PzIII(37), 81 PzIII(5), 32 PzIV, 15 PzBef

4.Panzer-Division



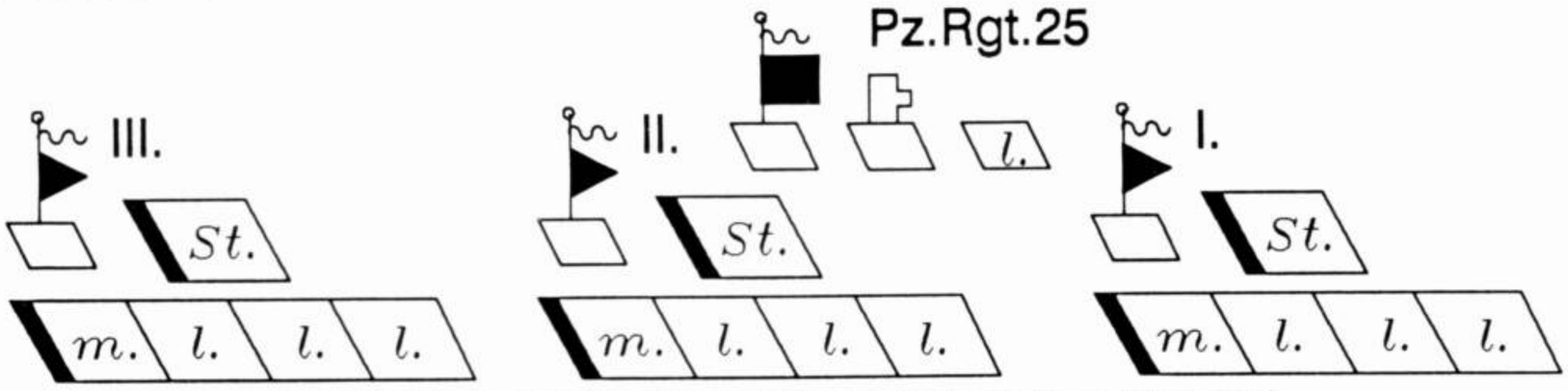
44 PzII, 31 PzIII(37), 74 PzIV(5), 20 PzIV, 8 PzBef

6.Panzer-Division



47 PzII, 155 Pz35t, 30 PzIV, 5 PzBef35t, 8 PzBef

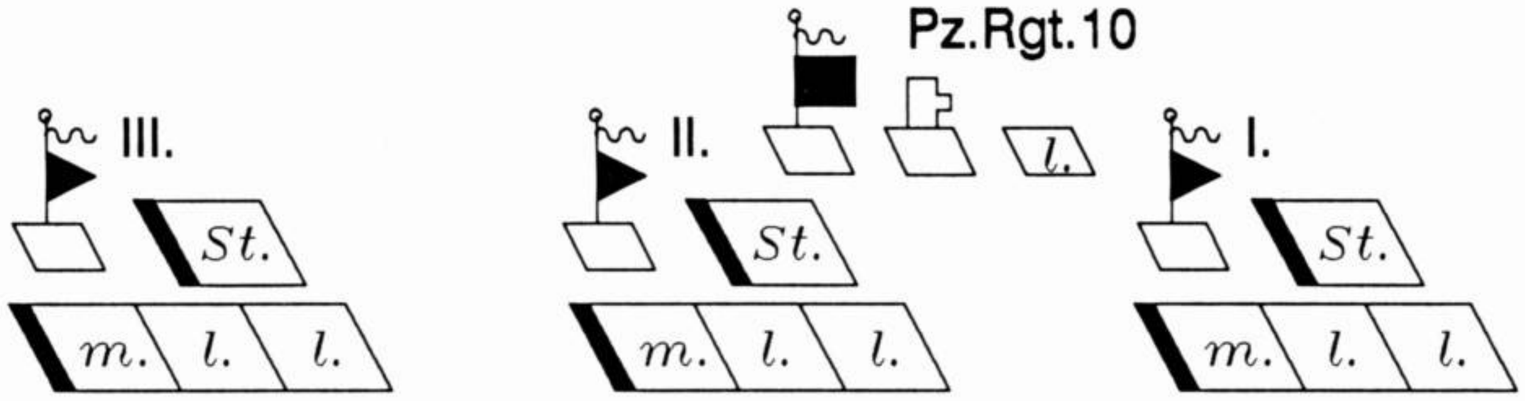
7.Panzer-Division



53 PzII, 167 Pz38t, 30 PzIV, 7 PzBef38t, 8 PzBef

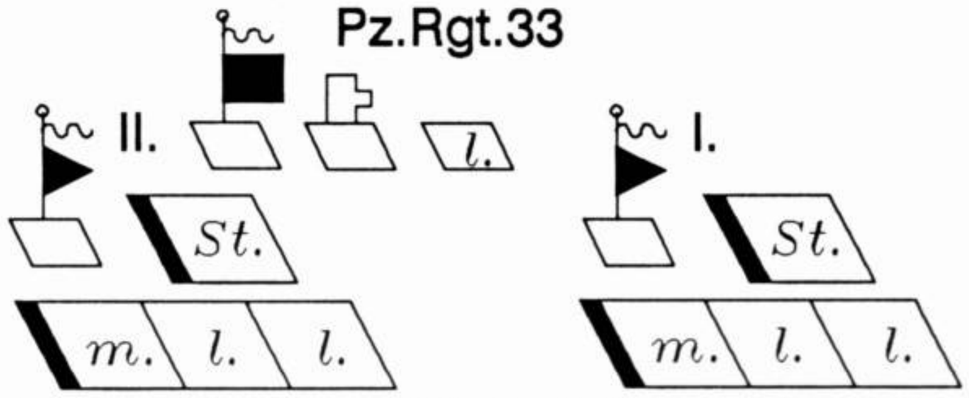
ORGANIZATION AND STRENGTH OF PANZER UNITS
OPERATION BARBAROSSA - 22 JUNE 1941

8.Panzer-Division



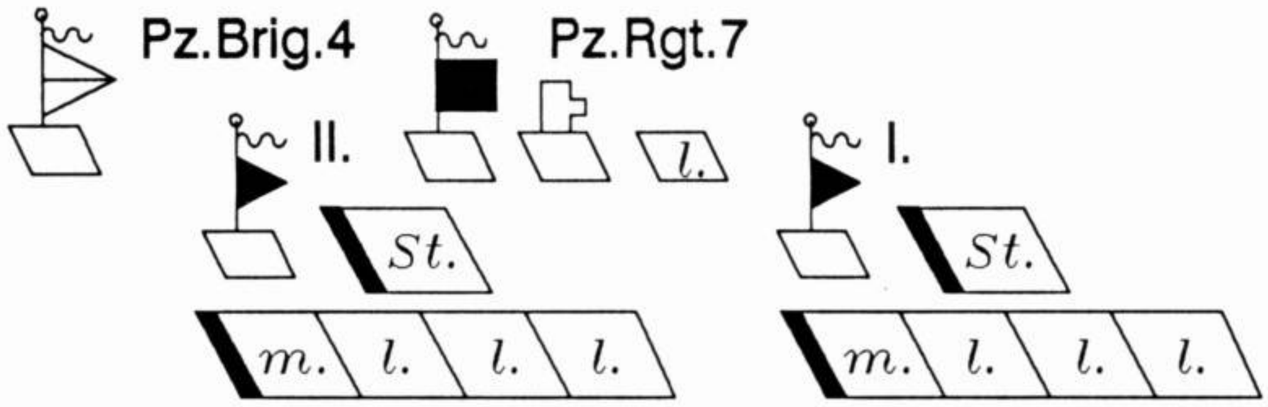
49 PzII, 118 Pz38t, 30 PzIV, 7 PzBef38t, 8 PzBef

9.Panzer-Division



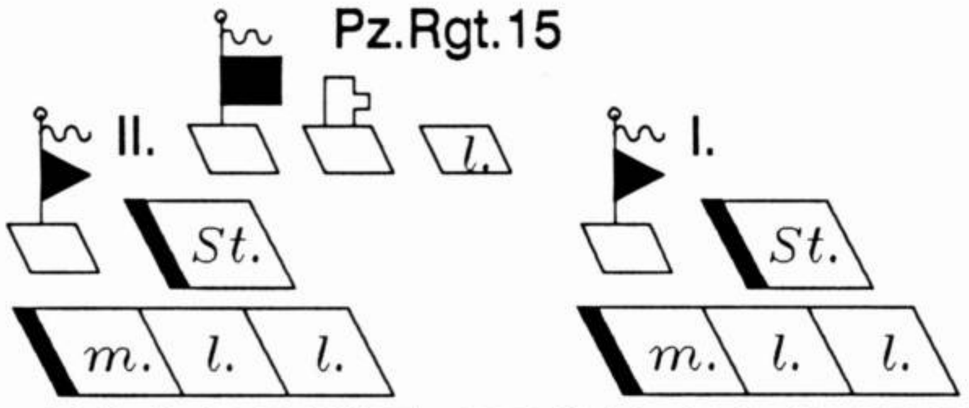
8 PzI, 32 PzII, 11 PzIII(37), 60 PzIII(5), 20 PzIV, 12 PzBef

10.Panzer-Division



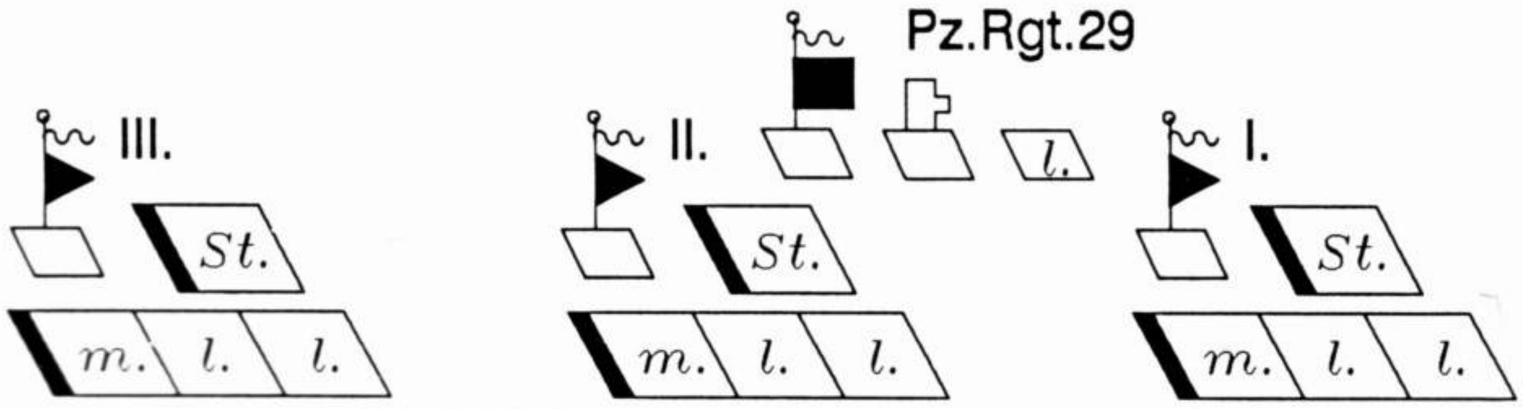
45 PzII, 105 PzIII(5), 20 PzIV, 12 PzBef

11.Panzer-Division



44 PzII, 24 PzIII(37), 47 PzIII(5), 20 PzIV, 8 PzBef

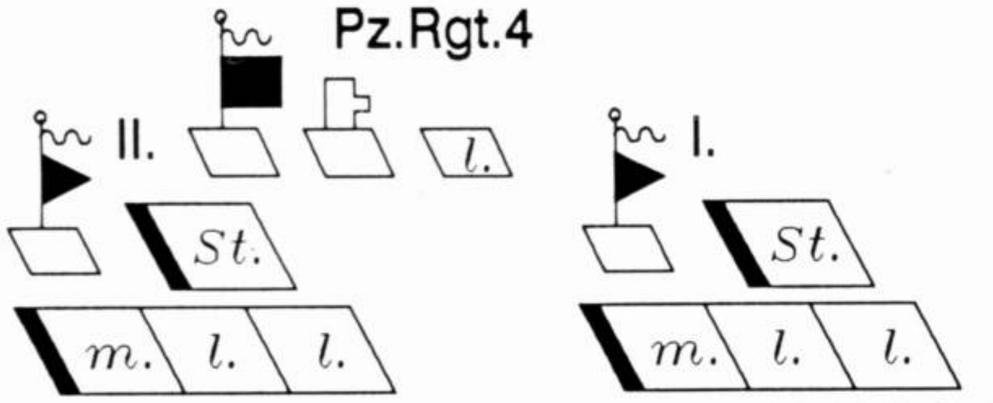
12.Panzer-Division



40 PzI, 33 PzII, 109 Pz38t, 30 PzIV, 8 PzBef38t

ORGANIZATION AND STRENGTH OF PANZER UNITS
OPERATION BARBAROSSA - 22 JUNE 1941

13.Panzer-Division



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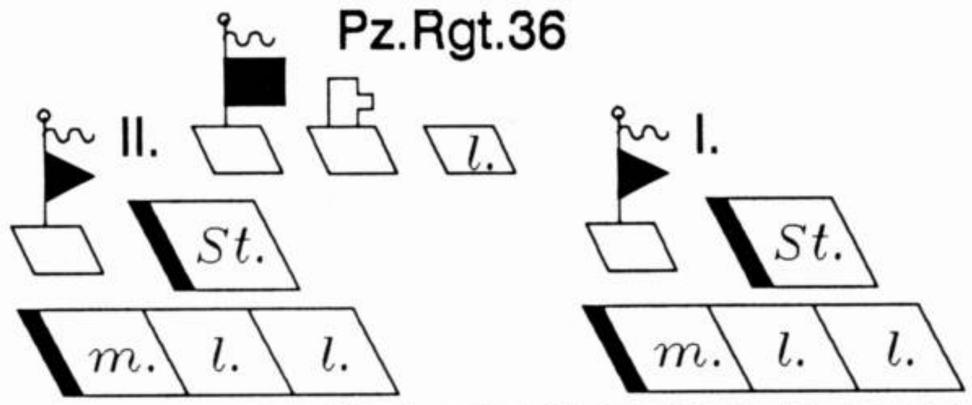
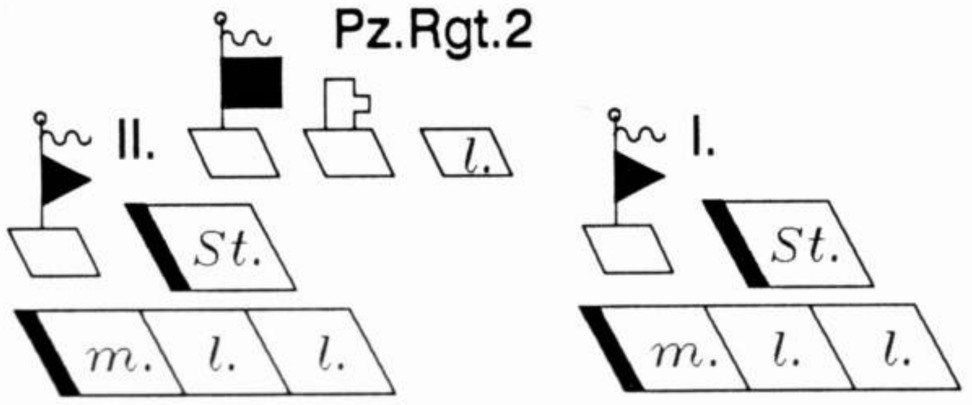
14.Panzer-Division



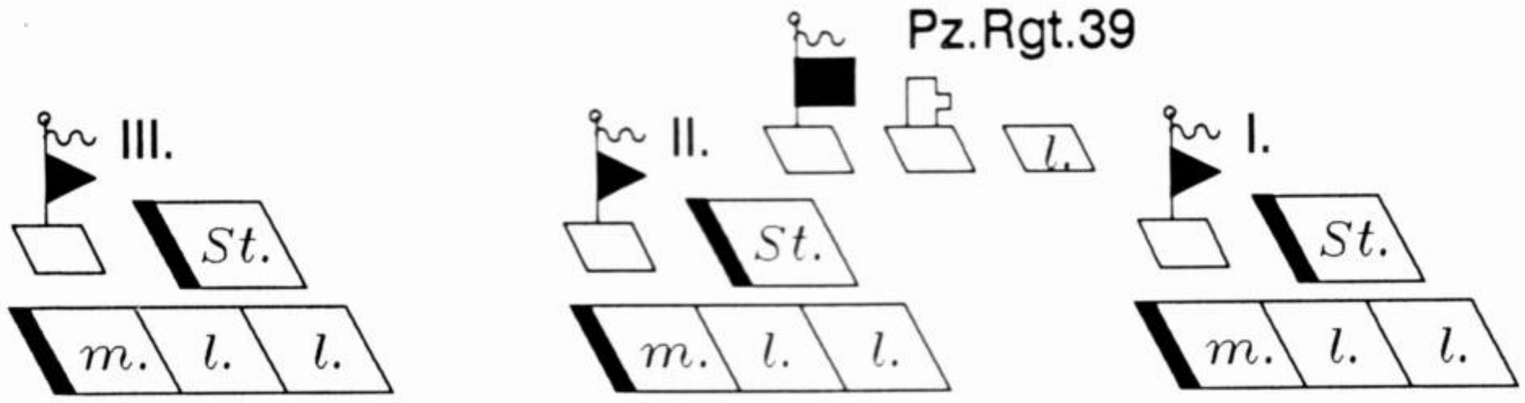
45 PzII, 15 PzIII(37), 56 PzIII(5), 20 PzIV, 11 PzBef

16.Panzer-Division



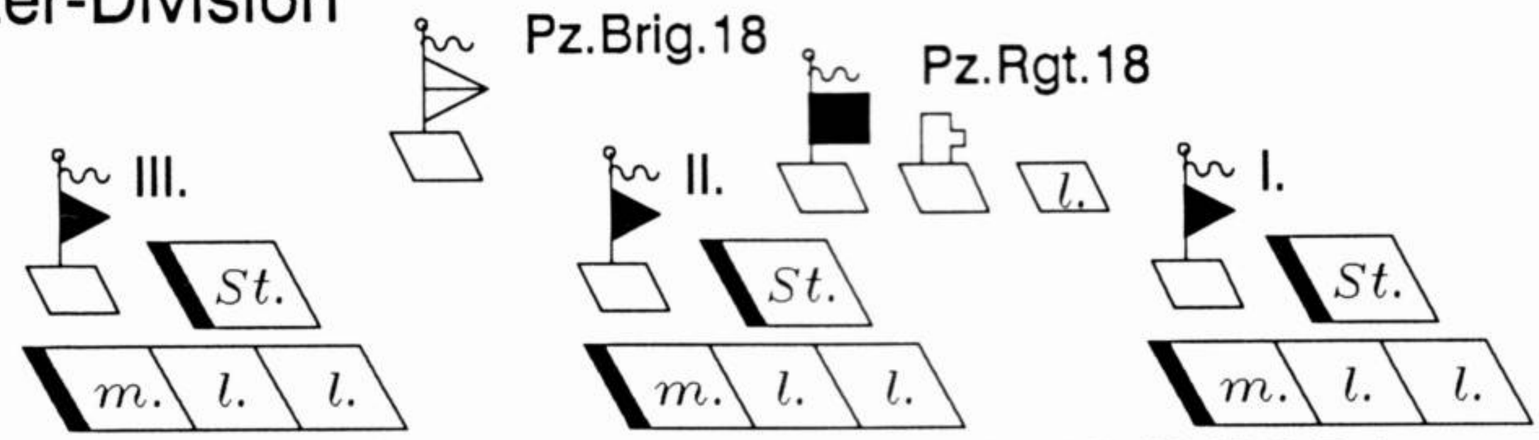
45 PzII, 23 PzIII(37), 48 PzIII(5), 20 PzIV, 10 PzBef

17.Panzer-Division



12 PzI, 44 PzII, 106 PzIII(5), 30 PzIV, 10 PzBef

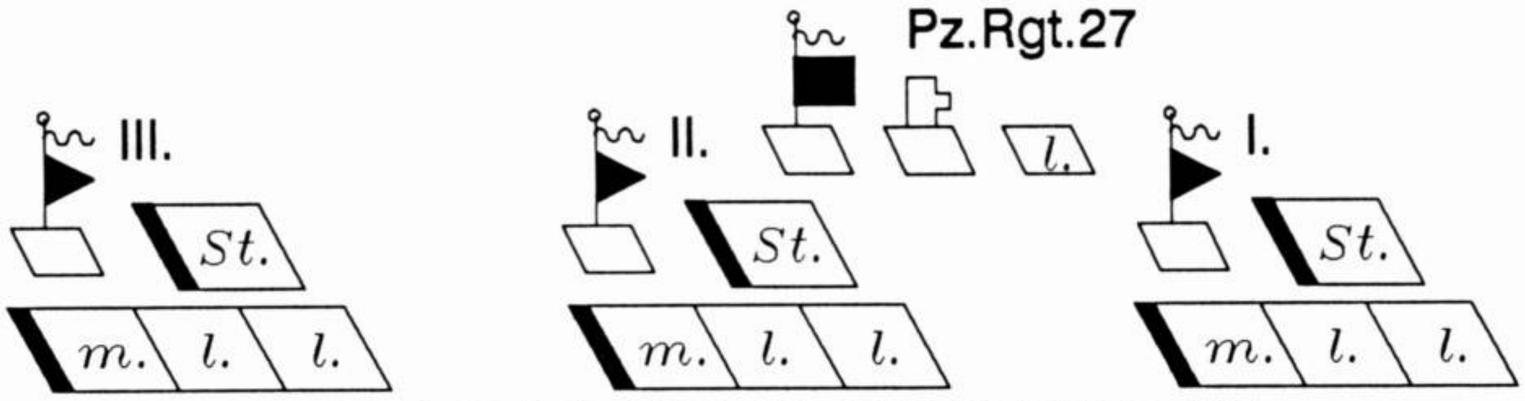
18.Panzer-Division



6 PzI, 50 PzII, 99 PzIII(37), 15 PzIII(5), 36 PzIV, 12 PzBef

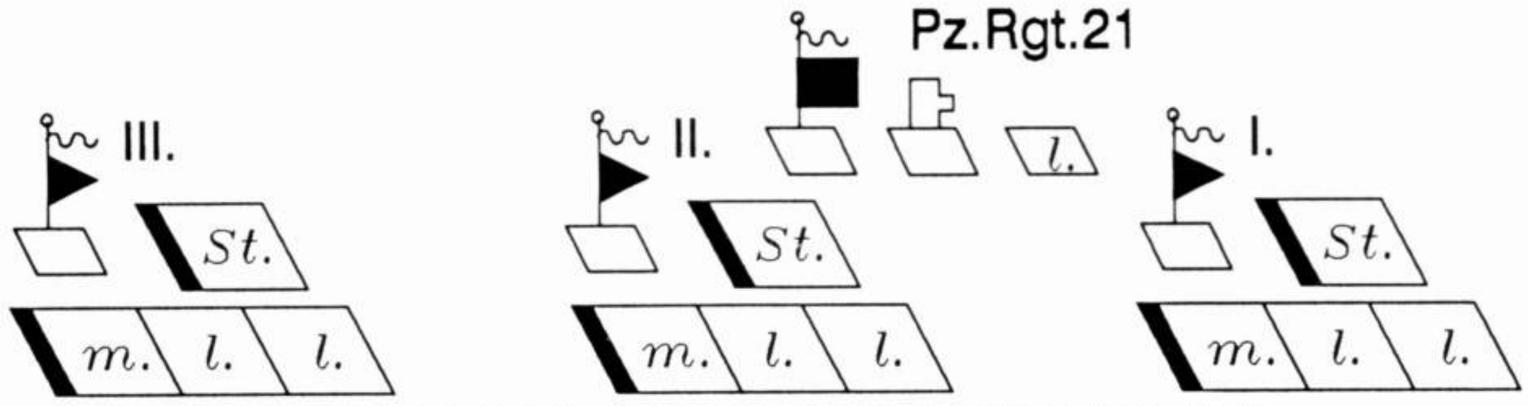
ORGANIZATION AND STRENGTH OF PANZER UNITS
OPERATION BARBAROSSA - 22 JUNE 1941

19.Panzer-Division



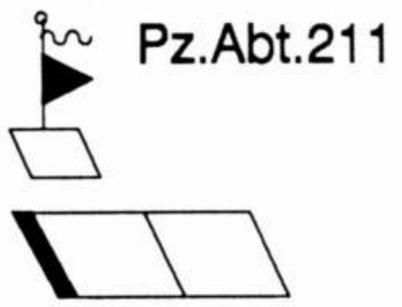
42 PzI, 35 PzII, 110 Pz38t, 30 PzIV, 11 PzBef38t

20.Panzer-Division



44 PzI, 31 PzII, 121 Pz38t, 31 PzIV, 2 PzBef38t

Heerestruppen



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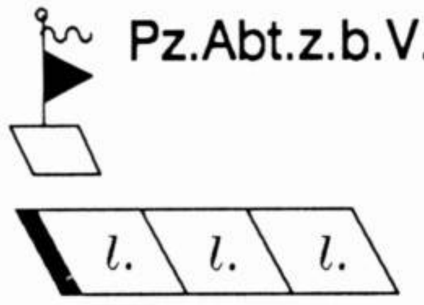

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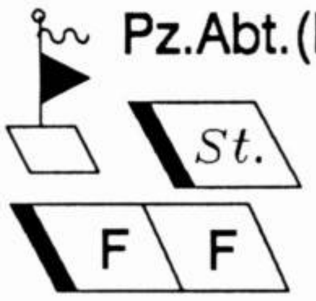

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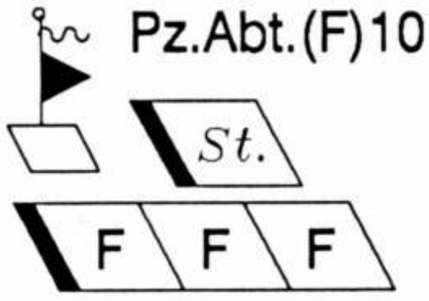
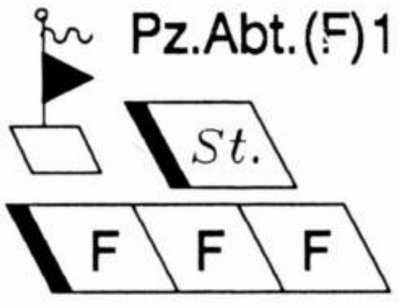


25 PzII, 42 Flammpz,
5 PzIII, 1 PzBef



25 PzII, 42 Flammpz,
5 PzIII, 1 PzBef, 9 PzA13(e)

15.5 cm battery were captured. Also after crossing the road, two further field batteries were captured. Most of the ammunition and ammunition carriers were hit and set on fire. While crossing the road, the ***3.Kompanie*** *knocked out 15 tanks and the* ***2.Kompanie*** *knocked out six tanks and two armored cars. After crossing the road, the* ***II.Abteilung*** *cut in front of the* ***I.Abteilung****, so that the end result was the* ***II.Abteilung*** *engaged in the fight.*

Resupplying the combat elements and bringing up the baggage trains first occurred at 1000 hours on 25 June 1941. At 1135 hours the ***I.Abteilung*** *behind the* ***II.Abteilung*** *continued the advance. About 1355 hours, the retreat of a Russian infantry regiment with artillery was observed on the road east of Torczyn. The advance continued through Antonowka where defense against enemy tanks was set up toward both sides. The* ***leichter Zug*** *of the* ***Abteilung*** *shot up an enemy tank. The march continued around to the south toward Luck with the* ***Abteilung*** *in the second wave in the formation:* ***2.Kompanie*** *right,* ***3.Kompanie*** *left,* ***1.Kompanie*** *at the rear.*

Luck was reached behind the ***II.Abteilung****. The* ***3.Kompanie*** *was sent to secure the road toward the northeast. They encountered Russian tanks and artillery and destroyed a battery and four enemy tanks.*

Additional details were provided on the battle at Dolhoszyja by a combat report from the **1.Kompanie/Panzer-Regiment 4**:

Shortly before reaching Dolhoszyja, a messenger from the Division reported that this city was occupied by enemy tanks. The company then left the entire baggage behind with two ***Pz.Kpfw.IIs*** *for their defense. The five* ***Pz.Kpfw.III*** *and* ***Pz.Kpfw.II*** *advanced down the road. An enemy tank and armored car were camouflaged in position in the middle of town with their guns aimed toward the road. These armored vehicles were knocked out by the lead Panzer (Leutnant Meyer) before they opened fire. An additional five tanks with their guns aimed at the road stood in an open area to the left of the road. After taking out the first tank, the lead Panzer traversed his gun toward the left, hit and set a second tank on fire before the Panzer itself was hit by a third tank and fell out. Driver and gunner were severely wounded. In the meantime, Leutnant Moll with two Panzers approached the area from the left and knocked out three enemy tanks while the last one was shot up by Oberfeldwebel Hauke.*

While crossing through the city, Leutnant Moll encountered two more enemy tanks, both of which burned after being hit by one round.

While defending the city against further enemy tanks, two additional Panzers were shot up as they attempted to enter the city.

The following status reports for the **I.Abteilung/Panzer-Regiment 4** demonstrate how the number of operational Panzers quickly decreased in a few days in action:

This **Pz.Kpfw.B2 (Flammwagen)** with a flamethrower installed in place of the hull gun was assigned to the **2.Kompanie/Panzer-Abteilung (Flamm) 102** to aid the **9.Armee** in reducing the bunker line near Wielke Dzial. (WR)

A **Pz.Kpfw.IV Ausf.C** in the **8.Kompanie/Panzer-Regiment 10** of the **8.Panzer-Division** crossing a ford on their way north toward Leningrad on 29 June 1941. (WJS)

Panzer Type:	**Pz.Kpfw.II**	**Pz.Kpfw.III**	**Pz.Kpfw.IV**	**Pz.Bef.Wg.**
24Jun41 Morning:	19	34	10	2
24Jun41 Evening:	18	12	8	2
Losses through enemy action: 1 **Pz.IV**, 2 **Pz.III** on 24Jun41.				
25Jun41 Morning:	18	12	8	2
25Jun41 Evening:	10	5	6	2
26Jun41 Morning:	10	5	6	2
26Jun41 Evening:	12	7	4	1
28Jun41 Morning:	16	11	4	2
28Jun41 Evening:	15	10	4	2

A unique encounter with enemy tanks on 26 June 1941 was reported by Oberleutnant Königstein of the **Stab/Panzer-Regiment 4**:

*We drove forward followed by two **Pz.Kpfw.IIIs** and a **Pz.Kpfw.II**, detouring around the mine barrier that had been quickly laid by the **Pioniere**. At the edge of town, the lead Panzer halted to fire at an enemy tank as the first shot already whistled over the lead Panzer. The **Pionier-Leutnant** and I followed the firefight of both **Pz.Kpfw.IIIs** that moved up but couldn't identify their target because several knocked-out enemy tanks lay along the street. We worked forward along the right side of the street until we were level with the enemy tanks. Fire from our Panzers didn't appear to be having any effect, because the enemy tank was positioned behind a **Pz.Kpfw.II**. We found a Major from the **14.Panzer-Division** who with several soldiers was scouting for fuel and had been surprised on the road by enemy tanks. An attempt*

A **Pz.Kpfw.II Ausf.B** or **C** with the **10.Kompanie/Panzer-Regiment 25** of the **7.Panzer-Division** has been upgraded with the modification adding a commander's cupola on the turret. The timber carried above the right fender was used to unditch vehicles stuck in mud. In the background a **Pz.Kpfw.38(t) Ausf.E** of the **1.Kompanie/Panzer-Regiment 25** moves out. (BA)

to knock out the enemy tank with balled explosives failed because nothing could be found to bind them together. Single hand grenades that were thrown and ***S.m.K.*** *(armor piercing rifle) rounds fired at 15 paces had no effect.*

I sent a messenger to stop our gun fire. Then hand grenades were thrown through an open ammunition hatch. The Russians immediately threw them back out along with several of their own. Calling for them to come out and firing a pistol into the tank through the hatch achieved nothing. The crew didn't come out. The commander stretched his bloody hand out to quickly pull the hatch closed. To finally knock the tank out of action, Leutnant Schoeck, from ***Panzer-Regiment 4*** *in the interim had reached the tank from the other side, poured a canister of fuel over the enemy tank and ignited it with a hand grenade. The tank burned out.*

A different view of the same action was reported by Leutnant Schoeck of the **I.Abteilung/Panzer-Regiment 4**:

On the straight street about one kilometer long through the furthest east part of Luck, I saw ahead of me several vehicles from other units that suddenly left the street to take cover. Already in the distance an enemy tank was in the middle of the street. I directed my five vehicles into a courtyard. An abandoned Russian Christie tank located in my area appeared to be suitable for fighting the tank. I climbed in and determined that the weapons and ammunition were in order but the gunsight had been removed. I aimed through the gun tube and fired two shots that narrowly missed to the side. The enemy tank crew noticed me and covered me with well-aimed shots. I was forced to abandon this position.

Then I sent a noncom to Luck to bring back a ***Pz.Kpfw.III*** *that had fallen out. After 45 minutes, two* ***Pz.Kpfw.IIIs*** *arrived. Both Panzers opened fire at a range of 700 meters and worked forward to a range of about 400 meters. From here it was first noticed that the enemy tank had shoved a German* ***Pz.Kpfw.II*** *in front of it for cover. The* ***Pz.Kpfw.IIIs*** *ceased fire. Several soldiers went forward on the right side of the street and an Obergefreiter and I on the left side. We worked forward under cover until we were opposite the enemy tank. Then I crept barefoot up to the rear of the tank and laid balled explosives made from hand grenades under the rear turret overhang. The explosion blew the hatch open on the turret rear. Thus I had the chance to throw two hand grenades into the crew compartment, of which the first was thrown back out by the very tenaciously defending crew. The crew still fired back with automatic pistols and threw out two hand grenades that didn't detonate. I had a canister of fuel brought up and laid it on the turret so that the fuel poured out. I then set the tank on fire with hand grenades.*

During this proceeding, the driver of the ***Pz.Kpfw.II*** *of the* ***Stabskompanie leichte Zug****, Obergefreiter Moracek, crawled out. In spite of many hits on the* ***Pz.Kpfw.II****, he was only lightly wounded by fragments. Moracek reported that he was on the way to the maintenance company in Luck because the turret traverse mechanism had been destroyed by*

A **Pz.Kpfw.35(t)** with the **7.Kompanie** and a **Pz.Kpfw.IV** with the **6.Kompanie** of **Panzer-Regiment 11** of the **6.Panzer-Division** giving accompanying infantry a ride on the rear deck of the Panzers. (WJS)

A **Pz.Kpfw.II (F) (Sd.Kfz.122)** of the **3.Kompanie/Panzer-Abteilung (Flamm) 100**. The flame-thrower nozzles were mounted in pivoting heads on each hull side and a M.G.34 was installed in the standard ball mount in the turret. (KHM)

*a hit from an anti-tank gun. The radio operator had directed him up this street. While turning the **Pz.Kpfw.II** was suddenly rammed by the unnoticed Christie tank and shoved sideways to the street. The gunner was wounded and got out with the radio operator. Moracek had bravely withstood the almost two-hour duration battle in his Panzer.*

Up north, the **6.Panzer-Division** under **Panzer-Gruppe 4** had already encountered Russian heavy tanks. As related in the war diary of **Panzer-Regiment 11** on 25 June 1941:

*During the morning, the **II.Abteilung/Panzer-Regiment 11** together with **Kampfgruppe von Seckendorff** advanced along the right-hand march route. Throughout the day both units fought off repeated attacks from the Russian 2nd Armored Division. Unfortunately, the Russian 52 ton heavy tanks showed that it was almost insensitive to hits from the 10.5 cm. Several hits from a 15 cm gun were ineffective and bounced off. However, continuous attacks by several **Pz.Kpfw.IV** managed to knock out a large number of tanks throughout the day, which allowed our own attack to again drive forward to about three kilometers west of Dubysa.*

*The bridgehead of **Kampfgruppe Raus** was held. During the afternoon, as a reserve, a reinforced company and the headquarters of **Panzer-Abteilung 65** were pulled back along the left attack route to the crossroads northeast of Rossienie. In the meantime a Russian heavy tank had blocked the communications route to **Kampfgruppe Raus**, so that contact with **Kampfgruppe Raus** was broken for the entire afternoon and during the night. An **8.8 cm Flak** battery was sent by the commander to fight this tank. It was just as unsuccessful as a 10.5 cm battery whose fire was directed by a forward observer. In addition, an attempt by a **Pionier** assault troop using balled explosives failed. It was impossible to get close to the tank because of heavy machine gun fire.*

Normal **Pz.Kpfw.II Ausf.c-C** were issued to the **Panzer-Abteilung (Flamm) 100** and **101** for the weapons platoon and command vehicles for each company. The chassis of all but a few **Pz.Kpfw.II Ausf.D** were used for producing the first series of **Pz.Kpfw.II (F) (Sd.Kfz.122)**. Triple mounted smoke candle dischargers have been mounted on both the normal **Pz.Kpfw.II** and the **Pz.Kpfw.II (F)**. (WS)

The Russians were still throwing in large armored units at the end of the month as described in the combat report from the **II.Abteilung/Panzer-Regiment 4** for 30 June 1941:

*On 30 June 1941, the **3.Zug** of the **8.Kompanie** (led by Oberleutnant Ernst) was sent by the **Abteilung** to recover two immobilized armored cars of the **Aufklaerung-Abteilung**. After 30 minutes the **3.Zug** came back and reported that very strong resistance had been encountered up front and numerous motorized infantry and enemy tanks were attacking.*

*As a result of this report, the rest of the **8.Kompanie** (8 **Pz.Kpfw.IIIs** and 1 **Pz.Kpfw.II**) was sent in. The **8.Kompanie** took the main road east from Antopol and took up a defensive position on the height north of Babin to make it possible for the **Aufklaerung-Abteilung** to break contact and pull back from the enemy. Feldwebel Pillat reported that he had knocked out two enemy tanks. One could observe enemy tanks on the opposite height that continuously changed position. Enemy infantry were observed on a wide front coming over the ridge and disappearing into the grainfields. The company shot up infantry and enemy tanks.*

*The **1.Zug** under Leutnant Pinkwart was sent off through the houses and yards to defend the left flank. There they beat back the attack of about an infantry battalion and destroyed eight enemy tanks. In the meantime, ammunition was delivered to our Panzers by the **Pz.Kpfw.IIs** of the company. Enemy infantry on a wide front continued to pour over the opposing ridge line. The **8.Kompanie** again attacked and destroyed a number of enemy tanks, numerous infantry, and a large number of machine gun nests. In addition, several anti-tank guns and two 15 cm guns were captured. The enemy infantry attempted to flee back. While combing through the terrain twice, a further tank was knocked out and many machine guns and infantry destroyed.*

*During the further attack up to Horbakow, the **leichten Zug** under Leutnant Hoever replenished the ammunition for the company twice. In total during the engagement, the Abteilung destroyed or captured four 15 cm guns, 38 enemy tanks (of which 34 by the **8.Kompanie**), three 7.62 cm guns, six anti-tank guns and seven motor vehicles.*

Panzer-Gruppe 2 and **Panzer-Gruppe 3** had already created a pocket at Minsk and were again advancing east. As reported by **Panzer-Regiment 35** of the **4.Panzer-Division**, they ran into heavy resistance in an engagement at Staryi Bychoff:

On 4 July 1941 at about 0300 hours, the regiment received the assignment to take Staryi Bychoff and the bridge over the Dnjepr.

*After a march of 100 kilometers and passing the military bridge at Bobruisk, the regiment was located on the Bruth near Tschetschewitschi with the attached **3.Kompanie/Panzer-Pionier-Bataillon 79** without baggage trains. The **6.Kompanie** that had been sent out with **Schuetzen-Regiment 12** didn't manage to get back to the regiment. The **1.Kompanie** had already crossed the ford near Tschetscheweitschi on the evening of 3 July and occupied the crossroads nine kilometers northeast of Tschetschewitschi.*

*Because the ford was relatively deep and the exit wasn't easy, it was planned that it would take a long time before at least an **Abteilung** could start. Therefore, the **1.Kompanie** that had already crossed was to be sent ahead. Because of the long range of over 10 kilometers, they couldn't be contacted by radio. Leutnant von Gerdtell, the leader of the **leichte Zug** of the regiment, was assigned to cross the ford, deliver the orders from the regiment, and join the **1.Kompanie** with his platoon. The **1.Kompanie**, which had to first bring in the outposts, didn't start forward until 0600 hours.*

*During the night, the **3.Kompanie/Panzer-Pionier-Bataillon 79** had worked to repair a destroyed bridge six kilometers west of Tschetschewitschi. Because the depth of the water prevented them from fording, they were ordered to immediately complete an 8 ton ferry so that at least one platoon could be carried across and join up with the regiment. This platoon arrived at the regiment at 1300 hours.*

*At 0730 hours, two companies of the **I.Abteilung**, and the **Abteilung** and **Regiments-Stab** had crossed the river. They followed the **1.Kompanie** without pausing. The last company of the **I.Abteilung** followed by itself, so that the main body of the **Abteilung** didn't lose more time. Oberstleutnant Hochbaum was assigned to get the **II.Abteilung** across as soon as possible and catch up to the advanced units of the regiment.*

*During the drive, delays were often caused by destroyed bridges and then by tree barricades. Directly after starting, the **1.Kompanie** destroyed an anti-tank gun. With this exception, the opponent first appeared after Cholstowa, six kilometers northwest of Staryi Bychoff. There he had two anti-tank ditches, anti-tank guns and about a battalion of infantry.*

*The **1.Kompanie** in turn reported: at 0830 hours arrived at train station, 0845 hours battle in the city, at 0910 hours passing over undamaged bridge. Then, no additional reports came from the **1.Kompanie**.*

*Five Panzers from the **1.Kompanie** got across the bridge. The Russians let them approach very close to their field works, which were very well camouflaged. Then a large number of anti-tank and anti-aircraft guns as well as artillery directly fired. Only one Panzer got away.*

The two other companies fought through the deeply organized enemy that lay in covered dugouts. Several anti-tank guns were silenced. Prisoners were not taken. The bloody losses of the enemy were very high.

About 1000 hours, the Panzers combed through the city in which many enemy sat in the houses and through the entire day reopened fire until the city burned down due to the enemy artillery fire.

In the interim, the Russian artillery had shot a 15-meter-wide hole in the bridge so that it couldn't be crossed any more. The Panzers were forced to pull back under heavy enemy

One of fifteen **Pz.Kpfw.III** with **5 cm Kw.K.L/42** guns with **Panzer-Regiment 18** of the **18.Panzer-Division** at the start of the campaign. The other 99 **Pz.Kpfw.IIIs** with **Panzer-Regiment 18** had **3.7 cm Kw.K. L/45** guns. This **Pz.Kpfw.III Ausf.G Tauchpanzer** has been outfitted with the covers, seals, and gaskets needed for submerged river crossings up to a depth of four meters. (WS)

artillery and anti-tank gun fire. Also, it was now not even possible to cross the bridge on foot. Even swimming across was impossible because of the strong enemy fire. So, the Russians also managed to set charges and blow a 25-meter-long middle section out of the bridge directly after the ***Abteilung*** *entered the city.*

The ***Abteilung*** *held the entire city. The Russian position on the Dnjepr was constructed like a fortress.*

During the entire day, the ***Abteilung*** *lay under the fire from at least three light and one heavy battery with an enormous expenditure of ammunition. One Panzer received a direct hit.*

At 1830 hours, half of a Russian regiment attacked from the south, partially by forces crossing the river on inflatable boats and supported by artillery and anti-tank gun fire from the far bank. The Russians advanced man to man. The attack was repulsed by the regiment causing heavy losses to the enemy. A counter-attack was not mounted due to the strong enemy anti-tank guns and our own weak forces. Three Panzers were lost.

The ***II.Abteilung*** *arrived at 1900 hours. This had been delayed by engagements with several anti-tank guns and a Siberian battalion.*

At 2030 hours, the first elements of motorcycle infantry arrived. At first they were simply pulled into the Panzer defensive circle.

Our own losses amounted to 18 dead, nine wounded, six missing plus nine Panzers lost as total writeoffs. These were the heaviest daily losses that the regiment had previously had in any battle. The regiment captured or destroyed one 7.6 cm gun, eight anti-tank guns, numerous machine guns and hand held weapons, 20 towing vehicles, only about 20 prisoners, and at least 1500 enemy wounded or killed. The impression of the enemy was that they were still hard fighting, very brave soldiers, whose morale had still not sunk.

Having stalled out at the Dnjepr, **Tauchpanzers** were again employed just as they had been at the start of the campaign to cross the Bug River. The following account from **Panzer-Regiment 6** on actions during the period from 3 to 10 July 1941 also provides details on the limitations associated with employing **Tauchpanzers**:

On orders from the commander of the ***3.Panzer-Division****, the platoon of Leutnant Engelhardt consisting of three* ***Tauchpanzer*** *(submersible* ***Pz.Kpfw.III*** *with* ***3.7 cm Kw.K.****)*

were sent into the heavily pressured bridgehead at Sborowo. The platoon crossed the Dnjepr submerged at Osserrischtsche and the next day contributed in holding the bridgehead. Because one ***Tauchpanzer*** *was heavily damaged by hits, the* ***Tauchpanzer*** *was blown up when forced to abandon the bridgehead. The next night Leutnant Engelhardt drove submerged through the river returning to the near bank. Crossing the Dnjepr and returning was very difficult due to the following causes:*

1. The depth of the water was about 3.5 meters.

2. A position had to be found on which the far bank was very flat.

3. It had to be possible to reach the bridgehead from this position and cross the very marshy south bank.

Scouting for this position was very difficult due to strong enemy interference. In addition, it was clear to the ***Abteilung*** *that this same position couldn't be used for the return trip due to the steep north bank. Therefore, it must be taken into account that these three* ***Tauchpanzer*** *would have to be blown up. In regard to technical difficulties it turned out that as a result of previous submerged crossings and hits from gunfire, for the most part the rubber seals and covers had been lost. Further, since there was fighting on the far bank, the* ***Tauchpanzer*** *had to blow off their rubber devices, which then must be replaced before they could return submerged. It should also be stated that one of the two returning* ***Tauchpanzer*** *had a fist-sized hole in the upper hull caused by an anti-tank gun shell that was expediently sealed with wood splints to prevent water entering.*

The front of a **Pz.Kpfw.IV Ausf.D Tauchpanzer** belonging to the **12.Kompanie/III.Abteilung/Panzer-Regiment 6** of the **3.Panzer-Division.** The cover for submerged crossings is in place on the hull machine gun. (KHM)

A **Pz.Bef.Wg. Ausf.H** of the **18.Panzer-Division** that was not modified for submerged crossing. The **Pz.Bef.Wg.** had a dummy gun and fake gun mantlet made from aluminum covering the turret front. (Koenig)

*It was managed after many attempts to retrieve one **Tauchpanzer** over the steep bank by pulling with three heavy Panzers and one half-track. For the second, an upstream sandbank could be found on the near bank upon which the **Tauchpanzer** could be retrieved after a 200 meter submerged drive.*

*A scouting patrol that was a little less rushed and defended by infantry could have considerably eased the employment of this **Tauchpanzer** platoon.*

*It is a requirement that when scouting along a section of river for a large employment of a **Tauchpanzer-Abteilung**, plenty of time must be available and it must be scouted by members of the **Tauchpanzer-Abteilung**. In the opinion of the regiment, submerged crossing by **Tauchpanzer** without building up an infantry screen on the far bank appears to be totally unacceptable from both a tactical and technical basis.*

More smoke must be employed when combating anti-tank guns and artillery. If the Panzers have advanced so close to the anti-tank guns or artillery that they can be engaged by direct fire from the artillery, it is purposeless to charge the firing guns. Instead, under cover of the smoke screen, a favorable position should be found from which to fight the enemy artillery, if possible a reverse slope.

The Panzers must relentlessly charge and destroy any retreating guns that are suddenly encountered to prevent them from getting into firing position. The Russians locate tanks in houses and sheds, let the unaware opponent advance to a short range, and then open fire. Therefore it is absolutely necessary to open fire at long range and set fire to houses and sheds that are located on the edge of villages and beside roads.

To the north, **Panzer-Gruppe 3** had crossed the Duna River on the north of Witebsk on 4 July 1941 and advanced east. The combat report of the **2.Kompanie/Panzer-Regiment 27** relates the fighting in this area on 7 July 1941:

*The **2.Kompanie/Panzer-Regiment 27** was ordered to attack along the Duna in the direction of Peremerka. The company pulled out after orders had been distributed. The order of march was: **1.Zug** (Leutnant Mathieu), **Kompanie-Trupp**, attached **Pz.Kpfw.IV Zug**, **2.Zug**, **3.Zug**. The point quickly reached Myck and made contact with the motorcycle infantry located there. Early in the morning, they had been attacked by superior enemy forces at Point M and had to retreat. Their situation was desperate. Peremerka could not be held.*

*The company commander of the **2.Kompanie/Panzer-Regiment 27** decided to advance with the motorized infantry toward Peremerka and again occupy the cleared area. The **Panzer-Kompanie** started to attack with the same march order. The first enemy fire already occurred on the trail one kilometer southeast of Myck. Further penetration was made to the bend in the Duna River. There the **Pz.Kpfw.IV** went*

into position to provide fire cover. The terrain fell off at gentle slope then rose to a height of 800 meters and a large half circle of forest enclosed the area. There was a lot of brush in the field in between.

Leutnant Mathieu, the commander of the lead platoon, quickly captured the bridge by destroying many machine guns and mortars. He opened the way for the ***Panzer-Kompanie*** *to quickly develop the battle. As the point crossed the bridge closely behind the bend in the trail, the lead* ***Pz.Kpfw.38(t)*** *commanded by Leutnant Mathieu was hit by an anti-tank gun and fell out. Two of the crew were severely wounded. The anti-tank gun was immediately knocked out of action by the following* ***Pz.Kpfw.38(t)*** *commanded by Feldwebel Stuppy. The third* ***Pz.Kpfw.38(t)*** *was also hit by an anti-tank gun. Unteroffizier Umbach was killed and two of the crew severely wounded. Feldwebel Stuppy identified this anti-tank gun and knocked it out of action. The rest of the Panzers of the lead platoon received heavy fire. They reported the loss of the lead Panzer to the company commander.* ***Pz.Kpfw.38(t)*** *tactical number 224 was also hit and caught fire. Unteroffizier Buerstinghaus in this Panzer was severely wounded. While the crew extinguished the fire, a Major from the motorcycle infantry came up and told Gefreiter Markus: "Boys, I'm glad that you came, or we would all have been lost."*

As the company commander in his ***Pz.Kpfw.38(t)*** *tactical number 201 turned left to cross the bridge, the Panzer slid sideways into a water-filled hole. Feldwebel Ecken in a* ***Pz.Kpfw.II*** *provided effective fire cover as the crew dismounted. The battle was further directed from* ***Pz.Kpfw.38(t)*** *tactical number 202. In the meantime the* ***2.Zug*** *commanded by Unteroffizier Buerschgens had taken the lead. He drove forward toward the forest often engaged in action. In the meantime, the remaining elements of the* ***1.Zug*** *had again entered the battle. Feldwebel Stuppy carried the severely wounded away from the battlefield on his Panzer.*

While the ***2.Zug*** *was engaged in a firefight with anti-tank guns and machine guns, the* ***3.Zug*** *under Feldwebel Doelcher was employed in defending the flank. Hardly had he taken up position when the enemy in company strength attacked the left flank. Feldwebel Doelcher and his platoon shot up the enemy company. Upon orders from the company commander all bushes were covered with bursts of machine gun fire. Overall Russians came out with their hands raised. They were sent to the rear in the hands of the motorcycle infantry. The dismounted crew from the company commander's Panzer had a short firefight with Russians in the area and so took 20 men prisoner.*

Soon dark shadows that appeared in the forest were immediately identified as enemy tanks. Unteroffiziere Buerschgens, Reppert, and Kowalski shot up four enemy tanks, of which three were 10 to 12 tons and one small swimming tank. In the interim, at close range all platoons had knocked out of action many machine gun nests, heavy 8 cm mortars, and light mortars. The Russians attempts to knock out our Panzers with balled explosives did not succeed.

The artillery fire increased in intensity. Enemy aircraft also joined in the battle without effect. The ***Panzer-Kompanie*** *did not let itself be disconcerted. They continued to engage ground targets. In the meantime the medium platoon with* ***Pz.Kpfw.IVs*** *under the command of Leutnant Giebelthat had also been pulled in and fought exceptionally well.*

In the interim, the rest of the ***Abteilung*** *came up on the trail through Saborge. The attack itself couldn't be started because orders precluded the unit from entering the forest. Due to the heavy artillery fire, the Panzers were soon ordered by radio to pull back over the bridge. Soon thereafter, we returned back to the rest area.*

Several attempts during the night and the next evening failed to retrieve the ***Pz.Kpfw.38(t)*** *tactical number 201. A new attempt finally succeeded during the night of 10 July. The recovery crew had to survive hefty close combat with the Russians and took an additional 12 prisoners.*

Panzer-Gruppe 2 was occupied in reducing pockets of enemy resistance by Smolensk. As reported by **Panzer-Regiment 6**, the Russian attacked their rear elements at Unjetscha on 19 August 1941:

On 19 August 1941, toward 0530 hours, strong Russian forces attacked the city of Unjetscha from the northwest and attempted to cross the bridge and push into the city with six heavy T34 tanks. Several Panzers of the ***I.*** *and* ***II.Abteilung*** *were in the city awaiting repair by the* ***Werkstatt-Kompanie****. Leutnant Bueschen drove with two* ***Pz.Kpfw.IIIs*** *(Tactical Number 101 and 731) to the northwest exit of the city to repulse the enemy tank attack in front of the bridge.* ***Pz.Kpfw.IV*** *(Tactical Number 412) was already in firing position there and had immobilized a heavy Russian tank by a hit in the road wheel. The crew jumped out and fled.* ***Pz.Kpfw.IV*** *(412) was hit by another attacking Russian tank. Two of there were immobilized about 70 meters in front of the bridge by* ***Pz.Kpfw.III*** *(101). Their crews also abandoned the tanks. In spite of heavy fire, a further tank managed to get over the bridge and into the city.* ***Pz.Kpfw.III*** *(731) drove after him with Leutnant Stoerk on board. They caught up with the tank at the railway embankment, immobilized the tank, and set the tank on fire by throwing balled explosives into the motor compartment. The crew, including a first lieutenant, was captured. When captured, the first lieutenant said that the attack had been conducted with 15 tanks. The assault troop under the command of Leutnant Stoerk and the crew of* ***Pz.Kpfw.III*** *(731) had to report to and were commended by the commanding general.*

In addition to the Russian T34 tanks, the Panzers had to deal with the KW-1 and KW-2 heavy tanks. One such encounter was recorded by **Panzer-Regiment 29** of the **12.Panzer-Division** in their combat report for 30 August 1941:

On 30 August 1941 at about 1010 hours, the regiment commander sent the ***I.Abteilung*** *with the assignment to set*

up a defensive position in the area of the Popowka train station to shield the right flank of the division. The regiment commander sent a reconnaissance patrol toward the area of Woskressenskoje. The ***Abteilung*** *left at 1030 hours with a strength of 2* ***Pz.Kpfw.II****, 18* ***Pz.Kpfw.38(t)****, and 5* ***Pz.Kpfw.IV****.*

The reconnaissance patrol reported the following picture. Russian infantry were located in the area of the Popowka train station. German motorized infantry in the area of the train station reported that a heavy Russian tank had advanced on the road from Tschernikowo toward Hp.

On the basis of the reconnaissance report, the ***I.Abteilung*** *commander sent a company reinforced with two* ***Pz.Kpfw.IVs*** *toward the Popowka train station. In cooperation with the motorized infantry located at the train station, the company was given the assignment to advance to the east edge of the village and take up defensive positions. The* ***leichte Zug*** *of the* ***Abteilung*** *supported by a* ***Pz.Kpfw.IV*** *was sent to reconnoitre toward Hp and gain contact with the motorized infantry located there. No enemy activity was encountered.*

The opponent in battalion strength holding the area east of the rail line was thrown back toward Tschernikowo having suffered heavy losses. At 1200 hours, four heavy enemy tanks (52 tons) appeared from the south side of Tschernikowo and fired at the ***Abteilung*** *from long range. A short time later, two additional enemy tanks appeared on the rail line about one kilometer north east of the Popowka train station and charged into the firefight. Our gun fire remained totally ineffective. The opponent destroyed a* ***Pz.Kpfw.38(t)*** *and a* ***Pz.Kpfw.IV****. After this firefight, the tanks pulled back to Tschernikowo. After a short time they again fired at the* ***Abteilung****. By the concentrated fire of the entire* ***Abteilung****, the tanks pulled back behind the houses in Tschernikowo. A scouting patrol of the* ***leichte Zug****, carried out partially on foot, reported that the tanks and elements of Russian infantry were still in the eastern part of Tschernikowo.*

Our own losses were one dead, three wounded, a ***Pz.Kpfw.IV*** *totally destroyed, and a* ***Pz.Kpfw.38(t)*** *damaged. A heavy Russian 52 ton tank was captured.*

Instead of continuing to drive toward Moscow, in late August **Panzer-Gruppe 2** was sent south toward Kiew. A large enemy force was cut off near Kiew on 16 September when **Panzer-Gruppe 2** met up with **Panzer-Gruppe 1** advancing from the south. Reduction of this large pocket took until 26 September 1941.

The status of the **Panzer-Divisions** on the Eastern Front was assessed in an **OKH** report dated 15 September 1941. The operational status of each **Panzer-Division** was reported as shown on the chart. Up to this time, comparatively few replacements had been sent to the Panzer units. On 12 September 1941, there were 35 **Pz.Kpfw.38(t)**, 71 **Pz.Kpfw.III**, and 20 **Pz.Kpfw.IV** in the **OKH Reserve Sagan** available in Orscha/Duenaburg ready to be issued as replacements. **OKH** also requested the release of the 56 **Pz.Kpfw.38(t)**, 95 **Pz.Kpfw.III**, and 30 **Pz.Kpfw.IV** for replacements that were currently available in the ordnance depots in Magdeburg and Wien. These replacements actually arrived at the **Panzer-Regiments** during September and October 1941. In addition, the **2.** and **5.Panzer-Divisions** had been refurbished and sent to the front. This brought the total number of **Panzer-Divisions** on the Eastern Front up to 19.

The forces were reorganized as shown in the Order of Battle for 2 October 1941. Under the command of **Heeres-Gruppe Mitte**, three of the four **Panzer-Gruppen** were again directing their attacks toward Moscow. **Panzer-Gruppe 3** and **4** attacked directly east. **Panzer-Armee 2** (renamed from **Panzer-Gruppe 2**) under Guderian advanced northeast over Orel toward Moscow. After taking Orel, on 22 October 1941 the commander of the **4.Panzer-Division**, Freiherr von Langermann, wrote the following report on fighting heavy Russian tanks:

In its battles, the ***4.Panzer-Division*** *frequently encounters heavy Russian tanks. At first only a few appeared and could be driven off by concentrated artillery fire or bypassed. In a few especially favorable cases single heavy tanks were destroyed by direct hits from artillery.*

After taking Orel, the Russians employed their heavy tanks en masse for the first time. In several engagements it came to very hard tank battles, because the Russian tanks no longer let themselves to driven off by artillery fire.

For the first time during the campaign in the East, in these battles the absolute superiority of the Russian 26 ton and 52 ton tanks over our ***Pz.Kpfw.III*** *and* ***IV*** *was felt.*

The Russian tanks usually formed in a half circle, open fire with their 7.62 cm guns on our Panzers already at a range of 1000 meters and deliver enormous penetration energy with high accuracy.

Our ***5 cm Kw.K.*** *tank guns can achieve penetrations only on vulnerable locations under very special favorable conditions at very close ranges under 50 meters. Our Panzers are already knocked out at a range of several hundred meters. Many times our Panzers were split open or the complete commander's cupola of the* ***Pz.Kpfw.III*** *and* ***IV*** *flew off from one frontal hit. This is proof that the armor is insufficient, the mounting for the commander's cupola on our Panzers is deficient, and the accuracy and penetration ability of the Russian 7.62 cm tank guns are high.*

In addition to the superior weapons effectiveness and stronger armor, the 26 ton Christie tank (T 34) is faster, more maneuverable, and the turret traverse mechanism clearly superior. His wide tracks allow wading of fords that can't be crossed by our Panzers. The ground pressure is somewhat better than ours, so that in spite of the larger weight of the Russian tank the same bridges can be crossed as by our Panzers.

Also the exceptional diesel motor of the Russians has earned attention. During the advance from Glnebow to Minsk, there weren't any Russian tanks that had broken down due to mechanical deficiencies. In comparison, about 20 Panzers

OPERATIONAL STATUS REPORTS FOR THE PANZER DIVISIONS

1.Panzer-Division on 10 September 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	11	43	71	20	11
Replacements:	None				
Operational:	9	28	43	10	9
Repairable:	1	7	13	3	0
Total Loss:	1	8	15	7	2

3.Panzer-Division on 4 September 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	13	59	110	32	15
Replacements:	None				
Operational:	5	30	6	5	8
Repairable:	5	13	69	17	3
Total Loss:	3	16	35	12	4

4.Panzer-Division on 9 September 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	10	51	105	20	26
Replacements:	None				
Operational:	8	21	24	11	19
Repairable:	0	13	59	5	2
Total Loss:	2	17	22	4	5

6.Panzer-Division on 10 September 1941

	Pz.I	Pz.II	Pz.35t	Pz.IV	Pz.Bef.
At Start :	11	47	155	30	13
Replacements:			2		
Operational:	9	38	102	21	11
Repairable:	0	4	8	3	0
Total Loss:	2	5	47	6	2

7.Panzer-Division on 6 September 1941

	Pz.I	Pz.II	Pz.38t	Pz.IV	Pz.Bef.
At Start :	11	55	167	30	15
Replacements:			21		
Operational:	9	37	62	14	8
Repairable:	1	7	67	7	5
Total Loss:	1	11	59	9	2

8.Panzer-Division on 10 September 1941

	Pz.I	Pz.II	Pz.38t	Pz.IV	Pz.Bef.
At Start :	11	49	118	30	15
Replacements:	None				
Operational:	8	36	78	17	15
Repairable:	0	6	20	7	0
Total Loss:	3	7	20	6	0

9.Panzer-Division on 5 September 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	19	32	71	20	12
Replacements:			2	1	
Operational:	4	14	31	6	7
Repairable:	9	16	28	12	2
Total Loss:	6	2	14	3	3

10.Panzer-Division on 4 September 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	11	47	105	20	17
Replacements:	None				
Operational:	9	38	75	18	13
Repairable:	2	6	11	1	2
Total Loss:	0	3	19	1	2

11.Panzer-Division on 5 September 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	11	44	71	20	20
Replacements:			7	2	
Operational:	2	18	21	4	15
Repairable:	8	16	33	14	4
Total Loss:	1	10	24	4	1

12.Panzer-Division on 26 August 1941

	Pz.I	Pz.II	Pz.38t	Pz.IV	Pz.Bef.
At Start :	51	34	109	30	8
Replacements:	None		7		
Operational:	7	25	42	14	8
Repairable:	2	5	20	8	0
Total Loss:	42	4	47	8	0

OPERATIONAL STATUS REPORTS FOR THE PANZER DIVISIONS

13.Panzer-Division on 28 August 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	8	45	71	20	13
Replacements:			2	1	
Operational:	3	35	37	9	9
Repairable:	1	5	26	2	0
Total Loss:	4	5	10	10	4

14.Panzer-Division on 6 September 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	11	45	71	20	11
Replacements:			4	1	
Operational:	5	35	49	15	8
Repairable:	6	6	9	0	3
Total Loss:	0	4	17	6	0

16.Panzer-Division on 22 August 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	12	44	71	20	10
Replacements:	None				
Operational:	4	18	26	9	4
Repairable:	4	10	9	1	2
Total Loss:	4	16	36	10	4

17.Panzer-Division on 10 September 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	22	45	106	30	13
Replacements:	None				
Operational:	4	19	20	4	5
Repairable:	0	12	47	15	2
Total Loss:	2	14	39	11	6

18.Panzer-Division on 9 September 1941

	Pz.I	Pz.II	Pz.III	Pz.IV	Pz.Bef.
At Start :	17	50	114	36	12
Replacements:			20	5	
Operational:	12	27	30	16	8
Repairable:	2	12	83	15	2
Total Loss:	3	11	21	10	2

19.Panzer-Division on 25 August 1941

	Pz.I	Pz.II	Pz.38t	Pz.IV	Pz.Bef.
At Start :	53	35	110	30	11
Replacements:	None				
Operational:	6	20	57	9	10
Repairable:	0	4	32	11	0
Total Loss:	47	11	21	10	1

20.Panzer-Division on 25 August 1941

	Pz.I	Pz.II	Pz.38t	Pz.IV	Pz.Bef.
At Start :	55	31	121	31	2
Replacements:			14		
Operational:	4	19	52	11	2
Repairable:	0	4	46	12	0
Total Loss:	51	8	37	8	0

ORDER OF BATTLE - 2 OCTOBER 1941

Heeresgruppe Nord
- A.O.K.16
  - XXIX.Pz.K.
    - 8.Pz.Div.
      - Pz.Rgt.10
    - 12.Pz.Div.
      - Pz.Rgt.29

Heeresgruppe Mitte
- Pz.A.O.K.2
  - XXIV.Pz.K.
    - 3.Pz.Div.
      - Pz.Rgt.6
    - 4.Pz.Div.
      - Pz.Rgt.35
  - XLVII.Pz.K.
    - 17.Pz.Div.
      - Pz.Rgt.39
    - 18.Pz.Div.
      - Pz.Rgt.18
  - XXXX.A.K.
    - 2.Pz.Div.
      - Pz.Rgt.3
    - 5.Pz.Div.
      - Pz.Rgt.31
    - 10.Pz.Div.
      - Pz.Rgt.7
  - LVII.Pz.K.
    - 11.Pz.Div.
      - Pz.Rgt.15
    - 20.Pz.Div.
      - Pz.Rgt.21
  - Pz.Gr.4
    - XXXIX.Pz.K.
      - 14.Pz.Div.
        - Pz.Rgt.36
      - 16.Pz.Div.
        - Pz.Rgt.2
    - III.Pz.K.
      - 13.Pz.Div.
        - Pz.Rgt.4
  - Pz.Gr.3
    - XLVIII.Pz.K.
      - 9.Pz.Div.
        - Pz.Rgt.33
    - LVI.Pz.K.
      - 6.Pz.Div.
        - Pz.Rgt.11
      - 7.Pz.Div.
        - Pz.Rgt.25
    - XLI.A.K.
      - 1.Pz.Div.
        - Pz.Rgt.1
      - 19.Pz.Div.
        - Pz.Rgt.27

Heeresgruppe Süd
- Pz.Gr.1
  - XIV.Pz.K.
    - 14.Pz.Div.
      - Pz.Rgt.36
    - 16.Pz.Div.
      - Pz.Rgt.2
  - III.Pz.K.
    - 13.Pz.Div.
      - Pz.Rgt.4

*alone from **Panzer-Regiment 35** were left lying on the same stretch because of mechanical problems. However, it should be recognized that the Russian tanks were brand new.*

A specific advantage of our Panzers lies in the better vision capability associated with the commander's cupola.

*The available facts and, above all, the impression that the Russians are aware of the technical superiority of their tank force must work out in time to be detrimental to our **Panzertruppen**. The previous attack energy and spirit will be weakened and lost due to a feeling of inferiority. The Panzer crews know that they can already be knocked out at long range by enemy tanks and that they can achieve only a very minimal effect on enemy tanks in spite of the availability of special ammunition fired at close range.*

*Combating the Russian tanks with the **8.8 cm Flak** or the 10 cm guns can never by themselves be sufficient. Both guns are ponderous in comparison to the fast tanks and in most cases are already spotted, taken under fire and destroyed as they try to get into firing position. Alone in the one tank engagement between Orel and Mzensk, two **8.8 cm Flak** guns and a 10 cm gun (all of the heavy defensive weapons that were employed) were shot up and overrun. In addition these big as barn door, unarmored guns present much too large and easily acquired targets.*

From these experiences, our Panzer forces must again be perfected in the shortest time so that the German soldier of today doesn't face the heavy tanks with the same primitive methods as in 1917 and 1918.

Based on the fact that the destroyed Christie tanks were all new production, it follows that the Russians, knowing their superiority, have begun the mass production of these heavy tanks and by the Spring of 1942 can be expected to have a large number available for employment.

To combat these heavy Russian tanks, the following detailed proposals are submitted:

1.) Acquire offensive weapons for use against heavy tanks:

*a. Foregoing modifications, for the purpose of accelerating improvement, immediately produce copies of the Russian 26 ton tank and employ intact captured 26 ton and 52 ton tanks. A company is needed for each **Panzer-Regiment**.*

*b. Install the Russian 7.62 cm tank gun in the **Pz.Kpfw.IV**, even if it is necessary to give up the commander, strengthened armor, and the hull machine gun mount.*

*c. Bring out a 10 cm self-propelled anti-tank gun. At least six are needed for each **Panzer-Regiment**.*

d. Acquire a new type of ammunition with many times the penetration ability as before.

*e. As an immediate emergency measure, until the other measures can be accomplished, install the 5 cm anti-tank gun in the **Pz.Kpfw.III**, even if this increases the weight load at its front.*

2.) Acquire defensive weapons for use against heavy tanks:

a. 10 cm anti-tank guns either towed or self-propelled. Quickly getting into action in the field is very important, with the lowest possible firing height. At least two per anti-tank company are necessary.

b. Acquire a new type of improved ammunition.

*c. Get rid of the **3.7 cm Pak** by increasing the number of **5 cm Pak** or employing the Russian 7.62 cm anti-tank gun. (The **3.7 cm Pak** has proven itself useful as a small infantry gun.)*

d. Acquire a stronger mine that will knock out the 52 ton tank. For example, four German mines were not sufficient to knock out a 52 ton tank.

The troops know that these proposals can't be accomplished immediately, especially the acquisition of a new type of Panzer. But they are convinced that as a result of their experience and proposals, suitable weapons must be acquired within a short time to achieve technical superiority for destroying heavy enemy tanks.

As shown in the graphs on the operational status of several representative **Panzer-Regiments**, the number of operational Panzers steadily declined until most **Panzer-Regiments** could barely field the equivalent of a **Panzer-Kompanie**. On 31 October, the **6.Panzer-Division** reported their operational status as 15 **Pz.Kpfw.II**, 34 **Pz.Kpfw.35(t)**, 10 **Pz.Kpfw.IV**, and 7 **Pz.Bef.Wg.** operational and an additional 19 **Pz.Kpfw.II**, 41 **Pz.Kpfw.35(t)**, 13 **Pz.Kpfw.IV**, and 3 **Pz.Bef.Wg.** requiring repair. In his report the commander pointed out that:

*The average distance driven by our Panzers was 11,500 kilometers for the **Pz.Kpfw.II**, 12,500 for the **Pz.Kpfw.35(t)**, 11,000 for the **Pz.Kpfw.IV**, and 3,200 for the **gr.Pz.Bef.Wg.** The special situation in regard to repair of the **Pz.Kpfw.35(t)** is well known. It is indeed deemed necessary to point out that repairs can only be accomplished by cannibalizing other Panzers because there are no longer any spare parts for the **Pz.Kpfw.35(t)**. This means that after retrieval of the Panzers that are scattered around the terrain, a maximum of 10 can actually be repaired out of the 41 **Pz.Kpfw.35(t)** reported as needing repair. The **Pz.Kpfw.35(t)** can no longer be rebuilt. All of the components are worn out. To be practical, maybe the armored hulls are still useable.*

On 30 November, **Panzer-Regiment 11** was no longer in possession of a single operational **Pz.Kpfw.35(t)** or **Pz.Kpfw.IV**.

Attempts to take Moscow had completely stalled by 5/6 December 1941. At the end of November, **Panzer-Gruppe 1** was forced to abandon Rostow. Russian attacks forced the German forces to retreat and set up defensive positions for the winter. The Panzer status reported by the 16 **Panzer-Divisions** in **Heeres-Gruppen Nord** and **Mitte** on 22 December 1941 amounted to:

	Pz.II	**Pz.38t**	**Pz.III**	**Pz.IV**
Operational:	66	84	180	75
Repairable:	188	202	254	136
Total:	254	286	434	211

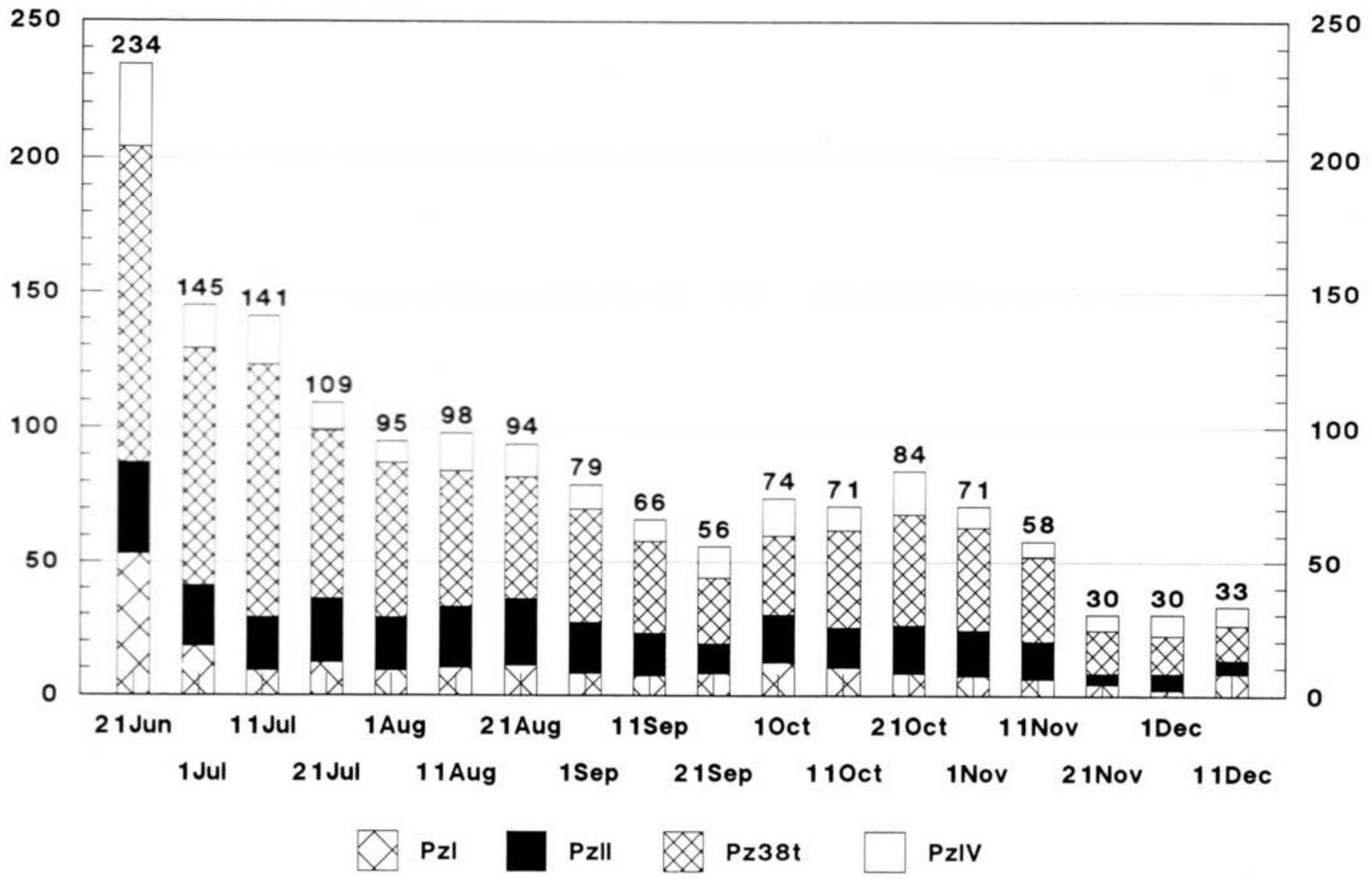
By 31 December 1941, 428 **Pz.Kpfw.I**, 424 **Pz.Kpfw.II**, 796 **Pz.Kpfw.35(t)** and **38(t)**, 660 **Pz.Kpfw.III**, 348 **Pz.Kpfw.IV**, and 79 **Pz.Bef.Wg.** had been reported as either total writeoffs or no longer repairable by field workshops.

ABOVE RIGHT: A **Pz.Kpfw.II Ausf.F** of **Panzer-Regiment 31** of the **5.Panzer-Division** has apparently backed over a mine, breaking the track and losing the last roadwheel and leaf spring bundle. (WR)

BELOW: A **Pz.Bef.Wg. Ausf.E** at the head of a column is followed by a **Pz.Kpfw.III Ausf.H**, two **Pz.Kpfw.III Ausf.Js**, and a **Pz.Kpfw.IV**. The photo was taken on 4 October 1941 at the start of the offensive to take Moscow. (WS)

OPERATIONAL PANZERS IN THE 12.PANZER-DIVISION

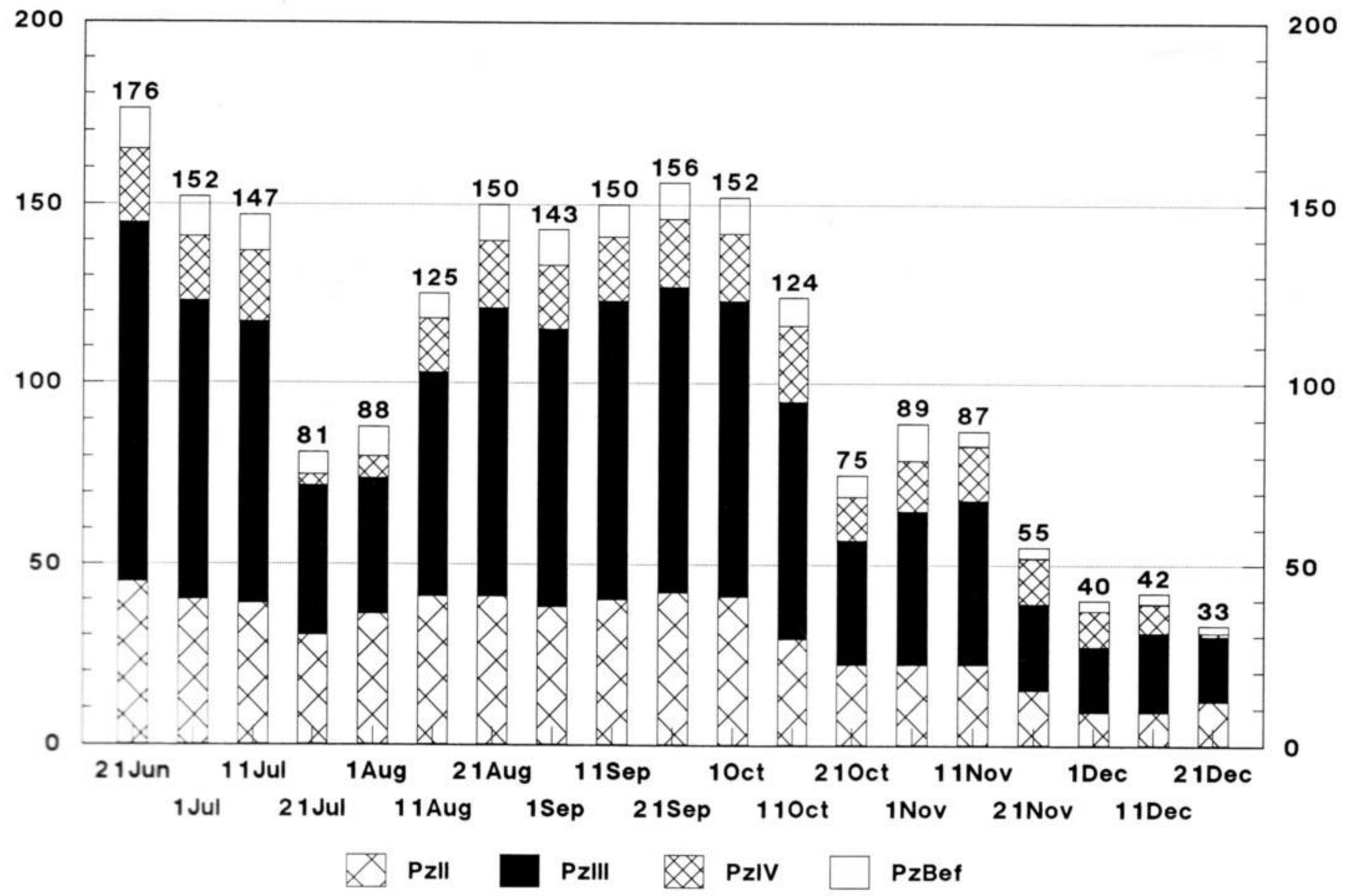
21 JUNE TO 11 DECEMBER 1941



Replacements: 7 Pz38t issued by end of August 1941
Total writeoffs by 26 Aug 41: 42 PzI, 4 PzII, 47 Pz38t, 8 PzIV
Replacements: 30 Pz38t and 6 PzIV issued on 18 September 1941
Total writeoffs by 11 Nov 41: 43 PzI, 9 PzII, 70 Pz38t, 11 PzIV

OPERATIONAL PANZERS IN PANZER-REGIMENT 7

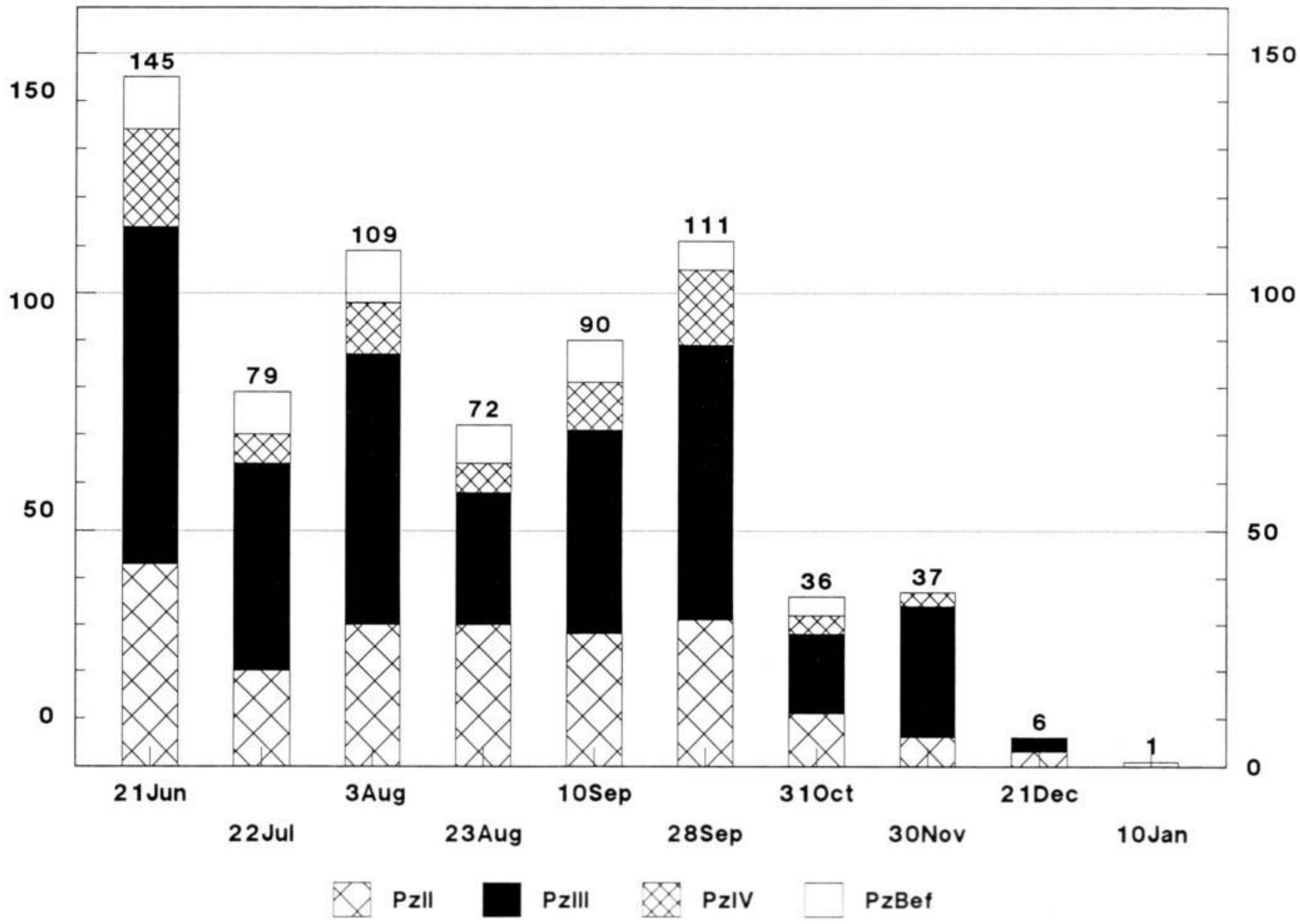
21 JUNE TO 21 DECEMBER 1941



Total writeoffs by 4 Sep 41: 3 PzII, 19 PzIII, 1 PzIV, 2 PzBef
Replacements: 3 Pz.Kpfw.IV issued on 18 September 1941
Total writeoffs by 18 Nov 41: 15 PzII, 49 PzIII, 6 PzIV, 8 PzBef

OPERATIONAL PANZERS IN PANZER-REGIMENT 1

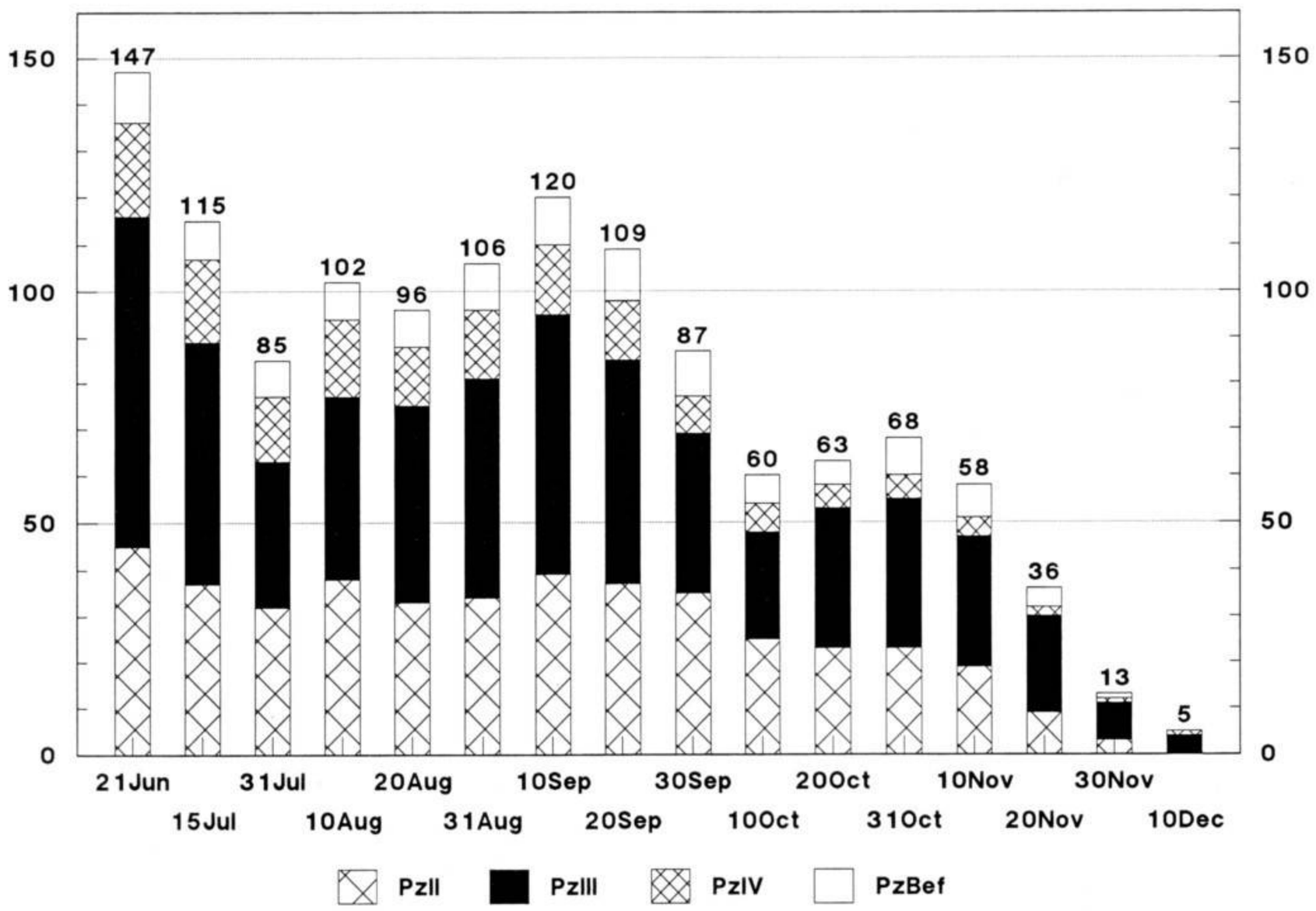
21 JUNE 1941 TO 10 JANUARY 1942



Total writeoffs by 4 Sep 41: 8 PzII, 15 PzIII, 7 PzIV, 2 PzBef
Replacements: 5 PzIII and 4 PzIV received by 28 Sep 41
Total writeoffs by 31 Oct 41: 9 PzII, 29 PzIII, 9 PzIV, 2 PzBef

OPERATIONAL PANZERS IN PANZER-REGIMENT 36

21 JUNE TO 10 DECEMBER 1941

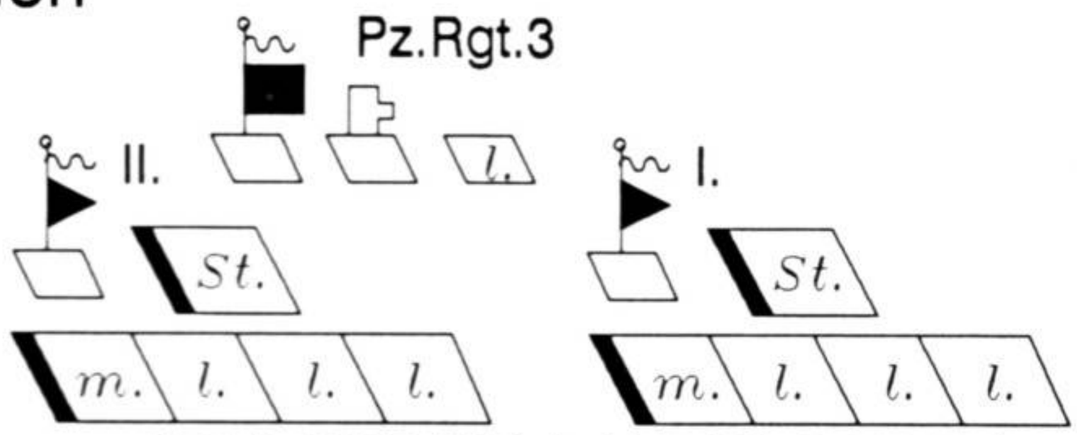


Replacements: 4 PzIII and 1 PzIV arrived on 29 Jul 41
Total writeoffs by 6 Sep 41: 4 PzII, 17 PzIII, 6 PzIV
Replacements: 9 PzIII and 2 PzIV arrived on 28 Sep 41
Total writeoffs by 31 Oct 41: 6 PzII, 28 PzIII, 12 PzIV

PANZER UNITS SENT TO THE EASTERN FRONT AFTER THE START OF THE CAMPAIGN

2.Panzer-Division

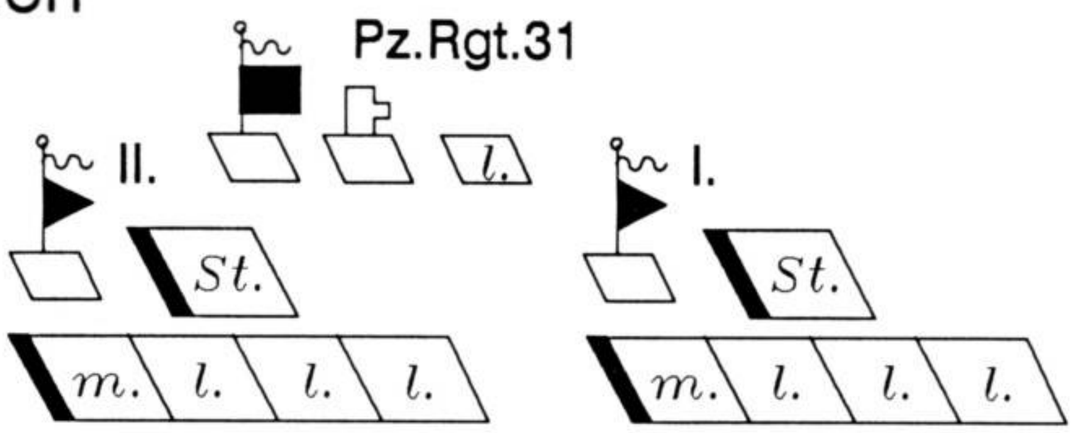
(September 1941)



63 PzII, 105 PzIII(5kz), 20 PzIV(kz), 6 PzBef

5.Panzer-Division

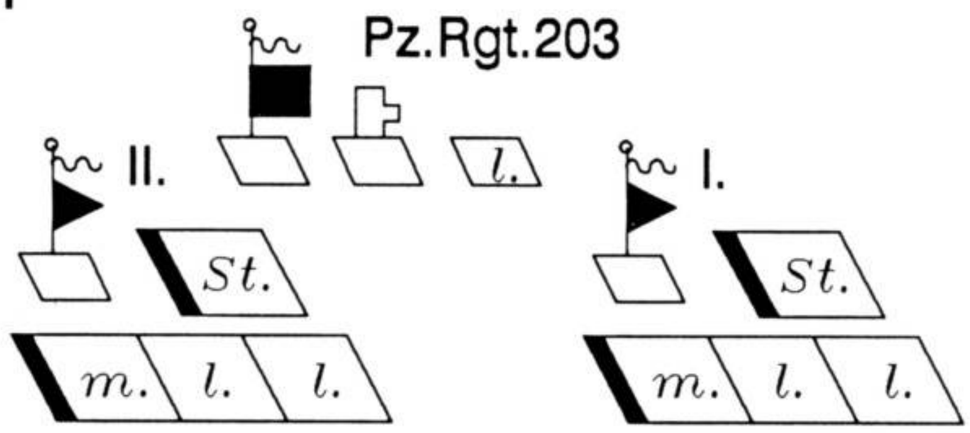
(September 1941)



55 PzII, 105 PzIII(5kz), 20 PzIV(kz), 6 PzBef

Heerestruppen

(December 1941)

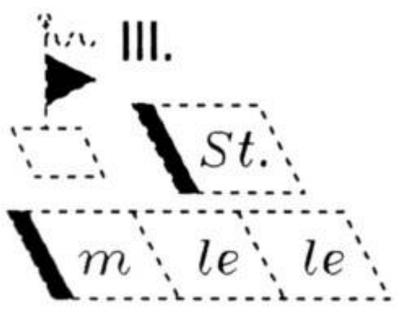


45 PzII, 71 PzIII(5kz), 20 PzIV(kz), 6 PzBef

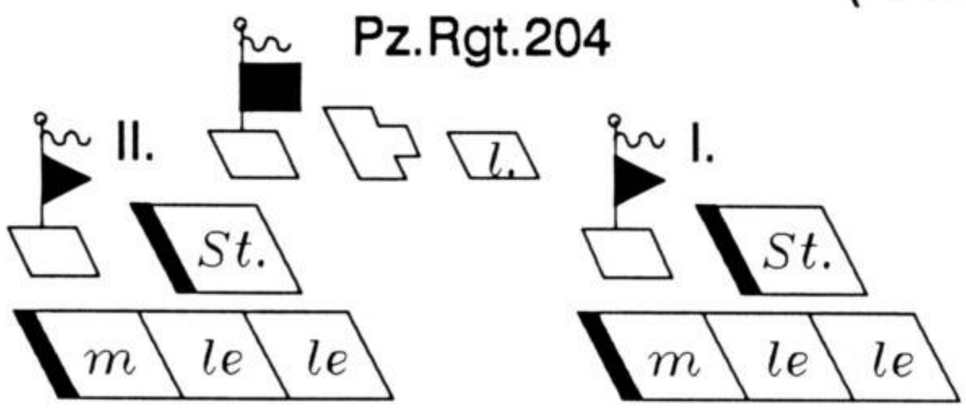
22.Panzer-Division

(February 1942)

(Formed and sent later)



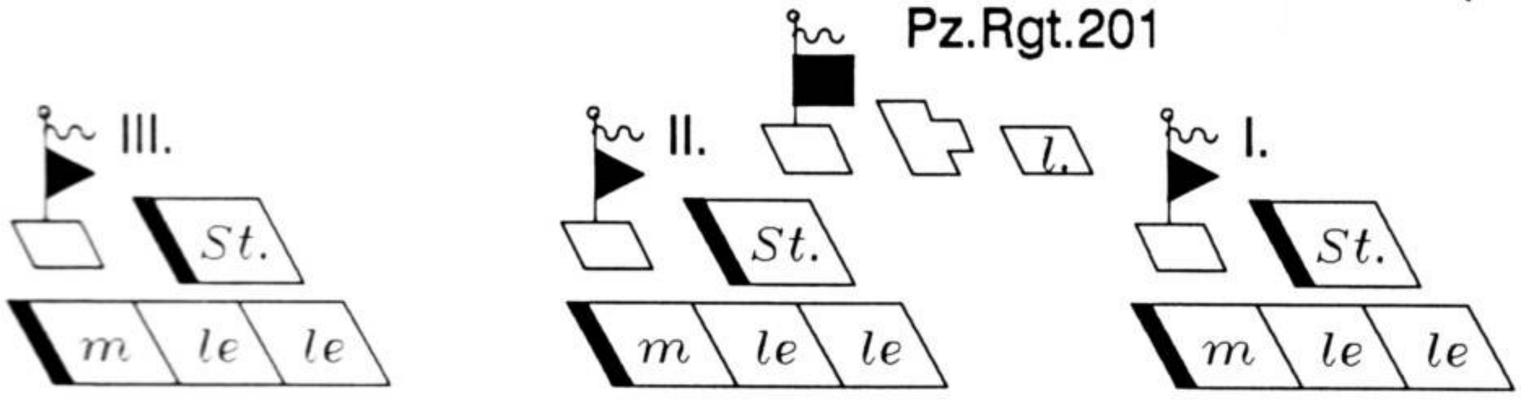
15 PzII, 37 Pz38t



45 PzII, 77 Pz38t, 20 PzIV(kz)

23.Panzer-Division

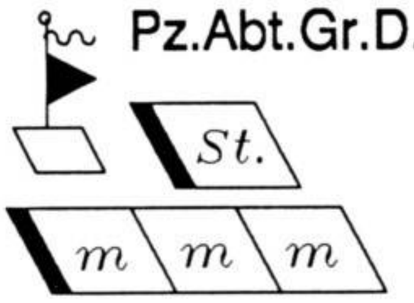
(March 1942)



34 PzII, 112 PzIII(5kz & 5lg), 32 PzIV(kz), 3 PzBef

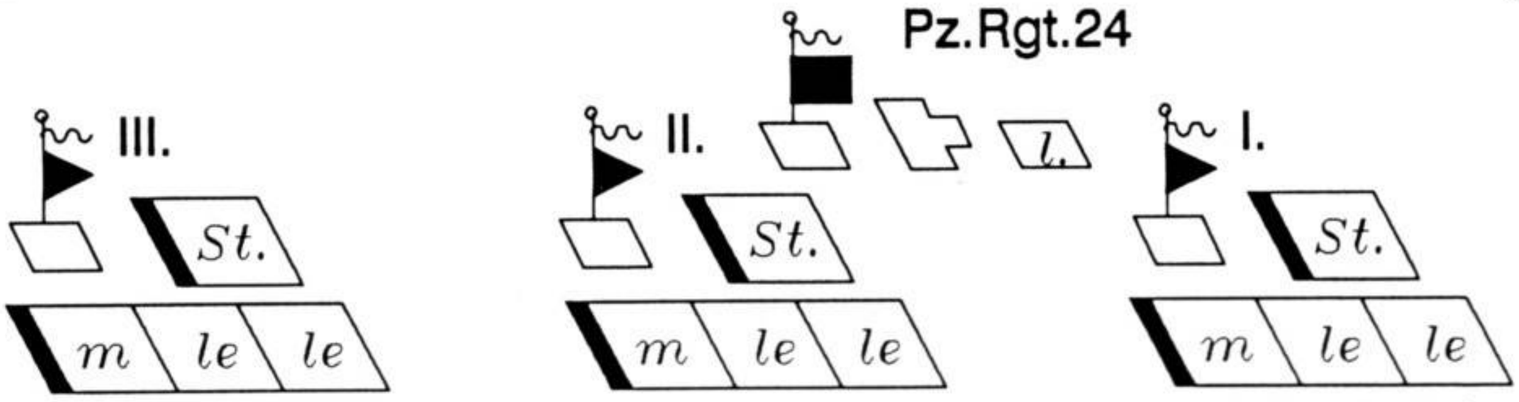
PANZER UNITS SENT TO THE EASTERN FRONT AFTER THE START OF THE CAMPAIGN

Infanterie-Division Grossdeutschland (May 1942)



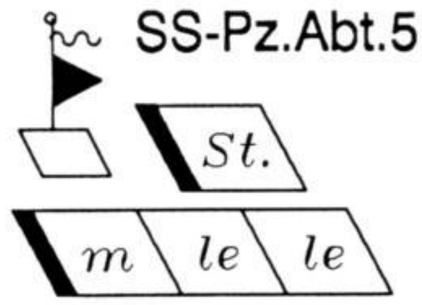
12 PzII, 2 PzIII(5kz), 18 PzIV(kz), 12 PzIV(lg), 1 PzBef

24.Panzer-Division (May 1942)



32 PzII, 55 PzIII(5kz), 56 PzIII(5lg), 20 PzIV(kz), 12 PzIV(lg), 7 PzBef

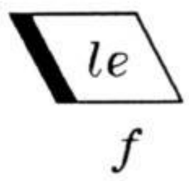
SS-Division (mot) Wiking (June 1942)



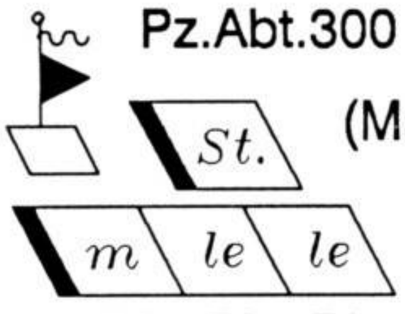
12 PzII, 12 PzIII(5kz), 24 PzIII(5lg), 4 PzIV(kz), 1 PzBef

Heerestruppen

Pz.Kp.223 (April 1942)



(Report not found)



(May 1942)
31 PzIII

1.Kp./Pz.Abt.z.b.V.66 (August 1942)

7 VK1601, 7 VK1801, 15 PzIV(lg)

2.Kp./Pz.Abt.z.b.V.66 (August 1942)

(Report not found)

1.Kp./s.Pz.Abt.502 (Aug/Sep42)

9 PzIII(5lg), 9 PzIII(75kz), 9 PzVI

19

Reorganization - July 1941 to October 1942

BEUTE-PANZER UNITS - Additional units were outfitted with **Beute-Panzer** captured from the French. On 22 June 1941, **Panzer-Kompanie Führungs Gruppe z.b.V.12** was formed and assigned command over independent **Beute-Panzer** platoons. **Panzer-Brigade 101** with **Panzer-Regiment 203** and **Panzer-Regiment 204** were all created on 5 July 1941. **Panzer-Kompanie Paris** was created as a **Beute-Panzer** company on 8 July 1941 and organized under its own **K.St.N.1171(P)** dated 5 September 1941. On 10 July 1941, **Panzer-Abteilung 212** was formed on Crete from six **Beute-Panzer-Zuegen** and the **5.Kompanie/Panzer-Regiment 31** with German Panzers.

By 27 July 1941, **Panzer-Abteilung (F) 102** was ordered to be disbanded after aiding in capturing border fortifications on the Eastern Front. On 17 November 1941, **Panzer-Abteilung 213** was created with two **schwere Beute-Panzer-Kompanien**, outfitted with 36 **Pz.Kpfw.B2** of which 10 were **Pz.Kpfw.B2 (FI)**, and then stationed on the Channel Islands. On 8 January 1942, **Panzer-Abteilung 214** was created with three **leichte Beute-Panzer-Kompanien** and then sent to Norway.

NEW PANZER-DIVISIONS - Plans had already been established by early 1941 to expand the **Heeres** to 30 **Panzer-Divisions**. However, events on the Eastern Front interrupted these plans with the result that only the following new divisions were converted or created:

Name	From	On	With
21.Pz.Div.	**5.lei.Div.**	1Aug41	**Pz.Rgt.5**
22.Pz.Div.	New	25Sep41	**Pz.Rgt.204** from **Heerestruppen**
23.Pz.Div.	New	25Sep41	**Pz.Rgt.201** from **Heerestruppen**
24.Pz.Div.	**1.Kav.Div.**	1Dec41	**Pz.Rgt.24** from **Reiter.Rgt.2**, **Reiter.Rgt.21**, and **Pz.Abt.(F)101**
25.Pz.Div.	New	28Feb42	**Pz.Abt.214**
26.Pz.Div.	**23.Inf.Div.**	15Sep42	**Pz.Rgt.202** from **Heerestruppen**
27.Pz.Div.	**22.Brig.**	2Oct42	**Pz.Abt.127** from **III./Pz.Rgt.204**

Panzer-Regiment 203 was converted from French to German Panzers and as independent **Heerestruppe** sent to **Heeresgruppe Nord** in December 1941. **Panzer-Regiment 201** was assigned to the **23.Panzer-Division** and ordered to convert from French to German Panzers in December 1941. The **III.Abteilung/Panzer-Regiment 201** was created on 2 February 1941. **Panzer-Regiment 204** was assigned to the **22.Panzer-Division** and converted from French **Beute-Panzer** to **Pz.Kpfw.38(t)** in the **leichte Panzer-Kompanien** and **Pz.Kpfw.IV** in the **mittlere Panzer-Kompanien**. The **III.Abteilung/Panzer-Regiment 204** was created on 12 April 1942. On 1 October 1942, the **III.Abteilung/Panzer-Regiment 204** was renamed **Panzer-Abteilung 127** and assigned to the **27.Panzer-Division**.

Both of the **Flammpanzer-Abteilungen** were pulled out of the Eastern front and converted to normal units. On 5 November 1941, **Panzer-Abteilung (F) 100** was ordered to be pulled out of the front for rest and refitting. Ordered to leave their serviceable tanks behind, they turned them over to the **18.Panzer-Division**. After returning to their home base, on 22 December 1941, **Panzer-Abteilung (F) 100** with its three companies was converted to a normal tank battalion and renamed **I.Abteilung/Panzer-Regiment 100**. Shortly thereafter, on 5 February 1942, it was renamed **Panzer-Abteilung**

"Grossdeutschland" and reorganized with three **mittlere Panzer-Kompanien** each with 10 **Pz.Kpfw.IV** and 3 **Pz.Kpfw.II**. As part of the **"Grossdeutschland" Division**, the unit returned to fight in the Summer offensive in Russia in 1942.

After being pulled out of the front and returned to their home base, on 10 December 1941 **Panzer-Abteilung (F) 101** with its three companies were disbanded and used along with **Reiter-Regiment 2 und 21** in the creation of **Panzer-Regiment 24**. Outfitted as a normal **Panzer-Regiment** as part of the **24.Panzer-Division**, the unit returned to the Eastern Front to take part in the major offensives in the Summer of 1942.

On 18 September 1941, the **I.Abteilung/Panzer-Regiment 202** was sent to Yugoslavia. On 10 July 1942, the **III.Abteilung/Panzer-Regiment 202** was created from elements of **Panzer-Regiment 11**. The **II.Abteilung/Panzer-Regiment 202** was switched with the newly formed **Panzer-Abteilung 190** on 4 September 1942. On 15 September 1942, **Panzer-Regiment 202** with its **II.** and **III.Panzer-Abteilung** were assigned to the **26.Panzer-Division**.

REVISED K.St.N./K.A.N.

The following new set of **K.St.N./K.A.N.** dated 1 November 1941 were published for reorganization of the **Panzer-Regiments**:

K.St.N.	Date	Subunit Name
1103	1Nov41	**Stab und Stabskompanie Panzer-Regiments**
1107	1Nov41	**Stab Panzer-Abteilung**
1150	1Nov41	**Stabskompanie Panzer-Abteilung**
1171	1Nov41	**leichte Panzer-Kompanie**
1175	1Nov41	**mittlere Panzer-Kompanie**
1178(Sd)	1Feb41	**Staffel Panzer-Abteilung (Sd.Ausf.)**

The subunits' organization and authorized number of Panzers are shown on the silhouette charts. The **Nachrichten-Zug** and **leichte Panzer-Zug** were incorporated into a **Stabskompanie** for each **Panzer-Regiment**. In addition, three **Pz.Kpfw.II** were authorized for the **Pionier-Zug** in the **Stabskompanie** for the **Panzer-Abteilung**. New **Pz.Kpfw.III** with the **5 cm Kw.K.39 L/60** were issued to the **leichte Panzer-Kompanien** as they became available after December 1941. The **K.St.N./K.A.N.** did not differentiate between long and short gun barrels.

Although **K.St.N./K.A.N.1175** dated 1 November 1941 authorized a total of 14 **Pz.Kpfw.IV** in the **mittlere Panzer-Kompanie**, in 1941 and 1942 most units were not authorized by orders to establish a **3.Zug** or issued the four **Pz.Kpfw.IV** and other equipment needed to fill a **3.Zug**. As new **Pz.Kpfw.IV** with the **7.5 cm Kw.K.40 L/43** became available starting in April 1942, they were issued to the **mittlere Panzer-Kompanien**.

On 19 August 1942, the Panzer units were notified that in future, **Pz.Kpfw.III** with a **7.5 cm Kw.K. L/24** would be issued instead of **Pz.Kpfw.III** with the **5 cm Kw.K.39 L/60**. Distribution was planned so that eventually every **leichte Panzer-Kompanie** would receive a **Zug** of five **Pz.Kpfw.III (7.5 cm Kw.K. L/24**).

As announced in the **A.H.M.** (general army bulletin) on 21 August 1941, the **leichte Panzer-Zug** in the **Panzer-Regiment Stab und Stabskompanie** (**K.St.N.1103**) and the **leichte Panzer-Zug** in the **Panzer-Abteilungen Stabskompanie** (**K.St.N.1150**) were increased to seven **Pz.Kpfw.II (Sd.Kfz.121)**. In exchange, all **Pz.Kpfw.II (Sd.Kfz.121)** were dropped from the **Pionier-Zug** (within **K.St.N.1150**), from the **Kompanie Trupp** in the **leichte Panzer-Kompanie** (**K.St.N.1171**), and from the **Kompanie Trupp** in the **mittlere Panzer-Kompanie** (**K.St.N.1175**).

SS-PANZER UNITS - On 28 January 1942, orders were given to form a **Panzer-Abteilung** for the **LSSAH** and a second for an **SS-Division**. The three **mittlere Panzer-Kompanien** in the **SS-Panzer-Abteilung 1** for the **LSSAH** were organized in accordance with the **K.St.N.1175** dated 1 November 1941 but due to a shortage of **Pz.Kpfw.II** were only issued three **Pz.Kpfw.II** and 10 **Pz.Kpfw.IV**. **Panzer-Abteilung Stab und Stabskompanie** were issued one **Pz.Bef.Wg.**, two **Pz.Kpfw.III**, and three **Pz.Kpfw.II**.

SS-Panzer-Abteilung 2 was organized in the conventional way with two **leichte Panzer-Kompanien** (**K.St.N.1171** dated 1Nov41) with 17 **Pz.Kpfw.III** without any **Pz.Kpfw.II** and one **mittlere Panzer-Kompanie** (**K.St.N.1175** dated 1Nov41) with three **Pz.Kpfw.II** and ten **Pz.Kpfw.IV**. Their **Stab und Stabskompanie** were issued one **Pz.Bef.Wg.**, two **Pz.Kpfw.III**, and three **Pz.Kpfw.II**. One fifth of the Panzers for these two **SS-Panzer-Abteilungen** were to be issued by the end of January, two-fifths by the end of February, and the rest by the end of March 1942.

SS-Panzer-Abteilung 1 was officially formed on 1 February 1942 followed by **SS-Panzer-Abteilung 2** on 15 February 1942. On 18 April 1942, **SS-Panzer-Abteilung 2** was allotted to the **SS-Division "Wiking"**, renamed **SS-Panzer-Abteilung 5** and then sent to the Eastern Front. On 20 April 1942, a new **SS-Panzer-Abteilung 2** with two **leichte** and one **mittlere Panzer-Kompanie** was created for **SS-Division "Das Reich."** It was issued 10 **Pz.Kpfw.II** and 35 **Pz.Kpfw.III** by 5 June 1942. On 1 June 1942, **SS-Panzer-Abteilung 3** was created with two **leichte** and one **mittlere Panzer-Kompanie** for the **SS-Totenkopf Division**. Except for **SS-Panzer-Abteilung 5**, the other **SS-Panzer** units did not get into action until 1943.

REBUILDING FOR THE 1942 OFFENSIVES

In accordance with an order from the **Generalstab des Heeres/Organisation Abteilung** dated 18 February 1942, in preparation for the offensives in 1942 by **Heeresgruppe Sued** each Panzer-Division was to be reinforced with a third

Stab und Stabskompanie einer Panzer-Regiment
K.St.N.1103 v. 1.11.1941

N.Zug

PzBefWg PzBefWg PzKpfwIII

1.Zug

PzKpfwII PzKpfwII PzKpfwII PzKpfwII PzKpfwII

Stabskompanie einer Panzer-Abteilung
K.St.N.1150 v. 1.11.1941

N.Zug

PzBefWg PzBefWg PzKpfwIII

1.Zug

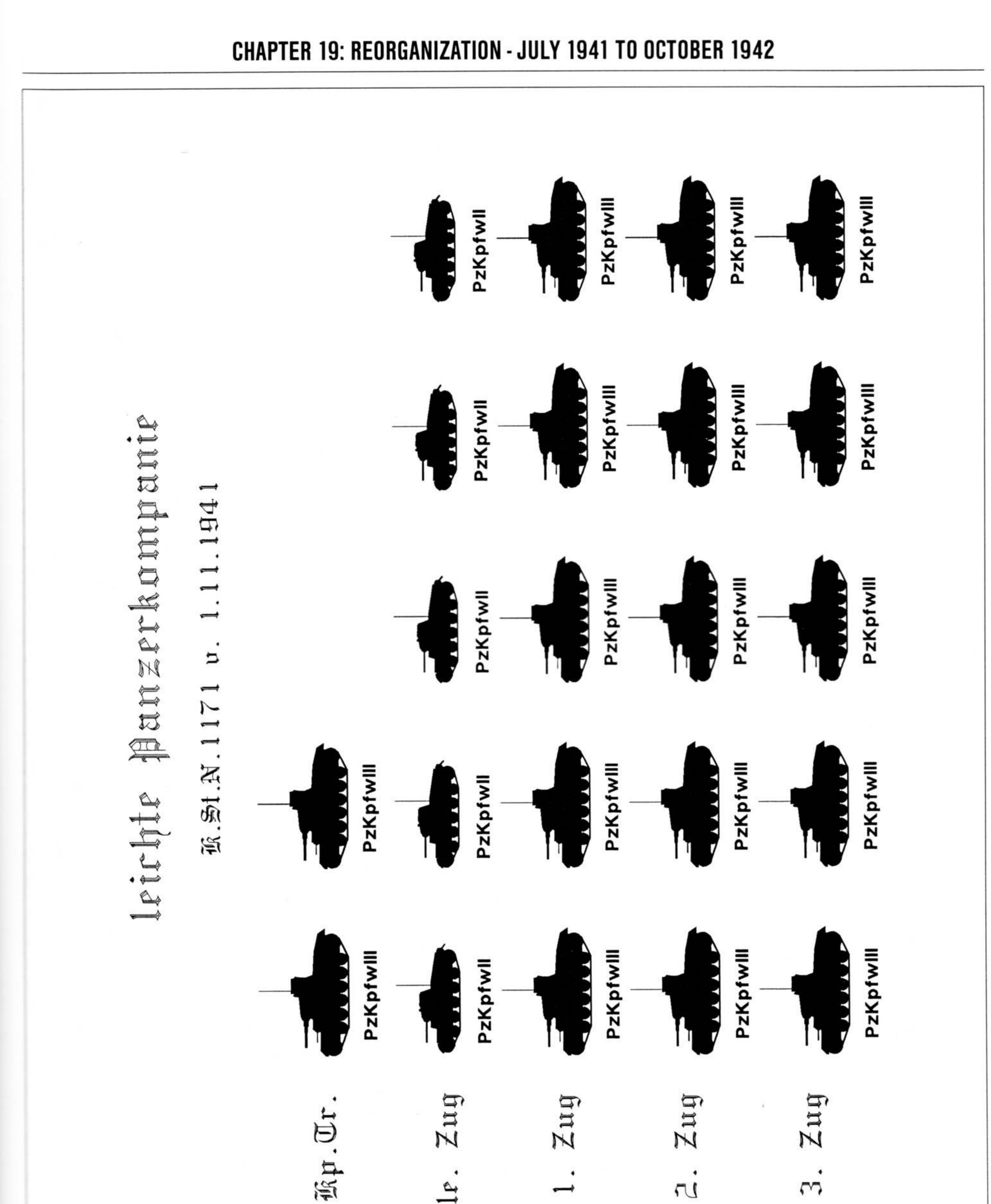
PzKpfwII PzKpfwII PzKpfwII PzKpfwII PzKpfwII

Pio.Zug

PzKpfwII PzKpfwII PzKpfwII

Staffel einer Panzer-Abteilung
K.St.N.1178(Sd.) v. 1.2.1941

PzKpfwIV PzKpfwIII PzKpfwIII PzKpfwIII PzKpfwII PzKpfwII


PzKpfwII
PzKpfwIII
Leichte Panzerkompanie
K.St.N. 1171 v. 1.11.1941
Kp.Tr.
1e. Zug
1. Zug
2. Zug
3. Zug

mittlere Panzerkompanie

K.St.N. 1175 v. 1.11.1941

Kp.Tr.

PzKpfwIV

PzKpfwIV

1e. Zug

PzKpfwII

PzKpfwII

PzKpfwII

PzKpfwII

PzKpfwII

1. Zug

PzKpfwIV

PzKpfwIV

PzKpfwIV

PzKpfwIV

2. Zug

PzKpfwIV

PzKpfwIV

PzKpfwIV

PzKpfwIV

3. Zug

PzKpfwIV

PzKpfwIV

PzKpfwIV

PzKpfwIV

organic **Panzer-Abteilung** and each **Infanterie-Division (mot)** was to be reinforced with an organic **Panzer-Abteilung**. Formation of the **III.Panzer-Abteilungen** for the **3., 22., 23., und 24.Panzer-Divisions** have already been related. The other nine **Panzer-Abteilungen** were transferred from other **Panzer-Divisions** in **Heeresgruppe Nord und Mitte** as follows:

Date	New Unit Name	In	Previous Name	In
28May42	**III./Pz.Rgt.2**	**16.Pz.Div.**	**II./Pz.Rgt.10**	**8.Pz.Div.**
15May42	**III./Pz.Rgt.4**	**13.Pz.Div.**	**III./Pz.Rgt.29**	**12.Pz.Div.**
19Jun42	**III./Pz.Rgt.15**	**11.Pz.Div.**	**II./Pz.Rgt.35**	**4.Pz.Div.**
10May42	**III./Pz.Rgt.33**	**9.Pz.Div.**	**I./Pz.Rgt.3**	**2.Pz.Div.**
2Jun42	**III./Pz.Rgt.36**	**14.Pz.Div.**	**I./Pz.Rgt.7**	**10.Pz.Div.**
5Apr42	**Pz.Abt.103**	**3.Inf.Div.(mot)**	**III./Pz.Rgt.18**	**18.Pz.Div.**
19Jun42	**Pz.Abt.116**	**16.Inf.Div.(mot)**	**I./Pz.Rgt.1**	**1.Pz.Div.**
19Jun42	**Pz.Abt.129**	**29.Inf.Div.(mot)**	**I./Pz.Rgt.39**	**17.Pz.Div.**
15Jun42	**Pz.Abt.160**	**60.Inf.Div.(mot)**	**I./Pz.Rgt.18**	**18.Pz.Div.**

With the exception of **Panzer-Regiments 10, 29, 31**, and **203**, the rest of the **Panzer-Regiments** in **Heeresgruppe Nord und Mitte** were left with only a single **Panzer-Abteilung**.

In accordance with the **Generalstab des Heeres/ Organisation Abteilung** order dated 12 March 1942, the **6.**, **7.**, and **10.Panzer-Divisions** were pulled out of the Eastern Front and sent to the West to rest and refit. On 9 June 1942, the schedule for refitting these divisions called for the **10.Panzer-Division** to be combat ready by 15 July, the **6.Panzer-Division** by 1 August, and the **7.Panzer-Division** by 1 September 1942. **Panzer-Regiments 7, 11 und 25** were to be reorganized in accordance with **K.St.N.** dated 1 November 1941 with two **Panzer-Abteilung** each with three **leichte** and one **mittlere Panzer-Kompanie**. The **10.Panzer-Division** had been issued half of their **Pz.Kpfw.III** and the **6.Panzer-Division** one quarter of their **Pz.Kpfw.III** by 11 June 1942. Until they received their full complement of German Panzers, one **Panzer-Abteilung** in each of the three **Panzer-Regiments** was outfitted with French **Beute Pz.Kpfw.35S und 38H**. The Panzer strength reported for these units was:

		Pz.Kpfw.II	Pz.Kpfw.III	Pz.Kpfw.IV	Pz.Bef.Wg.
26Aug42	**Pz.Rgt.7**	21	105	20	7
31Oct42	**Pz.Rgt.11**	21	105	28	9
31Oct42	**Pz.Rgt.25**	21	105	20	9

There was no uniformity in issuing the **Pz.Kpfw.III Ausf.N** with the **7.5 cm Kw.K. L/24** gun. **Panzer-Regiment 7** didn't receive any, **Panzer-Regiment 11** received 32 to 35, and **Panzer-Regiment 25** received 14 **Pz.Kpfw.III Ausf.N**.

On 1 August 1942, **Panzer-Abteilung 190** was created for the **90.leichte Division** fighting in Egypt. The newly formed unit was exchanged for the more experienced **II.Abteilung/ Panzer-Regiment 202** and at the same time the names were exchanged on 4 September 1942. **Panzer-Abteilung 190** had three **leichte Panzer-Kompanien** and one **mittlere Panzer-Kompanie**. Over fifty percent of the **Pz.Kpfw.III** issued to **Panzer-Abteilung 190** were **Pz.Kpfw.III Ausf.N** with the **7.5 cm Kw.K. L/24** gun.

MISCELLANEOUS PANZER UNITS - Further dispersal of the Panzers continued when a **leichte Panzer-Kompanie** was created for the **Fuehrer Begleit Bataillon**, organized in accordance with **K.St.N.1172** dated 1 February 1942 with 5 **Pz.Kpfw.II** and 17 **Pz.Kpfw.III**.

The **Luftwaffe** received its first Panzer unit when a **leichte Panzer-Kompanie** was formed for **Regiment "Hermann Goering"** and issued 12 **Pz.Kpfw.III** by 17 May 1942.

Beute Panzer-Kompanie 223 formed on the Eastern Front was placed under the **22.Panzer-Division** to oversee their training and refitting with **French Beute-Panzers** on 10 April 1942. **Beute Panzer-Kompanie 223** was engaged in the fighting in the Crimea near Sevastopol. On 15 June 1942, **Generalstab des Heeres/Organization Abteilung** ordered that an entire **Panzer-Abteilung Krim** (**Panzer-Abteilung 223**) be formed and outfitted with French **Beute-Pz.Kpfw.B2**. On 15 July 1942, the **Abteilung-Stab** and **2.Kompanie/ Panzer-Abteilung 223** were formed. The **1.Kompanie/ Panzer-Abteilung 223** in the Crimea was refitted with 17 **Pz.Kpfw.B2**, of which 12 were **Pz.Kpfw.B2 (Fl)**.

The **Panzer-Abteilung z.b.V.66** was created with two companies on 30 May 1942. The **1.Kompanie/Panzer-Abteilung z.b.V.66** was equipped with uparmored **Pz.Kpfw.IV**, **VK1601**, and **VK1801** and sent to **Heeresgruppe Nord**. Assigned to the **12.Panzer-Division** it was renamed **8.Kompanie/Panzer-Regiment 29** on 2 October 1942. The **2.Kompanie/Panzer-Abteilung z.b.V.66** was outfitted with Russian T34 and KW **Beute-Panzer** and sent to **Heeresgruppe Mitte**.

A **Panzer-Kompanie** was raised for **SS Prinz Eugen**, outfitted with 17 **Pz.Kpfw.B2** of which an unknown number were **Pz.Kpfw.B2 (Fl)**, and sent to Yugoslavia.

On 2 July 1942, **Panzer-Kompanie Paris** was renamed **Panzer-Kompanie 100**. On 20 October 1942, **Stab Panzer-**

Brigade 100 was created to assemble all the scattered Panzer units in **Ob.West** under one command.

FUNKLENK-PANZER UNITS - On 8 September 1941 **Minenraeum-Abteilung 1** was ordered to reorganize as an experimental unit for radio-controlled Panzers and renamed **Panzer-Abteilung 300** effective 15 September 1941. Prior to this **Minenraeum-Abteilung 1** belonged to the **Pioniere** instead of the **Panzertruppen**. On 3 February 1942, **Panzer-Abteilung 300** was ordered to reorganize with two **leichte** and one **mittlere Panzer-Kompanie (F.L.)** and was renamed **Panzer-Abteilung 300 (F.L.)**. The **leichte Panzer-Kompanien (F.L.)** organized under **K.St.N.1159** dated 5 January 1942 were issued with **Pz.Kpfw.III** converted to **Funklenk** for radio control of their **B.IV Sprengstofftraeger**. A **mittlere Panzer-Kompanie (Funklenk)** organized under **K.St.N.1160** dated 5 January 1942 was issued a single **Pz.Kpfw.III** along with their cable-controlled **Goliath Sprengstofftraeger**.

Panzer-Abteilung 300 (F.L.) was sent to the Eastern Front in April 1942 to participate in attacks on the fortifications surrounding Sevastopol. After Sevastopol was captured, **Panzer-Abteilung 300 (F.L.)** was transferred north with the intention of participating in the attacks on the fortifications protecting Leningrad. On 9 September 1942, **Panzer-Abteilung 300 (F.L.)** was renamed **Panzer-Abteilung 301**.

On 10 August 1942, the **Chef Heeres Ruestung** requested that a **Sprengstofftraeger-Abteilung (B.IV)** be created, followed later by the formation of two **B.IV-Kompanien**. On 18 August 1942 the **Generalstab des Heeres/ Organisation Abteilung** announced plans to expand the **Heerestruppen** during the Winter of 1942/1943, including formation of 16 **Sprengstofftraeger-Kompanien B.IV** (including **Pz.Abt.300**). Of these, 10 companies were to be integrated into 10 **Panzer-Regiments**.

On 1 August 1942, the **1. und 2.leichte Panzer-Kompanie Z** were created. New organizations were published for the **Funklenk** units on 8 September 1942 for the **Stab Panzer-Abteilung f (K.St.N.1107f)**, the **Stabskompanie Panzer-Abteilung f (K.St.N.1150f)**, and the **leichte Panzer-Kompanie f (K.St.N.1171f)**. The **2.leichte Panzer-Kompanie Z** was renamed **3.Kompanie/Panzer-Abteilung 302** on 1 October 1942 and sent to the Eastern Front to be exchanged with and renamed **2.Kompanie/Panzer-Abteilung 301** on 20 October 1941. **Panzer-Abteilung 302** was created with three **leichte Panzer-Kompanien** from the disbanded **III.Abteilung/Panzer-Regiment 10** on 15 October 1942.

SCHWERE-PANZER UNITS - The first two units, **schwere Panzer-Kompanien 501 und 502**, destined to be outfitted with heavy Panzers were created on 16 February 1942. Both of these companies were assigned as the **1. und 2.Kompanie** for **schwere Panzer-Abteilung 501** when it was created on 10 May 1942. **Schwere Panzer-Abteilung 502** was formed on 25 May 1942 and **schwere Panzer-Abteilung 503** on 5 May 1942. Each **schwere Panzer-Abteilung** had a **Stabskompanie** organized in accordance with **K.St.N.1150b** dated 25 April 1942 and two **schwere Panzer-Kompanie** organized in accordance with **K.St.N.1176** dated 25 April 1942. **Schwere Panzer-Abteilungen 501 und 503** were to be outfitted with the **Pz.Kpfw.VI(P)** designed by Porsche and then sent to North Africa. **Schwere Panzer-Abteilung 502** was to be outfitted with the **Pz.Kpfw.VI(H)** and sent to the Eastern Front.

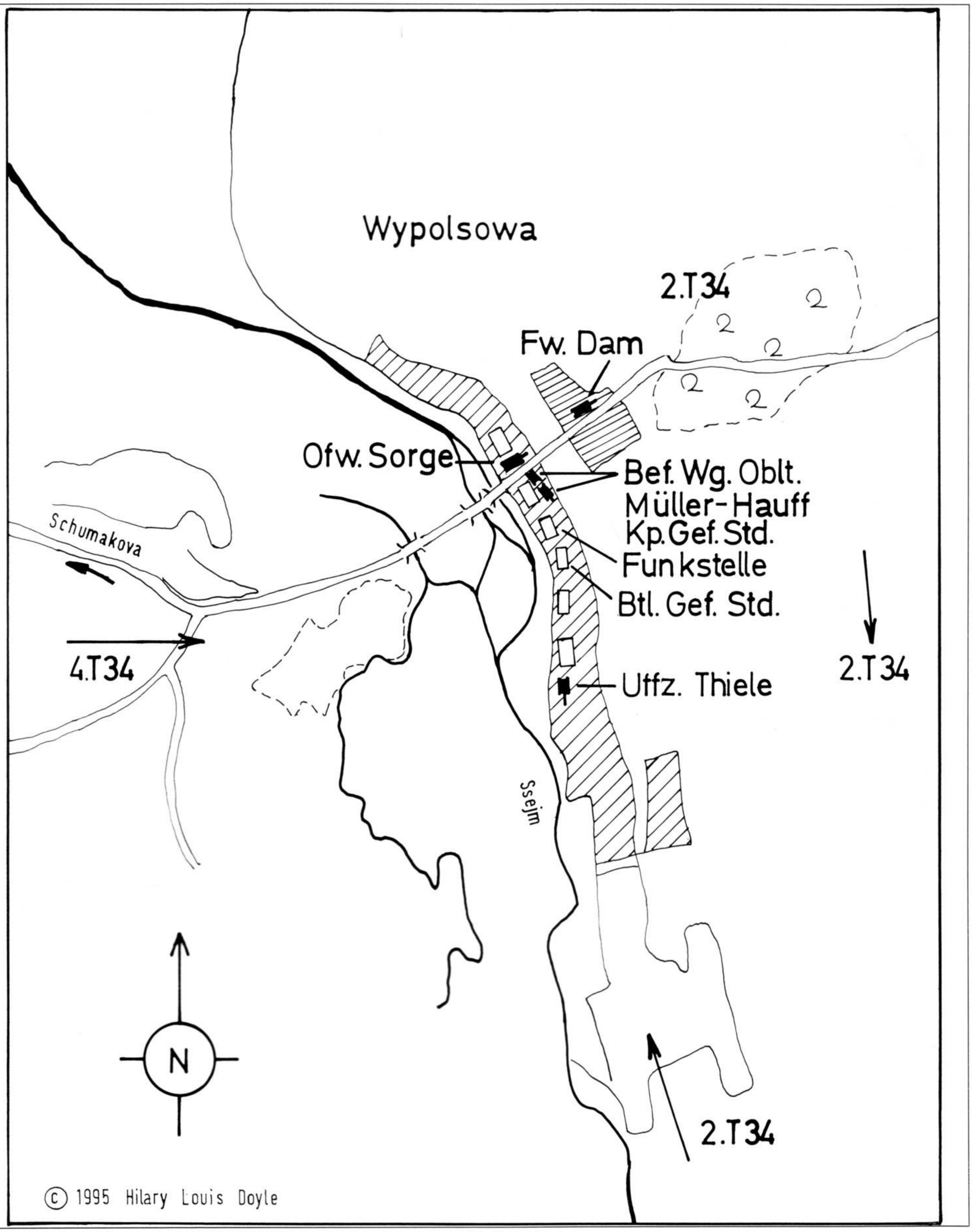
On 21 August 1942, an announcement was made in the A.H.M. that the new organizations **Stabskompanie des schwere Panzer-Abteilung** (**K.St.N.1150d** dated 15 August 1942) and **schwere Panzer-Kompanie d** (**K.St.N.1176** dated 15 August 1942) were to replace **K.St.N.1150b** and **K.St.N.1176** for **schwere Panzer-Abteilungen** except for the **501**. On 21 October 1942, an announcement was made in the A.H.M. that the **K.St.N.1150d und K.St.N.1176d** dated 15 August 1942 were also now applicable for the personnel strength for the **schwere Panzer-Abteilung 501**. The **Stabskompanie** was organized in accordance with **K.St.N.1150d** dated 15 August 1942 with two **Pz.Kpfw.VIP (Sd.Kfz.181) (als Pz.Bef.Wg.)** or **Pz.Kpfw.VIH (Sd.Kfz.182) (als Pz.Bef.Wg.)** plus one **Pz.Kpfw.III (5 cm) (Sd.Kfz.141) (als Pz.Bef.Wg.268)** in the **Nachrichten-Zug** and five **Pz.Kpfw.III (5 cm) (Sd.Kfz.141)** in the **leichte Panzer-Zug**. The **schwere Panzer-Kompanie d** was organized in accordance with **K.St.N.1176d** dated 15 August 1942 with one **Pz.Kpfw.VIP** or **Pz.Kpfw.VIH** and two **Pz.Kpfw.III** in the **Kompanie Trupp** and two **Pz.Kpfw.VIP** or **Pz.Kpfw.VIH** and two **Pz.Kpfw.III** in each of four **Zuege**.

20

Operations in Russia - through October 1942

After the attempt to take Moscow failed, the 19 divisions of Panzers no longer existed on the Eastern Front. They were **Panzer-Divisions** in name only. Most of them couldn't even field a complete **Panzer-Kompanie**. The front was held as ordered by Hitler. Instead of pulling out and being refurbished, the **Panzer-Divisions** remained in the front lines and the crews without Panzers were employed as infantry. Those few Panzers that were left were employed to support the infantry in limited attacks and counterattacks to recover defensive positions lost or threat-

The crew of this **Pz.Kpfw.III Ausf.J** are bundled against the cold during the winter of 1941/42. Only part of the frontal area was covered with whitewash as camouflage. The tactical number pattern resembles that used by **Panzer-Regiment 6** of the **3.Panzer-Division**. (BA)


Wypolsowa
2.T34
Fw. Dam
Ofw. Sorge
Bef. Wg. Oblt.
Müller-Hauff
Kp. Gef. Std.
Funkstelle
Btl. Gef. Std.
Uffz. Thiele
Schumakova
4.T34
2.T34
Ssejm
2.T34
N
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This **Pz.Kpfw.III Ausf.J** with the **1.Kompanie/Panzer-Abteilung 300** had an armored box welded onto the turret rear in which the radio set was mounted for remote control of a **B-IV Sprengstofftraeger** (explosive charge carrier). These were employed in the Crimea in attacks on the fortifications surrounding Sevastopol. (MJ)

ened by the enemy. Typical employment of tanks during this period was related by Oberstleutnant Schmidt-Ott in the following report on the battles around Wypolsowa from 9 to 15 January 1942:

*In accordance with orders from the **3.Panzer-Division**, at 0945 hours on 9 January 1942, **Kompanie Mueller-Hauff** with 11 **Pz.Kpfw.III (5 cm Kw.K.)** left Kamenskij traveling southwest and at about 1015 hours arrived at the wood-lot planned as the assembly area. From there, aided by unclear weather, the Kompanie made a surprise attack into Wypolsowa. The previous occupants, a Russian infantry company, pulled back over the Sseim. Under the covering fire of two platoons, in spite of difficult terrain the platoon under Hellmich with Oberleutnant Mueller-Hauff crossed the first two bridges over the Sseim and observed that the third bridge was partially broken off and wasn't crossable. While scouting for a crossing point over the ice, Oberfeldwebel Hellmich's Panzer came under fire from a 7.62 cm anti-aircraft gun from a range of about 700 meters. The platoon leader and gunner were wounded. A place that could be crossed wasn't found. Then the company occupied Wypolsowa and set up an all-round defense toward all compass points.*

*At 0500 hours on 10 January, Leutnant Bodig arrived with a **Panzerbefehlswagen**, accompanied by a **Pz.Kpfw.III** and a company sent from **Regiment Vial** for defending Wypolsowa. During the journey, supported by the Panzers, the company had shot up and partially destroyed a large Russian column of about two companies with vehicles.*

*At about 0700 hours on 10 January, as ordered by the division, **Kompanie Mueller-Hauff** started to move toward Schumakowo to establish contact with **Regiment Zimmermann**. The Panzers were fired at from the south by heavy anti-aircraft guns as soon as they reached the first houses in Schumakowo. Four T34 tanks were seen pulling back in the middle of the village. After the T34 tanks took up suitable firing positions, they opened fire on the advancing company. An attempt to detour to the west around the T34 tanks failed after two Panzers were hit by fire from a T34. A T34 advanced south toward the company and in spite of receiving hits kept coming closer to **Kompanie Mueller-Hauff**. After two further Panzers were hit, Oberleutnant Mueller-Hauff*

let the company return to Wypolsowa. In addition Wypolsowa lay under strong artillery fire and the ***I.Abteilung/Infanterie-Regiment 245*** *was observed already retreating to the north. This created the danger that the* ***Panzer-Kompanie*** *would be cut off by the Russians from retreating over the bridge.*

Also, an attempt to circumvent the enemy tanks was not possible because the ***Panzer-Kompanie*** *had only enough fuel for a few kilometers. Oberleutnant Mueller-Hauff in his Panzer personally covered the retreat over the bridge against the following enemy tanks.*

About 1600 hours, a ***Pz.Kpfw.IV*** *under Unteroffizier Drebbar that had come up with* ***I.Abteilung/Infanterie-Regiment 245*** *managed, using special ammunition, to knock out a T34 at a range of 800 meters. This T34 was retrieved during the night by other T34s.*

During the morning of 11 January, Wypolsowa lay under heavy enemy artillery fire; sometimes also T34s fired from the direction of Schumakowo. In spite of enemy fire, two Panzers managed to tow an ammunition truck and a fuel truck from Kamenskij to Wypolsowa. Increased artillery fire on Wypolsowa was the result. This artillery fire caused significant losses to the infantry battalion as well as to the Panzer crews. Radio contact with the ***Abteilung*** *was lost because the* ***Panzerbefehlswagen*** *was damaged by a direct hit.*

During the night of 11/12 January, several Russian attacks from the west were repulsed by the infantry and Panzers. It became almost impossible for the Panzers to fire high-explosive shells because the muzzle flash gave away their position and they were immediately fired at by the T34s.

Following varying strong artillery, tank gun, and mortar fire from the west and northwest, the Russians also attacked during the afternoon of 12 January. The attacks were repulsed. Five further Panzers fell out as a result of direct hits from T34 tank guns.

About 2015 hours, renewed strong fire fell on the crossroads east of the bridge. The noise of tracks on the bridge revealed that tanks were closing in. Two Russian BT tanks managed to come over the bridge, one of which drove along the village street. There he was attacked with hand grenades and pistols by Leutnant Huhn and several Panzer crew members. Due to the darkness, our Panzers couldn't aim at the enemy tank. Leutnant Huhn was wounded by a shot fired from a pistol out of the BT. Both BT tanks pulled back to the west over the bridge.

At dawn on 15 January, very strong artillery, tank gun, and mortar fire fell on Wypolsowa. Tank gun fire was spotted coming from the wood-lot east of Wypolsowa and from Makssimowo. Three of the four Panzers remaining in defensive positions at the edge of Wypolsowa were hit several times so that the crews had to bail out. One of these had been the only operational ***Pz.Kpfw.IV****. After setting the special ammunition on fire with hand grenades, the crew carried a dismounted machine gun, climbed into a* ***Pz.Kpfw.III*** *that had been immobilized by a hit in the motor, and fired at Russian infantry and a T34 advancing from the east. Fire had to cease because the electricity for firing the gun failed. The ensuing attack from all sides by Russian infantry supported by 10 T34 tanks forced the infantry battalion and the dismounted Panzer crews to retire to the north. The last operational* ***Pz.Kpfw.III*** *under Feldwebel Doering was also lost through a direct hit.*

It is noteworthy that the ***Pz.Kpfw.III*** *of Leutnant Steup hit a T34 tank driving along the village street once at a range of about 20 meters and four times at a range of 50 meters with* ***5 cm Panzergranate 40*** *without observing any effect.*

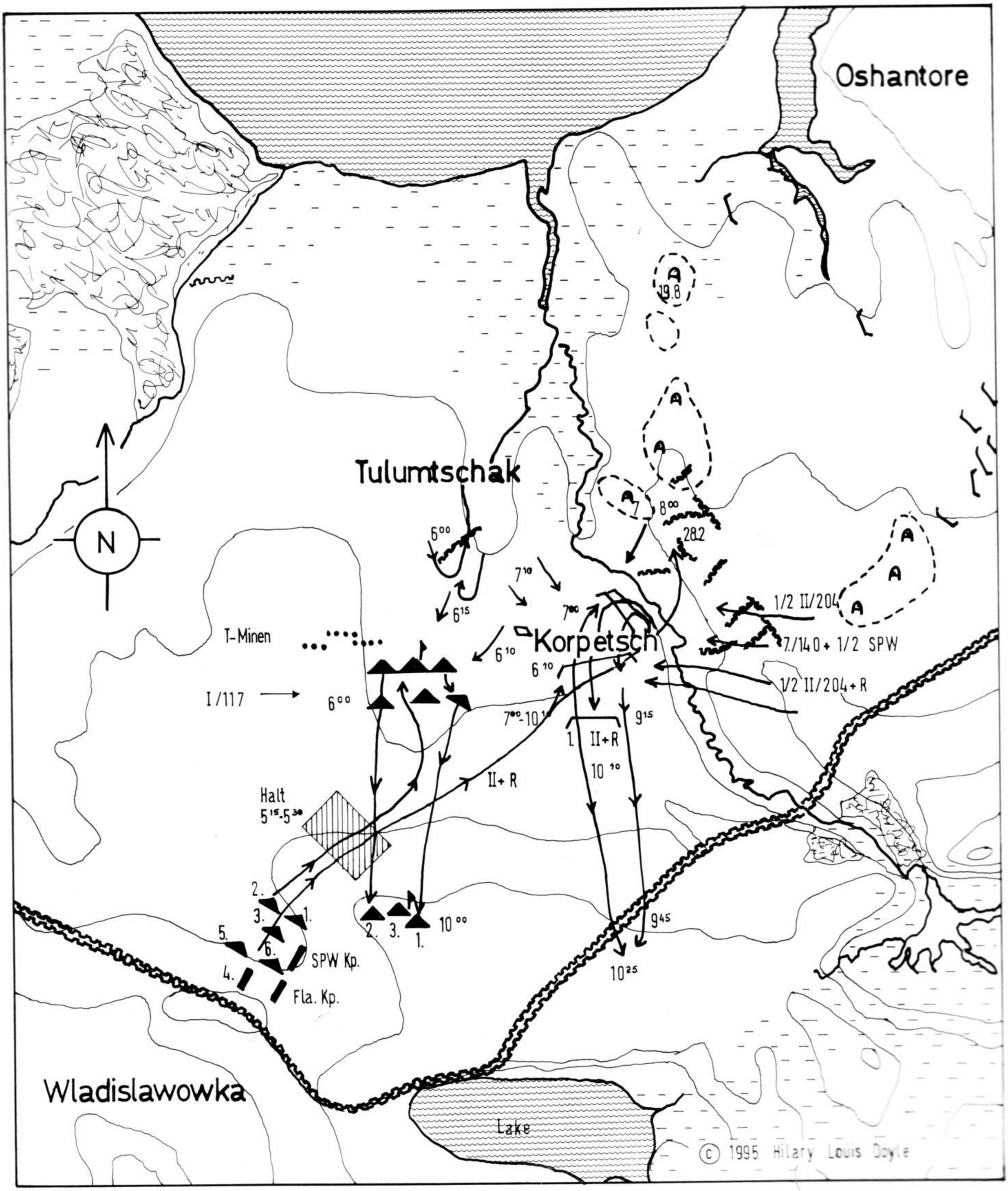
In total, during the period from 11 to 15 January, nine Panzers were lost as total writeoffs. Only 10 men of the Panzer crews reached Bynino unwounded.

The especially unfavorable layout of the terrain of the village must be considered during the actions around Wypolsowa. The houses of the village stood at intervals of 30 to 80 meters on the east side of the village street. The land sloped down toward the river from the street to the west, so that every movement could be exactly observed by the opponent on the west bank of the Sseim. In order to find some cover, the Panzers had to take up positions on the east side of the houses and were therefore very hindered in their effectiveness. For these reasons, on the afternoon of 14 January, the ***Abteilung*** *had proposed that the Panzers be pulled back to Bynino or Maschnino where an assembly area from which to counterattack was planned. This proposal was not implemented because of morale reasons.*

While **Heeres-Gruppe Nord** and **Mitte** were involved in defensive fighting, **Heeres-Gruppe Sued** pushed down into the Crimean peninsula to cut off Sevastopol. The **22.Panzer-Division**, which had never been in combat, was sent in to break through the defenses. The commander of **Panzer-Regiment 204**, Oberst Koppenburg, reported on the attack at Korpetsch on 20 March 1942 as follows:

The regiment's advance occurred without incident from the area Stary Krim to the rest area in a fruit plantation south of Bairatsch.

The further advance from there to the staging area north of Wladislawowka was started at around 2130 hours during a very dark night. The ***I.Abteilung*** *arrived at the staging area about 0200 hours. The* ***Regiment Stab*** *and* ***II.Abteilung*** *encountered major difficulties during the advance caused by motorized columns and horse-drawn vehicles in both direction. They especially delayed a smooth passage at bridges. The number of men posted for directional control on the previous comparatively bright nights were insufficient on this night, so that the* ***Regiment Stab*** *and* ***II.Abteilung*** *arrived at the staging area between 0415 and 0500 hours. At 0445, the* ***SPW-Kompanie*** *arrived. Soon thereafter the* ***Fla-Kompanie*** *also reported in. Directly before leaving the staging area, the* ***7.Kompanie/Schuetzen-Regiment 140*** *reported in to be transported on the Panzers of the* ***II.Abteilung****. The formation of the reinforced* ***Panzer-Regiment*** *in the staging area is shown on the attached map. Contact of* ***I.Abteilung*** *with*


Oshantore
Tulumtschak
Korpetsch
Wladislawowka
Lake
N
19.8
A
7
8⁰⁰
28.2
6⁰⁰
6¹⁵
7¹⁰
7⁰⁰
6¹⁰
1/2 II/204
7./140 + 1/2 SPW
1/2 II/204 + R
T-Minen
I/117
6⁰⁰
7⁰⁰-10¹⁰
9¹⁵
1. II+R
10¹⁰
II+ R
Halt
5¹⁵-5³⁰
2.
3.
1.
5.
6.
4.
SPW Kp.
Fla. Kp.
2. 3. 1.
10⁰⁰
9⁴⁵
10²⁵
© 1995 Hilary Louis Doyle

*the **SPW-Kompanie** was ensured by a meeting between both commanders. The **SPW-Kompanie** did not have any radio sets that were of a frequency that could be used to communicate with the **I.Abteilung** or the Regiment. Also, there was no contact with the **Fla-Kompanie** so that long term combat orders had to be given to them. Nothing could be seen of the **Schuetzen-Regiment** located on the right flank. At 0455 hours, dawn broke. The light barely penetrating the thick fog. At this time visibility was limited to 50 to 100 meters.*

*The order to advance was given by me at 0500 hours. The **I.Abteilung** started, the **SPW-Kompanie** remained stationary and thereby delayed the start of the **II.Abteilung** so that too large a gap occurred for the **Abteilung** to maintain sight contact in the limited visibility. The first 1000 to 1500 meters advance toward the northeast crossed an old circular defense position, that on my orders was crossed very slowly because of the limited visibility. I then ordered a halt from 0515 to 0530 hours, but the fog didn't clear. Elements of the **Schuetzen-Brigade** arrived from the south and a short meeting was held between both regimental commanders and the commander of the **I.Abteilung**.*

*At 0530 hours, the advance restarted with the motorized infantry. The **SPW-Kompanie** hadn't made contact with the **I.Abteilung**, but found itself near the **II.Abteilung**. From here on no sight contact (only radio contact) occurred between me and the **I.Abteilung** and between the **I.** and **II.Abteilung**. Therefore the further development of the battle had to be handled as two separate attacks.*

***Abteilung Collin** apparently turned too far to the north. From later events it was learned that they had crossed our forward lines at and east of Point 26.7. I traveled at the start with the **II.Abteilung**. That the **I.Abteilung** drifted to the left was unknown to me.*

*About 0600 hours, the **I.Abteilung** had arrived at a position on the track from Korpetsch to Point 26.7 when 25 to 35 enemy light tanks attacked from the front through the fog. The **I.Abteilung** took up the firefight and most of the enemy tanks turned away. The **Abteilung** was formed on a wide front and wanted to start the chase when from almost the same direction about 10 KW and T34 tanks advanced, escorted by light tanks. Strong artillery fire hit the position of the **I.Abteilung** at the same time as the first hits from Russian 7.62 cm tank guns. Then the **2.Kompanie** and the left wing of the **3.Kompanie** ran into an anti-tank mine field that hadn't been cleared. The individual Panzers could have been warned in time by our infantry occupying this position.*

*The **I.Abteilung** lay under strong enemy fire with visibility hindered by the smoke and fog. They received many hits*

A **Pz.Kpfw.38(t)** of the **4.Kompanie/Panzer-Regiment 204** of the **22.Panzer-Division**. The 204th was the last **Panzer-Regiment** to be sent to the Eastern Front with the **Pz.Kpfw.38(t)** as a main battle tank. (BA)

from the 7.62 cm tank guns fired at long range. The **1.** and **2.leichten Kompanien** on the wings were pulled back somewhat. The **3. mittlere Kompanie** continued the firefight. Then the commander pulled his **Abteilung** back to in and behind our forward defense lines under the protection of anti-tank guns located there. The anti-tank guns falsely interpreted the 200 to 300 meter rearward movement of the Panzers, hooked up, and drove away to the rear.

Toward 0630 hours, new enemy tanks appeared on the right flank, causing the right wing of the **I.Abteilung** to bend back. Under the still heavy effective enemy artillery fire mainly from the north and apparently also from the northeast, the **I.Abteilung** was forced to decide to pull back farther to obtain visibility by getting out of the thick smoke and wall of fog.

I was continuously notified by radio of the fighting of the **I.Abteilung**. However, I thought that as planned the **I.Abteilung** was located in front of me in the area west of Korpetsch. In response to the urgent calls for help from the **I.Abteilung**, I ordered the **6.mittlere Kompanie** to support the **I.Abteilung**, which naturally couldn't find them. At the same time, I requested fire support to fall on the area northwest of Korpetsch from the artillery commander with whom I was in radio contact. I also requested that a battery be pulled forward to directly fire at the KW tanks. At this time I was located in the area west of Korpetsch.

On the report from the **I.Abteilung** commander that he couldn't hold any longer against the superior forces and had taken 30 to 50 percent losses, I concurred with his proposal, while fighting to slowly pull back toward the **II.Abteilung** with the understanding that I hoped thereby to personally regain contact with the **I.Abteilung**. The **I.Abteilung** then went slowly back still fighting with the enemy tanks. My radio contact with the **I.Abteilung** was sometimes interrupted. About 1000 hours, the **I.Abteilung** arrived in the area northeast of Wladislawowka and gathered there. I learned of this position of the **I.Abteilung** by a roundabout way through the division radio report at about 0930 to 0945 hours. At the same time, the strength of the **I.Abteilung** was reported as 41 Panzers. I couldn't explain this contradiction with the earlier report.

At about 0630 hours, the forward elements of the **III.Abteilung** arrived in the area west of Korpetsch. They advanced in the general direction of Point 28.2, apparently passed to the left of a Russian mine field, and reached the stream bed from Korpetsch to Tulumtschak. Part of the **SPW-Kompanie** wound up in the mine field and part went forward with the front half of the **II.Abteilung**. The **7.Kompanie/ Schuetzen-Regiment 140** dismounted from the Panzers and took up positions in the old German or Russian field works west of Korpetsch. Russian infantry retired to the north and northeast in front of the **II.Abteilung**. The enemy infantry taking heavy losses from tank machine gun fire, were reduced to a small element that remained sitting in the foxholes, fought concealed, and raised their hands high and then sometimes shot from behind at the Panzers and the commanders that from time to time looked out of the open hatches.

When the area west of Korpetsch was reached, strong enemy artillery barrages struck the area. This was fired mainly by the batteries at Dshantora but a few also from the northwest and east. The Russian artillery fire followed all movements of the Panzers with outstanding flexibility, so that the Panzers were forced to continuously change their positions in all directions in a depth of about 1.5 to 2 kilometers on both sides of the track from Korpetsch to Point 26.7.

Toward 0700 hours, the commander of the **II.Abteilung** arrived at the stream northwest of Korpetsch. Reconnaissance along the stream by the light platoons revealed that this was completely dug out as an anti-tank ditch with the steeply protruding walls on the southwest bank creating an absolute barrier to Panzers. The information received on the day before the attack that it was possible to cross with a **Kuebelwagen** is unexplainable. Anyway, the **II.Abteilung** attempt to cross the anti-tank ditch resulted in a considerable number of Panzers remaining stuck.

During this entire time, with a few pauses, the enemy artillery fire held up with undiminished ferocity. Considerable damage of the Panzers was caused by direct hits and fragments that partially immobilized, partially jammed the turrets and damaged the weapons.

Because of the strong artillery fire, the **Regiment Stab** and **II.Abteilung** spread out both in width and depth to weaken the fire concentration as much as possible. About 0730 to 0800 hours, enemy guns and advancing anti-tank guns were identified on the left flank on the path from Korpetsch to Tulumtschak and engaged.

At the same time from the area northwest of Point 28.2, a strong, very wide enemy infantry attack approached toward Korpetsch and to the west. The attack broke down under the fire of the Panzers located by the anti-tank ditch.

At the same time, the battle proceeded against the stationary enemy infantry and field works west of Korpetsch and northeast of the stream. In spite of the thinning fog, visibility was strongly hindered by the continuous artillery bombardment.

Upon the order for the **6.Kompanie** on the right wing to go support the **I.Abteilung**, the commander of the **6.Kompanie** pulled out to the right, managing to cross the anti-tank ditch at a location northeast of Kopetsch. Three **Pz.Kpfw.IV** managed to cross this barrier, while the fourth **Pz.Kpfw.IV** and a **Pz.Kpfw.II** remained stuck at this location and blocked the crossing point. Oberleutnant Luckhardt, the commander of the **6.Kompanie**, went forward to Point 28.2 and reached this height at about 0730 hours. A report about this did not reach either the **Abteilung** commander or me because the antenna on the commander's Panzer was shot off. The Panzers at Point 28.2 were identified on the height, partially not as ours but as the enemy, while Major Urban himself held that these were Panzers from the **I.Abteilung**. Regrettably, they were shot at by Panzers on this side of the stream; however, the fire was halted by Major Urban. Along the way Oberleutnant Luckhardt destroyed elements of the

Russian occupants on the north edge of Korpetsch, many guns and anti-tank guns, and successfully engaged observation posts at Point 28.2 and enemy infantry that were pulling back.

At approximately the same time that Oberleutnant Luckhardt reached Point 28.2, about 0830 hours, an enemy infantry attack from Tulumtschak in the left flank was recognized and engaged by the rear half of the ***II.Abteilung*** *(where I was located at this time), brought to a halt, and then forced to retreat.*

Since there was no chance of crossing the anti-tank ditch in the well-placed enemy artillery fire with our own equipment without support from infantry and pioneers, with my concurrence the ***II.Abteilung*** *was pulled back slowly, taking along the wounded and crews that had abandoned their Panzers. Slowly retiring to the south, the* ***II.Abteilung*** *arrived at the railway embankment directly west of Korpetsch. I saw nothing of the retirement of this* ***Abteilung*** *through the prevailing smoke and because of my observation to the north and northwest in the direction of Tulumtschak. From about 0915 hours on, there was no longer any radio contact with the commander of the* ***II.Abteilung****, who because of the loss of his Panzer's radio wanted to change to another.*

Because I had to calculate from the orders given to the ***I.*** *and* ***II.Abteilung*** *that as a result of the ordered rearward movement these must run into me and the Panzers around me in the area west and northwest of Korpetsch, I waited there with about 15 Panzers from the* ***II.Abteilung*** *and the* ***Regiment Stab*** *until 1010 hours.*

In the meantime, the report of the new location of the ***I.Abteilung*** *came in through the division. The report on the retirement of the forward elements of the* ***II.Abteilung*** *was brought over by the ordnance officer driving in a panzer from the* ***II.Abteilung****.*

In addition, at about 1000 hours, Oberleutnant Luckhardt appeared in the Panzer that had been used by the doctor in the ***II.Abteilung****, and reported to me that, being shot up, his three* ***Pz.Kpfw.IV*** *had to be abandoned at Point 28.2, that he himself came back on foot, and that he didn't know anything specific about the fate of both other crews.*

At this time, various reports came in at the same time from several Panzers that their fuel and ammunition were almost exhausted. Because contact had still not been made with the infantry, after reporting to the division I decided to pull back from here with the remaining elements of the Regiment to regain control of the Regiment at the assembly area of the ***I.Abteilung****.*

*I myself could only observe rearward movements on this part of the front. I believe that they went from the rear to the front. During the retirement of the Panzers from the artillery fire that lasted two to three hours, apparently the impression was awakened in several rearward elements that the Panzers wanted to pull back. I had the impression that the wave of panic passed to the elements furthest back in the area of the railway embankment, infantry as well as motorized elements (****SPW****, Panzers, self-propelled* ***Flak****). When I recognized this at about 0915 hours, I sent the adjutant of the regiment back in a Panzer to stop the retreat and turn them back to advance in the direction of the attack. This was done with some success.*

Of the 33 Panzers that were left lying in front of our lines:

- *Two* ***Pz.Kpfw.II****, six* ***Pz.Kpfw.38(t)****, one* ***Pz.Kpfw.IV*** *were burned out or so damaged by hits that their repair doesn't appear possible.*
- *Five* ***Pz.Kpfw.II****, ten* ***Pz.Kpfw.38(t)****, and three* ***Pz.Kpfw.IV*** *were so heavily damaged that by cannibalization of parts other Panzers can be repaired and made operational.*
- *Three* ***Pz.Kpfw.II****, one* ***Pz.Kpfw.38(t)****, and two* ***Pz.Kpfw.IV*** *have little damage or are stuck and potentially can be made operational.*

Because we already managed to tow away many Panzers during the day of the attack, and from the situation it was calculated that the main part of the Panzers lying between and behind the lines could still be recovered by a renewed attack for which the regiment was assembled, an order to destroy the Panzers was not given.

Attempts during the following nights to recover the Panzers failed because of the enemy defense.

The attack failed because of inadequate preparations and coordination. **Panzer-Regiment 204** had started with 45 **Pz.Kpfw.II**, 77 **Pz.Kpfw.38(t)** (including **Pz.Bef.Wg.**) and 20 **Pz.Kpfw.IV**. The final tally of total writeoffs from the action on 20 March was 9 **Pz.Kpfw.II**, 17 **Pz.Kpfw.38(t)** and 6 **Pz.Kpfw.IV**.

Panzer-Regiment 29 of the **12.Panzer-Division** had been converted from **Pz.Kpfw.38(t)** to **Pz.Kpfw.III** with **5 cm Kw.K. L/42** guns in December 1941. Under **Heeres-Gruppe Nord** they spent the winter engaging heavy Russian tanks south of Leningrad as related in the following report of the combat activity of his company by Oberleutnant Kauffmann of **Panzer-Regiment 29**:

On 27 March 1942, the company commander sent the first three ***Pz.Kpfw.IV*** *into action from the approach march and entered combat with these at about 1130 hours. The employment came exactly at the right time to prevent enemy tanks from breaking through the main defense line. One T34 tank and one Russian 4.7 cm gun tank were knocked out and both burned out.*

At dawn on 28 March 1942, on defense two ***Pz.Kpfw.IV*** *and a* ***Pz.Kpfw.III*** *had a firefight with a 52 ton tank that didn't achieve anything. The 52 ton tank pulled back. About 1000 hours, two tanks appeared in the forest that were immediately engaged by the defenders and a third* ***Pz.Kpfw.IV*** *that had been sent. The exchange of fire was at a range of 100 meters. The rate of fire of our Panzers was considerably su-*

perior to the Russian tanks. We managed to hit and set fire to one T34; the other pulled back.

*On 28 March, Leutnant Hein with three **Pz.Kpfw.IV** was assigned by the company commander to drive several hundred meters farther forward in the clearing. The task was to determine if the enemy tanks were still found at our front, and if necessary to engage them in order to weaken the opponent. Four Russian tanks took up the fight, in which one T34 and one 4.7 cm gun tank were knocked out. The other enemy tanks pulled back.*

*On 30 March the company received an order from Major Voss to restore a position in his sector. For this, the company commander immediately sent four **Pz.Kpfw.IV** to hunt for the enemy tanks that broke through the defenses. A simple attack cutting directly across from Sattler's sector was not possible due to our own mines and the difficult terrain. The Panzers had to take a trail through Lipowik, then again toward the northwest on a recently shoveled supply trail in the direction of Capen. On the way a Panzer fell out due to engine failure. In thick woods directly southeast of Capen, the other three encountered a 52 ton tank and a T34. Under the covering fire from one Panzer, the other pair circled to the left and from a range of 50 to 80 meters opened fire on the enemy tanks. All three **Pz.Kpfw.IV** scored hits that showed no effect other than on the enemy morale. As the crew of the T34 wanted to abandon their tank, the 52 ton tank drove on and pulled away at high speed utilizing his entire maneuverability. Then the T34 followed him. Our own Panzers couldn't follow because the guns in all three **Pz.Kpfw.IV** were temporarily out of service.*

*At about 0730 hours on 31 March 1942, the company commander received an order from Oberst Chill to attack as soon as possible in the sector of Gruppe Voss to destroy the remaining enemy tanks if possible and to lengthen toward the west the sector of the main defense line of Gruppe Sattler. The **Panzer-Kompanie** quickly assembled for the attack in the clearing by Capau. Four **Pz.Kpfw.IV** were placed in the lead, followed by two **Pz.Kpfw.III**, with a **Pz.Kpfw.IV** bringing up the rear. One **Pz.Kpfw.III** was attached to the command post of Gruppe Voss for radio contact. The **Panzer-Kompanie** was ready to attack at 1030 hours. At 1130 hours, the infantry were ready to attack and climbed onto the Panzers. The attack started shortly thereafter.*

*The **Panzer-Kompanie** rolled across the clearing and entered the brush so that they couldn't be observed from the wood line occupied by the enemy. The four **Pz.Kpfw.IV** turned right in the direction that the infantry were to advance and where the enemy tanks were expected to be. At the same time, Leutnant Heim with two **Pz.Kpfw.III** and a **Pz.Kpfw.IV** was sent on reconnaissance and to secure the left flank directly toward the wood line. The ability of the Panzers to maneuver was extremely limited. Two Panzers were temporarily stuck and it took a long time to free them. They had bellied out on tree stumps in the deep snow.*

*The strong enemy infantry occupants were driven off in a short time. As the four **Pz.Kpfw.IV** had covered a stretch of about 500 meters, a radio message came from Leutnant Hein that he had unexpectedly run into Russian tanks. The enemy tank force was totally surprised because the crews were working dismounted. **The surprise should be credited only to the quietly running German engines.***

*Leutnant Hein's Panzer fired at the nearest 4.7 cm gun tank. This immediately went up in flames. The other Russian 4.7 cm gun tank hit Leutnant Hein's Panzer on the gun mantlet, but was itself immediately hit and set on fire by a **Pz.Kpfw.IV**. Immediately thereafter a 52 ton tank that hadn't previously been noticed fired at Leutnant Hein's Panzer. In the exchange of fire, Leutnant Hein's Panzer was hit on the commander's cupola but wasn't penetrated. Leutnant Hein also hit the turret of the 52 ton tank several times. It was later determined that these were clean penetrations. The crew abandoning the enemy tank were killed. Then the **Panzer-Kompanie** brought the infantry forward in the ordered attack direction, pushed through to the objective, and caused the enemy high losses in dead and machine guns.*

*Enemy tanks were reported to be advancing from the north in the direction of Dubowik. On the morning of 31 March, both **Pz.Kpfw.III** were sent from Dubowik to the old point defended on 27 March. A **Pz.Kpfw.III** remained by the regimental command post. During 31 March, heavy Russian 52 ton tanks broke through the north main defense line of Gruppe Sattler. About 1600 hours, a **Pz.Kpfw.III** was sent back and arrived without incident at Dubowik. About 1800 hours, the second **Pz.Kpfw.III** was ordered to Dubowik. On the way, shortly before entering the south side of Dubowik, the Panzer was suddenly covered by fire from 52 ton tanks from the woods west of the road. The crew had not known about the enemy situation. The first hit already set the **Pz.Kpfw.III** on fire. The crew managed to get out and come back unwounded.*

*In late evening, the **Panzer-Kompanie** received the order to send three **Pz.Kpfw.IV** to the command post of **Gruppe Sattler**. Of these, only two reached the objective, because one was immobilized by engine problems. The rest of the **Panzer-Kompanie** remained attached to **Gruppe Voss**.*

*At 0300 hours in the morning of 1 April, the only **Pz.Kpfw.III** in Dubowik came under fire from tanks. The commander identified one 52 ton and three T34 in the woods on his left flank. By frequently changing the position on the edge of Dubowik, he successfully pulled away from the Russian tanks that had at times advanced to within 300 meters. At 0700 hours on 1 April, he managed to disable a T34 by a hit in the engine. The enemy crew abandoned the tank. About 0900 hours, Feldwebel Alschausky with two **Pz.Kpfw.IV** and a **Pz.Kpfw.III** was assigned by **Gruppe Sattler** to regain the defense line that the enemy tanks had broken through the evening before. Accompanied by infantry, they first advanced toward Dubowik, then turned left to a woods one kilometer to the west. On the way to the woods, Feldwebel Alschausky's Panzer was fired at by a 52 ton enemy tank. The other Panzers*

were still farther back. Feldwebel Alschausky entered the fight alone and managed to knock out the 52 ton tank with hits on the turret and gun. Feldwebel Alschausky then brought the infantry to the ordered position.

In the period from 27 March to 1 April 1942, the ***Panzer-Kompanie*** *had knocked out two heavy 52 ton tanks, four T34 tanks, and four 4.7 cm gun tanks. In addition, one 4.7 cm anti-tank gun was destroyed and the enemy lost a large number of machine guns and men.*

One of the rare **Heerestruppen** units to get into front line service in regimental strength, **Panzer-Regiment 203** had been sent to **Heeres-Gruppe Nord** in December 1941. On 17 May 1942, **Panzer-Regiment 203** submitted the following report on their experience in fighting against Russian tanks with the German **Pz.Kpfw.III** and **IV**:

The superiority of the Russian tanks is a result of the more effective weapon (7.62 cm tank gun), better armor protection, and vastly better cross-country mobility due to their wider tracks, stronger engine, and higher ground clearance.

However, the Russian tanks are inferior due to the limitations on vision and in general the lower skill in which they are employed. Sometimes the training of the Russian crews was inadequate. This was noticeable in the way they drove in combat and in their rate of fire.

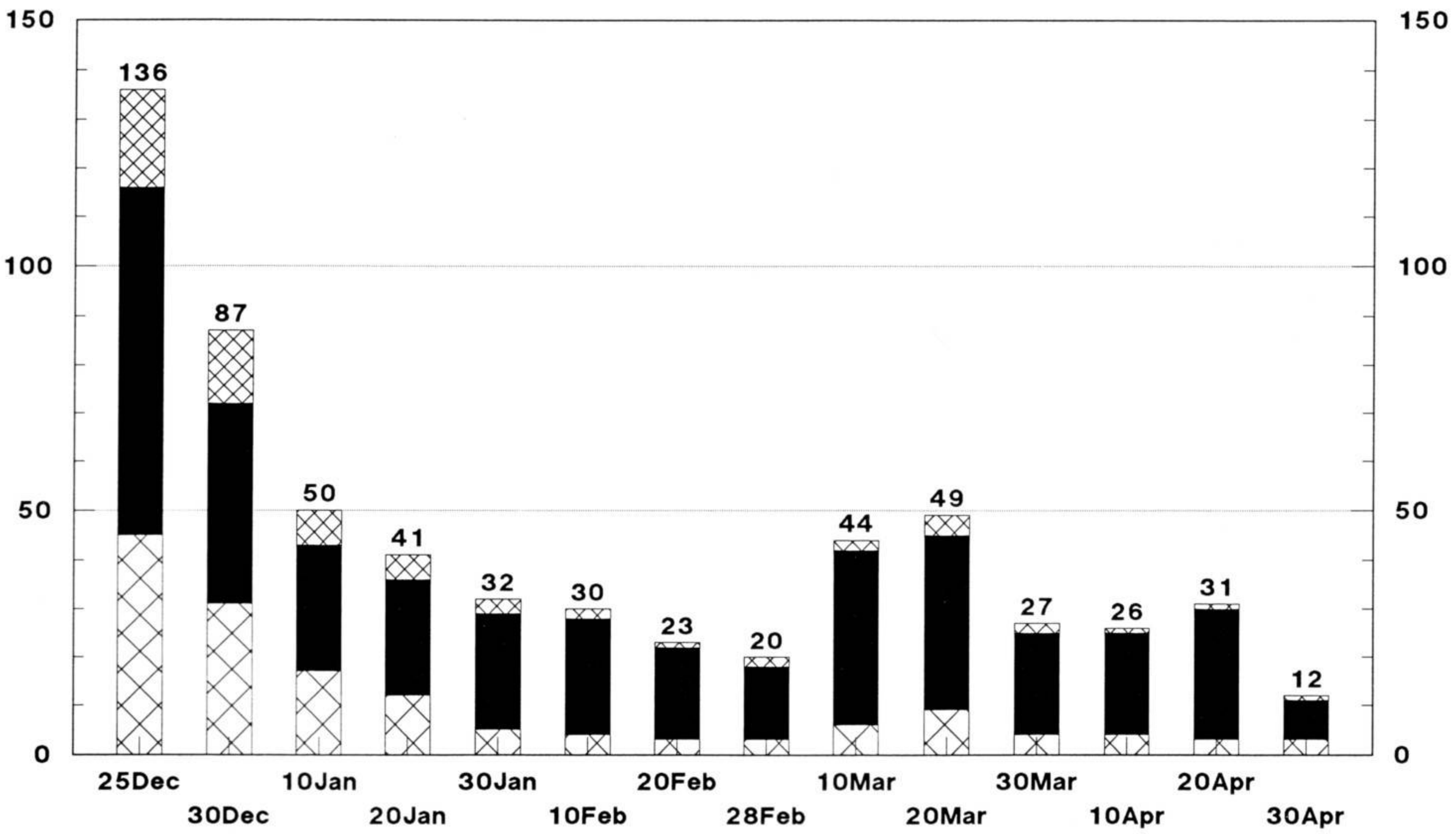
The above facts form the basis for the following method for fighting these enemy tanks:

• Engaging enemy tanks that have been dug in as an anti-tank gun should be mainly viewed as hopeless. It is only possible to engage them with infantry with strong artillery support.

• When the enemy tank is moving, everything is based on gaining the flank (T34) or rear (KW). Better vision from the German Panzers is advantageous in accomplishing this. By opening the hatch, the commander can in many cases hear the noise made by the enemy tanks and learn the direction in which they are moving. From this he can adjust his own course or take up a flanking position along the expected enemy tanks route. It is necessary to turn off the Panzer's engine from time to time. If this can't be

OPERATIONAL PANZERS IN PANZER-REGIMENT 203

25 DECEMBER 1941 TO 30 APRIL 1942



Replacements: 37 PzIII issued by 27 Feb 42

Total writeoffs by 30 Apr 42: 16 PzII, 45 PzIII, 15 PzIV

managed because of the terrain or the direction of attack, then by firing at the opponent he can frequently be compelled to turn resulting in the desired chance of working against the flanks or rear.

If it is expected that encounters with medium and heavy enemy tanks will occur during the action, it is necessary (usually against the demands of the infantry) to employ our own Panzer forces in closed battle groups of at least eight Panzers, because when they are surprisingly hit by fire, even when the weapons effect is minimal, the Russians will be induced to turn and then can be attacked from the flank or rear. The enemy can also be turned by using smoke.

• Digging-in German Panzers instead of anti-tank guns generally results in their loss if the T34 or KW approach frontally. Therefore in general digging-in Panzers should be avoided.

***Panzer-Regiment 203** has knocked out 115 enemy tanks with a loss of 14 of their own Panzers.*

*The **5 cm** and **7.5 cm Kw.K.** were effective in destroying all of the lighter enemy tanks at all usable ranges. The details of the effect of the various weapons and types of ammunition on the T34 and KW-I are presented in the following tables* (see right).

On 26 May 1942 the **General der Schnellen Truppen beim Oberkommando des Heeres** distributed the following instructions to units on the Eastern Front for *Combating the Russian T34 Tank with our Panzers*:

***Characteristics of the T34** - The T34 is faster, more maneuverable, has better cross-country mobility than our **Pz.Kpfw.III and IV**. Its armor is stronger. The penetrating ability of its 7.62 cm cannon is superior to our **5 cm Kw.K.** and the **7,5 cm Kw.K.40**. The favorable form of sloping all of the armor plates aids in causing the shells to skid off.*

*Combating the T34 with the **5 cm Kw.K.** tank gun is possible only at short ranges from the flank or rear, where it is important to achieve a hit as perpendicular to the surface as possible. Hits on the turret ring, even with high-explosive shells or machine gun bullets, usually result in jamming the turret. In addition, armor-piercing shells fired at close range that hit the gun mantle result in penetrations and breaking open the weld seams. The T34 can be penetrated at ranges up to 1000 meters with the **7.5 cm Kw.K.40** as well as the **7.5 cm Hohlgranate** (shaped charge shells)*

***Russian Tank Tactics** - In defense and covering a retreat, the T34 with the turret at six o'clock is often dug in on a commanding height along a road or on the edge of woods or villages. Then after surprisingly opening fire from ambush, the T34 can be driven out of the concealed position still under cover.*

In correctly recognizing his technical superiority in weapons, the T34 already opens fire on German Panzers at ranges from 1200 to 1800 meters. Because the T34 is faster than

Pz.Kpfw.IV (7,5 cm Kw.K. L/24) versus the Russian T34 and KW-I		
T34	**Penetrating Effect**	**Hindering Effect**
Gr.38 HL:	150-800 m at the hull between the 5th and 6th roadwheel 150-400 m at the machine gun ball mount on the glacis	Jamming the turret Damaging the gun Damaging the track
Pzgr.:	--	(Same as above)
Sprgr.:	--	At close ranges on the air outlet cowling at the rear
KW-I	**Penetrating Effect**	**Hindering Effect**
Gr.38 HL:	150-600 m at the hull and turret side 140-300 m at the hull from the front	Jamming the turret Damaging the gun Damaging the track
Pzgr.:	--	(Same as above)
Sprgr.:	--	--
Note: KW-Is were only engaged five times. Therefore results were not gathered from knocked-out tanks.		

Pz.Kpfw.III (5 cm Kw.K. L/42) versus the Russian T34 and KW-I		
T34	**Penetrating Effect**	**Hindering Effect**
Pzgr.40:	Up to 200 m at the hull between the 5th and 6th roadwheel up to 100 m at the turret side	Jamming the turret Damaging the track Concentrated fire on the driver's visor possibly penetrates
Pzgr.:	Up to 150 m at the hull between the 5th and 6th roadwheel after several hits	(Same as Pzgr.40)
Sprgr.:	--	--
KW-I	**Penetrating Effect**	**Hindering Effect**
Pzgr.40:	--	Jamming the turret Damaging the track
Pzgr.:	--	(Same as Pzgr.40)
Sprgr.:	--	--

Pz.Kpfw.III (5 cm Kw.K. L/60) versus the Russian T34 and KW-I		
T34	**Penetrating Effect**	**Hindering Effect**
Pzgr.40: No experience since the shell casing frequently sticks in the gun. Therefore it is only fired at the KW-I.		
Pzgr.:	Up to 400 m at the hull and turret side At 300 m from front at the driver's hatch after several hits	Jamming the turret Damaging the gun Damaging the track
Sprgr.:	--	At close ranges on the air outlet cowling on the rear
KW-I	**Penetrating Effect**	**Hindering Effect**
Pzgr.40:	Up to 200 m on the hull side or rear	Jamming the turret Damaging the track
Pzgr.:	--	(Same as Pzgr.40)
Sprgr.:	--	--
Note: The KW-Is were only engaged five times. Therefore results were not gathered from knocked-out tanks.		

the German Panzers, he can choose the range for a firefight.

***Our Panzer Tactics** - Because the **5 cm Kw.K.** can only be expected to penetrate the flanks of the T34 at short range, the following tactics have proven been to be correct in combating them:*

*a. Attract and tie down the opponent frontally by having a **Pz.Kpfw.III** take up the firefight. Choose a hull down position or drive in a zig-zag course to make it difficult for the opponent to hit the target.*

*b. At the same time, utilizing all available cover, two other **Pz.Kpfw.IIIs** attempt to circumvent the T34 to the right or left in order to gain a position in the flank or in the rear and knock him out at short range with **Pzgr.40** fired at the hull or rear.*

*c. If a **Pz.Kpfw.IV** is available among our own Panzers, it is to be employed in front of the opponent. The use of **Nebelgranaten** (smoke shells) can blind the T34 or aid the other Panzers in closing in. It is also possible that the opponent will think that the smoke is poison gas and break off the action.*

When encountering numerically superior enemy tanks (T34 and KW), success has always resulted when our Panzer unit builds a fire front and overwhelms the enemy with fire. Even when no penetrations can be achieved, the enemy, impressed by the accuracy and rate of fire of the German Panzers, almost always breaks off the action.

In an attack near Charkow, the new **23.Panzer-Division**, supported by a **Kampfgruppe** from the **3.Panzer-Division**, succeeded in cutting off and contributing to the destruction of a major Russian force. **Panzer-Regiment 201** arrived in Russia with 34 **Pz.Kpfw.II**, 112 **Pz.Kpfw.III**, 32 **Pz.Kpfw.IV**, and 3 **Pz.Bef.Wg.** Somewhat less than half of the **Pz.Kpfw.III** were outfitted with the long **5 cm Kw.K. L/60**. They had also been given 12 **Pz.Kpfw.IV** with the long **7.5 cm Kw.K.40 L/43**, of which 6 had reached the unit by 12 May.

The **I.Abteilung/Panzer-Regiment 201** started out with 9 **Pz.Kpfw.II**, 36 **Pz.Kpfw.III**, and 13 **Pz.Kpfw.IV** operational on 12 May 1942. They still had 6 **Pz.Kpfw.II**, 19 **Pz.Kpfw.III** and 10 **Pz.Kpfw.IV** operational on 27 May and had lost 5 **Pz.Kpfw.III (5 cm Kw.K. L/42)**, 4 **Pz.Kpfw.III (5 cm Kw.K. L/60)**, and 1 **Pz.Kpfw.IV (7.5 cm Kw.K.40 L/43)**. In exchange for these losses the **I.Abteilung** claimed to have knocked out 79 Russian tanks including 45 T34, 13 Mark II, 12 Christi, and 9 KWI.

Panzer-Kampf-Abteilung Ziervogel (**III.Abteilung/ Panzer-Regiment 6**) of the **3.Panzer-Division** had 5 **Pz.Kpfw.II**, 25 **Pz.Kpfw.III (5 cm Kw.K. L/42)**, 9 **Pz.Kpfw.III (5 cm Kw.K. L/60)** and 6 **Pz.Kpfw.IV (7.5 cm Kw.K. L/24)** operational on 5 May 1942. During the period from 12 to 22 May 1942, they knocked out:

5 KW that were first knocked out of action with **7.5 cm HL-Granaten** (shaped charge rounds) that did not penetrate. After being immobilized, the KW were destroyed with explosive charges.

36 T34 of which 24 were knocked out by **7.5 cm HL-Granaten** and 12 by **Panzergranaten** from **5 cm Kw.K. L/60**.

16 B.T. of which 12 by **Panzergranaten** from **5 cm Kw.K. L/60** and 4 by **5 cm Kw.K. L/42.**

5 Mark II of which 2 were knocked out by **7.5 cm HL-Granaten** and 3 with **Panzergranaten** from **5 cm Kw.K. L/60**.

In the following report, the commander of the **3.Panzer-Division** passed their knowledge on to the other **Panzer-Divisions** preparing for the major summer offensives:

*Combat Experience of the **3.Panzer-Division** -*

The Russian infantry is poor. They won't attack without accompanying tanks. Nothing has changed in regard to how they attack. The attack still always occurs in herds. In spite of attacks being beaten back, the attack will again and again be repeated in the same fashion without achieving any other result.

The Russians can no longer withstand a concentrated German Panzer attack. He panics and abandons his position. This very clearly occurred during the battles by Charkow and also on the Kertsch peninsula. However, it should be clearly emphasized, that this only occurs as a result of massive Panzer attacks. During attacks at company strength, after he has recognized the low number of Panzers, he immediately gets back into his hole and stubbornly defends against the following infantry. During successful German breakthroughs, it has continuously proven to be necessary to relentlessly chase the opponent, even at night. He has mastered the concentration of large bodies of troops especially at night, so that when the attack is renewed in the morning a new defensive front must be broken through. The Russians have become very insensitive in the flanks.

*The Russian tank forces are good. The level of training is also good. A Russian first lieutenant tanker captured near Charkow stated that the Russians feel that they are superior to the Germans in tanks. Use of the German **Hohlraummunition** (shaped charge shells) was known to the Russian first. However, the **Pz.Kpfw.IV** with the longer gun (which wasn't used near Charkow) was unknown to the Russians that came from Charkow. The captured officer's description of the organization of the Russian Tank Brigade is the same as other documents available by the Division. Command occurs by radio down to the company commander, within the company by flag signals (yellow flag held up - follow in a row; red flag held up - spread out; red flag swung side to side - enemy tanks, take positions).*

*The Russian tank crews are very sensitive to being fired at, even from weapons that can't harm him. He is almost always turned around and retreats when fired at from the flank by 3.7 cm and 5 cm anti-tank guns or the **5 cm Kw.K. L/42** tank guns. In several cases he turned back when hit in the*

flank by heavy machine gun fire. In all cases, hardly any damage could be found on the tanks that had been fired at.

Because of the small amount of radio equipment and the lack of ability to observe to the side, the Russians have not been able to lead a concentrated tank attack. Therefore, at first only four tanks appear, while gradually the others follow by and by. He is a master in recovering tanks.

He knows that Germans breakthroughs in depth are conducted with long, large road columns. In many cases, therefore, he has successfully stopped the advance with two or three T34s positioned on a commanding height or even dug in. Well camouflaged, these are first identified after they open fire. The positions are chosen so that they can't be approached from the flanks. In every case, scouting for detours has cost so much time that contact with the opponent was lost. After several experiences, the current commander of the ***3.Panzer-Division*** *decided that advances would not be made on the larger roads but that these would be left free at first.*

New weapons that have appeared are the British Mark II tank and an American tank. The 7.62 cm anti-tank/anti-aircraft gun was widely used. A Russian 12.7 mm anti-tank rifle with a two-man crew has newly appeared. It is recognizable by its very long barrel with a lifting support about 1.5 meters high. The bullet penetrates the side walls of our ***Pz.Kpfw.III*** *and* ***IV****. Ranges at which it can be fired are not known. The gunners have been instructed to fire at the glass blocks in the commander's cupola.* ***Panzer-Regiment 6*** *lost six Panzer commanders because of this during the last battles.*

While attacking with infantry it is necessary that coordination between the Panzers and infantry be exactly timed. Either the infantry advance in front to draw enemy fire so that the enemy weapons can be effectively engaged by the Panzers, or the infantry follow at about 300 meters directly behind the Panzers. This interval must be held and may not become longer or it results in fire from the recovering enemy making the advance of the infantry significantly more difficult. In addition it is at least as much the task of the infantry to combat enemy weapons as it is the task of the Panzers.

The best experiences have been achieved in combating enemy tanks through cooperation between the Panzers and the ***Flak****. Especially noteworthy is the fact that when* ***Flak*** *engage ground targets the* ***8.8 cm Flak*** *guns present a very large and immobile target. It is in our interest to especially pay attention to the local defense of these* ***Flak*** *guns from enemy tank attacks.*

The rumors that the Russian armor quality has become poorer are emphatically denied. But it is admitted that the penetration ability of armor-piercing shells is better in the warm part of the year than in the cold. According to the opinion of the experts, this is exclusively due to the differences in temperature.

It is strongly emphasized that every Panzer attack must absolutely follow prelaid plans, with the exception of the pursuit of retreating enemy. Artillery preparations are necessary, with Stukas joining in. Of vast importance for the ***Panzer-Regiment*** *is medium-range frequency radio contact with the rear elements. It is a useful suggestion that the infantry and the Panzer on the same assignment use the same medium-range frequency so that they can hear the other's battle reports.*

Panzer-Regiment 6 *proposes that the turret numbers of the commander's Panzers be redone in a more subdued form. With the numbers as presently displayed, the regiment has lost many commanders. The first and second uniform of the commander was shot up; also the third uniform already has a considerable number of holes. The Russians understand and demonstrate great skill in seeking out and knocking out the commander's Panzers. Especially the* ***Pz.Bef.Wg.*** *which is identified by the frame antenna on the rear, is presently the target of his concentrated fire. Because of this the commander of* ***Panzer-Regiment 6*** *transferred to a normal* ***Pz.Kpfw.III****. Further, the regiment believes it more suitable that the commander and adjutant ride in one Panzer, instead of the commander and signals officer. The commander gains so much time for directing the battle and observation. His intentions are given to the adjutant in catch words who converts them into radio language and transmits them. The signals officer rides in a second Panzer and monitors the radio traffic or follows further behind the commander's Panzer to maintain contact with the division on medium frequency or with aircraft on radios sets on their frequency.*

Henceforth, ***Panzer-Regiment 6*** *is supplying its* ***Pz.Kpfw.II*** *with* ***2 cm Sprenggranaten****. With this they possess a weapon that is very effective in combating enemy infantry. Their armor-piercing ammunition is no longer effective because of the increased thickness of the enemy armor.*

In battles against enemy tanks, it has been shown time after time that calmly waiting and letting the opponent come into close range is better than a showy attack. Besides a large number of knocked-out enemy tanks, no large number of our own are lost. A showy attack results in large losses to ourselves in addition to its possibility of success. This becomes very evident if the successes of the ***3.*** *and* ***23.Panzer-Divisions*** *are compared. Slowly feeling out the front and flanks with the main force on the flanks, sector by sector, is most suitable. When possible, scout on foot and guide the Panzers on foot into selected positions, especially those for the* ***Pz.Kpfw.IV*** *with the long* ***7.5 cm Kw.K.40*** *tank gun. If the first three shots aren't successful, regardless of the cause or type of ammunition, the Panzer must move to a new position. Only when fighting skillfully and utilizing mobility will success be assured and unnecessary losses be prevented.*

Nine **Panzer-Divisions** (**3.**, **9.**, **11.**, **13.**, **14.**, **16.**, **22.**, **23.**, and **24.**) had been concentrated under **Heeres-Gruppe Sued** in preparation for the Summer offensives. Their **Panzer-Regiments** had been expanded to three **Panzer-Abteilungen** each with two **leichte** and one **mittlere Panzer-Kompanie**. In addition, five Infanterie Division (mot) (**3.**, **16.**, **29.**, **60.** and **SS-Wiking**) had been provided with their own organic **Panzer-**

During the Summer of 1942, the **1.** and **4.Panzer-Armee** broke out into the wide plains of southern Russia. The crews often carried extra sections of track across the front for extra protection as was the case with this **Pz.Kpfw.III Ausf.J** with a **5 cm Kw.K. L/60** gun. (WJS)

The **Pz.Kpfw.IV** with the long **7.5 cm Kw.K.40 L/43** gun went into mass production in March 1942. Most of the units that joined in the Summer offensive were issued a core of four to twelve of these valuable Panzers. (Boche)

ORDER OF BATTLE - 4 JULY 1942

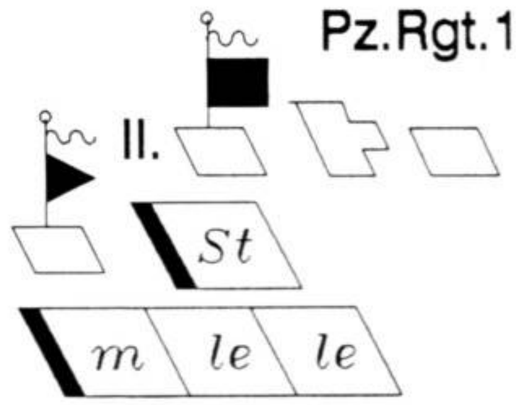
- **Heeresgruppe Nord**
  - **A.O.K.16**
    - **XXXIX.A.K.**
      - **8.Pz.Div.**
        - **Pz.Rgt.10**
      - **Pz.Rgt.203**
  - **A.O.K.18**
    - **XXVIII.A.K.**
      - **12.Pz.Div.**
        - **Pz.Rgt.29**

- **Heeresgruppe Mitte**
  - **Pz.A.O.K.2**
    - **XXXV.A.K.**
      - **4.Pz.Div.**
        - **Pz.Rgt.35**
    - **XLVII.Pz.K.**
      - **17.Pz.Div.**
        - **Pz.Rgt.39**
      - **18.Pz.Div.**
        - **Pz.Rgt.18**
  - **A.O.K.4**
    - **19.Pz.Div.**
      - **Pz.Rgt.27**
  - **A.O.K.9**
    - **XXIII.A.K.**
      - **1.Pz.Div.**
        - **Pz.Rgt.1**
      - **5.Pz.Div.**
        - **Pz.Rgt.31**
    - **XXXXVI.Pz.K.**
      - **20.Pz.Div.**
        - **Pz.Rgt.29**
    - **Gr.Esebeck**
      - **2.Pz.Div.**
        - **Pz.Rgt.3**

- **Heeresgruppe Sued**
  - **Pz.A.O.K.1**
    - **III.Pz.K.**
      - **16.Pz.Div.**
        - **Pz.Rgt.2**
      - **22.Pz.Div.**
        - **Pz.Rgt.204**
    - **XIV.Pz.K.**
      - **14.Pz.Div.**
        - **Pz.Rgt.36**
      - **60.I.D.(mot)**
        - **Pz.Abt.160**
  - **A.O.K.6**
    - **XXXX.Pz.K.**
      - **3.Pz.Div.**
        - **Pz.Rgt.6**
      - **23.Pz.Div.**
        - **Pz.Rgt.201**
      - **29.I.D.(mot)**
        - **Pz.Abt.129**
  - **Pz.A.O.K.4**
    - **LVII.Pz.K.**
      - **13.Pz.Div.**
        - **Pz.Rgt.4**
      - **SS-Div.Wiking**
        - **SS-Pz.Abt.5**
    - **XXIV.Pz.K.**
      - **9.Pz.Div.**
        - **Pz.Rgt.33**
      - **11.Pz.Div.**
        - **Pz.Rgt.15**
      - **3.I.D.(mot)**
        - **Pz.Abt.103**
    - **XXXXVIII.Pz.K.**
      - **24.Pz.Div.**
        - **Pz.Rgt.24**
      - **16.I.D.(mot)**
        - **Pz.Abt.116**
      - **I.D."Gr.D."**
        - **Pz.Abt.Gr.D.**

ORGANIZATION AND STRENGTH OF PANZER UNITS AT START OF SUMMER OFFENSIVES

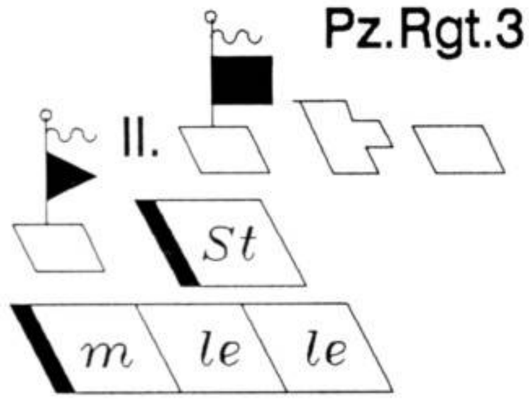
1.Panzer-Division



(15Jul42)

2 PzII, 10 Pz38t, 26 PzIII(5kz), 7 PzIV(kz), 4 PzBef

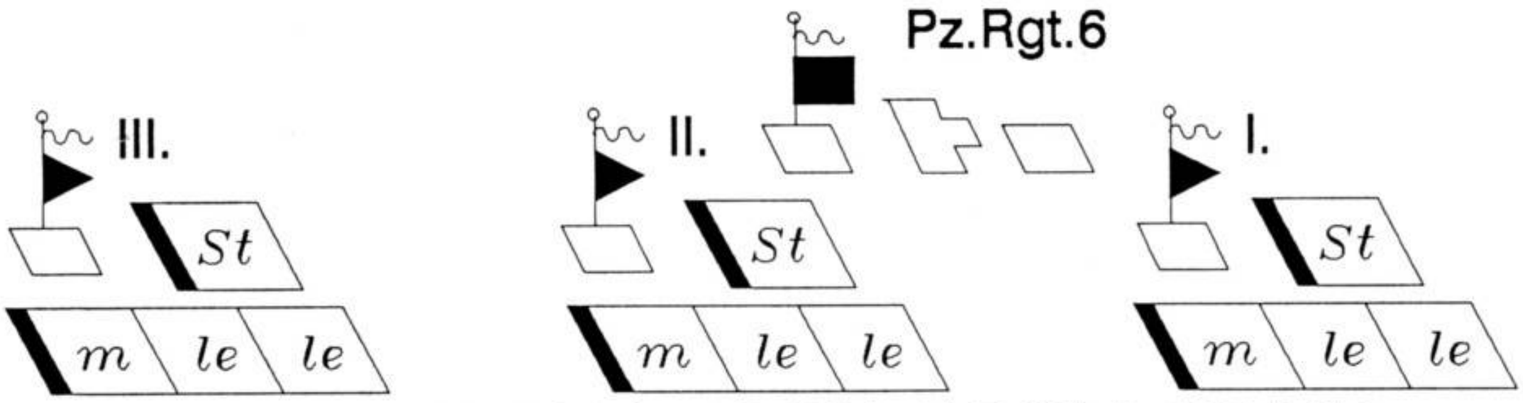
2.Panzer-Division



(20Jun42)

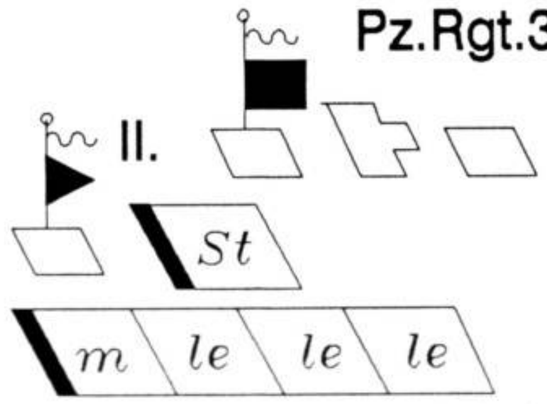
22 PzII, 33 Pz38t, 20 PzIII(5kz), 5 PzIV(kz), 2 PzBef

3.Panzer-Division



25 PzII, 66 PzIII(5kz), 40 PzIII(lg), 21 PzIV(kz), 12 PzIV(lg) (27Jun42)

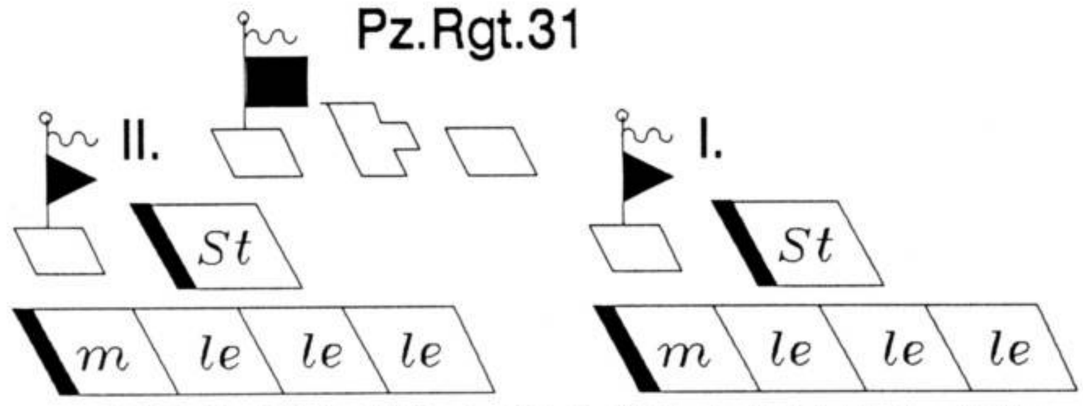
4.Panzer-Division



(1Jul42)

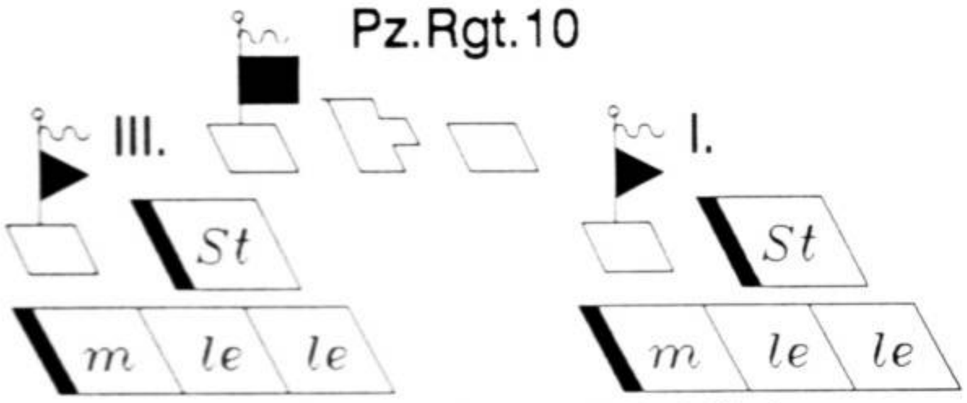
13 PzII, 28 PzIII(5kz), 5 PzIV(kz), 2 PzBef

5.Panzer-Division



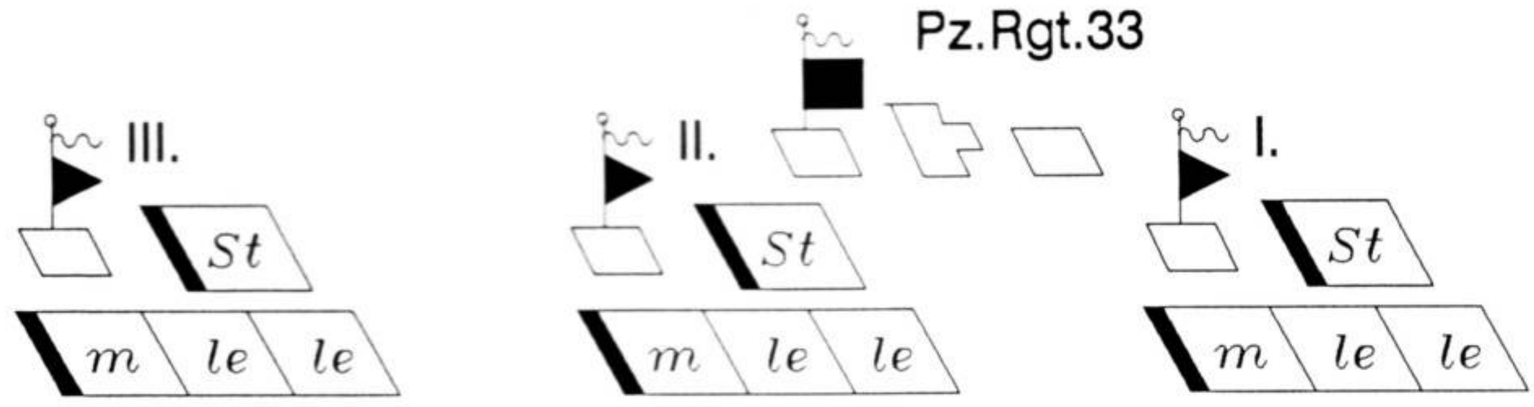
26 PzII, 55 PzIII(kz), 13 PzIV(kz), 9 PzBef (25Jun42)

8.Panzer-Division



1 PzII, 65 Pz38t, 2 PzIV(kz) (28Jun42)

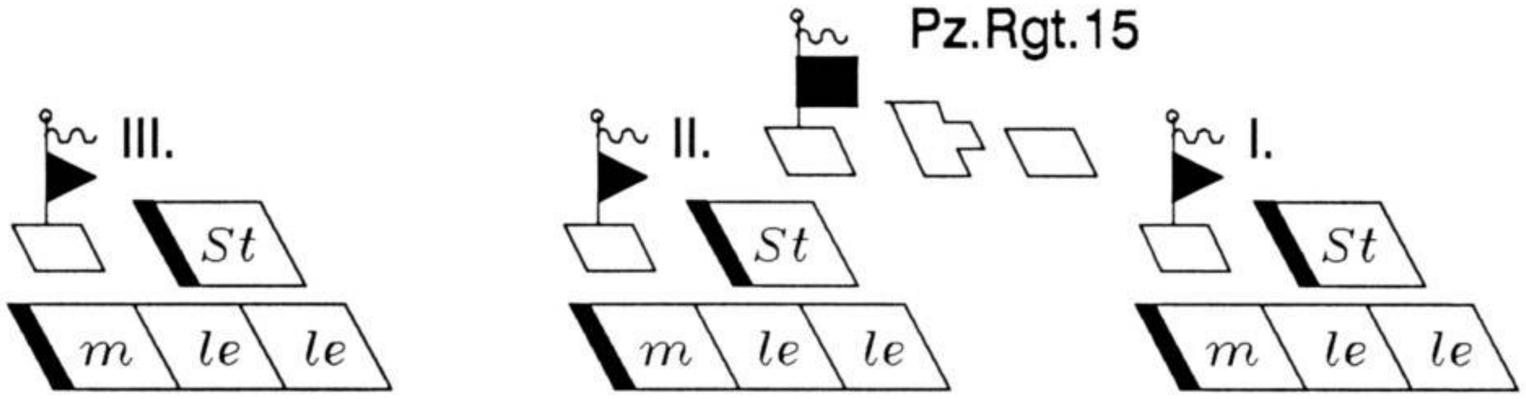
9.Panzer-Division



22 PzII, 38 PzIII(5kz), 61 PzIII(5lg), 9 PzIV(kz), 12 PzIV(lg), 2 PzBef (22Jun42)

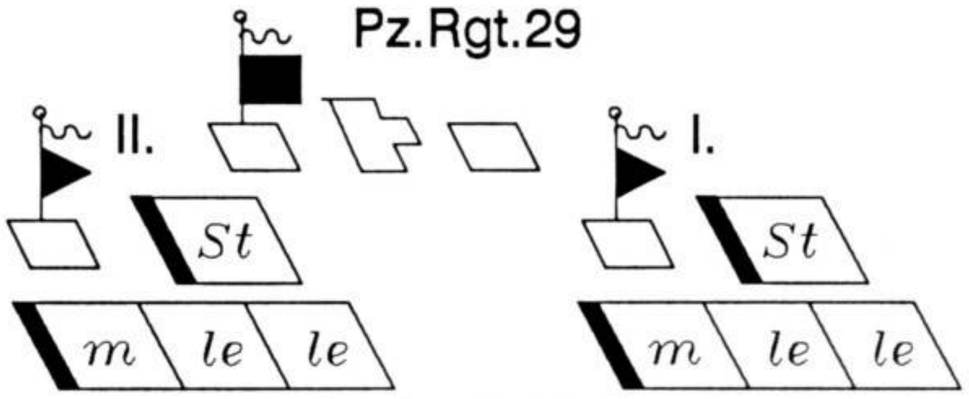
ORGANIZATION AND STRENGTH OF PANZER UNITS AT START OF SUMMER OFFENSIVES

11.Panzer-Division



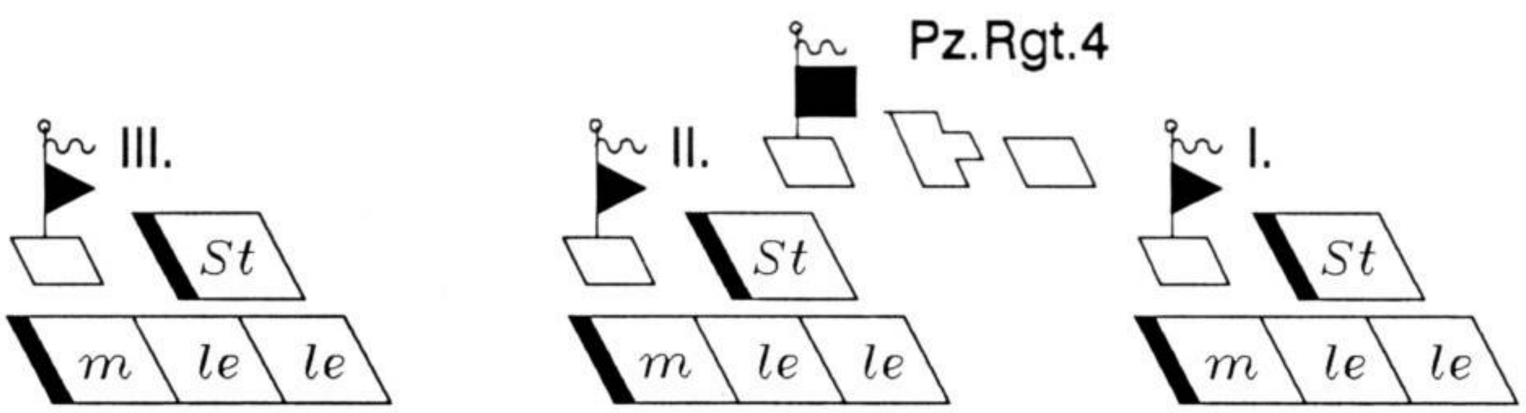
15 PzII, 14 PzIII(5kz), 110 PzIII(5lg), 1 PzIV(kz), 12 PzIV(lg), 3 PzBef (25Jun42)

12.Panzer-Division



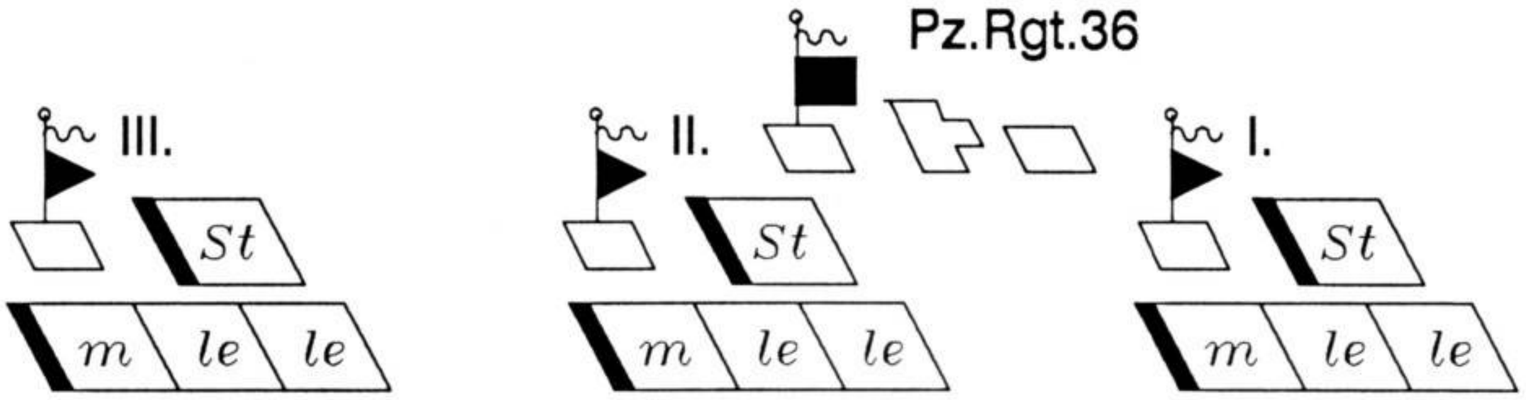
48 PzIII(5kz), 6 PzIV(kz), 4 PzIV(lg) (1Jul42)

13.Panzer-Division



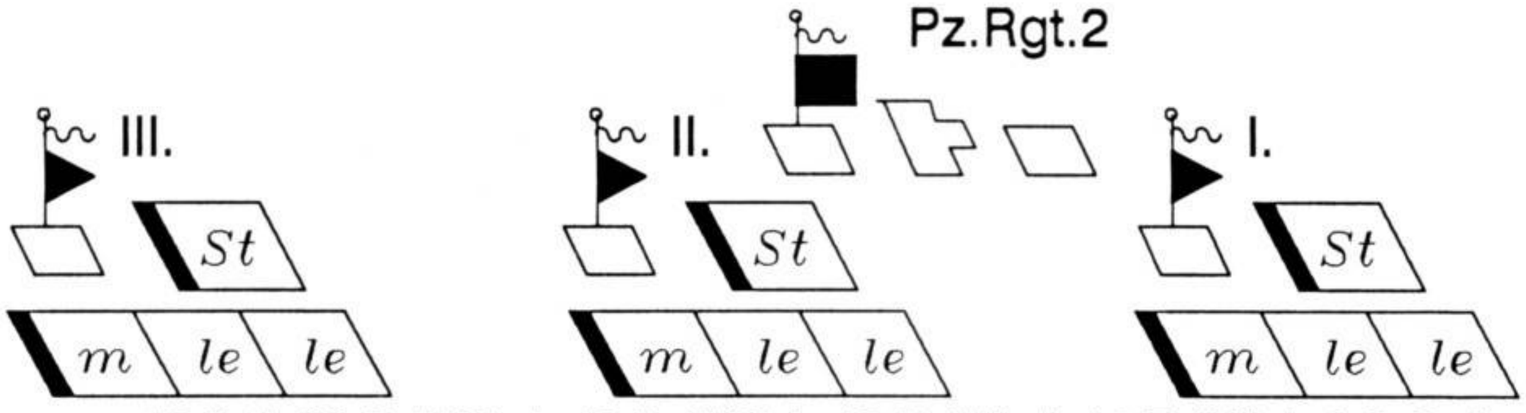
15 PzII, 41 PzIII(5kz), 30 PzIII(5lg), 12 PzIV(kz), 5 PzBef (22Jun42)

14.Panzer-Division



14 PzII, 41 PzIII(5kz), 19 PzIII(5lg), 20 PzIV(kz), 4 PzIV(lg), 4 PzBef (20Jun42)

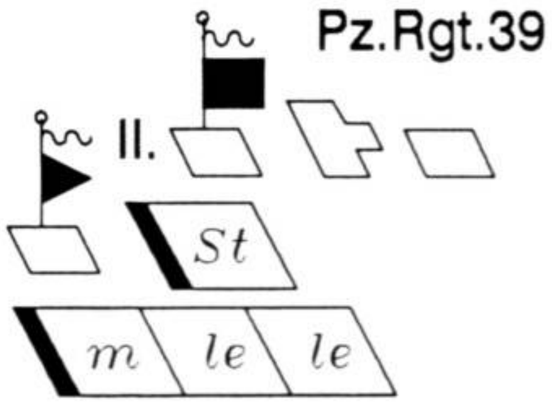
16.Panzer-Division



13 PzII, 39 PzIII(5kz), 18 PzIII(5lg), 15 PzIV(kz), 12 PzIV(lg), 3 PzBef (1Jul42)

ORGANIZATION AND STRENGTH OF PANZER UNITS AT START OF SUMMER OFFENSIVES

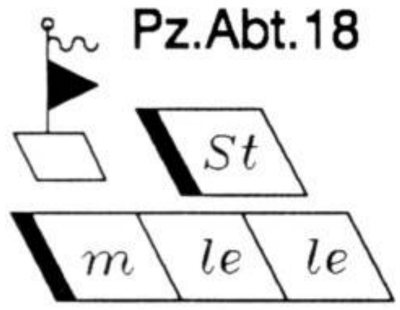
17.Panzer-Division



(29Jun42)

17 PzII, 36 PzIII(5kz), 16 PzIV(kz), 2 PzBef

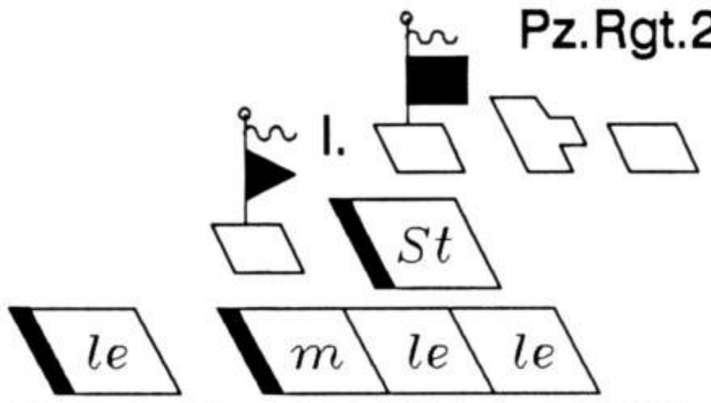
18.Panzer-Division



(29Jun42)

11 PzII, 26 PzIII(5kz), 8 PzIV(kz), 2 PzBef

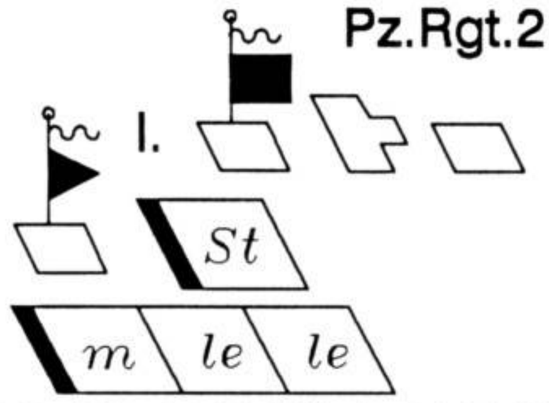
19.Panzer-Division



(15Jul42)

6 PzII, 35 Pz38t, 12 PzIII(5kz), 4 PzIV(kz)

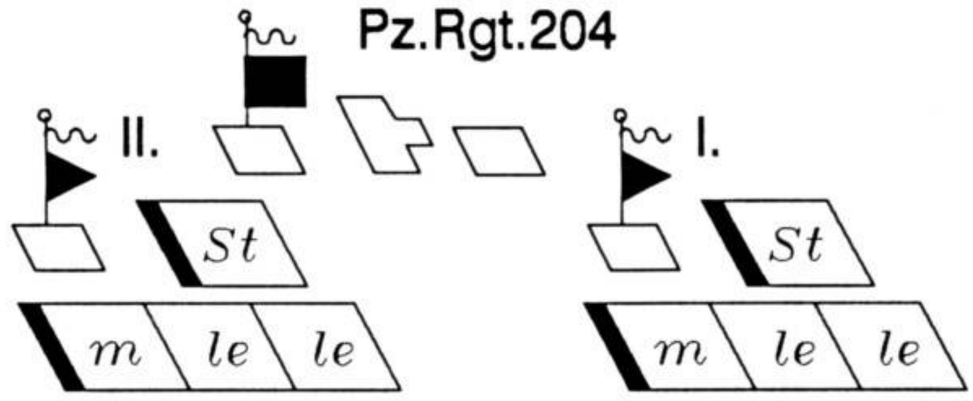
20.Panzer-Division



(30Jun42)

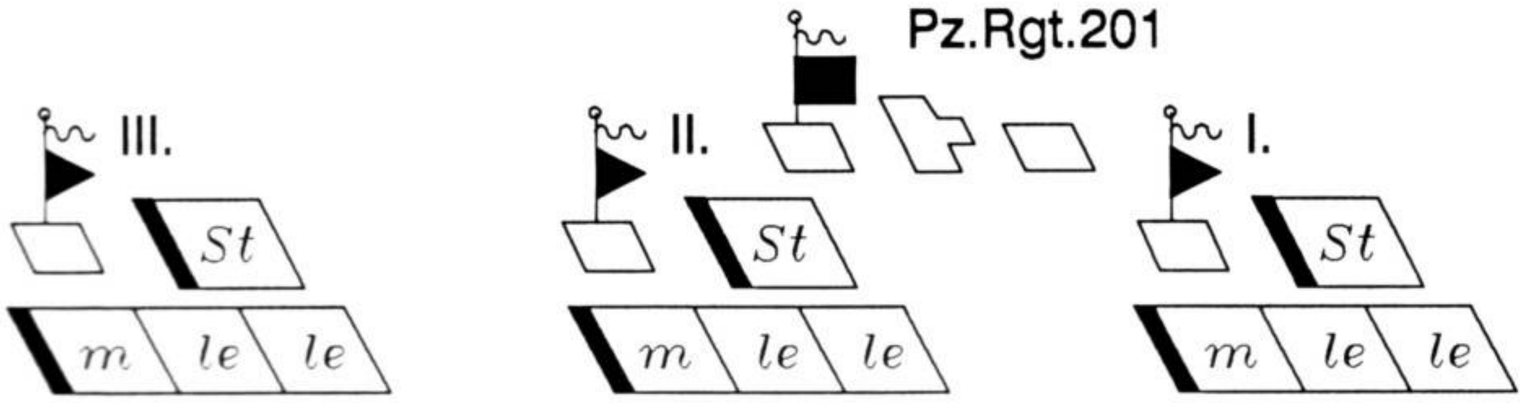
8 PzII, 39 Pz38t, 20 PzIII(kz), 13 PzIV(kz), 7 PzBef

22.Panzer-Division



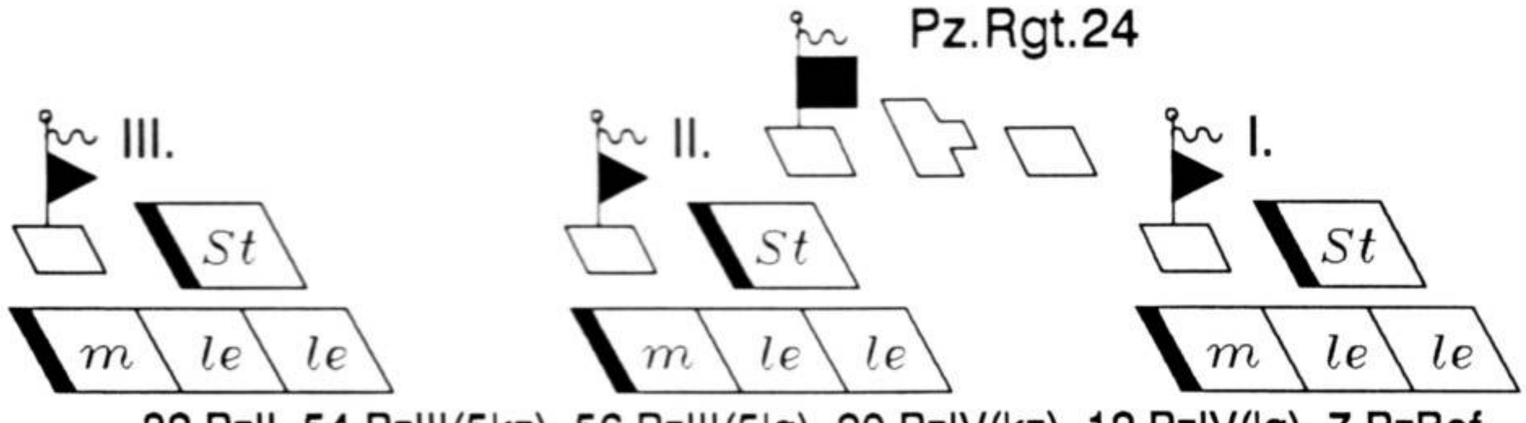
28 PzII, 114 Pz38t, 12 PzIII(5lg), 11 PzIV(kz), 11 PzIV(lg) (1Jul42)

23.Panzer-Division



27 PzII, 50 PzIII(5kz), 34 PzIII(5lg), 17 PzIV(kz), 10 PzIV(lg) (28Jun42)

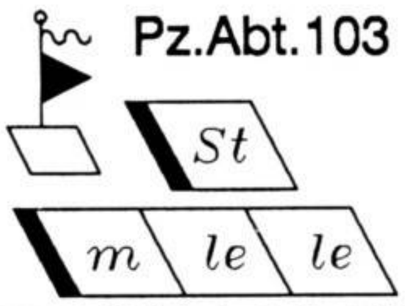
24.Panzer-Division



32 PzII, 54 PzIII(5kz), 56 PzIII(5lg), 20 PzIV(kz), 12 PzIV(lg), 7 PzBef (28Jun42)

ORGANIZATION AND STRENGTH OF PANZER UNITS AT START OF SUMMER OFFENSIVES

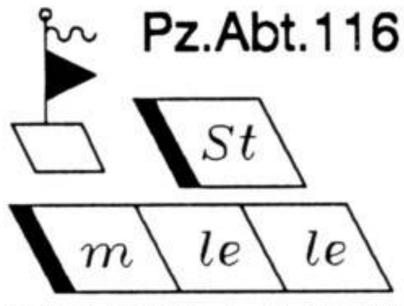
3.Infanterie-Division (mot)



(28Jun42)

10 PzII, 35 PzIII(5lg), 8 PzIV(lg), 1 PzBef

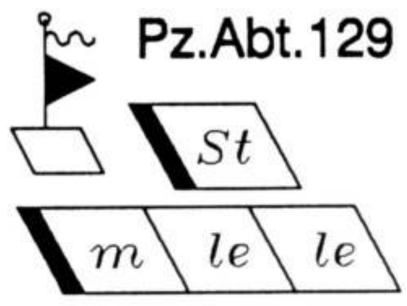
16.Infanterie-Division (mot)



(28Jun42)

10 PzII, 35 PzIII(5lg), 8 PzIV(lg), 1 PzBef

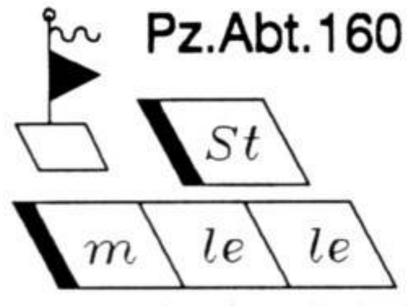
29.Infanterie-Division (mot)



(28Jun42)

12 PzII, 36 PzIII(5lg), 8 PzIV(lg), 2 PzBef

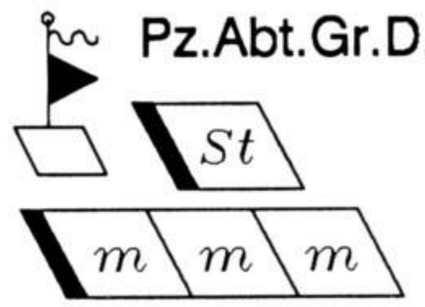
60.Infanterie-Division (mot)



(7Jul42)

17 PzII, 35 PzIII(5lg), 4 PzIV(lg), 1 PzBef

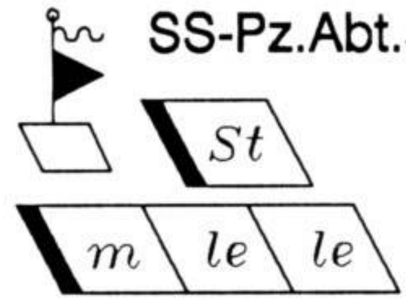
Infanterie-Division "Grossdeutschland"



(1Jul42)

12 PzII, 2 PzIII(5kz), 18 PzIV(kz), 12 PzIV(lg), 1 PzBef

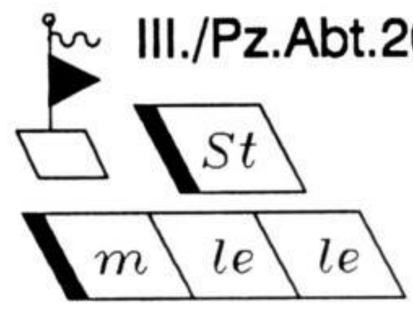
SS-Division (mot) "Wiking"



(27Jun42)

12 PzII, 12 PzIII(5kz), 24 PzIII(5lg), 4 PzIV(kz), 1 PzBef

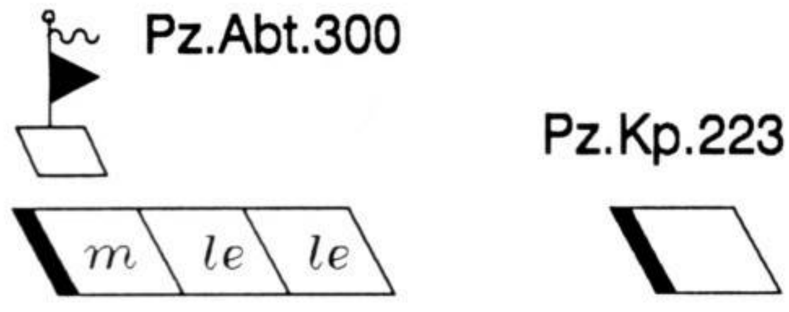
Brigade 22



(23Jun42)

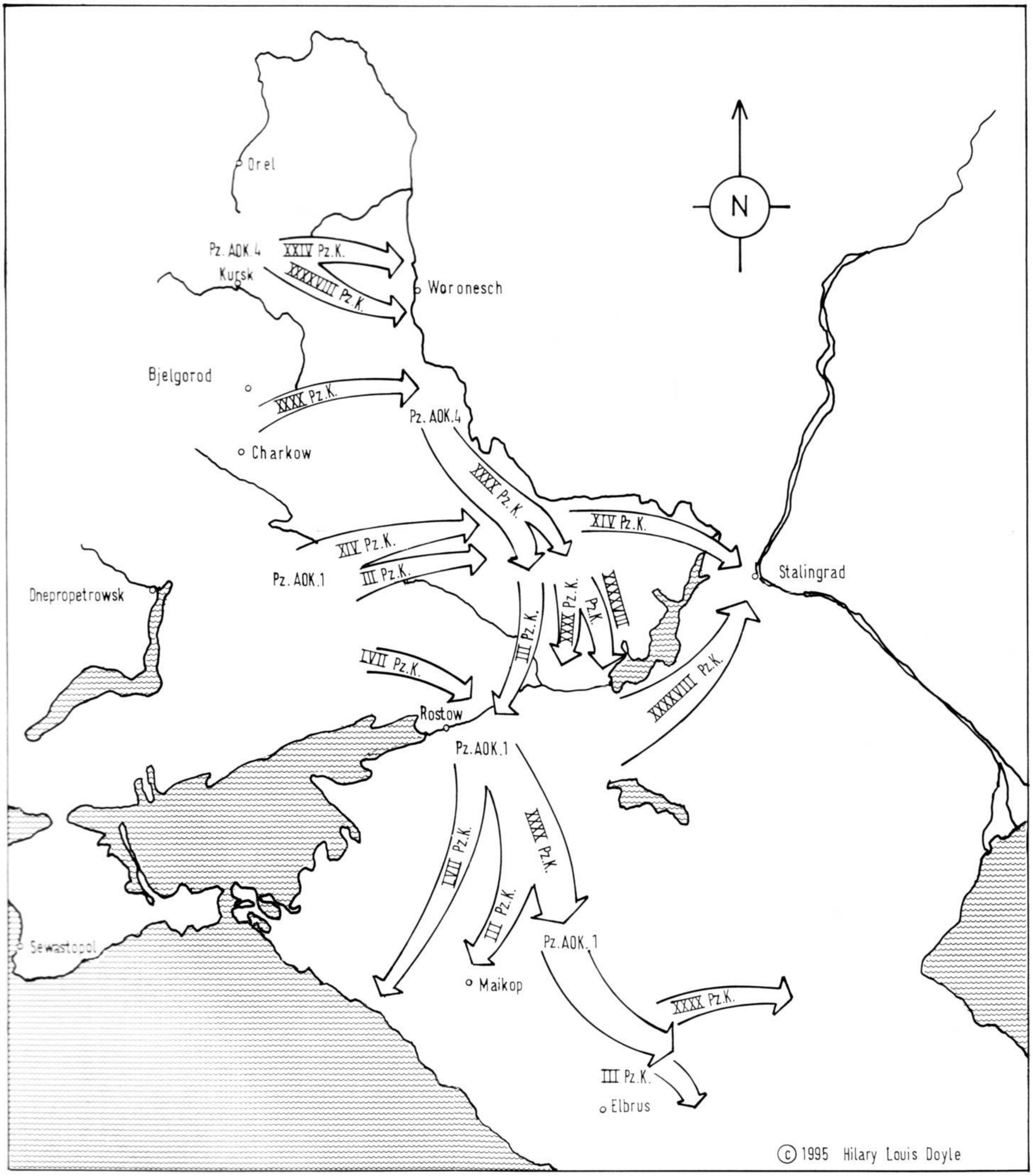
11 PzII, 26 Pz38t, 1 PzIII(5lg), 4 PzIV(kz), 4 PzIV(lg)

Heerestruppen



(Report not found)

(Report not found)


Orel
Pz. AOK.4
Kursk
XXIV Pz.K.
XXXVIII Pz.K.
Woronesch
Bjelgorod
XXXX Pz.K.
Charkow
Pz. AOK.4
XXXX Pz.K.
XIV Pz.K.
XIV Pz.K.
III Pz.K.
Pz. AOK.1
Dnepropetrowsk
Stalingrad
III Pz.K.
XXXX Pz.K.
XXXVIII Pz.K.
XXXVIII Pz.K.
LVII Pz.K.
Rostow
Pz. AOK.1
LVII Pz.K.
XXX Pz.K.
III Pz.K.
Pz. AOK.1
Sewastopol
Maikop
XXXX Pz.K.
III Pz.K.
Elbrus
N
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Abteilung. **Division "Grossdeutschland"** had been given its own **Panzer-Abteilung** with three **mittleren Panzer-Kompanien** each with 10 **Pz.Kpfw.IVs**.

As shown in the Organization and Strength diagrams, a high proportion of the **Pz.Kpfw.IIIs** were **Ausf.L** with the long **5 cm Kw.K. L/60**. Each unit had been provided with up to 12 **Pz.Kpfw.IV** with the long **7.5 cm Kw.K.40 L/43** capable of knocking out T34 tanks at long range.

The first phase of the offensive, codenamed Operation "**Blau**", kicked off on 28 June 1942. The experiences and lessons learned were recorded by **Panzer-Regiment 33** in the following report dated 31 July 1942:

Experience Report on the Tactical Employment of German and Russian Tank Forces

I. Experience in Employment of the German Panzer Forces

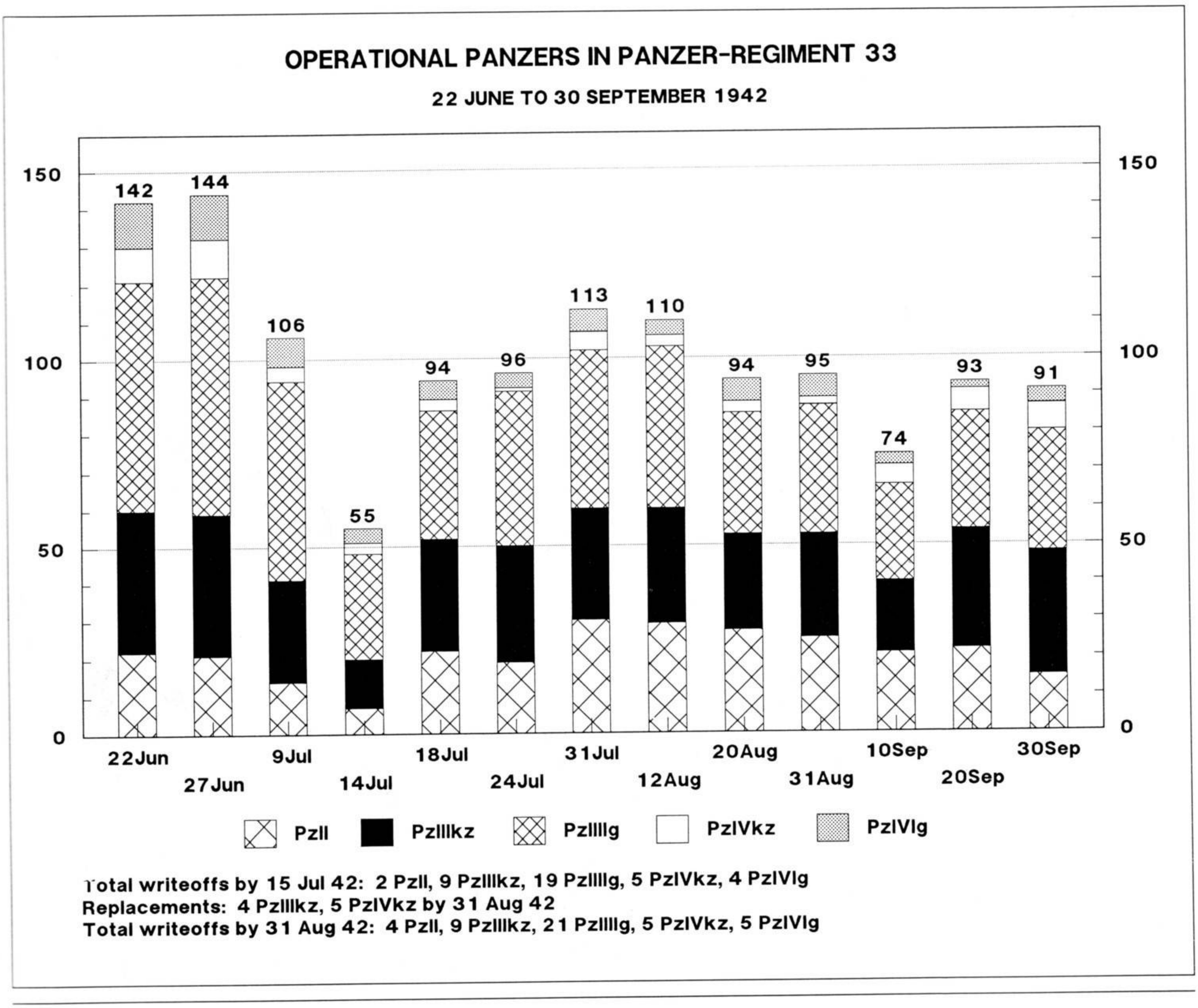
In contrast to the tactics used in the previous campaign, in this campaign the regiment was usually employed as a single unit and thereby could achieve larger successes than when individual companies were employed, each having its own assignment.

*At least an **Abteilung** has to be sent on detached assignments. Detachment of a single company must remain an exception. Concentrated employment of all Panzers should always be strived for.*

A. Tactical

1. Panzers must advance in a manner that allows the infantry to follow. Advance from sector to sector so that the opponent doesn't have an opportunity to separate the infantry from the Panzers. The Panzers must fight through the area, not drive through.

2. Panzers can only temporarily hold newly conquered villages and terrain until the infantry come up. The infantry must attempt to maintain contact, clean out the area behind



the Panzers, and as quickly as possible reach, occupy, and hold the objective. The Panzers will then be pulled back about three kilometers behind the front line, assembled, and prepared for new assignments.

3. Panzers, that have taken a height that they must temporarily hold until the infantry come up, form up so that several Panzers take up defensive positions, fully concealed directly below the ridge line. Observers should be sent on foot up to the ridge line. Defense of the flanks should be set up in the same manner. The main body of Panzers remains farther back in complete cover and stands there ready for action. The ridge line is not to be occupied on a wide front at the top.

4. In Panzer versus tank combat, always attempt to hit the opponent in the flank. The better ability to see out of our Panzers greatly aids this. In a frontal firefight the opponent is always superior because the Russian tanks have better weapons and better armor protection than the German Panzers.

***If the opponent attacks:** Withdraw toward both sides, let the opponent drive into the gap, and shoot him up from the side.*

***When our own Panzers attack:** Utilize the ravines and woods to gain a position on the opponent's flank.*

*5. **Pz.Kpfw.IV** with the long **7.5 cm Kw.K.40** must be absolutely positioned at the front of the formation so that when Russian KW-I or KW-I with reinforced armor are encountered, they can immediately go to work. So long as at least half of the Panzers are not equipped with the long **7.5 cm Kw.K.40**, an attack and defensive position in open flat terrain is hopeless against Russian KW-I and T34 tanks. Our own Panzers will be knocked out without firing any shots in return.*

*6. **In General:** Drive fast. Attack on a wide front with companies in a line. Panzers at large intervals. Avoid woods and villages, detouring around them at a distance of at least 1000 meters. In general, the most important weapon is the speed of the Panzers. Still, too little use is made of speed. Just like the Russians, the German Panzers still remain stationary in one location for hours. The Panzers must be kept mobile.*

In defensive positions on heights and on the roads, the main body of Panzers should at first be held back and then be sent in toward the side in the direction from which the opponent arrives. More combat reconnaissance needs to be sent out.

B. Ammunition Tactics and Penetration Ability

1. More use must be made of the machine guns.

2. Firing the main gun at infantry, cars, and trucks is inexcusable.

*3. **Penetration Ability of the long 5 cm Kw.K. L/60***

Two **Pz.Kpfw.IV Ausf.G** followed by two **Pz.Kpfw.II Ausf.F** advancing across the flat plains in Southern Russia in July 1942. The **7.5 cm Kw.K.40 L/43** gave the **Panzer-Abteilungen** the ability to knock out T-34 tanks at long range. (BA)

Panzergranate 38 against the T34

Hull side:	*Penetrates up to 500 meters*
Superstructure and turret side	*Up to 400 meters*
Turret front:	*Up to 400 meters*
Hull front:	*Not effective, in several cases the driver's hatch was knocked off*

Panzergranate 38 against the KW-I

Hull side	*Penetrates up to 300 meters*
Superstructure and turret side	*100 to 200 meters*
Turret front:	*Only under 100 meters*

Panzergranate 40

*The **Panzergranatpatrone 40** is no longer fired by the crew because with each round the shell casing sticks or the shell casing ruptures in the gun. This can only be cleared from outside the Panzer by knocking the shell case back out with the cleaning rods. Shell casing ruptures occasionally occur when firing the **Panzergranate 38**.*

*4. **Penetration Ability of the long 7,5 cm Kw.K.40 L/43***

Panzergranate 39 against the T34

The T34 is cleanly penetrated at every angle that it is hit at ranges up to 1200 meters

No experience is available on the KW-I with reinforced armor.

Engagements were aggravated by the frequent occurrence of shell casings failing to eject from the gun. They could mainly be cleared only by knocking the shell casing back out with the cleaning rods from the front. This greatly restricted the firepower.

*C. **Use of Radios***

1. During combat, the radio should be used only when absolutely necessary.

*2. Removing the frame antenna from the **Pz.Bef.Wg.** was beneficial. From a distance the **Pz.Bef.Wg.** is hardly discernible from a gun-armed Panzer.*

*D. **Coordination with the Artillerie using Artilleriepanzer (Pz.Kpfw.II)***

*Artillery support during the first phase of the campaign from 28 June to 13 July didn't occur because of the shortage and often total absence of radio contact. Following installation of a suitable radio in the **Pz.Kpfw.II**, cooperation with the artillery significantly improved during the period from 23 to 28 July. Supplying the artillery with **Pz.Kpfw.II** for observation should still be viewed as a makeshift solution.*

II. Employment of the Russian Tank Force

After he had high losses caused by employing tanks in small packets last year, this year the enemy has employed his armored forces in mass.

1. The assembly areas for the Russian tanks are frequently in open, flat terrain.

2. In the attack, the Russian tanks stubbornly drive straight forward. Usually the attack energy of the Russian tanks is quickly broken if the German Panzers manage to knock out the lead Russian tanks.

3. The Russian tanks remain stationary at one location for hours.

4. In several cases, when the enemy attacked infantry, they succeeded in getting into their positions with strong tank forces. But they were not able to further exploit this success.

5. When they identified the main body of German Panzers attacking or advancing, they took up hull-down positions and let the German Panzers come on. Firing at long range they cause considerable losses to the German Panzers.

*6.a. **T34**: The T34 that was far superior to the German Panzers up to the beginning of the Spring of 1942 is now inferior to the German long **5 cm Kw.K. L/60** and **7.5 cm Kw.K.40 L/43** tank guns. After the Russians attacked the German Panzer forces in several battles with the T34 and received heavy losses, they didn't send the T34 tank against the German Panzers so long as they had a chance to withdraw.*

*6.b. **K.W.I**: The Russian tank types KW-I and KW-I with reinforced armor were sent into battle instead of the T34. Because these heavy tanks were never or seldom led as a unit, their destruction was usually ensured.*

7. The fantastic combat morale of the Russian tank crews has led to having to destroy stationary tanks that had already been hit five or six times by sending in teams on foot to blow up the tanks with explosives. The Russian crews remained fighting in their tanks so long as their weapons still could be fired.

8. German artillery fire or attacks by German dive bombers have never or seldom convinced the Russians to give up a defensive position and have only caused insignificant losses. A concentrated attack by the Luftwaffe was able to destroy an assembly area of a strong Russian tank force and to hinder the planned attack in the open left flank of the German forces.

***Attributes of heavy Russian tanks**: Strong main gun, heavy armor, better cross-country mobility, longer radius of action.*

***Attributes of German Panzers**: Better vision and better radio equipment, resulting in better tactical control.*

Farther north in **Heeres-Gruppe Mitte**, the Russians had achieved some local success. The **II.Abteilung/Panzer-Regiment 3** of the **2.Panzer-Division** was thrown in to stop the Russian offensive. They hadn't received any replacements in 1942 except 33 **Pz.Kpfw.38(t)** left behind by the **7.Panzer-Division**. Still only in possession of the older types of Panzers, their operational strength on 5 August 1942 was: 19 **Pz.Kpfw.II**, 26 **Pz.Kpfw.38(t)**, 21 **Pz.Kpfw.III (5 cm Kw.K. L/42)**, 1 **Pz.Kpfw.IV (7.5 cm Kw.K. L/24)**, and 3 **Pz.Bef.Wg.** Their first reinforcements were 5 **Pz.Kpfw.IV (7.5 cm Kw.K.40 L/43)** that arrived on 11 August 1942. The following reports written by Hauptmann Oehme, the commander of the **8.Kompanie/Panzer-Regiment 3**, relate their experience in attempting to knock out T34 and KW-I tanks:

Combat Report for the Period of 5 through 7 August 1942:

On 5 August 1942, the company was informed of new enemy tanks in the area of a woods one kilometer northeast of Staroje Ustinowa. A light field howitzer battery of the ***36.Infanterie-Division*** *had been surrounded by at least six enemy tanks. At first a Russian T34 was hit and set on fire by a captured T34 that was being used by the* ***8.Panzer-Kompanie****. The first shot hit the poorly camouflaged enemy tank through the open driver's hatch. It was observed that the crews of the other tanks were not near their vehicles, but now climbed into the other five or six tanks in the woods. After a heavy firefight, another T34 was knocked out. Following this, the rest of the tanks turned off to the northeast. Out of ammunition, the artillery battery was towed off by the arriving half-tracks. The* ***Panzer-Kompanie*** *provided covering fire for another 20 minutes.*

About 0400 hours on 6 August 1942, the ***8.Kompanie*** *attacked the opponent who had infiltrated into the west end of Staroje Ustinowa. Four T34s were spotted standing to the right and left on the flanks and from behind houses were taken under fire with* ***Pzgr.40*** *ammunition at a range of 100 to 150 meters. The* ***5 cm Pzgr.40*** *failed because they all skidded off. Only after a tank pulled away from a burning church could it be hit in the rear and set on fire. Russian infantry worked forward very quickly and well concealed through the village. I dismounted to direct the three available* ***7.62 cm Pak (Sfl.)*** *(self-propelled 7.62 cm anti-tank guns mounted on Panzer chassis) into specific positions. Now two additional T34s could be knocked out.*

*After the Russian infantry had worked their way forward to surround the village, the battalion commander ordered: "****Panzer-Kompanie*** *take over covering fire. Infantry withdraw to the woods north of Bory." This task caused the* ***Panzer-Kompanie*** *very high ammunition expenditure. Low on shells and machine gun ammunition, the* ***Panzer-Kompanie*** *also withdrew from Staroje Ustinowa. At the same time, four T34s drove through the village. Surrounding the Panzers, Russian infantry sprang up and shot at the vision slits with carbines and pistols. A Skoda-Panzer (****Pz.Kpfw.38(t)****) was hit by an enemy anti-tank rifle, wounding two of the crew.*

The ***Panzer-Kompanie*** *managed to work itself out of the village, during which time the T34s hunted here and there between houses. Without firing they followed the* ***Panzer-Kompanie*** *on the road (the terrain on both sides was marshy) to the ridge 500 meters south of Staroje Ustinowa.*

These T34s took up a hull-down position on the ridge and fired several shells at the ***Panzer-Kompanie*** *at a range of 3 to 400 meters. The* ***Panzer-Kompanie*** *itself did not have any special ammunition or* ***Pzgr.*** *with it. The infantry had long before reached the woods. The* ***Panzer-Kompanie*** *also reached the woods without losing any Panzers.*

Combat Report for the Period of 11 through 17 August 1942*: At about 1800 hours, I received the order to drive to Jelnja to support the* ***Gruppe von Bischoffshausen*** *with the Panzers that had just been repaired and the four* ***Pz.Kpfw.IV (7.5 cm Kw.K.40 L/43)*** *that had just arrived.*

The ***Panzer-Kompanie*** *counterattacked Jelnja, which was surrounded by our Panzers and taken under heavy fire by all of the Panzers. The front elements of the Russians pulled back and most of the houses in the village went up in flames. It was observed that two T34s drove off in reverse out of burning sheds.*

As dawn broke, the Russians renewed the attack with tank and infantry forces. The tanks were immediately spotted and two T34s on the road were knocked out at a range of about 300 meters. The rest of the tanks must have quickly retreated, as determined by the noise from their engines.

During the evening hours of 13 August, the Russians again attacked with tanks and a few infantry riding on them. In spite of night falling, a further two T34s and a KW-I were knocked out of which two enemy tanks brightly burned, upon which the rest of the tanks turned back. The attack was repulsed.

During the night, the opponent with tanks took up positions in the depression by Shulebino and at dawn attempted to break through the woods by Point 208. At the same time eight to ten KW-I attacked on the road. Of these, two were knocked out in our position by the ***Pz.Kpfw.IV*** *with a long gun at a range of 15 to 20 meters. The rest were convinced to turn back. It should be noted that it was necessary to use about eight* ***Hohlraumgranaten*** *(shaped charge shells) to set each of the KW-I on fire. At Point 208, three T34s managed to break into the position but didn't exploit the opportunity any further. The company commander of the infantry urgently requested Panzer support because these enemy tanks had hidden in the woods. One* ***Pz.Kpfw.IV (7.5 cm Kw.K. L/24)*** *and two* ***Pz.Kpfw.III (5 cm Kw.K. L/42)*** *were sent to the area where the enemy tanks had broken in.*

In the afternoon, the Russians again attacked with strong tank forces. This time his attempt occurred south of the road. Several tanks landed in the swamp and remained stuck there. In the evening, these tanks were knocked out by the ***5.Kompanie/Panzer-Regiment 3****, while on the road four additional KW-I were knocked out by the* ***8.Kompanie****. An* ***8.8 cm Flak*** *gun had a large part in this last defensive battle. This gun was located in an alley south of the road, fell out when damaged by gun fire, and was pulled back.*

On this day, several smaller Russian tanks were knocked out that had attacked separately. In addition a ***Pz.Kpfw.IV (7.5 cm Kw.K.40 L/43)*** *was knocked out by a KW-I. One of the crew was killed, two severely wounded, and one lightly wounded.*

Another ***Pz.Kpfw.IV (7.5 cm Kw.K.40 L/43)*** *fought still another T34 but was itself knocked out. The* ***Pz.Kpfw.IV*** *immediately burned out. The commander and gunner were wounded, three of the crew were killed immediately.*

During these defensive actions from 11 to 17 August 1942, the ***8.Kompanie*** *knocked out 45 enemy tanks, of which 11 were T60s, and the rest T34s and KW-Is.*

Heinz Weller, Unteroffizier with his **Pz.Kpfw.IV (7.5 cm Kw.K. L/24)** in der **8.Kompanie/Panzer-Regiment 3**, pro-

vides additional detail in his combat report dated 13 August 1942:

*I received the order to drive through a clearing up to the wood line by Point 208. At the same time two **Pz.Kpfw.III** drove from the north along the forest trail and fired into the woods where the enemy tanks were claimed to be, based on their engine noise. A **Panzergrenadier** observed that the T34 being fired at near Point 208 had turned his gun in the direction from which he was being fired at. This was for me the signal to advance across the open plain and knock the T34, now clearly identified by me, out of action with **Hohlraumgranaten** (shaped charge shells) at a range of about 25 meters. After the battle was over, I inspected the burned-out T34 and found a light tank directly beside it that had also been hit by my **Hohlraumgranaten** (shaped charge shells) and burned out.*

Meanwhile, the **11.Armee**, which had been responsible for reducing the defenses at Sewastopol, had been transferred to **Heeres-Gruppe Nord** to use its heavy siege artillery in an attempt to take Leningrad. In support of this effort, the first heavy Tiger tanks were sent to **Heeres-Gruppe Nord** in August 1942. Only a platoon of four Tigers from the **1.Kompanie/schwere Panzer-Abteilung 502** arrived on 29 August 1942. Their first engagement in combat is related by an officer who took part in the action in the following letter dated 7 October 1942:

The action took place south of Lake Ladoga where the terrain was very unfavorable for using the Tiger. Our advance was impeded everywhere or made impossible by swamps and morasses.

At the very beginning, during loading at Fallingbostel, we had a tank out of action owing to trouble in the transmission, but it was taken along with us. The next two instances of transmission trouble occurred on the first day in Russia. The only tank left in operating condition was sent out on security patrol. There is no point in writing about the further technical difficulties and shortcomings, as you are probably familiar with all of them. I shall now give you a short description of our two attacks.

A **VK 16.01** of which seven were originally taken to Russia with the **1.Kompanie/Panzer-Abteilung z.b.V.66** along with seven **VK 18.01** and **15 Pz.Kpfw.IV** with the hull front armor reinforced to 80 mm thick. With its **2 cm Kw.K.** gun the **VK 16.01** was only effective against soft and lightly armored targets but the troops liked it for its ability to survive mine blasts. (WS)

A **Pz.Kpfw.III Ausf.L** issued to the **1.Kompanie/schwere Heeres Panzer-Abteilung 502** as identified by the "Mammut" painted on the spaced armor in front of the driver's front plate. It was transported to the front south of Leningrad in September 1942. The **Pz.Kpfw.III** was used as an escort Panzer for the Tigers as well as to perform reconnaissance, scouting, messenger, and other tasks not suitable for Tigers. (WR)

The first attack was on 16 September. At 1700 hours, we advanced against an invisible enemy. We faced enemy infantry and artillery. It was the first time that I had fired this gun against the enemy. Here is my judgment: I was, and still am, enthusiastic. I was even more enthusiastic because all vehicles returned undamaged. The confidence of the men, which had been somewhat shaken by the technical failures, was once again growing. Therefore, we went to the second attack unworried and with good spirits. However, here we had very bad luck. First of all, the terrain was impossible for us, and in this swampy, wooded country we sustained unfortunate hits; that is, the guns of three Tigers were damaged. A shell hit my own Tiger, struck the left side of the gun and tore the barrel. The projectile passed through the inside of the barrel and thus put the Tiger out of action. A second hit scored a direct hit on the driver's hatch.

Two Tigers were severely damaged by these and similar hits. The latter Tiger was burnt out and can't be recovered. The most important thing we have noted is that no shot had

One of the first four **Pz.Kpfw.VI(H) Ausf.H1**, "**Tigers**" that were sent to the front in August 1942 with the **1.Kompanie/schwere Heeres Panzer-Abteilung 502**. This is one of the three **Tigers** with transmission problems, that occurred on the first and second day in Russia before seeing any action, being towed in by two **18 ton Zugkraftwagen**. (BA)

penetrated the armor. I hope that the next attack can be carried out under different conditions.

The summer offensives in the south had been very successful. The **1.Panzer-Armee** had driven deeply into the Caucasus, and the **6.Armee** had reached the Volga at Stalingrad. However, the capture of Stalingrad proved to be a very difficult prospect, as related by the following report from the **24.Panzer-Division** dated 11 October 1942:

Experience in Combat at Stalingrad

The employment of an armored assault group consisting of Panzers, armored infantry, self-propelled anti-tank guns, pioneers and artillery has performed exceptionally well in the vast city area.

***Panzers**: Encountered terrain difficulties such as house rubble, bomb craters, narrow streets, mine fields, barriers and barricades greatly reduce the mobility and ability to see from the Panzers, so that in principle employment of Panzer units for combat in cities is to be avoided. The losses received don't compare to the success of this most valuable weapon of the army. The main weapons of the Panzer, fire and mobility, cannot be utilized effectively. He presents a target and sees very little.*

*The Panzers as a unit in the **Panzer-Regiment** and the **Abteilung** are not suitable for employment for combat in the city.*

On the edge of the city and in totally destroyed sections of the city, Panzers were often useful, especially if the enemy didn't have time to establish his defense.

*As an exception, individual Panzer-support companies (as the largest command) were employed to support weak and combat weary **Panzer-Grenadiere** and infantry units.*

Their employment should follow these basic rules:

Deviation from these rules will cause the few Panzers to be easily destroyed by the dug-in, well-camouflaged enemy anti-tank weapons.

***Attack:** The Panzers are to be attached only to experienced **Panzer-Grenadieren**. They should work together only with other infantry but not be under their command because*

Pz.Kpfw.III Ausf.J with the longer **5 cm Kw.K. L/60** were first produced in December 1941 and began arriving at the front in February 1942. The modification adding 20 mm spaced armor to the driver's front plate and turret front went into effect at the same but was gradually implemented. This resulted in many **Pz.Kpfw.III Ausf.J** manufactured in January and February 1942 without the additional protection as was this one belonging to the **Panzer-Regiment 24** of the **24.Panzer-Division**. (BA)

most of the infantry are not taught or experienced to fight with Panzer support.

Before beginning the attacks, the terrain must be thoroughly scouted and a clear picture of the enemy situation (enemy tanks, anti-tank guns, mines) obtained.

An attack plan must be exactly established, and how the attack is to be conducted is to be discussed with all of the commanders together.

The Panzers are employed in platoons or sections, ***Pz.Kpfw.III*** *and* ***IV*** *mixed, sent in on specific streets.*

Use of single Panzers is to be avoided because the mutual support of covering fire can't be conducted. Before beginning the attack, knock out enemy tanks and anti-tank guns by using a ***Pz.Kpfw.IV (7.5 cm Kw.K.40 L/43)*** *that is guided on foot to concealed firing positions.*

The platoons and sections of Panzers are not to advance in front but stay with or behind our own ***Panzer-Grenadieren****. Only then is it possible for both sides to communicate. Contact with the* ***Panzer-Grenadier*** *should be made through the side hatches opposite the side the enemy is on, not out of the commander's cupola.*

The Panzers are to be used for covering fire and not as an assault gun.

The infantry may not advance bunched up behind the Panzer, but must comb through the terrain covering a wide front under the covering fire from the Panzers. In the city, the Panzer attracts all enemy fire to itself.

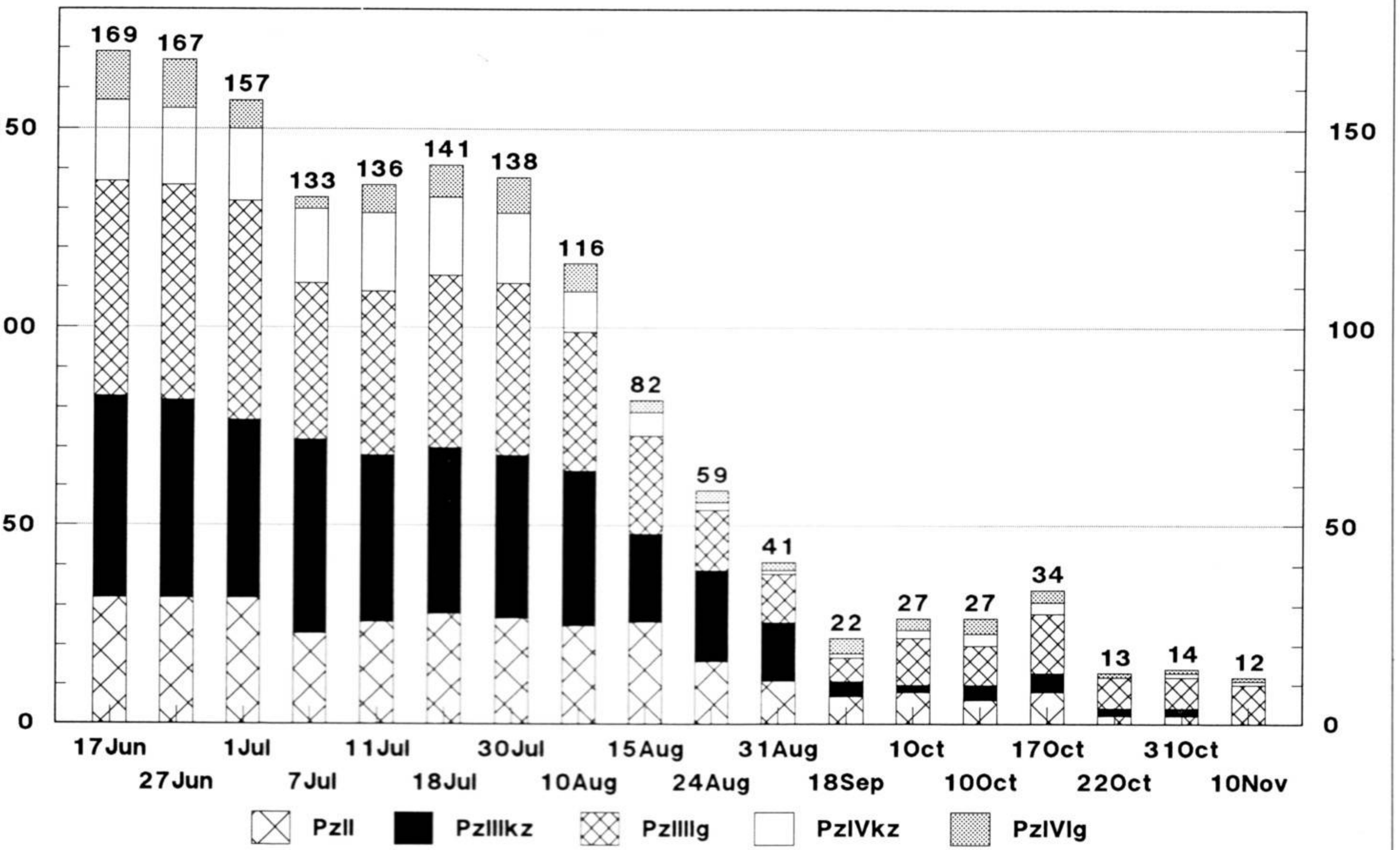
When mines are encountered, under no circumstances are the Panzers to be sent further before the attached pioneers have cleared the mine field or made a gap through it.

If a Panzer falls out due to a mine, hit by fire, or because of terrain difficulties, the Panzer is to be defended by ***Panzer-Grenadiere*** *and the other Panzers against close quarter attacks and further enemy action. Otherwise the mostly immobilized, often lightly damaged Panzer would be destroyed by further enemy activity.*

Employment of Panzers in the city without accompanying Panzer-Grenadiere *is only expected to succeed*

OPERATIONAL PANZERS IN PANZER-REGIMENT 24

17 JUNE TO 10 NOVEMBER 1942



Total writeoffs by 1 Sep 42: 2 PzII, 19 PzIII, 4 PzIV, 0 PzBef
Replacements: None by 31 Oct 42
Total writeoffs by 31 Oct 42: 3 PzII, 25 PzIII, 6 PzIV, 1 PzBef
By 31 Oct 42, 273 enemy tanks had been knocked out by the regiment, of which 1 KWII, 31 KWI, 169 T34, 12 T70, and 60 T60

against extremely demoralized enemy and no anti-tank defense. Employment in local limited flank attacks is recommended as being successful.

Defense: *Only as a local reserve close behind our own lines for counterattacks promises success.*

Employment of Panzers in the forward defense line is not desired. In difficult situations, however, well-camouflaged individual Panzers located directly behind the main battle line have proved useful. They provide moral support.

*Using the **Pz.Kpfw.IIs** to guard the supply columns through sections of the city that haven't been cleared of the enemy has proven successful.*

Weapons:

*a. **7,5 cm Kw.K.40 L/43** only against tanks. The long gun is too easily damaged.*

*b. **7,5 cm Kw.K. L/24** is the best weapon. Delayed fuzed shells have an excellent effect against bunkers and houses.*

*c. **Nebelgranaten** (smoke shells) have worked when fired against totally obstinate enemy resistance and to blind enemy sharp-shooters.*

*d. **Panzergranaten** (armor-piercing shells) are good against stone walls.*

Most Dangerous Enemy Weapons:

*a. **Anti-tank rifles** usually only appear at close range and are difficult to spot and to combat.*

*b. **Sharpshooters**.*

Summary: *Employment of Panzers in known and uncleared mine fields, in uncrossable terrain with destroyed factories and bomb craters, through uprooted areas of Stalingrad, has led to exceptionally high losses to the Panzers that were sent in. The successes in no way offset the losses that occurred especially while supporting infantry that weren't trained in cooperation with tanks. Untrained infantry place impossible demands on the Panzers. The infantry must learn to work with Panzers, and the infantry commander must know the Panzer's limitations. They are not **Sturmgeschuetz** (assault guns) with double armor protection. From the experience in the battle in Stalingrad, employment of Panzers in combat in cities is in principle to be avoided and only to be viewed as emergency measures.*

The attacks in the Caucasus Mountains had also run into trouble. The following report for an action by the **II.Abteilung/ Panzer-Regiment 4** on 14 October 1942 relates their problems in attempting to get through a mountain pass:

*At 0400 hours the commander found himself at the observation post. The weather was rainy and especially cloudy; therefore the order for the infantry to attack could first be given at 0500 hours. Shortly after starting, heavy machine gun fire was received from the cleverly laid out field fortifications, especially from the west tip of the ridge, so that the infantry that were still located in the hallow were in grave danger. Directly following, the artillery preparation barrage stopped. The Panzers started up in the order of **4.leichte Kompanie**, **5.leichte Kompanie**, and **6.mittlere Kompanie** and took up the ordered formation after reaching the point of attack. Under covering fire from the artillery, the infantry quickly reached the first slope. The **4.Kompanie** climbed to the east with the right wing driving on the north slope and fought the numerous field fortifications and enemy anti-tank guns as they appeared. After reaching the stream running in an east-west direction, the **5.Kompanie** and **6.Kompanie** were fired at heavily by anti-tank guns and anti-tank rifles, especially out of the woods from the right.*

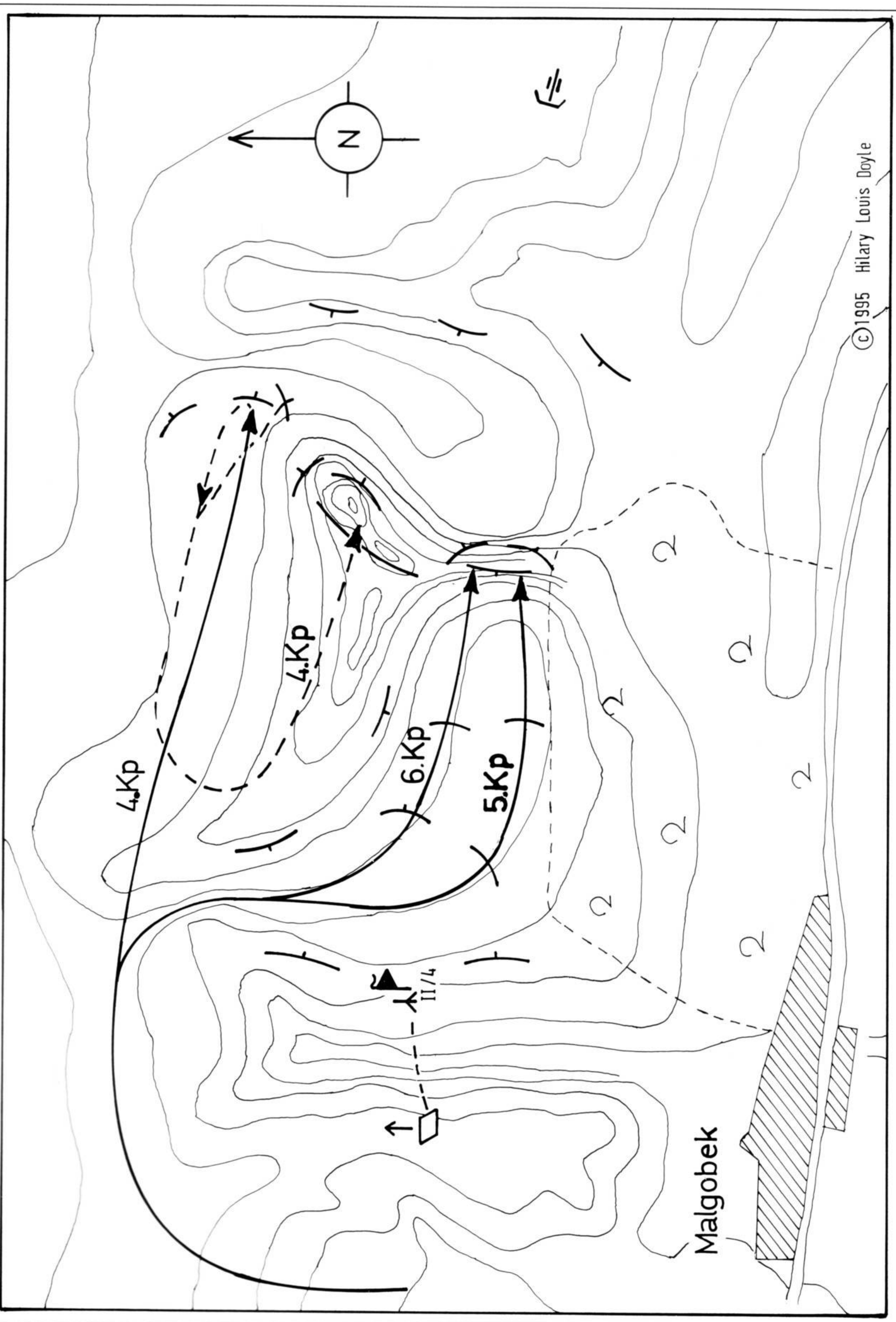
*At first the enemy artillery didn't shoot much. The attack slowly chewed its way toward the east step by step through the field fortifications. On the left flank, the **4.Kompanie** received the order to quickly drive to the east end of the slope, leave a platoon defending toward the northeast, and the main body of the company attack the mortar and artillery positions directly to the south. After breaking the fiercely defending opponents, the **4.Kompanie** managed to reach the ordered location at about 0630 hours. Then mostly large caliber, very heavy, well-placed, artillery barrages began to hit the area, concentrated on the three Panzer companies. The artillery fire lay so thick that a Panzer of the **4.Kompanie** fell out from a direct hit. Therefore the **4.Kompanie** pulled back about 300 meters where they found some cover behind a ridge.*

*About 0645 hours, the enemy resistance hardened in front of the infantry, especially on the right wing of the **Abteilung**. This temporarily stopped the infantry advance. The **I.Abteilung/Artillerie-Regiment 117** and elements of the **SS-Artillerie** took the field fortifications, observation posts, and predicted battery positions of the enemy under an effective rolling barrage.*

*The anti-tank gun and anti-tank rifle fire steadily increased at the **5.** and **6.Kompanien**. The enemy could hardly be spotted in the thick brushland on the right and in a large corn field, so that well-camouflaged enemy Mark III tanks were spotted too late. Combat with the enemy tanks was difficult in the steeply sloping terrain and under heavy fire from the other armor-piercing weapons. During this battle, Oberleutnant Roth (commander of the **5.Kompanie**) fell from a hit from an anti-tank rifle. Oberleutnant Renk (commander of the **6.Kompanie**) also took over command of the **5.Kompanie**. After a hard-fought firefight, with enemy tanks located behind cover and difficult to spot, one Mark III was set on fire by hits and destroyed.*

In spite of our good artillery fire, the enemy artillery couldn't be suppressed and as before continued to engage the Panzers as their main target. The infantry also lay pinned down and were fired at by a large number of "Stalin organs" whose fire was inaccurate, one salvo landing on the Russian positions.

*In this situation, the decision made on the previous day by the **Abteilung** commander to command from the forward artillery observation post turned out to be especially beneficial. In direct cooperation with both artillery officers, enemy*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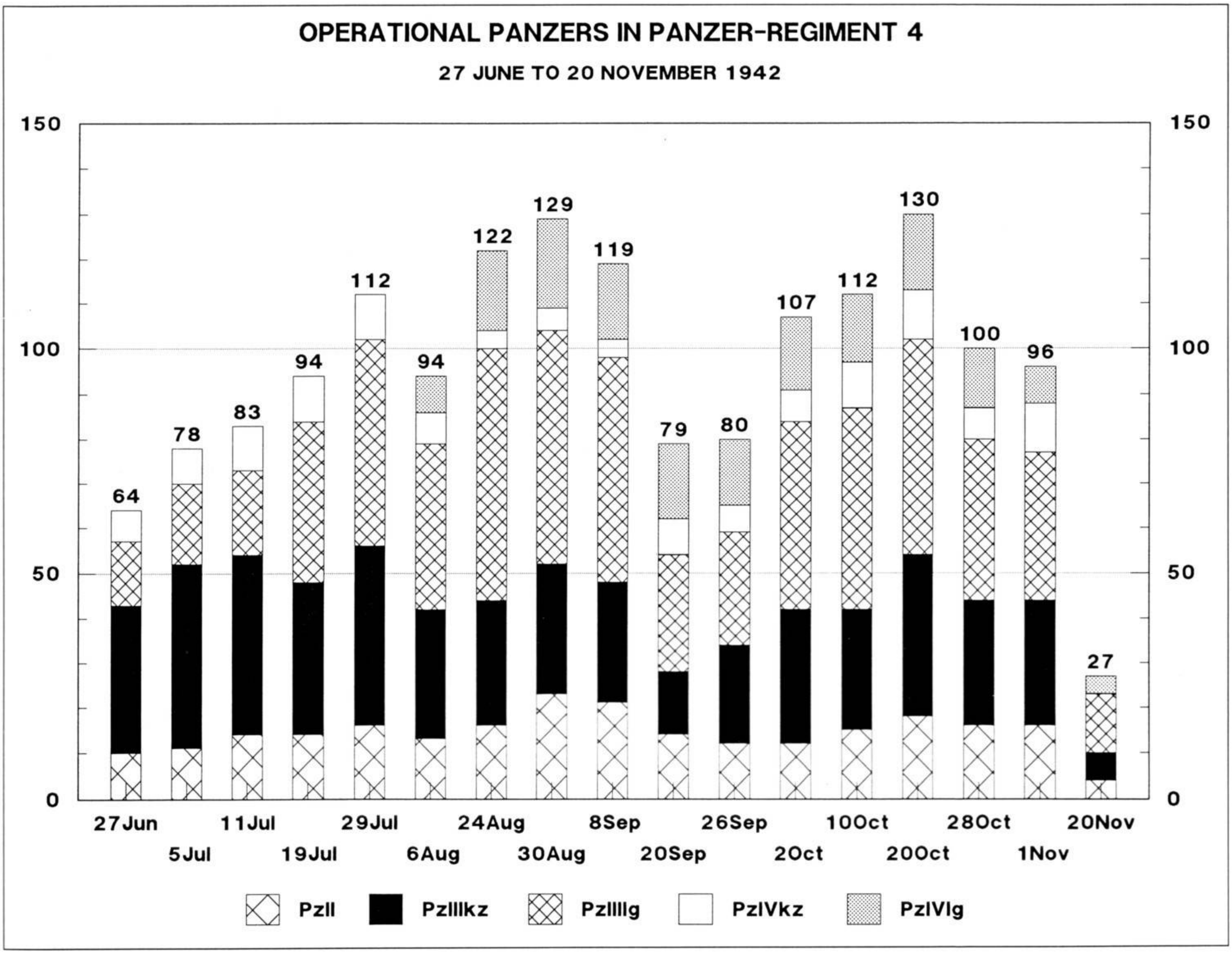


targets identified by the Panzer companies were taken under artillery fire but couldn't be engaged by the Panzer's weapons. The brushland was systematically beaten with artillery fire. Taking advantage of this fire, at about 0830 hours, the ***5.*** *and* ***6.Kompanien*** *reached the steep slopes on the restricting terrain ridges. The Panzers were now located in the left flank of the enemy dug in on the height, which helped to relieve our infantry.*

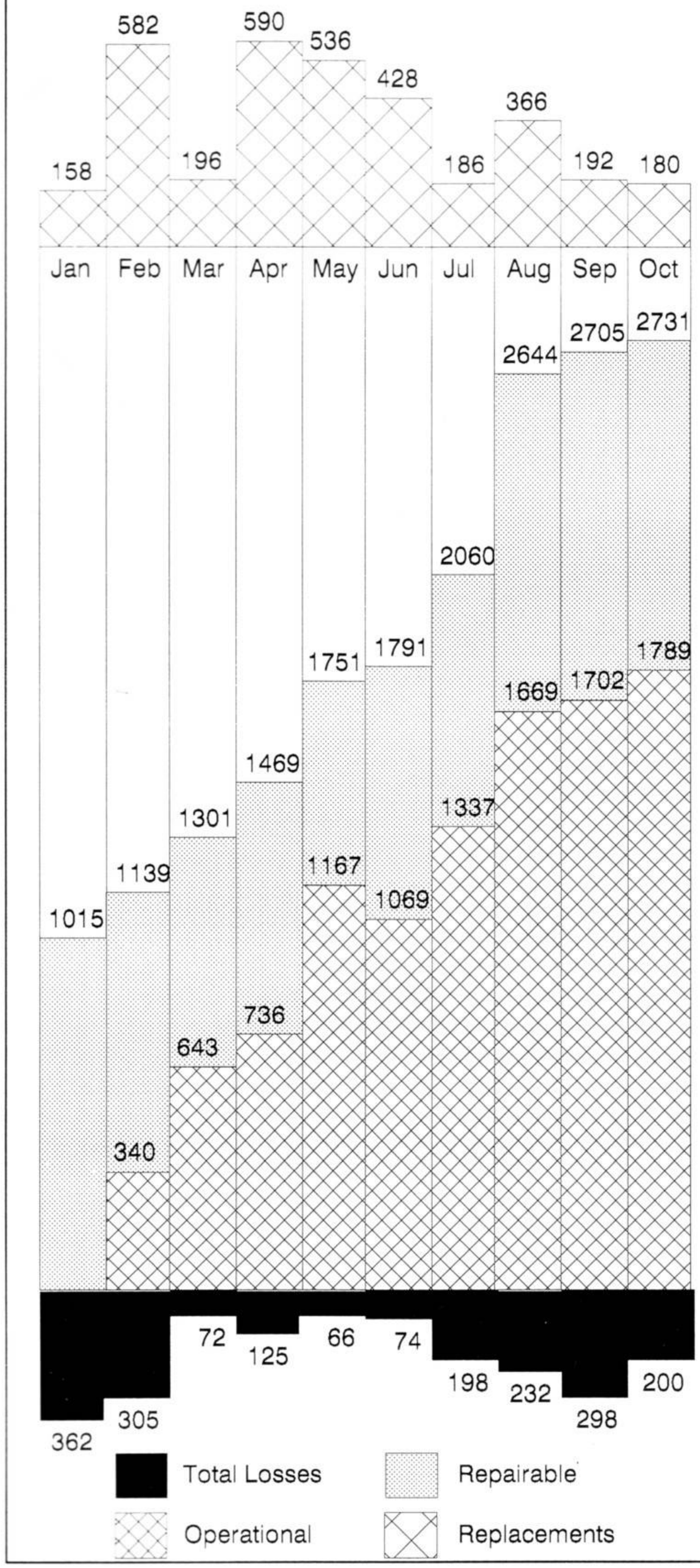
When the enemy artillery fire decreased, the ***4.Kompanie*** *received the order to again advance to the east to the previously occupied position. The* ***4.Kompanie*** *managed to destroy strong forces of the enemy that were attempting to come out of the positions located there. However, during a local charge, the enemy pushed the* ***4.Kompanie*** *back to the northeast, but were again repulsed with heavy enemy losses. During a short firefight, the* ***4.Kompanie*** *destroyed two enemy Mark III tanks. A third attempt by the enemy to again occupy this position also failed, with heavy losses for the enemy.*

Thereby, the importance of the northeast flank was especially clearly recognized. Above all, it turned out that our own infantry forces were inadequate to clean out and occupy the position occupied by our Panzers.

During further attacks by our infantry, they suddenly received heavy machine gun fire from the rear. The enemy was especially heavily outfitted with automatic weapons. The height itself was very jagged. The infantry were pinned down in front of the high peak. In spite of the Panzers taking the ridge line under effective fire, the infantry didn't come any further. Even two barrages by our artillery didn't bring any change.

It turned out to be necessary to send Panzers up the slope to help the infantry. Therefore, the ***4.Kompanie*** *received orders to leave the defending platoon behind to cover the northeast flank, and with the main body detour to the west and advance up the slope. The Panzers couldn't drive directly from their present positions, since the terrain was too steep for the Panzers to cross. During this action, the* ***4.Kompanie*** *managed to throw out the enemy positioned in the rear of our infantry and took 70 prisoners. In the exceptionally unfavorable terrain, the Panzers crept slowly up the*

STATUS OF PANZERS ON EASTERN FRONT IN 1942



slope. After gaining contact with the infantry, the Panzers advanced up to the peak and destroyed part of the enemy. In spite of this, the infantry still did not manage to come any further because they came under heavy fire from a strongly occupied ridge to the southeast.

*Then the **4.Kompanie** received orders to send back one platoon and to bring infantry forward under their protection, which succeeded. Together with our Panzers, the infantry then cleaned out the last enemy elements from the peak.*

*The attempt of the **5.** and **6.Kompanien** to advance over the narrow, steeply declining ridges failed due to the overall heavy anti-aircraft gun and anti-tank gun defensive fire of the enemy and the unfavorable terrain. Then the Panzers spotted strong enemy infantry forces on the far side of the depression and on the lower part of the slope.*

As already demonstrated by the attack on Wosnessenkaja on 6 September 1942, mountainous, jagged terrain is not suitable for employing Panzers. Because the main part of the terrain can't be crossed by Panzers, the enemy has the ability to barricade the few remaining traversable sectors with mines and other armor defeating weapons. Because he liberally uses these, the loss of Panzers is comparatively high and cannot be compared to the successes that are extracted and the territory gained. Along with this is the strain on the equipment in this mountainous terrain, causing mechanical failures that are comparatively high.

As has been observed many times, the Russian employs his tanks almost exclusively along the ridges overlooking the known roads and on the northern slope of the mountains.

*Our losses: One officer killed, two men wounded. One **Pz.Kpfw.III kurz** was a total writeoff; four **Pz.Kpfw.III kurz** and two **Pz.Kpfw.III lang** were damaged by enemy action. One **Pz.Kpfw.III** and four **Pz.Kpfw.III lang** suffered mechanical failures.*

Results: Three Mark III tanks, one 7.62 cm gun, four anti-tank guns, 13 anti-tank rifles, numerous machine guns, 11 supply vehicles, and 200 men were destroyed. 70 prisoners were brought in.

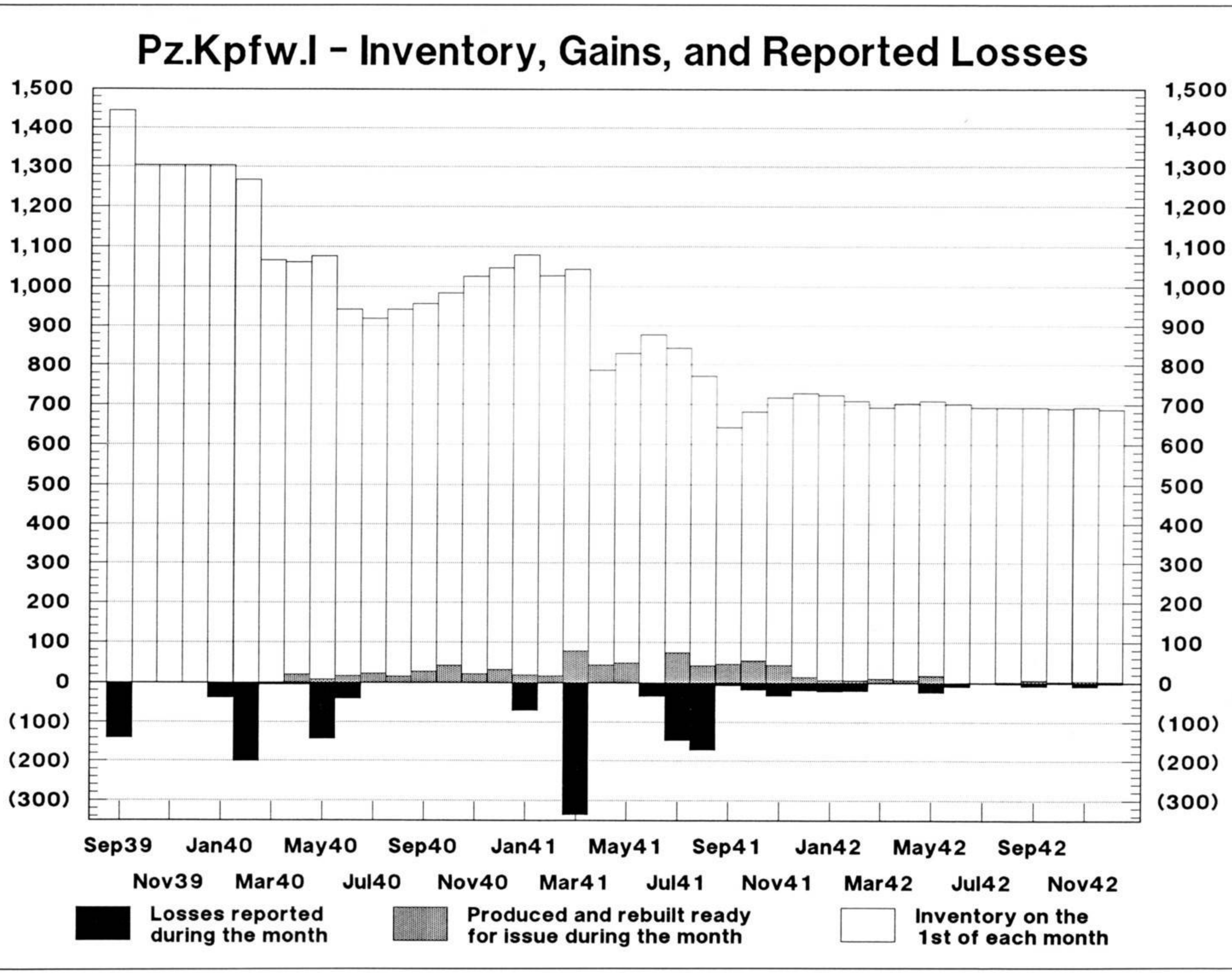
The offensives had stalled out and failed to break through to capture the oil fields. The units at Stalingrad were tied up in a slow battle of attrition. Having lost the initiative, the **Panzertruppen** would soon be fighting for their very existence.

Appendices

APPENDIX A1 - PANZERKAMPFWAGEN I (M.G.) Sd.Kfz.101

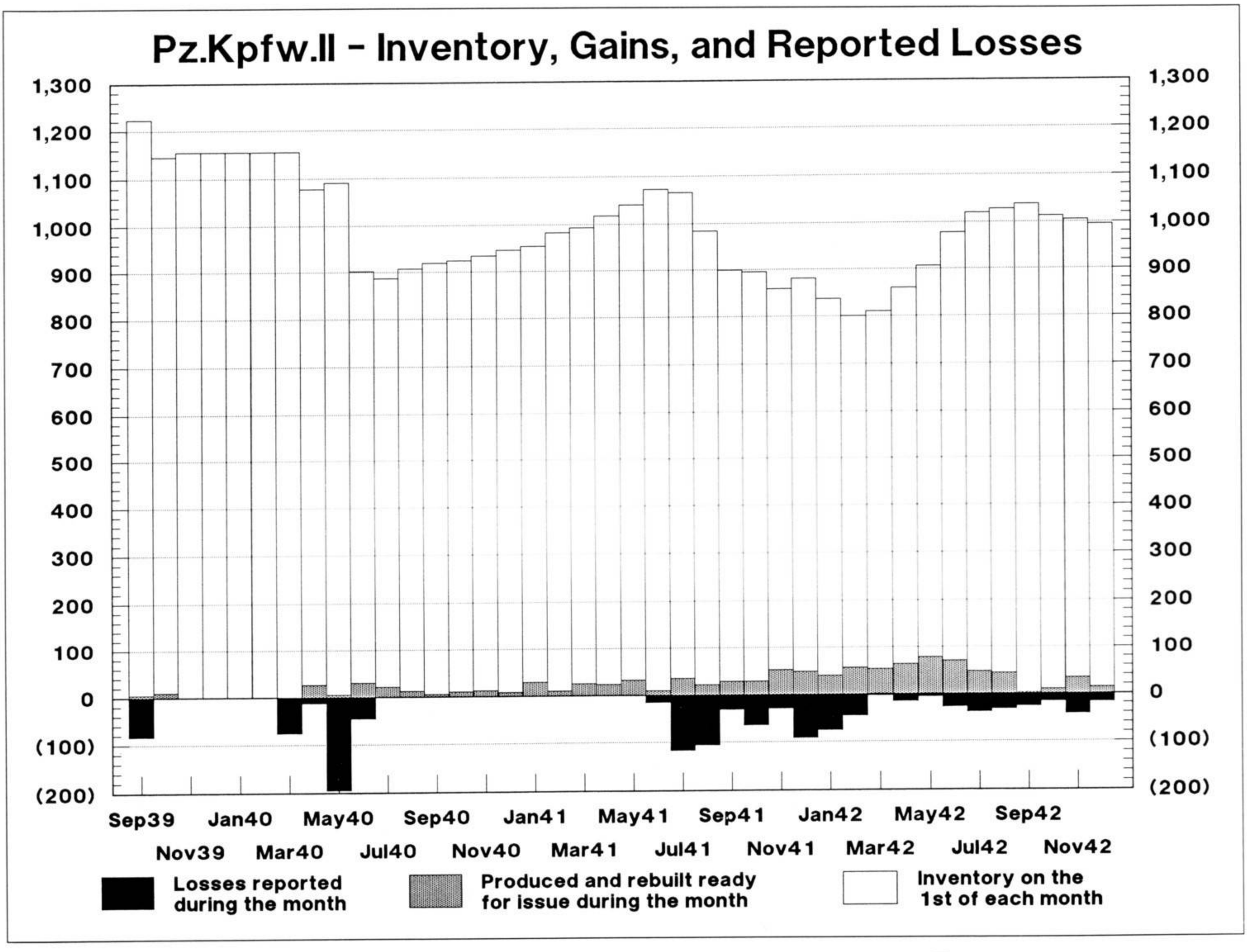
	Produced During Month	Ready for Issue During Month New	Ready for Issue During Month Rebuilt	Losses During Month	Inventory on the 1st of the Month	
Sep39				140	1445	
Oct39					1305	
Nov39					1305	
Dec39					1305	
Jan40				38	1305	
Feb40				200	1267	
Mar40				5	1067	
Apr40			20	5	1062	
May40			8	142	1077	
Jun40			16	40	943	
Jul40			23		919	
Aug40			15		942	
Sep40			27		957	
Oct40			42		984	
Nov40			21		1020	
Dec40			32		1047	
Jan41			19	70	1079	
Feb41			16		1028	
Mar41			78	336	1044	
Apr41			43		786	
May41			48		829	
Jun41			0	34	877	
Jul41			74	146	843	
Aug41			42	171	771	
Sep41			46	7	642	
Oct41			54	18	681	
Nov41			44	33	717	
Dec41			14	19	728	
Jan42			7	22	723	
Feb42			6	21	708	
Mar42			10	1	693	
Apr42		3*	4	1	702	*VK18.01
May42		12*	5	24	708	*VK18.01
Jun42			0	9	701	
Jul42			0	0	692	
Aug42		2*	0	2	692	*VK18.01
Sep42		5*	1	8	692	*VK18.01
Oct42		3*	0	1	690	*VK18.01
Nov42		4*	0	9	692	*VK18.01
Dec42		1*	2	2	687	*VK18.01

Pz.Kpfw.I – Inventory, Gains, and Reported Losses



APPENDIX A2 - PANZERKAMPFWAGEN II (2 cm Kw.K.) Sd.Kfz.121

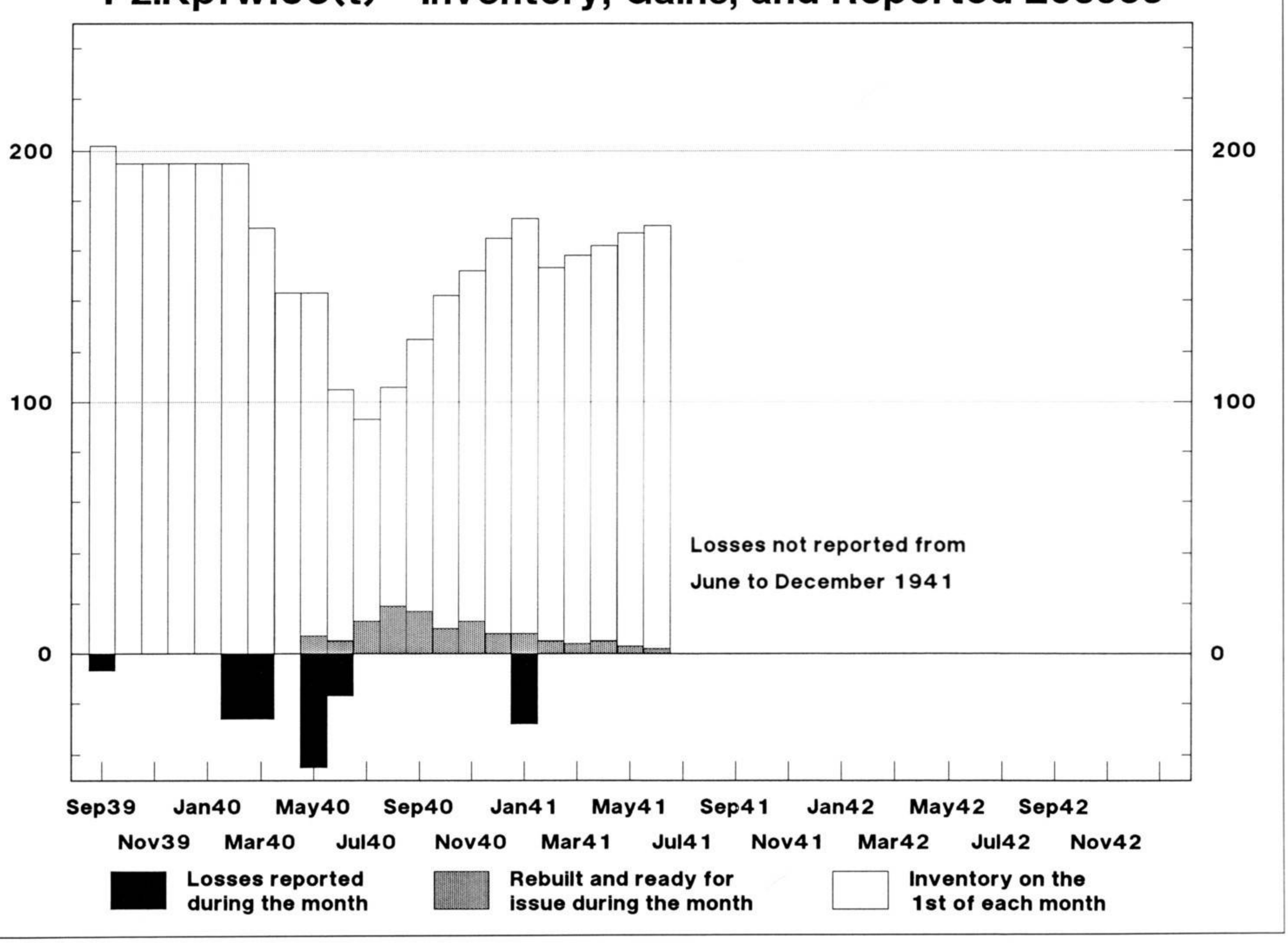
	Produced During Month	Ready for Issue During Month		Losses During Month	Inventory on the 1st of the Month	
		New	Rebuilt			
Sep39	5	5		83	1223	
Oct39	8	10			1145	
Nov39	2				1155	
Dec39					1155	
Jan40					1155	
Feb40					1155	
Mar40				76	1155	
Apr40	9	8	18	13	1079	
May40			5	194	1092	
Jun40			30	46	903	
Jul40			21		887	
Aug40			12		908	
Sep40			5		920	
Oct40			10		925	
Nov40			12		935	
Dec40			8		947	
Jan41			29		955	
Feb41			10		984	
Mar41	7		25		994	
Apr41	15	10	13		1019	
May41	12	21	11		1042	
Jun41	15	5	4	16	1074	
Jul41	21	27	8	117	1067	
Aug41	25	9	12	106	985	
Sep41	25	26	2	32	900	
Oct41	38	23	5	65	896	
Nov41	40	50	2	30	859	
Dec41	35	41	7	92	881	
Jan42	29	39		76	837	
Feb42	42	49	7	46	800	
Mar42	50	45	8	3	810	
Apr42	37	37	26	16	860	
May42	56	56	22	6	907	
Jun42	42	70	0	28	979	
Jul42	20	29	18	39	1021	
Aug42		22	21	33	1029	
Sep42		1*	1	27	1039	*VK16.01
Oct42		2*	7	17	1014	*VK16.01
Nov42		2*	31	43	1006	*VK16.01
Dec42		2*	11	18	996	*VK16.01


Pz.Kpfw.II - Inventory, Gains, and Reported Losses
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
(100)
(200)
Sep39
Nov39
Jan40
Mar40
May40
Jul40
Sep40
Nov40
Jan41
Mar41
May41
Jul41
Sep41
Nov41
Jan42
Mar42
May42
Jul42
Sep42
Nov42
Losses reported during the month
Produced and rebuilt ready for issue during the month
Inventory on the 1st of each month

APPENDIX A3 - PANZERKAMPFWAGEN 35(t) (3.7 cm Kw.K.)

	Produced During Month	Ready for Issue During Month		Losses During Month	Inventory on the 1st of the Month
		New	Rebuilt		
Sep39				7	202
Oct39					195
Nov39					195
Dec39					195
Jan40					195
Feb40				26	195
Mar40				26	169
Apr40					143
May40		7		45	143
Jun40		5		17	105
Jul40		13			93
Aug40		19			106
Sep40		17			125
Oct40		10			142
Nov40		13			152
Dec40		8			165
Jan41		8		28	173
Feb41		5			153
Mar41		4			158
Apr41		5			162
May41		3			167
Jun41		2			170
Jul41		Losses not Reported			
Aug41		2			
Sep41					
Oct41					
Nov41		1			
Dec41		5			

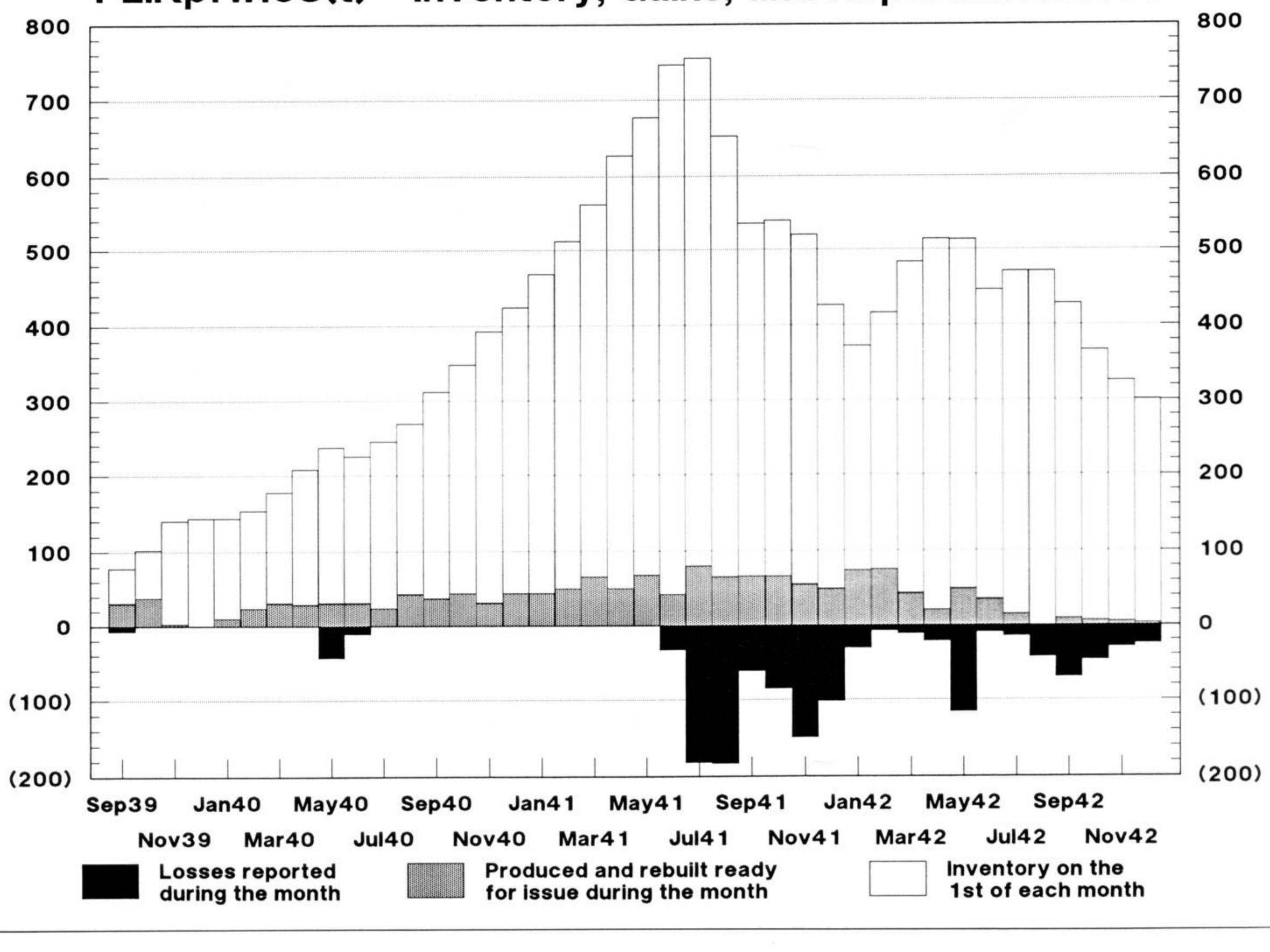
Pz.Kpfw.35(t) - Inventory, Gains, and Reported Losses



APPENDIX A4 - PANZERKAMPFWAGEN 38(t) (3.7 cm Kw.K.)

	Produced During Month	Ready for Issue During Month		Losses During Month	Inventory on the 1st of the Month
		New	Rebuilt		
Sep39	31	31		7	78
Oct39	30	38			102
Nov39	11	3			140
Dec39	0	0			143
Jan40	10	10			143
Feb40	24	24			153
Mar40	31	31			177
Apr40	30	29			208
May40	30	31		43	237
Jun40	30	31		11	225
Jul40	30	24			245
Aug40	35	42	1		269
Sep40	35	35	2		312
Oct40	44	44			349
Nov40	27	27	4		393
Dec40	44	44			424
Jan41	45	44			468
Feb41	50	50			512
Mar41	53	53	13		562
Apr41	49	49	1		628
May41	78	68			678
Jun41	65	29	13	33	746
Jul41	65	80	74	182	755
Aug41	64	64	1	183	653
Sep41	76	63	3	62	535
Oct41	53	66		85	539
Nov41	50	50	5	149	520
Dec41	50	49		102	426
Jan42	59	59	15	31	373
Feb42	61	60	15	8	416
Mar42	28	28	15	12	483
Apr42	0	0	21	22	514
May42	21	20	29	116	513
Jun42	26	26	9	10	446
Jul42	15	15			471
Aug42	0	43			471
Sep42	9	70			428
Oct42	6	47			367
Nov42	5	30			326
Dec42	3	25			301

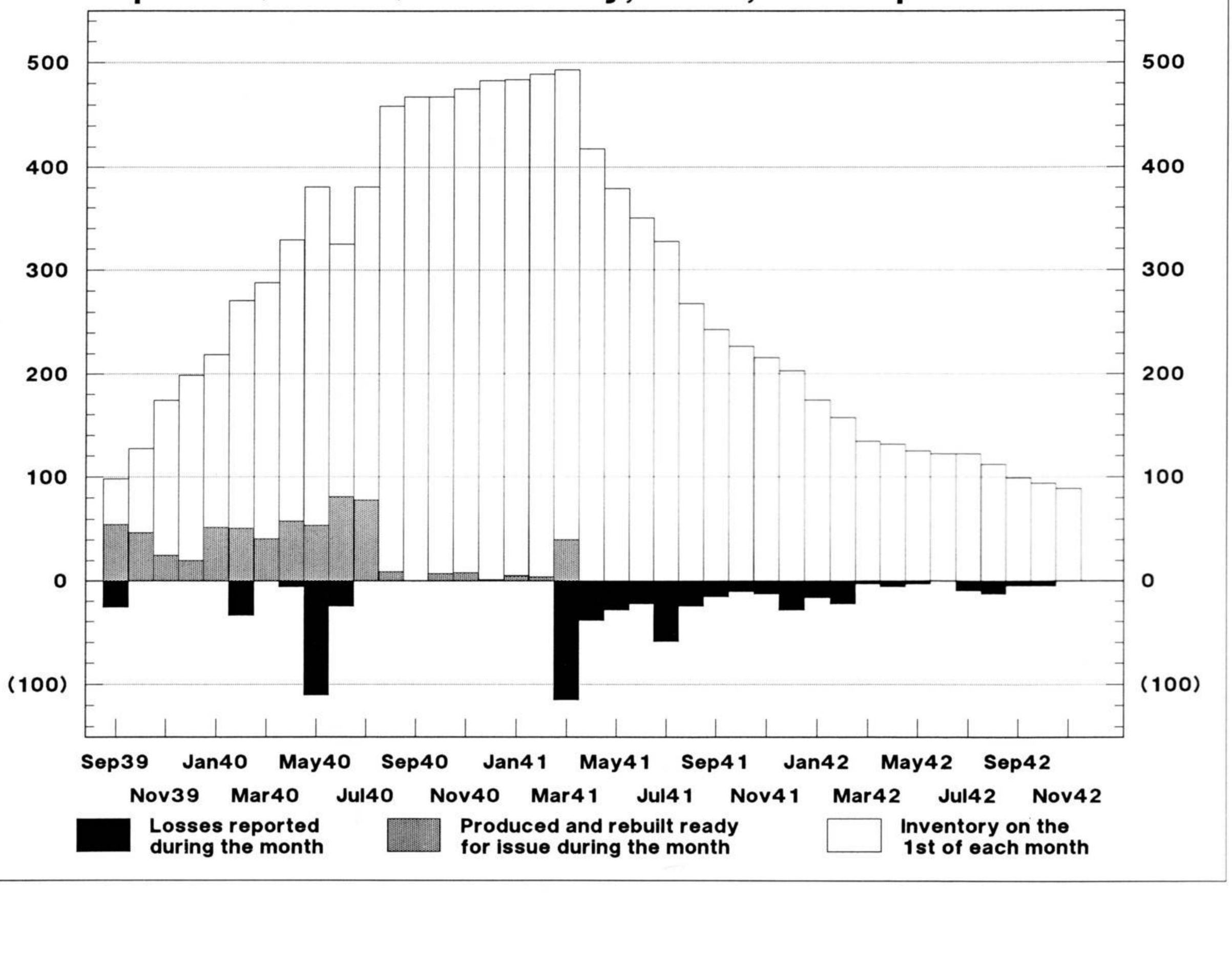
Pz.Kpfw.38(t) - Inventory, Gains, and Reported Losses



APPENDIX A5 - PANZERKAMPFWAGEN III (3.7 cm Kw.K.) Sd.Kfz.141

	Produced During Month	Ready for Issue During Month		Losses During Month	Inventory on the 1st of the Month
		New	Rebuilt		
Sep39	40	55		26	98
Oct39	40	47			127
Nov39	35	25			174
Dec39	42	20			199
Jan40	42	52			219
Feb40	49	51		34	271
Mar40	51	41			288
Apr40	51	58		6	329
May40	65	54		110	381
Jun40	58	77	4	25	325
Jul40	67	78			381
Aug40	3	5	4		459
Sep40	5				468
Oct40	5	3	4		468
Nov40		2	6		475
Dec40			1		483
Jan41			5		484
Feb41			4		489
Mar41			40	115	493
Apr41				39	418
May41				29	379
Jun41				23	350
Jul41				59	327
Aug41				25	268
Sep41				16	243
Oct41				11	227
Nov41				13	216
Dec41				29	203
Jan42				17	174
Feb42				23	157
Mar42				3	134
Apr42				6	131
May42				3	125
Jun42				0	122
Jul42				10	122
Aug42				13	112
Sep42				5	99
Oct42				5	94
Nov42					89
Dec42					89

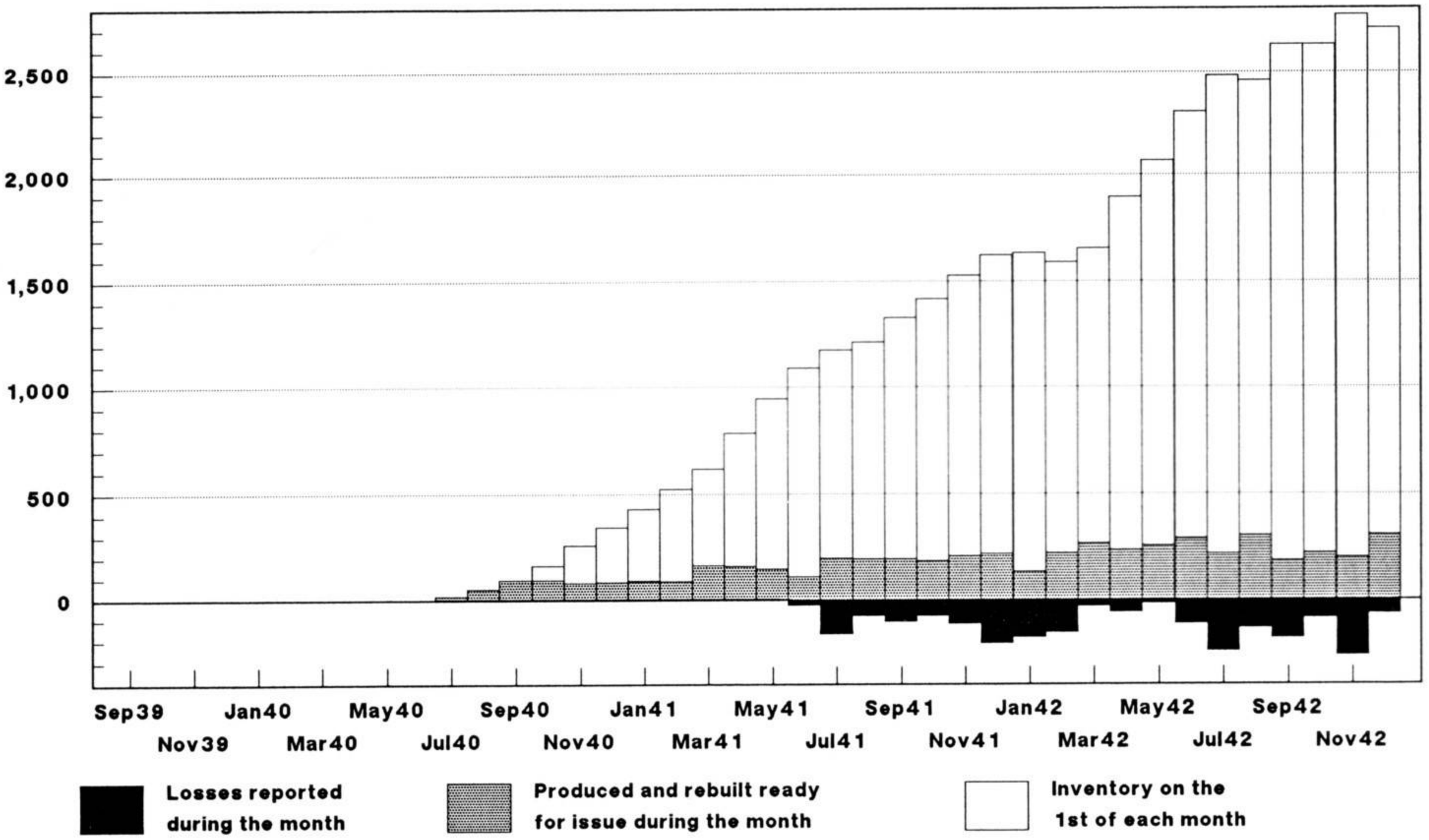
Pz.Kpfw.III (3.7 cm) - Inventory, Gains, and Reported Losses



APPENDIX A6 - PANZERKAMPFWAGEN III (5 cm Kw.K.) Sd.Kfz.141 and PANZERKAMPFWAGEN III (7.5 cm Kw.K.) Sd.Kfz.141

	Produced During Month	Ready for Issue During Month		Losses During Month	Inventory on the 1st of the Month
		New	Rebuilt		
Jun40	0	0			0
Jul40	17	17			0
Aug40	84	52			17
Sep40	86	98			69
Oct40	95	96			167
Nov40	82	84			263
Dec40	102	87			347
Jan41	88	91	1		434
Feb41	108	86	5		526
Mar41	92	131	34		617
Apr41	124	123	39		782
May41	143	121	29	4	944
Jun41	133	88	23	27	1090
Jul41	127	176	25	164	1174
Aug41	179	185	10	78	1211
Sep41	178	182	13	104	1328
Oct41	164	174	13	79	1419
Nov41	206	198	13	116	1527
Dec41	171	198	22	208	1622
Jan42	159	119	17	181	1634
Feb42	216	198	26	157	1589
Mar42	244	254	15	32	1656
Apr42	246	228	9	62	1893
May42	246	237	20	19	2068
Jun42	228	279	12	115	2306
Jul42	231	176	44	245	2482
Aug42	231	272	34	153	2457
Sep42	217	171	15	184	2628
Oct42	188	209	16	88	2630
Nov42	178	161	42	266	2767
Dec42	221	244	65	69	2704

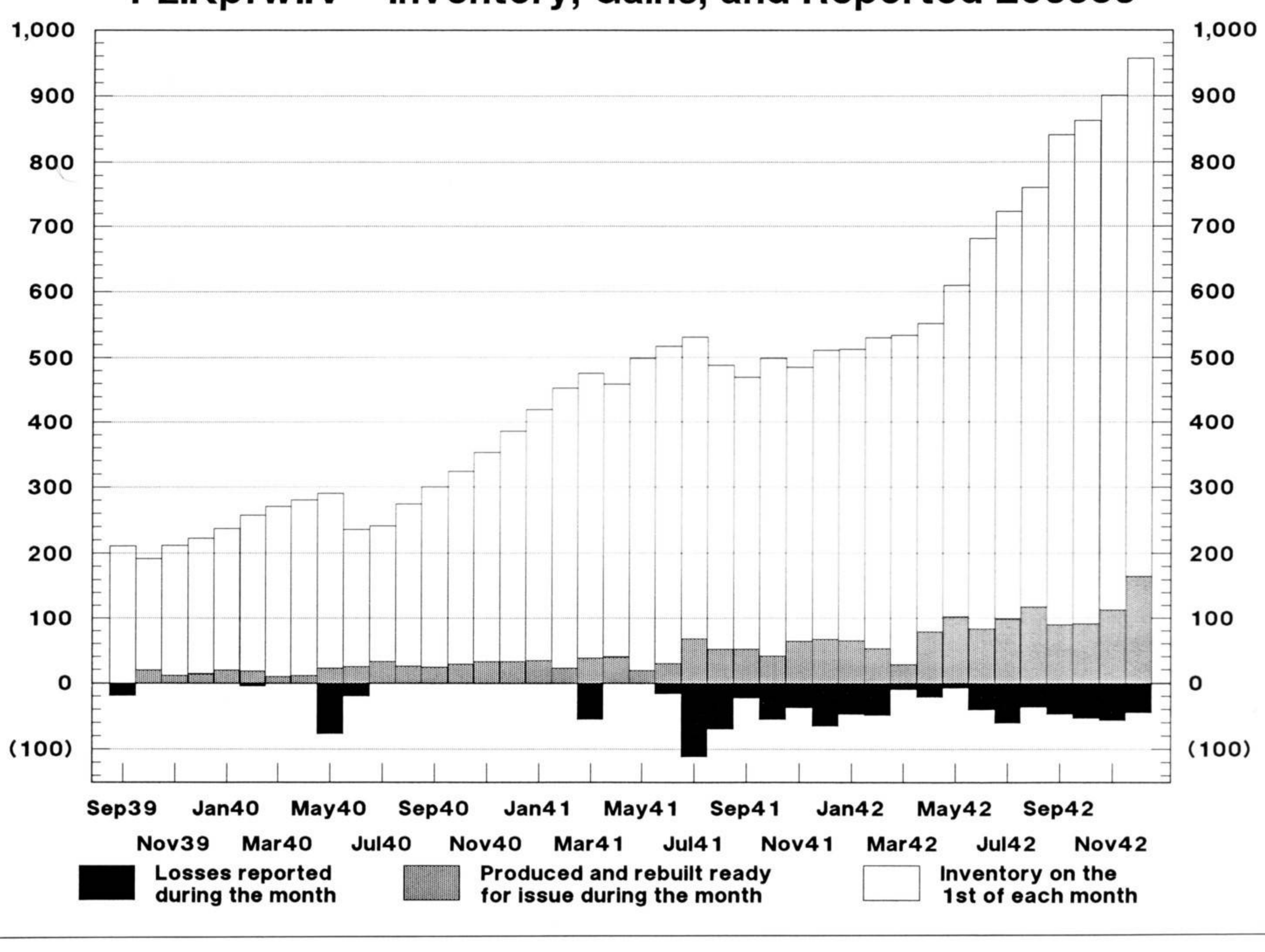
Pz.Kpfw.III (5 & 7.5 cm) - Inventory, Gains, and Reported Losses



APPENDIX A7 - PANZERKAMPFWAGEN IV (7.5 cm Kw.K.) Sd.Kfz.161

	Produced During Month	Ready for Issue During Month		Losses During Month	Inventory on the 1st of the Month
		New	Rebuilt		
Sep39	0	0		19	211
Oct39	20	20			192
Nov39	11	11			212
Dec39	14	14			223
Jan40	20	20			237
Feb40	18	18		5	257
Mar40	14	10			270
Apr40	10	11		1	280
May40	20	23		77	290
Jun40	23	23	2	20	236
Jul40	26	26	7		241
Aug40	30	24	2		274
Sep40	17	21	3		300
Oct40	30	28	1		324
Nov40	30	32	1		353
Dec40	30	30	3		386
Jan41	31	31	3		419
Feb41	26	20	3		453
Mar41	28	33	5	55	476
Apr41	36	32	8		459
May41	29	13	6	1	499
Jun41	38	29	1	16	517
Jul41	38	55	13	111	531
Aug41	44	43	9	70	488
Sep41	46	49	3	23	470
Oct41	51	40	1	55	499
Nov41	52	58	6	38	485
Dec41	61	56	11	65	511
Jan42	59	61	4	48	513
Feb42	58	46	7	49	530
Mar42	8	19	9	10	534
Apr42	80	75	4	22	552
May42	85	88	14	8	609
Jun42	72	72	11	41	681
Jul42	88	80	19	61	723
Aug42	84	94	24	37	761
Sep42	93	83	7	48	842
Oct42	99	90	2	54	863
Nov42	113	107	6	57	901
Dec42	155	158	7	45	957

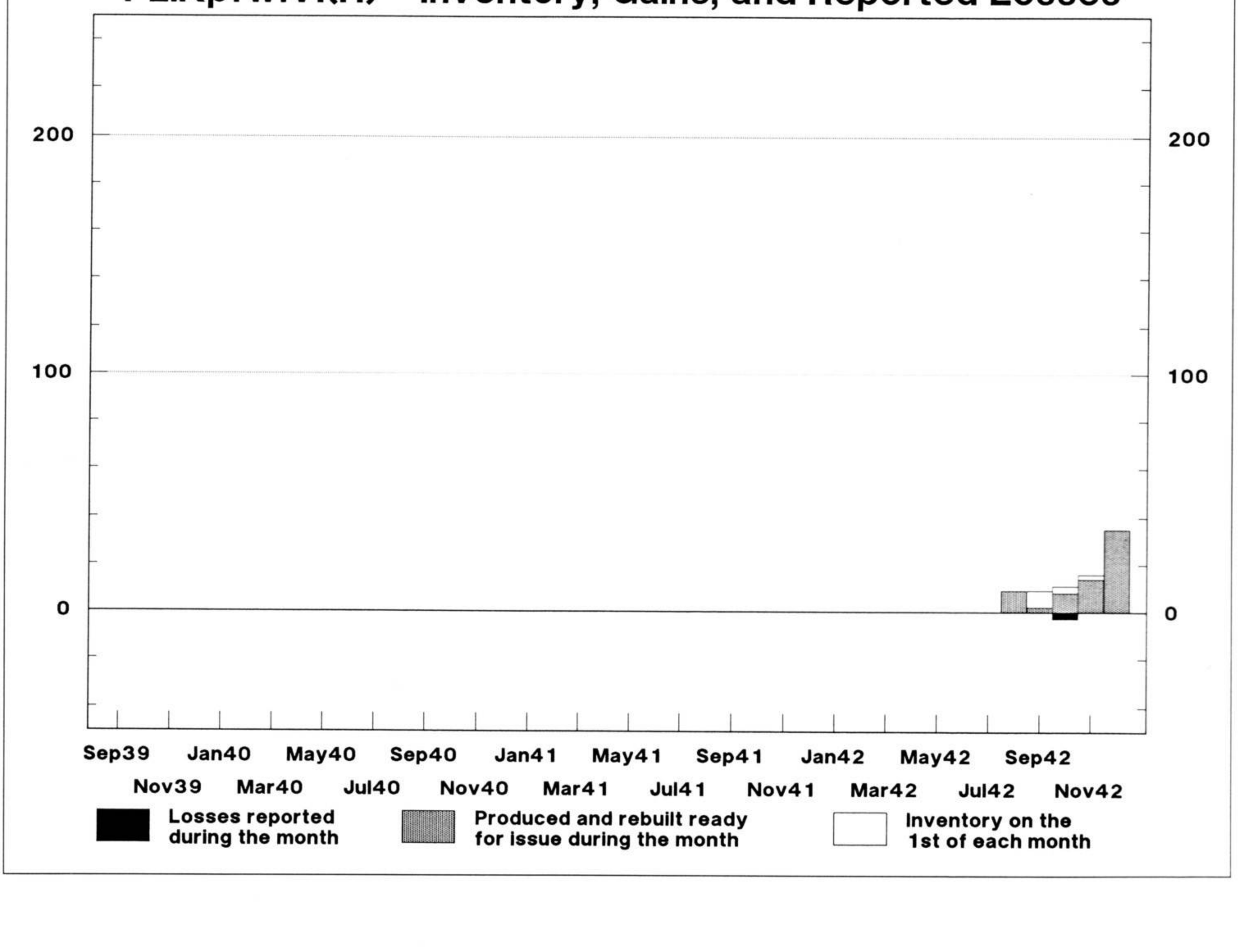
Pz.Kpfw.IV – Inventory, Gains, and Reported Losses



APPENDIX A8 - PANZERKAMPFWAGEN VI(H) (8.8 cm Kw.K.) Sd.Kfz.182

	Produced During Month	Ready for Issue During Month		Losses During Month	Inventory on the 1st of the Month
		New	Rebuilt		
Apr42	0				
May42	0				
Jun42	1				
Jul42	0	0			
Aug42	8	9			0
Sep42	3	2			9
Oct42	10	8		3	11
Nov42	21	14			16
Dec42	34	35			30

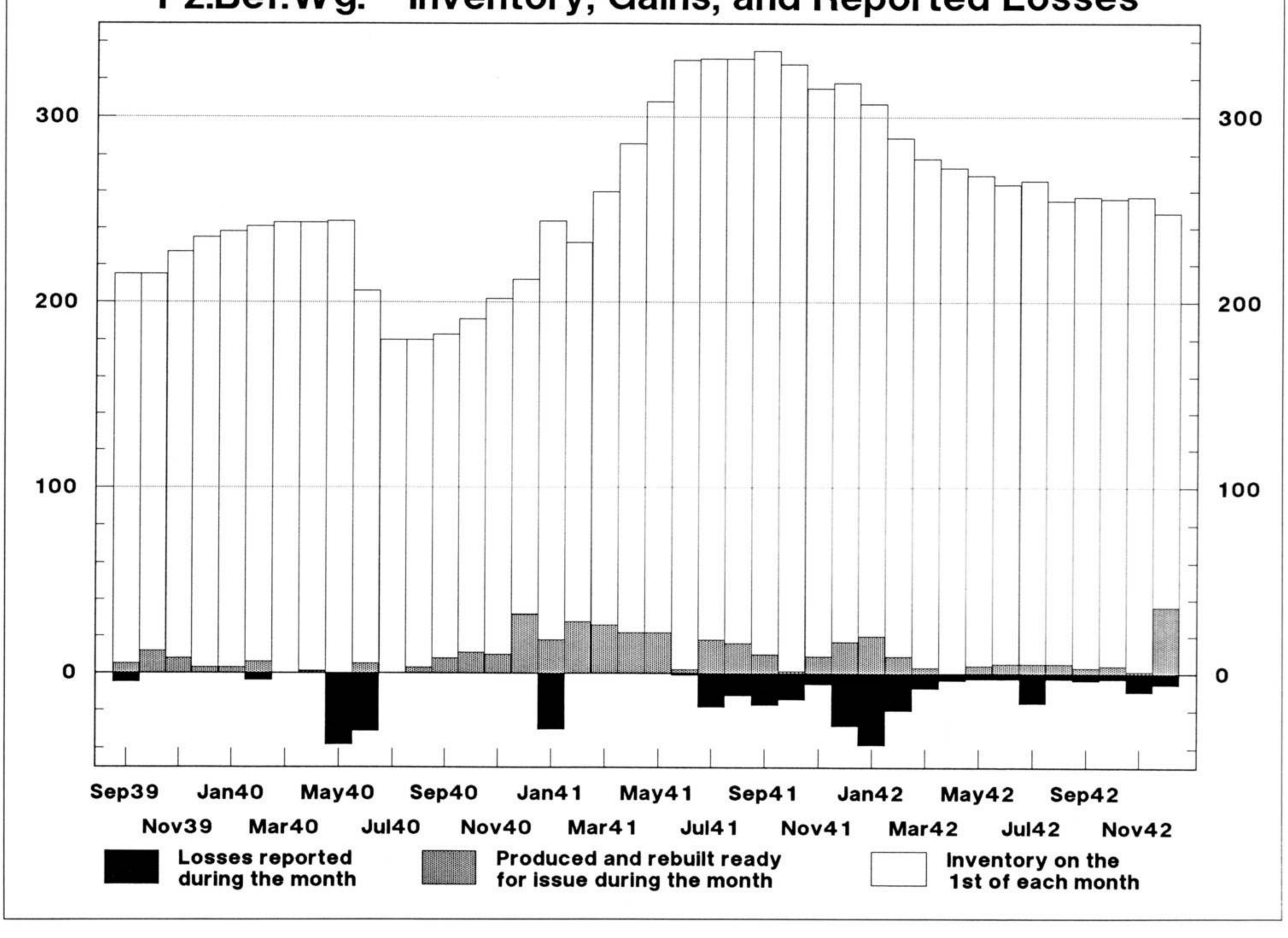
Pz.Kpfw.VI(H) - Inventory, Gains, and Reported Losses



APPENDIX A9 - PANZERBEFEHLSWAGEN (KLEIN UND GROSS) Sd.Kfz.265 - 268

	Produced During Month	Ready for Issue During Month		Losses During Month	Inventory on the 1st of the Month
		New	Rebuilt		
Sep39	7	5		5	215
Oct39	10	12			215
Nov39	8	8			227
Dec39	7	3			235
Jan40	4	3			238
Feb40	1	6		4	241
Mar40					243
Apr40			1		243
May40				38	244
Jun40			5	31	206
Jul40					180
Aug40			3		180
Sep40			8		183
Oct40			11		191
Nov40	2		10		202
Dec40	27	29	3		212
Jan41	16	15	3	30	244
Feb41	20	17	11		232
Mar41	24	25	1		260
Apr41	22	20	2		286
May41	14	18	4		308
Jun41	5		2	1	330
Jul41	13	14	4	18	331
Aug41		5	11	12	331
Sep41	2	2	8	17	335
Oct41			1	14	328
Nov41			9	6	315
Dec41	16	12	5	28	318
Jan42	14	18	2	38	307
Feb42			9	20	289
Mar42			3	8	278
Apr42				4	273
May42			4	3	269
Jun42			5	3	270
Jul42			5	16	266
Aug42			5	3	255
Sep42			3	4	257
Oct42			4	3	256
Nov42			1	10	257
Dec42	36	19	17	6	248

Pz.Bef.Wg. – Inventory, Gains, and Reported Losses



APPENDIX B - DEVELOPMENT AND USE OF RADIOS IN THE PANZERS

Tactical coordination through communication was a primary factor in the ability of the **Panzertruppen** to defeat superior armed and armored enemy tank forces. Germany recognized the importance of reliable radio communication as a key component in armored warfare from the beginning. Radio sets were already installed in the first tank produced by Germany after World War I, the **Grosstraktor**, and this practice continued with all the Panzers. However, what has not been recognized is the number of Panzers sent into combat that were equipped only with receiving sets. The technical manuals for each Panzer includes information on the type of radio sets that could be fitted but not necessarily installed. The radio sets actually installed were controlled by the **Kriegausrustungsnachweisung** (abbreviated **K.A.N.**) listing the authorized equipment for each unit. Therefore, as shown in the table, from 1939 through 1942 most of the Panzers that were not assigned to a commander, platoon leader, or section leader, only had receiving radio sets. From 1940 through 1942, over 55 percent of the Panzers in a Panzer-Regiment did not have transmitting radio sets. The advantage was that crews could not jam the airwaves with chatter. But, the disadvantage was loss of radio communication when the leader's Panzer was knocked out or his transmitting set failed.

Only a few of the 481 Panzers, assembled for the first trial exercise of a Panzer-Division in August 1935, had transmitting radio sets. The 318 **M.G.-Panzerwagen** produced by 1 August 1935 were outfitted only with receiver sets. For the purpose of command and control, 15 **leichte (Funk) Panzerwagen** had been produced and assigned to **Panzer-Abteilung** and **Panzer-Kompanie** commanders. These **leichte (Funk) Panzerwagen** consisted of a fixed superstructure on a normal production series **La.S.** chassis that was outfitted with a 30 watt transmitting and receiving radio set. In addition, three **Fuehrer-Panzerwagen** (fully tracked command vehicles) equipped with transmitting and receiving radio sets were assigned to the **Panzer-Brigade** and **Panzer-Regiment** commanders. The four **Grosstraktor**, three **Leichttraktor**, and two **Neubau-Fahrzeuge** assembled to simulate a **schwere Panzer-Kompanie** also had transmitting and receiving radio sets. The **Krupp-Traktor** chassis, used during the exercise to help fill the units to the desired strength, did not even have a receiving radio set.

Among the lessons learned from this exercise was that the 100 watt and 30 watt sets should be replaced with ultra short-wave radio sets capable of the same range. This was necessary so that enemy listening services would not be able to interfere with radio transmissions during the approach march. When engaged with the enemy, radio traffic was often the only means for quick and secure command of motorized units. Because, commanders needed to be near the head of their units, armored command and signal vehicles were considered to be absolutely necessary.

On 30 October 1935 and again a month later on 29 November, **Inspektorat 6** held meetings to decide on the radio equipment that should be installed in the future at each command level as follows:

UNIT	VEHICLE	RADIO EQUIPMENT	RANGE
Panzer-Kompanie			
	2 cm M.G.Pz.Kpfw. (company commander)	1 5 watt transmitter and 2 receivers	2 km voice 3 km key
	2 cm M.G.Pz.Kpfw. (platoon leader)	1 5 watt transmitter and 1 receiver	2 km voice
	M.G.Pz.Kpfw.	1 receiver	
Panzer-Abteilung Nachrichten Zug			
2	**gr.(Bef)-Pz.Kpfw.**	1 20 watt transmitter and 2 receivers	6 km voice 12 km key
1	**3.7 cm Gesch.Pz.Kpfw.**	1 20 watt transmitter and 1 receiver	6 km voice 12 km key
Panzer-Abteilung leichte Zug			
3	**2 cm M.G.Pz.Kpfw.** (platoon and group leaders)	1 5 watt transmitter and 1 receiver	2 km voice 3 km key
4	**M.G.Pz.Kpfw.**	1 receiver	

Panzer-Regiment Nachrichten Zug		
2 **gr.(Bef)-Pz.Kpfw.**	1 20 watt transmitter and 1 receiver	6 km voice 12 km key
	1 30 watt transmitter and 1 receiver	8 km voice 20 km key
1 **3.7 cm Gesch.Pz.Kpfw.**	1 20 watt transmitter and 1 receiver	6 km voice 12 km key
Panzer-Regiment leichte Zug		
3 **2 cm M.G.Pz.Kpfw.** (platoon and group leaders)	1 5 watt transmitter and 1 receiver	2 km voice 3 km key
4 **M.G.Pz.Kpfw.**	1 receiver	
Panzer-Division Nachrichten-Abteilung		
5 **gr.(Bef)-Pz.Kpfw.**	1 20 watt transmitter and 1 receiver	6 km voice 12 km key
	1 30 watt transmitter and 1 receiver	8 km voice 20 km key
2 **gr.(Bef)-Pz.Kpfw.**	1 30 watt transmitter and 1 receiver	8 km voice 20 km key
	1 transmitter and 1 receiver on aircraft frequencies	

Three of the seven **gr.(Bef)-Pz.Kpfw.** listed under **Panzer-Division Nachrichten-Abteilung**, belonged to the **Panzer-Brigade Nachrichten Zug**.

As a temporary expedient, **Inspektorat 6** ordered that a total of 72 **kl.(Bef)-Pz.Kpfw.** be produced and equipped with a 20 watt transmitter and receiver, one for each **Panzer-Kompanie, Abteilung, Regiment, Brigade, und Division**. The **kl.(Bef)-Pz.Kpfw.** consisted of a fixed superstructure mounted on a **La.S.** chassis. Its only armament was one machine-gun in a ball mount.

As shown in the table of radio equipment authorized by **K.A.N.**, the only significant difference between the above decisions and the actual implementation was that the proposed 5 watt transmitting sets were replaced by 10 watt transmitting and receiving sets. By 1 October 1937, the radio equipment had been designed, produced, and received the following standard nomenclature that we know it as today:

FULL NAME	COMPONENT DESCRIPTION	RANGE
Fu2 EU	1 ultra short-wave (27,200-33,300 kHz) **Empfaenger e** receiver with an E.U.a transformer	
Fu5 SE10u	1 10 watt ultra short-wave (27,200-33,300 kHz) **Sender e** transmitter with a U10a transformer, and 1 ultra short-wave (27,200-33,300 kHz) **Empfaenger e** receiver with an E.U.a transformer	2-3 km voice and 3-4 km key while driving
Fu6 SE20u	1 20 watt ultra short-wave (27,200-33,300 kHz) **Sender c** transmitter with a U20a2 transformer, and 1 ultra short-wave (27,200-33,300 kHz) **Empfaenger e** receiver with an E.U.a transformer	3-6 km voice and 4-8 km key while driving
Fu7 SE20u	1 20 watt ultra short-wave (42,100-47,800 kHz) **Sender d** transmitter with a U20a2 transformer, and 1 ultra short-wave (42,100-47,800 kHz) **Empfaenger d** receiver with an E.U.a transformer	70 km voice and 80 km key to aircraft in flight
Fu8 SE30	1 30 watt short-wave (1130-3000 kHz) **Sender a** transmitter with a U30 transformer, and 1 short-wave (835-3000 kHz) **Empfaenger c** receiver with an E.U.a transformer	10 km voice and 40 km key while driving 25 km voice and 70 km key while standing

TYPE OF RADIO SETS AUTHORIZED BY THE K.A.N. FOR EACH PANZER WITHIN THE PANZER-REGIMENT

Unit	1 October 1937	1 October 1938	1 March 1939	1 September 1939	1 February 1941
Rgt.Stab					
N.Zug	2 grBef Fu8 & Fu6	=	=	2 grBef Fu8 & Fu6	2 grBef Fu8 & Fu6
	1 PzII Fu5	=	=	1 PzIII Fu5	1 PzIII Fu5
l.Zug	1 klBef Fu6 & Fu2	=	=	1 PzII Fu6 & Fu2	1 PzII Fu5 & Fu2
	2 PzII Fu5	=	=	2 PzII Fu5	2 PzII Fu5
	2 PzI Fu2	=	=	2 PzII Fu2	2 PzII Fu2
Abt.Stab					
N.Zug	2 klBef Fu6 & Fu2	1 grBef Fu6 & Fu2	=	2 grBef Fu6 & Fu2	2 grBef Fu6 & Fu2
	1 PzIII Fu5 & Fu2	1 klBef Fu6 & Fu2	=	1 PzIII Fu5	1 PzIII Fu5
		1 PzIII Fu5 & Fu2	=		
l.Zug	1 klBef Fu6 & Fu2	=	=	1 PzII Fu6 & Fu2	1 PzII Fu5 & Fu2
	2 PzII Fu5	=	=	2 PzII Fu5	2 PzII Fu5
	2 PzI Fu2	=	=	2 PzII Fu2	2 PzII Fu2
l.Pz.Kp.					
Kp.Tr.	1 klBef Fu6 & Fu2	1 klBef Fu6 & Fu2	1 klBef Fu6 & Fu2	2 PzIII Fu5 & Fu2	2 PzIII Fu5 & Fu2
	1 PzII Fu5	3 PzII Fu5	1 PzII Fu5		
	2 PzI Fu2		2 PzI Fu2		
1.Zug	1 PzII Fu5	1 PzII Fu5	1 PzII Fu5	1 PzII Fu5	1 PzII Fu5 & Fu2
	4 PzI Fu2	4 PzI Fu2	2 PzII Fu2	4 PzII Fu2	2 PzII Fu5
			2 PzI Fu2		2 PzII Fu2
2.-4.Zug	3 PzII Fu5	3 PzII Fu5	3 PzII Fu5	3 PzIII Fu5	3 PzIII Fu5 & Fu2
	12 PzI Fu2	4 PzII Fu2	8 PzII Fu2	12 PzIII Fu2	12 PzIII Fu2
		8 PzI Fu2	4 PzI Fu2		
Ers.Staf.	2 PzI Fu2				
m.Pz.Kp.					
Kp.Tr.	1 klBef Fu6 & Fu2	1 klBef Fu6 & Fu2	1 klBef Fu6 & Fu2	2 PzIV Fu5 & Fu2	2 Pz IV Fu5 & Fu2
	1 PzII Fu5	2 PzIV Fu5	7 PzI Fu2		
	2 PzI Fu2	1 PzII Fu5			
1.Zug	1 PzII Fu5	1 PzII Fu5	3 PzIII Fu5	1 PzII Fu5	1 PzII Fu5 & Fu2
	4 PzI Fu2	2 PzII Fu2		4 PzII Fu2	2 PzII Fu5
					2 PzII Fu2
2.-4.Zug	1 PzII Fu5	1 PzII Fu5	6 PzIV Fu5	6 PzIV Fu5	3 PzIV Fu5 & Fu2
	4 PzI Fu2	2 PzII Fu2		6 PzIV Fu2	9 PzIV Fu2
	3 PzIII Fu5	3 PzIII Fu5			
	3 PzIV Fu5	3 PzIV Fu5			
Ers.Staf.	1 PzIV Fu5				
	1 PzI Fu2				

LEGEND: Fu2 - Receiver only (27,200-33,000 kHz)
Fu5 - 10 watt transmitter and receiver (27,200-33,000 kHz)
Fu6 - 20 watt transmitter and receiver (27,200-33,000 kHz)
Fu8 - 30 watt transmitter and receiver (1,130-3,000 kHz)

APPENDIX C1 - TECHNICAL SPECIFICATIONS OF AMERICAN TANKS

	M3 Light Stuart	M3 Medium Grant
Combat Weight (tons)	13	28
Maximum Speed (km/hr)	57.9	40.2
Crew	4	6
Main Gun (cm/caliber)	3.7 L/56	3.7 L/56 7.5 L/31
Machine Guns	2	1
Main Gun Ammunition	83	50-7.5 182-3.7
M.G. Ammunition	5435	3100
Power/Weight (HP/ton)	19.2	14.3
Ground Pressure (kg/cm^2)	1.0	1.2
Ground Clearance (m)	0.42	0.43
Fording Depth (m)	0.9	1.0
Range on Road (km)	120	177
Range Cross Country (km)		
Fuel Capacity (l)	151	662
Armor	Rolled	Rolled & Cast
Hull Front (mm)	38.1	38.1-50.8
Hull Side (mm	25.4	38.1
Hull Rear (mm)	25.4	38.1
Hull Roof (mm)	9.5	12.7
Hull Belly (mm)	6.4-12.7	12.7-25.4
Turret Front (mm)	38.1	50.8-76.2
Turret Side (mm)	25.4	50.8
Turret Rear (mm)	25.4	50.8
Turret Roof (mm)	9.5	31.8
Length (m)	4.53	5.90
Width (m)	2.46	2.75
Height (m)	2.65	3.02
Drive Sprocket	Front	Front
Motor	Continental Wright	=
Type	Gasoline	=
Cooling	Air	=
Power (HP)	250	400
Maximum rpm	2400	2400
Capacity (l)	10.9	15.9
Bore/Stroke (mm)	130/117	127/140
Cylinders	7	9
Motor Efficiency (HP/l)	22.8	25.2
Transmission	5F,1R	5F,1R
Speed 1.Gear (km/hr)	8.0	3.9
Speed 2.Gear (km/hr)	15.2	9.4
Speed 3.Gear (km/hr)	24.9	16.5
Speed 4.Gear (km/hr)	39.2	26.4
Speed 5.Gear (km/hr)	57.9	40.2
Steering	Cletrac	=
Turning Circle (m)	13	21
Roadwheels	4	6
Tires	Rubber	=
Diameter/Width (mm)	508/152	508/229
Pressure on Wheel (kg/cm)	120	106
Suspension	Volute Springs	= =
Roadwheels/Spring	2	2
Type of Track	Rubber	=
Width/Pitch (mm)	295/140	420/152
Steering Ratio	1.60	1.77

APPENDIX C2 - TECHNICAL SPECIFICATIONS OF BRITISH TANKS

	Light Mk.VIc	Cruiser Mk.I C.S.	Cruiser Mk.II	Cruiser Mk.IVA	Cruiser Mk.VIA	Infantry Mk.I	Infantry Mk.II	Infantry Mk.III
Combat Weight (tons)	5.25	12.7	14.5	15.0	18.8	12.0	26.0	16.0
Maximum Speed (km/hr)	50.9	39.6	=	48.0	41.8	11.2	24.1	26.1
Crew	3	6	5	4	4	2	4	3
Main Gun (cm/caliber)	1.5	9.4 L/15	4.0 L/52	4.0 L/52	4.0 L/52		4.0 L/52	=
Machine Guns	1	3	1	1	1	1	1	1
Main Gun Ammunition	175	40	100	87	130		67	52
M.G. Ammunition	2700	5000	4050	3375	4950	4400	2925	3150
Power/Weight (HP/ton)	16.8	11.8	10.3	22.7	18.0	5.8	7.2	8.4
Ground Pressure (kg/cm^2)	0.53	0.76	0.94	0.93	1.09	0.76	1.12	0.72
Ground Clearance (m)	0.27	0.46	0.44	0.38	0.41	0.38	0.48	0.42
Fording Depth (m)	0.60	0.91	0.91	0.91	1.0	0.76	0.91	0.91
Range on Road (km)	280	202	225	160	160	135	112	112
Range Cross Country (km)								
Fuel Capacity (l)	159	327	441	455	455	190	423	255
Armor	Rolled	Rolled	Rolled	Rolled	Rolled	Cast & Rolled	Cast	Rolled & Cast
Hull Front (mm)	11-14	10-14	22.1-30	20-25	20-40	60	45-78	60
Hull Side (mm	11-13	10	22.1	14	14+14	60	65-70	60
Hull Rear (mm)	4-6	10	12	14	14-28	60	55	60
Hull Roof (mm)	4	5	7	4	7	30	20	10-20
Hull Belly (mm)	3	7	7	4	6.4-10.4	10	13-20	7-20
Turret Front (mm)	14	14	30	30	49	65	75	65
Turret Side (mm)	11-14	12	26	12+4	23.5	65	75	60
Turret Rear (mm)	11	14	30	14+4	20-30.7	65	75	65
Turret Roof (mm)	3.5	4	7	4	12	10	20	10-20
Length (m)	3.94	5.79	5.52	6.02	5.98	4.95	5.72	5.46
Width (m)	2.06	2.50	2.58	2.54	2.77	2.31	2.51	2.62
Height (m)	2.13	2.65	2.65	2.59	2.24	1.90	2.56	2.10
Drive Sprocket	Front	Rear	Rear	Rear	Rear	Rear	Rear	Rear
Motor	Meadows	A.E.C.	=	Liberty	Nuffield	Ford	AEC	AEC
Type	Gasoline	=	=	=	=	=	Diesel	Diesel
Cooling	Water	=	=	=	=	=	=	=
Power (HP)	88	150	=	340	=	70	2x94	135
Maximum rpm	3000	2200	=	1500	=	2800	2000	1900
Capacity (l)	4.43	9.5	=	27.0	=	3.6	2x6.75	9.64
Bore/Stroke (mm)	88/120	120/142	=	127/178	=	77.5/95	105/130	120/142
Cylinders	6	6	=	12	=	8	2x6	6
Motor Efficiency (HP/l)	19.6	15.8	=	12.6	=	19.4	13.9	14.0
Transmission	5F,1R	5F,1R	=	4F,1R	4F,1R	4F,1R	6F,1R	5F,1R
Speed 1.Gear (km/hr)	7.0	3.8	=	6.5	5.7	1.8	2.3	2.5
Speed 2.Gear (km/hr)	13.0	8.0	=	11.4	9.8	3.7	5.0	5.3
Speed 3.Gear (km/hr)	23.8	14.9	=	25.3	22.0	6.9	8.7	9.8
Speed 4.Gear (km/hr)	39.8	28.7	=	48.0	41.8	11.2	12.6	19.0
Speed 5.Gear (km/hr)	50.9	39.6	=				17.6	26.1
Speed 6.Gear (km/hr)							24.1	
Steering	Clutches	=	=	=	Single Radius Clutch	Clutches	=	=
Turning Circle (m)	6.4	7.9	=	9.0	9.0	5.5	8.3	7.9
Roadwheels	4	6	=	4	5	8	10	6
Tires	Rubber	=	=	=	=	6 Rubber & 2 Steel	Steel	Rubber
Diameter/Width (mm)	500/60	2x610/135 4x495/135	= =	803/90x2	812/90x2	305/85x2	240/50x2	2x610/135 4x495/135
Pressure on Wheel (kg/cm)	77	78	90	104	100	46	130	99
Suspension	Coil Springs	= =	= =	Christi	=	Leaf Springs	Coil Springs	= =
Roadwheels/Spring	2	3	=	1	1	4	2x4,1x2	3
Type of Track	Unlubricated	=	=	=	=	=	=	=
Width/Pitch (mm)	241/44	267/158	=	246/103	=	292/89	355/165	365/159
Steering Ratio	1.12	1.41	1.41	1.66	1.67	1.51	1.68	1.40

APPENDIX C3 - TECHNICAL SPECIFICATIONS OF FRENCH TANKS

	AMR	R35	H39	FCM	S35	B1 bis
Combat Weight (tons)	7.13	9.8	12.0	12.0	20.0	32.0
Maximum Speed (km/hr)	50	19	36.5	24.0	37	28
Crew	2	2	2	2	3	4
Main Gun (cm/caliber)	2.5	3.7 L/21	3.7 L/21 or L/33	3.7 L/21	4.7 L/32	7.5 L/17 4.7 L/32
Machine Guns	1	1	1	1	1	2
Main Gun Ammunition	78	58	100	102	118	74-7.5, 50-4.7
M.G. Ammunition	750	2500	2400	3000	1250	5100
Power/Weight (HP/ton)	11.5	8.4	10	7.1	9.5	9.4
Ground Pressure (kg/cm^2)	0.89	0.86	0.90	0.75	0.85	0.85
Ground Clearance (m)	0.32	0.32	0.37	0.36	0.42	0.45
Fording Depth (m)	0.60	0.60	0.85	0.80	1.00	0.72
Range on Road (km)	200	138	150	230	260	140
Range Cross Country (km)	95	80	90	140	128	100
Fuel Capacity (l)	130	168	210	260	410	400
Armor	Rolled	Cast & Rolled	Cast	Rolled	Cast	Rolled Hull Cast Turret
Hull Front (mm)	12	32	22-34	25-40	35	40-60
Hull Side (mm)	10	40	34	20	40	55
Hull Rear (mm)	10	40	34	20	35	55
Hull Roof (mm)	6	15	22	15	20	14-27
Hull Belly (mm)	6	14	12	13	20	22
Turret Front (mm)	13	45	45	40	55	55
Turret Side (mm)	13	40	40	40	45	45
Turret Rear (mm)	10	40	40	40	45	45
Turret Roof (mm)	9	30	30	14	28	28
Length (m)	4.25	4.00	4.22	4.47	5.30	6.50
Width (m)	1.75	1.85	1.85	2.14	2.12	2.50
Height (m)	1.80	2.10	2.14	2.21	2.62	2.80
Drive Sprocket	Front	Front	Front	Rear	Rear	Rear
Motor	Renault	=	Hotchkiss	Berliet	Somua	Renault
Type	Gasoline	=	Gasoline	Diesel	Gasoline	Gasoline
Cooling	Water	=	Water	Water	Water	Water
Power (HP)	82	=	120	91	190	300
Maximum rpm	2200	=	2800	1550	2000	1900
Capacity (l)	5.8	=	5.9	8.4	12.7	16.5
Bore/Stroke (mm)	120/130	=	105/115	130/160	120/140	140/180
Cylinders	4	=	6	4	8	6
Motor Efficiency (HP/l)	14.2	=	20.3	10.4	15	18.2
Transmission	4F,1R	4F,1R	5F,1R	5F,1R	5F,1R	5F,1R
Speed 1.Gear (km/hr)	8.6	3.4	3.8	1.7	4.5	2.1
Speed 2.Gear (km/hr)	18.7	6.1	7.5	4.32	9.2	6.9
Speed 3.Gear (km/hr)	37.0	11.1	12.7	8.27	19.6	9.6
Speed 4.Gear (km/hr)	50.0	19.0	23.7	16.9	28.4	17.0
Speed 5.Gear (km/hr)			36.5	24.0	37.0	28.0
Speed 6.Gear (km/hr)						
Steering	Cletrac	=	=	Clutches	Double Differential	=
Turning Circle (m)	8.80	8.50	8.25	6.50	12	=
Roadwheels	4	5	6	8	9	14
Tires	Rubber	=	=	Steel	=	=
Diameter/Width (mm)	500/100	400/123	400/125	240/130	300/2x35	210/2x45
Pressure on Wheel (kg/cm)	89	80	80	61.5	159	127
Suspension	Rubber	=	Coil	=	Leaf	Coil
	Cylinder	=	Springs	=	Springs	Springs
Roadwheels/Spring	2x1,1x2	1x1,2x2	2	2	2x4,1x1	4
Type of Track	Unlubricated	=	=	=	=	Lubricated
Width/Pitch (mm)	220/55	260/70	270/90	320/75	360/110	500/215
Steering Ratio	1.26	1.44	1.6	1.72	1.96	1.96

APPENDIX C4.1 - TECHNICAL SPECIFICATIONS OF GERMAN PANZERS

	Pz.Kpfw.I Ausf.A	Pz.Kpfw.I Ausf.B	Pz.Kpfw.II Ausf.a	Pz.Kpfw.II Ausf.b	Pz.Kpfw.II Ausf.c-C	Pz.Kpfw.II Ausf.D	Pz.Kpfw.II Ausf.F
Combat Weight (tons)	5.4	5.8	7.6	7.9	8.9	11	9.5
Maximum Speed (km/hr)	37	42	40	=	39.5	55	39.5
Crew	2	2	3	3	3	3	3
Main Gun (cm/caliber)			2	=	=	=	=
Machine Guns	2	2	1	=	=	=	=
Main Gun Ammunition			180	=	=	=	=
M.G. Ammunition	2250	2250	1425	=	=	=	=
Power/Weight (HP/ton)	11.1	17.2	17	17.5	16	12.7	14.7
Ground Pressure (kg/cm^2)	0.39	0.52	0.62	0.65	0.73	0.80	0.78
Ground Clearance (m)	0.30	0.30	0.30	0.31	0.35	0.34	0.35
Fording Depth (m)	0.60	0.60	0.92	0.89	0.92	0.90	0.92
Range on Road (km)	140	170	190	=	=	200	190
Range Cross Country (km)	93	115	126	=	=	130	125
Fuel Capacity (l)	140	146	170	=	=	200	170
Armor	Rolled	=	=	=	=	=	=
Hull Front (mm)	13	=	13	14.5	=	30	30-35
Hull Side (mm	13	=	13	14.5	=	=	=
Hull Rear (mm)	13	=	13	14.5	=	=	=
Hull Roof (mm)	5	=	5	10-12	=	=	=
Hull Belly (mm)	5	=	5	5	=	=	=
Turret Front (mm)	15	=	15	15	=	=	30
Turret Side (mm)	13	=	13	14.5	=	=	=
Turret Rear (mm)	13	=	13	14.5	=	=	=
Turret Roof (mm)	8	=	8	10	=	=	=
Length (m)	4.02	4.42	4.38	4.76	4.81	4.75	4.81
Width (m)	2.06	2.06	2.14	=	2.22	2.14	2.28
Height (m)	1.72	1.72	1.95	1.96	1.99	2.02	2.15
Drive Sprocket	Front	=	=	=	=	=	=
Motor	M305	NL38TR	HL57TR	=	HL62TR	HL62TRM	HL62TR
Type	Gasoline	=	=	=	=	=	=
Cooling	Air	Water	=	=	=	=	=
Power (HP)	60	100	130	=	140	=	=
Maximum rpm	2500	3000	2600	=	=	=	=
Capacity (l)	3.5	3.8	5.7	=	6.2	=	=
Bore/Stroke (mm)	92/130	90/100	100/120	=	105/120	=	=
Cylinders	4	6	=	=	=	=	=
Motor Efficiency (HP/l)	17.1	26.3	22.8	=	22.6	=	=
Transmission	5F,1R	5F,1R	6F,1R	6F,1R	6F,1R	7F,1R	6F,1R
Speed 1.Gear (km/hr)	4	5	4	=	5.2		2.2
Speed 2.Gear (km/hr)	7	11	9	=	9.5		9.5
Speed 3.Gear (km/hr)	14	20	15	=	12.8		12.8
Speed 4.Gear (km/hr)	23	32	22.5	=	21.2		21.2
Speed 5.Gear (km/hr)	37	42	30	=	30		30
Speed 6.Gear (km/hr)			40	=	39.5		39.5
Speed 7.Gear (km/hr)						55	
Steering	Clutches	=	Differential	=	=	=	=
Turning Circle (m)							
Roadwheels	4	5	6	6	5	4x2	5
Tires	Rubber	=	=	=	=	=	=
Diameter/Width (mm)	530/80	530/80	400/90	400/100	550/100	700/50	550/98
Pressure on Wheel (kg/cm)	67.5	72.5	70.4	65.8	89.0	138	97
Suspension	Leaf/Coil Springs	= =	Leaf Springs	= =	= =	Torsion Bars	Leaf Springs
Roadwheels/Spring	1,2x2	1,2x2	2	2	1	1	1
Type of Track	Unlubricated	=	=	=	=	=	=
Width/Pitch (mm)	280/90	280/90	300/90	=	=	300/100	300/90
Steering Ratio	1.48	1.44	1.36	1.29	1.28	1.17	1.28

APPENDIX C4.2 - TECHNICAL SPECIFICATIONS OF GERMAN PANZERS

	Pz.Kpfw.III Ausf.A	Pz.Kpfw.III Ausf.B-D	Pz.Kpfw.III Ausf.E-G	Pz.Kpfw.III Ausf.H	Pz.Kpfw.III Ausf.J	Pz.Kpfw.III Ausf.L	Pz.Kpfw.III Ausf.N
Combat Weight (tons)	15	16	19.5	21.5	21.6	22.7	23
Maximum Speed (km/hr)	35	35	67	42	=	40	40
Crew	5	=	=	=	=	=	=
Main Gun (cm/caliber)	3.7 L/46.5	=	= or 5 L/42	5 L/42	=	5 L/60	7.5 L/24
Machine Guns	3	=	3 or 2	2	=	=	=
Main Gun Ammunition	121	=	121-3.7 99-5	99	=	84	64
M.G. Ammunition	4500	=	4500	3750	=	=	=
Power/Weight (HP/ton)	15.3	14.3	13.6	12.3	=	11.7	11.5
Ground Pressure (kg/cm^2)	0.67	0.68	0.92	0.97	=	1.02	1.04
Ground Clearance (m)	0.35	0.38	=	=	=	=	=
Fording Depth (m)	0.80	=	=	=	=	=	=
Range on Road (km)	165	=	=	155	=	145	=
Range Cross Country (km)	95	=	=	=	=	85	=
Fuel Capacity (l)	300	=	320	=	=	=	=
Armor	Rolled	=	=	=	=	=	=
Hull Front (mm)	14.5	=	30	30+30	50	50+20	=
Hull Side (mm	14.5	=	30	=	=	=	=
Hull Rear (mm)	14.5	=	20	30+30	50	=	=
Hull Roof (mm)	10	=	16	=	=	=	=
Hull Belly (mm)	5	=	15	=	=	=	=
Turret Front (mm)	15	=	30	35	50	50+20	50
Turret Side (mm)	14.5	=	30	=	=	=	=
Turret Rear (mm)	14.5	=	30	=	=	=	=
Turret Roof (mm)	10	=	10	=	=	=	=
Length (m)	5.80	5.66-5.92	5.38	=	5.52	6.15	5.65
Width (m)	2.82	2.82	2.91	2.95	=	2.97	=
Height (m)	2.36	2.39-2.42	2.44	2.50	=	=	=
Drive Sprocket	Front	=	=	=	=	=	=
Motor	HL108TR	=	HL120TRM	=	=	=	=
Type	Gasoline	=	=	=	=	=	=
Cooling	Water	=	=	=	=	=	=
Power (HP)	230	=	265	=	=	=	=
Maximum rpm	2600	=	2600	=	=	=	=
Capacity (l)	10.8	=	11.9	=	=	=	=
Bore/Stroke (mm)	100/115	=	105/115	=	=	=	=
Cylinders	12	=	=	=	=	=	=
Motor Efficiency (HP/l)	21.3	=	22.3	=	=	=	=
Transmission	5F,1R	=	10F,1R	6F,1R	=	=	=
Speed 1.Gear (km/hr)	5.2	=	4.6	4.7	=	=	=
Speed 2.Gear (km/hr)	10.5	=	6.3	9.0	=	=	=
Speed 3.Gear (km/hr)	16.6	=	8.4	15.2	=	=	=
Speed 4.Gear (km/hr)	24.8	=	11.2	23.0	=	=	=
Speed 5.Gear (km/hr)	35.2	=	15.2	32.6	=	=	=
Speed 6.Gear (km/hr)			20.4	42.0	=	=	=
Speed 7.Gear (km/hr)			27.7				
Speed 8.Gear (km/hr)			36.9				
Speed 9.Gear (km/hr)			49.4				
Speed 10.Gear (km/hr)			67.1				
Steering	Differential	=	=	=	=	=	=
Turning Circle (m)							
Roadwheels	5	8x2	6x2	=	=	=	=
Tires	Rubber	=	=	=	=	=	=
Diameter/Width (mm)	640/75	415/75	520/75	520/95	=	=	=
Pressure on Wheel (kg/cm)	100	66.7	108	94.3	94.7	99.6	101
Suspension	Coil Springs	Leaf Springs	Torsion Bars	=	=	=	=
Roadwheels/Spring	1	2,4,2	1	=	=	=	=
Type of Track	Unlubricated	=	=	=	=	=	=
Width/Pitch (mm)	380/120	=	=	400/120	=	=	=
Steering Ratio	1.23	1.38	1.15	=	=	=	=

APPENDIX C4.3 - TECHNICAL SPECIFICATIONS OF GERMAN PANZERS

	Pz.Kpfw.IV Neubau	Pz.Kpfw.IV Ausf.A	Pz.Kpfw.IV Ausf.B-C	Pz.Kpfw.IV Ausf.D	Pz.Kpfw.IV Ausf.E	Pz.Kpfw.IV Ausf.F	Pz.Kpfw.IV Ausf.G
Combat Weight (tons)	23	18	18.5	20	22	22.3	23.6
Maximum Speed (km/hr)	30	32	42	=	=	=	=
Crew	6	5	=	=	=	=	=
Main Gun (cm/caliber)	7.5 L/24 3.7 L/45	=	=	=	=	=	7.5 L/43
Machine Guns	3	2	1	2	=	=	=
Main Gun Ammunition	80-7.5 50-3.7	122	80	=	=	=	87
M.G. Ammunition	6000	3000	2400	3150	=	=	=
Power/Weight (HP/ton)	12.6	12.8	14.3	13.2	12.0	11.9	11.5
Ground Pressure (kg/cm^2)	0.69	0.68	0.77	0.83	0.91	0.88	0.93
Ground Clearance (m)	0.45	0.40	=	=	=	=	=
Fording Depth (m)		0.80	=	=	=	=	=
Range on Road (km)	120	210	=	=	=	=	=
Range Cross Country (km)		130	=	=	=	=	=
Fuel Capacity (l)	457	470	=	=	=	=	=
Armor	Rolled	=	=	=	=	=	=
Hull Front (mm)	13-20	14.5	30	=	50	=	=
Hull Side (mm	13	14.5	=	20	20+20	30	=
Hull Rear (mm)	13	14.5	=	20	=	=	=
Hull Roof (mm)	10	10-11	=	=	=	=	=
Hull Belly (mm)	8	8	=	11	10	=	=
Turret Front (mm)	13	14.5	30	35-30	=	50	=
Turret Side (mm)	13	14.5	=	20	=	30	=
Turret Rear (mm)	13	14.5	=	20	=	30	=
Turret Roof (mm)	10	10	=	=	=	=	=
Length (m)	6.65	5.92	=	=	=	=	6.63
Width (m)	2.90	2.83	=	=	=	2.88	=
Height (m)	2.90	2.68	=	=	=	=	=
Drive Sprocket	Rear	Front	=	=	=	=	=
Motor	BMW Va	HL108TR	HL120TR-M	HL120TRM	=	=	=
Type	Gasoline	=	=	=	=	=	=
Cooling	Water	=	=	=	=	=	=
Power (HP)	290	230	265	=	=	=	=
Maximum rpm	1400	2600	2600	=	=	=	=
Capacity (l)	22.9	10.8	11.9	=	=	=	=
Bore/Stroke (mm)	160/190	100/115	105/115	=	=	=	=
Cylinders	6	12	=	=	=	=	=
Motor Efficiency (HP/l)	12.7	21.3	22.3	=	=	=	=
Transmission	6F,1R	5F,1R	6F,1R	=	=	=	=
Speed 1.Gear (km/hr)	3.9	4.8	4.7	=	=	=	=
Speed 2.Gear (km/hr)	7.3	9.7	9.0	=	=	=	=
Speed 3.Gear (km/hr)	11.4	15.3	15.2	=	=	=	=
Speed 4.Gear (km/hr)	17.1	22.8	23.0	=	=	=	=
Speed 5.Gear (km/hr)	23.1	32.4	32.6	=	=	=	=
Speed 6.Gear (km/hr)	30.0		42.0	=	=	=	=
Steering	Differential	=	=	=	=	=	=
Turning Circle (m)							
Roadwheels	10x2	8x2	=	=	=	=	=
Tires	Rubber	=	=	=	=	=	=
Diameter/Width (mm)		470/75	=	=	=	470/90	470/90
Pressure on Wheel (kg/cm)	79	81	88	96	81	86	
Suspension	Coil	Leaf	=	=	=	=	=
	Springs	Springs	=	=	=	=	=
Roadwheels/Spring	2	=	=	=	=	=	=
Type of Track	Unlubricated	=	=	=	=	=	
Width/Pitch (mm)	380/120	=	=	=	=	400/120	=
Steering Ratio	1.84	1.48	=	=	=	1.43	=

APPENDIX C4.4 - TECHNICAL SPECIFICATIONS OF GERMAN PANZERS

	Pz.Kpfw.35(t)	Pz.Kpfw.38(t) Ausf.A-D+S	Pz.Kpfw.38(t) Ausf.E-G	Pz.Kpfw.VI(H) Ausf.H1
Combat Weight (tons)	10.5	9.7	9.85	57
Maximum Speed (km/hr)	34	42	=	45.4
Crew	4	=	=	5
Main Gun (cm/caliber)	3.7 L/40	3.7 L/48.7	=	8.8 L/56
Machine Guns	2	=	=	2
Main Gun Ammunition	78	90	=	92
M.G. Ammunition	2700	=	=	4800
Power/Weight (HP/ton)	11	12.8	12.7	11.4
Ground Pressure (kg/cm^2)	0.5	0.57	=	0.74
Ground Clearance (m)	0.35	0.40	=	0.47
Fording Depth (m)	0.80	0.80	=	1.60
Range on Road (km)	190	250	=	195
Range Cross Country (km)	115	160	=	110
Fuel Capacity (l)	153	220	=	540
Armor	Rolled	=	=	=
Hull Front (mm)	25	25	50	100
Hull Side (mm	16	15	15-30	60-80
Hull Rear (mm)	16	15	=	80
Hull Roof (mm)	12	10	12	25
Hull Belly (mm)	8	8	=	25
Turret Front (mm)	25	25	50	100-120
Turret Side (mm)	16	15	30	80
Turret Rear (mm)	16	15	22	80
Turret Roof (mm)	8	8	12	25
Length (m)	4.90	4.61	=	8.25
Width (m)	2.06	2.14	=	3.55
Height (m)	2.37	2.25	=	2.88
Drive Sprocket	Rear	Front	=	=
Motor	T 11	TNHPS	=	HL210P45
Type	Gasoline	=	=	=
Cooling	Water	=	=	=
Power (HP)	120	125	=	650
Maximum rpm	1800	2200	=	3000
Capacity (l)	8.52	7.75	=	21.3
Bore/Stroke (mm)	140/140	110/136	=	125/145
Cylinders	4	=	=	12
Motor Efficiency (HP/l)	14.1	16.1	=	30.5
Transmission	6F,1R	5F,1R	=	8F,4R
Speed 1.Gear (km/hr)	3.5	4.1	=	2.8
Speed 2.Gear (km/hr)		10.3	=	4.3
Speed 3.Gear (km/hr)		16.5	=	6.2
Speed 4.Gear (km/hr)		26.2	=	9.2
Speed 5.Gear (km/hr)		42	=	14.1
Speed 6.Gear (km/hr)	34			20.9
Speed 7.Gear (km/hr)				30.5
Speed 8.Gear (km/hr)				45.4
Steering	Differential	=	=	Double Radius
Turning Circle (m)	7.0	8.7	=	7
Roadwheels	8x2	4	=	8x3
Tires	Rubber	=	=	=
Diameter/Width (mm)	345/75	775/80	=	800/70
Pressure on Wheel (kg/cm)	44	152	154	170
Suspension	Leaf	Leaf	=	Torsion
	Spring	Spring	=	Bars
Roadwheels/Spring	4	2	=	1
Type of Track	Unlubricated =	=	=	=
Width/Pitch (mm)	320/100	293/104	=	725/130
Steering Ratio	1.9	1.65	=	1.28

APPENDIX C5 - TECHNICAL SPECIFICATIONS OF RUSSIAN TANKS

	T37	T26C	BT	T28	T60	T34	KWIA	KWII
Combat Weight (tons)	3.5	9.6	13.7	28.0	5.5	26.3	43.5	52.0
Maximum Speed (km/hr)	35.5	27.3	54.2	35.0	44.0	53.5	35.0	=
Crew	2	3	3	6	2	4	4	6
Main Gun (cm/caliber)		4.5 L/46	=	7.62 L/16 or L/25	2	7.62 L/30 or L/41	7.62 L/41	15.2 L/24
Machine Guns	1	2	=	3	1	2	2	3
Main Gun Ammunition		169	144	69		77	111	36
M.G. Ammunition	585	2405	2015	8320	780	4420	2080	3055
Power/Weight (HP/ton)	11.4	9.5	36.5	16	15.5	19	12.6	10.6
Ground Pressure (kg/cm^2)	0.53	0.66	0.79	0.72	0.48	0.64	0.70	0.84
Ground Clearance (m)	0.30	0.37	0.36	0.43	0.30	0.38	0.52	=
Fording Depth (m)	1.20	0.76	1.00	0.80	0.80	1.12	1.45	=
Range on Road (km)	185	345	430		615	455	335	220
Range Cross Country (km)	115	175	300		315	260	200	130
Fuel Capacity (l)	100	285	630		320	480	650	=
Armor	Rolled	Rolled	Rolled	Rolled	Rolled	Rolled	Rolled	=
Hull Front (mm)	10	16	13-22	30	14-20	45	75	=
Hull Side (mm	10	16	13	20	15	45	75	=
Hull Rear (mm)	5	16	13	20	10-13	40	75	=
Hull Roof (mm)	5-7	7-11	10	10-15	10	20	35	=
Hull Belly (mm)	5	10	12	20	7-10	15	35	=
Turret Front (mm)	10	16	15	20	15	45	75	=
Turret Side (mm)	10	16	15	23	15	45	75	=
Turret Rear (mm)	10	16	15	23	15	40	75	=
Turret Roof (mm)	5	10	10	11	7	16	35	=
Length (m)	3.75	4.60	5.80	7.25	4.00	5.93	6.80	=
Width (m)	2.00	2.45	2.30	2.78	2.35	3.02	3.35	=
Height (m)	1.82	2.65	2.40	2.75	1.80	2.46		3.28
Drive Sprocket	Front	Front	Rear	Rear	Front	Rear	Rear	=
Motor			M17	=		W2	=	=
Type	Gasoline	=	=	=		Diesel	=	=
Cooling	Water	Air	Water	=	=	=	=	=
Power (HP)	40	91	500	=	85	500	550	=
Maximum rpm	2200	2100	1450	=	3600	1800	1900	=
Capacity (l)	3.3	6.6	46.9	=	3.48	38.9	=	=
Bore/Stroke (mm)	98.4/108	120/146	160/199	=	82/110	150/180	=	=
Cylinders	4	4	12	=	6	12	=	=
Motor Efficiency (HP/l)	12.5	13.8	10.6	=	24.4	12.9	14.5	=
Transmission	4F,1R	5F,1R	3F,1R	4F,1R	4F,1R	4F,1R	5F,1R	=
Speed 1.Gear (km/hr)	5.5	2.8	12.3		7.5	8.1	4.2	=
Speed 2.Gear (km/hr)	11.3	6.1	25.0		15.5	16.6	8.0	=
Speed 3.Gear (km/hr)	20.8	10.6	54.2		28.8	33.8	12.9	=
Speed 4.Gear (km/hr)	35.5	17			44.0	53.5	19.5	=
Speed 5.Gear (km/hr)		27.3					35.0	=
Steering	Clutches	=	=	=	=	=	=	=
Turning Circle (m)	5.3	6.6	6.2		6.2	7.7	9.5	=
Roadwheels	4	8	4	12	4	5	6	=
Tires	Rubber	=	=	8 Rubber 4 Steel	Rubber	=	Steel	=
Diameter/Width (mm)	390/65	290/55x2	825/100x2	350/90x2	515/90	825/150x2	590/110x2	=
Pressure on Wheel (kg/cm)	67	52	86	65	76.5	88	200	240
Suspension	Coil Springs	Leaf Springs	Christi	Coil Springs	Torsion Bars	Christi	Torsion Bars	= =
Roadwheels/Spring	2	4	1	2	1	1	1	=
Type of Track	Unlubricated	=	=	=	=	=	=	=
Width/Pitch (mm)	210/90	260/95	260/170	420/133	260/102	560/170	700/163	=
Steering Ratio	0.94	1.35	1.7	2.2	1.08	1.5	1.7	=

APPENDIX D - PENETRATION CAPABILITIES OF TANK GUNS

Name	Type of Ammunition	Weight Kg	Vo m/s	Thickness of Armor (mm) Perforated at 30° Angle 100 m	500 m	1000 m	1500 m	2000 m
M.G.34	S.m.K.	0.0115	785	8	3			
	S.m.K.H.			13	8			
2 cm Kw.K.30 & 38	2 cm Pzgr.	0.148	780	20	14			
	Pzgr.40	0.100	1050	40	20			
3.7 cm Kw.K. L/45	Pzgr.	0.685	745	35	29	22	20	
	Pzgr.40	0.368	1020	64	31			
3.7 cm Kw.K.34(t)	Pzgr.(t)	0.850	675	35	30	23	21	
	Pzgr.(t)umg.	0.815	675	34	29	25	22	
	Pzgr.40	0.368	980	60	39			
3.7 cm Kw.K.38(t)	Pzgr.(t)	0.850	741	36	31	24	22	
	Pzgr.(t)umg.	0.815	750	41	33	27	24	
	Pzgr.40	0.368	1040	64	33			
5 cm Kw.K. L/42	Pzgr.	2.06	685	53	43	32	24	
	Pzgr.39	2.06	685	55	47	37	28	
	Pzgr.40	0.925	1050	94	55			
5 cm Kw.K. L/60	Pzgr.	2.06	835	67	57	44	34	
	Pzgr.39	2.06	835	69	59	47	37	
	Pzgr.40	0.925	1180	130	72			
	Pzgr.40/1	1.07	1130	116	76			
7.5 cm Kw.K. L/24	K.Gr.rot Pz.	6.80	385	41	38	35	32	30
	Gr.38 Hl	4.5	452	45	=	=	=	
	Gr.38 Hl/A	4.40	450	70	=	=	=	
	Gr.38 Hl/B	4.57	450	75	=	=	=	
	Gr.38 Hl/C	4.80	450	100	=	=	=	
7.5 cm Kw.K.40 L/43	Pzgr.39	6.80	740	99	91	81	72	63
	Pzgr.40	4.10	990	126	108	87		
	Gr.38 Hl/B	4.57	450	75	=	=	=	
	Gr.38 Hl/C	4.80	450	100	=	=	=	
8.8 cm Kw.K.36 L/56	Pzgr.39	10.2	773	120	110	100	91	84

FRENCH AND RUSSIAN GUNS TESTED BY WA PRUEF

2.5 cm Kw.K.121(f)	Pzgr.122(f)	0.32	920	35	29	20		
2.5 cm Pak 112(f)	Pzgr.114(f)	0.32	920	35	29	20		
3.7 cm Kw.K.144(f)	Pzgr.144(f)	0.39	600	25	19			
3.7 cm Kw.K.143(f)	Pzgr.146(f)	0.70	705	29	23	16	12	
4.7 cm Kw.K.173(f)	Pzgr.176(f)	1.62	660	39	33	26	20	
4.7 cm Pak 181(f)	Pzgr.178(f)	1.73	855	57	50	42	36	
4.5 cm Pak 184(r)	Pzgr.(r)	1.43	760	42	35	28	23	
7.62 cm Kw.K.L/30.5	Pzgr.39 rot	7.6	575	72	66	58	51	
7.62 cm Kw.K.L/41.5	Pzgr.39 rot	7.6	625	82	75	67	60	54

RESULTS OF FIELD TRIALS OF BRITISH AND AMERICAN GUNS

By mid 1942, British forces in the Middle East had carried out tests with captured German tanks in order to determine the effectiveness of British and U.S. weapons against them. The table shows the ranges in yards at which the different types of German tank armor were completely penetrated (perforated) by standard U.S. and British weapons. The angles of impact were the normal slope of the armor on the tank.

	British Standard	2-Pdr H.V.	British 6-Pdr	U.S.37 mm APC	U.S.75 mm SAP	U.S.75 mm APC
Pz.Kpfw.III & IV with 30 mm thick plates on						
a. turret front and hull front	1,300	1,500	Over 2,000	1,600	Over 2,000	
b. driver's front	1,400	1,600	Over 2,000	1,800	Over 2,000	
c. sides	1,500	1,700	Over 2,000	2,000	Over 2,000	
Pz.Kpfw.IV with 20 mm & 20 mm thick plates on sides	1,000	1,200	2,000	1,100	Over 2,000	
Pz.Kpfw.III & IV with 30 mm & 30 mm thick face-hardened plates on						
a. hull front	No penetration		500	200	400	1,000
b. driver's front	No penetration		600	300	500	1,000
Pz.Kpfw.III with 50 mm thick face-hardened plates on						
a. turret front and hull front	200	400	800	500	600	1,500
b. driver's front	200	400	900	600	700	1,700

APPENDIX E - RECOMMENDED BOOKS

Blitzkrieg by Steve Zaloga, published by Arms & Armor Press, London.

Die Geschichte der deutschen Panzerwaffe 1916-1945 by General Walther K. Nehring, Published by Motorbuch Verlag, Stuttgart Germany.

German World War II Organizational Series by Leo W.G. Niehorster, Published by Dr.Niehorster, Hannover, Germany.

Volume 1/I - Mechanized Army and Waffen-SS Units (1st September 1939)
Volume 2/I - Mechanized Army Divisions (10th May 1940)
Volume 2/II - Mechanized GHQ Units and Waffen-SS Divisions (10th May 1940)
Volume 3/I - Mechanized Army Divisions (22nd June 1941)
Volume 4/I - Mechanized Army Divisions (28th June 1942)

Greece, Crete and Syria by Gavin Long, Published by Australian War Memorial, Canberra.

Tobruk and El Alamein by Barton Maughan, Published by Australian War Memorial, Canberra.

Panzer Battles by Major General F.W. von Mellenthin, Published by Ballantine Books, New York.

Panzer Leader by General Heinz Guderian, Published by Ballantine Books, New York.

The German Campaign in Russia - Planning and Operations (1940-1942), Department of the Army Pamphlet No.20-261a.

APPENDIX F - GLOSSARY OF GERMAN MILITARY TERMS

Abteilung Abt. - battalion with less than five companies
Abwehr defense
Allgemeines Heeresamt army department over general staffs including In 6
Armeewagen 20 first code name for Grosstraktor
Armee army
Armee Oberkommando A.O.K. - army command
Art type
Artillerie artillery
Aufklaerung reconnaissance
Ausfuehrung Ausf. - model designation

Bataillon battalion of five companies
Batterie artillery battery
Begleitwagen B.W. - code name for the Pz.Kpfw.IV
Beute-Panzer captured tanks

Chef der Heeresleitung early title for army chief of staff
Chef des Stabes chief of staff

Ersatzheer reserve army
Ersatzstaffel replacement section

Fall Gelb code name for plans to attack west
Fall Weiss code name for plans to attack Poland
Feldgrau field grey
Feldheer activated field army
Feldwebel army rank equivalent to American army sergeant
Fla anti-aircraft
Flak anti-aircraft gun
Flammpanzer tank with a flamethrower
Fuehrer leader
Fuehrer-Panzerwagen fully tracked armored command vehicle
Funk Fu - radio
Funkgeraet FuG - radio set
Funklenk F.L. or Fkl - radio controlled

Gebirgs-Jaeger mountain troops
Gefreiter army rank equivalent to American army corporal
Generalstab des Heeres army chief of staff
Geschuetz gun
Gliederung organization
Gr.38 HL shaped charge shell
gr.Pz.Bef.Wg. large armored command vehicle
Grosstraktor large tank

Hauptmann army rank equivalent to American army captain
Heeres German army
Heeresgruppe command over several armies
Heeresmotorisierung army motorization
Heerestruppen independant army units
Heereswaffenamt army ordnance department
Heeres Zeugamt army ordnance depot
Hohlgranate HL - shaped charge shells
Hohlraumgranate shaped charge shells
Hohlraummunition shaped charge shells

Inspektorat 6 In 6 - inspector for motorized units
Infanterie infantry
Inspektion inspection
Inspekteur inspector

Kampfgruppe battle group
Kampfstaffel small mixed combat unit
Kampfwagen early generic name for tank
Kampfwagen-Abwehr anti-tank
Kavallerie cavalry
kl.Pz.Bef.Wg. small armored command vehicle
Kleintraktor small tank
Kommando der Panzertruppen command over all panzer units
Kompanie Kp. - company
Kompanie-Trupp Kp.Tr. - company headquarters
Korps corps
Kradschuetzen motorcycle borne infantry
Kraftfahr-Kampftruppen motorized combat troops
Kraftfahrlehrkommando Kf.Lehr-Kdo. - motorized training command
Kraftfahrtruppen motorized troops
Kraftfahrversuchsstab experimental automotive staff
Kriegsausrustungsnachweisungen K.A.N. - wartime equipment table
Kriegsstaerkenachweisungen K.St.N. - wartime organization table
Krupp-Traktor code name for early Pz.Kpfw.I chassis
Kuebelwagen small car such as the VW
Kw.K. tank gun

Landespolizei state police
La.S.100 code name for the Pz.Kpfw.II
Landwirtschaftlicher Schlepper La.S. - agricultural tractor -code name for the Pz.Kpfw.I
Lastkraftwagen trucks
Lehrtrupp training company
leichte light
Leichttraktor light tank
Leutnant army rank equivalent to American army second lieutenant

Mannschaftstransportwagen M.T.W. - crew transport vehicle - code name for the Sd.Kfz.251
M.G.-Kampfwagen early name for the Pz.Kpfw.I
M.G.-Panzerwagen early name for the Pz.Kpfw.I
Minenraeum mine clearing
mittlere medium
mot abbreviation for motorized

Nachrichten signals
Nebelgranate smoke shells
Neubau Fahrzeug Nb.Fz. - code name for a medium tank

Oberbefehlshaber des Heeres commander of the army
Obergefreiter army rank with no American equivalent, between a corporal and a sergeant
Oberkommando des Heeres OKH - army high command
Oberleutnant army rank equivalent to American army first lieutenant
Oberst army rank equivalent to American army colonel
Oberstleutnant army rank equivalent to American army lieutenant colonel

Pak anti-tank gun
Panzer-Abwehr anti-tank
Panzer-Abteilung armored battalion
Panzer-Armee armored army
Panzerbefehlswagen armored command vehicle
Panzerbeobachtungswagen armored artillery observation vehicle
Panzer-Brigade armored brigade
Panzer-Division armored division
Panzergranate Pzgr. - armor-piercing shell
Panzergranate 38 Pzgr.38 - capped armor-piercing shell
Panzergranate 39 Pzgr.39 - capped armor-piercing shell with a ballistic cap
Panzergranate 40 Pzgr.40 - solid high density core armor piercing round
Panzer-Grenadiere armored infantry
Panzer-Gruppe German army command higher than a corps but lower than an army
Panzer-Jaeger anti-tank unit
Panzerkampfwagen Pz.Kpfw. - generic name for tank
Panzer-Kompanie armored company
Panzer-Regiments armored regiment
Panzertruppen armored troops, after February 1943 used to designate a separate branch of the army
Panzer-Waffe armor as a branch of the army
Panzerwagen early generic name for a tank
Panzer-Zug armored platoon
Personalamt personnel department
Pionier combat engineer

Radfahr bicycle mounted unit
Reichsheeres German army
Reichswehr German armed forces
Reihe formation of tanks in a row
Reiter-Regiments cavalry regiment

Schokakola high energy ration of chocolate with a high caffeine content
schnellen Truppen title for the branch of the army containing the mobile units - later renamed Panzertruppen
S.m.K. steel core ammunition
S.m.K.H. special hard core ammunition
Schuetzen motorized infantry
Schuetzenpanzerwagen SPW - armored infantry carrier - name for the Sd.Kfz.251
Schule school
Schulfahrgestell tank chassis for driver's training
Schulfahrzeuge training vehicles
Schwadron squadron
schwere heavy
Schwerpunkt primary area selected for concentrating an attack or a point for concentrated defense
schwerster Art heaviest type
Sd.Kfz. special vehicle
Sfl. self-propelled
Sonder special
Splittergranate high-explosive fragmentation shell
Sprenggranaten Sprgr. - high-explosive fragmentation shells
Sprengstofftraeger explosives carrier
Stab headquarters
Stabsfeldwebel army rank equivalent to American army staff sergeant
Stabskompanie headquarters company
Staffel section with reserve tanks
Sturmgeschuetz assault gun

Tauchpanzers submersible tanks
Tiefladeanhaenger low-bed trailers

verlastet transported
Versuchs experimental

Waffenamt ordnance department
Waffenzug weapons platoon
Wa Prw 6 automotive design office under the Heeres Waffenamt
Wehrkreise army districts
Weisung directive
Werkstatt-Kompanie maintenance company

z.b.V. for special employment
Zuege platoons
Zug platoon
Zugfuehrerwagen Z.W. - code name for the Pz.Kpfw.III

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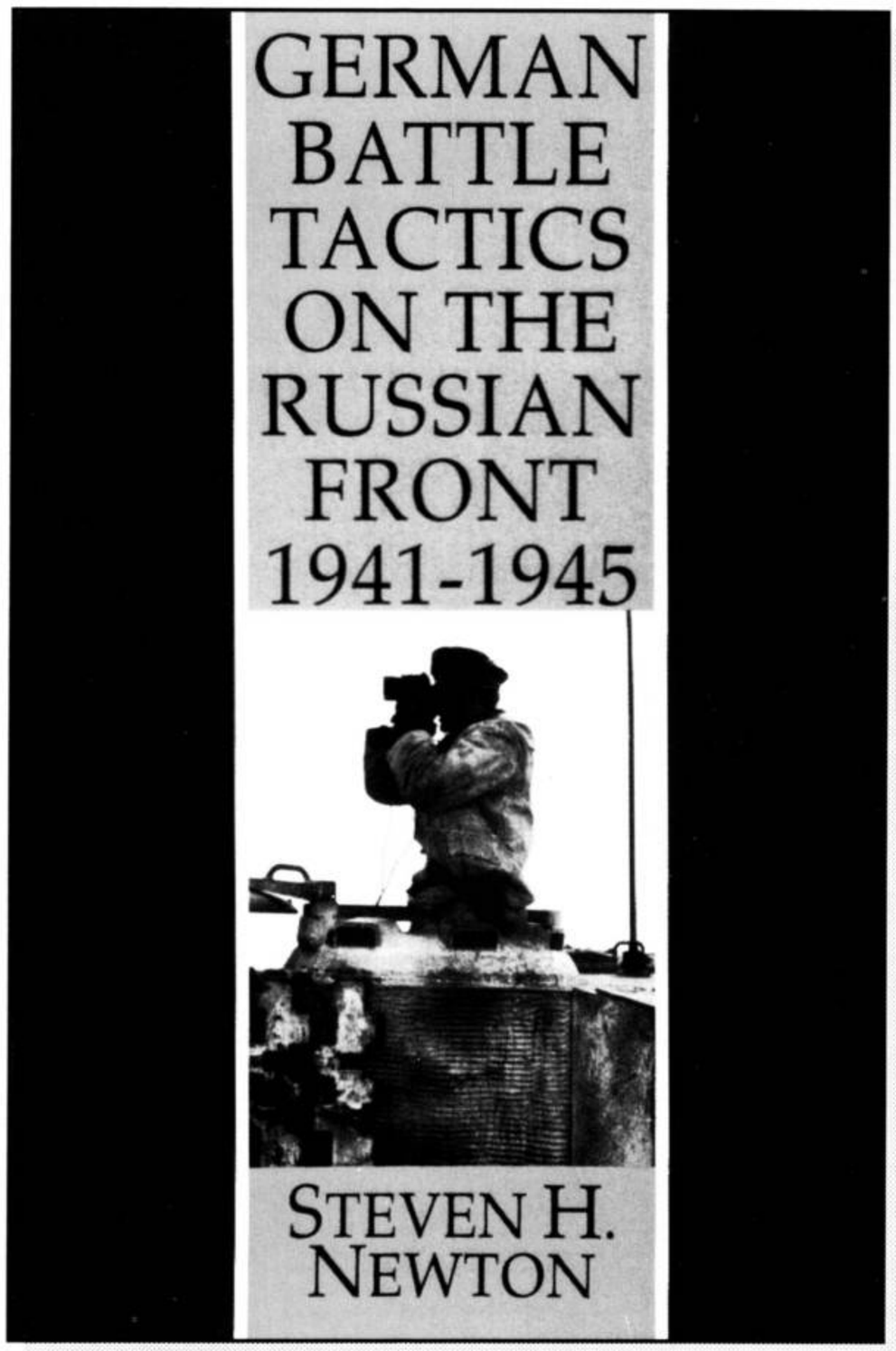

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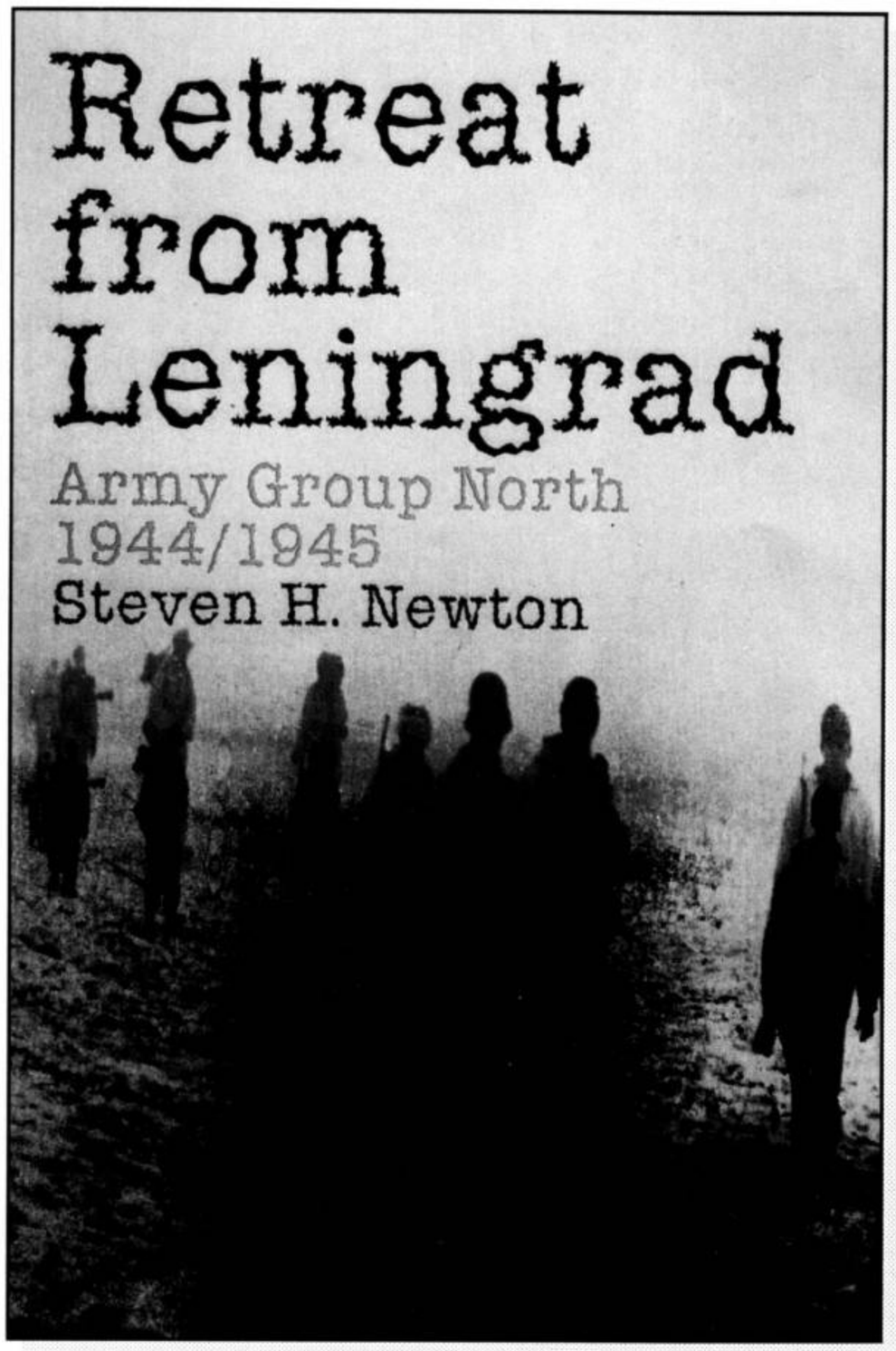

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