



A well-balanced combination of armor, firepower and speed, the 49-ton *Panther* was generally regarded as the best tank of World War II. Well-sloped armor and a more powerful, high velocity gun made the *Panther* more formidable than the well-known *Tiger*. In this picture, a knocked-out *Panther* is being shown to correspondents and fighter pilots against the background of a Normandy hedgerow. U.S. Army Photo SC 191727.



This photo clearly shows the length of the *Panther's* main gun tube, as well as the clean lines and well-sloped armor of the German tank. Note the destroyed *Panzer IV*. in the background; both enemy tanks were knocked-out in bitter fighting in Hotten, Belgium, December 26, 1944. U.S. Army Photo SC 197822.

## APPENDIX I. — ORGANIZATION

By the time the 704th landed at Normandy, Tank Destroyer units had a proven organization, refined and tested in the crucible of combat for more than a year and a half. The basic combat entity was the Battalion, either Towed, or Self-Propelled like the 704th. The Battalion was usually attached to an infantry or an armored division — often on a semi-permanent basis to develop team work — but always remained an independent organization which could be re-attached to another formation on short notice. Although usually supporting the 4th Armored Division, the 704th also served with the 26th Infantry, 94th Infantry, and 101st Airborne Divisions for short periods of time.

When the 704th Tank Destroyer Battalion (Self-Propelled) entered combat, it was organized in accordance with the 18-25 Table of Organization and Equipment (TO&E), dated March 15, 1944. This was the last major revision in Tank Destroyer TO&Es before VE Day. The Battalion consisted of three Gun Companies (A, B and C), a Reconnaissance Company, a Headquarters & Headquarters Company (H & HQ) and a Medical Detachment as shown in the accompanying table. The TO&E designations of each of the components are listed beneath each section. Reflecting in its composition, the basic Tank Destroyer concepts of mobility, firepower and independence, the Battalion was one of the most heavily armed and completely motorized formations in the U.S. Army.

The basic firepower of the Battalion was provided by the three Gun Companies, each consisting of a Company Headquarters and three Tank Destroyer Gun Platoons. Two Sections of two powerful M18s each and a Security Section of two M20 Armored Utility Cars formed a Platoon. The Security Section provided mobile outposts and additional reconnaissance and supply capacity with its M20s, but its major function was to provide protection for the M18s from hostile infantry. By dismounting the .50 caliber machine guns and bazookas from the M20s, the Section could establish a formidable base of fire. A "peep" (the 4th Armored Division's term for Jeep) equipped with a .30 caliber machine gun was provided for the Platoon Leader and Platoon Sergeant to coordinate the mutually supporting sections, but this was often discarded with the command personnel riding in an M18 or M20 to provide "on the spot" control. The Platoon also had an M10 Ammunition Trailer, towed by one of the M20s, for immediate re-supply.

Since individual Gun Companies often operated independently of Battalion control, the Company Headquarters provided its own administration through a Motor Maintenance Section, consisting of a peep, 2½-ton truck and T2 Armored Recovery Vehicle, and a Headquarters Section of two peeps and two M20s. The company clerks and

cooks usually rode in the Battalion's H & HQ trucks, or worked with the units to which the company was attached in order to keep the it supplied and fed.

The Reconnaissance Company had the mission of locating routes of march, selecting prospective positions for the M18s, and finding the enemy. It was divided into a Company Headquarters, three Reconnaissance Platoons and a Pioneer Platoon. The Reconnaissance Platoon had two identical Sections consisting of one M8 Armored Car and two peeps (equipped with .30 caliber machine guns) and an unarmed peep for the Platoon Leader. One Reconnaissance Platoon was usually attached to each of the three Gun Companies.

The Reconnaissance Company's Pioneer Platoon, consisting of a Headquarters Section with an aircompressor truck and an M20 and two Sections of two 1½-ton trucks each, assisted the Gun Companies in preparing gun positions and performed many other "engineer" tasks such as removing mines and improving supply routes. Late in the war, some Pioneer Platoons also operated a battery of three 81mm mortars to provide extra firepower while in static positions.

Due to its status as an independent administrative entity, the Battalion could not depend upon logistical support from any higher unit. Hence a substantial Headquarters & Headquarters Company (H & HQ) provided the supply, maintenance and clerical skills required to keep the Battalion operating. H & HQ Company was divided into a Communications Platoon to maintain contact with the scattered combat elements and the division or group to which the Battalion was attached, a Motor Maintenance Platoon to maintain and repair the Battalion's 159 vehicles, a Transportation Platoon to haul supplies to the companies, a Staff Platoon to provide S-1 (Personnel), S-2 (Intelligence), S-3 (Operations and Training), and S-4 (Supply) personnel, and a Company Headquarters. These men had the unglamorous chore of maintaining the Army's flood of paperwork and the often dangerous task of trying to find the disbursed combat elements on poorly marked roads. The speed of the 4th Armored Division's advance frequently meant that these routes were through "Indian country," areas full of by-passed enemy units where every trip ran the risk of an ambush.

H & HQ Company was often split into a forward Command Post with the Battalion Commanding Officer, usually near the Command Post of the division to which it was attached, and a Rear Echelon to handle administration. The Battalion Commander and S-1 through S-4 officers generally tried to work with their divisional counterparts as much as possible to prepare anti-tank defenses. Keeping up with the frequently moving forward elements meant long tiring days for all.

The only substantial change in the TO&E was dated August 29, 1944. As part of the Army's overall program of "trimming the fat" to provide more men for infantry replacements, the Battalion lost 27



enlisted men, reducing it to 37 officers and 607 enlisted men. Each Gun Company lost six men, one .30 caliber and one .50 caliber machine gun from the Company Headquarters. Reconnaissance Company lost five men from its Headquarters, and H & HQ Company lost four men. This change usually went into effect in late 1944.

Naturally, each TD Battalion had minor variations from the official organization, and its strength was constantly changing as a result of casualties, replacements and transfers. The 704th's month end reports provide a good example:

<b>704th Personnel Status</b>	<b>Officers</b>	<b>WOs</b>	<b>Enlisted</b>
Sept. 30, 1944	28	1	621
Oct. 31, 1944	N/A	1	623
Nov. 30, 1944	37	1	593
Dec. 31, 1944	N/A	N/A	N/A
Jan. 31, 1945	35	1	553
Feb. 28, 1945	33	1	542
Mar. 31, 1945	32	1	565
Apr. 30, 1945	N/A	N/A	N/A
May 31, 1945	27	1	608

## APPENDIX II. – THE M18 HELLCAT

Everyone realized the 75mm guns on halftracks which equipped the Tank Destroyer Battalions that landed on the North African beaches in November of 1942 were temporary expedients. Earlier that year, the newly created Tank Destroyer Command had started the search for a proper tank destroyer by reviewing more than 200 different vehicles being tested by Ordnance. None was capable of the maneuverability required by the aggressive Tank Destroyer tactics. Realizing the vertical volute suspension system used on contemporary American armored vehicles could not meet the requirements of the Tank Destroyer Board, its commander, General Andrew Bruce, and representatives from General Motors turned instead to a Christie type suspension system.

The resulting T44, powered by two Buick engines and armed with a 57mm gun, met the basic mobility goals, but on July 2, 1942, General Bruce indicated that a heavier gun was needed. The T67 with a 75mm gun was tested on September 3, 1942. During the test, General Bruce was informed about the new 76mm gun. It was decided that the T67 would be developed further using a torsion bar suspension and a Wright aircooled radial engine (in place of the twin Buicks), along with the 76mm gun. In a rare act of faith, one thousand of the untried new vehicles, designated T70 Gun Motor Carriage (GMC), were ordered on January 7, 1943. At that time, Tank Destroyer units were then being equipped with the M10 GMC, armed with a 3" gun, which the Tank Destroyer Command considered only another expedient.

After the pilot T70 vehicles were delivered in July 1943, the Tank Destroyer Board conducted extensive tests which eventually resulted in 157 major modifications. Meanwhile, T70s were rolling off the production lines at a prodigious rate while Buick tried to add the various changes. When the T70 was finally standardized as the M18 GMC on February 17, 1944, 1,097 of the 1,200 then completed required modifications. It took several months to sort out the mess. Eventually, 2,507 M18s, nicknamed "Hellcat" for their aggressive performance, were completed before production was stopped in October 1944.

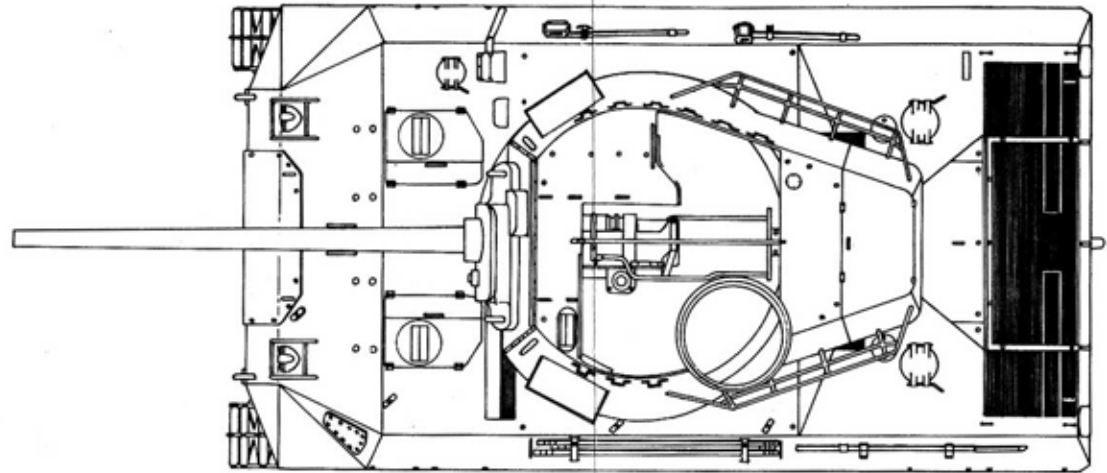
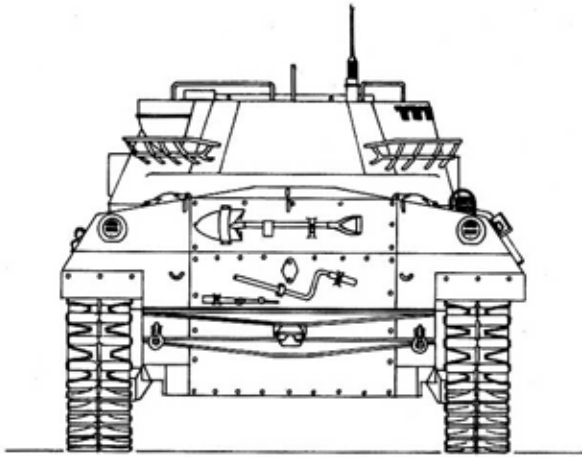
Two T70s were combat tested by the 601st Tank Destroyer Battalion in Italy during May 1944, but it was decided not to pull combat units out of action to re-equip them. Most of the M18s produced went instead to fourteen battalions like the 704th which were still training in the United States during the winter of 1943-44. Other users of the "Hellcat" eventually included the 602nd, 603rd, 609th, 612th, 633rd, 637th, 638th, 643rd, 656th, 671st, 705th, 752nd, 801st, 805th, 809th, 811th, 817th, 822nd, 824th and 827th Tank Destroyer Battalions.

In combat the "Hellcat" lived up to its name and to General Bruce's expectations. With a speed of forty-five miles per hour or better, it was the fastest production tracklaying AFV in the world during World War II. It also pioneered the torsion bar suspension and torqmatic transmission which have been used on most U.S. armored vehicles since. The only American vehicle designed from the start as a Tank Destroyer, the M18 was an improvement over the M10 then in service in almost every way.

## 76mm Gun Motor Carriage M18

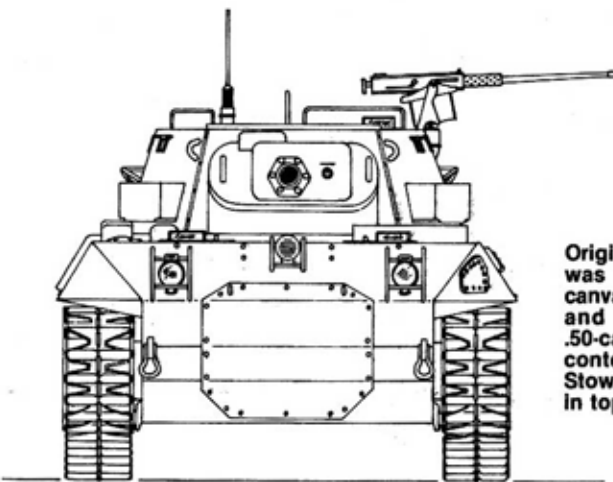
Weight:	35,526 lbs (empty), 37,557 lbs (loaded)
Length:	17'4" (Hull), 21'10" (incl. gun)
Width:	9'4" (T69 Track), 9'9" (T85 E1 Track)
Height:	7'9" (Top of Turret), 8'5" (incl. MG)
Ground Clearance:	14½"
C. to C. of Tracks:	116"
Ground Pressure:	11.9 lb/sq. inches to 12.5 lb/sq. in.
Speed:	45/55 mph (C1/C4 engine), 15 mph (10% grade)
Ford:	4'
Climb Obstacle:	3'
Grade:	60%, 50% (towing 8,000 lbs)
Trench:	6'2"
Turning Radius:	33'
Engine:	9 cylinder, aircooled R975 C1 (340HP) or C4 (400HP)
Transmission:	Torqmatic: Reverse, Neutral, 1st (0-16 mph), 2nd (12-34 mph), 3rd (30-55 mph)
Gasoline Tanks:	Engine Compartment: Right 90 gallons; Left 75 gallons
Range:	150 miles Maximum, 105 miles Cruising
Suspension:	Torsion Bar
Tracks:	83 Shoes each T69 (14.4" wide) or T85E1 (21" wide)
Armament:	one 76mm M1A1 or M1A1C or M1A2 gun
Ammunition:	45 Rounds.
Grenades:	12 (Fragmentation, Smoke and W.P.)
Radio:	SCR 610
Fire Extinguishers:	One 10 lb. fixed CO <sub>2</sub>
Periscopes:	Two M6
Telescopic Sight:	M70H or one M76C
Indirect:	M9 Elevation Quadrant
Armor:	<b>Hull</b>
Front:	½"
Sides/Rear:	½"
Top:	5/16"
Floor:	¼"
	One .50 cal M2 HB, five Carbines
	800 Rounds
	450 Rounds
	Four Smoke Pots
	Five Interphones
	One M4 or M4A1 with M47 or M47A1 telescope
	M8 or M20 Azimuth Indicator
	<b>Turret</b>
	¾"-1"
	½"
	—
	—



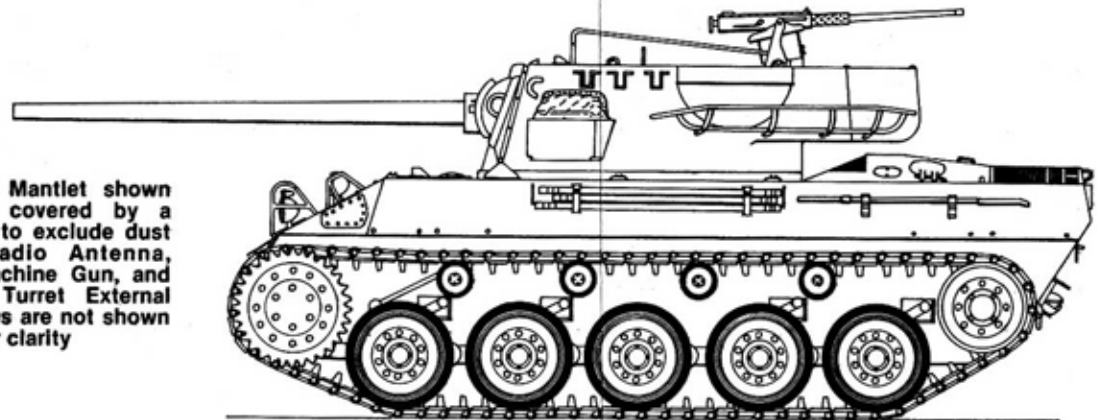


U.S. ARMY  
**76mm GUN MOTOR CARRIAGE M18**

DRAWN BY JAMES STEUARD  
SCALE: 1/48 (1/4-inch = 1-foot)



Original Gun Mantlet shown was usually covered by a canvas cover to exclude dust and dirt. Radio Antenna, .50-caliber Machine Gun, and contents of Turret External Stowage Boxes are not shown in top view for clarity



In addition to lighter weight and considerably better performance, the M18 had power traverse for the turret and a turret basket to make it a more efficient weapon. A larger ammunition ready rack was mounted just to the right of the breach of the 76mm gun for maximum efficiency in loading. The .50 caliber machine gun, operated by the vehicle commander, was mounted on a ring instead of the rear of the turret (as in the M10) so that it could be used against ground targets as well as for anti-aircraft protection. Better turret design and the lighter 76mm gun eliminated the need for the M10's counterweights. This also provided more storage and a place for the radio in the turret rear bulge.

Not an inch of space was wasted. Racks and numerous attachment points were provided on the sides of the turret for crew stowage and the extras picked up along the way. The boxes on the front left and right sides of the turret held detachable windshields and canvas covers which could be mounted over the driver's and assistant driver's hatches to protect them from the elements during non-combat road marches. New steel tracks were designed which lasted almost twice as long as the older style tracks then in use. The torqmatic transmission eased driver fatigue, and both it and the engine were mounted on rails so that they could be easily removed through doors in only one hour. Vehicles from number 1350 on also used the more powerful C4 engine.

Like any other vehicle, the M18 had its limitations. The radial engine was noisy and the impressive performance was gained at the expense of protection. The Hellcat's thin armor was only capable of stopping shrapnel and small arms fire at best. Many crewmen didn't consider this a real problem as the thicker armor of the M10 and even that of the M4 Sherman tank were not adequate to stop German anti-tank gun fire either. More serious was the open turret, a complaint common to all American tank destroyers. While this made for maximum visibility and ease of access, there was no overhead protection from artillery fire. Most of the 704th's casualties were due to artillery. The open turret also made the M18 vulnerable to close assault should enemy infantry get past the Security Section or friendly infantry. Small arms fire could pin the crew in the turret until the enemy got close enough to lob in grenades. Without a coaxial or bow machine gun, the only way the tank destroyer crew could protect themselves was by manning the exposed, ring-mounted .50 caliber weapon.

With proper tactics, however, the high speed of the Hellcat enabled it to provide welcome fire support to the light, fast moving cavalry reconnaissance units of the armored divisions. The M18s tendency to overrun the M20s of its own TD Security Sections led to the development of the M39 Armored Utility Vehicle and later the M44 Armored Personnel Carrier. Near the end of the war, tests were conducted to consider up-gunning of the M18 by substituting the 90mm gun turret from the M36 GMC. Surprisingly, the modification was quite easy and actually improved the performance of the vehicle. Unfortunately, no use of this potent combination was even made as the Tank Destroyer Command was merged with the Armored Force shortly after the end of the war.

### APPENDIX III. – M18 ARMAMENT

The main armament of the M18 Gun Motor Carriage represented one of the engineering triumphs of World War II. When reports from North Africa indicated that the 75mm gun used on the M4 Sherman tank lacked sufficient penetrating power, the Ordnance Department went to work on August 20, 1942 to develop a new weapon. In order to save time, it was decided that the new gun would have to use the same ammunition as the powerful 3" gun being produced for the M10 Tank Destroyer and be able to fit into the same recoil space as the tank 75mm gun. Through the use of new materials and technology, the new weapon was completed and standardized as the 76mm Gun M1 only twenty-two days later. It weighed only 300 pounds more than the 75mm gun, but had the same exterior ballistics and penetration as the M7 3-inch Gun.

Ordnance's achievement was quickly rejected by the Armored Force which felt that the 75mm gun was just fine for tanks — it was February 1944 before the M4 Sherman got the 76mm gun, but that's another story. Meanwhile, the Tank Destroyer Board had decided to up-gun the T67. During testing in September 1942, General Barnes of Ordnance suggested that the 76mm gun be tried in the new T70. The light weight and small dimensions of the new gun proved to be just what was needed.

The 55 caliber long "76" was actually a 76.2mm gun. It was semi-automatic, employing a sliding wedge breachblock (from the 75mm gun) and a hydrospring recoil system. The M1A1, used in the M18, was canted 45° to the right to make duties easier for the loader who stood in the right rear of the turret. A right-hand twist (360° per 40 calibers) was employed in the rifling of the tube. When a double-baffle muzzle brake was developed, the weapon was redesignated the M1A1C. If used without the muzzle brake, a cap ring was screwed on the threads at the end of the muzzle. A later version, the M1A2, with a full turn of rifling per 32 calibers was also developed. Although the 76mm gun used the same projectiles as the M10's 3-inch Gun, the cartridge cases were different. Complete rounds were several inches shorter and from two to five pounds lighter than their 3-inch counterparts, making the 76mm gun faster and easier to load.

One .50 caliber Browning machine gun provided the secondary armament for the M18 GMC. Mounted on a flexible ring mount for all-around defense against enemy aircraft and personnel, the renowned air-cooled "50" was operated by the vehicle commander, and provided reliable, potent firepower. No provision was made for coaxial or hull-mounted machine guns since the M18 was not designed for close-in fighting like a tank.

Clashes with the German *Panther* after D-Day pointed out the need for better 76mm ammunition. The Ordnance Corps developed a T4

## M18 Armament

### 76mm Gun M1A1C

Caliber	76.2mm
Weight	1,206 lbs*
Length (Overall)	163.7"* , 175.4"* with muzzle brake
Length (Barrel)	156" , 52 calibers
Mount	M1
Elevation	+19.5°
Depression	-10°
Traverse	360°
Rate of Fire (Max)	20 /Min.
Maximum Range	14,500 yards
Penetration:	At 0°, 30°
500 yds.	123mm (APC), 99mm (APC) 157mm (HVAP)
1000 yds.	109mm (APC), 88mm (APC)
1500 yds.	178mm (HVAP), 133mm (HVAP) 82mm (APC)
2000 yds.	116mm (HVAP) 75mm (APC) 98mm (HVAP)

\* without muzzle brake

### 50 Cal. M2 HB

12.7mm
84 lbs
65"
50"
Ring
90°
N/A
360°
450-550 /Min.
1600 yards
0°
20mm (API)

## Ammunition

	<b>M42</b>	<b>M62</b>	<b>M79</b>	<b>M88</b>	<b>M93 (T-4E20)</b>
Use	HE	APC-T*	AP-T	Smoke	HVAP
Projectile	12.88 lbs	15.44 lbs	14.99 lbs	7.38 lbs	9.37 lbs
Complete Round	19.6-22.2 lbs	25 lbs	24.30 lbs	13.2 lbs	18.9 lbs
Total Length	32.3"	33.8"	29.8"	28.6"	31.1"
Muzzle Velocity	2700 ft/sec.	2600 ft/sec.	2600 ft/sec.	900 ft/sec.	3400 ft/sec.

\* with Base Detonating Fuse and Tracer

Hyper-Velocity Armor Percing (HVAP) round of ammunition using a four-pound core of tungsten carbide surrounded by an aluminum windshield in order to achieve higher velocities and better penetration. Although the T4 round (rushed to France in September 1944) was an improvement, it was not a solution. Development continued, resulting in the T4E20 which was standardized in early 1945 as the M93 HVAP round. Due to the scarcity of tungsten carbide and production difficulties, HVAP remained in short supply, with fewer than two rounds per tank and tank destroyer gun being received per month in the ETO prior to March of 1945. Efforts were made to accumulate as many rounds as possible for tank destroyers which had the primary anti-tank responsibility.

## APPENDIX IV. – TANK DESTROYER TACTICS

Tank Destroyer crews in the European Theater of Operations were taught to destroy German armor by ambush and overwhelming firepower. Whenever possible, they used the M18's superior speed and maneuverability to move to firing positions in time to conceal the tank destroyers before the *Panzers* arrived, since the thinly armored M18s stood little chance in a "slug-fest." Ambush tactics are described in this excerpt from FM 18-20, "*Tactical Employment of Tank Destroyer Platoon, Self-Propelled*," dated May 9th, 1944:

"43. **Opening Fire.** a. *In a defensive position, it is essential that tank destroyers do not disclose the position by premature opening of fire. Therefore, the tank destroyer commander will carefully coordinate his fire plan with that of the unit he is supporting and will call upon the supported unit commander for instructions as to what ranges or under what conditions fire will be opened.*

b. *Upon the appearance of tanks within effective range, or the range at which fire is to be opened (see a. above), fire is usually delivered in the following order of priority: tanks threatening the gun positions; covering tanks (halted); and tanks nearest cover. Effective range varies with visibility and will normally be 1,000 yards or less.*

c. *The platoon commander would control the time of opening fire unless tanks appear closer than 600 yards. Other factors which control the time of opening fire are number of hostile vehicles which are exposed, the degree of concealment afforded the destroyers, proximity of cover to which the target might resort, and the tactical plan which the platoon leader has in mind. The platoon commander commits only the number of guns required to deal with the number of tanks seen. Thus, in his order for opening fire, he may assign one gun the covering tanks and another the maneuvering tanks. As more tanks appear, he will commit more guns to the fire fight.*

d. *In case large numbers of tanks appear suddenly, necessitating that all guns open fire, a prearranged plan should be followed. One suggested method is for the right gun to engage the left flank of the formation, the left gun to engage the right flank, the right center gun to engage the left center tanks, and the left center gun the right center tanks. This provides cross-fire and flanking fire to a greater extent than if each gun engaged tanks directly to its front."*

Often, however, things didn't go according to "The Book." Then success depended on well trained crews who could shoot fast and accurately as the 704th prove at places like Arracourt and Grosseheim.



The German counterpart to the American tank destroyer featured a fully-armored fighting compartment and a low-silhouette in place of a turret. Typical of a number of different types of self-propelled (SP) guns employed in the ETO, the *Sturmgeschütz III*. was armed with the same 75mm gun as the *Panzer IV*. Camouflaged SPs were frequent opponents of the 4th Armored Division's advance.



Mainstay of the *Wehrmacht* for most of the war, the *Panzerkampfwagen IV*, equipped at least one battalion of each *Panzer-Regiment* in 1944. Thin, detachable armor skirts on the sides of the hull (missing here) and turret provided spaced armor protection against American bazookas. Unless fighting from a dug-in, hull defilade defensive position, the *Panzer IV* could be defeated at medium ranges. U.S. Army Photo SC 191848.



## APPENDIX V. – THE 4TH ARMORED DIVISION

Because their activities were so closely interrelated, the story of the 704th Tank Destroyer Battalion is in effect, a backhanded history of the 4th Armored Division. Unfortunately, the only real histories of this fine division have been out of print for years. Surprisingly, only two books dealing with the 4th Armored Division are currently available. "*Patton's Best*," by Nat Frankel and Larry Smith is an "informal history" based on the recollection of a tanker in the 8th Tank Battalion. Although valuable for its portrayal of the day-to-day feelings and attitudes of the tankers, it is long on emotion and short on facts. For example, tank destroyers and the 704th are not even mentioned. The other book, "*48 Hours to Hammelburg*," by Charles Whiting deals exclusively with Task Force Baum. So, here are some facts about the division.

The 4th Armored Division was activated April 15, 1941 at Camp Pine, New York under the command of Major General H. W. Baird. After basic training and toughening was completed the division moved to California in January 1943 where it practiced desert fighting and participated in maneuvers. Finally, in December 1943 came the order to ship out. Seven more months of training followed in England as the various components of the 4th arrived and refined their teamwork. Then, on July 11, 1944, the division landed at Utah Beach.

With a full strength of 10,937 men and 2,650 vehicles, the 4th Armored Division was composed of the following units:

- 8th Tank Battalion
- 35th Tank Battalion
- 37th Tank Battalion
- 10th Armored Infantry Battalion
- 51st Armored Infantry Battalion
- 53rd Armored Infantry Battalion
- 4th Armored Medical Battalion
- 22nd Armored Field Artillery Battalion
- 66th Armored Field Artillery Battalion
- 94th Armored Field Artillery Battalion
- 25th Cavalry Reconnaissance Squadron
- 24th Armored Engineer Battalion
- 126th Armored Ordnance Battalion
- 144th Armored Signal Company
- 504th CIC Detachment

These units were assigned to or divided into three flexible tactical teams called "Combat Commands." Although other armored divisions generally divided their strength evenly between the three combat commands, the 4th Armored Division used a two-pronged approach with CCA and CCB doing most of the fighting while the smaller CCR maintained a reserve. On occasion, as at Luneville and in the Bulge,

CCR was assigned major tactical missions of its own. Under TO&E 17, dated September 15, 1943, the division's armament consisted of 186 M4 Sherman tanks, 77 M5A1 light tanks, 54 armored cars, 54 M7 Howitzer Motor Carriages (HMC) in the armored artillery battalions, 17 M7 HMCs in the cavalry squadron and armored infantry battalions, 30 57mm anti-tank guns, over 450 halftracks and numerous rifles, mortars and machine guns.

The 4th Armored Division entered combat on July 17th, 1944. During its 230 days of combat, the division became Patton's favorite and never let him down. By VE Day, it had captured 90,354 prisoners and destroyed or captured 579 German armored vehicles, 3,668 other vehicles, 603 artillery and anti-tank guns, 128 aircraft, 103 locomotives, and 1,172 horse-drawn wagons.\* In achieving this, the division consumed over seven million gallons of gasoline and used 57,700 rounds of 75mm ammunition, 49,864 rounds of 76mm, and 460,600 105mm howitzer rounds of ammunition. It was the only armored division to win a divisional Presidential Unit Citation and its men earned three Medals of Honor, 45 Distinguished Service Crosses, 3 Distinguished Service Medals, 757 Silver Stars, and almost 4,000 Bronze Stars. The cost was also high; more than 6,000 men got Purple Heart Medals.

Unlike other American divisions, the 4th had no nickname, beyond its code name, "Olympic." "Breakthrough Division" and "Devil's Pitchfork" (reflecting the two-pronged mode of attack) were tried, but these didn't stick. The men of the 4th felt that their record was name enough. After occupation duties, the division was returned to the United States and inactivated on April 26, 1946.

\* Statistics include the attached 704th Tank Destroyer Battalion and 489th AAA Battalion.

## APPENDIX VI. — GERMAN ARMOR

by James Steuard

When the 704th Tank Destroyer Battalion entered combat, it was against German armored equipment generally considered superior to American and British equipment. German tanks, with few exceptions, were vehicles improved after five years of combat experience, most of it gained in the tough, tenacious fighting of the Eastern Front. German defensive tactics were also to contribute to the difficulty that American tankers and tank destroyer crewmen were to find in Normandy — the Germans were fighting on terrain with which they were familiar, employing ambush tactics from heavily camouflaged and concealed positions. In many instances, the Germans got in the first few, well-aimed rounds before the attacking Americans could even find the concealed positions of the enemy tanks. In general, the frontal armor of the German vehicles was too tough (and thick) for American 75mm armor-piercing rounds to penetrate except at extremely close range. As a consequence, hunting German armor was a dangerous "game" in which skill, courage and bravery played a heavy part.

The German *Panzer-Divisionen* of 1944-45 were equipped with a mixture of armored equipment, balanced for both offensive and defensive warfare. Each division had a *Panzer-Regiment* with two battalions of tanks, one equipped with the *Panzer IV*, and the other provided the newer *Panther*. In addition, each German divisional anti-tank battalion was well equipped with self-propelled guns (generally referred to by the Germans as "assault guns"). In some instances, the equipment of the German *Panzer-Divisionen* was reinforced by heavy tanks and tank destroyers from Corps-level units; these attachments often included the famous *Tiger* tank with its formidable 88mm cannon. By the time of the Normandy invasion, the *Tiger* was so feared (and respected) by the Americans (as a result of experience gained in North Africa) that it was common for the 4th Armored Division crewmen to refer to most German tanks as *Tigers*.

The *Panzerkampfwagen IV*, was basically the only German tank of 1944 to have pre-war origins. (The Germans used a varying set of abbreviations to designate their vehicles; this tank was referred to as the *Panzer IV.*, the *Pz. Kpfw. IV.*, or the *Pz. IV.*) By 1944, it was product-improved by five years of combat, armed with a high-velocity 75mm gun (whose barrel was 48 calibers in length) and reasonably well-armored. Like most Allied vehicles, the *Panzer IV* had a crew of five, a rear engine and a drive train which powered the track system from the front sprockets. The defensive armor was not sloped, but was instead positioned squarely against enemy fire, and as a consequence, the *Panzer IV* could be penetrated by most American and British tanks at long ranges. In general, if you got a clean shot at a *Panzer IV.*, you

could knock it out. Rarely, however, did a tank or tank destroyer gunner get a clean shot at any German vehicle when it was fighting from a dug-in defensive position. The 75mm gun of the *Panzer IV.* was the standard German anti-tank weapon, and it could penetrate the frontal armor of the M4A3 Sherman at 1,400 yards (and the side armor at much greater ranges). Against this weapon, the M18 had little chance if the TD was caught in the open.

Unlike the *Panzer IV.*, the German *Panther* was a more modern vehicle, developed in 1942-43 as a result of experience gained against Russian tanks on the Eastern Front. In the eyes of many historians, the *Panther* is the only vehicle of World War II. even remotely capable of combat on a modern-day battle field; this says much for the design of this medium tank. In designing this vehicle, the Germans copied the best features of the Soviet T-34, introducing a suspension system with greatly reduced ground pressure, an extremely well-sloped armor layout, and a high velocity 75mm tank cannon which was the best tank gun developed during the war! Like other German tanks, it was crewed by five, had a rear engine and a frontal drive system. The thickness and slope of the *Panther's* armor was such that it was virtually impossible for an Allied tank to penetrate the vehicle from the front, at any range! In some cases, overrun *Panthers* were discovered with seven or eight direct hits on their turret or hull fronts, with no penetration and no damage other than scared armor plate. The only real successful method of hunting a *Panther* was to "pin it down" with frontal fire while other tanks or tank destroyers moved to a position where fire could be brought against the thinner side or rear plating. On the other hand, the 75mm gun used in the *Panther* was capable of penetrating the frontal armor of the M4A3 Sherman at 3,000 yards! This gun had a barrel length of 71 calibers and could best be described as a hyper-velocity cannon, firing a much larger and completely different round from that used in the *Panzer IV.* In one instance against an M10 tank destroyer, the 75mm shell from a *Panther* penetrated the gun mantlet, passed through the M10 turret from front to rear, and exited from the rear of the turret without exploding, so great was the velocity! About the only protection the M18 had against the *Panther* 75mm gun, if caught in open terrain, was the rapid acceleration and speed of the M18 in hunting for cover from incoming fire.

German *Tiger* heavy tanks came in two distinctly different versions. The earlier of these vehicles was called the *Tiger I.* or the *Panzer VI., Ausführung E*; this was the vehicle first encountered by the Allies in North Africa. Like earlier German tanks, the defensive armor layout of the vehicle was essentially vertical, with no slope to the armor plate. Even though it had thicker armor than almost any other German tank, it could be penetrated in the front by Allied 75mm or 76mm shells at fairly

close ranges. Like the *Panther*, the *Tiger* was more vulnerable from the side and rear, and it could be penetrated at ranges up to 3,800 yards. The *Tiger I.* was equipped with an 88mm gun with a barrel 56 calibers in length, adapted from the famous German anti-aircraft gun. Although the muzzle velocity of the 88mm was far less than the 75mm of the *Panther*, it fired a 36-pound projectile which relied on mass to achieve penetration! Firing APC ammunition, the 88mm could penetrate the front of an M4A3 Sherman at 2,200 yards, far beyond the range at which you had a chance to score a frontal "kill." Against the *Tiger*, the best bet was to "pin it down" with fire and maneuver to get a flank or rear shot. Luckily, the *Tiger* tanks were never available in great quantities to oppose the 704th Tank Destroyer Battalion.

The later version of the *Tiger* heavy tank was designated the *Tiger II.*, the *King Tiger (Königstiger* in German), or the *Panzer VI., Ausführung B.* It was a heavier version of the *Tiger I.*, redesigned with heavier sloping armor (as on the *Panther*), a higher velocity 88mm tank cannon (with a barrel 71 calibers in length), wider track (to help in reducing the increased ground pressure), and a bigger engine. The *Tiger II.* could best be described as a defensive vehicle, as it was too heavy for any turn of speed and too ponderous for maneuverability. The 88mm gun was at its best at long range, as the turret traverse system was actually slower than that of any other German tank. On the other hand, it was very difficult to deal with a *Tiger II.* when it was dug-in. Like the *Panther*, it could not be penetrated from the front, and the 88mm gun was capable of knocking-out an M4A3 Sherman from the front at 4,500-5,000 yards! Side armor had been increased in thickness and you had to get in reasonably close to get a kill from the side or rear! To deal with the tank, many tankers recommended pulling back and smothering the enemy *Tiger II.* with friendly artillery fire if it was available, dazing or killing the enemy crew by the concussion from high explosive shells.

The German counterpart to our tank destroyers was the "assault gun." Usually this type of self-propelled gun was based on an obsolete tank chassis (typically that of the *Panzer III.* and *Panzer IV.* medium tanks). In design, the tank turret was removed from the obsolete vehicle and a more powerful tank cannon was casemate-mounted in the forward hull of the tank chassis, fixed to fire forward with but limited traverse. Frontal armor thickness was generally increased (over that of the obsolete tank) for greater defensive protection. Differing versions existed, of course, and there was a bewildering variety of German designations for this type of equipment, including the *Sturmgeschütz III*, the *Sturmgeschütz IV.*, and the *Jagdpanzer IV.* These vehicles were included in almost every German division in the anti-tank battalion, as well as in separate self-propelled artillery units which could be attached to divisions as required by the situation. These "assault guns" were

primarily defensive weapons, meant to be used when dug-in and sited for good fire against attacking armor. Limited vision to the sides, thin side and rear armor, the lack of coaxial or hull machine guns, and the limited traverse armament were all disadvantages of this type of equipment which prevented them from being used like tanks. On the other hand, these vehicles were equipped with 75mm L/48 guns (identical to that used on the *Panzer IV*.) which had excellent performance against Allied tanks, and had a greatly lowered silhouette (since the vehicles lacked turrets) and were therefore easier to conceal and hide. They made excellent ambush weapons (like our tank destroyers), particularly at moderate to long ranges, and were difficult to destroy when deployed in a hull defilade position.

Lest no reader get the wrong impression, German armor was not invincible. Although well-designed and generally well-built, there was just never enough German armor available to turn the tide of battle in the 1944-45 period, and in the few instances where the Germans were able to mass armored vehicles together for an offensive operation, tactical airpower destroyed many of the enemy vehicles before they could advance, and Allied tanks and tank destroyers took care of the rest of the enemy vehicles.

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