

## 1: Chariots of Fire: Tanks and Their Crews by Philip Kaplan (Hardback, ) | eBay

*Chariots of Fire: Tanks and Their Crews [Philip Kaplan] on www.enganchecubano.com \*FREE\* shipping on qualifying offers. The past 86 years since have seen the tank develop from a primitive experimental weapon devised to break the deadlock of trench warfare on the Western Front into a fearsomely sophisticated machine designed to dominate the battlefield.*

For more information, please visit our Wiki. General What genre does World of Tanks belong to? World of Tanks is a huge mixture of multiple genres. First of all this is a global-scale MMO action game. What are the system requirements? Minimum and recommended system requirements can be found on the System Requirements page. What operating systems does World of Tanks support? World of Tanks supports the Microsoft Windows series operating systems. How do you download and update the game? You can download World of Tanks with the help of our special web installer, which will automatically download and install the game. To do so, perform the following steps: Click here to update the NA World of Tanks client. Tanks What is the total amount of tanks so far? Will it increase or remain the same? What types of armored vehicles are presented in World of Tanks? Gamers can have light, medium, and heavy tanks, as well as tank destroyers and long-range self-propelled howitzers. Apart from real tanks, World of Tanks includes prototype vehicles e. What role will tank destroyers and long-range howitzers play in World of Tanks? Tank destroyers are perfect defensive units. With powerful weapons and thick frontal armor, they are capable of engaging enemy vehicles from relatively long distances. But their weak points are the low mobility and their side and rear armor. If a maneuverable opponent makes it to get into a close combat, it all can get really tough for a tank destroyer. The role of self-propelled howitzers is slightly different. They work in tense cooperation with light tanks that scout the map and unveil enemy vehicles for them. Their extremely powerful cannons may cause a one-shot lethal outcome for any opponent. Still, howitzers are very vulnerable in close battle. What is the main objective of light tanks? First of all, light tanks are indispensable as scouting units and can easily find and engage enemy long-range artillery. Secondly, their high mobility allows light tanks to reveal hostile units on the battlefield and transfer their coordinates to teammates. Gameplay How realistic is WoT? The game keeps the balance between realism and gameplay. Does the behavior of game models correspond with the behavior of tanks in real life? The game models are nearly identical to their real-life prototypes, and this refers to all game aspects. Game tanks firing rate equals the firing rate of real tanks in training-ground conditions. When firing in motion, scattering appears, and the faster you go, the bigger your scattering is. The number of shells and positioning of elements are identical to real vehicles. Specifications, dynamics and turret turning speed also depend on a chosen model. How long does an average battle last? An average battle usually takes 5 to 15 minutes. In the Standard Battle mode and the Encounter Battle mode, if at the end of 15 minutes there are tanks of both teams on the battlefield or neither of the bases has been captured, a tie is declared. In the Assault Battle mode there is a maximum of 10 minutes to achieve victory for both teams. Will newbies get a chance to practice their skills in single-battle missions i. Will this mode be available offline? Newbies will get a chance to level up their skills and prepare for real battles during training missions. The game features special areas with tanks from level 1 to level 2 allowed. This will help newcomers get used to gameplay and dynamics. All the training modes will be available online. What camera mode does the game feature? What are the controls? The main mode is the third person view with four scales of remoteness from your tank and possibility to freely rotate the camera around the vehicle. Does World of Tanks support auto aiming? The game features auto aiming, which allows shooting at a hostile unit with lead-finding. To turn on auto aiming, move your sight on a hostile unit and press the right mouse button. Camouflage is implemented as well. Bushes and trees are the most efficient elements to hide in. But if a hiding tank starts moving or shooting, its silhouette becomes visible. New camouflage skins will be implemented into the game, adding invisibility points. Will off-map artillery support be included in World of Tanks? How will this be controlled? We are planning to include off-map artillery support, but its usage will be limited to one strike per fight and only during clan battles. The battle map is divided into many squares, and a clan leader can call for an artillery strike on a specified square once during a

battle. However, this will require spending a certain amount of resources. Are battles fought by one-nation teams? Before each battle, the game will randomly divide players into two teams according to the level and the development stage of their vehicles trying to make both teams equal in overall power. This means that a team may include tanks from different nations. Are there any machine guns in the game? What types of ammo are available? Depending on a type of cannon, players can use cumulative, subcaliber, high-explosive, and piercing shells. What about ramming attacks? Ramming attacks are an essential part of World of Tanks gameplay, along with casual fighting elements. Consequences of a ramming attack will depend on tank masses, their speed, and on the section of a rammed tank that took a hit. Maps What are the typical dimensions of a battle map? At the moment, the typical map size is about 1 square kilometer in countryside and a bit less in urban maps. Again, map size depends on a number of terrain elements. The rule here will be simple: So if there are deserted maps covering battles in Northern Africa, they can reach up to 25 square kilometers in size. Are there any breakable elements on battlefields? How can destroying such elements influence the course of a battle? There are lots of breakable elements. With a high level of breakability, what results are both positive and negative consequences. The flip side of the coin is the building you are hiding behind becomes vulnerable and can be significantly damaged after a couple of enemy batters, which can result in losing your cover. Is it planned to adopt different seasons, times of day, or weather conditions? We are planning to include maps with different seasons, but there will be no season changing on a single map. Are these maps identical to those areas? It is very hard to keep a virtual map identical to its prototype. One of the most important issues is keeping the fighting balance which was totally unrealistic in real life, that is why our historic maps are not completely identical to real geographic locations, but they are designed very similar to the originals with extensive usage of their photos and landscape schemes. Development What is a tank tree? Within each nation, tanks compile a development tree. In order to get a desired vehicle, players will climb up those development trees. How do you upgrade your tank? What development stage should you reach to get access to a tank of the next level? Can you switch to a parallel development branch if considering a chosen one wrong? All the upgrades are available according to the development trees. You start with the lightest and cheapest tank and by earning your experience points you can further upgrade your vehicle by installing better equipment of higher levels. Will tanks have their own crews? Every tank will have a tank crew, and every member of a crew will have their own qualities that will influence tank characteristics. The number of crew members will change depending on a chosen tank. For example, with a veteran gunner aboard, a tank will be more accurate in shooting and will deliver a larger number of critical hits. Can I keep more than one vehicle in my garage?

## 2: Why Russia's New Tanks Are A Wake-Up Call For The US

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French Hotchkiss H light tank of In the interwar period tanks underwent further mechanical development. In terms of tactics, J. Liddell Hart held a more moderate view that all arms " cavalry, infantry and artillery " should be mechanized and work together. The British formed the all-arms Experimental Mechanized Force to test the use of tanks with supporting forces. In the Second World War only Germany would initially put the theory into practice on a large scale, and it was their superior tactics and French blunders, not superior weapons, that made the "blitzkrieg" so successful in May The primary lesson learned from this war was that machine gun armed tanks had to be equipped with cannon, with the associated armour inherent to modern tanks. The five-month-long war between the Soviet Union and the Japanese 6th Army at Khalkhin Gol Nomonhan in brought home some lessons[ which? In this conflict, the Soviets fielded over two thousand tanks, to the around 73 cannon armed tanks deployed by the Japanese, [35] the major difference being that Japanese armour were equipped with diesel engines as opposed to the Russian tanks equipped with petrol engines. In August , Soviet General Georgy Zhukov used the combined force of tanks and airpower at Nomonhan against the Japanese 6th Army; [38] Heinz Guderian , a tactical theoretician who was heavily involved in the formation of the first independent German tank force, said "Where tanks are, the front is", and this concept became a reality in World War II. Armoured forces proved capable of tactical victory in an unprecedentedly short amount of time, yet new anti-tank weaponry showed that the tank was not invulnerable. During the Invasion of Poland, tanks performed in a more traditional role in close cooperation with infantry units, but in the Battle of France deep independent armoured penetrations were executed by the Germans, a technique later called blitzkrieg. Blitzkrieg used innovative combined arms tactics and radios in all of the tanks to provide a level of tactical flexibility and power that surpassed that of the Allied armour. The French Army , with tanks equal or superior to the German tanks in both quality and quantity, employed a linear defensive strategy in which the armoured cavalry units were made subservient to the needs of the infantry armies to cover their entrenchment in Belgium. In accordance with blitzkrieg methods, German tanks bypassed enemy strongpoints and could radio for close air support to destroy them, or leave them to the infantry. A related development, motorized infantry , allowed some of the troops to keep up with the tanks and create highly mobile combined arms forces. The North African Campaign also provided an important battleground for tanks, as the flat, desolate terrain with relatively few obstacles or urban environments was ideal for conducting mobile armoured warfare. However, this battlefield also showed the importance of logistics , especially in an armoured force, as the principal warring armies, the German Afrika Korps and the British Eighth Army , often outpaced their supply trains in repeated attacks and counter-attacks on each other, resulting in complete stalemate. Battle of Kursk was the largest tank battle ever fought, with each side deploying nearly 3, tanks. In doing so, the Wehrmacht denied the infantry and other support arms the production priorities that they needed to remain equal partners with the increasingly sophisticated tanks, in turn violating the principle of combined arms they had pioneered. Sherman tanks joining the U. A compromise all round, the Sherman was reliable and formed a large part of the Anglo-American ground forces, but in a tank-versus-tank battle was no match for the Panther or Tiger. Tank hulls [46] were modified to produce flame tanks , mobile rocket artillery , and combat engineering vehicles for tasks including mine-clearing and bridging. The firepower and low cost of these vehicles made them attractive but as manufacturing techniques improved and larger turret rings made larger tank guns feasible, the gun turret was recognised as the most effective mounting for the main gun to allow movement in a different direction from firing, enhancing tactical flexibility. Tank design during the Cold War built on this foundation and included improvements to fire control , gyroscopic gun stabilisation, communications primarily radio and crew comfort and saw the introduction of laser rangefinders and infrared night vision equipment. Armour technology progressed in an ongoing race against improvements in anti-tank weapons , especially antitank guided missiles like the TOW.

Play media news report about tank warfare on the Golan Medium tanks of World War II, evolved into the main battle tank MBT of the Cold War and took over the majority of tank roles on the battlefield. This gradual transition occurred in the 1950s and 1960s due to anti-tank guided missiles, sabot ammunition and high explosive anti-tank warheads. For the same reason many upgraded post-World War II tanks and their derivatives for example, the T-55 and T-72 remain in active service around the world, and even an obsolete tank may be the most formidable weapon on battlefields in many parts of the world. The T-72, for example, has seen action in no fewer than 32 conflicts. In these wars the U.S. Proxy wars were studied by Western and Soviet military analysts and provided a contribution to the Cold War tank development process.

## 3: Tank - Wikipedia

*The Life of a Sherman Tanker: The Crew the Tank, and How They Lived With it, Babied it, Loved and Hated it. This section is about the crews of and their life in the Sherman tank.*

And behind these our infantry will be able to follow quite unharmed and without any opposition. Then, in 1915, a design for a tracked, armoured vehicle was submitted to the British War Office by an Australian civil engineer named Lancelot de Mole. And instantly rejected "until the Royal Navy, in the shape of the First Lord of the Admiralty at the time, Winston Churchill, formed the Landships Committee to investigate whether these newfangled machines could break the deadlock of the First World War. And the result was the British Mark I "an odd-looking rhomboidal monster designed to repel machine-gun fire and crush German defences ahead of the infantry. It first saw battle at the Somme, on September 15 1916. In 1942, these hulking, unwieldy metal chariots of Montgomery and Rommel would clash at El Alamein in North Africa, in a battle around which, arguably, the entire Second World War hinged as Churchill himself said: After Alamein we never had a defeat. As the Allies make their final push into Nazi Germany in April 1945, Wardaddy must lead his Fury and its crew on a deadly mission behind enemy lines. Thus, with perhaps more authenticity than ever before, audiences can see what life was like inside a Second World War Sherman tank "with all the noise, heat, grinding metal, and proximity to danger that involved. But now, almost 70 years later, how do these experiences relate to modern tank warfare, and what is different? And the aspects that made our job difficult in the Second World War still make it tricky now. What could be more British than that? The tank Major Worth fought in was part of tours in Iraq in 2003 and Afghanistan in 2001. We live in it, on it, from it; it supplies the water we drink and the means to heat that water, which is essential in terms of food preparation. So we take care of it, so it can take care of us. They just picked them up from a boat that had been sailing around the Arabian Sea. She really is the fifth member of the crew. In the Second World War, German Tiger tanks were thought of as mechanically superior, but still averaged 10 hours of maintenance for just one hour of driving. Hence, crews stay together for far longer than in other branches of the military, often training together for years on the same vehicle. He also made you food; he looked after you. You relied on these people. Which, no doubt, would have inflamed their fundamentalist ire even more. Even when he lost the same leg some years later, to a Taliban IED, he remarked: In making the Sherman tank so easy to manufacture almost 50,000 were built between 1940 and 1945, sacrifices were made to the efficacy of its armour. In one incident in 1943, a Challenger 2 of the Royal Scots Dragoon Guards came under fire just outside of Basra, and lost its tracks when falling in a ditch. While the crew sheltered inside, waiting for recovery, the tank was hit directly by 14 rocket-propelled grenades from close range and a MILAN anti-tank missile. In Fury, a young recruit fears the tank itself to begin with. And they summon the same residual apprehension in the modern era. Take, for example, when tanks arrived in Basra in March 2003. There, we had to wait for the infantry to catch up. It was 50C heat outside, and hotter inside the tank. And we were completely soaking wet "the sweat running down into your boots. I remember opening the turret, and these people came up to the tank. We thought you were robots! When the Soviet Union crushed the Hungarian uprising in 1956 they did it by sending hundreds of tanks into Budapest. While in 1948, when Egypt and Syria attacked Israeli forces during the Yom Kippur War, over 3,000 tanks were involved. During the Eighties, the Ministry of Defence commissioned a paper considering whether the UK should replace its tanks with helicopters. And since the end of the Cold War, Nato has followed suit "where Germany was once host to 4,000 tanks, for example, the numbers are now a quarter of that. Now, according to the International Institute for Strategic Studies there are 60,000 tanks in active service worldwide, with China boasting the most about 7,000, and North Korea 3,000, Russia 3,000, and India 3,000, bringing up the rear. At the end of the Second World War they had a fear that tanks could be knocked out by one guy with a rocket-propelled grenade, so tank warfare was too risky. In the Eighties it was attack helicopters. Once, heavily armoured military vehicles would trundle into the very heart of battle and absorb enemy fire. The new American Ground-X Vehicle is a case in point. Russia plans to have them operational by 2020. But if this is the future, then arguably the lifeblood of tanks across the past century "the crew themselves, and the intense relationships that develop inside the turret "could soon be a thing of the

past.

### 4: Version Vehicles and Crew Recovery | General News | World of Tanks

*I can only speak for the Royal Tank Regiment although I am pretty sure other British tank units may well have done the same. The name of a tank in the British Royal Armoured Corp. is regulated. The first letter of the name denotes the Squadron for example "D" Squadrons tanks would have names.*

There are five unique roles: Each vehicle can vary in the number of crew members inside it and the roles that they are assigned. World of Tanks vehicles have crew members. No vehicle in World of Tanks can operate without a complete crew. Through battles, a crew will gain experience the same way vehicles will, and over time crewmen will improve their vehicle operating level, and later, acquire new ones. The better the outcome of the battle is, the more experience your tankers get. The crew training process can be accelerated at any time. Thus, your tankers will do their best since first battle! Tank Academy training is purchased with Gold. If you want to train an existing crew member, all you need to do is to select the vehicle, right-click on the specified tanker and open his Personal File in the menu: The same can be done to the rest of the tank crew. Of course, in this case you must take into account the nationality of tankers. Thus, Soviet tankers would not fit into German or American tanks and vice versa. In order to retrain your soldiers, send them to barracks before you sell the tank: After that, you can sell the tank and buy a new one, putting a mark on Buy the tank without crew note because you already have soldiers in the barracks. Click on Barracks tab and right-click on the required tanker. Select Training tab in his Personal File and specify the desired tank for this soldier: Same should be done to each tanker that you pick up for the new tank crew. Please, pay attention to the following notes: When you retrain the tankers from one vehicle to another, they lose part of major qualification experience; The major qualification can not be changed for example, a radio operator can not become a gunner on the new tank, as well as a loader can not become a commander. Firefighting, Repair and Camouflage later on the list of additional skills will be expanded. Besides that, bear in mind that you can extend the barracks at any time, again for an extra cost of Gold:

## 5: Crew Training and Qualifications | Guide | World of Tanks

*The past 86 years since have seen the tank develop from a primitive experimental weapon devised to break the deadlock of trench warfare on the Western Front into a fearsomely sophisticated machine designed to dominate the battlefield.*

It also includes low profile, low noise and thermal signature, active countermeasures, and other methods of avoiding enemy fire. For example, increasing protection by adding armour will increase weight and therefore decrease manoeuvrability; increasing firepower by using a larger gun will decrease both manoeuvrability and protection due to decreased armour at the front of the turret. How the compromise is achieved is influenced by a combination of factors, including military strategies, budget, geography, political will, and, in these modern times, the requirement to sell the tank to other countries. Examples of how different countries are influenced in their decisions are as follows: Britain has historically always opted for better firepower and increased protection at the expense of some manoeuvrability. Britain has always maintained a small, highly trained professional army, and so tank crew survivability is important. Similarly, as limited resources may be available, the crew needs to be able to maintain their tanks in the field, and, with a succession of secondary sites available, are able to keep fighting if the primary site is out of action. The USA has an extremely large army with sophisticated weaponry and enormous resources. Also they lost more of their overly complex Tiger and Panther tanks due to mechanical breakdowns than enemy action. As a result, their tanks have since been incredibly manoeuvrable, with the resulting decrease particularly in protection. All demonstrations of post war German tanks focus on this ability. Enhanced reliability and lower maintenance requirements were also important design goals. Israel is a small, but relatively rich, nation, with limited man-power and surrounded by neighbours sworn to destroy it. Its primary concern is therefore crew-survivability, and to this end it is the only nation to have produced a modern tank with the engine placed at the front to increase protection for the crew behind. The main weapon of any modern tank is a single gun. Tank guns are among the largest calibre weapons in use on land, with only a few artillery weapons being larger. Although the calibre has not changed substantially since the end of the Second World War, modern guns are technologically superior. The current common sizes are mm calibre for Western tanks and mm for Eastern Soviet and Chinese legacy tanks. Tank guns have fired many types of rounds, but their current use is commonly limited to kinetic energy KE penetrators and high explosive HE rounds. Some tanks can fire missiles through the gun. Smoothbore rather than rifled guns are the dominant type of gun today. The British Army and the Indian Army are now the only ones to field main battle tanks with rifled guns. Modern tank guns are generally fitted with thermal jackets which reduce the effect of uneven temperature or cooling of the barrel. Eg if it were to rain on a tank barrel the top would cool faster than the bottom, or a breeze on the left might cause the left side to cool faster than the right. This uneven cooling will cause the barrel to bend slightly and will effect long range accuracy. The thermal jacket reduces this uneven cooling. Usually, tanks carry other armament for short range defence against infantry or targets where the use of the main weapon would be ineffective or wasteful. Typically, this is a small calibre 7. However, a couple of French tanks such as the AMX and AMX carry a coaxial mm cannon that has a high rate of fire and can destroy lightly armoured vehicles. Some tanks have been adapted to specialised roles and have had unusual main armaments such as flame-throwers. These specialised weapons are now usually mounted on the chassis of an armoured personnel carrier. Fire control Modern tanks, such as this Israeli Merkava Mk 4, can fire with reasonable accuracy while moving. Historically, tank weapons were aimed through simple optical sights and laid onto target by hand, with windage estimated or assisted with the reticule. Range-finding was initially estimated, then estimated with the aid of the reticule which use the measurement of angles, measured in the reticule of known sized objects as a method for range finding , which was later supplemented with stereoscopic optical range-finders, which remained the standard until the introduction of laser range-finder. Consequently, accuracy was limited at long range and made concurrent movement and shooting largely impossible. Modern MBTs and upgraded MBTs use a laser range-finder but optical and reticule range-finders are still in use in older and less sophisticated vehicles. Modern tanks have a

variety of sophisticated systems to make them more accurate. Gyroscopes are used to stabilise the main weapon; laser range-finders are used to measure the range to the target; computers calculate the appropriate elevation and aim-point, taking into account many factors such as wind speed, air temperature, humidity, the temperature of the gun, the speed of the target calculated by taking at least two sightings of the target with the range-finder, the speed of the tank, the bend of the barrel, and the wear of the barrel. Night and infrared vision equipment is also commonly included. Laser target designators may also be used to illuminate targets for guided munitions. As a result modern tanks can fire reasonably accurately while moving. Non-KE-penetrator rounds have greater accuracy when fired from rifled guns, but can also be fin-stabilised in order to work with smoothbore guns. This functionality extends the effective combat range of the tank beyond the range afforded by conventional shells. It also provides the tank with a useful weapon against slow, low-flying airborne targets like helicopters. The United States has abandoned this concept, phasing the M and M60A2 out of their forces, but CIS countries continue to employ gun-missile systems in their main battle tanks. Protection Sections of the side-skirt are swung aside on this M1 Abrams tank to expose the track so that a road wheel can be replaced. The main battle tank is the most heavily armoured vehicle in modern armies. Its armour is designed to protect the vehicle and crew against a wide variety of threats. Commonly, protection against kinetic energy penetrators fired by other tanks is considered the most important. Tanks are vulnerable to antitank guided missiles. Antitank mines, larger bombs, and direct artillery hits can also disable or destroy a tank. Tanks are especially vulnerable to airborne threats. Most modern MBTs do offer near complete protection from artillery shrapnel and lighter antitank weapons such as rocket propelled grenades. The amount of armour needed to protect against all conceivable threats from all angles would be far too heavy to be practical, so when designing an MBT much effort goes into finding the right balance between protection and weight. Armour Most armoured fighting vehicles are manufactured of hardened steel plate, or in some cases aluminium. The relative effectiveness of armour is expressed by comparison to rolled homogeneous armour. Most armoured vehicles are best protected at the front, and their crews always strive to keep them pointed in the likeliest direction of the enemy. The thickest and best-sloped armour is on the glacis plate and the turret front. The sides have less armour and the rear and roof are least protected. World War Two American Sherman tank crews found the German Tigers to be practically invulnerable from the front, and were forced to employ flanking tactics to take them out. Today, tanks are vulnerable to specialised top-attack missile weapons and air attack, and even a Molotov cocktail on the engine deck is bad news for any tank. Before the Second World War, Soviet tank designers started to slope the armour on several tanks, most famously the T Angling armour plates greatly increases their effectiveness against projectiles, by increasing the effective perpendicular thickness of the armour, and by increasing the chance of deflection. German tank crews were said to be horrified to find that shots fired at Ts would sometimes simply bounce off. Even light infantry antitank weapons can immobilise a tank by damaging its suspension or track. Many tracked military vehicles have side skirts, protecting the suspension. These weapons carry a warhead with a shaped charge, which focusses the force of an explosion into a narrow penetrating stream. Thin plates of spaced armour, steel mesh "RPG screens", or rubber skirts, were found to cause HEAT rounds to detonate too far from the main armour, greatly reducing their penetrating power. As a defence, some vehicles have a layer of anti-spall material lining their insides. Since the s, tanks have been protected by more complex perforated or composite armour, a sandwich of various alloys and ceramics. One of the best types of passive armour is the British-developed Chobham armour, which is comprised of spaced ceramic blocks contained by a resin fabric matrix between layers of conventional armour. The Israeli Merkava tank takes the design of protection systems to an extreme, placing the engine and even the fuel between the crew and the direction of likely incoming fire. Grenade launchers, smoke and passive defences Most armoured vehicles carry smoke grenade launchers which can rapidly deploy a smoke screen to visually shield a withdrawal from an enemy ambush or attack. Modern smoke grenades work in the infrared as well as visible spectrum of light. Some smoke grenades are designed to make a very dense cloud capable of blocking the laser beams of enemy target designators or range finders and of course obscuring vision, reducing probability of a hit from visually aimed weapons, especially low speed weapons, such as antitank missiles which require the operator to keep the tank in sight for a relatively long period of

time. In many MBTs, such as the French-built Leclerc, the smoke grenade launchers are also meant to launch tear gas grenades and anti-personnel fragmentation grenades. Many Israeli tanks contain small vertical mortar tubes which can be operated from within the tank, enhancing the anti-personnel capabilities and allowing it to engage targets which are behind obstacles. Prior to the widespread introduction of thermal imaging the most common smoke grenade in AFV launchers was white phosphorus which created a very rapid smoke screen as well as having a very useful incendiary effect against any infantry in the burst area. Since the advent of thermal imagers most tanks carry a smoke grenade that contains a plastic or rubber compound whose tiny burning fragments provide better obscurant qualities against thermal imagers. Some tanks also have smoke generators which can generate smoke continuously, rather than the instantaneous, but short duration of smoke grenades. Generally smoke generators work by injecting fuel into the exhaust, which partially burns the fuel, but leaves sufficient unburned or partially burned particles to create a dense smoke screen. Modern tanks are increasingly being fitted with passive defensive systems such as laser warning devices, which activate an alarm if the tank is "painted" by a laser range-finder or designator. Other passive defences include radio warning devices, which provide warning if the tank is targeted by radar systems that are commonly used to guide antitank weapons such as a millimetre and other very short wave radar. Countermeasures Passive countermeasures, like the Russian Shtora system, attempt to jam the guidance systems of incoming guided missiles. Explosive reactive armour, or ERA, is another major type of protection against high explosive antitank weapons, in which sections of armour explode to dissipate the focussed explosive force of a shaped charge warhead. Reactive armour is attached to the outside of an MBT in small, replaceable bricks. Active protection systems go one step further than reactive armour. An APS uses radar or other sensing technology to automatically react to incoming projectiles. When the system detects hostile fire, it calculates a firing resolution and directs an explosive-launched counter-projectile to intercept or disrupt the incoming fire a few metres from the target. Exposed crew Paradoxically, a tank is usually in its safest state when the commander is in a personally unsafe position, riding in the open, head out of the turret, with no personal protection save his helmet and a flak jacket. In this rather high position the commander can see around the vehicle with no restrictions, and has the greatest chance of spotting enemy antitank operations or natural and unnatural obstacles which might immobilise or slow down the tank. Tank periscopes and other viewing devices give a sharply inferior field of vision and sense of the countryside, despite constant advances in optics and electronics. Thus, when a tank advances in hostile territory with hatches closed, the commander and the crew might be personally safer, but the tank as a whole is more at risk given the extremely reduced vision. Mobility The caterpillar tracks of a tank here an Israeli Merkava Mk-III allow it to tackle most types of terrain, but they are only lightly armoured and are prone to mechanical failure. Essentially mobility of a tank is categorised as either Battlefield Mobility, Tactical Mobility, or Strategic Mobility. The first is a function of its engine performance and capability of its running gear and is determined by aspects such as acceleration, speed, vertical obstacle capability and so on. The second is the ability of the tank to be readily transported within a theatre of operation. The third is its ability to be transported from one theatre of operation to other, dependent on its weight, air portability and so on. A main battle tank is designed to be very mobile and able to tackle most types of terrain.

### 6: You and Your Crew | World of Tanks

*The long-expected German Attack began at am on the 21st March , falling on the British Fifth and Third Armies. By the 24th, the losses in tanks were so heavy that many Battalions no longer had machines to man.*

The crew operates the vehicle under the direction of you, the player. In-game crews range from a minimum of two to a maximum of six crew members. Individual members fill one of five designated roles, or Major Qualifications, within the vehicle. Similar to the way vehicles accumulate experience, crew members accumulate experience for each battle they participate in. The degree of proficiency that each crew member achieves through gaining experience directly affects and improves the performance of their vehicle in battle. An injured Driver reduces the ability of the vehicle to maneuver. If all the crew members are knocked out, the vehicle will become inoperable. The Proficiency of your crew is visible when selecting your tank and crew in the Garage space. Crew experience earned in a battle is divided amongst all crew members on that tank. The more proficient the Commander, the greater the distance at which an enemy can be spotted. The more proficient the Gunner, the better the shots he will make. The more proficient the Driver, the better the vehicle will maneuver. The vehicle can communicate with any allied vehicle whose signal range overlaps with its own. This provides battlefield situational awareness which can be a decisive tactical advantage. The more proficient the Radio Operator, the greater the distance that the vehicle can communicate with allies; and thereby spot enemy tanks. Multiple Major Qualifications Some vehicles, particularly large caliber artillery and tank destroyers, may require a crew of six members and include a second Loader. The T1 Heavy Tank and the M6 each carry crews of six with two gunners. Other vehicles may require a crew complement of only two, three, or four crew members, less than the five Major Qualifications. Small light tanks with a crew of only two usually include a Commander and a Driver. In such cases the game mechanics calculations require a crew member to perform additional roles. In addition, every Crew member in your Garage will receive a military-based rank associated with their respective country.

### 7: 2 Tanks and their Crews - Southern Maryland Online Photo Gallery

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All on one page, because Menu space is at a Premium. This section is about the crews of and their life in the Sherman tank. It will cover the responsibilities of each crew member. It will try and cover what the day to day routine of a tank crewmember. No man facing war in the modern world has it easy, and the men who fought the Sherman fit this category, but the claims of bad writers aside, the crews of Sherman tanks had a better chance to make it through the war than your average dough. No man who had to face down Nazi Germany, or Imperial Japan, had it easy though. When any kind of artillery fire comes in, the tankers can just close their hatches, buttoning the tank up, and wait it out. The doughs around the tank had to find any cover they could, and lots of infantry died to mortar and artillery fire. Being a tanker has its own set of dangers and horrible ways to die, but overall, it was a lot safer to be in a tank, than to be any kind of grunt. The gruesome ways tanker could die in combat are somewhat offset by the things he can stash in the tank to make life more comfortable. Along with the Technical Manuals that the crew received on the radios, guns, tracks and suspension and more, there were Field Manuals that the crew used to drill on the tank. This was a page book that contained instructions on the crew composition, and on foot formations, crew control, drills, serving of the piece, mounted action, dismounted action, removing wounded from the tank, inspections, sight adjustments, and destruction of the tank and its components. The idea behind the Field Manual was to give the tank commanders and platoon leaders a set of standard instructions to teach their men so they were all trained to do their jobs the same way, to make everything about the tank and using it as familiar as possible, so it could be used in combat effectively, even under the most terrifying conditions, and still accomplish its mission. The commands being standardized meant the crew members could be moved around and know the standard way things are done, even in another tank, with an unfamiliar crew. Sports people will have some idea, drilling on something is doing it so often, exactly the same each time, hundreds of times or more, to make the drill second nature. Do Something Over and Over until it bores you to Tears Each of the drills would be called out by the commander as a verbal order, and each crew member including the commander would carry out a series of actions to accomplish the order. Starting with disconnecting their headset intercom cable, then standing on the seat and climbing out, the open hatches order would already have been given. Prepare to dismount through escape hatch; Dismount: A drill, made by making a series of drills into a command to be carried out. Prepare to fire; Various Fire orders: This was all the actions taken to secure the guns, including unloading them and lowering the periscopes. Main Ammo came in 2, and 3 round crates or tubes, so the crew would have to unpack it all then load it into the tank. Prepare to fight on Foot; Dismount: This one is similar to the one above, but for a specific type of fire that only happened on the tanks powered by the R This list is just a sample, there are many more in the crew drill manuals, and the drills very a little depending on the vehicle. If there was a common action or job to do on a Sherman tank, there was a Drill involving it. Once in a combat theater drilling would be a lot less common, unless they were refitting and training a lot of replacements or in a rear area for a long period of time. Inspections drills involved inspecting parts for wear and tear, and were not the same type of inspection officers would carry out to makes sure all men and gear were present and working. There would be those as well, but they are not really a drill. Another responsibility of the crew that was covered in FM is destroying the tank if it is disabled in an area likely to fall into enemy hands. If they had a good chance of escaping capture, they were to take the periscopic and telescopic sights, if not they were to be smashed. Then basically, what was destroyed was based on what you had the most time to do. If you had very little time to get away, you might only disable the main gun, machine guns, and stabilizer, with more time the gun recoil mechanism and or the whole tank. The manual gives instruction on methods to destroy everything from the machine guns and main gun to the tank itself. The Army has refined this over the years, and now the tanks have charges just for destroying them as part of the tanks gear. The Boss, the Man in Charge, the Big Cheese The commander sat in the back right side of the turret directly behind the gunner. His

job was to command the tank. He had the radio in the bustle of the turret to his rear to help him communicate with the rest of the tanks in his unit. To do this he could stand on his seat with his head and shoulders out of the tank, and direct the crew over the intercom. Only he could transmit on the radio, but the others members of the crew could listen. They could all talk to each other on the intercom. Later versions of the Sherman had an all-around vision cupola, discussed earlier, that provided a much better view around the tank for the commander. As some of the charts show in the data section, this was the most dangerous crew station. The commander spent a lot of time with his head stuck out, when the rest of the crew was buttoned up, it made him a prime target for basically anyone and anything being shot at the tank. His job in combat was to call out directions to the driver and call out targets for the gunner. He had a site vane mounted on the roof of the turret to use outside, by using it and his turret override; he could put the gunner roughly on target by rotating the turret. If he was the platoon leader or company commander, he would be calling out directions to the other tanks and trying to sort out what everyone was doing and keep things under control, or in the company commanders case as much control as he could over the tanks in his company. He would be depending heavily on the platoon commanders to run their platoons and keep him informed of what was going on. He was responsible for the tank up to a point and had to make sure the crew kept up on all the required maintenance to keep the tank in proper running order. He was also responsible for the well-being of his crew. The commander was for obvious reasons, the most experienced man in the tank in most cases in most cases, as well. The most common officers would be 2nd lieutenants, and lieutenants as platoon leaders, captains as company commanders and lieutenant colonels as battalion commanders. You might find a major or two in there as well. NCOs of various ranks from the lowly buck sergeant to staff sergeants and maybe higher on rare occasions would be the enlisted side of the tank commander scale. M4 Commander and his cute puppy crew! The gunner was usually the next senior man in the tank. He had his own set of turret controls, and only he could control the main guns elevation. Along with the gun controls, he had all the controls for the stabilizer in front of him. In early Shermans, he only had a periscope with a reticle, it had a fixed 6x power zoom, but also could be looked through with no zoom. He was dependent on the commander to get him near a target and then took five to six seconds for him to pick up the target. This took a much longer time on German tanks like the Panther, with gunner target acquisition times in the minutes, not seconds. The gunner controlled the main gun, and the coaxial mounted MA4. The gunner controlled the turret either with a hydraulic system independent of the tanks motor, and a manual system that just used a crank and gears. You would think the gunner would have the best view out, but in tanks, most of the time, at least in the older models, their view was very limited, but for the era, the Sherman was better than most other tanks. A good gunner working with a good loader in the 75mm armed Sherman could get off, two or three aimed shots in very short time, a very big advantage in tank combat. A Tank gunner also had to be able to shoot, like all other WWII tanks, the Sherman lacked any kind of kind of aiming aid for the gunner other than his scope and periscope. Limited range finding could be done with the reticle in the sight, based on the known height of something, but it was not very exact. Modern tankers have it much easier in this area, since modern tanks have laser rangefinders, and sensors to check for windage, temperature, and barrel wear, and a computer to use all the data to complete the aiming corrections for the gun. Better rangefinders were right over the horizon though This is the all-electric Westinghouse Turret drive, the least popular of the three units used. The loaders job was to service the 75mm M3 gun and the coax. He was also supposed to be trained on how to clear a problem with the main gun or machine guns. Even canons can have duds, or shell problems, or even just break. There were a small number of spare parts kept in the tank for the common things that failed on the guns. The loaders station was on the left of the gun, opposite of the gunner. He had a lot of space to move around compared to other tanks of the time, and a fold up seat. He also had a fully rotating periscope on the roof above him for his viewing pleasure. In early Shermans, the loader had twelve ready rounds around the base of the turret basket, with another eight in a ready rack at his feet. This was the primary reason so many early Shermans burned, anything that penetrated the turret or the hull and hit those exposed rounds would set off a chain reaction of the propellant in all the ready rounds igniting, destroying the tank, and often killing most of the crew. This problem was figured out pretty fast and the twelve exposed rounds were deleted and an armored four round ready rack replaced it and an eight-round

ready rack was used on improved models. Later armor was added to the inside and outside of the sponson ammo boxes as well, before removing them completely for the wet ammo installations in later improved hulls. If a lot of firing was taking place, the loader was a very busy guy, on early Shermans the sponson racks, even without all the turret ready ammo, he had a fair number of easy to get to ammo racks for the main gun, but since the turret basket was screened, he could only get to them with the turret at certain bearings. With the switch to all ammo but the ready ammo in the floor of the hull, his job got much harder. On the wet ammo rack tanks, he would have to pull open doors in the bottom of the turret basket, then open an armored box and pull ammo from it. He had to know what was in all the ammo boxes, and was responsible for what got loaded into where, and remembering it all. It was a short-lived feature. It protruded into the loader space and was not well liked by that member of the crew. After spending some time as a co-driver, a crewmember may be moved up to loader. A good loader was important, the 75mm and later 76mm guns were capable of very fast rates of fire, but only if the loader could keep up. On early tanks using his periscope, on later ones he could stick his head out of his own hatch. Many crews mounted extra machine guns to the roofs too, and if there was one on the loaders hatch it would be his to shoot. Some units would put the M2. Early to well into later production 75mm gun armed Shermans did not have a loaders hatch. The Man Who Drives But At the Behest of the Boss The driver and co-driver were separate from the turret crew; they sat in the forward part of the hull. The transmission sat between the driver and co-driver and only the driver had a set of controls. Only the driver had any instruments as well. On early tanks, the drivers and co-drivers hatches were oval shaped and small and required the man to twist sideways to get through. On very early tanks the driver had a rotating periscope in his hatch and a direct viewport with an armored cover. The viewports were removed from production and extra armor was added over them. This was done very quickly at most factories when it was found bullet splash could get through even a closed port.

### 8: Fury: all you need to know about life in a tank - Telegraph

*Tanks have certainly played a large role in mechanising modern warfare. Their significance for both the First and Second World Wars cannot be underestimated, and they particularly played an integral part in the move away from the trench warfare of the early 20 th Century.*

Organized to fight as a unified element, the platoon consists of four main battle tanks organized into two sections, with two tanks in each section. Tank platoons usually operate as a whole or by section and do not normally deploy individual tanks. The fundamental mission of the tank platoon is to close with and destroy the enemy. It moves, attacks, defends, and performs other essential tasks to support the company team or troop mission. In accomplishing its assigned missions, the platoon uses fire, maneuver, and shock effect, synchronized with other maneuver elements and with combat support CS and combat service support CSS assets. When properly supported, it is capable of conducting sustained operations against any sophisticated threat. The tank platoon can survive and win in battle, however, only if it is well trained, effectively led, and highly motivated. Crews must be aggressive, and their tactics must reflect the tempo and intensity of maneuver warfare. Platoon training must prepare them to operate in hostile territory with the enemy to their front, flanks, and rear.

**Tank Crew** The tank crew is a tightly integrated team. Though all members have primary duties, success depends on their effectiveness as a crew. They must work together to maintain and service their tank and equipment, and they must function as one in combat. Crews must cross-train so each member can function at any of the other crew positions.

**Platoon Leader** The platoon leader is responsible to the commander for the discipline and training of his platoon, the maintenance of its equipment, and its success in combat. He must be proficient in the tactical employment of his section and of the platoon in concert with a company team or troop. He must have a solid understanding of troop-leading procedures and develop his ability to apply them quickly and efficiently on the battlefield. He must serve as an effective tank commander.

**TC.** They must be prepared to assume the duties of the company commander in accordance with the succession of command.

**Platoon Sergeant** The PSG is second in command of the platoon and is accountable to the platoon leader for the training, discipline, and welfare of the soldiers in the platoon. His tactical and technical knowledge allow him to serve as mentor to crewmen, other NCOs, and the platoon leader. His actions on the battlefield must complement those of the platoon leader.

**Tank Commander** The TC is responsible to the tank platoon leader for the reporting of logistical needs and the tactical employment of his tank. He briefs his crew, directs the movement of the tank, submits all reports, and supervises initial first-aid treatment and evacuation of wounded crewmen. He must be prepared to assume the duties and responsibilities of the platoon leader or platoon sergeant in accordance with the succession of command. These requirements demand that the TC maintain situational awareness by using all available optics for observation, by eavesdropping on radio transmissions, and by monitoring the intervehicular information system IVIS or applique digital screen if available.

**Gunner** The gunner searches for targets and aims and fires both the main gun and the coaxial machine gun. The gunner serves as the assistant TC and assumes the responsibilities of the TC as required. He also assists other crewmembers as needed.

**Driver** The driver moves, positions, and stops the tank. While driving, he constantly searches for covered routes and for covered positions to which he can move if the tank is engaged. If the tank is equipped with a steer-to indicator, the driver monitors the device and selects the best tactical route. During engagements, he assists the gunner and TC by scanning for targets and sensing fired rounds. The driver is responsible to the TC for the automotive maintenance and refueling of the tank. He assists other crewmen as needed. He stows and cares for ammunition and is responsible to the TC for the maintenance of communications equipment. Before engagement actions are initiated, the loader searches for targets and acts as air or anti-tank guided missile ATGM guard. He also assists the TC as needed in directing the driver so the tank maintains its position in formation. He assists other crewmembers as necessary. If the function of loading the main gun is handled by an autoloader no current U.

**Tank Capabilities and Limitations** Tanks offer an impressive array of capabilities on the modern battlefield. In combination, these factors produce the shock effect that allows armor units to close with and destroy the enemy in most

weather and light conditions. Tanks can defend much like the infantry, but they are most effective when employed in a mobile situation that exploits their speed, shock, and firepower. Tanks are most effective if the enemy is unaware of their presence and has planned to fight only against the infantry forces that he has identified. Tanks require extensive maintenance, proficient operators, and skilled mechanics, as well as daily resupply of large quantities of bulky petroleum products such as fuel, oil, and grease. The ability to cross ditches; to ford streams and shallow rivers; and to push through small trees up to 12 inches in diameter, vegetation, wire obstacles, and limited obstructions allows tanks to move effectively in various types of terrain.

**Limitations** Tanks are noisy. Therefore, there is little chance of them arriving in an area undetected. Because tanks lack bridging equipment, they can only cross bodies of water less than 4 feet deep. Reconnaissance parties must ascertain the weight-supporting capacity of roads, bridges, and building floors to determine if they can support the weight of tanks and other armored vehicles.

**Firepower Capabilities** The best anti-tank weapon on the battlefield is the tank. The stabilized gun allows effective fires even when the tank is moving cross-country. The various machine guns provide a high volume of suppressive fires for self-defense and provide supporting fires for the infantry.

**Limitations** Tanks cannot elevate or depress their main guns enough to engage targets very close to the vehicle or those high up in tall buildings. Due to the length of the tank main gun, the turret will not rotate if a solid object is encountered, for example, a wall, post, and so forth. Tank cannons create an overpressure and noise hazard to exposed infantrymen. When the tank main gun fires, it creates a large fireball and smoke cloud. In the confines of an urban area, dirt and masonry dust are also picked up and add to this cloud. The smoke and dust of the explosion further obscure the target. Depending on local conditions, this obscuration could last as long as two or three minutes.

**On-board optics and sighting systems** enable the crews to acquire and destroy enemy tanks, armored vehicles, and fortifications using the main gun or to use machine guns to suppress enemy positions, personnel, and lightly armored targets. The thermal sights on armored vehicles can detect enemy activity through darkness and smoke, conditions that limit even the best-equipped infantry.

**Limitations** Armored vehicle crews, especially those in tanks, are blind to infantry soldiers near their vehicle. This limitation is worse during limited visibility or when the hatches are closed. This causes the crew to focus on the enemy or on potential enemy locations rather than on friendly infantry moving close to the vehicle. Crewmen inside armored vehicles have poor all-round vision through their vision blocks; they are easily blinded by smoke or dust. Because of the abundance of cover and concealment in urban terrain, armored vehicle gunners may not be able to easily identify enemy targets unless the commander exposes himself to fire by opening his hatch or infantrymen directing the gunner to the target.

**Protection Capabilities** The tank provides excellent protection. Across the frontal degree arc, the tank is safe from all weapons except heavy anti-tank missiles or guns and the main gun on enemy tanks. When fighting with the hatches closed, the crew is safe from all small-arms fire, artillery rounds except direct hits, and antipersonnel mines. With coordination, tanks can provide moving cover for infantrymen as they advance across small open areas.

**Limitations** Tanks are vulnerable to the weapons effects of other tanks, attack helicopters, mines, ATGMs, anti-tank guns, and close attack aircraft. The top is also vulnerable to precision-guided artillery or air-delivered munitions. Anti-tank mines can destroy or disable the vehicle. Enemy fire striking a tank but not penetrating is a major threat to nearby infantry. Fragmentation that is generated by anti-tank rounds and ricochets off tank armor have historically been a prime cause of infantry casualties while working with tanks in urban areas. The use of smoke must be carefully coordinated. The smoke grenade launchers on the tank provide excellent, rapidly developed local smoke clouds, but the grenades produce burning fragments that are hazardous to infantrymen near the tank and that can ignite dangerous fires in urban areas.

**Limitations** Communication between the infantry on the ground and the crewmen on the tank is difficult. Voice communication with any tank crew while a tank engine is running is restricted to shouting at the TC or climbing up to talk to him. In either case, the infantryman has to get the attention of the tank commander first. Unplanned visual signals may work, but it is better to use preplanned signals. Short of these measures, the dismounted infantry and armored forces must communicate by FM radio.

**Tanks In Urban Areas** Tank-heavy forces could be at a severe disadvantage during urban combat, but a few tanks working with the infantry can be very effective, especially if they work well together at the small-unit

level. Tank, infantry, and engineer task forces are normally formed to attack a fortified area. Individual tanks or pairs of tanks can work together with rifle squads or platoons. Tanks need infantry on the ground to provide security in urban areas and to designate targets. The first and most fundamental lesson learned from recent operations in urban areas is the value of the fully integrated combined arms team. There is no denying the value of light infantry forces during urban combat. However, urban combat never should be considered a purely infantry task. Fighting in urban areas is centered around prepared positions in houses and buildings. Such positions cover street approaches and are protected by mines, obstacles, and booby traps. Therefore, bridges, overpasses, and buildings must be inspected and cleared of mines before they are used. Tanks need infantry support when the two elements are working together. Do not leave tanks alone because they are not prepared to provide local security during the operation. Tanks are extremely vulnerable to dismounted attack when operating on urban terrain. Tanks are most vulnerable and need local security when infantry are in the process of clearing buildings. Tanks must remain relatively stationary for prolonged periods allowing threat AT teams to maneuver to a position of advantage. The infantry normally leads movement through urban areas. The tanks follow and provide close overwatch.

### 9: Chariots of Fire: Tanks and Their Crews on OnBuy

*Tank Battalion went into action with the 81st Infantry Division, seeing combat at Angaur (part of the larger action involving the battle of Peleliu). They ultimately were sent as part of the Army relief of Marine forces in Peleliu actual.*

The Vehicles themselves proved useful and often found themselves attached to Tank Divisions, and used in ways never planned for. Click the link above for a dedicated page on the M It used the M4A2 chassis with the GM to power it. These tanks only had an M2. The turret lacked power traverse. It had a five-man crew and was generally liked by its crew. The American TD force was deemed a failure, but not because the men or vehicles performed badly, it was the doctrine that failed to pan out, the battalions themselves performed well overall. It was used until the end of the war, and many TD battalions preferred it over the faster M The TDs lacked a co-ax machine gun, this and their open top made them more vulnerable to infantry than a tank. Even so, these units were often given tank missions. The open top did offer a big advantage in finding any enemy tanks to shoot. They were larger than the Shermans produced at the same time, but could not be opened or closed if the turret was forward. So the crew had to make a choice if the driver and co-driver were going to be able to see well or be buttoned, before the battle or movement. The M10 lacked a turret basket, so the driver and co-driver had an easier time getting out of the roofless turret. Like all American designs, it went through a series of upgrades through its service life. The turret was upgraded and balanced better, and the crews liked to add their own roofs. A power turret drive was never added to the tanks in US service though. There was no difference other than and minor improvements between an M10 and M10A1. Crews added on armored roofs to their turrets, often all hinged so they could open up to really see what was going on, in the field. It was not uncommon for TD units to be used as fixed artillery for several days. This was common practice in the MTO. The M10 Turret went through several changes, the first versions were badly out of balance, and they tried to solve this by mounting the grousers for the tracks on the back of the turret. This helped, but eventually, the final production M10 turrets were widened, and even bigger counterweights were added with a distinct duckbill look to them. They came up with a full roof armor kit for the final turret, and a half cover for the early turrets that could be field retrofitted. In spite of these minor issues, the M10 started out popular with the troops, and never lost that affection. The M10 and M10A1 had all the gear aboard to be used at artillery. A few TD battalions spent almost as much time as artillery as they did in their TD role. They built M10s and M10A1s. At first, only M10 TDs were authorized for service overseas, and the M10A1, even though found to be automotively superior, was to be used in stateside training only. There was some doubt about the usefulness of the motorized TD before the Normandy landings, and production of the M10 was halted as many TD units were converted back to towed gun units or disbanded. In the MTO they TD units spent an awful lot of time being used as artillery units, to the point they had to learn how to swap barrels on their 3-inch guns after wearing the tubes out. The M10 in northern Europe saw lots of action but was also being replaced by the M18 and M The M36 was very popular, the M18 was mixed, some units love it, some units refused to give up their trusty M10s. The M10 was not popular in the Pacific, the thinner armor, lack of hull and co-ax machine guns and open top made for a much easier target destroy for Japanese troops. An M10 moves into Artena Italy in , unit unknown. These tanks mounted the 90mm M3 gun. These TDs had full power traverse. This TD suffered all the same problems dealing with infantry the M10 did, except in the M36 B1, since it was built on an M4A3 hull, it had a bow machine gun. This was as close to a factory produced 90mm Sherman during the war. It was also upgraded in a lot of units with some form of roof armor. It solved the drivers and co-drivers hatch problems and always had a power turret drive though. There was a diesel-powered version based on the base M10 chassis powered by the GM They produced it on the M4A3 and M10 hulls because they ran out of M10A1 hulls, and no more were going to be produced. Demand for the vehicle was so great they used what they had available. It may be being used in the indirect fire role. This M36 looks like the crew are looking for something to shoot at. The photo was taken on the streets of Metz in November of This M36B1 just took a shot at something, note all the smoke coming from the open turret, and how the commander appears to be looking at something. An M36B1, , location and unit unknown. You can see the curved turret side on the right.

## TANKS AND THEIR CREWS pdf

Too much stowage to see the distinctive bustle, but an M36 for sure! Nice collection of photos.

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