FINAL COMBAT

"Micro Melee"

By Bennett P. Lacy

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Table of Contents

Introduction

Micro Melee is a micro armor conversion of the Final Combat skirmish system. It lifts the system mechanics from squad to battalion sized engagements for 6-millimeter miniatures. Where the original rules introduced detail on an individual soldier's level, Micro Melee will handle movement, acquisition, combat and leadership from the perspective of the platoon. Command is assigned to Lieutenants, Captains and Majors within HQ units. Much of the detail from the skirmish system has been incorporated abstractly. Hand grenades are reflected in a greater fire power factor at point blank range and the damage model now addresses multiple casualties instead of tracking individual hit locations.

The basis for these infantry rules is the platoon; the smallest component of which is a squad. Each nationality will assemble a unique order of battle. A Table of Organization & Equipment will be helpful as you build your forces. Ten to twelve-man squads (depending upon the nationality) should be tracked with the forms provided in Appendix B. Regardless of the actual number of figures you choose to glue on a base, each one should represent a single squad or support unit. Those should then be grouped into platoons, companies and battalions.

Micro Melee

This work is intended as a free download for those customers who already have Final Combat and The Expansion. Without those books which contain the actual skirmish system, this conversion is not meaningful.

If you enjoyed Final Combat, you won't want to miss Micro Melee. The detail of armored combat during the Second World War is at your finger tips, but on a much larger scale. You can command an entire battalion of infantry and armor as you recreate the great battles of North Africa, Western Europe and the Russian steppe.

Hans-Karl Gieseler

Section 1. Creating Fire Power Factors

Each squad is rated according to the volume of fire its weapons can generate at a given range. This rating is known as the fire power factor (FPF). The FPF when combined with modifiers from table 5.1 will yield a *To Hit* number. This number or less must be rolled on a D20 in order to score a hit. Regardless of the *To Hit* number, 1 is always a hit (unless the target is out of range).

The Platoon

You will learn how to build your own platoons and change the fire power by altering the composition of the unit's weaponry. As a reference tool, both Final Combat and The Expansion have extensive appendices that list the most commonly used weapons of the 20th Century.

The fire power factor for an automatic weapon is based upon twenty percent of the cyclic rate or *bullets per second*. All figures should be rounded to the nearest tenth. For example, the Russian PPSh-41 fires 15-bullets per second. Twenty percent of fifteen is three. So, the fire power factor (FPF) of the PPSh-41 is three. A self-loading semi automatic rifle fires every action. So, each gun has a fire power factor of one. The bolt action rifle fires at half that rate. Therefore, it takes two guns to equal one FPF. There are essentially five ranges at which a squad is rated: point blank, short, medium, long and

extreme. At point blank (melee) range, the squad is the most powerful. The squad may fight hand to hand with bayonets, rifle butts and fists; moreover, the submachine gun and hand grenade cause the squad's FPF to increase by three (+1 for the SMG and +2 for the grenades). At short range, the submachine gun FPF is reduced by ½ but the grenade still adds one to the base FPF. At medium range, the grenade is not a factor and the submachine gun's FPF is reduced to zero. Each subsequent increase in range reduces the FPF of the remaining weapons by one. However, bolt action rifles receive a +1 accuracy bonus from long and extreme range. The following example is intended to illustrate this point.

Table 1.1—German Squad

Ten Men equipped with 1 MP40 SMG (FPF 2), 1 MG42 LMG (FPF 5), 8 Kar 98K Rifles (FPF 4) Total FPF= 11

RANGE	FPF
Point Blank	14
Short	11
Medium	9
Long	8
Extreme	7

The fire power factor of the squad is eleven. At point blank range, the FPF is increased by three to fourteen. At short range, the effectiveness of the grenade and the MP40 are reduced and the FPF falls to eleven. At medium range, the MP40 and grenade fall to zero for a squad FPF of nine. At long and extreme ranges, the effectiveness of the remaining weapons is reduced proportionately.

Scale Conversion

Although Final Combat was designed for 20mm, the conversion to micro armor or 6mm is easy to do. The ground scale is 3mm= one yard. Therefore, if a figure is listed in yards, simply multiply that number by three to convert it to millimeters. The reverse is true if one desires a conversion from millimeters to yards. Measure the distance to the target. Then divide the millimeters by 3. For example, a squad is attempting to fire upon an enemy squad from 120 centimeters. Multiply 120 centimeters by 10 to determine millimeters. Then divide by three. The answer is 400-yards. The table below introduces combat ranges for infantry units.

Table 1.2—Small Arms Ranges

Range	Yards	Centimeters
Point Blank	0-15 yards	0-4.5
Short	16-50 yards	4.8-15.0
Medium	51-100 yards	15.3-30.0
Long	101-200 yards	30.3-60.0
Extreme	201-400 yards	60.3-120.0

Table 1.3—Range Conversion Table

Cm	6mm Range (yards)	Cm	6mm Range (yards)	Cm	6mm Range (yards)	Cm	6mm Range (yards)
1	3.33	31	103.3	61	203.3	91	303.3
2	6.7	32	106.7	62	206.7	92	306.7
3	10.0	33	110.0	63	210.0	93	310.0
4	13.3	34	113.3	64	213.3	94	313.3
5	16.7	35	116.7	65	216.7	95	316.7
6	20.0	36	120.0	66	220.0	96	320.0
7	23.3	37	123.3	67	223.3	97	323.3
8	26.7	38	126.7	68	226.7	98	326.7
9	30.0	39	130.0	69	230.0	99	330.0
10	33.3	40	133.3	70	233.3	100	333.3
11	36.7	41	136.7	71	236.7	101	336.7
12	40.0	42	140.0	72	240.0	102	340.0
13	43.3	43	143.3	73	243.3	103	343.3
14	46.7	44	146.7	74	246.7	104	346.7
15	50.0	45	150.0	75	250.0	105	350.0
16	53.3	46	153.3	76	253.3	106	353.3
17	56.7	47	156.7	77	256.7	107	356.7
18	60.0	48	160.0	78	260.0	108	360.0
19	63.3	49	163.3	79	263.3	109	363.3
20	66.7	50	166.7	80	266.7	110	366.7
21	70.0	51	170.0	81	270.0	111	370.0
22	73.3	52	173.3	82	273.3	112	373.3
23	76.7	53	176.7	83	276.7	113	376.7
24	80.0	54	180.0	84	280.0	114	380.0
25	83.3	55	183.3	85	283.3	115	383.3
26	86.7	56	186.7	86	286.7	116	386.7
27	90.0	57	190.0	87	290.0	117	390.0
28	93.3	58	193.3	88	293.3	118	393.3
29	96.7	59	196.7	89	296.7	119	396.7
30	100.0	60	200.0	90	300.0	120	400.0

NOTE: 3mm = 1-yard. To convert millimeters to yards, divide by 3. To convert yards to millimeters, multiply by 3. To convert centimeters to yards, multiply by 10 to get millimeters and divide by 3.

Section 2. Building Initiative Cups

In the original Final Combat skirmish system, cups were assigned to sections or squads, and individual soldiers received chits based upon their troop quality.[1] In Micro Melee, each player will build one cup. Six sequentially numbered chits, each representing one second of real time, are placed in the cups. Those chits correspond to a platoon's troop quality modifier (Green +1, Regular +2, Professional +3, Veteran +4, Crack +5 and Elite +6). Next, the command (CO) chits will be placed in the cups. The number of chits is based upon the `Leadership` Modifier of the CO in the Head Quarters (HQ) unit. The `Leadership` Modifier is derived from the ten's place in the attribute. An attribute of 13 will produce a modifier of 3. In this instance, three CO chits would be placed in the cup. When a number (1-6) is drawn, squads within any platoon of equal troop quality or higher may act. When a "CO" chit is drawn, the Platoon, Company or Battalion HQ (armor or infantry) may motivate a number of squads/tanks commensurate with its `Leadership` Modifier. This may also include the HQ unit. A Head Quarters unit must follow the chain of command and may not influence men outside of its immediate jurisdiction. However, the Company HQ may issue orders to any platoon or squad within its command, while the Battalion HQ may motivate all friendly units on the board.

[1] Final Combat by Bennett P. Lacy, published by Britton Publishers pp. 17-18

Leadership Attribute

The `Leadership` attribute will be used to determine the number of squads an HQ unit may command during an action and the radius within which they may be influenced. It will also be used to rally a broken squad. Typically, a platoon HQ is led by the Lieutenant. A Company HQ is commanded by a Captain and the Battalion HQ is commanded by a Major. Multiply a Lieutenant's `Leadership` attribute by four to determine the effective radius. For example, the Lieutenant in a platoon HQ with a `Leadership` Attribute of 13 will be able to command three attached squads within 52-yards or 15.6cm. Multiply a Captain's attribute by six. For example, a Company HQ who's Captain has a `Leadership` attribute of 13 will be able to command any three attached squads up to a limit of 78-yards or 23.4cm. Finally, multiply a Major's `Leadership` attribute by eight to determine the effective radius. If an HQ unit suffers casualties, its command radius will not be affected unless the CO is killed, wounded or is in the midst of a morale event. The radius rule includes tanks that are not equipped with radios. The tank platoon commander must be unbuttoned and within line of sight. This would apply to most early Russian tanks. A tank commander with a `Leadership` attribute of 13 in a T-34/76 would have a command radius of 52-yards or 15.6cm. When a CO chit is drawn, he may motivate three tanks in his platoon, one of which can be his own tank.

Steve Zaloga

Section 3. Moving the Platoons

The Final Combat skirmish system bases movement on the Speed attribute of individual characters. In this conversion, squads will move as a unit within the platoon based upon a generic attribute of 13. When a chit is drawn that activates a platoon, each squad attached to that platoon may move. An infantry squad may dash at 6-yards or 2 centimeters per action. A squad may *walk* at a rate of 3 millimeters per action.

In Final Combat, crew members act individually. In this conversion, the crew acts as one and the driver is not considered during movement. The speed for vehicles is based on a *yards per second* rate. For example, on page 134 of The Expansion, the T-34/76 Model 1942 has a road speed of 34 mph or 16.6 yards per second. Multiply 16.6 by 3 to convert the speed factor into a micro armor scale. This tank would move 49.8 millimeters or rounded up to 5 centimeters. Cross country movement is still 75% of the road speed. See Final Combat for other restrictions and limitations.

Section 4. Acquiring Targets

Before a target can be attacked, it must be seen. A squad or tank may attempt a number of acquisitions equal to its troop quality modifier per action. For example, a regular squad may roll two D20 dice to spot an enemy squad. Acquisition may include multiple targets or multiple attempts on a single target, but it must be grouped within a 30° arch (L15°/R15°) relative to the observing squad or tank. Consult Table 4.2 when acquiring a target and use a generic `Sight` attribute of 13.

Combat Time

The Final Combat skirmish system handles play in terms of combat time. Each action represents one second of real time. Much of the detail from the original book has been eliminated, such as ammunition consumption and weapons malfunction. All combat is considered to take place simultaneously. It is not necessary to make an initiative roll as in the original book to determine the issue of "who fires first." The following chart is simply a guide for you to create your own action costs.

Table 4.1—Action Costs

Action	Combat Time
Movement	One action for each *yards per second* move
Squad drops prone	One action
Squad goes from prone to kneeling	One action
Squad goes from crouching to stand	One action
Embarking into a troop carrier	One action per man
Disembark from a troop carrier	One action per two men
Squad Establishes a Fire Zone	One action
Squad/crew attempts to acquire target	One action (number of rolls is based on TQ)
Grenadier changes weapons	Two actions
Grenadier reloads weapon	Three actions for rifle grenade; Five actions for rocket if crew served; Ten actions if operated only by the gunner

NOTE: in Final Combat, a roll of 20 indicates a possible weapon malfunction. That feature has been eliminated for squad combat. However, individual anti-tank weapons such as the bazooka, rifle grenade and panzerfaust will still use the malfunction rule.

Table 4.2—Target Acquisition

The Observing Unit is	The Target Unit is	The Distance is
Running -5	Running/entering fire zone +3	7.5cm +1
Evading -7	Evading +4	15cm 0
Marching double time -4	Marching double time +2	30cm -1
Within HQ radius (+)	Within HQ radius (-)	45cm -2
Stalking -1	Stalking -1	60cm -3
Walking -3	Walking +1	75cm -4
Creeping -2	Creeping -3	90cm -5
Crawling -3	Kneeling/crouching/crawling -2	105cm -6
Going prone -6	Prone -4	120cm -7
Looking through smoke -10	Obscured by smoke -10	135cm -8
In the act of kneeling -3	75% concealed -8	150cm -9
Partly cloudy -2	50% concealed -6	165cm -10
¼ moon +1	25% concealed -4	180cm -11
½ moon +2	Firing small arms +6	195cm -12
¾ moon +3	Firing main gun +10	210cm -13
Full moon +4	Obscured per intervening cover -2	225cm -14
Firing at another target -2	Already spotted by nearby unit +3	240cm -15
Light fog -3	Small AT gun/vehicle +2	255cm -16
Medium fog -6	Medium AT gun/vehicle +3	270cm -17
Heavy fog -12	Large AT gun/armored car +4	285cm -18
Dusk/dawn -3	Light tank +6	300cm -19
Using binoculars/scope/periscope +4	Medium tank +8	315cm -20
Looking at night -12	Large tank +10	330cm -21
Spotting outside an established fire zone -6	Moving slower than 15 mph +1	345cm -22
Assisted by flare/star-shell +6	Moving between 15-25 mph +3	360cm -23
In a moving vehicle -4	Moving between 26-35 mph +5	375cm -24
German gunnery optics +6	Moving between 36-45 mph +7	390cm -25
Allied gunnery optics +5	Moving faster than 45 mph +9	405cm -26
Buttoned down -8	Camouflaged -5	420cm -27
Under fire by enemy tank -2	Building +20	435cm -28

Kim Hyun

Section 5. Conducting Combat Operations

Section one introduced the concept of FPF (fire power factor). In this section, you will begin to understand how this works on the micro armor battlefield. Once a target has been acquired, it may be fired upon. For purposes of this example, we will deal with an infantry squad. A squad may only fire on one target per action. It may not combine its FPF with another squad.

A veteran German squad (Table 1.1) observes a regular U.S. squad from 125-yards (see Table 1.2). From long range, the German squad has a Fire Power Factor (FPF) of 8 +1 for the bolt action rifle bonus. The German squad is lying in wait and they enjoy prepared positions with rested weapons (+1). The U.S. squad is dashing towards (-1) the German position. The `Leadership` modifier of both HQ units is 3, but they must meet the specifications of `Leadership` radius and line of sight. The Germans enjoy a +2 advantage in troop quality. The German squad decides to take a snap shot (-4) for fear the U.S. squad will move behind cover. The German squad needs a 7 on a D20 to score a hit.

Table 5.1—Micro Melee Infantry Combat Modifiers

Attacking Squad Modifiers	Target Squad Modifiers
TQ (+)	TQ (-)
Leadership Modifier of HQ (+)	Leadership Modifier of HQ (-)
Prone with Rested Weapons +1	25% Protective Cover -1
Consecutive Fire +1	50% Protective Cover -2
Tri-pod/pintle/coaxial/bow mounted Medium/Heavy MG +4	75% Protective Cover -3
Using Bolt Action Rifles from long to extreme range +1*	Squad is Standing 0 (do not use posture in conjunction with protective cover)
Receiving Fire from Opposing Force -4	Squad is Kneeling -2 (do not use posture in conjunction with protective cover)
Snap Shot -4	Squad is Crouching -1
Dawn/Dusk -1	Squad is Prone -3 (do not use posture in conjunction with protective cover)
Shooting While Crawling -6	Squad is Walking -1
Walking/Stalking -1	Squad is Dashing Towards Attacker -1
Shooting Through Smoke -4	Squad is Dashing Across LOS -3
Shooting at Night -4	Squad is Evading -5
Shooting While Running -4	Squad is Creeping -2
Shooting in Foggy/Rain/Snow Conditions -2	Squad is Stalking -1
Shooting While Moving Double Time -3	Per Intervening Obstacle -1
FPF (+)	Small Opening/Window/Embrasure -4

*Bolt action rifles are more accurate and receive a bonus. This compensates for reduced fire power.

Mounted Machine Guns

Medium to heavy machine guns double their FPF when mounted on/in a tripod, pintle, coaxial or bow. For example, an MG42 with a FPF of 5 will increase to 10 when mounted on a tripod. When combined with the tripod modifier from Table 5.1, such a weapon will attack with a FPF of 14. Heavy infantry support units that include these weapons move at half the normal speed as they are considered to be encumbered.

Casualties

In the event a squad is hit, roll a die commensurate with the original number of men in that squad and apply the Terrain Protection Modifier from Table 5.2 below to determine casualties (D10 for a 10-man squad and D12 for a 12-man squad). When a squad suffers casualties, it will be necessary to recalculate the fire power factor. However, it is assumed that the most valuable weapons such as the BAR and MG42 will be re-crewed by the remaining combat worthy soldiers. Therefore, when a squad incurs casualties, it is suggested that you first eliminate the rifles, then submachine guns and finally the light machine gun. A U.S. squad (12-men) in the open was just attacked by an enemy unit. A D12 roll indicates that four men are now casualties. The U.S. rifle squad is comprised of 1 Thompson submachine gun (FPF 2), 1 BAR (FPF 2) and 10 M1 Garand rifles (FPF 10). Even if the BAR gunner was killed; one of the other riflemen would pick up his weapon. So, the FPF would be recalculated by subtracting four M1 Garand rifles (FPF 4) from the former total of 14. That squad would continue with a fire power factor of 10.

Author's Tip. If an anti-tank crew sustains casualties, its efficiency with respect to loading and moving the weapon will diminish. Use the following guideline. If a veteran PaK40 crew of four loses one man, that's 25% of its man-power. The load time of 5-seconds should be increased by 25% as a result of the casualty. Round all numbers to the nearest tenth. A second casualty will result in a load time increase of 50%, and so forth.

Terrain Protection Modifiers

When a squad is hit by small arms or high explosive fire, the surrounding terrain may absorb some or all of the damage. Table 5.2 provides modifiers that may reduce the number of casualties a squad will sustain following a hit. Cross reference the applicable terrain with the appropriate attack ordnance and subtract that number from the die roll. This will yield a final casualty number.

Table 5.2—Terrain

Terrain	Small Arms	12.7mm HMG	2.0cm Cannon	RPG	50-75mm	80-90mm	95-132mm	150-155mm	8"-10"
Open	0	0	0	0	0	0	0	0	0
Hedgerow	4	3	2	3	2	1	0	0	0
Trees	5	4	3	3	2	1	0	0	0
Rocks	6	5	4	4	3	2	1	0	0
Foxhole/Trench	7	6	6	6	6	5	4	3	2
Wood/Sandbag Bunker	8	3	2	0	7	6	5	4	3
Wooden Building	8	3	2	0	5	4	3	2	1
Concrete Pillbox	9	8	7	0	9	8	7	6	5
Brick Buildings	9	7	6	0	9	8	7	6	5

Morale

Morale is a squad's ability to function under combat conditions. Each squad is assigned a *Morale Rating* (MR) with an equivalent number of *Morale Points* based upon its troop quality (see Table 5.3). When a squad is hit (with or without casualties), roll a D20 at or below the *MR*. If successful, the squad will suffer no adverse effect. However, for each number by which the roll exceeds the rating, an equal number of morale points will be deducted until they are completely exhausted. At that point, the squad is considered to have broken or routed and is removed from play. For example, a veteran squad has a morale rating of 14. If it is hit by enemy fire, it must make a morale check by rolling a D20 at or below 14. If successful, it continues without any loss of morale points. However, a roll of 19 will result in a loss of 5 morale points. The squad will continue with 9 morale points until such time as they are depleted. Then it will be removed.

NOTE: The morale rating is never reduced and will remain the basis for all MR checks.

Table 5.3—Morale Rating/Points

Troop Quality	Morale Rating/Points
Conscript	10
Green	11
Regular	12
Professional	13
Veteran	14
Crack	15
Elite	16

Armored Combat

The rules necessary to conduct micro armor combat are contained within the books Final Combat and The Expansion. Without those volumes, the information in this document is meaningless.

When an armored battalion is created, it will be necessary to assign a troop quality to each platoon (4 to 5 tanks) within that battalion. There are seven different troop qualities used to influence unit effectiveness. The lowest level and consequently the least effective is conscript. These are troops who have been forced into service with little or no training. They will not act without a "CO" chit from the Head Quarters and have a rating of (0). The next step is Green. They receive a rating of (1) and are trained to a basic level. U.S. replacement troops would be considered Green. Once a platoon gains a little combat experience, it will rise to Regular status (2). U.S. paratroopers who jumped on D-day were considered to be highly trained. Although they did not have combat experience, they would be rated Professional (3). The Veteran formation is rated (4). They are very combat effective and can be counted upon to "get the job done." A crack platoon (5) is exceptional. There were some Panzer, Ranger and Airborne formations that would be considered crack. Elite (6) is the highest troop quality available. Certain commando units would be considered elite.

When a number is drawn from the cup, it will activate a platoon of equal or greater rating. For example, a panzer platoon of regular troop quality may act when a chit numbered 1 or 2 is drawn from the cup. If a 3 is drawn, any platoon of professional troop quality or higher may act. If a 4 is drawn, only veteran and above may act. When a platoon is activated by a chit, every individual tank in the platoon may move, acquire and shoot. The micro conversion considers that the crew acts simultaneously. The tank commander for each tank acts as the conduit for the entire crew. If the TC is buttoned up, spotting must take place with that modifier. If the TC spots an enemy target, it is sufficient for the entire crew. Once the tank fires, the reload time is based upon the platoon's troop quality. Each time a chit is drawn that activates the platoon, the individual tanks may continue to reload until such time as they are "ready to fire" once again.

Armored Close Assault

Infantry may close assault an armored fighting vehicle. This is a risky endeavor and the squad must first pass morale before an attempt. All armored fighting vehicles possess

defensive capabilities in the form of bow and coaxial machine guns. Furthermore, the crew can fire from gun ports and lob grenades through open hatches. To replicate these countermeasures, combine the FPF of the tank's machine guns (see Table A) and the TQ modifier of the crew. Subtract the sum from the FPF of the squad at point blank range. The attacker must roll the difference or less on a D20. If a hit is scored, roll a D6 and consult Table 5.4. If the squad misses, determine the extent of the miss and consult Table 5.5.

Table—5.4 Close Assault *"Hit"*

Die Roll	Results
1	There is explosive damage and the vehicle is destroyed.
2	The engine is on fire. The crew surrenders.
3	The crew is disabled, but the vehicle can be recovered.
4	The vehicle is immobilized. The crew must check morale.
5	The crew is incapacitated for one D12 seconds (minus resistance)
6	The suspension is damaged. Reduce speed by ½.

Table—5.5 Close Assault *"Miss"*

Miss by	Results
1-4	Two casualties; 25% chance the squad will break off the attack and seek cover.
5-8	Four casualties; 50% chance the squad will break off the attack and seek cover.
9-12	Six casualties; 75% chance the squad will break off the attack and seek cover.
13-16	Eight casualties; the squad must break off the attack and retreat.
17-20	Ten casualties; the surviving squad members surrender.

Table 5.6—Weapon Ranges for AFV (converted to centimeters)

Weapons	Point Blank	Short	Medium	Long	Extreme
12.7-28mm	32.7cm	81.8cm	163.5cm	327.0cm	654.0cm
37-45mm	40.9cm	114.5cm	196.2cm	392.4cm	719.4cm
50-57mm	49.1cm	130.8cm	228.9cm	457.8cm	784.8cm
75-77mm	57.2cm	147.2cm	261.6cm	174.4cm	850.2cm
85-95mm	65.4cm	163.5cm	294.3cm	588.6cm	915.6cm
100-155mm	73.6cm	179.9cm	327.0cm	654.0cm	981.0cm

Artillery

The Final Combat series goes into great depth regarding artillery and high explosives. However, much of that detail has to do with consequences for infantry such as kill zone, casualty zone and concussion. Although the high explosives tables work the same, in *Micro Melee*, those details have been omitted. Obviously the blast radius must be converted to 6mm scale. Once again, simply multiply the blast radius given in yards by three to determine the conversion in millimeters. For example, a 105mm projectile has a blast radius of 22.5 yards. That's 67.5 millimeters or 6.8cm.

When any portion of an infantry unit's base is within the blast radius of a high explosive projectile, roll a die that is commensurate with the original number of figures on that base to determine potential casualties. See Table 5.2 for terrain protection.

A structure will offer progressive cover until it is completely destroyed. When a building takes damage, reduce the protection number on table 5.2 proportionally. Round all numbers to the nearest tenth. For example, a 10-man infantry squad hides in a brick building worth 1,000 points. It is hit by a 10.5cm projectile which causes 450 points of damage. The attacker makes a D10 casualty roll of "6" and consults table 5.2. The table directs him to subtract 7 from the roll which yields zero casualties. Now the building has been reduced to 550 points or 55% of its original value. The protection number of "7" is now reduced to "4" for subsequent casualty rolls. If the building is hit again for another 450 points of damage, it will provide only 10% of its original protection value, and so forth.

If a tank is within the first half of the blast radius of a high explosive projectile, consult page 51 of *Final Combat* to determine if the vehicle is disabled.

Table 5.7—High Explosive Indirect Fire

Projectile Caliber	Blast Radius	Damage Index	Distance Dice
50mm/2" mortar	3.0cm	200	One D10
60mm mortar	3.8cm	250	One D12
3" mortar/75mm howitzer	4.5cm	300	One D20
80-82mm mortar	5.3cm	350	Two D12
85-90mm	6.0cm	400	Three D10
95-105mm howitzer/4.2" mortar	6.8cm	450	Three D12
120mm mortar/132mm rocket	7.5cm	500	Two D20
150-155mm howitzer	8.3cm	550	Three D20
8" shell (destroyer)	9.0cm	600	Four D20
10" shell (battleship)	9.8cm	650	One D100

NOTE: this table is taken directly from Final Combat where the blast radius has been converted from yards to centimeters in 6mm scale. The Kill Zone has been eliminated as that will not be tracked on this level.

Appendix A. Squads & Fire Power Factors

In this appendix you will find assorted weapons tables, sample squads and fire power factors based on compositional weaponry. This is intended as a guide for you to create your own formations.

Table A—Common Gun Conversions

Weapons	RoF	FPF	Point Blank	Short	Medium	Long	Extreme
AT device/Satchel Charge*	1	4	4	0	0	0	0
MP40 SMG	8	2	2	1	0	0	0
MG42	25	5	5	5	5	5	5
Gewehr 43	1-2	1	1	1	1	1	1
Kar98K	½	.5	.5	.5	.5	.5(+1)	.5(+1)
Stg44	1-8	2	2	1	1	1	1
Thompson SMG	1-12	2	2	1	0	0	0
BAR	10	2	2	2	2	2	2
M1 Garand	1-2	1	1	1	1	1	1
Springfield 1903	½	.5	.5	.5	.5	.5(+1)	.5(+1)
M1 Carbine	1-2	1	1	1	1	0	0
Pistol	1	1	1	1	0	0	0
Semi-Auto Hand Gun	1-2	1	1	1	0	0	0
Sten SMG	9	2	2	1	0	0	0
Bren Gun	8	2	2	2	2	2	2
Enfield Rifle	½	.5	.5	.5	.5	.5(+1)	.5(+1)
PPSh-41 SMG	1-15	3	3	1.5	0	0	0
DP LMG	11	2	2	2	2	2	2
Mosin Nagant	½	.5	.5	.5	.5	.5(+1)	.5(+1)
M2 12.7 HMG	9	2	2	2	2	2	2
DShK HMG	9	2	2	2	2	2	2
M1919 A4 MMG	7	2	2	2	2	2	2
FG42 LMG	1-13	3	3	3	3	3	3
MG34	1-13	3	3	3	3	3	3
Man Pack Flame-thrower	1	30	30	15	0	0	0

*This should be added to the FPF of a squad that is executing a "close assault" against a tank or Pill Box.

NOTE: The individual detail of these weapons such as accuracy, recoil, reliability and magazine capacity has been omitted because of the scale.

Sample U.S. Squad

The standard American squad during WWII was comprised of 12 men. The backbone of the infantry squad was the Sergeant and his Corporal. They were usually equipped with a Thompson submachine gun or M1 Grease Gun. It was not uncommon to fine an M1 Carbine on the front line. For purposes of our example, they are carrying a Thompson and a carbine respectively. The Grenadier has a Springfield 1903 with a grenade launcher. The squad light machine gun is the Browning automatic rifle or BAR. Its small 20-magazine proved to be inadequate in a sustained fire role. The remainder of the squad is carrying the M1 Garand rifle.

1 M1 Thompson SMG= FPF 2
1 M1 Carbine= FPF 1
1 BAR= FPF 2
1 Springfield= FPF .5
8 M1 Garand= 8
Total FPF= 13.5
Because the Springfield can only fire every other turn, the squad will alternate between a FPF of 13 and 14. One action it will produce a FPF of 14 and the next action it will drop to 13 while the Springfield re-chambers the next round. In this example, the Springfield is shooting. The final *To Hit* number will include a +1 accuracy bonus for the bolt action rifle at both long and extreme range.

RANGE	FPF
Point Blank	17*
Short	14*
Medium	12
Long	11
Extreme	10

*Includes grenades (+2 at point blank; +1 at short). An additional +1 is added for the submachine gun.

German Late War Squad of 10 men would combine for a FPF of 16
MP40=2 (reduce by ½ at short range)
Stg 44=2 (reduce by ½ at short range)
MG42=5
7 Gw43=7

German Squad FPF Ranges	
Point Blank	19*
Short	15*
Medium	13
Long	12
Extreme	11

*Includes grenades

British Squad of 10 men would combine for a FPF of 8
Sten SMG=2
BREN gun=2
8 Enfield Rifles=4

British Squad FPF Ranges	
Point Blank	11*
Short	8*
Medium	6
Long	5
Extreme	4

*Includes grenades

Russian Squad of 10 men would combine for a FPF of 9
PPSh-41 SMG=3
DP LMG=2
8 Moisin Nagant Rifles=4

Soviet Squad FPF Ranges	
Point Blank	12*
Short	9*
Medium	7
Long	6
Extreme	5

*Includes grenades

Russian Assault Squad Equipped with PPSh-41 submachine guns
10 PPSh-41 SMG= (FPF 30)

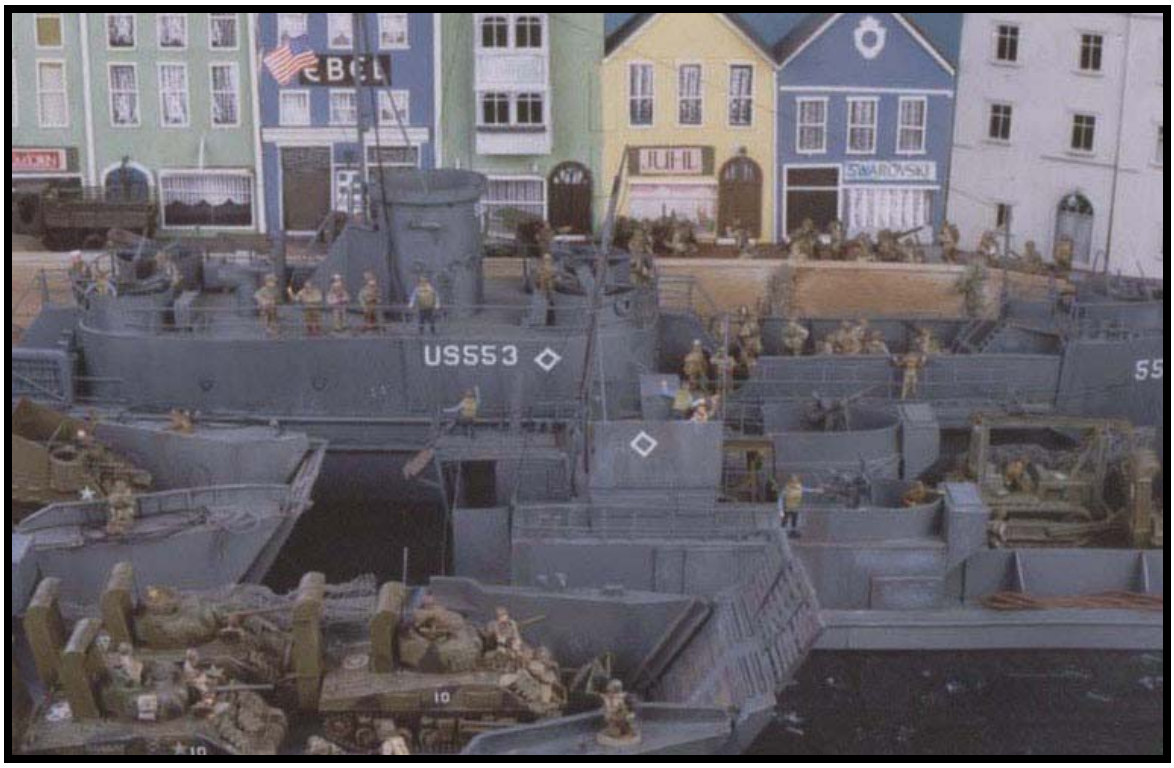
Soviet Squad FPF Ranges	
Point Blank	33*
Short	16*
Medium	0
Long	0
Extreme	0

*Includes grenades

Sniper Team Equipped with a bolt action rifle w/scope & submachine gun for a FPF of 3

Sniper Team FPF Ranges	
Point Blank	6*
Short	3*
Medium	1
Long	1
Extreme	1

*Includes grenades; the scope maintains the fire power at all ranges. A bonus of +1 is factored at long and extreme range. The rifle fires once every other action.



Guy De Lillio

Appendix B. Table of Organization & Equipment

The following is an excerpt from the web site Bayonet Strength. It portrays a sample *Table of Organization & Equipment* in an armored Panzer Grenadier battalion. (http://www.bayonetstrength.150m.com/German/armoured_panzer_grenadier_batt.htm)

The Armored Panzer Grenadier Battalion

The Gepanzert or Armored Panzer Grenadier Battalion represented the most powerful maneuver unit of the German Army during World War Two. It made a relatively late appearance, not becoming formalized until 1942. Prior to that, it was common for only the first Company of the first Motorized Panzer Grenadier Battalion in the Panzer Division to be mounted in halftracks.

The Panzer Grenadier Battalion, circa 1942

Battalion Headquarters (5 Officers, 17 men)
Communications Platoon (23 men)
Battalion Train and Maintenance (6 Officers, 59 men)
Heavy Company (5 Officers, 197 men)
Company HQ (1 Officer, 14 men)
Antitank Platoon (1 Officer, 36 men)
Two Infantry Gun Platoons, each (1 Officer, 28 men)
Pioneer Platoon (1 Officer, 52 men)
Antitank Rifle Group (21 men)
Company Train and Maintenance (18 men)
Three Rifle Companies (3 Officers, 214 men), each comprised of;
Company HQ (1 Officer, 13 men)
Company Train and Maintenance (23 men)
Heavy Platoon comprised of;
Platoon HQ (1 Officer, 12 men)
Mortar Group (16 men)
Two Heavy Machine Gun Groups, each (11 men)
Three Rifle Platoons each comprised of;
Platoon HQ (1 Officer or NCO, 6 men)
Three Rifle Squads, each comprised of 12 men
Total Strength of 963 all ranks (25 Officers and 938 men)
The Panzer Grenadier Battalion, circa 1943
Battalion Headquarters (5 Officers, 16 men)
Communications Platoon (24 men)
Battalion Train and Maintenance (5 Officers, 60 men)
Heavy Company (5 Officers, 199 men)
Company HQ (1 Officer, 15 men)
Antitank Platoon (1 Officer, 36 men)
Infantry Gun Platoon (1 Officer, 24 men)
Pioneer Platoon (1 Officer, 58 men)
Cannon Platoon (1 Officer, 37 men)
Company Train and Maintenance (29 men)
Three Rifle Companies (4 Officers, 223 men), each comprised of;
Company HQ (1 Officer, 13 men)
Company Train and Maintenance (25 men)
Heavy Platoon comprised of;
Platoon HQ (1 Officer, 12 men)
Mortar Group (16 men)

Cannon Group (8 men)
Two Heavy Machine Gun Groups, each (11 men)
Three Rifle Platoons each comprised of;
Platoon HQ (1 Officer or NCO, 6 men)
Three Rifle Squads, each comprised of 12 men
Total Strength of 995 all ranks (27 Officers and 968 men)

Points of note

It should be stressed that the overall personnel totals were liable to change from one Battalion to another, and should be regarded more as approximations rather than absolutes. The composition of the Heavy Company in particular was subject to variation dependent upon the equipment available.

The elements of the Battalion

Battalion Headquarters - comprised the command staff of the Battalion, provided with two halftracks, plus varying numbers of field cars and motorcycles.
Communications Platoon - fulfilled the same role as that in the Infantry of maintaining radio and line communications within the Battalion.

Antitank Platoon - by 1942 the glaring inadequacies of the 3.7 cm Pak were all too apparent. A successor existed in the far more capable 5 cm Pak 38, but German industry was excruciatingly slow at providing sufficient numbers to equip both the Panzer Divisions and the Infantry arm, who were particularly vulnerable to the Red Army's burgeoning tank force. The Panzer Grenadier Battalion was authorized three 5 cm Pak in its Antitank Platoon, though it would seem reasonable to assume that some 3.7 cm guns could still be found in use. Towing vehicles were three SdKfz 251 halftracks, plus one for ammunition and an SdKfz 250/1 at Platoon HQ.

During 1943, the decision was made to upgrade the antitank armament to the lethal 7.5 cm Pak 40, the equivalent of the British 17 pdr or American 3 inch weapons. The Pak 40 was intended to be the standard antitank gun of the Wehrmacht from around 1943 onwards, but there were simply too many Divisions to outfit. As a result, the previous 5cm weapons were as likely to be found, as well as the Pak 36/39(r). This was actually a 76mm Russian field gun, ample stocks of which had been captured in the opening months of Barbarossa. The Germans had re-chambered them to Pak 40 standard to fill the yawning gap in their defenses against the Red Army's T34 and KV tanks. These weapons were turned against their former owners in the East, and even made it as far out as North Africa. The Platoon was still authorized just three weapons, all its vehicles now SdKfz 251, with an additional machine carrying ammunition.

Infantry Gun Platoon - each Infantry Gun Platoon was authorized a pair of towed 7.5 cm infantry guns, with three SdKfz 251/4 halftracks acting as their tractors and ammunition carrier, plus an SdKfz 251 at HQ.

Cannon Platoon - in early 1943 the Heavy Company was reinforced by a Cannon Platoon. This fielded six self-propelled 7.5 cm guns, each mounted on an SdKfz 251/9

armored halftrack, plus an HQ vehicle and ammunition carrier. It seems an odd duplication of assets, but the two units were maintained in parallel for a period at least until the towed Platoon was deleted in 1944.

Pioneer Platoon - the early Pioneer Platoon contained four ten man Sections, each with a light machine gun and carried in its own SdKfz 251/5 armored engineer vehicle. Platoon HQ added an SdKfz 250 and several trucks for equipment. During 1943 this was amended to three Squads, each fifteen strong with two light machine guns and carried in two SdKfz 251/7 armored halftracks. Platoon HQ had graduated to an SdKfz 251/10 with 3.7 cm gun and there was an extra truck for flamethrower gear.

Heavy Antitank Rifle Platoon - the German Army was constantly seeking new means to stem the flood of Russian armor which threatened to engulf their forces in the East. Among the variety of close assault methods and antitank rifle grenades appeared something of an oddity in the shape of the 2.8 cm sPzB 41. This strange little weapon was towed on a two wheeled carriage, and looked not unlike a minimized version of the Pak 38. It used an unusual 'tapered bore' effect which involved squeezing the projectile down a narrowing barrel (eventually just 2 cm) to impart greater kinetic energy, and thus armor penetration. In the Armored Battalion each gun was mounted on an SdKfz 250/11 light halftrack. Most Allied observers viewed the adoption of what was in essence another antitank rifle as something of a step back in German thinking. However, it provided a stopgap and like many such interim weapons was still in use at the end of the war.

The Rifle Company - the original twelve-man Rifle Squad represented the most powerful unit of its size deployed by the German Army during the war.
It comprised a leader and assistant, armed with a machine pistol and rifle respectively. They commanded two gun teams, each with a gunner and loader, and four riflemen. The two gunners each carried a light machine gun and pistol, their two assistants both pistols, the remaining four men each a rifle. A driver and assistant were responsible for the vehicle, each armed with a rifle. The SdKfz 251/1 armored halftrack mounted its own light machine gun behind a splinter shield. It was the responsibility of the assistant driver to man this weapon, and a 'spare' machine pistol was carried in the vehicle. One of the two dismounted MG34s could be placed on a rear mounting enabling it to be used in the anti-aircraft role where required. The concentration of light machine guns was enormous for such a small unit. In action, the driver and assistant would remain with the vehicle, the latter providing cover fire from the vehicle machine gun. The dismounted troops could split into two teams, each with a leader, two riflemen and a two man gun team. This negated the weakness of riflemen covering a moving MG team with clunky bolt action weapons.

Three such Squads operated under a Platoon Headquarters comprised of a Platoon commander, NCO, two messengers, driver, medic and motorcycle orderly. The first and second Platoons were commanded Officers, the third by a senior NCO. The commander carried a machine pistol, the NCO and medic a pistol, the others all rifles, and there was also an on board machine pistol. The Platoon HQ vehicle also provided some useful fire

support. Early on, an antitank rifle was carried, one of the messengers doubling as operator.

During 1941, the SdKfz 251/10 halftrack, which mounted its own 3.7 cm Pak in place of a light machine gun, became the Platoon HQ vehicle. As a means of tank defense it was mostly outdated, but it offered a handy means of projecting fire in support of the Squads. It remained in use into 1943, when a light machine gun was also added. There is no mention of the 5cm mortars from 1942 onwards, but during this period each Rifle Squad was issued a grenade launcher for one of its bolt action rifles.

The most powerful element of the Rifle Company was its Heavy Platoon, with a Mortar Group and two Machine Gun Groups in 1942. The Mortar Group was authorized a pair of 8cm mortars, each carried in their own SdKfz 251/2 armored halftrack, which were fired from the vehicle. The Machine Gun Groups each deployed two MG34's on sustained fire tripods for a total of four in the Company, each Group carried by an SdKfz 251/1.

During 1943 this firepower was augmented by a Cannon Group with two 7.5 cm infantry guns mounted in their own SdKfz 251/9 halftracks. Company HQ was equipped with two SdKfz 251/3 command halftracks, and as well as providing the usual command functions administered the Company Train and maintenance detachment.

The Panzer Grenadier Battalion, circa late 1943

Battalion Headquarters (6 Officers, 20 men)
Communications Platoon (1 Officer, 22 men)
Battalion Train and Maintenance (4 Officers, 77 men)
Heavy Company (4 Officers, 133 men)
Company HQ (1 Officer, 16 men)
Antitank Platoon (1 Officer, 31 men)
Infantry Gun Platoon (1 Officer, 24 men)
Cannon Platoon (1 Officer, 34 men)
Company Train and Maintenance (28 men)
Three Rifle Companies (3 Officers, 217 men), each comprised of;
Company HQ (1 Officer, 27 men)
Company Train and Maintenance (25 men)
Heavy Platoon comprised of;
Platoon HQ (1 Officer, 10 men)
Mortar Group (15 men)
Cannon Group (8 men)
Two Heavy Machine Gun Groups, each (11 men)
Three Rifle Platoons each comprised of;
Platoon HQ (1 Officer or NCO, 6 men)
Three Rifle Squads, each comprised of 10 men
Total Strength of 927 all ranks (24 Officers and 903 men)

The Panzer Grenadier Battalion, circa 1944

Battalion Headquarters (4 Officers, 16 men)
Communications Platoon (1 Officer, 22 men)
Supply Company (7 Officers, 156 men)
Company HQ (2 Officers, 11 men)
Medical Detachment (1 Officer, 4 men)
Maintenance Detachment (3 Officers, 79 men)
Fuel Detachment (12 men)
Munitions Detachment (14 men)
Supply Detachment (1 Officer, 36 men)
Heavy Company (3 Officers, 94 men)
Company HQ (1 Officer, 18 men)
Cannon Platoon (1 Officer, 31 men)
12 cm Mortar Platoon (1 Officer, 45 men)
Three Rifle Companies (3 Officers, 180 men), each comprised of;
Company HQ (1 Officer, 17 men)
Heavy Platoon comprised of;
Platoon HQ (1 Officer, 8 men)
Mortar Group (15 men)
Cannon Group (8 men)
Two Heavy Machine Gun Groups, each (11 men)
Three Rifle Platoons each comprised of;
Platoon HQ (1 Officer or NCO, 6 men)
Three Rifle Squads, each comprised of 10 men
Total Strength of 852 all ranks (24 Officers and 828 men)

Points of note

1943 and 1944 saw numerous changes. The Pioneer Platoon was removed to serve in its own Company at Regimental level, the Antitank Platoon was deleted and the Rifle Platoons were reduced in size. The Supply Company was established by 1944, and replaced the individual Company Train units found previously. Despite the attempted rationalization it was still a sizeable body of men and vehicles, being authorized over fifty cars, trucks and prime movers, a notable concentration given the German Army's transportation problems.

The elements of the Battalion

Antitank Platoon - the only change to the Antitank Platoon was the attempt to upgrade the three towing halftracks to SdKfz 251/17 standard, mounting a 2 cm anti-aircraft gun, though probably few were so converted. It was a short lived move in any case, as the 1944 reorganization of the Panzer arm was intended to remove towed antitank guns from the Panzer Grenadiers; however several Divisions still retained their weapons for the fighting in Normandy. No doubt the situation on the Eastern Front was similar; as I imagine commanders would be loathe to part with such an important part of their arsenal.
12 cm Mortar Platoon - as with the Infantry, the Panzer Grenadiers were authorized four 12 cm mortars. Each was to be towed by an SdKfz 251/1, as unlike the 8 cm mortar the weapon could not be fired from the vehicle. Again, the Platoon included a command

halftrack and an ammunition carrier. As mentioned on The German Infantry and Grenadier Battalion page, the actual provision of 12cm tubes leaves some room for debate, and towed 7.5 cm guns may well have filled in for them in some units.

The Rifle Company - by 1943 there had been a number of changes to both the Rifle Squads and Platoon HQ. Each Rifle Squad had been reduced to ten men, losing two riflemen. The leader still carried a machine pistol and his assistant a rifle. The two light machine gunners each carried an MG34 or MG42 and pistol, their two assistants and the two riflemen all rifles. The Squad halftrack still had a two man crew, driver and assistant, the latter of which now carried a pistol. Oddly, the driver had lost his rifle, but the halftrack still mounted a machine pistol along with the light machine gun. From late 1943 each Squad also carried its own 8.8 cm Panzerschreck antitank launcher. This would have made for a dreadful concentration of the fearsome tank killer, but confusingly the issue seems to have been cancelled the following year, the only further official amendment to the Squad.

The changes to Platoon HQ were also notable. The motorcycle messenger was gone, replaced by a dedicated gunner for the halftrack's armament, which itself had changed in theory at least. The SdKfz 251/17 armored halftrack appears throughout official German organization tables for the Panzer arm from 1943 onwards in great numbers. The vehicle mounted its own 2 cm Flak gun and was intended to serve as the standard Platoon HQ vehicle for armored units. However, the rate of issue never approached the numbers required to carry this out. As a result, Platoon HQ could be carried in a standard SdKfz 251/1 with a light machine gun, or even the vintage SdKfz 251/10 which still soldiered on in the role. Other changes were the absence of a rifle for the driver, and finally, in mid 1944 a rifle armed loader was added for the amorphous 2 cm Flak.

The 1943 tables indicate the Platoon NCO was issued a telescopic sight for his rifle, and each assistant Squad Leader a G41. However, the July 1944 table reverses this allocation, which could simply be a typographical error, and given the frailties of the German supply system by this point was no doubt of little real consequence.
Changes were also made to the Heavy Platoon. Towards the end of 1943 the Machine Gun Group vehicles along, with the Platoon HQ machine, were again supposedly SdKfz 251/17 models, for a total of six in the Company. Mid 1944 the havoc being wrought by allied fighter pilots on German transportation prompted a reorganization of the Heavy Platoon. As mentioned above, the Rifle Platoon HQs were each authorized an extra man to act as loader for the 2 cm Flak, where present. In the Heavy Platoon, HQ reverted to a standard SdKfz 251/1, while the three SdKfz 251/17 were designated a joint Flak and Heavy Machine Gun Group. Each vehicle dismounted a single machine gun team and had a dedicated crew for the Flak gun. In the previous organization, there was no clear division between crews for the machine guns or the 2 cm. This Company is detailed on the Panzer Grenadier Company page of the Example TOE section.

Company HQ - it retained its two command vehicles and administered the Company Train until its disbandment. By July 1944 it was also authorized its own SdKfz 251/17 for anti-aircraft defense. During 1943 it also contained an antitank detachment of four

two man teams, each serving an 8.8 cm Panzerschreck. They were carried in a halftrack, along with driver and assistant, the vehicle yet again intended to be an SdKfz 251/17. This unit vanished, seemingly along with the rest of the launchers, the following year. By July 1944, the various amendments to the Company Flak elements had increased authorized strength to 3 Officers and 187 men, 190 all ranks.

Summary

The Armored Panzer Grenadier Battalions evolved into particularly formidable formations. As the war progressed however, they were sucked into the same attritional battles as the Panzers they were designed to protect. More importantly, as the Luftwaffe surrendered control of the skies they were constantly harried by Allied fighters and bombers, constricting their mobility and debilitating them through lack of fuel and vehicles. They were increasingly used to compensate for the dwindling numbers of Panzers available, a task for which they were neither equipped nor suited.

Casualty Tracking Sheet

1st Squad: FPF_____
□□□□□□□□□□□□□
2nd Squad: FPF_____
□□□□□□□□□□□□□
3rd Squad: FPF_____
□□□□□□□□□□□□□

1st Squad: FPF_____
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2nd Squad: FPF_____
□□□□□□□□□□□□□
3rd Squad: FPF_____
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1st Squad: FPF_____
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2nd Squad: FPF_____
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3rd Squad: FPF_____
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4th Squad: FPF_____
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5th Squad: FPF_____
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6th Squad: FPF_____
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4th Squad: FPF_____
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5th Squad: FPF_____
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6th Squad: FPF_____
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4th Squad: FPF_____
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5th Squad: FPF_____
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6th Squad: FPF_____
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7th Squad: FPF_____
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8th Squad: FPF_____
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9th Squad: FPF_____
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7th Squad: FPF_____
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8th Squad: FPF_____
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9th Squad: FPF_____
□□□□□□□□□□□□□

7th Squad: FPF_____
□□□□□□□□□□□□□
8th Squad: FPF_____
□□□□□□□□□□□□□
9th Squad: FPF_____
□□□□□□□□□□□□□

1st Platoon HQ: FPF____
□□□□□□□□□□□□□

2nd Platoon HQ: FPF____
□□□□□□□□□□□□□

3rd Platoon HQ: FPF____
□□□□□□□□□□□□□

Company HQ: FPF_____
□□□□□□□□□□□□□

_______Platoon/Company/Battalion HQ

Casualty Tracker

12	11	10	9	8	7	6	5	4	3	2	1

Morale Points

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

_______Squad

Casualty Tracker

12	11	10	9	8	7	6	5	4	3	2	1

Morale Points

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

_______Squad

Casualty Tracker

12	11	10	9	8	7	6	5	4	3	2	1

Morale Points

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

_______Squad

Casualty Tracker

12	11	10	9	8	7	6	5	4	3	2	1

Morale Points

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

NOTE: Track Platoon/squad casualties and morale points from left to right. Each time a soldier is killed or wounded, cross off a box. As a squad loses morale points, cross off the appropriate number of boxes until there are no more. When the squad or unit loses all of its men or morale points (whichever comes first), it is removed from play.