

Grand Campaign Unit Revisions

Modified Equipment and Rules for the Panzer Corps Grand Campaigns
v1.11.1

By deducter

Table of Contents

Preface.....	20
Installation	21
Glossary of Terms	22
The Scale of Units	23
The Primary Unit Design Principles	24
Chapter I: Game Rules Changes	25
1. The Effect of Experience on Attack and Defense	25
2. Out-of-Family Upgrade Experience Penalty	25
3. Reinforcement Model Adjusted.....	25
4. Yearly Unit Changes	27
5. Softcore Option	27
6. “reform units” Option.....	27
Chapter II: Infantry	28
Global Changes	28
1. Mountaineers	28
2. Combat Engineers.....	28
3. Cavalry.....	28
4. 1943 Infantry Upgrades	28
5. 1943 Infantry Defense Values	28
6. 1943 Infantry Attack Values.....	28
7. Effect of Experience on Infantry	28
German Infantry 1939-1942.....	29
1. Table of German Infantry 1939-1942.....	29

2. German Infantry Costs.....	29
3. Grenadiers.....	29
4. Fallschirmjäger	29
5. Gebirgsjäger.....	29
6. Pioniere	30
7. Kavallerie.....	30
8. Kradschützen	30
Western Allies Infantry 1939-1942.....	31
1. Table of Western Allies Infantry 1939-1942.....	31
2. wz. 35 AT rifle.....	31
3. French Infantry	31
Soviet Infantry 1939-1942	32
1. Table of Soviet Infantry 1939-1942	32
2. Soviet Guards	32
3. SMG Infantry.....	32
German Infantry 1943-1945.....	33
1. Table of German Infantry 1943-1945.....	33
2. Grenadier 43	33
3. Fallschirmjäger 43	33
4. Pioniere 43	33
5. Volkssturm	33
Western Allies Infantry 1943-1945.....	35
1. Table of Western Allies Infantry 1943-1945.....	35
2. 1943 Allied Infantry	35
3. US Army Rangers.....	35

Soviet Infantry 1943-1945	36
1. Table of Soviet Infantry 1943-1945	36
2. 1943 Soviet Infantry Training	36
Chapter III: Motorization	37
1. Table of Transports.....	37
2. Transport Target Type	37
3. German Transports Costs	37
4. German Transports Unit Family.....	37
5. German Half-tracks	37
6. Transports for Towed Unit	37
Chapter IV: Tanks and Tank Destroyers	38
Global Changes	38
1. Mechanical Reliability.....	38
2. Schürzen	38
3. Heavy Tank Defense Reduction.....	38
4. Tank Gun Standardization	38
German Tanks and Tank Destroyers 1939-1941.....	39
1. Table of German Tanks 1939-1941.....	39
2. Table of German Tank Destroyers 1939-1941	39
3. Panzer II.....	39
3. P38(t)A	40
4. Panzer IIIF	40
5. Panzer IVD	40
6. Panzerjäger IB	40
7. Panzer II Flamm	40

8. 1939-1941 German AFV Summary	40
Western Allies Tanks 1939-1941	41
1. Table of Western Allies Tanks 1939-1941	41
2. 1940 British Medium Tanks	41
3. French Light Tanks.....	41
4. SOMUA S35.....	42
5. Char B1 bis	42
Soviet Tanks 1939-1941.....	42
1. Table of Soviet Tanks 1939-1941	42
2. Table of Soviet Tank Destroyers 1941	43
3. Soviet Light Tanks.....	43
4. T-34	43
5. KV-1	43
6. KV-2	43
7. SU-100Y	44
8. 1941 Soviet Tank Summary	44
Captured Equipment 1939-1941	44
1. Table of Captured Allied Equipment 1939-1941	44
2. Captured French Tanks.....	44
3. 1941 Captured Soviet Tanks Costs.....	44
4. Captured Soviet Tank Initiative.....	45
5. Captured KV-1	45
6. T-34/40(r)	45
German Tanks and Tank Destroyers 1942.....	45
1. Table of German Tanks 1942	45

2. Table of German Tank Destroyers 1942	46
3. 1942 German AFV Availability Date.....	46
4. Panzer IIIM.....	46
5. Panzer IIIN	46
6. Marder II.....	46
7. Marder III	46
8. StuG IIIF and StuG IIIF/8	46
9. StuH 42.....	47
10. 1942 German AFV summary	47
Soviet Tanks 1942.....	47
1. Table of Soviet Tanks 1942.....	47
2. T-34/43	47
3. KV-1C	47
4. T-34 Costs	48
5. 1942 Soviet Tank Initiative	48
6. Lend-Lease Tanks.....	48
7. 1942 Soviet AFV Summary	48
Captured Equipment 1942.....	49
1. Tables of Captured Allied Equipment 1942	49
2. Captured T-34 and KV-1 Costs	49
3. M4A2(r).....	49
4. Captured French Equipment.....	49
1943 German Tanks and Tank Destroyers.....	50
1. Table of German Tanks 1943	50
2. Table of German Tank Destroyers 1943	51

3. 1943 German AFV Cost Reduction.....	51
4. Panzer III	51
5. Panzer IVG	51
6. StuG IIIG	51
7. Panther	51
8. Tiger I	52
9. Ferdinand	52
10. Hornisse	52
11. 1943 German AFV Summary	53
1942-1943 Western Allies Tanks and Tank Destroyers.....	54
1. Table of Western Allies Tanks 1942-1943.....	54
2. Table of Western Allies Tank Destroyers 1943	54
3. Crusader Tanks	54
4. Valentine Tanks	55
5. M3A5 Grant.....	55
6. Churchill	55
7. M3 Lee.....	55
8. M4 Sherman	55
9. M10A1 Wolverine	55
10. M18 Hellcat	56
11. 1943 Western Allies Tanks Summary	56
1943 Soviet Tanks and Tank Destroyers.....	56
1. Table of Soviet Tanks 1943.....	56
2. Table of Soviet Tank Destroyers 1943	57
3. Soviet Tank Initiative in 1943	57

4. The T-34 in 1943	57
5. SU-76M	57
6. SU-122	57
7. SU-152 and ISU-152	57
8. 1943 Soviet AFV Summary	57
Captured Allied Equipment 1943.....	58
1. Table of Captured Allied Equipment 1943.....	58
2. T-34(r) and KV-1(r).....	58
3. KV-85(r)	58
1944-1945 German Tanks and Tank Destroyers.....	59
1. Table of German Tanks 1944-1945.....	59
2. Table of German Tank Destroyers 1944-1945	59
3. 1944 German AFV Cost Reduction.....	59
4. Panzer III	60
5. Panzer IV	60
All Panzer IV models receive a bonus to ammo (+1).	60
6. Panther	60
7. Tiger I	60
8. Tiger II.....	60
9. StuG IV	61
10. Hetzer.....	61
11. JagdPanzer IV	61
12. Elefant.....	61
13. Nashorn.....	61
14. JagdPanther.....	62

15. JagdTiger	62
16. 1944-1945 German AFV Summary	62
1944-1945 Western Allies Tanks and Tank Destroyers.....	63
1. Table of Western Allies Tanks 1944-1945.....	63
2. Table of Western Allies Tank Destroyers 1944-1945	63
3. 75 mm gun	64
4. 76 mm gun	64
5. Cromwell Tank	64
6. Comet I (A34).....	64
7. Challenger (A30)	64
8. Sherman Firefly	64
9. M4A1(76)W	64
10. M4A3(76)W	64
11. M4A3E2	64
12. M4A3(105)	65
13. M26 Pershing.....	65
14. M36 Jackson	65
15. Achilles.....	65
16. Archer	65
1944-1945 Soviet Tanks and Tank Destroyers	65
1. Table of Soviet Tanks 1944-1945	65
2. Table of Soviet Tank Destroyers 1944-1945.....	66
3. T-34-85	66
4. IS-2	66
5. ISU-122	66

6. SU-100.....	66
7. 1944-1945 Soviet AFV Summary	67
Captured Allied Equipment 1944-1945	67
1. Table of Captured Allied Equipment 1944-1945	67
2. T-34/41(r)	67
3. KV-1(r)	67
4. M4A2(76)(r)	67
5. KV-85(r)	68
6. Sherman Firefly(e).....	68
Chapter V: SE Units.....	69
1. SE Infantry.....	69
2. SE Tanks.....	69
3. SE Unit Summary	69
Chapter VI: Recon	70
German Recon Units	70
1. Table of German Recon Units 1939-1942.....	70
2. Table of German Recon Units 1943-1945.....	70
3. German Recon Unit Target Type	70
4. Recon Unit Families	70
5. Panzer II.....	71
6. 1943 German Recon Units Defenses.....	71
Western Allies Recon Units	71
1. Western Allies Recon Unit Summary	71
2. Vickers Mk VI.....	71
3. M3 and M5 Stuart.....	71

Soviet Recon Units.....	72
1. Soviet Recon Unit Summary	72
2. BA-64	72
3. T-60 and T-70.....	72
Chapter VII: Artillery	73
Global Changes	73
1. Mobile Artillery Initiative	73
2. Artillery Cost Increase.....	73
German Artillery	74
1. Table of German Artillery	74
2. 7.5 cm FK 16 nA	74
4. 17 cm K 18	75
5. Nebelwerfer	75
6. Wurfrahmen 40.....	75
7. Panzerwerfer 42	75
8. StuG IIIA	75
9. StuG IIIB	75
10. StuH 42	75
11. Brummbär	76
12. StuG IV	76
13. Sturmpanzer I	76
14. Sturmpanzer II	76
15. Grille H.....	76
16. Wespe	76
17. Hummel	77

18. German Artillery Summary	77
Western Allies Artillery	78
1. Table of Western Allies Artillery	78
2. British Artillery Fire Control	78
3. QF 25-pdr	78
4. 155 mm M1	79
5. 155 mm M12 GMC	79
6. M4A3(105)	79
Soviet Artillery	79
1. Table of Soviet Artillery	79
2. 76.2 mm Howitzer	79
3. SU-76M	80
4. SU-122	80
5. BM-13 Katyusha	80
Chapter VIII: Anti-Aircraft Guns	81
Global Changes	81
1. Towed Anti-Aircraft Guns Close Defense	81
German Anti-Aircraft Guns	81
1. German Anti-Aircraft Gun Table	81
2. German Towed AA Gun Cost Reduction	81
3. German SPAAG Cost Increased	81
4. 2 cm Flakvierling 38	82
5. 3.7 cm FlaK 37/43	82
6. 8.8 cm FlaK 36 (AA mode)	82
7. 12.8 cm FlaK 40	82

8. German Half-track AA Guns	82
9. FlakPanzer	82
Soviet Anti-Aircraft Guns	83
1. Soviet Anti-Aircraft Gun Table	83
2. 85 mm M1939 (AA mode)	83
3. Soviet SPAAG	83
Western Allies Anti-Aircraft Guns	84
1. Western Allies Anti-Aircraft Gun Table	84
2. Bofors 40 mm	84
3. 3 inch AA gun.....	84
4. QF 3.7 inch	84
5. 90 mm M1A1.....	84
6. Western Allies SPAAG	85
Chapter IX: Towed Anti-Tank Guns	86
Global Changes	86
1. Towed Anti-Tank Guns Defenses	86
German Towed AT Guns	86
1. Table of German Anti-Tank Guns.....	86
2. German Towed AT Guns Cost Reduction.....	86
3. 3.7 cm Pak 36	86
4. 5 cm Pak 38	86
5. 7.5 cm Pak 40	86
6. 8.8 cm Pak 36	86
7. 8.8 cm Pak 43/41	87
Western Allies Towed AT Guns	87

1. Table of Western Allies Towed AT Guns	87
2. 25 mm SA 34	87
3. 47 mm SA 37	87
4. QF 2 pounder	87
5. QF 6 pounder	87
6. QF 17 pounder	88
7. 57 mm M1	88
8. 76 mm 3 Inch M5	88
Soviet Towed AT Guns	88
1. Table of Soviet Towed AT Guns	88
2. 85 mm M1939	88
3. 76.2 mm M1942	88
4. 100 mm M1944	88
Chapter X: Fighters	89
Global Changes	89
1. German Fighters Ammo Reduction	89
2. Fighters Ground Defense Increase	89
German Fighters 1939-1942	89
1. Table of German Fighters 1939-1942	89
2. Bf 109E	89
3. Bf 109F	89
4. Bf 109G	89
5. Fw 190A	90
Western Allies Fighters 1939-1942	90
1. Table of Western Allies Fighters 1939-1942	90

2. M.S.406	90
3. D.520	90
4. Hurricane	90
5. Spitfire Mk I	91
6. Spitfire Mk II	91
7. Spitfire Mk VB	91
8. Spitfire Mk IX	91
9. P-40E Kittyhawk	91
Soviet Fighters 1939-1942	91
1. Table of Soviet Fighters 1939-1942	91
2. Polikarpov I-16	91
3. MiG-3	92
4. LaGG-3	92
5. Lavochkin La-5	92
6. Yakovlev Yak-1	92
7. Yakovlev Yak-7	92
German Fighters 1943	92
1. Table of German Fighters 1943	92
Western Allies Fighters 1943	93
1. Table of Western Allies Fighters 1943	93
2. P-38G Lightning	93
3. P-40E Warhawk	93
4. P-51B Mustang	93
5. P-47 Thunderbolt	93
Soviet Fighters 1943	94

1. Table of Soviet Fighters 1943	94
2. Lavochkin La-5FN	94
3. Yakovlev Yak-1b.....	94
4. Yakovlev Yak-3.....	94
5. Yakovlev Yak-9D.....	94
German Fighters 1944-1945.....	95
1. Table of German Fighters 1944-1945	95
2. Bf 109K	95
3. Fw 190D-9.....	95
4. Me 163B	95
5. Me 262A	95
Western Allies Fighters 1944-1945.....	96
1. Table of Western Allies Fighters 1944-1945	96
2. Spitfire Mk XIV.....	96
3. Tempest Mk V	96
4. Meteor Mk III	96
5. P-38L Lightning	96
6. P-40N Warhawk	96
Soviet Fighters 1944-1945	97
1. Table of Soviet Fighters 1944-1945	97
2. Lavochkin La-7.....	97
3. Yakovlev Yak-9U.....	97
Chapter XI: Bombers	98
Global Changes	98
1. German Bomber Costs Increased	98

2. Strategic Bomber Ground Defense.....	98
3. Bomber Naval Attack	98
4. German Bomber Ammo Reduction.....	98
German Tactical Bombers 1939-1942	99
1. Table of German Tactical Bombers 1939-1942	99
2. Ju 87 1939-1942	99
3. Hs 129B-1	99
4. Bf 110	99
German Tactical Bombers 1943.....	100
1. Table of German Tactical Bombers 1943.....	100
2. Ju 87 1943.....	100
3. Hs 129B-2.....	100
4. Bf 110G	100
5. Me 410A	100
6. Fw 190F 1943	101
German Tactical Bombers 1944-1945	101
1. Table of German Tactical Bombers 1944-1945	101
2. Fw 190F 1944.....	101
3. Fw 190G	101
German Strategic Bombers	102
1. Table of German Strategic Bombers	102
2. Do 17Z.....	102
3. Ju 88A.....	102
4. He 111H.....	102
5. Do 217E.....	102

6. He 177A.....	102
7. Ju 188A.....	102
Western Allies Tactical Bombers.....	103
1. Table of Western Allies Tactical Bombers.....	103
2. Mosquito Mk VI.....	103
3. Typhoon Mk IB	103
4. Hurricane Mk IID	103
5. B-25 Mitchell.....	103
6. B-26 Marauder.....	103
7. A-26 Invader.....	103
Western Allies Strategic Bombers	104
1. Table of Western Allies Strategic Bombers	104
2. Lancaster Mk I.....	104
3. B-17	104
4. B-24 Liberator	104
5. B-29 SF.....	104
Soviet Tactical Bombers	105
1. Table of Soviet Tactical Bombers	105
2. Peltyakov Pe-2.....	105
3. Il-2 Shturmovik.....	105
4. Il-10	105
Soviet Strategic Bombers	106
1. Table of Soviet Strategic Bombers.....	106
2. Illyushin Il-4	106
3. Peltyakov Pe-8.....	106

Miscellaneous Changes.....	107
1. Bf 109D	107
2. 10.5cm K 29(p).....	107
3. 47mm model 1936.....	107
4. SE Panzer IIIN.....	107
5. Free Polish Infantry	107
6. Italian Units	107
8. Wehr Reserve	107
9. 7TP.....	107
Acknowledgements.....	108

Preface

Grand Campaign Unit Revisions revises the equipment and rules files for the Panzer Corps Grand Campaigns (GCs), also known as the DLCs. Almost every single unit in the game has been adjusted. This mod is designed to find a balance between gameplay and historical accuracy in to order to make the GCs a more challenging and realistic simulation of the German perspective of the Second World War.

Major features:

- Almost every unit has been adjusted for historical accuracy and gameplay balance.
- Almost every unit has more distinctive strengths and weaknesses.
- Many more German units are now viable to keep in the player's core.
- Experienced infantry are significantly better than green infantry.
- Infantry is less fragile in 1943-1945.
- Medium tanks and tank destroyers are much more useful during 1943-1945.
- Advanced weapons, such as the Tiger tank and Me 262, are still very powerful, but now no longer save prestige.
- Certain units, such as the Panzer IV, are reduced in price in 1943 and 1944 to reflect increased German armament production.
- Tougher Red Army, especially during 1943-1945.
- Tougher American and British forces, especially their air units.
- Battles in 1943-1945 are significantly more challenging, but should feel more historically accurate.

Both core choice and battlefield tactics are vital to success for all years of the war. The player is rewarded for using a balanced core of infantry, armor, artillery, and air units. However, the player will have more options within each unit family to build his core. It should not be immediately obvious which unit is the best choice, rather, each unit has its strengths and weaknesses. The pace of the growth of the player's core strength is also slower.

Because of the lower average core strength, tactical skill is much more important in 1943 and beyond. The successful player will pay close attention to terrain and the type and quality of enemy forces encountered. It is also assumed that he is familiar with all game mechanics, such as mass attack and retreat/surrender rules.

The difficulty the GCs increases moderately in 1939-1942 and significantly in 1943-1945. However, a player who considers himself average will still have ample resources on General difficulty. An expert player can play at a higher difficulty for an appropriate challenge.

The best way to understand any changes made in this mod is to check the stats of a unit before purchasing it, or the stats of an enemy unit before engaging it. Use Alt + Click frequently.

All constructive feedback and comments welcomed!

Installation

To install this mod, copy the “DLC” folder into the Panzer Corps base directory and override all files when prompted.

To install the softcore option, copy the contents of the “softcore” folder into the base Panzer Corps directory and override all files when prompted.

To uninstall this mod, copy the contents of the “uninstall” into the Panzer Corps base directory and override all files when prompted.

Glossary of Terms

A = ammo

F = fuel

M = movement

t = tracked

w = wheeled

a = all-terrain

S = spotting

IN = initiative

R = range

SA = soft attack

HA = hard attack

AA = air attack

NA = naval attack

RF = rate of fire

GD = ground defense

CD = close defense

fortkiller = hard attack +5 versus forts

minesweeper = destroys mines in one attack

meng = ignores entrenchment when attacking

beng = functions as a bridge engineer

nopch = nopurchase; this prevents the player and AI from buying this unit, but does not affect any preplaced units

mp = multipurpose

limited = availability date limited

overstrength = unit has +5 base strength

* = denotes a unit family that is non-obvious, e.g. MarderII* means the Marder II unit family

The Scale of Units

The following are assumptions about the scale of game units as in relationship to their historical counterparts.

- The player is in overall command of a World War II-era German panzer corps.
- A **unit** is the smallest sub-formation within the corps that can be issued direct orders. The Panzer IVD and the Panzer IVE are two different units.
- A **unit family** is a series of upgradeable units. The Panzer IV and the Panther are two different unit families.
- A **unit class** is composed of unit families with similar characteristics and is the broadest unit category. Infantry and tanks are two different unit classes.
- **An infantry unit approximates a regiment.**
 - Certain specialized units like combat engineers are instead assumed to be battalion-sized, because such infantry have greater combat prowess than their numbers alone suggest.
- **Any other ground unit approximates a battalion.**
 - Some units like the towed anti-tank guns or self-propelled anti-aircraft guns were historically never organized into battalion, but keep in mind this is an approximation.
- The player has access to air support from a Luftwaffe **Geschwader**.
- Each air unit approximates a **Staffel** in a **Gruppe**.
- Thus, this game simulates operational-level warfare, in which the player issues orders to regiments or battalions of troops.

The Primary Unit Design Principles

1. Combined arms tactics is critical to success. The player should be rewarded for maintaining a balance between the various unit classes: infantry, armor, artillery, and air units.
2. A core composition that severely neglects any of the above unit classes should be sub-optimal.
3. Within each unit class, each unit family should have strengths and weaknesses. For instance, neglected units such as the Panzer II in 1939-1940 and the Bf 109G in 1943 should be more useful and deserving of a spot in the player's core.
4. Given the constraints of conditions 1 through 3, there should nevertheless be a number of viable core compositions.
5. Given the historical context, combat results and the player's core composition should feel more realistic.
6. Historically, formations were usually given new equipment after being pulled off the frontline for an extended rest-and-refit. Since there is no way for the game engine to model this process, upgrades (both in and out of family) are balanced primarily around gameplay reasons.

Some more notes on the historical context:

1. The early war (1939-1942) period
 - German armor is in general weaker than their best Allied and Soviet equivalents.
 - German air superiority is assured. While German bombers are devastating, they should generally be used at the critical point.
 - German infantry is better than their Soviet counterparts.
 - Overall, the biggest edge for the Germans during this period is their high level of experience. The average German experience will be about 300+ versus 0-100 for the Allies and Soviets.
2. The late war period (1943-1945)
 - The Soviets have a strong armor force, which includes a large number of medium tanks supported by a smaller number of heavy tanks. Individually, German tanks are usually superior to their Soviet counterparts, especially in terms of initiative, but the Soviets have a significant advantage in numbers.
 - The average Soviet infantry and air units are inferior to their German equivalents, although small numbers of elite infantry and advanced fighters are dangerous.
 - The Western Allies have a strong edge in its air units, both fighters and bombers, compared to the Luftwaffe.
 - Western Allies infantry trained to approximately the same standard as German infantry, although German veterans still have an edge in experience.
 - Western Allies armor are generally inferior to their German counterparts.

Chapter I: Game Rules Changes

1. The Effect of Experience on Attack and Defense

The exact change is:

$$\text{AttackExpBonusRel} = \text{DefenseExpBonusRel} = 17$$

This change gives a significant buff to the effects of experience on infantry and early war tanks. The critical threshold of the defense and attack values of a unit is now 6, for which each 100 experience grants a one point bonus. A unit with lower values will also benefit quicker.

This new experience rule is in favor of the Germans during 1939-1941, because there are few experienced Allied and Soviet units to fight during this time. However, from late 1942 onwards, the Allies and Soviets field increasingly experienced armies, so at this point this change also benefits their units.

2. Out-of-Family Upgrade Experience Penalty

There is an experience penalty for upgrading a unit outside of its family. The exact change depends on the year, listed below:

$$1939 \text{ UpgradeExpPenalty} = 100$$

$$1940 \text{ UpgradeExpPenalty} = 125$$

$$1941 \text{ UpgradeExpPenalty} = 175$$

$$1942 \text{ UpgradeExpPenalty} = 200$$

$$1943 \text{ UpgradeExpPenalty} = 225$$

$$1944 \text{ UpgradeExpPenalty} = 250$$

$$1945 \text{ UpgradeExpPenalty} = 250$$

The UpgradeExpPenalty parameter specifies how much absolute experience a unit loses if it is upgraded outside of a family.

Example 1: 400 exp Panzer IIIL is upgraded to a Tiger I in 1943.

The new Tiger I will have $400 - 225 = 175$ exp.

Example 2: 400 exp Panzer IIIL is upgraded to a Panzer IIIM in 1943.

The new Panzer IIIM will have its full 400 exp, because it was upgraded within its family.

This change is implemented to prevent the player from immediately acquiring 4 star Tigers and Panthers in mid-1943, 5 star Me 262As in late 1944, or other highly experienced German late war weapons upon their debut. This change is also more realistic, because it takes time for troops to obtain experience with new weapons, but some of their previous expertise is still helpful. It is very possible to acquire highly experienced late war units, but doing so requires additional combat experience and the expenditure of significant prestige for elite reinforcements.

3. Reinforcement Model Adjusted

1939-1941

$$\text{ScnEReplaceCost} = 75$$

CamEReplaceCost = 50
GreenReplacementsExp = 30
1942
ScnEReplaceCost = 85
CamEReplaceCost = 60
GreenReplacementsExp = 40
1943
ScnEReplaceCost = 100
CamEReplaceCost = 75
GreenReplacementsExp = 50
1944
ScnEReplaceCost = 115
CamEReplaceCost = 90
GreenReplacementsExp = 50
1945
ScnEReplaceCost = 125
CamEReplaceCost = 100
GreenReplacementsExp = 50

These numbers specify the replacement costs as a percent of the base unit. Green reinforcements are always free during deployment and costs 25% of a unit's base price during battle for all years.

This component equalizes the difference between the deployment stage and scenario elite and normal reinforcement costs. Now, both normal and elite replacement costs are always higher by 25% of the unit's base cost in battle than during deployment. It should now be more viable to use elite reinforcements during a battle. No longer should the player feel compelled to never reinforce during battle and only use elite reinforcements during deployment. However, the player can still save prestige by reinforcing at the deployment stage.

Overstrength costs also increase due to this component, so the player should be unable to field a core composed of all elite units with maximum overstrength during the late war period. This change is to prevent the player from easily obtaining a core of all maximally experienced and overstrength units and maintain this core during 1943-1945. As the war progresses, the player should choose wisely which units to elite reinforce and overstrength.

To compensate in part for the higher costs of elite reinforcements starting in 1942, the rate of experience growth for units between 2 and 5 stars has been increased. Furthermore, during the late war, a unit using normal reinforcements loses less experience. Using normal reinforcements on 3 or 4 star units should be more attractive during the late war. Although this change is unrealistic (the average quality of new German recruits dropped as the war progressed), it is necessary in terms of gameplay balance.

This component simulates the loss of experienced reservists that the player can call upon from High Command as reinforcements as the war progressed. The quality of the average German panzer division started to decline in 1942 and continued to do so throughout the war.

Furthermore, many German divisions became understrength because there were simply not enough men and equipment to fill the rosters. Only a few special formations, such as the Großdeutschland division, received the best equipment and at full troop strength throughout the course of the entire war.

4. Yearly Unit Changes

Because there is a separate equipment file for each year, it is possible to give a unit different statistics for each year of the war. Some units are automatically upgraded, for example, the Ferdinand in 1943 becomes the Elefant in 1944. Some units are reduced in cost, for example, Panzer IVs are cheaper in 1943 and cheaper again in 1944. There are dozens of such automatic changes. Please refer to specific units for details.

5. Softcore Option

For those players who dislike rules 2 and 3, there is an alternate set of gamerules.pzdat files that do not include those components. To install this version, simply copy the contents of the “softcore” folder into the base Panzer Corps directory and override all files when prompted. However, this mod is balanced with the rules 2 and 3 in mind.

6. “reform units” Option

It is recommended that the player uses the “reform units” cheat at the start of every scenario to lessen the frustration of permanently losing a prized core unit. To do so, press “Ctrl + Alt + Shift + C” and enter “reform units” into the text box.

Chapter II: Infantry

Global Changes

1. Mountaineers

All mountaineers have improved CD (+1) compared to standard infantry. This simulates their improved training in close quarters combat.

2. Combat Engineers

All combat engineers have significantly improved CD (+2) compared to standard infantry. This simulates their expertise in close quarters combat.

3. Cavalry

Cavalry ground defense has been increased. Cavalry remain more vulnerable than most other infantry, especially against air attacks. This change is mostly relevant for the many Allied and Soviet cavalry present in the GCs, so that they take a bit longer to defeat.

During World War II, cavalymen were mobile infantry who dismounted to fight. The myth of Polish cavalry charging German tanks was created by German propagandists.

4. 1943 Infantry Upgrades

All infantry of the major powers have upgrades in 1943. Units that were previously impossible to upgrade, such as bridge engineers and Kradschützen, are upgraded automatically. However, the Axis minor allies do not receive infantry upgrades.

5. 1943 Infantry Defense Values

The defense values of all 43 infantry are increased.

In general, CD and GD are both increased by 2 compared with 39 infantry. This makes late war infantry harder to suppress by artillery and less vulnerable to attack by tanks.

6. 1943 Infantry Attack Values

In general, the SA of 43 German infantry is increased by 1 and the HA by 3 compared with their 39 variants.

In general, the SA of 43 Allied and Soviet infantry is increased by 1 and the HA by 2 compared with their 39 variants.

In 1943 and thereafter, infantry versus infantry combat in close terrain is less lethal.

7. Effect of Experience on Infantry

Due to the rule changes, experience has a very significant effect on the combat prowess of infantry. Experienced infantry perform much better than green infantry.

German Infantry 1939-1942

1. Table of German Infantry 1939-1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Wehrmacht Inf	107	6		3	2	2	4	1		8	16	2	
Grenadier	167	5		2	2	3	5	2	-1	8	17	2	
Fallschirmjäger	355	5		3	2	4	6	1		6	17	2	para fortkiller
Gebirgsjäger	254	6		3	2	3	4	1		8	18	3	
Pioniere	276	4		2	2	2	4	4	-1	8	17	4	meng fortkiller minesweeper
Brückenpioniere	226	4		2	2	1	2	1	-1	8	17	2	beng
Kavallerie	301	5		5	3	2	4	1		6	12	2	reconmove
Kradschützen	359	4	40	5a	3	2	5	1	-1	7	14	2	reconmove

2. German Infantry Costs

Elite German infantry (**Pioniere**, **Gebirgsjäger**, and **Fallschirmjäger**) are well-trained and potent in combat, but command a much higher cost than standard **Wehrmacht Infantry** and **Grenadiers**. Mobile infantry such as the **Kavallerie** and **Kradschützen** are also much more expensive due to their organic transports.

3. Grenadiers

Grenadiers are German heavy weapon infantry. It is assumed that these formations receive a higher complement of heavy weaponry such as mortars, heavy machine guns, and anti-tank rifles. Thus, this unit has superior IN, SA, and HA compared with regular infantry.

4. Fallschirmjäger

Fallschirmjäger are German paratroopers. They are the best-trained of all German infantry. They are incredibly powerful when attacking soft targets. They can also parachute behind enemy lines. However, they tend to suffer more casualties, especially when used in risky airborne operations.

Historically, German paratroopers suffered heavy casualties when used in airborne operations, especially during Operation Mercury, the invasion of Crete.

5. Gebirgsjäger

Gebirgsjäger are mountain troops who can move quickly over hills and mountains. They are equipped similarly to their Heer counterparts but better-trained, giving them a bonus to IN (+1).

6. Pioniere

Pioniere are combat engineers who specialize in close combat. Combat engineers excel at assaulting fortified positions. In the game, they ignore entrenchment and have an attack bonus against forts. They also carry a higher complement of satchel charges than normal infantry, making them particularly suited to attacking tanks and other hard targets in close terrain. Thus, they have the best HA of all types of infantry. In addition, they have a bonus to CD (+2).

7. Kavallerie

Kavallerie are German cavalry. They are fast, have superior spotting, and require no fuel. They can move quickly through rough terrain and in the snow. They are equipped similarly to standard infantry but have lower defenses. They are also expensive.

Historically, the Germans maintained a small number of cavalry formations at the beginning of the war. During the invasion of the Caucasus in 1942, they successfully recruited some Cossack cavalry to join their ranks. Due to the deteriorating state of the German mechanized forces as the war progressed, several divisions of SS cavalry (such as the Maria Theresa division) were during the late war raised to serve as mobile infantry.

8. Kradschützen

Kradschützen are German motorcycle troops who served as scouts and mobile infantry. They are armed with somewhat heavier weapons than standard infantry. Their combat performance is superior to Kavallerie, although they are more expensive and somewhat less mobile in rough terrain. Their mobility is seriously hampered by snow.

Western Allies Infantry 1939-1942

1. Table of Western Allies Infantry 1939-1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Polish Inf	70	7		3	2	0	2	1		6	16	2	
Polish Mnt	90	6		3	2	1	3	2		6	17	3	
Polish Cavalry	130	6		5	3	1	4	2		5	10	2	
French Inf	132	7		3	2	1	5	1		7	16	2	
French Eng	167	5		2	2	1	4	4	-1	7	16	4	meng fortkiller minesweeper
French Light Cav	120	5		5	3	1	6	1		4	11	2	
Chasseurs Alpains	156	7		3	2	2	5	1		7	17	3	
British Inf	138	7		3	2	2	4	1		8	16	2	
British HW Inf	164	6		2	2	3	5	2	-1	8	18	2	
British Paras	129	5		3	2	3	5	1		6	16	2	para fortkiller
British Eng	185	5		2	2	2	4	4	-1	8	17	4	meng fortkiller minesweeper
British Brdg Eng	110	4		2	2	1	2	1	-1	8	18	2	beng
SAS Mobile Grp	138	7	100	3	2	3	5	1		8	16	2	mp

2. wz. 35 AT rifle

Cavalry and Polish Mnt have a bonus to HA (+1) to represent the effectiveness of the wz. 35 AT rifle against hard targets.

3. French Infantry

French infantry have a bonus to SA compared with their German counterparts. Historically, they were better-equipped than their German counterparts. All of these units, except for the Chassuers Alpains, have a penalty to IN (-1), making them vulnerable to mass attack tactics.

Soviet Infantry 1939-1942

1. Table of Soviet Infantry 1939-1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Conscript	60	6		3	1	0	1	1		2	14	2	green overstrength
Regular	81	7		3	2	1	3	1		6	16	2	
Guards	148	7		3	2	3	5	2	-1	8	18	2	
Soviet Para	116	5		3	2	3	5	1		6	17	2	para fortkiller
Soviet Eng	124	5		2	2	1	4	3	-1	7	17	4	meng fortkiller minesweeper
Soviet BridgEng	97	4		2	2	1	2	1	-1	7	17	2	beng
Soviet Mnt	103	7		3	2	2	3	1		7	17	3	
SMG Inf	131	6		3	2	1	5	2		7	17	4	
Soviet Cavalry	120	6		5	3	1	4	1		5	11	2	

2. Soviet Guards

Soviet Guards have the same combat values as HW infantry but with an additional movement point. They are extremely dangerous, so use caution when engaging them. These units do not show up until late 1941.

Soviet Guards have superior stats than their historical performance would suggest for balance reasons. This is to ensure that the Soviets have some dangerous infantry units during the early war period.

3. SMG Infantry

SMG Infantry spotting has been improved to be the same as standard infantry. Thus, these units are less likely to make suicidal attacks against German units backed up by artillery.

German Infantry 1943-1945

1. Table of German Infantry 1943-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Wehrmacht Inf 43	167	6		3	2	3	5	4		10	16	4	
Grenadier 43	227	5		2	2	4	6	5	-1	10	17	4	
Fallschirmjäger 43	501	6		3	2	5	7	3		12	17	5	para fortkiller
Gebirgsjäger 43	314	6		3	2	4	5	4		10	18	5	
Pioniere 43	336	4		2	2	3	5	8	-1	10	17	6	meng fortkiller minesweeper
Brückenpioniere 43	226	4		2	2	2	3	2	-1	10	17	4	beng
Kavallerie 43	361	5		5	3	3	5	4		8	14	4	reconmove
Kradschützen 43	419	4	40	5	3	3	6	4	-1	9	16	4	reconmove
Volkssturm	70	6		2	1	2	5	4		8	16	3	

2. Grenadier 43

Grenadiers 43 has better firepower and IN than standard infantry. The drawback of grenadiers is their lower movement, which is less of a problem during defensive battles.

3. Fallschirmjäger 43

During the late war period, **Fallschirmjäger** served as elite infantry famous for their tenacious defensive ability. This unit is incredibly potent in combat but is significantly more expensive than all other German infantry. It also has lower HA than most other 43 infantry for balance reasons.

4. Pioniere 43

Pioniere 43 is the toughest German infantry in close terrain. Its close defense benefits fully from experience, so this unit is invaluable in urban warfare. It also has the best HA of any German infantry, making it invaluable for assaulting the heaviest Allied and Soviet tanks.

5. Volkssturm

Volkssturm are available starting in 1945. It is a cheap, disposable unit not meant to survive a battle. It is the German equivalent of conscripts. It is moderately useful against tanks in close terrain. When supported by artillery, it can hold off Soviet infantry for some time. This unit is best used defensively and does not perform very well when attacking.

In 1945 **Wehr reserve** units have been changed to Volkssturm with noreplace and noupgrade flags added. It is assumed that these preplaced Volkssturm are among the last of the men of military age Germany has left. Even if strength points are lost, there simply are no reinforcements available. This rule does not apply the Volkssturm that the player can purchase.

Western Allies Infantry 1943-1945

1. Table of Western Allies Infantry 1943-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
British Inf 43	171	7		3	2	3	5	3		10	16	4	
British HW Inf 43	197	6		2	2	4	6	5	-1	10	18	4	
British Paras 43	349	5		3	2	4	6	3		10	16	4	para fortkiller
British Eng 43	207	5		2	2	3	5	8	-1	10	17	6	meng fortkiller minesweeper
Brit Brdg Eng 43	110	4		2	2	2	3	2	-1	10	18	4	beng
US Bridge Eng 43	124	4		2	2	2	3	2	-1	10	17	4	beng
US Army Rangers	427	7		3	2	4	6	6	-1	11	18	5	fortkiller
US Infantry 43	144	7		3	2	3	5	4		9	16	4	
US HW Inf 43	204	6		2	2	4	6	5		9	17	4	
US Airborne 43	324	5		3	2	4	6	4		10	18	4	para fortkiller
US Engineers 43	254	5		2	2	3	5	8		10	16	6	meng fortkiller minesweeper

2. 1943 Allied Infantry

In general, the Western Allies infantry in 1943 have the equivalent in training compared with German counterparts. However, some Allied infantry, especially the Americans, did not perform well until they gained combat experience. The HA of British light infantry is a lower than their German and American since their PIAT is less effective than similar weapons such as the Bazooka, the panzerfaust, and the panzerschrek.

3. US Army Rangers

The **US Army Rangers** are elite American troops. They are better-trained and better-equipped than standard US Infantry. They are also superior at assaulting hard targets in close terrain.

Soviet Infantry 1943-1945

1. Table of Soviet Infantry 1943-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Conscript 43	60	6		3	1	1	2	1		4	14	3	green overstrength
Regular 43	132	7		3	2	3	4	3		8	16	4	
Guards 43	192	7		3	2	4	6	5	-1	10	18	4	
Soviet Para 43	162	5		3	2	4	6	3		9	17	4	para fortkiller
Soviet Eng 43	184	5		2	2	3	5	7	-1	9	17	6	meng fortkiller minesweeper
Sov BridgEng 43	97	4		2	2	2	3	2	-1	9	17	4	beng
Soviet Mnt 43	152	7		3	2	4	4	3		9	17	5	
SMG Inf 43	131	6		3	2	2	6	4		9	17	6	
Soviet Cavalry 43	120	6		5	3	3	5	2		7	12	4	

2. 1943 Soviet Infantry Training

In general, Soviet infantry in 1943 have less attack and defense than their German equivalents. Conscripts are slightly improved but are still not a major threat. Specialized units such as SMG Infantry, paratroopers, and especially Guards can be very dangerous.

Chapter III: Motorization

1. Table of Transports

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Opel Blitz	100	0	82	8	1	1	0	0	0	1	6	0	
Sd.Kfz. 251/1	200	5	75	6	1	2	3	1	-1	6	6	1	
Sd.Kfz. 250/1	300	5	80	8	1	3	3	1	-1	8	8	2	
Sd.Kfz. 7	100	0	80	6	1	1	0	0	0	2	6	0	
Bren Carrier	100	6	64	6	1	2	3	1	0	5	6	1	
M3 Halftrack	100	8	80	8	1	2	3	1	-1	5	6	1	

2. Transport Target Type

All transports are now SOFT targets. This makes late war tanks less lethal against units caught in half-tracks. This does not mean it is a good idea to move half-tracks ahead of tanks. When attacked by enemy infantry or tanks, half-tracks may still take significant casualties.

Half-tracks are also vulnerable to attacks by most bombers. Historically, tactical bombers were very effective at devastating motorized columns. It may be a good idea to protect half-tracks with fighters or SPAAG.

3. German Transports Costs

The costs for all German transports have been significantly increased. SE transports are half-price, because it is assumed that SE infantry have priority on motorization. See Chapter V for more details for about SE units.

4. German Transports Unit Family

All German transports now share a unit family, so they can be upgraded in sequence without paying the full upgrade cost. However, keep in mind that since their base price is now higher, the reinforcement costs for damaged units equipped with better transports are significantly higher.

5. German Half-tracks

The **Sd.Kfz. 250/1** has slightly better defenses than the **Sd.Kfz. 251/1** for balance reasons. In actuality, both transports had similar armor.

6. Transports for Towed Unit

The **Opel Blitz** is used to transport smaller caliber artillery, anti-aircraft guns, and anti-tank guns, while the **Sd.Kfz. 7** is used to transport heavier caliber weapons. Note that when upgrading a unit towed by the Opel Blitz to a more advanced model towed by the Sd.Kfz. 7, select both the unit and the transport in the upgrade screen to avoid having to pay additional prestige.

Chapter IV: Tanks and Tank Destroyers

Global Changes

1. Mechanical Reliability

The mechanical reliability of many AFVs is modeled via their fuel and ammo values. In general, unreliable units are given low fuel and ammo. Thus, those units will need to frequently resupply, especially when on the offensive. This simulates the extra time needed to perform maintenance.

2. Schürzen

Starting in late 1942, many German tanks were equipped with armored skirts, known as schürzen, to protect their side armor against the anti-tank weapons of Soviet infantry and Allied infantry.

All German AFVs with schürzen have a bonus to CD (+1). Schürzen can usually be distinguished visually. The sole exception is the Panzer IIIM, which is modeled with the schürzen in spite of its graphics.

3. Heavy Tank Defense Reduction

In general, heavy tanks for all factions had their GD and AD reduced.

4. Tank Gun Standardization

The HA and IN of tank guns have been standardized. In general, the IN of tank destroyers equipped with the same gun as their turreted counterparts is 3 lower. There are a few exceptions, noted for each unit. For instance, American tank destroyers have fully rotating turrets and thus have no initiative penalty.

German Tanks and Tank Destroyers 1939-1941

1. Table of German Tanks 1939-1941

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Panzer IA	114	6	36	5	2	2	3	1		5	6	1	
Panzer IB	124	7	35	5	2	3	3	1		5	6	1	
Panzer IIC	180	6	50	5	2	4	4	3		6	7	1	
Panzer IIF	207	6	50	5	2	4	4	3		8	8	2	
Panzer II Flamm	343	4	50	5	2	3	6	1		8	8	2	meng fortkiller RF=14
P38(t)A	238	11	58	6	2	5	4	6		6	7	2	MarderIII*
Panzer IIIF	280	9	41	5	2	5	5	7		8	8	2	
Panzer IIIG	325	9	41	5	2	6	5	9		8	8	2	
Panzer IIIH	352	9	36	5	2	6	5	9		10	10	2	
Panzer IIIJ	364	8	36	5	2	6	5	9		11	11	2	
Panzer IVD	352	8	40	5	2	5	8	7		7	7	2	
Panzer IVE	370	8	46	5	2	5	8	7		8	8	2	
Panzer IVF/1	420	8	41	5	2	5	8	7		10	10	2	

2. Table of German Tank Destroyers 1939-1941

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Panzerjäger IB	232	7	35	5	1	3	2	10		6	7	0	MarderII*

3. Panzer II

The **Panzer IIC** is a cheap light tank. It is equipped with a machine gun and a 20 mm gun similar to the 20 mm FlaK. The high rate of fire the 20 mm autocannon compensated somewhat for the weaknesses of each individual shot, although this resulted in a quick drain of ammunition. This tank is moderately effective against soft targets, but not very useful against hard targets.

These same weapons are also equipped to many early war German armored cars, but the Panzer IIC is cheaper and better for sustained combat. The **Panzer IIF** is an upgrade with superior armor.

The Panzer IIC cannot be upgraded to the Panzer II Flamm in family. Both the Panzer IIC and the Panzer IIF are automatically changed to the recon class in 1942.

3. P38(t)A

The **P38(t)A** is a good early war light tank with excellent mechanical reliability. This tank has a bonus to movement (+1) to represent its ability to sustain prolonged movement without having to pause for maintenance.

This tank is of a Czech design and well-armed and well-armored for 1938–1939. It entered German service because it is significantly superior to the Panzer I and Panzer II, while Panzer III and Panzer IV production was still limited. This tank was used effectively in Poland, France, and the early period of the war in Russia. However, it was phased out because it was significantly outclassed by the T-34. Its chassis was used for a number of other German AFVs, including the Marder III, Grille H, and the Hetzer.

The P38(t)A can be upgraded to the Marder III in family in 1942.

4. Panzer IIIF

The availability date of the **Panzer IIIF** has been moved to the start of GC40. This tank is not available for operations in Norway.

5. Panzer IVD

The **Panzer IVD** is equipped with a short-barreled 75 mm gun and had slightly less armor than the Panzer IIIF. However, the Panzer III was more numerous and considered the main battle tank, while the Panzer IV was relegated to a support role in 1940-1941. Hence, the Panzer IVD is more expensive.

6. Panzerjäger IB

The **Panzerjäger IB** has the highest HA of any German AFV until 1942. This unit is very useful for attacking suppressed/weakened Allied tanks. However, its defenses and SA are very low.

This unit can be upgraded in family to the Marder II in 1942.

7. Panzer II Flamm

The **Panzer II Flamm** ignores entrenchment and has an extremely high RF. It is deadly when attacking soft targets with low defenses such as conscripts and artillery. However, it is very vulnerable to enemy tanks.

8. 1939-1941 German AFV Summary

Early German tanks such as the **Panzer I** and **Panzer II** are cheap and moderately effective against light targets, but are ineffective against all but the most lightly armored AFVs. The **P38(t)A** is cheap and fast light tank with excellent mechanical reliability. It can engage Soviet light tanks with good success, but it is ineffective against heavier tanks such as the Char B1 bis, T-34, and KV-1. The **Panzer II Flamm** is a specialized tank useful for taking out entrenched soft targets quickly.

The **Panzer IV** is the best choice to attack soft targets, while the **Panzer III** is the best choice to attack hard targets such as the Soviet light tanks and weakened/suppressed T-34/KV tanks. It is

recommended that the player fields both variants instead of defaulting to the Panzer IV. The **Panzerjäger IB** is decent against hard targets, but is limited by its poor IN, SA, and defenses.

Western Allies Tanks 1939-1941

1. Table of Western Allies Tanks 1939-1941

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
7TP	210	7	38	5	2	5	3	5		6	7	1	nopch
TKS	96	5	50	5	2	2	3	1		5	6	1	
Matilda I	176	8	32	3	2	2	3	1		12	8	2	
Matilda II	374	9	30	3	2	5	4	8		15	10	2	
Cruiser Mk I	248	10	60	5	2	5	4	8		6	7	2	
Cruiser Mk IV	271	9	51	6	2	5	4	8		8	8	2	
Valentine II	276	9	44	4	2	5	4	8		11	10	2	
SOMUA S35	302	5	19	5	2	4	5	7		11	9	2	
Char B1 bis	349	4	12	4	2	4	8	7		14	10	2	
Renault R35	208	6	35	3	2	3	5	4		9	8	1	
Hotchkiss H35	205	10	38	4	2	3	5	4		8	7	1	
Hotchkiss H39	252	10	38	5	2	4	5	6		9	8	1	

2. 1940 British Medium Tanks

The Matilda II, Cruiser Mk I, Cruiser Mk IV, and Valentine II are all armed with the **QF 2-pounder**, which is an excellent anti-tank weapon during the early war. The British tanks have the best HA in 1940, which makes the British path in GC40 more comparable with the French path.

In particular, the **Cruiser Mk IV** is dangerous due to its combination of high speed, firepower, and armor. The **Matilda II** has incredible armor for 1940, but its slow speed hampers its effectiveness.

3. French Light Tanks

The **Renault** and **Hotchkiss** tanks are slightly improved and outclass the Panzer I and Panzer II. However, they are not a serious threat to the Panzer III and Panzer IV.

4. SOMUA S35

The **SOMUA S35** is a French cavalry tank with 47 mm of frontal armor and armed with a 47 mm main gun. It is designed to exploit a breakthrough and to engage any strategic tank reserves. It had better armor and firepower than its opponents, the Panzer III and Panzer IV.

However, The SOMUA S35 has serious drawbacks, which includes poor reliability and a one-man turret. This is reflected by an initiative penalty (IN -1).

5. Char B1 bis

The **Char B1 bis** is the most common variant of the Char B1 heavy tanks. This series of weapons were designed as well-armored, assault tanks designed to force a breakthrough at a heavily defended position. The variant had a 47 mm and a 75 mm gun and 60 mm thick frontal armor, making it a very formidable vehicle in combat. However, the Char B1 bis, like the SOMUA S35, suffers from serious mechanic troubles and a poorly designed 1-man turret. The Char B1 tends to stall out during counterattacks, even more so than the SOMUA S35. These factors hamper its effective employment.

Although nearly invincible in direct tank battles, the Char B1 bis is vulnerable to the Ju 87 dive bomber, the 88 gun, and to infantry assaults in close terrain.

Historically, German tanks struggled to defeat these heavy tanks in direct combat. There is a famous story of a Char B1 bis ambushed by 13 Panzer IIIs and Panzer IVs at Stonne. This French heavy tank took over 100 hits during this battle, but still destroyed all of its attackers before retreating.

Soviet Tanks 1939-1941

1. Table of Soviet Tanks 1939-1941

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
T-26S	250	12	46	5	2	5	5	5	-1	6	7	2	
BT-5	214	9	50	6	2	5	4	6		6	7	2	
BT-7	264	11	88	7	2	5	4	6		7	7	2	
T-34/40	357	5	27	6	2	4	6	10		14	10	2	
T-34/41	386	10	60	6	2	5	7	12		15	10	2	
KV-1A	550	6	30	5	2	3	6	10		16	11	3	nopch
KV-1B	582	6	30	5	2	4	7	12		18	12	3	nopch
KV-2	572	4	26	4	2	3	11	8		18	12	3	nopch

2. Table of Soviet Tank Destroyers 1941

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
SU-100Y	725	4	39	3	1	5	10	14		24	16	4	nopch

3. Soviet Light Tanks

The **T-26S**, **BT-5**, and **BT-7** tanks present a reasonably tough challenge in the 1939 bonus scenario Spoils of War, but are not a serious threat in GC41 and beyond. Even the 3.7 cm Pak 36 can defeat these tanks without trouble. The BT series can be dangerous, because they move fast enough to be able to strike into the rear of an advancing German column.

4. T-34

The **T-34** is one of the most famous tanks of all times. Counting all of its variants, it is the most produced tank of the Second World War. At the start of Barbarossa, this tank has much better armor and firepower than anything the Germans fielded. In 1941, they are very resistant to attacks by most German tank and anti-tank guns, while their 76.2 mm gun is sufficient to penetrate the armor of all German AFVs. It outclasses all German tanks until Panzer IVs with long-barreled 7.5 cm guns are introduced in 1942. Furthermore, the Soviets field this tank in ever-increasing quantities.

The **T-34/40** has serious mechanical troubles, which is represented by its low fuel and ammo. Historically, many of the early model T-34s broke down while being driven to the battlefield. On the other hand, the **T-34/41** has superior fuel/ammo compared with most German tanks. It also has a more powerful 76 mm gun than the earlier T-34/40.

In 1941, the T-34 has an IN penalty (-2). This represents deficiencies such as the lack of radios, poor turret layout, and the horrendous tactical doctrine of the Red Army's tanks in this year.

5. KV-1

The **KV-1** heavy tanks boasts even more armor than the French Char B1 and the British Matilda II. They are equipped with the same 76.2 mm gun as the T-34 and can devastate any German tank. In 1941, these tanks are nearly invulnerable to direct attacks by anything except the 88 gun.

The **KV-1A** is equipped with the same gun as the T-34/40 and the **KV-1B** is equipped as the T-34/41. These tanks were never produced in mass quantities (at least by Soviet standards), hence they cannot be purchased.

In 1941, the KV-1 has a very significant IN penalty (-3).

6. KV-2

This Soviet behemoth is armed with a 152 mm howitzer, which is devastating to soft targets, although it is not particularly effective against armor. The heavy gun makes the vehicle less mobile. This vehicle also has very limited ammo.

In 1941, the KV-2 has an IN penalty (-2).

7. SU-100Y

The **KV-5** has been renamed the **SU-100Y** and changed to the tank destroyer class. This “boss” unit is almost impossible to destroy by direct attack, even with a 88 gun. It is most vulnerable to infantry attacks in close terrain. Its other weakness is its very limited ammo.

8. 1941 Soviet Tank Summary

The Soviet light tanks are badly obsolete in 1941, although the BT tanks can move fast enough to strike against an unprotected flank of a German advance.

T-34 and **KV** tanks completely outclass German light tanks and are more than a match against even experienced German medium tanks. It is advised that the German player avoid direct tank battles with these units in 1941. These advance Soviet tanks are vulnerable to bombers, the 88 gun, and infantry in close terrain.

Captured Equipment 1939-1941

1. Table of Captured Allied Equipment 1939-1941

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
SOMUA S35(f)	302	5	30	5	2	5	5	7		11	9	2	
Char B1 bis(f)	349	5	21	3	2	5	8	7		14	10	2	
Matilda II(e)	374	9	30	3	2	5	4	8		15	10	2	
T-34/40(r)	714	5	27	6	2	6	6	10		14	10	2	
T-34/41(r)	772	10	60	6	2	7	7	12		15	11	2	
KV-1A(r)	802	6	30	5	2	6	6	10		16	11	3	
KV-1B(r)	849	5	24	4	2	7	7	12		18	12	3	

2. Captured French Tanks

The **SOMUA S35(f)** and **Char B1 bis(f)** have improved fuel/ammo and no IN penalty. This represents a German improvement on poor French logistics and tactical doctrine. This is also done for balance reasons

The **Char B1 bis(f)** has a movement penalty (-1). Historically, this was a slow-moving infantry support tank. The AI-controlled Char B1 bis has a higher movement speed to ensure that the French counterattacks in 1940 are sufficiently threatening.

3. 1941 Captured Soviet Tanks Costs

In 1941, giving captured Soviet equipment to High Command (this can be done by disbanding the unit during deployment stage) yields significant amounts of prestige. These units can also be put to immediate use with good results, although elite reinforcements are very expensive. The costs of many captured Soviet units decrease as the war progresses.

From a gameplay perspective, since captured Soviet equipment is so much better than anything else the Germans have in 1941, they need to cost more to compensate. From a historical perspective, High Command is very eager to study the T-34 and KV-1 in 1941. German commanders like Guderian inspected captured T-34 tanks and recommended some of its features to be incorporated into future tank designs. The sloped frontal armor of the Panther tank is directly inspired by the T-34. Because the quantity of captured equipment increases as the war progresses, they command less and less of a prestige premium in later years.

4. Captured Soviet Tank Initiative

Captured Soviet tanks do not suffer any initiative penalty.

5. Captured KV-1

KV-1B(r) and KV-1C(r) have reduced movement, fuel, and ammo for balance reasons. Nevertheless, they remain extremely good for spearheading assaults in 1941–1942.

6. T-34/40(r)

The T-34/40(r) is automatically upgraded to the T-34/41(r) in 1941. This gives the player a reason to use these two tanks in 1941 and not have to worry about their quick obsolescence.

German Tanks and Tank Destroyers 1942

1. Table of German Tanks 1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Panzer IIJ/1	386	8	36	5	2	8	5	11		11	11	2	
Panzer IIIL	420	8	39	5	2	8	5	11	-1	13	12	2	
Panzer IIIM	448	8	49	5	2	8	5	11	-1	13	12	3	
Panzer IIIN	467	7	39	5	2	5	8	9	-1	13	12	4	
Panzer IVF/2	528	8	41	5	2	8	8	14		10	10	2	
Panzer IVG	616	8	39	5	2	8	8	14		14	12	2	

2. Table of German Tank Destroyers 1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Marder IIA	262	7	48	6	1	6	3	13		8	8	1	
Marder IID	301	7	50	6	1	7	4	15		9	8	1	
Marder III	276	9	50	5	1	6	3	13		11	10	1	
Marder IIH	331	9	55	5	1	7	4	15		12	10	1	
StuG IIIF	432	7	41	5	1	5	5	14		15	13	2	
StuG IIIF/8	519	6	35	5	1	6	6	16		16	13	2	
StuH 42	437	6	39	5	1	5	10	8		14	12	2	fortkiller mp

3. 1942 German AFV Availability Date

The availability dates of many German AFVs in 1942 have been moved to later dates for balanced reasons. For example, the StuG IIIF is available at the start of Voronezh, while the Panzer IVG is available at the start of Storming Stalingrad.

4. Panzer IIIM

The **Panzer IIIM** is modeled with schürzen, but otherwise it has the same armor as the Panzer IIIL.

5. Panzer IIIN

The **Panzer IIIN** is a dedicated urban warfare tank, with very good SA and the highest CD of any German tank. It can also engage light tanks with good success, but it is not very effective against most medium tanks.

6. Marder II

The **Marder II** series can be upgraded from the **Panzerjäger IB** in family. It has higher initiative than standard tank destroyers, although it is very fragile. It is faster than its historical data would suggest for balance reasons, which is represented by a bonus to movement (+1).

7. Marder III

The **Marder III** can be upgraded in family from the **P38(t)A**. It has higher initiative than standard tank destroyers, although it is very fragile.

8. StuG IIIF and StuG IIIF/8

The **StuG IIIF** and **StuG IIIF/8** are well-armored assault guns equipped with a powerful long-barreled 75 mm gun. In addition, they have a low profile, which gives them a bonus to GD (+1) compared to similarly armored vehicles. Their combination of excellent armor and firepower makes them a good choice to engage Soviet armor. They also have good SA for a tank destroyer. They are relatively expensive in 1942, since production of the StuG III did not significantly increase until 1943.

9. *StuH 42*

The **StuH 42** is a close fire support vehicle designed for urban warfare. In direct fire mode, it has the highest SA of any German AFV. See the artillery chapter for information on this unit in artillery mode.

10. *1942 German AFV summary*

In 1942, **Panzer IIIs** are still the most common medium German tanks. They are relatively inexpensive and effective in the hands of skilled crews, but they are nearing the limit of their upgrade potential. **Panzer IVs** equipped with the long-barreled 75 mm gun are expensive, but highly effective against most Soviet tanks. The **Marder II** is very fast, cheap, and effective against hard targets, but has low defenses. The **Marder III** is slower than the Marder II but has more defenses. The **StuG IIIF** has excellent defense and HA, but relatively low initiative.

Soviet Tanks 1942

1. *Table of Soviet Tanks 1942*

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
T-34/40	268	5	27	6	2	5	6	10		14	10	2	
T-34/41	290	10	60	6	2	6	7	12		15	11	2	
T-34/43	346	12	88	6	2	7	8	13		16	12	2	
KV-1A	550	6	30	5	2	5	6	10		16	11	3	nopch
KV-1B	582	6	30	5	2	6	7	12		18	12	3	nopch
KV-1C	605	6	26	4	2	7	8	13		20	13	4	nopch
KV-2	572	4	26	4	2	4	11	8		18	12	3	nopch
M4A2	383	10	74	5	2	8	9	11	-1	14	12	3	
M3 Lee	336	8	52	4	2	8	8	9		10	10	2	
Valentine III	262	9	44	4	2	5	4	8		10	10	2	

2. *T-34/43*

The **T-34/43** is given higher attack and initiative than the T-34/41, although historically both variants used the same 76.2 mm F-34 tank gun.

3. *KV-1C*

The KV-1C is equipped with the same 76.2 mm ZiS-5 gun (a version of the 76.2 mm gun modified for the KV-1 tanks) as the KV-1B.

4. T-34 Costs

The costs of T-34 tanks are reduced and will be continued in subsequent years. This does not have an impact on preplaced units, but at the end of certain scenarios the player may notice the AI purchase numerous T-34s with which to launch a last-ditch attack.

5. 1942 Soviet Tank Initiative

The initiative penalty of T-34, KV-1, and KV-2 tanks is reduced in 1942 to -1.

6. Lend-Lease Tanks

Lend-Lease tanks have been improved and made consistent with the British and American versions where possible. Generally, Lend-Lease tanks have better initiative but less attack and defense than the T-34.

Of particular note is the Lend-Lease M4 variant, the **M4A2**. This is the version of the M4 supplied to the Soviet. It has a diesel engine and superior speed and range compared with the M4 and M4A1.

7. 1942 Soviet AFV Summary

T-34 and **KV-1** tanks are even more formidable in 1942 than 1941. **Lend-Lease Tanks** can also be very dangerous, especially towards German infantry and other soft targets.

Captured Equipment 1942

1. Tables of Captured Allied Equipment 1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
T-34/41(r)	507	10	60	6	2	7	7	12		15	11	2	
KV-1A(r)	458	6	30	5	2	6	6	10		16	11	3	
KV-1B(r)	728	5	24	4	2	7	7	12		18	12	3	
KV-1C(r)	756	5	20	3	2	8	8	13		20	13	4	
M4A2(r)	334	10	64	5	2	8	9	11	-1	14	12	3	
SU-122(r)	557	5	68	6	1	4	10	11		15	11	2	fortkiller mp
BA-64(r)	184	7	135	10	4	3	3	1	-1	9	11	4	
SOMUA S35(f)	151	5	30	5	2	5	5	7		11	9	2	limited
Char B1 bis(f)	174	5	21	3	2	5	8	7		14	10	2	limited
Panzerspähwagen P204(f)	178	3	91	10	4	4	3	4		10	12	0	soft limited

Name	Cost	A	F	M	S	R	IN	SA	HA	AA	RF	GD	AD	CD	Traits
SU-122(r)	557	5	68	6	1	2	1	10	7		10	15	11	2	fortkiller mp

2. Captured T-34 and KV-1 Costs

The costs of captured T-34 and KV-1 tanks have been reduced, very significantly in some cases.

3. M4A2(r)

The **M4A2(r)** is a cheap, reliable tank with decent armor and excellent soft attack. In 1944 this unit receives a significant upgrade to HA for balance reasons, so the player has a reason to use this unit in his core.

4. Captured French Equipment

The **SOMUA S35(f)**, **Char B1 bis(f)**, and **Panzerspähwagen P204(f)** are available for purchase only during the 1942 French missions of GC42-43West. The **Panzerspähwagen P204(f)** is the German name given to captured AMD 35 Panhard armored cars, which are also known as the Panhard 178. Although by this stage of the war they were obsolete, they were nevertheless pressed into German service due to the Wehrmacht's chronic shortage of equipment. Although their combat power is lacking, they are very cheap.

1943 German Tanks and Tank Destroyers

1. Table of German Tanks 1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Panzer II Flamm	343	4	50	5	2	3	8	1		10	10	2	meng fortkiller RF=14
Panzer IIIJ	309	9	36	5	2	6	5	10		11	11	2	
Panzer IIIJ/1	328	8	36	5	2	8	5	12		11	11	2	
Panzer IIIL	357	8	39	5	2	8	5	12	-1	13	12	2	
Panzer IIIM	381	8	49	5	2	8	5	12	-1	13	12	3	
Panzer IIIN	406	7	39	5	2	5	10	9	-1	13	12	6	
Panzer IVF/2	348	8	39	5	2	8	8	14		10	10	2	
Panzer IVG	445	8	43	5	2	9	8	16		14	12	2	
Panzer IVH	515	8	40	5	2	9	8	16	-1	16	12	3	
Panther D	978	4	14	6	2	11	6	20		19	12	3	
Panther A	1074	6	26	6	2	12	6	20	-1	19	12	3	
Tiger I	1230	4	15	5	2	11	6	19		22	15	4	

2. Table of German Tank Destroyers 1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Marder IIA	223	7	48	6	1	6	3	13		8	8	1	
Marder IID	256	7	50	6	1	7	4	15		9	8	1	
Marder III	245	9	50	5	1	6	3	13		10	9	1	
Marder IIH	286	9	55	5	1	7	4	15		10	9	1	
Marder IIIM	317	9	58	5	1	8	4	15		12	10	1	
StuG IIIF	334	7	41	5	1	5	5	14		15	13	2	
StuG IIIF/8	351	6	35	5	1	6	6	16		16	13	2	
StuG IIIG	388	7	39	5	2	7	6	16	-1	17	13	3	
Hornisse	467	6	50	5	1	12	3	24		8	8	1	
Ferdinand	1320	4	9	3	1	11	2	24		25	16	2	limited

3. 1943 German AFV Cost Reduction

The costs of many German AFVs, such as the Panzer III, Panzer IV, and StuG III, have been reduced. This represents the increase to German armament production starting in this year.

4. Panzer III

All Panzer III models except the Panzer IIIN receives an automatic attack upgrade (HA +1) to help keep it competitive in 1943. The **Panzer IIIN** receives a SA upgrade (+2) to compensate for the increase to GD of most infantry in this year, and a CD upgrade (+2) to help it resist infantry attacks in close terrain.

5. Panzer IVG

The **Panzer IVG** has been upgunned to the 7.5 cm KwK 40 L/48. This is an automatic upgrade.

6. StuG IIIG

The **StuG IIIG** has a bonus to IN (+1) to ensure its success as a tank. This vehicle is cheap, tough, and packs good firepower.

Historically, the StuG IIIG is the most-produced and most-successful German tank destroyer. It destroyed more Allied and Soviet armor than any other German vehicle.

7. Panther

The Panther has excellent armor and hard attack, although its soft attack is lower than the Panzer IV and the Tiger because its gun was designed to engage armored targets. It also has weak top armor, represented by its low AD. The costs of Panthers are extremely high in 1943, but come down significantly in 1944 due to a much improved production in that year.

Historically, the Panther was rushed into service before it was ready. The **Panther D** has serious mechanical troubles and its reliability was very poor during Kursk. It also has an IN penalty (-1) of its very slow turret traverse speed, only 1 revolution every minute compared with 1 revolution every 15 seconds of the M4 Sherman. The **Panther A** corrected some of the early mechanical defects, hence its higher ammo/fuel, and its turret could traverse faster depending on how fast its engine is running.

Panthers are completely unavailable on the Western Front in 1943. Historically, Panthers were first sent to Italy in 1944.

8. Tiger I

The **Tiger I** is an extremely tough tank equipped with a powerful 88 mm gun. It can engage any Soviet or Allied AFV with good results.

However, it has serious mechanic troubles, especially in the snow or mud. A long drive often proved more fatal to a Tiger than combat. Mechanical reliability increases in 1944. It is also extremely expensive to produce.

The Tiger I is amazing on defense. It can reliably hold onto most positions and only has to worry about the most powerful Allied and Soviet AFVs, such as the IS-2 and Sherman Firefly.

9. Ferdinand

In terms of armor and armament, the **Ferdinand** is nearly the ultimate tank destroyer, beaten out only by the JagdTiger. No Soviet AFV in 1943, with the possible exception of the SU-152 and ISU-152, is a match for this behemoth. However, it is useless against enemy infantry or any soft target and it has almost no mobility. The Ferdinand, like the Tiger, is best used defensively. It is almost impossible to dislodge from its position by frontal assault.

On the Eastern Front, the Ferdinand can only be purchased at the start of Kursk on July 5, 1943. It is unavailable on July 6. Historically, only two battalions of these tank destroyers were ever built. In 1944 the Ferdinand is renamed the Elefant and automatically upgraded with better SA and ammo/fuel.

10. Hornisse

The **Hornisse** is an open-topped tank destroyer built on the Panzer IIIN chassis and equipped with the powerful 8.8 cm KwK L/71 gun. It has enough firepower to destroy any Allied AFV, although its armor is very weak. To compensate for its weak armor, it has a bonus to IN (+1). This vehicle is much more reliable compared with the Tiger and Panther tanks in 1943.

This unit is be very effective against armor, as long as it is employed correctly. It performs best in open terrain against Allied and Soviet AFVs. However, it is very vulnerable to infantry and bomber attacks. It is also very vulnerable in close terrain and during bad weather.

11. 1943 German AFV Summary

There is a huge increase in the number of AFVs the German player can field in 1943. Every unit is designed to have a niche.

The **Panzer III** is becoming increasingly obsolete, but a veteran crew can still take on many Soviet and Allied tanks with good success. The **Panzer IVG** and the **Panzer IVH** have enough firepower to take on any Soviet and Allied medium tank, although they are outmatched by Soviet heavy tanks such as the KV-85 and the IS-1.

The **StuG IIIG** is a cheap, tough, and powerful tank destroyer especially suited for defense. The **Marder II** and the **Marder III** are even cheaper and have good IN, but they have lower attack and much lower defenses. The **Hornisse** should now be more viable, because it has amazing HA and IN, allowing it to destroy most Allied tanks in clear terrain before they can return fire.

The **Panther** is a tank beset by mechanical trouble in 1943. “Ready” in time for Kursk, it combines good mobility and firepower, as long as its engine doesn’t break down. Despite its limitations, it is still a good idea to incorporate some Panthers into the player’s core so their crews can gain some experience. The **Tiger I** is also a tank beset by mechanical problem. Its high defense and amazing attack makes it a good choice to spearhead assaults or to protect the flanks. The **Ferdinand** is the ultimate tank destroyer in terms of armor and firepower. No Soviet tank, not even the KV-85 or the IS-1, stands a chance against it. However, it is vulnerable to infantry and is very slow. It is difficult to use when attacking, but it is amazing when defending. Do not expect that fielding a core exclusively of these advanced German AFVs will save prestige or automatically bring victory.

1942-1943 Western Allies Tanks and Tank Destroyers

1. Table of Western Allies Tanks 1942-1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Crusader Mk I	272	4	23	6	2	5	4	8		9	9	2	
Crusader Mk II	286	5	31	6	2	5	4	8		10	10	2	
Crusader Mk III	345	7	52	6	2	7	5	14		10	10	2	
Valentine II	276	9	44	4	2	5	4	8		11	10	2	
Valentine III	262	9	44	4	2	5	4	8		10	10	2	
Valentine IV	248	9	54	4	2	5	4	8		10	10	2	
Churchill Mk II	380	4	15	3	2	5	4	8		21	14	4	nopch
Churchill Mk IV	527	6	25	3	2	8	5	14		21	14	4	nopch
Churchill Mk VI	608	8	33	3	2	8	8	11		21	14	4	nopch
Churchill Mk VII	663	8	36	3	2	8	8	11		24	16	5	nopch
M3 Lee	336	8	52	4	2	8	8	9		10	10	2	
M3A5 Grant	370	8	59	5	2	8	8	9		11	10	2	
M4 Sherman	383	10	64	4	2	8	9	11	-1	14	12	3	
M4A1	364	10	59	4	2	8	9	11	-1	13	12	3	
M4A3	406	10	52	5	2	8	9	11	-1	14	12	3	

2. Table of Western Allies Tank Destroyers 1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
M10A1 Wolverine	317	8	52	5	2	9	6	16	-1	11	10	1	rott
M18 Hellcat	328	8	49	7	2	11	6	16	-1	10	10	1	rott

3. Crusader Tanks

The **Crusader** is a fast lightly armored tank equipped with the QF 2-pounder. Early models of this tank are not reliable, a problem exacerbated by the conditions of the North African desert, where they were first deployed. Later models of the Crusader have improved reliability. Of particular note is the **Crusader III**, a version up-gunned with the QF-6 pounder for much improved firepower against armor.

4. Valentine Tanks

The **Valentine** series of tanks are the most produced British tanks of the Second World War. While they are cheap and reliable, their combat performance is unimpressive. The Valentine II-IV are equipped with the QF 2-pounder. The Valentine IX is up-gunned to the QF 6-pounder and shipped as Lend-Lease to the Soviets starting in 1943.

5. M3A5 Grant

The **M3A5 Grant** is the British Lend-Lease version of the American M3 Lee tank. The Grant is faster and slightly better armored than the Lee.

6. Churchill

The **Churchill Mk II** has armor approaching that of a Tiger tank, but it is very slow and equipped with the weak QF 2-pounder. While it may be difficult to destroy, it is not a serious threat to most German tanks. The **Churchill Mk IV** is up-gunned to the QF 6-pounder and is especially dangerous to lightly armored German AFVs like the Marders. The **Churchill Mk VI** is equipped with the QF 75 mm gun and dangerous to all soft targets. The **Churchill Mk VII** is also equipped with a 75 mm gun and has the most armor of any Allied tank.

7. M3 Lee

The **M3 Lee** (named Grant when in British service) is an early American medium tank that first saw combat as Lend-Lease tanks in Africa in 1941. They are equipped with a 75 mm gun that is effective firepower against soft targets, but has poor results against armored targets. These tanks are not a threat to any contemporary German AFVs.

8. M4 Sherman

The M4 Sherman is the primary American tank and the mainstay of Allied armored forces. There are many variants of this tank. The **M4** (Sherman I) is equipped with a 75 mm gun that is highly effective against soft targets. It is also slightly more effective against enemy tanks than the M3 Lee. Its armor is good for 1942, but by 1943 it does not provide sufficient protection against the standard German 7.5 cm L/43 and L/48 guns. Its firepower is remedied in part with the introduction of better armor-piercing (AP) rounds as the war progressed.

The **M4A1** has a cast hull, and while this makes it cheaper to produce, its defenses are slightly worse than the welded hulls of the M4, M4A2, and M4A3.

The **M4A3** has a superior engine than the M4A1 and a welded hull.

9. M10A1 Wolverine

The **M10A1 Wolverine** is a tank destroyer built on the M4A3 Sherman chassis. It is equipped with the 76 mm L/52, giving it much better firepower against hard targets compared with the 75 mm gun of the standard M4. This tank destroyer has a manual turret capable of 360° rotation; however, its rotational speed is very slow relative to the M4, M18, and M36. Thus, this unit has a penalty to IN (-1). This tank destroyer is also very lightly armored, making it vulnerable to all contemporary German AT weapons.

10. M18 Hellcat

The **M18 Hellcat** is a tank destroyer that is the fastest tracked vehicle produced in the World War II. This tank destroyer has a turret capable of 360° rotation. It has very thin armor (only 25 mm in the front), so it survives by using its superior speed to out-maneuver German tanks. Because of its high speed, it receives a bonus to GD (+2) and AD (+2), so that its defenses are higher than what its armor alone suggests. Its high speed also gives it a bonus to IN (+1).

11. 1943 Western Allies Tanks Summary

In general, American and British tanks are designed to be inferior to their German counterparts. The **Crusader** series, especially the Crusader Mk III, can be dangerous to many medium German AFVs. The **Churchill** tanks can be very difficult to destroy due to their heavy armor, but are very slow. The **M4 Shermans** armed with the 75 mm gun are ubiquitous, and while they are very effective against soft targets, but are not a serious threat to German armor. The **M10A1 Wolverine** and **M18 Hellcat**, although lightly armored, can be very effective against German armor due to their high IN and good HA, especially when defending.

1943 Soviet Tanks and Tank Destroyers

1. Table of Soviet Tanks 1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
T-34/41	193	10	60	6	2	6	7	12		15	11	2	nopch
T-34/43	231	12	88	6	2	7	8	13		16	12	2	
KV-1A	550	6	30	5	2	5	6	10		16	11	3	nopch
KV-1B	582	6	30	5	2	6	7	12		18	12	3	nopch
KV-1C	605	6	26	4	2	7	8	13		20	13	4	nopch
KV-2	572	4	26	4	2	4	11	8		18	12	3	nopch
KV-85	805	8	48	5	2	10	9	17		20	13	4	nopch
IS-1	826	7	51	4	2	10	9	17	-1	22	15	4	nopch

2. Table of Soviet Tank Destroyers 1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
SU-76M	276	8	80	6	1	5	6	13		8	8	1	mp
SU-122	325	5	68	6	1	4	10	11		15	11	2	mp fortkiller
SU-152	537	4	60	5	1	6	13	20		18	12	3	fortkiller nopch
ISU-152	616	4	55	5	1	6	13	20	-1	22	15	4	fortkiller nopch
SU-85	588	6	70	6	1	7	7	17		16	12	2	

3. Soviet Tank Initiative in 1943

The initiative penalty for Soviet T-34 and KV tanks is removed in 1943.

4. The T-34 in 1943

The costs of T-34s have been reduced further. The AI will buy T-34s to launch last-ditch attacks in many scenarios.

5. SU-76M

The **SU-76M** is a Soviet assault gun built on the T-70 chassis and equipped with the same 76.2 mm gun as the T-34/43. Historically, the Soviets sometimes used the SU-76M in indirect fire mode, and thus this unit can also switch to artillery mode.

6. SU-122

The **SU-122** is a Soviet assault gun built on the T-34 chassis and equipped with a 122 mm howitzer. While it is intended as a tank killer, it is not very successful in that role. It is fairly effective at destroying fortifications, and its main gun can deal significant damage to soft targets. Although historically the SU-122 was almost never used in an indirect fire mode, for balance purposes this is allowed.

7. SU-152 and ISU-152

The **SU-152** is a well-armored assault gun equipped with a 152 mm howitzer that has devastating firepower to both hard and soft targets. The **ISU-152** is equipped with the same weapon but even more heavily armored. Both have enough firepower to destroy any German AFV, although their poor initiative hinders their effective employment, especially when on the attack. They are much more dangerous when used defensively and in an ambush role. Both these units also have good SA and CD, so they can perform well against green infantry in close terrain. However, elite infantry have little trouble defeating these units in close terrain.

8. 1943 Soviet AFV Summary

In 1943, the Soviets still field a significant number of light tanks and Lend-Lease tanks. Unless those units are overstrength, they are not a serious threat, although do be wary of the high SA of the Lend-Lease M4A2.

The primary Soviet tank in 1943 is the **T-34**. It is outclassed by the upgunned Panzer IVs, but is still relatively well-armored. What the Soviets lack in quality, they make up for in quantity. The Soviets also field large numbers of **SU-76M** and **SU-122**, both of which are only dangerous against lightly armored German AFVs. After Kursk, the Soviets will also employ a few **SU-85**, which can be dangerous to most medium German AFVs.

The **KV-1s** are less formidable because of the significant upgrade in firepower of the German AFVs. The heavy Soviet AFVs **KV-85**, **IS-1**, and especially the **SU-152** and **ISU-152** are very dangerous. These Soviet behemoths are best fought with Panthers and Tigers, or they can be destroyed with TAC bombers like the Fw 190F and the Ju 87G, or they can be lured into close terrain and destroyed with experienced infantry.

The best Soviet AFVs now have nopurchase flags. This doesn't affect preplaced units, but stops the AI from spamming them towards the end of scenarios.

Captured Allied Equipment 1943

1. Table of Captured Allied Equipment 1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
T-34/41(r)	306	10	60	6	2	8	7	14		15	11	2	
KV-1A(r)	412	6	30	5	2	8	7	14		16	11	3	
KV-1B(r)	485	5	24	4	2	8	7	14		18	12	3	
KV-1C(r)	539	5	20	3	2	8	8	14		20	13	4	
M4A2(r)	334	10	64	5	2	8	9	11	-1	14	12	3	
KV-85(r)	908	6	28	5	2	10	9	17		20	13	4	
Crusader Mk III(e)	345	7	52	6	2	7	5	14		10	10	2	
M3A5 Grant(e)	270	8	59	5	2	8	8	9		11	10	2	
Churchill Mk IV(e)	608	6	25	3	2	8	5	14		21	14	4	

2. T-34(r) and KV-1(r)

The guns of all captured T-34 and KV-1 tanks are automatically upgraded to the KwK 40 L/43. Historically, some of these captured tanks were indeed installed with this weapon. This change is designed to promote the use of some of these units even late into the war.

3. KV-85(r)

The fuel and ammo of the KV-85(r) is slightly reduced compared with the Soviet model. This unit now functions like a slower, more reliable Panther. Alternatively, it can be disbanded for significant prestige.

1944-1945 German Tanks and Tank Destroyers

1. Table of German Tanks 1944-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Panzer IIIN	406	7	39	5	2	5	10	9	-1	13	12	6	
Panzer IVG	347	9	43	5	2	9	8	16		14	12	2	
Panzer IVH	437	9	40	5	2	9	8	16	-1	16	12	3	
Panzer IVJ	373	9	64	5	2	8	8	16	-1	16	12	2	
Panther A	820	6	26	6	2	12	6	20	-1	19	12	3	
Panther G	765	7	40	6	2	12	6	20		20	12	2	
Tiger I	1230	6	20	5	2	11	9	19		22	15	4	
Tiger II	1782	6	14	5	2	14	9	24		25	16	5	
Maus	2755	4	6	3	2	16	13	26		29	16	6	nopch

2. Table of German Tank Destroyers 1944-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Marder IIIM	254	9	58	5	1	8	4	15		12	10	1	
StuG IIIG	325	7	39	5	2	7	6	16	-1	17	13	3	
StuG IV	459	6	43	5	1	6	6	16	-1	16	12	3	mp
Nashorn	467	7	50	5	1	12	3	24		10	10	1	
Elefant	1320	5	14	3	1	11	5	24		25	16	2	limited
JagdPz IV/48	308	8	43	5	1	6	6	15		17	13	2	
JagdPz IV/70(V)	509	6	28	4	1	9	4	20		20	14	3	
Hetzer	238	9	55	6	1	6	6	15		15	13	2	MarderIII*
JagdPanther	986	6	40	6	2	11	5	24		20	12	2	
JagdTiger	2025	4	10	4	1	13	6	26	-1	27	16	4	limited

3. 1944 German AFV Cost Reduction

Historically, German armament production peaked in 1944. The costs for most German AFVs, except for heavy armor such as the Tiger I, are reduced in this year.

4. Panzer III

Historically, the last **Panzer III** was produced in 1943 and all remaining chassis were converted for the production of the StuG III. Thus, in this year Panzer III costs are not reduced. The fact is that by 1944, this tank is now badly obsolete, and although a veteran crew can still perform well against the early model T-34 and M4 tanks. It may be best to upgrade any surviving Panzer IIIs to the Ausf. N or to newer tanks like the Panther or Tiger.

5. Panzer IV

All Panzer IV models receive a bonus to ammo (+1). This is to encourage their extensive use in 1944.

The **Panzer IVJ** has significantly better operational range and is much cheaper than the Panzer IVH, but it has less initiative due to the fact that its turret has to be manually rotated. It also has less CD because many final models lack schürzen.

6. Panther

The costs for all Panther variants have been significantly reduced, since historically Panthers were produced in large quantities in 1944.

The Panther D is no longer available for purchase. Since the original Panther had serious mechanical issues, it did not have a long production run.

The **Panther G** is a streamlined, reliable version of this tank and the most-produced variant. Historically, while the Panther G was often fitted with schürzen and an anti-aircraft machine gun like the Panther A, for gameplay purposes these are omitted.

In game, the Panther A has better CD and AA than the Panther G, while the Panther G is cheaper, has slightly better GD, and is more reliable.

7. Tiger I

The fuel and ammo of the **Tiger I** have been improved in 1944 to represent improvements to its mechanical reliability. It is still best used defensively. An experienced Tiger I is very difficult for even the best Soviet and Allied tank to dislodge.

8. Tiger II

The **Tiger II** is the ultimate tank. It significantly outclasses any Soviet and Allied AFV, including the SU-100, ISU-152, IS-2, Sherman Firefly, and M26 Pershing. It is also surprisingly agile despite its massive weight. However, it has abysmal fuel economy and is extremely expensive to produce. Historically, a little fewer than 500 of these tanks were ever built. If the player can afford a Tiger II, it can be counted on to hold any position. It is not a good weapon for offense, but a nearly perfect one for defense.

The main weakness of the Tiger II is its low fuel, which means that it often gets stuck, especially in the snow. Its strength points can also be whittled away by air attacks.

9. StuG IV

The **StuG IV** has similar combat power compared with the StuG IIIG, although it has less IN and slightly less GD. Because this unit can switch to artillery mode, its cost is significantly higher than the StuG IIIG.

10. Hetzer

The **Hetzer** is a very cheap, reliable, and fast tank destroyer. It is given an ahistorical bonus to movement (+1) to make it more useful. Like the StuG IIIG, this unit has a bonus to GD (+1) due to its low profile, although it has a slightly weaker gun. It is equipped with an innovative remote-controlled machine gun, thus its soft attack is higher than many other tank destroyers. This unit is best used as a disposable unit to plug gaps or to distract powerful Soviet and Allied tanks. However, without backup the Hetzer cannot survive for long against any tanks or even the more powerful medium tanks like the T-34-85 and M4A3(76)W.

The Hetzer can be upgraded from the Marder III in family. While this is ahistorical, since no Marder III was converted to the Hetzer, it is allowed for balance reasons, so that a player who has a Marder III since 1943 or even a P38(t)A since 1939 can upgrade it in 1944-1945.

This tank destroyer was designed by Guderian to replace towed anti-tank guns for German infantry divisions. About 2,000 were produced in 1944-1945, and they acquitted themselves well on the battlefield.

11. JagdPanzer IV

The **JagdPz IV/48** is a cheap tank destroyer with stats slightly worse than the StuG IIIG. However, it has superior fuel/ammo and good upgrade potential. Like the StuG IIIG, it gets a GD bonus (+1) due to its low profile.

The **JagdPz IV/70(V)** has the same gun as the Panther and similar armor, however, it is not nearly as mobile as the Panther. Because of the high weight of its 7.5 cm KwK 42 L/71 gun and its heavy frontal armor, this tank destroyer is nose heavy, earning the nickname “Guderian’s Duck.” Its excellent gun, good armor, and relatively cheap price make it perfect for defense.

12. Elephant

The **Elefant** is renamed from the **Ferdinand** in 1944. It is mounted with a machine gun, giving it much improved SA (+3) and its mechanical reliability is improved. This is still a problematic tank destroyer with serious mobility problems and a weakness to infantry. However, no Soviet or Allied tank can withstand its firepower and few guns can effectively penetrate its armor.

On the Western Front, there is an opportunity to purchase Elefants at the start of Cassino on February 8, 1944. It is unavailable by February 9.

13. Nashorn

The **Nashorn** is renamed from the **Hornisse** in 1944. This unit is given a bonus to ammo (+1) to encourage its continued use.

14. JagdPanther

The **JagdPanther** is arguably the best tank destroyer of WWII. It has a perfect combination of firepower, mobility, and protection. Like the Panther, its thin top armor makes it vulnerable to air attack. Only about 400 or so were ever built.

15. JagdTiger

The **Jagdtiger** is now correctly given the 12.8 cm Pak gun (the same gun as the Maus). It has the best defenses and HA of any German tank destroyer. Like all advanced German AFVs, it suffers from mechanical troubles. Fewer than 100 were produced.

This unit is unavailable for purchase in 1944, although there is an opportunity in GC44 to obtain one. It is available for purchase at the very beginning of Goldap in 1945.

16. 1944-1945 German AFV Summary

During the last years of the war, the German player can field a huge selection of tanks and tank destroyers. All units, with the exception of the Panzer III, have valuable roles on the battlefield.

The **Panzer III** is badly obsolete, and it is recommended that the player upgrades any surviving veteran crews to the Panzer IIIN model for urban combat or to the new Panther or Tiger tanks. The **Panzer IV** series continue to perform well. The Panzer IVH is the superior model in terms of raw combat power, but the Panzer IVJ is cheaper and has much better range.

The **Marder III** series, because of its good IN, can still perform well against Soviet medium tanks. It can also be upgraded to the **Hetzer**, whose role is that of a fast, disposal tank destroyer.

The **StuG IIIG** continues to shine as a cheap, tough, and effective tank destroyer. It is the go-to unit if the German player needs a unit to deal with incoming tanks. The **StuG IV** has the same firepower as the StuG IIIG, but it is much more expensive because it has an artillery mode. The **JagdPanzer IV/48** is slightly worse than the StuG IIIG, but it can be upgraded in-family to the **JagdPanzer IV/70(V)**, which has a very powerful gun.

Panther tanks are now cheaper and much more useful, and they can be deployed in decent numbers. Experienced Panther crews can take on any tank, but they remain vulnerable to air attack. The **Tiger I** and **Elefant** have somewhat better fuel/ammo, but the former remains expensive and the latter cannot be purchased. The **Nashorn** is a cheap option for a powerful tank destroyer, but is very fragile. The **JagdPanther** is an amazing tank destroyer, but is relatively expensive. The **Tiger II** is the ultimate tank, nearly invincible in combat, but it can scarcely move before running out of fuel. The **JagdTiger** has the best armor and firepower of any German tank destroyer, but it had very serious mechanical troubles.

1944-1945 Western Allies Tanks and Tank Destroyers

1. Table of Western Allies Tanks 1944-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Churchill Mk VI	608	8	33	3	2	8	8	13		21	14	4	nopch
Churchill Mk VII	663	8	36	3	2	8	8	13		24	16	5	nopch
Cromwell Mk IV	332	10	66	6	2	8	8	13		15	12	2	
Cromwell Mk VII	392	10	68	6	2	8	8	13		18	13	2	
Comet I (A34)	545	7	41	5	2	11	6	18		18	13	2	
Challenger (A30)	618	8	65	6	2	11	6	20		18	13	2	nopch
Sherman Firefly	601	8	52	5	2	11	6	20		15	13	2	
M4 Sherman	383	10	64	4	2	8	9	13	-1	14	12	3	
M4A1	364	10	59	4	2	8	9	13	-1	13	12	3	
M4A1(76)W	516	10	59	4	2	10	6	16	-1	13	11	3	
M4A3	406	10	52	5	2	8	9	13	-1	14	12	3	
M4A3(76)W	564	10	52	5	2	10	6	16, 17	-1	14	12	3	
M4A3E2	609	6	26	4	2	8	9	13	-1	22	16	5	nopch
M4A3E2(76)	810	6	26	4	2	10	6	16, 17	-1	22	16	5	nopch
M4A3(105)	323	7	52	5	1	5	12	9	-1	14	12	3	mp nopch
M26 Pershing	910	5	24	5	2	11	9	19	-1	21	15	4	nopch

2. Table of Western Allies Tank Destroyers 1944-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
M10A1 Wolverine	317	8	52	5	2	9	6	16, 17	-1	11	10	1	rott
M18 Hellcat	328	8	49	7	2	11	6	16, 17	-1	10	10	1	rott
M36 Jackson	450	8	52	5	2	11	7	19	-1	11	10	1	rott
Achilles	433	6	52	5	1	9	4	20	-1	12	11	1	rott
Archer	396	6	44	4	1	7	4	20	-1	10	10	1	

3. 75 mm gun

All Western Allies tanks equipped with the 75 mm gun receives a HA bonus (+2) in 1944 to represent improved AP ammunition.

4. 76 mm gun

All Western Allies tanks equipped with the 76 mm gun receives a HA bonus (+1) in 1945 to represent improved AP ammunition.

5. Cromwell Tank

The **Cromwell Mk IV** is a fast British tank equipped with a 75 mm gun. It has a good combination of armor, mobility, and firepower against soft targets, although its performance against German AFVs is lacking. The **Cromwell Mk VII** has much improved armor.

6. Comet I (A34)

The **Comet I** is equipped with the 77 mm HV gun, which is less effective than the QF 17-pounder. However, it is still very dangerous to most German tanks. It is also fairly well-armored..

7. Challenger (A30)

The **Challenger** is a Cromwell tank equipped with the QF 17-pounder. It is fast, deadly against German tanks, and fairly well-armored, but it was produced in small numbers.

8. Sherman Firefly

The **Sherman Firefly** is a M4 tank converted by the British to house the powerful QF 17-pounder. It has enough firepower to take on any contemporary German tank, including the Tiger and Panther. While the 17-pounder is potent against hard targets, it is less effective against soft targets. Also, the Firefly's defenses are no better than that of the average Sherman.

9. M4A1(76)W

The **M4A1(76)W** is a M4A1 equipped with a 76 mm gun for improved anti-armor performance. The W refers to the safer method of wet ammunition storage.

10. M4A3(76)W

The **M4A3(76)W** is a M4A3 equipped with a 76 mm gun for improved anti-armor performance. The W refers to the safer method of wet ammunition storage.

11. M4A3E2

The **M4A3E2**, also known as the Sherman Jumbo, are variants with significantly increased glacis armor, which approached 200 mm. These are heavy assault tanks designed to breakthrough tough defenses. These tanks are very difficult to knock out, but the extra weight imparted by the armor adversely affected their speed and mechanical reliability.

The **M4A3E2(76)W** is a Sherman Jumbo equipped with a 76 mm gun.

12. M4A3(105)

The **M4A3(105)** is a Sherman equipped with a 105 mm howitzer. When in direct fire mode, this unit is very devastating to soft targets.

13. M26 Pershing

The **M26 Pershing** is an American heavy tank rushed into combat in 1945. It boasts a very powerful 90 mm gun (based on an anti-aircraft gun) and excellent armor, so it is more than a match against Tigers and Panthers.

14. M36 Jackson

The **M36 Jackson** is an American tank destroyer equipped with a 90 mm gun that could defeat any contemporary German AFV. Like all American tank destroyers, it is lightly armored but features a rotating turret.

15. Achilles

The **Achilles** is a British tank destroyer equipped with the QF 17-pounder mounted on the chassis of a M10 tank destroyer. It has considerably more firepower than the Wolverine, but it has a very slow, manual turret, so it receives a penalty to IN (-1). The British used their tank destroyers in a more defensive role than the Americans, which results in an additional penalty to IN (-1).

16. Archer

The **Archer** is a British tank destroyer equipped with the QF 17-pounder mounted on the chassis of a Valentine tank. Although this unit is slow, it has excellent anti-armor capabilities. This AFV has an unusual configuration in which its gun faced the rear of the vehicle, which results in a penalty to IN (-1).

1944-1945 Soviet Tanks and Tank Destroyers

1. Table of Soviet Tanks 1944-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
T-34-85	279	10	70	6	2	10	9	17		17	13	2	
KV-1B	582	6	30	5	2	7	7	12		18	12	3	nopch
KV-1C	605	6	26	4	2	8	8	13		20	13	4	nopch
KV-2	572	4	26	4	2	5	11	8		18	12	3	nopch
KV-85	805	8	48	5	2	10	9	17		20	13	4	nopch
IS-1	826	7	51	4	2	10	9	17	-1	22	15	4	nopch
IS-2/43	1220	4	58	5	2	10	11	19	-1	25	16	5	nopch
IS-2/44	1220	4	58	5	2	11	11	19	-1	25	16	5	nopch

2. Table of Soviet Tank Destroyers 1944-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
ISU-122	709	4	55	5	1	8	10	19	-1	22	15	3	nopch
ISU-122s	709	4	55	5	1	9	10	19	-1	22	15	3	nopch
ISU-152	616	4	55	5	1	6	13	20	-1	22	15	4	fortkiller nopch
SU-100	717	4	70	6	1	6	6	21		21	14	2	

3. T-34-85

The **T-34-85** is the final evolution of this famous series of Soviet tanks. It is equipped with a powerful 85 mm gun, converted from a Soviet anti-aircraft gun, which is much better than the previous 76.2 mm gun. It also has the best armor of all the T-34 variants. This tank is especially dangerous if manned by experienced crews. It can engage all medium German tanks with good results. While it is still inferior to the Panther and Tiger, mostly ominously the Soviets field large quantities of this tank, so any qualitative weakness is remedied by quantitative superiority.

4. IS-2

The **IS-2/43** is a heavy tank fielded by the Soviets in 1944 in response to the German Panther and Tiger tanks. It is equipped with the powerful A-19 122 mm gun that is capable of effectively penetrating the armor of all but the heaviest German AFVs, and its armor can only be reliably be defeat by the 8.8 cm PaK 43. However, loading the gun on this tank was cumbersome. Thus, its initiative is lower than that of Tigers and Panthers. It also carried very little ammunition.

The **IS-2/44** is the automatic upgrade of the IS-2 in 1945. This tank had a faster loading D-25 122 mm gun, represented by an increase to IN (+1).

5. ISU-122

The **ISU-122** is a heavy assault gun that served primarily as a tank killer. It is equipped with the same gun (A-19 122 mm) as the IS-2 and has excellent armor. It has a bonus to IN (+1) since it was a dedicated tank destroyer. This unit is not as effective as the SU-152 and the ISU-152 against soft targets.

The **ISU-122s** is the automatic upgrade of the ISU-122 in 1945. This assault gun had a faster loading D-25 122 mm gun, represented by an increase to IN (+1).

6. SU-100

The **SU-100** is the Soviet counterpart to the JagdPanther. It is equipped with the powerful D-10S 100 mm gun, the most powerful anti-tank gun fielded by the Soviets. This unit is an extremely dangerous tank destroyer capable of defeating almost any German AFV. Its main weakness is a low ammo count and poor anti-infantry capabilities.

7. 1944-1945 Soviet AFV Summary

The Soviets field increasingly large numbers of experienced, overstrength T-34s. Against any individual German AFV, the **T-34/43** is no longer a serious threat. However, the **T-34-85** is a significant upgrade and is more than a match for any medium German AFV. If lucky, it can even inflict significant damage to Panthers and Tigers.

The Soviets also field more assault guns and heavy tanks. The **KV-85** and **IS-1** remain serious threats against most German units. The **IS-2** is the toughest Soviet AFV with excellent SA and HA, but it has relatively low IN and very low ammo. The **ISU-122** is a tough, powerful tank destroyer especially effective when defending. The **SU-100** is the best Soviet tank destroyer and comparable to the JagdPanther. The various Soviet heavy tanks and heavy assault guns are very dangerous, and it is best to fight them with German heavy tanks or with experienced infantry in close terrain.

Captured Allied Equipment 1944-1945

1. Table of Captured Allied Equipment 1944-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
T-34/41(r)	306	10	60	6	2	8	7	15		15	11	2	
KV-1B(r)	485	7	32	5	2	8	7	15		18	12	3	
KV-1C(r)	539	7	32	4	2	8	8	15		20	13	4	
M4A2(76)(r)	334	10	64	5	2	10	9	16	-1	14	12	3	
KV-85(r)	726	7	28	5	2	10	9	17		20	13	4	
Crusader Mk III(e)	345	7	52	6	2	7	5	14		10	10	2	
M3A5 Grant(e)	270	8	59	5	2	8	8	9		11	10	2	
Churchill Mk IV(e)	608	6	25	3	2	8	5	14		21	14	4	
Sherman Firefly(e)	601	8	52	5	2	11	6	20	-1	15	13	3	

2. T-34/41(r)

In 1944, the **T34-/41(r)** receives an upgrade to its HA to promote its continued use.

3. KV-1(r)

In 1944, the **KV-1(r)** receives improvements to its attack, ammo, fuel, and movement to encourage its continued use.

4. M4A2(76)(r)

Any **M4A2(r)** captured in Russia is automatically upgraded with the 76 mm gun to encourage its continued use. This upgrade, while unrealistic, is done so that the player may wish to keep this tank around.

5. *KV-85(r)*

In 1944, **KV-85(r)** has improved ammo and a lower cost.

6. *Sherman Firefly(e)*

The **Sherman Firefly(e)** has an excellent gun, but much weaker defenses than Tiger and Panther tanks. However, it is cheaper than both of those units.

Chapter V: SE Units

1. SE Infantry

All SE infantry have a bonus to SA (+1) and HA (+1), and they are better supplied (ammo +1) compared with their Heer counterparts. In addition, all SE infantry are 20% cheaper and their transports 50% cheaper.

These changes are implemented because SE infantry formations are assumed to receive priority for equipment and supplies. SE infantry are elite infantry with a low cost, so they are an excellent choice to elite reinforce and overstrength.

2. SE Tanks

All SE tanks have a bonus to HA (+1) and 20% extra fuel and ammo compared with their Heer counterparts. SE tank formations are assumed to receive priority for equipment and supplies. They can travel further and fight longer without pausing.

Most SE tanks are 10% cheaper than their standard counterparts. The exceptions are the Panther in 1943 (but not 1944-1945), Tiger I, and the Tiger II. Their slightly lower price means that they are a good first choice to elite reinforce and overstrength.

3. SE Unit Summary

SE infantry have increased combat power and it is much cheaper to give them the best transports. Even the most expensive half-tracks are relatively affordable, so SE infantry can be very mobile. They can be rushed across the battlefield at a moment's notice. Common SE tanks such as the Panzer III and Panzer IV are cheaper, while the rarer SE tanks such as the Tiger I are slightly more reliable. No one particular family of SE units should be more desirable than any other.

Chapter VI: Recon

German Recon Units

1. Table of German Recon Units 1939-1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Sd.Kfz. 222	272	3	80	10w	4	4	4	3	-2	10	12	0	soft dedicated
Sd.Kfz. 231	244	6	75	10w	3	4	4	3		8	10	2	soft combat
Sd.Kfz. 232	332	3	75	8a	4	4	4	3		10	12	0	soft dedicated
Panzer IIC	180	6	50	6t	3	5	4	3		6	7	2	hard
Panzer IIF	207	6	50	6t	3	5	4	3		9	10	2	hard

2. Table of German Recon Units 1943-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
Sd.Kfz. 222	272	3	80	10w	4	4	4	3	-2	11	13	0	soft dedicated
Sd.Kfz. 231	244	6	75	10w	3	4	4	3		9	11	2	soft combat
Sd.Kfz. 232	332	3	75	8a	4	4	4	3		11	13	0	soft dedicated
Sd.Kfz. 233	349	6	75	8a	3	5	8	7		9	11	2	soft combat
Sd.Kfz. 234/1	434	3	90	8a	4	4	4	3		13	13	0	soft dedicated
Sd.Kfz. 234/2	404	6	90	8a	3	8	5	12		11	11	2	soft combat
Panzer IIF	207	6	50	6t	3	5	4	3		11	11	2	hard
Panzer II Luchs	248	7	83	7t	3	6	5	8		12	12	2	hard

3. German Recon Unit Target Type

Most German recon units changed from HARD to SOFT targets. The exception is the Panzer II family.

4. Recon Unit Families

Dedicated, Combat, and Panzer II recon families are added. This allows the German player to upgrade recon units in family as the war progresses without losing experience. However, the newest recon model may not necessarily be the best investment, because elite reinforcements for late war recon units are expensive.

Dedicated recon units have higher GD and spotting, but they have very low CD and ammo. They are meant to serve as scouts and can survive limited encounters with enemy forces, but should not be used for extensive combat. Combat recon units have more ammo and higher CD, and some models have excellent firepower, but they have lower GD and spotting. They are more useful for exploiting tactical opportunities or for mopping up weakened units.

5. Panzer II

The Panzer II is automatically changed to the recon class in 1942. These are relatively cheap recon units with tracked movement, making them ideal in the snow.

6. 1943 German Recon Units Defenses

Most older German recon units receive a bonus to GD (+1) and AD (+1) in 1943 to help with survivability. Newer models already have this defense buff incorporated.

Western Allies Recon Units

1. Western Allies Recon Unit Summary

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
AMD 35 Panhard	141	5	91	10w	4	4	3	4		6	9	1	
Rolls Royce AC	121	6	50	10w	4	2	3	1		6	8	2	
Daimler AC	172	5	80	10w	4	5	4	8		10	10	2	
Humber AC	156	5	60	10w	4	3	3	1		8	10	1	
Daimler Dingo	104	5	100	10w	4	3	3	1		10	10	1	
SAS Chevy-WB	104	7	100	10w	3	3	4	1		6	10	1	mp
Vickers Mk VI	117	8	45	7t	3	3	3	1		6	7	1	
M8 Greyhound	165	6	130	10w	4	5	4	7	-1	10	10	1	
M20 LAC	99	6	138	10w	4	3	3	1	-1	10	10	1	
M2A4	240	7	42	6t	3	5	4	5	-1	6	7	2	
M3 Stuart	266	7	42	6t	3	5	4	7	-1	8	8	2	
M5 Stuart	277	7	50	6t	3	5	4	7	-1	10	10	2	

All of the AI's recon units remain **HARD** targets for balance reasons.

2. Vickers Mk VI

The **Vickers Mk VI** light tank is now a reconnaissance tank.

3. M3 and M5 Stuart

The **M3 and M5 Stuart** light tanks are now reconnaissance tanks.

Soviet Recon Units

1. Soviet Recon Unit Summary

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
BA-10	159	4	75	10w	4	4	4	5		6	9	1	
BA-64	103	7	135	10w	4	3	3	1	-1	9	11	4	
T-60	236	7	90	7t	3	4	2	4		7	8	2	
T-70	278	7	90	7t	3	6	5	6		12	11	2	

All of the AI's recon units remain HARD targets for balance reasons.

2. BA-64

The **BA-64** has been redesigned to be a unit specializing in urban warfare, simulated by its high CD.

3. T-60 and T-70

The **T-60** and **T-70** tanks are moved to the recon class, with improved attack and defenses. They are the rough equivalents of the Panzer II.

Chapter VII: Artillery

Global Changes

1. Mobile Artillery Initiative

All mobile artillery with a range greater than 1 have their IN set to 1. Mobile artillery with a range of 1 generally have IN set to 5.

2. Artillery Cost Increase

The prices for all German artillery have been increased. In general, self-propelled artillery and higher caliber towed artillery are much more expensive. The higher cost for self-propelled artillery is because they can provide suppressive fire for moving armored columns. Towed artillery is cheaper and has more ammo than their self-propelled counterparts. These changes are implemented because artillery, especially when overstrength, tends to be too cost-effective.

German Artillery

1. Table of German Artillery

Name	Cost	A	F	M	S	R	IN	SA	HA	AA	RF	GD	AD	CD	Traits
7.5 cm FK 16 nA	176	9		1	1	3	1	7	4		11	2	10	0	
10.5 cm leFH 18	259	8		1	1	3	1	9	6		10	2	10	0	
15 cm sFH 18	370	7		1	1	3	1	12	9		9	2	10	0	
17 cm K 18	607	5		1	1	4	1	14	11		7	2	10	0	
21 cm Mrs 18	525	6		1	1	3	1	17	14		7	2	10	0	
15 cm Nblwf 41	280	6		1	1	2	1	12	5		12	2	10	0	
21 cm Nblwf 42	364	5		1	1	2	1	16	8		11	2	10	0	
30 cm Nblwf 43	438	4		1	1	2	1	22	11		10	2	10	0	
Wurfrahmen 40	663	4	73	6	1	2	1	15	7	-1	10	4	6	1	
Panzerwerfer 42	540	4	69	6	1	2	1	12	5		12	6	8	1	
StuG IIIA	530	5	31	4	1	1	5	7	8		10	10	10	2	limited fortkiller
StuG IIIB	353	7	41	5	1	1	5	7	8		10	10	10	2	fortkiller
StuH 42	437	6	39	5	1	1	5	12	6		10	14	12	2	fortkiller mp
Brummbär (43)	617	4	25	5	1	1	5	15	10		10	18	13	4	fortkiller
Brummbär (44)	617	5	40	5	1	1	5	15	10		10	18	13	4	fortkiller
StuG IV	459	6	43	5	1	1	5	7	11	-1	10	16	12	3	mp
Sturmpanzer I	498	4	35	4	1	2	1	10	5		10	3	5	0	limited SturmP
Sturmpanzer II	547	5	45	5	1	2	1	10	5		10	4	6	0	limited SturmP
Grille H	409	6	46	6	1	2	1	10	5		10	11	11	1	SturmP
Wespe	433	6	35	5	1	3	1	9	6		10	4	6	0	
Hummel	502	5	34	5	1	3	1	12	9		9	5	7	0	

2. 7.5 cm FK 16 nA

Historically, the **7.5 cm FK 16 nA** had a slightly greater range than the 10.5 cm leFH 18, and thus its range has been increased. This artillery might now see greater use during the early war, although its firepower is lacking, especially by 1943.

4. 17 cm K 18

The **17 cm K 18** is unique because it has the longest range of any German artillery. Historically this kanone had the best range of any standard German artillery. However, using this unit exclusively is not a good choice. It is extremely expensive and has low RF. Fielding one or two in a core may be useful, especially for urban assault scenarios like Moscow, Sevastopol, or Stalingrad.

5. Nebelwerfer

Nebelwerfer, literally “fog thrower,” are towed German rocket artillery. They are extremely devastating against soft targets. The lower caliber models (15 and 21 cm) have higher RF and are great against conscripts and most lightly entrenched infantry, while the higher caliber model (30 cm) wrecks even the most heavily entrenched infantry and even many tanks in 1943 and beyond. Their primary drawback is their poor range of 2 and relatively low ammo.

6. Wurfrahmen 40

The **Wurfrahmen 40** is a half-track mounted with Nebelwerfer. It has great mobility and amazing firepower against all soft units. Its main drawbacks are its high cost, low ammo count, and vulnerability to air attacks.

7. Panzerwerfer 42

The **Panzerwerfer 42** has less raw attack but a higher RF than the Wurfrahmen 40. It is slower, but is slightly cheaper and has better defenses.

8. StuG IIIA

The **StuG IIIA** is a well-armored assault gun equipped with the same short-barreled 75 mm gun as the Panzer IVD. This unit excels at providing close range fire support and is resistant to direct attack. It has a penalty to movement, fuel, and ammo for balance reasons. Historically, the Germans only fielded a few dozens of these assault guns in 1940.

The StuG IIIA and StuG IIIB remains in the artillery class despite it being an assault gun historically. This is because the Germans lack an effective, reliable SP artillery unit before 1943.

This unit can only be purchased during GC40. It can be upgraded for free to the StuG IIIB in 1941.

9. StuG IIIB

The **StuG IIIB** excels in suppressing both tanks and infantry for 1941 and 1942. It has better movement and ammo than its predecessor. Its effectiveness decreases in 1943 against the increasingly experienced Allied and Soviet units.

10. StuH 42

The **StuH 42** is an assault gun mounted with a 10.5 cm howitzer. It is an amazing weapon for suppressing soft targets. It also has the flexibility of an assault mode, useful for direct attacks against artillery or suppressed units. Its main weakness is its poor HA.

11. Brummbär

The Sturmpanzer IV **Brummbär** is a very tough assault gun capable of wreaking incredible havoc on soft units. It has enough GD to be resistant to attack by medium tanks and superior CD since it is a dedicated urban combat vehicle. Its primary drawbacks are its high cost and short range.

The fuel/ammo of this unit is increased slightly in 1944 to represent the mechanical improvements made in newer production series.

12. StuG IV

The **StuG IV** is an anti-tank assault gun with an anti-tank artillery mode. Historically, the StuG IV was very similar to the StuG IIIG, except that it was mounted on a Panzer IV chassis. For gameplay reasons, this unit retains its artillery mode, but costs significantly more than the StuG IIIG and is slightly inferior in direct combat. This unit is designed to be a StuG IIIB equivalent in 1944.

This unit is in the artillery class, so it can be upgraded from the StuG IIIB and StuH 42, although not in family.

13. Sturmpanzer I

The **Sturmpanzer I** is the first German self-propelled artillery available for purchase. It mounts a 15 cm sIG 33 infantry gun on a Panzer I chassis. Historically, this weapon provided fire support in close range encounters, although its limited armor limited its effectiveness. For gameplay purposes, this unit has greater range than historical performance would suggest. It is also only available for purchase during GC40. This unit can be upgraded in family to the **Sturmpanzer II** in 1941 and to the **Grille H** in 1943 for balance reasons.

14. Sturmpanzer II

The **Sturmpanzer II** mounts the same gun as the Sturmpanzer I but on a Panzer II chassis. It has improved movement, ammo, and defenses. It is only available for purchase for a limited time during late 1941 and early 1942.

15. Grille H

The **Grille H** is designed as fast, tough self-propelled artillery that can be upgraded from the Sturmpanzer II in 1943. This unit has better movement than its historical performance would suggest for balance reasons. It is effective against soft targets and is difficult to suppress by Soviet artillery. Its drawbacks are its poor range and low HA.

16. Wespe

The **Wespe** is a reasonably cheap, long-range self-propelled artillery that is most effective once its crew gains experience. It performs best against lightly entrenched soft targets.

17. Hummel

The **Hummel** is a more expensive but more powerful self-propelled artillery than the Wespe. It has sufficient firepower to suppress moderately entrenched soft targets and can even suppress some medium tanks with decent results.

18. German Artillery Summary

Most artillery, towed or self-propelled, should be useful to some extent for the entire war, depending on the situation.

Towed artillery pieces are cheaper and have more ammo, making them more useful for sieges. The **7.5 cm** artillery is effective against soft targets during 1939-1942, but its firepower is severely lacking by 1943. The **10.5 cm** artillery is a good, cheap standard artillery piece suitable for use during the entire war, while the higher caliber **15 cm** and **21 cm** artillery are better against entrenched infantry and against tanks. The **17 cm K 18** is unique because it has a range of 4, but it is very expensive and has a low rate of fire. The **Nebelwerfer** have superior attack and/or rate of fire, but less range and ammo.

StuG artillery have good defenses and decent firepower, so they excel in the role of close support. The **StuG IIIB** is very effective at providing defensive suppressive fire in 1941 and 1942, but is much less effective in 1943 and beyond. The **StuH 42** is an excellent close support assault gun, effective against soft targets but much less so against hard targets. The **StuG IV** is an excellent anti-tank assault gun, with good suppressive power against most Soviet medium tanks and a powerful direct fire mode. The **Brummbär** has exceptional firepower and defenses, but it is also expensive and has no switch mode.

Long range mobile artillery are more expensive and have less ammo, but can fire while moving a great distance. They are particularly valuable since they can provide defensive fire for mobile units. The **Sturmpanzer I** is available only in 1940 and has limited range and ammo, but it is the only range 2 mobile artillery available to the Germans for some time. It can be upgraded to the Sturmpanzer II and later the Grille H. The **Wurfbrahmen 40** and **Panzerwerfer 42** remain the best choice for suppressing soft units, but they are very expensive and have low ammo. The **Wespe** is the cheapest of all self-propelled artillery and has decent firepower, making it a good default choice. The **Hummel** has superior firepower, but costs the most. The **Grille H** is fast and resistant to suppressive fire, but has poor range, a lower RF, and is ineffective against hard targets.

Western Allies Artillery

1. Table of Western Allies Artillery

Name	Cost	A	F	M	S	R	IN	SA	HA	AA	RF	GD	AD	CD	Traits
75 mm wz. 97	132	9		1	1	2	1	7	4		11	2	10	0	
105 mm wz. 29	192	8		1	1	3	1	9	6		10	2	10	0	
75 mm mle 1897	132	9		1	1	2	1	7	4		11	2	10	0	
105 mm mle 1913	192	8		1	1	3	1	9	6		10	2	10	0	
155 C mle 1917	290	6		1	1	3	1	13	10		9	2	10	0	
QF 25-pdr Mk I	152	9		1	1	3	1	8	6		11	2	10	0	
QF 25-pdr Mk II	152	9		1	1	3	1	9	6		11	2	10	0	
BL 5.5 inch	244	7		1	1	3	1	12	9		10	2	10	0	
BL 6 inch 26 cwt	271	7		1	1	3	1	10	8		9	2	10	0	
BL 7.2 inch	330	6		1	1	3	1	15	12		9	2	10	0	
Bishop	248	9	48	4	1	2	1	9	6	-1	11	8	8	1	
Sexton	280	9	48	5	1	3	1	9	6	-1	11	10	10	1	
75 mm M1A1	132	9		1	1	2	1	7	4		11	2	10	0	
105 mm M2A1	192	8		1	1	3	1	9	6		10	2	10	0	
155 mm M1	290	6		1	1	4	1	12	9		7	2	10	0	
8 inch M1	370	5		1	1	3	1	17	14		8	2	10	0	
75 mm HMC M8	228	6	50	6	1	2	1	7	4	-1	11	8	8	1	
105 mm M7	258	7	52	4	1	3	1	9	6	-1	10	10	10	1	
155 mm M12 GMC	367	5	52	5	1	3	1	12	9		7	4	6	0	
M4A3(105)	323	7	52	5	1	3	1	9	6	-1	10	14	12	3	mp

2. British Artillery Fire Control

The British artillery arm arguably had the best fire control system of any nation during World War II. Thus, its artillery gains a bonus to RF (+1) compared with that of other nations.

3. QF 25-pdr

The British **QF 25-pounder** is arguably the best medium howitzer of World War II. The Mk I has slightly less SA than the Mk II. This unit has good firepower and amazing RF.

4. 155 mm M1

The 155 mm M1 “Long Tom” has range similar to that of the German 17 cm K 18. This unit has the longest range of any Allied artillery.

5. 155 mm M12 GMC

The **155 mm M12 GMC** is a self-propelled version of the 155 mm “Long Tom.” This AFV consists of a 155 mm M1 mounted on the chassis of a M3 Lee tank. However, this limited the maximum elevation of the gun, so it cannot fire as far as its field artillery equivalent. It is also limited in the amount of ammunition it carries. Its main advantage is its mobility.

6. M4A3(105)

The **M4A3(105)** is a Sherman tank mounted with a 105 mm howitzer for both direct and indirect fire support.

Soviet Artillery

1. Table of Soviet Artillery

Name	Cost	A	F	M	S	R	IN	SA	HA	AA	RF	GD	AD	CD	Traits
76.2 mm M1939	132	9		1	1	3	1	7	4		10	2	10	0	
76.2 mm M1942	154	9		1	1	3	1	8	4		10	2	10	0	
122 mm M1938	205	8		1	1	3	1	10	7		10	2	10	0	
152 mm M1938	271	7		1	1	3	1	13	10		9	2	10	0	
SU-76M	276	6	80	6	1	3	1	8	4		10	8	8	1	mp
SU-122	325	5	68	6	1	2	1	10	7		10	15	11	2	mp
SU-152	537	4	60	5	1	2	1	13	10		9	18	12	3	
ISU-152	616	4	55	5	1	2	1	13	10		9	22	15	4	
ISU-122	709	4	55	5	1	1	1	10	14		9	22	15	3	
BM-13 Katyusha	403	6	60	8	1	2	1	15	6		11	3	6	0	
BM-31 Katyusha	507	4	85	8	1	2	1	20	7		10	3	6	0	

2. 76.2 mm Howitzer

The Soviet **76.2 mm** howitzer had similar range to the German 7.5 cm and 10.5 cm howitzers. The 76.2 mm M1942 is also known as the ZiS-3.

3. SU-76M

The **SU-76M** is an assault gun built on an open-top T-70 chassis and equipped with a ZiS-3. The gun on this vehicle had the greatest elevation angle of any Soviet assault gun, and its indirect fire range is similar to that of the 76.2 mm field howitzer.

4. SU-122

Historically, the **SU-122** was not often used for indirect fire support, but for gameplay balance reasons this is allowed. Its range is not as good as the 122 mm field howitzer.

5. BM-13 Katyusha

The **BM-13 Katyusha** mobile rocket artillery is a dangerous foe, able to move quickly and hit soft targets hard.

Chapter VIII: Anti-Aircraft Guns

Global Changes

1. Towed Anti-Aircraft Guns Close Defense

In 1943, all anti-aircraft guns receive a bonus to their CD (+1).

German Anti-Aircraft Guns

1. German Anti-Aircraft Gun Table

Name	Cost	A	F	M	S	R	IN	SA	HA	AA	RF	GD	AD	CD	Traits
2 cm Flakvierling	102	9		1	1	2	5	-6	-2	13	13	2	10	1, 2	
2 cm FlaK 38	51	14		1	1	2	5	-1	-2	11	10	2	10	1, 2	
3.7 cm FlaK 37	92	12		1	1	2	7	-4	-5	15	10	2	10	1, 2	
3.7 cm FlaK 43	92	12		1	1	2	7	-4	-7	17	10	2	10	1, 2	
8.8 cm FlaK 36	224	9		1	1	3	8	-5	-9	19	7	2	10	1, 2	mp
12.8 cm FlaK 40	447	8		1	1	4	13	-7	-11	22	7	2	10	1, 2	
Sd.Kfz. 10/4	219	12	76	8	1	2	5	-2	-2	11	10	3	8	0	
Sd.Kfz. 7/1	260	7	80	6	1	2	5	-6	-2	13	13	4	8	0	
Sd.Kfz. 7/2	286	10	80	6	1	2	7	-4	-5	15	10	4	8	0	
Sd.Kfz. 7/2 (1944)	318	10	80	6	1	2	7	-4	-7	17	10	4	8	0	
Gepard	239	12	58	6	1	2	5	-2	-2	11	10	6	10	1	
Möbelwagen	366	10	50	5	1	2	7	-4	-7	17	10	12	11	1	
Ostwind	431	10	50	5	1	2	7	-4	-7	17	10	16	12	2	
Wirbelwind	396	7	50	5	1	2	5	-6	-2	13	13	16	12	2	

2. German Towed AA Gun Cost Reduction

German Towed AA guns are reduced in cost to compensate for the increased cost of motorization.

3. German SPAAG Cost Increased

German SPAAG are increased in cost because they rarely engage in direct combat and lose strength points.

4. 2 cm Flakvierling 38

The **2 cm Flakvierling 38** has a very high RF since it is a combination of 4 guns that can fire simultaneously. It is particularly effective against lightly-armored targets, such as early-war tactical bombers.

5. 3.7 cm FlaK 37/43

The **3.7 cm FlaK 37** is an effective medium caliber German AA gun. While not having nearly as high of a rate of fire as the 2 cm Flakvierling, it is more effective against more heavily armored bombers like the Il-2.

The 3.7 cm FlaK 37 is automatically upgraded to the **3.7 cm FlaK 43** in 1944 with improved AA (+2).

6. 8.8 cm FlaK 36 (AA mode)

In AA mode the **8.8 cm FlaK 36** has a RF penalty. An elite, overstrength 88 gun is no longer especially potent at shooting down planes, especially fighters. Smaller caliber guns are as effective as this unit at anti-aircraft duty. In AT mode it has no RF penalty, so it remains devastating against armored ground targets.

7. 12.8 cm FlaK 40

Introduced at the beginning of 1944, the **12.8 cm FlaK 40** has amazing firepower and the best range of any AA gun. Its drawbacks are a low RF, very high cost, and the lack of an AT mode like the 8.8 cm FlaK.

8. German Half-track AA Guns

All German half-track AA guns use the attack values of their towed counterparts.

All German half-track AA guns share an upgrade family.

The movement and fuel of the **Sd.Kfz. 7/1** and **Sd.Kfz. 7/2** are made consistent with that of the **Sd.Kfz. 7** tractor. Their defenses are slightly higher since they are outfitted with a small amount of extra armor.

The **Sd.Kfz. 7/2** is automatically upgraded with the 3.7 cm FlaK 43 in 1944, resulting in an improvement in AA (+2).

These units serve as mobile AA protection for advancing armored columns. They become increasingly valuable from 1943 on, when German air superiority is no longer a given. Each unit has its own niche. The **Sd.Kfz. 10/4** is cheap and mobile, the **Sd.Kfz. 7/1** has high RF, and the **Sd.Kfz. 7/2** is equipped with the most powerful gun.

9. FlakPanzer

All FlakPanzer use the attack values of their towed counterparts.

All FlakPanzer share an upgrade family.

The **Gepard** has more GD and AD than its armor alone would suggest for balance reasons.

In GC44East, the availability date of **Wirbelwind** is moved to the start of Vilna and that of the **Ostwind** to the start of Budapest44. In GC44West, the availability date of the **Wirbelwind** is moved to the start of Villers-Bocage and that of the **Ostwind** to the start of Arnhem. While these dates are earlier than their historical introduction, this is intended to give the player much needed SPAAG against the increasingly powerful Allied and Soviet air units.

The **FlakPanzer**, especially the late models, are more heavily armored than the half-track series of AA guns. The **Gepard** is the cheapest and fastest model, but it also has the weakest gun. The **Möbelwagen** is a stopgap measure introduced in early 1944 with decent armor and excellent attack. The **Ostwind** has the best combination of attack and defense, but is the most expensive. The **Wirbelwind** has a very high RF, but its AA is low for 1944.

Soviet Anti-Aircraft Guns

1. Soviet Anti-Aircraft Gun Table

Name	Cost	A	F	M	S	R	IN	SA	HA	AA	RF	GD	AD	CD	Traits
37 mm M1939	131	10		1	2	2	5	-2	-3	14	10	2	10	1, 2	
85 mm M1939	243	9		1	1	3	7	-5	-6	18	7	2	10	1, 2	mp
T-90 SPAAG	163	7	90	6	1	2	4	-2	-1	11	10	7	8	1	
M16 MGMC	197	8	80	8	1	2	4	-6	-1	13	12	3	6	0	

2. 85 mm M1939 (AA mode)

The 85 mm M1939 fires more powerful shells than the 37 mm M1939, but it has a lower RF. Like the 8.8 cm FlaK, this gun can switch into AT mode.

3. Soviet SPAAG

The **T-90 SPAAG** is a lightly armored vehicle armed with two 12.7 mm machine guns. Historically this vehicle had a very limited production run. In the GCs they are deployed in decent quantities and can consistently damage German planes when experienced and overstrength.

The **M16 MGMC** is a Lend-Lease M3 half-track equipped with a M45 Quadmount, a weapon system consisting of four 0.50 caliber Browning machine guns. The M45 Quadmount is an Allied equivalent of the 2 cm Flakvierling 38.

Western Allies Anti-Aircraft Guns

1. Western Allies Anti-Aircraft Gun Table

Name	Cost	A	F	M	S	R	IN	SA	HA	AA	RF	GD	AD	CD	Traits
40 mm wz. 36	136	16		1	1	2	5	-2	-3	16	9	2	10	1	
25 mm CA mle 39	102	23		1	1	2	5	-1	-2	11	10	2	10	1	
20 mm Oerlikon	100	18		1	2	2	4	-1	-2	11	10	2	10	1, 2	
QF 40 mm	136	16		1	2	2	5	-2	-3	16	9	2	10	1, 2	
QF 3 inch	171	11		1	1	2	6	-4	-5	17	7	2	10	1, 2	
QF 3.7 inch	208	10		1	1	3	8	-5	-8	19	7	2	10	1, 2	
40 mm M1	136	16		1	2	2	5	-2	-3	16	9	2	10	2	
3 inch M3	171	11		1	1	2	6	-4	-5	17	7	2	10	2	
90 mm M1A1	213	9		1	1	3	8	-5	-9	19	7	2	10	2	
M15A1 MGMC	247	12		8	1	2	5	-6	-3	15	10	3	6	0	
M16 MGMC	197	8	80	8	1	2	4	-6	-1	13	12	3	6	0	

2. Bofors 40 mm

Historically the **Bofors 40 mm** has a higher muzzle velocity than the 3.7 cm FlaK, although its rate of fire is slightly slower.

3. 3 inch AA gun

The **3 inch AA gun** in both American and British service is a WWI-era gun that is obsolete by 1939. Due to a shortage of the newly developed QF 3.7 inch and the 90 mm M1A1, these guns were pressed into service. The Americans adapted this weapon in an anti-tank role and equipped it on vehicles like M10 Wolverine.

4. QF 3.7 inch

The **QF 3.7 inch** is the standard British heavy AA gun. It is the equivalent of the 88 gun, but tactically it cannot switch to an anti-tank mode.

5. 90 mm M1A1

The 90 mm M1A1 is the standard American heavy AA gun. The towed version is almost never tactically used in an anti-tank role. However, this gun is the basis for the development of a potent anti-tank gun, equipped to the M36 tank destroyer and M26 Pershing.

6. Western Allies SPAAG

The **M16 MGMC** is a M3 half-track equipped with a M45 Quadmount, a weapon system consisting of four 0.50 caliber Browning machine guns. This unit has a higher RF and thus is much more dangerous than the T-90. The M45 Quadmount is an Allied equivalent of the 2 cm Flakvierling 38. Both the British and Americans have access to this unit.

The **M15A1 MGMC** is a M3 half-track equipped with a 37 mm cannon and two machine guns. While its RF is not as high as that of the M16 MGMC, it has better penetrating power.

Chapter IX: Towed Anti-Tank Guns

Global Changes

1. Towed Anti-Tank Guns Defenses

In 1943, all anti-tank guns receive a bonus to their CD (+1) and GD (+1).

German Towed AT Guns

1. Table of German Anti-Tank Guns

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
3.7 cm Pak 36	56	10		1	2	2	2	6		6, 7	10	1, 2	
5 cm Pak 38	99	9		1	1	4	3	11		7, 8	10	1, 2	
7.5 cm Pak 40	135	8		1	1	6	4	16		7, 8	10	1, 2	
8.8 cm Pak 36	224	9		1	1	8	5	19	-7	5, 7	10	1, 2	mp
8.8 cm Pak 43/41	270	7		1	1	11	5	24		9	10	2	

2. German Towed AT Guns Cost Reduction

The costs for all German towed AT guns are reduced to compensate for the increased costs of motorization.

3. 3.7 cm Pak 36

The **3.7 cm Pak 36** is effective against most early war light tanks. Historically it was nicknamed the “doorknocker” by its crew, as it was woefully inadequate against well-armored early war tanks like the Matilda, Char B1, T-34, and KV tanks.

4. 5 cm Pak 38

The **5 cm Pak 38** can defeat most lightly armored AFVs handily, but still struggles against the well-armored T-34 and KV tanks.

5. 7.5 cm Pak 40

The **7.5 cm Pak 40** is an effective weapon capable of defeating most mid-war AFVs. Available in 1942, this weapon can penetrate the armor of T-34s, KV tanks, and most Western Allies tanks. Historically this was the standard divisional AT weapon for German infantry divisions from 1943 onwards.

6. 8.8 cm Pak 36

The **8.8 cm Pak 36** is the AT mode of the 8.8 cm Flak 36 and one of the most famous German weapons of World War II. It is an amazing AT weapon, and the only weapon in the early war

that can handily defeat units such as the Char B1, Matilda, T-34, and KV tanks. This unit receives a GD bonus (+2) in 1943.

7. 8.8 cm Pak 43/41

This 8.8 cm Pak 43/41 is the ultimate German towed AT weapon. It is capable of defeating any Allied AFV. The Tiger II, Ferdinand, JagdPanther, and Hornisse are armed with the same gun.

Western Allies Towed AT Guns

1. Table of Western Allies Towed AT Guns

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
37 mm wz. 36	106	9		1	2	2	1	6		6	10	1	
25 mm SA 34	96	7		1	2	2	1	6		6	10	1	
47 mm SA 37	122	5		1	1	3	1	10		6	10	1	
QF 2 pounder	122	9		1	1	2	1	8		6, 7	10	1, 2	
QF 6 pounder	170	8		1	1	5	3	14		8	10	2	
QF 17 pounder	233	7		1	1	8	4	20		9	10	2	
37 mm M3	111	9		1	2	2	1	7		7	10	2	
57 mm M1	170	8		1	1	5	3	14		8	10	2	
76 mm 3 Inch M5	212	7		1	1	4	4	15		8	10	2	

2. 25 mm SA 34

The **25 mm SA 34** is roughly equivalent to the German 3.7 cm Pak 36 in performance.

3. 47 mm SA 37

The **47 mm SA 37** is a very dangerous early war anti-tank gun. When equipped with a tungsten AP round, it could easily defeat the armor of all contemporary German tanks. This unit has the best HA of any French unit.

4. QF 2 pounder

The **QF 2 pounder** is the standard early war British AT weapon. It is effective against all light tanks. Many British tanks of this period are armed with this weapon.

5. QF 6 pounder

The **QF 6 pounder** is the British answer to the German long barreled 7.5 cm gun. It is sufficient to defeat most mid to late-war medium armor.

6. QF 17 pounder

The **QF 17 pounder** is the most powerful Western Allies AT gun. It is capable of penetrating the armor of all but the heaviest German armor.

7. 57 mm M1

The **57 mm M1** is the American made version of the QF 6 pounder.

8. 76 mm 3 Inch M5

The **3 inch M5** AT gun is superior to most early war weapons, but it proved to be cumbersome in the field and not liked by the US Army. Its heavy weight hindered its effective employment, resulting in a penalty to IN (-1) and a penalty to HA (-1).

Soviet Towed AT Guns

1. Table of Soviet Towed AT Guns

Name	Cost	A	F	M	S	IN	SA	HA	AA	GD	AD	CD	Traits
45 mm M1937	110	9		1	1	2	2	6		6, 7	10	1, 2	
45 mm M1942	156	9		1	1	3	3	9		6, 7	10	1, 2	
57 mm M1943	190	8		1	1	6	4	15		7, 8	10	1, 2	
85 mm M1939 AT	243	9		1	1	7	4	17	-5	6, 7	10	1, 2	mp
76.2 mm M1942	178	7		1	1	5	4	13		7, 8	10	1, 2	
100 mm M1944	356	6		1	1	9	5	21		9	11	2	

2. 85 mm M1939

The **85 mm M9193** is the Soviet equivalent of the German 8.8 cm Flak. It is an anti-aircraft gun that is sometimes used in an anti-tank role. Numerous late war Soviet AFVs, most famously the T-34-85, are armed with a modified version of this weapon.

3. 76.2 mm M1942

The **76.2 mm M1942** howitzer is often used in an anti-tank role. For game balance reasons, the AI is not allowed to employ this weapon in its traditional dual role use.

4. 100 mm M1944

The **100 mm M1944** is a late war Soviet AT weapon with enough firepower to defeat any German AFV.

Chapter X: Fighters

Global Changes

1. German Fighters Ammo Reduction

The ammo of all German fighters has been significantly reduced. Many Allied fighters have more ammo than their German equivalents for balance reasons.

The ammo of all German fighters is increased (ammo +1) in 1943 for balance reasons.

2. Fighters Ground Defense Increase

Generally, the GD of all fighters has been increased. This is to reduce losses taken from anti-aircraft gun fire.

German Fighters 1939-1942

1. Table of German Fighters 1939-1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Bf 109E	410	4	35	13	2	7	1	1	14, 15	1	22	18	
Bf 109F	473	4	75	14	2	11	1	1	12, 13	1	24	21	
Bf 109G	563	3	52	14	2	10	1	1	15	1	23	20	
Fw 190A	704	3	43	14	2	11	1	2	18	1	23	21	

2. Bf 109E

The **Bf 109E** is an excellent fighter during 1939-1941, but its age begins to show when more advanced Allied and Soviet planes appear in 1942 and beyond. In 1942 the AA of this unit is increased by 1.

3. Bf 109F

The **Bf 109F** a much more maneuverable version of the Bf 109. It is much more useful for engaging Allied fighters that have good initiative, but it lacks firepower against the more heavily armored Allied planes. In 1942 the AA of this unit is increased by 1.

4. Bf 109G

The **Bf 109G** is the most well-balanced version of the Bf 109. It has the best balance of initiative and firepower until the Bf 109K is introduced in late 1944.

5. Fw 190A

The **Fw 190A** is the most advanced and heavily armed German fighter in 1942, but it is also the most expensive. It has excellent firepower is well-suited to shoot down heavily armored bombers like the Il-2 Shturmovik.

This unit is available immediately in 1942 on the Western Front, where historically it was introduced earlier than on the Eastern Front.

Western Allies Fighters 1939-1942

1. Table of Western Allies Fighters 1939-1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
M.S.406	250	6	12	12	2	6	1	1	9	1	21	16	
D.520	366	8	13	13	2	6	2	1	13	1	22	17	
Hurricane Mk I	349	5	46	13	2	6	1	1	15	1	21	16	
Hurricane Mk IIC	416	5	46	13	2	6	1	1	17	1	21	17	
Spitfire Mk I	435	5	43	13	2	7	1	1	15	1	22	18	
Spitfire Mk II	443	5	50	13	2	7	1	1	15	1	23	19	
Spitfire Mk VB	496	5	47	14	2	8	1	1	17	1	23	19	
Spitfire Mk IX	522	5	44	14	2	10	1	1	17	1	24	20	
P-40E Kittyhawk	450	5	55	13	2	8	1	1	17	1	23	19	

2. M.S.406

The **M.S.406** is a fairly maneuverable but poorly armed French fighter. It is no match for the Bf 109.

3. D.520

The **D.520** is a decent French fighter with decent speed and firepower. However, it is still outclassed by the Bf 109.

4. Hurricane

The **Hurricane** is an early war British fighter that has excellent firepower but is relatively slow. It is also well-liked because it is easy to maintain and cheap to produce. It is particularly suited to attacking German bombers and heavy fighters like the Bf 110.

The Hurricane and the Spitfire are best known for winning the Battle of Britain. Typically, the Spitfires often engaged escorting German fighters while the Hurricanes went after the more vulnerable German bombers.

5. Spitfire Mk I

The Spitfire is probably the most famous British fighter of World War II. It is the British equivalent of the Bf 109, a fighter produced throughout the entire war and continuously upgraded.

The **Spitfire Mk I** is an excellent early war fighter and the equal of the Bf 109E. It is probably the most dangerous threat to German fighters in 1940, but relatively few are present in GC39 and GC40.

6. Spitfire Mk II

The **Spitfire Mk II** is upgraded with slightly improved armor compared with the Mk I.

7. Spitfire Mk VB

The **Spitfire Mk VB** has superior speed and firepower compared with earlier versions, but is badly outclassed by the Fw 190A.

8. Spitfire Mk IX

The **Spitfire Mk IX** is introduced as a response to the Fw 190A. It is much faster than previous versions and can go toe-to-toe with the Bf 109G and the FW 190A.

9. P-40E Kittyhawk

The **P-40E** is an American Lend-Lease fighter nicknamed the “Kittyhawk” when in British service. It is a well-armed fighter for 1941-1942, but its slow speed is a significant drawback from 1943 on.

Soviet Fighters 1939-1942

1. Table of Soviet Fighters 1939-1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Polikarpov I-16	295	6	25	13	2	5	1	1	11	1	20	15	
MiG-3	353	5	74	14	2	10	1	1	10	1	23	16	
LaGG-3	314	5	35	13	2	6	1	1	10	1	22	16	
Lavochkin La-5	458	5	41	13	2	9	1	2	17	1	22	18	
Yakovlev Yak-1	329	6	43	13	2	8	1	1	12	1	22	16	
Yakovlev Yak-7	504	5	51	14	2	10	1	1	14	1	23	18	
Hurricane Mk I	349	5	46	13	2	6	1	1	15	1	21	16	

2. Polikarpov I-16

The **Polikarpov I-16** is a badly obsolete Russian fighter at the start of Operation Barbarossa. Although it is cheap to build and easy to maintain, the Bf 109 dominates this plane in every way.

3. MiG-3

The **MiG-3** is designed as a high-altitude interceptor, but most aerial battles on the Eastern Front took place at medium to low altitudes, where the performance of this plane suffers significantly. It also lacks enough firepower to be a serious threat.

4. LaGG-3

The **LaGG-3** is a fairly maneuverable fighter for 1941, but lacks firepower. It is no match for the Bf 109.

5. Lavochkin La-5

The **La-5** is an excellent Soviet fighter introduced in late 1942. It has excellent firepower but somewhat weak defenses. An experienced crew can engage all contemporary German planes with decent results.

6. Yakovlev Yak-1

The **Yak-1** is one of the better Soviet planes in 1941 and 1942, but is still outclassed by the Bf 109.

7. Yakovlev Yak-7

The **Yak-7** is highly maneuverable Soviet fighter with decent air attack. The Soviets lack experienced crews in 1942 to use this plane effectively.

German Fighters 1943

1. Table of German Fighters 1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Bf 109E	351	5	35	13	2	7	1	1	15	1	22	18	
Bf 109F	404	5	75	14	2	11	1	1	13	1	24	21	
Bf 109G	507	5	52	14	2	10	1	1	15	1	23	20	
Fw 190A	651	5	43	14	2	11	1	2	18	1	23	21	

While no new German fighters are introduced in 1943, their price has been reduced to reflect the increasing German armaments production, and their ammo has been increased for balance reasons.

Western Allies Fighters 1943

1. Table of Western Allies Fighters 1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Spitfire Mk IX	522	5	44	14	2	10	1	1	17	1	24	20	
P-38G Lightning	396	7	90	14	2	9	3	1	15	1	21	19	
P-40E Warhawk	450	5	55	13	2	8	1	1	17	1	23	19	
P-51B Mustang	488	7	121	14	2	12	1	1	16	1	25	22	
P-47B Thunderbolt	557	4	45	14	2	11	6	9	20	1	22	21	
P-47D Thunderbolt	587	5	55	14	2	11	6	9	20	1	23	22	

2. P-38G Lightning

The **P-38G Lightning** is the first long-range American fighter. However, it is not a particularly distinguished dogfighter. It also has limited strafing capabilities.

3. P-40E Warhawk

The **P-40E** in American service is nicknamed the “Warhawk.” It is a well-armed fighter for 1941-1942, but its slow speed is a significant drawback from 1943 on.

4. P-51B Mustang

The **P-51 Mustang** is perhaps the most famous American fighter. It is designed as a long-range bomber escort, but is also an extremely capable dogfighter. This fighter is highly maneuverable and can successfully engage the Bf 109 and Fw 190. This fighter, when fielded in large quantities in 1944, is responsible for the defeat of the Jagdwaffe.

5. P-47 Thunderbolt

The **P-47 Thunderbolt** is an extremely formidable American fighter. It has amazing firepower and can successfully engage any BF 109s and Fw 190s. Its powerful cannons are also extremely potent when used in a ground attack role.

Soviet Fighters 1943

1. Table of Soviet Fighters 1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Lavochkin La-5FN	458	5	41	13	2	10	1	2	17	1	23	19	
Yakovlev Yak-1b	329	6	43	13	2	9	1	1	14	1	23	18	
Yakovlev Yak-3	564	5	83	14	2	11	1	1	19	1	25	21	
Yakovlev Yak-9D	504	5	51	14	2	10	1	1	16	1	24	20	
Hurricane Mk IIC	349	5	46	13	2	6	1	1	17	1	21	17	

2. Lavochkin La-5FN

The **La-5FN** is an upgrade of the La-5 with a superior engine, which results in better maneuverability. This is the definitive version of the La-5, and in the hands of an experienced crew, is very dangerous for German fighters.

3. Yakovlev Yak-1b

The **Yak-1b** is an upgrade with a superior engine and armaments, which extends the longevity of this plane.

4. Yakovlev Yak-3

The **Yak-3** is an extremely dangerous Soviet fighter. It is highly maneuverable and has excellent firepower. It can engage both the Bf 109 and Fw 190 on even terms.

5. Yakovlev Yak-9D

The **Yak-9D** is a good Soviet fighter that saw use from 1943-1945. It has a good mix of speed and firepower. It is roughly the equivalent of the Bf 109G.

German Fighters 1944-1945

1. Table of German Fighters 1944-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Bf 109F	355	5	75	14	2	11	1	1	13	1	24	21	
Bf 109G	436	5	52	14	2	10	1	1	15	1	23	20	
Bf 109K	553	4	43	14	2	13	1	1	17	1	23	20	
Fw 190A	583	5	50	14	2	11	1	2	18	1	23	21	
Fw 190D-9	617	4	50	14	2	12	1	2	17	1	24	22	
Me 163B	566	3	25	14	2	16	1	1	21	1	25	17	
Me 262A	1243	4	45	14	2	15	1	1	24	1	26	22	
Ta 152H	730	4	45	14	2	13	1	2	21	1	23	22	
He 162A	786	4	36	14	2	15	1	1	22	1	24	21	

2. Bf 109K

The **Bf 109K** is the most advanced version of the Bf 109. Introduced in late 1944, it has outstanding maneuverability, speed, and firepower. It can engage any contemporary fighter or bomber with good success. However, production of this model came too little, too late to make a difference for the German war effort.

3. Fw 190D-9

The **Fw 190D-9** is an upgraded version of the Fw 190 that focuses more on higher altitude dogfighting. This unit is better suited to engage the fighters with higher initiative.

4. Me 163B

The **Me 163B** Komet is a small jet interceptor that is used with limited success. While it is very fast, it is very fragile and has a very limited flight time.

5. Me 262A

The **Me 262A** is the most famous jet fighter of World War II. It completely outclasses all Allied propeller-based aircraft and is equipped with quadruple 30 mm Mk 108 cannons, which have enough firepower to shoot down even the most heavily armored Allied bombers in one run. Its primary drawback is that it is extremely expensive.

Historically, the Me 262A was delayed due to attempts to design a jet bomber or fighter-bomber. Its widespread use was limited due to a shortage of jet fuel, which severely limited both training and combat time.

Western Allies Fighters 1944-1945

1. Table of Western Allies Fighters 1944-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Spitfire Mk IX	522	5	44	14	2	10	1	1	17	1	24	20	
Spitfire Mk XIV	555	5	46	14	2	12	1	1	17	1	24	20	
Tempest Mk V	594	5	83	14	2	12	1	2	20	1	24	21	
Meteor Mk III	668	4	43	14	2	14	1	2	20	1	26	23	
P-38L Lightning	396	7	90	14	2	10	8	5	15	1	21	19	
P-40N Warhawk	450	5	55	13	2	9	1	1	17	1	24	20	
P-51D Mustang	543	7	95	14	2	12	1	1	18	1	25	22	
P-51H Mustang	642	7	85	14	2	14	1	1	18	1	26	24	
P-47D Thunderbolt	587	5	55	14	2	11	6	9	20	1	23	22	
P-47N Thunderbolt	674	5	95	14	2	12	6	9	20	1	24	23	

2. Spitfire Mk XIV

The **Spitfire Mk XIV** is the final version of the Spitfire. It had a markedly improved engine compared with earlier versions.

3. Tempest Mk V

The **Tempest Mk V** is a maneuverable and heavily armed British fighter introduced late in the war. It is superior to the Fw 190, but historically this plane was not fielded in large quantities.

4. Meteor Mk III

The **Meteor Mk III** is the first operational Allied jet fighter. This plane is not as fast as the Me 262A nor did it boast as much firepower. Historically, most of these fighters were kept in England to intercept V-1s.

5. P-38L Lightning

The **P-38L Lightning** is an upgraded version of the P-38, with an improved engine, numerous air-to-ground rockets, and extra space on the wings for bombs. This is a formidable ground attack craft. The P-38L is also the most produced version of the aircraft.

6. P-40N Warhawk

The **P-40N Warhawk** is an upgrade with a superior engine. It has better initiative and defenses when compared with the P-40E.

Soviet Fighters 1944-1945

1. Table of Soviet Fighters 1944-1945

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Lavochkin La-7	585	5	39	14	2	11	1	2	20	1	24	20	
Yakovlev Yak-9U	625	4	42	14	2	12	1	1	19	1	25	22	

2. Lavochkin La-7

The **Lavochkin La-7** is a further refinement of the La-5. It improved speed and firepower.

3. Yakovlev Yak-9U

The **Yak-9U** is the most agile version of the Yak-9. It is a rare Soviet fighter that is also the most dangerous. It may be wiser to use AA guns to shoot down the Yak-9U instead of using the German player's increasingly precious Jagdwaffe resources to defeat it.

Chapter XI: Bombers

Global Changes

1. German Bomber Costs Increased

The costs for all German bombers have been significantly increased. This is because these units rarely take damage in the early war, and their usefulness is much more limited during the late war when the Allies have air superiority.

2. Strategic Bomber Ground Defense

In general, the GD of strategic bombers is much higher than tactical bombers. This is to simulate the fact that these planes typically flew at a much higher altitude. Heavy caliber AA such as the 8.8 cm FlaK or the 12.8 cm FlaK are more effective at shooting down Allied strategic bombers.

3. Bomber Naval Attack

In general, the NA for all bombers has been significantly decreased. Tactical bombers tend to have higher NA than strategic bombers.

4. German Bomber Ammo Reduction

The ammo of most German bombers has been significantly reduced. Thus, refueling bombers more regularly is much more important. In general, air power should be used at the critical point.

German Tactical Bombers 1939-1942

1. Table of German Tactical Bombers 1939-1942

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Ju 87B	330	3	31	11	1	1	8	5, 6	-5	5	19	12	
Ju 87R	356	2	53	11	1	2	8	5, 6	-5	8	19	12	
Ju 87D	503	4	71	11	1	3	10	6	-7	5	20	13	
Hs 129B-1	490	4	40	12	1	1	4	8	-7	4	21	18	
Bf 110C	356	4	63	13	2	5	4	2	12	2	20	14	
Bf 110D	394	4	88	13	2	5	5	4	10	2	20	15	
Bf 110F	475	4	88	13	2	7	5	4	12	2	21	17	

2. Ju 87 1939-1942

The **Ju 87** is an amazing weapon during 1939-1942 and a vital part of the success of the German blitzkrieg campaigns. As long as the player can maintain air superiority, Stukas reign supreme. Use them to blast away enemy artillery, anti-tank guns, and tanks with impunity. Ju 87s, however, are very vulnerable to fighters, so it is imperative to escort them lest they be intercepted and destroyed.

The **Ju 87B** and **Ju 87R** receive an increase to hard attack in 1942 (HA +1).

3. Hs 129B-1

The **Hs 129B-1** is designed as an anti-tank tactical bomber. It is more effective than the Ju 87 against hard targets and much more heavily armored.

4. Bf 110

The **Bf 110** is a heavy fighter-bomber whose main advantage is its early war tactical flexibility. It can be employed against both air and ground targets, although its performance in both roles is mediocre at best. The **Bf 110C** has somewhat better AA, but the **Bf 110D** has better fuel, SA, HA, and defenses. The **Bf 110F** has the best IN and defenses of all the models, although it is much more expensive than the two previous models.

German Tactical Bombers 1943

1. Table of German Tactical Bombers 1943

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Ju 87B	297	3	31	11	1	1	8	6	-5	5	19	13	
Ju 87R	330	2	53	11	1	2	8	6	-5	8	19	13	
Ju 87D	455	4	71	11	1	3	10	6	-7	5	20	14	
Ju 87G	516	4	51	11	1	1	5	14	-7	4	19	13	
Hs 129B-2	490	4	60	12	1	1	4	12	-7	4	21	19	
Bf 110F	428	4	88	13	2	7	5	4	12	2	22	17	
Bf 110G	401	3	37	13	2	5	4	2	21	2	20	16	
Me 410A	492	4	105	14	2	8	5	5	18	3	21	18	
Fw 190F	620	4	50	14	1	9	6	9	14	3	21	20	

2. Ju 87 1943

The costs of all Ju 87 are decreased in 1943.

The **Ju 87G** is the best anti-tank tactical bomber of any nation. It was equipped with dual 37 mm cannons that could devastate any Allied armored. However, it has the same weaknesses as earlier Ju 87 models, namely that it is very vulnerable to both anti-aircraft guns and fighters.

The usefulness of Stukas starts to decrease from 1943 on, when the Allies field increasingly large numbers of decent fighters. Both Soviet and Western Allies fighters will attack Ju 87s covered by fighters.

3. Hs 129B-2

The **Hs 129B-2** is an excellent anti-tank tactical bomber. While not quite as powerful as the Ju 87G, it is more survivable. All Hs 129B-1 are automatically upgraded to the Hs 129B-2 in 1943.

4. Bf 110G

The **Bf 110G** is a dedicated bomber interceptor. It is designed to be a dedicated bomber interceptor, and any attempts to use it to engage fighters will likely incur huge losses. Historically, this version of the Bf 110 was often equipped with rockets that were devastating to slow-moving Allied bombers.

5. Me 410A

The **Me 410A** is a long range heavy fighter-bomber. While it can engage both air and ground targets, it has the same drawbacks as the Bf 110 series, meaning that it is mediocre against both types of targets.

Its family with the Bf 110 series has been removed.

6. *Fw 190F 1943*

The **Fw 190F** is an outstanding, versatile fighter-bomber. It has excellent ground attack potential, good defenses, and it can engage weakened Soviet fighters with good results.

German Tactical Bombers 1944-1945

1. *Table of German Tactical Bombers 1944-1945*

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Ju 87D	455	4	71	11	1	3	10	6	-7	5	20	14	
Ju 87G	516	4	51	11	1	1	5	14	-7	4	19	13	
Hs 129B-2	490	4	60	12	1	1	4	12	-7	4	21	19	
Bf 110G	401	3	37	13	2	5	4	2	21	2	20	16	
Me 410A	492	4	105	14	2	8	5	5	18	3	21	18	
Fw 190F	564	4	50	14	1	9	6	9	14	3	21	20	
Fw 190G	624	5	74	14	1	9	8	11	11	3	22	21	
Do 335A	728	4	128	14	2	12	7	9	16	1	23	21	nopch

2. *Fw 190F 1944*

The cost of the **Fw 190F** is slightly decreased in 1944.

3. *Fw 190G*

The **Fw 190G** has better ground attack, defenses, and range than the Fw 190F, but it is less effective against air units.

German Strategic Bombers

1. Table of German Strategic Bombers

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Do 17Z	353	4	50	12	1	2	7	3	-4	3	22	13	
Ju 88A	600	3	91	13	1	4	14	9	-6	5	21	14	
He 111H2	494	5	75	12	1	2	10	4	-7	4	25	16	
He 177A	1270	3	96	12	1	7	18	11	-11	4	27	18	
Do 217E	932	4	123	14	1	5	15	8	-10	5	25	17	
Ju 188A	717	3	77	12	1	4	13	8	-13	5	25	18	

2. Do 17Z

The **Do 17Z** is the cheapest of all German strategic bombers, but its offensive stats are lacking. It is most useful for disrupting supplies as opposed to providing suppression.

3. Ju 88A

The **Ju 88A** is strategic bomber with excellent ground attack. It is fast and can often score kills on tanks and artillery, but it is very expensive and has low defenses.

4. He 111H

The **He 111H** is the most defensive of all early war German bombers. It has decent attack and is resistant to anti-aircraft fire, although it is still vulnerable to fighter attack.

5. Do 217E

The **Do 217E** is a well-rounded, though expensive, strategic bomber introduced in 1941. It has no main weaknesses.

6. He 177A

The **He 177A** has amazing attack, but is extremely expensive. Historically, this bomber was plagued with mechanical troubles, which is reflected by its low ammo.

7. Ju 188A

The **Ju 188A** is designed as a tough late war strategic bomber. It has the worst attack of the various late war models, but makes up for it with great defenses.

Western Allies Tactical Bombers

1. Table of Western Allies Tactical Bombers

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Potez 63.11	122	4	48	12	1	1	4	4	-3	1	18	11	
Blenheim	197	4	52	12	1	3	4	5	-6	1	18	12	
Mosquito Mk VI	539	6	111	14	1	9	5	5	17	4	23	20	
Typhoon Mk IB	458	5	51	14	1	10	10	8	14	4	21	20	
Hurricane Mk IID	362	4	46	12	1	5	4	11	10	1	19	16	
B-25B Mitchell	346	4	81	12	1	4	7	8	-8	5	20	17	
B-25H Mitchell	532	4	81	12	1	4	9	10	-10	5	20	17	
B-26C Marauder	494	5	115	12	1	3	11	8	-14	6	24	18	
A-26 Invader	537	4	70	13	1	7	10	12	-14	6	21	17	

2. Mosquito Mk VI

The **Mosquito Mk VI** is a dangerous fighter-bomber with excellent dogfighting but more limited ground attack capabilities. It is also a hard target to shoot down. Historically, this plane has the lowest losses of any British warplane used as a bomber.

3. Typhoon Mk IB

The **Typhoon Mk IB** is an excellent British fighter-bomber. It is often equipped with rockets that are highly effective against soft targets. It is also a fairly agile plane, but it is still no match against veteran German fighters.

4. Hurricane Mk IID

The **Hurricane Mk IID** is a dedicated British anti-tank tactical bomber. It is very dangerous to German armor, but it is vulnerable to both fighters and anti-aircraft guns.

5. B-25 Mitchell

The **B-25 Mitchell** is an excellent American ground attack plane.

6. B-26 Marauder

The **B-26 Marauder** is a medium-altitude bomber, thus it has superior defense against anti-aircraft guns.

7. A-26 Invader

The **A-26 Invader** is the best American tactical bomber, but debuts late in the war.

Western Allies Strategic Bombers

1. Table of Western Allies Strategic Bombers

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
LeO 451	234	4	43	12	1	3	9	5	-4	3	23	13	
AW Whitley Mk V	283	5	47	11	1	1	12	7	-5	3	23	15	
Stirling Mk I	374	6	74	12	1	2	15	9	-9	4	24	16	
Lancaster Mk I	524	8	180	12	1	3	18	11	-13	6	26	18	
B-17F	603	6	150	13	1	5	20	12	-14	6	26	19	
B-17G	703	6	150	12	1	4	20	12	-15	6	27	20	
B-24 Liberator	643	8	200	12	1	4	23	14	-14	8	25	18	
B-29 SF	1206	24	400	14	1	7	27	17	-17	10	29	22	

2. Lancaster Mk I

The **Lancaster Mk I** is the best British strategic bomber. While not as powerful as the B-17, it is still an effective heavy bomber. Historically it was used most often for night bombing.

3. B-17

The **B-17** Flying Fortress is a powerful, tough American heavy strategic bomber. It has excellent attack and is highly resistant to both anti-aircraft fire and fighter interception.

4. B-24 Liberator

The **B-24 Liberator** has a greater bomb load than the B-17, but its defenses are lower.

5. B-29 SF

The **B-29** Super Fortress is the most advanced heavy bomber of World War II. It has the largest bomb load and toughest defenses of any Allied aircraft. Historically, this bomber was used exclusively in the Pacific Theater.

Soviet Tactical Bombers

1. Table of Soviet Tactical Bombers

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Petlyakov Pe-2	320	6	72	13	1	6	6	7	-9	3	20	17	
Il-2 Shturmovik	376	5	50	12	1	1	7	10	-6	2	22	20	
Il-2M3	369	5	45	11	1	4	8	11	-7	3	22	21	
Il-10	443	5	50	13	1	8	9	12	-14	3	23	22	

2. Peltyakov Pe-2

The **Peltyakov Pe-2** is medium Soviet tactical bomber. It has sufficient defenses to survive a few attacks during the early war, and it can inflict decent damage on German units.

3. Il-2 Shturmovik

The **Il-2 Shturmovik** is a very dangerous Soviet ground attack plane. When used correctly, this is arguably the best ground attack plane of World War II. It is heavily armored and fairly resistant to anti-aircraft guns. The more heavily armed Fw 190 is much more effective at shooting down this bomber than the Bf 109. The **Il-2M3** is an upgraded model with even better attack and defenses.

Historically, the Soviets often employed their Il-2 poorly, flying in rigid formations and attacking from too high of an altitude. Thousands upon thousands of Il-2 were lost to Flak and German fighters. The Soviets compensated for their poor tactics with sheer numbers. Counting all models, the Il-2 is the most produced military plane in history.

4. Il-10

The **Il-10** is the best Soviet tactical bomber. It is an improvement of the Il-2 in every way, most noticeably in maneuverability. However, it debuts in 1945 and only limited numbers are available.

Soviet Strategic Bombers

1. Table of Soviet Strategic Bombers

Name	Cost	A	F	M	S	IN	SA	HA	AA	NA	GD	AD	Traits
Illyushin Il-4	264	5	81	12	1	2	12	8	-6	4	25	15	
Petlyakov Pe-8	356	6	200	12	1	3	14	10	-5	4	26	16	

2. Illyushin Il-4

The **Illyushin Il-4** is a mediocre Soviet medium bomber. It has decent GD but is otherwise unremarkable.

3. Peltyakov Pe-8

The **Peltyakov Pe-8** is a long range Soviet strategic bomber that was used in numerous raids on German cities, including Berlin, in 1941. These raids inflicted minimal damage but gave the Soviets a much needed propaganda boost during the disasters of 1941. Historically fewer than 100 of these bombers were built.

Miscellaneous Changes

1. Bf 109D buffed. This special Yugoslavian “hero” unit should be slightly tougher to shoot down.
2. 10.5cm K 29(p) FK family added, so the player can upgrade this to other German towed artillery without a penalty.
3. 47mm model 1936 HA +1. This Romanian AT gun is slightly better against Soviet tanks, although the difference is barely noticeable.
4. SE Panzer IIIN receive +1 SA instead of +1 HA, since this is anti-soft unit close support vehicle.
5. Free Polish Infantry in the 1944 Warsaw Uprising scenario upgraded.
6. Italian Units improved for GC42-43West.
7. Canadian, New Zealand, and Free Polish Infantry in GC44West adjusted.
8. Wehr Reserve slightly improved, noupgrade flag added. However, don’t expect these units to do much except delay advancing enemy units.
9. 7TP nopurchase flag added.

Acknowledgements

Thanks to **Rudankort** for designing Panzer Corps and for including many awesome modding features.

Thanks to **Kerensky** for creating the amazing Grand Campaigns.

Thanks to **dragos** for his unit name generator, which is great fun to play with.

Thanks to **ThvN** for his incredible research and description of the Western Allies AFVs and doctrine for 1942-1945.

Thanks to **ivanov**, **orlinos**, **scypion**, **Kamerer**, **monkspider**, **Borsook**, **4Key**, and **Delta66** for their feedback.

Thanks to **chris10** and **Uhu** for providing interesting discussion.