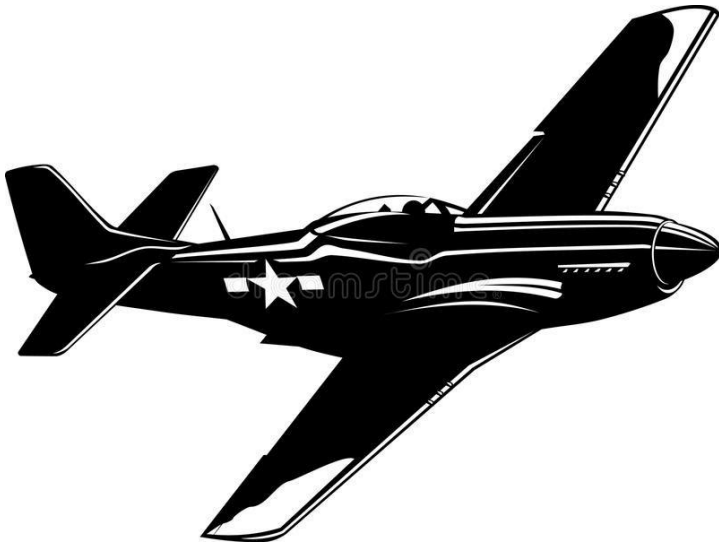


AIR WAR EUROPE

*A rewrite of the Modern War: **Airstrike!** rules for the Modern War RPG, specifically to support the supplement titled: 1944 **Fortress Europe**. Further rules may follow. If you like these rules, and have suggestions or aircraft conversions to share, please send them to zozergames@gmail.com.*



1. CONVERTING WW2 AIRCRAFT
2. AIR COMBAT IN WW2
3. GROUND ATTACK
4. SAMPLE AIRCRAFT


CONVERTING AIRCRAFT OF WW2

Use Wikipedia for its breadth and also for its standardized data format. Each military aircraft entry on Wikipedia has a Specifications subsection, and the data you will need will generally be found here, although, because you will also be using some judgement, you will need to read the article text, too. Data on cockpit visibility, agility, flight characteristics and any special features will be found in the body of the article and must be translated into a numerical value by you. In addition, use any other articles, books or sources you have. This takes some personal judgement and choice. But it is not too difficult.

STAT BLOCK

Data from aircraft of WW2 can be used to fit that aircraft easily into the **Modern War** roleplaying game, Here is the data for the American p-47D Thunderbolt:

Reading the Vehicle Data

P-47D Thunderbolt				USA			
Agility	+2	Speed	686	Combat Range	400	Ferry Range	1600
Armour	7	Hull/Structure	7/7	Mass	6	Guns	+3
Crew	1	Visibility	3	Ceiling (1000s)	25/40	Rate of Climb	3
Turret Rating	-						
Weaponry: 8 x .50 calibre HMGs (5D6)							
Bombload: 2 x 500 kg bombs (underwing) or 1 x centreline 600 km drop tank or 8 x 60lb Rockets (8D6 AP)							
Details: An escort fighter well-suited to high-altitude air-to-air combat. It also served as the foremost American fighter-bomber in the ground-attack role.							

AGILITY – Agility provides a Die Modifier to get into position to open fire on target plane.

SPEED – This is the maximum speed at high altitude. For mission planning, a more realistic speed would be cruising speed which is 75% of the listed max. speed.

COMBAT RANGE – Combat range (also called combat radius) is how far the aircraft can fly before fighting or dropping bombs and then returning to base.

FERRY RANGE – The furthest distance an aircraft can fly one-way, without bombs or ammo, conserving fuel and flying sensibly.

ARMOUR – Armour value (AV) is used to shrug off damage as described in the Vehicle Combat rules. Few aircraft can afford the weight of being armoured.

HULL/STRUCTURE – Two numbers used in the Vehicle Combat rules to determine what sort of damage was sustained after a hit.

MASS – Real world weight, in metric tonnes. This is usually gross weight, with ammo, fuel and a full complement of crew and passengers.

GUNS – A value used as a bonus on an attack roll. The more forward-firing guns, the higher the value. Bombers do not have a Guns score.

CREW/PASS – What is the typical crew complement? And if it carries passengers, then how many? If the vehicle can be reconfigured for either cargo or passengers (a truck, APC or chopper, for example), then assume 0.2t of cargo space equates to a single seated passenger.

VISIBILITY – A value reflecting the pilot's visibility from the cockpit, based on the aircraft's construction and the design of the canopy.

CEILING – There are two figures (in thousands of feet): the first is *combat ceiling* (the altitude at which aircraft performance is not affected), whilst the second is *service ceiling*. Above *combat ceiling*, the aircraft operates with a penalty of -2 to Agility and Rate of Climb.

RATE OF CLIMB – How fast the aircraft can climb. A value used during altitude changes. A controlled descent is double this figure. ROC 1 is roughly equal to 1,000 ft/min.

TURRET RATING – The strength of the aircraft's turret defences and flexible-mounted guns, used to deter an attack and to damage an attacker.

WEAPONRY – A list of offensive (forward-firing), and defensive (turreted) machineguns.

BOMBLOAD – How many bombs, and of what size, can be carried.

THE CONVERSION PROCESS

Agility: A typical fighter will have Agility +2, while a fighter plane known for great manoeuvrability will have +3. A medium bomber will have an Agility of 0, whilst a lumbering heavy bomber typically has an Agility -1. Individual aircraft may vary (the Mosquito, for example is a fast, agile medium bomber with an Agility of +2).

Speed: Wikipedia - Max Speed in km/h usually at high altitude; low altitude/cruising speed is 2/3 of that.

Range: Wikipedia - Sometimes both 'ferry range' and 'combat range' are mentioned, but sometimes only 'Range' is given. This seems to be equivalent to ferry range. If you can't find a figure for combat range (or 'combat radius') then approximate by using 40% of the Range or Ferry Range.

Armour: Always 7, this takes into consideration the large empty spaces in most WW2 aircraft through which bullets and shells can pass without inflicting much damage.

Mass: Wikipedia (Gross Weight in metric tonnes)

Hull/Structure: Multiply the mass of the aircraft by the multiplier listed in the Calculating Hull/Structure Points table (below). That number serves as both Hull and also as Structure.

Guns: How many forward-firing guns are there? 1-2 provides a score of -1, 3-4 a score of 0, 5-6 provides a score of +1, and 8 or more, a score of +2.

Crew: as Wikipedia

Visibility: Typically a fighter has a Visibility of 0, a clearer canopy, with less frame provides a Visibility of 1, a raised bubble canopy with all-round vision (including behind) has Visibility 2. An aircraft with notoriously awful and restrictive Visibility might have a Visibility score of -1.

Ceiling: Combat ceiling is usually listed as 'service ceiling'. The maximum ceiling or 'absolute' ceiling may be listed, may be mentioned in text, or might have to be searched for on other aviation related sites.

Rate of Climb: Usually found in Wikipedia; each full 1000 feet per minute equates to a value of 1, so a published rate of climb of 3600' per minute would equate to 3. In these rules, a published rate of climb of less than 1000 would equate to 0.

Turret Rating – Total up the number of turreted or other defensive guns; 1-3 provides a value of 1, 4-8 a value of 2 and 9 or more a value of 3. The Short Sunderland had a total of eight .303 Browning machineguns, some in powered turrets, others fired manually from hatches – these eight weapons give the Sunderland a Turret Rating of 2.

Weaponry: Wikipedia – the aircraft may have set of forward-firing guns, note them down along with calibre. Note any turrets on the aircraft, add up all of the turreted weapons. You need to make a note of the total number of guns in those turrets, and the most numerous calibre of those weapons.

Bombload: A typical bombload is listed. A fighter with a bombload cannot dogfight efficiently (reducing Agility to 0) unless it drops its bombs before combat. A fighter can swap any centreline ordnance for a 600 km fuel drop tank, or swap two underwing bombs for two 200 km fuel drop tanks.

CALCULATING HULL/STRUCTURE POINTS	
Mass	Multiplier
Up to Mass 10 tons	x1.3
Mass Over 10 tons	x1.0

Agility	Speed	Combat Range	Ferry Range
Armour	Hull/Structure	Mass	Guns
Crew	Visibility	Ceiling (1000s)	Rate of Climb
Turret Rating			
Weaponry:			
Bombload:			

Agility	Speed	Combat Range	Ferry Range
Armour	Hull/Structure	Mass	Guns
Crew	Visibility	Ceiling (1000s)	Rate of Climb
Turret Rating			
Weaponry:			
Bombload:			

Agility	Speed	Combat Range	Ferry Range
Armour	Hull/Structure	Mass	Guns
Crew	Visibility	Ceiling (1000s)	Rate of Climb
Turret Rating			
Weaponry:			
Bombload:			

AIR COMBAT IN WW2

The rules in Modern War: Airstrike are obviously focussed more on modern-day combat jets. This section pivots the rules to bring out some of the more unique characteristics of air combat during World War Two.

AIR-TO-AIR PROCEDURE

INTRODUCTION

These Second World War air combat rules abstract the aerial battlefield. Everything is seen from the player characters' cockpit, everything is relative to their perspective, and not the overall battle.

SET UP

There are myriad air-to-air situations possible but we can identify four main situations:

- Fighter formation versus fighter formation
- Fighter formation versus bomber formation
- Fighter formation versus fighter formation and bomber formation
- Fighter formation versus lone aircraft (recon, raider, straggler, etc.)

Altitude – The GM decides on the type and initial altitude of the encounter, or can roll 1D6:

INITIAL ALTITUDE		
1D6	Flight Level	Altitude Level (thousands of feet)
1-2	Low	1D6
3-6	High	Fighters: 3D6 x 2
		American bombers: 2D6 +25
		Other bombers: 10+3D6

Low Level – Often used by fighter-bomber or medium bomber raiders flying in low to strafe or bomb ground targets, to support troops on the ground, or to attack convoys. Large strategic bombers rarely (if ever) fly at low level.

High Level – High level bombers are safer from AA. Fighters are built to perform best at these altitudes. A lone aircraft at high altitude is likely to be a recon plane.

NOTE: Above its *combat ceiling*, an aircraft operates with a penalty of -2 to Agility and Rate of Climb.

Beginning the Encounter – The GM can narrate the initial stages of the mission, and this will vary from game to game as well as mission to mission. Are the PCs defending a territory, and must climb to intercept enemy bombers? Are those bombers being escorted by a fighter formation? Are the PCs on combat air patrol, and suddenly spot bombers passing through their patrol area? Are the PCs escorting bombers into enemy airspace, and must tangle with defending fighters?

The air combat begins when the PCs commit themselves to an attack. If they are attacking a bomber formation (which will not deviate from its intended flight path and altitude unless it takes significant losses) then that formation will nearly always be in sight throughout the combat. Enemy fighters, however, will be seen only fleetingly, as will each PC's aircraft. Once battle begins, both fighter formations break up into chaotic one-on-one dogfights, making it difficult to see one's friends and to anticipate which direction one's enemies might come from. Cloud is often used as cover into which a raider or a fighter can retreat in an attempt to shake off the PC's attack. If the bombers have a fighter escort, then be prepared to tangle with fighters as you make your attacks on the bombers, or will some of the PC's take on the fighters?

The air combat rules follow this structure:

Attacking Bombers

1. Set the Mission Clock by rolling $1D6 + 10$. The Mission Clock marks how many minutes (or air combat rounds) the PCs formation can afford to stay and fight. After this time, the PCs' formation must withdraw to refuel and rearm the battle ends.
2. PCs can attack a bomber formation from a desired angle.
3. Roll to Open Fire.
4. Roll to Avoid Turret Fire. Check for an Enemy Fighter Attack.
5. After an attack the PC disengages and must roll to Acquire a Target.
6. Knocking one third of the bombers out of formation breaks up the bomber formation, it misses the target, or simply turns for home.

Attacking Fighters

1. Set the Mission Clock by rolling $1D6 + 10$. The Mission Clock marks how many minutes (or air combat rounds) the PCs formation can afford to stay and fight. After this time, the PCs' formation must withdraw to refuel and rearm the battle ends.
2. The formations break up on initial contact.
3. Each PC makes an immediate roll to Acquire a Target. If an enemy fighter is acquired, decide whether to try a quick snapshot, or to tail the aircraft to get closer.
4. Either roll to Open Fire, or to Tail. Check for an Enemy Fighter Attack whilst opening fire.
5. If Tailing successfully, roll to Open Fire. Check for an Enemy Fighter Attack whilst opening fire. If unsuccessful, disengage and roll to Acquire a Target.
6. Once an enemy fighter has been hit, decide to continue to roll to Tail, or disengage and roll to Acquire a Target.

DISENGAGE AND ACQUIRE A TARGET

When the PC disengages, this means they are no longer engaged in an attack or a dogfight and have lost sight of nearby friends and foe alike. They can spend a round looking around for a friend or another enemy plane to attack. A bomber formation will always be in view, whether it's an enemy one or a friendly one. Just use the Acquire a Target rules in order to determine the bomber formation's position, relative to the PC's aircraft.

On Your Tail! A PC flying around looking for a new target is at risk of being 'bounced' by an enemy fighter! See On Your Tail!

To acquire a new fighter target roll 8+ [+ Visibility, + Int modifier]

Success: Roll on the Acquire a Target table.

Failure: Keep searching, but also check to see if there is an enemy On Your Tail.

To acquire a new friendly fighter roll on the Acquire a Target table to determine their position.

SNAPSHOT

On seeing an enemy fighter, the PC must decide whether to attempt a hasty 'snapshot' at it, or to tail the aircraft to gain a better attacking position. To carry out a snapshot, use the Open Fire rules using the appropriate Snapshot DM. After the snapshot, the PC disengages again.

ACQUIRE A TARGET		
1D6	Position	Snapshot DM
1,2	ABOVE	-4
3,4	BELOW	-3
5	CROSSING	-3
6	AHEAD	-2

ON YOUR TAIL!

Roll 1D6, on a 5 or 6 there is an enemy aircraft behind you and maneuvering to set up for a shot.

To throw off an enemy pursuer roll 8+ [+ Aircraft skill, + Agility, - Enemy Agility]

Success: Choose to disengage or to begin a Tail of this aircraft.

Failure: The enemy hits you with gunfire. Roll to throw off pursuer again next round.

CLIMB TO INTERCEPT

Altitude is referred to in these rules as altitude level, in 'thousands of feet' (25,000' is level 25, for example). To Tail an aircraft that is above or below the PC, he must match their altitude level. The enemy aircraft is 1D6 levels above or below the *initial altitude* of the aerial combat. Check the aircraft's Rate of Climb, it is doubled when descending. How many rounds will it take to reach the enemy's altitude level? Note that the bomber formation will always remain at the initial altitude, although individual bombers may drop out of formation and lose altitude.

**To reach the enemy's altitude level roll 8+
[+ Aircraft skill, + Rate of Climb]**

Success: You can now attempt to Tail the enemy aircraft.

Failure: The enemy stays out of reach by another 3 levels.

OPEN FIRE

Each gun attack uses up 1 burst of ammunition. Most fighters have enough ammunition for 8 bursts, and after these are expended the PC must leave the combat area and return to base. Note that all guns fire simultaneously. After the PC hits or misses, he may decide to either disengage, or continue to Tail the enemy in order to try and Open Fire again in the next round.

**To hit an enemy fighter with gunfire roll 10+
[+ Hvy Wpns skill, + Guns, – Enemy Agility]**

Success: You inflict Damage to the Aircraft.

Failure: You fail to hit.

When firing at a fighter or bomber, always check to see if there is an enemy fighter On Your Tail.

TAIL

Maneuver to get your aircraft close-in behind an enemy aircraft that is trying hard to shake you off. If you succeed you get a chance to Open Fire. The Tail maneuver is a series of four 2D6 rolls. A Tail may continue over several rounds, each group of four skill rolls taking up a single round.

**To get into a good firing position roll 8+
[+ Aircraft skill, + Agility, – Enemy Agility]**

Two consecutive successes: You may Open Fire. Then continue to Tail.

Two consecutive failures: You lose the enemy plane, and disengage.

WINGMAN

An NPC wingman can provide cover and follow the PC's lead. The presence of a wingman means that an enemy pilot must maneuver against two aircraft rather than just one. If a wingman is present the PC will be immune from an enemy On Your Tail, but it is easy to lose a wingman in the melee. Roll that On Your Tail D6 anyway, and if the result is a 6 your wingman is separated from you. Subsequent On Your Tail situations now carry the threat of an enemy attack. Remember that if disengaged, you can always try to find your wingman again.

TARGET A BOMBER

A bomber within a formation can be attack from an angle decided by the PC. These different attacks provide varying die modifiers to the PCs gunfire and modifiers to the bomber's defensive Turret Rating.

TARGET A BOMBER		
Attack	Turret Rating	Attack DM
Head-On Attack The fighter approaches the bomber from directly ahead (frontal attack), aiming at the nose or cockpit area.	-2	-3
Beam Attack The fighter approaches the bomber from the side (perpendicular to its flight path, roughly 90 degrees).	-1	-1
Quartering Attack The fighter approaches at an angle, typically 30-60 degrees, from the bomber's front, rear, or side (e.g., "rear quartering" or "front quartering").	0	0
Stern (Tail) Attack The fighter approaches directly from the bomber's rear, along its flight path.	0	0
Diving Attack (High-Angle or Vertical) The fighter dives from above the bomber, often at a steep angle (45-90 degrees), firing during the descent.	-1	-1
Climbing (Underside) Attack The fighter approaches from below the bomber, climbing to fire at its underside (belly).	-2	-3

To hit an enemy bomber with gunfire roll 10+ [+ Hvy Wpns skill, + Guns, – Turret Rating]

Success: You inflict Damage to the Aircraft, then disengage.

Failure: You fail to hit, then disengage.

Now Avoid Being Hit By Turreted Weapons – Fire from the bomber's defensive guns can spoil your aim, but can also damage your aircraft. Immediately after making your attack roll, roll a number of dice equal to the bomber's Turret Rating (modified by your attack type). Any '6' result indicates that you were hit by the most common caliber of turret weapon. You suffer Damage to the Aircraft, is it serious??

Escort Fighters! If there is a fighter escort, then when firing at a bomber, always check to see if there is an enemy fighter On Your Tail.

DAMAGE TO THE AIRCRAFT

If the aircraft is equipped with different calibres of weapons, then if the pilot hits his enemy, use the highest damage roll. The Me 109E was fitted with two medium machineguns over the engine and a 20mm autocannon in each wing. The Me 109E would do 6D6 if it hit (the damage of an autocannon).

Subtract Armour 7 from the rolled damage, before checking the result on the Penetration Table. If Hull is reduced to 0 the aircraft is crippled, further Hull points are subtracted from Structure. If Structure is reduced to 0 the aircraft is destroyed and explodes or breaks up in mid-air.

GUNS & CANNON		
Aircraft-Mounted Gun	Damage	Av. Dmg
Medium Machinegun (.303 or 7.92mm)	3d6+3	14
Heavy Machinegun (.50 calibre, or 12.7mm)	5d6	17
Light Autocannon (20-25mm)	6d6	22
Heavy Autocannon (30-40mm)	7d6	25

PENETRATION TABLE		
Weapon Damage Sustained	Hull Point Reduction	No. of Rolls on Component Damage Table
1-8	1	1
9-13	2	1
14-18	4	1
19-22	8	2
23-25	15	2
26-30	30	3
31-35	52	3
36-39	76	3
40-49	100	4

BAIL OUT

**To bail out of a Crippled plane roll 8+
[+ Dexterity modifier, - 1 if wounded, -2 if injured]**

Success: Your parachute opens and you float down to earth

Failure: You fail to get out, try again but now the task is 10+.

Calculate loss of altitude, then make a Bail Out attempt. Get out before your aircraft slams into the ground.

An NPC bomber crew can bail out, but 1D6 of their number will not make it out of the plane. An NPC fighter pilot will bail out on a result of 4,5 or 6 on a 1D6 roll.

COMPONENT DAMAGE TABLE		
1D6	Component Hit	Effect
1	Control	Control cables or control surfaces are damaged, apply a -1 to Agility unless you can spend two minutes of uninterrupted flight to sort out the problem, along with a 2D6 roll for 5+.
2	Engine	Speed is affected. Lower the aircraft's speed by 20% and Agility by 1. A third such hit will stop the engine, Crippling the aircraft.
3	Fire	Smoke and flames fill the cockpit or cabin, preventing any maneuvers. In the second round fire enters the cockpit or cabin, causing 2D6 damage to the pilot per round. In a bomber, the fire affects a random crewman and spreads to a new crewman next round. In the fourth round the plane is Destroyed unless a bomber crew roll 9+ to put it out.
4	Guns	In a fighter, the guns jam and the pilot must return to base (or act as a wingman). In a bomber, four of its guns are out of action (either damaged, or a gunner killed).
5	Visibility	The canopy is smashed, cracked or covered in oil or coolant, reducing the aircraft's Visibility by -2.
6	Pilot	The pilot in a fighter is hit by a bullet, bullet fragment or shrapnel, inflicting 3D6+2 damage. In a bomber, one random crewmember is killed or seriously wounded.

Damage Results Explained

- *Crippled:* The aircraft is still in the air but parts of the structure have been blown off and it may be on fire, smoke pouring from an engine. It is shedding parts and fuselage panels every minute. It is descending steeply or spirally down towards the ground with limited control at 6 altitude levels (6000') per minute. A successful 8+ Aircraft skill roll will allow the plane to make a crash landing on the ground or water. If failed, it plummets to the ground and explodes in a fireball killing everyone onboard. Alternatively, the crew can try to Bail Out.
- *Destroyed:* The aircraft immediately explodes in midair or breaks apart, its wings coming off and fuselage ripped open. No-one onboard will survive.

GROUND ATTACK

There will inevitably come a time when the pilots need to attack something on the ground, it may be a n AA site, a building or a convoy.

SPOTTING TARGETS ON THE GROUND

Before the pilot can depress the trigger he must first be able to locate the target on the ground. Often he will have to do this himself, but if he has a co-pilot or a bombardier, then that other crewman can do the spotting and map reading while the pilot flies toward the target. Even better, a pilot might be taking instructions from someone on the ground giving precise directions to the target, someone equipped with a radio on a military frequency, perhaps an army commander, or forward air controller (FAC).

It is difficult for a pilot to identify individual soldiers or even infantry troop units. Soldiers on the ground are generally invisible to fighter pilots. Instead, they look for enemy vehicles or target buildings, bunkers, bridges and 'beaten zones', the location of which are radioed to them via the FAC.

To spot a target on the ground from the air roll 10+

[+ Navigation skill, +2 if large building, +4 if landmark, +1 if convoy of vehicles]

Success: The aircraft crew spot the enemy.

Failure: A fresh attempt can be made after 1-3 minutes of circling.

STRAFING

The most common form of ground attack will probably be a strafing attack using machineguns, autocannon or rockets, flying the fighter straight and level directly at the target under 500' and opening fire for a brief period before pulling up and banking to go around again and attempt another strafe in 1-3 mins time. Players should check the Getting Shot Down rules (later) before they move on to other tasks or think about circling back for another attack... Attacks are made on vehicles, buildings or target areas – not individual people. A target area is 10m across; and 10m long, but if rockets are used multiply this by the number of rockets in the salvo.

Guns & Cannon – Most fighters have enough ammunition for 8 bursts, Each gun attack uses up 1 burst of ammunition. and after these are expended the PC must leave the combat area and return to base. Note that all guns fire simultaneously. After the PC hits or misses, he may decide to either disengage, or continue to Tail the enemy in order to try and Open Fire again in the next round.

GUNS & CANNON			
Aircraft-Mounted Gun	Damage	Av. Dmg	Range Band
Medium Machinegun (.303 or 7.92mm)	3d6+4	15	V/Long
Heavy Machinegun (.50 calibre, or 12.7mm)	5d6	17	V/Long
Light Autocannon (20-25mm)	6d6	22	V/Long
Heavy Autocannon (30-40mm)	7d6	25	V/Long

Rockets – Rockets are typically mounted under the wings. The German Bordrakete is designed for use against American bomber formations, but is also being used to attack ground targets – a single-engined German fighter can carry two bordrakete, a twin-engined fighter can carry four. US and British fighter-bombers can carry either two under each wing, or four.

ROCKETS				
Weapon	Nation	Damage	Weight	Range Band
RP-3	Britain	8d6+2 AP	50	Very Long
21 cm Bordrakete	Germany	9d6 HE3	100	Very Long
HVAR	US	8D6+2 AP	60	Very Long

The Target – Fixed, forward-mounted weapons, such as rocket pods and guns require the pilot to direct the aircraft to line up with the target on a low-level attack run.

**To line up with a ground target ready to strafe roll 8+
[+ Aircraft skill]**

Success: Continue with the attack.

Failure: Continue with the attack with a -1 penalty.

**To hit a ground target with guns or rockets roll 10+
[+ Hvy Wpns skill]**

- If using guns, add the aircraft's Guns rating
- If firing two rockets +1
- If firing four rockets +2
- If the target is large/building +1
- If failed to line up with target -1

Success: You inflict Damage to the Aircraft.

Failure: You fail to hit.

Strafing Damage – Only one rocket hits a vehicle, no matter how many were fired in the salvo. Large targets like buildings may be struck by more than one, assume each point over the target number of 10, indicates one more rocket hit the building (obviously up to the maximum number of rockets fired in the salvo). Guns apply the damage from a single attack (5D6 for a HMG, for example).

DROPPING BOMBS

Dedicated bombers, or fighters turned into fighter-bombers can drop their bombs on to a target. On fighter-bombers, a heavy bomb can be mounted beneath the fuselage, with lighter bombs sometimes mounted beneath the wings. Dedicated medium and heavy bombers usually carry their bombload internally, within a bomb bay. Bombs are carried internally within a bomb bay. The aircraft flies over the target and releases one or more bombs; dropping additional free-fall bombs as well as flying at a lower altitude increase the chance of hitting the aim point.

BOMB TYPES		
Bomb	Damage	Blast Radius
Very Light (100 kg/250 lb)	8D6 HE	8m
Light (250 kg/500 lb)	10D6 HE	10m
Medium (450 kg/1000 lb)	12D6 HE2	20m
Heavy (1,000 kg/2,000 lb)	14D6 AP	14m
HC 'Cookie' (2,000 kg/4,000 lb)	12D6 HE3	30m
Disney (2,000 kg/4,000 lb)	12D6 AP2	8m
Tall Boy (6,000 kg/12,000 lb)	16D6 AP2	8m
Grand Slam (10,000 kg/22,000 lb)	16D6 HE6	60m
Cluster Bomb (250 kg/500 lb)	7D6 HE2	20m
Napalm Bomb (20 kg/40 lb) *	4D6 HE2	20m
Napalm Tank (400 kg/800 lb) *	4D6 HE6	60m

** Napalm: Each round after first, half damage is suffered until fire extinguished (Average Dex roll). Everything is on fire. Only dropped from Low Level.*

To drop a free-fall bomb on a target roll 10+

[+ Hvy Wpns skill]

Tree-top (Below 500')	-1
Low Level (Below 5000')	0
Medium Level (5000 – 20,000')	-2
High Level (Above 20,000')	-4
2-5 bombs dropped	+1
6-9 bombs dropped	+2
12-13 bombs dropped	+3
14 or more bombs dropped	+4

Dive-bombing – A dive bomber dives directly at its target in order to provide greater accuracy for the bomb it drops. Diving towards the target simplifies the bomb's trajectory and allows the pilot to keep visual contact during the bomb run. This allows attacks on point targets, vehicles and ships, which are difficult to attack with conventional level bombers. The aircraft must pull up sharply after dropping its bombs. Only purpose-built dive bombers can perform this attack, since they are strengthened and include dive brakes and special aiming sights.

Dive bombers are vulnerable to AA fire as they dive, and to enemy fighters once they pull out of the dive and are flying low and slow at around 1,000 feet. Unlike other bombers, roll twice to avoid being hit by AA: ONCE at Medium Level and ONCE

at Low Level. If there are fighters in the area, they cannot attack the dive bomber during its attack. But there is an opportunity once it has pulled out of its dive. If the PC is flying the dive bomber, check to see if there is a fighter On Your Tail.

**To carry out a dive-bomb attack roll 8+
[+ Aircraft skill]**

3-6 bombs dropped +1

Bomb Damage: The blast radius for a single bomb is listed on the Bomb Type table, additional bombs create a blast 'corridor' that is double the radius wide, and with a length equal to the width multiplied by the number of bombs dropped. If six 500kg bombs were dropped, the blast zone would be 40m wide and 240m long. If the strike was successful, the zone straddles the aim point perfectly. If it missed, then the aim point is outside of this zone by a number of metres equal to the failed Effect x 20m. If unsuccessful and flying a Medium Altitude or lower, a new attempt can be made after 1-6 minutes of fly-around time. Buildings and vehicles will suffer the listed damage. Personnel within the blast zone will suffer full damage too, although getting behind cover reduces this by half. Being in a trench or bunker or within a building that is not destroyed, reduces this to 2D6.

DAMAGE A GROUND TARGET

Buildings have Hull and Structure points, just like vehicles. When reduced to 0 Hull, the building is badly damaged, un-liveable or inoperative. When reduced to 0 Structure as well, it is rubble. Napalm can set a building on fire, but cluster bombs only cause cosmetic damage.

BUILDING DAMAGE		
Target Type	Hull/Structure	Armour Rating
Townhouse	10/10	-
Villa	20/20	-
City Building	40/40	-
Factory	50/50	-
Villa	20/20	-
Large Compound	20/20	-
AA Site	25/25	-
One Span of a Bridge	30/30	-
Silo/Concrete Bunker	15/15	40
Hanger	20/20	-
Underground Bunker/Cave Complex	30/30	40
Jeep	3/3	-
Truck	10/10	-
Lightly Armoured Vehicle	10/10	12
Tank	13/13	24
Small Warship (frigate/destroyer)	200/200	14
Large Warship (battleship)	500/500	32

GETTING SHOT DOWN

In a *high-threat* war zone an aircraft trying to drop bombs or strafe an enemy target will come under fire, at high altitude from anti-aircraft guns (AA) and at lower levels from machineguns and small-arms. To avoid this fly low and fast, or high enough to make it difficult for the enemy to target your aircraft. The GM should make an Anti-Aircraft attack roll on the approach to the target.

Low-threat environments have little chance of being defended by AA sites.

LOW THREAT ANTI-AIRCRAFT FIRE		
Flight Level	Altitude	AA Hit
Terrain Following	Below 500'	11+
Low Level	Below 5000'	10+
Medium Level	Between 5000 – 20,000'	11+
High Level	Above 20,000	12+

HIGH THREAT ANTI-AIRCRAFT FIRE		
Flight Level	Altitude	AA Hit
Terrain Following	Below 500'	11+
Low Level	Below 5000'	9+
Medium Level	Between 5000 – 20,000'	10+
High Level	Above 20,000	12+

DAMAGE FROM AA	
Flight Level	Damage
Terrain Following	5D6
Low Level	5D6
Medium Level	5,6 or 7D6; roll 1D3+4
High Level	5,6 or 7D6; roll 1D3+4


Low Level – Tree-top Height


A high-flying aircraft can be detected by defence systems at long range, giving an air defence system time to react, alerting enemy fighter aircraft and AA sites. With low level, terrain following flying (under 500'), the approach may be undetected; the aircraft 'pops up' to attack the target and then turns to escape with minimal AA fire. However, flying at tree-top height requires a skilled on-board navigator, and the approach and flight plan will require extensive planning and practise.


To avoid getting lost, the navigator makes a 10+ roll [+ Navigation skill]


Extensive planning and practice	+2
Night-time	- 2
Using radio navigation aid	+2 (such as Oboe or Gee)


SAMPLE AIRCRAFT


Republic P-47D Thunderbolt							USA
Agility	+2	Speed	686	Combat Range	400	Ferry Range	1600
Armour	7	Hull/Structure	7/7	Mass	6	Guns	+3
Crew	1	Visibility	3	Ceiling (1000s)	25/40	Rate of Climb	3
Turret Rating	-						
Weaponry: 8 x .50 calibre HMGs (5D6)							
Bombload: 2 x 500 kg bombs (underwing) or 1 x centreline 600 km drop tank or 8 x HVAR Rockets (8D6 2AP)							
Details: A massive escort fighter well-suited to high-altitude air-to-air combat. It also served as the foremost American fighter-bomber in the ground-attack role. Known as the 'Jug' for juggernaut.							
							


North American P-51D Mustang							USA
Agility	+3	Speed	700	Combat Range	700	Ferry Range	1000
Armour	7	Hull/Structure	5/5	Mass	4.1	Guns	+2
Crew	1	Visibility	2	Ceiling (1000s)	40/45	Rate of Climb	3
Turret Rating	-						
Weaponry: 6 x .50 calibre HMGs (5D6)							
Bombload: 6 x HVAR rockets (8D6 2AP) or 1 x centreline 600 km drop tank or 2 x 100 kg bombs							
Details: America's best escort fighter, built with the British Rolls Royce Merlin engine. It was also used in ground attack.							
							


Supermarine Spitfire IX							UK
Agility	+3	Speed	650	Combat Range	400	Ferry Range	1400
Armour	7	Hull/Structure	4/4	Mass	3	Guns	+3
Crew	1	Visibility	3	Ceiling (1000s)	25/40	Rate of Climb	3
Turret Rating		-					
Weaponry:		8 x .303 calibre HMGs (3D6+4)					
Bombload:		1 x 250 kg bombs (centreline) or 1 x centreline 600 km drop tank or 2 x 100 kg bombs (underwing)					
Details:		This prewar design has been refined and upgraded to match German developments. Agile, beautiful and iconic. The 'Spit' is powered by the Merlin engine.					
							

Focke-Wulf F-190 A8						Germany	
Agility	+2	Speed	652	Combat Range	450	Ferry Range	950
Armour	7	Hull/Structure	5/5	Mass	4.4	Guns	+2
Crew	1	Visibility	1	Ceiling (1000s)	33/40	Rate of Climb	4
Turret Rating		-					
Weaponry:		2 x .50 calibre HMGs (5D6) 4 x 20mm autocannon (6D6)					
Bombload:		3 x 250 kg bombs or 1 x 500 kg bomb (centreline) or 1 x centreline 600 km drop tank or 2 x Rockets (9D6 HE3)					
Details:		A step-change in fighters, great at lower altitudes. Known as the 'Burcher Bird' by Allied pilots. Tasked with attacking Allied bomber formations.					
							

Messerschmitt Bf 109G				Germany			
Agility	+2	Speed	622	Combat Range	880	Ferry Range	1100
Armour	7	Hull/Structure	4/4	Mass	3.1	Guns	+2
Crew	1	Visibility	0	Ceiling (1000s)	39/45	Rate of Climb	4
Turret Rating	-						
Weaponry:							
2 x .50 calibre HMGs (5D6) 3 x 20mm autocannon (6D6)							
Bombload:							
1 x 250 kg bomb (centreline) or 1 x centreline 600 km drop tank or 2 x Rockets (9D6 HE3)							
Details: A pre-war design, now in its 'G' or Gustav variant. Light, but effective at high altitude. The 109 has a cramped cockpit with poor visibility.							

Boeing B-17G				USA			
Agility	-1	Speed	460	Combat Range	3200	Ferry Range	6000
Armour	7	Hull/Structure	25/25	Mass	25	Guns	no
Crew	10	Visibility	3	Ceiling (1000s)	35/38	Rate of Climb	0
Turret Rating	4						
Weaponry:							
13 x 0.5 HMGs							
Bombload:							
2000 kg bombload (over 800 km) 3600 kg bombload (800 km or less) or 2 x Disney bombs (underwing)							
Max internal bomb size: 450 kg							
Details: The Flying Fortress bristles with turrets and gun mounts, flying in a tight formation for overlapping defensive fire.							

Junkers Ju-88 A-4				Germany			
Agility	0	Speed	470	Combat Range	600	Ferry Range	1700
Armour	7	Hull/Structure	12/12	Mass	12	Guns	no
Crew	4	Visibility	0	Ceiling (1000s)	26/30	Rate of Climb	0
Turret Rating	3						
Weaponry:	5 x 7.92mm calibre MMGs (3D6+4)						
Bombload:	1400 kg bombload (up to 600 km) 3000 kg bombload (under 250 km)						
	Max internal bomb size: 1000 kg						
Details:	The most versatile aircraft of the war, used in many roles including bombing, recon night-fighter, and dive bomber.						

Dornier 217				Germany			
Agility	0	Speed	560	Combat Range	2100	Ferry Range	2500
Armour	7	Hull/Structure	12/12	Mass	12	Guns	-
Crew	1	Visibility	0	Ceiling (1000s)	21/25	Rate of Climb	0
Turret Rating	3						
Weaponry:	4 x 7.92 calibre MMGs 2 x .50 calibre HMGs (5D6)						
Bombload:	3000 kg bombload (up to 800 km) 2000 kg (up to 2100 km) kg						
	Max internal bomb size: 1000 kg						
Details:	Germany's main heavy bomber from 1942 onwards. Like the Ju-88, it carried out many different missions, including the launch of guided bombs.						

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