

Player Aid

Purple boxes denote optional rules Ⓢ = round down

Aircraft Movement [chapter 3]

Speed modifiers [3.1–3.3.3]

m1	-8	-8	-7	-7	-6	-6	average: -7
m2	-7	-6	-6	-5	-5	-4	average: -5.5
m3	-5	-4	-4	-3	-3	-2	average: -3.5
m4	-3	-2	-2	-1	-1	0	average: -1.5
m5	-1	0	0	+1	+1	+2	average: +0.5
m6	0	+1	+2	+3	+3	+3	average: +2
	-1	0	0	0	0	+1	average: 0

• ‘Movement’ die →

• Booster (from +2 to +4)

• Straight movement (+1)

• Climb (from -1 to -4)

• Descent (from +1 to +4)

• Damage (-1 or -2) [4.6.1]

Inertia speed calculation [3.6.1]

1) Read Initial Speed on Speed Indicator

2) Adjust speed: up to +2 or -3 (up to +1 if carrying load [3.7]) must not end above Basic Speed (or Loaded Speed), except if deceleration limit of -3 would be exceeded

3) Roll the die (purple or green)

4) Apply all other modifiers

5) Place new Speed Indicator

Absolute Maximum Speed <small>[3.6.2]</small>	Basic Speed	Absolute Maximum Speed
≤ 4		Basic Speed + 2
5 – 7		Basic Speed + 3
8 +		Basic Speed + 4

Stall, spin and recover [3.6.4–3.6.6]

If Final Speed < Stall Speed → stall: move normally but -L1

Recover* **3+** * Ace: +1, Rookie: -1

• Spin (after stalling): -L2 vertically (*Agility value in square box = crash*)

• Recover from stall: simply pitch down at the end

• Recover from spin: set at Stall Speed (no adjustment) -L1 (but no speed gain), straight flight (but no speed gain) in random direction, + modifiers, end pitched down

Variable Agility and Climb Rate [3.2.1, 3.3.1]

If dots on token ≥ dots on die (and not X) → +1 60° turn / climb level

Limited turn radius [3.2.2–3.2.5]

Final Speed	Turn radius limit*
≤ 9	no limit
10 – 16	at least one straight Step between
17 +	at least two straight Steps between

* Agility in box (e.g. III): additional straight Step

* between opposite turns: additional straight Step (except ⤴ ⤵)

Changing altitude [3.3]

• Level pitch: climb/descend one level or remain at the same level

• Pitched up: *must* climb one or more levels

• Pitched down: *must* descend (or dive) one or more levels

• Climb/descent: altitude changes every odd step

• Dive: altitude changes every step, max one 60° turn

3 levels below Ceiling or higher:
Climb Rate loses two dots, e.g.
♣2: → ♣2· ♣2: → ♣1: ♣2: → ♣1:

L9 or higher:
Agility loses one dot, e.g.
III: → III: III: → III· III: → II:

Special maneuvers and aerobatics [3.4–3.5]

- ⤴ Steep Turn: +1 60° turn, -L1 (without speed gain)
- ⤵ Steep Dive: 2 Steps for 1d forward and -L2 (up to 3 times), speed increase up to +4 (even if diving 6 levels), max one 60° turn
- ⤶ Vertical Dive: ‘entry’ – minimum starting altitude L4
‘pull-up’ – speed +4, no 60° turns, must finish level
- Wing or tail damage (Steep Turn, Steep Dive, Vertical Dive ‘pull-up’, Split S, or Inside Loop):

Structural failure	1–2
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- Vertical Dive ‘pull-up’ at LL:

Crash	1–2
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• Ⓢ, Aerobatics: max speed 16

Unsuccessful*	1
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* Ace: *always successful*, Rookie: -1

if unsuccessful: 3 straight Steps, -L1, enter spin [3.6.5]

Air-to-Air Firing [chapter 4]

Targeting Chart (one standard die*) <small>[4.5]</small>			
Position	A	B	C
Minimum final number to hit	2 + <small>(5/6 probability)</small>	4 + <small>(3/6 probability)</small>	3 + <small>(4/6 probability)</small>

* Ace: +1, Rookie: -1 (*only fixed guns and Active Firing*) [7.5]

* Ⓢ : +1, Ⓢ : -1 [4.5.6]

* Sun directly behind target: -2 [7.6.2]

* Tracer Burst (or Double Burst): +1 (*only fixed guns and AF*) [4.5.7, 4.6.5]

* Passive Firing: -1 [4.7]

* Defensive Twitch: -1 [4.5.8]

• ‘Position A’ (1–2d) [4.5.1]

- * 2d: -1
- * different roll: -1
- * different pitch: -1
- opposite roll/pitch: X

• Frontal – ‘C’ (2d, attacker level) [4.5.3]

- * target pitch: -2
- target roll: X

• ‘Position B’ (1d, attacker level) [4.5.2]

- * target roll: -1
- * target pitch: -1

• Parallel – ‘C’ (1d, attacker *not* banked) [4.5.4]

- * target roll: -1
- * both pitched: -1
- different pitch: X

* Speed difference [4.9]

speed difference >6:
only ‘position A’ or ‘B’

speed difference >3:
Double Burst
not permitted

Speed Difference Chart	Attacker faster by	Attacker slower by	Effect
	0–3	0	<i>no penalty</i>
	4–6	1	-1
	7–10	2–3	-2
	11 +	4–6	-3
		7 +	firing not permitted

Frontal Speed Difference Chart					
Total speed	≤ 12	13–16	17–21	22–27	28 +
Effect	<i>no penalty</i>	-1	-2	-3	firing not permitted

Firing Outcome Chart (two dice*) <small>[4.6]</small>		
Final sum	Firing result	
≤ 6	unaffected	
7–10	damaged <small>[4.6.1]</small>	
11–12	double damage (or destroyed)	
13 +	destroyed	

* *plus* Firepower [4.1, 4.2.2]
(damaged g.: FP +2 Ⓢ [4.6.1])
(Short Burst: FP +2 Ⓢ [4.6.6])

* *minus* Durability [4.3]
‘o’ and D ≥ 6: +1 [4.6.4]

* if previous burst hit and Double Burst: +2 [4.6.5]

* both dice roll 1 = ‘unaffected’, regardless of other factors [4.6]

‘**’ = double damage capacity (if not the same type) [4.6.2]

‘Ⓢ’ = no damage capacity

A-A Rockets [4.10] (strictly behind, 2-3d, attacker level)

Air-to-Air Rocket Chart (one die*)		* Ace: +1, Rookie: -1 [7.5]
Distance	Minimum final number to hit	* : +1, : -1 [4.5.6]
2d	4 +	* target roll: -1
3d	5 +	* target pitch: -1

Surface-to-Air Firing [chapter 6]

Small-caliber [6.1]	typical	Firepower: 10	Range: 3d, L3
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- AA Gun fires before the aircraft performs Level Bombing, Dive Bombing, or drops cargo
- AA Gun fires after the aircraft performs Steep Dive Bombing or Vertical Dive Bombing (pull-up)
- Aircraft fires first if no more than two last points are in range
- If only one point (including initial) is in range: AA Gun cannot fire

AA Targeting Chart (two standard dice*) [6.1.2]					
Final Speed	≤ 6	7-9	10-12	13-15	16 +
Aircraft altitude up to L2	4 + (92%)	6 + (72%)	8 + (42%)	11 + (8%)	firing not permitted
Aircraft altitude L3 +	5 + (83%)	7 + (58%)	9 + (28%)	12 + (3%)	firing not permitted

- * ≥4 points in range: +1
- * 3 turns, both left and right: -1
- * 'inner zone': +1
- * Sun directly behind target: -2 [7.6.2]
- * : +1, : -1
- * Aircraft attacks the AA Gun (strafing, Skip Bombing or Vertical Dive Bombing): +1
- see Firing Outcome Chart on the other side [6.1.3, 4.6-4.6.2]

Large-caliber [6.2] (min L4)

- Exact altitude direct hit: destroyed
- Adjacent altitude same point or 1d: single damage
- 1d: double damage
- 2d: single damage

Non-combat Tasks [7.1]

Dropping cargo/paratroopers or taking photos: must pass at least two points over target area

Air-to-Surface Attacks [chapter 5]

Strafing [5.3] (2d, L1, attacker pitched down, last Step straight)

Strafing Targeting Chart (two standard dice*) [5.3.2]					
Final Speed	≤ 6	7-9	10-12	13-15	16 +
Minimum final sum to hit	4 + (92%)	6 + (72%)	8 + (42%)	11 + (8%)	strafting not permitted
Double Burst not permitted					

- * Ace: +1, Rookie: -1 [7.5]
- * Tracer Burst (or Double Burst): +1

Strafing Outcome (two standard dice*) [5.3.3]		* plus Firepower [4.1, 4.2.2] (damaged guns: FP +2 [4.6.1]) (Short Burst: FP +2 [4.6.6])
Minimum final sum to destroy	6 +	* minus Durability [4.3] 'o' and Durability ≥ 6: +1 [4.6.4]
* if previous burst hit and Double Burst: +2		
* both dice roll 1 = 'unaffected', regardless of other factors		

Level Bombing [5.4.1] (min L1, level flight or descent, max speed 9)

Level Bombing Chart (two standard dice*)			
Altitude	Minimum sum to hit		
	Point Target	Ship	Zone Target
L1-L3	7 + (58%)	6 + (72%)	4 + (92%)
L4-L6	9 + (28%)	8 + (42%)	6 + (72%)
L7-L9	11 + (8%)	10 + (17%)	8 + (42%)
L10 +	12 (3%)	11 + (8%)	10 + (17%)

- * ship lengthwise targeting: +1
 - * Final Speed 7-9: -2
 - Large Area = always hit
- | | | |
|---------------------|-------|-----|
| Altitude | L1-L6 | L7+ |
| Drop Point distance | 1d | 2d |

Dive Bombing [5.4.2] (min L1, starting altitude L3-L8, max speed 11)

Dive Bombing Chart (two standard dice*)			
Altitude	Minimum sum to hit		
	Point Target	Ship	Zone Target
L1-L3	6 + (72%)	5 + (83%)	3 + (97%)
L4-L6	8 + (42%)	7 + (58%)	5 + (83%)

- * ship lengthwise targeting: +1
- * Final Speed 9-11: -2
- Large Area = always hit

Steep Dive Bombing [3.4.2, 5.4.3] (min L1, starting altitude L3-L8)

Steep Dive Bombing Chart (two standard dice*)			
Altitude	Minimum sum to hit		
	Point Target	Ship	Zone Target
L1-L3	5 + (83%)	4 + (92%)	2 + (100%)
L4-L6	7 + (58%)	6 + (72%)	4 + (92%)

- * ship lengthwise targeting: +1

Vertical Dive Bombing [3.4.3, 5.4.4] (starting altitude L4-L8)

Vertical Dive Bombing Chart (two standard dice*)			
Altitude	Minimum sum to hit		
	Point Target	Ship	Zone Target
L1-L3	4 + (92%)	3 + (97%)	2 + (100%)
L4-L6	6 + (72%)	5 + (83%)	3 + (97%)

Skip Bombing [5.4.5] (LL, level flight, 2d, final Step straight, max speed 9)

Skip Bombing Chart (two dice*)			* ship lengthwise targeting: +1
	Point Target	Ship	
Minimum sum	6 + (72%)	4 + (92%)	

A-S Rockets [5.5] (L1-L2, 3d-4d, pitched down, last two Steps straight)

Air-to-Surface Rocket Chart (two standard dice*)			
Distance	Minimum sum to hit		
	Point Target	Ship	Zone Target
3d	6 + (72%)	5 + (83%)	3 + (97%)
4d	8 + (42%)	7 + (58%)	5 + (83%)

- * Ace: +1, Rookie: -1 [7.5]
- 3d: Power 25
- 4d (Point Target or ship): Power 15
- Large Area = always hit

Torpedo [5.6] (LL, level flight, 3d-6d, last two Steps straight, max speed 6)

Torpedo Chart (two standard dice*)			* ship lengthwise targeting: -1
Distance	Point Target	Ship	
3d-4d	5 + (83%)	3 + (97%)	
5d-6d	6 + (72%)	4 + (92%)	