

Modifications, Clarifications, and Additions (MCA)

for

GDW's Blue Max

Prepared by
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With the players of NIGA and The Keep

Version 09b, 16 February 1993

Notes:

- 1) All changes between Version 09a and Version 09b are in the document formatting. There are no substantive changes between the two versions.
- 2) A special "Thanks" is due Keith Yienling for retyping this document from a printed copy and creating all new graphics after the original file version was effectively lost.

Modifications, Clarifications, and Additions for the Blue Max,

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The following are modifications and clarifications to GDW's Blue Max rules (2nd Edition) as used by the gamers of NIGA and The Keep in Fort Wayne, Indiana. The modifications and clarifications are intended to be used together with the game rules. The modifications should be read as the rules are read (the original rules are required for this to make sense). After the modifications are a separate set of additional rules.

Modifications and Clarifications

<u>Page</u>	<u>Subject / Modification / Clarification</u>
4	The Counters: The Damage Chits. The damage chit which says "Pilot Killed" on both sides will not be used.
4	The Counters: The Maneuver Schedules. New Maneuver Schedules have been prepared for use with this MCA.
4	The Counters: The Aircraft Record Sheets. New Aircraft record sheets have been prepared for use with this MCA
5	Aircraft Choices Chart. Additional aircraft will be available in the game based upon the new Maneuver Schedules.
5	Preparing to Play: Choose Sides. The choice of sides will be determined by the scenario generation rules.
6	Preparing to Play Choose Aircraft. The choice of aircraft will be determined by the campaign game rules.
7	Sequence of Play. An additional step has been added to the sequence. Some steps have had phases added to detail specific order of play. <ol style="list-style-type: none"> 1. Tailing Step. All aircraft performing tailing declare their actions. 2. Maneuver Selection Step. <ol style="list-style-type: none"> a. Maneuver Recording Phase. Players write the maneuver selections for their aircraft. Aircraft with drum machineguns write reload orders. Aircraft with jammed guns write unjam orders. Bombers and photographic aircraft write action orders. b. Tailing Chit Phase. Tailed aircraft provide tailing chits to tailing aircraft. 3. Fuel Expenditure Step. 4. Movement Step. <ol style="list-style-type: none"> a. Movement Execution Phase. Execute the recorded aircraft maneuvers. b. Spin Determination Phase. Any aircraft which executed a stall maneuver (1S1, 1L1, 1R1, or Stall) determines whether or not it goes into a spin. 5. Combat Step. <ol style="list-style-type: none"> a. Target Selection Phase. All aircraft which may fire have the specific target noted along with the length of burst to be used. b. Fire Execution Phase. Execute the scheduled fire. 6. Damage Step. <ol style="list-style-type: none"> a. Damage Application Phase. Any damage received in the combat step takes effect. b. Spin Determination Phase. Any aircraft which suffered wing or tail hits determines whether or not it goes into a spin. 7. Recovery Phase. <ol style="list-style-type: none"> a. Unjamming Guns Phase. Any aircraft which has jammed guns, flew a straight maneuver, did not fire and scheduled to unjam its guns, may roll to see if the guns unjam. b. Spin Recovery Phase. Any aircraft which is in a spin may roll to see if it recovers from the spin. Aircraft which entered spins in this turn may roll for recovery 8. Problem Step. <ol style="list-style-type: none"> a. Jam Determination Phase. Any aircraft which fired a long burst must roll to see if the firing gun or guns jam. b. Spin Drop Phase. Any aircraft in a spin drops one level. This applies both to aircraft which were in spins prior to the start of the present turn and to aircraft which entered spins in the current turn. 9. Fire Damage Step. Aircraft on fire draw one blue chit per fire. 10. Fire / Smoke Extinguish Step. Aircraft on fire or smoking attempt to extinguish the fire or smoke. 11. Experience Point Determination Step. The number of Experience Points received by each pilot or gunner is recorded for the current turn.

- 8 **Tailing: Restrictions.** An aircraft may tail no more than one enemy and one friendly aircraft per turn (i.e., a total of up to two aircraft).
- 8 **Tailing: Effects of Tailing.** The aircraft being tailed must always reveal both its direction (S, L, or R) and its altitude (Level, Up, or Down) to the tailing aircraft.
- 9 **Maneuver Selection: Fuel.** The number of fuel boxes remaining on the Aircraft Record Sheet must at least equal the speed number of the selected maneuver after the maneuver's fuel usage has been modified for climbing or diving. There are cases in which no fuel will be expended (ex. a 9R1 maneuver with a dive).
- 9 **Maneuver Selection: Restricted Maneuvers / Non-repeatable Maneuvers.** The entries at the bottom of the original Aircraft Maneuver Sheets indicated that maneuvers 27 through 36 were Non-repeatable Maneuvers. This disagrees with the rules book and was an error. The sheets should show that the maneuvers are Non-repeatable. This error has been corrected in the updated version of the rules.
- 9 **Maneuver Selection: Finished Markers.** Finished Markers will not be used; instead "Order Chits" are used. The turn number and the selected maneuver will be written on the Order Chit and placed on the playing area with the aircraft (the written maneuver order need not include the final fuel number associated with the order). The aircraft must execute the order as written on the Order Chit. If the Chit disagrees with the order recorded on the Maneuver Schedule, the Order Chit will be followed. The Order Chit may be overridden only in the following situations.

1. The order disagrees with the tailing chit given to the enemy. Order Chits are not overridden for disagreements with tailing chits given to friendly aircraft.
2. The order is illegal.

If an Order Chit is overridden, the aircraft must execute an order as determined in the following sequence.

1. If the error involves the aircraft turning in the wrong direction, then execute the same order with the turn direction reversed. Example: A tailing chit said "R" but the Order Chit is for a 14L. The aircraft must execute a 14R maneuver.
2. If the error involves climbing or diving, then the order is changed to conform to the required up or down movement. An aircraft may not be forced into a stall due to giving an erroneous "up" indicator for tailing. An aircraft may be forced into the ground due to giving an erroneous "down" indicator for tailing (the aircraft may elect to land if it meets the criteria for that maneuver). Aircraft which attempt to climb at their maximum speed have the altitude change portion of the order overridden unless the aircraft is required to climb due to actions in the previous game turn.
3. If the order is illegal, the aircraft must execute the closest legal maneuver to the one written. The revised order should not be a Restricted Maneuver and should be at the same speed as the originally written order if at all possible. Example: The Order Chit calls for a second [31R] maneuver (Non-repeatable). This is illegal, so the order executed will be a 10R.

If an Order Chit is or is not overridden due to enemy tailing in such a way as to cause the tailing information to disagree with the executed maneuver in altitude, then any tailing aircraft may elect to change their altitude to conform with the corrected movement. Each tailing aircraft will individually and in secret first decide whether or not they wish to change their maneuver. If they decide to change their maneuver then the tailing aircraft may individually and in secret elect to either hold their original altitude in the same direction as the tailed aircraft.

- 10 **Fuel Expenditure.** The fuel expended in a turn by an aircraft is the fuel expenditure number (the last number in the maneuver identifier) plus or minus one (1) if the aircraft climbed or dived. **There is no direct relationship between the fuel expended in a maneuver and the speed number of the maneuver.** The fuel expenditure number is provided on the Aircraft Maneuver record for each type of aircraft.

- 10 **Fuel Expenditure: Gliding.** This includes two separate situations; gliding due to a destroyed engine, and running out of fuel.

Gliding.

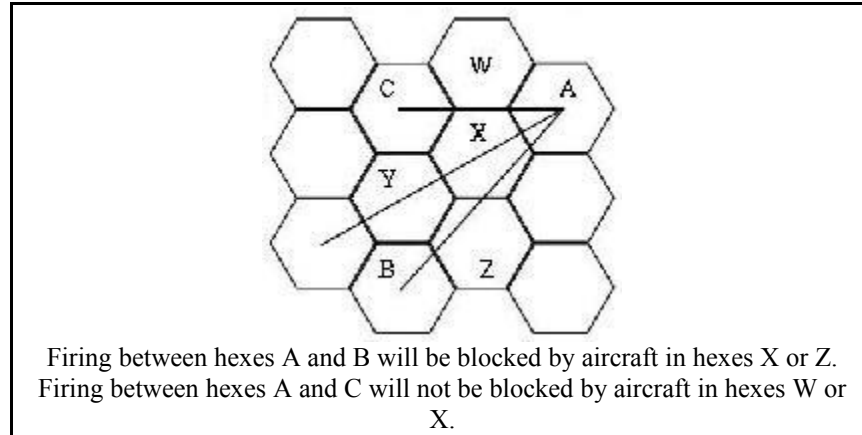
1. Gliding occurs whenever an aircraft's engine has been destroyed (not when it runs out of fuel). The destruction of the engine is openly announced (all aircraft are able to see that the propeller has stopped turning) at the start of the next Movement Step (not during the Maneuver Selection Step, this simulates the time it takes for the propeller to actually stop turning).
2. Gliding aircraft are restricted to the following maneuvers, 1S, 2S, 6S, 7S, 8L, 8R, 10L and 10R. Aircraft which do not normally have one or more of these maneuvers are still able to perform all of these maneuvers. If an aircraft performs a 6s, 7S, 8L or 8R maneuver, and does not include a descend order, then a 1D6 must be rolled the maneuver is being executed (i.e., during the Movement Step, not

the Maneuver Selection Step), and the aircraft must descend one altitude level on a 5 or 6. If an aircraft performs a 10L or 10R, it must also descend. If an aircraft performs a 1S maneuver, then it must dive on the following turn. This dive must be performed regardless of whether or not the aircraft spins as a result of the 1S maneuver or damage. If the aircraft spins, then it must dive on the turn following its recovery. The aircraft may at its option use this mandatory dive in order to execute a landing.

3. An aircraft which is gliding may not climb, although it may perform an action (such as shooting up) which would force a climb (and the aircraft must then stall in the following turn). Any aircraft which performs a stall while gliding increases its chances of a spin by 1 (ex. a Veteran performing a 1S1 maneuver would stall on a roll of 4 through 6, instead of a 5 or 6). It also decreases its requirements to recovery from a stall by 1. This modifier applies only to the maneuvers, not to the spin rolls due to wing or tail hits. Gliding does not effect the ability of the aircraft to fire its gun(s).
4. An aircraft which is moving at a speed above 3 when it begins to glide must immediately slow down. It may slow down no more than one speed level per turn. While slowing down it may not execute stalls, straight maneuvers, and turns which have facing changes with a total of no more than one hex side. If the aircraft performs any turning maneuver, and does not have a descend order, then a 1D6 must be rolled as the maneuver is being executed (i.e., during the Movement Step, not the Maneuver Selection Step), and the aircraft must descend one altitude level on a result of 5 or 6.

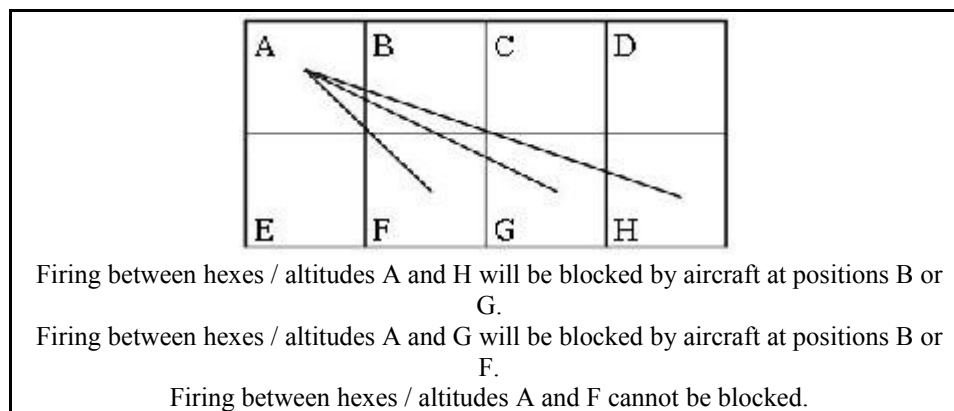
Out of Fuel.

1. The fuel shown on the Aircraft Record is considered to be the combat reserve of the aircraft, not the total amount of fuel carried. When an aircraft runs out of fuel, it has expended its combat reserve, not its entire fuel capacity, and thus it is not gliding but rather flying at a cruising speed.
 2. When Out of Fuel, an aircraft is restricted to its speed 1 maneuvers (stalls) and all unrestricted speed 2 maneuvers except 11L and 11R, provided that the aircraft is normally capable of performing such maneuvers. Aircraft which have speed 2 maneuvers (11L, 11R or restricted) with fuel maneuvers of 1 (ex 11R1) may continue to execute these maneuvers freely, provided that they dive when doing so (these maneuvers cost no extra fuel since the diving subtracts from the fuel expenditure of the maneuver, which is 1).
 3. An aircraft which is moving at a speed above 3 when it runs out of fuel must immediately slow down. It may slow down no more than one speed level per turn. While slowing down it may only execute stalls, straight maneuvers, and turns which have facing changes with a total of no more that one hex per side.
 4. An aircraft which is Out of Fuel may not climb, but may perform an action (such as shooting up) which would force a climb. The aircraft must stall in the following turn.
 5. An aircraft that is Out of Fuel must fly towards their own board edge.
- 10 **Combat.** Aircraft with fixed forward firing guns may fire the fixed guns only at a target which is in the three (3) hexes directly in front of the aircraft (not within the forward arc as stated in the rules). Firing by aircraft with non-fixed guns is discussed later in these rules.
- 10 **Combat.** Aircraft may not fire through a hex occupied by another aircraft. To fire at an aircraft the path between the firing and the target aircraft must be clear of other aircraft, friendly or enemy. The path must be clear between the hexes and clear between altitudes (if applicable).



Firing Between Hexes

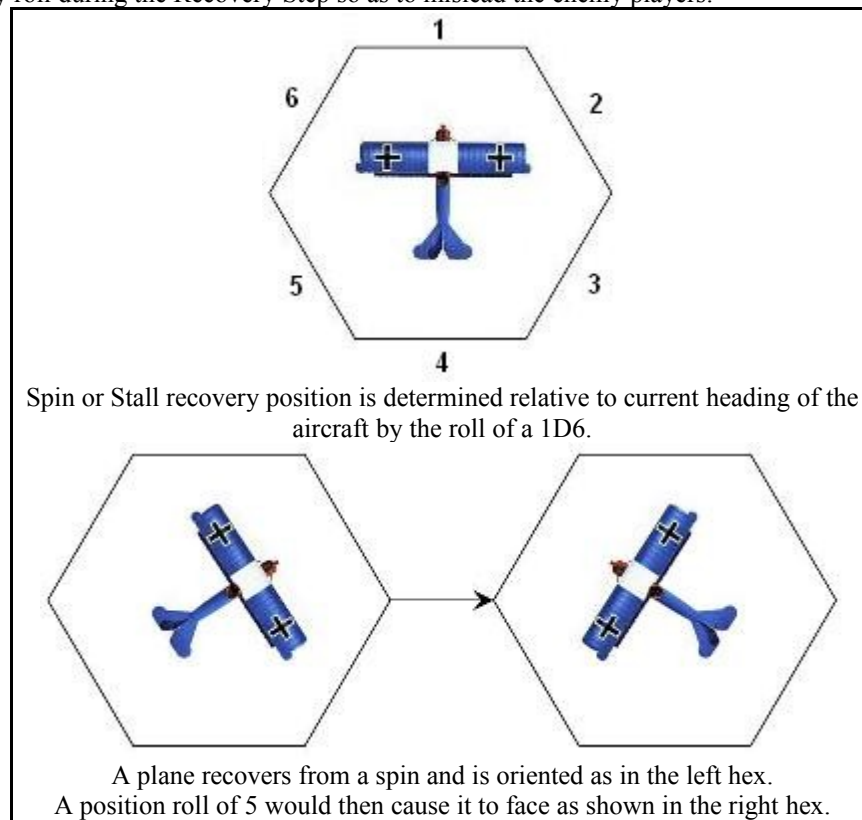
- a. **Between hexes.** The path between the hexes is based on a line drawn between the centers of the firing and the target hex. If the line passes through a hex containing another aircraft, then the line of fire is blocked. A line which passes along the edge of a hex containing another aircraft is not blocked.
- b. **Between Different Altitudes.** The firing path between aircraft at different altitudes is blocked if another aircraft is present along the line of fire as determined in a. above, and the blocking aircraft is at the same altitude as either the firing or the target aircraft and is also adjacent to either of these aircraft.



Firing Between Different Altitudes

- 11 **Combat Value: Target Stalled.** This modifier does not apply if the aircraft is currently in a spin, including a spin resulting from a stall maneuver in the current turn. This modifier does apply to an aircraft which scheduled an Uncontrolled Stall maneuver.
- 11 **Resolution: 2. Combat value: Attacker Speed 3 or 4.** This modifier applies to Speed 3, Speed 4 and Speed 5 maneuvers. The speed bands on the Aircraft Maneuver charts are used for this determination, not the fuel expenditure numbers.
- 12 **Drawing Damage Chits.** While following the procedures, the target must differentiate which damage chits are from aircraft directly ahead and behind the target aircraft. Directional Hits (page 13 under Damage) may only strike the front or back of the aircraft. If the target was hit by an aircraft from ahead or behind at the same time it was hit by aircraft from the side, then some of the damage chits fall under the Directional Hits rule. The target must be sure to allocate these hits correctly. The target must draw the damage chits in a specific order; Blue chits first, then Red. The player must specify before drawing a chit whether or not Directional Hits apply.
- 13 **Damage: Total Wing, Tail or Fuselage Damage.** A “wing includes all damage boxes in the complete Wing. The wing is not divided into a port or starboard wing for the purposes of receiving damage.
- 14 **Recovery: Unjamming Guns.** A single person may attempt to unjam a maximum of two jammed machineguns in a single turn. Members of a multi-seat aircraft may not assist each other in unjamming their guns (ex. the gunner of a two-seater may not help the pilot unjam a jammed forward firing gun).

- 14 **Recovery: Spin Recovery.** When determining the random direction of the aircraft after a spin, the Direction Table on the map is ignored. The direction is based upon the current facing of the aircraft. Use the Spin and Stall Recover Facing Figure to determine the new facing of the aircraft after rolling a 1D6.
- 14 **Problems: Spin Effects.** Any aircraft drops one level during the current turn. This applies to aircraft which were already in a spin, plus any aircraft which entered a spin during the current turn, whether in the Movement Step or the Damage Step.
- 14 **Fire Damage.** This applies to any aircraft on fire either from before the current turn or as a result of damage during the current turn.
- 14 **Fire Damage.** Wing and Tail damage caused by chits drawn during the Fire Damage Step does not cause spin rolls.
- 15 **Extinguishing Fire / Smoke.** It is possible to extinguish fire or smoke in the same turn in which it was inflicted.
- 15 **Secrecy: Damage.** An aircraft which is in a spin need not reveal whether the spin is “recoverable” (i.e., the player is rolling during the Recovery Step to end the spin) or “non-recoverable” (i.e., the wing, fuselage, or tail has been destroyed and there is no way to recover from the spin). The player may make a mock recovery roll during the Recovery Step so as to mislead the enemy players.



Spin and Stall Recovery Facing Figure

- 15 **Secrecy: Formation Flying.** All members of a formation must decide whether or not they will maintain formation prior to the formation leader revealing the formation’s movement order. A formation leader may order the formation to break apart. This order must be given prior to revealing any movement order.
- 15 **Secrecy: Formation Flying.** Rather than writing down the formation order, an aircraft may enter “Form” or “Formation” for its order to indicate that it is following its formation leader. The fuel cost of the maneuver should be noted.
- 15 **Ending.** The game ends when all enemy aircraft are outside of six (6) hexes from each other and declare that they do not intend to continue the flight. Aircraft may not be pursued off of the edge of the board.
- 15 **Ending: Capture.** The capture of downed aircrews is covered by the campaign rules.
- 16 **Lewis Guns.** A pilot or gunner may not both unjam and reload a Lewis gun during the same turn. These are separate actions and must be handled separately. There were a number of different types of

machineguns similar to the Lewis gun used during the war. These gun types were not belt fed and have the same ammunition and loading restrictions as the Lewis gun. For reference purposes these types of guns are referred to in these rules as “Drum-fed” guns instead of Lewis guns.

- 16 **Lewis Guns.** In mounts with two drum-fed guns, reloading each is a separate action. It required two turns to reload twin Lewis guns.
- 16 **Lewis Guns: S.E. 5a.** When firing a medium burst by using a short burst from the Lewis gun and a long burst from the belt-fed gun, only the belt-fed gun must roll for jamming. Other aircraft types with a drum-fed and a belt-fed may use this rule.
- 16 **Observers.** The observer rules are replaced later in these rules.
- 17 **Altitude: Diving.** The fuel consumption for an aircraft is determined by the fuel expenditure in the selected maneuver, not by the aircraft’s speed number. It is possible for an aircraft to use no fuel on a turn when it dives. If the maneuver specifies 1 as the fuel expenditure (as in a Speed 2, 9R1 maneuver; noting that many aircraft have this as a 9R2 maneuver), then the fuel used is zero. An aircraft which specifies “Dive” while at very low altitude without also indicating “Land”, will automatically crash. A “Dive” command may be entered via a down arrow, the word “Dive”, or any similar notation after the maneuver.
- 17 **Altitude: Climb.** The fuel consumption for an aircraft is determined by the fuel expenditure in the selected maneuver, not by the aircraft’s speed number. Some aircraft have been given the ability to climb at their maximum speed. This is specifically noted on the Aircraft Maneuver sheets of the aircraft. A “Climb” command may be entered via an up arrow, the word “Climb”, or any similar notation after the maneuver.
- 18 **Altitude: Stalls.** An aircraft which has an order to climb to an altitude which it cannot reach, will stall in the hex in which it starts the turn. An aircraft may use 1L, 1S and 1R maneuvers only if the speed of the previous turn’s maneuver was two. If the speed was greater than 2, then the aircraft must use the Stall (uncontrolled stall) order. The fuel usage for an uncontrolled stall is always one less than the fuel usage of the previous turn, but never less than one.
- 18 **Altitude: Stalls.** (Optional, this replaces the previous Altitude: Stalls rule) An aircraft which has an order to climb to an altitude which it cannot reach has the order automatically modified to no climb.
- 18 **Altitude: Spins.** There are two type of spins; recoverable and non-recoverable. A recoverable spin is any spin from which the aircraft is able to recover and the player rolls each turn to see if the aircraft recovers from the spin. A non-recoverable spin is the result of a pilot kill or the total loss of the wing, fuselage or tail of the aircraft. The aircraft cannot roll to recover from a non-recoverable spin. As stated on the Errata sheet, an aircraft drops one altitude level during the Problem Step, not during the Damage Step.
- 18 **Altitude: Attacks.** When attacking an aircraft at the next higher altitude, the attacking aircraft must be in a nose-up position; it must climb in the next turn. The aircraft may not execute a maneuver that prohibits a climb.
- 18 **Altitude: Attacks.** When attacking an aircraft at the next lower altitude, the attacking aircraft must be in a nose-down position; it must dive in the next turn.
- 18 **Altitude: Attacks.** An aircraft with a Veteran pilot may attack an aircraft at a different altitude using a short burst without being required to climb or dive on the next turn.
- 18 **Altitude: Attacks.** An aircraft may not attack a target at a higher altitude if its current maneuver was non-repeatable, was a spin, or resulted in a stall (the attack would cause a stall which would be a second non-repeatable maneuver).
- 18 **The Campaign.** Campaign activities are covered by the campaign rules.
- 19 **The Campaign: Experience.** Experience is used in the campaign, but the points are accumulated in a somewhat different manner than listed in the rules. A pilot receives Experience Points for the following situations. Additional Experience Point conditions may be defined in the campaign rules.
1. One point for each turn the aircraft is within six hexes of a non-spinning enemy aircraft, regardless of altitude differences. Enemy aircraft which are in spins do count for determining Experience Points.
 2. One point for a turn in which the aircraft was hit (i.e., a damage chit was drawn). Only one point is received, regardless of how much damage or how many individual attacks were made on the aircraft.
 3. One point for a turn in which a target aircraft was hit (i.e., the target drew a damage chit). The point goes only to the individual causing the damage. Only one point is received, regardless of how much damage was done on the target aircraft.
 4. Twenty-five points for participating in the attack which destroys an aircraft. As in the Blue Max rules, the points are awarded to each aircraft which hit the target in the turn in which it was destroyed or put into a spin which resulted in a crash. Note that to be a "hit" requires that a damage chit be drawn.

An observer / gunner receives Experience Points for the following situations. Additional Experience Point conditions may be defined in the campaign rules.

1. One point per turn in which a target aircraft was hit (i.e., the target drew a damage chit). The point goes only to the individual causing the damage. Only one point is received, regardless of how much damage was done to the target aircraft.
 2. Twenty-five points for participating in the attack which destroys an aircraft. As in the Blue Max rules, the points are awarded to each aircraft which hit the target in the turn in which it was destroyed or put into an unrecoverable spin.
 3. Every observer or gunner receives one additional point per game which they survive.
- Experience Points may also be gained under the campaign rules for bombing attacks, observation runs, trench strafing, and other activities.
- 19 **The Campaign: Credit.** Experience Points are awarded for an aircraft that goes down as a result of being on fire, if the enemy sees the crash. To see a crash, an enemy aircraft must be within six hexes of the crashing aircraft.
- 19 **The Campaign: Special Abilities.** Aircrew members receive Special Abilities as listed in the rules. Additional Special Abilities are included in the campaign rules.
- 20 **The Campaign: Observer Experience.** An observer is not necessarily grounded due to pilot changes. Aircrew activities are covered in the campaign rules.
- 20 **The Campaign: Downed Pilots.** The forcing down of pilots or other members of the aircrew is covered in the campaign rules.
- 22 **Pilots: Pilot Status: Veteran.** A Veteran pilot has the ability to attack an enemy aircraft at a different altitude using a short burst without being required to climb or dive on the next turn.
- 22 **Pilots: Pilot Abilities.** Additional Special Abilities are defined in the campaign rules.
- 23 **Special Damage: Pilot Killed.** The statement in this rule conflicts with the statement under Altitude: Spins. When the pilot is killed the aircraft goes into an unrecoverable spin. It is not removed from play until it crashes due to descending below Very Low altitude during a Problem Step. During this time the aircraft may interfere with the shooting of other aircraft.
- 23 **Special Damage: Pilot Grazed: Must Do Slower Maneuver Next Turn.** The requirement for a second “speed number 1” maneuver after a speed 1 maneuver conflicts with the prohibition against non-repeatable maneuvers. The second maneuver must be performed as an uncontrolled Stall and the die roll needed to produce a spin will be one greater than otherwise (i.e., an experienced pilot would spin on 4, 5, or 6 instead of 5 or 6).
- 23 **Special Damage: Rudder Jams: Must Do Left/Right Maneuvers.** If a second rudder chit is drawn during the period when the rudder jammed, it is not ignored as the rules state. Instead, if the second chit is for the same direction of rudder jam, then it is added to the number of turns remaining with the rudder jammed. If the second chit is for the opposite direction, then it is immediately implemented and the previous damage chit is cancelled.
- 23 **Special Damage: Fabric Tears: No Speed 3 or 4 Maneuvers.** This damage also precludes any Speed 5 Maneuvers.
- 24 **Combat Chart: Combat Values.** As indicated on the Errata sheet, all of the values for “At different altitude” should be negative, not positive.
- 24 **Combat Chart: Combat Values.** An observer/gunner may never use the “tailing target” line of the Combat Values chart.
- 24 **Combat Chart: Combat Values.** A spinning aircraft is not treated as being a “Target Stalled”.

Additional Rules

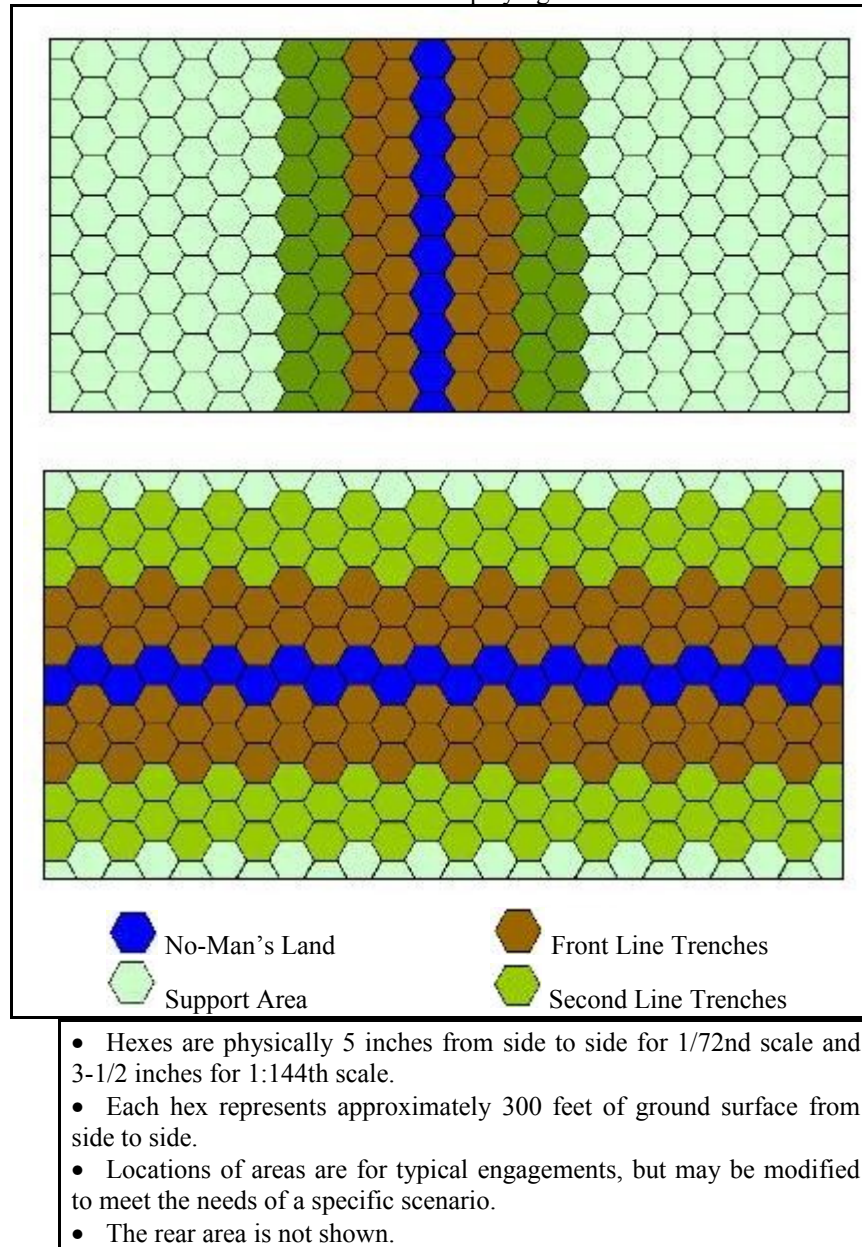
The Playing Board

The playing board is divided into areas as shown in the Playing Area Chart. There are five types of areas.

- 1) No-Man’s-Land. This is the area between the opposing trench systems. No one controls it.
- 2) Front Line Trenches. This is the area containing each side’s forward trenches.
- 3) Second Line Trenches. This is the area containing the main defense trenches.

- 4) Support Area. This area contains strong points, support units, headquarters, airfields, and other installations to help the front line units.
- 5) Rear Areas. This area is similar to the Support Area, but further back from the front lines. It is not shown on the Playing Area Chart. There are fewer military units in the rear, although individual installations tend to be more important.

A scenario normally takes place on a playing area which consists either; 1) the first four types of areas, or 2) the Rear Area. Each scenario determines the exact nature of the playing area.



Playing Area Chart

Exiting the Playing Board

Aircraft may fly off the edge of the playing area. The location at which the aircraft exits the playing area will determine their probability of safely returning home.

An aircraft "exits" the board whenever it ends its movement in a hex which is not part of the playing area. A partial hex is defined as being in the playing area if three of its corners are present on the playing area. Such an

aircraft is normally out of the game. It may not fire, be fired at, or perform any other game related activity. The aircraft also may not return to the board, unless specifically exempted by special rules in a scenario. An aircraft may move in such a manner that part of its movement is off of the playing area, provided that it ends its movement on the playing area. (ex. At the edge of the board it is possible to execute a 14L or 14R maneuver in which the middle hex is off of the board but the starting and ending hexes are on the board. Such a maneuver is legal and the aircraft is not considered to have left the playing area).

There are four types of playing board setups which apply for exiting conditions

- 1) **Standard Playing Areas.** These are Playing Boards consisting of No-Man's-Land, Front Line Trenches, Second Line Trenches, and Support Areas for both sides. The chances of an aircraft and aircrew safely returning to their own lines are shown in the Exiting Standard Playing Areas Table.

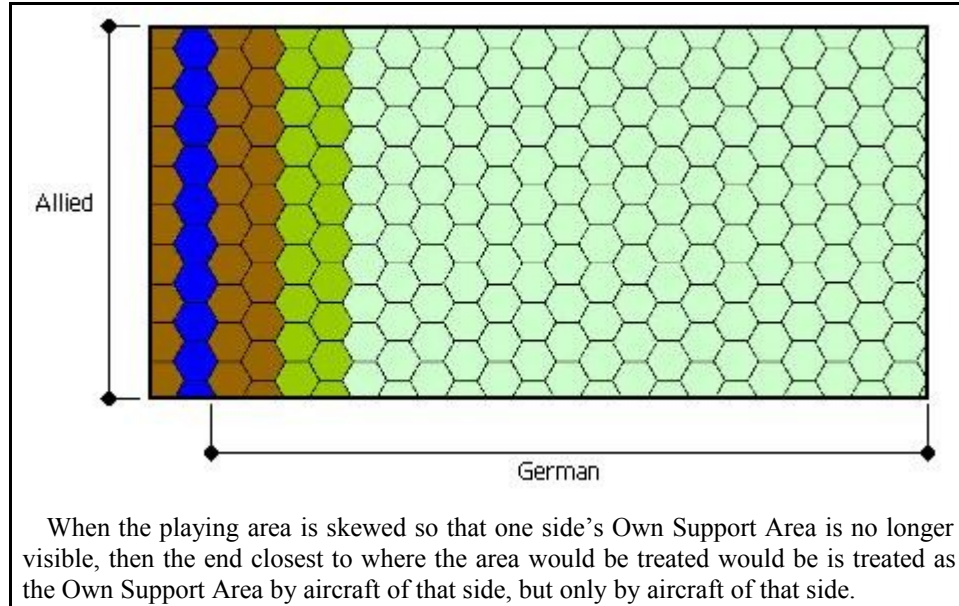
Exit Area	Note	Aircraft Return %	Crew Return %
Own Support Area		100	100
Own Second Line Trenches		90	100
Own Front Line Trenches		80	90
No-Man's-Land		70	50
Enemy Front Line Trenches		60	40
Enemy Second Line Trenches		50	30
Enemy Support Area, Side	2	20	220
Enemy Support Area, Rear	3	10	10

- Note: 1) Crew Return % is rolled only if first the aircraft fails to return
Crew survival for a forced landing or crash may also apply.
- 2) Aircraft exist off the side of the playing area (usually the side is perpendicular to the front lines).
 - 3) Aircraft exits off the enemy rear side of the playing area (usually the rear is parallel to the front lines).

Standard Exiting Returns Table

- 2) **Skewed Playing Areas.** These are Playing Boards similar to a #1 but without one side's Support Area showing. The Exit conditions are the same as for the Standard Playing Area (above) with one modification. Since one side does not have an "Own Support Area" in which to execute a safe exit, the edge of the playing area closest to where that side's Support Area would be, will be designated as their "Own Support Area". This designation will apply only to aircraft of that side. Enemy aircraft treat the side according to the area it actually is.

Example (see Skewed Playing Area Example figure): On a board set up with the Front Line Trenches of the Western Allies on the far left edge of the board, the left edge would become the Own Support Area for the Western Allies. The sides of the Front Line Trenches will still be treated as Front Line Trenches if an aircraft exits over them. German aircraft leaving the left edge of the board would treat the edge as Enemy Front Line Trenches.



Skewed Playing Area Example

- 3) **Rear Playing Areas.** These Playing Boards consist entirely of Rear Areas. The exit conditions for this type of board depend on the side.
 - a. The side whose rear area the board covers may exit the board in any direction as if it were their "Own Support Area". This applies to the Standard Playing Area (above).
 - b. The enemy units may exit the side designated as closest to their own lines as if it were their "Own Support Area". Exiting anywhere except the designated side is treated as "Enemy Support Area, Rear". Scenario rules may increase or reduce the exit locations.
- 4) **Special Cases.** The conditions for the playing area and its exit conditions must be described as part of a scenario.

Loops

This optional rule describes the "Loop" maneuver.

An aircraft executing a Loop ends its maneuver in the same hex in which it started, and facing in the same direction. The Aircraft Record hex diagram for the Loop would appear the same as for the 1S maneuver, except that the Loop is not a stall maneuver. The written order for the Loop is "[0S3]".

The following conditions apply for the Loop.

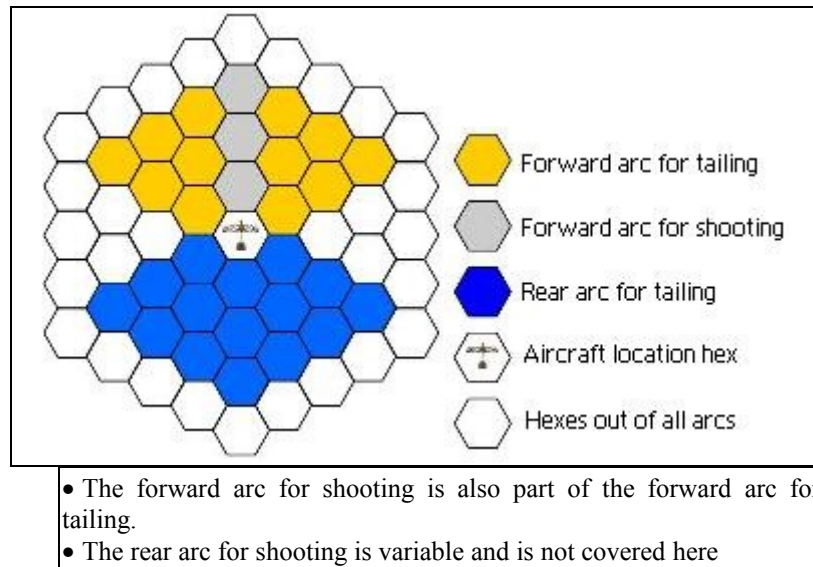
- 1) A Loop is a Restricted Non-repeatable maneuver.
- 2) A Loop is a Speed 3 maneuver.
- 3) An aircraft may not climb or dive while executing a Loop.
- 4) A Loop may not be performed when the aircraft is at an altitude from which it is unable to climb (i.e., it is at its current upper altitude limit). An attempted Loop when the aircraft cannot climb, results in an automatic Uncontrolled Stall.
- 5) An aircraft carrying bombs may not execute a Loop.
- 6) An aircraft may not perform a photographic pass, direct artillery, or perform any other activity except firing its gun(s) in the turn in which it executes a Loop.
- 7) Whenever an aircraft at Very Low altitude performs a loop, a 1D6 must be rolled during the Spin Determination Phase. On a result of 6, the aircraft will fly into the ground and crash.
- 8) When tailed, the aircraft responds with Straight ("S") and Up chits.

An aircraft may execute a Loop if it is able to perform the following maneuvers.

- 1) 1s
- 2) 3S, 4S, or 5S
- 3) 27S or 29S

Arcs

The forward and rear arcs are different for tailing and shooting. For tailing the arcs are described in the basic rules. The forward arc for shooting includes only the three hexes in the row directly to the front of the aircraft. The rear arc for shooting varies according to the type of aircraft and the altitude to which it is shooting. The hex containing the aircraft is treated as a special case. The basic arcs are shown in the Main Arcs for Tailing and Firing figure.



Main Arcs for Trailing and Firing

Firing Arcs For Observers / Gunners

The area into which an observer / gunner may fire is determined based upon the location of the machinegun in the aircraft, the type of mounting for the machinegun, and the relative altitude of the target.

Machinegun Location: There are five possible locations for a machinegun in a multi-seat aircraft. Some aircraft may have more than one of these positions.

- 1) Aft Low: Behind the pilot and below the upper wing (ex. British Bristol F.2b).
- 2) Aft High: Behind the pilot and level with the upper wing (ex. German Roland C.II).
- 3) Forward Low: Ahead of the pilot and below the upper wing (ex. British Sopwith Gunbus).
- 4) Forward High: Ahead of the pilot and level with the upper wing (German Gotha G.I).
- 5) Aft Underside: In the lower fuselage pointing down behind the aircraft (this occurs in only a few very large aircraft such as the German Gotha G.V).

Machinegun Mountings: There are three types of mountings for the machineguns.

- 1) Pole Mounting: A simple pole, pedestal, or other fixed holder upon which the machinegun pivots in a circle. The mounting itself does not move and limits the area into which the gun may shoot. This is the most common type of early war mounting.
- 2) Ring Mounting: A track around the gunner's position upon which the machinegun mount slides. This allows the gun to be physically around the gunner. The gun also pivots on the ring mount as in a Pole Mounting. This is the most common type of late war mounting.
- 3) Underside Mounting: This is the mounting used with an Aft Underside Gun. It is a Pole Mounting but with a more limited area of fire since the gun is sticking out of an opening in the lower fuselage.

Relative Altitude: The altitude of the target, as with all firing, may be above, level with, or below the firing aircraft.

Observer / Gunner Arc Charts: The arcs of fire for observer / gunners are shown in the Observer / Gunner Arcs of Fire For All Guns Except Underside Mountings figure and the Observer / Gunner Arcs Of Fire For Underside Mountings figure.

Machinegun Location		Mounting	Machinegun Location	
Forward Low	Forward High		Aft Low	Aft High
		Pole Ring The Ring arc includes the Pole arc. Target Altitude Above		
		Target Altitude Level		
		Target Altitude Below Climb Dive Must maneuver to shoot.		

Observer / Gunner Arcs of Fire for All Guns Except Underside Mountings

Machinegun Location: Aft Underside Machinegun Mounting: Underside		
Target Altitude		
Above	Level	Below

Observer / Gunner Arcs of Fire for Underside Mountings

Same Hex Combat: Firing by observer / gunners at aircraft in the same hex as their aircraft are governed by the following conditions.

- 1) An observer / gunner in a forward position may fire at an aircraft in the same hex only if the target meets the standard conditions for same hex combat (i.e., same altitude, same direction, and target moving faster than the firing aircraft).

- 2) An observer / gunner in an aft position may fire at an aircraft in the same hex only if the target meets the standard conditions to fire at the gunner's aircraft (i.e., in the same hex, a gunner may fire back at any aircraft which is able to fire at the gunner's aircraft).

Manning Underside Guns: In most, if not all, World War I aircraft which carried underside guns, there was only a single crew member (observer / gunner) to man both an upper rear position and the underside position. Therefore, as part of the aircraft's movement order, the player must specify at which position (upper or underside) the observer / gunner will be located during that turn. Unless there is an additional crew member to man the other gun(s), then only the guns at which the observer / gunner is located may fire, reload, or unjam.

Climbing and Diving: A multi-seat aircraft may modify the arcs of fire for its observer / gunner guns by climbing or diving. The additional hexes are indicated in the two arcs of fire figures. To fire at the indicated hexes the aircraft must execute a climb or dive, as appropriate, in the following turn. The climb or dive maneuver has the same restrictions on it as does a similar maneuver by single-seat plane.

Landing During Combat

Normally aircraft do not land during combat scenarios, however, a badly damaged aircraft may elect to land.

Requirements: In the turn prior to executing the landing the aircraft must be at Very Low altitude, have performed a Speed 1 or Speed 2 maneuver, and not be in a spin at the end of the turn. To execute the landing, the aircraft must perform a 2S# maneuver and note "Land" with the order. The aircraft will execute the landing in the hex to its immediate front.

Announcing the Landing: The aircraft need not announce the landing until the start of the Movement Step in the turn when "Land" has been ordered. If the aircraft is being tailed it must inform the tailing aircraft using "S" and "Down" tailing chits.

Attacking a Landing Aircraft: Any aircraft which is in a position to attack the landing aircraft and which executed a Speed 1, Speed 2, or Speed 3 maneuver, may fire at the aircraft while it is still in the air. If the aircraft receives fatal damage or receives damage which puts it into a spin, then it is considered to have crashed. The crash counts as a kill for the attacking aircraft. You must be at Very Low altitude to attack a landing aircraft.

Attacking a Landed Aircraft: Any aircraft which is in a position to attack the landing aircraft, at Very Low altitude and which executed a Speed 4 or faster maneuver, may fire only at the aircraft after it is on the ground. The stationary aircraft provides a +1 to the Combat Value. If the aircraft receives fatal damage, then it is considered to be destroyed. A "Pilot Killed" or "Observer Killed" damage chit destroys the aircraft, but actually kills the crew only if the crew is attempting to burn the aircraft (see next paragraph). The destruction of the aircraft counts as a kill for the attacking aircraft. The landed aircraft may be attacked after the turn in which it lands so long as the aircrew is attempting to burn the aircraft.

Burning a Landed Aircraft: If an aircraft landed safely behind enemy lines, each living member of the aircrew may attempt to burn the aircraft. A roll of 1 or 2 on a 1D6 will cause the aircraft to catch fire. Any aircrew member attempting to burn an aircraft may be killed during a strafing of the aircraft. An attempt to burn the aircraft may only be made on the turn that the plane lands.

Capturing a Landed Aircraft: Any aircraft which lands safely behind the enemy's front line trenches and which is not burned, is captured. The pilot who forced the captured aircraft down receives Experience Points as for a kill, but may not take credit for an actual kill.

Experience Points for a Force Down: Experience Points are awarded to flying aircraft for a landed enemy aircraft in the same manner as for chasing an enemy aircraft off of the playing area (see campaign rules).

Clouds and Fog

Clouds and fog restrict visibility and make flying more difficult and dangerous. Rain clouds and storm clouds are not considered in these rules since World War I aircraft would carefully avoid any such formations.

Clouds: Clouds occur at Medium, High and Very High altitudes. In any one hex, clouds may be present at any one altitude or a combination of altitudes.

Fog: Fog occurs at Low or Very Low altitudes. In any one hex fog may be present at either altitude or both altitudes. Fog most commonly occurs in the early morning, but may be present at any time. All rules which apply to clouds also apply to fog, however, fog has some additional rules which do not apply to clouds.

Collisions: Any aircraft which end their movement in the same hex at the same altitude within clouds or fog must roll for a collision. Each aircraft in the hex will roll a 1D6. If two or more aircraft have a result of 6, then the aircraft with the 6's may collide and the Collision Determination Table is used.

Example: Aircraft A, B and C end their moves at the same altitude in the same cloud hex. Each aircraft must roll a 1D6. A and B each roll a 6 while C rolls a 5. Aircraft C has no possibility of a collision and is not involved in the collision determination which would follow. Aircraft A and B must use the Collision Determination Table to determine the result of their potential collision.

When rolling on the Collision Determine Table, the die roll is to be in secret. Only the players involved in the potential collision will know the results.

1D6	Result
1	Collision, use Collision Effects Table with +1 added to die roll.
2	Collision, use Collision Effects Table with no modifier.
3	Radical maneuvers to avoid collision.
4	Radical maneuvers to avoid collision.
5	Narrow Miss.
6	Narrow Miss.
Radical Maneuver: Both aircraft must immediately roll for spins (this is in addition to any rolls due to other requirements. If a spin is avoided, then the aircraft must perform one of the following maneuvers in the next turn; Uncontrolled Stall, 9, 11, 15, 17, 22, 23, 24, or a Restricted Maneuver. The speed of the maneuver must be the same as the speed in the current turn.	
Narrow Miss: In the next turn each aircraft must execute an "S" maneuver.	

Collision Determination Table

1D6	Result
1	Aircraft damaged by maneuvers; each takes 1 Blue chit.
2	Aircraft damaged by maneuvers; each takes 2 Blue chits.
3	Minor collision; each aircraft takes 1 Red chit.
4	Major collision; each aircraft takes 1D6+1 Red chit.
5	Major collision, each aircraft takes 1D6+1 Blue and 1D6+1 Red chits.
6	Disastrous collision; both aircraft are destroyed, crew roll for crash survival.
7	Disastrous collision; both aircraft are destroyed and all crew members are killed.
	All aircraft which survive a collision must make a spin roll. This is an addition to any spin rolls due to damage or maneuvers.

Collision Effects Table

Flying in Fog: Any aircraft which starts its turn at Very Low altitude must roll a 1D6 during the Movement Step (not the Movement Selection Step). On a result of 6, the aircraft has misjudged its altitude and will crash.

Diving in Fog: Any aircraft which dives into or within fog must roll a 1D6 during the Movement Step (not the Movement Selection Step). On a result of 6, the aircraft will miss its intended altitude and must perform another dive in the following turn.

Tailing: Aircraft in clouds may not tail or be tailed with the following two exceptions:

- 1) Aircraft in the same hex may tail and be tailed in the same manner.
- 2) A pilot with the "Tailing" ability may tail an aircraft which is in an adjacent hex (subject to the standard tailing rules) regardless of which aircraft is in the clouds or fog.

Combat: Aircraft may not fire into, through, or out of clouds or fog more than one hex distant. Aircraft may fire under the following conditions.

- 1) Aircraft in the same hex may conduct combat in the standard manner.
- 2) Aircraft in a clear hex next to a cloud or fog hex may fire at aircraft in that adjacent hex.
- 3) Aircraft in a cloud or fog hex next to a clear hex may fire at the aircraft in that adjacent hex.

Observation and Bombing: Observation and bombing missions may not be performed against a hex if the hex has fog at Very Low altitude. Aircraft may not perform observation or bombing missions from within or above clouds or fog.

Ground Attack: Ground attacks may not be performed against a hex if the hex has fog at Very Low Altitude.

Hills

The basic game assumes that all land is relatively flat with no meaningful terrain features. Scenarios may be played with higher terrain. The upper edge of “high land” is assumed to be at Very Low altitude. Either the entire playing area may be treated as high land, or only a portion may be high. Aircraft may not fly at Very Low altitude over high land. Aircraft flying at Low altitude are treated as if they were at Very Low for game purposes. If only a portion of the playing area is high land, then an aircraft flying at Very Low altitude may not move from a low land hex to a high land hex without climbing.

When constructing the terrain for a scenario with land levels, all of the higher level hexes should be grouped together to form a ridge or plateau.

Aircraft Size

The basic rules assume that all aircraft are the same size. In reality single seat aircraft are often smaller than single seat aircraft. Unless specifically defined otherwise, the following size assignments will apply.

Size	Definition
Small	All single seat aircraft
Medium	All two seat aircraft
Large	All two engine aircraft
Very Large	All aircraft with more than two engines

Aircraft Size Table

The following table is used in addition to the standard Combat Results table. When the target is small, there are no modifiers to the standard table.

3	2	1	0	Range / Modifiers List
-	+1	+1	-	Target is Medium sized
+1	+2	+2	+1	Target is Large sized
+1	+2	+3	+2	Target is Very Large sized

**Aircraft Size Modifier to Combat Results Table
(Used in Addition to the Standard Table)**

Special Rules for Groups of Aircraft

The following general groups of aircraft have special rules which apply to them.

Drum Gun Equipped Aircraft: In any aircraft which has a drum fed machinegun (ex. a Lewis Gun) which is within reach of the pilot, the pilot may fire the drum fed gun independently from any other gun on the aircraft. In the case where two drum fed guns are mounted and are within the reach of the pilot, only one may be fired independently of the other guns on the aircraft.

Aircraft with Underside Guns: Some large aircraft were equipped with rear guns in the standard upper fuselage position and in the underside of the aircraft. Normally only a single crew member was available to man both gun positions. In this case, the position of that crew member must be noted as part of the movement order (indicated “upper” or “underside”). Only the gun(s) at the selected position may then be fired, reloaded, or unjammed during the Combat Step of that turn. If no position is noted in the movement order, then the crew remains at the last selected position. Another crew member may not man the vacant position (there was only room for one individual in the two firing positions).

Aircraft with More than One Observer / Gunner: Some large aircraft carry three or more crew members. The non-pilot members of the crew may, if the aircraft type permits, move between their stations and even exchange stations (ex. A forward and rear gunner exchange positions). Such a movement of personnel requires one turn and must be written in the movement orders. During the turn in which the movement takes place, neither crewmember may perform any duties (such as firing a gun).

Dual Control Two-Seaters: The following aircraft were equipped with a second set of controls for use by the observer in the event of the pilot being killed or wounded.

In the following aircraft the observer may use the dual controls immediately upon the pilot being incapacitated.

Armstrong-Whitworth FK.8

SPAD XI

In the following aircraft the observer may use the dual controls after spending one turn to connect them. During this turn the aircraft must roll for a stall or fly straight. The player writes a straight movement order for the same speed as the aircraft was traveling in the previous turn. At the start of movement a stall roll is made. If the aircraft does not stall, then it executes the selected maneuver. If the aircraft stalls, it may not begin rolling to recover until the following turn (i.e., it misses one Recovery Step).

Airco DH.4

An observer may fly an aircraft using only the following maneuvers (assuming the aircraft is normally capable of these maneuvers): all Speed 2 “S”, all Speed 3 “S”, all Speed 4 “S”, “8”, “14”, and “16”. Regardless of experience, an observer may not execute Restricted Maneuvers. The observer may not fire the aircraft’s guns while piloting.

Bombers with Bomb Loads: Bombs greatly limited the maneuverability of an aircraft. While carrying bombs an aircraft may not execute either Restricted maneuvers or a set of selected regular maneuvers. The selected maneuvers are underlined on the individual Aircraft Record. Once all of the bombs have been dropped, the aircraft may perform the Restricted and selected maneuvers (assuming the pilot is capable of performing such maneuvers). Grenades carried by ground attack aircraft do not count as bombs.

Special Rules for Specific Aircraft

The following specific aircraft types have special rules which apply to them.

Albatross D.V and Albatross D.Va: When attempting to unjam a jammed machinegun, the pilot of an Albatross D.V or Albatross D.Va may unjam a jammed gun on a roll of 3 through 6 if he executes a 2S, 3S, or 4S maneuver. For a pilot with the Jamming Special Ability, the unjam will occur on a roll of 2 through 6. This recognizes that this type of aircraft was equipped with a control lock to hold it in a straight flight. This permits the pilot to devote more attention to clearing the jam.

Fokker D.VII: The Fokker D.VII had the ability to “hang” on its propeller while making attacks from below. This greatly increased the accuracy of such attacks. When a Fokker D.VII is one altitude level below a target and at a range of 1 or 2 hexes from the target, it may add 1 column to its attack on the Combat Results Table. If the D.VII uses this advantage, it must execute a maneuver which is one speed slower in the following turn. This ability may not be used when a Speed 1 maneuver was executed.

Hansa-Brandenberg W.12, W.19, and W.29: These German naval aircraft have tails which extend below the fuselage instead of above as in standard aircraft. This gives these types of aircraft the ability to fire directly astern without hitting their own tails. They do not have a blind spot at the same altitude in the hex immediately in the hex behind themselves.

Martinsyde G.100 and G.102: These large British fighter / bombers have several unique game features. For targeting, they are treated as medium size aircraft even though they are a single seat aircraft. The G.100 may only be used as a fighter until July of 1916 and as a bomber after July 1916 (the G.102 was always a bomber). Both types of aircraft have a fixed Lewis gun firing forward and a fixed Lewis gun firing to the rear. The forward gun is treated as any other Lewis gun. Only one gun may be fired, reloaded, or unjammed per turn. The rear firing gun may fire in the following three specific cases.

- 1) The rear gun may be fired at a target directly behind the aircraft at a range of 2 hexes, if and only if, the firing aircraft moved at Speed 1 or 2 and the target aircraft is pointing directly at the firing aircraft. At this range a roll of a 6 on a 1D6 will produce one Blue chit as a hit.
- 2) The rear gun may be fired at a target directly behind the aircraft at a range of 1 hex, if and only if, the target aircraft is pointing directly at the firing aircraft. At this range a roll of a 5 or 6 on a 1D6 will produce one Blue chit as a hit.
- 3) The rear gun may be fired at a range of 0 hexes, if it is being attacked at a range of 0 hexes. If the firing aircraft moved at a Speed of 3, then the attack is made using the “2” column on the Combat Results Table. If the firing aircraft moved at a Speed of 2, then the attack is made using the “3” column on the Combat Results Table. If the firing aircraft moved at a Speed of 1, then the attack is made using the “4” column on the Combat Results Table.

SPAD XII: The SPAD XII was equipped with a 37mm cannon. As part of the firing order, the player must indicate whether or not the cannon is to be fired. The firing order must be written before computing the specific hit probabilities. The cannon may be fired whether or not the machinegun is fired.

The cannon's Combat Value is determined by using the Combat Value for the machinegun and applying the modifiers in the SPAD XII Combat Values table below. If the machinegun is not fired, then the Combat Value is determined as if a Short Burst was fired from a Single Gun.

The following SPAD XII Combat Results table is used for the cannon in place of the standard table in the game rules. If the Combat Value is less than the minimum Combat Value on the table, then no hit is scored, but the cannon does fire. If the Combat Value is greater than the maximum Combat Value on the table, then the maximum value on the table is used.

If a hit is obtained by a cannon (indicated by an asterisk on the Combat Results table), then the target draws a Red chit, rolls an additional 1D6, and consults the SPAD XII Cannon Damage table below. The Red chit is drawn separately from all other damage for the aircraft (i.e., all damage chits are replaced before the cannon damage is drawn). The target's die roll may be made in secret to prevent the enemy from knowing the extent of the damage. Based on the Damage Action, the red chit is either ignored, applied as drawn, doubled, or tripled. Only the actual hits, not these instructions, are multiplied (ex. A Rudder Jam for two turns with a die roll of 4 is doubled to 2 tail hits, but the time is not doubled).

3	2	1	0	Range Modifiers List
-	+1	+1	+2	Machineguns hit target (caused at least 1 chit of damage)
-4	-3	-2	-2	Pilot is a Novice
-2	-1	-1	-	Pilot is a veteran but not an Act

SPAD XII Cannon Combat Values Table
(Used in Addition to the Standard Table)

Die Roll	1 or Less	2 - 3	4 - 5	6 - 7	8 - 9	10+
1	-	-	-	-	-	-
2	-	-	-	-	-	*
3	-	-	-	-	-	*
4	-	-	-	*	*	*
5	-	-	*	*	*	*
6	-	*	*	*	*	*

* = Draw 1 Red chit and roll 1D6 to determine the action.

SPAD XII Cannon Combat Results Table
(Replaces the Standard Table)

Die Roll	Damage Action
1	No meaningful damage, ignore the Red chit
2	Apply the Red chit as drawn
3	Double the hits from the Red chit
4	Double the hits from the Red chit
5	Triple the hits from the Red chit
6	Triple the hits from Red chit

SPAD XII Cannon Damage Table

In the turn following the turn in which the cannon was fired, the aircraft must perform one of the following maneuvers to clear the cockpit of fumes; Speed 2: "2" or "8", Speed 3: "3" or "16", Speed 4: "4" or "21", Speed 5: "5". The maneuver must be at the same speed as the aircraft was moving in the turn in which the cannon was fired. If the aircraft stalled but did not spin in the firing turn, then it is limited to a "2S" maneuver. This turn may not be used to reload the cannon, unjam the cannon, or unjam the machinegun. If the aircraft fails to execute the required maneuver, then it immediately goes into a spin and may not roll for recovery in the turn in which enters the spin. The aircraft may not tail another aircraft during the turn after the cannon is fired.

The cannon must be reloaded in the same manner as for a drum fed machinegun. The aircraft must fly straight (i.e., a "2S", "3S", "4S", or "5S" maneuver) and the maneuver selection must include a notation to "Reload" the cannon. The cannon may not fire on the following turn. The cannon starts with twelve (12) rounds of ammunition.

The cannon may not be reloaded if it is jammed. The cannon may not be reloaded and unjammed in the same turn. If the cannon is being reloaded or unjammed during a turn, then the machinegun may not also be unjammed.

A jamming roll is required for the cannon as for a machinegun firing a long burst. Unjamming the cannon follows the same procedure as for a machinegun, except that a result of "1" on the die causes the cannon to become inoperable, and it may not be used for the remainder of the scenario.