A WW2 Air Combat Game

DOGFIGHT

Game design by Phil Sabin

A game for owners of Wing Leader

Please Note: You will need to own Wing Leader: Victories or Wing Leader: Supremacy in order to play Dogfight.
Lee’s Introduction. Just as with his solo rules for my Nightfighter game, Phil surprised me from out of the blue with these dogfight rules. I’m happy to introduce these to Wing Leader players so they can try new ways of playing with the game components.

Please note that this is a variant game and NOT a replacement for the Wing Leader combat rules. You may find it produces different results.

**DOGFIGHT**

**INTRODUCTION BY PHIL SABIN**

Lee Brimmicombe-Wood’s Wing Leader series from GMT is a great grand tactical representation of WW2 air battles, thanks especially to Lee’s stunning counter artwork. Its one downside is that the dogfights themselves are rather abstracted, in favour of long range spotting and interactions with the ground. In this variant, I use Lee’s components to create a simpler and quicker game focused on the aerial manoeuvres around the bombers themselves. A key strength of the variant is that there are no distracting on-board or off-board markers as in Lee’s game, nor is there any need for counter-swapping as in my own grand tactical air game Angel One Five by Victory Point Games. I even reintroduce a third dimension to offset some of the inevitable artificiality of Lee’s side-scrolling 2D perspective. The result is a quick playing variant for use when there is no time or appetite for Lee’s fuller and richer version. To make it even easier to learn the variant, I first present the Basic Rules needed for the simplest contests, and then I lay out some Advanced Rules which introduce greater tactical diversity.

**BASIC RULES**

**THE PLAYING BOARD**

The variant uses the same playing board as in Wing Leader. The one modification you will need to make is to use a light blue felt pen to highlight every second vertical and horizontal grid line as shown in Figure 1, to create a 13 x 10 array of boxes overlaying the original 26 x 20 grid. This addition does not detract from the original game, but it is crucial to the variant system. Each larger box represents a stretch of airspace 1,000 yards long and 1,000 feet high (around a third of the dimensions of the same 2 x 2 box in the main game). Hence, the whole board now represents a 10,000 feet high layer of airspace around the bombers, with the bottom edge of the board no longer representing the ground but instead an altitude of 5,000 to 20,000 feet, depending on the height of the bombers themselves.

Each larger box is assumed to contain three overlaying blocks of airspace perpendicular to the surface of the playing board. Each of these blocks represents a volume of airspace 1,000 yards wide (the same as its length), so the entire board represents a corridor of airspace 3,000 yards wide, 10,000 feet high and 13,000 yards long. Which of the three superimposed blocks a counter occupies is shown by its position within the larger box, as illustrated in Figure 2. Counters in the furthest block are placed at the top of the box, counters in the middle block are placed in the middle of the box (straddling the horizontal white line), and counters in the nearest block are placed at the bottom of the box. Bombers always occupy the middle block, flying towards the right hand edge of the playing board. With reference to the bombers’ flight path, the furthest block is hence termed the left block, and the nearest block is termed the right block (see Figure 3). Horizontally, counters should normally be placed near the centre of the overall box, straddling the vertical white line, but if two counters occupy the same block as happens during combat, there is space to put them side-by-side as shown in Figure 2.

Figure 1. The playing board. Divide the Wing Leader map into 2 x 2 boxes. Players who own both Wing Leader: Victories and Wing Leader: Supremacy might want to mark up the paper map in Victories and leave the Supremacy mounted map untouched.

Figure 2. The Blenheim bomber squadron occupies the middle block of this box, with Spitfire flights to either side – flight A in the left block, and flight B in the right block. However, this close escort does not prevent the Bf 109s entering the middle block and attacking the Blenheims head-on.
THE UNITS

One player commands one or two medium bomber squadrons and two to six flights of escort fighters, while the other player commands two to six flights of interceptors. Each squadron or flight is represented by a single aircraft counter from the main game. You may choose whichever aircraft types you prefer, since this simple variant focuses on generic combat manoeuvres rather than on modelling detailed differences in aircraft performance. You should normally use counters showing two aircraft, but you can use counters showing only one aircraft if need be. You must avoid using the same ID letter twice for fighters on the same side. Each bomber squadron usually represents between 9 and 18 aircraft. Each fighter flight usually represents 4 aircraft in schwarm or finger four formation, or 6 aircraft in the less efficient vic formation.

Each squadron or flight occupies a specific block at all times. Flights may be in one of two headings—fowards (in the same direction as the bombers) or back (in the opposite direction to the bombers). Flights may also be in one of three pitch attitudes—climb (with the counter inclined upwards), level (with the counter horizontal) or dive (with the counter inclined downwards). The combination of heading and pitch creates six different possible orientations for each fighter flight, as shown in Figure 4. Bombers are always in level flight forwards. Counters should be flipped as required so that the aircraft are always the right way up, unless about to break formation and leave the board, which is indicated by inverting the aircraft picture.

INITIAL SET-UP

The players first agree the number of bomber squadrons, escort flights and interceptor flights to use in the current game. For a balanced contest, there should normally be more interceptor than escort flights. The players also agree the maximum initial altitude of the interceptors and the handicap award (if any) for the escorts. The higher the handicap award, the more net damage the interceptors need to inflict before breaking off their attack. The first bomber squadron is placed in the middle block of column M–N and row 6–7. The second squadron (if present) is placed one block above, in the middle block of column M–N and row 8–9.

The escort player sets up the escort flights in level flight forwards in any desired blocks in columns E to V and rows 0 to 11. Now the interceptor player rolls a die. On a roll of 1 or 2, the player sets up the interceptor flights in level flight forwards in any blocks in column A–B, up to the agreed maximum altitude level. On a roll of 3 to 6, the interceptor flights set up in level flight back in any blocks in column Y–Z, up to the agreed maximum altitude level. Fighters may set up in the left, middle and right blocks of the same box if desired, but they may not set up in a block already containing friendly fighters or bombers.

SEQUENCE OF PLAY

The game is played in turns, each representing 10 to 15 seconds of action depending on the speed and performance of the contending aircraft. Each turn consists of three phases:

Interceptor Phase: The interceptor flights are moved in turn, and any combat is resolved after each flight’s move.

Bomber Phase: All interceptor and escort flights are shifted one block back, and any combat with the bombers is resolved.

Escort Phase: The escort flights are moved in turn, and any combat is resolved after each flight’s move.
MOVEMENT AND ALTITUDE CHANGE

The bombers never leave their initial positions; instead the playing board moves forward with them and all escorts and interceptors are simultaneously shifted one block back (towards the left hand board edge) during the Bomber Phase of each turn. The shifted flights retain the same heading, pitch attitude and block position (left, middle or right). Escorts may be shifted back into a bomber block with no effect, but if an interceptor flight is shifted back into the same middle block as a bomber squadron, combat is resolved at once between the bombers and interceptors (unless an escort flight has also just been shifted back into the same block, in which case no combat occurs).

During their respective Phases, escorts and interceptors move in ascending order of their ID letters. They move 1 block if they start in a climb, 1 or 2 blocks if they start in level flight, and 2 or 3 blocks if they start in a dive. Climbing fighters move diagonally upwards, diving fighters move diagonally downwards, and fighters in level flight move straight ahead (forward or back as appropriate). Each new column entered counts as one block moved, whether the fighters change altitude in the process or not (so diagonal upward or downward moves cost the same as level flight). Fighters retain the same block position (left, middle or right).

After each block moved, fighters may change pitch up or down by one notch if desired. Hence, a flight which begins in a dive may pull up into level flight after its first block moved, and pull up further into a climb or drop back into a dive after its second block moved. As a special provision, fighters which begin in a climb may choose to pitch down all the way into a dive after their 1 block move. These pitch changes affect the direction of further moves that turn or the next, but they do not affect the distance moved that turn, with one key exception–flights which begin in rows 6 to 19 and which pitch up after their first block moved forfeit any discretionary extra move. Hence, fighters which begin in level flight must stop as soon as they pitch up into a climb, while fighters which begin in a dive may move only 2 blocks if they level out in the first block. Fighters which at any stage in their overall move climb into a block in rows 6 to 19 are required to pitch down, and may not retain their climb attitude.

The effect of these restrictions is that, at most altitudes, fighters may gain altitude only on alternate turns, since they will start the following turn in level flight and must stop moving as soon as they pitch up into a climb. This reflects the sustained climb rates of 2,000 to 3,000 feet per minute achievable by WW2 fighters. At lower altitudes, below the bombers, the restrictions are removed because here the fighters could exploit the energy gained by diving and execute faster zoom climbs or high speed dashes to overtake their opponents.

WEAVING AND TURNING

Fighters which start their move in level flight or a dive, and which make only 1 or 2 block moves respectively, may weave 1 block left or right within their box at the end of their entire move. Fighters which weave may optionally also drop 1 block directly down at the end of their move, as long as they do not pitch up into a climb. Hence, a flight which begins in level flight in a left block could move 1 block directly ahead, change pitch into a climb or dive if desired, be shifted across to the middle block of the same box, and then optionally drop into the middle block of the box immediately below if it ends in level flight or a dive. This optional attitude loss mirrors that which could occur if the flight had used its full move allowance to move ahead without any lateral weave.
Fighters which start their move in level flight and do not pitch up into a climb may convert their lateral weave into a 180 degree turn to reverse their heading from forwards to back or vice versa at the end of their entire move (retaining their final pitch). Note how this allows 2 flights to form a static defensive circle by each reversing heading into the other’s block, thereby covering each other’s tails. The introduction of the third dimension by shifting between left, middle and right blocks avoids the problem of fighters apparently pivoting in mid-air without any need for a turning circle. To reflect the difficulty of executing complex crossover turn manoeuvres near a crowded bomber formation, fighters may not reverse heading if they begin or end their move in a middle block which contains bombers or which has bombers in the adjacent block directly ahead in the direction the fighters are heading. Fighters which begin in a dive may not reverse heading because of the g forces at such high speeds, and they will need to level out first.

STACKING AND BREAKING FORMATION

Flights may pass through occupied blocks, but they may not move off the playing board or end their own move (after any weave and altitude loss) in column A–B or in the same block as a friendly bomber squadron or a friendly fighter flight which has already moved that Phase. Hence, only one flight or squadron per side may occupy a given block at the end of each turn. Interceptors may not end their own move in columns A–D (even on the first turn), to prevent them exploiting the timing of the Bomber Phase. Fighters may freely end their move in the same block as an enemy flight or squadron, thereby creating a combat situation. The exception is that fighters which begin their move in the same block as enemy fighters or bombers may not also end their move in such a block, unless they reverse their heading that move or unless they begin in a climb and the enemy in their initial block have a different pitch or heading. Fighter flights may break formation and be removed voluntarily when it is their turn to move, and they are required to do so if they have no legal move available or if they were flipped upside down in a previous Phase. These rules force fighters not in a defensive circle to break off any attacks of their own if they are threatened by other enemies. Hence, you can protect other friendly formations by ‘covering’ them with fighters which can move into their block, thereby counterattacking any enemies which enter the block, and pre-empting further enemy attacks after the initial strike. If you manage to get your fighters directly on the tail of enemy fighters which lack such cover of their own, you will be able to match the moves of your quarry (since your fighters start from exactly the same position and orientation) and pursue the helpless fugitives for turn after turn until they choose or are forced to break formation and escape.

COMBAT

If a fighter flight ends its move in the same block as an enemy flight or enemy bomber squadron, or if interceptors not stacked with escorts are shifted back into a bomber block during the Bomber Phase, combat is resolved at once, before any other fighters move. Bomber squadrons always fire. Fighter flights fire unless their owner chooses to hold fire, but fighters may fire outside their own Phase only if they and their enemies are in level flight in opposite headings. Hence, you may attack enemy fighters without return fire unless the enemy fighters are approaching you head-on. Interceptors shifted back into a bomber block will suffer defensive fire without reply except in a head-on engagement.
Combat is resolved by rolling a single die, even if both sides are firing. Each side then modifies this common roll by applying the following cumulative modifiers to the score:

+1 if firing on bombers
+1 if in the same pitch and heading as the enemy
-1 if in the opposite heading to the enemy, unless both are in level flight

Combat results are applied simultaneously. If the modified roll is 6 or more, the enemy counter suffers a hit. Bombers suffer 2 hits instead if the modified interceptor roll is 7 or 8. Hence, if interceptors attack bombers from directly behind and the die roll is 5, the interceptors will receive 2 positive modifiers and inflict 2 hits with a modified roll of 7, but the bombers in turn will receive 1 positive modifier and inflict a hit of their own with a modified roll of 6. You may track overall hits suffered using two Loss markers from the main game, one in column A for the bombers and escorts and one in column Z for the interceptors. These Loss markers start in row 0, and may be moved up the white boxes on their respective board edges to track up to 19 hits per side.

Each hit represents a single aircraft being damaged or shot down. Bomber squadrons continue to fly on and defend themselves regardless of how many hits they suffer. If a fighter flight is hit, it is flipped upside down, and will be removed in its own next Phase. If the unmodified combat die roll is a 6, any fighter flights which fired are flipped upside down, due to running low on ammo. Note how this system reduces the impact of luck, since the more effective your own attacks, the more you will suffer from return fire and the more likely you are to run low on ammunition. Flipped fighters remain on the board until their own next Phase to give time for enemy covering flights to counterattack them.

Victory

You should put a blank marker from the main game (or the turn marker if you own Wing Leader: Supremacy) in column A and row 0, and move it one white box up the board edge at the end of each turn to show how many turns have been completed. At the end of any turn, the escort player may forfeit the game by announcing that the bombers will turn around and break off their attack due to the resistance encountered. Otherwise, the game ends when all interceptor flights have broken formation and left the board, or when the turn marker leaves the board after 20 turns (representing 4 or 5 minutes of dogfighting). When play ends in this way, each side scores 1 point for every hit it has inflicted, and the escort player adds to this the agreed handicap award. The player with more points wins, and the higher the margin the greater the victory. If the totals are equal, the game is a draw.

Conclusion

You are now ready to play the Basic Game. Try a simple scenario with one bomber squadron, two escort flights with a handicap award of 1, and three interceptor flights with a maximum initial altitude of 8-9. When you have got the hang of this basic scenario, try adding more aircraft and varying the maximum altitude and handicap award, and then incorporate some or all of the Advanced Rules for added variety and detail. You may balance scenarios by bidding for sides, with command of the interceptors going to whichever player is willing to grant the higher handicap award.
ADVANCED RULES

SUN AND CLOUDS

Just before deploying the escorts, you should roll a die to determine the
direction of the Sun. On a 1 it shines down from the back left of the
bombers, on a 2 from the back right, on a 3 from the front left, on a 4
from the front right, and on a 5 or 6 it is behind cloud or too high in the
sky to make a difference. You should place the Sun marker in the left or
right block of boxes A–B or Y–Z in row 18–19, as a reminder. Fighters
which move into combat with enemy fighters (not bombers) receive a +1
die roll modifier if they attack out of the Sun. To receive this modifier,
the fighters must begin their move at a higher altitude than the enemy
flight, heading forwards if the Sun is to the back or heading back if the
Sun is to the front. They must also weave left if the Sun is shining from
the right or weave right if the Sun is shining from the left, without revers-
ing their heading or pitching up into a climb.

If the Sun die roll is 5 or 6, a cloud layer is present below or above the
bombers. On a roll of 5, there is cloud in every block in rows 0-1 and
2-3. If the roll is 6, there is cloud in every block in rows 12-13 and 14-
15. You should place a cloud marker from the main game in every large
box of rows containing cloud. Flights which start in a cloud or which
enter a cloud at any point in their move may not reverse heading or end
in the same block as an enemy flight or bomber squadron. This allows
you to escape tailing opponents by seeking refuge in a cloud layer, at the
expense of losing the ability to manoeuvre or launch attacks of your own
because of the disorientation involved. Escort flights may not set up in a
cloud block, since they need to maintain visual contact with the bomb-
ers, but interceptors may use the cloud to cloak their approach.

LIGHT BOMBERS AND LOW ALTITUDE

You may opt to use single-engine light bombers instead of medium
bombers. Due to their limited defensive firepower, light bombers suffer
a -1 die roll modifier in combat, making them catastrophically vulner-
able without effective escort protection. If the bombers have more than
one fixed forward machine gun, the -1 modifier does not apply in the
Bomber Phase or if the interceptors are in level flight back (a head-on
engagement). Some light bombers such as Stukas and other dive bomb-
ers fly at medium altitudes as normal, but in other cases you may choose
to have the light bombers fly lower. If so, the bottom edge of the board
represents the ground after all, and fighters which enter a block in row
0-1 must change pitch into level flight or a climb to avoid crashing. Also,
a Sun die roll of 5 means cloud is present in rows 2-3 and 4-5 rather than
0-1 and 2-3.

You may opt to go further and have light bombers such as torpedo bomb-
ers fly as low as possible. If so, the first bomber squadron is placed in
row 0-1, with a second squadron (if present) just above in row 2-3. Escort
fighters may deploy in rows 0-7. Move restrictions normally applicable
only in rows 6-19 apply at all altitudes. A Sun die roll of 5 means that
cloud is present in rows 4-5 and 6-7 (creating a major headache for the
escorts). A Sun die roll of 6 means that cloud is present in rows 8-9 and
10-11. You may also use medium bombers at low or very low altitude
if desired, to represent torpedo attacks or similar low level operations.

FIGHTER BOMBERS

Instead of light bombers, you may use one or two squadrons of faster
fighter bombers such as Bf 110s, Fw 190s, P-47s, Beaufighters or Ty-
phoons, escorted by other fighter flights. Japanese attackers in 1944-45

© Phil Sabin 2017
may use one or two escorted Kamikaze squadrons, which are treated in the same way. Fighter bombers usually fly at low or very low altitude. They are treated as bombers for all purposes, but with certain significant changes. The fighter bombers are placed in column O–P rather than M–N, and the interceptors always approach head-on from column Y–Z and may never end their own move in columns A–F. On turns when the turn marker is in an even numbered box (including the first turn), escorts and interceptors are shifted back 2 blocks rather than 1 during the Bomber Phase, with any escorts initially in column C–D treated as having left the board. Fighter bombers fire only in the Bomber Phase or if the interceptors are in level flight back (a head-on engagement), but they do not use the light bomber modifier. Interceptors do not receive the usual +1 modifier against bombers, but they may inflict 2 hits on a modified roll of 7 when attacking the fighter bombers from directly behind. This variant creates an interesting situation in which the bombers rely on speed rather than firepower to protect them.

HEAVY BOMBERS

If you own Wing Leader: Supremacy, you may opt to use four-engine B-17, B-24 or B-29 heavy bombers instead of medium or light bombers. If desired, you may use a third squadron of heavy bombers in row 10–11 of column M–N, thereby representing a full combat wing of up to 54 aircraft. Even with a modified combat roll of 7 or 8, interceptors never inflict 2 hits on heavy bombers unless they are in the opposite heading to the bombers. This means that attacking heavy bombers from behind is likely to result in as many hits to the interceptors as the bombers, due to the overwhelming defensive firepower. Only through a time-consuming succession of head-on attacks will normal interceptors be able to inflict significantly more damage than they suffer themselves. If you opt to use later bomber models such as the B-17G with enhanced forward firepower, even head-on attacks cannot inflict 2 hits, so the interceptors will have to use heavy fighters to even the odds.

HEAVY FIGHTERS

You may designate some or all escorts or interceptors as heavy fighters, though you should normally give each side at least two flights of each different sub-type present. Heavy fighters represent clumsier but longer range twin-engine fighters like the Bf 110, Me 410 or Beaufighter, as well as single-engine fighters like the Fw 190 weighed down with extra armour and armament to take on heavy bombers. Heavy fighters (whether escorts or interceptors) must set up at least one row lower than the maximum initial altitude allowed for normal fighters. Also, to reflect their limited manoeuvrability, heavy fighters which start their move in a dive may not pitch up into a climb, while heavy fighters which start their move in a climb or which reverse heading during their move may not pitch down into a dive. This allows normal fighters to escape tailing heavy fighters by hard manoeuvring, as shown in Figure 10. Defensive rear guns on twin-engine heavy fighters do not fire in the game, and serve only to reduce the vulnerability of the aircraft to the same level as that of more agile fighters. The one offsetting benefit which heavy fighters receive in game terms is that they may inflict 2 hits on heavy bombers from any direction, not just head-on. This makes them more efficient interceptors if they can evade the escorts.

Heavy Bombers Solitaire. Heavy bombers offer a useful focus for solitaire scenarios to learn the basics of fighter manoeuvring. Take command of 4 flights of Bf 109s or Fw 190s intercepting a single unescorted squadron of B-17s head-on (from column Y–Z) as happened in 1942, and try to maximise your victory margin by organising the most efficient succession of attacks within the time available. Then lead six flights head-on against a full combat wing of unescorted heavy bombers to relive 1943 engagements like the Schweinfurt raids. Remember the restrictions on reversing heading near the bombers, and try dropping below the bombers to overtake them more quickly between successive head-on passes.

Figure 10. To escape the heavy Bf 110s on their tails, the Hurricanes reverse heading and pitch down into a dive. The Bf 110s can reverse heading in pursuit (or else they would not be able to form the defensive circles which they used so often), but they cannot pitch down at the same time. Hence, they can manage only a deflection shot with a 1 in 6 chance of success, before the Hurricanes get the chance to evade altogether on the following turn.
**SLOW OR WEAK FIGHTERS**

You may designate some or all escorts or interceptors as slow, weak or a combination of the two (though you should normally use at least 2 flights of each different sub-type present). Slow fighters represent outclassed types such as Gladiator or CR-42 biplanes which were radically outpaced by other fighters of that era. Slow fighters which begin in a dive may never make a third block move or drop 3 rows (by weaving) in a single move. Slow fighters which begin in level flight must stop as soon as they pitch up into a climb at any altitude, and they may not pitch up into a climb after their second block move in rows 6–19. Furthermore, if the turn marker is currently in an odd-numbered box, slow fighters which begin in level flight in rows 6–19 may make a second block move only if they pitch down into a dive after their first block move. This means that slow fighters at level 6 or above will progress at an average rate of only 1 block per turn when climbing and 1.5 blocks per turn when flying level, as against 1.5 and 2 blocks per turn for normal fighters. Hence, it is easy for normal fighters to catch or outdistance them, though the advantage disappears in the kind of weaving or turning fight in which biplanes excelled.

Weak fighters represent aircraft which find it hard to mount effective and lethal attacks. This may be because they are badly undergunned, or it may be because their pilots are poorly trained (an enduring problem for the USSR) or lack situational awareness. The greater the numerical advantage which one side’s fighters enjoy, the greater the threat to that side’s situational awareness as it becomes hard to distinguish the few foes from the many friends. RAF Circus operations over France in 1941-42 are a classic case of this phenomenon, and are best simulated by classing the mass of Spitfire escorts as weak despite their technical strengths.

Weak fighters suffer a -1 die roll modifier in combat, a major handicap which makes it hard for weak interceptors to tackle even medium (let alone heavy) bombers effectively. In some cases, you may wish to exempt interceptors from the penalty when firing on bombers, such as over Germany in 1944-45 when the increasingly poorly trained Luftwaffe pilots focused on massing against the heavy bombers but proved easy prey for the thinly stretched but far better flown US escorts. German heavy fighters could also be counted as weak against escorts in this context. To reduce the potential for weak fighters to distract outnumbered opponents even without posing a real threat, fighters which start their move in the same block as weak enemy fighters may attack other enemies regardless, as long as they begin in a climb or the weak fighters have a different pitch or heading. Whereas dogfights involving slow fighters were historically quite rare, you should consider classing some fighters as weak in a wide range of scenarios, since this is a key tool for simulating the diversity of aerial encounters.

**DESIGN NOTES**

Like Lee, I first came across the side-scrolling idea in Mike Spick’s 1978 book, as an ingenious means of taming the multi-dimensional complexities of air combat. I have experimented for decades with different ways of tracking the 3 dimensional position, heading, pitch, roll and airspeed of dogfighting aircraft without the complexities and cross-referencing which make most manual simulations of air combat so tedious and unatmospheric compared to the fast-moving perspective of first person computer sims. In my 2015 sim *Angels One Five* (originally designed for use in class), I pushed traditional top-down representation to the limit of abstraction, by doing away with off-board record keeping and relying en-
tirely on single aircraft counters selected from off-map pools to display the position, heading, altitude and speed of the contending formations. However, Lee’s gorgeous flippable side views of specific aircraft were so beautiful in their simplicity that I decided to push the envelope even further and to try to capture dogfighting mechanics using these aircraft counters alone, without even the encumbrance of extra on-board and off-board markers as in Lee’s full design.

In *Angels One Five*, I had already embraced several design choices which allowed me to avoid some of the fiddlier details of Lee’s system. By focusing on the fighting around the bombers themselves, I removed the need to model orders, long range spotting and interactions with surface forces. By adopting a traditional Igo-Ugo sequence, I avoided having to determine initiative and move order every turn. By assuming that minor differences in speed, manoeuvrability, firepower, resilience and visibility between the contending aircraft tended to offset one another and were outweighed by variation in aircrew quality and initial altitude and positioning, I avoided the need to model these minor performance differences directly. Such streamlining of the simulation system is, of course, double edged, and there are many players who relish explicit modelling of flak, bombing, spotting and (especially) the technical minutiae of different aircraft types. However, my current variant is expressly designed to complement Lee’s full game and to give players a simpler and more abstract option alongside his broader and richer perspective.

The biggest challenge was how to handle energy, that interchangeable combination of altitude and airspeed which was so crucial in air battles. I toyed at first with the idea of putting a die behind each counter to record airspeed, just as the counter position records altitude. However, this was clumsy and unsightly, and so I fell back on the simpler approach of basing airspeed on each flight’s pitch attitude at any given time. This is much less accurate in terms of physics, but it does capture well the advantage which higher altitude brings, while the allowance for faster zoom climbs and high speed dashes at lower levels reflects the roller-coaster dynamics of energy manoeuvring (albeit in a generic rather than differentiated way). Another benefit of this approach is that it allows fighters which get on the enemy’s tail to follow them for turn after turn without needing to reconcile differences in airspeed.

The other major design challenge was how to compress two horizontal dimensions into just one, to accommodate the side-scrolling abstraction. I decided early on that I needed to reintroduce at least a minimal lateral dimension on either side of the bombers’ flight path. I experimented at first using transparent Lego bricks to raise Lee’s counters physically above the map surface by differing amounts, but then I hit on the idea of creating double size boxes. This not only gave space for opposing counters to be placed side by side in realistic combat positions, but it also allowed simple abstract representation of the lateral position of the flights, as if from a slant view down and across the corridor of airspace. The systems for weaving and turning then fell naturally into place, and although the quantisation of aircraft heading into just two alternatives (forward and back) makes it impossible to model differences in horizontal turn rate as in other air games, judicious combination with the more nuanced depiction of pitch attitude does allow some measure of differentiation, as seen in the constraints on heavy fighter manoeuvres.

I am pleased that moving from a 3D to a side-scrolling perspective has not unduly limited the manoeuvre options available to fighters, despite the low movement rates of just 1 to 3 blocks per turn. Fighters in level flight in a middle block can end their move in no fewer than 26 differ-
ent positions and orientations (and even more at lower altitudes). This flexibility gives the system a Chess-like character, as both sides seek to manoeuvre their flights in combination to anticipate and box in enemy flights, or at least to deprive them of cost-free attack options. Climbing fighters become realistically predictable and vulnerable, since there is only 1 position with 2 orientations in which they can end their move, leaving them very exposed to enemies who have already seized a higher position with its associated immunity and attack potential.

A key feature carried over from Angels One Five is the covering system, whereby well-positioned fighters can easily counterattack enemies who attack friendly bombers or fighters in front of them. This combines with the predictability and vulnerability of the bombers, and so creates challenging tactical dilemmas both for the escorts and for the interceptors. The combat system is deliberately simple, with just a few modifiers which nevertheless capture the key variables. The Advanced Rules introduce some environmental factors and model big picture variation between aircraft types and pilot abilities, thereby allowing players to create a wide range of scenarios modelling different episodes in this massive air war. Overall, this variant (like my earlier solo rules for Lee’s Nightfighter sim) expands the utility of his gorgeous game components, and I hope that it provides hours of extra fun and interest.

Wing Leader series, copyright GMT Games LLC 2015-2016
Dogfight rules copyright Phil Sabin, 2017
This is a Damn Fine! production