

# NIGHTFIGHTER

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Air Warfare in the Night Skies of World War Two



## SOLITAIRE RULES

by Philip Sabin

First Edition

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## Solitaire Rules

Having thought there was no way to devise a method of solo play for *Nightfighter*, I'm delighted that Phil Sabin, currently Professor of Strategic Studies in the War Studies Department of King's College London, has created these ingenious rules for the solitaire gamer.

In some cases he has expanded on my original design, or changed rules to reflect his own views and research on night air fighting. I'm happy to publish these and encourage folks to explore Phil's take on nightfighting.

Finally, can I give a hearty 'thank you' to the *Nightfighter* test team and their timely feedback on these rules.

- Lee Brimmicombe-Wood

## INTRODUCTION

by Phil Sabin

Lee Brimmicombe-Wood's *Nightfighter* (GMT, 2011) is a brilliant game, which is simpler and quicker to play than his other designs while also simulating the complex evolution of tactics and technology during the night air war.

Its one drawback is that the game as published requires an umpire, even though the role of that person is more to keep secrets and to apply automatic rules to the attacking bombers than it is to exercise independent tactical judgement as in Lee's other games. In this variant, I capitalise on the limited role of the umpire by having secrets held automatically within the game system instead, thereby turning the design from one which is impossible to play alone into a dedicated solitaire system. I also introduce some tweaks to the system which I think improve its historicity even further, based on my own research and teaching in this area.

The variant allows every scenario and sub-scenario except 9 and 10 to be played solo, as well as the entire Campaign. All printed rules apply as normal except as modified below. Although there are some new procedures, this is offset by the deletion of some systems used in the published game, so play is just as quick (especially since there is no longer any need to cross-reference two separate maps).

## SOLO RULES

These rules reference the *Nightfighter* rules set by section and supersede the printed rules where indicated. To distinguish solo rules from the original we use the prefix 'S'.

*EXAMPLE: The reference [S3.0] refers to all the solo rule changes to section 3.0 of the original rules.*

### S3.0 SETTING UP PLAY

Use only the large player's map. Place all counters on this; the player moves them all himself. The screen is used purely as a play aid.

In good visibility, the range of 1 for normal tallies extends only into the nightfighter's own hex and the single hex directly in front of it, not into the other five adjacent hexes, except in conditions of illuminated cloud.

*DESIGN NOTE: This is obviously a major change, but it is justified by the sheer difficulty of spotting unilluminated aircraft at night at more than a few hundred metres, let alone the mile which each hex represents. In the published system, visual spotting is ten times more effective in good than in moderate visibility, and is actually more effective in finding targets than is early AI radar. The change reduces this gulf except when bombers are silhouetted against clouds illuminated by searchlights or a full moon.*

### S5.0 FOG OF WAR

Bomber counters are placed and moved directly on the player's map, but they do not necessarily represent the actual location of the bomber concerned. Instead, there are four possible levels of uncertainty associated with each bomber counter, as follows:

#### S5.1 NO UNCERTAINTY

The counter shows the true location of the bomber. It applies only when there is a tally, searchlight fix, AI fix or track contact marker on the bomber. As soon as all of these are lost, the bomber counter's location reverts to low uncertainty, as indicated by placing a track contact marker beneath rather than on top of the counter.

Bombers not tracked by a radar with a search value of one automatically revert to low uncertainty in the Radar Search Phase unless tallied or fixed by searchlights or AI.

#### S5.2 LOW UNCERTAINTY

Indicate low uncertainty by stacking a track contact marker beneath the bomber counter. It means that the bomber has an equal chance of being in the hex shown or in five adjacent hexes, as indicated in the diagram below.



Whenever you need to test for the precise location of the bomber, roll a die, and if the score matches one of the hexes within the area being searched, you shift the bomber counter

to that hex and place a tally, searchlight fix, AI fix or track contact marker on top of the counter. If the score indicates a hex outside the current search area, do NOT shift the bomber counter – instead, it remains in place and the search fails. In the solo rules the search area comprises the hexes in which the bomber can be legitimately tallied, fixed or contacted according to the type of search.

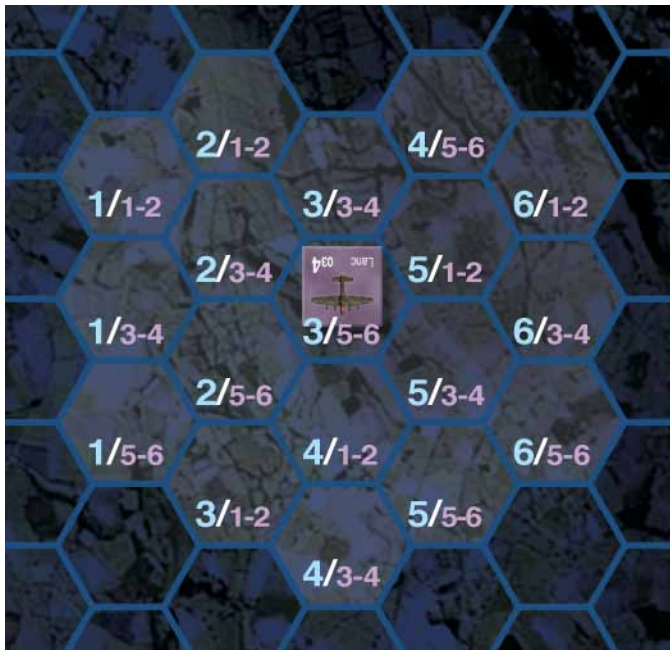
*EXAMPLE: If a nightfighter is in hex 1 with the same heading as the bomber and makes a successful tally roll in good visibility, you would roll a further die – on a score of 1, the bomber is shifted to hex 1 and tallied; on a roll of 2 the bomber is shifted to hex 2 and tallied, and on a roll of 3 or more the tally attempt fails after all.*

Low uncertainty bomber counters which are searched by a ground radar with a search value of one may be localised to a specific hex, and have a track contact marker placed on top of them [S13.0]. The radar with a search value of one must continue to track them every succeeding turn, or the track contact marker is placed back beneath the counter and the bomber reverts to low uncertainty if not fixed in another way.

Radars with a search value of two or three cannot localise bombers beyond a condition of low uncertainty, but once localised to this degree, bomber counters never revert to moderate uncertainty even if left completely untracked. Hence, track contact markers are never removed once placed, though their stacking order may change.

### S5.3 MODERATE UNCERTAINTY

This is the default state for a bomber counter. It means that the bomber has an equal chance of being in the hex shown or in seventeen other hexes within a two hex radius, as shown in the diagram below.



Whenever you need to test for the precise location of the bomber, roll a blue and a purple die as supplied with the game. Match this to one of the eighteen hexes by taking the blue die roll as the number before the slash and the purple die roll as the score after the slash. As in low uncertainty location tests [S5.2], if the hex is within the area being searched, you shift the bomber counter to that hex and place a tally, searchlight

fix or AI fix marker, but otherwise the counter remains in place and the search fails.

*EXAMPLE: If a Mosquito NF.XIII (range 4, narrow arc) is in the hex just above 2/1-2 with the same heading as the bomber, the target would be fixed by its AI radar in one of the four hexes directly in front if the blue die roll is 2 or if it is 3 and the purple die roll is 1 or 2; otherwise no target is found.*

Ground radar searches do not localise moderate uncertainty counters to a single hex in one go, but they may narrow down their position to one of low uncertainty [S13.0]. If this happens, you roll a single die, shift the bomber counter to the adjacent hex indicated in the low uncertainty diagram (or shift it directly back one hex on a roll of 3), and then place a track contact marker underneath to show that the counter now represents low rather than moderate uncertainty.

*EXAMPLE: On a die roll of 1, the counter would shift to the hex marked 2/3-4 in the diagram above, and its uncertainty area would now cover only the hexes currently marked 1/1-2, 1/3-4, 2/3-4, 2/5-6, 3/3-4 and 3/5-6.*

### S5.4 HIGH UNCERTAINTY

This occurs when between two and six bomber counters are in play, any one of which could represent the bomber. (See rule S8.0 regarding bomber entry.) If necessary use other types of bomber counters to substitute for less common counters. It does not matter which counters are used, as long as it is clear which counters pertain to which real bomber (as it usually will be because of the differing turns of entry).

Each bomber counter is treated as if it were a moderate uncertainty counter, so high uncertainty expands the number of hexes which each real bomber may occupy to a maximum of 108. As soon as all but one high uncertainty counters for a single bomber have been removed, the one remaining counter automatically becomes a moderate uncertainty counter. Note that counters which have yet to enter play or which have moved off the edge of the board do NOT count as removed for this purpose – only counters which have been revealed as phantoms are considered to have been removed.

When ground radar or searchlights search for a high uncertainty counter, or when a nightfighter obtains a tally or AI fix on such a counter (treating it for this purpose as a moderate uncertainty counter), you must roll a die.

If there is only one other high uncertainty counter for that bomber, that other counter is removed on a roll of 1, 2 or 3.

If there are two other high uncertainty counters for that bomber, those two other counters are both removed on a roll of 1 or 2.

If there are three or more other high uncertainty counters for that bomber, those other counters are all removed on a roll of 1, but the die must be re-rolled as many times as necessary if the score exceeds the total number of high uncertainty counters in play for that bomber (including the one being tested).

*EXAMPLE: If four high uncertainty counters are in play, keep rolling the die until a 4 or less is rolled.*

On any other results, the counter being tested is revealed as a phantom and removed from play, while all the other high uncertainty counters remain.

When a high uncertainty counter is discovered to represent the real bomber, and therefore becomes a moderate uncertainty counter, there is no further effect that turn with search radar. Searchlights will roll to obtain a precise fix just as they do against moderate uncertainty counters [S14.0], and nightfighters will automatically gain a tally or AI fix on the bomber in the already determined hex [S5.3].

*EXAMPLE: A Ju88G-1 (range 3, wide arc) is directly behind one of the four counters for a given bomber. The localisation roll for the AI search is 3/2, and since this hex is within the nightfighter's radar arc at three hexes range, it will gain a fix unless the counter is a phantom. The single die roll is 5, but this must be re-rolled since it exceeds the number of high uncertainty counters in play for that bomber. If the re-roll is 1, the bomber is fixed in the hex labelled 3/1-2 and all three other counters are removed. If the re-roll is 2, 3 or 4, the counter itself is removed as a phantom, leaving only the other three counters for that bomber.*

### S5.5 LOCATION EXCLUSIONS

If an AI radar fix [S19.0, S24.0] or searchlight search [S14.0] or tally attempt [S10.0, S15.0] succeeds but the location roll places the bomber outside the search area, you must re-roll any location roll that places the bomber within the earlier search area later that turn, whether the hex is in the new search area or not. (In other words, the earlier search area is excluded from later location rolls, whether the hex chosen lies inside or outside the current search area.)

*EXAMPLE: An AI search with narrow arc from the hex directly behind a low uncertainty bomber counter fails to find the bomber. A subsequent tally attempt by that nightfighter in illuminated cloud conditions will need to be re-rolled if the score is 3 or 4. If the eventual score is 1 or 5, the bomber is tallied in the appropriate adjacent hex, but if it is 2 or 6, the tally attempt fails as well and hexes 1 and 5 are added to those requiring re-rolls later that turn. This approach minimises record keeping and reflects the fact that the precise course and speed of bombers would actually be more uncertain than the game system makes them.*

For the sake of simplicity, failed location attempts are not tracked from turn to turn, so it is quite possible that a moderate uncertainty bomber which was not found in hexes 3/5-6, 4/1-2 or 4/3-4 on one turn will be found in one of those hexes on the following turn.

*DESIGN NOTE: This allows a nightfighter to sit in the same location relative to a bomber counter and make repeated searches each turn until it gets lucky. What is abstractly represented here is the nightfighter weaving about within the area of uncertainty until the bomber finally appears in front of it. This minimises record keeping and reflects the fact that the bomber's course and speed would actually be more uncertain than the game system makes it.*

### S7.0 MOVING BOMBERS

Bomber counters which move off the map or which are shifted off it when localised by ground radar may no longer be located even if some of the uncertainty area around them theoretically remains on the map. However, high uncertainty counters which exit the map (or have yet to enter it) still count as active when determining how many counters still remain for the bomber concerned [S5.4].

Bomber counters may never move or be shifted into a hex containing another bomber counter, and if a bomber is localised in a hex containing another bomber counter, the location die or dice must be re-rolled.

### S8.0 ENTERING BOMBERS

The entry chits are not used. When three bombers are due to enter on a given turn, they are represented by three moderate uncertainty counters which use their full MP allowances that turn. The counters enter in columns 04, 10 and 16 on odd-numbered turns and in columns 03, 09 and 15 on even-numbered turns.

When only one bomber is due to enter on any given turn, it is represented by three high uncertainty counters which enter in these same hex columns. A further three high uncertainty counters for that bomber enter on the following turn using the three different columns, unless another bomber is due to enter that turn, in which case only three high uncertainty counters are used for each aircraft.

*DESIGN NOTE: This means that thinly spaced bombers will each be somewhere within a block of airspace around fifteen miles wide and eight miles long (just as in the published game), while thicker bomber streams will have six aircraft within this same block of airspace.*

### S10.0 BASIC TALLYING

Instead of the overall tally roll used in the published game, each nightfighter that is not already maintaining a tally may roll its own individual tally dice against any one selected bomber counter whose uncertainty area lies partly within the visibility range of that nightfighter.

Nightfighters dice in any order, but each fighter can try to tally only one bomber counter even if two or more uncertainty areas are within their visibility range. All hexes of a bomber counter's uncertainty area are considered to contain illuminated cloud if the counter itself occupies an illuminated cloud hex.

You should not use the tally numbers of bombers – instead, if any of the tally dice score a 6, the attempt is successful and you must test to see if the bomber lies within the nightfighter's visibility range after all.

*EXAMPLE: An Me110C-4 occupies the hex behind and to the left of a low uncertainty bomber counter in moderate visibility and with a half moon. Roll four dice (two for the visibility and two more for the moon and for the fighter's good view), and if any scored a 6, roll a further single die for location. On a score of 5, the bomber is shifted to the nightfighter's hex and tallied there, while any other roll has no effect and the tally has failed.*

### S13.0 RADAR SEARCH

Radar search counters may be placed only in hexes containing bomber counters, with only one search counter allowed per hex. All searches must be placed before any are resolved.

If the bomber counter represents high uncertainty, you must automatically test to see if it is a phantom or if all the other counters for that bomber are phantoms.

If the counter represents moderate uncertainty (and was not just refined from high uncertainty by this search counter) you must roll a die, deduct the radar's search value, and deduct

an extra one if there is another bomber counter other than a high uncertainty counter within four hexes (to reflect the confusion caused by a packed bomber stream). If the modified roll is 3 or more, the bomber counter is shifted to a random adjacent hex and becomes a low uncertainty counter; otherwise there is no effect.

Only radars with a search value of one have any effect on bomber counters already representing low or no uncertainty. Roll a die, and deduct one if another bomber counter other than a high uncertainty counter is within four hexes. If the modified roll is 5 or 6, the bomber counter is localised to a specific hex of its uncertainty area (or left in place if already there), and a track contact marker is placed on top of it.

Bombers which already have a track contact marker on top of them automatically keep it there as long as they continue to be searched each turn by a radar with a search value of one, unless the bomber corkscrews.

*DESIGN NOTE: This system produces very much the same gradual diminution of uncertainty as do the published rules, with radars like Freya being useful for wide area search while more precise radars like Würzburg focus on guiding your nightfighter to a specific interception.*

## SI4.0 SEARCHLIGHTS

In the searchlight phase, dice in any order for any one selected bomber counter in each active searchlight zone which is not obscured by cloud and does not already have a fixed target. If there are two or more bomber counters in a zone, only one is chosen.

If the counter represents high uncertainty, it will automatically test to be removed as a phantom or to remove all that bomber's other counters as phantoms (since the presence or absence of hunting searchlights is a telling indicator) [S5.4].

Next, you roll the standard number of dice, and if any of them score a 6, the bomber is localised within its uncertainty area and fixed by the searchlights.

If the localisation check identifies a hex which contains another bomber counter or which was included in a fruitless AI search for that bomber in the previous phase, the die or dice must be re-rolled as many times as necessary.

If the localisation check identifies a hex which does not cause a re-roll but which is outside that specific searchlight zone, no fix is obtained unless the hex is in a different active searchlight zone which does not already have a fix, in which case the bomber is fixed in that hex and you may make no more searches in either zone this phase.

*EXAMPLE: A high uncertainty bomber counter is in hex 1115 and an AI search in hexes 1114, 1115 and 1116 fails to discover it. You may opt to search for the counter with the radar-directed searchlights in zone K. If you take this option first dice to see if the counter is a phantom. If it is real, roll four dice for the search, and if any roll is a 6 roll the blue and purple dice to localise the bomber. If you rolled 3 and 4, you would have to roll again, since this hex (1114) was included in the previous AI search. If the re-roll is 6 and 3, the bomber counter is moved to this hex (1315) and marked with a searchlight fix even though the hex is in a different searchlight zone. If the re-roll is 5 and 1, no fix is obtained since the hex (1214) is outside all active searchlight zones.*

## SI5.0 ADVANCED TALLYING

If a nightfighter fails to gain a tally (for whatever reason) using its basic tally attempt, it may make another tally roll against the same or a different bomber counter as long as that counter is fixed by its own AI radar, or by searchlights. This attempt uses the different number of dice as set out in the published rules, but you need to roll a 6 for success instead of matching the tally number of the bomber counter.

*EXAMPLE: A nightfighter in moderate visibility rolls a 6 on its basic tally dice against a low uncertainty bomber counter in the same hex. The localisation roll is not a 3 so the nightfighter can try to tally another bomber counter three hexes away which is fixed by searchlights.*

## SI6.0 ADVANCED FOG OF WAR

Bomber counters that no longer have a tally, track contact or AI or searchlight fix marker on top of them simply revert to low uncertainty. Indicate this by placing a track contact marker beneath them. They are not displaced to an adjacent hex, except as part of a subsequent successful localisation attempt.

## SI7.0 ADVANCED COMBAT

Bombers roll for response only if the nightfighter has tallied them. If a bomber rolls a corkscrew result, it automatically loses all tallies, track contact markers and AI and searchlight fixes except as detailed in rule 28.1, and reverts to low uncertainty. Its printed firepower is treated as 0 this turn, but it is not displaced and the nightfighter may not try to follow except as laid out in rule 28.1.

*DESIGN NOTE: This simplifies corkscrewing and makes it more effective as an evasive tactic, while reflecting the trade-off that the gunners in corkscrewing bombers were thrown about by the G-forces and so were much less effective.*

## SI9.0 AI RADAR

In the AI radar phase, each nightfighter may make an AI search in any order against any one selected bomber counter whose uncertainty area lies partly within the nightfighter's radar range and arc. Fixes are automatic as long as the localisation roll falls within the search area. Nightfighters may not search for another counter that phase even if their first search fails.

*DESIGN NOTE: The key difference between ground radar and AI radar searches is that ground radar searches cover that bomber counter's entire uncertainty area but must dice to succeed at all, whereas unjammed AI radar searches succeed automatically but cover only certain hexes. Hence, for ground radar, localisation rolls are a consequence of a successful search roll, while for AI radar, it is the localisation roll which determines whether the bomber is found at all that turn.*

## SI21.0 HIGH AND LOW ALTITUDES

Searchlights not obscured by cloud may force high uncertainty counters at high altitude to test to see which are phantoms, even though they cannot gain a precise fix.

If contrails are in effect, there is no moderate uncertainty, and bomber counters always represent either low or no uncertainty (though it is possible to have multiple low

uncertainty counters for a single bomber using the high uncertainty provisions).

*DESIGN NOTE: This replaces the published rules for contrails.*

## S24.0 ADVANCED ELECTRONICS

Flensburg and Naxos may be used just like ground radar searches, except that Flensburg may only be used against a bomber counter within the wide radar arc of the nightfighter (regardless of range). However, localisation attempts succeed even if the counter is shifted outside this arc. Naxos may only be used against bomber counters which carry H2S (i.e. have a tally number of 6 [24.3.1]), but it never suffers the -1 modifier for other bombers being nearby.

Instead of the published rules, jammed search radars must roll a die for each counter after they have all been placed but before any effects are resolved. The counters are removed and have no effect that turn on a roll of 1 or 2 if lightly jammed or a roll of 1, 2, 3, 4 if heavily jammed.

Jammed AI radars use the published rules to dice for their fixes on a selected bomber counter instead of obtaining them automatically. However, tally numbers are not used, and the fix attempt succeeds instead if any of the dice score a 6. If no 6 is obtained, then no localisation roll need be made and the hexes searched are NOT barred for further localisation attempts against that counter later that turn.

## S25.0 GROUND CONTROL INTERCEPT

Unjammed GCI radars roll two dice when searching moderate, low or no uncertainty bomber counters, and use the higher roll. If they search a high uncertainty bomber counter, then you test not just for that counter but for every single high uncertainty counter for that bomber which is on the map. If any of them is identified as the real bomber, all of that bomber's other counters are removed from play.

Lightly jammed GCI radars are treated as unjammed search radars, and heavily jammed GCI radars are treated as lightly jammed search radars.

MEW radars automatically succeed in localising moderate, low or no uncertainty bomber counters without even needing to dice, and if they search a high uncertainty bomber counter, all high uncertainty counters on the map (even for other bombers) must test and be removed if they are phantoms.

## S28.0 OPTIONAL RULES

*DESIGN NOTE: I recommend that you use all the optional rules for a more vivid game experience, even sometimes using green pilots to reduce kill probabilities to a more typical level.*

If a nightfighter successfully follows a corkscrew using the test in rule 28.1, any tally or AI fix is maintained, though searchlight fixes and track contacts are still lost. Neither aircraft is displaced, whatever the result.

## EXAMPLE OF PLAY

Here is an account of the whole of scenario 4B, 'Henaja' in May 1942, to illustrate how the solitaire variant plays. To compensate for the presence of the searchlights, you decide not to use the Freya radar counter, so only the Würzburg is available. On a two dice roll of 5, increased to 7 as per rule 3.3.1, there is no moon. However, on a two dice roll of 10, visibility is good. As specified in the scenario, there are no clouds or flak. If you set up the counters and move them so as to follow the description below, you will get a much clearer sense of how the revised system works.

### Turn 1

Three high uncertainty counters enter for the first Lancaster, and are moved to hexes 0403, 1003 and 1603. Your Do215B-5 flies up to hex 1017 to close the range. You search the counter in hex 0403 with your Würzburg, and on a roll of 2 it is removed as a phantom (since the three counters due to enter next turn still count for the purposes of the test).

### Turn 2

The existing bomber counters move to hexes 1006 and 1606, and three more enter and move to hexes 0303, 0903 and 1503. Your Do215B-5 uses its extra MP to fly to hex 1013. You search the counter in hex 1606 with your Würzburg, and on a roll of 4 it too is removed as a phantom.

### Turn 3

The existing bomber counters move to hexes 1009, 0306, 0906 and 1506, and the first three counters for the second Lancaster enter and move to hexes 0403, 1003 and 1603. You move your Do215B-5 to hex 1010. You search the counter in hex 0306 with your Würzburg. The initial roll of 5 exceeds the number of counters now in play for that bomber, but the re-roll of 3 means that this counter too is removed as a phantom. There is now a one in three chance that the counter in hex 1009 represents the real bomber, and you use your AI radar to search in hexes 1010, 1009 and 1008 on the off chance, but the blue die roll of 2 and the purple die roll of 5 point to hex 0910 instead, so you are still unable to determine if this counter is a phantom. Had you lacked AI radar, you could now have made a tally roll to try to spot the bomber visually in hexes 1009 or 1010, but since you already drew a blank in both these hexes with your Lichtenstein, there is no point in searching there again this turn.

### Turn 4

The three remaining counters for the first Lancaster move to hexes 1012, 0909 and 1509, and those for the second Lancaster move to hexes 0406, 1006 and 1606 and are joined by new ones in hexes 0303, 0903 and 1503. Since you have failed to localise the first bomber and have such a slim speed advantage to catch it up anyway, you decide to shift your attention to the second aircraft instead. Hence, you weave right and use your 4 MPs to move to hex 1107 facing towards the bomber counter in hex 1006. Your Würzburg search of the counter in 1606 removes it as a phantom on a roll of 3. Your AI search of hexes 1107, 1006 and 0906 gets lucky when the blue die roll of 2 and the purple die roll of 3 point to hex

0906, but on a follow up die roll of 2, all this shows is that the counter in hex 1006 is a phantom after all.

### Turn 5

The counters for the first Lancaster move to hexes 1015, 0912 and 1512, while the counters for the second Lancaster move to hexes 0409, 0306, 0906 and 1506. You move your Do215B-5 to hex 0807, facing towards hex 0708. You use your Würzburg on hex 1506 to make sure that the second bomber is not way behind you, and on a roll of 4 (re-rolled from an initial roll of 6), that counter is indeed removed as a phantom. You could use your AI for a long-shot search of hex 0608 or 0807, but not both. You opt to focus on the leading counter, but with die rolls of 3 and 1 the localisation is well outside your tiny search area. However, one of the first Lancaster's counters has now entered searchlight zone K, and on a roll of 2 that counter does indeed turn out to be the real aircraft, with the other two counters being removed as phantoms. You roll four dice to obtain a fix since the searchlights are radar-directed, and you succeed in scoring a 6, but the localisation rolls of 4 and 5 point to hex 1114 which is not in an active searchlight zone, so no fix is achieved after all.

### Turn 6

The moderate uncertainty counter for the first Lancaster moves to hex 1018 while the three remaining counters for the second Lancaster move to hexes 0412, 0309 and 0909. Three of the counters for the final Lancaster enter the map and move to hexes 0303, 0903 and 1503. You move your Do215B-5 four hexes to hex 0510, with the same heading as the bombers. You use your Würzburg to search hex 0909, and on a roll of 1, that turns out to be the second Lancaster, so the other two counters are removed, making your planned AI search nugatory. Although it is now immaterial, you roll again for your searchlights to fix the leading Lancaster, but this time none of the four rolls is a 6.

### Turn 7

The first Lancaster counter moves to hex 1021 and the second to hex 0912. The six counters for the third Lancaster occupy hexes 0306, 0906, 1506, 0403, 1003 and 1603. You move your Do215B-5 to hex 0712 facing hex 0812 on an intercept course. Your Würzburg search is focused on hex 0912 to assist the interception, but on a roll of 3 you just fail to narrow down the bomber's position because of having to deduct the radar's search value from the score. You use your AI radar to search hexes 0712, 0812 and 0913, but the localisation roll of 2 and 4 points to hex 0811 instead so there is no contact (and as usual no point in following up with a tally attempt). The searchlights in zone N try to fix the leading Lancaster and roll two 6s. The localisation roll of 6 and 2 points to hex 1220, so the bomber counter is moved there and marked with a searchlight fix (albeit too late to matter).

### Turn 8

The first Lancaster moves to hex 1223, and you roll four dice to achieve a searchlight handoff to zone Q, but you do not achieve the necessary 6 so the existing fix is removed and a track contact marker is placed under the bomber to show a reversion to low uncertainty. The second Lancaster counter moves to hex 0915, and the third Lancaster counters to hexes

0309, 0909, 1509, 0406, 1006 and 1606. You use your 4 MPs to put your Do215B-5 in hex 0915 on top of the second Lancaster counter. Your Würzburg gropes for the target, and on a roll of 5 you succeed in narrowing down its position. The scatter roll of 3 shifts the bomber counter back to hex 0914, and you put a track contact marker underneath to show that there is now only low uncertainty about its position. Your AI radar fails to roll the 4 now needed to fix the second Lancaster in hex 0915, and the searchlights in zone K cannot now search for it at all, but the searchlights in zone Q can try to reacquire the leading bomber (for what it is worth). They roll the necessary 6, but the localisation roll of 6 points to hex 1324 in zone R, so the bomber is fixed there instead.

### Turn 9

The leading Lancaster flies to hex 1327, so it leaves the searchlight zone and reverts to low uncertainty. The second aircraft moves to hex 0917, while the counters for the third bomber advance to hexes 0312, 0912, 1512, 0409, 1009 and 1609. You throttle back and move your Do215B-5 just two hexes to stack with the bomber counter again in 0917. Your Würzburg tries to pin it down to a specific hex, but on a roll of 4 it just fails to do so. Your Lichtenstein set probes hexes 0917 and 0918, but on a localisation roll of 2 (hex 0817) you draw a blank. The searchlights in zone K now scan the skies, though you roll only two dice as per rule 28.3 because of the confusing proximity of your own aircraft. You still manage to roll a 6 and fix the bomber. The initial roll of 4 has to be re-rolled because your AI radar already failed to find the Lancaster in hex 0918, so on a second roll of 1, the bomber is moved to hex 0816 and marked with a searchlight fix marker. You can now at long last try to spot the illuminated bomber. Your basic tally attempt has four dice (three for the good visibility and one for the good view from your aircraft), but you fail to obtain the 6 required. Your fixed tally attempt would normally use three dice, but this is cut to one as per rule 28.6 because the bomber is not in your forward hemisphere, so this attempt also fails.

### Turn 10

The first Lancaster moves off the map edge and escapes unscathed. The second Lancaster moves to hex 0819, triggering a crucial roll for a searchlight hand-off to zone N. If this fails, the bomber may disappear again into the night, but fortunately one of your four rolls is a 6 and so the fix is maintained. The following bomber counters advance to hexes 0315, 0915, 1515, 0412, 1012 and 1612, and you move your Do215B-5 to stalk the coned Lancaster in hex 0819. You can now afford to switch your Würzburg to hex 1612, where on a roll of 3 it removes the bomber counter as a phantom. Your AI radar automatically gains a fix on the coned bomber. The searchlights in zone J remove the bomber counter in hex 0315 as a phantom on a roll of 3, and those in zone K do the same to the counter in hex 0915 on a roll of 4. However, the searchlights in zone L roll a 2 and so the bomber counter in hex 1515 is identified as real, with the other two counters being removed. The four dice rolls obtain the 6 required to fix this final Lancaster, but this is negated by localisation rolls of 2 and 4 which would place it in hex 1414 outside the active searchlight zones.

You now resume your attempt to spot the coned Lancaster. One of your four basic tally dice is a 6, so a tally is gained. You are in a poor attack position as per rule 28.4, but you decide to attack this turn anyway in the hope that you might even be able to engage the other Lancaster as well before it exits the map. The bomber response roll is 5, so you get in the first blow. However, with your firepower reduced to two by your poor position, your dice roll of 7 fails to inflict a hit. The bomber now rolls a 4 which is increased to 6 because it has been alerted, and on a follow-up roll of 2 it begins a corkscrew manoeuvre. The British gunners fire back, but with their firepower reduced to zero by the G-forces, they fail to hit you despite a roll of 9. The corkscrew now throws off the searchlights, but rule 28.1 allows you to roll two dice with your L band radar, and you are lucky enough to score the 6 needed to maintain your tally and AI fix.

### Turn 11

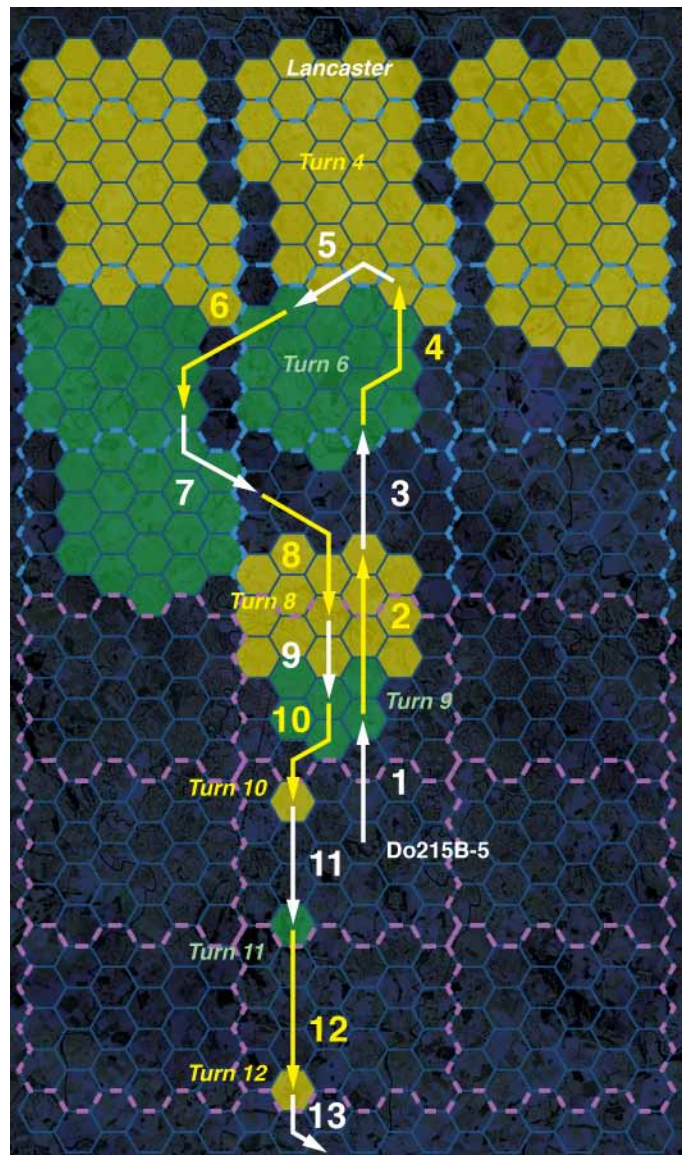
The bombers move to hexes 0822 and 1518, and your Do215B-5 follows to hex 0822. You use your Würzburg to try to narrow down the position of the other Lancaster, but it fails to do so on a roll of 2, and the four searchlight rolls from zone L also fail to achieve the 6 required. Zone N tries to regain searchlight contact with your own evading quarry, but with only two dice rolls because of your own proximity, it too fails to do so. On a roll of 5 and a follow-up roll of 4, the alerted Lancaster fires back before your attack. The score of 8 increases to 10 and inflicts one point of damage, forcing you to break off your attack for this turn as per rule 17.4.2.

### Turn 12

The alerted Lancaster accelerates under rule 28.2 and flies four hexes to hex 0826, while the other bomber counter moves normally to hex 1521. You open the throttle and pursue to hex 0826. With a roll of 5, your Würzburg succeeds in narrowing down the location of the other Lancaster, which is shifted to hex 1421 on a roll of 2 and becomes a low uncertainty counter. The searchlights in zone Q fail to spot your own quarry with their two rolls, but the beams in zone O do score a 6 on their four dice, and on a localisation roll of 3 the other Lancaster is coned in its existing hex. On a roll of 2 you get to attack your target first this turn, and your dice roll of 8 increases to 12 because of your firepower of 4, inflicting three damage points but not quite destroying the Lancaster with its damage value of four. The alerted bomber gunners roll a 4 which suggests a belated response, but the follow-up roll of 5 means that they do not respond effectively after all.

### Turn 13

Your own crippled quarry leaves the map and so escapes by the skin of its teeth, while the other Lancaster moves to hex 1424. However, you do not have either the time or the room left to turn back against the other bomber, since you are forced to exit the map from hex 0827, bringing the game to an end. You have fallen just short of the victory condition of shooting down one of the Lancasters, but you did inflict more damage than you suffered, and it takes only a moment to set the game up again and have another try...



*ILLUSTRATION: Diagram showing the nightfighter's moves turn by turn, and how the uncertainty area for the second Lancaster is gradually refined as the game progresses.*

*The different colours distinguish successive game turns and have no other symbolic significance. The uncertainty area is shown as it stands at the time of the nightfighter's movement on the turns concerned.*

## SCENARIO MODIFICATIONS

Most of the scenarios and sub-scenarios from 1 to 8 may be played with no changes to the published scenario rules, but some require a few tweaks as outlined below.

### SCENARIO 2C

Only one H8K1 'Emily' bomber is used, not two.

### SCENARIO 4G

Instead of being displaced (which has little impact given the mechanics of uncertainty areas), the two 'Y'-guided fighters are treated as if their AI radars are lightly jammed.

### SCENARIO 4H

Here, the SCR-270 radar is treated as being lightly jammed to reflect poor air-ground coordination.

### SCENARIO 6C

Dice each turn to determine in which column a moderate uncertainty bomber counter does NOT enter that turn – this is column 03 or 04 on a roll of 1 or 2, column 09 or 10 on a roll of 3 or 4, and column 15 or 16 on a roll of 5 or 6.

### SCENARIO 6H

One H2S equipped bomber enters with every odd-numbered wave (or with the 1st, 4th, 7th, 10th, 13th and 16th waves if using variant 6C). Decide randomly which column the bomber enters on each occasion.

### SCENARIO 7

Use 30 Halifax bomber counters. In each radar search phase, you may use Serrate to search every single bomber counter on the map which is in your Mosquito's wide radar arc (regardless of range). Dice for each counter, and on a roll of 5 or 6, that counter is revealed. Counters are also revealed through a visual identification check as described in the published scenario rules. Place two Ju88 counters in a cup with 28 different nightfighter counters. Whenever a bomber counter is revealed, you draw a counter from the cup. If it is not a Ju88, both the drawn counter and the revealed bomber counter are removed from play. If it is a Ju88, that aircraft replaces the revealed bomber counter and continues to fly under the constraints of the scenario special rules.

You may use a focused Serrate search to try to narrow down the location of a single revealed Ju88 counter within your wide radar arc, instead of using Serrate for a general area search that turn. The extra -1 modifier applies if the other revealed Ju88 counter or any unrevealed bomber counter is within four hexes, but localisation attempts succeed even if the counter would be shifted outside the Mosquito's wide radar arc. You may also use such a focused search to track the Ju88 counter if you manage to narrow its position down to a specific hex with your Serrate receiver.

### SCENARIO 8F

This scenario is already playable solitaire. The V1's position is never uncertain, and the restriction on spotting searchlight fixed targets from above does not apply. Instead of using entry chits, you can roll two dice and have the V-1 enter in the hex column with the matching number.

## CAMPAIGN MODIFICATIONS

The solitaire system really comes into its own in the campaign, since few people will be so dedicated as to act as umpires on such a prolonged and repetitive basis with almost no tactical input of their own. You can play the campaign very easily by drawing the cards for yourself.

Visibility does not change during a night, and you do not receive replacements for wounded pilots. There are no maxima or minima for the number of scenario cards drawn in a single night or a calendar month. Instead, you roll a die after finishing each scenario (or drawing a Joker), and you deduct one from the score for each scenario card already drawn that night. Deduct a further one if the moon is full that week, but add one if there is no moon that week. If the modified score is 3 or more, another scenario card is drawn, otherwise the night ends and you move to the recovery phase.

*DESIGN NOTE: I recommend using all the optional rules, for added flavour and realism. An additional tweak which I would suggest is that seasoned pilots or Experten who are downgraded in status due to crew casualties still benefit from their former status for the purposes of the aircraft recovery test in rule A7.1, as long as the pilot himself is still around.*

### Pilot Campaign

The full campaign is very long, so you may prefer to play a 'lite' version in which you play the role of an individual pilot joining the Staffel with no kills at the start of June 1942. Hence, you will count as a green pilot throughout. The campaign ends in defeat if you are killed or crippled, and in victory at the end of any week when you have amassed the 20 points of kills needed to win the Knight's Cross (treating twin-engined bombers as worth 4 points each and four-engined bombers as worth 6 points each as in rule 10.2). If neither occurs by the end of May 1943, the campaign is a draw, though you may consider it a minor victory if you were awarded the Iron Cross 1st Class and a defeat if you were not.

You start off flying an Me110E-4 or a Ju88C-2. If your aircraft suffers any form of repairable damage, you do not fly the following week, but you are eligible to fly the week after that. If your aircraft is written off or destroyed, you do not fly for the next two weeks. You roll normally for crew injury, and any time you spend recovering from wounds runs concurrently with the other delays above. Casualties to your crew reduce your points total as normal. From November onwards, any consecutive two week period in which you do not fly and are not recovering from wounds is assumed to have been spent retraining, and your aircraft thereafter is always an Me110F-4 (without gunflash) or Ju88C-6 respectively.

There are no monthly occurrences such as random events and replacements, nor are aircraft tracked or placed on patrol. The pack is reshuffled every month instead of every week. Each week when you are eligible to fly, you simply roll two dice in full moon weeks, three dice in half moon weeks, and four dice in weeks with no moon. If any of the rolls is a 6, you are flying that week; otherwise you move on to the following week. If you are flying, you roll the same number of dice again. If any of the rolls is a 6, you must play a scenario; otherwise you return to base without engaging. Whether you engage or not, you must end by dicing for aircraft recovery

as in rule A7.1, so there is a high chance that you will suffer an accident due to your inexperience. (To make this less frustratingly frequent, I suggest using a modifier of +1 to your recovery rolls, instead of the standard +2.)

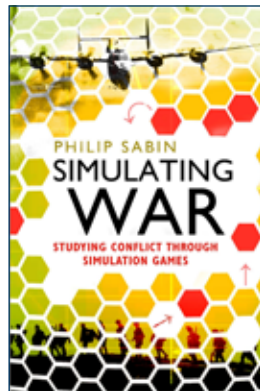
If you engage the enemy, draw a card and play a Dunaja scenario if the suit is hearts, or a Himmelbett scenario otherwise. Jacks, Queens and Kings indicate a massive raid, anything else a normal raid. If you draw the Joker, you do not engage after all. Only one scenario is played per week, and the other details are determined by the normal card draw and die rolls, except that a half or full moon has risen on a roll of 5 or 6 rather than 6. You have altitude advantage only if the scenario is at low altitude.

If you have more time (and are frustrated by writing off more of your own aircraft through bad landings than you shoot down enemies in combat), then you can play a variant of this campaign in which you arrive in June 1942 as a newly seasoned pilot with eight kills to your credit. You win this campaign by ending a week with the twenty or more kills which make you an Experte, while you lose by being killed or crippled or by suffering crew casualties which mean that you no longer even count as seasoned. If neither occurs by the end of May 1943, the campaign is a draw, though you may consider it a minor victory if you end with sixteen or more kills and a defeat if you do not.

You use exactly the same rules as for the previous campaign, except that you fly an Me110F-4 or Ju88C-6 from the start, and you automatically fly each week unless prevented from doing so by wounds or by having your aircraft damaged or destroyed. You must still dice normally to see if you engage. Even though you need to achieve three times as many kills as in the previous campaign, this version should be no harder to win, demonstrating vividly why there arose such a gulf between the best and the rest as successful pilots and crews flew more frequently, received better equipment, and capitalised on their greater experience to achieve more successes and avoid making so many mistakes.

## COMMERCIAL BREAK

This variant demonstrates what is perhaps the greatest strength of manual board games compared to computer games, namely that they are so open and accessible for user modification and redesign. I use both manual and computer simulations routinely in my teaching about air warfare and other topics at King's College London. The manual games are all ones which I have designed myself to be as simple and accessible as possible, while also capturing the key dynamics I wish to illustrate. I even get my MA students to design their own board games on conflicts of their choice, so as to understand them better.



My new book *Simulating War* (published by Continuum in January 2012) captures this experience in 150,000 words of detailed hints and advice which will help you to modify and design wargames for yourself. The book includes no fewer than EIGHT different wargames, complete with rules, maps and counters. Two of these games are on air warfare – *Big Week*, which models US bombing raids from Britain and Italy in February 1944, and *Angels One Five*, a highly innovative grand tactical model of daylight air duels involving dozens of aircraft at a time. Both games (plus four of the others) may easily be played solitaire. The beauty of publishing all this in a book is that you can buy it all for significantly less than the price of a single board wargame.



For more details of this book and of my courses at King's College (including free downloads of several dozen games by my students and myself), just Google 'Philip Sabin KCL'. If you prefer more deluxe board wargames with mounted maps, die-cut counters and full colour rulebooks, then check out my new game on *Lost Battles: Forty Battles and Campaigns of the Ancient World* at [www.fifthcolumngames.co.uk](http://www.fifthcolumngames.co.uk).



## Low Uncertainty



## Moderate Uncertainty

