

Reprinted from the pages of ULTRA, a quarterly newsletter devoted to *A WORLD AT WAR*, GMT Games' strategic simulation of World War II.

To order AWAW, go to www.gmtgames.com or phone 1-800-523-6111.

BOMBING TECHNIQUES

Improving German Bombing

by Bruce Harper

Introduction

There are a variety of reasons Axis players don't bomb Britain. They may have never learned the bombing rules, don't see any advantages to doing so, have failed in previous attempts, or just don't. Bombing Britain is not mandatory, and there are costs and benefits to the operation, just as for anything else.

The Axis player should always *consider* bombing Britain, and if he decides not to, it should be a conscious choice. And if the Axis *do* bomb Britain, they should do it right.

This article doesn't try to analyze whether bombing Britain is a good idea, but instead explains several techniques which will help make bombing more effective. Axis players who don't worry about details and just throw all the German AAF over Britain are hurting their cause for no good reason. They aren't even saving much time, because squeezing more out of a bombing campaign doesn't take much longer than a haphazard approach, and the bombing turns are usually short anyway.

The Rule of Threes

Strategic bombers bomb, and interceptors and jets escort. But when AAF are used to bomb, one-third of the AAF act as bombers, and the remainder act as escorts:

26.42 BOMBER COMPONENT: The bomber component of a strategic bomber force consists of one or both of the following elements:

A. The strategic bomber factors assigned to attack the target.

B. One-third (rounded down) of the AAF assigned to attack the target.

...

26.43 ESCORT COMPONENT: Escorting air units do not bomb, but instead protect the bomber component of a strategic bomber force. The escort component of a strategic bomber force consists of one or more of the following elements:

A. Any interceptors assigned to escort the bomber component of the strategic bomber force.

B. Any jets assigned to escort the bomber component of the strategic bomber force.

C. The remaining two-thirds of the AAF assigned to attack the target.

This means that the number of AAF assigned to bombing should always be divisible by three, unless the defenders outnumber the attackers, which is rare. Bombing with 29 AAF is no better than bombing with 27 AAF. This is sometimes overlooked because Germany happens to start with 30 AAF.

Counterair the British AAF

As pointed out in the previous article, there are only two British hexes outside of Ireland which can base British AAF which can reach all three British objectives without being counterairred.



The diagram illustrates a typical position. The Axis have 30 German AAF and five Italian AAF within range of all three British objectives. The British have 10

AAF in H23 and G25, and have their third airbase in London. The remaining eight British AAF base in Glasgow and Rosyth, safe from Axis counterair attacks, but also out of range of London. The gray dots indicate the limit of the Axis air units based in France.

Bear in mind that this British defense works reasonably against German bombing, but not against an Axis invasion of Britain. If Sea Lion is a threat, which it often is, then the British may be forced to commit all their available AAF to the defense of southern England, thereby exposing more British to counterair attacks.

We've seen that if 30 German AAF are opposed by 10 British AAF, the expected losses are: Germany: five AAF; Britain: three AAF and 18 BRPs of bombing damage (see page 5, above).

The Axis can't do any better than use all 30 German AAF, as the Italian AAF may not participate in the German bombing (26.51).

However, if the British base AAF in Liverpool or G26, the Axis should counterair these units rather than allowing them to engage the German AAF on their bombing run. There are several reasons for this:

- Since the Axis goal is to inflict damage on the British, the more air combat the better.
- When the British engage the bombing German AAF, they likely get an air combat advantage from radar, but this doesn't apply to counterair combat.
- The Italian AAF may counterair.

This sounds convincing, but does analysis support the assertion that it is better for the Axis to counterair the British AAF?

For the purpose of comparison, let's assume the Germans bomb with 30 AAF and the British defend with 15 AAF:

Basic Bombing (opposed by 15 British AAF)	
	Air Units 
20 AAF (e), 10 AAF (b)	15 AAF
Air Combat Losses	
6/6	5/6
Bombing Losses	
4 AAF	defense level = 4
1/1	1/1 + 2/0 = 3/1
3 BRPs	10 BRPs
Total Losses	
15 BRPs + 7 air factors	10 BRPs + 5 air factors
36 BRPs	25 BRPs

If the Germans divert six AAF to counterair five British AAF, the results are identical, because a single air combat modifier is only psychologically significant. But by fighting two air battles rather than one, the Germans give themselves an additional chance at a good air combat dice roll, so it's possible that the British (and the German) air losses could be higher than shown:

Basic Bombing (opposed by 10 British AAF, with six German AAF counterairing five British AAF)	
	Air Units 
6 AAF counterair	5 AAF counterair
16 AAF (e), 8 AAF (b)	10 AAF
Counterair Combat Losses	
2/3	2/4
Air Combat Losses	
4/5	3/5
Bombing Losses	
4 AAF	defense level = 4
1/1	1/1 + 2/0 = 3/1
3 BRPs	10 BRPs
Total Losses	
15 BRPs + 7 air factors	10 BRPs + 5 air factors
36 BRPs	25 BRPs

Use the Italian AAF

The situation changes if the Axis use Italian AAF:

Basic Bombing (opposed by 10 British AAF, with six Italian AAF counterairing five British AAF)	
 	Air Units 
5 Italian AAF counterair	5 AAF counterair
20 AAF (e), 10 AAF (b)	10 AAF
Counterair Combat Losses	
2/4 (Italian)	2/2
Air Combat Losses	
4/5	3/5
Bombing Losses	
6 AAF	defense level = 4
1/1	1/3 + 4/0 = 5/3
3 BRPs	18 BRPs
Total Losses	
15 BRPs + 5 air factors	18 BRPs + 5 air factors
30 BRPs	33 BRPs
5 BRPs + 2 air factors	
11 BRPs (Italian)	

If the Italian AAF counterair the British, the British will have a favorable air combat modifier, but this is no different from the favorable air combat modifier the British have against the bombing German AAF because of radar. The British are favored to win against the Italians because of this modifier, but even if the Italians lose the first round of counterair combat, they will continue to fight, and to “win” the counterair combat the British will have to risk (and probably incur) additional losses. In the end the British may be able to engage the Germans with one or two more AAF, but since this means the Germans will also engage the British AAF with more AAF, this may also lead to more British air losses.

Italy must spend five BRPs for the counterair attack. If Italy waits until 1940 to declare war, it may find itself running short of BRPs. On the bright side, though, if the Germans raid with only two ships in Fall 1940 and the Axis don't attack in the Mediterranean, USAT won't be increased (5 + 2 = 7, and an expenditure of eight BRPs is needed to boost USAT).

If Mediterranean requirements divert Italian AAF to Sicily, it is still worth having one or two Italian AAF in France, as the Germans and Italians can counterair jointly and split the losses. The British will get their modifier, but if the Italians are eliminated in the first or second round, any surviving German AAF may continue the counterair combat unencumbered by their Latin cousins.

This tactic requires there to be at least one more German AAF than Italian AAF in the counterairing force. If only one Italian AAF is used, and the Axis lose two AAF in the first round of counterair combat, the German AAF will be fully effective as early as the second round of counterair combat; in a large counterair battle, the Axis may want to commit more Italian AAF.

This situation is by no means hypothetical, because as noted above, a threat of invasion may force the British to expose all their AAF to Axis counterair attacks.

Diversify the Bombing Force

Because of the way air losses are taken, it is to German's advantage to diversity its bombing force, so as to take more losses from non-bombing air units. Here are the relevant rules:

19.61 Combat effects to a force of mixed types must be distributed equally among the types involved, with any remnant being taken by the type having the most factors or squadrons involved unless otherwise specified. This rule applies to forces containing:

...

B. Different types of air units, such as army air, naval air, jets, interceptors and air transports.

...

19.62 If an equal number of factors were involved, the remnant is taken from the type with the lower Air Nationality DRM (EXCEPTION: Air combat resulting from strategic bombing - 26.454). If the number of factors present and the Air Nationality DRMs are equal, the owner chooses.

19.63 The number of factors eliminated and aborted are totaled when apportioning losses per rule 19.61, then assigned as equally as possible to the various types of air units involved. Eliminated air factors are apportioned first, then air factors which are forced to abort...



The following charts show the effects of the tactic. In the first example, Germany bombs only with AAF. Red indicates an eliminated air factor; orange an aborted air factor:

Air combat losses: 4/4	
20 AAF (escorts)	10 AAF (bombers)
Surviving bomber force: 6 factors.	

If Germany produces an AAF in 1940, this won't change anything (the Rule of Threes). But it's a different story if Germany produces an interceptor:

Air combat losses: 4/4		
20 AAF (escorts)	10 AAF (bombers)	1 interceptor
Surviving bomber force: 7 factors.		

It turns out that the presence of an additional German interceptor increases the number of surviving bombers by one AAF if the loss and abort components

of the British air combat result add up to an even number (and more often than not they do):

0	0/1	1/0	1/1	1/2	1/3	2/2	2/3	2/4	3/3	3/4	3/5
4/4	4/5	4/6	5/5	5/6	5/7	6/6	6/7	6/8	7/7	7/8	7/9

If the British fight with 10 AAF, then 24/36 (two out of three) times the interceptor will allow an additional bomber to slip through:

Air Combat Table - 19.2											
AF	Dice Roll										
AS	2	3	4	5	6	7	8	9	10	11	12+
10	2/3	2/4	3/3	3/4	3/5	4/4	4/5	4/6	5/5	5/6	5/7

The effects where the Germans have also produced an additional bomber are even simpler: the Germans always get one more bombing AAF through, no matter what the British roll. Producing even a single strategic bomber in 1940 therefore makes an immediate difference to the German bombing campaign.

However, it goes against human nature – and basic economic principles – for the Germans to invest a significant number of RPs in developing a heavy bomber, only to produce limited quantities. The German “Ural Bomber” is the subject of another article.