Britain - Bombing	ULTRA	*Free*

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.

THE URAL BOMBER

German Strategic Bombers

by Bruce Harper

Introduction

By 1936, Germany was well on its way to developing a four-engine heavy bomber, comparable to the American B-17. Christened the "Ural bomber", as an indication of both its range and its likely target, the first prototype flew in December 1936.

General Walther Wever (right) and friends, 1935.

The Ural bomber program was the brainchild of General Walther Wever. He was a "believer" in the heavy bomber, although not to the exclusion of other types of aircraft. Under his guidance, Germany developed advanced heavy bombers, but when Wever died on June 3, 1936, the momentum of the German heavy bomber program died with him. The program was scrapped in the following year, and German went to war in 1939 with an essentially tactical air force.

Whether the demise of the "Ural bomber" changed the course of history appears to be a favorite topic of debate on internet chat rooms (of the sort devoted to World War II discussions, that is). Of course it's foolish to overestimate the importance of the German heavy bomber program. For one thing, production of German heavy bombers would necessarily have been at the expense of the fighters, medium bombers and dive bombers that, along with Guderian's panzers, powered the blitzkrieg and gave Germany an unforeseen chance to win the war. More importantly, there's no reason to think that German heavy bombers would have been more effective that Western Allied bombers were later in the war. The overall effectiveness of strategic bombing in World War II is still a subject for debate, but it's pure fantasy to imagine German heavy bombers flying over the Urals to completely destroy the Soviet industrial base. German heavy bombers would have improved German capabilities in some areas, but at the expense of others.

A WORLD AT WAR lets us explore these possibilities, albeit encumbered by the constraints which don't trouble the internet discussion groups. In order to develop a strategic bomber force, Germany must first get a strategic bomber result, then produce the heavy bombers themselves, both of which use up RPs which could be spent on other things. Because of the significant opportunity cost to strategic bomber research and the fact that it must be incurred early in the war to be worthwhile, the Axis have to try to find the most efficient approach to achieving their goal, and then try to make it pay off. There is nothing quite as distressing as accomplishing your plan, only to find that you are lost.

Researching Strategic Bombers

Before Germany can begin producing strategic bombers, it must achieve a strategic bomber research result, which involves the investment of a significant number of RPs in strategic bomber research:

Strategic Bombers

(European Axis, Western Allies, Russia, Japan)

The Western Allies begin with a "9+" result.

Results:

1-2	No effect.
3-4	[+1]
5	[+2]
6	[+3]
7	[+4]
8	[+5]
9+	Strategic bombers may be constructed. For each subsequent "9+" result for strategic bombers, friendly bomber SW combat dice rolls receive a favorable +/-1 DRM.

The production of strategic bombers is governed by rules 42.22B:

42.22 AIR:

...

B. STRATEGIC BOMBERS: 2, 3, 4, 5… only after a "9+" research result for strategic bombers. Each result allows the alliance faction to add five BRPs of strategic bomber factors to the force pool of one or more eligible major powers in that alliance faction. Western Allied strategic bomber production in Europe is a separate production project from American strategic bomber production in the Pacific. Western Allied strategic bomber production for European use may begin in 1940; American strategic bomber production for Pacific use may begin in 1944. Italy, France and China may not produce strategic bombers. See 24.262 and 42.331B for restrictions. Remnants may be retained for future use (42.336).

As with all research projects, the first question is how many RPs are needed and, by implication, what has to be given up in exchange for achieving a result. The second question is whether the benefits justify the cost.

Prototype Ju89 four-engine bomber.

1939

In 1939 the Axis will have 10 RPs, as neither Germany nor Italy receives any RPs beyond its basic allotment. An Axis strategic bomber research plan requires the investment of half the Axis RPs in air research each year. There are then two basic choices for the Axis in 1939:

- 3 RPs to air general research.
- 2 RPs to strategic bomber research.

or

- 2 RPs to air general research.
- 3 RPs to strategic bomber research.

Research rolls are made with three dice, taking the middle one as the result (41.75). This reduces, but does not eliminate, the chance of a very good or very bad result. In addition, unused RPs within a category, other than atomic, may be shifted to boost a "1" or "2" research roll, although shifting may not be used to increase a higher result (41.78).

1939: air general 3; strategic bombers 2

The Axis hope to achieve an air research breakthrough in 1939. If they allocate three RPs to air general research, they need to roll a "5" or a "6" for air general research to get the breakthrough. This is important not so much to get a research result for strategic bombers, as to reduce the cost of producing strategic bomber factors and to make other air projects easier.

With three RPs in air general and two RPs in strategic bomber research, the Axis have several options in 1939. They can roll for air general research in Fall 1939, then roll for strategic bombers in Winter 1939; they can roll for espionage in Fall 1939 and, if

successful, they can place a spy ring in Western Allied or Russian air research and defer their air general research roll until Winter 1939, in the hope of getting a +1 modifier; or they can roll for strategic bombers in Fall 1939, using RPs assigned to air general research to offset a poor strategic bomber research roll.

All things considered, I think it's probably better just to roll for air general research in Fall 1939. It prevents the Allies from using a spy ring to interfere with Axis air general research. And even if the Axis get a spy ring in Fall 1939, they may want to put it elsewhere, such as a minor country like Turkey or Spain, or in an Allied research category other than air, to confuse their opponents.

Deferring the Axis air general research roll until Winter 1939 in order to get the modifier for an Axis spy ring is a long shot, because this plan only succeeds if:

- the Axis get a spy ring in Fall 1939;
- neither the Western Allies nor Russia gets and uses a counter-intelligence result in Fall 1939 to eliminate the Axis spy ring (the Western Allies and Russia may use a counter-intelligence result to eliminate enemy spy rings in both themselves and their future ally's research programs – 45.51A);
- neither the Western Allies nor Russia gets a spy ring in Fall 1939 and puts it in Axis air research, canceling the modifier;
- in Winter 1939 the Axis roll a "4" for air general research, which is about a 25% chance (on a "5" or "6" the modifier from the spy ring isn't necessary; on a "3" or less it doesn't yield a breakthrough, although does give a higher modifier for the 1940 research roll).

A third approach is to roll for strategic bombers in Fall 1939, using the RPs allocated to air general research as insurance against a research roll of "1" or "2" for strategic bombers. An assessment of this option requires a closer look at the strategic bomber research results.

With two RPs in strategic bombers, here are the results for an unmodified research roll:

"1" ⇨ 3 = [+1] (a net loss of -1).
"2" ⇨ 4 = [+1] (a net loss of -1).
"3" ⇨ 5 = [+2] (break even).
"4" ⇨ 6 = [+3] (a net gain of +1).
"5" ⇨ 7 = [+4] (a net gain of +2).
"6" ⇨ 8 = [+5] (a net gain of +3).

There is about a ¼ chance of a slight setback; a ¼ chance of breaking even; and a ½ chance of progress of varying degrees. The most likely results are a "3" (break even) and a "4" (a net gain of +1).

Since a slight setback (two RPs being used to generate a [+1] result) isn't fatal, the Axis should roll for strategic bombers in 1939.

If the Axis achieve an air general breakthrough in Fall 1939, the strategic bomber results are all shifted up by one, and the odds of a favorable result are even greater. In fact, on a "6", Axis will be able to produce strategic bombers in 1940, with all that implies.

The break even roll for strategic bombers is a "3": one RP = 4 = [+1]; two RPs = 5 = [+2]; three RPs = 6 = [+3]; etc. This means by rolling for strategic bombers in Fall 1939 and shifting RPs from air general research, the Axis can guarantee that they don't go backwards in strategic bombers, but at the cost of reducing their chances of a good air general result. This sort of decision can only be made in hindsight. If the Axis shift one RP from air general research to boost a "2" roll for strategic bombers to a "3", then roll a "6" for air general research, they will get a breakthrough in 1939 anyway. Of course, if the Axis know they will get a "6" for air general research, then they would roll for that first, to get a +1 modifier for their strategic bomber roll, and around and around it goes...

Since rolling for air general research in Fall 1939 gives a chance at getting a strategic bomber result in 1939 (a "5" or a "6" for air general achieves a breakthrough; then a "6" for strategic bombers achieves a strategic bomber result), that is probably the best strategy. In the broader scheme of things, the Axis are aiming to produce strategic bombers in 1941, so this dream result is hardly essential.

1939: air general 2; strategic bombers 3

This allocation is probably not as good for the Axis. An unmodified strategic bomber research roll of "1" could result in a 4 result, which is a [+1], which means going backwards two steps. At the same time, the chances of an air general breakthrough are less, and the modifier for 1940 for air general research on other results will be less.

On the other hand, this allocation will pay off if the Axis roll a "6" for strategic bombers, or if they first roll a "6" for air general research, then roll a "5" or a "6" for strategic bombers. In either case, the Axis will be able to produce strategic bombers in 1940 without

any additional RP allocations to strategic bomber research, but the odds of achieving these results are similar to rolling a "5" or a "6" for air general research, then a "6" for strategic bombers. The difference is that by concentrating on strategic bomber research, the Axis will always have a chance of a 1939 research result for strategic bombers. But since the air breakthrough is probably at least as important as the strategic bomber research result, if not more so over the long haul, my vote would be to allocate three RPs to air general research and two RPs to strategic bomber research in 1939.

Prototype Do19 four-engine bomber.

1940

In 1940 the Axis will have either 14 or 15 RPs. If Germany doesn't attack the Low Countries in Winter 1939 and Italy stays neutral, Germany will get 8 RPs (Poland) + 10 (Russia) + 30 (Low Countries) = 210 BRPs, so the Axis as a whole will have 15 RPs. The difference may be significant, because this increases the maximum allowed for each research category from 7 RPs to 8 RPs.+ 3 RPs (180 BRPs), while Italy will get 2 RPs + 1 RP (73 BRPs) = 8 + 3 + 2 + 1 = 14 RPs. If Germany attacks the Low Countries, it will have 150 (base) +20

Exactly how the Axis should allocate their 1940 RPs depends on their results in 1939, and so the best that can be done is to use approximations. For the purpose of analysis, I will assume that the Axis research rolls were "3" or "4", while at the same time looking at the possibilities of very good or very bad results.

If the Axis rolled at least "3" for both air general research and strategic bombers in 1939, they will have a [+5] and a [+2] result for air general research and strategic bombers, respectively. This means allocating one RP to air general research in 1940 will ensure a Spring 1940 breakthrough, because a research roll of "1" can be boosted to a "2" by switching one unused RP from another air project. Similarly, three RPs in strategic bombers will guarantee a strategic bomber result, because the Axis may guarantee a "3" strategic bomber research roll by switching one or two unused RPs from other air projects.

Therefore the recommended 1940 Axis RP allocation for air research is:

- 1 RP to air general research.
- 3 RPs to strategic bomber research.
- 3 RPs to air/strategic bomber production.

There are many possible variations to this allocation. One is to allocate only one RP to strategic bomber production, and to allocate one of the two RPs released from strategic bomber production to air range and the other RP to air production. Another is to allocate three RPs to air production and one RP to strategic bomber production if the Axis research roll for strategic bombers in 1939 is "4" or more, as this will give the Axis added flexibility in 1940.

Regardless of where they allocate their remaining RPs, the Axis hope they roll well for air general research and strategic bomber research. Some players opposed the introduction of the rule which allowed unused RPs to be switched to cover poor rolls. But such switching comes at a significant cost, because other research or production projects suffer as a result.

The point sometimes missed is that the switched RPs are hardly "extra". If the Axis can achieve their first air research breakthrough and a strategic bomber research result in 1940 without using any of the RPs allocated to air and strategic bomber production, they will be able to produce an additional AAF or interceptor (both have their merits) and three strategic bomber factors, carrying over one BRP of strategic bomber production into 1941. Alternatively, the Axis will produce one strategic bomber factor, carrying over two BRPs of strategic bomber production into 1941 and be able to make an air range research roll.

Here the significance of the additional RP from a German Winter 1939 attack on the Low Countries becomes apparent. By increasing the number of RPs which can be assigned to air research from seven to eight, it not only provides the Axis with additional insurance, it allows a greater concentration on crucial

The Bomber Advocate

"...viewed in its true light, aerial warfare admits of no defense, only offense."

Giulio Douhet, *The Command of the Air*

air research and production projects.

We will assume that production is not impeded by adverse research die rolls for air general and strategic bomber research (since the need to switch RPs to those projects may be reduced or eliminated by better research rolls in 1939). Germany will therefore end the year with one additional AAF or interceptor and three strategic bomber factors.

1941

In 1941 Germany will be have between 250-300 BRPs: 150 (base) + 20 (Poland) + 10 (Russia) + 30 (Low Countries) + 40 (France) = 250 BRPs. By a combination of some or all of conquering Denmark and Norway, not setting up Vichy France, making diplomatic rolls for the Balkans and invading Yugoslavia and/or Spain in 1940, Germany can get to 300+ BRPs, but let's assume Germany plays more calmly. Germany will get 8 RPs + 5 RPs (250 BRPs), while Italy will get 2 RPs + 1 RP (73 BRPs) = 8 + 5 + 2 + 1 = 16 RPs.

If the Axis continue to focus on air general research, the 1941 RP allocation is:

- 3 RPs to air general research.
- 1 RP to air range research.
- 1 RP to air production.
- 3 RPs to strategic bomber production.

Alternatively, the Axis can put only one RP in air general research and emphasize air production or branch out into jets.

At this point, the research die rolls aren't as important as in 1939 and 1940. The Axis hope to get a second air research breakthrough, as this will improve the Axis air range research result and allow them to produce three strategic bomber factors in 1941 for two RPs and save one RP for 1942 production. But until Germany has reached 400 BRPs or has three air research breakthroughs, it can only produce 10 BRPs of strategic bombers each year.

One way around this, incidentally, is to allocate an additional RP to strategic bomber production in an earlier year. Four RPs (the earlier RP plus three RPs in

	Axis RPs	**10**	**14**	**16**					
	Code	**1939**	**1940**	**1941**	**1942**	**1943**	**1945**	**Min.**	**Max.**
Air		**3** Fa ③	+5 **1** Sp ③	**3** Sp ③				8+	
Nationality DRM *(A)*		–2						10+	
Jets *(G)*								9	12+
Air Range (G)				+3 **1** Sp ③				10+	
Strategic Bombers *(G)*		**2** Wi ③	+2 **3** Su ③					9+	
Air Defense *(A)*								7+	
Air Production *(A)*	**2,3,4,5...**		**1** Su	**1** Sp					
Strategic Bombers *(G)*	**2,3,4,5...**		**2** Su	**3** Sp					
Air Transports *(G)*	**3,4,5,6...**								
Jet FP *(G)*	**4,5,6,7...**								
Naval Air Train. *(G,I)*	**3,4,5,6**								
Airbases *(G,I)*	**1,1 (1/turn)**								

1941) and two breakthroughs produce 15 BRPs of strategic bombers. But it's not always so easy to conjure up an additional RP, and the other services are always clamoring for it anyway...

Under this project, therefore, Germany will end the year with two more AAF or interceptors (for a total of three produced in 1940 and 1941) and three additional strategic bomber factors (for a total of six produced in 1940 and 1941), with two BRPs of bomber production carried over into 1942.

1942 and Beyond

At a moderate cost (more than nothing, but somewhat less than some high ticket items, such as the atomic bomb), Germany can produce three strategic bomber factors for use in Fall 1940 and six strategic bomber factors for use in Summer 1941. The first increment will be available when Germany starts bombing Britain in earnest, and the second increment will be ready should Germany invade Russia in Summer 1941.

Will it be worth it? That's the second question asked at the start of this article, and it won't be answered here. There is no right answer. A German strategic bomber program is no more a panacea for the Axis in A WORLD AT WAR than it would have been in the real war, or than it was for the Western Allies. As part of a larger plan, in the right circumstances, strategic bombing can have a significant role to play in the game. The challenge is to create the circumstances in which strategic bombers, a purely offensive strategic weapon which cannot directly defend the Reich against Allied bombing, can make a difference.

A Reluctant Bomber Advocate

"The bomber will always get through. The only defense is in offense, which means that you have to kill more women and children more quickly than the enemy if you want to save yourselves."

Stanley Baldwin British Prime Minister
To the House of Commons, November 10, 1932.