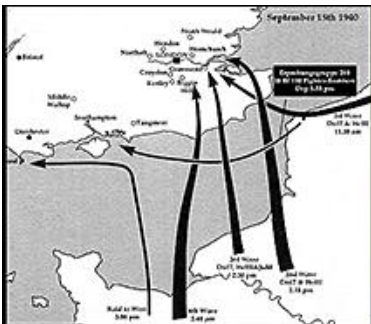


Simulator FSX - Acceleration

**THE HARDEST DAY – 18 August 1940**  
the mid-day attack on RAF Kenley  
**BATTLE OF BRITAIN DAY – 15 September 1940**  
the morning attack on Battersea Railway Station  
both by Luftwaffe  
**Dornier Do 17Z's of Kampfgeschwader KG76**



**THE ACCURATE DROPPING OF BOMBS**  
**FROM HIGH and LOW ALTITUDE**

devised by

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August 2012

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**It is certainly easy to drop a bomb in FSX but quite something else doing it accurately enough to hit a small target area in a simulator.**

**This document explains the methods of achieving bombing accuracy from high altitude or from tree top level and it explains the requirements for achieving this in FSX flying the Dornier Do17 in simulated attacks based on WWII Battle of Britain documentation.**

**This is not something you just get into the aircraft and do.**

**In the real world of WWII, accuracy was a progressive development requiring great skill to achieve the outcome. It is not so very different in a simulator. Outcomes will result from progressively learnt flying skills.**

## INTRODUCTION and WARNINGS (in red)

**THE AIRCRAFT:** the Dornier Do 17, sometimes referred to as the Fliegender Bleistift (German: "flying pencil"), was a World War II German light bomber produced by Claudius Dornier's company, Dornier Flugzeugwerke. It was designed as a Schnellbomber ("fast bomber"), a light bomber which, in theory, would be so fast that it could outrun defending fighter aircraft. In reality this was short lived.

This sim project is based upon (with permission) the FS2004/FSX Dornier 17Z-2 medium bomber by Mr A.F.Scrub which uses an update of the original mdl file by Thicko. The aircraft has been further modified for this project by the introduction of a "bomb aimers" view based on the VC.

The high level bombsight (+12000 ft) is an adaption of the "Open new view window" option available from key [ ] and will accurately allow the aiming of a bomb from +12000 feet onto a target 64 feet in width. A low level bombsight (+100 ft) is also provided.

The bombsight idea was originally designed into a CFS1 Lancaster flying missions against the Tirpitz, Brest Harbour and Luftwaffe fighter airfields. The idea has been adapted to work in FSX and was successfully trialed in my FSX Plane-Design Lancasters.

**The bombsight settings are related to the bomb package described below. It will NOT WORK accurately with other droppable bomb objects by another provider.**

**THE BOMB AND SYSTEM LIMITATIONS:** The FSX requirement that the bomb is only available in a **saved flight plan** will deter a lot of simmers from becoming involved to the extent of making their own targets available. **Any plan made by a simmer will not contain the necessary activation text.** It will be necessary to follow the providers instructions on how to add the appropriate text.

**The aircraft must be flown at high altitude on autopilot to achieve the accuracy. If you have not flown to a flight plan or used the autopilot in FSX before, then there is a learning curve involved.**

Training flights to gain experience in flying the aircraft and dropping bombs from it are included and it is **recommended that all simmers do not directly attempt to fly the main attacks first.**

The saved flight plans provided with this project include the necessary text to activate the bomb.

The Weapons Package by Chris Sykes is available from here:

<http://www.flightsim.com/vbfs/content.php?108-Copyright&fid=119070>

You must down load it and follow the instructions contained in the readme to install at least the British bomb package folder OR no bomb will appear in this aircraft.

**REALISM: Low.** FSX only permits one type of bomb to be carried and you cannot drop a stick of bombs. The package does not have any German objects. A British 1000lb GPB is used to represent about half the bomb capacity of the Do 17Z. 2 bombs are carried for two attacks on the target. This then drops the full capacity of the Do17. The bomb does not add to aircraft weight.

(4)

**AIRCRAFT 2D COCKPIT:** use F10 to activate this view. The original cockpit had no active altitude gauge so this has been replaced. In addition, icons have been added to activate gauges and views necessary to achieve the designed outcome. Some gauges have been repositioned to be more in line with the VC Cockpit and to allow the GPS to appear in position 8 without covering essential flying gauges. The GPS on view the whole time is an asset in achieving the outcome.



**Do not change the forward view zoom setting**

- #1 is the indicator for the bomb bay doors, down is open, use the / key
- #2 is a Nav/GPS mode switch – down is GPS mode and is used to read the Ground Speed of the aircraft. The up (Nav) position is generally used for ILS landings but this option is not available in this aircraft. Ground speed is also available, lower left corner of the GPS. Above the switch is an indicator that shows the autopilot status. Yellow is on and active. Press to de-activate.
- #3 A icon between the IAS & Altitude gauges gives digital ground speed (kts) and Altitude in ft.
- #4 Icon group, some original, some added as follows:  
TOP ROW, L to R – (a) Throttle overlay position 6, (b) aircraft navigation switches, magnetos and start switches, position 0 (c) Activate Map (d) ATC contact icon.  
MIDDLE ROW L to R – (a) Fuel panel at position 6 (b) Miniature Radios on GPS (c) Kneeboard Icon (d) Auto pilot window, position 2.  
BOTTOM ROW L to R – **(a) activate high level bombaimers view** (b) GPS icon, also by using [shift+3] will activate GPS **(b) activate low level bombaimers window.**
- #5 This annoying window will cover the autopilot. It indicates what bomb is carried and how many are left for dropping. The option is available to close it by right clicking with the mouse but it will re-appear again when a view is changed. Just stow it by dragging it as shown over the center post.

All windows in this aircraft **have been zordered** to prevent accidental loss should you mouse the cockpit graphics during icon or switch selection.

(5)

**AIRCRAFT VC COCKPIT: use F9 to activate this view.** Some gauges have been repositioned or added and icons added to allow the aircraft to be effectively flown from this cockpit. It closely matches the layout of the 2D cockpit and should not cause any functional problems.

If you over lay sub windows in the VC they will remain where placed when you rotate or swivel for a lower cockpit view or to look in a different direction. For this reason, in this cockpit there is no digital ground speed or altitude gauge in the position of the 2D cockpit. **Instead a hot spot top left corner of the GPS will activate the same gauges.** Another hot spot to the right of the gauges will close them. Ground speed can also be read from the GPS (bottom left corner).



**Do not change the forward view zoom setting**

**#1** Icon group, some original, some added as follows:

TOP ROW, L to R – (a) Throttle overlay position 6, (b) aircraft navigation switches, magnetos and start switches, position 0 (c) Fuel Panel, position 6 (d) Activate Map (e) Kneeboard Icon and (f) ATC contact icon.

BOTTOM ROW L to R – (a) GPS icon. [shift+3] will also activate the GPS and a hot spot top left will active digital Ground Speed and Altitude gauges. (b) Miniature Radios on GPS (c) Auto pilot window and (d) .clear all overlays except the GPS.

**#2** is a Nav/GPS mode switch – down is GPS mode and is used to read the Ground Speed of the aircraft in the 2D cockpit only. The up (Nav) position is generally used for ILS landings but this option is not available in this aircraft. Above the switch is an indicator that shows the autopilot status. Yellow is on and active. Press to de-activate. Above is the bomb door position indicator, down is open via the / key.

**The ADF gauge nearby does not work in FSX**

**#3** Shows the number of bombs left to drop.

**BOMB AIMING - General:** bomb aiming, just as in the real world, requires **precise height and ground speed** with the aircraft **flying straight and level**. You **CANNOT** achieve this flying manually at high altitude. You must fly using the autopilot and the altitude you fly at must take into account the elevation of the target above sea level.

**Do17 DROP ERRORS:** **1kt in speed approx. 78 feet, 100 feet in altitude approx. 32 feet.**  
the training target is 64 feet wide, it may be easier to miss than hit.  
HIGH: Impact long LOW: Impact short.

**Note:** a ground speed reading of 164kts means the aircraft is between 164 and 164.99 kts

The **high level** bombsight is set for +12000 feet above the terrain, so if your target is 800 feet above sea level then you fly at 12800 feet. If the target is at 850 feet, flying at 12800 feet will cause the bomb to fall SHORT.

The **low level** bomb sight is set for +100 feet and it is **not recommended** that you use autopilot. You simply fly the aircraft manually at tree top level and adjust to +100 feet for the attack.

**There are no adjustments for wind.** The requirement is to fly in “**perfect**” weather.

**SCREEN SHAPE & VIDEO CARD RESOLUTION:** the proliferation of screen shapes and video card resolutions **unfortunately** affects the required flying speed to gain an accurate impact. A “card” in each BA View provides required **ground speeds** in kts for two popular groups of computer screens:

ATTACK AT +100ft:	ATTACK AT +12000ft:
GROUP 1 Video Card 1920 x 1080 GS 164kts	GROUP 1 Video Card 1920 x 1080 GS 164kts
GROUP 2 Video Card 1920 x 1200 GS 160kts	GROUP 2 Video Card 1920 x 1200 GS 160kts

The quick way to check if your video card resolution is of a group listed is to multiply **the width** for Group 1 by 9 and divide by 16. For Group 2 multiply by 10 and divide by 16. If the answer is not one listed for your video card then try the calculations as indicated in Group 3 and 4 for which slower ground speeds will be required. **You can verify the ground speeds in the training flights.**

**Group 1:** (x9/16) 1920 x 1080, 1600 x 900, 1366 x 768, 1280 x 720 and 1024 x 576.

**Group 2:** (x10/16) 1920 x 1200, 1680 x 1050 and 1280 x 800.

**Group 3:** (x4/5) 1280 x 1024, (try a GS of 157 kts)

**Group 4:** (x3/4) 1152 x 864, 1024 x 768 (try a GS of 155 kts)

(7)

Either of the two Bomb Aiming Windows **can ONLY be chosen from the 2D cockpit** using the icons described on page 4, #4, bottom row.

In each view the GPS is now automatically activated.

**THE HIGH LEVEL BOMBAIMER VIEW:** the left side icon in the bottom row of the 2D cockpit icon group activates the view shown below. There is no intermediate view as shown in the video.



**Do not change the forward view zoom setting**

The requirements to achieve accurate bomb impacts from +12000 feet are different to low level attacks so the tools provided are different.

**#1** This group of gauges allows you to fly the aircraft from this view as well as drop a bomb:

TOP ROW: (a) Autopilot status ON (b) Heading Button (c) Level wings button (d) Altitude ft.

MIDDLE ROW: (a) Heading setting window (b) Achieved aircraft heading.

LOWER GROUP: (a) Bombay door indicator, down is open, use / key.

(b) Manifold Pressure (c) digital Ground Speed and (d) Three icons for Map, Autopilot and GPS.

**#2** This icon will exit **to the 2D panel**.

**#3** is the aircraft heading line. When the target appears in the lower main view it is about 6 Nm away. When it disappears from view it is about 3 Nm away. You must at this point have the aircraft flying straight and level towards the target at correct ground speed and heading.

**#4** How to achieve these parameters by using the BAW is described over page. When you first enter the BA view, the BAW is "empty".

If you are a **VC pilot use F9 to go to the VC from this window**. You can then fly the aircraft to the next waypoint in the flight plan and when required to use the bomb aimer view and its tools simply use F10 to arrive here as shown.

(8)

**THE BOMB AIMER WINDOW (BAW):** on the previous page you saw the empty BAW when you first enter the BA View. That is, it had not been activated. **To activate and use the BAW, Key [** and a reduced size image of the forward view appears without aircraft graphics - Image 1 below:



This action effectively transfers all operations to the BAW window. If, for example, you use F9 the VC will appear in the BAW. You could use “outside spot” view to see the full aircraft.

**Do not under any circumstances try to move the BAW or use the top hat to skew the view sideways.** Heading alignment on the target will not be achieved if you do.

**Some views are locked and cannot be changed.** Other views can be rotated up or down. The zoom function, in or out, may also be available when noted.

All views in the BAW are those obtained from the Outside drop down menu – Right click inside the BAW and carefully select the view you require - Image 2. Then left click to activate the view.



**USING BAW VIEW 1 – View Looking Forward (No DROP):** this view, image 3 is designed to fly the aircraft onto the correct heading for the attack. It can be zoomed and rotated to binocular the target long before you can see it in the main view. **Do not skew the view from its default position.**

Image 3 indicates the aircraft is flying to the right of the target. You are on autopilot. Mouse the heading window which shows as 191 and reduce it to 189. This will “kick” the aircraft to the right before it tracks left towards the target. Before the heading line reaches the point of attack, activate the LVL button to level the aircraft. Repeat as necessary. Zoom in perhaps to see the result as shown in Image 4. **DO NOT DISCONNECT THE AUTOPILOT.**

**You must also watch the ground speed,** as you can see, the aircraft is still not flying at a precise speed of 164 kts as is required for bomb release with a Group 1 screen (see page 6).

Alignment with the target should be completed by the time it disappears from the main view.

**USING BAW VIEW 2 – AIM THE BOMB.** Do as previously noted to activate this **LOCKED** view. **You cannot zoom, rotate or skew the window.** It will allow accurate releasing of the bomb. Refer to the GPS distance indicator as it is not really necessary to activate this window **until about 2Nm from the target.**

You are flying “blind” and should just be making sure your ground speed is correct. The target will appear at the top of the BAW and release occurs when the horizontal line is at the point you wish to impact. You should allow for your time reaction in the release – Image 5. In the final upload the size of the target image has been enlarged to make it easier.



**Bomb release is by using the keys [shift+D]** but **you will be well advised to allocate a key** on your control yoke as it will be quicker, easier and will prevent looking away to locate the two keys.

**USING BAW VIEW 3 – View Bomb Release.** To save time this view is linked to **F11**, if actioned immediately after the release, the bomb will be visible as it drops from the aircraft – Image 6. **You have no control of how it drops from the aircraft and it may be on center, or left or right of center.**

What this means is there can be and often will be a lateral inaccuracy induced at impact. You can be spot on with speed and the impact maybe left or right of where you aimed.

**USING BAW VIEW 4 – View Bomb Release.** To save time this view is linked to **F12**. It takes 27-28 seconds for the bomb to travel down from 12000 feet and the resulting preset window gives a view that enables you to **press pause** when you see the bomb impact. You should consider using the Y key as this will freeze the aircraft but allow the impact graphics to develop – Image 7.



If you then use F11 again this view allows you to rotate and zoom in for a much better indication of the damage you inflicted on the target – Image 8. **View 4 (F12) is a LOCKED view.**

**OTHER BAW VIEWS:** The airfields in this project have an additional impact viewing option based on placing suitable Ai's on either side of the target. These views are accessed from the Traffic View option as shown in Image 9. In the listing the viewing objects are at the top of the table and not lost down further. The number of listings in the table depends on your traffic settings.



In this type of view, if used to view the impact live, you have a 50-50 chance of selecting the correct side of the target. In Image 10 I selected the Unimog on the beach to view the impact and I set out to hit that side of the ship and failed by falling about 30 feet short – wrong side to view.

**DE-ACTIVATE THE BAW and continue flying:** Do this by using the **]** key. **Do not use F9 to return to the VC UNTIL you have de-activated the BAW window.** Then you can exit to either the 2D cockpit with the icon at the bottom of the screen or with F9 to return to the VC cockpit.

If you remain on pause or on key Y then once the BAW is deactivated you can use the same Outside Views in full screen. The view at RAF Kenley may be more spectacular because the bomb exploding on land does not have the fireworks extinguished by water.



**FLYING BY THE AUTO PILOT:** the auto pilot when activated appears at position 2 on the screen. It is basically a type 2 AP where it will only hold the altitude being flown. In this aircraft it will fly the aircraft onto a heading. Flying with the autopilot may well involve a learning curve in the training flights.



- #1 with the knob down the autopilot is active.
- #2 when active the light turns from red to OFF.
- #3 this is the altitude hold button, press to activate. My view was that a clearer indication was necessary so white indicator/switches are added to help identify the status at a glance.
- #4 relates to heading control. The activation button is to the right. To the left, a three stage switch that will turn the aircraft at three different turn rates. Just mouse to left or right of the switch center to turn the switch. Use this in conjunction with the GPS and judge when to return it to the zero position.

You may notice the aircraft will first turn in the opposite direction and then track back in the direction you selected. A similar result may occur when resetting to the zero position. It is a good idea to progressively make the turn by selecting position's 1, 2, 3 or 3, 2, 1 so that the aircraft flies for a short time at each selection.

**Switch #4 MUST be at zero (vertical) before you select to enter the bomb aiming views** or the heading adjustment tools that are available in the BAW will not function correctly.

**THE LOW LEVEL BOMBAIMER VIEW:** the right side icon in the bottom row of the 2D cockpit icon group activates the view shown below. **You will need to be less than 2 Nm from the target** to have a clearly resolved view of it.

It will therefore be necessary to **rely on the displayed route in the GPS** to locate the target. Over land and flying at tree top level will certainly require this and it is the reason the GPS is automatically activated on entering the view.



**Do not change the forward view zoom setting**

**#1** This group of gauges allows you to fly the aircraft from this view as well as drop a bomb:

TOP ROW: (a) VSI and (b) Manifold Pressure.

MIDDLE ROW: Ground radar, horizontal needle is +100 ft and auto pilot status, **OFF**.

GPS ROW: (a) digital Ground Speed and (b) digital Altitude. There is a hot spot alongside the digital altitude gauge, mouse it and the action will cancel these gauges.

**#2** This icon will exit **to the 2D panel** and close the GPS row of gauges.

**#3** is the bomb sight, vertical line for heading and the horizontal line for bomb release. Release the bomb [shift+4] when your target sits on the horizontal line. **Your ship aiming point is just above the water line.** Higher and it may pass thro' and out the other side.

**You are advised to set up a button on the yoke to reduce the reaction time and to gain easier operation and a better outcome.**

Low level attacks are more difficult than the high level ones. Flying manually with the need to control speed, height, and direction in a landscape with trees is difficult. For the final attack the aircraft must be close to +100 feet for the bomb release or you may miss the target.

If you are a **VC pilot** use **F9 to go to the VC from this window.** You can then fly the aircraft to the next waypoint in the flight plan and when required to use the bomb aimer view and its tools simply use F10 to arrive here as shown.

**SELECTING A TARGET TO BOMB:** the scenery available today, either as VFR or the default MS is based on satellite imagery and therefore is far from the reality of 1940-45. Targets from that era probably do not exist now. Airfields have long been abandoned BUT remains may appear in VFR images. Many have been put to other uses and interests, townships, factories, flying clubs or simply just left for recreation.

**In my view** it is unacceptable to bomb any modern day infrastructure (railways etc), building estates OR anything related to people living in houses or working in factories. Nor is it acceptable to bomb prominent buildings and icons in any country.

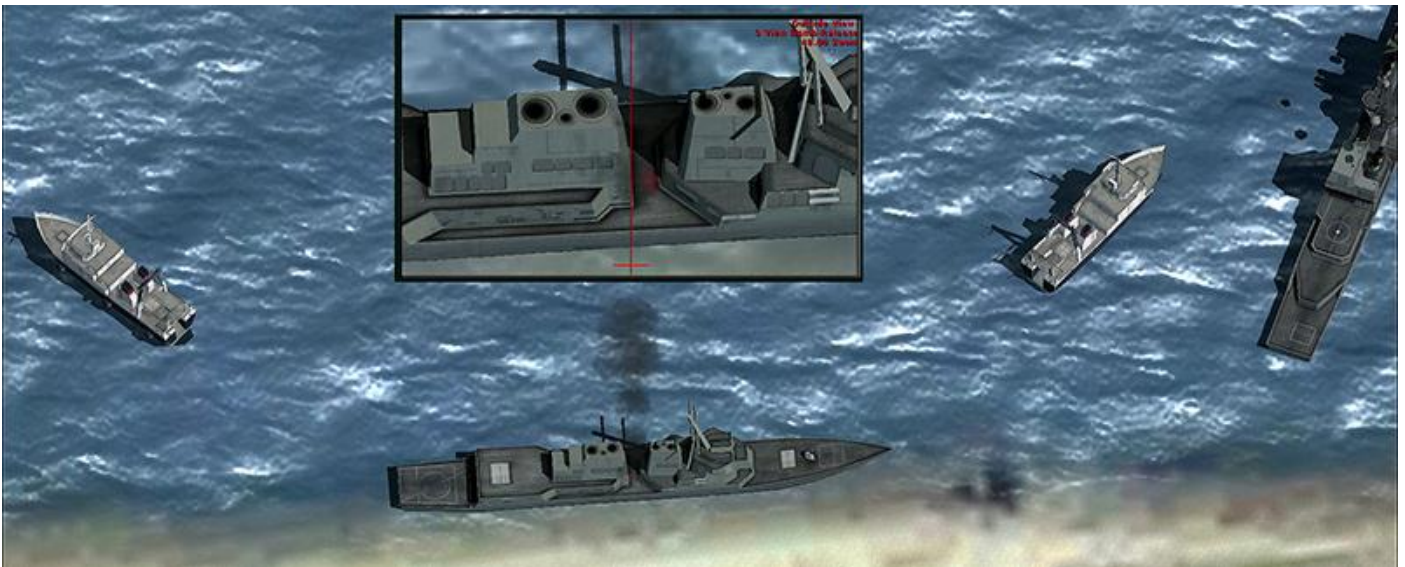
The choice of targets, other than those at sea (if WW2 war vessels), are very limited indeed.

The sim pilot needs to fly the training flights in order to gain experience in high and low level bombing with accuracy. All flights begin on pause and at the altitude necessary for the attacks.

### **THE SAVED FLIGHT PLANS:**

**FLIGHT TRAINING:** A destroyer has been beached and two vessels are attempting to refloat it. The area is situated at Recluver on the North Kent Coast (a Dambuster test area in 1943). A cruiser is positioned nearby for protection. The Luftwaffe are acting on information that the destroyer is carrying the latest Navy weapons so a mission is hastily arranged to render the ship and weapons beyond repair and use.

The destroyer is a mere 64 feet wide and both high & low level bombsights are very capable of providing a direct hit on center. You should refer back to page 6 for information on errors that can result from not achieving the required speeds and altitude.

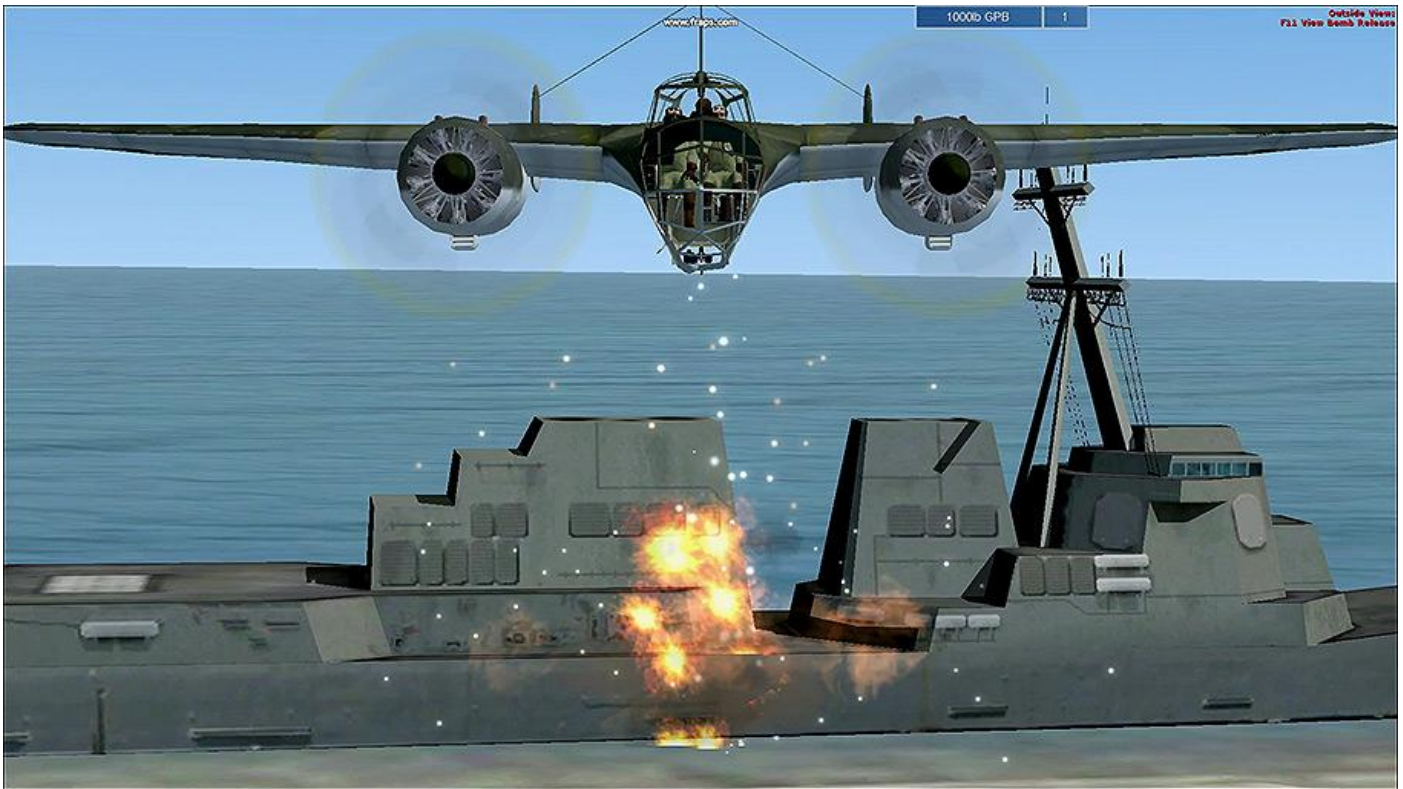


The image is from a high level attack indicating the ship is badly damaged. You can consider it beyond repair if you get a direct hit on the reverse flight. Just fly on and turn back to the ships.

Only the target ship will exhibit fireworks and smoke. If you impact in water there is a “splash” lasting only a few seconds. If you miss that outcome you may think the bomb was not released.

A low level bomb accurately placed will pass through and into the target ship or may even pass through to the other side as a miss. A high level attack on all other shipping will pass through the superstructure and into the water below. No fireworks. FSX sees these objects as being “soft”.

The low level attack must be flown manually at +100 feet with autopilot OFF.



The bomb **passes through the ship** – this run was almost a miss, half in, half out.

### THE HARDEST DAY

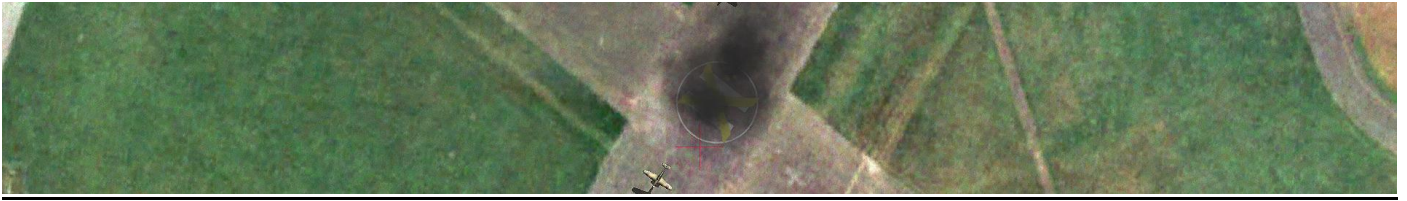
The Luftwaffe knew that some of the larger airfields around London, notably Hornchurch, Biggin Hill and Kenley were the key stations of Fighter Command. They were actually unaware that they were sector stations, and thought to be just important airfields in the organization of Fighter Command. The plan was, for August 18th 1940 to completely destroy both Kenley and Biggin Hill with a well planned attack that once accomplished they could duplicate the procedure at Hornchurch and other important airfields.

The plan was for about 50 - 60 Bf109s to cross the coast at Dover and head north-west towards London. Their task was a free rein to make contact with any British fighter squadrons that were in the air and lure them away from the main bomber force about five minutes behind. The bomber formation consisted of 12 Ju88s and 27 Do17s with an escort of about 25 Bf110s and 20 Bf109s. The target for this formation was Kenley. Further west, and to cross the coast near Beachy Head were 9 low flying Do17s who were unescorted. Once at their target, the 12 Junkers Ju88s were to approach Kenley from the east and make a precision dive bombing attack on the hangars and buildings on the south side of Kenley aerodrome. This was to be followed approximately five minutes later by a high level saturation bombing attack by the Dorniers to destroy ground defences and crater the landing ground. Finally, the nine Do17s coming in at low level from due south were to make the final blow destroying any visible hangars and buildings still standing.

111 Squadron Croydon (Hurricanes) were "scrambled" and instructed to vector Kenley, and told to maintain only 100 feet over the airfield. "You bloody mad" quipped S/LThompson, "I could prune trees at that height." "I repeat, yes repeat.....vector Kenley.....patrol at 100 feet.....30 plus low level bandits approaching" came the voice over the R/T.

(15)

In the sim I attempt to simulate the attack on RAF Kenley by the Dorniers at high level and at low level. Kenley does not exist in the flight sim but its outlines are visible in VFR scenery so I have marked the crossover of runways as the sim target. For anyone using default scenery I have added just runways and neither version is a full airfield. There is no intention that these be used by simmers to fly into or out of. The airfields are only setup to provide alternative views.



the marked runway cross over for the high level attack, the circle is 85 ft in diameter



Do17 completes a second pass from the north at low level with good results

**THE BATTLE OF BRITAIN DAY:** The "hour of destiny" was September 15th, a date thereafter commemorated as "Battle of Britain Day". If 18th August showed the German High Command that air supremacy was not to be won within a brief space, 15th September went far to convince them that it would not be won at all.

On Sunday, 15 September 1940, the Luftwaffe launched its largest and most concentrated attack against London in the hope of drawing out the RAF into a battle of annihilation. Around 1,500 aircraft took part in the air battles which lasted until dusk. The action was the climax of the Battle of Britain. In the morning the Luftwaffe set out to destroy the Battersea Railway Station and its extensive yards and rail network. In the afternoon they set out to attack the Docks of the Thames Estuary.

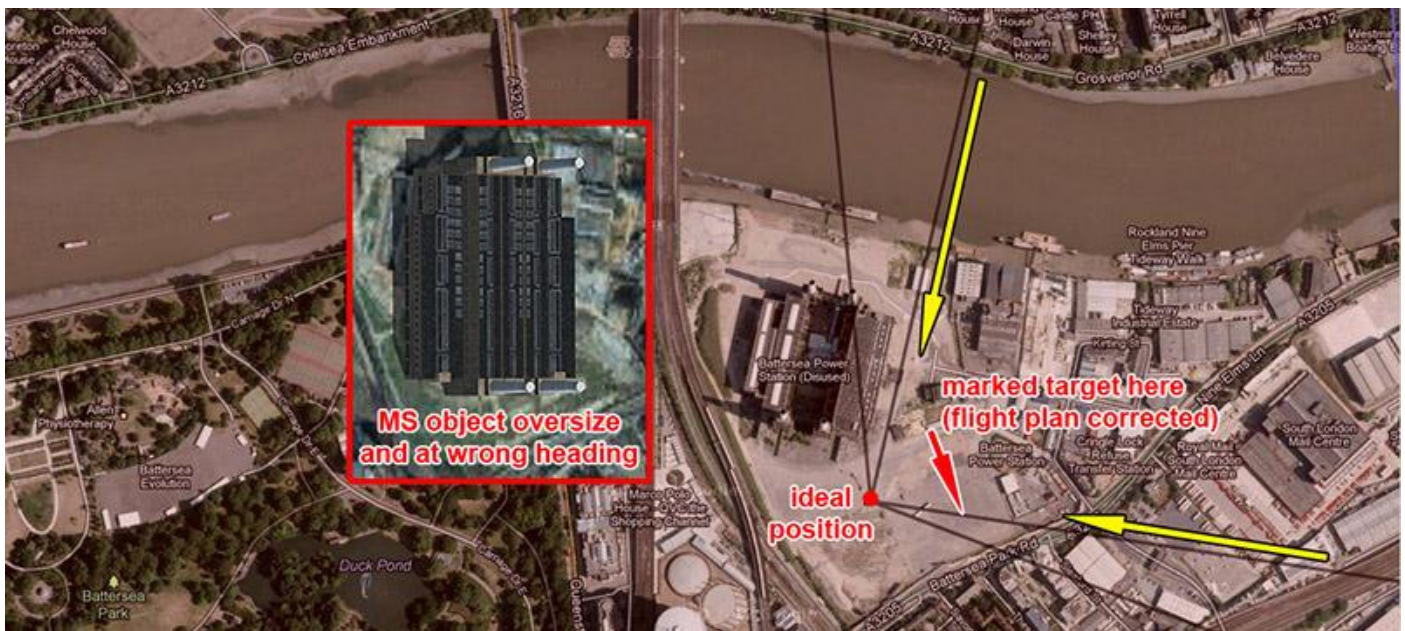
Due to the difficulty of defining a "safe" target in the simulator, we are only concerned with the morning raid.

The Railway yards no longer exist as they were in 1940, indeed the whole area is vastly updated with housing and other infrastructure. The Luftwaffe used the Battersea Power House, not as a target but as a navigation aid. The London Icon we see today was half the size in 1940. It has a relatively large area on the south east side of the powerhouse building so I have marked a spot in the grounds as the target.

(16)

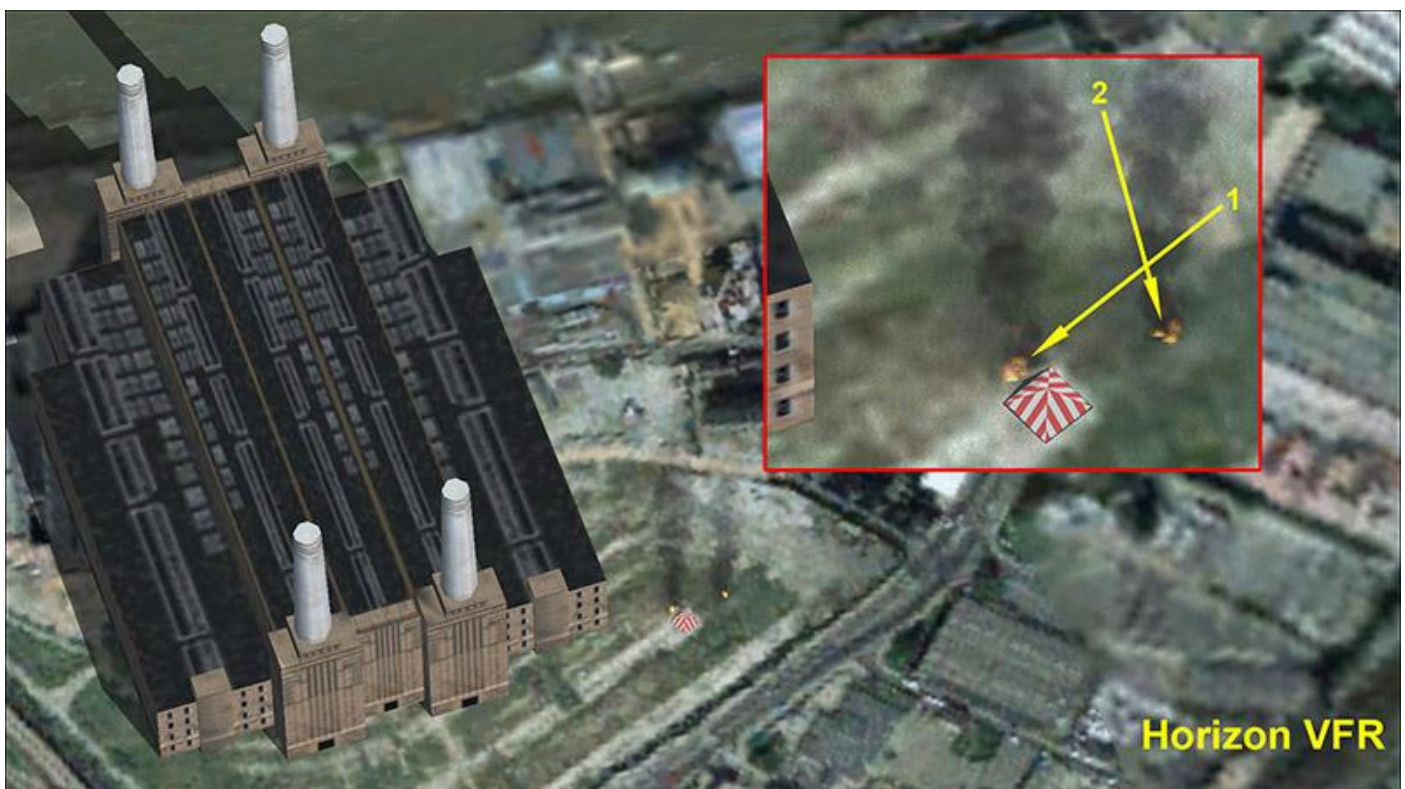
Any simmer hitting the power station will be expelled from his Squadron and court marshaled upon return to his base. The attack route used in the sim is not that of the day. The pilot is also asked to turn to starboard, circle around over London and then make another attack.

The image below compares the powerhouse target as seen in Google with what FSX provides.



Because of the oversized nature of the MS object the flight plan had to be amended.

**AN ATTACK OUTCOME:** an identifiable object is positioned in the yard of the powerhouse and because the MS object is nearly twice the size it should be, there is little yard left to play with. The attack route starts from further north so as not to approach with the building in line with the attack. The second return attack route is clear of the building. Neither have a lot to spare before entering my defined "no man's land." I flew both attacks during development with these early results.



Turbulence in the approach for attack 2 caused the bomb to be offset from the aiming point.

I then switched over to MS Default scenery and the image below shows the result



As you can see, in default the target is sitting directly upon a house.  
So with respect, **I request that this flight not be flown in default scenery.**

### **ACKNOWLEDGEMENT'S**

The Do17 Sim Aircraft for FSX, a FS9 to FSX update by A.F. Scrub  
using an update of the original mdl file by Thicko

Unimog Ai based on Hamaguchi's FS9 Mercedes-Benz Unimog  
Static Objects based on Robert Sanderson's FS9 Hurricane IIa,  
with paints by John Tyrell

created in SAMM Model Maker by Don Grovestine,  
placed with Instant Scenery.

Ship Objects from and placed with Instant Scenery

Ai Flight Planner by Don Grovestine

Airport Facilitator from Flight One Software Inc

Flight Plans made in Plan-G by Tim Arnot

Chris Sykes for the weapons package (not supplied)

Battle of Britain source material: BATTLE OF BRITAIN HISTORICAL SOCIETY

<http://www.battleofbritain1940.net/0028.html>

Old images on the PPRuNe Forum

<http://www.pprune.org/aviation-history-nostalgia/373604-raf-kenley.html>