

## THE RAF BOMBER COMMAND CENTRE IN LINCOLN – Simulation is involved!

<http://thelincolnite.co.uk/2015/03/history-in-the-making-as-work-starts-on-lincoln-bomber-command-centre/>

My name is Ross McLennan, Adelaide, South Australia and I am one of the volunteers working on projects for the Centre. My involvement is the result of a documentary film maker viewing my YouTube simulation video relating to the Canadian Lancaster visit in 2014.

<https://www.youtube.com/watch?v=mTbKgAMWGuk>

My part has been to produce simulation video to be edited into interviews with surviving members of 4 WWII missions as they describe their experiences:

- (1) Dambuster attack on the Sorpe Dam in moonlight.
- (2) Sink the Tirpitz from the camera Lancaster point of view.
- (3) Attack on the Wizernes V2 rocket site.
- (4) The Bielefeld Viaduct attack with the first Grandslam (night color Lancaster).

None of this could have been achieved had it not been for the skills of my friend Koos van Menen in The Netherlands who created paints for my Plane-Design fs9-fsx Lancasters thus:

AJQ, AJT, AJW, AJC, KCD, KCA, KCV, KCZ, YZC, YZS, YZJ, JOV and JOY.



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He also developed a droppable Upkeep, horizontal and vertical Tallboy and Grandslams.



It was necessary for Koos to develop effects to show 4 machine guns firing from the rear turret. A 3D object for the Wizernes V2 Rocket site and the Bielefeld Viaduct where also required as neither of these appear in the VFR scenery..





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In relation to the Tirpitz Erwin Welker did a special version of his Tirpitz so the guns were elevated and would fire in the direction of the attacking Lancaster stream.



My job was to amend/update my Plane-Design Lancasters to provide additional camera views to achieve what was being talked about. My ex CFS1 bombsight was redesigned to be full screen and for that I also designed an icon system to change the camera views without having to use the cumbersome dropdown menu. Hot keys were also developed to achieve an easier outcome for general camera views.



Then I had to FLY the missions and create the video to suit. It is totally impossible to fly and take video views at the same time so the more difficult parts of the missions were first recorded using fs recorder by Matthias Neusinger. These recordings were then flown several times to achieve the views being talked about. In the case of multiple aircraft each was individually flown and combined into one outcome using the options in the software.



After the first pilot versions had been delivered it appears to me that once the veterans saw their beloved Lancaster aircraft flying again, almost bringing tears to their eyes as they relived the missions, they began “remembering” far more that they would like to talk about.

Some requests of course were well beyond FSX or my skills. For example, firing a red very light from Lancaster KCD (W/C Taite) over Lake Akka in Norway to indicate “follow me the Tirpitz raid is beginning”. To put smoke over the Tirpitz was another. Sadly the answer had to be not possible.

The request to fly the Sorpe raid in the equivalent of moonlight was indeed a difficult one and was achieved by using the same time at dusk or before sunrise so that the highlight on the horizon would light the aircraft. If the aircraft was to do a 180 degree turn then one could not show the “sunrise” for example so the video was segmented and the time of day changed.

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The request to show AJT strafing two trains, one on the way to the Sorpe and one at Hamm on the return was difficult as it seemed impossible to find suitable steam train objects. Front and rear turret camera views had to be planned. The Hamm sequence also was to show AJC being shot down because they were flying above the +60 feet stipulation. It was not possible for us to cone the aircraft in searchlights.



One request from a Pilot who was returning from a raid over Germany at night was "can you show a Lancaster in front being hit by flak, blowing up AND me being thrown into a 360 degree roll as the result of the explosion". Yes indeed, within the limits of FSX and my skills was my answer.





Indeed it has been of great concern to me that the results of my “flying animations” are open for all to see, Bomber Command Veterans who experienced what is shown and modern day Pilots and Crews as well. Would I pass muster on engine setups (boost, rpm, indicated airspeed etc ) and my flying of the Lancaster in general. It is one thing to have the Pilots and Engineers Notes and quite another to FLY to them at 14000 feet or at +30 feet in the attack on the Sorpe.

One interesting outcome that concerned the camera Lancaster that flew with the attackers and filmed the Tirpitz upside down from 5000 feet was that my pilot video was based on a reference book that quoted the code letters as JOV. No no, came the reply, it was JOY so a very high percentage of the video has been reshot after Koos painted the appropriate Lancaster.



Unfortunately the Lancaster models do not always convey the real Lancaster. No provider, for example, delivers a MkI or III Lancaster with only rear guns. In the case of the Dambuster Lancaster the bomb aimer lying prone below the front gunner FOR THE WHOLE MISSION is never provided for FSX. So a request to show crew member views close up could not provide such detail. It was a considerable restriction after the Sorpe raid in not being able to remove the Upkeep graphic from the aircraft.

It was also a great disappointment that the explosion graphics relating to the Upkeep, Tallboy and Grandslam were nothing more than that of a 20 pounder.

So what this project achieves is the Veterans have described some memories that have never been published before. It animates the interviews being presented and gives real feeling to the outcome. Many a lump in the throats of Veteran's and their families, friends and interested members of the public will be the outcome.

It has been a great honor to be involved with the project, to “talk” with the veterans and to provide an outcome that has turned a flightsim hobby into something extra ordinary and useful as a way of presenting history via a voice over video for all to see at the Centre.

## THE BOMBER COMMAND CENTRE IN LINCOLN – Difficulties Producing Sim Video.

Ross McLennan, Adelaide, South Australia. I think it is worth describing and illustrating at least one of the difficulties experienced in achieving a video outcome from FSX for this project.

To drop a Tallboy object accurately from 14000 feet to impact in the correct position on the ship or in the water is a tall order and beyond most. The sim object is unrealistic in that it does not turn from horizontal to vertical in its free fall. Nor does it spin about its longitudinal axis as it did in reality. The FSX dynamics do not include such realities.

The dynamics of the bomb makes it fall backwards first and later in the free fall it “fly’s” forward. So the horizontal version of the Tallboy needed changed dynamics to make it fall vertically from the aircraft and thus visibly more realistic. Here is an image from the original posting of a Tallboy in free fall. The link is below the image.



<http://www.flightsim.com/vbfs/showthread.php?289855-THE-RAF-BOMBER-COMMAND-CENTER-IN-LINCOLN---Simulation-is-involved!&p=1920843#post1920843>

The original dynamics were retained for the vertical version and used for all impacts as the bomb sight was “tuned” to suit the “fall backwards first” object.

In the video I dropped six of 617 Squadrons Tallboys to impact in the positions shown in reference documentation available on the web. Only two hit the ship, others impacting in the water or on the Island. Accuracy of impact was still required so as to be seen in the tight video framing. The water impacts are pathetic representations of the real outcomes in 1944.

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The first Tallboy released in the raid hit the ship on the port side near the bridge. This impact it is said, rolled the ship about 20 degrees.



The fourth Tallboy hit on the port side near the #3 gun and this impact rolled her further over.

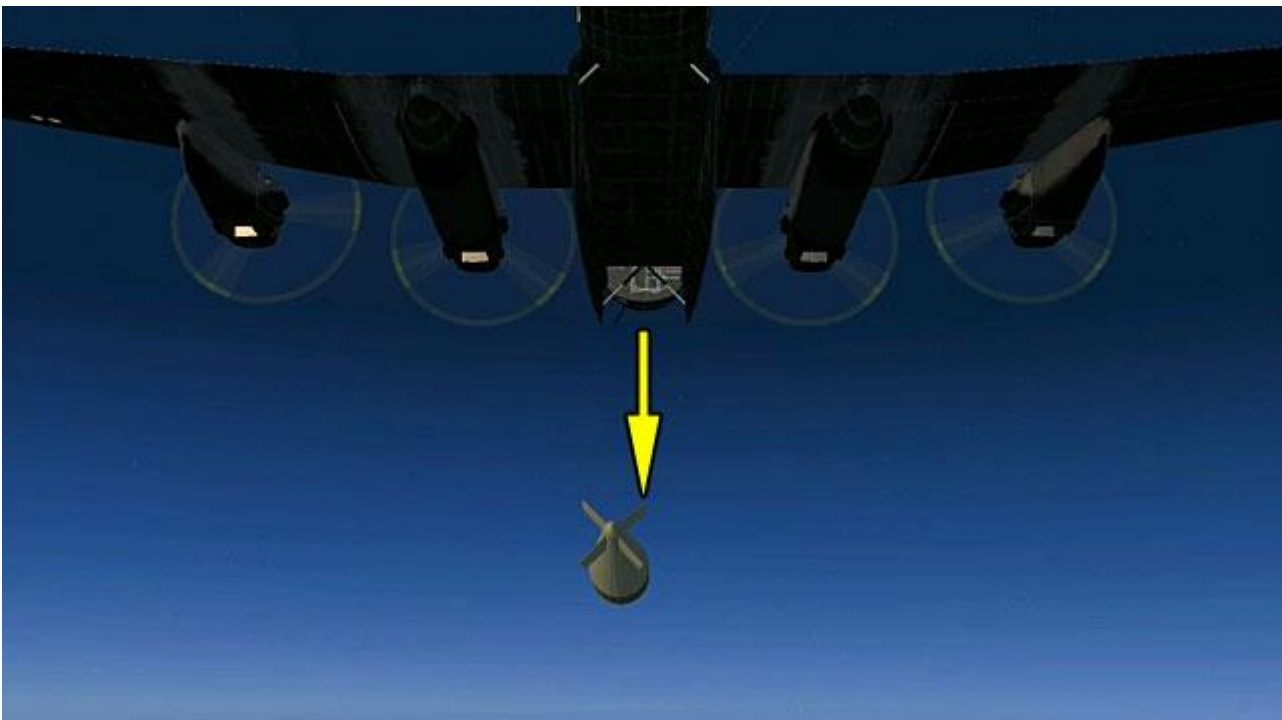




I had been requested to show the Tallboy in the bomb bay. The basic 10 year old Plane-Design Lancaster does not have such a graphic, nor does it have bulging bomb bay doors of the real Lancaster. The sim Tallboy only appears in the bomb bay when the drop is activated so the video of it in place before release is based on a still from the captured video.



Now the real problem in achieving accuracy of impact is the droppable object DOES NOT ALWAYS DROP VERTICALLY WHEN RELEASED. It can kick sideways, left or right and that drastically changes the impact by up to 60 feet either way when dropped from 14000 feet. In the image below it has kicked slightly off center to the left but not enough to be a problem that caused a reshoot.



It should also be noted that if this was the normal sim dynamics the Tallboy would be far behind the aircraft and would have smashed the camera in the process.

Only 1 in every 7 or 8 drops gave acceptable impacts when striving for pin point accuracy to animate the real event. So in making the film one would have to FLY again and each flight took at least 6 minutes to set up and fly. The images of impact on the ship in the video were the 5th and 6th drops.

I controlled the rolling of the Tirpitz between hits by making static objects at different angles from Erwin Welker's basic Hakoya Tirpitz using different BGLs in my addon scenery folder. We did attempt to do a live roll but the rendering of it was not suitable so it had to be shown using merged ship images only. It should be noted Erwin had to add prop graphics as his original ship did not have these as standard and they were certainly needed for the full roll over views.



I have a saying "NOTHING IS EASY IN FSX".

But by the same token, no simmer is ever going to FLY what I have to achieve the videos for this Centre Media Project and I will never again do so either. It's simply "thinking outside the square!" that achieved the visual result.

## A FORGOTTEN ASPECT OF THIS POSTING.

There was one thing I forgot to mention in relation to the success of the sim Tirpitz raid or any other target. What I now describe was absolutely critical to the visual success of an impacting object on 3D objects.

99.99% of 3D objects are "soft". A droppable object will pass completely thro' and the result can be far from realistic.

In the case of Tirpitz there is water inside the model so all that can happen with an impact is a water splash. Because of the height of the structure this occurs totally within the body of the ship and NOTHING is visually seen at all.

The solution came from noticing years ago that a grass runway in FSX has invisible edges and never appears at its full width. So placing a fake airfield with a grass runway just below the deck (+20 feet) provided the required hard surface to achieve what you see in my videos or images in this post that are taken from the playing video.

The contour of the ship changes and the invisible section on the edges made it all possible. Three runways are used in the ship. The fore and aft sections are half the width of the ship at its broadest and extend only to the For and aft turrets.

In p3d the invisible edge becomes visible and so the runway shows outside the contour of the ship and thus it is not realistic to use the idea in that sim. This project was impossible to do in p3d.

I was quite worried initially that when I rotated the ship that the grass would appear but good old FSX held fast and a nice explosion occurred with the 4th Tallboy.

Like I said "thinking outside the square" was essential to success. FSX is very capable of realistic outcomes if the simmer is prepared to put in the time to achieve.

In the missions of this project only the Sorpe and the Bielefeld Viaduct did not require the fake addition as the impact surface in each case is hard terrain.

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Although the Dambuster Moehne and Eder attacks are not part of this project anyone viewing my 71st Anniversary dams raid video will notice the droppable upkeep drops 400 yards out, does not bounce but travels to the wall and explodes.

<https://www.youtube.com/watch?v=7fC5QdrPzaM>

There is a dummy runway beneath the walls that the Upkeep drops down onto and explodes. 3D objects are soft on the sides as well and thinking outside the square saved the day.

Cheers.



## THE LAST BIT OF INFORMATION - HOW I GOT INVOLVED WITH LANCASTERS

I was 5 years old when WWII broke out. In 1944 a Lancaster was flown from England to Australia for War Bond duties. It was scheduled to fly around my home town of Jamestown in the mid north of South Australia. The kid next door and I both made parachutes from old wheat bags and at the appointed time in our day off from school we climbed onto our woodshed.

We were lucky because the fly past was at Dambuster level and we thought within arms reach so we waved like mad to the crew. I can clearly remember seeing the pilot. Fortunately we never used our parachutes, it was about 9 feet to the ground and so I made it into my working years without damage.

I have actually talked by email with the pilot of that aircraft and flown a simulation of his Queenie 6 flight.

The experience from our woodshed stuck in my memory and when the opportunity arose to fly in a simulator it was CFS1 and I learned to fly with a Lancaster ex FS98 and its airfile is what I have tweaked and used for all my Lancasters thro' to FSX.

With that experience of flying over the years I had no qualms at all about embarking on this project or any other associated with No 617 Squadron Dambusters.

The highlight of my real Lancaster experience was to sit in the Pilots seat of Just Jane at East Kirkby in 2007 and to visit the Eder Dam in Germany.



Should you make it to Lincoln at some stage and visit the Bomber Command Centre I hope the final product will be of great interest.

Thank you very much for reading my posts on this subject. CHEERS!