



**The 70th Anniversary
of the
617 Squadron RAF
Dambuster Raid
on the
Moehne and Eder Dams
16 – 17th May 1943**

FLIGHT SIMULATOR X PROJECT

by

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PART 1 – Training from Scampton



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Issued: 21 March 2013,

70 years after crews began arriving at Scampton to form 617 Squadron

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This project like previous releases is intended to tell the story of the 617 Sqn Dambuster Raid on the Ruhr Dams in Germany 16-17 May 1943. It does this through the provided flights and via a very capable Dambuster Lancaster aircraft from Plane-Design.

In this version the route to the dams is more accurate because there is more detail published in books and on the web than there was back in 2003 when this interest in the Raid started.

There are still conflicts in the published information. It all depends upon which source you read and then decide to make use of.

Certainly if you fly in the way the crews did back in 1943 you will have a greater understanding of just how difficult the mission was.

Having sat in the Pilots seat of “Just Jane” in the UK and used the controls I have a far better understanding of the Lancaster. After my visit to the Howden and Derwent Dams in the UK and the Eder Dam in Germany I marvel at the skills achieved by the crews in the 7 weeks of training that resulted in the breaching of the Moehne and the Eder Dams.

The Incredible skills of the crews cannot be accurately simulated in the simulator but you must surely come away from this Project with a far better impression of what the word “Dambuster” means and how effective the Lancaster was as the tool used in delivering the successful outcome.

Thank you for
downloading this
the 1st Part of our
Celebration of the
70th ANNIVERSARY OF THE RAID
16-17 May 1943

We look forward to presenting the concluding
Part of this Project on 1 May 2013.

INTRODUCTION and WARNINGS in red

THE PROJECT: is uploaded in 2 parts, Part 1: **Training** and Part 2: **The Raid**, to divide what is a flying skill related outcome that takes time to achieve. **You just do not jump into the cockpit of a Lancaster and fly at tree top level to attack the dams at +60 feet and 220 mph.** Being supplied in two uploads intentionally simulates the time 617 squadron had to develop the skills for the raid. It ensures the simmer will also have time to learn some of the required skills in a similar way and thus make a much more appropriate Celebration of the 70th Anniversary 16-17 May 2013.

YOU MUST FLY THIS TRIBUTE FROM THE SAVED FLIGHTS. Flying from any old airfield will not set up the correct zoom ratio's for the cockpits. In FSX aircraft setup will take on the settings of your default flight which will not be correct for purpose.

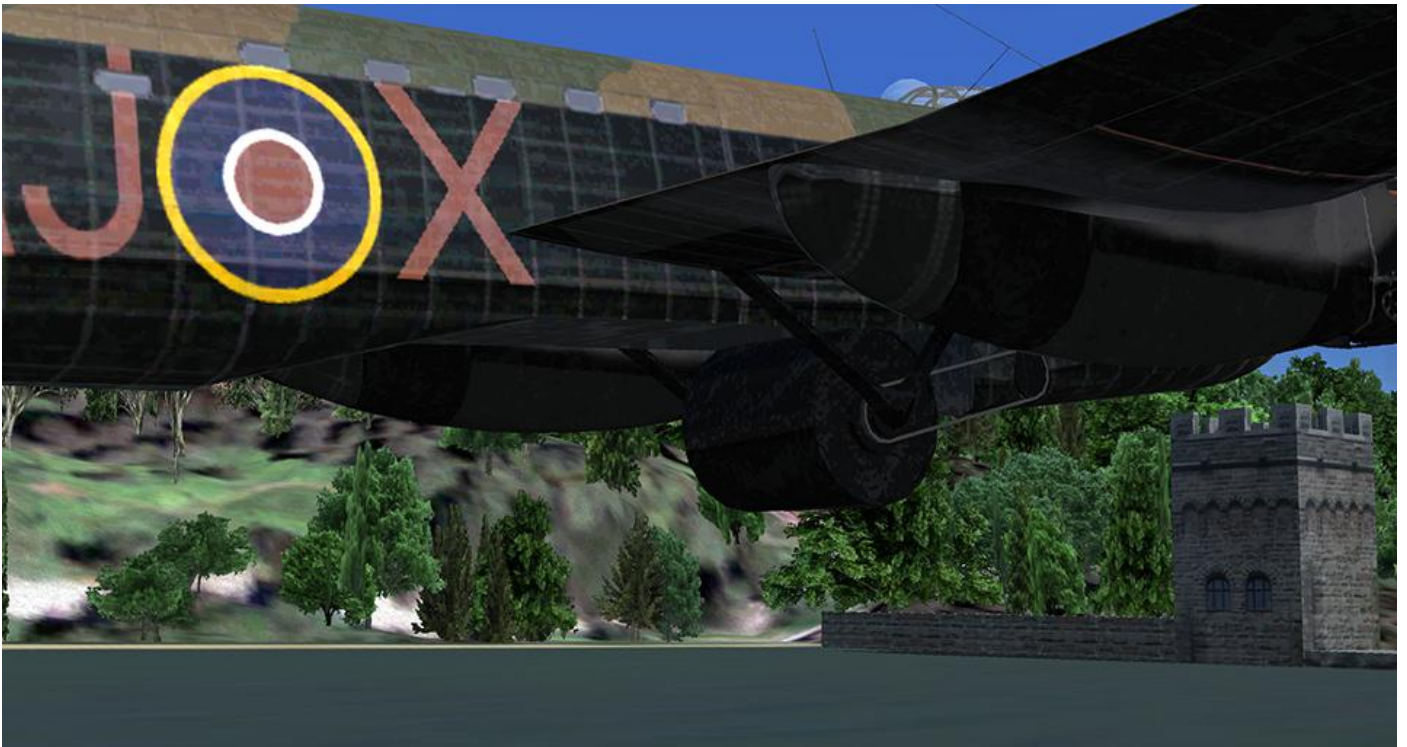
The package contains scenery and flights for MS default and Horizon Generation X VFR scenery. We do not have the knowledge of what simmers are running so some care in what is provided is essential. This is particularly so in the case of airfields. A third party airfield that comes with an underlay to hide the default scenery may not work that way in Horizon X. The HX scenery can delete the underlay and the VFR background shows through and shows any misalignment.

Documentation and history are based on two published books: No 617 'Dambuster' Sqd by Alex Bateman and The Dam Busters by Jonathon Falconer. There is an enormous amount of conflicting information available these days and it all depends on the source material used, so in this project, historical information is based on these two books.

The Flyable DB Lancasters for PART 1 are: AJB bar, AJG, AJM, AJP, AJB, AJX.

The Ai Lancasters for Part 1 are AJM, AJJ, AJB and AJN.

(although AJM appears as a Ai it will not appear twice in any saved flight)



It is hoped you will enjoy flying the 617 Sqd Lancaster in training & in the Ruhr Dams Raid.

SCENERY: I thank John Young for providing me with the necessary library files to allow the building of the Howden and Derwent Dam walls using Instant Scenery.

This Celebration is controlled by using scenery addons that contain the necessary files and Ai flight plans organized in such a way that when the simmer is finished with the project, deactivation of the scenery will effectively remove the project leaving only the aircraft.

The package provides files for VFR and the default MS scenery. Refer to the readme for details.

RAF Scampton (EGXP) is based on FS9 scenery by Gary Burns and required no approval for re-use. We thank Mr Burns for his liberal approach. We have retained the original Burns hangars but have redrawn and repositioned runways and taxiways using Horizon Generation X Volume 3 as a guide. We opted to present the shorter grass runways of early 1943 and have activated three of the H parking sites used by the 617 Squadron Lancasters. All 12 parking spots that form the three H's are allocated and there is one overflow free park inside one of the hangars. A "visitors" park is provided as Park 0 in the list. Other parks start as Park 11 (AJG).

The default active runway for Scampton in FSX is R5. Deliberately, departing and incoming flights are programed to use only runway 23. The H parking is closest to that runway and this choice ensures shorter taxi and flying times for all aircraft using the parks. Runway R5 is closed to traffic whilst this project is active. It automatically becomes active when the Project is cancelled.

If your FSX system fly's an FSX generated Ai flight plan then the Ai Lancasters based on Plane-Design flyable models will also use the H parking and the simmer will be able to taxi, take off and fly with them. The simmer can also land and park amongst them. The high visual quality outcome does come at a price and some systems may not be able to use them. There is a high frame rate hit when all nine aircraft are in view (Part 2). Refer to the readme for instructions.

Our Scampton scenery **will safely go over the top** of the UK2000 Scampton airfield scenery so there is no need to de-active it. **However, this may not be the case with other brands. Refer to the readme for instructions on this aspect.** Our airfield is also suitable for use in MS default.



We apologise for having to use MS Grass for the runways and some overlays which are visually anything but green in April May 1943 and change colour with the time of the year.

Although not directly related to Dambuster operations in 1943 **RAF Spilsby (EGXS)** appears in this simulator project and was drawn from web maps and the remains that appear in Horizon Generation X scenery. **It is intended only as STORAGE for the DB Lancaster Ai's that fly in and out of Scampton. It is not intended to remain as a simmer fly in or fly out airfield. It is not a full representation or a fully functional version of the airfield and contains no buildings other than a tower.** It will **cease to exist** when the project is deactivated or deleted.

THE PACKAGE VIDEOS: are supplied with the intention of illustrating some issues described in this project that the simmer has no experience in even though they have been with us since Simulator FS98. So as not to take up too much upload space they have been produced as short as possible and may only be in 480p format for use on the computer. A video that needs to be read will be full screen size and harshly edited to save space but still convey the subject matter.

VIDEO DB70_1_H Parking_Scampton Active H Parking is not usually provided in any simulator and may be new to most simmers. The video therefore illustrates the end of **Training Flight 01** where AJB bar lands and parks in its allocated park using ATC and Progressive Taxi to reach the reach park in the H. It turns and pulls back into the park so as to be facing the correct direction for departure. If you are a simmer who does not use ATC then using ATC will also be outside your comfort zone.

VIDEO DB70_2_AJB1_ATC>Contact_Scampton This very short full screen video shows the start of **Training Flight 02** and illustrates the use of ATC at start up and, should you be unfamiliar with Progressive Taxi, how to use it. ATC is always only one channel and therefore it will be necessary to listen to the chatter and select your option before some other Pilot makes contact before you do.

VIDEO DB70_3_AJL_Ai_Flight Demonstrates the Ai involvement with AJL (Part 2 Aircraft) flying from RAF Spilsby to RAF Scampton. The video is harshly edited to save upload space. AJL starts in a park near AJJ and follows that aircraft for take off. It initially low flies between 300 feet and 400ft until it climbs to circuit height for landing. You will hear the ATC radio contact. On landing at Scampton it will request parking and then taxi to its allocated H Park. All Ai's will not used the H park correctly. For departure all will rotate.

VIDEO DB70_4_Training_Fly_The Derwent Dams. An important training flight.

SAVED FLIGHTS - TRAINING: We will begin illustrating the history of Operation Chastise PART1 as best we can, within the limits of FSX, by using saved flights to fly segments of the training phase. It should be remembered that the 10 borrowed Lancaster's that formed 617 Squadron were shared between the 22 crews assembled for training (final count 21).

The saved flight not only shows you the way via the GPS display, it also sets the time and the aircraft up with correct window zoom ratios to ensure that the Dann Bombsight is effective.

Flying from just any old runway will not do that.
You must fly this Tribute from the saved flights.

DO NOT CHANGE ANY ZOOM SETTINGS IN A SAVED FLIGHT

Please begin your Dambuster experience by viewing my old outdated UTube Tribute film:

<http://www.youtube.com/watch?v=vMYGHAWiNOM>

NOW THE DAMS RAID TRAINING HISTORY AND FLYING THE SAVED FLIGHTS

617 Squadron was ready to fly on 27th March 1943. F/L Astell flew the borrowed Lancaster W4940 AJB on a low flying exercise around Leicester, Rugby and Birmingham during which he photographed 9 reservoirs.

Flight 0_DB70-01 AJB1 Fly a 617 Sqd Lancaster (day)

Learn to fly a Lancaster. In this flight you will fly a box plan from R23 at Scampton and back. Check out the instructions in the Aircraft Manual pages 10 & 11 for tips on flying a Lancaster and how to use the H Park before and after landing. This information is repeated in the kneeboard checklist. You already have ATC permission to take off. Open throttle slowly & fly a 617 Squadron Lancaster for the first time. Trim the aircraft at 700 feet and then **low fly at tree top level**. NOTE: your ATC code is Airforce AJB1 not to be confused with the Ai's which are preceded with Avro.

During the early stages of training some aircraft flew to other stations to have modifications carried out. For example: on April 3rd F/L Young in AJD flew to RAF Waddington to have blue Perspex fitted inside the cockpit canopy so flying in moonlight could be simulated in broad daylight by wearing goggles with amber lenses.. Three more Lancasters were fitted within the next few days.

You could drop into RAF Waddington if you feel like simulating such a visit.

On April 4th F/L Maudslay flew the borrowed Lancaster W4926/AJZ down to Farnborough to have the optical height lamps fitted. AJC, AJB and AJH were fitted with the lamps a few days later at Scampton. Such a flight is too long for this Tribute.

It does mean the MkI AJB was one of the earliest Dambuster ready "borrowed" Lancasters albeit without a suitable bombsight to achieve a drop at 400 yards from the wall. The bomb sight was only provided in the last week before the raid. Not all borrowed Lancaster were brought up to the standard of AJB or AJB bar as it was later known as.

Flight 0_DB70-02 AJB1 Fly a 617 Sqd Lancaster (dusk)

Flying as F/L Astell. You are to fly the borrowed standard Mk I Lancaster W4940 AJB (bar) in the late afternoon. Scampton to the Wash and back at tree top level. The low flying requirement was initially to fly at +150 feet. This was later changed to +60 feet. Over the Wash increase speed to 220 mph and fly at +60 to +75 feet on the altimeter. Follow the plan and make the 270 degree left turn before heading back to Scampton. If you consider the flight too long then a short flight from The Wash is provided. You will arrive back at Scampton and will use the landing lights and will taxi to your allocated park 20. (NOTE: your ATC code is "Airforce AJB1" not to be confused with Ai's coding which is preceded by "Avro" instead of Airforce).

In this flight you start engines in your allocated park in the H. If your system will fly an FSX Ai flight plan you will find aircraft in other parks in the same H. Contact ATC for permission to taxi but wait until AJN (on your right) moves before you start towards R23, following the middle row out. Let AJN pass first. AJJ parked in front of you will be granted permission also so you should wait at the taxiway junction until AJJ has passed OR **both AJN and AJJ are ahead of you**. This will mean AJB bar will be the 3rd aircraft taking off.

Get permission to take off from the tower when you reach the R23 hold point. Follow ATC instructions, take off and FLY alongside the aircraft ahead.

You will need to fly initially at about 220 mph to catch up. Set Boost +5 at 2850 RPM. The Ai's will fly at approximately 300 feet. When you catch up, and have the aircraft in your left forward view window reset boost to -2 lbs and use RPM to adjust the flying speed NOT the throttle. FLY.

Flight 0_DB70-03 AJX Fly a 617 Sqd Lancaster (Wash)

Flying as AJX (S/L Maudslay) It starts in the air approaching the Wash. Reduce altitude to 60-75 feet over water, 220 mph and trim to suit.. Follow the plan back to Scampton at low level. Then climb to 1500ft and request permission to land from ATC. Land & park in your allocated park.

The Wash could be used for testing the aircraft after repairs had been carried out and for dropping practice bombs & firing live ammo at canvas targets placed in the water. Some lakes had targets.

In an initial test flight over the Derwent Dam at dusk W/C Gibson commented that in daylight flying at 150 feet over water was easy but quite something else after dusk when the water changed to a featureless "black". You may well find this is an outcome of this flight in the simulator where moonlight conditions are impossible to create. Of flying at +60 feet W/C Gibson said "we will only have to hic-cup and we will end up in the drink". You will find that also in the sim.

You should therefore also find flying over land easier than over water at night but be careful not to collect tree branches in your tail wheel or dip parts of the aircraft in the "drink".

Flight 0_DB70-04 AJA Derwent Dam Alignment (DEMO ONLY)

DEMO ONLY (AJA S/L Young) – The Dann Bombsight became available only in the last week before the raid. This flight positions the aircraft for a breach. You need to be flying at a speed of 220mph, heading, at right angles to the wall, height in the sim 60-75 ft above the water (in reality it was 60 feet exactly) and releasing the weapon 420 to 400 yards from the wall so as to bounce 3 times before hitting it. It is not intended that you fly from this position (there is no flight plan). These conditions of breach are not easy to achieve and practice is required. Some of the gauges in the BA view in this "flight" will give false readings. key D to reset and show the heading. Use Key Y then two quick operations of key P followed by Y again to provide the correct height.

The Dann Bombsight was a wooden device with two nails and an eyepiece forming a triangle. When the nails are aligned with the inside edge of the towers the correct release condition for distance to the wall is achieved. Some crews opted to mark the bomb aimers blister with a china graph and use a piece of string to form the triangle with the nose. Neither can be simulated in this project so a horizontal line with red tips is our substitute.

Some reports actually indicate the BA blister was increased in size for a better view of the towers.

Flight 0_DB70-05 AJG Derwent Dam, first test of Dann BS

This flight in AJG (W/C Gibson) starts in the air at low level and you are to continue flying the plan at tree top level (set 2200RPM -2 Boost) until the dams come into view. Reset engines to 2850 RPM and +5 Boost. You have two choices for the approach. (1) EASY, straight in over the Howden Wall and then to the Derwent wall. (2) DIFFICULT this route simulates the approach to the EDER Dam. Fly to the left and turn down the valley that leads to the Howden wall. . Left turn and over the Howden wall then fly down towards the Derwent Towers. Switch to BA view [shift+2] or F10 if flying from the VC. Activate the bombsight [shift 3] and fly at +60-75 ft above water. Pause when you think you would release the weapon, check alignment and position relative to the wall using the provided icon. Return to the Pilots cockpit and fly following the route in the GPS.

In this flight and the one following you may experience a computer freeze just before the Howden Dam wall and towers. I do not know the reason for this, other than it could be related to the standard of my video card. Perhaps it is simply not enough computing power. If anyone does know the reason I would appreciate an email on the subject.

I hope your flight is free of such encumbrance's.

Flight 0_DB70-06 AJP Derwent Dam, fly at dusk

This flight starts in the air flying AJP (F/L Martin). AJP was the first modified Type 464 Provisioning Lancaster to arrive at Scampton. As in the previous flight you have two choices for the approach. (1) EASY, straight in approach over the Howden Wall or (2) DIFFICULT, this route simulates the approach to the EDER Dam - Fly to the left and turn down the valley that leads to the Howden wall. Fly at +60-75ft to the Derwent wall and pause when you think you would release the weapon, check alignment and position relative to the wall using the provided icon. Return to the Pilots cockpit and fly following the route in the GPS.

The Dambusters in training used several reservoirs for low flying but only the Derwent had towers that were representative of those on the Ruhr dams. They flew over lakes in Wales and England practicing the low flying technique required to breach the Ruhr dams.

Flight 0_DB70-07 AJM from Manston to Reculver

On the morning of 11 May 1943 AJG, AJM (F/L Hopgood) and AJP flew to RAF Manston to load the first inert Upkeep Weapons (filled with Concrete) and drop them at Reculver against makeshift towers on the promenade. As a simmer in this flight you have two options (1) don't land at Manston, just continue beyond and fly the plan to attack the towers. (2) **Simulate** and land at Manston. Have the weapon fitted, take off and fly the plan to drop them. The towers, for convenience in the simulator are those of the Derwent Dams. The next day two aircraft were damaged by water splash because they were too low in the drop, AJW (F/L Munro) and AJX (S/L Maudslay). AJW was repaired for the raid but AJX was replaced with AJZ.

The first and only live Upkeep trial prior to the raid occurred on 13th May 1943, 3 days before the Raid when an example was dropped 75 miles off the coast of Broadstairs, in Kent. It performed flawlessly and ran for almost 800 yards.

It is interesting that my other reference quotes 5 miles off the coast which in my view is correct.

Flight 0_DB70-08 AJZ Eyebrook Reservoir Rehearsal

On 14th May 1943 the Squadron flew its last almost full scale dress rehearsal, flying to two lakes and making a series of dummy attacks with live ammo and live practice bombs. A number of invited guests flew with the Squadron that night - the Squadron Medical officer Flew with S/L Maudsley in AJZ. In this flight we will assume one of the lakes was the Eyebrook Reservoir. It should be noted, that after the 5th of May 1943 this reservoir was the main low flying training area with as many as 10 Lancasters at a time continuously running the dam in line astern. The terrain was not dangerous and the Reservoir was ideal as it **required a zig zag flight over it**. A wall has been place so the pilot can identify its location relative to the approach. **Beware it is not as easy as it first looks**. The Reservoir may be difficult to locate. Use the GPS route to locate it.

In my reference material the lakes are not named. It is interesting to quote, on the next page, from Alex Bateman's book in relation to the invited guests and their experience:

"Mick Martin (AJP) had a glamorous passenger in the form of SO Fay Gillon, who recorded details of the flight upon her return;

"A signal from the wing commander and all three of us are simultaneously creeping down the runway and gathering speed. Then the last bump and we are airborne. Gliding right down , practically in the 'drink' and getting a QFE (altimeter height lights), dropping a smoke float to check the wind, and then, a burst of firing from the wing commander's aeroplane, followed by a burst from all three of us.....

Then our turn. Mick doing a big circle to get into position, grim determination on his face, and Jack (the navigator) and I with our noses glued to the Perspex (starboard side). Down, down, twenty feet more, ten feet more, five feet more, steady, steady on an altitude of 60ft and the run along the water. "Bomb gone" from Bob, and then the pull up, up into the sky at full revs. The flash appearing right behind us, and yes, successful!"

0900 hrs, Saturday 15 May 1943 a signal was sent to Bomber Command headquarters; **"Op CHASTISE. Immediate attack of Targets "X", "Y" and "Z" approved. Execute at first available opportunity."** **THE MOST OUTSTANDING RAID OF THE WAR WAS ON!**

None of the crews at this time knew the target and most thought it would be the Tirpitz.

ADDITIONAL NOTES:

- (a) All saved flights begin with an outside view. This will negate the automatic selection of the VC. If you fly VC then you **MUST** go to the 2D cockpit first to set up the bomb aimers view, then to the VC.
- (b) flights which begin in the air will cause the aircraft to lose height and to change speed. To compensate initially pull your stick back so the Lancaster tends to climb once you come off PAUSE. Set Boost -2 lbs and change RPM to gain or decrease speed.
- (c) consider changing the set times of flights that are at dusk or beyond by minus two hours for better conditions whilst learning to low fly.
- (d) **There will be quite a frame rate hit when several Ai's are in the line of view.**
- (e) Ai performance will depend on the time you begin flying. If not flying from a plan the outcomes may be quite different to what is described in the manual. Flying with the Ai's may confuse ATC. In taking off any Ai's behind you will not close up and will be told to hold quite a distance behind. In landing you may find an Ai is told to "go-around" and may never land, even timing out in the process. This may cause problems with other Ai's trying to land.
- (f) **Real Weather:** **Given that the raid was carried out in clear weather it must not be flown in Real Weather.** Training is another issue, however the dates in the flight plans are April/May 1943 and appear unaffected by real weather settings.

Flying from "no plan" and with real weather will change the outcome. The Ai's in particular will be effected. In rain and low cloud they will not fly at 300 feet. They appear to fly at 2000 feet or above. Wind direction will affect landing and there will be go-a-rounds. The Ai's may miss the turnout and taxi the full length of the runway. Ai flights will be longer.

- (g) Flying over VFR scenery will in general contain less obstacles than default scenery and therefore the simmer may be able to fly lower for longer. Beware of trees and powerline pylons.
- (h) If you would prefer a bombsight alignment more in the centre of the tower, options are provided for 16:9 and 16:10 screens in [window02] of each DB Lancaster Panel.DB3 - change the selection with notepad.

- (j) DO NOT DE-ACTIVATE or ACTIVATE SCENERY from the WORLD DROPDOWN MENU on the FSX menu bar available in the cockpit with [Alt]. The Ai's will be doubled up. De-activation does not cancel the current set of Ai's.
- (k) Might sound silly - have you checked the calibration of your "stick" lately?
- (l) In order to preserve similarity of operation between aircraft there are some un-used windows in all panels. If you use [shift x] for one of these an image indicating it is not active should appear. In W7 this may occur only once. Repeating the process with another non active window may induce no window at all and a condition of the mouse finger image being replaced with the pointer and a vibrating donut. This condition remains for the rest of the flight. All efforts to prevent this have failed.
- (m) When flying the Part 1 Training flights make sure that the correct scenery is activated: #1_Dambuster70th_617_TRAINING and not 2 & 3.
- (n) When flying the Part 2 the RAID flights make sure that the correct scenery is activated: #2_Dambuster70th_617_Op_CHASTISE and not 1 & 3.
- (p) When flying the Part 2 the End of RAID flight make sure that the correct scenery is activated: #3_Dambuster70th_617_END_CHASTISE and not 1 & 2.
- (q) Sub windows that are overlayed in the VC will not pan with the cockpit.

ACKNOWLEDGEMENTS:

Ed Walters the CEO of Plane-Design for giving approval for the concept of this project and the use of his payware FS9 Dambuster Lancasters updated for FSX. The original FS9 aircraft are available from here:

<http://www.plane-design.com/lancaster.html>

To Koos van Menen of The Netherlands for his skills in painting the additional Dambuster aircraft and making it possible to make a more effective **Tribute to the gallant 617 Sqd Crews of 1943.**

To John Young for providing me with the necessary library files to build the Howden and Derwent Dam walls using Instant Scenery.

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21 March 2013

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The Derwent Water Dam Towers and wall – September 2007
(compare the image on page 3 – John Young's scenery)



oo oo **END of PART 1** oo oo

The final PART 2 of this project will be uploaded 1 May 2013.