



Notes on Level Bombing in Aces High

by Arlo Walton

Calibrating Bomb Sights for Level Bombing

There are two primary techniques for calibration of the bomb sights. These are commonly referred to as “manual calibration” and “automatic calibration”. Everyone has their favorite method. Many will highly endorse the easier, automatic calibration technique and proclaim that it is sufficient; however, in my tests, I have found that manual calibration gives you the best accuracy and best results once you are comfortable with the technique. If you are just starting out, automatic calibration truly is “just fine”.

In both techniques, you want to plan your target route so that you will be in level flight approximately 25 miles from your target. Plan your target approach so you line up with the best field orientation to do the most damage. Refer to the Hitech trainers URL for further reading. You can find a lot of good links in the hitechcreations.com forums.

I will describe the techniques from the point where you have flown your approach route to the target, you have been leveled off for 25 miles ahead of the target, minimum, and are ready to set up calibration. I have found that you can begin calibration as soon as you can see the target from the bomb sight in zoom mode. You can do this well in advance of the radar ring. In fact, it's best to do it before you reach the radar ring to give yourself plenty of time.

For both techniques below, as soon as you are 1 grid square out from your target, open the bomb bay doors so the aircraft's speed can settle down with the added drag of the doors. Jump into the bombardier's position, push your joystick forward and start looking for the target.

Manual Calibration Technique

[This technique involves keeping the bomb sight cross hairs on a specific point while the bomb sight is zoomed in on your target and you hold down the 'Y' to calibrate.]

As soon as you see the target, push the joystick forward until the cross hair of the bomb sight is close to your intended target. You don't have to zoom in. Quickly press 'Y'. The cross hair of the bomb sight should now be leading the aircraft and you should be able to see forward. With the exception of the JU88's, you can press the '8' key on the keypad to view immediately forward. Attempt to line up with

the middle of your target by viewing forward and using the 'J' and 'L' keys to fine tune the approach. You want your bomber going dead center to that target as quickly as you can establish it.

Once you are lined up on center, press 'U' again to re-enter calibration mode. Bring up the clipboard, hold down the shift key and left click on your intended target to establish your target's altitude. If you miss this step, it's no big deal, but you will get MUCH better results by establishing the target altitude.

Push your joystick forward and place the cross hair of the bomb sight on a specific point on your target. Try to keep it on that same exact point and hold down the 'Y' key. Hold it down for at least 2 seconds, if not more. Longer is better. While you hold down the 'Y' key, keep that cross hair as close to that same point as possible the duration the key is held down. As soon as you release the 'Y' key, press the 'U' key. You should be ready to bomb.

Keep an eye on your calibrated speed and current speed. Make sure they stay as CLOSE as possible. No more than 2 MPH. Your goal is to try and keep your current speed the same as your calibrated speed. This is critical above 15K or higher.

This procedure is favored by those who feel that multiple calibrations help with accuracy and those who make multiple passes on a single target. The key here is to start calibration very early. Do a very quick calibrate to establish the bomb sight center line, then make rudder adjustments to attempt to get centered on the target well in advance. Make the second calibration for accuracy. And, make a third, if necessary, for fine tuning. This method takes a lot of practice as you are constantly calibrating and making adjustments.

Automatic Calibration Technique

[This technique is far simpler and seems to work well especially when you don't have lots of time to calibrate. Many will swear that it's unnecessary to do the multiple calibrations above.]

As you approach the target, enter calibration mode, move the stick forward to locate the target. Do not move the cross hairs left or right. Just move them straight up until the cross hairs are in-line with the base. Press Y quickly and un-zoom.

With the exception of the JU88's, you can press the '8' key on the keypad to view immediately forward. Attempt to line up with the middle of your target by viewing forward and using the 'J' and 'L' keys to fine tune the approach. You want your bomber going dead center to that target as quickly as you can establish it.

If you are in a JU88, it is best to use manual calibration.

Next make rudder adjustments until the bomb sight center line runs through the middle of your target. Recalibrate if necessary.

Facts

Always Remember These Facts When Bombing

- Once you calibrate, you must remember that you are calibrated for a specific speed, a specific altitude, and a specific **target** altitude. If you go around for another pass at the same target or approach a new target that has the same **target** altitude, all you have to do is recalibrate your speed, you don't have to recalibrate target altitude.
- If you have already dropped on a specific target and move to another target that has a different **target** altitude, you must recalibrate from scratch. Plan your approach accordingly to give you plenty of time.
- The keyboard key [Y] in calibration mode sets your calibration SPEED
- While in manual calibration mode, clicking the mouse on the intended target base sets the **target** altitude.

Tips

- You should be able to practice bombing and calibrating in the training area with little difficulty. After you drop on a target, you can press 'U' to view straight down. In most cases, if you dropped even remotely close, this should allow you see where your bombs drop.
- Flying in practice mode offline is the BEST method of practicing so you have no distractions and you can get positive results of objects being destroyed when your bombs connect.
- Always make sure your calibrated speed and true airspeed are as close as they can be. They should always be within 2 mph. Above 25K feet, your calibrated airspeed and true airspeed need to match if possible or be no less than 1 mph.
- After releasing a bomb load, you can hit U again while in bomb sight mode to look straight down on the target. You should be able to see where your bombs hit.
- A good rule of thumb is to make sure you are at your desired bombing altitude 25 miles from your target. This gives the aircraft a chance to settle down and you can make manifold or rpm adjustments for level flight in autopilot.
- In most cases, you can begin calibrating at about the outer radar ring of your intended target. However, you will have better calibration accuracy if you wait until you can see your intended target on the ground.
- Best average bomb load out is to take as many 500 pounders as possible.
- Target leading for CV objects – use 1 object length lead per 1K feet drop altitude
 - If your intended target is a cruiser and you are at a drop altitude of 10K feet, you should lead the cruiser by about 10 cruiser lengths.
- Open your bomb bay doors at the same time you intend to keep level flight approaching target. Since open bomb bay doors adds to drag, having them open when you begin your left approach to the target will help establish consistent airspeed
- Generally speaking, if you want a better score when landing, set salvo to 1 and don't drop any more bombs than necessary on your target(s). The best score results in the most objects destroyed with each bomb released. If you drop 4 bombs and only destroy 1 object, it won't be very high. If you destroy 12 buildings total with 4 bombs individually dropped, the score will be much better, etc.
- Always make sure you come to a full stop on concrete before exiting the bomber to receive any

- credit and to successfully “land” the bomber(s).
- While in the bomb sight, even with the stick pushed all the way forward when calibrating, use the [8] key to look forward through the nose of the aircraft (this doesn't work in a TBM). This helps to establish the center line or show you “dead center” the line of travel of the bomber and helps you make rudder adjustments. Use this mode to help you line up with the target as far in advance as possible to minimize calibration time.
 - Before calibrating, bring up the clipboard and go into E6B mode. This allows you to exit calibration mode, if you desire, and keep and eye on your airspeed.
 - Make sure to keep your drop alt (calibrated altitude) and alt (current altitude) as close as possible. If you are too close to calibrate, you need to quickly figure out in your head if you need to drop early or later. Same with speed. If you gained speed, drop a few lengths before the bomb sight cross hair reaches the target. If your current altitude is higher than the calibrated altitude, you also would need to drop sooner.
 - When planning a bomb run, always think about target damage settings before racking any bombs in your aircraft. Use the chart on this page: <http://trainers.hitechcreations.com/levelbombing/levelbombing.htm> for references on what ordnance to take.
 - Practice, practice, practice. No matter what you learn, especially about bombing practice only makes you better.
 - If you see someone else's video on YouTube or posted as an AcesHigh film in the forums, watch it and share it. See what you can learn, try to recognize what they did and didn't do right.
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Sources and Helpful Links

Useful resources and links for level bombing.

<http://trainers.hitechcreations.com/levelbombing/levelbombing.htm>
<http://trainers.hitechcreations.com/levelbombing/levelbombing.pdf>
<http://ahfreebirds.sitehermit.com/forum/archive/index.php/thread-203.html>
<http://bbs.hitechcreations.com>
<http://bbs.hitechcreations.com/smf/index.php/topic.331914.0.html>
<http://bbs.hitechcreations.com/smf/index.php/topic.329847.0.html>
<http://bbs.hitechcreations.com/smf/index.php/topic.13507.0.html>

Videos To Learn From

These videos are worth watching to help learn some of the techniques discussed.

http://www.duxfordwing.org/videos/bomber_school.wmv
http://www.dailymotion.com/video/xc7kfb_manual-bombsite-calibration-by-akp_videogames
<http://www.youtube.com/watch?v=MpnF3z2ULJk>

Videos to Observe

What can you take away from these videos?

<http://www.youtube.com/watch?v=AxObM2nn4Fc>

<http://www.youtube.com/watch?v=Z4q1glzJK9E>

<http://www.youtube.com/watch?v=83hOKIFBS4A>

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