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**Sight Leveling
THE EASY WAY**

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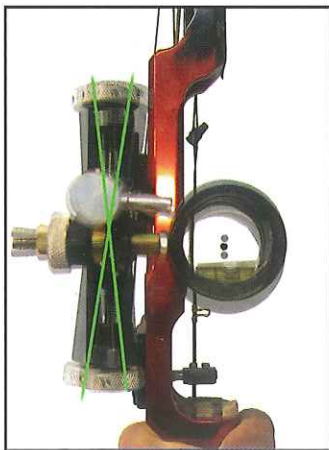
Sight Leveling The Easy Way

by Tim Gillingham

EVER WONDER WHY YOU HIT LEFT AT LONGER distances or why you hit to the right on uphill shots and to the left on downhill shots? You just can't figure out how to level your sight perfectly? You've done everything everyone has told you but you still are not sure or still have those unexplained left and right misses?

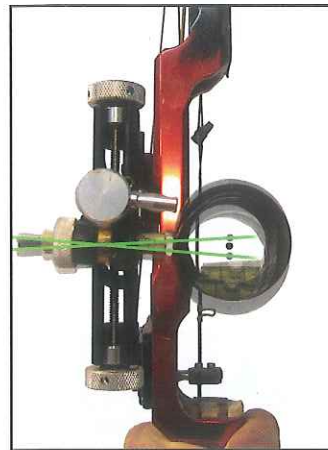
Well you are not alone. It has taken me a full 27 years to fully and completely understand sight leveling to where I will never make another mistake, and I should have known all of this a long time ago. The problem is, as archers we don't get put in those harsh up and downhill, long range scenarios enough to really get penalized enough to set back and learn. I personally don't think 75% of the top pro shooters really know how to level a sight 100%. It is really pervasive in the 3-D side of the game because you never shoot more than 1 arrow at a time so it is difficult to determine if indeed it was a leveling issue or a misaimed shot or yardage or lighting or another of many issues that can cause an errant shot. In field and FITA archery we at least get a chance to shoot a few more arrows at a given target and it becomes quickly, very evident that we have a problem. Many archers don't shoot well enough in these tough types of scenarios or at least that is what the past has told them in their mind when in fact it could be a very simple fix if you know what is wrong and have a simple tool to fix it with. Just because you are starting out, doesn't mean you can't start out right.

First, I need to explain the different axes that need to be leveled and why, so you completely understand what is happening. I am sure many of you have heard people mention 1st axis, 2nd axis and 3rd axis. As long as I have been shooting archery, for 28 years, I have never heard anyone or seen anyone completely explain leveling sights in a way that makes sense and is complete, now that I know what complete is. Don't feel bad if you do not instantly recognize these different axes and their relevance.



Let's get started. The 1st Axis, is the up and down bar your scope rides up and down on and on and on a pin sight the vertical bar your pins slide up and down in.

Some people think that this needs to be parallel to the riser but that is entirely false. If you want to hold your bow perfectly straight up and down then yes it needs to be parallel



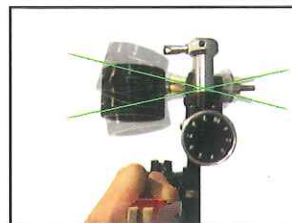
to the riser but it really has no relevance to leveling the sight. I shoot all of my Apex bows with a slight right cant in them.

Now that you understand 1st axis we can move onto 2nd Axis. 2nd Axis is the relationship of the level bubble perpendicular to the 1st Axis.

It basically tells us that when set properly, the level bubble will tell us that the 1st Axis, the vertical bar

that the scope slides up and down, is straight up and down and the scope is not moving at an angle when you slide it up and down for the different yardages that you will be shooting. If the 2nd Axis is off you will hit left or right as you move your sight to longer yardages or on a pin sight, it will cause your pins to not run perfectly straight up and down when you level the bubble. This will cause left and right misses.

3rd Axis is definitely the most misunderstood of all the Axes. It is simply the sight level's relationship (i.e. perpendicular) to the vertical plane made by the motion that is required to shoot up or down hill. If the 3rd Axis is off your level bubble will be moving at an angle to the plane of movement and gravity will cause it to float out to one side or the other depending on whether it is an uphill or downhill shot. If the bubble is set properly it will travel perfectly perpendicular or the plane of movement and will read true.



If it is off, you will compensate by making the bubble level (i.e. cant you bow). This causes you to shoot with left or right misses. It is possible for your level to read level on flat ground and not while aiming up and down hill shots. This

is caused by the sight aperture being tilted towards you or away from you. When we cant the bow to the left or the right, to correct the out of alignment bubble and the impact point of our shot will be affected. The severity of the missed shot will depend on how much you are canting your bow, the uphill or downhill angle, and the distance of the shot.

Now let's get to how to fix it and make sure it never happens to you. There are many devices out there that claim

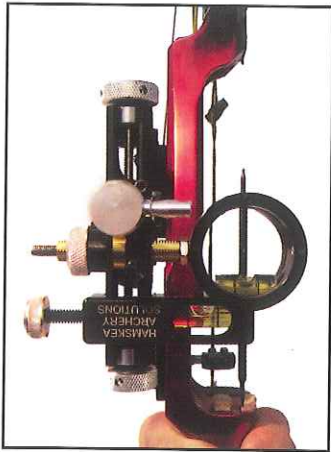
to do all of these things perfectly and there is only two that I know of that do this job perfectly. You see, people forget one thing. When you draw your bow back, the cable guard takes a heavy load from the cable and torques the bow to the left for a right handed shooter. Torque can have an effect on 3rd Axis, therefore the only way to accurately, 100%, level a bow is to level it at full draw with the torque load on the bow. That pretty much nullifies all the leveling devices that do not allow the sight to be leveled at full draw. Some of the top Pro shooters shoot the level in, but that simply is not practical for most people and very time consuming when it really doesn't have to be. There is a new sight level on the market that really makes this job a snap and works on every bow and sight on the market. This new device is by a company that I



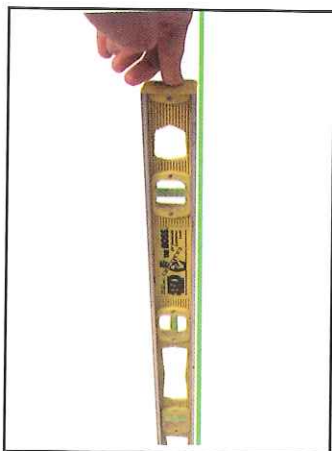
am a big part of, Hamskea Archery Solutions. It is called the Easy Third Axis Level, and I think you will find for around \$40, it will solve all your leveling issues and make this misunderstood topic very simple with a little education on the subject.

Hamskea Archery Solutions was founded to create products that maximize accuracy and solve problems in the archery industry.

I am going to go over quickly how to use this unique new device to level your sight in a matter of a couple of minutes and I think you will agree leveling has never been easier.

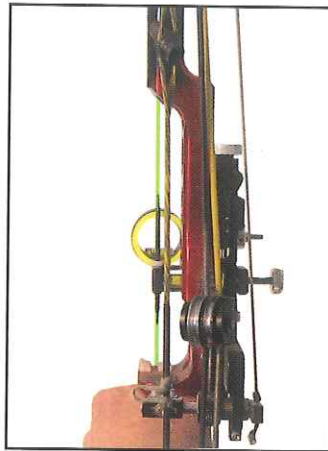


- First, attach the Easy third Axis Level to the 1st Axis bar of the sight making sure that it is clear of debris. If you prefer to hold your bow straight up and down you can use a second level on the riser to verify the riser is straight up and down and then match the first axis on the sight with the riser.



- Second, verify the bubble in the scope matches the bubble on the Easy Third Axis Level that is telling you the 1st axis is straight up and down. If it is off in the scope, make the adjustments. Note how the bubbles match in the photo. Your 2nd Axis is now level and the sight is leveled well enough for shooting on flat ground.

- Third, screw the alignment pin into the Easy Third Axis Level so that when you place it on the 1st Axis bar you can see one pin head above and one below the scope. The alignment pin is parallel to the 1st Axis, therefore when each of the pin heads is placed on a perfectly vertical line it will tell us the 1st axis is straight up and down the same as the level bubble in the Easy Third Axis Level.
- This is important because when we draw the bow to full draw and point it at a severe angle the Easy Third Axis Level will change with the torque as will the level bubble in the scope. We can then use the Alignment Pin by placing each pin head on the vertical line to tell us when the 1st Axis bar is straight up and down and the verify if the bubble is also reading level. The bubble may change because of the torque change from static to full draw but the alignment pin will not. If the bubble is not reading level when the Alignment pinheads are both held on the plumb line, then you will need to make the appropriate 3rd Axis adjustment in you sight to make the bubble match the Alignment Pin.



Your sight is now perfectly level. There is one last step that I always do. I draw the bow back to full draw with my eyes closed on flat ground and make sure that when I open my eyes, the level bubble is level. If it is not, you need to either use stabilizer weighting to make this happen or what I prefer to do is loosen the two screws that mount the bar to the 1st Axis bar and set the appropriate cant in

the first axis to accommodate this. This will not change the level of your sight as the scope is slaved to the 1st Axis bar and when you level the bubble it will make the 1st Axis bar perfectly straight up and down. I naturally hold my Mathew's Apex with a slight cant and this is how I accommodate for it without adding extra stabilizer weight. You want everything to level naturally or you will experience left and right misses. One quick tip: When shooting side hill shots, always start with the top limb into the hill and let gravity bring the bow to level. This will keep you from forcing it level and then falling with the hill when you release.

For more information and a complete leveling seminar on line including leveling pin sights, please see www.hamskearchery.com. Hope this helps many of you become better archers and eliminates at least one of the potential problems that you could encounter as you enjoy the game of archery and bowhunting. ■