The "Common Man's" Nodal Point Technique

The purpose of this tutorial is to get your camera and KingPANO head working together to capture great images. There are many ways in finding the nodal point of your camera; from using a complicated setup of nails in wood, mirrors reflecting up from the bottom of the camera and using a laser pointer. These methods may work and they may be grounded in a scientific approach, but what I'm offering is a non-scientific, highly accurate and easy way of finding your camera's nodal point. This is why I call it the "Common Man's" nodal point technique.

What is the nodal point?

Why do we need to find the camera's nodal point?

It is a critical factor in seamlessly stitching your images together for a clean panoramic photograph. If you are taking panoramic shots without centering on the nodal point and are off -even by just a little bit, you will have ***parallax distortion*.**

What the heck is parallax distortion?

It is a term for the many errors found when stitching a panoramic photograph such as double vision or blurring of non-moving objects, after you tried in vain to capture the perfect image and carefully stitch it together. Parallax distortion happens when you are trying to capture something in the foreground and background although when shooting a subject that is in the distance, it is less obvious. Parallax distortion also includes fragments of images captured from one shot to the next.

To illustrate this point; let's take a panoramic view of your thumb…*WITHOUT* the camera. Place your thumb out in front of your face – about six inches in front of your right eye. Close your left eye. Now rotate your head slowly from side to side and notice the background and how much background varies depending on the position of your head. Odd eh? What the KingPANO does is center your eye (the camera lens) while your head rotates (KingPANO) for a panoramic view without distortion.

The varying background is exactly what happens when you look in your lens when taking a panoramic when your camera is not set on the nodal point. So when you rotate the camera while on a panohead and take pictures from one click stop to the next, you will have "distortion"; things show up that weren't in the previous photograph (no matter how miniscule). What we really want is a clean picture - continuous images captured from one shot to the next.

I know that there are debates on the word "nodal point", some prefer it to be called "Entrance Pupil" and others use the term "nodal point". It is also used interchangeably. Instead of typing until my fingers are numb on this debate, I'll use the word most commonly accepted, "nodal point". Now on with the technique...

This is easy to do and will take a total of 15 minutes for the first time...less when you get the hang of it.

Centering the camera over the Bullseye (bubble) level

First, we need to make sure that your camera is centered over "the center of rotation" or over the bubble level of the base . (I assume that you already have the camera mounted onto the KingPANO). The easiest way to explain it is that you want the camera lens to be directly over the bullseye (bubble) level on the KingPANO which is also the center of rotation. Here is how you do it:

Loosen the large knob that holds the Nodal Point Control Arm (NPCA) secure. ***(click on picture for larger views)***


Tilt up the arm holding the camera so that it points straight down. Tighten the knob to hold it securely.

Loosen the large knob that holds the Horizontal Stabilizer (HStab) to the rotating base.

Look through the lens and center the focusing area directly in the middle of the bullseye level by sliding the HStab side and side. ***(click on picture for larger views)***

Some cameras can't focus that closely. Try your best to center it up on the blurry image anyway.

Tighten the HStab knob.

Loosen the NPCA knob and rotate it back to the 90 degrees mark and then tighten the knob. ***(click on picture for larger views)***

Whew! that was easy!

Finding the elusive nodal point

Now that we have centered the lens over the bubble level, you need to find a straight wall in you house. Set up your KingPANO (mounted on a tripod) close to the wall, one to two feet away. In the distance, find a straight edge to accompany the straight edge of the wall (example in the photo...edge of the wall and side of the stove). You will be using that wall as a guide to compare the background. Example, do you see more of the edge of the stove or less of the stove? When you look through the lens of your camera as you rotate, do you see any difference in the distance between the wall and the stove? If you see a difference in the distance, slide the camera forward or backward (like the last 2 photos) until you see no difference. What we want to do here is pan back and forth using the KingPANO's rotation base; to see if we can get a seamless photo (no difference) from one photo to the next.

(click on picture for larger views)






I'm using photos supplied by Steve Liguori. (thanks Steve!) These are the photos he took when he was

testing to find his nodal point for his Nikon D70. Look he found it! There is no difference between the distance of the stove and the wall. Congratulations Steve!!