

Aerial Photography

a brief look

by Steve McCurrach

If you're reading this magazine, then I'm going to make two 'bullet proof' assumptions; (1) you're a pilot, and (2) you own a camera. Then I'll make the following statement; you are in an extremely privileged and opportunity rich situation, in terms of capturing aerial photos, but you're not exploiting it. This is probably because you figure its too highly skilled a task, or its something to be left to "the experts" - right? You're wrong – read on and see why.

My two above assumptions really do place you in an extremely unique situation. In fact, do you remember that TV commercial where it says "if you went to school, if you have a TV in your home, if you have a telephone, you have a bank account, you have a car.....", "then you are one of only about 1.5% of the world's population - incredible right! Now add to that "if you have a digital camera, and (here's the big one - wait for it.....) if you own and fly your own aeroplane?" then hey man, you are beyond exclusive in this world and you probably fit into something in the order of less than 0.01% of the population. And you're still not taking any aerial photos!!!!

Everyone has a camera, whether a fancy DSLR (digital single lens reflex) camera, or a Mik n' Druk, even a cell phone and we as aviators are in the enviable position of potentially capturing some amazing images. So let's get those cameras out and start playing - and here's the fun part: The more you play, the better you get at it. For those who are reluctant, then maybe see this as follows; (something to which you will surely relate) - flying an aeroplane.

You will recall very well, that gritty period during your ab initio flight training, when you were almost there with the landings and yet they just kept eluding you. Then suddenly Voila! - it all came together, leaving you wondering what all the fuss was about. Well the aerial photography works exactly the same - its just that it happens much easier, sooner and cheaper than the actual flying did. Hopefully 'the sale' is now made, so let's get on and go take some pictures.

By virtue of this being a magazine and not a reference publication, this delivery has to be kept very short and direct, so please understand that the delivery is sometimes in point form and that you'll just have to believe me on these points. If I started motivating and justifying each point made, then in short order we'd have the said reference manual.



- The best thing you can do for improving your photographic skills is practice and the second best thing is to read about it, which is what you are doing right now. So keep this up and when its not flyable then spend some time reading a little. You can do this on the Net, S.A's. local PIX Magazine, innumerable reference works in the book stores and even our local Avcom at:

<http://www.avcom.co.za/phpBB3/viewforum.php?f=15&sid=b5945cc2a20a97faddb8d3e1330988ba>

- Going back to that "practice" bit mentioned above; For any of us who owned a camera and routinely took pictures more than 10 years ago and prior to that, we all suffer from a common hesitation when it comes to the snapping of pictures - the cost consideration. We all knew that there was a cost implication associated with every push of the shutter release - well get yourself out of this rut quickly, and you can start by repeatedly chanting "sorry for Mr.Agfa, koebaaie Kodak....."

- By routinely playing with the camera and never being fearful of the 'Delete' button, you are on your way to the most pleasurable and self guided development towards a really rewarding pastime. This "playing" of course assumes that you are applying your read knowledge, learning from your own photo shooting mistakes and enjoying the editing component of all this, on at your PC at home.

- In my own striving to learn more about aerial photography, I scoured the Net, turning up thousands of Google, Amazon and other on-line pages of aerial photo books - or so I thought they were. It turned out that all of these were one or other photographer's beautiful coffee table publications of their best own renditions. So I'll save you the frustration; go to <http://www.rokeachphoto.com/products/kodakbook.htm> where you can read about and order this very good "how to....." manual on this subject. Although a little dated (1996) all the information and skills remain 100% relevant.

- Having thus set the scene; let's now look at the key components of a successful aerial photo.

Lighting - position - composition - shutter speed – shooting the pic - flying the site.

- These elements are as integral to one another as are your Rotax - fuel - wing - airflow - control axis - etc., where all must come together to make Flight.

Lighting

- As with all these components Lighting can be and usually is critical to a successful image. Now here's a line we should all learn to love "A picture speaks a thousand words", so I'll demonstrate the effect of correct/incorrect lighting. These two images (below) which were shot within one orbit of each other i.e. same time, place & conditions and yet look at the vast difference in available image detail and colour balance.



this question immediately starts making you look at where you need to be.

- Are you wanting to depict the view inside of a mine shaft, or a panoramic overview of the mine itself? Where do you need to be – where is the sun (lighting) – what will then be the best composition, once you've worked out the best positioning???

For this stadium image I positioned far away, with the sun behind and quite low AGL, as the positioning of my target was; in order to depict it's proximity to the city and accommodation amenities, not the stadium.



- Unless the first shot was being taken specifically for the mood created by the water reflections, then it rates as a disaster. This is easily fixed by simply placing the sun behind the camera. We all know this from general photography and here I'm pointing out that this aspect becomes critical, due to the exaggerated reflections & shadows encountered in aerial photography.

- So move around your subject to the sunlit side, for better general lighting, overall detail and much less work later on at the PC.
- All this unavoidably leads us to 'positioning' your picture correctly, whereby the elevation of the building which you may want, possibly forces you to shoot into the sun. Here we start seeing the relationship between lighting and composition as being integral. This proves my above statement of why all the elements need to find balance.
- If its impossible for you to get the angle/elevation of the subject that you want, without pointing towards the sun, then the rule of thumb is; get higher. In doing this, avoid emulating those unimaginative and boring overhead shots, after all we can get those from Google Earth, but rather by getting a little more 'overhead' of your subject, which does cut down dramatically on reflected glare.

Position

- Position and Composition are integrally entwined, but can be viewed separately as follows; Position is the where and how - of the way in which you want to depict your subject. Composition is how you set up and place this positioning on paper, or should we say - on your canvas.
- Not surprisingly; to get the positioning that you need, you have to position yourself/the aircraft accordingly, so position has two elements which you need to look at. Always ask yourself; how and for what purpose do you want to depict your subject? Asking



Here (below) the positioning is purposefully, quite different and specifically in order to show the dedicated rail station link to the stadium. As always, the question was asked; what do I want to show?

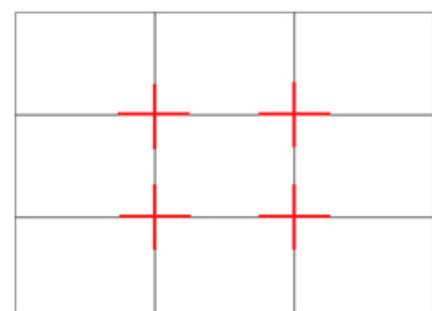


- If in any doubt, then the rule of thumb in this instance is; place your subject in the foreground of the image.

Composition

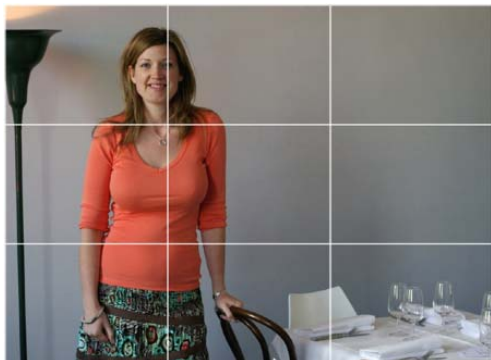
Is the creation of an appealing picture balance, whilst eliminating unwanted distractions.

- The 'Rule of Thirds' takes care of this. First, divide your image into thirds, making nine blocks, such that when you measure from any corner 1/3rd or 2/3rds into the frame, you have a division.



- Now practically speaking; as you frame your shot, consider placing the primary points of interest at the intersections of these thirds and your image will be more aesthetically balanced.

In this example, imagine the lady being dead centre – it would make a boring passport style photo, rather than this artistically balanced, well proportioned and more interesting pic.



The ship is 1/3rd from the bottom, with it's mid point 1/3rd from the left frame and with leading/movement space ahead of it.



Leaving leading room is part of this 3rds rule, amply illustrated by the following:



Never have your subject moving out of frame, but rather giving it space to move/look into the frame and to be positioned on the thirds points. same photos recomposed (on computer), but now comfortable & balanced.

- Understanding this rule of thirds will give a fresh perspective on how you view everything through the viewfinder and it will forever change your approach to cropping your images on the PC. In my view, the post production cropping of images, is 100% in order to satisfy this most important image balancing act.

Shutter Speed (and Aperture)

The rule here is very easy: – FAST as possible! Of course there are exceptions to every rule, but generally (and assuming you are working with a DSLR, then you want to do this.

- First thing that any self respecting photographer will do at work, is reach for the tripod. Well in our aeroplanes no amount of tripods will help us, as the entire platform is moving. So the only real alternate here is to speed the shutter, whereby this blitzvinnig shutter speed eliminates the movement.
- How you ask? By setting your camera's mode control to 'A' (aperture priority), rather than leaving it on 'Auto'. Set thus, you are controlling the aperture and all other functions are automated by the camera.
- Now, by dialling in/inclining towards the lowest f/aperture settings e.g. f2.8 or f3.5 you are opening the lens up wide, allowing maximum possible light to flood in and with the result that the briefest moment of exposure time can & will make a pic, before the camera records any detectible movement.
- If when set on 'A' and you've dialled in for max aperture, your data feedback then intermittently flashes the camera's maximum shutter speed at you, it means that it can't work fast enough and you'll get an overexposed image. In this case roll the dial control to a smaller aperture, until the numbers stop flashing and Voila! – you are at the best possible shutter speed for that ambient lighting.

ISO/Film Speed

- Set this for 400 which is a relatively fast film i.e. allowing fast shutter seeds, but without it creating too much graininess in the finished images.
- Later as you get better at your aerial photos and steadier, then move to ISO 200, for sharper pics.
- There's not sufficient space here to go into all the issues of ISO and it's effects.

Steadying the Camera

- Above we were talking about tripods and eliminating movement; well I use what I call "a poor man's gyro" – a lump of lead attached to the tripod fixture. Now the camera sits like a "brick K...huis" in my hands and with most of the high intensity/harmonic vibrations eliminated through inertial stability.
- The alternate is to buy a stabilising gyro, but be ready to spend more than you did on the camera.
- More important is to not touch any part of your plane – other than (unavoidably) with your backside. The photographic rule of resting against an object, or putting your elbow (like a tripod) on something, does not work with aerial photography. Don't touch anything – sit forward for a moment, with even your back off the backrest, steady your hands and shoot.
- Keep the lens 'indoors' if you can, as its nearly impossible to steady when its jutting out into the 120kph airflow. I lean inwards, whilst still aiming through the open window, but definitely out of the wind blast.
- For you Trike fellas, the wind is unavoidable, so try lightly holding towards the end of the lens (with the 'other' hand, which will dampen some of this movement.

Flying the Site & General Tips

- Rule No.1 is to fly the plane and to have all your aviation matters fully under control, before you start 'meddling' with the camera.
- On early approach to your target, figure where's the 'Position' you're gonna want to be, then before starting the actual photo work, do a HASELL check and a 'Precautionary', to safely set up your Situational Awareness.
- The HASELL check, to know e.g. your engine temps, pressures, etc. before starting work.
- The 'precautionary' to have absolute awareness of heights AGL and for the dreaded "what if???" – if the engine coughs while you are shooting, then you should "pre-know" where your escape route is and how you'll handle it.
- There's a lot more which can be said on this aspect of aerial photography, but maybe that's fodder for another edition. For now, please think ahead and be careful.

*I was once on a joint aerial photo job with a colleague and my daughter was riding along. At one point whilst Ant was seemingly concentrating purely on his photo target inside the Cape Town city bowl, Jess looked me in the eye and truthfully asked "does he know there's a mountain there?" Situational Awareness!!!!!!
This image is not Photoshopped.*



Don't be daunted by the apparent volume of all this info; especially since newcomers to these rules tend to become so engrossed with the theoretical application thereof, that they lose out on the primary issue - shooting the pictures. So, take comfort, that mere knowledge of these 'rules' will provide an underlying awareness, which will eventually manifest in an entrenched habit/style and improvement will come naturally. Who cares if you are not composing perfectly and according to "the rules" whilst shooting, because remember; you can simply apply the rules afterwards whilst doing your post production rendering e.g. cropping an image to fit the rule of thirds.

Happy snapping and shoot, shoot, shoot - sorry for Mr.Agfa and remember; the flying of the plane, is more important than the catching of the photo.

Steve is a Sony Pro-Foto award winning and full time aerial photographer, living in Durban and happy to answer your questions. See more on this at:

www.airserv.co.za