Post-Processing Digital Aircraft Images

By Hans Fairhurst

Very rarely does a camera produce the perfect shot straight out of the box...at least mine doesn’t. What is done to an image after the shot has been taken can be the difference between an OK photo and a good photo. The location and speed of aircraft can sometimes give you no choice when it comes to lighting and such; you just have to take what you can get. This all adds up to the need to tidy up the image before presenting it to others. Below is the way I go about it before posting. I don’t profess to be a particularly good photographer by any means but I do enjoy looking at good clear and well-presented images of aircraft. The following is only my approach. It is very basic and is by no means the only way or even necessarily the right way.

IN GENERAL

a) **REMEMBER WHY** - The object of the exercise for the most part is to produce a photograph of an aircraft that will look clear and presentable when someone opens it in the Planefinder app. Always bear that in mind and make it a photo the viewer can see and one you’ll be proud of.

b) **KNOW YOUR CAMERA** - Know the limitations of your camera and work within them. It is futile for instance to attempt a long distance shot of a plane with the idea of enlarging later if it is beyond the resolution capability of the camera. No amount of digital processing will save it. Getting up close and personal whenever possible is always best. The better the shot, the less tweaking that is needed later.

c) **TAKE CONTROL** - Even the simplest cameras have a manual settings capability. Learn what they do because they are the key to better results. Take control..!! Start with the “Av” (aperture priority) function and vary the aperture in your shots and see what it does then try the “Tv” (shutter priority) function and see the effect. Use low ISO (say 100) and compare it with a very high setting, note the grainy appearance.

d) **EXPERIMENT AND LEARN** - If possible don’t take one photo, take lots. Vary the aperture, vary the speed, try different things and then take note of what works and what doesn’t. Sharpness, depth of field, lighting, contrast. An uploaded image of mine can be the product of 20 or more shots.

e) **BE CRITICAL** - “Be honest with yourself, be your own harshest critic”.
   a. Is the image clear?
   b. Is the image sharp?
   c. Is the image balanced?
   d. Is the image centred?
   e. Is the image appropriately cropped?
   f. Is the aircraft the main subject of the image?
   g. Can the aircraft be identified from the image?
TAKING THE SHOT

Take a better the image in the first place and less tweaking will be needed to clean it up afterwards. Aircraft taking off or landing don’t give you a lot of time to mess around with your camera so think ahead about:

Lighting - Where is the sun? Will the image be back-lit?
    Shooting into the sun will rob the subject of an image of contrast and detail. It is also difficult to correct. The best option is to avoid the situation in the first place. The Perth airport public viewing area for example faces east so I tend avoid going there in the mornings.

Framing - Is my zoom good enough? Will the subject be a little dot in a big image?
    Closer is always better so get as close as you legally can. Let the lens do the work and make the subject dominant in the shot. Digital zooming at a later time is a poor compromise that introduces noise and distortion.

Settings - Aperture? Speed? ISO?
    Shooting away in auto mode may work well sometimes but the manual modes give more control and ultimately better images. I do compromise a little here by shooting aircraft on the move in “Av” mode. This allows me to manually vary the aperture while letting the speed take care of itself. That way I can choose the depth of field on the run. I also keep the ISO to as low as possible (usually 100) unless lighting is poor.

THE SOFTWARE

There are abundant graphics software packages on the market ranging from the inexpensive or even free all the way up to Photoshop and beyond. While Photoshop’s capabilities are breathtaking, I find it somewhat over the top and slow for doing just the basic fixes…which are:

- Straightening.
- Cropping
- Lighting and contrast.
- Sharpening.
- Dealing with noise.
- Sizing.

There are other factors such as colour saturation and colour cast to be dealt with too but the basics will do for starters. All my image processing is done using freeware of which there are so many graphics packages available. I don’t endorse any particular product, the one I happen to favour is called “Faststone Image Viewer” and it contains all the functions I need…except for one. There are plenty of other free programs include the well-known Picasa, GIMP and many more.

NOTE: Always work on a back-up copy of the image. If you get it wrong you can always start again.
This is far less of an issue for aircraft than it is for ships. If there is no visible horizon or other reference then there is no great need to straighten anything.

However if an image is obviously in need of adjustment then the fix is very easy.

Simply match the natural horizon to a horizontal reference line on the overlay grid and adjust.

The above example required a 2.5 degree clockwise rotation to correct its appearance. I simply used the edge of the runway as a reliable horizontal reference.

If no horizontal references can be found, try using vertical features such as lighting towers, radio as references against the vertical grid-lines.
2. CROPPING

Cropping aircraft images can be one of the most important steps in getting a better looking image. There is a lot of opportunity to vary the way it is done (within reason..!!) to get the best effect.

EXAMPLE 1 - 9V-SRP (left) for example on a YPPH rwy 21 departure can be cropped very tight to get more detail and create an image that is a little more dramatic.

Set the centre point of the fuselage to the middle of the cropped area using the cropping tool (in this case Faststone). It is OK the trim off the wings a bit but not the engines.

Note the circle around the "Paper Ratio" setting, this will be dealt with later in the "Aspect Ratio" section.

When an image like this is opened in Planefinder, there will be no doubt about its identity.
EXAMPLE 2 - VH-FNA “City of Albany” approaching YPPH rwy 03-21 from the south. While this shot is a long way from being a fuzzy dot in the sky, it could be made clearer. Remember that we want a picture that showcases a plane, not a pretty picture of some hills that also happens to include a plane. In this case it can be simply centred, cropped and left at that.

An alternative to simple centred cropping however may be to use the “Rule of Thirds”. While some aviation purists would aggressively disagree, there are occasions when it could be applicable.

Firstly if you haven’t heard of this rule, it has been around for the 500 years since the renaissance and therefore has had a fairly good airing. It is simply a rule of thumb or guideline that suggests:

“an image is more pleasing to the eye if the subject is placed along one of the imaginary lines that divides the image into a 3 x 3 grid. Key elements of the image are best placed where lines intersect if possible”.

This alternative just emphasises the height a little more. Whatever works for you is best...just use some judgement in the process.
A couple more examples with and without are given below.

Many cameras have a 3 x 3 grid built in to the screen or eye-piece and it is there for a very good reason. In most cases it can be accessed via a menu option.
3. ASPECT RATIO

The what..? The aspect ratio of an image describes the proportional relationship between its width and its height. If an image is say 12cm wide and 9cm high for example then it has an aspect ratio of 4:3.

Most digital cameras output at aspect ratios of either 3:2 or 4:3 as defaults and these give the most natural look to an image. In fact 4:3 mimics very closely the aspect ratio of the human eye (4:3.075).

How the aspect ratio is set during the cropping process may well affect how the image will appear when it is opened in an app. Just because you can crop the hell out of a picture doesn’t actually mean you should. Maximising the aircraft so that it is the main subject of the image doesn’t mean just cropping the living daylights out of it using some random freehand values. This will detract rather than enhance the appearance of an image so it needs to be thought about.

Again Google has heaps of information about the history, how’s and whys of aspect ratios. Your camera generally provides a fairly good aspect ratio so don’t mess with it..!! A photo that looks like it was shot through the slot of a letter-box for instance is plain amateurish and just not a good look under any circumstance…unless of course you actually were inside a letterbox when you took the shot, but then you probably need to ask yourself “why?”..!!

Below is VH-YFH "Mindil Beach" in three different aspect ratios.
4. **CHECK LEVELS (CHECK OUT THE HISTOGRAM)**

This function will tell you something about the spread of the lighting in the image. There is also colour information to be had here but I’m trying to stick to the basics.

In this example VH-VXK "Katherine", taken from the YPPH viewing area was a little back-lit.

The histogram doesn’t extend all the way to the left which indicates that it is a little light. To correct this, the black slider (circled) is dragged to the right until it meets the beginning of the histogram. This will slightly darken the image but also give better contrast.

Some use of judgement is needed here. If your image doesn’t look quite right and is too dark or the highlights blow out, back it off a little.

To adjust the overall lightness or darkness of the image, move the centre (grey) marker left or right until it looks correct.

Get it right and you get a nice friendly wave from the F.O.!!
5. LIGHTING (HIGHLIGHTS AND SHADOWS)

This is also known as “dodge and burn” in some software. The image to the left of VH-FND “Shire of Shark Bay” has a very bright white fuselage giving a washed out appearance against the sky. Tweaking the lighting can fine tune the image by dropping the brightness (Highlights) and raising the light in the dark areas (Shadows).

<table>
<thead>
<tr>
<th>Shadows:</th>
<th>20</th>
<th>Contrast:</th>
<th>10</th>
<th>Saturation:</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlights:</td>
<td>-26</td>
<td></td>
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a. Adjusting the shadows up a little lightens the dark areas.
b. Reducing the highlights takes out some of the harsh whiteness of the particularly at the nose.
c. Lightening the dark areas can also increase noise sometimes so in this case I’ve also increased the contrast a little to help offset this.

As always, some judgement is needed to get the best effect.
6. SHARPENING

Just about every photo I take gets some sharpening applied. However this is also the single best way I know to wreck an otherwise good photo. The golden rule here is “use this function sparingly”.

Here a picture of 9V-SFM at YPAD is showing very soft focus and would benefit from a little tweaking…but not a lot. It is very seldom that I would go much beyond 20% sharpening and 1.0 radius unit.

The result is a cleaner and sharper image. Overdoing the sharpening however will result in unsightly white outlines around everything and an increase in noise. This does nothing to improve the image, in fact it does just the opposite. If an image really needs that much sharpening, don’t bother because it is already beyond saving.

Once the sharpening has been applied, zoom up again to check that it hasn’t been over applied.
7. NOISE

Occasionally if the photo required a lot of tweaking, especially lightening up shadows and enlarging, there will be a good deal of grainy texture (noise) in the image. This will also be an issue if it has been necessary to shoot with very high ISO settings due to poor light. Noise filtering is the one feature that Fastone Image Viewer lacks but it isn’t the end of the world. There are a number of good stand-alone image noise programs, both commercial and freeware.

For my money, “Neat Image” represents good value as a commercial program. It is a very powerful and effective program that has a modest price. My favourite feature is the fact that it can do batches of photos.

On the freeware side there is “DeNoiseMyImage_Free” which is also very neat and will do batches of images. It has a nag-screen on start-up that can be made to go away for a small price.

As with sharpening, use just enough noise reduction to do the job. If it is overdone you risk losing image detail. More is NOT always better.

The above image is a close-up of the fuselage of VH-ZPE “Bluephoria” being processed by “DeNoiseMyImage_Free”. Just using the default settings it can be seen that the area inside the preview square already has a much smoother and cleaner appearance.
8. SIZE MATTERS

Once a photo has been tidied up, it is almost ready to be uploaded...but how big is it? Many cameras these days will pump out images in excess of 5 or 6 Mbytes in .JPG format or even bigger in .RAW. There is no point in uploading a huge image file when a cut-down version will:

(a) Look just as good.
(b) Be faster to upload.
(c) Be faster to load on screen.

Shrinking an image down is about as simple as repairing those unforgiveable sloping horizons. In the case of Faststone Image Viewer, simply select “Resize/Resample” and click on the desired size from the list that appears. I normally go with 2048 x 1536 which gives me a file of about 1Mb to 2Mb in size.

Once again overdoing it will eventually cost you image quality so don't go too small either.

This is quite adequate though I could easily go smaller still without too much degradation of quality. I do however make a full-sized backup first...just in case something goes wrong or it all needs re-doing.
9. **FINALLY**

The above only represent some of the all too familiar basic and obvious problems that are very easy to fix...and *should* be fixed as a matter of course. There is an endless array of other issues that are far harder to deal with. Often these are driven by the environmental conditions at the time of shooting and possibly can't be fixed.

For the main issues however it is not difficult nor is it costly and so a small amount of care and effort can make a great deal of difference but most of all...

“Be Honest With Yourself...Be Your Own Harshest Critic”

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