

Photographing Techniques

Birds in Flight

Birds in flight require a high shutter speed, as do for that matter birds such as Blue Tits on a feeder. Ideally I like to have a shutter speed of a minimum 1/1000sec, higher if possible. These are the settings I use:

1. Aperture Priority. To ensure that the camera selects the highest possible shutter speed, set the camera to Aperture Priority. The natural instinct is to put the camera on shutter priority, but in order to do this and achieve the required shutter speed it is necessary to set the camera to Auto ISO and then you only might get the speed you require but no more. Using aperture priority you could get a higher shutter speed which is even better.
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2. Large Aperture. Go for the largest aperture (smallest number) minus 1. Why minus 1? Lenses are not at their sharpest when wide open so by going one stop smaller will hopefully get the lens into its 'sweet spot'. For example if the lens has a maximum aperture of f1:4 (f4) then set the camera to f1:5.6 (f5.6). With the lens nearly fully open it is going to ensure that you get a high shutter speed. If the light is poor then it may well be necessary to shoot with the lens fully open on the basis it is the lesser of two evils. The slightly reduced image sharpness due to the lens being wide open will probably more than compensated for by the fact that the shutter speed will be increased by a factor of two.
 3. Increase the ISO. If you cannot achieve a sufficiently high shutter speed with the lens you have and the lens wide open, increase the ISO. Modern cameras can easily shoot at ISO 800 and higher. Yes you will get some noise, but it is better to have sharp image with noise than a blurred image without noise. An image with noise you can do something with in post processing, a blurred image is useless, apart from using the image as an abstract picture. Most cameras have Auto ISO. You can normally set the camera to Auto ISO and also tell the camera at what point you want it to start increasing the ISO. So if you set the Auto ISO to kick in if the shutter speed drops below 1/1000sec, as soon as the camera cannot achieve that shutter speed it will automatically increase the ISO until it can. There is a limit and you can often set this as there will come a point where either you don't have a higher enough ISO or where the image becomes so noisy it is not worth taking the picture anyway.
 4. Exposure Compensation. Many birds are either all white or have a lot of white on them. If you plan on taking pictures of these birds set an exposure compensation of -0.7 or -1.0. The camera will be probably set for centre weighted exposure and if the majority of the picture is green, or grey the whites will burn out if you don't set exposure compensation. You could use spot metering as an alternative but if you spot metering on a bright white bird you will likely other parts of the image are too dark.
 5. Continuous Shutter/Continuous Focus. Set the camera to continuous shutter so that it will take pictures all the time the shutter button is pressed. If you set the camera to single shot then you are likely to jerk the camera as you press the shutter button. With the shutter set to continuous you might jerk the first shot but hopefully the subsequent shots will ok as the shutter button is already pressed. You can always delete the images once you have them on your computer. Be carefully deleting them on the camera in the field. It is too easy delete

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the wrong one! Setting continuous focus will mean that the camera will continuously focus up until the time the shutter actually operates and it should try and focus in between shots as well. Magic this technology!

6. **Holding the Camera.** When holding the camera try and get your elbows in against your chest. This will provide much more stability than if the elbows are in the breeze. For birds in flight tripods are normally a waste of time unless you have an expensive mount such as a Wimberley, Manfrotto Long Lens Bracket or similar and even then photographing birds in flight takes a lot of practice. It is not too bad if the birds are flying towards you but if they are flying across you then it is a challenge.
7. **Follow Through.** As sports people will tell you it is all about the follow-through. The same applies when taking pictures of birds in flight. There can be a temptation to stop following the bird when you release the shutter button, which means you will be slowing down before you release the shutter and hence miss the last shot or last few shots.
8. **Check the Sky.** Always look for blue sky and try and get the bird against blue sky. A grey sky or white clouds will fool the exposure on the camera. If they are white birds in flight against a grey background you have a real challenge.
9. **Loupe.** Invest in a Loupe, such as the Hoodman Loupe especially if you are shooting outdoors and it is bright. The Loupe will shield the light allowing you to view the images and histograms on the screen and check for blown highlights. There is nothing worse than shooting lots of white birds only to get home and find they are blown out. Loupes such as the Hoodman have a +/-3 diopter. Unfortunately they are not cheap at circa £75.00.
10. **Shoot in RAW.** Always shoot in RAW as you have so much more latitude when it comes to post processing over jpgs. Often in RAW and image that looks to have blown highlights will still have the detail in RAW. Remember when you look at the image on the screen of your camera you are looking at the jpg that is embedded in the RAW file.

Aeroplanes with Propellers.

Photographing aeroplanes presents a real challenge as on the one hand you need to get a sharp image of the fuselage and pilot but it is important that the propeller is blurred. In order to show movement when photographing an aeroplane with a propeller against the sky the only option you have is to show the propeller blurred. If the propeller is sharp then you tend to be looking for the piece of string that is holding the aircraft in the sky. Here are my suggestions:

1. **Shutter Speed.** Set the camera to shutter priority with a shutter speed of either 1/125 sec or 1/250 sec if it is an aeroplane with a propeller, or 1/60 sec if it is a helicopter. The speed of the propeller can be anything from 800 revs per minutes in idle to 3,000 revs per minute at full throttle for aircraft with propellers. This equates to 13.33 revs per second to 50 revs per second so multiple those figures by the shutter speed and you can see how much the propeller will move in the time the shutter is open. For helicopters the rotors can be going at anything from 225 rpm to 510 rpm depending on the



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size of the helicopter. The rotors normally have a constant speed.

I know you will all be looking for the calculator so I have saved you the bother:

| Engine Revs (rpm) | Revs/sec | Prop Dia. (ft) | Circumference (ft) | Dist per sec | Speed mph | Shutter Speed | Prop Movement (ft) | Prop revs |
|-------------------|----------|----------------|--------------------|--------------|-----------|---------------|--------------------|-----------|
| 800 | 13.33 | 5 | 15.71 | 209.47 | 142.82 | 125 | 1.68 | 0.11 |
| 3000 | 50.00 | 5 | 15.71 | 785.50 | 535.57 | 125 | 6.28 | 0.40 |
| 3000 | 50.00 | 7 | 21.994 | 1099.70 | 749.80 | 125 | 8.80 | 0.40 |
| 300 | 5.00 | 30 | 94.26 | 471.30 | 321.34 | 60 | 7.86 | 0.08 |
| 225 | 3.75 | 60 | 188.52 | 706.95 | 482.01 | 60 | 11.78 | 0.06 |
| 510 | 8.50 | 25.2 | 79.1784 | 673.02 | 458.87 | 60 | 11.22 | 0.14 |

2. Continuous Shutter. Set the camera to continuous shutter just as the same for photographing birds in flight to reduce 'shutter jerk'.
3. Continuous Focus. An aircraft in flight can be moving at anything from 60mph to 350mph so it will move quite a distance in the time it takes for the shutter release on the camera to go from the half way position to operating the shutter and is down to you reaction speed. If you have the camera set to single focus, which is the point the camera locks the focus you will likely get a blurred image. With continuous focus the camera will continuous to focus right up until the shutter operates and with the camera set to continuous shutter it should focus in between shots as well.
4. Pan with the Aircraft. Try and keep the aircraft in the same part of the frame all of the time. Remember that you only have 1/125 sec or 1/250 sec so there is a high chance of getting a blurred image if during the shutter opening period if the aircraft is not kept in the same part of the frame.
5. Follow Through. Follow through when panning and keep going until you have released the shutter button.
6. Don't get in to Tight. Don't be tempted to fill the frame with the aircraft, they need space to move into and the chances are that you will need to make adjustments to the aircraft in the frame for a good composition.
7. Exposure Compensation. It is not often that you are blessed with blue skies against which to shoot pictures of aircraft. If you have blue sky then you should not need exposure compensation. If the aircraft is against a grey sky then dial on +0.7 or +1.0 exposure compensation. If the camera is set to centre weighted exposure then you will lose detail of the underside of the aircraft unless you are filling the frame. I have the tee-shirt on this one with film no less!

Jet Aeroplanes.

For jet aeroplanes you can use the fastest shutter speed you can get, similar to birds in flight. The trick with jet aircraft is to get some sense of movement into the image.

1. Aperture Priority. Set the camera to Aperture priority as you want to ensure that you will get the fastest possible shutter speed available. Depth of field, which obviously is going to

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be at a minimum, should not be an issue if the aircraft is more than say 300 meters away.

2. Large Aperture. Set the largest aperture minus 1 as for bird photography. If the conditions are dull then you might have to forgo the minus 1. Aim for a shutter speed of 1/1000 sec or higher. Higher is a bonus. Increase the ISO or set auto ISO to achieve the desired shutter speed.



3. Continuous Shutter. As before this helps reduce any movement of the camera due to pressing the shutter.

4. Continuous/Tracking Focus. As before but jets can easily get to 500mph at air shows so you need to make the camera is adjusting the focus all of the time.

5. Exposure Compensation. If the aircraft is against a blue sky then exposure compensation should not be necessary. If it is against a grey sky then either use spot metering or dial in +0.7 or +1.0 exposure compensation.

6. Taking the shot(s). Pan with the aircraft. It is less important to keep the subject in the same part of the frame as you will have a high shutter speed, hopefully 1/1000sec or faster. Start taking the shots as the aircraft approaches and continue until it has gone by and then release the shutter by continue to follow through.

7. Don't get in too tight. As before the aircraft needs to have some space to move into.

8. Sense of Movement. The chances are that if you are at a display then the aircraft will be emitting smoke. Getting the smoke as well as the aircraft in the shot will give a sense of movement. For high speed jets when they turn you often get vapour coming of the leading edge of the wings or when they do a high speed pass. Getting two aircraft as they cross each other is a challenge as you normally will follow on and then try and anticipate when they are about to cross. The aircraft you are following should be sharp but unless you have a very high shutter speed the other aircraft will invariably be blurred.

9. What Kit? A 70 – 300mm zoom lens should be fine, especially if this is on a cropped sensor camera as it effectively gives 105 – 450mm.

Flash 1st Curtain/Slow Sync, 2nd Curtain/Rear Curtain

Experiment with the 1st and 2nd (Canon) or Slow Sync and Rear Curtain (Nikon). Being a Nikon user I will from now on just refer to the Nikon terms but for Slow Sync read 1st Curtain and Rear Curtain read 2nd Curtain. With Slow Sync and Rear Curtain the camera will expose for the image as through there is no flash attached to the camera. If it is under street lights it may be 1 second at f1:4 with an ISO of 400. It is best to use a tripod so that anything static in the picture



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will be sharp and anything that is moving will be blurred. With Slow Sync when you press the shutter button the shutter will open for the 1 second, using the figures above and the flash will fire. This means that you will get sharp edges on the trailing edge of the moving subject and then the blurred part in front. Any light trails will stick out in front of the point source of light, which will look wrong. A little like a light sword in whatever film that was.

By using Rear Curtain, the shutter will open for the 1 second, using the figures above during which time you are going to the moving part of the image blurred and then just before the shutter closes the flash will fire that gives sharp edges. The sharp edge will then be on the leading edge. Any light trails will then be behind the point source of light and therefore look correct.

Gotchas.

The main 'gotcha' is not switching the camera from aperture priority to shutter priority when switching from taking picture of jets to propeller driven aircraft, which means the propeller will be stationary. Going the other way is less of an issue, it just means that the image will not be as sharp as it could be.

The AV's.

Just a word on the software that I used for the AV's. The software is PicturesToExe, and is available from:

www.wnsoft.com

This is a favourite amongst photographers. It offers lots of features and the Deluxe version allows you to create a DVD that can be played in regular DVD players. The cost is \$75.00 but you will pay VAT on top of this. The bad news is that it only runs on Windows, but you can create AV's to run on iPads, Apple Macs and of course Windows machine.

In our house we often create PicturesToExe's of trips holidays etc. and we have a small computer plugged into the TV so that we can show them at any time. Beats getting a photo album out and you get music as well. On the question of using music, remember if you intend showing the AV's publically especially on the Web then you need an MCPS licence.

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