Digital Photography for Rail Fans

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A Little History

The world of digital has affected almost everything thing that we use in today's world and that is very true in photography. Over a hundred years ago images were captured on glass plates coated with a chemical solution. This media was dangerous for the photographer as the chemicals were very toxic and little was done in the way of protecting one self. The use of film helped to make photography easier for many people as the handling of film was much safer to the photographer. In fact the Eastman Dry Plate Company produced the No. 1 Kodak camera in 1888. This camera used a paper roll of film inside the camera body. The camera came preloaded with the film that would allow the user to take 100 images. When all of the film was used the camera was shipped back to the company were all of the processing and printing took place. The prints along with the camera that had been re-loaded with fresh film, was sent back to the user. The company slogan at the time was "You press the button – We do the rest".

As time passed roll film became easy to use to the point that photographers were loading and unloading the film in the camera. For those that wanted more the photographer was also starting to develop the film and print the images as well. These early cameras made it possible for almost anyone to capture an image. This opened up photography and started the ball rolling to take us to where we are today.

Certainly many events have happened to get us to the ease in which we capture images today but a very significant advance in technology has accelerated this to an extreme. The birth of digital photography blew the lid off of the imaging world. It's not clear when the birth of digital photography happened but we are well into this modern method of image capture.

That leads us to our pastime of being Rail Fans and how we have many choices in the method that we wish to employ to capture an image. We can use a point and shoot digital camera, a D-SLR (digital single lens reflex) camera, a cell phone, other hand held devices, or any of the many film options out there. Each media and capture device has advantages and disadvantages so we will take so time here to look at a few of the options.

Point and Shoot Digital Cameras

There are literally hundreds of different models produced by the many manufactures out in the marketplace along with many no-name brands. The choices and options available are simply astounding. You need to make an educated decision when you are planning to purchase one of these units. You need to decide on the number of pixels, the battery types, the memory types, the amount of memory, how much zoom, what kind of zoom, and the list goes on and on and on… You get the point.

So where to start? A good starting point would be to look at the advantages of this type of camera and then have a look at the disadvantages.

Advantages

- Small size
- Easy to use
- Many automatic features
- All in one lens
- Still and video image capture
- Reasonable price

Disadvantages

- Lack of dynamic colour range
- Hard to clearly see the screen in bright daylight
- Lag time when pressing the shutter release
- Lag time between image captures
- Few manual features

D-SLR

Digital Single Lens Reflex cameras are the next logical step for most photographic enthusiasts although the jump from the point and shoot cameras to the D-SLR is really a giant leap. Let me take a similar approach to the advantages and disadvantages as was done with the point and shoot cameras.

Advantages

- Much larger dynamic colour range
- Good through the lens viewing for composing your image
- Minimal to zero lag time when pressing the shutter
- The ability to capture many images quickly, many frames per second
- Many manual features to allow for better control of the image
- Most have automatic controls to use like a point and shoot
- Many lenses available for different types of images
- Lenses bigger allowing more light

Disadvantages

- Larger size
- Manual and advance features can take time to learn
- May want many lenses
- Usually only still image capture
- More expensive

Comparing PnS vs. D-SLR

Looking at the lists of advantages and disadvantages you may be wondering why one would choose one style of camera over another, so let me try to shed a little light on this subject.

Both camera styles have their uses and this may be obvious to some but there are functions of each that we can all use. The point and shoot cameras with their small size make them easy to transport and can be close at hand almost any time. What you give up with the smaller cameras is the ability to capture a wide variety of high quality images. The dynamic range of colours that can be captured is limited by the processing power of microprocessor and the amount of on board memory. These electronics can be very small but when that happens the price of the small point and shoot rises exponentially. Another limitation is the fact that the lens is very small and the amount of light that can reach the sensor is very limited. To make up for this the on board electronics amplify the signal and electronic noise can be introduced into the images. Where you can use this type of camera is when very bright light is available or for documenting a locomotive, car or detail part.

The D-SLR is a tool that can be used to capture a much more interesting image than can be captured using the point and shoot camera. Inside of the D-SLR the electronics are more elaborate and more powerful. The amount of internal memory is also greater. All of these combine to create a better, sharper and cleaner image. The lenses used are physically larger which in turn allows in more light to the sensor so that less amplification is required and the electronic noise is reduced. You can use this type of camera for capturing virtually any kind of image that you can think of.

Techniques

It's great to have a camera that is capable of capturing this images so that they appear just how you would like them to appear but it doesn't happen by accident. We need to take a look at what techniques we can use to enhance or image taking ability.

Aperture is the first of the controls that we will look at. With aperture we can control the depth of field of focus (DOF) in our image to the point where only one part of an image is in focus or virtually the entire image is in focus. A wide-open aperture, such as f-2.8 or f-4 will give the image a very shallow DOF. This kind of image is great for a more dramatic image, it helps set a mood in an image and it can create that wow effect that we often look for from the viewer. A narrow aperture, such as f-16, f-22 or f-32 will give a very large DOF. This type of image is great when used to document details the subject of when the vista is important to the feeling of the image. Most automatic settings in both the point and shoot cameras and the D-SLR will give you a DOF that is somewhere in between. This is okay but learning when to use a particular aperture setting will improve your images.

The *shutter speed* is next control that we should look at. With the shutter speed we will be able to control the motion of the subject. This can range from the full stop action to a nice or sometimes not so nice creative blur. To capture the images of trains we need to take into account the direction that the train is moving in comparison to your position and the distance that you are from the train. If the train is approaching you almost head on and is still some distance away the motion of the train is relatively small and a slower shutter speed can be used to capture the image. If the train is close to you and still at the same angle the train is appearing larger and larger very quickly so a faster shutter speed is required.

When the train is travelling at right angles to you and you are not close to the tracks the train will appear to be moving slow. This will even be true if the speed is moving at full track speed. A fast shutter speed will stop the motion of the train and the background. The background may appear darker than it really is if the distance from the train to the background is extreme. This could happen because of the distance that the reflected light travels from the background to the sensor. A slower shutter speed could be used if you pan the camera to keep the main subject steady in the image while added a nice blur to the background.

Once you have tried adjusting the both the aperture and shutter speed settings you may wish to adjust both at the same time. Most D-SLR and some point and shoot cameras have the ability to use a setting referred to as *manual.* In this setting you and not the camera has the control over the aperture and shutter speed settings. With a little practice you will find that the using the manual settings will achieve the best results for your images. The reason for this is that both style of cameras try to adjust one of both of the settings talked about to try and obtain a correctly exposed image, not too dark or too light. These not always to our advantage to have the camera choose the settings. By default the camera will use some metering scheme to determine the light levels. Train photography can fool this light metering in believing that is too much light when you are trying to capture an image of a locomotive face with the headlamps illuminated. The light from the headlight will add too much light so the camera will either speed up the shutter or reduce the aperture opening. The result is an image that is too dark.

What we can do to overcome this is use the manual setting. First we need to prepare the camera by pointing the camera at something in the area that has an average amount of light on the subject. Now adjust your speed and aperture settings until the meter shows you have the correct amount of light. You can adjust either the aperture or the shutter speed to a desired setting to capture the image the way you want. This could be more a lot of DOF or limited DOF or some blur or full stop action. Then adjust the other control, aperture or shutter speed, to get the right exposure setting. Note what these two values are and then set you camera to manual. Now adjust the aperture and shutter speed settings to the learned values. Now when you capture the image of the locomotive it will be exposed properly. Practice this and soon it will be second nature.

Dark Images

In the past has been very hard to correct, in fact most of the time you simply discarded that image and hope that the rest of the images on the film were okay. With digital images we can use software to enhance, lighten, colour correct, adjust contrast, saturation and many other items. So next time you have that one image that you would normally just delete you may wish to try and tweak it. Photoshop CS from Adobe is considered by most people to be the professional standard for photo manipulation but the price also follows that of other professional type programs. There are other programs that are acceptable for most amateur photographers, which include Photoshop Elements, ZoomBrowser EX, Microsoft Paint, Digital Photo Professional and many more. Your newer digital cameras usually come with some sort of editing software. Try using the program that came with your camera before spending money on other software. Saying all this there is another way to lessen the amount of editing that will be required, use the preview button on the camera and view the image to see if it looks to dark or too light right from the beginning. This way you can make small adjustments when you are capturing your images and spend less time on the computer.

Other Camera Settings

The world of digital photography has enabled us to capture better images while allowing us to make many adjustments on the fly that we could never do when using a film based camera. *ISO* is a setting that will allow us to use our camera as the light is fading away. By increasing the ISO setting from 100 or 200 to 800 or more we are able to capture images in low light conditions. *Colour Balance* is something else that D-SLR and some point and shoot cameras allow you to adjust. For shooting outdoors you many choose to use the daylight setting or if your camera has the ability you can set the custom setting and use 5500 degrees Kelvin for use on a sunny day. *Auto White Balance* is also for most shooting as the camera tries to adjust the colour balance of an image so that everything when added together in an image will equal 15 to 18 percent grey. If you are taking close ups of some locomotive that is not made up from average colour tones you may be able to set the custom white balance. This will allow you to capture an image of a pure white card in the lighting conditions that you are located and then set this as the custom white balance. Now when you capture images that don't balance out to 15 to 18% grey your colours in your images will be correct.

There are may more settings and adjustments that can be made with your digital camera that we simply don't have time to look at right now but they we all be mentioned and hopeful detailed in your manual or software. The real beauty here is that you can make adjustments between each and every image capture, something that couldn't be done with film without changing the film itself.

With any luck this will wet your appetite to capture more images and experiment with your equipment. Just don't forget to take spare batteries and extra memory cartridges with you as you very well know the next perfect photo opportunity arrives just as the battery dies of the memory card fills up. Happy photographing!