



EXPOSURE
The Thinking Persons Guide
By Bob McCree FPSNZ

There is only one rule - you need to have control. Do not rely on camera to do it for you. You take reading -you interpret reading - you visualize the required result - you set exposure - you press shutter.

If you want only average results let the camera do it for you. If you want exceptional results you must take control and manipulate exposures to get the creative result.

All our discussions in this series will be based on you having control of your camera and encouraging you to use your camera as a creative tool. Good photography is 20% tuition and 80% intuition. Learn to think beyond your camera and learn to visualize the finished photograph before you press the shutter. Learn not to be limited by the technology of the equipment but rather, to see beyond it to the limitless creative possibilities of image making.

Rule of Thumb: Sunny F16 rule. This basic rule states that the correct exposure in bright sunlight is the reciprocal of the sensor or film speed at f16. Thus, for 100 ISO the correct exposure would be 1/125 @ f16. For 50 ISO, the correct exposure would be 1/60 @ f16, with similar relationships for other ISO. This is a reliable back up system if all else fails and applies in all seasons and throughout middle latitudes around the world, but is suitable only for bright sunny days.

Types of Meter

On camera meters are almost always reflected light types, which work on reading light reflected off a surface. There are three usual types:

1. Spot meters - those that read from a small part of the frame - usually about 5% of the centre.

Very handy in that you are able to take several readings from various parts of the frame.

Usually found on modern, expensive cameras as one of a number of exposure options.

2. Centre weighted meters - Found on most cameras and, usually the only option on older cameras. Very reliable method that biases the exposure reading towards the centre area of the image. Each manufacturer has his own percentage of the image area covered by this type of metering so study the manual to find the bias that is applicable to your camera.

3. Matrix metering - Becoming universal on most modern cameras but not found on older units.

This method uses a honeycomb of a number of metering cells to take separate readings across the frame and thence computes them out to an average reading. Fine if you are in a hurry but no substitute for the taking of a number of manual readings around the frame and then using a little brainpower to arrive at the reading that will enable you, the photographer in charge, to set your own creative exposure. Some adherents to the use of matrix metering may disagree with me but matrix metering seems to be biased towards over exposure, which may suit colour negative users, but may not be as suitable for transparency users where accurate exposure is called for.

4. Incident light meters- These are not often used by amateurs, probably on account of the cost of purchase. This type of meter reads the light falling on the subject and is usually hand held. As it is not subject to the disadvantages of a reflected light meter it is more accurate but must be read in the same light factor as the subject, which may be limiting if the subject is in the distance and in a different light factor to that where the meter reading is taking place.

Advantages and Disadvantages

Reflective

- Set to mid tone - 18% grey.
- Affected by colour of surface.
- All types are affected - spot, centre weighted, and matrix.
- For accurate exposure, reading need to be adjusted back to 18% mid tone.
- Check this for yourself by taking three readings in a common light factor - off a white card, off a 18% grey card and off a black card. There will be a 4 stop difference in any light condition with the grey card giving a reading exactly two stops less than the white and exactly two stops more than the black. Try it for yourself!
- This has major implications which you must understand if you want creative control of your image making.
- To get an accurate exposure reading you will need to convert what the camera tells you back to an equivalent 18% grey card mid tone - this is discussed below.

Incident

- Unaffected by surface colour, as reading is taken directly in front of subject, of the light falling on that subject.
- Must be used in same light factor as subject, which makes this type of meter of more use for close up subjects, portraiture, etc.

Methods of overcoming disadvantages of reflective light meters:

1. Grey card:

Every good photographer should carry one! Supplied by Kodak (or any good signwriter who can accurately colour match paint!). Place in same light factor as subject and meter off it with camera pointing in same direction as subject.

NB: The accuracy of your meter reading should not be underestimated - consider that the latitude of print film is, at best, 2 stops of under exposure and 4 stops of over exposure, and that, if you vary outside of 1 stop under exposure and 2 stops of over exposure, the final quality of the print is severely compromised, it is not difficult to comprehend that accurate metering is essential for the best results. Accurate exposure is even more essential in the case of transparency film, which, with its much lower exposure latitude, a mere half stop variation in exposure will have a marked effect on the final image. In practical terms, an exposure error of more than half a stop from the ideal on transparency film will render an image that is virtually unusable.

Conclusion - accurate exposure is essential to creative image making.

2. Substitute readings:

If you do not have a grey card look for areas in the scene that are lit in the same light factor as the subject and are of similar tone to 18% grey. For example:

Sealed road surfaces: Typical tar sealed New Zealand roads closely approximate an 18% grey card.

Grass surfaces: Typical green grass seen throughout rural New Zealand, similarly, closely approximates the 18% grey card.

Mid toned camera bag: Many camera bags are of a similar toning to the 18% grey card, or of a colour that has a similar reflectance value. Test your camera bag against the 18% grey card standard, note the variation, if any, and compensate accordingly on all future exposure readings.

Blue sky: A reading taken approximately 30° above the horizon, on a bright sunny day, will give an equivalent reading to the 18% grey card. Please note that the reading should be taken away from the sun, or areas that are receiving any flare from the sun. This method is very accurate, particularly when a polariser is being used, but, when such a filter is being used, it is essential that the reading be taken at the same angle as the resultant photograph. In outdoor photography, I have found this method of exposure to be the most reliable.

Alternatively, use a white surface, and open up 2 stops on the camera reading, or a black surface and stop down 2 stops.

Effects of exposure on film characteristics:

Print film will usually benefit from a little over exposure - usually about a half a stop, or even a little more, will be beneficial and result in enhanced colours and detail. It is generally better to err on the side of over exposure on negative film to ensure that sufficient information is placed on the negative to ensure a good print. As an underexposed negative is very difficult from which to make an acceptable print a little overexposure is a good insurance to ensure sufficient information is available on the negative to make an excellent print.

Transparency film, on the other hand, demands very accurate exposure, although you may find a little under exposure (no more than 1/3 stop) may be beneficial. The more I shoot transparency film (my film of choice), the more I realise that the film manufacturers' speed ratings are pretty accurate and any departure from the recommended ratings will usually result in impaired images. The commonly held view that slide film is best under exposed is fallacious, in my view, and usually reflects either a

faulty meter, or, more likely, a suspect metering methodology. For example, in my experience, Velvia, a 50 ISO rated film, is best exposed at either 45 ISO (preferred by most professionals), or certainly no more than 50 ISO, whilst most 100 ISO transparency films are best exposed at their rated value, most certainly no more than 125 ISO.

It is best to use one make and type of film and get to know its characteristics - that way you can understand its peculiarities and expose it creatively to your requirements.

How to determine exposure creatively:

You must determine the exposure needed to create the image that you envisage. As a guide it is suggested that you set an exposure that will correctly expose the highlight areas in the scene. This is recommended for most film types, negative or transparency, on the basis that an over exposed and burnt out highlight looks worse than a blacked out shadow area. Thus, taking into account the recommendation earlier of slightly over exposing negative film and accurately, or slightly under exposing transparency film, it is suggested that you meter for the area of the image that is in the greatest light factor and allow those areas in lesser light factors to be presented in varying levels of shadow. This method will prevent burnt out highlights and result in richer colours throughout the image. Remember that the composition and lighting of the final image should be such that the main subject of your image should be in the area of greatest lighting - this aspect is covered in my article on Composition.

Using this method will result in a “low key” type of image and will, generally, suit most types of photography.

The opposite, that of a “high key” image, still demands that the subject of the image be correctly exposed, but with the background often over exposed, and has some application in specialist areas, such as studio photography.

Other variations may include silhouettes where the background is correctly exposed and the subject matter is underexposed and presented in outline only. In any event it is essential that you visualise what final effect that you want and you control it by intelligent exposure control. Learn to tweak the exposure to get the effect you want, to add drama and artistic flair to your images.

NB: There is no correct exposure for any given image - the correct exposure for you is that which interprets your concept of the image. Be bold and manipulate the exposure as one of the tools at your creative disposal.

Get to know your film and its exposure limits. Stick with one type and make, and learn its characteristics.

Check your camera metering for accuracy and adjust for any inaccuracies.

Use a grey card.

1. Use narrowest band of metering (spot, if available, otherwise centre weighted). Be wary of matrix metering, especially off surfaces having either high, or low, reflectance values.
2. Meter off grey card or area with similar light reflectance.
3. Take several readings and let brain evaluate for optimum setting.
4. Visualise final effect required and set exposure to achieve it.
5. Do not be scared to manipulate exposure to obtain creative effect.

6. Bracket initially, if you want to understand the characteristics of the film and your camera, but aim to develop the confidence to get it right the first time. It should become intuitive if you wish to become creative.
7. Operate the camera manually - that way you have full control
8. Take exposure readings in same light factor as subject and in same direction as subject.
9. When metering for contra jour lighting shade lens from sun. A little more exposure in contra jour conditions will often be beneficial for the shadow areas.
10. Meter with lens at same focal length as image. Most zoom lens are vario focus types where the aperture varies a little with the focal length. This aperture variation will alter the exposure as the lens is zoomed.
11. Meter accurately and set exposure precisely. Near enough is not good enough. Small variations will result in subtle differences - these subtle variations are those that add creative effect to your images.

Fine photography is an intuitive art form based on impeccable technique. Master the basics and allow your creative instincts full flow.

Bob McCree FPSNZ
103 Union Road
Howick
Manukau City
bobandjenny@paradise.net.nz
2009