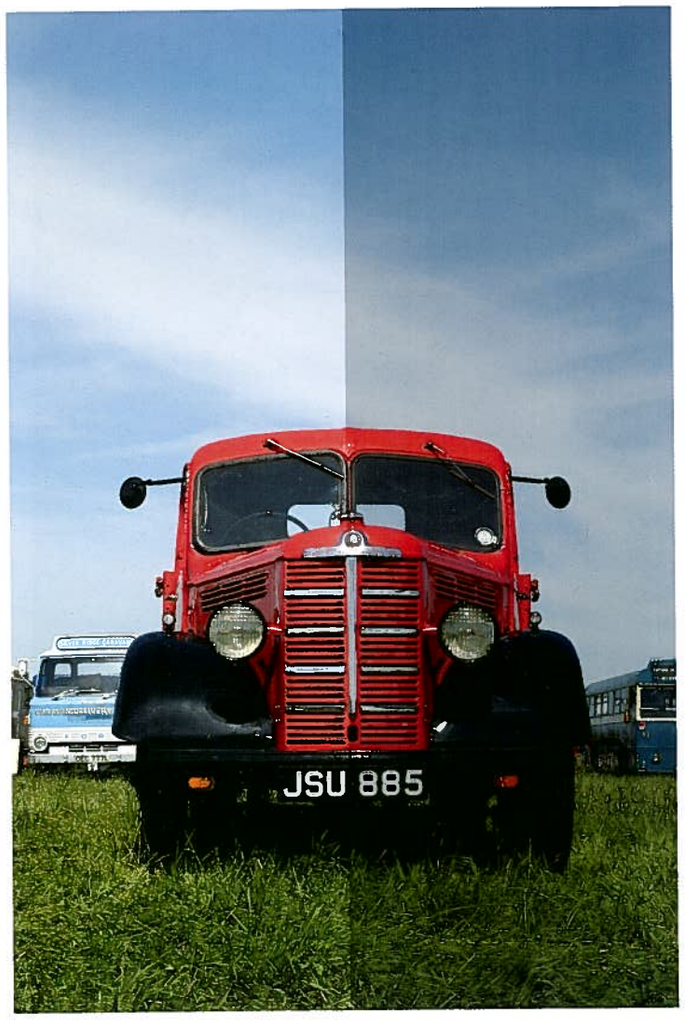
printing *for* digital PHOTOGRAPHERS

photographers' pip institute press

TIM DALY

CORRECTING CONTRAST

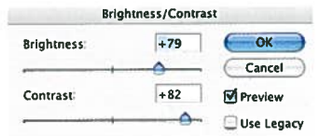
Many digital images need to have proper contrast established before printing, or else the results will be flat and disappointing. Photoshop offers several different tools for correcting contrast, each creating a slightly different result.



Contrast fundamentals

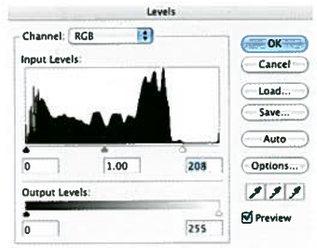
Largely caused by the results of file compression in the camera, the initial contrast of an image is often low and visually very disappointing. To save data, extreme white and blacks are excluded, leaving a muddy and insipid result.

This example, left, shows an image before and after contrast correction using the Levels tool. Notice how significantly the colour balance is affected by this edit. Contrast is the first and most important edit in the sequence.



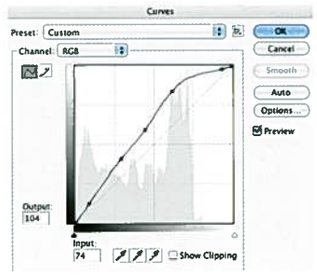
Brightness/Contrast

The easiest tool to use, but the one which causes most damage to your file. As each slider is moved, the same rate of change is applied to each pixel in your image, regardless of its current brightness. This creates white and black holes in your files, with no visible detail, which creates very poor prints. Notice how much lighter-shaded detail has been lost in the sky and how much darker the bumper is now.



Levels

A simple and effective way to restore white, black and midtone values is with Levels. The Levels dialogue allows you to remap tone using three simple triangular sliders which you can slide right to left. Unlike the Brightness/Contrast dialogue, Levels edits can be made to highlight, shadow or midtone areas independently.



Curves

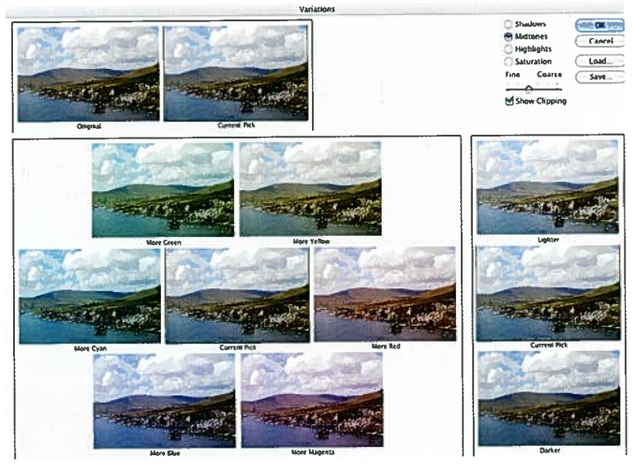
The most difficult to master, but the most sophisticated tool in the box for correcting contrast is Curves. Unlike Levels, the Curves control allows you to independently edit up to 15 separate tonal areas in an image, so you can precisely adjust the brightness of individual colours, selection areas and tonal sectors. Easily the professional's favourite.

FIXING COLOUR BALANCE

Faithful colour reproduction is a never-ending pursuit for professional photographers and printers, a process made much more complex by the introduction of an enormous variety of cameras, scanners and printers working with completely different standards.

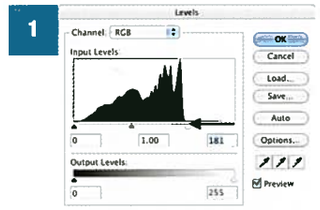
Where to spot colour casts

The best place to see colour casts is in a neutral area, preferably grey. White highlights and shadows will never show a cast in its true colours, nor will a patch of strong colour, but if you are lucky to have a midtone grey in the image, you'll get a much better idea about the extent of the problem.



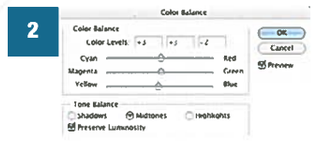
Using variations

Displayed in six different variations with the original at the centre, casts are removed by simply clicking on the best-looking option. Control over delicate shifts in colour can be made by sliding the scale from Coarse towards Fine.



1 Use Levels

Start by dragging the highlight slider, as shown left, into the centre of the graph, so it sits at the bottom of the mountain-like shape known as the histogram. This has the effect of brightening the image. Repeat to the shadows if necessary.



2 Use Color Balance sliders

With a straightforward daylight shot such as this, all you need to do is to warm the image up slightly. Click the Midtone check box and then move the yellow slider until the image starts to look richer in colour.

3 The end result

Compared to the bland starting point, the final print looks closer to the original scene.

FIXING COLOUR SATURATION

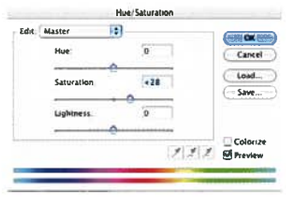
With digital camera images there will always be some disappointment when the file is viewed in its raw state for the first time. Digital data for high resolution images is considerable and, as a consequence, is designed to be lean and faster to manage.

1

1 Hue/Saturation method

A greater range of colour means more data, so unprocessed compressed files are always desaturated and bland. Rich colours can easily be put back or made even more vivid than they were in the original scene.

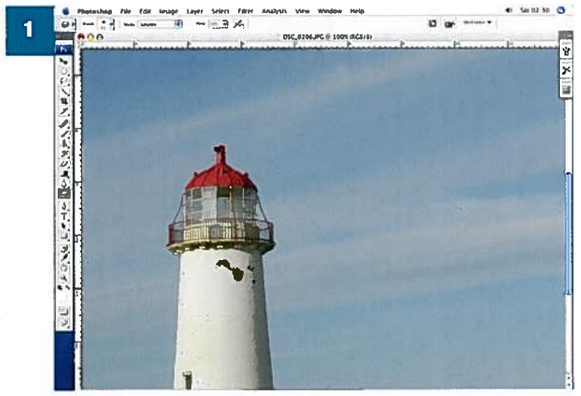
2



2 Colour corrected

Every image benefits from a slight increase in saturation values, by using the Hue/Saturation dialogue. An extra 10–25 units will be enough. Use the Master channel in the dropdown menu to change the entire image, or target individual colours with your edit.

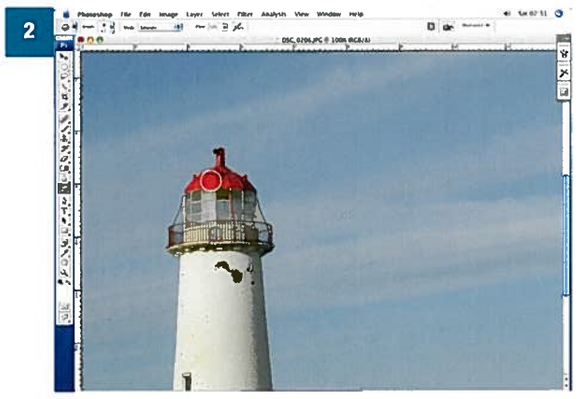
1



1 Sponge tool method

Click on the Sponge tool and choose the Saturate option from the dropdown menu on the contextual menu. Set the flow to around 50%, then choose a large soft-edged brush, like a 50 pixel size. Apply the tool to areas of the image that you want to boost.

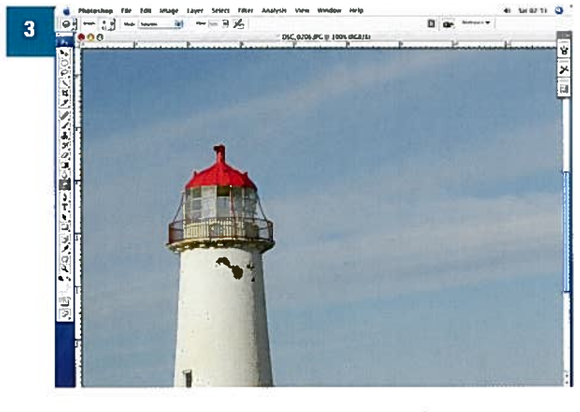
2



2 Saturate colour areas

As you paint with the Sponge tool, you will slowly 'remove' the weaker colour and replace it with a much more vivid value. If your chosen area is a tricky shape to paint into, isolate the area first with a selection, then watch as this creates a kind of fence around your edit.

3



3 Final result

It is better to set the Sponge tool to a low value and repeatedly apply the tool, rather than perform the edit in a single hit. Aim for subtlety rather than maximum volume.

UNWANTED BACKGROUNDS

If your photographs are ruined by the appearance of unwanted items, you can paint them out with the Clone Stamp tool. It works by sampling or copying a section of the image and pasting it over another area, but in real time.

1

1 Starting point

The real skill of the tool lies not in its application but in the selection of the starting sample area. Like all other painting and drawing tools in the box, the Clone Stamp tool can be modified by brush size, shape and opacity and also by its blending mode. Unlike any other painting tool in the Photoshop toolbox, the Clone Stamp tool has no connection with any real-world painting technique and will feel like painting with a brush loaded with 'image' rather than colour.

2

2 Selecting the area to clone

With your non-mouse hand placed over the Alt key, move the clone tool onto an area of the image you want to sample. Next, press and hold the Alt key and click once. Notice the tool icon changing as you make the sample. Move the tool cursor away from the sample point and position it over the area you want to remove. As you start painting, a tiny crosshair will appear to tell you which part of the image you are sampling from.

3

3 Painting in

The tools' Aligned mode is used to retouch in a different part of the image but it fixes the distance from sample area to painting area. This means you need to have two sets of eyes to watch what you're copying and where you're pasting it. If the sample point isn't changed regularly, a repeat 'herringbone' pattern will appear.

4

4 Finished result

The end result looks convincing because the foliage area is unfocused and not sharp.
To make your retouching more accurate and stop it from spilling over into unwanted areas of the image, make a selection first to limit its effects. This restricts the painting area to exactly the part you want to alter and is ideal for geometric shapes and other hard edges.

CONVERTING TO MONO

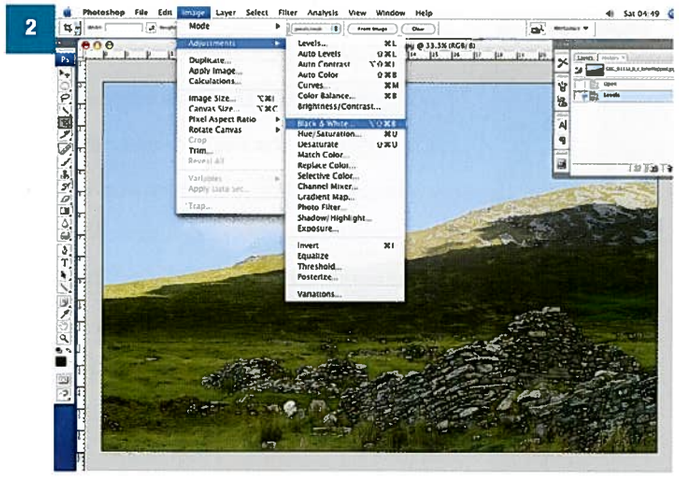
Although many digital cameras offer the ability to capture a scene in greyscale, it's much better to shoot in RGB colour mode, then make the conversion in Photoshop. Here, you can change the intensity of each individual colour before you change it into a shade of grey.

1

1 Starting point

This example is an insipid file, shot in difficult lighting. Without any processing, this would make a very poor print. The aim of the project is to intensify the blue sky to create more contrast before converting to a warm-tone monochrome.

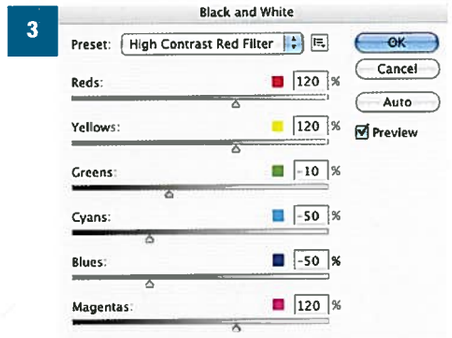
2



2 Black and White

Photoshop offers several alternative ways to change a colour image into monochrome: by simple mode change; or by Image>Adjustments>Desaturate. The best method is to do an Image>Adjustments>Black and White command.

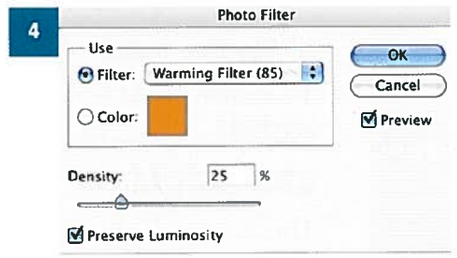
3



3 Choose a Preset

Click into the Preset pop-up menu at the top of the Black and White dialogue box. Choose the High Contrast Red filter option and watch how the image changes. The Blue value is dropped to –50, making the sky appear much darker.

4



4 Warm up with a Photo Filter

The final stage is to add a slight colour tint to the mono image before printing. Do Image>Adjustments>Photo Filter and choose the Warming Filter (85) with a density of 25%.

5

5 The finished print

Compared to the bland starting point, the final print looks much more atmospheric.

MAKING TEST PRINTS

You'll never achieve a perfect print on the first attempt. Conserve your expensive print consumables by making smaller test prints before committing to a full-size output.

1

1 Judging a print

The first task when making a test strip is to identify a small area of the image that contains the full range of highlight and shadows. Like an experienced darkroom photographer, it is essential that you use the same media and printer software settings throughout.

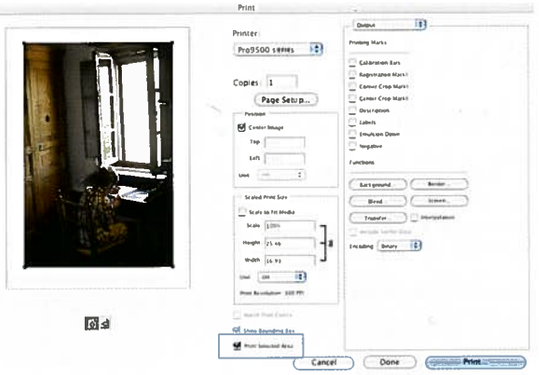
Always ensure that the paper stocks remain the same throughout the process. The advantage of printing out a smaller selection area is that you can opt to use much smaller sheets of paper instead of wasting an entire sheet on a small test area.

2

2 Make the selection area

With the Marquee tool drag a rectangular selection around the area you want to test. Ensure that the selection is hard-edged as a feathered edged selection will not print.

3



3 Print dialogue

To ensure that the selection is printed, check the Print Selected Area box in the Print dialogue. Load paper that is larger than the size of your selection, then press Print. The selection will always be printed in the centre of the media.

4

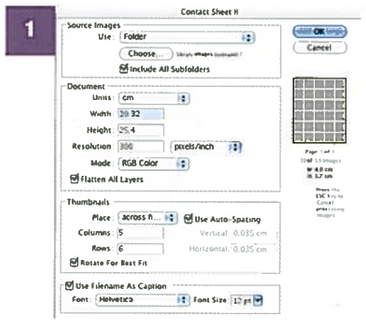
4 Test results

The first test, shown left top, was far too dark. The image was then modified and made lighter for the second test, shown left bottom. This was now too light. The Levels command was cancelled in the History palette and then adjusted again to make the third and final test strip, shown left middle. This finally captured an agreeable balance between shadows and highlight values.

MAKING A CONTACT PRINT

Viewing a contact print is the first step of editing your images after a shoot. Here, you can decide which images to delete and, most importantly, which ones to print. All imaging applications can make variations of the contact print, so you can contemplate your decisions away from the workstation.

1



1 Using Photoshop

Do File>Automate>Contact Sheet II and, in the Source Images section, click Choose to identify the folder of images. Next, choose the print size and thumbnail layout and watch the tiny grey print preview take shape. Press OK and watch the automated action produce a perfectly neat file ready to print.

2

2 The contact print

With the Use Filename as Caption option, you can easily identify the file on the print. If there are more files than will fit on one page, Photoshop simply makes another.

1

1 Using Lightroom

In the Library module, arrange your files into three thumbnails per row. Next, change each file into portrait or landscape views as shown, and delete any images that you don't want to keep.

2

2 The Print module

In the Layout menu, found at the right-hand edge of the Print module, set the Page Grid, Cell Spacing and Cell Size, as shown. This creates a live print preview. When complete, press Print.

Using iView Media Pro

Many photographers use the versatile iView Media Pro application as a simpler browser compared to Adobe Bridge and as an alternative presentation program to Powerpoint. You can also make contact prints from iView, by doing a simple Make>Contact Sheet command.

VIVID COLOUR

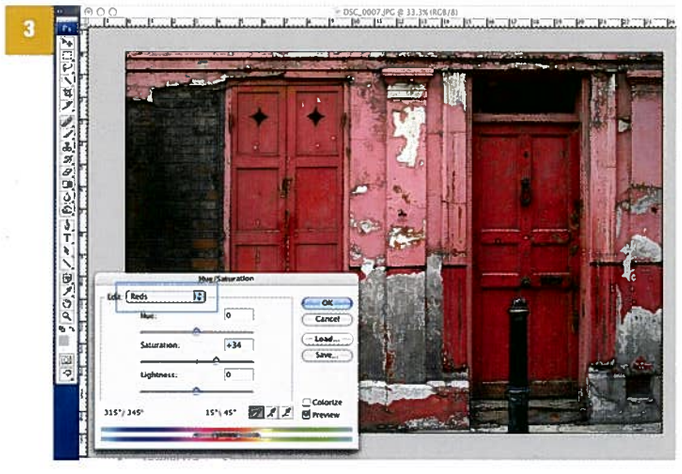
When digital cameras save and store your files with compression, colours are often much more muted than you expect. However, you can restore the vibrance of your original scene by following a simple Photoshop routine.

1 Bland beginnings

Straight out of the camera, this shot looks bleak and uninspiring.

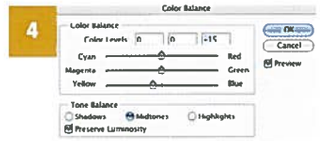
2 Brighten up the highlights in levels

Move the highlight slider to the left, as shown above.



3 Increase saturation

Open the Hue/Saturation dialogue and from the Edit menu, choose the Reds option to restrict the saturation increase to this colour only. Next, move the saturation slider +20/30 until the colours start to look more vivid.



4 Fine-tuning

Complete the edit by opening the Color Balance dialogue. Warm the image up by increasing the amount of yellow in the midtone area of the image, as shown above.

Hints and Tips

When making saturation commands, always turn on the View>Gamut Warning option first. Colours that won't print with the same intensity as viewed on screen are tagged a silver colour, as shown on the red door.

5 The finished print

Compared to start of the project, the final print looks much more visually interesting.

MONO STYLES

Monochrome prints stand out in an exhibition and can put your work a cut above the rest. Great for sensitive and timeless portraits and even better for rugged landscape work, the world of mono is making a comeback in digital photography.

1

1 Starting off

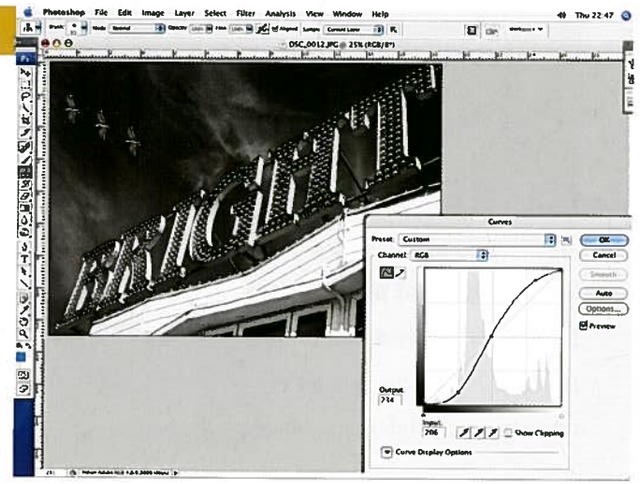
This colour image is interesting enough, but can be made mono in several ways, each with a different end result.

2

2 Desaturate

The simplest method is Image>Adjustments> Desaturate, but the end result looks muddy and a little disappointing.

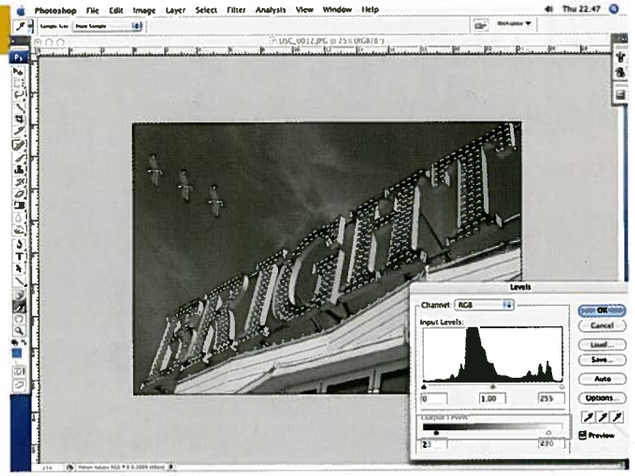
3



3 High contrast with an S-shaped curve

The Curves controls are the most effective way to manipulate tone in an image. To mimic the look of a high-contrast print, drag the curve into a gradual, italic style 'S' shape as shown. As the shape develops, notice how the darker areas in the image start to intensify and how the lighter parts become brighter. The steeper the 'S' shape, the more contrast you will create. As with all Photoshop dialogue boxes, if you decide you have gone too far, simply press the Alt key, then press the Reset button when it appears in the dialogue.

4



4 Low contrast

To make a low-contrast print, open the Levels dialogue. Next move the two Output Levels sliders slightly nearer the centre, as shown left. This reduces the intensity of both highlights and shadows to create a low-contrast image.

5 Using the Black and White dialogue

Photoshop's recently introduced Black and White dialogue box offers several presets for creating eye-catching monochrome conversions. This punchy example below was created using the Maximum Black preset.

5

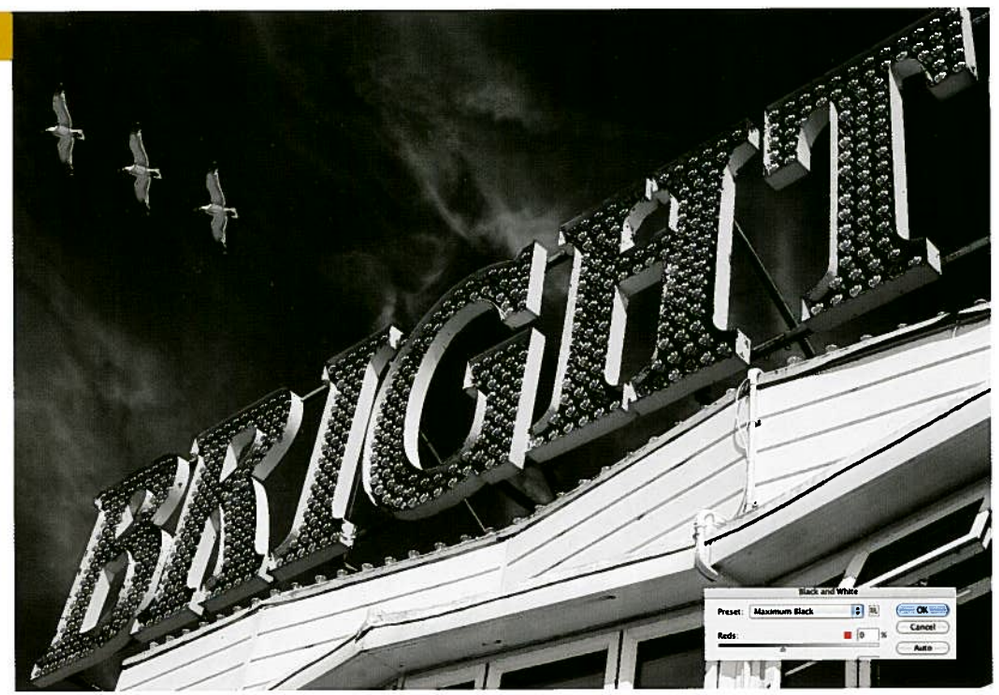
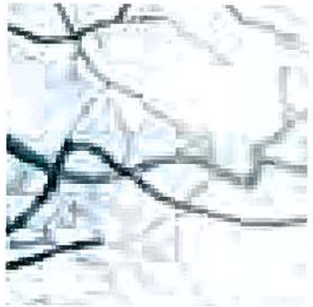


IMAGE FILE ERRORS

Despite the host of functions and features in Adobe Photoshop and your camera's on-board software, mistakes are easily made. Compare your difficult-to-print files with these common image file errors.

Low resolution

Digital cameras often allow you to capture images in a number of different low resolutions such as 640x480 and 800x600. These small files are perfectly acceptable for onscreen and web use, but make poor quality print-outs. Always shoot at the highest resolution, such as 3000x2000, which will provide enough pixels per inch for a pin-sharp print.

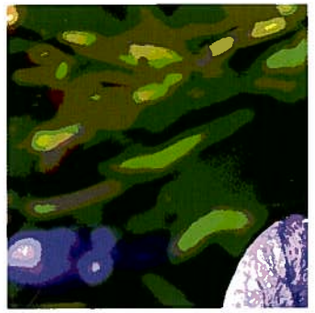


Low quality JPEG

To increase the capacity of a digital camera's memory card, many photographers shoot medium or low quality JPEGs, which create much less data. However, the downside to this space saving is a reduction in image quality. The example shown above has been made even worse: it has been re-saved as a low quality JPEG in Photoshop.

High ISO and noise

When shooting in ultra-low light conditions, the sensor in a digital camera responds to the absence of light by creating pixels of a random colour. This gritty pattern is called noise and is mostly created in shadow areas of an image. Once created in-camera, it's difficult to edit out, but Photoshop's Noise Reduction filter should help.



Index image mode

Colours that appear blocked out and posterized are caused by saving an image as a low quality GIF, or converting to Index image mode.

Corrupted file

When files are transferred from camera to computer or across a network, they can easily be corrupted. Fix with a data recovery application such as Norton.

Blown highlights

Images put through a long editing sequence can easily be overcooked. Keep your editing to as few stages as possible to avoid highlight detail blowing out.

Unsharpened

Straight from the camera, image files won't print with maximum detail unless they are first processed with the Unsharp Mask Filter. Start with Amount 50, Radius 1 and Threshold 1.

Over-sharpened

Images are often slightly unsharp and need tweaking with the Unsharp Mask Filter. This image has been over-sharpened, using Amount 250, Radius 10 and Threshold 1.

Filled-in shadows

Excessive use of the Levels or Curves controls can make vital shadow details disappear. Use Adjustment Layers to control contrast without causing damage to the file.

PRINTING ERRORS

Despite the user-friendly nature of all printer software, knowing why a print looks poor can be frustrating for digital photographers. The following sample prints display the most frequent kinds of errors caused by settings and ink issues.

Wrong media setting 1

If you combine the use of absorbent watercolour paper with a media setting for glossy paper, you will always get a dark, muddy print. Printer software media settings match the amount of ink sprayed onto the paper with its coating. The highest quality media can take lots of ink, but uncoated paper works best with much less.

Wrong media setting 2

When glossy, photo-quality media is printed out under a setting meant for matt or plain paper, the results will be washed out and speckly. Glossy media can accept the finest inkjet dots and lots of saturated ink. This example is a pale end result, which can also occur if you print out on the wrong or uncoated side of the paper.

Over-enlarged

Both Photoshop and printer software offer you the ability to increase a print size regardless of the original resolution of the image file. This example above has been over-enlarged, resulting in a complete loss of sharpness. This is caused by a high number of newly introduced pixels that create the blurred effect.

Poor quality inks

Third-party and dye-based ink can fade within a matter of months. This example has been exposed to sunlight and has lost its magenta and yellow dyes.

Ink runout during print

If this effect appears on your print, it can only be caused by one ink colour running out mid-print. On this example, the yellow ink ran out creating a clear line.

Black tank empty

Black ink runs out quickly and will leave your print looking like this. The result looks faded and lacks the illusion of depth and three-dimensional space.

Yellow tank empty

This example shows a print made with an empty yellow ink tank. This has a profound effect on other image colours, making prints look 'moonlit'.

Magenta tank empty

Leaving both cyan and yellow inks to dominate, the lack of magenta ink will create this kind of print-out. Prints will look greenish and cold.

Cyan tank empty

Cyan is the equivalent of kingfisher blue and creates depth and contrast in a print. If the cyan tank has run empty, this reddish print-out will occur.

SHOOTING ERRORS

Although most shooting errors can be corrected in Photoshop, the more severe the mistake, the fewer creative opportunities you will have with your software. Always aim to make perfect exposures in-camera, as this will help to make the highest quality digital prints.

Underexposure

Underexposure is caused by a shortfall in the amount of light received by the image sensor in the camera. When shooting on manual exposure setting, it can be easy to underestimate the amount of light required. Dark images can be corrected in Photoshop: use the midtone slider in the Levels dialogue box until details become visible.

Overexposure

Overexposure is caused by too much light reaching the sensor in your camera. This kind of error is easily made when shooting in low-light conditions, as the camera meter tries to compensate for the lack of light. Dark, atmospheric scenes are often captured lighter than expected, especially when shooting with automatic metering modes.

Metering error

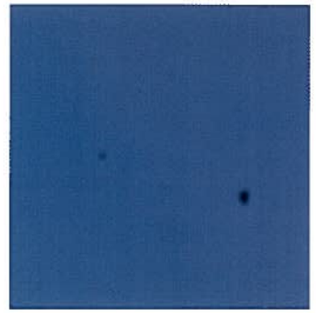
High-contrast subjects or scenes present the biggest problem for a camera meter. This example has an ultra-bright tree right next to a deep black shadow and is impossible to capture in one file. A good alternative is to make three different exposures and combine them together with a high dynamic range application such as PhotoMatrix Pro.

Lens flare

Never shoot into the sun, especially if your camera doesn't have a lens hood. Flare is caused by light entering the lens at all angles, creating honeycomb shapes.

Dirty lens

Greasy fingermarks smeared on a camera lens can result in irregular white areas on an image. In this example, look at the pale patch in the blue sky.



Dust on sensor

Physical obstructions such as dust or hair can easily stick to an image sensor, creating black marks. Avoid leaving the lens off your camera body.

Aperture error

Too small an aperture can cause more elements to be in focus than you expect. Shooting at f/16, rather than f/4, has rendered a nearby fence sharper than the photographer intended.

Autofocus error

Most cameras lock autofocus on the most central aspect of a subject, regardless of your creative intentions. Lock focus first on your main subject by half-depressing the shutter-release button.

Camera shake

If you handhold your camera and use a shutter speed under 1/125th of a second, your own body vibrations can cause camera shake and the image will be slightly blurred.