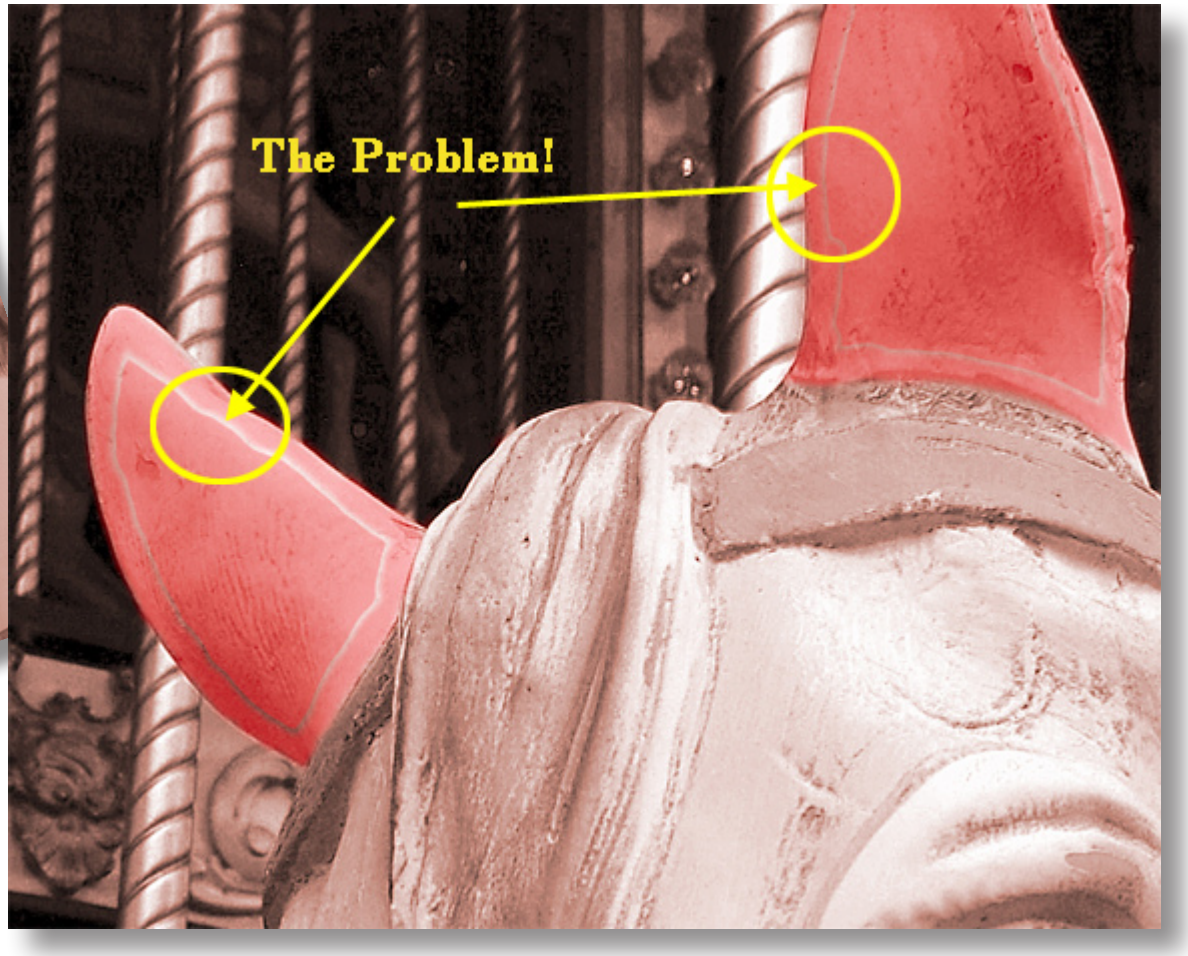
Pro Digital ebooks

Making the Paint Bucket Work!



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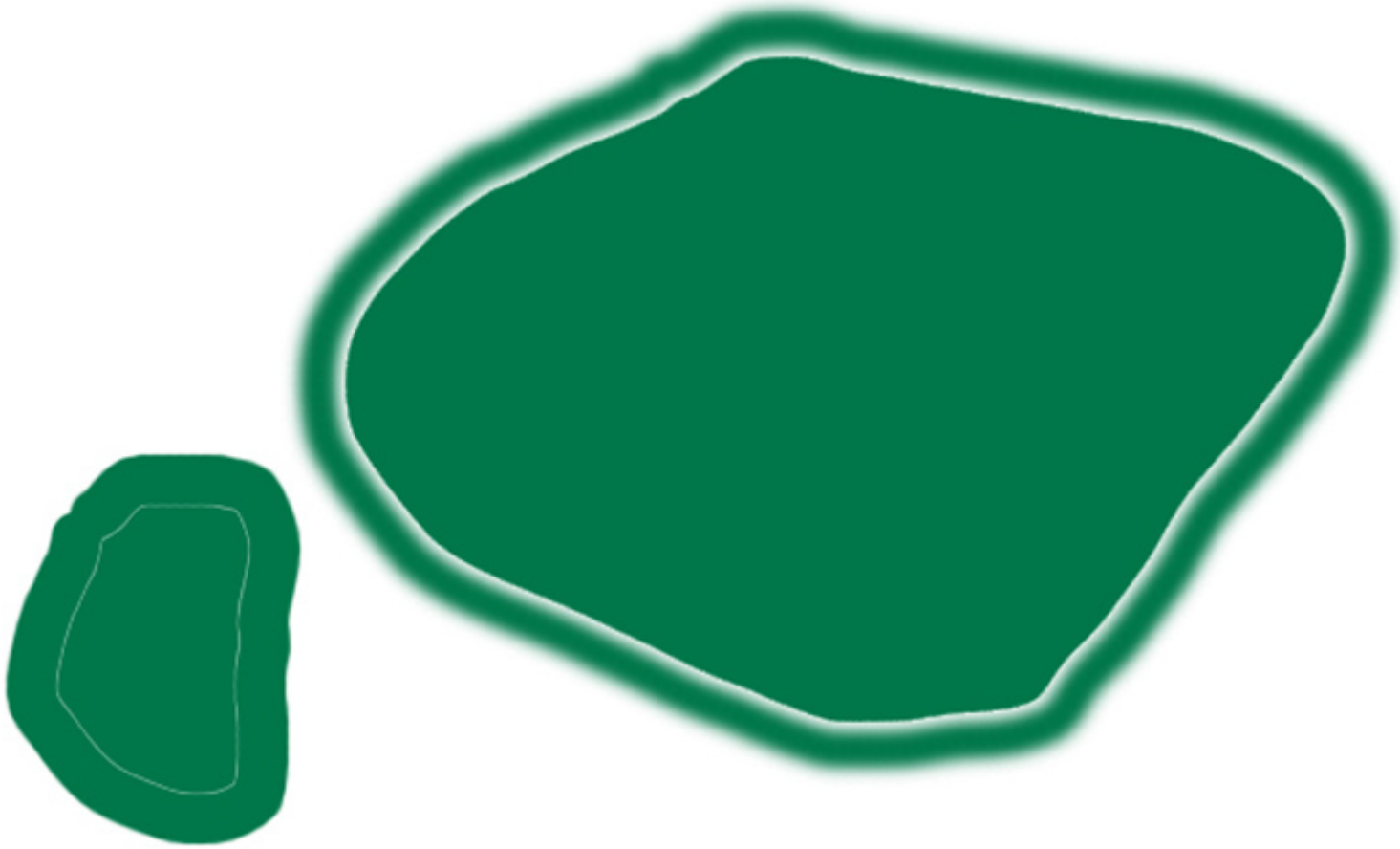
The Problem

A common practice when making selections is to paint around the edge of the area being selected, often in Quick Mask mode, and then fill the inside of the shape using the Paint Bucket tool to save time. However, when you use the Brush tool to paint around the edges of an area and then use the Paint Bucket tool to fill the inside of that painted edge, you often find that there is a line between the filled part and the original painted edge as shown at right

The larger shape was created using a soft edged brush to paint the outside edge and then the shape was filled with the Paint Bucket tool using a Tolerance value of 20.

The edge of the smaller shape was painted using a brush with the Hardness set to 100%.

As you can see, the softer the brush the greater the problem. This problem does not occur when the Pencil tool is used.



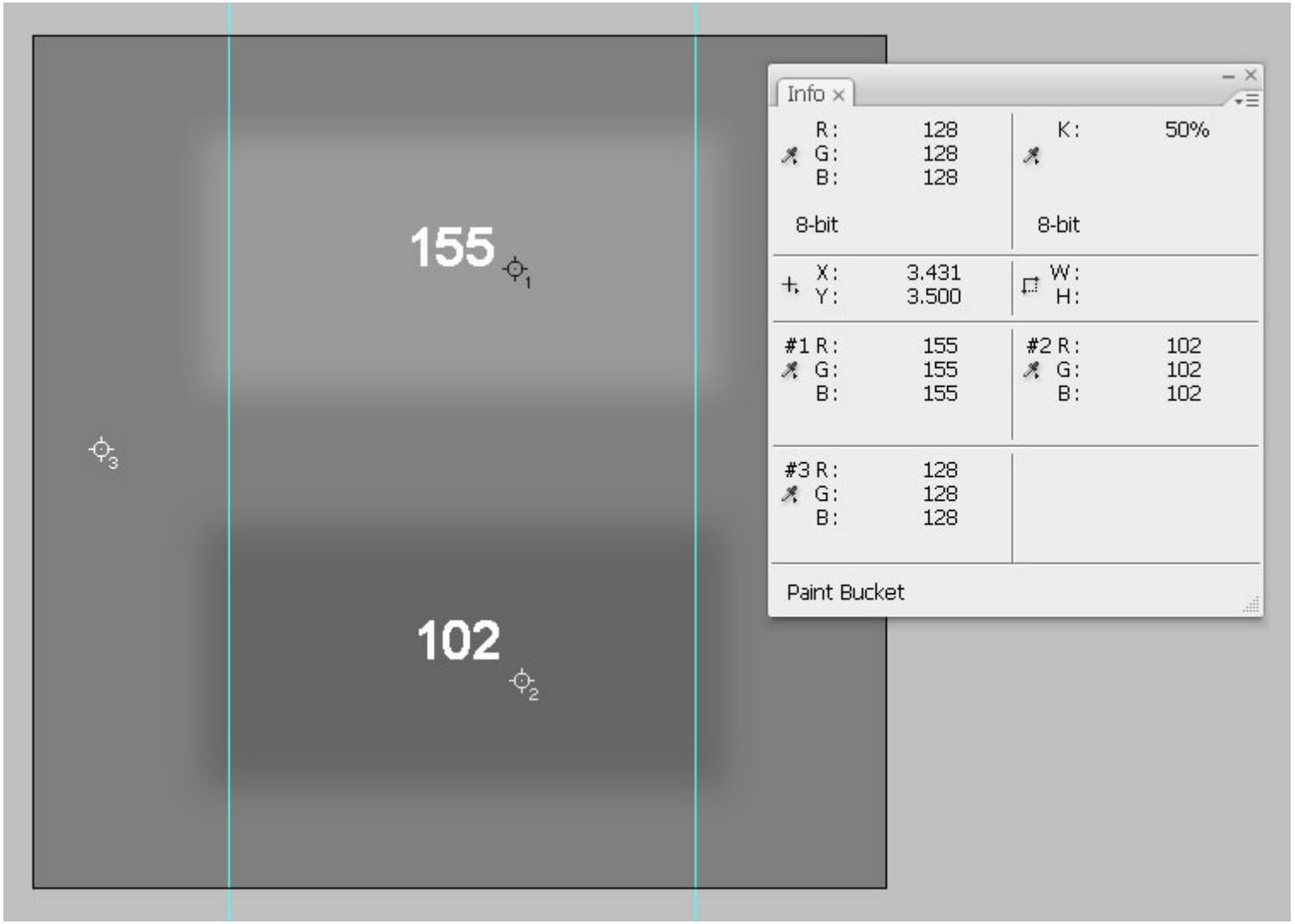
The Solution

The key to using the Paint Bucket tool to fill a shape is understanding how the 'Tolerance' value works (this is found on the options bar when the Paint Bucket tool is active). The 'tolerance value' is the number of pixel values each side of the original image pixel value the paint bucket icon is clicked on that will be affected by the fill from the bucket.

This means if you set the tolerance to 20 and then click on an image pixel with a value of 100, all the pixels between 80 and 120 inclusive will be filled by the Paint Bucket.

The test image at right has a mid tone background (value 128) with two feathered shapes, one darker (value 102) and one lighter (value 155).

I've placed some colour samplers on the image so we can see the values in the Info palette. I've also added a couple of guide lines which you will see are useful later.



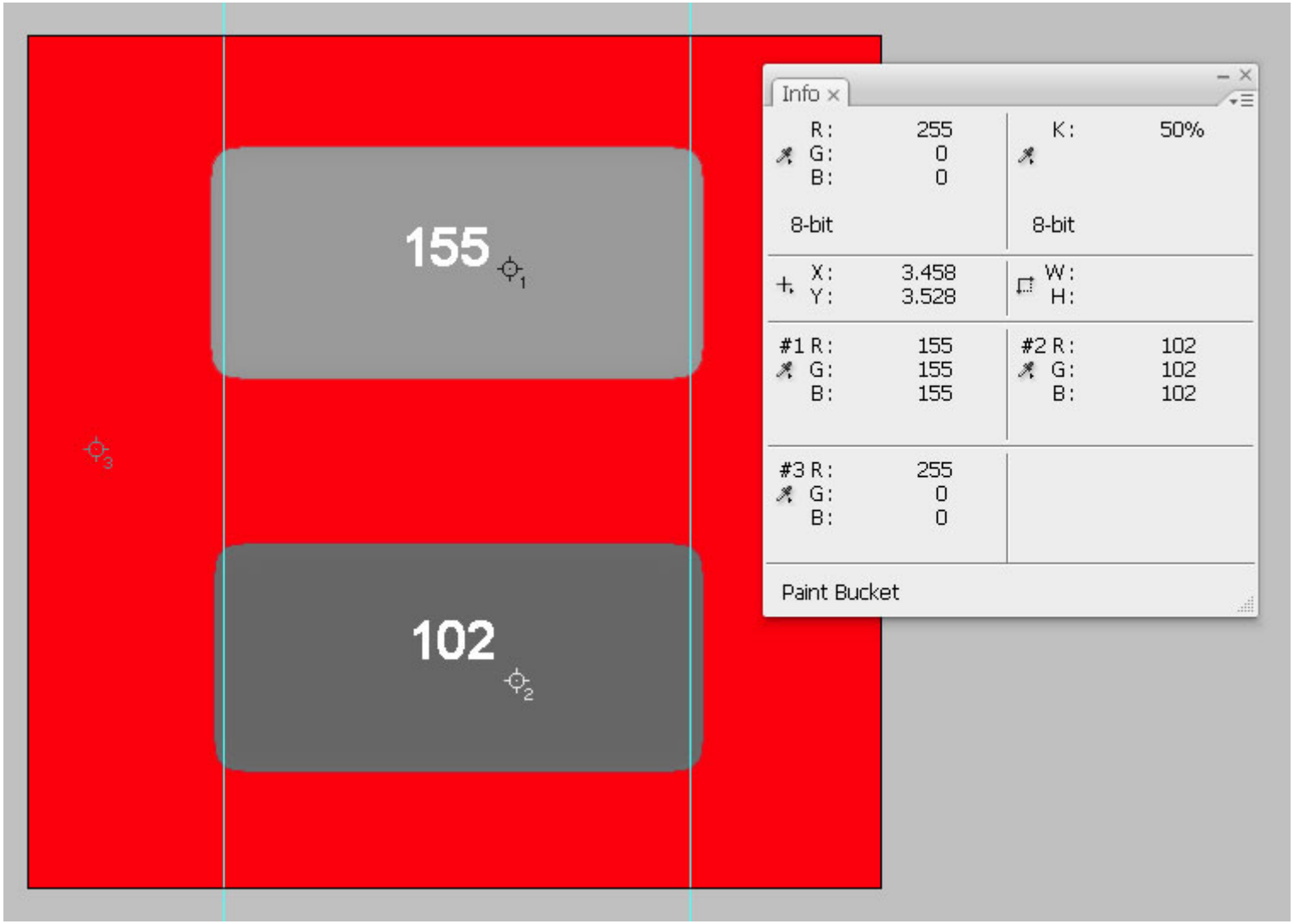
Now we will see what happens when we try to use the Paint Bucket to fill the mid tone grey background.

Remember the tolerance goes either side of the value clicked on, in this example the value clicked will always be the background of value 128.

Now, setting the tolerance to 20 gives the result at right…

Notice that some of the feathered pixels of our shapes have been filled with red. In fact, the guide lines show that both shapes have had the same pixels filled. In this case, the paint bucket filled all values from 148 to 108.

So this tolerance was not enough to cover the entire shapes but is enough to cover some of the feathering at the edges of the shapes.



OK, lets change the tolerance to 25...

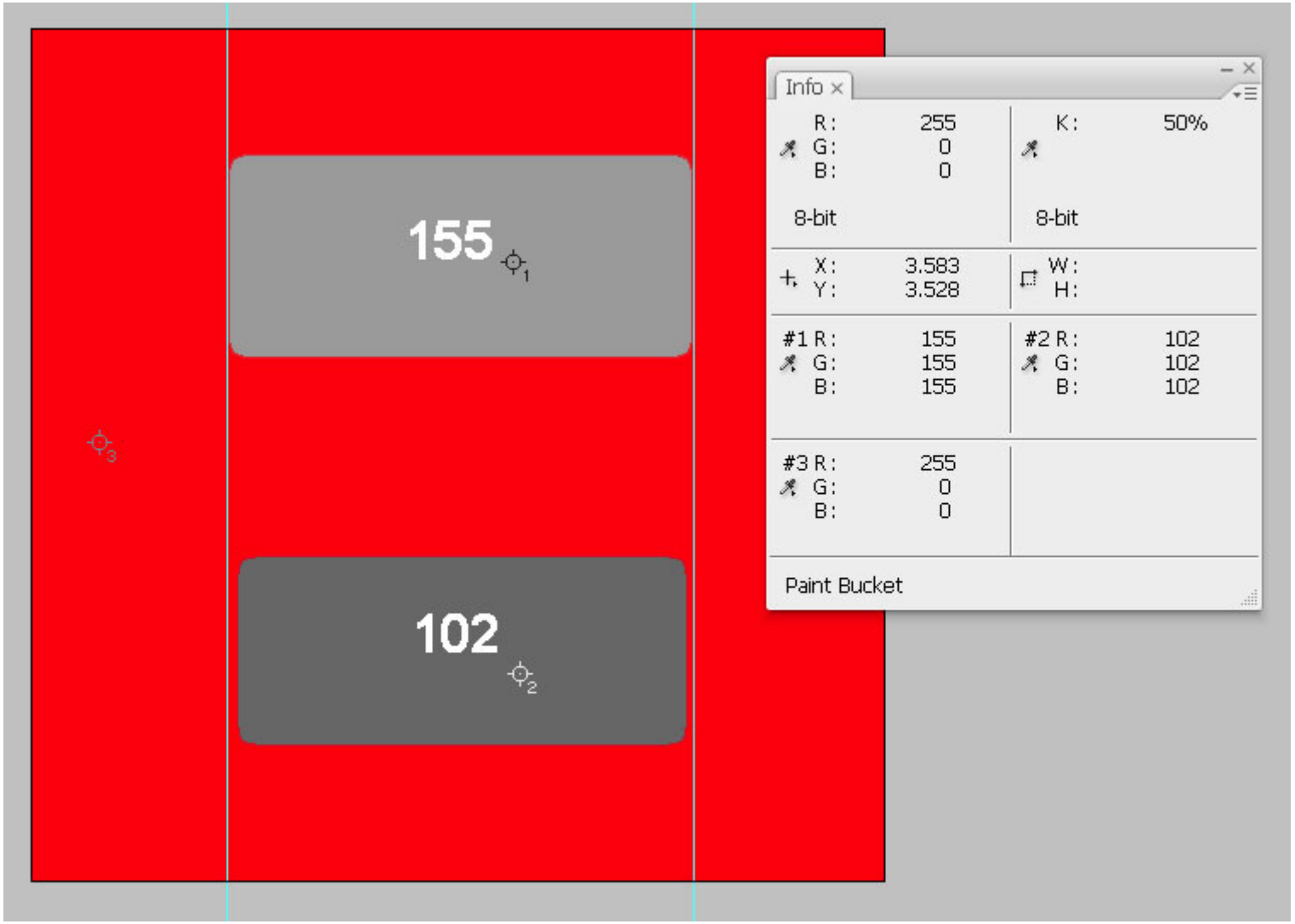
Here we see, by using the guide lines, that the lower shape has had more of it's feathered edge pixels filled than the above shape.

This is because the paint bucket is now filling the range 103 to 153.

This means that everything in the lower shape except the base tone of 102 has been filled i.e. all the feathering has gone.

In the upper shape most, but not all, of the feathering has been filled. The values not filled are the base value of 155 and any feathering at value 154.

This is why the upper shape is now slightly bigger than the lower shape(it has retained a one pixel feathered edge).

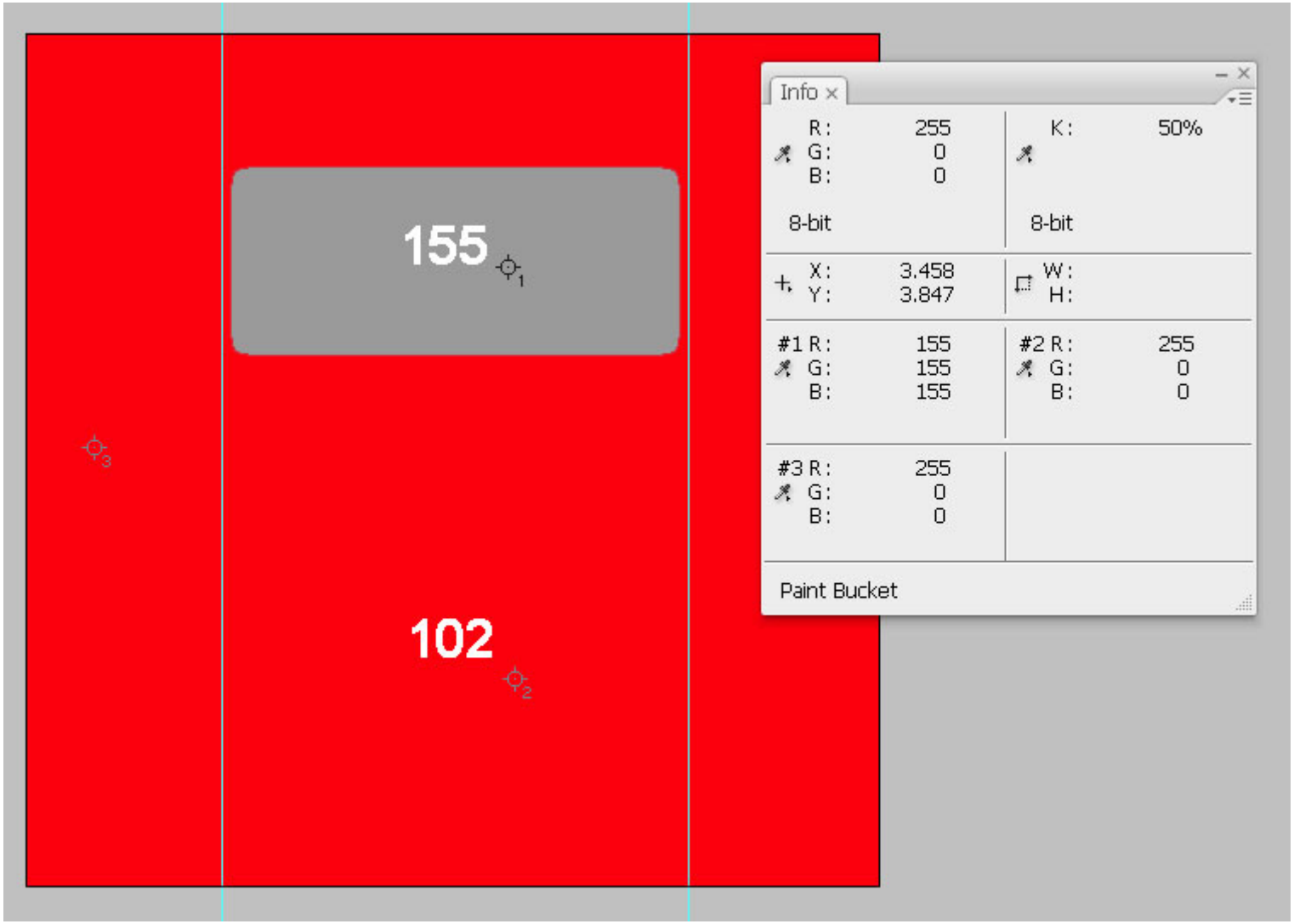


Now see what happens when we use a tolerance of 26 (you should be able to anticipate the result)...

Here we see that the lower shape has been completely filled because the Paint Bucket is now using a value range of 102 to 154. Since this range includes the base value of the lower shape (value 102) it has been filled.

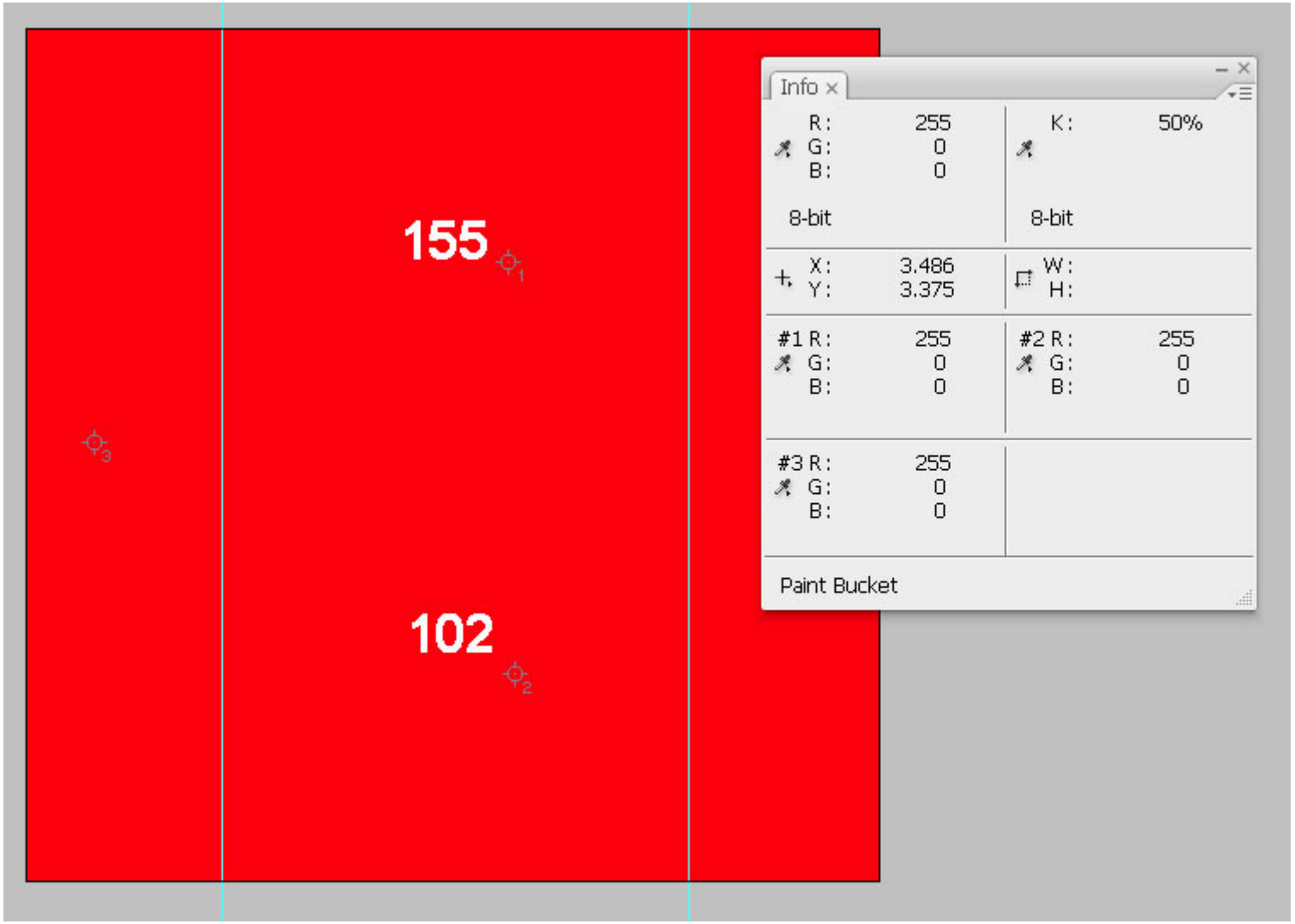
The upper shape base value (155) is still one value outside the range of the tolerance (102 to 154) and so the base tone of this shape remains.

However, all of the feathered edge that was around the shape has gone because the new tolerance range has filled all the feathered pixels that were around the shape.



We can anticipate that raising the value of the tolerance by just one value to 27 will increase the range of the Paint Bucket fill from 101 to 155.

This slightly increased range will now include the upper shape's base value and so the whole area gets filled as shown at right.



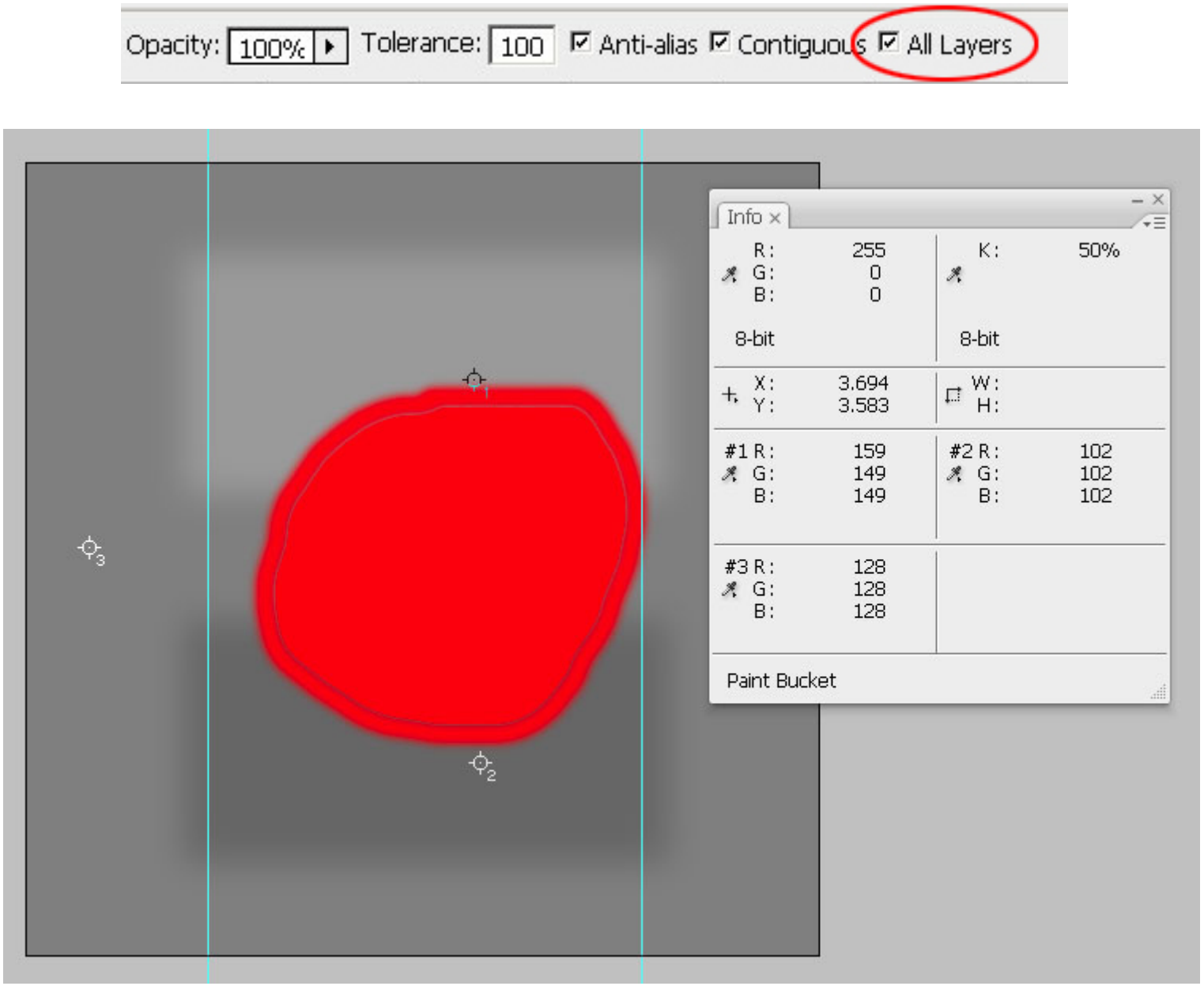
Lets apply this understanding of the tolerance value to the original problem of filling a painted edge.

Here I have created a shape using a feathered brush on a new transparent layer and filled it with the same colour.

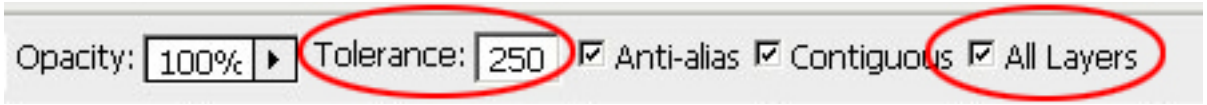
When doing a fill on a transparent layer you must have the 'All Layers' option checked on the Options bar so the pixel value from the layers below the transparent layer are used as the original reference value for the Paint Bucket range.

This time I set the tolerance to 100 and the result is a line as shown at right…

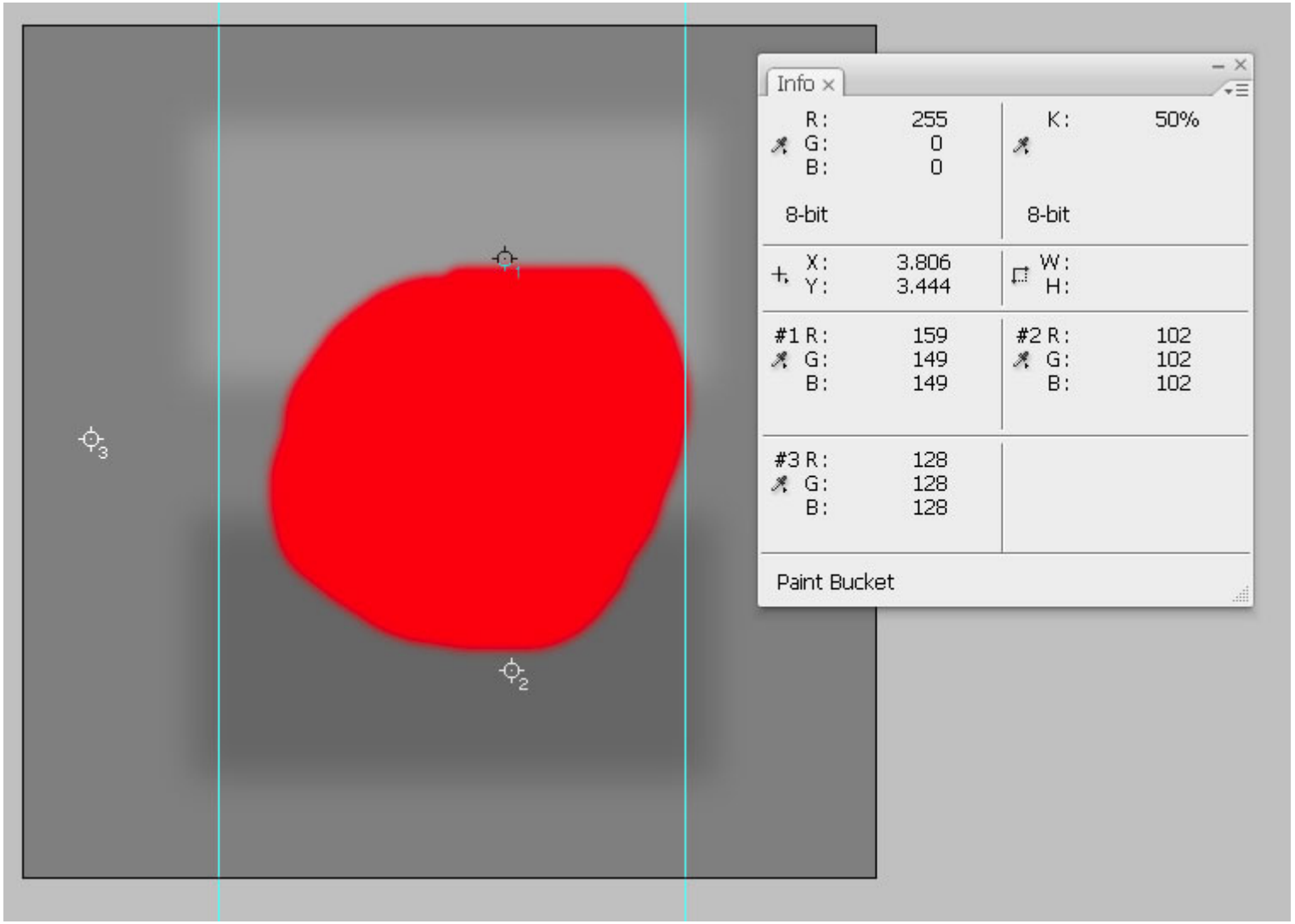
This tolerance value has filled some of the feathered edge pixels on the inside of the shape but not all of them, hence we have a line remaining.



What we need to do is increase the tolerance value until the line disappears.



A tolerance of 255 (the maximum) will fill the entire image, not wanted!



So we need a setting that fills all the feathered pixels (this is the problem!) inside our shape but nothing outside.

Note: I have tried to find a way to calculate the required value but without success (i.e. use the value from the paint colour etc).

I recommend, from my own experience, that you use a value of 250 for the tolerance value since this normally does the trick with most things. However, individual cases may need a different value that can be found with a little trial and error and applying your understanding of how things work.

So, the final result is...

Why Transparent Layers Don't Work!

Earlier, remember I mentioned checking the 'All Layers' option on the Paint Bucket options bar. This is because if you try to fill a transparent layer the tolerance value will have no effect. The reason is that the tolerance calculation requires a base value to use to work out the tolerance range but a transparent layer, by definition, doesn't have a base value. In fact, it doesn't have a value at all! Therefore, the tolerance calculation needs to pick up the base value from the layers below the transparent one and this is only possible when the 'All Layers' option is checked.
Important: The tolerance value crops up in several of the other Photoshop tools and works in exactly the same way. Now we know how it works it should be possible to use it more controllably with these other tools!

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