Complex Light Painting Exposures

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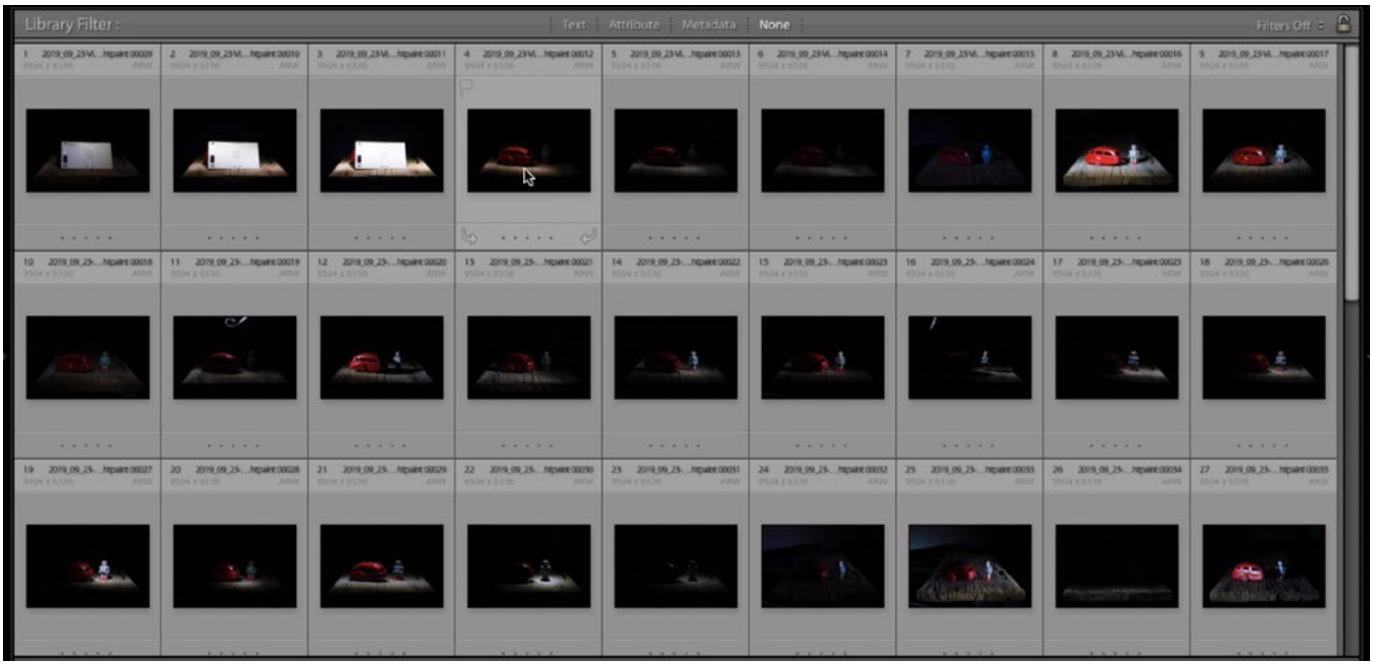
This is the follow-up lesson to the “Complex Light Painting” lesson. In that lesson, we photographed a small scene, taking many exposures while lighting the subjects from different angles. In this lesson, we’re going to combine those exposures in Photoshop to create a final, polished composite.

To start, I have loaded all of the images into Lightroom. This is where I will adjust all of the images to get them ready to be loaded into Photoshop. Note that you can also use Adobe Camera Raw, as it includes all of the same adjustment settings as those I’ll be using in Lightroom.



All of the images captured during the light painting shoot have been loaded into Lightroom.

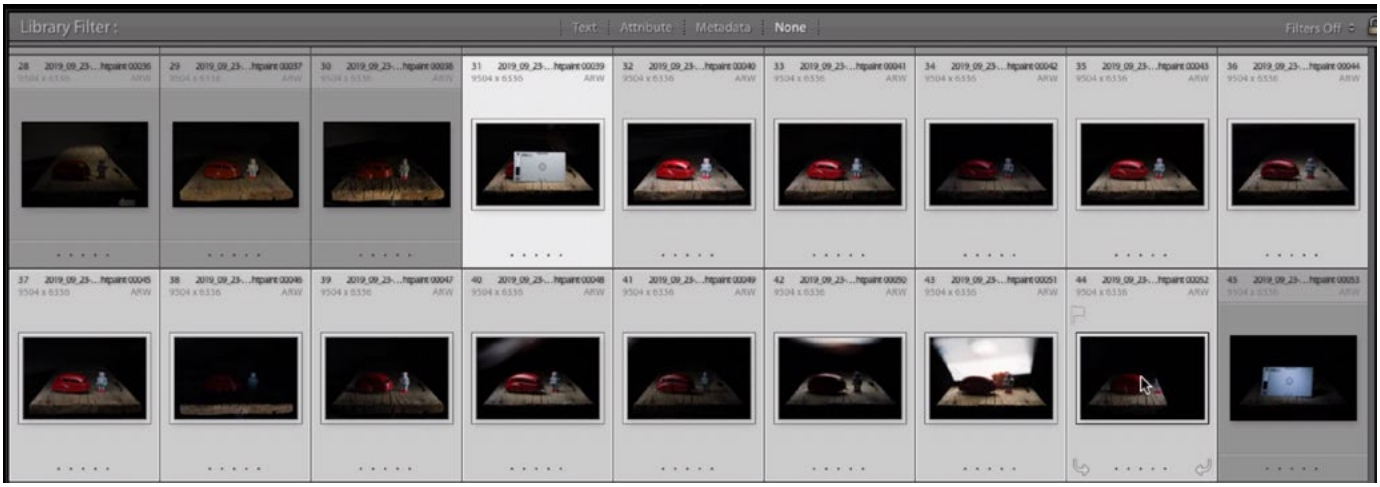
Initial White Balance & Brightness Adjustments (Timestamp 1:37)

Adjust the white balance The first image in the set is the white balance reference card. I use the WhiBal brand of card, but you can easily use a plain sheet of (non-shiny) white paper. The important thing is that it is a neutral color so that it can be used to set the white balance later.

I placed the card in the scene, pointed the light source at the card and made an exposure. If the light source was yellow, blue or some other hue, it will shift the color of this neutral gray card. In Lightroom, I can use the White Balance Eyedropper to click on the card to color-correct the image.

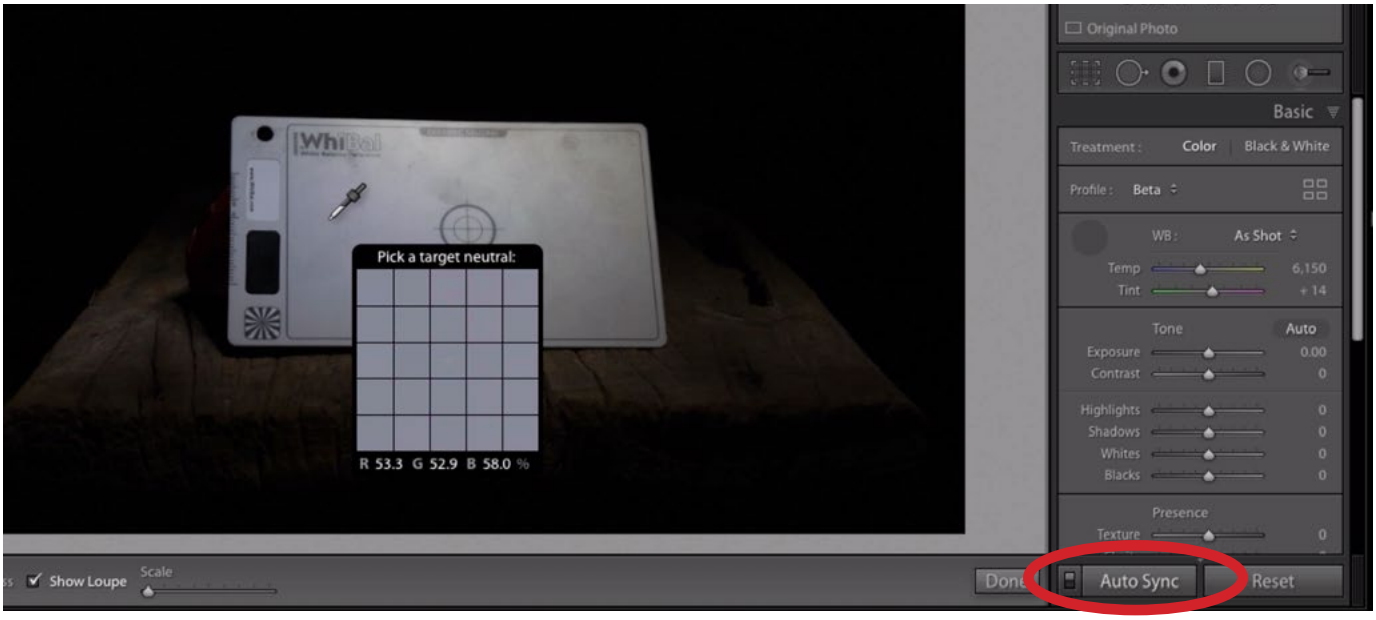
I will take an exposure of the white balance reference card any time I change light sources while creating my light painting exposures. In the video example, I can scroll down through all of the images and find three different white balance card images. This means that I changed light sources three times. I will need to set the white balance for the images in three separate groups (one for each light source).

In the Library Module, I'll click on the first image containing the white balance card. Then, I will hold down the Shift key and click on the last image shot with that light source. (It will be the one immediately before the second white balance card image.) This will select all of the images shot with the first light source and the white balance card shot will be the most selected. You can tell that it's most selected because its highlight will be a little lighter than the other images.



All of the images shot with one light source have been selected. You can see that the first image, containing the WhiBal card, is the most selected because it has a brighter highlight.

Next, I'll move to the Develop Module and I'll make sure that the button in the bottom right corner is set to "Auto Sync." This will ensure that the changes will affect all of the selected images. If it's not set to "Auto-Sync," you can change it by clicking the little light switch icon above the button. I'll activate the White Balance Eyedropper, which can be found at the top of the Basic panel on the right side of the interface, and I'll use the eyedropper to click somewhere within the white balance reference card. This will set the proper white balance for the visible image and all the other selected images as well.



The White Balance Eyedropper is being used to click on the white balance card in the first image. The Auto Sync setting (circled) is turned on so this adjustment will affect all of the selected images.

I'll tap the G key to go back to Lightroom's Grid view and then I'll follow the same process for the next two groups of images. I'll click on the image thumbnail that includes the next white balance card and I'll select all of the images that were shot with that same light source. I'll move to the Develop Module and use the White Balance Eyedropper to set the white balance for all these images. Then, I'll do the same thing for the last set of images.

Brightness Adjustments Now it's time to make some brightness adjustments before moving the images to Photoshop. I'll click on the first image, making sure it's the only image selected so that I'm only going to make changes to this one image. I'll move to the Develop Module. Here, I am mainly going to make adjustments to the Exposure setting. Occasionally, I'll also adjust the Highlight slider if I feel that the lighting is a little too hot (bright) in parts of the image. I am not looking to have the entire image be equally bright. I am looking at the brightness of the area I was lighting in each individual shot and making sure that it looks ideal. After adjusting the brightness of the image, I'll tap the right arrow key to move to the next image. I'll adjust the brightness of that image and then continue the process.

Once I have adjusted the brightness of all the images, I'll tap the G key to go back to the Grid view in Lightroom.

The Exposure slider is tweaked in every image (one by one) in order to optimize the brightness of the area being lit.

Note: In the video example, there is one shot where I rested my hand on the wood surface to light part of the scene. This was about two thirds of the way through the shoot. Because I touched part of the scene, there is a good chance that I moved it ever so slightly. If that's the case, I may not be able to use any of the images after that point in the shoot. This is because even the smallest movement will cause the image to become blurry. This is just something to pay attention to when creating your own light paintings.

In this exposure, you can see that my hand touched the wood surface. This was a mistake and it likely caused movement in the scene, which is a bad thing when light painting.

Additional Adjustments (25:26)

Now that I've adjusted the brightness of all the individual frames, it's time to move on and make any other additional adjustments. I will look through the images in Grid View and find the one where the entire scene is nicely lit. I'll click on this image to make it active. Then, I'll use the keyboard shortcut Command+A (Ctrl+A on Win) to select all of the images. Even though all of the images are selected, that one image will be "most selected" and you can see that it will have a brighter highlight than the rest of the images. This means that it's the one I'll be viewing when I move to the Develop Module.

I'll move to the Develop Module and I'll again make sure that the Auto Sync setting is turned on in the bottom right corner of the interface. With this turned on, I can make adjustments to the image and those adjustments will be applied to ALL the selected images, not just the one I'm looking at.

I already adjusted the white balance and brightness, so I will not touch the white

balance or brightness sliders in this set of adjustments. At this stage, I'll make the following set of adjustments:

Contrast: I'll increase the contrast to make things pop a little more.

Texture: I'll increase the Texture slider to accentuate the detail in the wood surface. (It's best to have a zoomed-up view when adjusting the Texture slider so that you can see how it's affecting the image.) Not every image will call for this, but I like how it affects the wood in this scene.

Lens Corrections: Under the Lens Corrections tab, I will turn on the check boxes to Remove Chromatic Aberrations and Enable Profile Corrections.

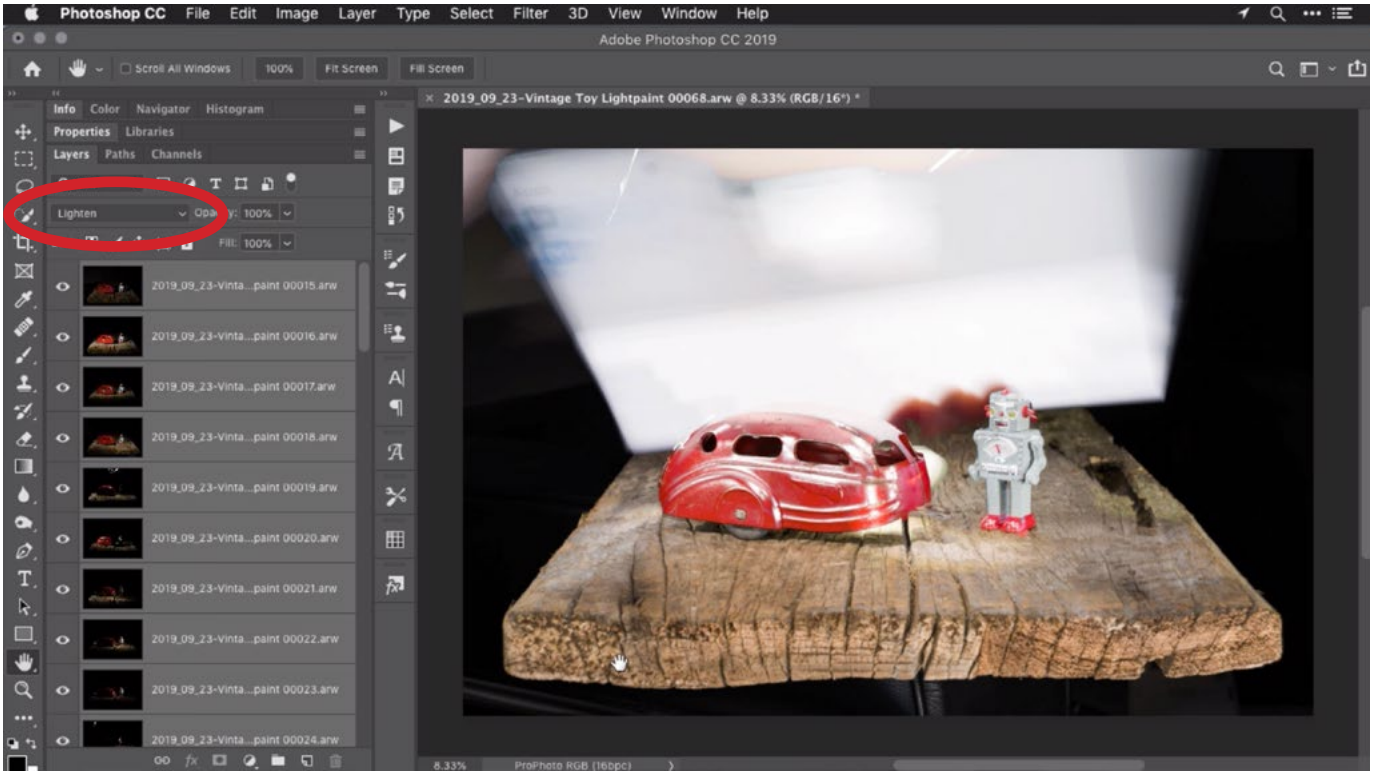
Detail adjustments: The Detail tab is where you apply any sharpening or noise reduction. There is some sharpening applied by default and the Masking slider will limit the sharpening to the areas that have detail. I'll move the Masking slider to about 20 to ensure that only the areas that have detail are sharpened.

Once I have made all of the adjustments I see fit, I will tap the G key to return to the Grid view in the Library Module.

Move the Images into Photoshop (29:45)

The images have all been adjusted and it's now time to move them into Photoshop. I will select all of the layers by using the keyboard shortcut Command+A (Ctrl+A on Win) and then I will manually deselect any images that I'm definitely not going to use in the final composite. (Ex: The white balance card images) I'll click on the Photo menu at the top of the screen and choose Edit In > Open as Layers in Photoshop. Because there are so many large image files, it's going to take a while for Photoshop to load all of the images. Once they are loaded, they will all appear as separate layers in a single Photoshop document. This will likely be a very large document. In the video example, I layered sixty 61-megapixel images and the final 16-bit document was a 5.1GB PSB file.

At this point, we can preview what all of the layers combined look like. I will select all of the layers, click on the Select menu and choose All and then change the blending mode menu (at the top of the Layers panel) to Lighten. The Lighten blending mode compares the layer you're working on to whatever the underlying image looks like and only the areas that are brighter than the underlying image will show up in the layer. Setting all of the layers to this mode will give us the brightest version of every single area in the image. This will likely not look good, but it will serve as a good starting point. This view is also a good indicator of whether the objects in the scene moved at all while I was shooting. In this example, I can see that the robot moved a bit at some point because it looks like he has doubled features in some areas.



All of the images have been loaded as separate layers in a single Photoshop document. The blending mode of every layer has been set to Lighten. The blending mode menu is circled in the screen shot above.

Choose a Base Exposure (34:56)

I am now going to cycle through each individual layer one at a time and choose one image to be my base exposure. This will be an image where I absolutely know I'm going to use the majority of the layer. After doing this, I can turn on the other individual layers, one at a time, to determine whether or not they should be included in the scene.

I will inspect the layers, one by one, starting with the top layer. In order to turn off the visibility of all the other layers, I'll hold down the Option key (Alt on Win) while clicking on the eyeball icon to the left of the layer thumbnail for that top layer. Then, I can use a keyboard shortcut to switch between the layers so that I'm viewing them one at a time. In order for this shortcut to work, the visible layer also must be active. I'll hold down the Option key (Alt on Win) and then use the square bracket keys ([ ]) to move between layers. In this case, I'm starting with the top layer so I will use the left bracket key to move down through the individual layers.

Remember, I am looking for the image where I know I want to use the majority of the exposure in the final composite. This is not going to be an image that is well lit across the entire scene because it would be hard to add any additional lighting to it. Instead, I'm going to look for a relatively dark image that still looks nice in its entirety. Once I find that image, I will move the layer to the bottom of the layer stack.

This image will serve as the base layer and it will be moved to the bottom of the layer stack.

Then, I will start turning on the visibility of the other layers, one by one, deciding whether or not I like what each exposure is contributing to the image. If I don't like what a layer is doing for the image, I will leave its eyeball icon off so that it remains invisible. If I DO like it, I'll keep the visibility on. If I only like part of a layer, I will add a layer mask to the layer and use that mask to hide the parts of the layer I don't like and reveal the parts of the layer I do like.

If some layers are misaligned In my example, I had accidentally touched the wood surface of the scene while I was shooting. This caused some of the final exposures to be misaligned because the subjects were moved ever so slightly. As I am looking through the individual layers, I will keep an eye out for any movement in the scene. In my example, I can see that some of the lower layers are not perfectly aligned. In most cases, It will not be possible to successfully nudge the layer[s] back into alignment and I'd therefore need to eliminate them from the composite. I can still TRY to align the layers, using the Move Tool and the arrow keys to nudge the layer so that it aligns with the base layer.

Add the Darker Exposures First (42:03)

I have determined which exposure is going to be the base layer and I have moved it to the bottom of the layer stack. It's time to start building up the image by adding more of the individual exposures. I like to add the darker exposures first. This will allow us to gradually build up the brightness and manually shape the light. If we were to start by adding the really bright exposures, they would overpower the darker, more subtle exposures that capture some of the smaller nuances of the scene.

I'll toggle the visibility of the darker layers, one by one, determining whether I like what they're adding to the scene. If I like what a layer is adding (or part of what it's adding), I'll leave the layer's visibility turned on. In many cases, I'll like what a layer is contributing in one particular area but I won't like what it's doing to the rest of the image. In that case, I will add a layer mask by clicking the Layer Mask icon at the bottom of the Layers panel. Then, I will add black to the layer mask in order to

hide the areas I don't like. You can add black to a mask either by using the Brush Tool, set to use a black foreground color, or you can create a selection and then fill that selection with black.

Even after I add and paint on a layer mask, I will continue to toggle the visibility of the layer so I can see before-and-after views of what the layer is adding to the image. I may tweak the mask further, toggle the visibility again, and repeat.

When I'm satisfied with the look of the current layer, I'll move on to the next of the darker exposures and repeat the process.

I like this particular layer in general, but there are some areas where it brightened the image too much. There is also a light streak across the top of the layer. Here, I added a layer mask and am painting on the mask with black in order to hide the undesirable areas.

The layer on the left shows the base image alone. At right, another layer was added and masked to introduce some more light on the trailer. This shows how I gradually build light into the scene, layer by layer.

Layer mask tips There will be some instances where I only want to use the smallest part of a layer. Maybe I like how a particular layer adds a small highlight to an edge of the little trailer's window. I may not like any other part of the layer, but that little highlight is something I want to keep. In that case, I would again create a layer mask, but because I only want a tiny part of the layer to be visible, I will start with a completely black mask. You can create an inverted (all black) mask by holding down the Option key (Alt on Win) while clicking on the Layer Mask icon at the bottom of the Layers panel. I'll do that and then use a small brush to paint with white over the part of the layer I want to be visible (the nicely-lit edge of the trailer).

Sometimes I'll use a layer to add the tiniest detail. Here, I used a layer to add a highlight on the edge of the trailer's window. The left image is before the highlight was added and the right image is after it was added. I started with a black mask and used a small brush to paint white onto the window's edge.

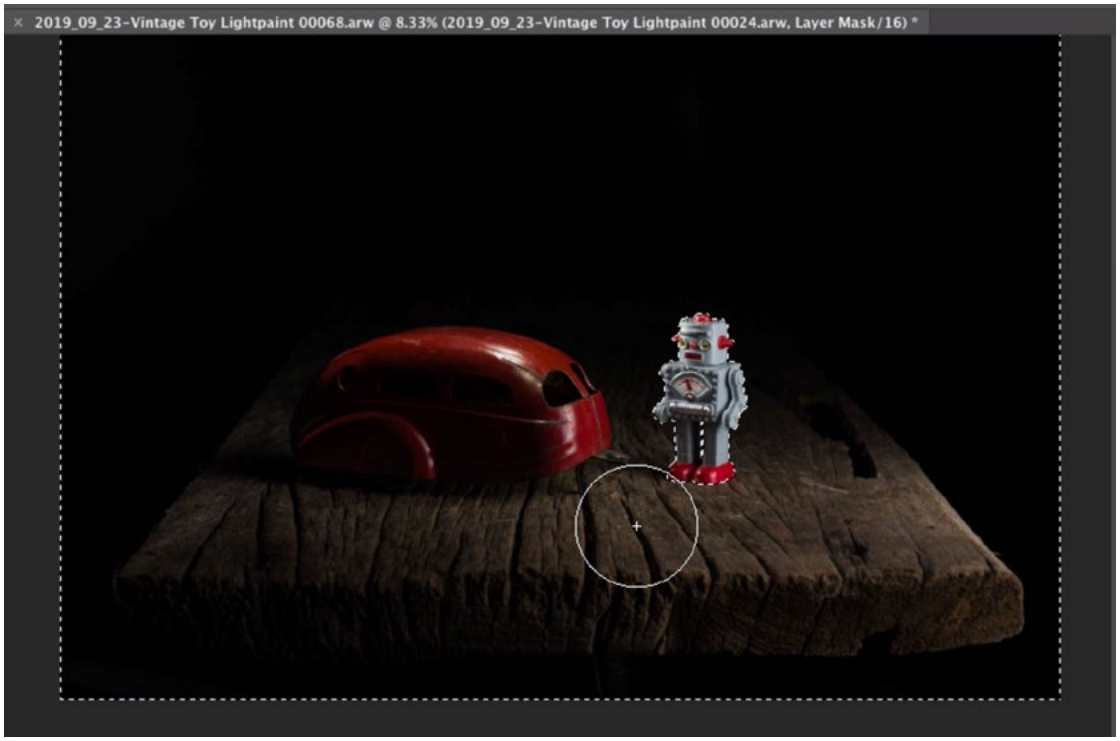
If you want to see a before-and-after view of the layer, with and without the layer mask applied, you can temporarily disable the mask by holding down the Shift key and clicking on the layer mask thumbnail. Do the same thing to re-apply the layer mask.

You can temporarily disable a layer mask by holding down the Shift key and clicking on the layer mask's thumbnail.

A different selection was saved for each of the three main elements in the image.

It can be useful to create a perfect selection around the subject[s] so that you can easily apply that selection to various layer masks. When creating a selection, turn on the visibility of some of the brighter layers so that the entire subject is very well lit. This will help the selection tools to be more accurate. After creating an accurate selection, click on the Select menu at the top of the screen and choose "Save Selection." You'll be prompted to name the selection and then click OK. After saving a selection, it will appear within the Channels panel, which is usually grouped with the Layers panel. To load a selection, hold down the Command key (Ctrl on Win) and click on the selection's thumbnail in the Channels panel.

With this selection of the subject, you can paint on a layer mask and the selection will limit your paint strokes so you're only painting on the subject, without any accidental overspray. If you instead want to limit your paint strokes to everywhere EXCEPT the subject, you can invert the selection by clicking on the Select menu and choosing Inverse. Then, everything except for the subject will be selected.



I loaded the selection of the robot and then inverted the selection so everything EXCEPT for the robot was selected. Here, I am painting on the layer mask and the selection is preventing the paint strokes from affecting the robot.

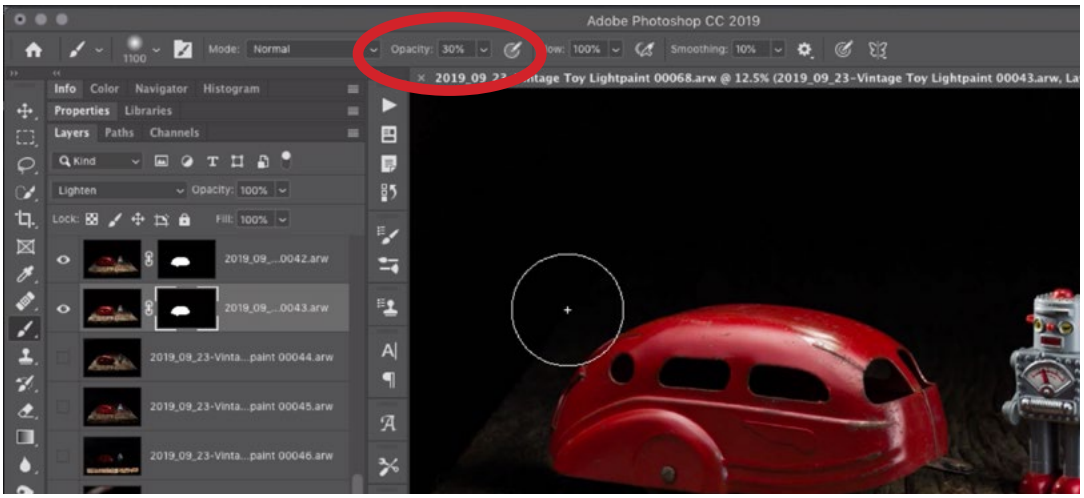
Add the Brighter Exposures (1:07:53)

Up until now, I have only been adding the darker exposures, slowly accumulating and shaping the light. Now that I have added all of the dark exposures that I think I need, I'm going to move on to the brighter ones. In this example, these exposures were lit with the white screen of an iPad.

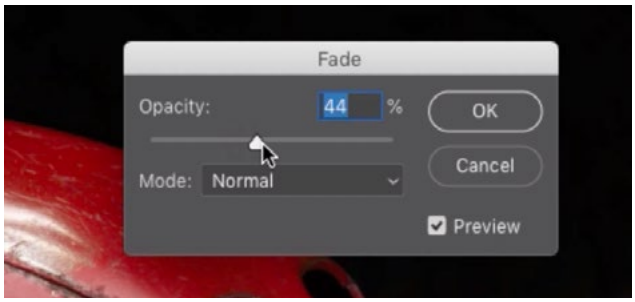
I need to be careful when incorporating parts of the brighter exposures because it's easy to get uninteresting, generic lighting. This is because the entire subject becomes more evenly lit and some of the contouring shadows are eliminated.

I will mainly use these exposures in areas where they create long, soft highlights, accentuating a certain feature. I will again use layer masks to limit the area where the layers are visible.

Paint at a lower opacity When painting on a layer mask attached to one of the brighter layers, it can be nice to set the brush to a lower opacity so that you're gradually painting in the change. When the Brush Tool is active, you can change the opacity of the brush by using the Opacity setting that's found in the Options bar above the main image window. It's also nice to use a very soft-edged brush when gradually building up an effect like this.



To prevent the current layer from adding too much light, I am painting with white on the layer mask with the Brush Tool set to an opacity of 30%. (circled)

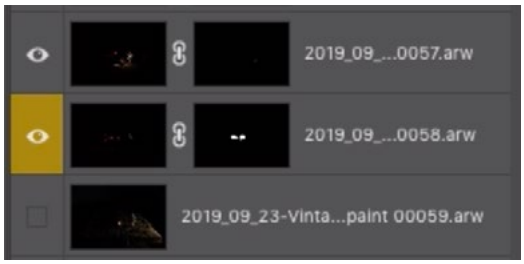


The Fade command is being used to lessen the effect of my most recent paint stroke.

If you create a paint stroke and then realize afterwards that the change was too intense, you can click on the Edit menu at the top of the screen and choose "Fade Brush Tool." A dialog will appear and you can use the Opacity slider to lessen the effect of the stroke. Note that the Fade command only applies to the most recent step you took in Photoshop.

I find that when I started out with light painting, I over-lit everything. Perhaps that's because it was more of a novelty to me. Now that I've been doing it a while, I am much more selective in what gets lit.

As I'm moving through the layers, I may find one or two that I'm not sure I want to use in the final composite. I don't want to use the layer immediately, but I want to come back later and review it. If this is the case, I will assign a color label to the layer and this will serve as a visual reminder. To assign a color label, right-click on the layer in the Layers panel and choose a color label from the menu that pops up.



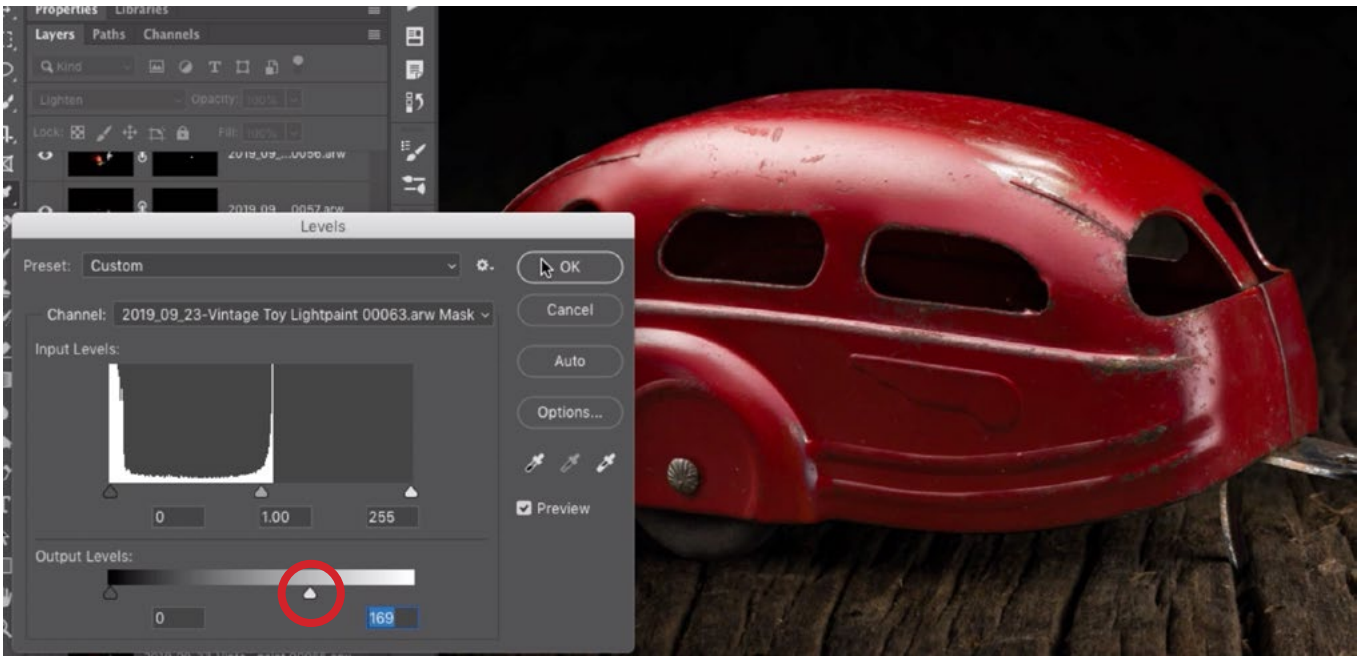
If I am unsure of whether I want to use a layer, I'll assign a color label so that I later remember to evaluate the layer.

Adjust a Layer Mask with Levels (1:32:49)

I have mostly been creating layer masks that are made up of solid white and solid black. The white areas will make the layer completely visible and the black areas will completely hide the layer. I can also adjust the mask so that it's partially filled with a shade of gray. This would make the layer partially visible in the gray area. In the example, I have a layer that is being used only in the area where the trailer's middle windows are. The rest of the layer is hidden via a layer mask. The layer is lighting the inside of the windows, but I don't want quite as much light as the layer is providing. In this instance, I will use Levels to adjust the mask, making the white area (the part that's revealing the layer) a bit darker.

I'll first make a rough selection around the part of the mask I want to affect (the windows). This will make it so the Levels adjustment can only affect that area. I'll make sure the layer mask is active, I'll click on the Image menu and choose Adjustment > Levels. The Levels dialog will appear.

I'm going to focus on the slider at the bottom of the box and I'm going to use the white slider on the right side of this tone gradient bar. This slider will take whatever used to be white and change it to the tone that the slider gets set to. I'll start by dragging this slider all the way to the left side of the gradient. This will make the mask completely black. I'll slowly drag the slider to the right, introducing more and more light into the window. I'll find the position where the window has the ideal amount of light and then click OK.

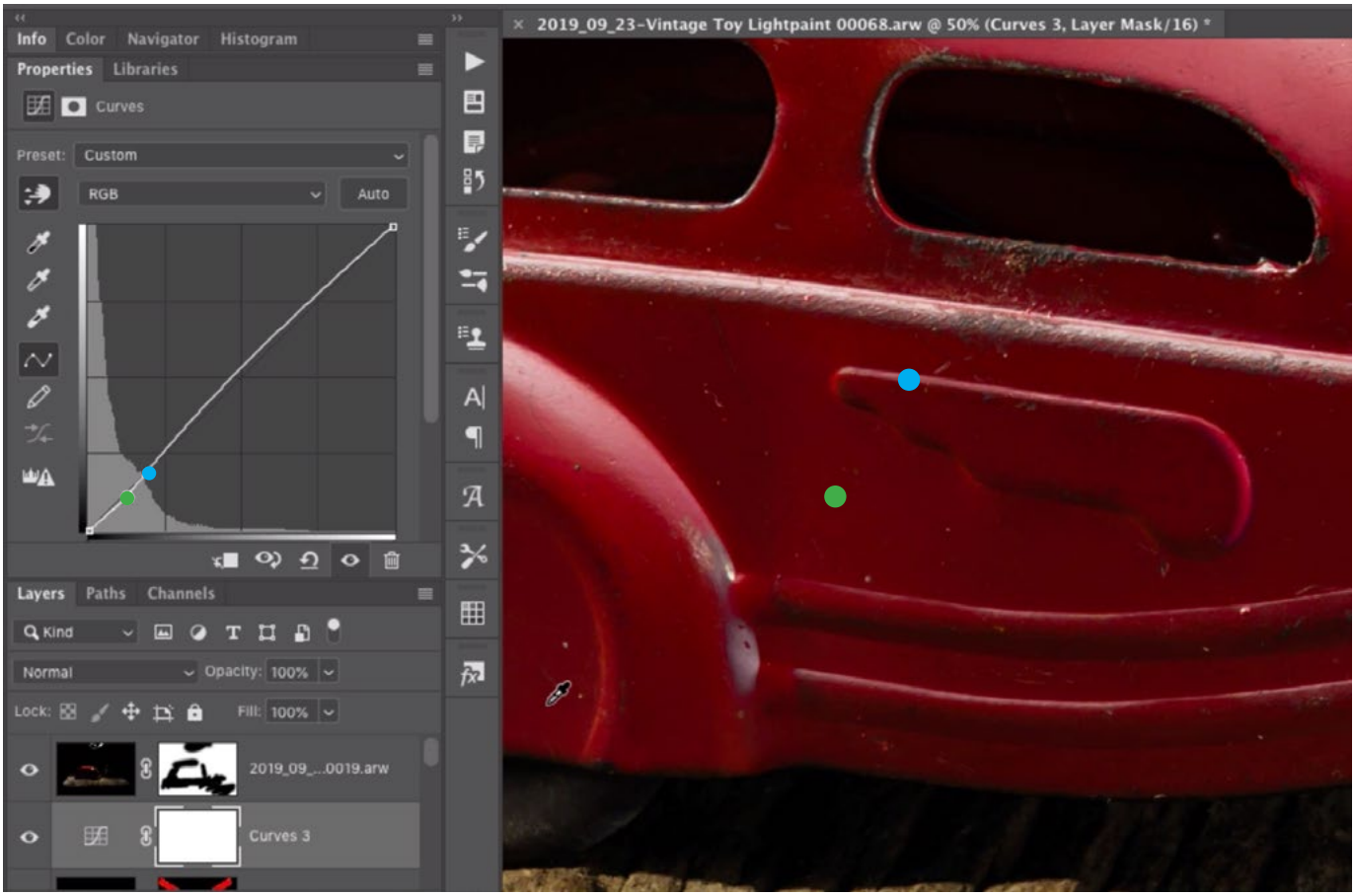


A Levels adjustment is being used to adjust part of a layer mask. I want the white parts of the mask to be a bit darker so that it's not revealing the full effect from the layer. To achieve this, I'm taking the white slider below the tonal gradient and I am moving it to the left (circled).

Adjust a Layer with Curves (1:36:33)

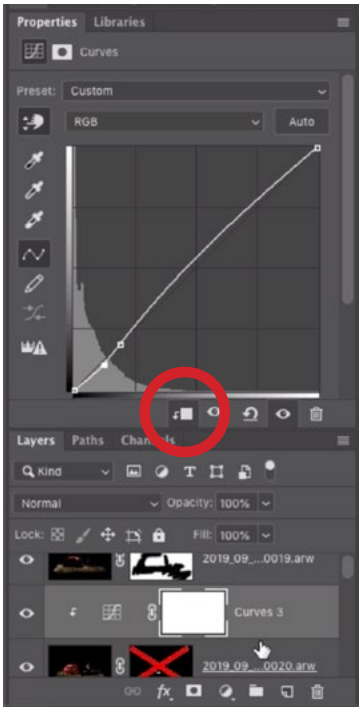
If I don't like the brightness of an area in a layer, I can also adjust the layer itself by using a Curves adjustment. This will allow me to adjust a very particular tonal level. In the example, I have a layer that is adding light to the side of the trailer. It's a little too bright in one particular area. I want to tone it down without also darkening the nice highlights.

I'll click on the Adjustment Layer icon at the bottom of the Layers panel and choose Curves from the pop-up menu. The Curves settings will appear in the Properties panel. I'll make sure the targeted adjustment tool is turned on. This is the little hand icon located on the left side of the panel. Using the targeted adjustment tool, I'll click on part of the highlight that I don't want to change. This will place a point on the curve and this point will lock that tonal range in place so it can't change (as long as I don't move that point on the curve). Then I'll add a second point by clicking on the side of the trailer in the area I want to darken. With this point still active on the Curves chart, I'll use the down arrow key to slowly nudge the point down, darkening the targeted tone. I'll watch the side of the trailer as I do this, stopping when it looks to be an appropriate brightness level.



I used the targeted adjustment tool to click and place two points on the curve (blue and green). The first point (blue) was placed on the highlight and it was left in place so that the highlights would not change. The second point (green) was placed on the area I want to darken. In the Curves chart, I am nudging that point down in order to darken that area.

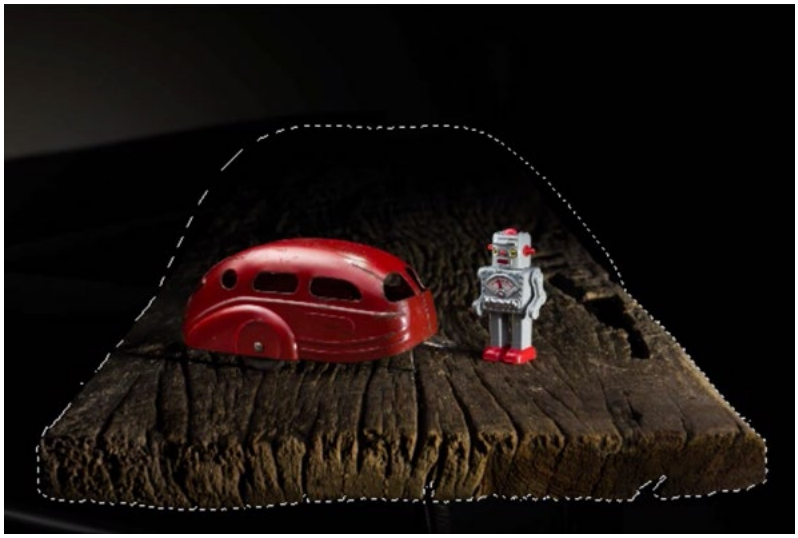
I only want this Curves adjustment to affect the one layer (the layer that's immediately beneath the Curves adjustment layer) so I'll "clip" the adjustment layer to the one beneath it. When you clip a layer, it makes it so that layer is only visible in areas where the underlying layer is also visible. To clip an adjustment layer, click on the left-most icon on the bottom of the adjustment layer's Properties panel. It looks like a little square with a down-pointing arrow next to it. The layer will become indented in the layers panel and a down-pointing arrow will appear to the left of the layer thumbnail, indicating that it's being clipped.



I clipped the adjustment layer to the underlying layer by clicking on the clipping mask icon in the Properties panel (circled).

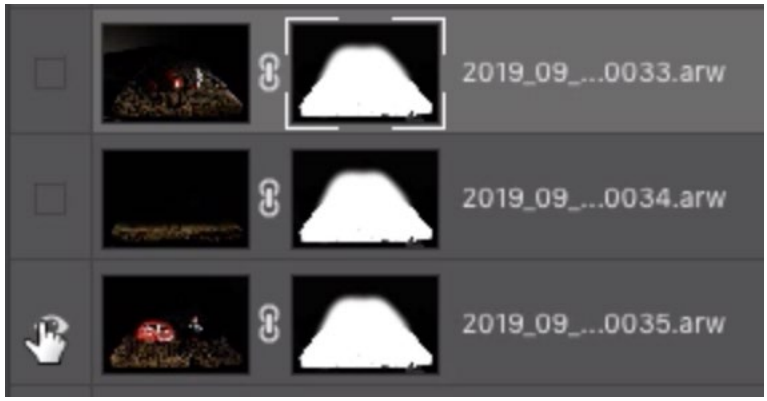
Add the Surface/Background Exposures (1:37:45)

I will always focus on lighting the subjects first and then I'll move on to light the background. I have sufficiently lit the robot and the trailer so I'll now move on to add the exposures that were captured to light the wood surface. Earlier in the lesson, I had created and saved a selection of the wood and I will load that selection by holding down the Command key (Ctrl on Win) and clicking on the selection's thumbnail within the Channels panel.



I loaded the saved selection of the wood surface.

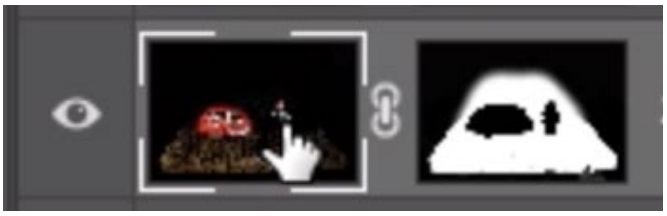
I'll make sure that the active layer is one that was created to light the wood and I'll add a layer mask. Because there is an active selection as I create the layer mask, that selection will automatically be applied to the mask. Now, the wood surface is the only visible part of the layer. I want this to be the case for all the exposures that were captured to specifically light the wood, so I'll copy the layer mask to all of those layers as well. Then, I will go through those layers, one by one, and toggle their visibility to see whether I like what they're adding to the scene.



I converted the selection of the wood into a layer mask and then copied that mask to all the layers that were captured to light the wood.

Here, you can see a before and after view where a layer was added to bring more light onto the wood surface.

There are some layers where I like the lighting on the wood, but I don't like the overspill of lighting on the robot and the trailer. In this case, I could simply adjust the layer mask so that the layer is not affecting those subjects. I had created saved selections of the subjects so I'll load those selections and then fill the selections with black (on the layer mask). If the background color is set to black, you can easily fill a selection with black by using the keyboard shortcut Command+Delete (Ctrl+Delete on Win).



On the layer mask, I filled selections of the trailer and robot with black so that the layer would only be visible in the area where the wood is.

Clean up the Layers Panel (1:42:50)

At this point, I know which of the layers I'm definitely not going to use in the composite. These are the layers that have their visibility turned off. To clean up the Layers panel, I will delete these layers. I can delete them all at once, but before doing so, I'm going to temporarily turn on the visibility of the layers that have a color assignment. These are the layers I have yet to decide on. Then, I'll click on the menu in the top right corner of the Layers panel and choose "Delete Hidden Layers." This will dramatically reduce the file size of the document and tidy up the Layers panel. I can now turn off the visibility of the layers with the color assignments because I still need to make decisions on whether I want to use those.

I'll work through the layers with the color assignments and determine whether I want to use each one. Once I decide, I will remove the layer's color label. I'll then delete the ones I determined will not be useful.

Review & Evaluate each Layer (1:47:40)

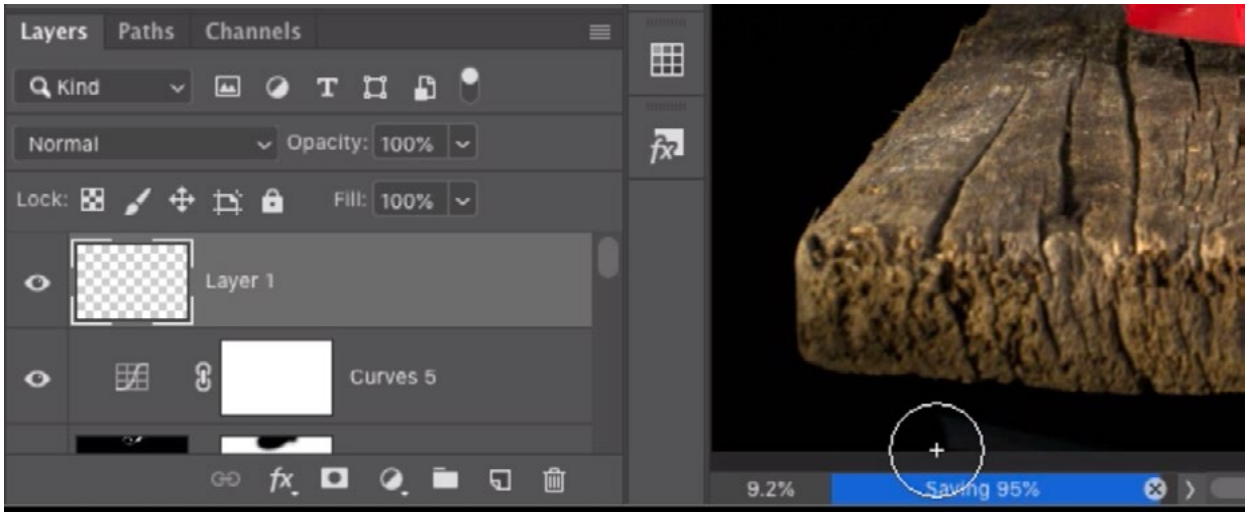
This last step is only for those who are pretty meticulous with light painting and Photoshop. To finish the composite, I will go through every layer and repeatedly toggle it's visibility, making sure that I like what it's contributing to the image. I will also toggle the visibility of every layer mask to make sure that it's revealing the best part of the layer. As I do this, I will make small tweaks to each mask to make sure they're all perfect.

Review Image as a Whole (1:49:51)

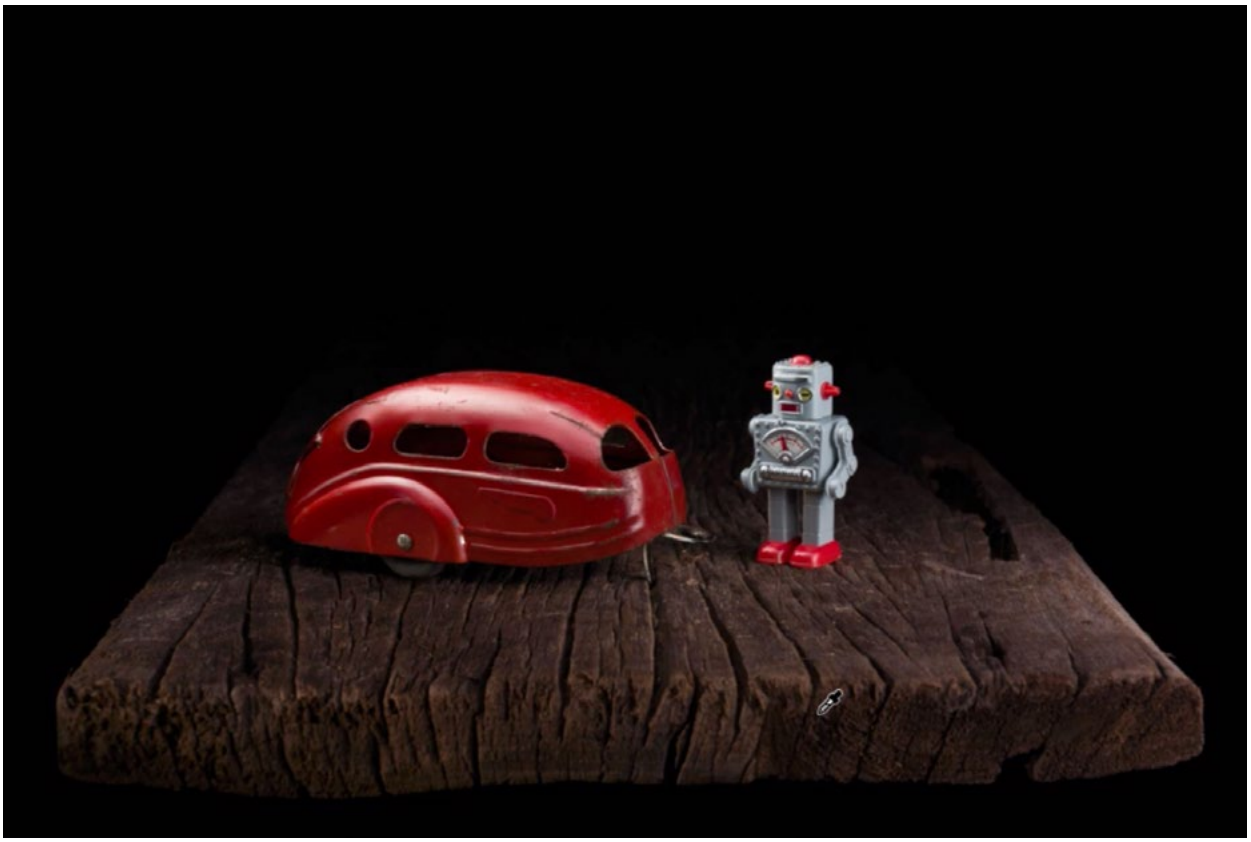
The last thing I will do is look at the image as a whole and adjust it as if it were a normal image. This may include adjustments to contrast, saturation, overall brightness, etc. I will also make sure that the items in the scene have appropriate shadows because light painting can result in light falling in areas where there should be shadows. If I need to add any shadows, I will do so at this point. I would toggle the visibility of the layers that could potentially be lighting the underside of the trailer and when I find the ones that are contributing to the lack of shadow, I'll paint on their masks to hide the lighting effect and therefore re-insert the shadow.

I also like to temporarily brighten the image as a whole so that I can make sure there is nothing going on in the background. To do this, I'll create a Curves adjustment layer at the top of the Layers panel and I'll drag the top right corner of the curve line far to the left. This will make everything really bright and allow me to see if there's anything visible in the background. In this case, there is something in the bottom left corner of the frame. I can hide this by creating a new layer at the top of the Layers panel and simply painting with black over the area.

A Curves adjustment layer was added at the top of the layer stack. The right point is being dragged to the left (circled) in order to brighten the image a lot. This allows me to see if there's anything going on in the dark background.



After temporarily brightening the image, I could see that there was something showing up in the dark background. Here, I created a new, empty layer at the top of the layer stack and I am painting with black to hide it.



Here is my finished composite.