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Green Screen Tutorial Guide

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PREFACE

Creating a successful green screen dropout requires even light and presents two main challenges. The first relates to light bouncing off of the green background onto the subject, also referred to as spill. The second challenge is to create proper contrast between the background and the subject at point of exposure.

Spill can be minimized by providing 6 to 8 feet of space between the subject and background. Keeping in mind that this amount of distance between the background and subject is ideal, our tutorial provides tips on mitigating spill in less than ideal conditions. Creating proper contrast between the background and subject is necessary so that crisp, clean extractions that are free of spill, noise, and background artifacts can be performed. Lighting the side of the subject is an efficient way to create suitable contrast between the subject and the background. The amount of contrast can be increased by using a balance of hard and soft light sources, though harder sources are more difficult to use when shooting a moving subject.

In the examples provided, shoot-through umbrellas are used to light the subject, while silver reflective umbrellas modify the strobes and light the side of the subject. The setup is completed by a hair light modified with barn doors aimed at the top of the subject's head and a Roscoe magenta number 3318 gel. The hair light helps to shape the subject and ensure a clean dropout.

The following examples explain setup and exposure procedures for several possible shoot scenarios.
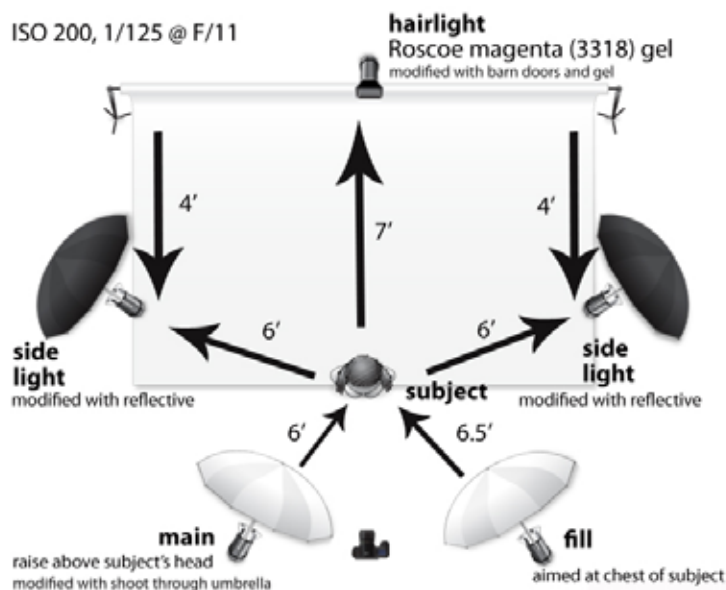
1 even lighting

2 create contrast

3 reduce spill

4 crisp clean extractions

SETUP WITH IDEAL SPACE - PAPER BACKGROUND

Diagram 1 - Final Exposure Used: ISO 200, 1/125 @ F/11

ISO 200, 1/125 @ F/11

hairlight
Roscoe magenta (3318) gel
modified with barn doors and gel

4'   7'   4'

side light
modified with reflective

6'   subject   6'

side light
modified with reflective

6'   6.5'

main
raise above subject's head
modified with shoot through umbrella

fill
aimed at chest of subject

EQUIPMENT USED FOR TEST EXAMPLE:

- Nikon D300 with a 50 mm F/1.8 lens
- ExpoDisc to set custom white balance (a custom white balance is recommended)
- Bowens side and hair light
- Novatron main and fill lights
- Savage 9 ft. Tech Green paper background

BACKGROUND

A seamless background is essential for creating crisp extractions. It is important to ensure that the paper is taut, free of creases or tears, and that no edges can be seen in the frame. In the final image, the background must also be evenly lit from edge to edge.

To determine placement of the subject, measure out from the center of the background. In the example, 7 feet was measured from center of the background.

SIDE LIGHTS

Correct placement of side lights is important to ensure sufficient contrast and limit background spill. Strobes should be placed on both sides behind the subject towards the center of their back. The strobes should be of equal exposure to ensure contrast on the subject's edges and limit spill.

For this example, strobes were placed on light stands 4 feet from the background, extended along the floor, and were raised to the same height as the subject. The strobes used were both 500 w/s lights set at 1/3 power. The exposure of both lights read ISO 200, 1/125 at F/4. Silver reflective umbrellas were used to modify the strobes.

HAIR LIGHT

The hair light is used to separate and shape the subject from the background, as well as eliminate green spill coming from the background. It should be raised above the background and aimed at the top of the subject's head. Modifiers should be adjusted accordingly to ensure that the top of the subject's head is lit, and to prevent additional spill from creating hotspots on the subject or background. Be aware that the software used to create the dropout can add noise in overexposed areas. A magenta gel can be used to filter the hair light and offset green spill. The challenge with using a magenta gel is to use a shade of magenta that is not noticeable in the final image.

In the example setup, a light stand with a 750 w/s strobe was placed behind the background and modified by barn doors and a Roscoe magenta gel number 3318. The exposure reading was ISO 200, 1/125 at F/4. See Diagram 1.

MAIN AND FILL

The main and fill strobes are used to light the subject. It is essential that their total exposure be powerful enough to eliminate unwanted shadows created by the other lights.

In the example, the main light was placed 2 feet to the left of the camera and raised approximately 8 feet high in order to be above the subjects head. The exposure read ISO 200, 1/125 at F/11. Positioning of the main and fill lights will vary depending on the situation.

The fill strobe was placed 3 feet to the right of the camera at a height about equal to the lens. The fill exposure was ISO 200, 1/125 at F/8. Shoot-through umbrellas were used on both the main and fill to retain a soft light on the subject.
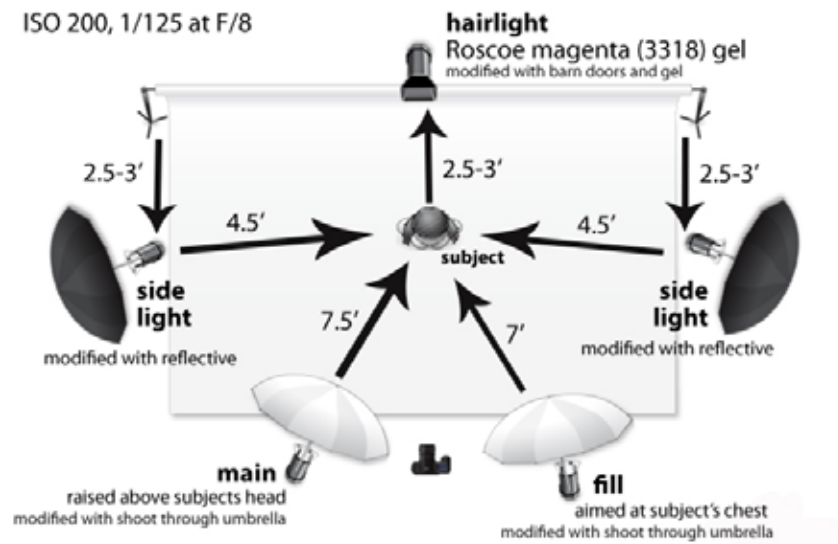
FINAL RESULT FOR SETUP WITH IDEAL SPACE – PAPER BACKGROUND

Green Screen

Green Screen Dropout

SETUP WITH LIMITED SPACE - PAPER BACKGROUND

Diagram 2 - Final Exposure used: ISO 200, 1/125 at F/8

ISO 200, 1/125 at F/8

hairlight
Roscoe magenta (3318) gel
modified with barn doors and gel

2.5-3′   2.5-3′   2.5-3′

4.5′   4.5′

subject

side light
modified with reflective

side light
modified with reflective

7.5′   7′

main
raised above subjects head
modified with shoot through umbrella

fill
aimed at subject's chest
modified with shoot through umbrella

EQUIPMENT USED FOR TEST EXAMPLE:

- **Nikon D300 with a 50 mm F/1.8 lens**
- **ExpoDisc to set custom white balance (a custom white balance is recommended)**
- **Bowens side and hair light**
- **Novatron main and fill lights**
- **Savage 9 ft. Tech Green paper background**

BACKGROUND

The background was set up to ensure there were no visible tears or wrinkles in the viewable frame. The subject was placed 3 feet from the background.

SIDE LIGHTS

With limited space, the side lights should be aligned horizontally with the subject in order to create the necessary contrast on the subject and reduce the amount of background spill.

In this setup, the side lights were placed 4.5 feet away from the subject on either side. The lights were modified by silver-lined reflective umbrellas and aimed at a 45° angle toward the background. The resulting exposure was ISO 200, 1/125 at F/4.

HAIR LIGHT

Another strobe was placed above and behind the background, and aimed at the top of the back of the subject's head. The hair light was modified with a set of barn doors and a Roscoe magenta gel number 3318.

The exposure for the hair light was ISO 200, 1/125 at F/8 when metering the back of the subject's head. See Diagram 2.

MAIN AND FILL

The main light was set up 4 to 6 feet away from the subject to the left of the camera. In an effort to allow shadows to fall on the subject in a preferred fashion, the fill was set up to the right of the camera at about the same position as the camera lens. Both the main and fill were modified with shoot-through umbrellas to soften the light. Positioning of the main and fill lights will vary depending on the subject.

The total exposure was ISO 200, 1/125 at F/8.

Green Screen


Green Screen Dropout

CLOTH OR POP-UP BACKGROUNDS

Cloth backgrounds provide a flexibility and portability that can be preferable for green screen setups, but they are not without their own challenges. While they will present the same challenges as paper regarding green background spill, they also often have more wrinkles and absorb more light than their paper counterparts.

To ensure that the background is wrinkle and tear free, use a de-wrinkling product or pull the background as taut as possible around the background stand. Since cloth backgrounds absorb more light, they produce darker results that make it difficult to drop out the background without enough contrast between the subject and background. If the paper background's lighting and exposure settings were to be used on a cloth background, the results would be overly dark and lack sufficient contrast. To avoid this issue, the power from all strobes can be increased.

For the test example, a 6x9 foot green pop-up cloth background was used. Using the same number of strobes from the previous examples, the power was increased from 1/3 to 1/2 of a stop. By increasing the power from the strobes it is possible to use the same exposure used for shooting green screen on a paper background.

FINAL RESULT - CLOTH POP-UP BACKGROUND, 7 FT. FROM BACKGROUND

Green Screen

Green Screen Dropout

Green Screen

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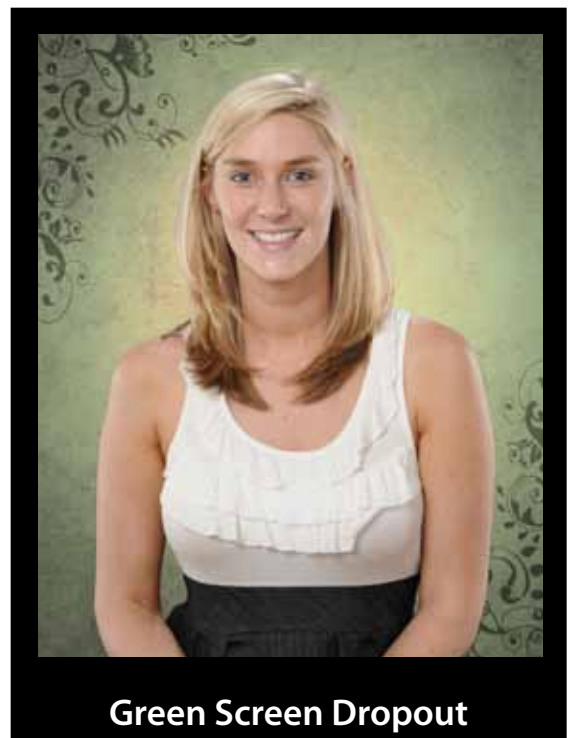
This concludes the Green Screen Tutorial. For more infomation visit www.richmondprolab.com.