A guide to animation effects for the MAC 2000 Performance



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General Introduction

The art of gobo animation has been around for many years. The adaptation of this feature into a moving light is something that Martin Professional is proud to say that they have been the first to do, with the MAC 2000 Performance. By talking to lighting designers around the world about gobo animation, we have designed a system which is as flexible as possible. Via your DMX controller, you can now control both the starting position of the animation disc and its rotation direction and speed. The animation disc can be set to run continuously or to run in an indexing mode, which will be of great use if you are using custom animation discs with text or company logos. You are also able to choose the angle at which the disc has its starting position, be it horizontally aligned, vertically aligned, or anywhere in between.

The following pages are designed to help you get as much as possible from the gobo animation system in your MAC 2000 Performance. You will see a page of general animation tips, which you should read first, followed by an overview of the animation disc designs available. This is then followed by a number of examples of different effects that can easily be created using your animation system.

To achieve most of the effects you will use both an animation disc and a regular gobo. Throughout this guide we have used DHA Lighting in London as the reference for the regular gobos. All of the gobo numbers and designs mentioned belong to the standard range available from DHA Lighting. Their contact details are:

DHA Lighting Limited,

284-302, Waterloo Road, London, SE1 8RQ United Kingdom

Tel: +44 207 771 2900 Fax: +44 207 771 2901 Internet: www.dhalighting.co.uk E-mail: sales@dhalighting.co.uk

Martin Professional A/S are extremely grateful to DHA Lighting for allowing us to use material previously published by them to bring you this guide.

Finally, it should be remembered that there may be some small differences between the graphical images that you see in this guide and the final animation wheel or gobo designs when you use them, due to the difference in scale. However, we have tried to be as accurate as possible at all times.



GENERAL ANIMATION TIPS

Choice of Gobo

The gobo is the basis of the moving image and should be chosen first. It is worth noting, however, that useful and interesting effects can often be achieved with the most unlikely gobos, by projecting them out of focus.

Focus

With the gobo in hard focus the animation will not be optimized, movement is minimal and results will almost always be disappointing. Similarly with the animation disk in hard focus, you will see a far greater movement, but the gobo pattern will be lost. It is essential therefore to experiment with the focus in order to achieve the best effect. The precise quality of the result and the impression of the motions direction will also depend on the position of the focus.

Animation Disc Patterns

The 'EFFECTS IDEAS' section describes the variations on the basic effect that individual disc patterns can produce.

Direction of Movement

The flexible mounting system for the animation discs inside the MAC 2000 Performance allow you, through DMX control, to position the wheel at any position through a 90 degree section of the disc. This means that effects can be produced with a horizontal movement – such as clouds, with a vertical movement – such as rising flames, or at any angle in between – such as driving rain. The angle of the rotation can be changed during your show via the DMX control of the fixture.

Note that for some animation effects, which are not strictly horizontal or vertical, you may find it necessary to flip the orientation of the complete head via the pan and tilt control channels to give your desired angle of animation. This will depend on the orientation of the head when you began programming your fixture. If you find, for example, that your 'driving rain' effect is not driving the correct way, flip the orientation and if necessary, rotate the animation wheel in the opposite direction.

Through the DMX control you can select the wheel to operate in indexing mode, rather than continuously rotating. This is useful for any custom animation wheels that you may have made with text or logos. Custom animation wheels are available from the major gobo manufacturers, such as DHA Lighting in London.

Speed

The apparent speed of image movement depends not only on the disc rotation speed, but on the complexity of both the gobo and the disc patterns. Speeds suggested in the examples in this handbook are guidelines and are only intended as a starting point.

Color

The use of the dichroic CMY color changing system of the MAC 2000 Performance can greatly enhance your animation effects. The system has been designed so that refraction across the beam will give slight variants in color, adding depth to your animations, particularly when using multiple dichroic colors. Some color tips are given in the 'EFFECTS IDEAS' section.



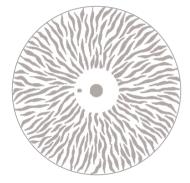
STANDARD DESIGN ANIMATION DISCS



The Tangential Breakup disc produces a subtle rippling motion, particularly when moving parallel with the lines of the gobo. It is the most suitable for rising flames, flowing water and other effects where a single direction of movement is required. This animation wheel is supplied as standard with the

MAC 2000 Performance.

Tangential Breakup Part Number 62400215



The Radial Breakup disc is perfect for providing a strong regular movement suitable for flickering flames, water ripples, reflected water and shimmers for heat haze or mirage effects.

This animation wheel is supplied as standard with the MAC 2000 $\operatorname{Performance}.$

Radial Breakup Part Number 62400211



The Spiral Breakup pattern is very similar to the Radial Breakup disc, but has some movement at right angles to the main motion, as is seen in wind blown rain, snow, or flames. It is particularly worth experimenting with the angle of the gobo and the orientation of the disc to achieve all the possibilities with this pattern.

This animation wheel is supplied as standard with the MAC 2000 Performance.

Spiral Breakup Part Number 62400216



The Linear Breakup disc provides rhythmic movement and can be used to simulate a breeze through the branches of a tree or the rhythmic undulations of sea waves.

Linear Breakup Part Number 62400223



A guide to animation effects for the MAC 2000 Performance Page 4 of 16



The Triangle Breakup disc gives a more pronounced and rapid rhythmic effect than the Linear Breakup disc, and is suitable for use as psychedelic effects or for a rough sea effect.

Triangle Breakup Part Number 62400225



The Cloud Breakup disc is designed for a softer directional movement particularly at slow or very slow speeds. It is suitable for cloud effects with cloud gobos or for a soft slow-flowing stream effect.

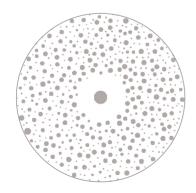
This animation wheel is supplied as standard with the MAC 2000 $\operatorname{Performance}\nolimits$

Cloud Breakup Part Number 62400213



The Elliptical Breakup disc produces a bi-directional movement similar to the Spiral Breakup, but with constantly changing direction of movement. This is specifically useful for snow or similar effects where flurries of movement would be expected.

Elliptical Breakup Part Number 62400221

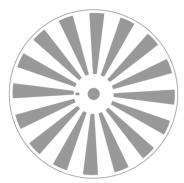


The Dot Breakup disc gives you the opportunity to cause motion while maintaining a more focused projection of the gobo image. It is suggested for effects such as falling leaves or rising bubbles. This animation wheel is supplied as standard with the MAC 2000 Performance.

Dot Breakup Part Number 62400214

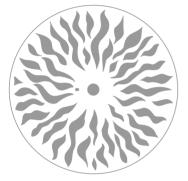


A guide to animation effects for the MAC 2000 Performance Page 5 of 16



The Flicker Wheel provides a different kind of effect and can be used at high speed for motion effects, such as passing trains. It can also be effectively used for just breaking up the beam of a fixture and for an organic strobe effect.

Flicker Wheel Part Number 62400222



The Coarse Radial Breakup disc is particularly effective for animating light from a non-focused source whilst providing a minimal loss in intensity due to the high 'white to black' ratio of the radial pattern. It is also effective for similar uses to the Radial Breakup disc.

Coarse Radial Breakup Part Number 62400224

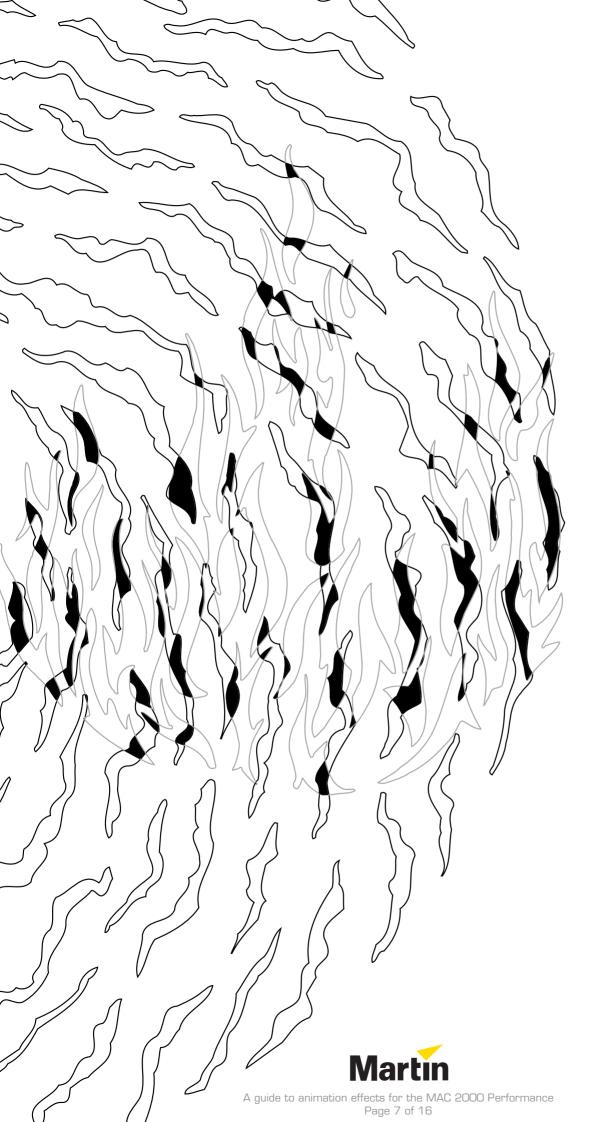


The Coarse Tangential Breakup disc can be used on its own in a defocused form to give the image of flames. It can also be combined with gobos to give a drifting image to the projection.

Coarse Tangential Breakup Part Number 62400226



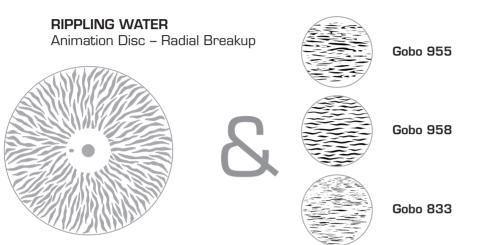
A guide to animation effects for the MAC 2000 Performance Page 6 of 16



EFFECTS IDEAS

The ideas outlined below are intended as suggestions only. The precise look of any effect will depend on many factors including the focus setting of your MAC 2000 Performance, the projection surface onto which the image is directed and any color mixing effects that you choose.

WATER EFFECTS



Description

Use slower speeds for gentler or more distant movement. For rough water, substitute a more 'wavy' gobo design such as DHA Lightings 'Reflected Water 906', 'Flames-4 960', or 'Fire/Waves 238-275' and use the Coarse Radial Breakup animation disc or the Elliptical Breakup animation disc (for an irregular movement) combined with a higher rotation speed.

Alternative Gobos

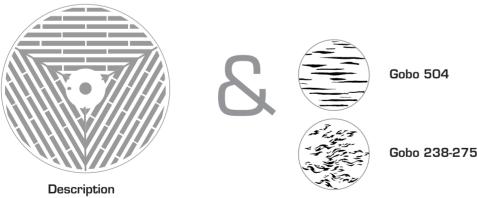
Linear Breakups 401, 402, 501, 504 Shower 882

Alternative Animation Discs

Coarse Radial Breakup gives a bolder movement Spiral Breakup adds some flowing movement

WAVES

Animation Disc - Triangle Breakup



As with any animation effect, the rotation speed and image focus will have a great effect on the final projection, so these parameters should be experimented with. With all water effects, it is possible to add an amount of cyan from the color mixing system, which will defract to give both cyan and white color shifts as the image animates.

Alternative Gobos

Linear Breakups 401, 402, 501, 504 Reflected Water 906

Alternative Animation Discs

Linear Breakup Elliptical Breakup gives an irregular rhythm



A guide to animation effects for the MAC 2000 Performance Page 8 of 16 **REFLECTED WATER** Animation Disc – Radial Breakup



Description

As with any animation effect, the rotation speed and image focus will have a great effect on the final projection, so these parameters should be experimented with. With all water effects, it is possible to add an amount of cyan from the color mixing system, which will defract to give both cyan and white color shifts as the image animates.

Alternative Animation Discs

Elliptical Breakup gives an irregular movement

WHIRLPOOL Animation Disc – Spiral Breakup





Gobo 893

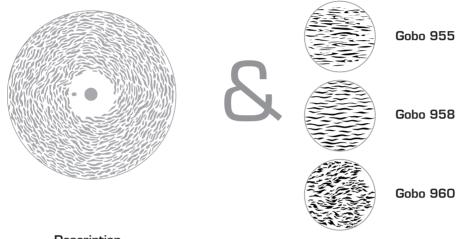
Description

A whirlpool effect can be created effectively by leaving the gobo in a static position and just rotating the animation wheel. However, to give a more dynamic whirlpool effect, the gobo for this combination should also be rotated, in a counter direction to the animation wheel. Again differences in the focus and in particular with the speeds on this effect will give you a variety of different options. With all water effects, it is possible to add an amount of cyan from the color mixing system, which will defract to give both cyan and white color shifts as the image animates.



FLOWING WATER

Animation Disc – Tangential Breakup



Description

As with any animation effect, the rotation speed and image focus will have a great effect on the final projection, so these parameters should be experimented with. With all water effects, it is possible to add an amount of cyan from the color mixing system, which will defract to give both cyan and white color shifts as the image animates.



A guide to animation effects for the MAC 2000 Performance Page 10 of 16

FIRE EFFECTS

The range of animation wheels available for the MAC 2000 Performance is very versatile in producing fire and flame effects. Good results may be obtained from many of the designs together with any standard flame or fire gobo designs. Here are a few ideas to get you started:

BLOWING FLAMES

Animation Disc – Spiral Breakup



Description

As with any animation effect, the rotation speed and image focus will have a great effect on the final projection, so these parameters should be experimented with. With all fire and flame effects, it is possible to add an amount of magenta (approx 70%) and yellow (approx 90%) from the color mixing system, which will defract to give orange, yellow and red color shifts as the image animates.

Alternative Gobos

Any of the fire or flame gobos from the standard range could be used in substitution for the above suggestions.

Alternative Animation Discs Elliptical Breakup gives an irregular movement.

Dot Breakup

RISING FLAMES

Animation Disc - Tangential Breakup



Description

As with any animation effect, the rotation speed and image focus will have a great effect on the final projection, so these parameters should be experimented with. With all fire and flame effects, it is possible to add an amount of magenta (approx 70%) and yellow (approx 90%) from the color mixing system, which will defract to give orange, yellow and red color shifts as the image animates.

Alternative Gobos

Any of the fire or flame gobos from the standard range could be used in substitution for the above suggestions.



RISING FLAMES Animation Disc – Coarse Tangential Breakup



Description

Different to above, this animation gives a much stronger image of rising flames with the broader pattern on the disc. For this animation, it is possible to use the animation disk on its own to create the rising flame effect. You will need to set the focus away from the disk itself to enhance the effect. To give a different image, you could also add one of the standard fire or flame gobo designs.

Alternative Gobos

Any of the fire or flame gobos from the standard range could also be used.



A guide to animation effects for the MAC 2000 Performance Page 12 of 16

CLOUDS, RAIN AND SNOW

The versatility that you can achieve with the animation system of the MAC 2000 Performance makes this an ideal tool for creating all sorts of weather effects.

CLOUDS

Animation Disc - Cloud Breakup



Description

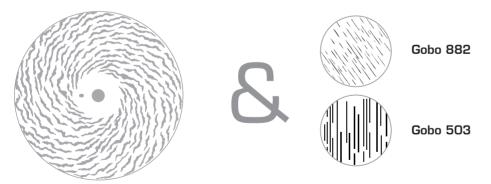
Once again, the speed and focus come greatly into play when creating your final effect, whether you wish to create soft flowing clouds on a summers night or gathering thunder clouds about to explode.

Alternative Gobos

In addition to the gobos shown above, you can use any non-meshed cloud gobo to create the desired effect that you need. You should choose your gobo based on the type and density of your desired effect.

RAIN

Animation Disc - Spiral Breakup

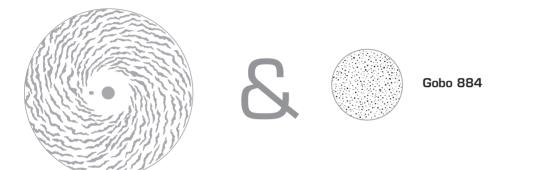


Description

For driving rain, you should angle the gobo first using the indexing control and then align the animation wheel anywhere between the horizontal and vertical axis to provide the desired effect.



A guide to animation effects for the MAC 2000 Performance Page 13 of 16 **SNOW** Animation Disc – Elliptical Breakup



Description

This is a simple effect to set up, but looks excellent. The use of the prism on the effect wheel of the MAC 2000 Performance will help diffuse the image, creating a more random effect, which adds a new dimension to the animation and is very effective in some situations.

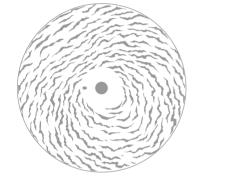


A guide to animation effects for the MAC 2000 Performance Page 14 of 16

OTHER EFFECTS

Here are some further examples of different animations that can be achieved with the MAC 2000 Performance.

LIGHT THROUGH TREES Animation Disc – Elliptical Breakup





Gobo 405

Description

It is possible to use almost any of the animation discs to animate a breakup gobo such as this one. There is a wide range of breakup gobos available to choose from on the market today. By using a combination of the cyan and yellow color mixing flags, you can create various shades of green which will defract to give a variety of shades. You should adjust the values proportionately to give darker or lighter shades of green to your image.

TREE IN BREEZE

Animation Disc - Linear Breakup



Description

By using a combination of the cyan and yellow color mixing flags, you can create various shades of green which will defract to give a variety of shades. You should adjust the values proportionately to give darker or lighter shades of green to your image.

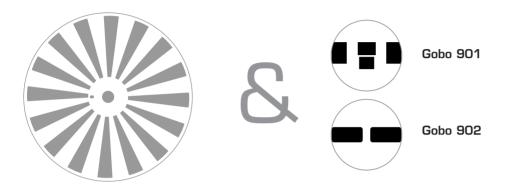
Alternative Gobos

There are a wide range of tree, branch and foliage gobos available which can all be animated to give very distinctive effects.



A guide to animation effects for the MAC 2000 Performance

PASSING TRAIN Animation Disc – Flicker Wheel



Description

Adjusting the rotation speed of the animation wheel will give you a faster or slower 'flicker' effect depending on the speed of your train.



A guide to animation effects for the MAC 2000 Performance Page 16 of 16