TECHNICAL INFORMATION

HARMAN PHOENIX 200

ISO 200/24° C41 PROCESS COLOUR FILM

HARMAN Phoenix 200 is an experimental ISO 200, C41 process, colour negative film with high contrast and strong visible grain.

It can be used for any photographic subject with results dependent on ambient lighting conditions, colour palette, and exposure accuracy. Best results are typically obtained outdoors with consistent light and medium brightness scenes whilst metering for the mid-tones.

HARMAN Phoenix's high contrast can lead to punchy, vibrant scene rendition, even under softer lighting. When scanning both colour and contrast may be rendered differently depending on the scanner and scanning parameters used. Adjustment of standard scanning parameters is advised to achieve the best results. (See later information).

HARMAN Phoenix 200 is easily processed in C41 / CN16 processing chemicals. The best overall results are obtained between EI 100 and EI 200 depending on scene brightness and contrast. Some exposure bracketing is advised particularly with high brightness scenes or more challenging exposure conditions.

HARMAN Phoenix 200 film is coated on 0.125mm/5-mil acetate base and is available in 36 exposure ISO 200 DX coded cassettes suitable for all 35mm cameras and also in 120 Roll film format, edge numbered 1 to 19.

WHY HARMAN PHOENIX 200 IS DIFFERENT:

HARMAN Phoenix 200 is an experimental C41 colour film and the first ever made by HARMAN Photo. As such it has characteristics that make this very different to the more traditional, established C41 colour negatives films.

In addition to the risk of occasional coating anomalies, this film does not have masking dyes and limited antihalation incorporated in the base layer. This means that striking halation effects around bright light sources and reflections are possible. In addition to its atypical colour rendering, this film has a distinctly analogue look when shooting certain scenes and colour palettes.

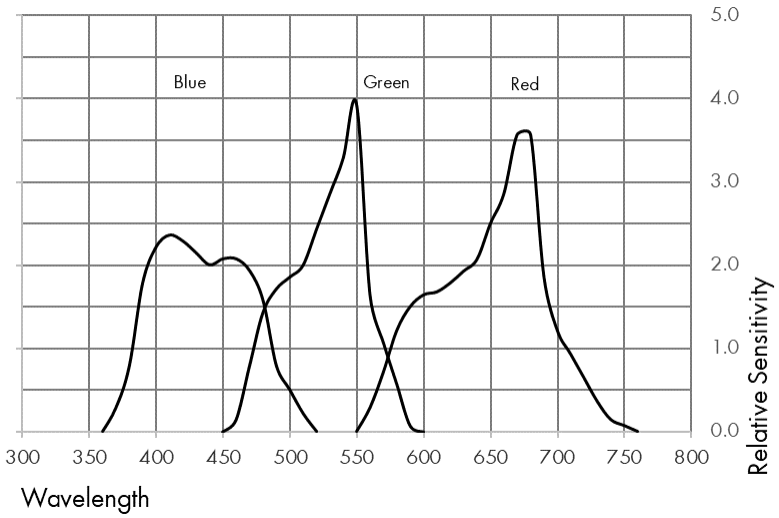
EXPOSURE RATING:

HARMAN Phoenix 200 film has a speed rating of ISO 200/24° (200ASA, 24DIN, EI 200) to daylight. The speed rating was measured using standard C41 processing and the ISO standard method. Practical evaluations have shown the film works well in the range EI 100-200 with many users preferring to shoot at EI 160.

We recommend bracketing your exposures initially to find out the best settings that work for you.

SPECTRAL SENSITIVITY:

Wedge spectrogram to tungsten light (2856K)



Film contrast

HARMAN Phoenix 200 negatives are higher contrast than most conventional colour films. Some bracketing of the exposure may therefore be required to correctly capture the scene's brightness, particularly on bright days.

FILTER FACTORS:

HARMAN Phoenix 200 film may be used with all types of filters (e.g., Polarising or neutral density filters) in the usual way. Follow the instructions given by the filter manufacturer.

MAKING LONG EXPOSURES:

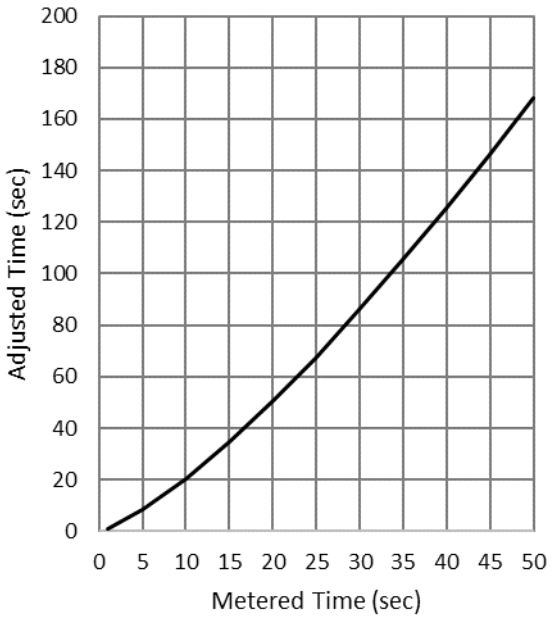
For exposures between 1 and 1/10 000 second, no adjustments are needed for reciprocity law failure.

When exposures longer than 1 second are given, HARMAN Phoenix 200, along with other films, needs to be given more exposure than indicated by a meter. Use the graph to calculate the increased exposure time which should be given once the metered time is known.

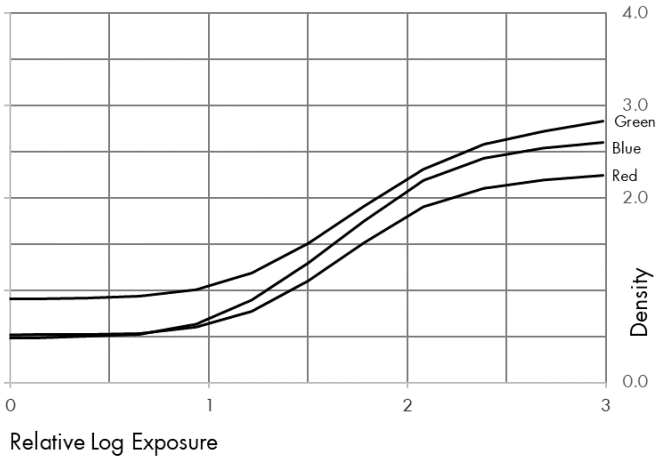
The graph is based on the formulae $Ta = Tm^{1.31}$

Ta = Adjusted Time

Tm = Metered Time



CHARACTERISTIC CURVE:



HARMAN Phoenix 200 film processed through standard C41 type chemicals.

PROCESSING:

HARMAN Phoenix 200 film is processed in the standard C41 colour negative film process. This film can be processed alongside all makes of colour negative film.

Safelight recommendations
Handle HARMAN Phoenix 200 film in total darkness.

C41 type processing
HARMAN Phoenix 200 film is fully compatible with C41 type processing chemicals, both replenished (e.g. in dip and dunk or roller transport processors) and unreplenished (e.g. in spiral tanks or with Jobo one-shot rotary processing). The film can be put through standard C41 lines with no adjustment to processing speed, temperature, or replenishment rates.

Drying
If processing by hand and to avoid drying marks, use a clean squeegee or chamois cloth to wipe the film before hanging it to dry. Dry the film at 30–40°C/86-104°F in a drying cabinet or at room temperature in a clean dust-free area.

Machine processing – use default C41 machine settings.

Push processing
Push processing is not recommended for HARMAN Phoenix 200.

STORAGE:

For immediate use, store HARMAN Phoenix 200 in a cool (10–20°C/50-68°F), dry place in its original packaging.
HARMAN Phoenix 200 may be stored in a fridge/freezer but allow plenty of time for the film to acclimatise prior to use.

Exposed film
Once exposed, process HARMAN Phoenix 200 as soon as practical. Exposed films should always be stored in cool, dry conditions - as recommended above.

Unexposed Film
Store unexposed film in the same way as other colour films, i.e., in a cool (10–20°C/50–68°F), dry place in its original packaging.

Negatives
Store processed negatives in a cool (10–20°C/50-68°F), dry place, in the dark. Suitable storage sleeves include those made of cellulose triacetate, Mylar, paper (pH6.5–7.5) or inert polyester.

Correctly processed HARMAN Phoenix 200 negatives usually have a magenta / purple tint, although the exact image colour will depend on the method of processing.

Emulsion side identification
Unlike some negatives HARMAN Phoenix 200 emulsion has a glossy surface. To determine the emulsion side, view the negatives towards a light source, with the edge signing reading correctly the emulsion is facing away.

SCANNING & PRINTING:

Print making
HARMAN Phoenix 200 negatives are printed in the same way as other colour C41 films. Either via scanned negatives or direct analogue exposure.

Scanning
Settings for popular scanners is detailed in the next section overleaf.

SCANNING:

Unlike more traditional colour negative films, HARMAN Phoenix 200 does not have an orange mask. This can affect scanner response and some adjustment may therefore be required to achieve the optimum results. Some recommendations for best settings are shown below. These scanning settings were developed by HARMANLab.com in conjunction with and support from The Darkroom.com, Analogue Wonderlab, SilverPan Film Lab and Blue Moon Camera and Machine.

Fujifilm SP3000

The Fujifilm SP3000 is a very popular scanner but using the default settings should be avoided with Phoenix film.
There are two options with this scanner to improve scan quality with Phoenix film.

1. Scan using the recommended settings below – Generally this will produce high contrast, high saturation scans.
2. Scan the film in reversal mode and invert using a batch action in Photoshop or a dedicated lightroom plug-in such as Negative lab pro – This will produce more normalised images and generally give better results.

Recommended settings for the above scenarios is shown below.

1. Recommended settings Scanned as Colour Negative on Fuji SP3000

Below are our starting point recommendations. Nb. many labs will have their own preferred workflow, so these should be treated as guidance only. These settings can be assigned to a custom channel as follows.

Main Menu > Setup & Maintenance > Password "7777" > Print condition set-up & check > Custom setting register.
Assign the settings to any free channel and save under appropriate name e.g., Phoenix – please see the Scanner manual for further information.

It is also possible to set a specific auto DX channel for the film, however the settings are more limited, and this is not recommended, unless it is your preferred workflow.

Input Type	**Sharpness/Grain Control**	**Key Step Width**
Negative	Sharpness Process = No	Default (CMY = 5, D=10) BL = Default (0)
Tone Correction	**Gradation/Bright**	SL = Default (0)
Hypertone = Yes	Gamma: Shadow= – 4,	(Only impacts Key corrections)
Full correction	Midtone= -2, Highlight =0	
Tone adjustment = Standard		**Other Corrections**
Highlight level = Normal	Balance = All 0	Saturation = -3
Shadow level = Normal	Bright Mode = 0	
Mode = 1	Colour Mode = 0	

NB. As with other C41 process films, Digital Image Correction and Enhancement (Digital ICE) can be used to remove dust and scratches automatically from the image.

2. Recommended settings Scanned as Reversal on Fuji SP3000 and inverted in Adobe Photoshop or other software.

Below is an alternate method for scanning on the SP3000, but requires the use of photoshop or other software to invert and balance the images. The results are more normalised than a direct scanning method.

NB Adjusting the carrier fixed feeding value will help with frame registration when scanning in reversal mode.

Input Type Reversal **Correct Level** **Correct Level** Full Correction **Tone Adjustment** Standard	**Sharpness/Grain Control** Sharpness Process = No **Gradation/Bright** Gamma: Shadow = 0, Midtone= 0, Highlight = 0 Balance = All 0 Bright Mode = 0 Basic Colour Mode = 0	**Key Step Width** Default (CMY = 5, D=10) BL = Default (0) SL = Default (0) (Only impacts Key corrections) **Other Corrections** Saturation = 0

Photoshop invert setting (assign to action for batch processing)
Auto colour will generally work best for normally exposed negatives, whilst the "Autotone" function works better for underexposed or tungsten lighting.

For normally exposed daylight negatives;
Image / Adjustments / Invert
Image / Autocolour

For under exposed or tungsten negatives;
Image / Adjustments / Invert
Image / Autotone

A workflow using Adobe lightroom and Negative lab pro can also be used with this reversal method.

Photo

Noritsu HS1800, LS600, LS1100

Noritsu scanners can easily be configured to work with HARMAN Phoenix 200. Many labs will have a preferred configuration. Below is our recommended starting point to give good results with minimal configuration. Note these are revised as of Sept 24.

Global Settings	**DSA Settings**	**Colour Balance and Density**
Colour Correction = Std	Auto Contrast Ov = -3	
Gradation Correction(135) = ON	Auto Contrast Sh = 0	Starting points
Basic Dens Correction = 1	Auto Contrast Hi = -3	Y = -2
Scanner = ON	Auto Sharpness = 0	M = 0
Tungsten Correction = 80	Chroma = 90	C = 0
CF = 80	Grain Suppression = 0	
Basic colour correction = 0	Auto Contrast 2 = 5	D = Adjust as required
	CS Balance (red) = -5	
(All others 0 or OFF)	CS Balance (blue) = 0	
Input Type		
Negative		

Settings can be adjusted during the workflow and applied to all frames using the hold function, or by creation of a print channel specifically for HARMAN Phoenix 200. To create a print channel, you must log in with the service menu password. (See below)

In the function menu - Press F1 then F9, enter the service password in the prompt "2260".

Entering the service password will now allow you to edit and save new print channels.
Please see your operation manual for your scanner / EZ Controller for more information.

Epson V850 & Epson flatbed scanners

Use full autoexposure and auto colour.
Alternatively, we can recommend scanning as reversal (slide) film and inverting in software such as Negative lab pro or Adobe photoshop. This will generally achieve the best results possible.

Digital Camera Scanning

Please follow your normal workflow for scanning with a digital camera. Using your conversion software, you can adjust the parameters to suit your tastes.
We recommend use of Negative lab pro or Adobe Photoshop for inverting the negatives.

Other Scanners

For scanners not listed above, as a guide use the following settings.

- Auto exposure / Colour correction = On
- Sharpening – Off or Low
- Saturation – Depending on the scanner a small reduction of up to 30% may give more desirable images.

Alternatively follow a reversal workflow as per Fuji SP3000 and invert using NLP or Adobe Photoshop.

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