

# Push Processing Black & White Film.

## Objective

To enable the student to gain practical experience in the method of Push-Processing black and white films, thus allowing exposures to be made in low lighting conditions where flash / strobe lighting is not desirable or appropriate.

## Push Processing

Film Speed, what is it? Where does it come from? What factors or characteristics does it impart on the final results of our images? Film speed is determined by Boffins in Lab coats in Laboratories. This is a specialised approach difficult if not impossible to recreate in real life. To avoid legal issues, companies like Kodak publish film speeds. However in all practicality these are mere starting point and even Kodak in it's literature suggests this.

Film speed in all practical sense is based upon how much silver is on the film. The more silver there is the more sensitive the film the higher the speed. The amount of light that strikes the film is determined by the light meter in the camera that tells us how much light we need, based on the film speed setting we have set the meter to. However this "speed" can be used manipulated in a certain way. We can trick the light meter into thinking that we have a more sensitive film in our camera and can expose it according to this setting, then compensate for the lack of light that has struck the film post exposure.

This approach is called push processing, and like all things photographic we gain in some areas and lose out in others. Push processing has several benefits. It allows us to use higher than normal shutter speeds when required (to freeze action even when the light levels are low), and in low light situation it allows us to hand hold rather than use a tripod if we haven't got one or can't use one.

As I said earlier, there are some losses here, the areas where we lose out when push processing are, an increase in contrast, and an increase in grain. Also some films are more suited to push processing than others. For example higher speed films with their inherent lower contrast and already higher sensitivity are well suited to push processing. Lower speed films such as T-Max 100 can be push processed but as the 100 ISO film has inherently high contrast already push processing will only make this worse.

Like some film types are better suited to push processing so too certain developers are better suited to this task. More active developers are the best kinds of developer for this task, and by active I mean high energy i.e. ones that have short development times say under ten minutes. Some more active developers are, D76, HC110, and T-Max.

## Why push process?

Light levels may be too low to achieve acceptable results at normal aperture and shutter settings, action may need to be "stopped" often with a long lens such as in a football match, flash may be impractical or too intrusive to use to capture the image.

"What do you do when the light is too dim for a reasonably fast shutter speed, even when you are using a medium to fast film say 400 ISO film ?

If you were shooting indoors and the situation was not conducive to Flash and you wanted to remain inconspicuous, even with the lens wide open you might still have to use a shutter speed of only 1/30 of a second, not quite fast enough to hand hold the camera without risk of motion blurring the picture.

Your solution, PUSH the film – Shoot at a higher - than - normal film ISO speed and then increase the film development. In this case you could shoot your film rated at 800 ISO

(One stop faster) which would allow you to shoot @ 1/60 of a second, fast enough to hand hold the camera more confidently".

Photography Barbara London & John Upton harper Collins

A word of warning, it is difficult to process half a roll of film, if you decide to push process a roll of film, the **whole roll of film must** be processed this way.

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## How do you push process?

Essentially, you under expose the film (by over rating it with the light meter) and over develop it, (by increasing development time). This increase in development time allows the highlights to be printed properly whilst maintaining some semblance of normality in the shadows, which are in reality empty.

The best way to calculate the increase in times is to simply add 20% per stop under exposure, based upon the initial start time given by the manufacturer of the film and film developer. All other chemistry is used normally.

The formula to push process T-Max 400 is as follows.

Developer D-76, 1:1 @ 20° 11 minutes is our start time.

Add 20% for every stop increase in film speed, to the preceding development time.

## Assignment

1. Use T Max 400 rated at either 1600 ISO or ISO 3200

2. Calculate contrast range and record these readings:

Do this by taking a TTL reading of the Highlight in the scene. Record this reading

Take a TTL reading for the darkest Shadow. Record this reading.

Both these reading's will establish the "Scenes contrast Range".

3. Actual light meter readings used to determine you camera exposure's are to be taken from grey card.

4. It is suggested that you use this film under the following light conditions.

A. Interior Day / Exterior Day. B. Exterior Night / Interior Night

## Processing

Push Processing for T MAX 400 Film

Because the film has in effect been "underexposed" The developing time is to be increased.

Developer to be used is Kodak D 76, Dilution 1:1, Temperature. 20° C

Film ISO Rating ISO	Time @ 20° C
400	12 min
800	15 mins
1600	19 min
3200	24 mins

## Satisfactory Completion

Submit negatives, proof sheet and all relevant records for assessment.

After appropriate Testing Make one 5" x 7" print from a selected negative (Full Frame).

Then extend the enlarger to full height and print one 5" x 7" section of the same negative.

Submit both 5" x 7" prints. Taking care to observe the level of contrast and grain structure present in both prints.