Canham DLC 4x5 & MQC 5x7 Cameras: A Review

by Michael Mutmansky for the Large Format Page

Introduction

The Canham DLC 45 camera has been a popular topic on discussion boards and the Internet for the last couple of years, and not without good reason. Since the camera is a unique design for a field camera, its' introduction has generated a great amount of debate about the merits of the DLC as compared to just about every other field camera on the market. One look at the archives for this site reflects that there have been numerous comments regarding the DLC.

See earlier comments on the DLC that have transpired on this site

This camera may be one of the fastest selling 4x5 field cameras in the US market right now. I talked with Jeff Wheeler from Quality Camera in Atlanta, Georgia, and he confirmed that he sells more of the DLC than any other camera, by a significant margin. Although Keith Canham won't release actual figures on the number of DLC cameras he's made in the past four years, the serial number on the camera is sequential, with a few exceptions. It appears that (as of August, 2000) there are over 500 Canham DLC owners out there. The sales of the DLC camera have slipped a bit since the introduction of the Canham MQC 5x7 camera, which is effectively a 'big brother' to the DLC. Jeff Wheeler stated that he believes the MQC 5x7 is a competitor for the DLC because the cost is not much higher, and the benefits of the 5x7 body (longer bellows, capable of accepting the soon-to-be-released 6x17 back) are difficult to ignore. I use my DLC for backpacking, so the use of the MQC with a reducing back is out of the question. Since these cameras are essentially identical in design with only performance specs to set them apart, this review is appropriate for both cameras.

The camera is made primarily of black anodized aluminum, with brass gear rails and some small steel bolts and set screws. The camera is not cast, but is machined out of high quality aluminum stock material. This results in a very high quality finish surface, and equally high strength in each individual piece of material. This allows the weight of the camera to be reduced by removing material in places where the strength of solid aluminum is excessive to the use of the camera. There are holes and slots machined in many places for weight savings. The sides of the rear standard are drilled. However, rather than making this look like a stripped and chopped street racer, the weight savings have been done in an aesthetically pleasing way. One look at the baseplate of the camera and you know that the designer of the camera cared about how the camera looks as much as how it functions.

Overview

The DLC has several features that make it unique in the industry. First is the bellows design and materials. The standard bellows will accommodate any normal lens from a 58mm through a 450mm, and will also accommodate the Nikon 720mm T lens.

Left: DLC with 75mm, focused at infinity.
Right: DLC with 450mm, focused at infinity.

The bellows material is a very pliable and thin fabric that does not appear to be coated with bulky plastic or rubberized material. This results in a bellows that will compress easily and also deform to accommodate a short lens shift. Sometimes there is no substitute for a bag bellows, however, so the DLC has an interchangeable bellows. The retail price for the bag bellows is $350.

All experienced field shooters are very familiar with the machinations required to use a 75mm or shorter lens on a field camera. Recessed lens boards, dropped beds, indirect movements, and carrying a bag bellows are all in the bag of tricks for the traditional field camera user. The DLC has made all of these measures unnecessary for all but the most demanding wide-angle work. Architectural interior photography is the one field application where a bag bellows may be required with this camera.

I have found that I run into only two problems using the DLC with the normal bellows. The first is that the bellows gets tight with very short lenses, and there may not be enough room for the bellows to give you all the displacement you may want. The second is that the bellows will push against the front and rear standards when there is more than a minimal amount of lens displacement is used. This pressure results in a situation where the standards are not parallel, and it can be impossible to get the standards back to parallel. It can also be difficult to adjust the lens tilt because the bellows will push the front standard forward as you loosen the tilt locks.

Note that with a 75mm lens, the bellows can interfere with rise, and push on the standards.

These shortcomings are inherent to the use of a pleated bellows with a short lens. The DLC, however, has pushed the envelope to the point where normal field shooting won't require a bellows change. Many traditional field cameras require a bag bellows or a recessed lens board for lenses 90mm or shorter. I regularly use a 75mm lens and have yet to have the bellows interfere such that I could not take a picture. I don't use the Schneider Super Angulon 72mm XL, so a user of that lens may find it has enough coverage for the bellows to interfere.

There was some concern when the new bellows material was introduced regarding how well the bellows will hold up to use. It was thought that the relatively thin material might be more susceptible to damage due to surface abrasion or puncture. To my knowledge, there have not been any problems of this type, although the camera is still fairly new. The real measure of the bellows material will come when there are 20-year old DLC's out there. At that point, if a used DLC with a good condition original bellows is not unusual, then the concerns were unfounded.

I was discussing the bellows material with Keith Canham at the Photo Expo East 2000 show in New York City recently, and he relayed an interesting story that some people who follow the internet discussion groups may have heard about. A photographer was setting up a shot during a trip to India when the camera fell off the tripod, rolled down an embankment, and into a river. Luckily, the camera had a lens on the front, so the camera floated, because of the air inside the bellows. The photographer jumped in after the camera and retrieved it. It was sent back to Keith Canham for repairs, which were done in time for the camera to be returned to the photographer at the Photo Expo Show. Keith told me the bellows came back to him in a wadded mess, so he threw them into a washing machine to clean them, and then had to reglue a portion of one of the frames back onto the bellows, but that the bellows were still useable and light tight. He had taken the bellows out of the washing machine and folded it back into the original pleating, and then clamped it so it would correctly pleat in the future. He told me that he was going to let the photographer choose if he wanted to purchase a new bellows, or keep the original bellows. The original bellows looked abused and has clearly seen better days, but that fact that it was useable at all is impressive.

Don't try this at home, I will not be held responsible for anyone who puts their bellows through a washing machine. But, if you do take a dunk in the field, clean out the camera well, remove the bellows and clean it as best you can, and fold it up properly and clamp it in a couple of rubber bands. When you get home, call Keith and get the camera to him for a thorough checkup. This may save you the expense of a new bellows.

The lensboards are sized to be compatible with the Toyo field camera boards (110mm). The Canham boards are slightly thicker than the Toyo boards, which may cause some compatibility issues if you use a Canham lensboard on a Toyo camera. The camera is also available as a special order with a front standard that is sized to fit the Linhof style boards. I think this is only worthwhile when you have other cameras that use this format, and you do not wish to change lensboards.

Canham lensboard with Fujinon 180mm f 9.0 A in a Copal 0 shutter.

The Canham boards are less expensive than the Toyo boards, and unlike the Toyo, are machined out of high-grade aluminum stock. They are anodized rather than painted for a more durable finish. Do they need to be so well made? No, but it would be inconsistent to put a cheaply made lensboard on so well a made camera. If you want a lower-grade lens board, you can buy (and pay more for) the Toyo boards.

Canham does not make a recessed lens board for the reasons stated in the bellows section; the camera just doesn't need one to work well with short lenses. A recessed lens board might make using a very short (65mm and shorter) lens easier to use by giving the bellows a bit more room. I consider the inconvenience of a recessed lens board to far outweigh the potential benefits. The Toyo recessed lensboards will fit the DLC, so this option is available for anyone who prefers the recessed lensboard route.

Specifications for DLC45 and MQC57

Specifications for DLC45

Front Movements

- *Base tilt limited only by bellows (LOBB)*
- *Axis swing LOBB*
- *Shift .375" each way*
- *Rise 2.5"*
- *Fall 1"*

Rear Movements

- *Base tilt LOBB*
- *Axis Swing LOBB*
- *Shift 1.375" each way*

Bellows

- *20.5" maximum draw*
- *2.1" minimum*

Physical Properties

- *Weight - 4 lbs. 11 oz.*
- *Dimensions folded, 8"Wx7"Lx4.25"D*
- *Circular level built into top of rear standard*
- *Both 1/4" and 3/8" mounting holes on base*
- *International style back accomodates many accessories*

Specifications for MQC57

Front Movements

- *Base tilt limited only by bellows (LOBB)*
- *Axis swing LOBB*
- *Shift .375" each way*
- *Rise 2.625"*
- *Fall 2"*

Rear Movements

- *Base tilt LOBB*
- *Axis Swing LOBB*
- *Shift 1.125" each way*

Bellows

- *24" maximum draw*
- *2.1" minimum*

Physical Properties

- *Weight - 5 lbs. 11 oz.*
- *Dimensions folded, 10.25"Wx9"Lx4.25"D*
- *Circular level built into top of rear standard*
- *Both 1/4" and 3/8" mounting holes on base*
- *International style back for future accesssories (6x17 back)*
- *4x5 reducing back available*

Camera Set Up

I use a ball head with an Arca Swiss style quick release mechanism. So, I have a small A-S mounting plated bolted to the bottom of the camera. There is both a 3/8" and a 1/4" threaded hole on the bottom of the camera, so a Kirk mounting plate can be used that permits screws to be fastened into both holes. This makes the mounting plate permanent and solid, without any chance for the camera to rotate on the plate.

Set up the tripod, and slide the camera onto the head. Once secured to the tripod, loosen the rear standard and rotate it up into vertical position. There are very mild detents to assist in this procedure. Tighten the T-bar knobs to set the rear standard. Loosen the front rail and turn the front focus knob to extend it a small amount, so that the front standard is free to flip up into its' vertical position. Detents assist on this standard also. While the front standard rails are being flipped up, the front standard is rotated from facing down to facing out. This procedure is very similar to the traditional wooden field camera assembly procedure.

DLC with rear standard up, and front standard partially unfolded

Leave the front focus mechanism loose, as well as the front standard T-bars knobs. Once the front standard is up, there are two small alignment tabs that slide into grooves in the front standard arms, which aligns the standard to the arms. The standard is then set to the proper height by aligning two marks on the front and two T-bar knobs lock the assembly tight. Finally, the two T-bar knobs that control the front tilt are tightened down.

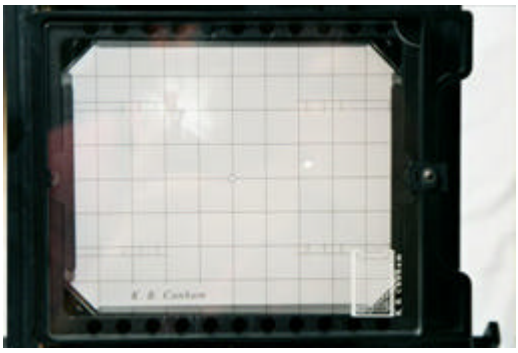
At this point, the front and rear swing and shift mechanisms can be checked and zeroed if required. More discussion will follow on this below. The camera is then ready to accept a lens and be set for the first composition.

The bellows draw determines how the camera is focused, although there is a great deal of flexibility built into the system. If the leans is short (approximately 150mm and shorter) and focused at or near infinity, the standards will need to be closer together than they are when the camera is first set up. The standards can be loosened by a quarter-turn knob so that they slide in a track on each focus rail. This will allow the standards to be brought closer together, and is generally set by approximation based on the focal length of the lens selected. There are centimeter scales on each focus rail to assist, but with use, the proper distance will be set by 'feel' rather than any precise method. After rough focus, the final focusing can be done using the geared focus knobs, while working through the ground glass.

When using lenses that require more extension than the camera offers when initally unfolded (approximately 210mm and longer), the geared focus rails can be extended to the approximate distance by loosening the quarter-turn knob and turning the focus knob. Generally, the rough-focus sliders are not required in this situation.

Making Images

The gridded ground glass and Fresnel screen are standard on the camera, and I feel the brightness of the screen is sufficient for the lenses I use. I don't own any high-speed lenses, so the brightness of the focus screen is an issue, especially in low light situations. I do feel that the Fresnel screen is a necessity, and so does Canham, because the DLC is now only available with the Fresnel screen; it was an accessory when the camera was first released.



DLC ground glass with grid lines.
Note that lexan GG protector is in place.

Most of my lenses have been selected by size and weight, rather than image circle because of the type of photography I do. I shoot from a car at times, but I am often a great distance from my vehicle, so bulk and weight are important issues to me.

I find the DLC camera is very well suited for lenses from 90mm through about 300mm. Shorter than that, the two standards are very close together, which makes composing and focusing a little more difficult. Longer than 300mm, the camera becomes 'stretched out', less stable and more prone to vibration.

I regularly use a 450mm Fujinon C lens on the camera, and I have found that my images are not as consistently sharp with that setup. I am working on a method to 'lock down' the camera using a Bogen Long Lens Support arm, which I feel will completely eliminate all the sharpness issues associated with having the camera stretched out so far. At this focal length, the photographer must make sure the bellows is not sagging in the middle, which can cause the bellows to vignette on one side of the image (the top, but the bottom on the film). This is especially true when a vertical image is being shot. I have gotten into the habit of slipping my spotmeter under the bellows and onto the bed of the camera. The meter is just about the right dimension to eliminate the bellows sag. With lenses 300mm or shorter, the built-in Velcro bellows gather is normally sufficient to eliminate any bellows sag issues.

I especially like the ability to extend the camera both out the back and out the front. This permits the photographer to balance the camera on the tripod or make other adjustments of camera positioning with ease. To get the full extension available in the camera, both the front and rear extensions must be used. Even with the 450mm lens, both extensions are not fully extended, so there is still some room for balance adjustment.

I also feel that the ability of both standards to slide on their respective rails is very valuable. When a short lens is used, the front standard can be pulled back, or the rear standard pushed forward to achieve the proper focus. This feature is what eliminates the need for a drop bed with wide-angle lenses.

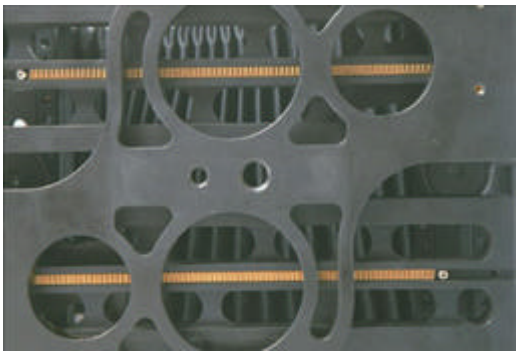
Finally, for close up work, the ability of the camera to focus using both the front standard and the rear will permit the photographer to compose and worry about magnification first, and then focus the rear to achieve critical sharpness without affecting the size of the subject on the ground glass.

General Impressions

Here is a list of additional comments on the design of the camera that are worth considering:

Likes

- Lightweight and small camera, comes with custom-built fitted cordura carrying case. This case makes it easy to throw the camera into a backpack without any other protection. (But don't forget to make sure the groundglass protector is on the camera.)
- The bellows is by a large margin the most significant innovation of this camera. It is what makes the rest of this very capable camera possible. 58mm through 450mm in one bellows. Enough said.
- High quality workmanship. When you spend as much on a camera as this, you want to be able to see and feel the quality. The quality control at the Canham factory is one of the best in the industry, and I have not seen or heard of a Canham camera that has been sold with defects. The build quality is sufficient to minimize the amount of repair issues that will occur on used cameras in the future. However, Keith is very responsive to problems or requests, and any issues that could arise will be quickly and efficiently resolved.
- Excellent performance to cost ratio. While this camera falls in the upper mid-range for field cameras, when you consider that the camera will accommodate all but the most rigorous applications straight out of the bag, the cost of a camera system base on this camera is quite reasonable. If you don't plan to use a lens shorter than a 110mm or longer than a 210mm, then there are cheaper cameras out there that will suit your needs, however, they may be heavier, more bulky, less stable at extension, or of lesser materials or construction quality. You do get what you pay for, and in this case, I feel the DLC has one of the best P/C ratios in the industry.
- The camera is somewhat low-key in its' aesthetics. I don't particularly care to call attention to myself any more than I have to, and a flat black camera fits with my attitude as to what a large format camera should look like. No chrome or polished brass on this baby!

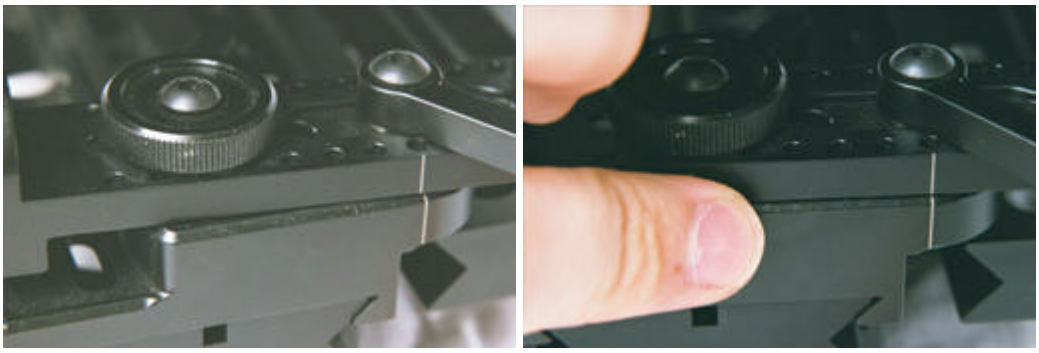


- The camera has a certain beauty that is unique in the LF world. There is no other camera maker that has an aesthetic like this. It is very nice to be able to use a tool that works well and looks nice at the same time.
- All the knobs (except the focus knobs) are T-bar or quarter turn, which make them easy to use with gloves on.
- The Canham ground glass protector is designed to fit in the accessory slots in the back, and secures with the same latch that holds the accessory in place. This protector is made of Lexan, and is transparent. It does not need to be removed to focus the camera properly, like the typical 'U' style folded plastic ground glass protectors do. However, there is a downside to this, and that is that it is easy to get lazy and not check for critical focus with a loupe. When in doubt, remove the protector and check focus with a loupe.

Dislikes

- The lack of zero-setting detents for swing. This will occasionally be a problem when you are trying to shoot quickly and neglect to verify that the front standard has no swing set. The rear standard can be visually assessed, so it is easy to recognize when rear swing is

set. I have found that the best way to avoid inadvertent front swing is to take your index finger and run it along the front rail block and bottom of the front standard. When there is no swing, the edges of both pieces will be parallel and aligned together. If you can feel any misalignment, there is some swing set in the front standard. The index finger is capable of detecting a very minute deviation from parallel, so this method is sufficient for fieldwork. It can also be done from behind the camera. Train yourself to check for this as you set up the camera, and you will have no inadvertent swing problems.



Left: Exaggerated example of unintentional swing.
Right: Use your index finger to check for swing from the rear, or visually check for swing.

- The front and rear swing levers stick almost directly out when locked down. This can exacerbate the problem listed above because the lock-down levers can be bumped while in your bag, and then the standard is free to swing. Keith designed the camera to be packed up with the swing levers unlocked. This will require a bit more time when setting up the camera, because there are no zero swing detents, but it may also eliminate any problems caused by inadvertent swing. I am going to make an effort to close down the camera with the swing detents loose, and see if I can get myself into the habit of checking and locking them every time I set up the camera.

Note that the swing lever sticks almost directly out when locked down.

- I prefer axis tilts on the front standard, and the DLC uses base tilt. Does this drive me nuts? Well, yes, sometimes it does. Sometimes I can't seem to get the composition to come into focus the way I would like, and I suspect this has as much to do with the base tilt as anything. Most of the time, the base tilts have no affect on my ability to make an image quickly, since most situations require just a touch of forward tilt to get the plane of focus where I would like it. My problems occur when working close in, where applying base tilt also implies a significant amount of forward movement of the lens.
- I don't like the location of the level in the camera. It is installed flush to the top center of the rear standard. In some circumstances, the level is above eye level, which makes it

difficult to use. This is another reason this camera is not ideally suited for architectural photography. Because of this, I rely more on the grid on the ground glass to ensure that the appropriate objects are oriented in the correct manner.

- There are two quarter turn levers that can be very difficult to access when the camera is set up for a short lens. The two levers that loosen the standards from the rails to permit them to slide for rough focus adjustments face *inwards* from the base of each standard. When the standards are close together for short lenses (less than 90mm) there is precious little room to get fingers in to loosen the levers. I find that I have to set the standards further apart and use the geared focus knobs to bring the standards together sometimes. These two levers are especially difficult in the cold or with hand protection on.

Specific Notes on Use

Cambo viewing accessories are said to fit the back of the camera. I purchased a Cambo folding viewing hood recently so that I can leave my focus hood at home when out backpacking. It didn't quite fit properly, but I was able to modify the frame on the hood to fit (thanks to a rotary tool, a high speed steel bit, the soft cast aluminum frame material, and a little ingenuity). If you don't have the tools, you won't be able to get the folding hood to fit. I make this statement assuming it wasn't a manufacturing defect in the Cambo hood that was the source of the problem.

Cambo folding hood mounted on DLC

The bag bellows should be used for short lenses for architectural photography, although I don't recommend this camera for that use. A monorail camera is much better suited for that application in my opinion. The camera is not designed so that there is a high level of precision in the setup of the standards. It is certainly possible to use this camera for architectural photographs, but if your primary emphasis is architectural, I would consider an Arca Swiss or Sinar monorail as a more appropriate choice.

Some people have commented that the spring mechanism on the rear of the camera is strong, and that it can cause problems when loading a filmholder into the camera. The amount of effort required to pull back the focus screen frame and slide in a filmholder can cause the camera to move, especially if the tripod head is not locked down completely. I would prefer to have a bail arm on the back of the camera to facilitate the insertion of filmholders; my Phillips 8x10 Explorer has spoiled me in that respect.

I have figured out that the best way to pull the focus screen frame is to use your left thumb and index finger to push on the rear standard (with the thumb) and pull on the focus screen frame (with your index finger) at the same time. This will create an 'equal and opposite forces' condition at the back of the camera, which will minimize the force applied to any of the joints on the camera or tripod.

Method to pull back the ground glass.
Note location of thumb and index fingers.

Conclusion

The DLC is designed first and foremost as a field camera, and it should be measured and compared with other cameras in that context. While it can't compete with a fully geared, yaw-free monorail for precision, stability and luxury, it does stand up in the field camera crowd as a significant and worthwhile option.

Is this the best field camera available today? No, there is no 'best' camera. Every user will find their own mix of features and method of operation that will suit their own style. I, for one, occasionally long for the silky smooth movements of a Linhof. The Canham 45DLC camera, with its' combination of low weight, portability, and extensive capabilities make it a very popular camera for field shooters around the world.

About K.B. Canham Cameras, Inc.

There was a good article about Keith Canham in *View Camera Magazine* (May/June 1998). It explains the background behind the company, and gives some insight into the quirky and interesting nature of the man. Keith's into old things; old cars, and old motorcycle, and old pianos. I think the craftsman style approach to his large format cameras comes from his experience with the past. He has worked on enough old equipment over the years to have a certain respect for the way things were made in the past.

His cameras are very much like the old pianos he used to restore. While the majority of the inside of a piano is purely utilitarian and never meant to be seen, there is often a certain beauty and grace to the way the old insturments were built. The craftsman tradition is about the desire to build something functional beautifully, just because it can be done that way.

More information

I have heard that K.B. Canham Cameras will soon have a website running to disseminate information on his cameras, but ultimately this is not necessary, because there are several Canham dealers that have a presence on the web where information is available. The F-Stops Here, Badger Graphics, The View Camera Store (formerly Darkroom Innovations), Quality Camera, and many others can provide pricing and availability information on these cameras.

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