WHICH 4X5 DEVELOPING TANK?

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Some time back I treated myself to the Speed Graphic 4x5 that I've always wanted and so found a need to develop my own large format negatives. I've processed plenty of 35mm and 120 over the years but am new to 4x5 sheet film. I'm not able to set up a darkroom at home, even a temporary one, so tray development isn't an option and I looked around at what daylight systems were available.

The three tanks I found offered widely on the internet are the eTone 4x5 Reel for the Paterson AP Compact Tank, The MOD54 spiral for the Paterson 3-reel tank, and the Stearman SP-445 Tank. I bought all three, developing 30 plus sheets in each to get a proper feel for them. The following is my purely personal comparative review. It would probably be better to live with the different systems for six months but the enthusiasm to write about these things diminishes with time – better to get it down on paper now.

Ethical disclosure: I have no interest in any of the products described here and do not benefit financially or in any other way from their sale. I paid full price for the examples reviewed.

eTone 4x5 Spiral Reel for Paterson AP Compact Developing Tank

You can buy this large format reel on Amazon for £38.99 or on Aliexpress.com for $42.59. It's designed to be used in conjunction with the Paterson AP Compact Developing Tank, so if you don't have this or an equivalent size daylight tank, you'll have to buy that as well.

This device is made in China by a company named Jian Cheng about which I haven't been able to find any reliable information. It is sold through Amazon, eBay and other outlets in the UK and US, usually in conjunction with the Paterson AP Compact tank which it is designed to fit.

The idea is very simple. In the dark bag, you take your exposed 4x5 film sheet, flex it so that it curves and let it spring into place in the angles between two wings on one side of the reel. The reel is called a "spiral" for ease of description, but there's nothing spiral about it. It has two fins projecting from a central tube which fts over the tube in the Paterson tank. Each side can hold one piece of 4x5 film.

The device is made to a high standard as an ABS plastic moulding in dark grey plastic. There is a screw you can use to tighten it to the tube in the tank, though I can't see that this is essential, or even necessary.

Loading it by touch is very easy and it would be difficult to mess this procedure up. Developing with it was easy following standard instructions. I use developers such as Perceptol and Microphen and follow their recommendations on times and agitation – four inversions each minute. I notice that Ilford have added the word "gentle" to their recommendations on inversion and this is a word you encounter quite often in connection with daylight tank agitation.

I follow that advice as some users have expressed concerns about agitation dislodging the films. None of the sheets I've developed using the reel has moved, so I suspect this fear may be misplaced. However, as you'll know, the kind of agitation you use can affect the development itself so I've tried to take extra care. I have had one case of bad development with this device and it affected the same edge of each negative, but I'm unable to say on such a small sample whether it was caused by bad loading or development on my part or a design flaw. My conclusion so far is that it's unlikely there is any design flaw in the device that would interfere with development.

I've looked carefully at the negatives using a loupe and printed them out, but haven't found any sign of processing artefacts or poor development spots apart from the one incident – the chances are it was faulty loading or processing on my part.

One gripe from a user viewpoint is that the reel is delivered in a plain card box with no English text and no instructions, just a few Chinese characters. The closest thing to a manual are the simple illustrations that you can find on some sales sites, like aliexpress.com, but you have to search for them.

As I said earlier, it's pretty simple to use so it doesn't take an encyclopedia to work out what to do. But it's one more thing that may be off-putting for photographers trying out tank development of sheet film for the first time – especially if they don't have previous experience of developing 35mm or 120 film.

There is, for example, no instructions on how much developer to use in the tank, so initially I assumed that the tank maximum was about 600 ml, the same as given for a 120 reel. This proved to be a mistake which I discovered when I stand-developed a couple of sheets and found an undeveloped strip along the top. It's necessary to use the full 1 litre capacity which makes the device the most expensive per sheet to use (see comparison at the end).

The illustrations provided are also contradictory in that they say film should be loaded with the emulsion side facing out while the notches in the illustration show the film being loaded emulsion side inwards. Perhaps it's just as well they didn't try to write an English language manual. I tried developing sheets emulsion facing in and facing out. With the emulsion facing out I got visible marks in the same place on both short edges: while facing in, there were no

marks. I believe that the illustration shows the correct method and the written instruction is wrong. It should be emulsion side inwards

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What I Liked about eTone Spiral:

- Very easy to use
- Produces good results with inverted agitation four times a minute
- Very easy to keep clean and dry for next use
- A nice addition if you already have a Paterson Compact Tank.

What I was less happy about:

- Expensive - £39
- Limited film capacity - only takes two sheets of film at one time
- Less than thrifty of chemicals - it takes 1 litre to cover the spiral in the Paterson tank
- No proper instructions provided.
- Incorrect directions on internet sites

MOD54 4x5 Film Holder for Paterson Multi-Reel 3 Tank

The MOD54 is a film holder capable of holding six 4x5 inch film sheets inside a Paterson 3-reel daylight tank. If you already have a tank, you can buy the holder for £46.50 (Speedgraphic website) in the UK or $62.96 in the US (eBay.com vendors). If not you can buy the two together for £69.95 in Britain or $92.21 in the US.

The MOD54 was designed by an Irish professional photographer, Morgan Donovan. In essence it works in the same way as the eTone spiral. Film sheets are flexed and their natural spring holds them by the edges either side of a central column that fits in the tank. Instead of only two sheets, however, the MOD54 holds three each side – for a total of six. The sheets are thus packed in fairly tightly in a tank that is the same diameter. I'll come back to this point in a moment. Sheets are loaded with emulsion facing inwards.

It is moulded from a frankly rather cheap-looking pink plastic, though this doesn't affect its use as far as I can tell. The reel fits over the central column or spindle of the tank. There is no screw or clip to hold it tight to the spindle. My MOD54 was rather loose on the spindle but I discovered by accident that my spiral is not a single moulding but several stacked together and if I hold it and twist they rotate slightly. This slight movement tightens it on the Paterson central tube.

I've no idea if this feature is intended or accidental because the MOD54 doesn't actually come with much more instructions than the eTone. There are six brief bullet points on the side of the box but they need further explanation if you're new to this kind of developing. The box side advises you to "Check MOD54.com for detailed instructions and tips". There is some further advice on the site but not in any greater detail. However, there are two YouTube

videos on using the MOD54, made by Morgan Donovan himself. These are essential viewing. The main problem is that each sheet of film is held only a few millimetres away from the next one, and working by feel it is easy to catch the film in the wrong indentation or set it crooked. Donovan gives some useful advice on how to avoid this. Although it's fiddly and a bit time consuming at first, I managed it OK first time.

I've noticed a few adverse comments on various sites about the difficulty of using this system and the likelihood of errors. I agree it's complicated but it's no more complicated than, say, loading film into the septums of a Grafmatic back in the dark. What I will say is, that it's sufficiently fiddly to make the other two methods preferable much of the time, especially if you're in a hurry.

The best part of Donovan's YouTube for me is not about the MOD54 but about an easier way to load film in a daylight bag. His idea comes from the department of obvious but brilliant shortcuts. Donovan recommends taking an ordinary cardboard box an inch or two taller than the 3-reel tank, cutting off the top and the front, leaving the base, back and sides, and putting this inside the dark bag as a working "desk". This works like a dream. It keeps the bag away from film and whatever you're loading it into and makes the whole process much easier, not just for this tank but for any film loading.

Development can be very straightforward (although see my remarks below) but one important point to bear in mind is that the Paterson 3-reel tank holds a full litre of chemicals. So although you are getting six sheets at once, it can be a thirsty and expensive process in terms of chemistry.

I have to confess that, through my own fault, my first use of the MOD54 was a bit of a mess. I got the film sheets loaded all right but I messed up the development. Those of you who have bought a Paterson tank in the recent past will know that they now include a rather weird "twizzle stick" affair, which fits in the top of the light tight tube, and a scalloped base of the central tube which causes it to rise and fall slightly when it's rotated by the twizzle stick.

Taking on board the instruction to agitate not too violently, and the concerns of some users who posted that inversion agitation could dislodge the film sheets, I decided to agitate once a minute but using the twizzle stick only. The result was that there was poor development in the areas around the "teeth" holding the film, giving a comb-like pattern on the negative.

On the second and subsequent times I used it, I abandoned the twizzle stick and used conventional inversion agitation, with a slow twist, and the problem disappeared completely. The finished negatives showed no sign of development artefacts under a magnifying loupe and all film sheets stayed in position until I removed them for drying.

One user told me that he felt nervous about putting all six film sheets into the detents provided and said he restricted it to four sheets – two per side - to ensure no fouling of adjacent sheets and adequate space for developer to circulate between sheets.

I haven't yet found any evidence to support the theory of sheets fouling but I must admit that I, too, have felt cautious and followed this piece of advice sometimes and used only four sheets.

What I Liked about the MOD54:

- Processes six films at once
- Familiar process of tank inversion

What I was less happy about

- Expensive
- No proper instructions
- Can be fiddly (though no more than many other dark room processes)
- Uses 1 litre of chemistry

Stearman SP-445 4x5 Film Processing System.

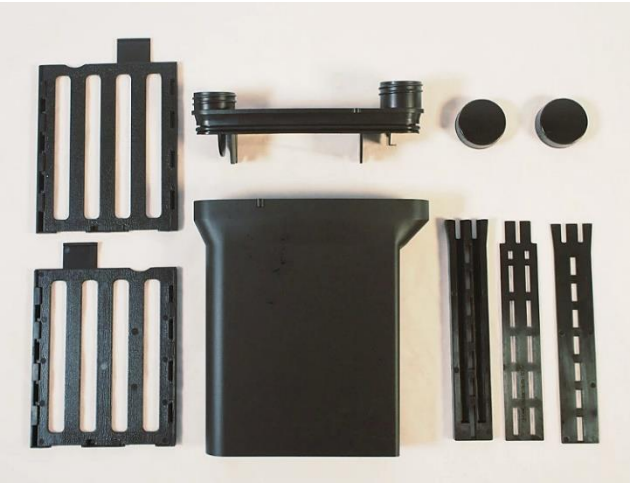
I got very excited when I discovered the existence of the Stearman SP-445, because I felt that at last someone had tackled the problem of daylight development of 4x5 sheet film from the ground up, instead of adding a new spiral to existing daylight tanks. My excitement was more than justified. The tank sells in the UK for £102 (eBay) or in the US $96 (direct from Stearman Press).

The tank is not much bigger than a 4x5 film sheet in area and about an inch thick. It's made light tight by a set of vertical baffles that have matching complementary cut-outs through which solutions flow. Between these baffles two film hangers slot in. The film sheets are held flat in these hangers by the edges in exactly the same way as in a dark slide, either side of the thin plastic film holder. There are two holders that slot between the baffles giving a capacity for four sheets in total.

The tank has a lid that fits on the top and is held in place and kept watertight by an O ring. Chemistry is poured in and drained out through a circular hole at one end of the lid, which has a screw top with watertight seal. The other end of the top has a second hole with light tight screw lid which is opened to allow air to enter the tank while filling and emptying it.

My partner, Catherine, summed it up by describing it as "a hip flask for someone with very large hips."

The tank comes with a one-page instruction sheet and the address of the Stearman website which carries more tips and information including a very useful video. The instructions are comprehensive and the tips are useful.



Loading the two frames in the dark bag is extremely easy – it's almost identical to the process of loading sheet film into a dark slide – and it's easy to carry out a quick last-minute fingertip check that the film is behind all of the side retainers.

One feature of this tank is that when you remove the vent screwtop to fill from the other end with developer, the fill is noticeably quicker than filling a Paterson tank through its single central hole.

Development is carried out in the normal way to the usual maker's instructions. Washing is slightly different. You can run clean water through the tank for 5 to 10 minutes. Or you can adopt a modified version of the Ilford process where you put six changes of water through with 20 inversions with each change.

One very experienced large format photographer mentions in his YouTube video that he likes to put a rubber band around the top and the tank to make certain the top stays on tight. I don't get why anyone is nervous about this. The natural way to pick up the tank to agitate it is to place the hand over the top and down the sides, like picking up a book by the spine. This automatically ensures the top stays tight.

One user tells me that the O-ring seal tends to weaken and the tank starts to leak after a while. I haven't had this experience yet. But one of the things that I like about the Stearman tank is that their web site sells all the components individually, including replacement O-rings, which cost $1.

Both of these complaints could be down to the way people use the tank. It's designed so that when you've filled it to the correct level, just below the lid, you squeeze the sides gently so the liquid rises, then screw on the top. This creates a partial vacuum inside so that until you release the cap, atmospheric pressure holds the top on.

I'm told that there were complaints from users of the first generation of sheet film holders (which were solid) that they could leave marks on the negative. This component seems to have been redesigned several times since, as the current product is described as "Rev. 4". My own film holders seem to be second or third generation in design and so far haven't left any marks.

Another internet user of this tank commented that it was a pity the designers/manufacturers did not go one step further, make the tank just half an inch wider and accommodate two more sheets to make six. I echo those thoughts – it would then be a truly best-in-class tank and I suspect there would be a brisk sale to people on this site and elsewhere. Please note, Stearman peeps, if you're watching.

What I liked about the Stearman SP-455

- Compact, purpose designed
- Takes 4 film sheets
- East to load in dark (same as loading a dark slide)

- Uses only 475 ml of chemicals
- Fills and empties quickly
- The maker sells all the component parts individually

What I was less happy about

- The most Expensive tank - £102, $96.
- There are nine individual pieces to the tank, 3 baffles, 2 hangers, the top, the tank and two screw caps, making a complex assembly and lots of parts to dry.

Economy of chemistry – overall comparison

Whether you consider these systems wasteful or economical with chemistry depends on how you develop. I like to use dilute solutions for long periods – typically 1+3 for 20 or more minutes. This is necessarily one-shot use. So if I mixed up 1 litre of Perceptol (cost about £9) and used it diluted to 1+3, then I could use my 4 litres to process:

- 4 x 2 = 8 sheets in the eTone, or
- 4 x 6 = 24 sheets in the MOD54 or
- 8 x 4 = 32 sheets in the Stearman SP-445.

These figures might change depending on your personal preferences and also on your objectives. I work fairly slowly doing just a few sheets at a time. If I take six exposures in a day, that's a big day. If, on the other hand, you have just returned from climbing Mount Everest or crossing Antartica, you'll probably have more of an industrial production line on your hands and the numbers may change accordingly.

The Final Verdict

I can recommend all three tanks as doing a solid job if used carefully. Which is my favourite? I like the simplicity, ease of loading and reliability of the Stearman SP-445 coupled with the fact that it is by far the most economical user of chemicals. Having said that, I have bought and will continue to use all three systems. I sometimes load and take 3 or 4 double dark slides, or a couple of Grafmatic backs with me, when I go out for the day, without knowing how many sheets, if any, I will expose. Having all sizes of tank handy for use gives me the option of developing any number of negatives – 2, 4, 6, 8, 10 or 12 by using them in various combinations.

The acid test is what would I do if I had just taken the picture of the year – which tank would I trust to process it with least anxiety? The answer is undoubtedly the Stearman SP-445.

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