III ... II ... I ... CONTAX!

When I bought my first Contax (for $35) last year *(note: this was written in 1985)*, I fell in love with it. It worked perfectly, and it was easy to see why, in its day, the Contax II was often preferred over contemporary Leicas (mainly IIIa's). Though somewhat larger and heavier, it was years ahead of its Wetzlerean counterparts in several important respects. Its viewfinder image was larger and brighter, and included a rangefinder patch in the same eyepiece. In addition to being more convenient, the rangefinder is easier to see in low light and twice as precise (its precision far exceeded the requirements of the era's fastest lenses). Leicaphiles may consider the perched-on-top wind knob awkward in comparison to the more compact Leica arrangement, but it's faster and easier to wind because of its larger diameter and the absence of obstructions. And the single, non-rotating shutter speed dial built into it wouldn't be found on a Leica for nearly 20 years. Nor would the bayonet lens mount. Or the self-timer, at least in significant quantities. And while we're discussing features, have you ever seen a Leica IIIa or IIIb fitted with a groundglass back? I haven't either.

Zeiss and Leitz had different ideas regarding ergonomics, especially in the matter of focusing the normal lens. In this I'll admit that the Contax takes some serious getting used to, and even then its finger-wheel is slower to operate than the Leica's focusing lever. The Contax can be focused conventionally by rotating the knurled lens rim, though, and as for the "two-fingered claw" grip, I've gotten so used to it by now that I find myself holding the Leica that way ... which works about as well as trying to hold the Contax like a Leica.

Much has been said, in rather vague terms, about the differences between Leica and Contax shutters. In use, they're pretty comparable. Noise levels are very similar, with the Contax possibly being a bit quieter at 1/50 and faster speeds. Vibration is lower in the Contax, especially at speeds below 1/125 when the curtains travel more slowly. Combined with the camera's greater mass, this gave the Contax a distinct advantage for low-light photography. The Contax shutter was physically incapable of fading; it was precise and consistent; its articulated brass curtains didn't burn in hot sun or get stiff in freezing cold; its timing mechanism was relatively

straightforward, dirt-resistant and reliable. It really only had one drawback, which in fairness probably only became apparent after production had already stopped: it broke. Which brings us to how I came to find out just what the inside of a Contax II looks like.

My Contax's shutter broke the first week in September, when I'd had the camera less than a month, and, having heard all the nightmare legends about Unrepairable Contaxes, I was sure that my brief love affair was over. I was also sure, however, that I had very little to lose by trying, so I bravely took scalpel in hand and opened her up. What I found inside, among other things, was something so un-Zeiss-like that for a time I refused to believe it: this is the only shutter, and almost the only precision mechanism of any kind, that I've ever seen that relies on (gag) (choke) friction in order to operate properly! Worse than that, the friction is applied to the silk ribbons that operate the curtains. And of course, it's those silk ribbons that inevitably wear out and break at more or less regular intervals.

Now: with all that out of the way, I think I can get back to the subject at hand: How It Works.

The shutter of the prewar Contax is, to the best of my knowledge, a truly unique and original design. It consists, like other focal plane shutters, of an opening curtain and a closing curtain which travel across the film plane at equal speed, separated by some fixed distance. Effective "speed" or exposure time is varied by adjusting the separation distance between the two curtains. For high speeds (in this case, 1/125 – 1/1250), the separation is less than the width of the film, and a "slit" travels across the film plane at full speed; at slower speeds, a clockwork mechanism delays the closing curtain as required. Sounds pretty familiar.

In this shutter, though, only one pair of ribbons transports the mechanism: they are attached to the closing curtain. Likewise, only the closing curtain is linked to the shutter release, and to the time delay gears, and the wind knob. The opening curtain is purely a passenger, riding along passively as the closing curtain is pulled home behind it.

This arrangement makes fading a physical impossibility, and really simplifies operation somewhat: when cocked and when traveling, the shutter acts as a

simple traveling slit (a la Graflex) regardless of the speed set. Only after exposure does the shutter cap itself, again by the simplest means: two hooks on the opening curtain engage slots in the closing curtain, locking the two together.

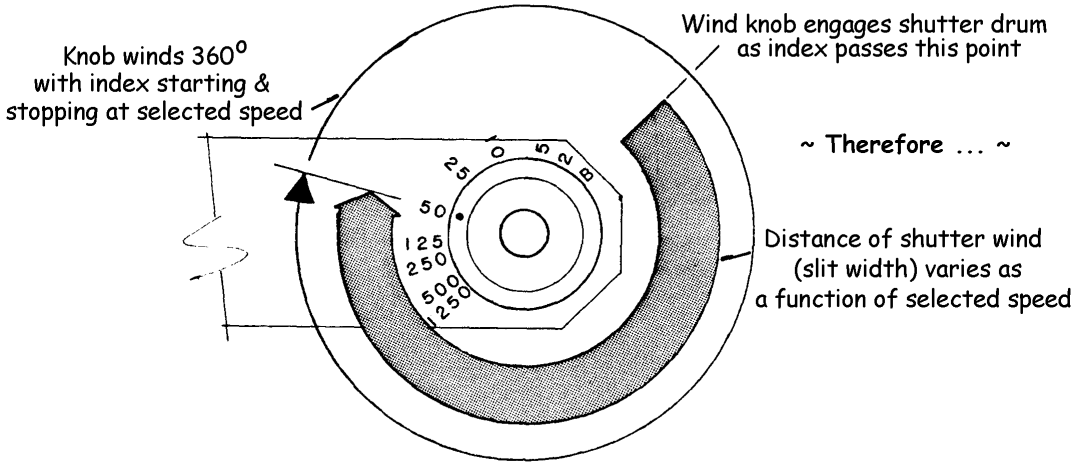
The only delicate part comes in when the first curtain has reached the end of its travel, and the second curtain is still moving. During this interval, the buckles which have held the first curtain in position on the ribbons must now allow those ribbons to slide freely so that the second curtain can close. The friction between the ribbons and the buckles must be high enough to resist sliding during travel (under tension of the relatively weak first-curtain spring), but low enough to allow sliding an instant later (under tension of the stronger second-curtain spring). This constant sliding, of course, takes its toll on the ribbons which invariably break at the upper end where the amount of wear is greatest (lower parts of the ribbons will only receive wear at slower speeds, whereas the upper end receives wear on every shot).

Fortunately for the repairman and owner, the camera is highly modular in construction, so ribbon replacement isn't such a big deal. As for materials, a dollar at your local fabric store buys enough ribbon to restring at least a dozen cameras, making low-priced "broken" Contaxes one of the best bargains at the show.

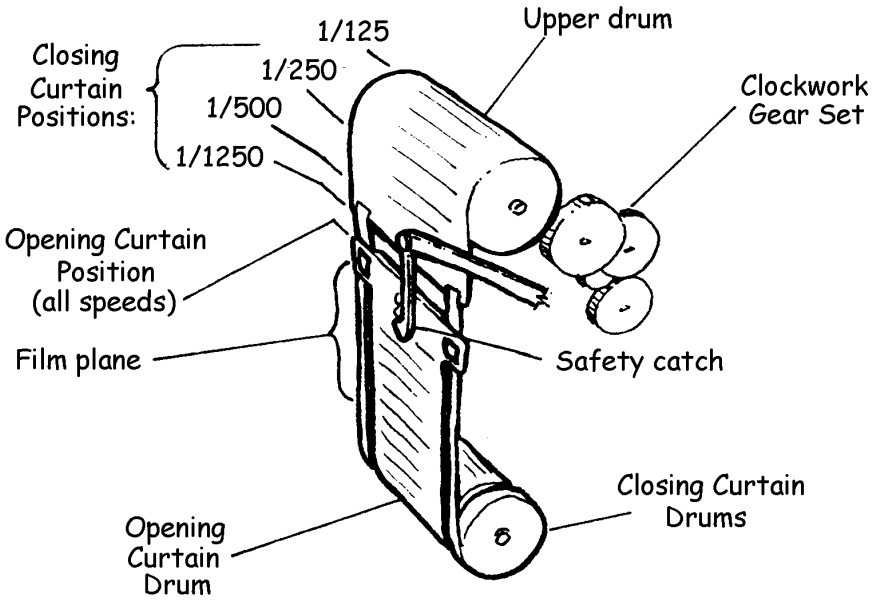
(Note: It should be stressed that all of the above applies to the pre-WWII Contax models, most commonly the II and III. The postwar models IIa and IIIa, while similar in appearance, are fundamentally different in design and do not share either the vices (periodic ribbon wear) and virtues (immunity to fade and shutter speed consistency problems) of these original models.)

How did they do it?

Published accounts to the contrary, the task of advancing the film a fixed distance (one 35mm frame) while simultaneously winding the shutter curtain a variable distance (as a function of shutter speed) was not overly difficult or complex. The shutter-wind mechanism, coupled only to the upper curtain drum, was engaged by the wind knob at a fixed point. The knob stopped when its index dot reached the selected shutter-speed numeral, the location of which obviously varied as a function of shutter speed. The film sprocket, coupled directly to the knob, advanced during the full 360° rotation for consistent frame spacing.



Contax II Shutter (Shown cocked at 1/1250 second)



(Note that the curtains are not closed when the shutter is cocked: width of gap corresponds to speed set on shutter speed dial; upper curtain moves as dial is turned.)

When upper drum is wound past 1/125 position (to slower speeds), it begins to engage the clockwork. From there on, as slit width is increased the gear train is engaged further, slowing the travel of the curtains. Speeds are therefore a function of both slit width and curtain speed variations. Because of the way the curtains are tied together, if the shutter traveled at full velocity at all speeds (like those of other cameras), the $\frac{1}{2}$ second slowest speed would require over 2 feet of curtain. At the B setting only, the closing curtain is mechanically detained.

The safety catch, affixed to the body above the film aperture, engages a pawl on the opening curtain to prevent inadvertent opening of the curtain (otherwise held only by the friction of the ribbons) during shutter speed change or as a result of shock or vibration. Linked to the shutter release, it is withdrawn just before the actual release. Except for its safety function, this device has nothing to do with the shutter's operation.