Contax / Pentacon 35mm SLR

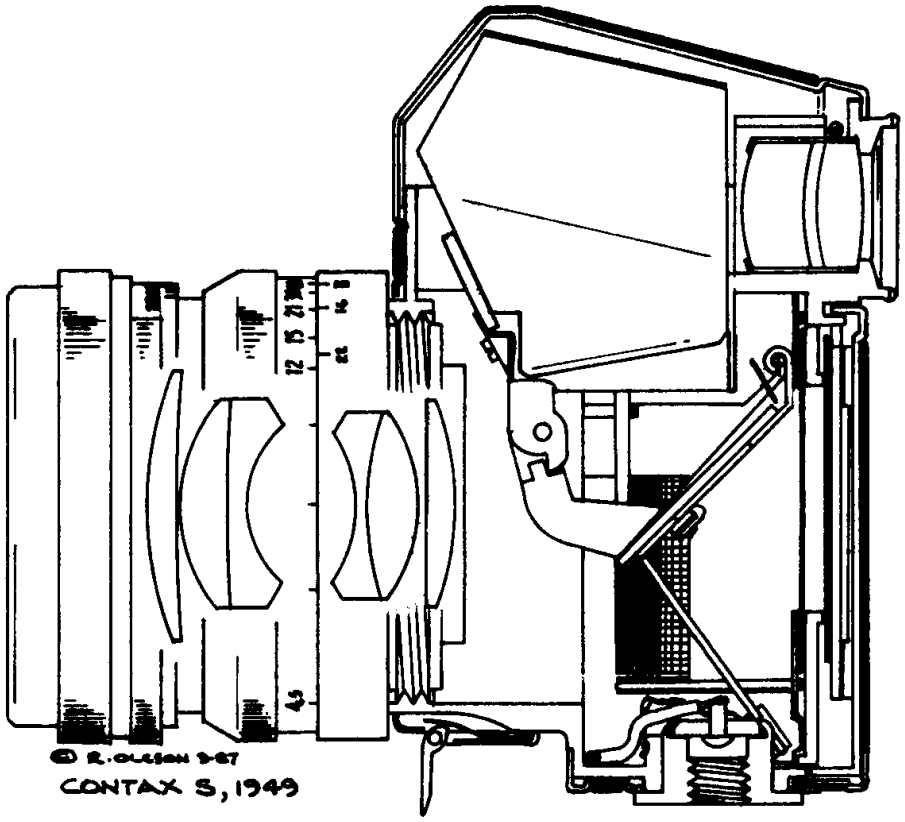

Figure 1: Section View Through Lens

Being the first pentaprism-equipped SLR, the Contax didn't have the benefit of the design details which have since become part of the SLR Designer's Handbook. Lacking access to the then-new Kodak Ektalite Fresnel field lens, and not wanting to be burdened with the bulk of a plano-convex condenser, the Zeiss designers integrated the prism and focusing screen into a single piece by sandblasting the bottom face of the pentaprism. Bulk was further

reduced by angling the screen downward at the front, with the resulting changes in optical path resulting in a lower prism housing than would otherwise have been possible. The mirror-setting cord, whose operation is explained in Figure 2, can be seen in this view, as can the flip-down lens support foot and the tripod-socket-mounted flash synch connection.

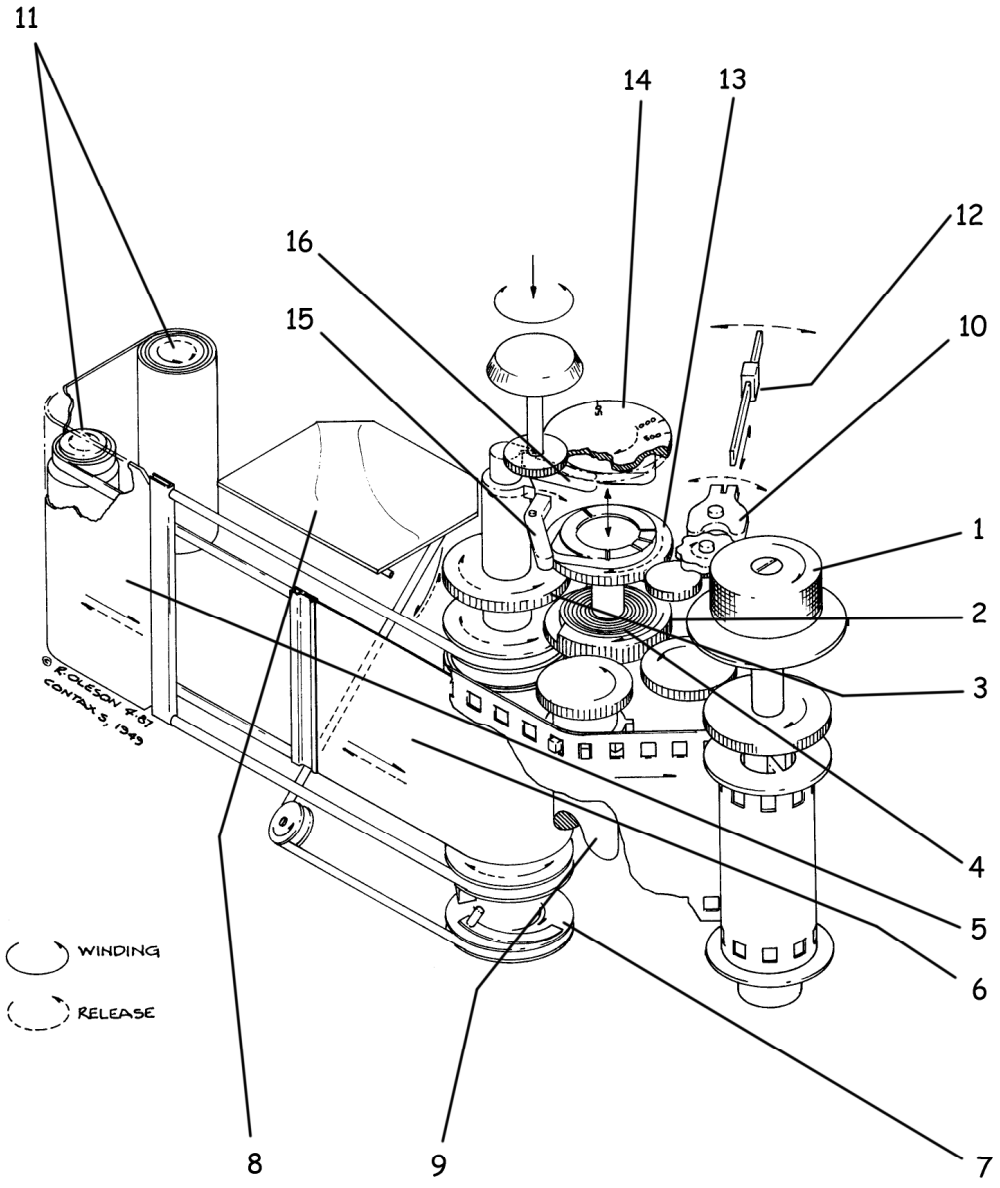

Figure 2: Schematic Layout of Major Internal Mechanisms

Winding Sequence (refer to Figure 2)
As knob 1 is wound clockwise, it drives main timing gear 2, also clockwise. Timing cam assembly 13 – 14 cannot rotate because it is held in position by the shutter release; therefore, rotation of gear 2 causes tensioning of timing spring 4. As gear 2 rotates, it winds shutter via gear 3; once shutter is fully wound, cutout section in gear 2 releases gear 3 which would then reverse except for pawls 15 – 16 which prevent rotation of shaft. Gear 2 also drives film sprocket 9, transporting film to next frame. As shutter spool rotates, a pawl at its lower end causes a pulley 7 to draw the mirror 8 down via a cord. Once fully wound, the pawl disengages, the pulley reverses under spring force and the cord goes slack. Mirror is now held in place by a pawl linked to the shutter release.

Discharge Sequence (refer to Figure 2)
Depressing the shutter release simultaneously releases mirror 8, which rises, and timing assembly 13 – 14, which rotates clockwise under force of spring 4 at a constant speed, controlled by delay gears 10 (in "slow range" only, pendulum 12 is engaged and oscillates during rotation of timing assembly). Opening cam 13 immediately retracts pawl 15, allowing first curtain 6 to travel to open position. Location of closing cam 14 is variable depending on speed set, being secured to cam 13 by a spring detent device. When cam 14 comes around it retracts pawl 16, allowing second curtain 5 to travel. Timing assembly 13 – 14 continues to rotate until a pawl on 13 comes to rest against a pawl on the shutter release. By this time, closing cam 14 will have done its stuff, unless setting is at "B". As shutter release rises, timing assembly is released to complete its last few degrees for a full 360° rotation, then is stopped again. If the dial is set at "B", cam 14 is located so as to actuate closing curtain during this stage.

All elements have now returned to their original positions and shutter is ready to be wound again.