EXAKTA RTL 1000

—A Transformation

Geoffrey Crawley

The senior 35mm single-lens-reflex camera is the Ihagee Exakta, and its complete re-design, which the subject of this review represents, is therefore of exceptional interest to the development of camera design as well as to its potential users. The nearest analogy to be found is probably the step from the early Leicas into the M era; although such an analogy does not entirely hold.

In an era when 35mm single-lens-reflex camera design veered more and more to fulfilling the requirements of photo-journalism, the Exakta, up to the most recent model the VX1000, remained stolidly itself: a camera designed for considered photography and with special applications in macro-photography, photomicrography, scientific and medical work. In fact, a camera continuing in the direct line of descent, the Exakta 500, will be available for those who wish to continue to use this version of the camera. The RTL 1000, however, is an obvious attempt to make an Exakta which will be comparable in its rapidity of action and convenience of use with the cameras produced by other 35mm single-lens-reflex manufacturers. Considerable ingenuity of design has been displayed, in that the RTL 1000 will accept all interchangeable lenses and accessory equipment made for the Exakta series, with the exception of the interchangeable waist-level and pentaprism finders, Magnear finder, and the interchangeable focusing screens. The new camera will however have its own similar range of focusing screens and interchangeable finders.

For convenience of reference in this review the previous Exaktas will be termed: 'standard' Exaktas.

It is not fanciful to suppose that the genesis of the RTL 1000 was triggered by the effort to manufacture in West Berlin a modernised Exakta called the 'Real'. This attempt could not be sustained and once again underlined the difficulties of tooling up and manufacturing a modern fine camera. The result does however seem to have been a decision by the Ihagee Company in the DDR to produce a version of the Exakta more in line with the design of the top-selling 35mm SLRs from Japan and, indeed, from VEB Pentacon elsewhere in East Germany.

The Changes

The general appearance of the new camera and the comparison with the standard models can be seen from the accompanying illustrations. To put the matter succinctly, apart from the lens mount, the RTL 1000 can be regarded as an entirely new camera. It loses the opulent bow-front of the standard Exakta shape although this is still just traceable in the body outline. The lens register is preserved and the bow front is replaced by a conventional front scutcheon. The length of the camera is reduced by about 10mm to 144mm, a length which the modern 35mm SLR seems to have standardised upon, give or take a few mm. The Asahi Pentax is 143·5mm, the Minolta SRT101, 145mm. The Canon FT and the Nikon F, at 147·5, are in fact two of the longest. The RTL 1000 is however still fairly deep: the width at the baseplate under the optical axis of the camera is 35mm. As comparisons, the Asahi Spotmatic width is 31mm, the SRT 101 is one of the slimmest at 30mm, whilst the Canon is 31mm wide and the Nikon 32·5mm. The top-plate or shoulder height of the RTL 1000 is considerably increased from the 65·5 of the standard Exakta to 74·5mm. This is much closer to the approximate standard height for a modern 35mm SLR, which is around 75mm. The SRT 101 is 74mm, the Spotmatic 73mm, with the Canon rather taller than most at 77mm and the Nikon shorter at 71mm.

On the face of it, these variations, which seem to amount to only a millimetre or two here or there, do not seem of any great significance. The surprising thing is that when they are totted up in relative volume, the differences in appearance between cameras differing only slightly in actual dimensions is most apparent.

The general appearance of the new Exakta is very pleasing; it is a little reminiscent, on picking the camera up, of the shape of the Leicaflex SL in that it has a similar stocky sturdy appearance, although the SL has a bow at the rear of the camera whereas that of the RTL 1000 is at the front. In weight, 884gm, the new camera feels just about right for its size and it has a low centre of gravity, making it very comfortable to hold, especially as it is not 'lens-heavy'. It is surprising, over a long period of operation, how more tiring a camera which tends to fall forwards in the hand is than a better-balanced one.

Returning to specific changes, the wind lever is now of conventional design and has been shifted from the left end of the top-plate to the right end. This naturally means that the film now travels from left to right in the camera, instead of the contrary movement in the standard cameras. The film-cutting knife has gone, the rewind crank is now in the usual position on the left of the top plate, instead of at the right end of the baseplate. The film type reminder is now in the hub of the lever-wind and the film-speed indicator coaxial with the rewind crank, instead of being set in the slow-speed shutter-setting dial. The shutter speeds from 1 to 1/1000th second are now set on a conventional wheel to the left of the lever-wind, replacing the lift, turn and drop device just to the left of the viewfinder. The long times from 9 to 12 seconds are omitted and the remaining 2, 4 and 8 second settings are made on a dial integral with the delayed-action lever. One flash socket on the left side of the camera, as it is held, replaces the 3 separate FP, F and X sockets on the left and right of the front bow of the standard Exaktas.

The release button, on the left of the standard Exaktas front scutcheon at two o'clock, has shrunk considerably and now serves to couple to the older pressure-diaphragm Exakta lenses when used on the new camera. The RTL 1000 main shutter release is what might be loosely termed a piano-key type on the right front of the camera, as it is held, just above the delayed-action and the long shutter-speed setting device. There is a lock to prevent accidental release. The shutter itself has been radically changed, no longer using a fabric-blind travelling from right to left. Instead, the new camera uses a Copal-type 6-blade metal focal-plane shutter. The rewind button is in the conventional position on the baseplate, here on the right side towards the back.

As indicated earlier, the standard Exakta bayonet fitting has been retained, but an iris-diaphragm actuating device is now incorporated, as the lenses provided for the RTL 1000 have automatic diaphragms and, although at the moment these are restricted to

the 50mm, 29mm, and 100mm lenses, no doubt the whole range of Exakta lenses will slowly become available in this form. Like the VX 1000, the RTL 1000 has an instant-return mirror.

In addition to adopting the conventional direction of film transport, the RTL 1000 follows the modern fashion by incorporating its own quick-threading device for the take-up spool, and this is no longer removable. The camera back also is non-removable and is opened by pulling up the rewind crank knob sharply. It locks automatically on being closed. The neck strap eyelets have been moved round from the extreme front edge of the camera to a forward position on the side and the eyelet holes are no longer bevelled—a seemingly unimportant point, but one making the camera just a bit less flexible on the D-rings. The flash socket is very close to the left neck-strap eyelet which can cause complications.

In general finish, the camera gives the impression of not being quite up to the VX 1000 standard, but on closer inspection this appears mainly due to the presence on the VX 1000 of some outlining in glossy silver-chrome, whereas the RTL 1000 is finished in satin-chrome overall. The housing for the pentaprism finder is in gloss-black plastic and some opinions have been expressed that this detracts a little from the appearance. The waist-level finder however is in metal, and, if the effect is compared, the black housing for the pentaprism finder does give the camera a more up-to-date appearance. The device locking the finders in the camera has been improved.

Operation

Most of the points concerning functional layout describing the changes in the new camera have been made and it is best to turn to a discussion of their operation.

The lever-wind is excellent in one often neglected particular—there is no tendency for the thumb to fly off at the end of the travel. There is a 30° stand-off and then a mere 100° turn suffices to recycle the camera. The shank of the lever wind ends up parallel with the camera body and there is a considerable feeling of security, enabling the camera to be wound and fired as rapidly, if not more so, as any other 35mm SLR on the market. This is particularly true if the camera is used with the third finger on the shutter release, since depressing this finger is a natural follow-through of stroking the lever wind: so much so that, if the finger is left on the shutter release, it may inadvertently press the shutter as the thumb pushes the wind lever to the end of its travel. To give an idea of the speed, there is no difficulty whatsoever in firing off 12 or 13 exposures in 10 seconds. In view of the efficiency of the wind lever, it seems a little churlish to say that it might still further be improved with some ridging on the grip end of the lever. It is interesting to note, incidentally, that ergonomically the lever design is closley related to that on the Nikon F, although the travel is much shorter.

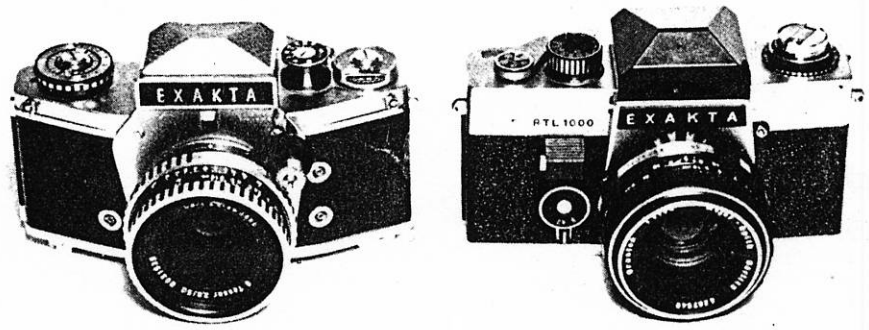
A geared-up film wind of this type does of course increase internal strain and also the danger of tearing the film perforations if the transport does not run true; but in lengthy tests no instance of tearing occurred and, as regards internal strain, the very smooth feel of the transport gave no hint of difficulty. The reason for dwelling on the rapid action possible with the new Exakta is of course the fact that the standard camera, not being designed for that type of use, is possibly the slowest 35mm SLR. The two models therefore each represent maximum efficiency in their own application.

Viewing System

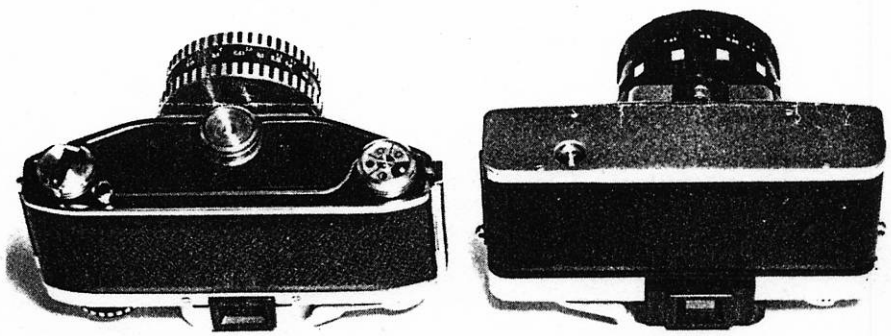
The heart of any single-lens-reflex is its viewing system and the Exakta camera has always had a high reputation for the extensive range of possibilities offered. As already mentioned, the new camera does not accept the interchangeable finders and focusing screens for the standard Exakta. The shortening of the length of the camera has made necessary a smaller viewfinder housing fitment, although the exceptionally deep well—the register of the focusing screen is set 22mm down in the new camera, as against 23mm in the old—has been preserved. This benefits protection from stray-light with a simple waist-level finder or the attachment of special magnifying aids such as the Magnear, which enables the user to employ the wide-angle Exakta lens as a focusing magnifier or the ordinary top magnifier. Neither of these attachments is as yet available in an RTL 1000 fitting, however. The new camera's finder fitting is 5% smaller than that on the standard camera, and indeed the focusing screen itself is smaller.

On the standard camera the screen dimensions are 38mm x 26mm and on the new camera 35·5mm x 25mm, of which 33·5 x 22·5mm comprises the useful focusing area, there being a clear rebate round the edge. Thus 2·5mm is

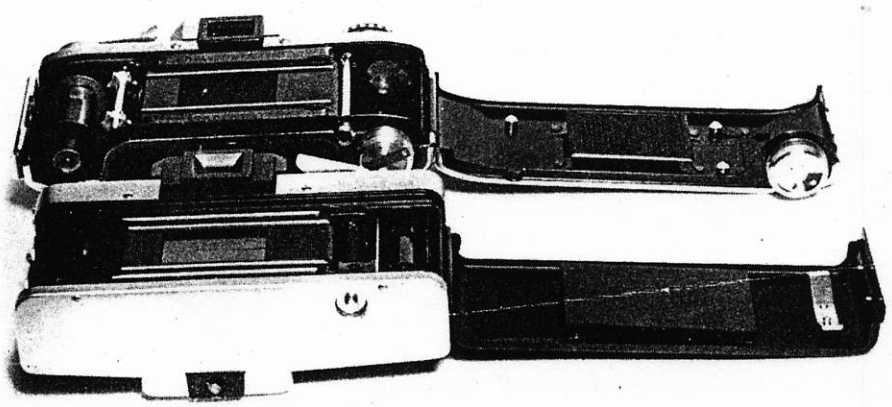
The general cleaner design of the RTL1000 can be seen from these pictures.

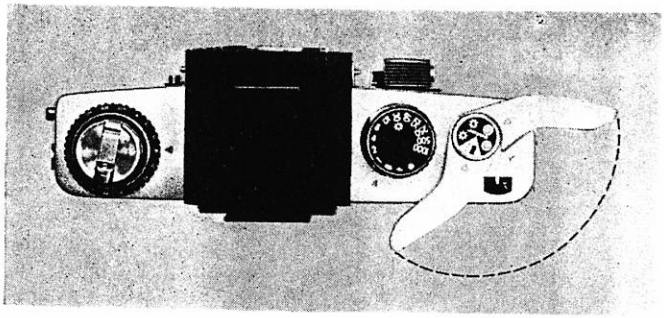


The flush base-plate of the new Exakta gives it increased stability; the tripod bush is now under the centre of gravity.

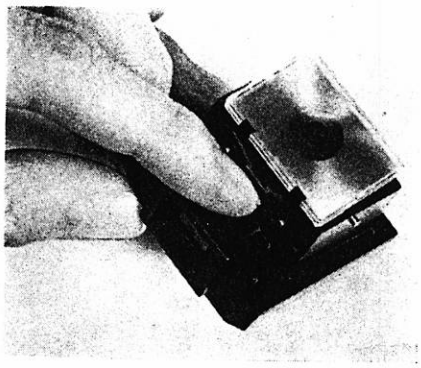


The simplification in design of the film-transport system is very noticeable.





The top-plate of the RTL1000 showing lever-wind sweep from stand-off.



Removing one of the interchangeable focusing screens; the clip on the forward edge has been retracted by finger pressure on a leaf-spring on the forward edge.

lost of the 36mm horizontal and 1·5mm of the vertical side of the 36 x 24mm format. On the standard camera screen about 1·5mm was lost on both horizontal and vertical, leaving however roughly the proper format size. A difficulty reported to us by Exakta users in the past has been regarding the centring of the focused image in relation to the photographed one, a displacement to the left being frequently noted. On the RTL 1000 the margin between the viewfinder picture and the photographed area is slightly greater. It is sometimes suggested that this margin is a safety factor in deference to the amount of the frame which will be masked off when a transparency is mounted. In fact the standard cut-off in a transparency frame is 0·5mm on both the vertical and the horizontal. As has been previously pointed out in reviews in the Journal, this 'safety factor' is more usually an expression of the manufacturer's tolerance; on the principle that, although the photographer may not like to see more than the framed picture being seen in the transparency, this is better than having carefully framed something on the edge of the focusing screen, to find that it does not appear in the picture. It is indeed a surprising fact, in view of the high claims of precision made for modern 35mm cameras, that, our readers assure us, there is as yet no 35mm single-lens-reflex camera on the market which does give precisely the framed picture on the exposed film From this point of view, the new Exakta RTL 1000 is no better and certainly not inferior to other cameras of its type available.

The finders are extracted from the RTL 1000 by an improved method. Instead of the single centre catch on the top of the camera front scutcheon, which does not always immediately free the finder on the standard Exaktas, there are two lugs, one on each side of the front scutcheon, and pressing down one or preferably both, frees the finder and pushes it up. The finder fits in very firmly and with no suggestion of vertical slop. This is naturally important, since the accuracy of the focusing system depends on precise registration of the underside of the focusing screen on the mask at the bottom of the finder well.

Another improvement is the fitting of the screens themselves. In the standard Exakta cameras the focusing screens are merely pushed home and held against light spring-pressure and extracted by gripping with the thumb and fingernail in a recess, top and bottom. It is just possible for a screen to become dislodged by a jerky pulling-up of the interchangeable finder with the result that it can drop out. With the RTL 1000, however, the screen is held by two metal clips at the rear and one on the forward edge. To release the focusing screen, a leaf spring is pushed up and in on the rear side of the screen fitting to push back the clip on the forward edge and at the same time pop up the forward edge of the screen, making it very simple to extract, as shown in the illustration. To replace the screen, the rear edge is pushed under the two clips and the forward edge pushed down until the front clip slips over the edge. The finder can then be waved in the air, forcefully if necessary, without the focusing screen being in any danger of falling out.

Focusing Screen

For the moment, only the standard screen is available for the RTL 1000, but the instruction manual makes it clear that a full range will be available, presumably following the same designs as those for the standard camera. The screen normally supplied is a plastic one, consisting of a centre microprism circle 6mm in diameter, with a 3·5mm matt ground ring surrounding it set in a lightly-matted fresnel lens. The microprism gives a rapid focusing facility, with the ground area providing the capability of focusing on fine detail. The fresnel area is just sufficiently matted to permit rough focusing and assessment of depth of field to be carried out. The fact that focusing screens may be made of plastic is no detriment to a high-grade camera: they are increasingly being used on even the most expensive cameras, as they are more economical to manufacture consistently and have higher light transmission and less coloration than glass. The RTL 1000 microprism breaks the image two ways, it being increasingly found that 3 and especially 4 way breaks of the image actually slow up focusing. In practice the screen is perfectly convenient to use for a wide variety of work, including close-ups with extension bellows. It was noted that the screen has a recess and a curved cut-out at each edge, not utilised in the ordinary pentaprism finder, and these are perhaps intended for some purpose in the fitment of a TTL head soon to be available. The camera retains the large mirror area which the Exakta has always had, the dimensions being 36 x 26mm. Illumination with wide-angle lenses and telephoto lenses up to 200mm f/3·5 was found to be excellent. The mirror returns instantly; there is no mirror lock-up facility although it was found that it could be pushed up with the finger tip or taped up with no danger to the mechanism, if so desired, to minimise any possible jar with the camera on a support.

Spectacle wearers will probably be disappointed by the narrowness of the eyepiece of the viewfinder, which has been reduced from the 14·5 x 9mm of the VX 1000, to 10·5 x 7mm! It is now necessary to bring the eye right up to the ocular to see the whole frame, which appears to the eye about 20% smaller in area than that on the standard Exakta. The smaller size does help brighten the finder image and at the same time the area surrounding the frame in the RTL 1000 pentaprism finder is much better blacked-out than on the standard Exakta. The rather clumsy red signal appearing in the top right of the finder frame on the VX 1000 to indicate that that camera has not been wound on is replaced by a commendably small black signal on the left hand side of the finder frame. One would presume that the TTL head, when available, would have the usual pointer, visible on the right hand side therefore.

Comparing the new finder with the standard one is gained the impression that the one on the standard camera is the more suitable for the more serious scientific and medical applications of the camera; whilst that on the RTL 1000 is definitely preferable for out-and-about work. The whole frame can be taken in without shifting the gaze from centre, whereas with the standard camera one definitely has to look around the screen. The eyepiece is grooved and does take the standard Exakta fitments.

Camera Back

The camera back is opened by pulling up the rewind crank against light spring-loading and it locks home automatically when pushed to. The film cassette drops into the feed-spool chamber directly, without angling in being necessary. The cut-out at the bottom is in fact needlessly deep, leading to the remote possibility of the lower edge of the film transporting across the leading edge of the tracking rail instead of lying in the channel formed by the register rail and the pressure plate bearing on the tracking rail. Ihagee make the point in the instruction manual that care should be taken to see that the prong in the rewind shaft is located over the drive flange in the cassette spool core, not, that is, left pushing the

cassette down to the base of the feed chamber. The cassette lip lies just lower than the register rail, so the feed is not quite directly across, and also this lip lies just short of the gate, so that it is unsupported. Mention of these points may be taking a rather perfectionist attitude to design, but are worth making with a new camera such as this. The design of the whole film transport system is much improved over that in the standard Exakta however.

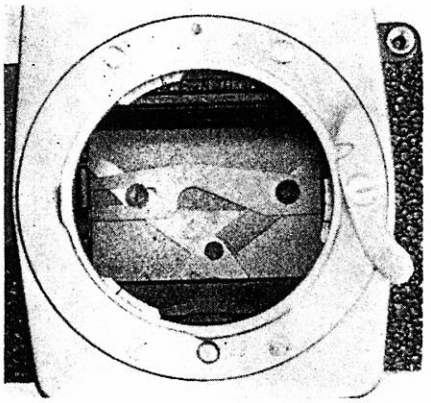
On the other side of the film gate lies the new quick-threading device. As usual, it is easier to show the way this works in photographs (which are on page 209). In practice, as soon as the film tongue has been passed under either of the two wire clips on the take-up spool and the edge of the film pushed under the flange by the side of the lower teeth of the transport sprocket, it is then only necessary to wind the film on twice to ensure transport, and then close the camera back. A green mark below the take-up spool indicates the point to which the film tongue must be pulled to ensure immediate take-up on winding on. In practice the device, probably due to its simplicity, worked every time, even when the film was not transported far enough to locate both sets of perforations on the transport sprocket. Taken in conjunction with the excellent lever wind already described, the changes in the Exakta film transport with the RTL 1000 undoubtedly transform it from one of the slowest to one of the most rapid-action cameras available.

Looking into the film gate, one sees, instead of the traditional fabric, the three overlapping blades of the Copal-type shutter. The camera dark chamber has not been as fully baffled or ridged to prevent internal reflections as one might have expected, and the bare metal rear-side of the lens flange is visible through the picture gate. The standard Exaktas have an exceptionally large dark chamber with, in particular, a very deep well, combining to provide a lower internal reflection factor than the new camera.

The Shutter

It is surprising in what well-worn grooves photographers' minds run, and the discovery that the new Exakta RTL 1000 utilises a Copal-type focal-plane shutter rather than the traditional European blind type, seems to bring some disappointment. In fact, readers may remember some years ago, an item in Viewpoint Japan which reported the sale of machinery for the manufacture of Copal-type shutters to Russia, and the appearance of one of these shutters in the new Exakta may indicate a still further penetration West.

The Copal-type shutter was originally designed to provide a modular unit which could be used by individual camera manufacturers to fit into their own design of camera. Since the shutter would then be produced in very large numbers, the price could be kept down and, in consequence, the price of the cameras in which it was incorporated could also be kept down. In addition, manufacturers would not be



The three linked laminae of the shutter seen through the camera throat. Top right, the shutter release button which links via an extension to the older type Exakta lenses.

limited in the design of their shutter by patents held by other manufacturers. There is no doubt that the purchaser has a little prejudice about the matter, really liking to believe that the camera manufacturer has actually designed the very best possible shutter he can for his camera, rather than accept a transplant from a shutter bank, as it were. This, however, is not the most practical approach in terms of efficiency. For example, it is possible to think of at least one camera with an outstanding range of system accessories available for it, which never got off the ground in this country at least, because of its reputedly unreliable shutter. This is an example of a camera system which could be transformed by incorporation of a Copal-type shutter (or any other similarly produced). More to the point, jamming of the shutter in the standard Exakta cameras by heavy-handed users is not an unknown occurrence, and the incorporation of the Copal-type in the new RTL 1000 was probably an essential complement to its intended new out-and-about fast action role.

The Copal-type is a vertically-running (top to bottom) focal-plane shutter with 6 mechanically-coupled metal blades or, correctly, laminae. In the ordinary blind type focal-plane shutter, the blinds are wound on rollers and the main difficulty in design is to arrange precise acceleration and deceleration of the two blinds whilst maintaining accurate parallelism of the slit edges which, at the high speeds, will give a slit width of 2mm or less. In the Copal-type shutter, however, the exposing blind and the capping blind are both made up of 3 metal laminae, mechanically-coupled so that each set of 3 can either slide back over one another, thus occupying minimum space, or slide out over one another while still overlapping at the edges. When the shutter is wound, the lower 3 blades—the equivalent of the exposing blind—extend up and cover the film gate. As the shutter is released, they begin to travel down, and at the same time slide over one another. After an interval determined by the shutter speed setting, the upper 3 blinds —the equivalent of the capping blind in a normal focal-plane shutter—which have been in the contracted position, begin to slide out over one another, and hence extend until they cap the whole picture gate. The interval between the trailing edge of the exposing laminae and the leading edge of the capping laminae provides a slit in precisely the same way as does the gap between the two blinds in a conventional blind type focal-plane shutter.

The advantages of this system are that the difficulties associated with the acceleration and deceleration of material wound on rollers is avoided, and the known, and more precise and reliable, technology of the mid-lens bladed shutter can be used. The mechanical coupling of the laminae means that slit width and parallelism can be virtually guaranteed throughout working life, and the slit itself can be driven across at a higher speed, thus enabling slit widths to be increased at the top shutter speeds. Hence tiny differences in width do not make any practical difference in the exposure level.

As always, where there are advantages, there are disadvantages. Since the shutter is running vertically—necessary so that the laminae can be of minimum width—what might be termed a 'Contax-type' distortion of moving objects is produced, rather than the 'Leica-type' obtained with the conventional horizontally-running shutter. However, a number of motor sport photographers for example have expressed themselves as preferring the vertically-running shutter, so that both types will have their adherents from this point of view. In professional practice, the main criticism of the Copal-type is the amount of noise it makes and this is certainly a point; in that it would be very difficult to take a photograph unobtrusively unless the surrounding noise level is quite high. Indeed the noise of any modern single-lens-reflex is obtrusive and the coupled rangefinder camera still scores heavily in this respect.

One claimed advantage of the Copal-type shutter is the flash synchronisation of 1/125th second. A note of caution should be introduced here, since, in the writer's experience, the 1/125th second setting on Copal shutters in Japanese cameras is usually slow, and may be as low as around 1/85th. That this is intentional, seems to be proved by the fact that the 1/60th and 1/250th are usually accurate. In this connection therefore it was interesting to note that, with the shutter in the Exakta RTL 1000, a separate electronic flash X synchronisation setting is provided at the end of the shutter speed setting scale — after B. As can be seen from the tested shutter speed table below, this speed proved to be 1/83rd. On the other hand, the 1/125th setting proved to be quite accurate at 1/113th. It looks therefore as if Ihagee have provided the user with a true doubling shutter speed on the main range and added the 'safety factor included' flash setting separately. This is certainly what the photographer would prefer. In the manual the makers state that the flash synchronisation is 'approximately 1/125th second'.

With the modern fast-running focal-plane blind shutters, it has become customary to place the X synchronisation setting between the 1/60th and the

1/125th on the dial, so that, at least so far as the writer's experience extends, there is as yet no great gain with the Copal-type shutter over the speed at X synchronisation. The reason for this safety factor with both shutter types is merely to take into account extreme climatic conditions, wear and tear, loss of lubrication and so on, which might result in a lagging of the exposing blind and/or acceleration of the capping blind, resulting in the picture gate not being completely cleared when the flash triggers.

Examination of the RTL 1000 shutter shows in fact that it is not identical in design with its Japanese counterpart. The Copal shutter uses narrow, thick linking arms for the laminae, whilst the Exakta uses much wider but very thin ones. The Japanese shutter winds smoothly to the end of its travel and then, as the lever-wind is returned, the blades descend by about 0·5mm; on the Exakta, the exposing blades reach the top of their travel as the lever-wind is all but fully advanced and then there is a sudden cessation of tension on the lever which jerks forward a few degrees more to the end of its travel, whereupon the exposing blades then drop about 1mm. It is in fact this sudden relaxation of tension at the end of the lever wind travel which makes the third finger push down and tend to press the shutter release at that moment, as described above, if left there during wind-on in rapid work.

Another individual feature of the RTL 1000 shutter is of course the long-speed dial, which is integral with the delayed-action mechanism. When the delayed-action is required on any shutter speed from 1 second to 1/1000th second, the lever is wound in the usual way and then the chrome button pressed in the centre of the long-speed dial. If the photographer changes his mind, the shutter can be released in the normal way, although the delayed train is set, by either shutter release; the delay train then begins to wind down however, although the camera can continue to be wound on and fired whilst this is happening.

To set the long speeds, calibrated 2, 4, and 8 seconds, the appropriate number is set against a pointer on the delay wind lever and this lever is then wound fully up. To gain the long speeds, the main shutter speed dial must be set to B, and then, on releasing the shutter, the exposure commences immediately and the train begins to wind down, during which time the exposure finishes; after which the lever continues to turn down to its normal 6 o'clock position. In practice, it was found that 3 seconds could be set between the 2 and 4 second click stops and also 6 seconds between the 4 and 8 second clicks.

The results of shutter speed tests are shown in the table below, and it will be seen that with the exception of the slower speeds on the main dial, the times may be rated as very good. The 1/800th on the 1/1000th setting is an improvement over the 1/700th-1/750 usually found, and the 1/400th on the 1/500th improves the 1/300th-1/350th frequently found on blind shutters.

SHUTTER SPEEDS

Rated (seconds)	Rated (milli-seconds)	Tested (milli-seconds)	Tested (seconds)
8	—	—	8·2
4	—	—	4·4
2	—	—	2·1
1	1000	760	3/4
1/2	500	375	3/8
1/4	250	210	1/5
1/8	125	130	1/8
1/15	66	55	1/18
1/30	33	34	1/30
1/60	16·5	17	1/60
1/125	8	8·8	1/113
1/250	4	4·5	1/222
1/500	2	2·5	1/400
1/1000	1	1·25	1/800
X	—	12	1/83

The changeover of shutter type in the new Exakta is a matter of especial interest and consequently a detailed description has been given. Despite the accuracy, the one disadvantage of the much-increased noise does remain as a problem for designers to try to overcome in the future. It must, however, be pointed out that when the Exakta mirror was taped up, the noise considerably decreased, indicating that the mirror itself could be further silenced, quite a click occurring as the mirror recedes after returning. Its movement seems well latex-cushioned at the top of its travel however. Considering the overall question of shutter and mirror jar, this is not excessive and is unlikely to cause camera shake in the hand or on a tripod. In this latter connection, it is worth mentioning that the seating of the RL 1000 on a tripod or other support is very much firmer than that of the standard cameras, since the tripod bush, now a little further forward than previously, is in a fitting flush with the whole camera baseplate. The rewind button on the baseplate is 45mm from the optical axis of the camera on which the tripod bush lies, so that even when fixed to quite a broad tripod head, the camera can still be rewound and reloaded.

Lens Fitting

As already indicated, the RTL 1000 has precisely the same 3 tab external and internal bayonet fittings with a side-catch lever as the standard cameras. There are two small differences in that the 4 screws bolting the flange to the camera body are now at 11, 1, 5.30 and 6.30 o'clock instead of 2, 4, 8, and 10 o'clock. Also, though possibly of no significance, there is a small circular recess immediately above the screw on which the lens-catch locking-lever turns, which is not there on the standard camera. As already indicated, the lenses for standard Exaktas cameras with pressure diaphragms actuate the shutter release on the left of the camera as it is held, via a short extension which is screwed into the cable release thread of this button. In practice, the axis of the release on the pressure diaphragm of the standard Exakta lenses does not line up with the axis of the release button on the RTL 1000, but does so near enough to actuate the extension. In fact it was noted that with the standard Exakta too, there is no precise alignment.

One of the main departures in the new camera is the inclusion of an automatic-iris tripping mechanism. The method adopted is in fact unique in that the trigger emerges from outside the camera body from a hole in the lens flange rim at 6 o'clock. The pin on the lens barrel is thus at 6 o'clock when it is fitted to the camera and emerges from the rear of the mount in the form of a small button. One slight danger results in that when interchanging the lens it is easy to mistake this trigger pin for the pin which catches home in the side-lock lever as the lens is inserted and turned, which may result in the pin being put in at 12 o'clock and turned to attempt to lock it home in the side catch. If force is exerted, this could cause damage. It would be helpful if the, at present, tiny red dot on the rear of the lens mount could be enlarged so as to help prevent such an error being made. The total length of travel of the iris actuating pin is small, 3·2mm, but the system worked perfectly with the standard lens supplied, which shut down consistently to its minimum aperture f/16. If any problems are likely to arise then it might be expected with the larger diaphragms of long-focus lenses, but presumably the designers have taken care of this.

The reason for the emergence of the iris trigger pin from outside the camera throat is probably because the Exakta throat is particularly narrow and no further restriction in it could be allowed. Although the retention of the same bayonet fitting is really the only strong link with the standard Exaktas, it could be maintained that, in the interests of the further development of the camera, a new and wider-throated lens fitting might have been adopted, as it was when Leitz went from the III cameras to the Ms. In the same way an adaptor ring could have been provided to allow the use of the standard camera lenses on the new camera.

The main reason for enlarging the Leica throat was to free the lens designer both optically and mechanically, so that wider aperture lenses from normal to very long focal length could be made available, and this restriction does of course apply to the Exakta. For example, the rear glass mounting alone of a modern 50mm f/1·2 SLR lens may be wider in diameter than the whole Exakta throat. However, cameras from East Germany have standardised on f/1·8 as their maximum aperture and, as yet they have not made an f/1·4 available for any of their cameras, so that this point will not be felt as a limitation. In any event, direct Exakta lens continuity has been preserved with the RTL 1000.

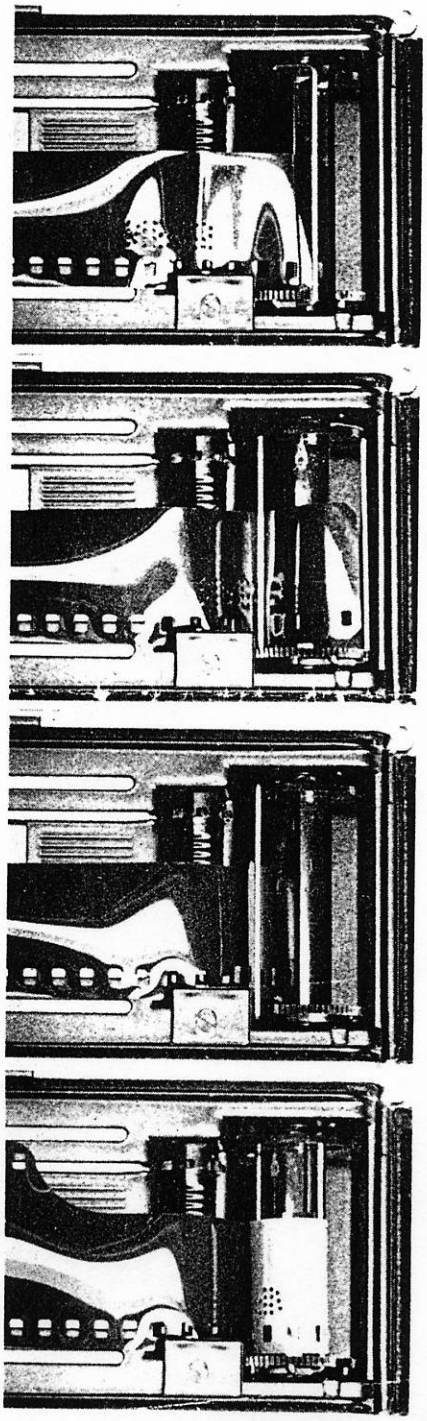
The Standard Lens

At the time of review, only one of the new lenses was available, the 50mm f/1·8 Meyer-Optik Oreston. This is a 6-glass design which has already been reviewed in our columns. In its fitting for Exakta RTL 1000, the lens has the iris-actuating pin already described and a depth-of-field preview push-pad at

2 o'clock at the rear of its mount as the camera is held for use. Under the mount at the rear, just before 6 o'clock, is a small rocker switch. When this is moved to show a white line, the automatic iris facility is switched out, the depth-of-field preview locked and the iris-actuating pin retracted. The lens aperture is then set manually as the aperture-setting ring is turned. When pushed to show a green line, the normal automatic iris facility is restored.

The remainder of the design of the lens follows that known from its inclusion in other camera systems. The aperture ring is at the rear of the mount with convenient milling and relieving on the grip. The apertures are engraved and inked-in in black on a silver chrome ground. There are click stops for f/1·8, f/2 and then half stops down to f/16. The ring is moved clockwise as the camera is held for use to shut the lens down. The focusing range is down to 0·33m, 1·1 feet, and foot and metre scales are provided in red and white respectively. The focusing ring is forward on the lens barrel and broad, with both milled and relieved segments. The focusing travel on the review sample was smooth and without sticky points. The lens was found altogether very convenient to operate.

The quick thread system on the RTL1000. Top shows the tongue tucked under the side-flange over the lower sprocket teeth and lapped over the take-up spool under one of the metal clips. The other pictures show how the clip tightens the film as it is wound under, as the lever-wind is cycled.



The 50mm f/1·8 Meyer Oreston is known for its excellent performance as fitted to other cameras, from VEB Pentacon. It is one of the modern 6 glass designs. Contrast is good and the full-aperture performance is excellent, although shading in the diaphragm to f/2 just sharpens up the image. Coverage of fine detail over the whole frame is achieved at f/4 with an increase in resolving power and edge contrast at f/5·6. The field is flat and the lens flare-free. The construction of the lens provides a quite deep recessing of the front glass so that hooding is provided. As stated in an earlier review of this lens, it is an excellent modern design of very fine performance.

Conclusions

When all has been said and discussed about the features and layout of a new camera, the overall question still remains — will it be absorbed into general photographic practice by advanced amateur and professional photographers? To begin with, this camera has an obvious scope for sale amongst those who possess a range of standard Exakta lenses and accessories and who wish to use these on a more with-it body. Those already using a standard Exakta camera for the special applications to which it is particularly suited may probably not wish to change for the time being. The photo-journalistic world, having been accustomed for so long to regard the Exakta as a scientist's camera, will take time to appreciate its new image and, when this section of the photographic world does begin to taken an interest, it will be demanding fast lenses, the provision of which will be made difficult by the continuance of the narrow camera throat. It is therefore in the amateur market that the immediate future of the camera seems to lie and it is obvious that it will compete with the VEB Pentacon products in a way that the standard Exakta cameras did not. The name Exakta carries great prestige in the photographic world and it will be of much interest to see the reception given by the new camera on the world market. It should be noted that it is the intention of Ihagee to continue the standard range with a new camera, the Exacta 500, a simpler VX1000.

There is one overall philosophy of the RTL 1000 which represents a complete break with the standard cameras: this is the fact that it is very definitely a right-handed, right-eyed camera. The standard Exaktas have for some time been the only true left-handed, left-eyed cameras on the market, speaking in terms of eye-level viewing, and the writer has often wondered to what extent their adoption for general out-and-about use has been hindered by this psychological barrier. The standard Exakta design was, it must be remembered, originally laid out in the days of waist-level viewing, and most of the eye-level use anomalies arise from this fact. The RTL 1000 however has definitely been designed as an eye-level camera. There is also a fairly large body of right-handed left-eyed users and some cameras — the Leica Ms and the Leicaflex for example — take this fact into account The stand-off of the RTL 1000 lever wind does allow the head to move along a little, but not enough to allow the left eye to remain at the viewfinder when winding on, particularly with the narrow exit pupil of the occular.

In summing up the RTL 1000, it is interesting to recall the general comments made at the end of the review of the Exakta System published in the Journal in 1963:

> The Ihagee Exakta system is one of the two great surviving pedigree lines of 35mm camera development going back to the early days of the format. The other, of course, is the Leitz Leica system. To some extent they resemble each other, since they have both retained much of the original shape and the philosophy of their earliest models. This is particularly true of the Exakta IIA, and of the Leica up to 3G at least, quite definitely. With the M3 the Leica altered in many ways, whilst still retaining much of the original Barnack concept. It was forced to change to be au fait in various features with the movement of the times. The Exakta now faces a similar dilemma to that of the Leica before the M3 was produced.
>
> This view is not meant to imply that the Exakta is not fully practicable today; if it is not, then a large number of other cameras are not either, including all Leicas prior to M3. Also we can be rather inclined to fall into the trap of judging cameras by their applicability in candid work and photo-journalism. In this respect the Exakta is without doubt slower in use than many other SLRs. On the other hand, its cassette-to-cassette loading and the cutter make it the fastest reloading camera in the field. However, the writer is quite certain that the Exakta would open up new fields for itself, without losing any of its existing reputation and applicability, if the film transport lever and its movement were redesigned. Briefly, a shorter travel and a quick thumb action when the camera is used at eye-level would satisfy the requirements of rapid operation and initiate a greater mass appeal. A firmer location of the interchangeable screens on the register platform is also desirable if the camera is to be used under really arduous out-of-door professional conditions.

Looking at the new camera in the light of what was then envisaged as the requirements necessary to widen its scope, it seems that these have largely been fulfilled; although at the time, what was in the writer's mind was a camera of rather more standard Exakta-like jewelled miniaturisation. The RTL 1000 is a pleasing camera to look at and use, but somehow one might have expected Ihagee to have followed the Exakta style of very detailed and even at times, fussy, finish. However, the system will no doubt now begin to evolve in a new direction and future developments and market acceptance will be watched with close interest.

The Exakta RTL 1000 is manufactured by Ihagee, Dresden, East Germany, and distributed in this country by Photo-marketing Limited, Blackburn Road, NW6. With 50mm f/1·8 Meyer Oreston, its suggested retail price £98:14:6d.