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NATIONAL CAMERA ENGLEWOOD, COLO. 80110

NIKON

Photomic FTn Nikkormat FTn



by Gérard BOUHOT The Nikon F is a 35 mm single lens reflex camera, with instant return mirror, and normally used equipped with the **Photomic FTn** viewfinder. This roof prism viewfinder reerects the picture fully, enables at full aperture a semi-automatic weighed exposure metering by a zero method, and displays the speed in use above the viewed image.

Thanks to its modular construction, the Nikon F has received all accessories generated by the technological progress, in spite of having been designed 10 years ago in 1959; furthermore, the manufac-turer, NIPPON KOGAKU KK, is the creator of many of these accessories: wide angle lens with perspective correction, action finder, fish-eye... disadvan-tage, this camera is sometimes tricky to use: external coupling of the diaphragm, back cover integral with the bottom ... But it is the most complete, the most constantly updated, the most ubiquitous 35 mm system (its user will find anywhere in the world a distributor, a repair shop, or another photographer who could lend him the accessory he misses) ... The external aperture coupling of this modular camera has been a genial idea: from no exposure meter, through the selenium exposure meter, it has become a TTL by total integration over the viewed area, and then by weighed metering!

Photomic FTn, metering principle :

The Photomic FTn exposure meter achieves this weighed metering. Its coupling to the maximum aperture of the lenses is half automatic. This "pentaprism/exposure meter" is a whole system by itself. It replaces any viewfinder in a matter of seconds, and if it fails, one only has to remove it: the camera is then ready for use again (this is due to the



Linkage rods of the exposure meter coupling

absence of internal linkage by cable or chain)... and even if things come to worse with the linkage rods of the exposure meter coupling getting blocked and no alternative viewing system readily available, it is sufficient to remove the Photomic FTn, because the focusing screen remains integral with the camera, and one can shoot with one hand as a hood, which is a good safety feature!

The weighing system is a NIKON exclusive feature. On each side of the eyepiece, at the exit of the pentaprism, two smaller prisms are glued and deviate the lateral part of the light beam towards two horizontal cells, through two aspherical lenses and two diaphragms. This setup screens efficiently the cells from the stray light that could come in through the eyepiece, particularly since the metering is done at full aperture. A sliding flap would be useful for special shots



1. Pentaprism. — 2. CdS cell. — 3. Field diaphragm. — 4. Aspherical condensing lens. — 5. Return prism. — 6. Focusing screen. — 7. Instant mirror.

when the eye is not close to the eyepiece. It is very easy to see the aspheric lenses and the coils of the CdS cells when looking at the prism base (one realises at the same time the accuracy of the optical faces cutting-the edge of the pentaprism is not visible-and the care taken in the surface treatment-the edges of the pentaprism base being untreated, one can see the efficiency of the treatment by comparing the reflections on both zones). This association of cells and aspherical lenses achieves the weighed metering, 60 % of the energy is picked at the center from a 12 mm diameter disc (corresponding to the area limited by a circle on the focusing screens-in reality, the metered zone is very slightly off center to the bottom, its circle being tangent to the microprism area). This disc represents 1/8 of the viewed field. The remaining 40 % are picked on the edges of the focusing screen, with an intensity decreasing from the disc to the edges, which do not contribute any more. At the time of metering, one centers on the subject, even if the picture is offset during actual shooting as long as the subject represents the most interesting part of the picture.

This system has two obvious advantages:

 the weighed system seems to be, at the moment, the best compromise. The integrating systems are difficult to

use for the backlights, on snow, on water, for landscapes having a predominant sky area, for contrasted light-ings; with the "spot" systems, it difficult to recognize the exposu reference area of the subject while disregarding its colour. The weighed systems are halfway between these extremes, and when one wishes to take a spot reading, it is enough: either to get closer to the subject, or to take the reading with a lens with a 3 to 4 times longer focal length than the one to be used for shooting; as no data for the exposure metering is picked off, either from the edges of the picture, or from its corners, if the optical system used introduces vignetting, this phenomenum has no influence on the measurement (whether the vignetting has optical causes-in a 35 mm wide angle lens of standard construction, the loss of light in the corners reaches 46 % as compared to the center-, or mechanical causes -in photomacro or micrography or with very long telephoto lenses, the instant return mirrors of reflex cameras are too short and cut the top of the The measurements are alpicture). ways readily applicable, since this metering system is compensated to alleviate the effects of vignetting.

Photomic FTn, mounting:

The Photomic FTn fits on the camera by a simple locking arrangement. Befc presenting it, check that the pin at the bottom of the front face is well centered. This pin is shifted to the left if the prism was previously removed while a lens was fitted to the camera, and while the diaphragm ring of this lens was between f/8 and f/32, which is a faulty procedure. The diaphragm must be set at f/5.6 when removing the Photomic FTn if a lens is mounted on the camera. When the pin has been shifted, push it back with a nail towards the 2.8 figure engraved in the middle of the front face, where it will There are two possibilities: lock.

• a) if a lens is mounted on the camera, open its diaphragm fully (or at least between f/5.6 and maximum aperture). Hold the Photomic FTn with the left hand, and push with the thumb on the locking lever located on the front left in order to open up the centering pins. While holding the left side of the camera with the left hand, present the prism base above the focusing screen with the help of the eyepiece guard flange on the back of the camera as a depth guide. This hand position permits to look at the camera sideways, which eases the installation of the Photomic FTn during the first times. Push it in slightly tilted, its front face leaning towards the lens. As soon as a click is heard, the front face is locked, and one Push can release the locking lever. strongly on the back face of the Photomic FTn above the eyepiece in order lock the remaining pins. The prism is the perfectly centered and has no play. Turn the sensitivity knob in order to link the speed ring of the Photomic, which is integral with it, to the shutter speed dial

Linear enlargement $\times 10$ approximately

NIKKOR-O Auto : f = 35 mm, f/2 - No 749 289



Center

NIKKOR-S Auto : f = 50 mm, f/1.4 - No 712 166



Center

2.8

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NIKKOR-Q Auto : f = 135 mm, f/2.8 - No 205 289



Edge

Edge

Edge

2

8

on the camera. The knob rotates freely at the beginning and meshes while driving the shutter speed dial (this spring system avoids any damage when mounting). Lift the sensitivity ring to bring the desired ASA value in front of the red triangular mark, and let the knob loose. The scale carries only ASA value from 6 to 6 400 ASA. The 1/3 values are marked with dots. This sensitivity range is exceptional for a TTL camera. Now close the lens diaphragm completely. While sweeping through f/5.6, the linkage pin of the Photomic FTn engages in the fork that all automatic lenses (the most numerous ones) carry in front of f/5.6, and two consecutive clicks indicate that the linkage system has returned to neutral (the red mark move on the scale and shows the nominal value of the lens aperture, which enables checking that the linkage works properly). If, when opening the diaphragm, one stopped before hitting the stop, the linkage would not be achieved, but a glance at the mark tells it and one corrects the situation by opening the diaphragm totally.

• b) if there is no lens mounted on the camera when installing the Photomic FTn, lock it in position, link it with the speeds and set the sensitivity as explained previously. Then present the lens, diaphragm reference mark (no better mounting reference is visible) facing the white dot on the left of the camera above the bayonet. Do not hold it by the diaphragm ring located at the rear of the lens and which should be free to rotate during the mounting. At the beginning of the rotation, before locking the lens on its stop, two clicks tell that the diaphragm fork has meshed with the Photomic FTn and that the linkage system gets back to neutral. Close the diaphragm totally if one did not hear the clicks, or look at the mark to ascertain the linkage. Then open the diaphragm totally to couple the maximum lens aperture to the exposure meter (check the mark position).

To change the lens, push the wide plunger located on the left of the front face and turn the lens to the right by the center mat chromed ring. Do not hold it by the diaphragm ring which must be free to rotate; or the dismounting would be impossible. During the rotation, the diaphragm closes completely and the lens comes to a stop. Remove the lens by tilting it around its fork to free the bottom part first, then remove it completely. The linkage pin comes back with a characteristic noise to its centred position. To mount a new lens, proceed as previously explained.

To dismount the Photomic FTn, if no lens is mounted, push with the left thumb nail the heavily spring-loaded button located on top of the rear camera face, on the left of the eyepiece. This manoeuver is rather smooth, and an opening enables the use of a coin to be made. While pushing, the rear part of the Photomic unlocks with a strong click. Holding the prism with the right hand, push with the thumb on the centering lever in order to unlock the side pins, and push on the button with the left thumb in order to release it. This operation, rather delicate to perform in the first occasions, soon becomes routine.

If, when dismounting the Photomic FTn, a lens is in place on the camera, one must open the diaphragm at f/5.6 before removing the prism. -If, when dismounting, the diaphragm remains between maximum aperture and f/4, no harm is done: the pin finally gets free and springs back to its rest position at f/5.6. If the diaphragm stays between f/8 and its minimum value, the pins get free, but remains on the left part of the front face; one then has to center it again with the nail before remounting it, as was explained previously.

Photomic FTn, metering:

The electric power is supplied to the cells by 2 Mercury type Mallory PX 13 batteries. They are to be found in a recess under the Photomic FTn on the right side. The lid can be unscrewed with a coin, or by clamping its knurled edge between the thumb and the forefinger. The batteries should be introduced in series, one on top of the other, in the sense of the diagram glued on the lid. The lid is then screwed back on. The battery voltage is checked by pushing for a moment only (to avoid too much battery drain) on the button located on the Photomic in front of the sensitivity setting ring. The exposure meter needle, visible above the prism through an opening protected by a transparent cover, should reach the round mark. One may also look at the needle visible in the viewfinder. The reading window has a notch and is located above the viewed picture window. During the test, the needle must get in the middle of the This test can be done before notch. or after the Photomic FTn is mounted on the camera. If the batteries were introduced in the wrong way, the lid could be partially screwed back, but the needle would move in the wrong direction and thus indicate the error. Such an inversion is harmless to the electrical circuitry.

In order to meter the exposure when the prism is mounted on the camera, push on the locking button on the right side of the Photomic. The control button springs out with a noticeable "click". The exposure meter is ON. A red circle is then visible on the button. One adjusts the exposure by bringing the needle on the round mark above the prism, or in the notch of the window above the viewed picture. This setting is linked to the speeds and to the apertures, and is normally done at the full aperture of the lens. The measurement is independant of the angle taken by the camera.

The aperture ring of all the lenses is located at the rear, and the scales have always the same sense. When turned 50 degrees to the right, the diaphragm closes. Only the f/stops standard values are indexed. The ring turns easily from full aperture to f/5.6, which is a very hard point because of the linkage. One may believe that this is the end of the stroke. Nevertheless one can go beyond it, but the step is so sudden that one reaches usually f/11 and one must go backwards to reach f/8 or f/6.3. Beyond f/6,3, the operation of the ring is smooth again. It is the Photomic FTn which is the cause of this hard point: without the prism the aperture ring rotates smoothly. The drawback of this hard point has its compertion. In the viewfinder, on the right of we exposure meter window, the shutter speed in use is displayed. Without taking the eye off the eyepiece, one can find out the combination speed/aperture in use: f/5.6 is set at the hard point of the ring, and the wanted speed is selected. By counting the clicks of the diaphragm ring up or down, one can mentally guess the aperture used without leaving the eyepiece to take a look at the scale. And here is the most interesting detail, the hard point at f/5.6 corresponds to the maximum sharpness for the majority of modern lenses, from the wide angles to the average telephoto lenses.

The speed setting is done by rotating the sensitivity knob coupled to the shutter speeds (the two knobs are superposed). A stop limits the rotation of the knob between T and 1/1 000. The selected speed can be read in the viewfinder, or from the rear in front of the white mark of the Photomic FTn. Only the indexed speeds are usable. The fine setting of the exposure is done by the diaphragm ring which remains very easily between its indexed positions. When the Photomic is in place, there is no cocking signal (only the blocked film advance lever tells it).

The exposure meter needle rotates in the same sense as the speed or the diaphragm rings, whether it is seen on top of the prism or in the viewfinder. In + window above the prism, the correct posure value is marked by a circle, the under exposed values by a dot (these two symbols are images of the aperture status). This reading off the top of the camera can be useful for shots done at ground level, on scientific instruments... when viewing is not important (otherwise use the angle viewfinder). In the window located above the viewed picture, the areas of over-and under exposure on each side of the reference notch are not marked, the measurement is done by zeroing. One must remember that underexposure is on the side or the speed We suggest to the NIKON selector. Company to add two extra marks: one small and one large dot on each side of the notch, to indicate the sense of the correction. No actual value could be indicated, because the needle displacement is smaller for low and high exposure values than for average ones, when a variation of +1 to -2 f/stops make it sweep the whole window. Furthermore, as a rule, for the same variation of the aperture, the needle displacement is smaller by a factor of about 2 on the under-exposed side as compared to the over-exposed side.

The measurement can also be made at stopped down aperture. This is necessary with the NIKON very long focal length non automatic lenses, and on special optical setups, as in photomicrography. When using extension tubes and bell in photomacrography, the normal lenses are not automatic any more, and one measures stopped down. After having removed the lens, push back up with the nail the linkage pin of the Photomic FTn.



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Two clicks can be heard, and the red mark that sets on f/5.6 tells that the system is ready to operate at stopped down aperture. The settings speeds/ apertures are crossed, but one then notices that the viewing gets darker as the diaphragm is closed down. One must here avoid stray light coming in through the eyepiece, by using the foldable rubber eye cup.

The range of this exposure meter is very wide in both types of metering. The possible sensitivities go from 6 to 6 400 ASA, the aperture coupling extends from f/1.2 to f/32, and the one for the speeds from T to 1/1 000. In fact, if one takes a reading when T is dialed, one will have to expose for 4 seconds, with B for 2 seconds (the use of these positions extends the coupling by 2 steps). This exposure meter at 100 ASA is coupled for exposure values of 2 (1 second at f/2) to This coupling is 17 (1/1 000 at f/11). maximum, over 16 exposure values from 6 ASA to 400 ASA, which seems to be the widest capability of TTL cameras. At 6 400 ASA, the coupling goes from 1/1 000 at f/16 to 1/60 at f/2, which is still 11 exposure values, and also looks like a record. In general, when one goes beyond the coupling limit, for instance 1/60 at 6 400 ASA, the needle goes readily to a stop: towards the speed selector in the viewfinder, and towards the dot on the top (it sometimes moves erratically in these two zones). In the 1/1 000 and f/16 areas, one seldom reaches the coupling limit. This TTL exposure meter accounts for the use of filters. No correction factor is given as a function of their colour. The needle is always very mobile, which is due to the use of a 2.6 Volts power source.

The exposure meter is switched OFF by pushing in the control button. The red circle disappears, and the needle goes to its right stop in the window near the speed indication, and on the top to the dot. This switch battery/test system is very practical.

Photomic FTn, viewing and focusing :

The eyepiece is set at -1 diopter, a value which suits most users. It can receive screw-on correcting lenses, from -5 to +3 diopters, and a rubber eye The whole of the viewed field and cup. the exposure meter window are still just visible for people wearing glasses. The viewing is particularly accurate, bright, and aberration-free, even with the standard focusing screen type J (except for a slight field bending, but less notice-able than in most TTL cameras; this causes a slightly less sharp image on the edges). Only a few reflections are visible at the bottom of the picture. This viewing remains perfect in photomacro or micrography. The center of the J focusing screen is occupied by a 4 mm diameter microprisms spot usable up to f/8 with a standard focal length lens. This disc is surrounded by a very finely ground colar of 12 mm diameter, covering the area predominantly metered by the exposure

meter, and this surface is backed by a Fresnel lens with such a fine pitch that it is virtually invisible, even at f/32; it is even slightly more visible at f/2 than at f/32, which is astonishing. The rest of the area is frosted and backed by the The depth of field same Fresnel lens. can really be assessed at f/32! The whole of the screen being backed by a Fresnel lens, the brightness remains uniform, even at f/32 (on usual screens, the frosted colar without Fresnel lens appears darker than the rest of the field). As all Nikon focusing screens, this screen is double: it is made of the association of a focusing surface and a condensing lens.

This focusing screen is interchangeable. Remove the Photomic, then push on the unlocking button for the prism, tilt the camera, the screen pops out. Catch it with the hand. The bottom sides of these focusing screens being made of a plastic material, one must protect them from scratches and fingerprints, particulary since they protrude from the mount. Fifteen different types of screens are available (another record).

- A, similar to J, but the center consists of a Dodin range finder with horizontal axis, usable up to f/4.5 with a standard lens. The Nikon F, as delivered without special order, comes in France with a J focusing screen, and in other countries with an A focusing screen.
- B, similar to J, but without Dodin or microprisms in the center, the center part being only ground; recommended for long telephoto lenses.
- E, similar to B, but squared; recommended for document copying and architecture work.
- D, completely frosted without Fresnel; to be avoided with the wide angles and the standard lenses, because the corners show up darker.
- C, frosted without Fresnel, with clear graticule center of 4 mm diameter; recommended for focusing by parallax variation, in astrophotography and photomicrography (movement of the image relatively to the graticule when one swings the head).
- G1 to G4, microprisms area 12 mm in diameter, surrounded by clear glass backed by a Fresnel lens; bright viewing, but not permitting the assessment of the depth of field. The types 1 to 4 correspond to the focal length of the lens used.
- H1 to H4, screen surface completely made of microprisms adapted to the focal lengths. As for the G screens, they are only used in the case of metering at full aperture.

The surfaces of these screens are treated, which explains partly the viewing quality. To put a screen back in place, hold its small left side between thumb and forefinger, with the letter mark towards you (which also means notches on the left side) and the curved face upwards. Push the button, present the screen tilted to lay its right side. Drop it and release the button. The screens can be mounted upside down, but the focusing is so upset that one realises it immediately. The use of screens A, J, B, E does not require exposure time corrections. For the D. C. G1 to G4, H1 to H4, one must, depending on the focal length of the lens in use (20 to 1 000 mm) correct the exposure according to a ta in English delivered with the screen. This table is more complete than the one of the French instructions book of the Photomic FTn. The correction is achieved by setting the sensitivity of the film used, not in front of the red triangle, but in front of the marks spread from-1/2 to 2 on each side. Do not use the many forbidden combinations. The table indicates that only the A, J, B, E screens are usable without restriction, and the D and C screen with a few restrictions from 35 to 1 000 mm at stopped down Only the A, J, B, E screens aperture. are usable in all circumstances. The table indicates also the ease of focusing given by the different screens as a function of the lens used. A pin located on the camera, meshing with a hole in the screen frame would avoid any mounting mistake.

Interchangeable viewfinders :

The Photomic FTn can be replaced by a normal pentaprism, giving a lifesize image with a standard lens. It can receive screw-on treated correcting lenses from -- 5 to + 3 diopters. The Photomic FTn and the standard prism can also receive an angle viewfinder, very small and with variable orientation (giving a very bright, but laterally inverted image reduced by a factor of 2; the adjuste ocular does not have a blocking), o. \times 2 eyepiece magnifier magnifying a 15 mm diameter area at the center of the field, and enabling a very accurate focusing (this magnifier folds away by simple tilting, its support remaining screwed to the eyepiece; the ocular is adjustable from +2 to -4 diopters; but without blocking; one uses the Fresnel lens pitch as setting marks; the 0 diopter value is marked by a dot). The two pentaprisms give a viewed image covering 100 % of the film picture: when shooting slides, leave a little margin around the frame, as slide mounts take 10 % of the picture area away.

Pentaprism Action Finder

These two prisms can be replaced by an action finder which is a Nikon exclusive feature. This viewfinder looks like a normal pentaprism, but is much higher, and its eyepiece gives a rectangular picture 18×27 mm which one can see completely as far as 6 cm away from the syepiece. This image is reduced $\times 0.75$

ith the 50 mm. At 20 mm from the eyepiece, the whole image is visible, even when ofsetting the eye 16 mm vertically, and 24 mm laterally relatively to the cen-This viewfinder was designed to be ter. used: for sports events shooting, in airplanes with wind glasses, by people wearing glasses, for frequent shots in reproduction and photomicrography in order to let the eye rest... because the eye does not need to be centered during the viewing. When not in use, protect the glass viewfinder base with the cap supplied with the prism. The action finder has been designed to weight only 295 grams.

The Nikon F can also be fitted with a waist-level finder unfolding by simple pressure on a push-button. A second pressure unfolds a magnifier. The picture is viewed lifesize with the 50 mm (magnification \times 5). The hood is folded back by simple pressure, even if the magnifier is in use. It protects the picture very efficiently from reflections. The magnifier can be folded by moving the front of the hood down by 30 degrees only, and the hood springs back open readily.

If, when the prism is used, on wishes to shoot at ground level and no other viewing system is available, one only needs to remove the prism: as the focusing screen is attached to the camera, one views by looking at the picture on top of it, and protecting against reflections ith the hand.

If we have dealt to such an extent with the exposure meter device Photomic FTn, and with the focusing screens, it is because they are really great and more than justify the slight complications of operation which have been described.

Nikon F, camera body :

FILM LOADING :

The Nikon F camera opens by unfolding the lock located on the left side under the bottom, by rotating it half a turn to the left from "close" to "open". This system avoids any accidental opening of the back. To remove the back, slide it backwards by a few millimeters and lift it. It comes off completely from the bottom. This system is an advantage for an optional power drive, but it entails removing the camera from the tripod, or any other fixture where it is attached, when one wishes to load it. This is a definite disadvantage. Drop a cartridge in the left recess and introduce two perforations of the leader into the fast catching spool. The latter has 4 slots with tooth which one can position by turning its knurled side one way or the other. The film winds under, push the tooth catch into a perforation. Avoid that the in of the leader comes out through other slot. The double thickness so created would interfere with the proper film winding. Stretch the film by begin-ning to cock. The pressure plate is of the 4 rails type, defining a gap where the film is transported. These rails are

machined out from the central block carying all the mechanical parts, which is a central die cast element. This type of assembly enables the power drive to reach the rate, in reflex viewing and automatic diaphragm, of 3 frames/second.

Lay the back as much forward as possible on the camera. Push on it to compress the pressure plate. Slide the back until it settles and lock it. Put the disengaging ring concentric with the release button on position A=Advance (it was left from preceding use on the R= Rewind position for the last film). The counter has automatically reset to zero when the back was opened. Cock (sometimes twice before being able to release), release in order to waste two frames. The counter then gets on the zero indication, marked by a red line. Cock for the first frame. The counter steps during cocking. All figures are engraved in white, and 20 and 36 are marked with red lines. Beyond 36 frames the counter slips on the 36 position. A window in the counter permits to dial 20 or 36, in order to remember the capacity of the cartridge in use. A disc under the bottom is used as a simple tell-tale for the type of film in use, by bringing a figure in ASA from 25 to 1600, or E (for empty) in front of white or red triangle (this disc could be improved: in particular by a scale of conversion DIN/ASA for the Photomic FTn which is only graduated in ASA). The release button is very smooth, the stroke is short, 2 mm, and without hard point. A lock prevents it to be pushed in before the cocking is complete. The noise at release is normal and low pitched.

COCKING :

The film advance lever has a 15 degrees dead sector, very powerfully spring loaded. One must push it very hard to bring it flush with the camera. The ad-vance stroke is 150 degrees, which is short. One may cock in a single long, or several shorter movements. This opera-tion is quiet, relatively stiff. A point rotates on the release button, but this is no indication of film transport: it also turns when the camera is empty. Only the rotation of the rewind crank, after having stretched the film, indicates that the film is being transported. A dot in the middle of the speed knob, when it faces on the left the speed mark, indicates that the camera is cocked. When it is 45 degrees low on the left, it tells that the camera is not cocked. The speed knob can be positioned continuously when being set. There is no stop between T an 1/1 000. This knob does not turn upon release. The speeds are spread according to the standard progression, with a factor of 2. The range goes from 1/1 000 to 1 second, plus B and T exposures. These two interesting features of the camera: cocking signal, and no stop in the speed selection, are unfortunately lost through the use of the Photomic FTn. The linkage pin is located between 1/1 000 and T. The blinds are made of very thin titanium and not of a textile material, but they operate like in ordinary two blinds focal plane shutters. The translation time is 14 milliseconds. The shut-

ter is specified to operate correctly from — 45 to + 70 degrees C.

For T time exposure, one opens through the normal release button, and one closes by rotating the speed knob one way or the other. This is why the NIKON F is one of the very few TTL reflexes (if not the only one) to have a T position. This system with two separate actions permits the use of automatic lenses (upon release, the diaphragm closes to the preselected value and remains closed during the exposure even if one lifts off from the release button). For such exposure, use a cable release of the Leica type, or a standard model with a tip of the Rowi No. 7 type. The tripod thread under the bottom, close to the center of gravity, permits the camera to be attached to any stand between loadings.

DEPTH OF FIELD CHECK:

The depth of field can be checked by pushing the button located on the top right of the lens mount. Its stroke is short: about 2 mm, but relatively stiff (do not release while this button is pressed, or the mirror would remain blocked in its up position, and one would have to waste a frame to let it come down into its normal position).

SELF TIMER :

The camera has a built-in self timer, adjustable from 2 to 10 seconds according to the arming angle. Do not use the self timer on the B or T positions. The values 3, 6 or 10 seconds are marked by dots. During arming, a small release button appears under the lever. It controls the retarded release. If one releases with the normal button, the self-timer does not operate. One can thus release without delay, even after having armed the timer. The latter could then be disarmed separately by pushing on the small button. The overall system is the most elaborate type of self-timer. The 3 seconds delay can be used with a hand held camera in order to take the time to brace oneself properly before release for a long exposure, without tripod. If after arming, one drives the self timer lever backwards by accident, it swings freely, which is a protection feature.

HOLDING THE CAMERA :

The mirror is of the instant return type. The viewing is done at full aperture with limited depth of field, and thus accurately. The mirror hinge is classical, without rods, it causes a certain vignetting when using very long telephotos, in photomacro and micrography.

The camera is held on the right by the right hand. The thumb operates the film advance lever; the forefinger operates the release and the depth of field preview button; the thumb together with the forefinger operate the speed knob. The left hand supports the camera: the thumb and the forefinger operate the focusing ring and the aperture ring. Without the Photomic FTn, all scales are visible from above.



LOCKING THE MIRROR UP :

The mirror can be lifted before release, but this system is not practical. One must turn the knob located on the right of the lens mount before of after cocking, but the mirror locks up only after a release. This loss of one frame is bothersome. To let the mirror come down, if the button is turned before cocking, the mirror comes down; but if it is turned after cocking, one must shoot one frame, which is again a constraint.

FLASH SYNCHRONISATION :

The shutter is synchronized: from 1/60 to B for electronic flash, symbol "FX"; for M bulbs from 1/30 to B, symbol "white circle, F" (some bulbs are synchronized at 1/60 on the "red" symbol and at 1/125 on the "green" symbol, see the table), for FP bulbs from 1/1 000 to 1/125, "green symbol, at 1/60 "red" symbol, and at 1/30 "white circle, F" symbol. These symbols can be selected by lifting the outer ring of the speed knob and by rotating it to show the desired symbol in the window located on the front, above the camera. The speeds on the knob from 1/1 000 to 1/125 are in green, 1/60 is red, and from 1/30 to T in white in keeping with the symbols (this system is still a complicated one). When using the Photomic FTn, the synchronization selector cannot be operated, and the window is hidden. One must remove the Photomic to do this setting, then mount it back again, or use another viewfinder, which is bothering. This system has only one standard synchro terminal located on the top left of the camera. A synchronized shoe can fit the rewind button, but the non-standard contacts only match the Nikon BC 5 flash. Nikon should make such an accessory with standard contacts.

DOUBLE EXPOSURE :

The shutter also permits a very exceptional manoeuver: one can achieve voluntary double exposures, which may be very useful. After release, one sets the rewind selector on R, and one rewinds the film while watching the red dot on the release. One makes it turn 11/4 of a revolution (between 1 and 13/4) then one puts the selector back on A, one cocks twice (and not once as the instructions say). The film comes back exactly in position. Upon release, one will have a double exposure. One may repeat this operation on the same frame if one so desires. Be careful, when making multiple exposures, the counter counts the number of exposures and not the number of pictures. (One may also rewind by rotating the red dot 9/10 of a revolution-the red dot will just touch the position it occupies at restand cock only once; this operation, more delicate than the previous one, is not recommended).

UNLOADING THE CAMERA :

If one uses the part of the film beyond frame 36, the lever blocks during cocking. Release it, it gets back to rest. Turn the knob to R=Rewind. It is better to put a cap or the hand on the lens because, when placing the selector on R, the shutter springs back with a click. If one has advanced more than 2/3 of the stroke before blocking, it opens partially at the end of its translation (the last frame is protected in principle, only the end of the film is fogged). Unfold the crank and turn it in the arrow sense. One must reset the selector manually from R to A at the end of the rewind, which is an inconvenience. But this selector has an advantage, which this camera is the only one to have: when one turns the selector, it pushes in the release button, which prevents any accidental release



Nikon F, Standard prism, Nikon motor drive F-36 and Cordless Battery Power Pack

during rewind, which could fog the film. This is a safety, the exceptional character of which should be stressed.

During rewind, the red dot of the release button rotates, telling that the film is transported. Again a useful refinement. Furthermore if during rewind, one stops turning the crank as soon as the red dot stops (this happens after the film is unhooked from the take up spool), one may open the back and withdraw the cartridge, but the leader is still out. One may therefore unload or reload a film during shooting. At the end of rewind, the tooth frees the film without tearing any film chip off.

Accessories :

Very many accessories are the strength of the Nikon system; we shall review them here:

Motor drive attachment:

- The back can be replaced by a back with power drive for the transport of 20 or 36 frames cartridge film. This F36 motor is extremely compact, only 26 mm high, mounts directly on the bodies which are readily equipped with the necessary fittings. There is an automatic stop at the end of the film by predialing of the cartridge capacity (if this were forgotten, a slipping clutch avoids any breakage to the film or to the motor). This system also serves as a down counting counter. An intermediate setting after X frames permits an automatic stop as soon as a sequence is shot. This motor has an adjustment setting for 3 operating positions: L (=Lock), S (=single frame) and C (=Continuous frames). A 4 positions selector permits the adjustment of the continuous rate. A table gives the speeds usable: a) with mirror coupled, and b) with mirror u On L (=Low) 2 frames/second a) a b) from 1/1 000 to 1/8; on M1 (= Medium 1), 2.5 frames/second, from 1/1 000 to: a) 1/60, and b) 1/30; on M2 (=Medium 2), 3 frames/second, from 1/1 000 to: a) 1/125 and b) 1/30; on H (=High), 4 fra-



Voluntary double exposure of two pictures







Three positions of line jumping frozen at 3 frames/second in reflex viewing (F 36 Motor, Power Pack, GN Nikkor lens and repetitive flash)

mes/second, a) impossible and b) 1/1000 to 1/125. When on "single", one may use in reflex viewing the speeds 1/1 000 to 1 second, and with mirror up 1/1 000 to B. In "single", the shutter operates when the release is pushed, and the film advance + cocking occurs when the release button is left free (do not let the button free during slow speeds in order not to alter the exposure speed). During the first trials, put the rate selector on L, and not on H as the instructions say page 8, because, in case of a mishandling, on H, the camera is driven at a forbidden rate! At all times, the camera can be cocked and released by the manual controls. When the Nikon F is fitted with the motor, or with the motor plus its power pack, and fitted to a stand, the loading operation is easy because the camera can be easily removed,

the drive motor remaining attached to the tripod.

- This power drive can be fed from any 12 volts, 0.4 A source with a cable connection.
- There is also a very practical, compact cordless battery power pack/handle. It screws on the motor. A handle enables to hold it. This power pack contains 8 1.5 volts AA type batteries. One set of batteries is enough to drive 30, 36 frames films at the fastest rate (200 films with a little less of rate). A switch selects either single or continuous shooting. The release button has a safety lock. The complete motor/ power pack takes a carrying strap with 3 eyelets.
- This power pack with built—in relay can be remotely controlled: either through a 2 conductors wire without





From the same location, two pictures made at 50 mm and at 300 mm with the 50/300 mm zoom (ratio x 6) f/4.5. Paris, place de la Concorde.



Pictures with the Nikkor 7.5 mm Fish Eye, f/5.6 (1/60 sec at f/13, Photomic FTn light metering, Plus X 125 ASA, Y 48 filter). Paris, place de la Concorde.

distance limitation, or by radio, or by a timing device.

- It can be connected to a 12 V, 0.4 A, DC source for a heavy use without having to remove the batteries.
- A pocket size power pack, containing 8 penlite cells can be used instead of the cordless power pack. An accessory voltmeter provides a battery test. A connecting cable, 1 or 10 meters long, enables a remote control.
- A relay box is necessary for this power pack, when remotely controlling from more than 10 meters distance, or by a timing unit, or by radio, or to control several cameras in parallel... The actuating delays are indicated in a table.
- A Nikon electronic flash can deliver flashes in synchronism up to 2.5 frames/second with reflex viewing, and up to 3 frames/second with mirror up. Flash duration 1/2 000 of a second. Field angle: 65 degrees. Guide number 10 to 14 for 100 ASA. 250 consecutive flashes are possible. The power comes from the mains, 100 to 240 volts AC. Weight 11.5 kg.
- A power drive back, of the same type, the F 250, is designed for the drive of 250 frames. It takes roll films up to 10 meters length, fed from a Nikon magazine.
- A film winder makes automatically the rolls of the desired length, up to 250 frames.
- A contact handle enables to control the motors by a trigger, through an electrical extensible coil cable (this handle can also receive a mechanical cable release for normal control).
- Radio control system, on 27.12 Megacycles, up to a 300 m distance, fed by 8 1.5 volts batteries (20 hours). It can control 1 or 2 cameras independently or in parallel via two channels.

Lenses :

The automatic Auto-Nikkor lenses are very numerous, at the moment, 29 from factory: As ultra wide angles: 20 mm f/3.5-24 mm f/2.8 with automatic compensation of the resolution for close shooting (the 3 rear components move relatively to the 6 other components during focusing) and 28 mm f/3.5 As wide angles: 35 mm f/2.8 and f/2. As standard lenses: 50 mm f/2 (recommended for close ups), 50 mm f/1.4 and 55 mm f/1.2 (specially designed for the faithful transmission of light contrast). As telephoto lenses 85 mm f/1.8-105 mm f/2.5-135 mm f/3.5 and f/2.8 and 200 mm f/4 (light and small size) and 300 mm f/4.5. As very long telephoto lenses: 400 mm f/4.5--600 mm

f/5.6-800 mm f/8. As zooms. 43/86 mm f/3.5-an extraordinary 50/300 mm (range ×6!) f/4.5 carrying strap and thread for orientable handle-85/250 mm f/4 and 200/600 mm f/9.5. The very large diameter Nikon bayonet mount avoi vignetting. All these lenses present: at the front a focusing ring graduated in meters in white and in feet in yellow, the components move linearly during the settings; a central matt chrome knurled ring to be used during mounting and carrying the reference mark for the distance scale, the infrared focusing mark, and the depth of field scale with color lines (this system is slower than figures); the rear ring has the apertures values marked in colours corresponding to the depth of field scale (unfortunately the colours varies



Normal picture from the same location without shifting; PC Nikkor.

for the same aperture value from one lens to the other!). All lens ring rotate in the same sens (except for the focusing of the 45 mm GN Nikkor). The diaphragm is automatic. The iris blades are made of black steel and not bluished steel. When unmounting the lenses, the diaphragm returns back to the closed position. The preselection plunger is protected by the baffles which, at the rear of the lenses, limit the light scattering. The baffles also avoid to damage the rear element when one lays them somewhere. The front mount protects in the same fashion the first component (except for the Fish-Eye which is protected by a cap rubber padded edge-a refinement avoiding to scratch its first very curved component). They are supplied in a plastic or leather case, with a front cap. We can note that the Nikon company makes its own optical glasses (what only two companies are doing in Japan). All lenses of 24 to 200 mm and the 43/86 mm zoom have a front 52 mm thread accepting the 17 different types of filters (the factors of which are not marked at the mo-ment), the lens hoods with lined or velvet interiors of the screw in or fast fitting type (that can be fitted backwards to reduce bulk for transportsome lenses have pull/out lens hoods). the close up lenses and the special rings for photomacrography, as well as a threaded ring permitting the use of standard series 7 filters. This standardisation of the 52 mm, 0.75 pitch, accessory dimension is remarkable and particularly interesting to be stressed! This system is certainly convenient and economical for the user: a single set of filters and of close up lenses is enough for a great many lenses.

Special lenses :

• Nikkor reflex catadioptic lenses 500 mm f/5; compact 500 mm f/8 (13 cm long and 9 cm diameter!); 1 000 mm f/11 and 2 000 mm f/11.



Pictures taken with the PC Nikkor 35 mm, f/3.5.

1. Picture without off centre. — 2. Picture upward off centre of 6,5 mm. Paris, place de la Concorde, Hôtel Crillon.



Binding of two pictures to form a panoramic view. The subject horizontal lines remain parallel, as both pictures have been shot by shifting the PC Nikkor, first 11 mm to the left then 11 mm to the right, shot from the same location (for the best quality the maximum horizontal shifting is 7 mm).

• a very long telephoto with manual diaphragm 1,200 mm f/11.

• a Fish Eye 7.5 mm f/5.6 to 22, without focusing, with six built in filters. One uses it with the mirror up and with its own and very bright viewfinder (covering only a 160 degrees field, which, due its relative geometrical position to the lens itself, insures the equality of viewed and shot fields) It triggered the elaboration of many similar lenses... which is a proof of its value. Its fields is 180 true degrees projected over a picture 23 mm in diameter.

• an alternative: the Orthographic Fish Eye OP 10 mm f/5.6, which a perfectly constant illumination from the center to the edge of the picture. It was designed for scientific uses.

• the PC Nikkor 35 mm f/2.8 with manual diaphragm preselection. The new mount of this lens permits its use without having to remove the Photomic FTn. The off centre can reach 11 mm horizontally, 7 mm vertically, and 7 to 8 mm diagonally (because of the resolution of the circle picture). 12 stops are indexed every 30 degrees, and give the indication of the authorized off centre. This lens is extremely useful in architecture for the correction of perspective. It also permits by shooting two frames with off centre opposite positions, to achieve binding horizontal shots over a field of 78 degrees, or vertically 65 degrees with very small distortion (for indoor shots, the floor and the ceiling remain parallel). This lens also gives very good results in photomacrography.



Micro Auto Nikkor 55 mm, f/3.5, used with M ring at ratio x 1. Measurement with the Photomic FTn, 1/30 at f/18, Plus X 125 ASA.

the Micro Auto Nikkor 55 mm f/3.5 to f/32 with five components in 4 groups achieves direct focusing up to a ratio of 1/2, thanks to two concentric helicoidal ramps. It is designed to introduce the slightest distortion possible together with maximum resolution without vignetting at a ratio of 1/10 (it can be perfectly used from infinity to ratio one). It is linked with the Photomic up to 1/2; metering must take place at full aperture opening. This measurement must be compensated because this lens was designed for use without TTL metering, and it therefore has an automatic compensation of the aperture as a function of setting, except for maximum aperture. A version without compensation, or with compensation also at full

aperture, would be more usable in TTL. The addition of the M ring permits to reach the ratio 1 in stopped down metering.

• the ultra slim GN Auto Nikkor 45 mm f/2.8 to f/32 can be coupled, by pressing a latch, to the flash guide number (10 to 80 in meters, 32 to 250 in feet). The distance setting automatically sets the diaphragm. The impossibility of focusing outside the limits allowed by the guide number is insured. The diaphragm is designed to minimise diffractions. This lens, used uncoupled, is recommended for architecture, but also for shooting at very close distance. One must mount it to and remove it from the camera with disengaged latch.



Medical Auto Nikkor 200 mm, f/5.6. Used at ratio 2/3 appearing in the right bottom corner because previously dialed.

• the medical Auto Nikkor 200 mm f/5.6 to f/45 with automatic diaphragm permits 11 photomacrography ratios 1/15, 1/8, 1/4, 1/3, 1/2, 2/3, 1, 1,5, 2 and 3 by variation of combinations of the 6 front components. A ring electronic flash tube with a power 60 W/s provides the right light after simple dialling of the film sensitivity and of the reproduction ratio. Pilot lamps allow focusing. An internal feature provides the automatic recording, in a corner of the picture, of a reference number from 1 to 39 or of the reproduction ratio when shooting. It is powered by battery or 100 to 240 volts domestic power. A table gives, for a film sensitivity selected, the range of usable ratios, for example, at 100 ASA 1/6 to 1, and, with the use of the power reducing cable, 1/6 to 3.

• the Nikkor 135 mm f/4 to f/22 with preset diaphragm is foreseen with short mount for use with bellows from infinity to a ratio of 1.

Accessories :

Several bellows exist, among which the brand new model 4 with 2 rails (lens or camera movements, or both), side rotation of 50 degrees, and side off-centre by 20 mm of the front piece, and indexed vertical and horizontal positions of the camera. With the 50 mm, ratio 1/2 to 4.4. It takes the slides reproduction system nº 4, ratio 0.9 to 9.6 with possible off centre 6 mm vertically and 9 mm horizontally. The no. 3 bellows is small in size and enables ratios of 0.6 to 3.3 with a 50 mm. Let us also mention the Novoflex Automatic Balgen Bellows preserving the automatic preselection of the apertures.



NB1 system

- The system NB-1 covers the ratios 1/2.5 to 15 which are the most difficult to obtain, thanks to 4 automatic diaphragm lenses. Mirrors fold up the beam, minimizing vibrations and simplifying the making of such shots.
- The 0 (0.7 diopters), 1 (1.5 diopters) and 2 (3 diopters) close up lenses permit close shooting without aperture corrections. Close up lenses 1 and 2 stacked give with a 50 mm a field of 11×7.5 cm ($\times 1/3$). One can, beyon' this ratio, use them in combination with tubes and bellows. The simple lenses used are of the meniscus type which reduces the risk of reflection.
- The E2 ring gives a 14 mm extension. A push button opens the diaphragm by simple pressure (it closes down to the preselected value when one releases it). An E2 ring, sandwiched between lens and bellows enables an easy opening of the diaphragm for viewing (the push button can take a Leica cable release). When fitted to a lens mounted in reverse position, it also serves the purpose of lens hood. Several E2 rings can be used in cascade.
- The K tube set consists of 5 rings, combinable from 5.8 mm to 46.6 mm, giving with a 50 mm the ratios 1/9 to 1. These Nikon rings are composite screw and bayonet mount, and do not achieve diaphragm preselection transport. A very complete table gives the exposure factors, as a function of the extension, for the different lenses in normal or reverse positions. You will be surprised to discover that for the same ratio-say ×4-the factor goes, according to the optical formula of the lens used, from ×6 to ×120 (in the calculation of the coefficient, the focal length does not count, but the pupillary magnification plays a large role, and it varies tremendously from a retrofoc wide angle to a telephoto). Fortuna tely, the Photomic FTn accounts automatically for the variable coeffi-cients! The tables are likewise valid for the use of bellows.

- Four microscope adapters exist, among which the very simple Model 2 Adapter which halves the microscope magnification. A fast adapter enables the microscope eyepiece interchange. It fits 25 mm tubes. This adapter is supplied in a leather case with a C focusing screen and a green filter. Open the aperture 1 stop before shooting, after stopped down reading by the Photomic on the focusing screen. The PFMF has its own special shutter, the EFM system being, on top of that, equipped with a built in exposure meter giving a semi automatic metering, and the AFM system has a switchable automatism.
- The BR2 ring permits the use of lenses in reverse position.
- The BR3 ring permits the use of filters and lens hoods on the lenses in reverse position.
- The flash shoe can be used as an accessory shoe.
- The PFB reproduction stands with base, the PFC with base/drawer, and PFT for table work, make documents and samples shooting easier.
- The panoramic head, with 360° revolution, graduated for lenses of 28 to 135 mm focal length, is used in conjunction with the bubble level which can be fitted to the accessory shoe. This level also enables to assess the vibrations occasioned by a given configuration, by watching the air bubble.
- Oscilloscope adapter Type D.
- Nikon cartridge for 1 to 36 frames, in three pieces.
- Camera body caps.
- Compartment cases, eveready case, various bags, blimp,...

The different instructions are relatively clear and very handsomely presented.

The body shape gives the impression of a serious job. The sides have eyelets for a strap; the serial number is engraved close to the rewind button (the front side of the numbers can be used as a film plane reference). When fitted with the Photomic FTn and the 50 mm Auto-Nikkor f/1.4, this camera looks relatively bulky: 197 mm long, 102 mm high, 104 mm thick, although these measurements are within 5 mm of those of most TTL reflexes. It weighs, 1,180 grams (1,070 grams with the 50 mm f/2 lens), which again makes it close to the average. The body exists in chrome or black finish, whether a power drive can be fitted or not. This Nikon F/Photomic FTn camera is hard to fault. It is never good for a camera to come in for a test with a predetermined "mark". On tends to be hypercritical ...! In spite of this the system went through the examination with honours...! One can wish that a few points mentioned are

dy make the Nikon F a complete, outstanding system. It is the reference reflex, to which one must at present compare all other makes!

INDICATED SPEEDS	MEASURED SPEEDS
1	1
1/2	1/2
1/4	1/3.6
1/8	1/7.7
1/15	1/14
1/30	1/29
1/60	1/60
1/125	1/122
1/250	1/277
1/500	1/434
1/1000	1/1000

Camera tested Nº 6374684.

Bad Features :

- Removable back integral with the bottom, obliging the dismantling of the camera from the tripod for loading.
- At each lens change, requirement to link the maximum diaphragm opening to the exposure meter with 2 manoeuvres of the ring.
- No over or under exposure correction given in the viewfinder.
- Intermediate positions of the speed knob not usable.
- Viewing system interchange tricky for beginners.
- Focusing screen can be mounted upside down in (immediately noticeable in normal photography).
- Manual uplifting of the mirror entail lost frames.
- Sometimes the shutter opens when manœuvring the rewind button.
- Cocking signal and synchronisation settings no longer visible, with the Photomic FTn mounted. X synchronisation limited to 1/60.
- No coupling reference marks for the exposure meter.
- No film transport signal.
- Speed knob with intermittent rotation when Photomic FTn mounted.
- Focusing screen and exposure needle just visible for people wearing glasses.
- Mirror with simple hinge, a little too short.
- Film rewind button with manual return.
- Possibility to mount the batteries of the exposure meter inverted.
- Leica type cable release.

Good Features :

- Modular camera fitted over 10 years with all modern accessories, several of them having been created specifically for it; the most complete system on the market.
- Semi automatic weighed exposure metering at full aperture. Sensitive system. Wide coupling range even for high sensitivity. System unaffected by vignetting. Speeds displayed in the viewfinder (f/5.6 noticeable by rotation feeling—see text). Protection against failures (see text). Meter needle appearing in the viewfinder field and in the outside window on the top of the Photomic FTn.
- Release button blocked during rewind.
- Multiple exposure possibility. T time exposure. Metal shutter blinds.
- Very pleasant electric motor drive. Compact cordless battery power pack. Very high possible shooting rate: 4 frames/second (3 frames/second in reflex viewing).
- Viewed image very bright, with very few aberrations. Focusing screens with invisible Freshel lenses (even à f/32!). Screen mounted in the camera itself. 15 interchangeable screen types. 4 viewing systems and 2 viewing accessories combinable.
- Variable disarmable self timer.
 - Film advance stroke short in one or several operations. Lever away from the camera and easy to grasp. Cocking signal when no Photomic FTn mounted.
- Very good large diameter bayonet Nikon lens mount. Ring standardization and also 24 to 200 mm filters standardization on 52 mm, 0.75 pitch. Preselection plunger protected. Antireflection baffles. Matt iris blades. Front and rear components protected against shocks.
- Exposure meter switch and battery test very practical. PX13 or PX625 batteries. Crossed measurements (by speeds and apertures).
- Possibility to use all desired lenses and all optical setups either with full or stopped down aperture metering.
- Take up spool of the quick loading type. Film transport signal during rewind.
- Depth of field tester.
- Instant return mirror; low pitch noise.
- Accidental opening of the back impossible. Automatic resetting counter. Cartridge capacity indicator. Removable back. Memory disc for the type of the film loaded.
- Rewind crank. Synchro terminal of standard diameter. Serial number on the body. Tripod socket. Strap eylets.
- Very many accessories: prism action viewfinder, perspective correcting lens, Fish Eye, Micro Auto Nikkor, GN Auto Nikkor... Professionnal look.

NIKKORMAT FTn



It is a simplified version of the Nikon F, therefore cheaper, but of a more recent design (1st model in 1965). It differs essentially by the screen (J type with microprism) and the viewing system which are not removable, and by the fact that it cannot be power driven.

The TTL semi automatic metering system, weighed at full aperture, is identical to the one on the Nikon F, with one variation: the light sensitive elements are located in a vertical plane without return prisms (1 single PX13 battery, range 12 to 1,600 ASA, coupling at 100 ASA from 1/4 of a second at f/1.4 to 1/1,000 at f/11). This built in integrated system is less bulky than on the Nikon F. All Nikon F accessories, apart from the viewing system and the electrical drive are usable on this camera.

Other more detailed differences can be spotted out. For instance:

The Copal S shutter, with 6 metal blades and vertical translation. X synchronized up to 1/125. The intermediate speeds are usable from 1/250 to 1/1,000. The two X and M synchro terminals are normal (no synchronization selector). T time exposure and double exposure capability are not available.

- The speed setting lever is concerwith the lens barrel in an unusual way (the lever, a little short, is almost flush with the camera, and sometimes difficult to grasp: when changing lenses, between 1/2 and 1/30 of a second, one must move it to give access to the unlocking button for the bayonet).
- Three speeds are displayed in the viewfinder: the speed in use—white, and the two adjacent speeds—yellow. The exposure meter need'e moves on the right part of the focusing screen, and the over (+) and under (--) exposures senses are indicated. The exposure meter reading is repeated in a window on the camera. The film advance lever start position, off the camera, serves as an exposure meter switch (very practical). The viewed area (92 % of the actual picture area) corresponds to the size of the slide mounts.
- For an easy linkage, the lenses must be removed between full aperture and f/5.6. When remounting, as in the Nikon F, the double operation of the aperture ring is necessary.
- The mirror can be locked in the up position without any frame loss. The mirror with simple hinge is conventional.
- The opening back, its unlooking lever well recessed, the fast catching t up spool, the film rewind button. automatic resetting counter, the single movement film advance lever, the depth of field test button (located on top of the camera), the film plane reference line, the absence of memory disc for the type of film used, the non disarmable self timer, the absence of a battery test, the removable accessory shoe, the cable release thread ... are classical features. Size: 148 mm long, 96 mm high, 94 mm thick, weight 970 grams when fitted with the 50 mm f/2 lens.

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