

Minolta AUTOCORD



INSTRUCTIONS
FOR USING

THE **Minolta Autocord**

CONCEIVED FROM ADVANCED IDEAS
IN CAMERA DESIGN

This precision-made, twin-lens automatic reflex camera incorporates exclusive features not found in any other twin-lens reflex camera. Its sturdy Die Cast aluminum body permits the utmost precision in mechanical construction and provides the strongest possible structure for long life and accurate performance. Its exclusive **HELICOID** Focusing Lever provides fast easy focusing with the index finger of the hand holding the camera, permitting one hand operation. The other hand is left free for holding an off-the-camera flash gun for better flash modelling. The Focusing Lever is located underneath the lens mount and sweeps the focus from 3.3-ft. to infinity in one arc-like movement across the bottom of the camera. The brilliant image on the viewing screen with "Fresnel Lens" provided by the fast, fully coated f 3.2 Rokkor 75mm Viewing Lens provides quick, accurate focusing and composing for better pictures.

Its Rokkor f3.5—75mm 4-element coated Taking Lens is well recognized for critical sharpness and high resolving power, and renders color as perfectly as it does black and white.

Minolta Autocord uses the Seikosha-MX precision shutter for trouble-free, accurate operation, and advances the film automatically with a single back and forth motion of the crank.

HOW TO USE

The Minolta Autocord

Remove the Lens Cap



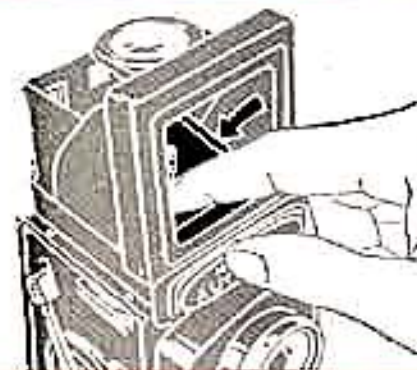
by flipping up the lower section then turning the upper part in a counter-clockwise direction. Always keep the lens cap on when the camera is not in use to protect the lenses against scratches or fingerprints. Never touch the lenses and use a soft camel's hair brush to dust them lightly, or a lens tissue. (Do not use lint cloth, facial cleansing tissues or fingers.)

To raise the Hood



lift the rear edge by its border. The hood will spring up revealing the ground glass focusing and viewing screen.

To focus more accurately



use the magnifier (26). To bring it into position, press the front of the focusing hood where the name "Chiyoko" appears. To remove the magnifier tip it down gently from the back.

To use the Sports Finder



continue pushing the front flap until it snaps into a horizontal position. Then look through the small window (27) in the rear of the hood for a direct view of the accurately framed picture just as it will appear on the film.

To close the Hood

press the button (28) on the rear of the hood to release the center flap if the sports finder is open, then press the magnifier down. The hood will fold automatically when you press back and downward on the front.

1 Sports Finder Flap

2 Focusing Hood

3 Crank Rack

4 Exposure Counter

5 Crank Reversing Button

6 Shutter Speed Lever

7 Synchro M-X Lever

8 Film Winding Crank

9 Depth-of-Field Scale

10 Warning Signal

11 Speed Index

12 Shutter Release Button

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phragm Window

Viewing Lens 15

Iris Diaphragm 16
Lever

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Taking Lens 18

Synchro Terminal 19

Distance Scale 20



The Shutter Speeds

appear in a window (14) on top of the viewing lens, and are selected by moving the lever (6) on the right side of the taking lens rim. The markings are B, 1, 2, 5, 10, and up to 500. B means Bulb, and the shutter will stay open at this setting as long as the shutter release button (12) remains depressed. The numbers stand for 1 second, 1/2, 1/5 and so on through 1/500th second. A cable release or a self-timer can be screwed into the socket of the shutter release button.

Diaphragm Settings

appear in a window (14) on top of the viewing lens. They are commonly referred to as "f" stops and are set by moving the lever (16) on the left side of the taking lens rim. The "f" stop determines the amount of light passing through the lens as well as the area of sharp focus in your picture. Refer to page 7 and 8 for an explanation of how these factors are affected by the "f" stop setting of the lens.

Helicoid (focusing) Lever

When the helicoid lever (13) moves from right to left, the front of the camera moves out and in. This focuses the lens on the subject you are photographing. If you prefer to focus by measuring or estimating the distance between the camera and subject instead of sharpening the image on the ground glass, move the lever until the silver arrow points to the correct distance in feet, in other words, you preset the focus.

If focusing lever is adjusted to red 15 and iris diaphragm lever to red 7, all objects from about 10 to 30 ft. will be in focus for snap shots.

Note—to preset the focus when you are using infrared film, point the red arrow instead of the silver at the desired distance.

(1)



Advancing the Film

Flip the film winding handle out of its holder with a slight outward pressure of the thumb at the top. (Note! Only the handle rises. DO NOT PULL OUTWARD ON THE FILM WINDING ARM.) After each picture is taken advance the film to the next frame (film) by winding the crank as far as it will go then returning it to its position with the handle snapped into its rack (3). Never let the crank turn backward while advancing the film. This causes the film to shift and may spoil one or more pictures.

Synchronizer

The synchronizer panel is at the right of the taking lens. It is marked M F X. In order to synchronize the flash to the shutter with Class M bulbs (#5, Press #25 or larger sizes) set the lever (7) at M. For Class F bulbs (SM and SF) set it at F. If you are using electronic flash, the correct setting is at X.



The Shutter Release Guard

prevents accidental pressure on the trigger. To lock the release turn the outer ring until the dot on it coincides with the one on the inner ring. In this position the shutter can not be released even if the button is pushed unintentionally.



(2)

Loading Film

Note: 620 Film Spools will not fit this camera. Use No. 120 Film only.

1. Pull the top knob (22) on the left side to open the camera.
2. Remove the empty film spool from the upper film slot and put it in the lower. To do this pull and twist the knob (24) right below the opening button. This will cause the knob to stay out so you can easily remove the spool. Put the empty spool in the lower film slot, fitting it into position at the right hand side with the left hand knob (25) to hold it. The left hand knob will stay out if it is pulled and twisted.
3. Put the roll of film in the upper slot, fitting it into the right hand button and holding it in place with the left hand knob (24), which returns to place when twisted.
4. Pull out the film leader and insert it in the longer groove of the empty spool. With the camera back open, wind the film winding crank (8) until the arrows on the film-backing line up exactly with the red dots (30) on both sides of the film rail of the camera. Then close the back of the camera until you hear a click.
5. When the camera back is closed, a mark ∇ appears in the exposure counter (4). Wind the film winding crank until the number ① appears. At this point the crank will move no farther.

Note: When the camera is not loaded the mark ∇ will appear in the exposure counter. If it has not appeared, turn the crank one half turn anti-clockwise and return crank to rack.



③

1. Turn the film winding crank until it stops (about $2\frac{1}{2}$ turns), and the number ① appears in the exposure counter window (4). The number ① may appear before the crank stops turning but continue winding until it stops. Then turn the crank back and snap it into the crank rack (3). The shutter is now cocked (ready to snap open and shut) and the film is wound to the first frame, at this time the warning signal (10) turns to red. (Note: The shutter can not be released until the film winding crank is returned to the crank rack position.)
2. Set the desired shutter and diaphragm opening. These are set by moving the levers on either side of the taking lens rim, and their values appear in separate windows on top of the viewing lens.
3. While viewing the picture on the square focusing glass in the hood, move the helicoid lever at the bottom of the camera back and forth until the image is clear. Use the magnifier to sharpen the focus.
4. Compose the picture you want on the viewer, then release the shutter by pressing gently on the shutter release button on the lower right side of the front of the camera.
5. Turn the film winding crank until it stops, then turn it back in the opposite direction to the crank rack position. No. ② will appear in the exposure counter and you are ready to make your second picture. Repeat 3, 4, and 5 etc. for subsequent pictures.
(Note: If you are taking rapid sequence shots it is not necessary to snap the handle into the crank rack after each exposure but it is a good idea, otherwise, as it prevents the crank from being turned by accident.)
6. After taking 12 pictures, turn the film winding crank until all the film is wound on the bottom spool, (about 4 full turns.) Then turn the crank back in the opposite direction to the crank rack position and open the back of the camera to remove the spool.
7. If you do not expect to use your loaded camera for some time, keep the lens cap on, turn your diaphragm setting to F 22 and, release the shutter. To use the camera again, turn the crank in the reverse direction just once, (see Intentional Double Exposure P 5.) This will cock the shutter without wasting a frame of film.

④

Time Exposure

To make a time exposure (keep the shutter open without continuous pressure on the release button) move the shutter lever until it points to B (bulb): press the button and hold it down while you lock it by making the dot on the outer ring of the release button coincide with the dot on the inner ring.

To close the shutter again, separate the dots from one another and the shutter will close. Never wind the film winding crank while the shutter release button is locked as it will cause trouble.

Double Exposure Prevention

After taking a picture the shutter can not be released again until the film is advanced to the next picture position.

Intentional Double or Multi-Exposure

If you want to make a double or triple exposure on the same frame of film, slide the crank reversing button (5) to the left, turn the crank backwards (counter clockwise) one full revolution and it will stop at the crank rack. The original frame is now in position for a double exposure. To triple expose, simply repeat the operation. You can make as many exposures as you want on one piece of film.

When the shutter cocked, conversion of the speed to $\frac{1}{500}$ sec. from the others may be difficult. In such a case, after releasing the shutter with the lens cap on set the speed to $\frac{1}{500}$ sec. then cock the shutter again by one full backward turn of the crank.

(5)



Composition Lines

There are clear lines drawn on the ground glass on all four sides. These lines help to compose the picture in either a horizontal or vertical shape although the film itself is square. The lines are so arranged that a picture composed within them in either direction will fit the measurements of standard printing papers, that is, $\frac{1}{5}$, $\frac{8}{10}$, etc.

Speed Index and Opening Index

If you use an exposure meter with light value scale, the numbers on the outer silver rim of the taking lens are available for simple and quick adjustment.

1. Read off the light value number of exposure meter.

2. Divide this number in any way you choose between speed index (11) and opening index (17). For instance, if the number of exposure meter is 12, you may divide it into 7 on one side and 5 on the other or 6 and 6, 8 and 4, etc. according to your subject and condition. If you set the diaphragm lever to 3.6, shutter speed lever should be set to proportional position between two numbers such as 6.4, 7.4, 8.4 etc. in order that their total is just the light value number of the meter.

If the shutter speed lever points to a number marked in red, the speed is less than $\frac{1}{25}$ th second and the camera requires support or firm handling.



Relation Between Numbers in windows and Lever Settings:

Iris Diaphragm Side	Opening Index	9	8	7	6	5	4	3.6		
	Diaphragm (f)	22	16	11	8	5.6	4	3.5		
Shutter Side	Speed Index	0	1	2	3	5	6	7	8	9
	Speed in seconds	1	1/2	1/4	1/8	1/30	1/60	1/125	1/250	1/500

(6)



Relative Diaphragm Openings to Shutter Speeds

The Diaphragm Opening of a Lens controls the Volume of Light that reaches the film in a given period of exposure. The Dial Markings indicate this Volume of Light in the following ratio.

f. No.	3.5	4	5.6	8	11	16	22
							
Volumes of light	1.3	1	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{1}{32}$

Each Stop opening indicated on the dial by the numbers 4 to 22 reduces the amount of light passing through the lens by $\frac{1}{2}$, or conversely, opening the lens from one mark to the next from the number 22 to 4 doubles the amount of light passing through the lens, (f 3.5, is $1\frac{1}{3}$ times f4). The numbers are called "f" stops and are indicated on exposure meter scales as f 3.5, f4, f5.6, f8, f11, etc. The speed of a lens is designated by the largest "f" stop on its diaphragm, such as f 3.5.

The shutter controls the amount of light reaching the film by the length of time it remains open, i.e., 1 second, $\frac{1}{2}$ second, $\frac{1}{5}$ second, etc. Now, suppose you have determined by an exposure meter reading or other means that the correct exposure for your film under certain light conditions is $\frac{1}{50}$ second at f8, and you want to use a faster shutter speed because your subject is in motion.

A shutter speed of $\frac{1}{100}$ second cuts the light in half, so you must open the lens one stop to f 5.6, which will allow twice as much light to pass through as before and the amount of exposure remains the same as before. Conversely, if you need to stop down the lens for greater depth-of-field(see explanation of Depth-of-Field next) and you select 16 as the correct stop opening you have reduced the amount of light to $\frac{1}{4}$. Then you must give the film an exposure 4 times as long or $\frac{1}{12}$ second, in this case you select the nearest shutter speed which is $\frac{1}{10}$ second.

Depth-Of-Field

The depth-of-field of a lens is the range of distance within which all objects are in relatively sharp focus when the lens is set for a given distance. This range varies with the diaphragm opening, being greatest when the lens is stopped down and least when it is open full. The range also varies with the distance for which the lens is set being least at close distances and greatest at farther distances up to a point where it takes in everything beyond an intermediate distance to infinity, which is indicated by ∞ on the distance scale. (See explanation of Depth-of -Field Scale below and Depth-of-Field Table on page 9)



Depth - Of - Field Scale

The depth-of-field at any distance can be worked out by this scale. The inner side figures denote the distance and the outer ones on both sides of the arrow mark denote the diaphragm openings. After focusing, turn the inner table right or left until the arrow mark indicates the

object distance shown on the distance scale. Then the pairs of diaphragm figures indicate the near end far limits of sharp focus corresponding with the diaphragm opening chosen.

For instance, focused at 15 feet with the diaphragm opening of f8, the depth of field is from about 12 to 21 feet.

Depth-Of-Field Table

F.No. Feet	3.5	4	5.6	8	11	16	22
3.3	3.21 3.39	3.20 3.40	3.17 3.45	3.11 3.51	3.05 3.60	2.94 3.76	2.83 3.96
3.5	3.40 3.60	3.39 3.62	3.35 3.67	3.29 3.74	3.21 3.84	3.10 4.02	2.97 4.26
4	3.87 4.14	3.86 4.16	3.80 4.22	3.72 4.32	3.63 4.46	3.50 4.70	3.32 5.03
4.5	4.34 4.67	4.32 4.70	4.25 4.78	4.15 4.92	4.03 5.09	3.85 5.42	3.65 5.86
5	4.80 5.22	4.77 5.25	4.69 5.35	4.57 5.52	4.42 5.75	4.20 6.17	3.97 6.76
6	5.71 6.32	5.68 6.36	5.55 6.52	5.38 6.78	5.18 7.12	4.88 7.78	4.56 8.76
7	6.61 7.44	6.56 7.50	6.40 7.73	6.17 8.09	5.91 8.59	5.52 9.57	5.11 11.1
8	7.49 8.56	7.43 8.67	7.22 8.97	6.93 9.46	6.60 10.2	6.11 11.6	5.62 14.9
10	9.22 10.9	9.11 11.1	8.80 11.6	8.37 12.4	7.89 13.6	7.20 16.4	6.52 21.5
15	13.3 17.2	13.1 17.6	12.4 18.9	11.6 21.2	10.7 27.2	9.45 36.4	8.29 78.3
30	23.8 40.5	23.1 42.6	21.2 51.3	18.8 73.7	16.5 162	13.7 ∞	11.4 ∞
∞	115 ∞	100 ∞	71.7 ∞	50.2 ∞	36.5 ∞	25.1 ∞	18.2 ∞

ACCESSORIES for The Minolta Autocord

The following exclusive accessories are available for the Minolta Autocord and are recommended in order to obtain the best results with it.

- | | |
|------------------------------|--|
| 1. Minolta Lens Shade | 5. Close-up Lenses and Parallax correction Kit |
| 2. Minolta Self-timer | 5. Minolta Paradjuster |
| 3. Minolta Filters | 7. Minolta Autopole |
| 4. Minolta-Junior B.C. Flash | 8. Minolta Panorama-Head |

Minolta Lens Shade

The Minolta Lens Shade is square. This shape is better because a round shade sometimes cuts off the outer corners of the negative if it's large enough to cut out stray light effectively. A lens shade is necessary to prevent stray light from hitting the lens and causing light-flare spots or streaks on the photograph. A lens shade is particularly necessary when using flash.



Minolta Self-timer

The Self-timer can be set for any time delay up to about 15 seconds to allow the operator to get into the picture. It is specially designed lest it should cut off a part of negative when attached to the camera.



Minolta Filters



The filter is usually employed to create special effects or to correct the color rendition of certain films. For instance, to accentuate the brightness of a color, you select a filter in the same color range; while to darken a color you use a filter of an opposite color.

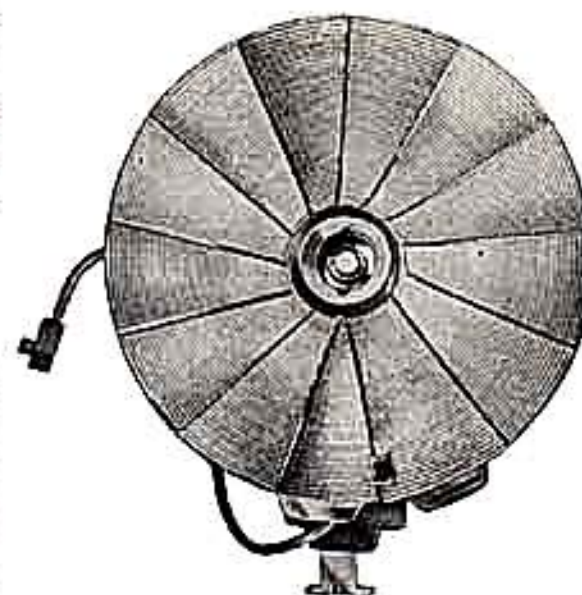
Color of Object	Suggested Filter	
Blue-green	Red	(R family)
Blue	Yellow-red	(O family)
Purple-blue	Yellow	(Y family)
Purple	Yellow-purple	(G family)
Red-purple	Green	(G family)

OPPOSITES

List of Filters and Their Uses

Minolta Filter		Use
UV	Ultra Violet	To cut through haze and correct color film.
Y 44	Very light yellow	For outdoor subjects and distant views generally.
Y 45	Light yellow	To darken light skies so that clouds are accentuated. Also for seascapes, snowscapes and other bright subjects.
Y 46		
Y 47		
Y 48	Medium yellow	Deepens contrast between sky and clouds more than smaller numbered filters.
Y 49	Dark yellow	
Y 50		
O 53	Light yellowish red	For special effects. Red and yellow appear abnormally bright while water looks dull. Called contrast filter.
O 54	Medium yellowish red	
O 55	Dark yellowish red	
R 59	Red	Intensify blue so that distant mountains appear clear. Used for infrared photographs in combination with infrared film. Turns sun into moonlight effect.
R 60	Dark red	
G 0	Yellowish green	Color corrects pauchromatic film so that green becomes lighter and brighter. For foliage, grass etc.

Minolta Junior B. C. Flash



A small pocket-sized unit which operates on the B. C. principle. A 22.5 V dry battery and a condenser (capacitor) can discharge more than 300 flashbulbs without changing the battery. The folding shade consists of 13 fan-shaped blades. The body of the flash gun is plastic and the folded reflector in its vinyl case fits any pocket or purse.

Close-up Lenses and Parallax Correction Kit



The Minolta Autocord can focus only on objects at distances greater than 3.3 feet. For taking close-up pictures, special close-up lenses are necessary. When a twin-lens reflex camera is used at short distances, parallax causes the image seen through the viewing lens to be slightly different from that seen by the taking lens. This is due to the separation between the two lenses and the fact that their axes are parallel. Parallax is quite apparent when the camera is used at close distances, therefore, a special pair of close-up lenses plus a parallax correction lens is needed to correct this effect. Two sets of close-up lenses are available, and each contains 2 convex lenses plus a prismatic lens. Set No. 1 enables you to take close-ups at distances between 16 and 26 inches. Set No. 2 permits close-ups to be taken at distances between 14 and 18 inches.

The Minolta PARADJUSTER is an indispensable accessory to eliminate the effects of parallax in close-up photography for twin lens reflex cameras. It enables taking an identical photo as appearing on the focusing screen, because the Paradjuster lifts the taking lens to the position of the viewing lens used to focus and frame the picture.

The Paradjuster is best used together with a pair of identical close-up lenses, one over the viewing lens and the other over the taking lens. Always must be mounted on the tripod when used.

The Advantages of the Paradjuster are:

1. The picture that is taken comes into the same position as the one that was focused on the ground glass.
2. No unexpected reflections will occur. An identical picture to the one seen in the focusing screen will be taken as the cubic delineation in the upper and lower sides of the objects will be the same as seen on the ground glass.
3. Pictures are free from the distortion that is sometimes produced by prismatic compensation of parallax with close-up lenses.
4. No focusing slip-off can occur which may be caused by prismatic adjusting in super close-up shooting.
5. Two pairs of close-up lenses can be used together to permit even closer work than is possible with a pair.



Minolta Paradjuster

The Minolta Autopole considerably extends the scope of the Minolta Autocord. Since reflections from non-metallic surfaces such as water, glass, etc., or light from a blue sky are conditions of polarized light, the use of a polarizing filter will serve to subdue or eliminate such disturbing reflections, and also permit controlling the tone of the blue sky properly in both black and white or color film.

The desired effects can be observed and adjusted by turning the filter wheel.



Applicable Range

- (1) For minimizing or eliminating reflections from non-metallic surfaces:
 - (A) When photographing objects with reflected light such as porcelain, polished or painted surfaces, will bring out the detail.
 - (b) When photographing objects through glass or water, the reflecting surfaces become transparent, therefore glass encased or display window also underwater objects become clearer.
- (2) For controlling the tone of blue sky in any picture with such background: The blue sky is darkened by absorption of the polarized light it contains. Especially useful for regulation of colored reflections and control of sky tone in color pictures.

Exposure increase approximately
 $3\times = \text{light value} - 1.5$



Minolta panorama-Head



Panorama Pictures

Special landscape picture of distant views, which include a large portion of the horizon, are made possible with the Panorama-Head when used in conjunction with a tripod. It is provided with a spirit level and divided into click-stop controlled sections for 12 exposures which, together, give a complete panoramic view of 360°.

Either a few succeeding exposures can be made for normal panorama purposes or up to twelve can be taken in order to cover the complete horizon. Lateral overlapping of individual pictures ensures perfect matching.



Since the establishment of Chiyoda Kogaku Seiko K. K. in 1927, more than 30 different models of cameras have been put on the market. They have been so successful in meeting the demands of the public that today the Minolta is the favorite with camera fans the world over.

You may recognize your favorite camera among the following names of cameras produced in the quarter century since our founding: Nifcurette, Nifcoklapp, Nifcadox, Nifcasport, Happy, Minolta Baby, Minolta Vest, Minolta Six, Minolta Semi, Minolta Press, Auto Press Minolta, Auto Semi Minolta, Minoltaflex, Automat, etc. Since 1945 an improved model of the Minolta Semi, Type-P has made its debut while the production of the Minolta Memo has been suspended. The improved model Minolta-35 Model II, available with F2 or F2.8 lens is the latest design of its kind. Similarly the previous Minoltaflex II B has been superseded by the new Minolta-flex III, and at the same time the production of its sister model the "Minolta-cord", and the "Minolta-Autocord" was begun. This line now culminates in the Minolta Autocord "L". A 16 mm sub-miniature camera, the Minolta 16, and 35mm cameras, the Minolta A, the Minolta "A-2", and the Minolta Super "A" are currently in production.

A distinctive feature of Minolta Cameras is the fact that the production of the entire camera from formulation of the optical glass, its melting crystalizing, grinding, polishing and final assembly of

THE STORY OF MINOLTA CAMERAS

the lenses, production of the shutters and camera bodies and assembly and testing of completed product, are all carried out within our own respective factories. At the same time, however, in view of providing for further expansion of our own as well as the general camera industry throughout Japan, we have adopted the use of the noted Seikosha-MX Shutter in our new Minolta Autocord and Minolta Autocord "L".

Osaka Head Office:

3-chome, Kitakyuhoji-machi, Higashi-ku, OSAKA.

Tokyo Branch Office:

6-chome, Ginzahigashi, Chuo-ku, TOKYO.

Head Office Factory

Minolta Autocord, Minolta Autocord "L" and Minolta 16 are made in this factory.

Itami Factory:

Optical Glass Production.

Skai Factory:

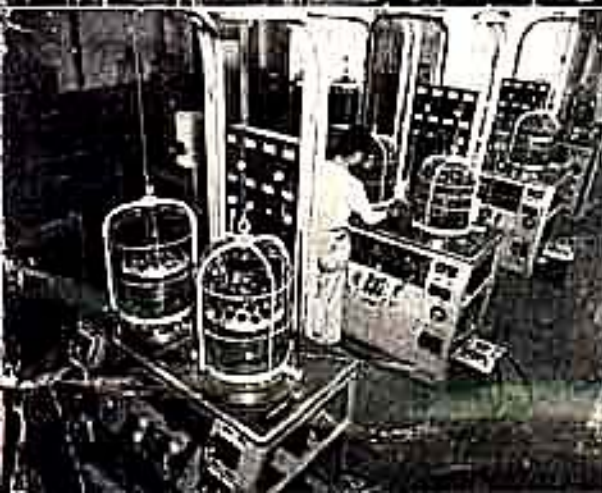
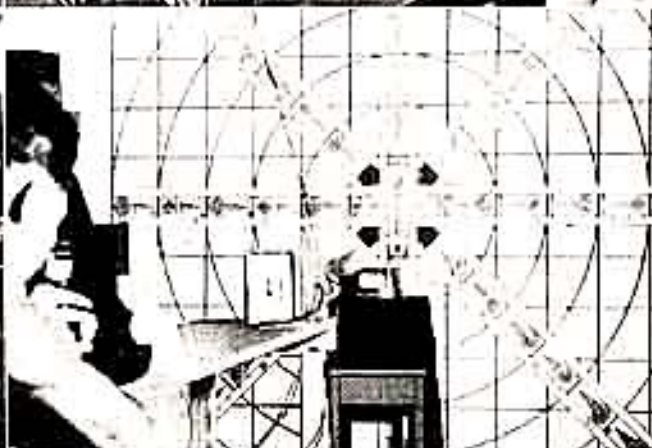
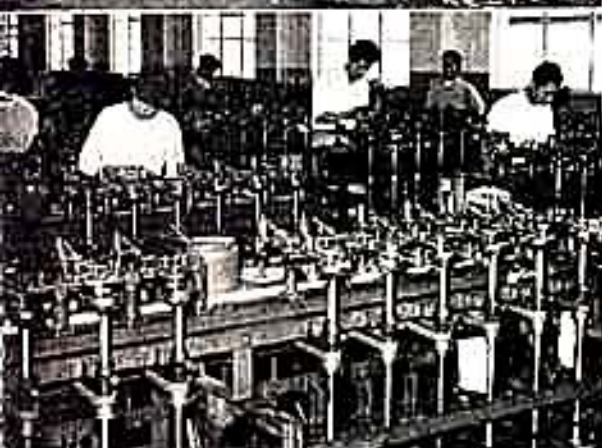
Polishing and Finishing of Lenses to be used in various Minolta Cameras is done here. In addition Lenses and Prisms for various overseas customers are being made in this factory. Also the entire Minolta-35, and the Minolta Super "A" are produced here.

Toyokawa Factory:

The home of the Minolta-cord the Minolta "A"; and the Minolta "A-2".

Nishinomiya Research Laboratories:

Research in optical glass formulation and the devising and testing of new lenses is done here.



Magnifier 26

Direct Viewer 27

Flap Release Button 28

Counter Release Pin 29

Film Start Mark 30

Anti-Reflection Baffle 31

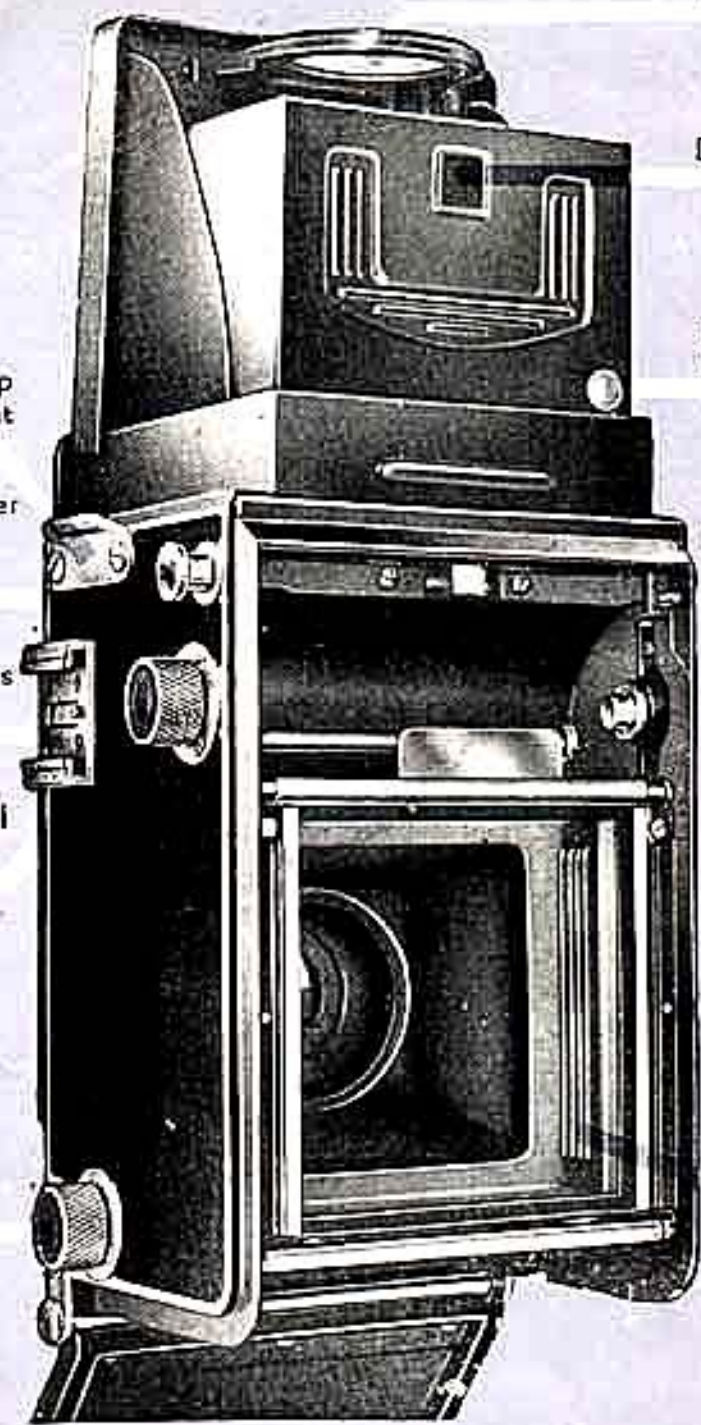
21 Neck Strap Attachment

22 Back Cover Opening Knob

23 Accessories Shoe

24 Film Spool Knob

25 Take-up Spool Knob



AVERAGE EXPOSURE TABLE

Season : Iris Stop :	Spring or Autumn. F8	Weather : Film Used :	Bright Sun, ASA 50			
SUBJECT	TIME 6-6	7-5	8-4	9-3	10-2	11-1
Sea Shores, High Mountain	1/75	1/100	1/200	1/500	1/1000	1/1250
Distant Landscape	1/35	1/50	1/100	1/200	1/300	1/500
Ordinary Landscape	1/25	1/35	1/50	1/100	1/200	1/300
Bright Street Scene	1/5	1/10	1/25	1/50	1/100	1/150
Near Landscape	1/2	1/5	1/10	1/25	1/50	1/75
Portrait Under Direct Sun	1/2	1/5	1/10	1/25	1/50	1/75
Dark Landscape, Shaded Portrait	1	1/2	1/5	1/10	1/25	1/35
Bright Inner Room, Portrait by Window	3	2	1	1/2	1/5	1/10

REMARKS : Left hand figures in the heading of the time columns denote morning, while the right hand ones mean afternoon.
Times of exposure, other than mentioned above, should be briefly as follows :-
Double the above under bright clouds and in winter.
Half the above in summer.
Exposure can also be regulated by changing the Iris Diaphragm stops according to the following ratio :
"F" Stop: 3.5 4 5.6 (8) 11 16 22
Increase in Exposure, Ratio: 5 4 2 1 1/2 1/4 1/8 times

EMULSION SPEED VALUES

SCHEINER	22	23	26	27	29	32	35	38	41	44
DIN	11/10	12/10	15/10	18/10	18/10	21/10	24/10	27/10	30/10	33/10
ASA	10	12	25	32	50	100	200	400	800	1600



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