FILM LOADING AND UNLOADING

A $35\,\mathrm{mm}$ film in daylight cartridge, or dark-room loading films packed in cartridges, and taking 20 or $36\,\mathrm{exposures}$ of $24\times36\,\mathrm{mm}$ size pictures can be used. Loading or unloading of films should not be done in direct sunlight or strong artificial illumination, but a well shaded or dark location should be used. The camera should never be opened until the film loaded in the camera has been completely exposed and rewound back into the cartridge.

LOADING

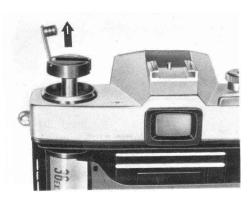
 Shift the back cover safety catch (27) from L (for lock) to 0 (for open), depress the back cover lock (28) and the back cover will spring open. (The arrows with numerals indicate the direction and sequence of actions.)

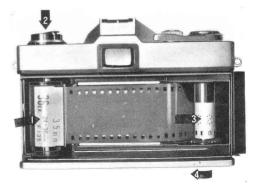
- 2. After fully opening the back cover, pull up the rewinding knob (13).
- 3. Insert the unexposed film cartridge into the empty chamber, and push the re-



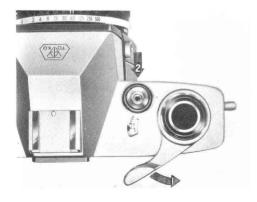
winding knob back into position; if the film cartridge shaft (29) does not fit into place, turn the knob until the shaft engages the film cartridge.

Next, draw out the end of the film, from the cartridge, and insert it, as deep as possible, into the slit of the film take-up spool (32) and draw taut by turning the film take-up spool serrated flange (31) clockwise. (If the slit is not visible, turn the take-up spool until it appears.) Check to see whether the film perforations correctly engage the film transport sprocket (30) teeth and then carefully close the back cover. Return the safety catch to L.





4. Slowly turn the rewinding knob in the direction of the arrow engraved on it, as this will tension the film inside the cartridge. Now with each speed-lever action the rewinding knob will rotate contrary to the arrow engraved on it showing that the film is advancing properly. The automatic exposure counter will be at S (for start) at this point.



Push the speed-lever (4) with the thumb a full 180 degrees and release, and the film will be advanced one frame and the exposure counter will also be at the next dot. Press the shutter release button (6). Repeat once more to bring the film into the appropriate position for taking the first exposure.

Note

The film winding speed-lever does not return to its original storage position. The slight gap is to facilitate the next winding action. (The lever can always be pushed back to its storage position when required.)

EXPOSURE COUNTER

The exposure counter (3) is fully automatic and always returns to S (for start) whenever the back cover is opened. The counter then

moves up with each speed-lever action until it reaches 36.

FILM SPEED RING

Immediate after loading set the ASA index number of the film to the film speed ring (22). The film speed ring has ASA index numbers 10 to 1250 (the final red dot on the ring) to take into account most of the color films and black-and-white films used in general shooting.

When in doubt as to the film speed of the film being used, see the instruction sheet in the film package which will give the required information, and then press and revolve the film speed ring until the appropriate number is set to the index (23). However, since film sensitivity differs from maker to maker and because various systems are used to indicate the film speed, the following table should be

used to find the relationship of the various systems.

ASA	10	16	32	50	100	160	200	400	800	1250
WES	8	12	24	40	80	125	160	320	640	1000
DIN	11	13	16	18	21	23	24	27	30	32

UNLOADING

When the 20th or 36th exposure has been taken, depending on the film loaded in the camera, do not advance the film any more as it will tear or pull out of the cartridge. Rewind the exposed film back into the cartridge. (If the film is torn or pulled out of its cartridge by force, unload the film in the darkroom.)

1. To rewind the film, depress and turn the rewind button (25) in the base of the

camera. Unfold the rapid rewind crank (12), from its folded position on the rewinding knob, and turn in the direction of the arrow engraved on it. Rewind until there is no longer any resistance, which will be an indication of the film being completely rewound, and stop.

Open the back cover, as noted in the section on "Loading", pull up the rewinding knob and lift out the film cartridge.

FLASH PHOTOGRAPHY

When shooting with insufficient illumination, or against the sun, or when additional lighting must be used to get a faster shutter speed, flood or flash lighting can be used as the main or auxiliary illumination source.

With floods, exposures can be taken in the usual manner. This is not the case with flash. The shutter must be synchronized to open fully at the most opportune instant for the particular flash medium being used, because the various flash bulbs and electronic flash units all reach their peak effectivity at different instants from the time they are activated. In the TOPCON, the latter problem is solved by having the speed-synchronized shutter switched to different settings depending upon what type flash is used.



FLASH ILLUMINATION

Flash bulbs are classified according to their firing delay time, or the time it takes from contact until peak brightness is reached.

The most popular bulbs for use with the TOP-CON, Class M, have a delay of $16 \sim 18$ milliseconds (one millisecond is 1/1000 seconds). This class bulb has the the greatest light intensity and is used when maximum output is required.

Another bulb that can be used is the Class F bulb, which has a delay of $4\sim6$ milliseconds, a low light output but fast stopping speed.

Electronic flash units have no firing delay at all.

SYNCHRO-SETTING

The camera has two settings, M and X, which fully synchronize the time-lag of the shutter,

i.e., the time required for the shutter to reach fullest blade opening after contact has been made, with the delay of the various flash illuminations.

M-setting

The shutter closes the circuit and shutter blades start opening after a $16 \sim 18$ millisecond time-lag so that the blades are at their fullest opening only when peak intensity is reached. This setting can be used with Class M bulbs at all speeds, up to 1/500. Class F bulbs must be used at 1/30 and slower.

X-setting

The shutter closes the circuit only when the shutter blades are fully opened. This setting is made for electronic flash units which are synchronized at all speeds, up to 1/500. Class M bulbs if used at this setting must be

used at 1/30 or slower, and Class F bulbs at 1/60 or slower.

The synchro-settings are adjusted by push-adjusting the M-X-V switch (20); when not in use, place the switch at X-setting.

Flash units, including electronic flash units, can be used with a suitable bracket fixed to the camera tripod screw (26), but lightweight units can be used on the top accessory shoe (2). Simply plug the cable (from the flash unit) into the flash socket (21), which will connect the flash unit to the camera for flash photography.

FLASH EXPOSURE

In flash photography, the built-in exposure meter no longer gives a correct readings, and the exposure must be decided by other means. Since the brightness of the flash illumination decreases with the square of the distance, an object six feet away will receive only one-fourth the light of an object at a distance of three feet.

Thus, in most instances, the distance from flash to object must be carefully considered when selecting a suitable aperture for the shot.

In flash photography, the correct aperture is obtained by dividing the guide number (a exposure guide number for the flash bulb in use, based on the shutter speed and film speed being used, and found in instruction sheets furnished with the bulb) by the distance. For instance, if the guide number is 120 (for distances in feet) and the distance 15 feet, the aperture will be f/8.

On the other hand, if the aperture and distance have already been decided before-

hand, the guide number for the flash bulb that should be used can be obtained by multiplying the aperture by the distance. But should the distance be required for a pre-determined aperture and flash bulb, this may be obtained by dividing the guide number by the aperture.

The guide numbers are based on the use of an efficient reflector in a room of average brightness.

A table showing suitable shutter speeds and required settings for different types of flash follows.

SUITABLE SHUTTER SPEEDS FOR FLASH BULBS

Class	14.1	-	Sett	Setting		
LIGSS	Make	Туре	X	М		
	General Electric	SM	1 1/50	1 1/05		
r	Westinghouse Sylvania	SF	1~1/50	1 ~ 1/25		
	0	\$2	1~1/18	1~1/500		
	Osram	S0, S1		1~1/500		
	Philips	PF 14/25/59	1~1/25			
	General Electric Westinghouse	No. 5/11/12	170 1/25	179 1/300		
Phili	Sylvania	No. 0/25-40				
	Philips	PF 110				
S	General Electric	No. 50	1~1/10	$1 \sim 1/50$		
	Westinghouse	140. 50				
	Sylvania	No. 3				
Elect	ronic Flash		1~1/500			

FLASH TIPS

For fuller enjoyment of flash photography, follow the simple tips listed below:—

- Use fresh batteries. Weak batteries will not produce the required illumination when it is needed. Capacitor flash guns are more consistent, since ignition is less dependent on battery power.
- Use proper flash bulbs. Blue coated flash bulbs, as well as electronic flash units, are for use with daylight color film.
- To save film, remember to clean all contact points of the battery and bulbs.
 Don't kink the connecting cord to avoid the danger of short circuit.
- 4. When using flash with weak room light,

- expose strictly according to the main flash light and do not take room light into consideration.
- 5. For bounce flash, utilizing a white light reflecting ceiling or wall, open the aperture two or three stops to take into consideration the extra flash-to-subject distance and consequent reduced light volume on the subject.
- 6. For multiple flash shots, using additional flash units, ignore the extra light if used only as background lighting and base exposure on main flash light only. However, if more than one flash bulb is used to light the same area, multiply the guide number by the square of the number of flash bulbs.
- Use flash as a "fill-in" outdoors, for eliminating shadows or in against-the-sun

shots but keep the flash fill-in at a lower intensity than the main light source.

As a protective measure against accidental bulb explosion, cover the flash unit with a transparent plastic bag.

USE OF TOPCON ACCESSORIES

To increase the practical application of the camera to various phases of photography, to bring greater enjoyment of picture-taking to all users and to complete the system of photography built around the TOPCON, the following TOPCON accessories are available.

TOPCON FILTERS

TOPCON filters should be used for obtaining faithful tonal renditions or for producing special effects to highlight or dramatize pictures. Filters for black-and-white film are used for separating color tones which cannot be truthfully rendered as seen by the human eye. For example, yellow seems to



be ten times brighter than blue to the human eye but, in black-and-white photography, blue registers a brightness only four-fifths that of yellow. Filters control these different tones.

In color photography, however, filters are used for balancing light not suitable for the film located in the camera or to correct color deficiency in the illumination.

Since filters usually cut off some part of the light that enters the lens, the exposure must be increased to compensate for the difference. The additional exposure increase, or ratio, is called the filter factor. Most outdoor shots should be taken with a filter, especially shots of the sky, with or without clouds.

The UV TOPCOR standard lens contains a coating which is the equivalent of an Ultra Violet filter. It will give much crisper black and white, and truer color shots.

Filters for the standard lens are screwed into the front mount of the lens. On the other hand, larger 43 mm filters are supplied for both wide-angle and telephoto auxiliary lenses which are screwed into the back filter mount.

The following tables show the color, effect and filter factor of several filters for use with the camera.

FILTER FACTORS FOR BLACK-AND-WHITE FILM

				Filter Factor					
Filter	Color	Use	Pan. B		Pan. C				
			Day.	Tung.	Day.	Tung.			
Υ1	Light Yellow	Suitable for all outdoor work, landscapes, snow scenes and particularly effective for accentuating clouds on a blue sky.	1	1	1	1			
Y2	Medium Yellow	Gives more brilliance to spring and autumn foliage. Renders yellow and green lighter and blue darker.	1.5	1	1.5	1			
O2	Medium Orange	A special effect filter suitable for depicting heavy clouds against dark sky and bringing out details in distant views by reducing mist. Renders yellow and red lighter, and blue darker; subdues skin blemishes in outdoor portraits.	3	2	3.5	3			
R2	Medium Red	Greater contrast than Y2 or O2 filters, for dramatic cloud effect against black sky. For dark wood furnitures by artificial light. Use with infra-red film for special effects.	6	5	6	5			

Ref: Pan. B.....SUPER XX, PLUS X, PANATOMIC X, MICLOFILM (KODAK), ULTRA-SPEED, SUPREME (ANSCO), NEOPAN S & SS (FUJI)
Pan. C.....TRI-X, PANCHROME, ORTHO X (KODAK)

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FILTER FACTORS FOR DAYLIGHT COLOR FILM

Filter	Alteration in Color Temp.	Use	Filter Factor
CLOUDY	7500°K→6000°K	For use on cloudy days as it lowers the color temperature and absorbs the bluish colors, giving overall color balance and saving the picture from being excessively blue.	1.2
MOR. & EVE.	5000°K → 6000°K	For use in the morning and evening hours when the picture will be excessively reddish. Raises color temperature and absorbs reddish colors.	1.6
FLASH	3800°K→6000°K	Use with clear flash bulbs not suited for daylight color film. Raises color temperature and gives correct color balance of otherwise excessively reddish picture.	2.4
FLOOD	3200°K→6000°K	Used to raise the low color temperature of flood lamps and absorbs reddish colors.	3.2
F TYPE	6000°K→4000°K	For use with Type F film when exposed for daylight. It lowers the daylight temperature to flash type film temperature and absorbs bluish colors.	2.9

Ref: 1. Daylight Films are Kodachrome, Daylight; Kodacolor, Daylight; Ektachrome, Daylight; Ansco Color, Daylight; Agfa Color, Daylight; Gevaert Color, Daylight; Fuji Color.

^{2.} Type F films are Ektachrome, Type F; Kodachrome Type F; Anscochrome Flash Type.

TOPCON LENS HOODS

The lens hood is an important accessory for obtaining better pictures in all shots, but especially valuable for against-the-light and artificial illumination shots. The simple screwin lens hood will eliminate any stray light which might otherwise effect the brilliance and clarity of the picture. At the same time, it protects the lens surface from rain or snow which would cause image distortion.

There are exclusive lens hoods for the standard lens, as well as the auxiliary wide-angle



and telephoto lenses. The angle of view differs with each focal length and the wrong hood could cause vignetting.

TOPCON CLOSE-UP LENSES

For shooting at closer subject-to-camera distances than possible with the unassissted lens, two close-up lenses are available. They can be screwed into the front of the standard lens without any change in single lens view-focusing advantage. The No. 1 close-up lens covers the focusing distance 85 to 45 cm, No. 2 the distance 50 to 35 cm and both lens combined can cover the minimum focusing distances 35 to 28 cm.





TOPCON MICROSCOPE ADAPTER

Using this simple adapter between the microscope and camera makes possible a greatly simplified method of photomicrography without losing the advantage of view-focusing through the lens.

TOPCOR AUXILIARY LENSES

For shooting with a wider field of view, or for taking shots of distant objects, two auxiliary lenses are available. They can be screwed into the filter mount of the standard lens and convert it to a wide-angle or telephoto lens.

a. Wide-angle

The standard lens is converted to a 35 mm wide-angle lens covering a field of view of 64 degrees. From the same camera position as the standard optic, the field of view will be



wider, the image will be more distant and smaller and depth of field will be much greater. This is useful for snap-shooting, architectural, interior shots, etc.

b. Telephoto

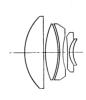
The 48 mm standard lens becomes a 80 mm telephoto lens, with a 31 degree field of view. It has less depth of field, a smaller field of view and shows a smaller picture with a larger image. It is highly suitable for shooting distant objects which cannot be approached close enough to isolate and emphasize. It is also an excellent portrait lens as it has excellent perspective prosperties.

Wide-angle





Telephoto





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DEPTH OF FIELD TABLE (distances in feet)

Topcor F/4 80 mm aux. lens

 $1/30 \, mm$

Aperture Distance	4.0	5.6	8.0	11.0	16.0	22.0
2.5	2.53~ 2.47	2.55~ 2.45	2.57~ 2.43	2.60~ 2.41	2.65~ 2.37	2.71~ 2.33
3.0	3.05~ 2.95	3.07~ 2.93	3.11~ 2.90	3.15~ 2.87	3.22~ 2.81	3.32~ 2.74
3.5	3.57~ 3.43	3.60~ 3.40	3.65~ 3.36	3.71~ 3.31	3.82~ 3.24	3.95~ 3.15
4.0	4.10~ 3.91	4.14~ 3.87	4.20~ 3.82	4.28~ 3.75	4.43~ 3.65	4.62~ 3.54
5.0	5.16~ 4.85	5.22~ 4.80	5.33~ 4.71	5.46~ 4.61	5.71~ 4.46	6.03~ 4.29
7.0	7.32~ 6.71	7.46~ 6.60	7.68~ 6.44	7.97~ 6.25	8.51~ 5.96	9.27~ 5.65
10.0	10.7 ~ 9.40	11.0 ~ 9.18	11.5 ~ 8.87	12.1 ~ 8.52	13.5 ~ 7.98	15.5 ~ 7.43
15.0	16.6 ~13.7	17.4 ~13.2	18.6 ~12.6	20.5 ~11.9	24.6 ~10.8	32.6 ~ 9.83
ω	∞ ~168.6	∞ ~120.7	∞ ~84.3	∞ ~61.4	∞ ~42.3	∞ ~30.8

DEPTH OF FIELD TABLE (distances in feet)

Topcor F/4 35 mm aux. lens

 $1/30 \, mm$

Aperture Distance	4.0	5.6	8.0	11.0	16.0	22.0
2.5	2.67~ 2.36	2.74~ 2.30	2.86~ 2.23	3.03~ 2.15	3.36~2.02	3.89~1.89
3.0	3.25~ 2.79	3.37~ 2.71	3.56~ 2.61	3.84~ 2.49	4.38~2.32	5.43~2.14
3.5	3.86~ 3.21	4.03~ 3.10	4.32~ 2.96	4.74~ 2.80	5.70~2.58	7.58~2.36
4.0	4.49~ 3.61	4.73~ 3.48	5.13~ 3.30	5.76~ 3.10	7.28~2.82	10.8 ~2.55
5.0	5.82~ 4.39	6.23~ 4.19	6.99~ 3.93	8.25~ 3.64	11.9 ~3.25	26.3 ~2.89
7.0	8.79~ 5.83	9.81~ 5.47	11.9 ~ 5.01	16.3 ~ 4.54	43.8 ~3.94	∞ ~3.41
10.0	14.3 ~ 7.74	17.2 ~ 7.10	25.2 ~ 6.33	60.6 ~ 5.58	∞ ~4.68	∞ ~3.93
15.0	27.6 ~10.4	41.8 ~ 9.24	190.8 ~ 7.95	∞ ~ 6.79	∞ ~5.48	∞ ~4.47
∞	∞ ~28.0	∞ ~20.0	∞ ~14.1	∞ ~10.4	∞ ~7.22	∞ ~5.35

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DEPTH OF FIELD TABLE (distances in meter)

Topcor F/4 80 mm aux. lens

1/30 mm

Aperture Distance	4.0	5.6	8.0	11.0	16.0	22.0
2.0	2.09~ 1.92	2.12~ 1.89	2.18~ 1.85	2.26~ 1.80	2.40~ 1.72	2.59~1.64
3.0	3.20~ 2.82	3.29~ 2.76	3.43~ 2.67	3.63~ 2.56	4.02~ 2.40	4.61 ~ 2.24
5.0	5.60~ 4.52	5.88~ 4.36	6.36~ 4.13	7.08~ 3.88	8.75~ 3.52	12.2 ~3.17
10.0	12.7 ~ 8.24	14.3 ~ 7.70	17.6 ~ 7.01	24.6 ~ 6.31	7.48~ 5.41	∞ ~4.62
20.0	35.2 ~14.0	50.7 ~12.5	150.0 ~10.8	∞ ~ 9.18	∞ ~ 7.39	∞ ~5.99
∞	∞ ~51.4	∞ ~36.8	∞ ~25.7	∞ ~18.7	∞ ~12.9	∞ ~9.4

DEPTH OF FIELD TABLE (distances in meter)

Topcor F/4 35 mm aux. lens

 $1/30 \, mm$

Aperture Distance	4.0	5.6	8.0	11.0	16.0	22.0
0.5	0.52~0.48	0.53~0.48	0.54~0.48	0.55~0.46	0.58~0.44	0.63~0.42
0.8	0.86~0.75	0.89~0.73	0.92~0.71	0.98~0.68	1.10~0.64	1.29~0.60
1.0	1.09~0.92	1.14~0.89	1.21~0.86	1.32~0.81	1.56~0.75	1.99~0.69
1.5	1.74 ~ 1.32	1.86~1.26	2.08~1.18	2.45~1.10	3.49~0.98	7.33~0.87
2.0	2.47 ~ 1.69	2.73~1.59	3.25~1.46	4.27~1.33	9.21~1.16	∞ ~1.01
3.0	4.25~2.33	5.11~2.14	7.37~1.91	16.8 ~1.69	∞ ~1.42	∞ ~1.19
5.0	10.0 ~3.35	16.9 ~2.97	∞ ~2.54	∞ ~2.15	∞ ~1.72	∞ ~1.39
10.0	∞ ~5.00	∞ ~4.18	∞ ~3.36	∞ ~2.70	∞ ~2.05	∞ ~1.60
∞	∞ ~8.52	∞ ~6.11	∞ ~4.31	∞ ~3.16	∞ ~2.20	∞ ~1.63







STORAGE AND CARE

 The TOPCON camera, TOPCOR auxiliary lenses and TOPCON accessories should be stored in a dry but not windy location, where they will not be subject to extremely high temperature or excessive moisture. They should not be stored in closed containers for long periods.

During long rainy periods, however, any piece of photographic equipment should be taken out of its case, wrapped in soft, dry cotton cloth and stored in a tin-lined container preferably with moisture-absorbent.

Do not store the camera with its shutter tensioned because the mechanism will be strained. Be sure to return the distance focusing lever to infinity and cover the lens, when picture-taking is finished, as this will help minimize damage even if the camera is dropped.

3. Protect the camera and lenses against dust, sand and strong sunlight when used outdoors. Leave it in its closed leather case, when shooting at the seashore or on a rainy day, and open only for the actual shot. Wipe carefully after such shooting sessions as rainwater and seawater will leave spots and become rusty unless taken care of immediately.

If the camera does become rusty, however, immediately clean with a soft brush, remove the spots with a soft cotton cloth moistened in ether, or a mixture of ether and alcohol, and, finally, carefully wipe once more with a soft cloth. If the camera is dropped in the ocean, send it out for repairs at once. If this is not possible, wash with clean water, lubricate with any good quality oil and send out for repair at the first possible chance.

4. Do not clean lens, mirror or ground glass indiscriminately. Limit cleaning to brushing with a soft brush if possible. If that is not sufficient, wrap a piece of clean well-washed cotton cloth around a rod, slightly moistening the tip with ether, or the mixture of ether and alcohol, and wipe gently from the center of the lens in ever-widening circles.

The cloth should be so lightly moistened that it is dried almost immediately upon wiping. Do not rub the lens surface, nor wipe without first dusting, as the lens surface will be damaged. Do not touch the mirror surface.

PARTICULARS CONCERNING YOUR TOPCON

Body Serial No. 43/5/52
TOPCOR Auxiliary Lensee
Type 80 mm F4
Serial No. 283689
Туре
Serial No.
Insurance Policy No
Renewal Date