

R-10



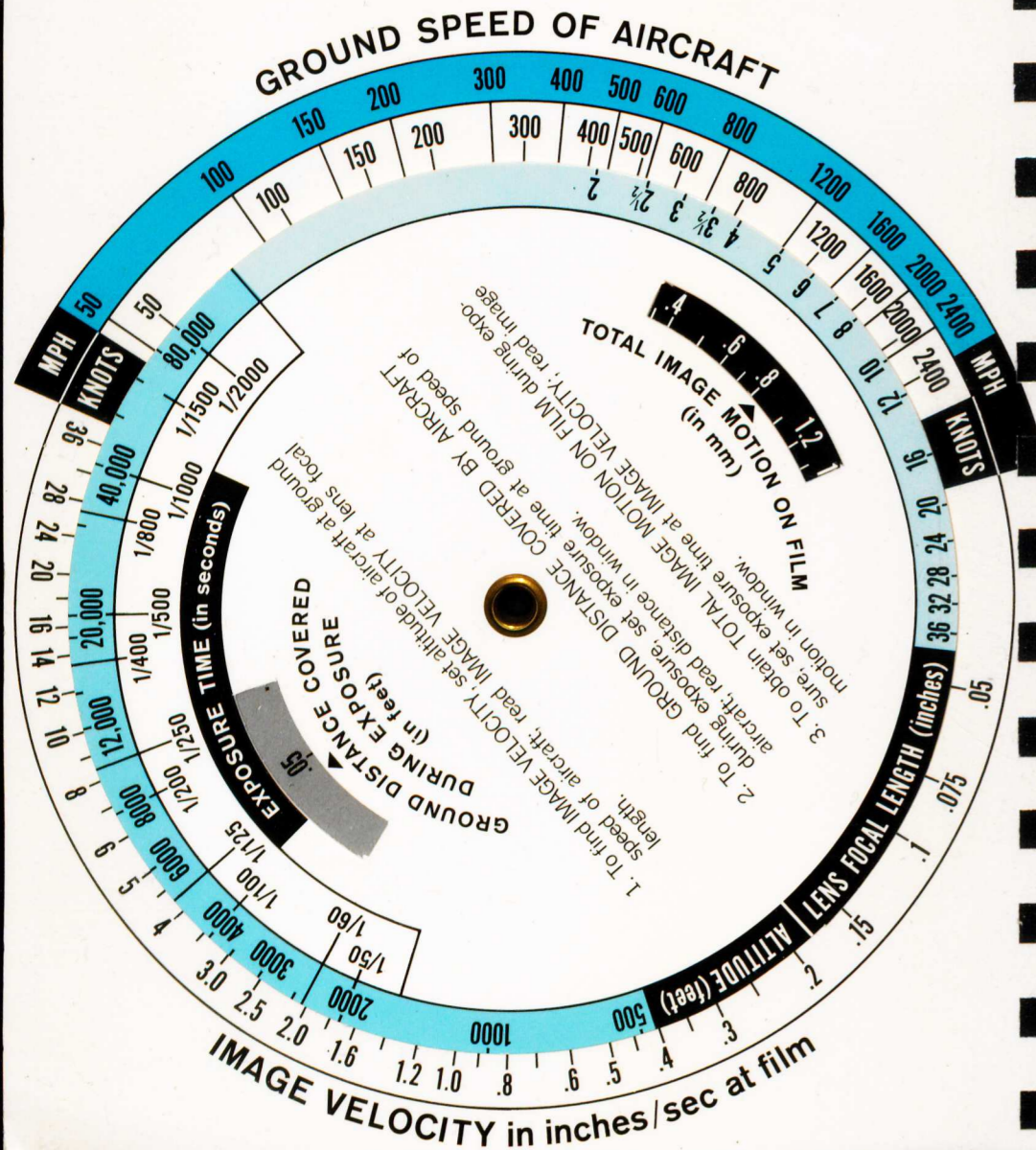
\$4.00

KODAK  
**AERIAL EXPOSURE
COMPUTER**

*Based on Aerial Film Speed and designed for use with
Kodak black-and-white and color aerial films.*

TIME-MOTION DIAL

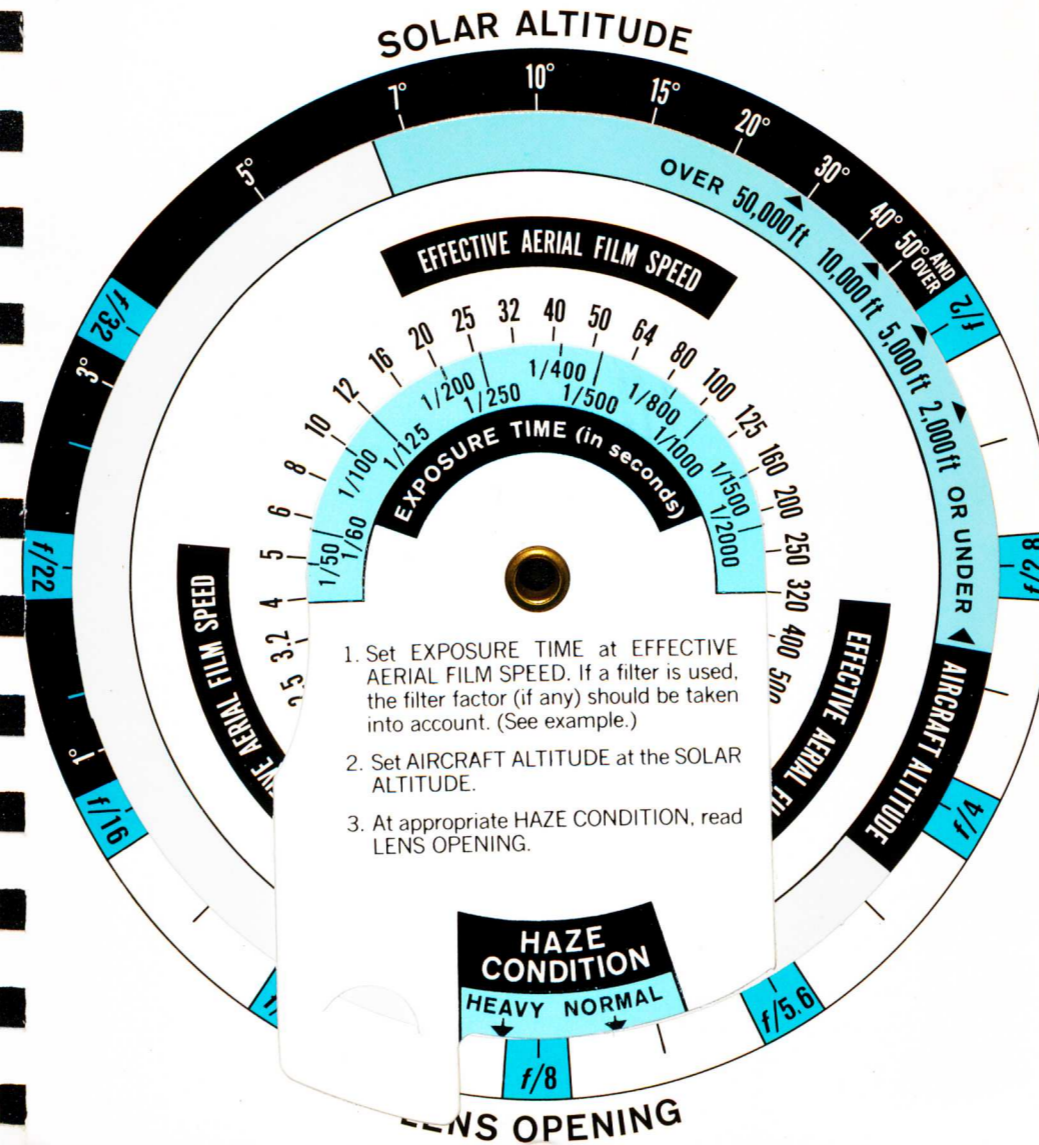
Subject matter and end use of an aerial photograph dictate image-motion tolerance, or the amount of blur acceptable in a negative. The Time-Motion Dial is useful in determining image motion during exposure and in selecting a tolerable exposure time for various combinations of aircraft speed, altitude, and focal length of lens available.



EXPOSURE DIAL

The **KODAK Aerial Exposure Computer** will usually give an exposure within the film-exposure latitude, presuming that lenses of average transmission will be used and that the Effective Aerial Film Speed used will be that for the film-process combination selected. Proper exposure depends, to some extent, on the photographer's judgment regarding haze condition and amount of tolerable image motion. With extremely bright or dark subjects, some exposure adjustment may be necessary.

The characteristics of aerial scenes differ markedly from those of ordinary pictorial scenes; different film-speed criteria are used to relate aerial-scene characteristics to practical exposure recommendations. Effective Aerial Film Speeds (not to be confused with conventional film speeds which are designed for pictorial photography) for black-and-white negative aerial films are based on 3/2E, where E is the exposure (in meter-candle-seconds) at the point on the characteristic curve where the density is 0.3 above base plus fog density.



LATITUDE ZONE MAP



DATE TABLE

A	↖	Dec. 21	↗	A
B		Dec. 5	Jan. 5	B
C		Nov. 20	Jan. 20	C
D	↑	Nov. 4	Feb. 5	↓
E		Oct. 20	Feb. 20	E
F		Oct. 5	Mar. 7	F
G		Sept. 20	Mar. 22	G
H		Sept. 5	Apr. 6	H
I	↑	Aug. 20	Apr. 22	↓
J		Aug. 5	May 7	J
K		July 21	May 22	K
L		July 6	June 6	L
M	↖	June 21	↗	M

SOLAR ALTITUDE TABLES

LATITUDE 0°		LATITUDE 10°		LATITUDE 20°		
NORTH	SOUTH	NORTH	SOUTH	NORTH	SOUTH	
A	7 14 20 27 34 41 47	M	A	5 11 17 23 28 33 38 41 44	M	A
B	7 14 20 27 34 41 48	L	B	5 12 18 23 28 34 39 42 45	L	B
C	7 14 21 28 35 42 49	K	C	6 13 19 24 30 35 41 44 48	K	C
D	7 14 21 29 36 43 50	J	D	6 14 21 28 35 43 49 57	J	D
E	7 15 22 29 37 44 51	I	E	8 15 21 27 33 39 44 48 51	I	E
F	7 15 22 30 38 45 52	H	F	8 15 21 27 33 39 44 48 51	H	F
G	7 15 22 30 38 45 53	G	G	2 10 16 23 30 36 42 48 52 56	G	G
H	7 15 22 30 38 45 53	F	H	4 12 19 26 33 39 45 51 56 61	F	H
I	7 15 22 30 37 44 51	E	I	7 14 21 28 35 43 49 57	E	I
J	7 14 21 28 36 43 50	D	J	2 9 16 23 30 37 44 51 58 64 70	D	J
K	7 14 21 28 35 42 49	C	K	4 11 18 25 32 39 46 53 60 67 73	C	K
L	7 14 21 27 34 41 48	B	L	5 12 19 26 33 40 47 54 61 68 75	B	L
M	7 14 21 27 34 41 47	A	M	7 14 20 27 34 41 48 55 62 69 76	A	M

LATITUDE 30°		LATITUDE 40°				
NORTH	SOUTH	NORTH	SOUTH			
A	4 12 17 21 25 29 32 35 36 37	M	A	6 10 14 17 21 23 25 26 27	M	A
B	5 12 17 22 26 30 33 36 37 37	L	B	6 10 14 18 22 24 27 27 28	L	B
C	6 13 19 24 28 33 35 38 39 40	K	C	8 12 16 20 24 26 29 29 30	K	C
D	3 10 16 21 27 32 36 39 42 43 44	J	D	5 11 16 20 23 27 30 32 33 34	J	D
E	7 13 19 25 30 35 40 44 47 48 49	I	E	4 9 14 19 24 28 32 35 37 38 39	I	E
F	4 10 16 22 28 35 40 45 48 52 53 55	H	F	4 9 14 19 24 28 32 35 37 38 39	H	F
G	7 13 20 26 32 38 44 49 53 57 59 61	G	G	8 13 18 23 28 33 37 40 43 44 45	G	G
H	3 10 16 23 29 35 42 47 53 58 63 64 66	F	H	6 12 17 23 28 33 38 42 45 48 49 50	F	H
I	6 12 19 25 32 38 45 51 57 62 67 70 72	E	I	4 10 15 21 27 32 37 42 47 50 54 55 56	E	I
J	8 15 21 27 34 40 47 53 59 65 71 74 76	D	J	7 13 19 25 30 36 42 47 51 55 59 61 62	D	J
K	10 16 23 29 35 42 48 55 61 67 73 77 80	C	K	4 10 16 22 28 33 39 45 50 55 59 63 67	C	K
L	11 18 24 30 36 43 49 56 62 68 74 79 82	B	L	2 7 13 18 24 30 36 41 47 52 58 62 67 70	B	L
M	11 18 24 30 37 43 50 56 63 69 75 79 83	A	M	4 9 14 20 26 32 37 43 48 54 59 64 68 70	A	M

SOLAR ALTITUDE TABLES

LATITUDE	NORTH													SOUTH												
	0400, 2000	0430, 1930	0500, 1900	0530, 1830	0600, 1800	0630, 1730	0700, 1700	0730, 1630	0800, 1600	0830, 1530	0900, 1500	0930, 1430	1000, 1400		1030, 1330	1100, 1300	1130, 1230	1200								
LATITUDE 50°	A	B	C	D	E	F	G	H	I	J	K	L	M	M	L	K	J	I	H	G	F	E	D	C	B	A
LATITUDE 60°	A	B	C	D	E	F	G	H	I	J	K	L	M	M	L	K	J	I	H	G	F	E	D	C	B	A
LATITUDE 70°	A	B	C	D	E	F	G	H	I	J	K	L	M	M	L	K	J	I	H	G	F	E	D	C	B	A
LATITUDE 80°	A	B	C	D	E	F	G	H	I	J	K	L	M	M	L	K	J	I	H	G	F	E	D	C	B	A

EXAMPLE OF HOW TO USE THE Kodak Aerial Exposure Computer



KNOWN FACTORS:

- Flying Altitude—2,000 feet
- Ground Speed—150 knots
- Lens Focal Length—8 inches
- Exposure Time—1/200 second
- Filter—none
- Latitude—40° North
- Date—September 5
- Time—0700 hours (standard time)
- Effective Aerial Film Speed—64
- Haze Condition—Normal

Note: If a filter is used, the filter factor (if any) should be taken into account. Either the Effective Aerial Film Speed should be divided by the filter factor, or the exposure time should be multiplied by the filter factor.

TIME-MOTION DIAL

To Find Image Velocity:

- Set flying altitude (2,000 feet) at ground speed of aircraft (150 knots).
- At lens focal length (8 inches), read Image Velocity of 1.0 inch/second.

To Find Ground Distance Covered During Exposure:

- Set exposure time (1/200 second) at ground speed of aircraft (150 knots).
- Read 1.25 feet in window.

To Find Total Image Motion on Film:

- Set exposure time (1/200 second) at Image Velocity of 1.0 inch/second.
- Read .12 mm in window.

Note: If the image motion is unacceptable, select a **shorter** exposure time and recompute for reduced image motion; then use the Exposure Dial.

EXPOSURE DIAL

To Find Lens Opening:

- From Date Table, find "H" opposite September 5. (To determine solar altitudes for dates other than those listed in the Date Table, interpolation in the Solar Altitude Table should be made between the two closest listed dates.)
- Use 40° Latitude Chart in Solar Altitude Tables; use North column; on line H under 0700 time, the solar altitude is 15°. (See Note below.)
- Set exposure time (1/200 second) at Effective Aerial Film Speed (64).
- Turn interlocked dial so that aircraft altitude (2,000 feet) is at solar altitude of 15°.
- At normal haze condition, read lens opening of f/6.7.

Note: Solar altitude 50° and over—no exposure change; solar altitude less than 1°—too dark for normal aerial photography.



Professional and Finishing Markets Division
EASTMAN KODAK COMPANY • ROCHESTER, NEW YORK 14650

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