

III. Resolving Power in cycles/mm

Area-weighted average resolution: 87.7

Field angle:	0°	7.5°	15°	22.5°	30°	35°	40°
Radial lines	159	134	113	95	95	80	80
Tangential lines	159	134	113	95	80	67	57

The resolving power is obtained by photographing a series of test bars and examining the resultant image with appropriate magnification to find the spatial frequency of the finest pattern in which the bars can be counted with reasonable confidence. The series of patterns has spatial frequencies from 5 to 268 cycles/mm in a geometric series having a ratio of the 4th root of 2. Radial lines are parallel to a radius from the center of the field, and tangential lines are perpendicular to a radius.

IV. Filter Parallelism

The two surfaces of the B No. 134715 and the KL No. 134689 filters accompanying this camera are within 10 seconds of being parallel. The B filter was used for the calibration.

V. Shutter Calibration

<u>Indicated shutter speed</u>	<u>Effective shutter speed</u>	<u>Efficiency</u>
1/200	3.75 ms = 1/270 s	75%
1/400	2.00 ms = 1/500 s	75%
1/600	1.25 ms = 1/800 s	75%
1/800	0.94 ms = 1/1060 s	75%
1/1000	0.75 ms = 1/1330 s	75%

The effective shutter speeds were determined with the lens at aperture $f/4$. The method is considered accurate within 3 percent. The technique used is Method I described in American National Standard PH3.48-1972(R1978).

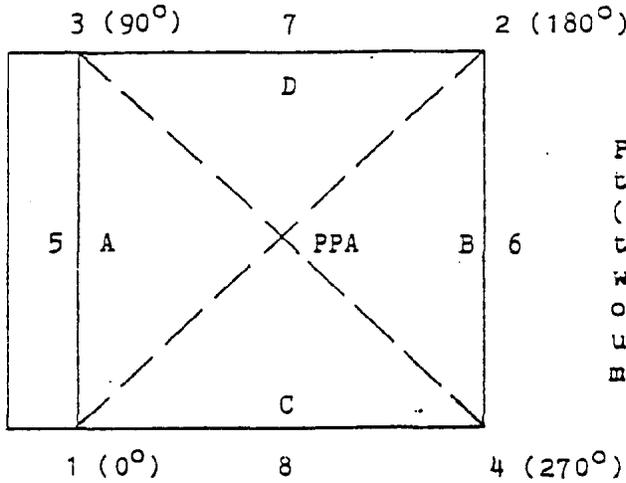
VI. Magazine Platen

The platens mounted in FK 24/120 film magazines No. 132139 and No. 132158 do not depart from a true plane by more than 13 μ m (0.0005 in).

The platens for these film magazines are equipped with identification markers that will register "CZ341" for magazine No. 132139, and "CZ340" for magazine No. 132158 in the data strip area for each exposure.

This camera is equipped with an EMI-3 automatic exposure control, with the detector located beside the camera lens.

VII. Principal Point and Fiducial Coordinates



Positions of all points are referenced to the principal point of autocollimation (PPA) as origin. The diagram indicates the orientation of the reference points when the camera is viewed from the back, or a contact positive with the emulsion up. The direction-of-flight fiducial marker or data strip is to the left.

	<u>X coordinate</u>	<u>Y coordinate</u>
Indicated principal point, corner fiducials	0.006 mm	0.001 mm
Indicated principal point, midside fiducials	0.004	0.002
Principal point of autocollimation	0.0	0.0
Calibrated principal point (point of symmetry)	0.006	0.001

Fiducial Marks

	X coordinate	Y coordinate
1	-103.931 mm	-103.946 mm
2	103.949	103.954
3	-103.942	103.939
4	103.962	-103.946
5	-113.002	-0.009
6	113.013	0.012
7	-0.006	113.012
8	0.013	-113.011

VIII. Distances Between Fiducial Marks

Corner fiducials (diagonals)

1-2: 294.001 mm 3-4: 294.007 mm

Lines joining these markers intersect at an angle of 89° 59' 59"

Midside fiducials

5-6: 226.015 mm 7-8: 226.023 mm

Lines joining these markers intersect at an angle of 89° 59' 57"

Corner fiducials (perimeter)

1-3: 207.885 mm 2-3: 207.890 mm

1-4: 207.893 mm 2-4: 207.901 mm

The method of measuring these distances is considered accurate within 0.005 mm

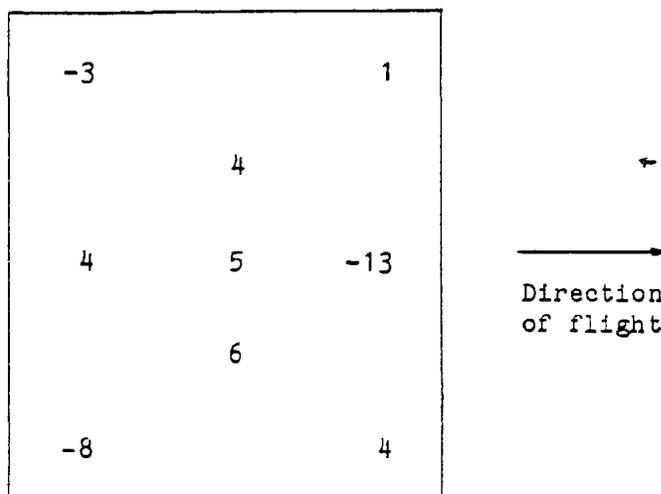
IX. Stereomodel Flatness

Magazine No.: 132139

Base/Height ratio: 0.6

Platen ID: CZ344

Maximum angle of field tested: 40°



Stereomodel
Test point array
(values in micrometers)

The values shown on the diagram are the average departures from flatness (at negative scale) for two computer-simulated stereomodels based on comparator measurements on contact glass (Kodak Micro-flat) diapositives made from Kodak 2405 film exposures. These measurements are considered accurate within 5 μm .

X. Resolving Power in cycles/mm

Area-weighted average resolution: 53.4

Film: Type 2405

Field angle:	0°	7.5°	15°	22.5°	30°	35°	40°
Radial lines	80	80	67	57	57	48	40
Tangential lines	80	80	57	57	57	48	34

This report page supersedes the previous calibration of this magazine contained in USGS Report of Calibration No. RSAS/1048, dated February 8, 1985.

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FILM RADIAL DISTORTION, STEREOMODEL FLATNESS AND RESOLUTION

Magazine No.: 132158
Platen ID: CZ340

Base/Height ratio: 0.6
Maximum angle of field tested: 40°

Calibrated Focal Length

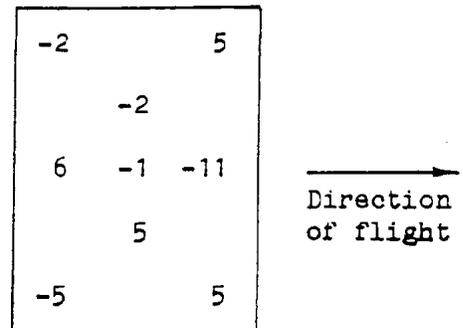
flash plate: 153.601 mm
film: 153.655 mm

IX. Radial Distortion

Field angle	\bar{D}_c	D_c for azimuth angle			
		0° A-C	90° A-D	180° B-D	270° B-C
degrees	um	um	um	um	um
7.5	0	3	1	-1	-2
15	0	1	0	-3	1
22.5	-1	-1	0	-2	0
30	-4	-6	-1	-4	-3
35	1	1	-1	0	2
40	3	5	1	5	0

X. Stereomodel Flatness

The values shown on the diagram are the average departures from flatness (at negative scale) for two computer-simulated stereomodels based on comparator measurements on contact glass (Kodak micro flat) diapositives made from Kodak 2405 film exposures. These measurements are considered accurate within 5 um.



Stereomodel test point array
(values in micrometers)

XI. Resolving Power in cycles/mm

Area-weighted average resolution:	47.7							Film: Type 2405
Field angle:	0°	7.5°	15°	22.5°	30°	35°	40°	
Radial lines	80	80	57	48	48	40	40	
Tangential lines	80	67	57	48	48	48	34	

This report supersedes the previous calibration of this camera contained in USGS Report of Calibration No. RSAS/1036, dated December 20, 1984.

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