



**III. Lens Resolving Power in cycles/mm**

Area-weighted average resolution: 80

Field angle:	0°	7.5°	15°	22.7°	30°	35°	40°
Radial Lines	95	80	113	95	95	80	57
Tangential Lines	95	67	67	80	80	80	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 Wild 525 filter No. 6117 accompanying this camera are within 10 seconds of being parallel. This filter was used for the calibration.

**V. Shutter Calibration**

Indicated Time (sec)	Rise Time ( $\mu$ sec)	Fall Time ( $\mu$ sec)	$\frac{1}{2}$ Width Time (ms)	Nom. Speed (sec)	Efficiency (%)
1/200	1117	1098	5.30	1/220	87
1/400	553	560	2.76	1/410	87
1/600	379	378	1.86	1/620	87
1/800	290	289	1.40	1/820	87
1/1000	253	252	1.19	1/970	87

The effective exposure times were determined with the lens at aperture  $f/4$ . The method is considered accurate within 3 percent. The technique used is described in International Standard ISO 516:1999(E).

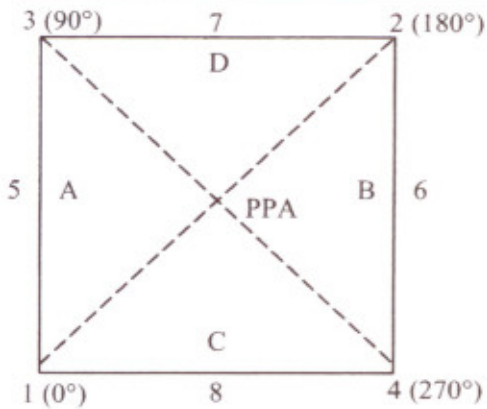
**VI. Film Platen**

The platen mounted in Wild RC10 drive unit No. 3307-356 does not depart from a true plane by more than 13  $\mu$ m (0.0005 in).

This camera is equipped with a platen identification marker that will register 356 in the data strip area for each exposure.

**VII. Principal Point and Fiducial Mark Coordinates**

d  
a  
t  
a  
  
s  
t  
r  
i  
p  
  
s  
i  
d  
e



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 data strip is to the left.

- Indicated principal point, corner fiducials
- Indicated principal point, midside fiducials
- Principal point of autocollimation (PPA)
- Calibrated principal point (point of symmetry)

X coordinate (mm)                      Y coordinate (mm)

-009	.008
-.015	.002
.000	.000
-.004	.004

Fiducial Marks

1	-106.004	-105.989
2	105.992	106.009
3	-106.013	106.007
4	105.992	-105.989
5	-110.014	.001
6	109.991	.003
7	-.012	110.009
8	-.017	-109.995

**VIII. Distances Between Fiducial marks**

Corner fiducials (diagonals)	1-2: 299.809 mm	3-4: 299.813 mm
Lines joining these markers intersect at an angle of 90° 00' 04"		
Midside fiducials	5-6: 220.005 mm	7-8: 220.004 mm
Lines joining these markers intersect at an angle of 89° 59' 54"		
Corner fiducials (perimeter)	1-3: 211.996 mm	2-3: 212.005 mm
	1-4: 211.996 mm	2-4: 211.997 mm

The Method of measuring these distances is considered accurate within 0.003 mm

**Note:** For GPS applications, the nominal entrance pupil distance from the focal plane is 282 mm.

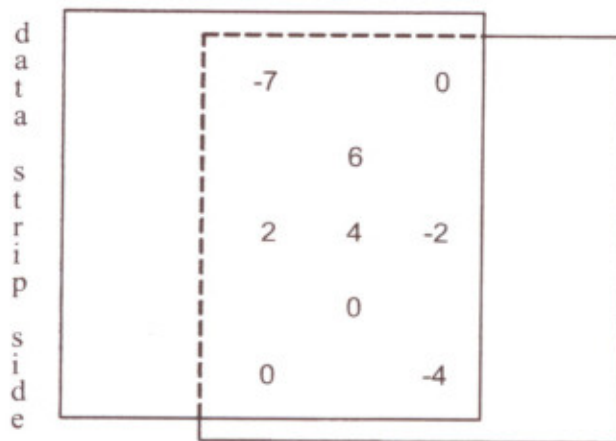
**IX. Stereomodel Flatness**

**Drive Unit No:** 3307-356

**Base/Height ratio:** 0.6

**Platen ID:** 356

**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 stereo models. The values are based on comparator measurements on Kodak 4425 copy film made from Kodak 2405 film exposures. These measurements are considered accurate to within 5 µm.

**X System Resolving Power on film in cycles/mm**

**Area-weighted average resolution:** 40

**Film:** Type 2405

Field angle:	0°	7.5°	15°	22.7°	30°	35°	40°
Radial Lines	48	48	48	48	48	40	34
Tangential Lines	48	40	40	40	40	34	28

This aerial mapping camera calibration report supersedes the previously issued USGS Report No. OSL/3005, dated January 21, 2004.

Gregory L. Stensaas  
Remote Sensing Technologies Project Manager  
Geography Discipline