

CALIBRATION CERTIFICATE

Submitted By

FAIRCHILD CAMERA AND INSTRUMENT CORPORATION

SYOSSET, L. I., NEW YORK

Camera Type 7-11

Camera No. 51-101

Lens and Cone No. HP 117

a) Make and Type Daussan & Lomb Nitrogen

b) Nominal Focal Length 6 inch

c) Maximum Aperture f/5.3

This Certificate applies to the above subject precision camera with lens as stated herein. It was tested at maximum aperture. All measurements were made with parallel light incident on the lens. The light source is white light, rated at 3500° K.

I. FOCAL LENGTH

Flange Focal Distance	Equivalent Focal Length	Calibrated Focal Length
MM 133.86	MM 154.34	MM 154.31

The probable errors of these determinations of focal length do not exceed 0.10 mm.

II. DISTORTION

Distortion Referred to the Calibrated Focal Length

7.5°	15°	22.5°	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°
.00	.02	.06	.08	.10	.11	.12	.11	.08	.02	-.12

The values of the distortion are measured in millimeters and indicate the displacement of the image from its distortion-free position. A positive value indicates a displacement from the center of the plate. The probable error is approximately ±0.02 mm.

Tangential Distortion

The Tangential distortion is .004 mm.

III. RESOLVING POWER

(Aerographic Film)

AWAR 20.9

	0°	7.5°	15°	22.5°	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°
Tangential	36	30	25	21	21	19	17	16	14	15	16	12
Radial	36	32	27	25	25	21	21	17	18	17	16	16

The values of the resolving power are given at specified intervals from the center of the field and are obtained by photographing suitable test charts comprised of patterns of parallel lines. The series of patterns of the test chart are imaged on the negative with lines per millimeter spaced as follows: 10, 11, 13, 14, 16, 18, 20, 22, 25, 28, 31, 36, 40, 45, 50, 57, 63, 71, 80.

The row marked "*Tangential*" gives the number of lines per millimeter in the image on the negative of the finest pattern of the test chart that is distinctly resolved into separate lines when the lines lie perpendicular to the radius drawn from the center of the field. The row marked "*Radial*" gives similar values for the pattern of test lines lying parallel to the radius.

IV. CALIBRATION

The lines joining opposite pairs of collimation index markers intersect at an angle of $90^\circ \pm 1$ minute of arc, and their intersection indicates the location of the Point of Symmetry with a probable error not exceeding 0.05 mm. The departure of the principal point from the auto collimation point is .006 mm.

V. COLLIMATION MARKER SEPARATION

A - B 238.02 mm
 C - D 234.89 mm

Markers A and B lie in the line of flight.

The calibration of this camera was performed at a temperature of approximately 70° Fahrenheit.

VI. CALIBRATED FOCAL LENGTH MARKER SEPARATION

These marker separations are set at a distance equal to the calibrated focal length ± 0.05 mm.

FAIRCHILD CAMERA AND INSTRUMENT CORPORATION

A. J. Montan
 Precision Camera Calibration Laboratory

Syosset, L. I., New York

Fairchild Camera and Instrument Corp.

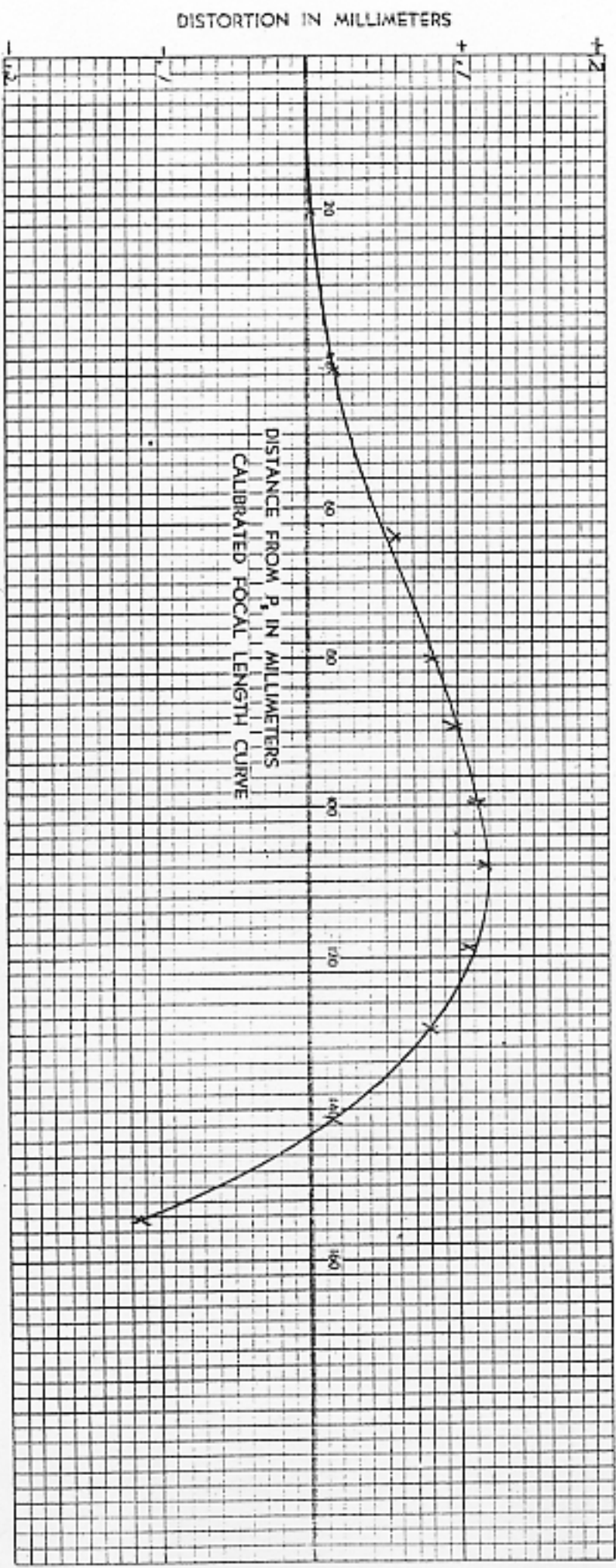
Syosset, L. I., New York

Lens RP 147

Date 8.14.54

Calibrated Focal Length 154.31 mm

Camera 54-141

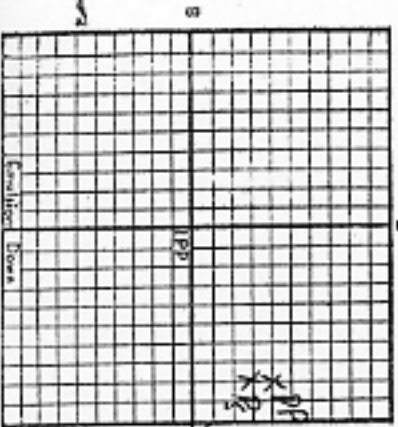


AWAR 20.9

RESOLUTION AEROGRAPHIC FILM

Angle off Axis	0°	7.5°	15°	22.5°	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°
Tangential	36	30	25	21	21	19	17	16	14	15	16	12
Radial	36	32	27	25	25	21	21	17	18	17	16	16

The Tangential Distortion is .004 mm.



$x_{ps} = .008 \text{ mm}$
 $y_{ps} = .003 \text{ mm}$

$r = \frac{2}{\sqrt{3}} \text{ mm}$
 $r_{max} = .001 \text{ mm}$

DISTANCE BETWEEN PIPETS VALS
 $A = 238.32 \text{ mm}$
 $r = 234.89 \text{ mm}$

Signed *[Signature]*