

CALIBRATION CERTIFICATE

Submitted By

FAIRCHILD CAMERA AND INSTRUMENT CORPORATION

SYOSSET, L.I., NEW YORK

Camera Type T-11

Camera No. 54-125

Lens and Cone No. DF 5255

a) Make and Type Bausch & Lomb Metrogon

b) Nominal Focal Length 6 inch

c) Maximum Aperture f/6.3

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 132.99	MM 153.38	MM 153.39

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°
-.01	.01	.04	.07	.09	.10	.10	.09	.07	.00	-.10

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 .003 mm.

III. RESOLVING POWER

AWAR 21.6 (Aerographic Film)

	0°	7.5°	15°	22.5°	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°
Tangential	31	30	27	21	20	18	19	16	16	16	15	12
Radial	31	34	30	27	23	21	20	20	20	16	17	15

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 $.011$ mm.

V. COLLIMATION MARKER SEPARATION

A - B 237.61 mm

C - D 234.87 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


Precision Camera Calibration Laboratory

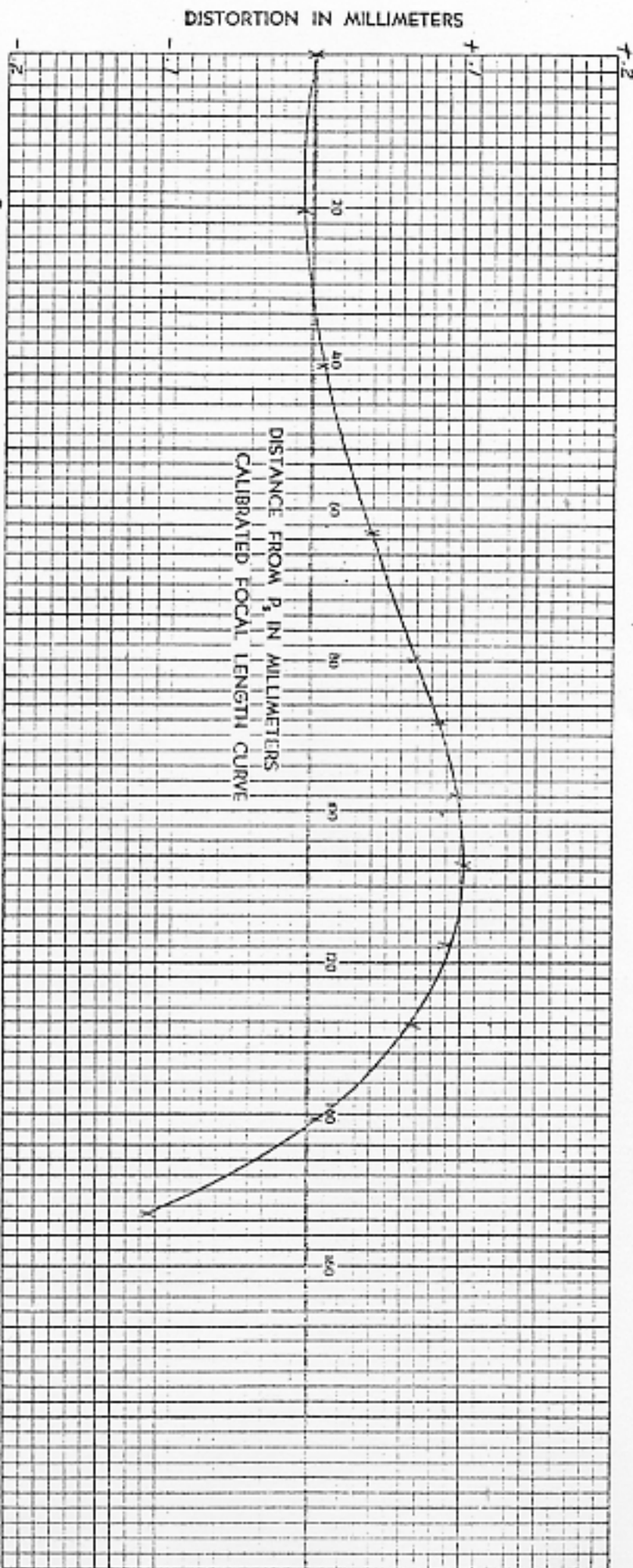
Syosset, L. I., New York

Lens DP 5255

Calculated Focal Length 153.39 mm

Date 6.10.54

Camera 54-125

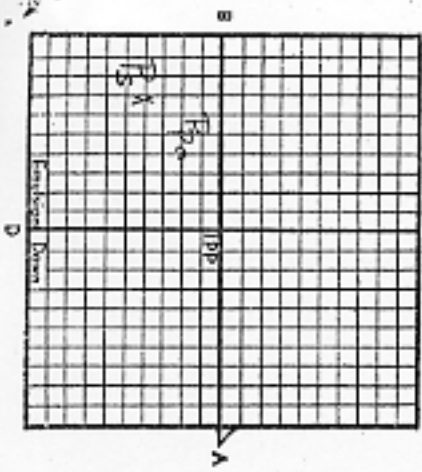


AMAR 21.6

RESOLUTION AEROGAPHIC FILM

Angle off Axis	0°	7.5°	15°	22.5°	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°
Tangential	31	30	27	21	20	18	19	16	16	16	15	12
Radial	31	34	30	27	23	21	20	20	20	16	17	15

The Tangential Distortion is 18 \cdot 003 mm.



$x_{pp} = .012$ mm

$y_{pp} = .006$ mm

$x_{cb} = \frac{0.020}{0.012}$ mm

$y_{cb} = \frac{0.012}{0.012}$ mm

DISTANCE BETWEEN FIDUCIALS

A = 2 \cdot 61 mm

C = 234 \cdot 87 mm

Signature