

# CALIBRATION CERTIFICATE

Submitted By

FAIRCHILD CAMERA AND INSTRUMENT CORPORATION

SYOSSET, L. I., NEW YORK

Camera Type T-11

Camera No. 54-631

Lens and Cone No. RF 5641

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.

RF 5641

**I. FOCAL LENGTH**

Flange Focal Distance	Equivalent Focal Length	Calibrated Focal Length
MM 133.71	MM 154.19	MM 154.19

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	.01	.05	.08	.09	.10	.11	.10	.07	-.01	-.11

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 .013 mm.

**III. AVERAGE RESOLVING POWER**  
(Aerographic Film)

AWAR 25.4

	0°	7.5°	15°	22.5°	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°
Tangential	36	35	28	23	23	23	22	22	20	20	18	15
Radial	36	37	32	30	29	26	26	25	25	23	22	17

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 from 4 to 129 in  $\sqrt[5]{2}$  intervals.

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.

RP 5641

#### 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 .001 mm.

#### V. COLLIMATION MARKER SEPARATION

A - B ..... 237.95 mm  
 C - D ..... 235.16 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  $\pm 0.05$  mm.

FAIRCHILD CAMERA AND INSTRUMENT CORPORATION

*[Signature]*  
 Precision Camera Calibration Laboratory

Syosset, L. I., New York

54-631

Fairchild Camera and Instrument Corp.

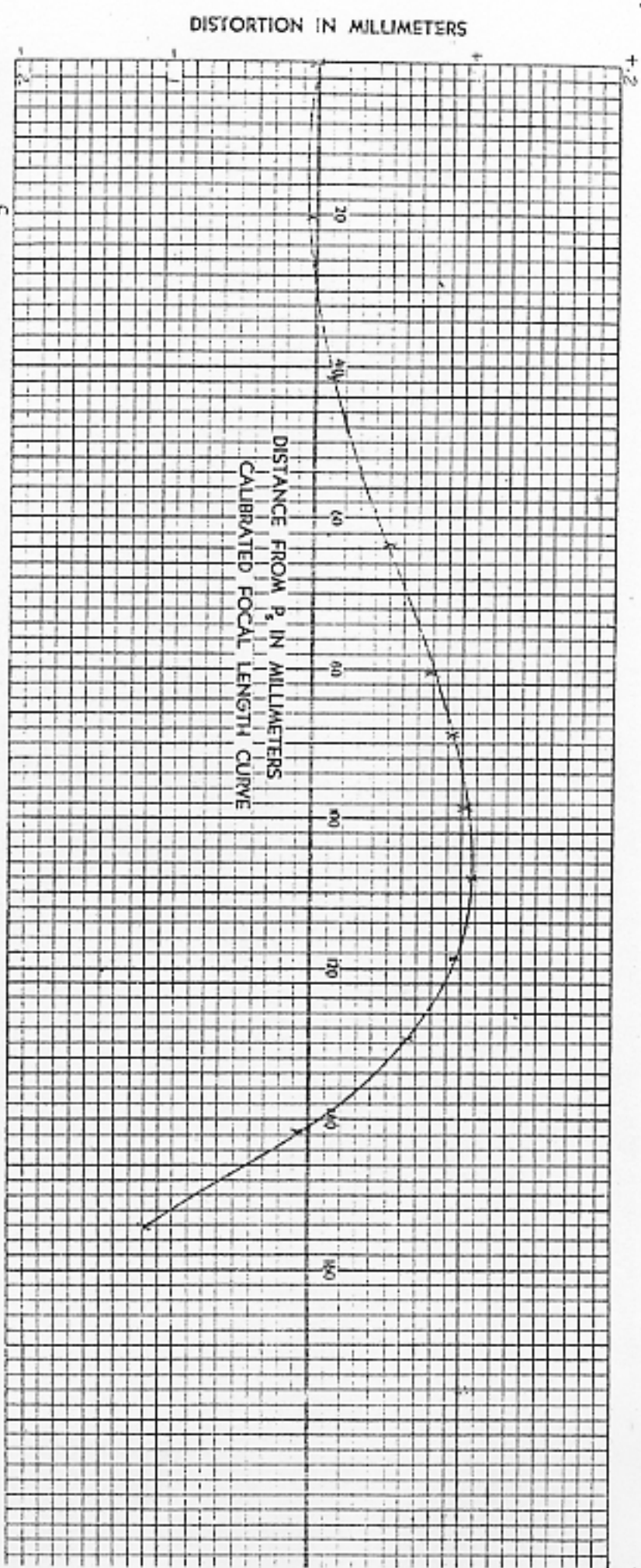
Syosset, L.I., New York

Lens RP 5641

Calculated Focal Length 251.19 mm

Date 10.25.55

Case 54-631

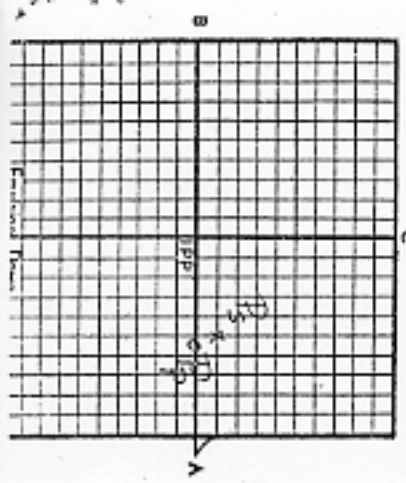


AVERAGE RESOLUTION AEROGRAPHIC FILM

Angle off Axis	0°	7.5°	15°	22.5°	27.5°	30°	32.5°	36°	37.5°	40°	42.5°	45°
Tangential	36	35	28	23	23	23	22	22	22	20	20	18
Radial	36	37	32	30	29	26	26	25	25	23	22	17

AWAR 25.1

The Tangential Distortion is .013 mm.



$$X_{P_2} = \frac{.010}{.002} \text{ mm}$$

$$Y_{P_2} = \frac{.011}{.002} \text{ mm}$$

DISTANCE BETWEEN OCULARS

$$A = \frac{237.95}{237.92} \text{ mm}$$

Signature