COMMONWEALTH OF AUSTRALIA

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION

NATIONAL STANDARDS LABORATORY

REPORT

ON

AN AERIAL SURVEY CAMERA OPTICAL UNIT

For:	Adastra Airways Pty. Ltd.
Reference:	Order No. K9761 dated 19th July 1963.
Description:	An aerial survey camera optical unit, type RC8, fitted with a filter.
Identification Nos.:	RC8 11.5 Ag 71 f = 114.24.
Maker:	Wild Heerbrugg Ltd.

This optical unit has been examined at the National Standards Laboratory with the following results.

The calibrated focal length was chosen so as to minimise the largest absolute value of mean radial distortion within a semi-field of 42^{o}. The value of this calibrated focal length was found to be 114.236 millimetres. This value is accurate to within 0.005 millimetre.

For this calibrated focal length, the curve of mean radial distortion is shown on the attached drawing No. M918-1, and the curves of radial distortion for each quadrant are shown on drawings No. M918-2 and M918-3.

The diagram on drawing No. M918-1 shows the nomenclature and system of coordinates used in referring to the fiducial marks at the corners of the film plane. The origin of the coordinates, O, is the point of intersection of the straight lines joining diagonally opposite fiducial marks.

/The

Reference: NSL 22904
MCN 16431

Checked by: H. Date: 27th September 1963.

F. J. LEHANY
Chief, Division of Applied Physics

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The coordinates of the fiducial marks, as measured on the photographic plate No. 114.24, are as follows

	E	F	G	H
x (mm)	-0.004	-115.958	+0.004	+115.970
y (mm)	-115.963	0.0	+115.953	0.0

These values are accurate to within 0.005 millimetre.

The coordinates of the point of symmetry are as follows

x = +0.019 millimetre.
y = -0.016 millimetre.

The coordinates of the point of autocollimation are as follows

x = +0.013 millimetre.
y = 0.000 millimetre.

These values are accurate to within 0.005 millimetre.

Notes and Conditions of Test

1. The temperature of the test was 20°C.
2. The radial distortion, v, was computed from the formula

$$v = r - f \tan \alpha$$

where r is the distance of the image point from the origin
α is the corresponding object-space angle and
f is the calibrated focal length.

------oOo------

TRUE FIDUCIAL MARK CO-ORDS. RC8 11.5 Ag 71

	Panel Top		Panel Bottom	
	X (mm)	Y (mm)	X (mm)	Y (mm)
1	+82.003	+81.970	+81.992	+82.013
2	+81.997	-82.020	+82.007	-81.978
3	-81.998	-82.013	-82.003	-81.970
4	-82.001	+81.978	-81.997	+82.020

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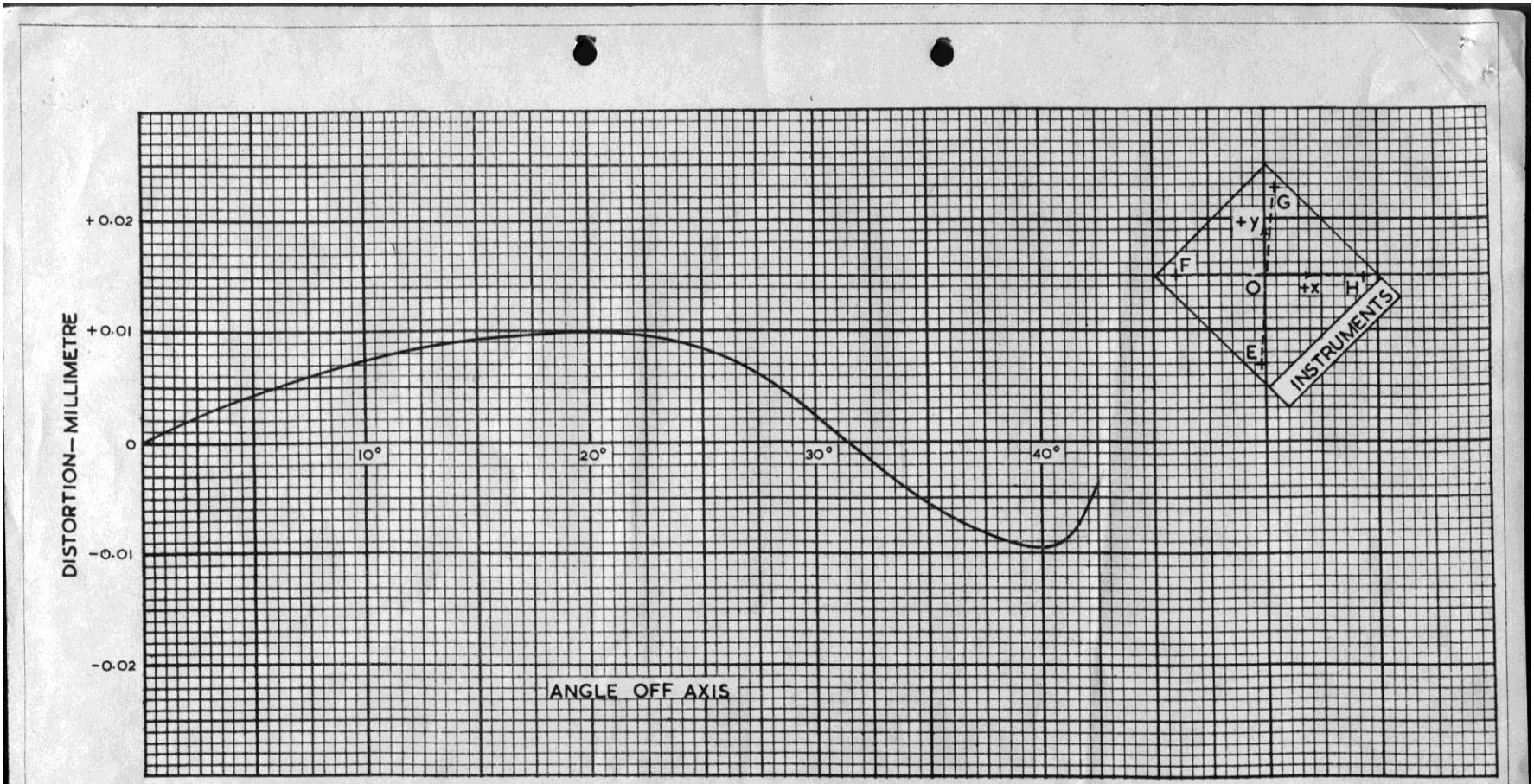
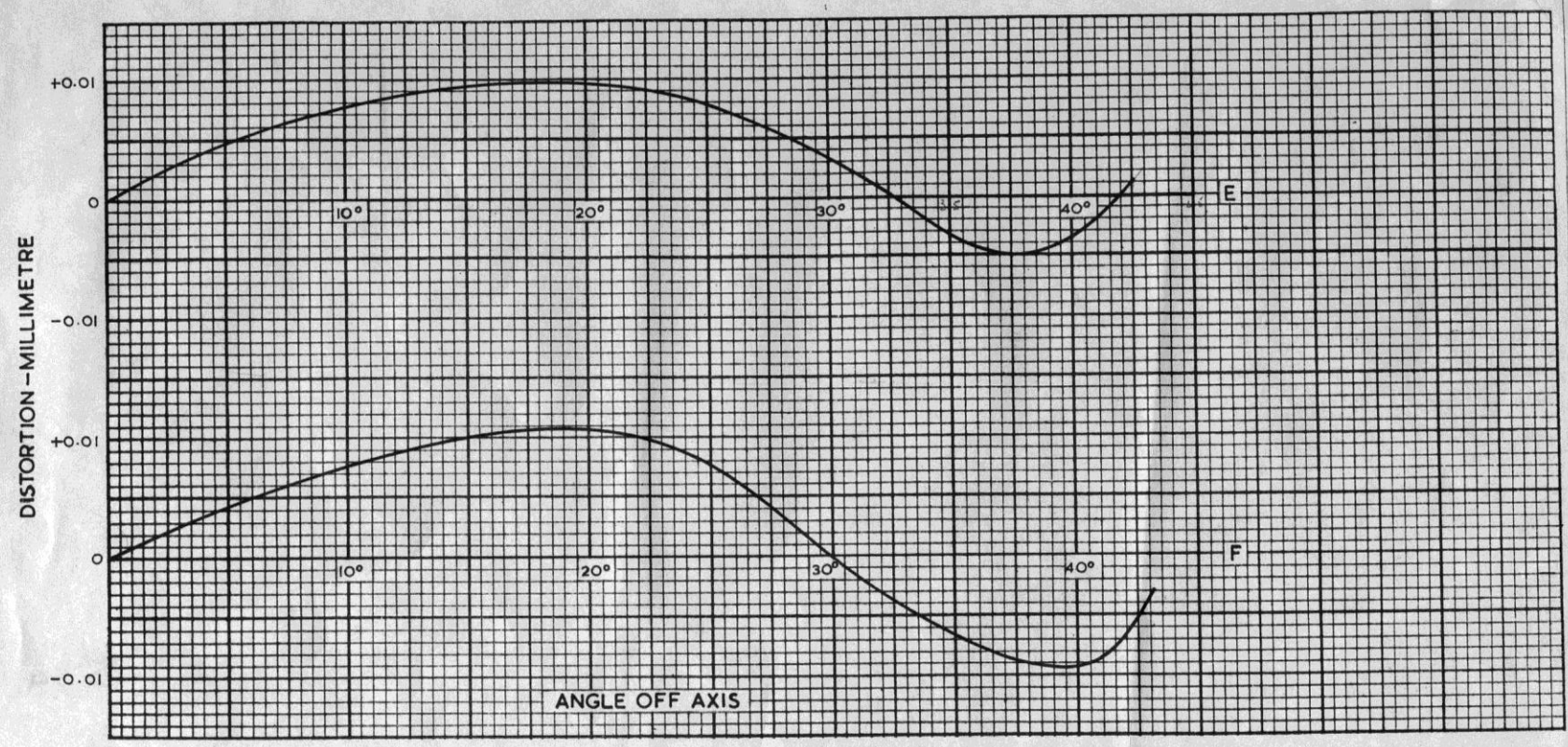
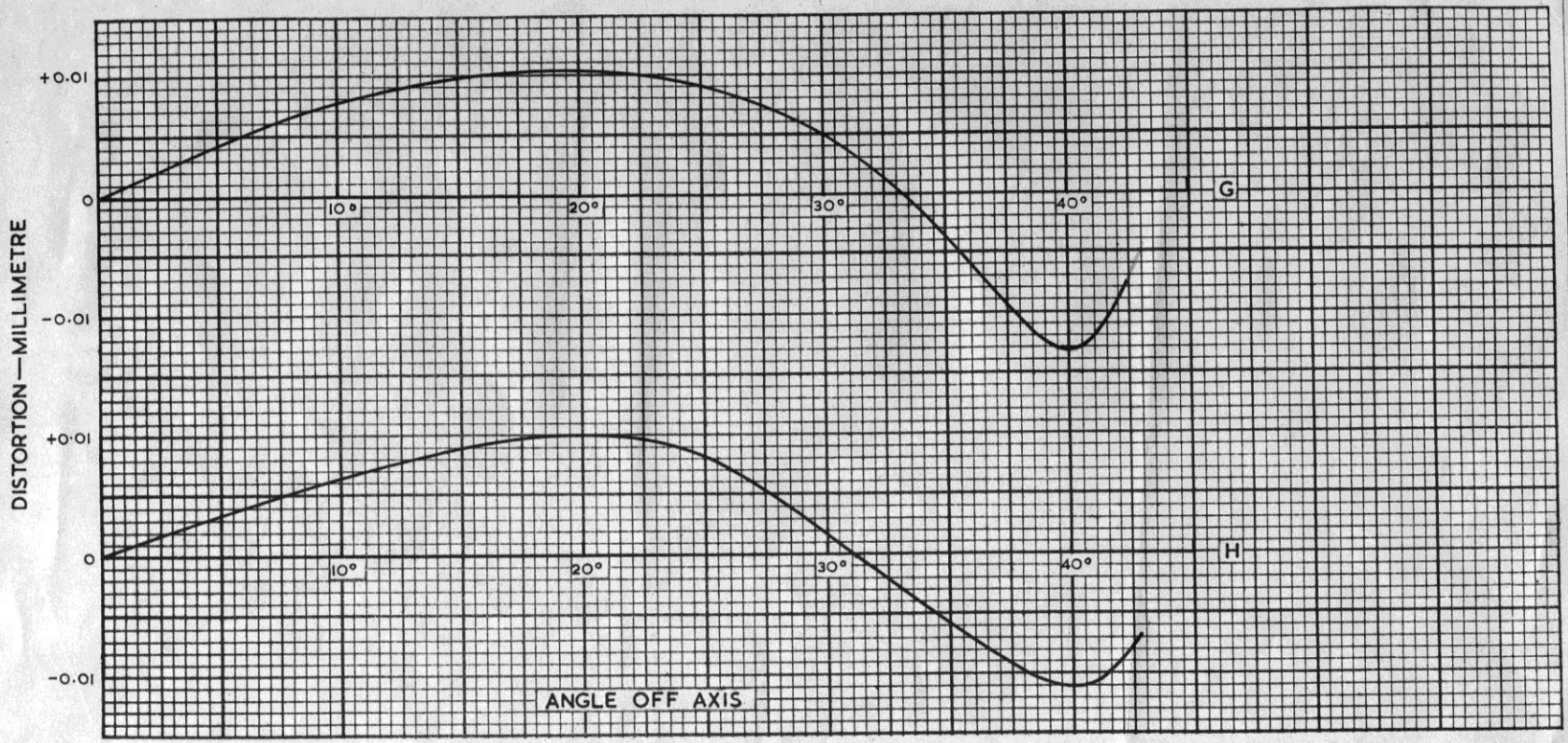
WILSON BROS. E4123 L



N.S.L. REF.: MCN 16431	AERIAL CAMERA RC8 Nº 11·5 Ag. 71 MEAN DISTORTION CURVE FOR CALIBRATED FOCAL LENGTH = 114·236mm	CHIEF-OF-DIVISION DATE 30/9/63	PASSED DRAWN TRACED S.G. 23-9-63. CHECKED 24.9.63. APPROVED 26.9.63	C.S.I.R.O. NATIONAL STANDARDS LABORATORY M918 —1



N.S.L. REF.: MCN 16431	AERIAL CAMERA RC8 N°11·5 Ag 71 DISTORTION CURVES IN QUADRANTS DESIGNATED FOR CALIBRATED FOCAL LENGTH = 114·236 mm.	CHIEF-OF-DIVISION DATE / /	PASSED / DRAWN / TRACED S.G. 24·9·63 / CHECKED 2 Aug 63. / APPROVED 25.9.63	C.S.I.R.O. NATIONAL STANDARDS LABORATORY M918-2



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