



HUNTING SURVEYS AND CONSULTANTS LIMITED

ELSTREE WAY - BOREHAM WOOD - HERTS - WD6 1SB - ENGLAND

(Registered Office)

Cables: ASTEREO BOREHAMWOOD Telephone: 01-951 6161 Telex: 13517



1977

THE QUEEN'S AWARD FOR
EXPORT ACHIEVEMENT
TO HUNTING SURVEYS
AND CONSULTANTS LTD

GLB/EN

30th April, 1981

Landmaelingar Islands
Icelandic Geodetic Survey
Laugavegi 178
105 Reykjavik Island
Iceland

For the attention of Agust Gudmundsson

Dear Sirs,

RC10 CAMERA 15 UAG I 6056

The overhaul and calibration of this camera has been completed in accordance with your instructions.

We take this opportunity of enclosing our invoice No. 3022276 dated 23.4.81, also the following documents:

Calibration Certificate
Window Certificate
Report on Inspection of Camera

Yours faithfully,
for and on behalf of
HUNTING SURVEYS AND CONSULTANTS LTD


G.I. BUSHNELL
Manager - Instrument Section

Encl.

RC10 CAMERA REPORT

1. Camera Mounting

Cleaned and tested, also fitted a new clamp bolt.

2. Drive Unit

The suction motor needed an overhaul very badly. I found a lot of carbon inside the motor and also a broken carbon brush holder; this has been replaced.

The tension on the drive clutches were badly out of adjustment; this could cause too much film to be in the format of the camera for the suction to cope with, thus giving soft spots.

3. Control Unit

Fitted new knob to shutter speed indicator.

4. Circuitry Unit

Cleaned and tested.

5. Navigation Sight

Found a broken socket on sight base, I have no replacement. The sight is still working but at some later date you could order a new one and fit.

6. Lens Cone - has been calibrated and found to be in calibration (certificate enclosed).

7. Camera Window - has also been calibrated and found to be in calibration (certificate enclosed).

8. Film Cassettes

Film cassettes have been cleaned and tested.

Wild have a modification out for the cassettes which they are issuing free of charge. Its number is Modification PKA4. I suggest you write to Wild and enquire.


D.T. PHILPOT



CALIBRATION NO :- BSC/15UAG 6056/1

DATE OF CALIBRATION:- 10.4.81

CAMERA CALIBRATION CERTIFICATE

WILD LENS CONE

NO. 15UAG I 6056

TYPE: WILD UNIVERSAL AVIOGON (RC10)

CALIBRATION No. HSC/15UAg 6056/1

DATE OF CALIBRATION 10.4.81

LENS TYPE : WILD UNIVERSAL AVIOGON (RC10)

Serial No. : 15UAg I 6056

FILTER TYPE : NONE FITTED

Serial No. : -

ORIGIN OF MEASUREMENTS O: The point of Symmetry

SIGN CONVENTION : Distortion is positive if away from origin

CALIBRATED AT A TEMPERATURE OF 20°C

CALIBRATION PERFORMED BY : D. PHILPOT

MEASUREMENTS

CALIBRATED PRINCIPAL DISTANCE : 151.77 mm

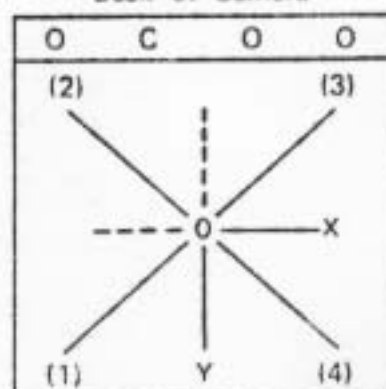
COORDINATES OF POINT OF SYMMETRY

x = -0.005 mm y = +0.002 mm

COORDINATES OF PRINCIPAL POINT OF AUTOCOLLIMATION

x = -0.007 mm y = +0.005 mm

Back of Camera



RADIAL DISTORTION IN MILLIMETRES :

Radius (mm)	20	40	60	80	100	120	140
Semi diagonal (1)	-0.003	-0.003	-0.002	0.002	0	0	0.012
Semi diagonal (2)	-0.005	-0.007	-0.005	0.002	0.001	0.006	0.012
Semi diagonal (3)	-0.005	-0.005	-0.003	0.001	0.004	0.005	0.013
Semi diagonal (4)	-0.003	-0.003	-0.001	0.001	0.002	0.004	0.005
Mean	-0.004	-0.004	-0.003	0.002	0.002	0.004	0.010

BEFORE CALIBRATION THE OPTICAL UNIT WAS CHECKED AND FOUND TO BE IN A SERVICEABLE CONDITION.

APPROVED BY : 



CAMERA CALIBRATION

LENS : 15 UAG I

NO. : 6056

CALIBRATION DATE 10/04/81

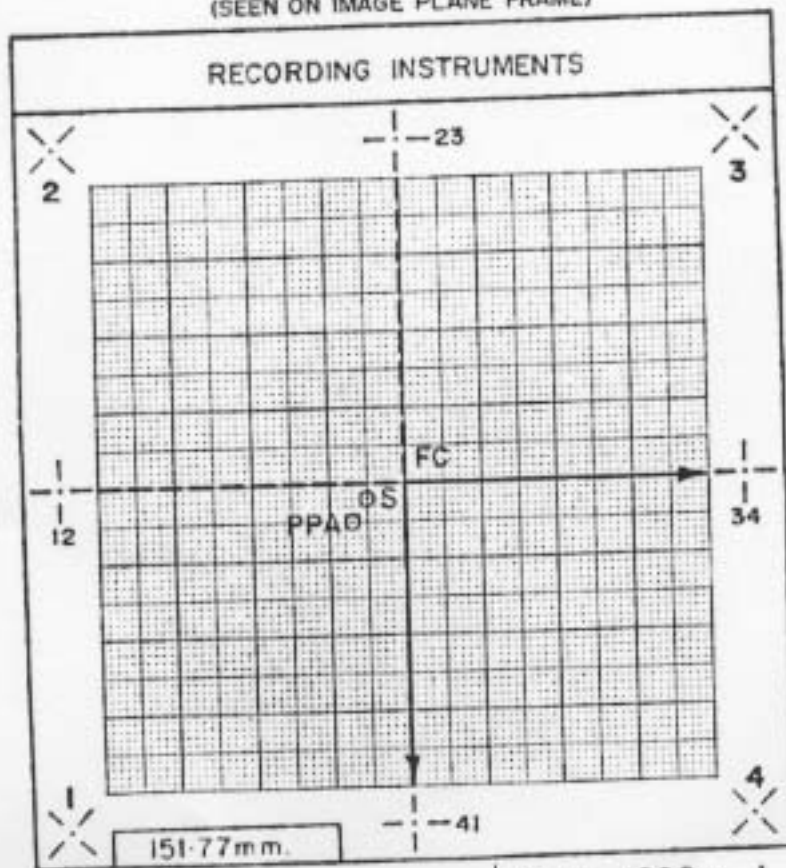
POINT	X MM	Y MM
FC	0.000	0.000
S	-0.005	0.002
PPA	-0.007	0.005

1 - 2 = 212.008	1 - 3 = 299.823
2 - 3 = 212.004	2 - 4 = 299.810
3 - 4 = 212.004	
4 - 1 = 211.993	

DISTANCES BETWEEN FIDUCIAL MARKS IN MM.
 MEASURED ON 77/07/08

S : POINT OF BEST SYMMETRY
 PPA : PRINCIPAL POINT OF AUTOCOLLIMATION

(SEEN ON IMAGE PLANE FRAME)



SCALE: 1000 : 1

CALIBRATION No. HS^c 15UAg 6056/1

DATE OF CALIBRATION 10.4.81

RESOLUTION

LENS TYPE: WILD UNIVERSAL AVIOGON
(RC10)

SERIAL No.: 15UAg 6056

FOCAL LENGTH: 151.77

APERTURE f5.6

FILM TYPE: AGFAPAN 25 PROFESSIONAL

HIGH CONTRAST TEST CHART

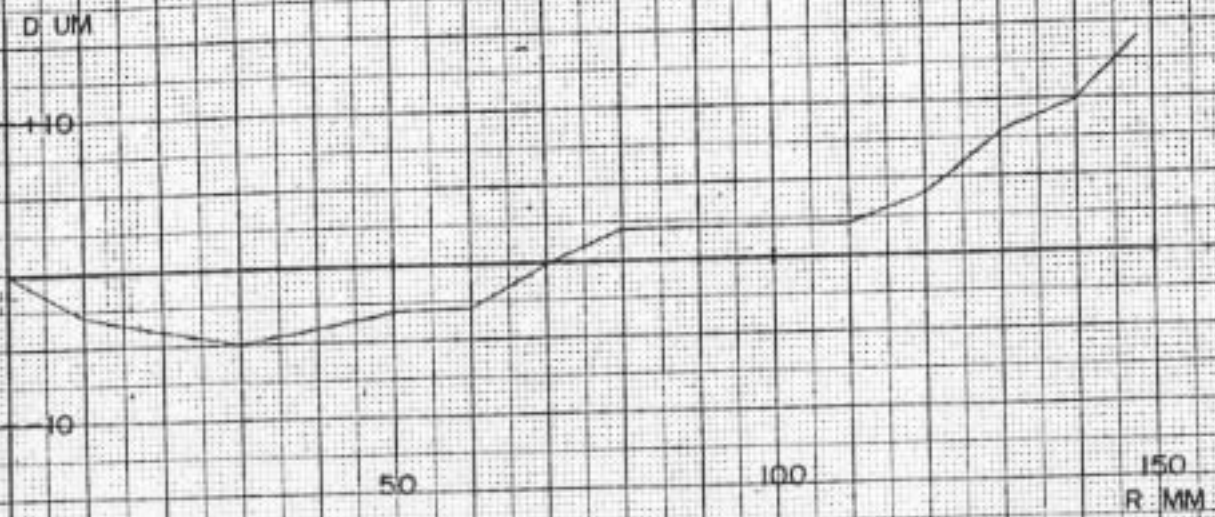
DEGREES OFF AXIS	RESOLUTION	
	Radial	Tangential
0	119	119
5	106	105
10	66	92
15	46	79
20	40	59
25	48	44
30	58	40
35	69	57
40	29	49
45	11	33
50	-	-
55	-	-
60	-	-

Measured by: WILD 8.7.77

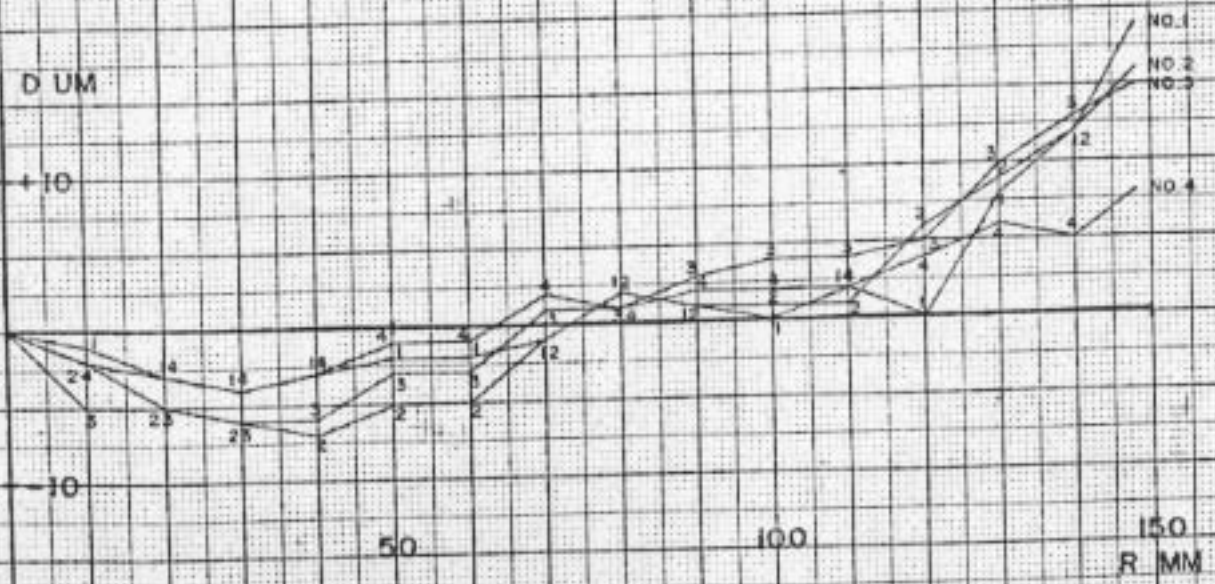
Approved by: 

C.F.L. : 151.77mm
FILTER ON CAMERA NONE
APERTURE f 5.6

15 UAG I 6056




MEAN DISTORTION CURVE



ORIGIN: POINT OF SYMMETRY

HSC/15 UAG I 6065/1


10/04/81

HUNTING SURVEYS LTD.,
6 ELSTREE WAY.,
BOREHAM WOOD.,
HERTFORDSHIRE.

CAMERA WINDOW NO. I

CALIBRATION CERTIFICATE NO. I

FITTED TO TURBO COMMANDER 690 SERIES REG.NO. TF-ERR

This camera window has been checked according to the method laid down in R.A.E. Specification PH.220 but the acceptance standards have been increased and a test for deviation included.

TEST

RESULT

1. Resolution

No loss of resolution in the 80 lines/mm. test target should be introduced by any orientation of the camera window.

80 lines/mm

2. Veins and Inhomogenities.

Presence of veins and inhomogenities were investigated using a point source of monochromatic light. At the most only slight veins should be present.

None

3. Deviation.

When placed in front of a 6 inch lens cone in the H.S.L. Camera Calibrator the deviation was observed at 40° off axis.

Four readings were obtained with the camera window rotated through 90° between each reading.

For normal survey work the maxium deviation introduced by any opposite pair of readings should not be greater than 10 seconds of arc. For air triangulation the deviation should be less than 7 seconds of arc.

Reading at 9°, 18°, 27°, 36°, 45°, off axis with the camera window rotated through 360°. At no point did the set reading deviate by more than 5 seconds of arc.

See attached chart

NOTE

This window should be fitted in the aircraft in such a way that the window mounting can in no way distort the window. A soft rubber surround to the window is generally a satisfactory way of achieving this.

CALIBRATED BY D. PHILPOT

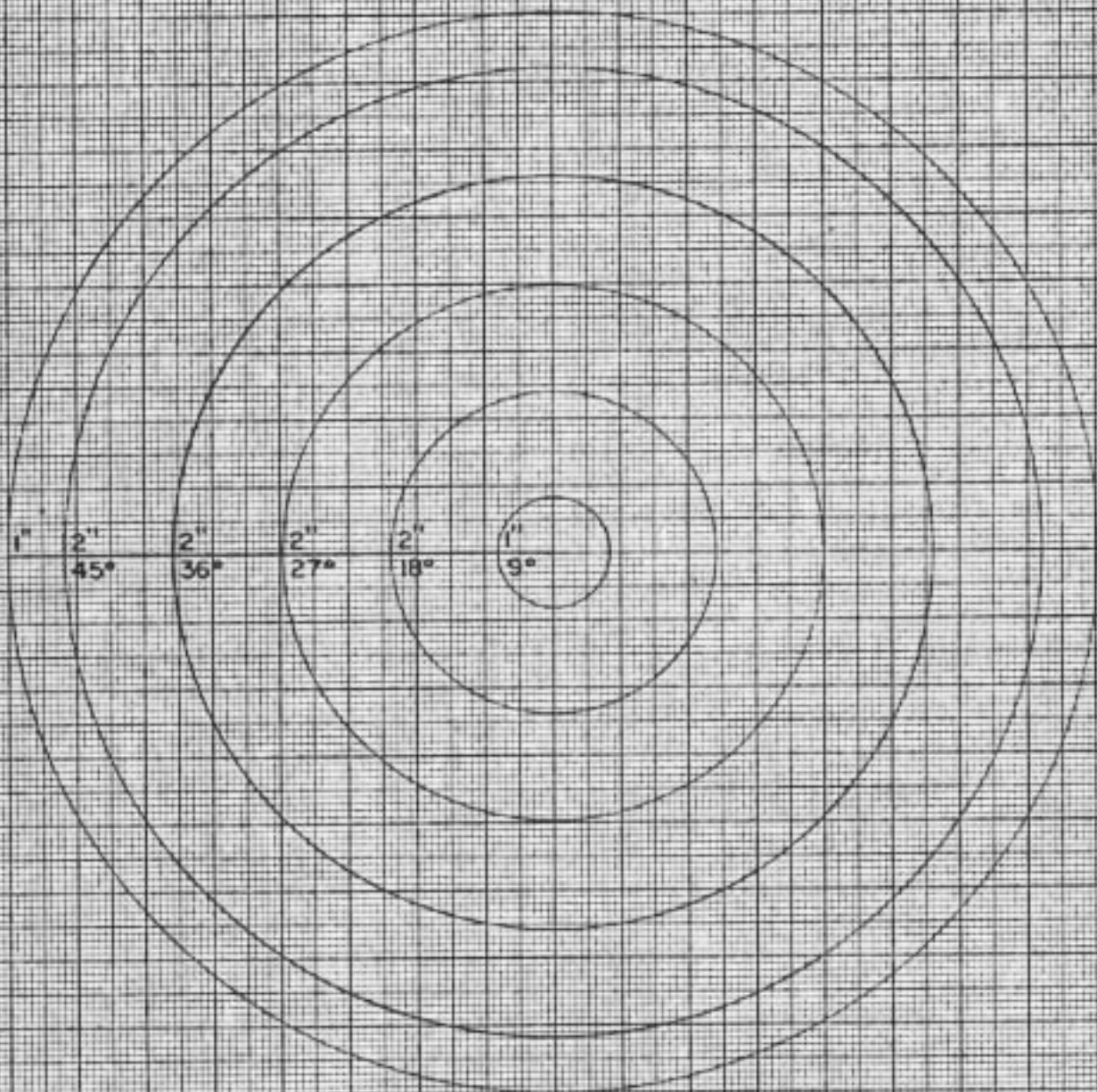
APPROVED BY

DATE OF CALIBRATION 10.4.81



CAMERA WINDOW GLASS FROM TURBO COMMANDER 690 SERIES

FITTED TO REG. NO. TF-ERR



READING AT 9°, 18°, 27°, 36°, 45° off axis with the camera window rotated through 360°. At no point did the set reading deviate by more than 5 seconds of arc.