

19780918I-CLDPHY

Form I-2 Cloud Physics Project Scientist Operational CHECKLIST

DATE 9/18/78

AIRCRAFT 43 RF

FLIGHT 780918I

A. INSTRUMENT STATUS AND PERFORMANCE

	PreFlight	InFlight	PostFlight	Remarks	Data Units Collected
Johnson Williams					
Nimbiometer					
Lyman Alpha					
U. V.					
dewpoint					
Foil Impactor	N/A				
Formvar	N/A				
Knollenberg	10:35 OK	11:20 OK		MARKING	
Raindrop	10:35 OK	" " OK		" "	
Cloud Droplet	10:35 OK	" " OK		" "	
FSSP	10:35 ?	" " OK		" "	
Data System	10:35 ?	" " OK		" "	
& Displays	" " ?	" " OK		" "	
Ice Particle Counter					
Mee					
ERT					
CO ₂ Radiometer					
Microwave radiometer					
Aerosol					
Filters					
Bulk Water					
INC					
CCN					

B. REMARKS

AT TIME OF PREFLIGHT THE DROPLET
DISPLAY WAS NOT WORKING

STARTED 1331Z ENDED 1626Z

IT WAS REPAIRED ON OR ABOUT 11:50Z

Hot Film System Status Report

Greta
Flt # 780918I

Operator's Name: MARK Powell

Probe Number: 6637

Time Data Collection Began: 1348Z

Time Data Collection Ended: 1803Z

Total 25 min. tapes: 7

Total 50 min. tapes: _____

System Status Description:

probe damaged again but not sure how.
the film seemed to deteriorate after ~3 tapes were made
this was evident by measurement of a higher cold resistance
value at near the same temperature as previous resistance
measurements. At least 3 tapes were of good quality and
possibly all seven.

1978 HOT Film System CALIBRATION GRETA

6637 $B/A = 0.671$, $\boxed{0.646}$ Preferred
 B244 $B/A = 0.501$

$$\frac{2E'}{E} = \frac{1}{3} \left[1 - \frac{1}{\left(1 + \frac{B}{A} \bar{u}^{1/3}\right)} \right] \frac{u}{\bar{u}} - \frac{\theta'}{\Delta T}$$

TAS for Greta flights: $\bar{u} = 120 \text{ m/s}$

$$\bar{u}^{1/3} = 4.932$$

B/A	0.671	0.646	0.501
$(1 + B/A \bar{u}^{1/3})$	0.232	0.239	0.288
$\frac{1}{3} \left(1 - \frac{1}{(1 + B/A \bar{u}^{1/3})}\right)$	0.256	0.254	0.237

Within 5% - for Both Probes
 and within 2% for 6637 and
 Neglecting $\theta' / \Delta T$ we have

$$\boxed{\frac{8E'}{E} \bar{u} = u'}$$

at anemometer output.

Signal Processing Gain is 30dB (31.6 v/v)

Tape recorder Voltage gain = $\frac{5}{\text{INPUT Scale}}$

Spectrum Analyzer gain depends on Control settings