

SET UP OK EXCEPT.

1.) P4, P8, ~~EE A~~  
SIG. LEVELS ARE  
WEAK.

2.) 5 CHANNEL  
COUNTS  $\approx 600$   
INTERFERENCE

3.) ALL GM'S COUNT  $CO \approx 60$

4.) P &  $\alpha$ 'S OF PET COUNT THE

### COMMAND TABLE

#1 HV1 ON

#2 HV2 ON

#3 GAIN A DOWN

#4 GAIN B UP (SHOULD BE DOWN)

#5 RESET

	Pulser	% acc.
B1 DISC-	240	330
	245	540.5
	250	
	255	888.3
	260	
		<del>100</del> <u>10400</u> ful.
	243	4680
		4855
	244	4997

B2 DISC. E5	500	505	1979
		510	3533
		515	5506
		520	7402

B3 <u>E6</u>	935	2729
	940	4616
	945	6407
	950	8110

B4 (P11)	3.32	3010
	3.33	6097

B5	7.86	49.50
	7.87	77.66

B6.	14.70	- 0
	14.80	- 100%

B7	32.400	- 0
	32.45	- 50
	32.50	- 100%

A1 (P1)

KEV	count / 40 sec
170	1864
180	2988
190	4279
200	5778
210	6938
220	8085
230	8927

A2 (P2)

420	4103
430	5620
440	6783

A3 (P2)

900	6925
910	5423
920	3903
930	2743

A4 ( $\alpha 1$ )

2.00	2506
<del>2.02</del>	
2.020	4474
2.040	6612
2.060	8401

A5 ( $\alpha 1$ )  
(8)

3.42	8652
3.44	7087
3.46	5143
3.48	3164

A6 ( $\alpha 1$ )

8.14	3760
8.15	4528
8.16	6157

A7

~~3.26~~ M

32.6 MeV

		MeV	c
C1	(P11)	1.56	801
		1.58	6053
		1.57	2556

C2	(P11)	2.63	7122
		2.64	3746
		2.65	1849

C3	(P9)	<del>3.78</del>	-
		3.79	<del>3790</del> - 50%
		<del>3.80</del>	-

C4	(P9)	<del>7.32</del>	
		7.33	> 50%
		⇒ 7.34	50%
		7.35	< 50

C5	(A7)	31.75 = 50%
----	------	-------------

M	blsg	24.7 c/sec.
S	blsg	111.2 /sec

$\gamma_{source}$	9,971.9
	10,000
$\gamma_{source}$	62,584.3

HV1

HV2

28.2

0.0

23.7

~~23~~ 27.1

0.0

31.5

~~27.1~~ 23.8

27.1

-23V

#5 49.0

#4 in

#1 48.3

#2 47.9

#5 49.0

4

#2 48.5

#1 47.9

Begin Calibration Run.

1/6/10

Notes: all logical channels  
check, total's correct.

press table with 10000 liters  
to P1

Palmer Laboratory: 11/15/17

Det. B. 10/16

10/17

10/18

10/19

2017

PRELIMINARY REDUCTION OF SREL DATA 7/26/70  
SN 001 (#V1, 2, off-down, down)

BEAM	P101	MONITOR	P10/M
520	4424	54878	0.08738
470	16545	154900	0.107
418	28045	199204	0.140
364	42038	234791	0.178
312	83736	404730	0.207



# 1/28/70 TEST DATA REQUIREMENTS

## DATA READOUT SCHEME

1.1	}	① APL S-1 →	}	Σ 2 spins H	E1	
		② APL S-2 →				Σ 1 spin J
		③ APL S-3 →				E4, P1
		④ APL S-4 →				P10, P11, A1, A6

5.12	}	⑤ APL-R1 M	}	1/2 snapshot
		⑥ R2 S		
		⑦ R3 P0		
		⑧ R4 P7		
		⑨ R5 Z1		
		⑩ R6 A7		
		⑪ R7 A6		

10.24	}	⑫ R8 A5	}
		⑬ R9 A4	
		⑭ R10 P3	
		⑮ R11 A2	

10.24	}	⑯ R12 P11	}	EVERY OTHER SNAPSHOT
		⑰ R13 P10		
		⑱ R14 E4		
		⑲ R15 E5		
		⑳ R16 E6		
		㉑ R17 E2B		
		㉒ R18 E2C		
		㉓ R19 P2		
		㉔ R20 P3		
		㉕ R21 P4		
		㉖ R22 P5		
㉗ R23 P6				
㉘ R24 P8				
㉙ R25 Z2				

8.24	}	①	}	TIMING SPIN SIGNALS
		②		
		③		
		④		
		⑤		
		⑥		
		⑦		

CALIBRATION TIMING WAVEFORMS

23 (T = 10.24 SEC)  
page.



24 (T = 20.48 SEC)



25 (T = 40.96 SEC)  
album



26 (T = 81.92 SEC)



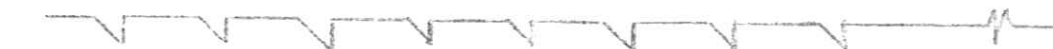
25 (T = 46.6 HR.)



"POWER ON"  
REP RATE = 46.6 HR)



PULSE ENVELOPE



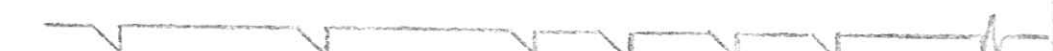
HANNEL A "ON"



HANNEL B "ON"



HANNEL C "ON"



ATTENUATION

100:1 0.4 mV  
30:1 1.2 mV  
10:1 3.4 mV  
1:1 10.2 mV



INTEGRATION Sup.

CLARENCE FEENEY  
864-6340

T.A. FRITZ 982-5455

CHARLIE DICKMAN 982-5660 - GSFC (KNOWS SCOWARD  
5455 STEAKS)

EMR PROGRAMMER RON DYMER - 6531  
SDS 92C + LINE PRINTER + TAPE

1. MAY BE G.L.

1/25/71 B. Lecom

Ken Hayes 301-864-6340  
E.M.R. EXT 54  
5012 College Ave  
College Park Md.  
20740

- ① Error in table VIII-5 ERD wrong page & snapshot #'s for R-19 and others
- ② Table VIII-6 is incomplete, omits description of entries on line 4 - cols 11-70
- ③ Further definition of line 1, cols 1-10 clock will be page xxx, snapshot xx increments monotonically from arbitrary time on pt
- ④ additional entry will give GMT time
- ⑤ EZB & EZC left off of table VIII 2
- ⑥ a such way to sense calibrate initiators

# Questions for Roy C.

1/27/71

- ① correct Snapshot #'s in table VIII-5.
- ② Calibrator table K(T).

Ⓐ need to check phase of water?

Feb 15, 16<sup>at</sup> 17 SREL (4)

midnite 15 + 24 hrs.

→ all day 16

POSTPONED to 15, 16, 17 MAR

Roy Cashion Felt. unit 22 Feb.  
for environment - acoustic

Mar 1 T-V

Mar 8 CALIB. - LOW E AT.

GODDARD

→ MAR 15 SREL

Mar 22

Mar. 29-30 <sup>NRL</sup> ~~X~~ → 0-1  
↳ 1-60 MeV protons

C 35-1

X-Rays Week 22

Experimenters Mar. 1, 2, 3 →

Bay - 8 1/2

Initiate Calibrate

# DATA Presentation

- Sectoral data: 1.) <sup>plot</sup> Contains in time & angle.  
 2.) <sup>plot list</sup> fit parameters

$$J(\varphi) = \sum_{m=0}^{15} a_m \cos(m(\varphi - \varphi_m))$$

$a_m, \varphi_m$

or  $\sum_{m=0}^3$

3.)

GM. NORTH - SOUTH.

- 1.) Background  
 2.) R vs P  
 3.) PROTON CORR.  
 4.) ARITH. N-S  
 5.) log. N/S
- <sup>plot list</sup>  
<sup>plot list</sup>

## Spin Averaged Data

- 1.) Take out discrete X-ray sources GM's
- 2.) Take out sun. GM's
- 3.) Take out protons from GM's

Proton output data 11 channels

$N > .3 \text{ MeV}, > .5 \text{ MeV}, E_0, \delta$

Plots

log	PROTONS
log	ALPHAS
log	Z > 3's
log	ELECTRONS
log	X-RAY

NUMBER  
 PARAMETER  
 & SPECTRAL  
 PARAMETER  
 IN EACH FRAM

TIME → UT & SEQ #

2/28/71

## Notes on IMP H & J DATA ANALYSIS

ASSUME PARITY - CHECKED DATA STREAM

Physical Studies

### I. Energy spectrum vs $t$

a.) put in passband of each channel  
(including proper averaging of  $\epsilon(E, \alpha)$ )

b.) fits to assumed form Protons, alphas  
smoothing?  
How to handle statistical fluctuations

$\rho$  & interspersions —  
 $\alpha, Z1$  or  $Z2$

### II. How to handle dead time?

a.) scintillator anticoinc dead time

b.) solid state channel

c.) G.M. tubes

### III. Background Corrections?

a.) cosmic ray rate in thick det.  
+ G.M. tubes

b.) diffuse background in gm tubes

### IV. INFLIGHT CALIBRATION CORRECTIONS

# 3/1/71 Experimenters Mtg

Marty Davis - Expt Systems  
Ben Ferrer - S/C Systems  
J. Francis - Asst. Proj. Scientist  
Vick Hoffman - Thermal Eng.  
Tai Hwang - Mech. Des.  
V. Jackson - Encoder

Ness, N.F. Imp - J (Rumored for cancellation)

at Launch - experiments not functioning  
- priorities for launch - who goes up - sick.

Orbit - Imp J - Action - write Ness re  
Imp J launch 30 Re  $T \approx 14$  days  
arcular

J to be  $180^\circ$  out from H?

J & H close  $\epsilon$  drift apart N to 1.54  
or vice versa

Gloria Mancuso 1. Orbit  
2. window constraints  
3. shadow period

H. 39. by 32 Re. 14 days

$\epsilon = 0.01$   
Inc.  $28.5^\circ$  to  $\epsilon$  (opt)

Window - transfer  
orbit stable  
4 stg. fail gives  
mission



2 yr  
lifetime  
req'd.

east phase - non-spinning  
Launch window

liftoff

- 1.) liftoff → possible coast
- 2.) spinoff  $46 \pm 5$  RPM
- 3.) iny to transfer  $1.03 \times 39 \text{ EK}$
- 4.) sep. of 5th & 3rd stg
- 5.)  $90^\circ$  sun angle
- 6.) 60 hr coast
- 7.) orient kick motor firing  
(could use 2<sup>nd</sup> or 3<sup>rd</sup> stage)
- 8.) kick motor to get final orbit  $32 \times 29 \text{ or}$
- 9.) orient  $\perp$  ecliptic  $90^\circ \pm 2^\circ$  maximum
- 10.) deep in 18-20 rpm
- 11.) acc. booms. can do better
- 12.) cryt booms. better
- 13.) spin up  $46 \pm 2$
- 14.) cryt turn on

Shadows 1.5 to 1.5 hr (up to 3 successive orbits)

Special requirements to sun - ?

Kick motor - pref on line of apsides

Can trim attitude  $\pm$  spin rate

Can track to  $\pm .1$  degree

Coning of spacecraft - from separation  
- not correctible  
- no nutation damping

Good position stability ratios for mom -  
alt possible

Temp rises in  $\downarrow$  coast phase (circular)  
30 min Imp I  $1^\circ \text{C}/\text{min}$

$30^\circ \text{C}$  out of fairing +  $30 \times 1^\circ \text{C}/\text{min}$   
=  $60^\circ \text{C}$  max.





Simberis, Bill

Plan all cypots to operate simultaneous  
cycle & watt analog off.

Action: turn on requirements

	H	J
Power Laurel	152	152
1 yr	130	130

Int Seg 23 Aug 1971 9 March 72  
Imp H + 5 weeks to launch  
10 days after T.V. problems  
Trailer as a prime system  
No G.S.E. on gantry

---

Hoffman, Dick Thermal -

R.P.P. predicted  $0^{\circ} - 20^{\circ} \text{C}$  orbital  
3hr shadow  $\rightarrow -40$  to  $-50^{\circ} \text{C}$   
with cypots off.



# Ben Ferrer - Schedule H

	Scheduled	Assessed
S/C Elect Int.	2/8/71	3/11/71
Begin Expt Int.	4/5/71	4/26/71
Last Expt	5/24/71	5/24/71
Begin S/C Test	8/23/71	8/23/71
End S/C Test	2/22/72	2/22/72
Ship. to ETR	2/18/72	2/18/72
Launch	April 72	April 72

## Imp J

S/C elect int.	2/1/72
Begin Expt int.	5/1/72
Last Expt	8/15/72
Begin S/C test	10/1/72
Comp. S/C test	5/1/73

Launch. June 73

Expt Reg. sheet

- \* spec. handb. inst. 3-C-1
- \* test procedures TX
- \* G.O. NO GO limits TX

Format for checkout data  
consult on checkout probes

Eng Asst. Data

initial integration  
Thermal Vacuum Data  
Pre launch

## Problems on IAP-I

- + bit designation in data stream
- + elect int. sig. common & chassis isolated
- + capacitor bypass
- + unrelieable for SE
- + tests should be in ft. conf.
- + mech. fit

want test history - on each card -

Glen Lindsay - Integration Plan

Ran Wymer - Chief programmer

- 1.) Documentation
- 2.) Weights
- 3.) overweight - can't accept.
- 4.) electrical continuity sig. comm. & frame
- 5.) photographs

in real time c/o 1 expt + 1 printing

Marty Davis: address code 701.1  
→ call re experimenters document

\* Bill Barnes Data Proc. eng. —

Expt test tapes - letter requesting  
decommutation output formats —  
July 1, 1971

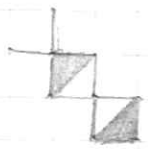
Dummy tape in Sept.

1<sup>st</sup> T.V. tape in late Sept. or  
Oct

Quick Look support -

console access to display

○ A sun times will be simulated



Chicago

\* M. Murray  
Shalla?

3/1/71

\* SMPH flt is SMP I back-up  
Can't make backup on 4/19/71 unit ready for del.

Prep on July 31

Calibrated Aug 31 / Sept.

WT #17.3 Power 3.8 W (9.3)

no possibility to check out.

2 tra telescope -

-60°C Cold soak req'd.

LA Frank - IOE 5.6<sup>#</sup> 2.5 W

23 April Delivery

IOF 8.0<sup>#</sup> (7.7) ELECTRONICS Gurnett  
32.7<sup>#</sup> (32.4) TOTAL  
5.3 W POWER

.3 HZ → 3 KC. 3 axis B  
20 cps. 200 KC 2 axis E

GNF 6.4<sup>#</sup> TOTAL  
5.0 W 6 May

MAP. 13.25<sup>#</sup> (12.5)  
8.4 W. (7.5) 31 May

3/1/71 SMK'S HOUSE

1.1 Mar 18-19-20 SREL  
begin 24:00 18<sup>th</sup>

3/2/71 EXPERIMENTORS MEETING

WILLIAMS Present telescope  
6 channels 30 keV - 1.8 MeV protons  
3 channels 30 keV - 450 keV  
1 15 keV SSD low-noise  
1.5 to 1.6 MeV thin  
Z72 75 MeV

SMITH

EMK

CONV - LASH

5/13/71 At APL

Considerations in def<sup>n</sup> of data analysis procedures

1.) need to receive tape format from Marty

Provisionary list of  $\Delta$  intervals per proton channel

P1 0.56 to 0.8 MeV

P2 0.8 to 1.25 MeV

P3 1.25 to 1.5 MeV

P4 1.5 to 2.5 MeV

P5 2.5 to 12.0 MeV

P6 12.0 to 260 MeV

P7 210 to 240 MeV

P8 NONE

P9 200 to 1100 MeV

P10 none

P11 none