

#283

APOLLO 15 AND 16

MASS SPECTROM DATA

71-063A-13A, 72-031A-11A

7 TAPES

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1. INTRODUCTION:

The documentation for this data set was originally on paper, kept in NSSDC's Data Set Catalogs (DSCs). The paper documentation in the Data Set Catalogs have been made into digital images, and then collected into a single PDF file for each Data Set Catalog. The inventory information in these DSCs is current as of July 1, 2004. This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system. The information existing in the DSCs is now not needed for locating the data files, but we did not remove that inventory information.

The offline tape datasets have now been migrated from the original magnetic tape to Archival Information Packages (AIP's).

A prior restoration may have been done on data sets, if a requestor of this data set has questions; they should send an inquiry to the request office to see if additional information exists.

2. ERRATA/CHANGE LOG:

NOTE: Changes are made in a text box, and will show up that way when displayed on screen with a PDF reader.

When printing, special settings may be required to make the text box appear on the printed output.

Version	Date	Person	Page	Description of Change
01				
02				

3 LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC
INFORMATION SYSTEM:

<http://nssdc.gsfc.nasa.gov/nmc/>

[NOTE: This link will take you to the main page of the NSSDC Master Catalog. There you will be able to perform searches to find additional information]

4. CATALOG MATERIALS:

- a. Associated Documents To find associated documents you will need to know the document ID number and then click here.
<http://nssdcftp.gsfc.nasa.gov/miscellaneous/documents/>

- b. Core Catalog Materials

APOLLO 15 CSM

MASS SPECTROMETER DATA ON TAPE

71-063A-13A

PSPA-00379

This data set has been restored. There were originally three 7-track, 800 BPI tapes written in Binary. There is one restored tape. The DR tape is a 3480 cartridge and the DS tape is 9-track, 6250 BPI. The original tapes were created on an IBM 7094 computer and the restored tapes were created on an IBM 9021 computer. The DR and DS numbers along with the corresponding D numbers are as follows:

DR#	DS#	D#	FILES	TIME SPAN
-----	-----	-----	-----	-----
DR005409	DS005409	D014190	1	07/30/71 - 08/02/71
		D014191	2	08/03/71 - 08/05/71 (a)
		D014192	3	08/05/71 - 08/07/71 (b)

(a) D014191: Read error occurred in record: 3672 of file 1.

(b) D014192: Read error occurred in record: 142 of file 1.

APOLLO 16 CSM

MASS SPECTROMETER DATA ON TAPE

72-031A-11A

PSPA-00098

This data set has been restored. There were originally four 7-track, 800 BPI tapes written in Binary. There is one restored tape. The DR tape is a 3480 cartridge and the DS tape is 9-track, 6250 BPI. The original tapes were created on an IBM 7094 computer and the restored tapes were created on an IBM 9021 computer. The DR and DS numbers along with the corresponding D numbers are as follows:

DR#	DS#	D#	FILES	TIME SPAN
-----	-----	-----	-----	-----
DR005368	DS005368	D014193	1	04/20/72 - 04/21/72 (a)
		D014194	2	04/21/72 - 04/22/72
		D014195	3	04/22/72 - 04/23/72
		D014196	4	04/23/72 - 04/24/72

(a) D014193: Read errors occurred in records: 706, 1360, 1687 of file 1.

See 71-063A-13A

APOLLO 15 AND 16
MASS SPECTROMETER DATA ON TAPE
71-063A-13A AND 72-031A-11A

There are seven tapes in this catalog, 3 Apollo 15 data tapes and 4 Apollo 16 data tapes. Each tape is 800 BPI, binary, 7 track and containing one file. The original tapes were created on the 360/75 and were copied on the 7094.

The time spans were determined by converting the 4th word of the record containing 945 characters from hex to decimal, then dividing the decimal number by 86,400,000. That number is the Julian day. The days since launch were determined by multiplying the Julian day by 24, adding the hours from lift off and dividing the sum by 24. The time spans are as follows:

APOLLO 15, (71-063A-13A)

<u>D#</u>	<u>C#</u>	<u>NO. OF FILES</u>	<u>TIME SPANS</u>
D-14190	C-12933	1	7/30/71 - 8/02/71
D-14191	C-12934	1	8/03/71 - 8/05/71
D-14192	C-12935	1	8/05/71 - 8/07/71

APOLLO 16, (72-031A-11A)

<u>D#</u>	<u>C#</u>	<u>NO. OF FILES</u>	<u>TIME SPANS</u>
D-14193	C-12929	1	4/20/72 - 4/21/72
D-14194	C-12930	1	4/21/72 - 4/22/72
D-14195	C-12931	1	4/22/72 - 4/23/72
D-14196	C-12932	1	4/23/72 - 4/24/72

LUNAR ORBITAL MASS SPECTROMETER

APOLLOS 15 AND 16

DESCRIPTION AND FORMATS OF DATA

AT THE

NATIONAL SPACE SCIENCE DATA CENTER

JANUARY 16, 1974

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INTRODUCTION

The Mass Spectrometer flown on Apollos 15 and 16 as part of the orbital science payload measured the concentration of gas molecules it encountered both in lunar orbit and during transearth coast for the purpose of studying the lunar atmosphere-its sources, sinks, and transport mechanisms. Nearly 80 hours of operation in lunar orbit and 50 hours in transearth coast produced some 8,000 spectra of gases in the vicinity of the instrument entrance aperture.

Table 1 gives the history of operation of the Apollo 15 and 16 lunar orbital mass spectrometers. Time is in terms of ground elapsed time (GET), measured in hours from lift-off at 13:34:00.79 G.M.T. on July 26, 1971 for Apollo 15 and at 17:54:00.57 G.M.T. on April 16, 1972 for Apollo 16.

DESCRIPTION OF DATA AT NSSDC

1.0 FORMAT OF DATA

Data processing has resulted in the blocking of data into complete mass spectra on magnetic tape. Brief time gaps in the data, due to telemetry dropouts, are filled with flag words to insure proper location of the good measurements in the spectra. Reduced data also includes the background count level of each analyzer channel, the amplitude of each mass peak, decommutated housekeeping data, and pertinent spacecraft trajectory information.

Microfilm records are formatted outputs of the data on magnetic tape. The format gives sequential pairs of mass spectra (high and low mass channels), along with background, peak amplitude, housekeeping and trajectory data. In addition, there are periodic tabulated summaries of the peak amplitudes, housekeeping and trajectory data. Each summary covers several hours of operation of the experiment. Section 3 gives examples of each type of data format.

2.0 DATA TAPES

The blocked data from the Apollo 15 and 16 LOMSE are contained on 7

TIME (GET)	SPACE CRAFT ATTITUDE
85:05 - 95:15	-X
108:55 - 119:20	-X
130:30 - 141:00	-X
195:50 - 200:25	+X
202:00 - 211:40	-X
211:40 - 214:15	+X
224:30 - 238:00	TEC
245:50 - 288:05	TEC

APOLLO 16 OPERATIONAL HISTORY

TIME (GET)	SPACE CRAFT ATTITUDE
81:10 - 92:03	-X
108:00 - 121:20	-X
121:20 - 124:40	+X (OBLIQUE PHOTOS)
124:40 - 131:10	+X
131:10 - 142:10	-X
142:10 - 143:15	ANTI-SOLAR HOLD
143:15 - 144:15	-X
144:15 - 146:20	+X (OBLIQUE PHOTOS)
146:20 - 151:20	+X
151:20 - 152:50	+X (OBLIQUE PHOTOS)
152:50 - 164:20	+X
164:20 - 167:00	+X
167:00 - 168:10	+X (OBLIQUE PHOTOS)
180:05 - 193:45	-X

magnetic tapes. Apollo 15 data is contained on tapes CC6051 thru CC6053 and Apollo 16 data is contained on tapes CC6061 thru CC6064.

The tapes were written IBM 360, 9 track, 800 BPI, No-LABEL, Variable length records. The first 4 bytes at each record contains the record length minus 4 bytes in Binary. All integers and real numbers are internal 360 binary and floating point representation.

Each spectra of data is contained in three records of 916, 2804 and 2468 bytes. Table 2 is a listing of the contents of each record. Section 3.0 gives a discription of each variable as formatted on microfilm.

GET times for each tape is as follows:

CC6051	74:09	141:25	D14190
CC6052	194:44	248:23	
CC6053	248:36	288:16	
CC6061	80:07	106:56	D-14193
CC6062	107:06	128:21	
CC6063	128:22	150:34	
CC6064	155:28	193:59	

3.0 SAMPLES OF DATA

3.1 LOW MASS - TABLE 3

GET TIME -	Ground elapsed time from liftoff
APOLLO 16--	Apollo mission number
AO, A1, BO, B1 -	See 3.2
REV -	See 3.4
SUN HR -	See 3.4
LONG -	See 3.4
LAT -	See 3.4
SUN A -	See 3.4

TABLE 2

RECORD 1

<u>WORDS</u>	<u>NAME</u>
1	APOLLO NO
1	TIME
1	A0
1	A1
1	B0
1	B1
1	REV
1	SUN HR
1	LONG
1	LAT
1	RADIUS
1	VELOCITY
1	ALTITUDE
1	SS LONG
1	SS LAT
1	SUN A
1	SUN B
1	VEL ALPHA
1	VEL BETA
28	LOW MASS PEAK AMPLITUDES
28	LOW MASS PEAK FLAGS
67	HIGH MASS PEAK AMPLITUDES
67	HIGH MASS PEAK FLAGS
1	SYNC CODE
1	OK
1	LOW MASS BACKGROUND AVG
1	HIGH MASS BACKGROUND AVG
15	HOUSEKEEPING VOLTAGE MONITORS

RECORD 2

600	LOW MASS DATA
50	LOW MASS CALIBRATION
50	HIGH MASS CALIBRATION

TABLE 2 (Continued)

RECORD 3

<u>WORDS</u>	<u>NAME</u>
8	SYNC FLAGS
8	SYNC BIT
600	HIGH MASS DATA

LOW MASS DATA FC. AT

GET	TIME	APOLLO 16	AO	AI	80	81	REV	SUM MS	LOC	LAT	SUB A	SUM B	TEMP	ALT	VEL ALPHA	VEL
1	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
2	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
3	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
4	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
5	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
6	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
7	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
8	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
9	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
10	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
11	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
12	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
13	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
14	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
15	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
16	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
17	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
18	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
19	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
20	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
21	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
22	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
23	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
24	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
25	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
26	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
27	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
28	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
29	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
30	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
31	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
32	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
33	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
34	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
35	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
36	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
37	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
38	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
39	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
40	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
41	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
42	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
43	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
44	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
45	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
46	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
47	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
48	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
49	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160
50	160	18	20	160	160	160	160	160	160	160	160	160	160	160	160	160

LOW MASS DATA FORMAT
TABLE 3



3.1 LOW MASS (continued)

SUN B -	See 3.4
TEMP -	Ion source temp monitor
ALT -	See 3.4
VEL ALPHA -	See 3.4
VEL -	See 3.4
BACKGROUND -	Background data
CALIBRATE -	Interval calibrate data
HOUSEKEEPING -	
+12 -	+12 volts monitor
+5 -	+5 volts monitor
-12 -	-12 volts monitor
-15 -	-15 volts monitor
EM -	Emission current monitor
F1 -	Filament No. 1 current monitor
F2 -	Filament No. 2 current monitor
LM -	Low mass multiplier high voltage monitor
HM -	High mass multiplier high voltage monitor
SW -	Sweep high voltage monitor
T1 -	Electronics temp monitor
T2 -	Ion source temp monitor
MF -	Multiplier high voltage HI/LO flag
DF -	Discriminator HI/LO flag
IC -	Instrument current

PEAK AMPLITUDES-

Mass number and peak amplitude

3.1 LOW MASS (continued)

PEAK AMPLITUDES -	Mass number and peak amplitude
PRE BKG -	Background counts at start of sweep
CUR BKG -	Background counts at end of sweep
NUM -	Number data points used in calculating BKG

3.2 HIGH MASS - TABLE 4

GET TIME -	See 3.1
APOLLO 16 -	See 3.1
24 October 1972 -	Data date tapes were processed
AO, A1, BO, B1 -	Peak location coefficients for high mass channel
STEP NO	AO + A1/mass step $\leq$ 400 BO + B1/mass step $>$ 400
SYNC START -	Data C at Start of sweep
SYNC END -	Data C at end of sweep
PBKG -	Background count at start of sweep
BKG -	Background count at end of sweep
N -	No. Data points used in calculating BKG
BACKGROUND -	Background Data
CALIBRATE -	Internal calibrate data
PEAK AMPLITUDES -	Mass no. and peak amplitude
STAR -	Incorrect peak shape

3.3 APOLLO 16 PEAK SUMMARY - TABLE 5

GET TIME -	See 3.1
SUN HR -	See 3.4
C-	Peak error code. If code greater than 0 previous peak location coefficients are used
27 + 39 -	Mass No.
L -	Low mass BKG
H -	Hi mass BKG

SYNC
START

STAR

HIGH MASS DATA FORMAT

TABLE 4

PEAK SUMMARY FORMAT



GET	TIME	SUM	MASS	CSM	LOW MASS	HIGH MASS	MASS NUMBER	STAR
100	3 53	-140.2	3	100	377	377	37	37
100	3 55	-143.3	3	100	377	377	37	37
100	3 57	-145.4	3	100	377	377	37	37
100	3 59	-147.5	3	100	377	377	37	37
100	4 1	-149.6	3	100	377	377	37	37
100	4 3	-151.7	3	100	377	377	37	37
100	4 5	-153.8	3	100	377	377	37	37
100	4 7	-155.9	3	100	377	377	37	37
100	4 9	-158.0	3	100	377	377	37	37
100	4 11	-160.1	3	100	377	377	37	37
100	4 13	-162.2	3	100	377	377	37	37
100	4 15	-164.3	3	100	377	377	37	37
100	4 17	-166.4	3	100	377	377	37	37
100	4 19	-168.5	3	100	377	377	37	37
100	4 21	-170.6	3	100	377	377	37	37
100	4 23	-172.7	3	100	377	377	37	37
100	4 25	-174.8	3	100	377	377	37	37
100	4 27	-176.9	3	100	377	377	37	37
100	4 29	-179.0	3	100	377	377	37	37
100	4 31	-181.1	3	100	377	377	37	37
100	4 33	-183.2	3	100	377	377	37	37
100	4 35	-185.3	3	100	377	377	37	37
100	4 37	-187.4	3	100	377	377	37	37
100	4 39	-189.5	3	100	377	377	37	37
100	4 41	-191.6	3	100	377	377	37	37
100	4 43	-193.7	3	100	377	377	37	37
100	4 45	-195.8	3	100	377	377	37	37
100	4 47	-197.9	3	100	377	377	37	37
100	4 49	-200.0	3	100	377	377	37	37
100	4 51	-202.1	3	100	377	377	37	37
100	4 53	-204.2	3	100	377	377	37	37
100	4 55	-206.3	3	100	377	377	37	37
100	4 57	-208.4	3	100	377	377	37	37
100	4 59	-210.5	3	100	377	377	37	37
100	5 1	-212.6	3	100	377	377	37	37
100	5 3	-214.7	3	100	377	377	37	37
100	5 5	-216.8	3	100	377	377	37	37
100	5 7	-218.9	3	100	377	377	37	37
100	5 9	-221.0	3	100	377	377	37	37
100	5 11	-223.1	3	100	377	377	37	37
100	5 13	-225.2	3	100	377	377	37	37
100	5 15	-227.3	3	100	377	377	37	37
100	5 17	-229.4	3	100	377	377	37	37
100	5 19	-231.5	3	100	377	377	37	37
100	5 21	-233.6	3	100	377	377	37	37
100	5 23	-235.7	3	100	377	377	37	37
100	5 25	-237.8	3	100	377	377	37	37
100	5 27	-239.9	3	100	377	377	37	37
100	5 29	-242.0	3	100	377	377	37	37
100	5 31	-244.1	3	100	377	377	37	37
100	5 33	-246.2	3	100	377	377	37	37
100	5 35	-248.3	3	100	377	377	37	37
100	5 37	-250.4	3	100	377	377	37	37
100	5 39	-252.5	3	100	377	377	37	37
100	5 41	-254.6	3	100	377	377	37	37
100	5 43	-256.7	3	100	377	377	37	37
100	5 45	-258.8	3	100	377	377	37	37
100	5 47	-260.9	3	100	377	377	37	37
100	5 49	-263.0	3	100	377	377	37	37
100	5 51	-265.1	3	100	377	377	37	37
100	5 53	-267.2	3	100	377	377	37	37
100	5 55	-269.3	3	100	377	377	37	37
100	5 57	-271.4	3	100	377	377	37	37
100	5 59	-273.5	3	100	377	377	37	37
100	6 1	-275.6	3	100	377	377	37	37
100	6 3	-277.7	3	100	377	377	37	37
100	6 5	-279.8	3	100	377	377	37	37
100	6 7	-281.9	3	100	377	377	37	37
100	6 9	-284.0	3	100	377	377	37	37
100	6 11	-286.1	3	100	377	377	37	37
100	6 13	-288.2	3	100	377	377	37	37
100	6 15	-290.3	3	100	377	377	37	37
100	6 17	-292.4	3	100	377	377	37	37
100	6 19	-294.5	3	100	377	377	37	37
100	6 21	-296.6	3	100	377	377	37	37
100	6 23	-298.7	3	100	377	377	37	37
100	6 25	-300.8	3	100	377	377	37	37
100	6 27	-302.9	3	100	377	377	37	37
100	6 29	-305.0	3	100	377	377	37	37
100	6 31	-307.1	3	100	377	377	37	37
100	6 33	-309.2	3	100	377	377	37	37
100	6 35	-311.3	3	100	377	377	37	37
100	6 37	-313.4	3	100	377	377	37	37
100	6 39	-315.5	3	100	377	377	37	37
100	6 41	-317.6	3	100	377	377	37	37
100	6 43	-319.7	3	100	377	377	37	37
100	6 45	-321.8	3	100	377	377	37	37
100	6 47	-323.9	3	100	377	377	37	37
100	6 49	-326.0	3	100	377	377	37	37
100	6 51	-328.1	3	100	377	377	37	37
100	6 53	-330.2	3	100	377	377	37	37
100	6 55	-332.3	3	100	377	377	37	37
100	6 57	-334.4	3	100	377	377	37	37
100	6 59	-336.5	3	100	377	377	37	37
100	7 1	-338.6	3	100	377	377	37	37
100	7 3	-340.7	3	100	377	377	37	37
100	7 5	-342.8	3	100	377	377	37	37
100	7 7	-344.9	3	100	377	377	37	37
100	7 9	-347.0	3	100	377	377	37	37
100	7 11	-349.1	3	100	377	377	37	37
100	7 13	-351.2	3	100	377	377	37	37
100	7 15	-353.3	3	100	377	377	37	37
100	7 17	-355.4	3	100	377	377	37	37
100	7 19	-357.5	3	100	377	377	37	37
100	7 21	-359.6	3	100	377	377	37	37
100	7 23	-361.7	3	100	377	377	37	37
100	7 25	-363.8	3	100	377	377	37	37
100	7 27	-365.9	3	100	377	377	37	37
100	7 29	-368.0	3	100	377	377	37	37
100	7 31	-370.1	3	100	377	377	37	37
100	7 33	-372.2	3	100	377	377	37	37
100	7 35	-374.3	3	100	377	377	37	37
100	7 37	-376.4	3	100	377	377	37	37
100	7 39	-378.5	3	100	377	377	37	37
100	7 41	-380.6	3	100	377	377	37	37
100	7 43	-382.7	3	100	377	377	37	37
100	7 45	-384.8	3	100	377	377	37	37
100	7 47	-386.9	3	100	377	377	37	37
100	7 49	-389.0	3	100	377	377	37	37
100	7 51	-391.1	3	100	377	377	37	37
100	7 53	-393.2	3	100	377	377	37	37
100	7 55	-395.3	3	100	377	377	37	37
100	7 57	-397.4	3	100	377	377	37	37
100	7 59	-399.5	3	100	377	377	37	37
100	8 1	-401.6	3	100	377	377	37	37
100	8 3	-403.7	3	100	377	377	37	37
100	8 5	-405.8	3	100	377	377	37	37
100	8 7	-407.9	3	100	377	377	37	37
100	8 9	-410.0	3	100	377	377	37	37
100	8 11	-412.1	3	100	377	377	37	37
100	8 13	-414.2	3	100	377	377	37	37
100	8 15	-416.3	3	100	377	377	37	37
100	8 17	-418.4	3	100	377	377	37	37
100	8 19	-420.5	3	100	377	377	37	37
100	8 21	-422.6	3	100	377	377	37	37
100	8 23	-424.7	3	100	377	377	37	37
100	8 25	-426.8	3	100	377	377	37	37
100	8 27	-428.9	3	100	377	377	37	37
100	8 29	-431.0	3	100	377	377	37	37
100	8 31	-433.1	3	100	377	377	37	37
100	8 33	-435.2	3	100	377	377	37	37
100	8 35	-437.3	3	100	377	377	37	37
100	8 37	-439.4	3	100	377	377	37	37
100	8 39	-441.5	3	100	377	377	37	37
100	8 41	-443.6	3	100	377	377	37	37
100	8 43	-445.7	3	100	377	377	37	37
100	8 45	-447.8	3	100	377	377	37	37
100	8 47	-449.9	3	100	377	377	37	37
100	8 49	-452.0	3	100	377	377	37	37
100	8 51	-454.1	3	100	377	377	37	37
100	8 53	-456.2	3	100	377	377	37	37
100	8 55	-458.3	3	100	377	377	37	37
100	8 57	-460.4	3	100	377	377	37	37
100	8 59	-462.5	3	100	377	377	37	37
100	9 1	-464.6	3	100	377	377	37	37
100	9 3	-466.7	3	100	377	377	37	37
100	9 5	-468.8	3	100	377	377	37	37
100	9 7	-470.9	3	100	377	377	37	37
100	9 9	-473.0	3	100	377	377	37	37
100	9 11	-475.1	3	100	377	377	37	37

3.3 APOLLO 16 PEAK SUMMARY (Continued)

GAP -	Time gap in data
STAR -	Incorrect peak shape
CSM DIRECTION -	Minus (-) denotes -X orientation

3.4 APOLLO 16 TRAJECTORY SUMMARY - TABLE 6

GET TIME -	See 3.1
REV -	Orbit No.
SUN HR -	Long - SS long
LONG -	Sub satellite longitude
LAT -	Sub satellite latitude
RADIUS -	Orbit radius (km)
VELOCITY -	CSM velocity (km/sec)
ALTITUDE -	CSM altitude (km)
SS LONG -	Sub solar longitude
SS LAT -	Sub solar latitude
SUN A -	Angle from CSM X axis to sun
SUN B -	Azimuth of sun from -z axis
VEL ALPHA -	Angle of attack from X axis
VEL BETA -	Azimuth of Vel vector from -z axis

3.5 APOLLO 16 HOUSEKEEPING SUMMARY - TABLE 7

GET TIME -	Ground elapsed time from liftoff
+12 -	+12V monitor
+5 -	+5V monitor
-12 -	-12V monitor
-15 -	-15V monitor
EMISSION -	Emission current monitor
FIL 1	Filament No. 1 current monitor
FIL 2	Filament No. 2 current monitor
LM HV -	Low mass multiplier high voltage monitor

TRAJECTORY SUMMARY FORMAT

GET	TIME	REV	SUN MR	LONG	LAT	RADIUS	VELOCITY	ALTITUDE	SS LONG	SS LAT	SUN A	SUN B	VEL ALPHA	VEL BETA
100	3 53	54.75	140.21	-89.29	-3.66	1031.03	1.6262	114.00	51.92	1.57	49.01	45.91	177.76	76.21
100	3 55	54.75	146.36	-91.37	-3.12	1051.31	1.6267	113.48	51.91	1.57	52.28	45.24	177.80	82.35
100	3 59	54.77	149.54	-97.54	-2.01	1050.78	1.6272	112.42	51.91	1.57	55.54	44.77	177.83	87.17
100	4 0	54.78	152.51	-100.62	-1.45	1050.25	1.6277	111.89	51.90	1.57	58.78	44.32	177.79	92.56
100	4 3	54.79	155.59	-103.71	-0.88	1049.72	1.6282	111.89	51.89	1.57	62.03	44.01	177.80	96.74
100	4 5	54.80	158.66	-106.79	-0.31	1049.18	1.6286	111.35	51.89	1.57	65.30	43.85	177.77	101.99
100	4 7	54.81	161.74	-109.88	0.26	1048.63	1.6291	110.82	51.89	1.57	68.60	43.77	177.72	108.32
100	4 9	54.82	164.82	-112.97	0.83	1048.07	1.6296	110.29	51.86	1.57	71.88	43.84	177.72	113.04
100	4 11	54.83	167.90	-116.05	1.40	1047.50	1.6301	109.76	51.85	1.57	75.19	43.94	177.69	118.86
100	4 13	54.84	170.98	-119.15	1.96	1046.95	1.6306	109.24	51.84	1.57	78.45	44.19	177.59	123.19
100	4 15	54.85	174.07	-122.25	2.52	1046.40	1.6310	108.72	51.83	1.57	81.87	44.49	177.46	128.40
100	4 17	54.86	177.17	-125.35	3.07	1045.85	1.6315	108.22	51.83	1.57	85.24	44.81	177.35	133.61
100	4 19	54.87	179.74	-128.46	3.62	1045.30	1.6319	107.72	51.82	1.57	88.61	45.17	177.22	138.81
100	4 21	54.88	182.82	-131.57	4.15	1044.75	1.6324	107.24	51.81	1.57	92.00	45.53	177.10	144.01
100	4 23	54.89	185.90	-134.69	4.68	1044.20	1.6328	106.76	51.80	1.57	95.38	45.89	176.97	149.21
100	4 25	54.90	189.00	-137.81	5.17	1043.65	1.6332	106.31	51.79	1.57	98.76	46.25	176.84	154.41
100	4 27	54.91	192.10	-140.94	5.67	1043.10	1.6336	105.86	51.78	1.57	102.14	46.61	176.71	159.61
100	4 29	54.92	195.20	-144.09	6.15	1042.55	1.6340	105.44	51.77	1.57	105.51	46.97	176.58	164.81
100	4 31	54.93	198.30	-147.22	6.61	1042.00	1.6344	105.03	51.76	1.57	108.89	47.33	176.45	170.01
100	4 33	54.94	201.40	-150.37	7.05	1041.45	1.6348	104.64	51.75	1.57	112.27	47.69	176.32	175.21
100	4 35	54.95	204.50	-153.53	7.47	1040.90	1.6352	104.28	51.74	1.57	115.61	48.05	176.19	180.41
100	4 37	54.96	207.60	-156.69	7.86	1040.35	1.6356	103.93	51.73	1.57	118.94	48.41	176.06	185.61
100	4 39	54.97	210.70	-159.87	8.24	1039.80	1.6360	103.51	51.72	1.57	122.27	48.77	175.93	190.81
100	4 41	54.98	213.80	-163.04	8.58	1039.25	1.6364	103.14	51.71	1.57	125.61	49.13	175.80	196.01
100	4 43	54.99	216.90	-166.23	8.91	1038.70	1.6368	102.79	51.70	1.57	128.94	49.49	175.67	201.21
100	4 45	55.00	220.00	-169.42	9.20	1038.15	1.6372	102.57	51.70	1.57	132.27	49.85	175.54	206.41
100	4 47	55.01	223.10	-172.62	9.47	1037.60	1.6376	102.37	51.69	1.57	135.61	50.21	175.41	211.61
100	4 49	55.02	226.20	-175.82	9.71	1037.05	1.6380	102.21	51.68	1.57	138.94	50.57	175.28	216.81
100	4 51	55.03	229.30	-179.03	9.92	1036.50	1.6384	102.07	51.67	1.57	142.27	50.93	175.15	222.01
100	4 53	55.04	232.40	-182.24	10.09	1035.95	1.6388	101.96	51.66	1.57	145.61	51.29	175.02	227.21
100	4 55	55.05	235.50	-185.45	10.24	1035.40	1.6392	101.88	51.65	1.57	148.94	51.65	174.89	232.41
100	4 57	55.06	238.60	-188.66	10.36	1034.85	1.6396	101.83	51.64	1.57	152.27	52.01	174.76	237.61
100	4 59	55.07	241.70	-191.87	10.44	1034.30	1.6400	101.81	51.63	1.57	155.61	52.37	174.63	242.81
100	5 01	55.08	244.80	-195.08	10.49	1033.75	1.6404	109.72	51.62	1.57	158.94	52.73	174.50	248.01
100	5 03	55.09	247.90	-198.29	10.44	1033.20	1.6408	110.27	51.61	1.57	162.27	53.09	174.37	253.21
100	5 05	55.10	251.00	-201.50	10.36	1032.65	1.6412	110.81	51.60	1.57	165.61	53.45	174.24	258.41
100	5 07	55.11	254.10	-204.71	10.24	1032.10	1.6416	111.37	51.59	1.57	168.94	53.81	174.11	263.61
100	5 09	55.12	257.20	-207.92	10.16	1031.55	1.6420	111.92	51.58	1.57	172.27	54.17	173.98	268.81
100	5 11	55.13	260.30	-211.13	10.04	1031.00	1.6424	112.47	51.57	1.57	175.61	54.53	173.85	274.01
100	5 13	55.14	263.40	-214.34	9.89	1030.45	1.6428	113.02	51.56	1.57	178.94	54.89	173.72	279.21
100	5 15	55.15	266.50	-217.55	9.71	1029.90	1.6432	113.57	51.55	1.57	182.27	55.25	173.59	284.41
100	5 17	55.16	269.60	-220.76	9.54	1029.35	1.6436	114.12	51.54	1.57	185.61	55.61	173.46	289.61
100	5 19	55.17	272.70	-223.97	9.36	1028.80	1.6440	114.66	51.53	1.57	188.94	55.97	173.33	294.81
100	5 21	55.18	275.80	-227.18	9.18	1028.25	1.6444	115.19	51.52	1.57	192.27	56.33	173.20	300.01
100	5 23	55.19	278.90	-230.39	8.99	1027.70	1.6448	115.71	51.51	1.57	195.61	56.69	173.07	305.21
100	5 25	55.20	282.00	-233.60	8.81	1027.15	1.6452	116.22	51.50	1.57	198.94	57.05	172.94	310.41
100	5 27	55.21	285.10	-236.81	8.63	1026.60	1.6456	116.71	51.49	1.57	202.27	57.41	172.81	315.61
100	5 29	55.22	288.20	-240.02	8.45	1026.05	1.6460	117.20	51.48	1.57	205.61	57.77	172.68	320.81
100	5 31	55.23	291.30	-243.23	8.27	1025.50	1.6464	117.66	51.47	1.57	208.94	58.13	172.55	326.01
100	5 33	55.24	294.40	-246.44	8.09	1024.95	1.6468	118.11	51.46	1.57	212.27	58.49	172.42	331.21
100	5 35	55.25	297.50	-249.65	7.91	1024.40	1.6472	118.66	51.45	1.57	215.61	58.85	172.29	336.41
100	5 37	55.26	300.60	-252.86	7.73	1023.85	1.6476	119.11	51.44	1.57	218.94	59.21	172.16	341.61
100	5 39	55.27	303.70	-256.07	7.55	1023.30	1.6480	119.66	51.43	1.57	222.27	59.57	172.03	346.81
100	5 41	55.28	306.80	-259.28	7.37	1022.75	1.6484	120.21	51.42	1.57	225.61	59.93	171.90	352.01
100	5 43	55.29	309.90	-262.49	7.19	1022.20	1.6488	120.76	51.41	1.57	228.94	60.29	171.77	357.21
100	5 45	55.30	313.00	-265.70	7.01	1021.65	1.6492	121.31	51.40	1.57	232.27	60.65	171.64	362.41
100	5 47	55.31	316.10	-268.91	6.83	1021.10	1.6496	121.86	51.39	1.57	235.61	61.01	171.51	367.61
100	5 49	55.32	319.20	-272.12	6.65	1020.55	1.6500	122.41	51.38	1.57	238.94	61.37	171.38	372.81
100	5 51	55.33	322.30	-275.33	6.47	1020.00	1.6504	122.96	51.37	1.57	242.27	61.73	171.25	378.01
100	5 53	55.34	325.40	-278.54	6.29	1019.45	1.6508	123.51	51.36	1.57	245.61	62.09	171.12	383.21
100	5 55	55.35	328.50	-281.75	6.11	1018.90	1.6512	124.06	51.35	1.57	248.94	62.45	170.99	388.41
100	5 57	55.36	331.60	-284.96	5.93	1018.35	1.6516	124.61	51.34	1.57	252.27	62.81	170.86	393.61
100	5 59	55.37	334.70	-288.17	5.75	1017.80	1.6520	125.16	51.33	1.57	255.61	63.17	170.73	398.81
100	6 01	55.38	337.80	-291.38	5.57	1017.25	1.6524	125.71	51.32	1.57	258.94	63.53	170.60	404.01
100	6 03	55.39	340.90	-294.59	5.39	1016.70	1.6528	126.26	51.31	1.57	262.27	63.89	170.47	409.21
100	6 05	55.40	344.00	-297.80	5.21	1016.15	1.6532	126.81	51.30	1.57	265.61	64.25	170.34	414.41
100	6 07	55.41	347.10	-301.01	5.03	1015.60	1.6536	127.36	51.29	1.57	268.94	64.61	170.21	419.61
100	6 09	55.42	350.20	-304.22	4.85	1015.05	1.6540	127.91	51.28	1.57	272.27	64.97	170.08	424.81
100	6 11	55.43	353.30	-307.43	4.67	1014.50	1.6544	128.46	51.27	1.57	275.61	65.33	169.95	430.01
100	6 13	55.44	356.40	-310.64	4.49	1013.95	1.6548	129.01	51.26	1.57	278.94	65.69	169.82	435.21
100	6 15	55.45	359.50	-313.85	4.31	1013.40	1.6552	129.56	51.25	1.57	282.27	66.05	169.69	440.41
100	6 17	55.46	362.60	-317.06	4.13	1012.85	1.6556	130.11	51.24	1.57	285.61	66.41	169.56	445.61
100	6 19	55.47	365.70	-320.27	3.95	1012.30	1.6560	130.66	51.23	1.57	288.94	66.77	169.43	450.81
100	6 21	55.48	368.80	-323.48	3.77	1011.75	1.6564	131.21	51.22	1.57	292.27	67.13	169.30	456.01
100	6 23	55.49	371.90	-326.69	3.59	1011.20	1.6568	131.76	51.21	1.57	295.61	67.49	169.17	461.21
100	6 25	55.50	375.00	-329.90	3.41	1010.65	1.6572	132.31	51.20	1.57	298.94	67.85	169.04	466.41
100	6 27	55.51	378.10	-333.11	3.23	1010.10	1.6576	132.86	51.19	1.57	302.27	68.21	168.9	

HOUSEKEEPING SUMMARY FORMAT

GET	TIME	*12	*43	-12	-15	APOLLO 16 EMISSION FIL 1	HOUSEKEEPING FIL 2	SUMMARY LM HW	MM HW	S HW	ETEMP	STEMP	M LO/HI	D MI/LO	I
100	3 53	3.86	2.43	2.96	4.67	2.25	.10	2.57	2.69	1.88	2.24	3.49	.02	2.57	2.67
100	3 55	3.86	2.43	2.96	4.67	2.22	.10	2.57	2.69	1.96	2.24	3.43	.02	2.57	2.67
100	5 57	3.88	2.43	2.96	4.67	2.14	.10	2.59	2.69	2.04	2.25	3.37	.02	2.57	2.65
100	6 59	3.88	2.43	2.96	4.67	2.10	.10	2.57	2.69	2.14	2.25	3.27	.02	2.57	2.65
100	8 1	3.86	2.43	2.96	4.67	2.20	.12	2.57	2.69	2.22	2.25	3.24	.02	2.57	2.67
100	9 3	3.88	2.43	2.96	4.67	2.14	.12	2.59	2.69	1.73	2.25	3.20	.02	2.57	2.65
100	10 5	3.86	2.43	2.96	4.65	2.16	.10	2.57	2.69	1.80	2.27	3.16	.02	2.59	2.65
100	11 7	3.88	2.43	2.96	4.67	2.02	.10	2.57	2.69	1.88	2.25	3.10	.02	2.57	2.65
100	12 9	3.86	2.43	2.96	4.67	2.06	.12	2.59	2.71	1.96	2.27	3.06	.02	2.57	2.65
100	13 11	3.88	2.43	2.96	4.67	2.14	.12	2.57	2.69	2.04	2.27	3.02	.02	2.59	2.51
100	14 13	3.88	2.43	2.96	4.67	2.14	.12	2.57	2.69	2.14	2.27	2.98	.02	2.57	2.49
100	15 15	3.88	2.43	2.96	4.67	2.18	.12	2.57	2.67	2.20	2.27	2.96	.02	2.57	2.49
100	16 17	3.86	2.43	2.96	4.67	2.16	.12	2.57	2.69	2.29	2.27	2.92	.02	2.57	2.53
100	17 19	3.86	2.43	2.96	4.67	2.08	.12	2.59	2.69	1.75	2.27	2.88	.02	2.57	2.51
100	18 20	3.86	2.43	2.96	4.67	2.16	.10	2.57	2.69	1.80	2.29	2.86	.02	2.57	2.51
100	19 22	3.86	2.43	2.96	4.67	2.12	.12	2.59	2.69	1.90	2.29	2.78	.02	2.57	2.51
100	20 24	3.86	2.43	2.96	4.67	2.14	.12	2.57	2.69	1.98	2.29	2.76	.02	2.57	2.51
100	21 26	3.86	2.43	2.96	4.65	2.16	.12	2.57	2.69	2.06	2.29	2.76	.02	2.57	2.49
100	22 28	3.88	2.43	2.96	4.67	2.14	.12	2.57	2.69	2.14	2.29	2.73	.02	2.57	2.49
100	23 30	3.86	2.43	2.96	4.67	2.14	.12	2.57	2.69	2.22	2.29	2.69	.02	2.57	2.47
100	24 32	3.86	2.43	2.96	4.67	2.14	.12	2.57	2.69	1.73	2.31	2.67	.02	2.57	2.51
100	25 34	3.86	2.43	2.96	4.67	2.16	.12	2.59	2.71	1.80	2.29	2.65	.02	2.57	2.49
100	26 36	3.86	2.43	2.96	4.67	2.12	.12	2.57	2.69	1.90	2.31	2.63	.02	2.57	2.49
100	27 38	3.86	2.43	2.96	4.67	2.16	.12	2.59	2.69	1.96	2.31	2.59	.02	2.57	2.47
100	28 40	3.86	2.43	2.96	4.67	2.12	.12	2.59	2.71	2.04	2.29	2.55	.02	2.57	2.47
100	29 42	3.86	2.43	2.96	4.67	2.10	.12	2.57	2.69	2.12	2.31	2.51	.02	2.57	2.47
100	30 44	3.86	2.43	2.96	4.67	2.12	.12	2.59	2.69	2.22	2.31	2.51	.02	2.57	2.49
100	31 46	3.86	2.43	2.96	4.67	2.16	.12	2.57	2.69	2.29	2.31	2.47	.02	2.57	2.49
100	32 48	3.86	2.43	2.96	4.67	2.12	.12	2.57	2.69	1.75	2.31	2.47	.02	2.57	2.49
100	33 50	3.86	2.43	2.96	4.67	2.16	.12	2.59	2.69	1.82	2.31	2.45	.02	2.57	2.49
100	34 52	3.86	2.43	2.96	4.67	2.12	.12	2.55	2.65	1.88	2.31	2.45	.02	2.57	2.49
100	35 54	3.86	2.43	2.96	4.67	2.12	.12	2.55	2.65	1.98	2.31	2.41	.02	2.57	2.49
100	36 56	3.86	2.43	2.96	4.67	2.14	.12	2.55	2.67	2.06	2.31	2.41	.02	2.57	2.49
100	37 58	3.86	2.43	2.96	4.67	2.14	.14	2.59	2.71	2.06	2.39	2.43	.02	2.55	2.49
100	38 60	3.86	2.43	2.96	4.67	2.14	.14	2.59	2.69	2.14	2.41	2.43	.02	2.55	2.49
100	39 62	3.86	2.43	2.96	4.67	2.14	.14	2.59	2.69	2.22	2.41	2.43	.02	2.55	2.49
100	40 64	3.86	2.43	2.96	4.67	2.14	.14	2.59	2.69	2.29	2.41	2.43	.02	2.55	2.49
100	41 66	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	1.75	2.43	2.43	.02	2.55	2.49
100	42 68	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	1.80	2.43	2.43	.02	2.55	2.49
100	43 70	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.06	2.45	2.43	.02	2.55	2.49
100	44 72	3.86	2.43	2.96	4.67	2.10	.14	2.57	2.69	2.14	2.45	2.43	.02	2.55	2.49
100	45 74	3.86	2.43	2.96	4.67	2.08	.14	2.57	2.69	2.22	2.45	2.43	.02	2.55	2.49
100	46 76	3.86	2.43	2.96	4.67	2.08	.14	2.57	2.69	2.29	2.45	2.43	.02	2.55	2.49
100	47 78	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	1.88	2.45	2.43	.02	2.55	2.49
100	48 80	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	1.98	2.45	2.43	.02	2.55	2.49
100	49 82	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.06	2.45	2.43	.02	2.55	2.49
100	50 84	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.14	2.45	2.43	.02	2.55	2.49
100	51 86	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.22	2.45	2.43	.02	2.55	2.49
100	52 88	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.29	2.45	2.43	.02	2.55	2.49
100	53 90	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.37	2.45	2.43	.02	2.55	2.49
100	54 92	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.45	2.45	2.43	.02	2.55	2.49
100	55 94	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.53	2.45	2.43	.02	2.55	2.49
100	56 96	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.61	2.45	2.43	.02	2.55	2.49
100	57 98	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.69	2.45	2.43	.02	2.55	2.49
100	58 100	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.77	2.45	2.43	.02	2.55	2.49
100	59 102	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.85	2.45	2.43	.02	2.55	2.49
100	60 104	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	2.93	2.45	2.43	.02	2.55	2.49
100	61 106	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.01	2.45	2.43	.02	2.55	2.49
100	62 108	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.09	2.45	2.43	.02	2.55	2.49
100	63 110	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.17	2.45	2.43	.02	2.55	2.49
100	64 112	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.25	2.45	2.43	.02	2.55	2.49
100	65 114	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.33	2.45	2.43	.02	2.55	2.49
100	66 116	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.41	2.45	2.43	.02	2.55	2.49
100	67 118	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.49	2.45	2.43	.02	2.55	2.49
100	68 120	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.57	2.45	2.43	.02	2.55	2.49
100	69 122	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.65	2.45	2.43	.02	2.55	2.49
100	70 124	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.73	2.45	2.43	.02	2.55	2.49
100	71 126	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.81	2.45	2.43	.02	2.55	2.49
100	72 128	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.89	2.45	2.43	.02	2.55	2.49
100	73 130	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	3.97	2.45	2.43	.02	2.55	2.49
100	74 132	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.05	2.45	2.43	.02	2.55	2.49
100	75 134	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.13	2.45	2.43	.02	2.55	2.49
100	76 136	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.21	2.45	2.43	.02	2.55	2.49
100	77 138	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.29	2.45	2.43	.02	2.55	2.49
100	78 140	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.37	2.45	2.43	.02	2.55	2.49
100	79 142	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.45	2.45	2.43	.02	2.55	2.49
100	80 144	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.53	2.45	2.43	.02	2.55	2.49
100	81 146	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.61	2.45	2.43	.02	2.55	2.49
100	82 148	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.69	2.45	2.43	.02	2.55	2.49
100	83 150	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.77	2.45	2.43	.02	2.55	2.49
100	84 152	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.85	2.45	2.43	.02	2.55	2.49
100	85 154	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	4.93	2.45	2.43	.02	2.55	2.49
100	86 156	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	5.01	2.45	2.43	.02	2.55	2.49
100	87 158	3.86	2.43	2.96	4.67	2.14	.14	2.57	2.69	5.09	2.45	2.43	.02	2.55	2.49
100	88 160	3.86	2.43	2.96	4.67	2.14	.14								

3.3 APOLLO 16 HOUSEKEEPING SUMMARY (continued)

HM HV -	High mass multiplier high voltage monitor
S HV -	Sweep high voltage monitor
ETEMP -	Electronics temp. monitor
STEMP -	Ion source temp. monitor
M LO/HI -	Multiplier high voltage LO/HI flag
D HI/LO -	Discriminator HI/LO flag
I -	Instrument current (Total)

