

Apollo 16 ALSEP

15 August 1972
9753-117 (C)

Table 1

PSE Temperature (DL07) ON/OFF Scale

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>DL07</u>	<u>Sun Angle (deg)</u>	<u>Event</u>
1972			
27 Apr/0200	Offscale HIGH	88	First time - 1st Lunar Day
2 May/0920	On Scale	153	
25 May/0650	Offscale HIGH	72	2nd Lunar Day
2 Jun/0740	On Scale	170	
24 Jun/1200	Offscale HIGH	71-82	3rd Lunar Day
2 Jul/1519	Onscale	168-180	
23 Jul/1359	Offscale HIGH	77	4th Lunar Day
31 Jul	Onscale	162-174	

Internal
Memorandum



Date _____ Letter No. 9753-117
Rev. _____
To Distribution
From T. Breezy
Subject Apollo 16 ALSEP Anomalies

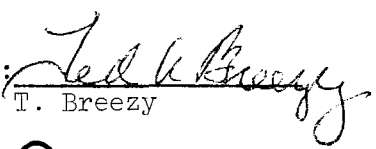
Ann Arbor, Michigan

Since deployment of the Apollo 16 ALSEP, only the passive seismic experiment has experienced a recurring anomalous event. This event appears to be cyclical in nature, resulting from the inexorable temperature changes that occur during each lunar cycle. The experiments package has also experienced sporadic functional changes due to spurious commands generated within the command receiver.


These events are presented in the following tables titled according to the particular anomaly and listed in order of occurrence. The tables are up dated as the events occur and are published monthly.

<u>Table No.</u>	<u>Table Contents</u>
1	PSE Temperature (DL-07) ON/OFF Scale
2	Apollo 16 ALSEP Functional Changes Without Transmission of Commands
3	PSE y-axis Leveling
4	PSE x-axis Leveling
5	LSM Science Data
6	PSE UNCAGE/ARM Circuit
7	Transmitter and Processor Change

Prepared by:


T. Breezy

Approved by:


R. Miley

TB: ch

Distribution: TDX/Standard
B. Rusky
D. Fithian
J. McNaughton
W. Tosh

Table 1

PSE Temperature (DLO7) ON/OFF Scale

<u>Date/Time</u> (G.m.t.)	<u>DLO7</u>	<u>Sun Angle (deg)</u>	<u>Event</u>
1972			
27 Apr/0200	Offscale HIGH	88	First time - 1st Lunar Day
2 May/0920	On Scale	153	
25 May/0650	Offscale HIGH	72	2nd Lunar Day
2 Jun/0740	On Scale	170	
24 Jun/1200	Offscale HIGH	71-82	3rd Lunar Day
2 Jul/1519	Onscale	168-180	
23 Jul/1359	Offscale HIGH	77	4th Lunar Day
31 Jul	Onscale	162-174	
21 Aug/1640	Offscale HIGH	73	5th Lunar Day
30 Aug/0247	Onscale	169-176	
20 Sep/1654	Offscale HIGH	79	6th Lunar Day
29 Sep/1737	Onscale	175-189	
19 Oct/1700	Offscale HIGH	73	7th Lunar Day
28 Oct/1320	Onscale	175-180	
18 Nov/1501	Offscale HIGH	77	8th Lunar Day
27 Nov/1525	Onscale	174-186	
17 Dec/1100	Offscale HIGH	68	9th Lunar Day
26 Dec/1000	Onscale	176	10th Lunar Day

15 February 1973
9753-117 (H)

Apollo 16 ALSEP

Table 1

PSE Temperature (DL07) ON/OFF Scale

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>DL07</u>	<u>Sun Angle (deg)</u>	<u>Event</u>
1973			
16 Jan/0100	Offscale HIGH	67	10th Lunar Day
24 Jan/2305	Onscale	175	

Apollo 16 ALSEP

Table 2

Spurious Functional Changes in Central Station/Experiments
No Commands Transmitted

<u>Function</u>	<u>CVW Received</u>	<u>Date/Time (G.m.t.)</u>	<u>MSFN</u>
1972			
1. Timer Output Accept	Yes (Octal 032)	29 Jun/0725	CYI

Apollo 16 ALSEP

Table 3

PSE y-axis

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>DL-07</u>	<u>Sun Angle(°)</u>	<u>Level/Not Level</u>	<u>Event</u>
1972				
4 Dec/1500	125.8°F	271°	Not Level	8th Lunar Day
8 Dec/1104	125.8°F	317°	Not Level	8th Lunar Day
13 Dec/1135	126.6°F	67°	Level	9th Lunar Day
30 Dec/1904	125.8°F	230°	Not Level	9th Lunar Day
1973				
10 Jan/1727	125.8°F	2°	Level	10th Lunar Day
27 Jan/0545	125.9°F	164°	Not Level	
10 Feb/0222	126.2°F	12°	Level	11th Lunar Day

15 February 1973
9753-117 (H)

Apollo 16 ALSEP

Table 4

PSE X-axis

1973

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>DL-07(°F)</u>	<u>Sun Angle(°)</u>	<u>Level/Not Level</u>	<u>Event</u>
30 Jan/1343	125.8°F	239	Not Level	
3 Feb/0308	125.8°F	287	Level	10th Lunar Day

Apollo 16 ALSEP

Table 2 .

Spurious Functional Changes in Central Station/Experiments

No Commands Transmitted

Table 2 reflects those functional changes that have occurred in 1973 to date. Previous changes are available upon request.

<u>Function</u>	<u>CVW Received</u>	<u>Date/Time (G.m.t.)</u>	<u>MSFN Site</u>
1973			
2. PSE, Uncaged to OT	No (Octal 073)	17 Feb/2057	None
3. PSE, Uncaged to OT	No (Octal 073)	20 Feb/1410	None
4. PSE, Uncaged to OT	No (Octal 073)	20 Mar/1449	None
5. PSE, OT to Uncaged	No (Octal 073)	24 Mar/0224	None
6. PSE, OT to Uncaged & SP ON	No (Octal 032)	28-29 Mar/1536Z	None
7. LSM to STANDBY	No (Octal 046)	2 Aug/0116	TEX
8. LSM to STANDBY	No (Octal 046)	2 Aug/0453	HAW
9. LSM to STANDBY	No (Octal 046)	3 Aug/0932	GWM
10. LSM to STANDBY	No (Octal 046)	6 Aug/0637	GWM
11. LSM to STANDBY	No (Octal 046)	6 Aug/0753	GWM

15 January 1974
9753-117 (R)

Apollo 16 ALSEP

Table 1

PSE Temperature (DL07) ON/OFF Scale

Table 1 reflects those periodic events that occurred in 1973 to date.
Previous events are available upon request.

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>DL07</u>	<u>Sun Angle (deg)</u>	<u>Lunation</u>
1973			
16 Jan/0100	Off Scale HIGH	67	10th
24 Jan/2305	On Scale	175	
15 Feb/0213	Off Scale HIGH	73	11th
24 Feb/0227	On Scale	182	
17 Mar/0319	Off Scale HIGH	78	12th
25 Mar/1550	On Scale	182	
15 Apr/1551	Off Scale HIGH	78	13th
23 Apr/1920	On Scale	177	
15 May/0831	Off Scale HIGH	80	14th
23 May/0951	On Scale	179	
13 June/0718	Off Scale HIGH	74	15th
21 June/1848	On Scale	178	
12 July/1432	Off Scale HIGH	72	16th
21 July/1334	On Scale	181	
11 Aug/1744	Off Scale HIGH	80	17th
19 Aug/1447	On Scale	176	
31 Aug/1421	Off Scale LOW	323	
2 Sep/1641	On Scale	349	
9 Sep/0858	Off Scale HIGH	70	18th
18 Sep/1304	On Scale	182	
9 Oct/1403	Off Scale HIGH	79	19th

Apollo 16 ALSEP
Table 1 (continued)

PSE Temperature (DL07) ON/OFF Scale

Table 1 reflects those periodic events that occurred in 1973 to date.
Previous events are available upon request.

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>DL07</u>	<u>Sun Angle (deg)</u>	<u>Lunation</u>
1973			
18 Oct/1446	On Scale	188	19th
07 Nov/1435	Off Scale HIGH	72	20th
17 Nov/0103	On Scale	187	
06 Dec/1624	Off Scale HIGH	66	21st
16 Dec/1428	On Scale	186	
1974			
05 Jan/2023	Off Scale HIGH	73	22nd
14 Jan/1305	On Scale	178	

Due to limited real-time support of the ALSEP package, it is not possible to accurately track these events. In addition, it is questionable that these events are any longer significant within the scope of engineering analysis on the ALSEP 14 package. Based on this rationale, this table is being discontinued and will no longer appear in these memoranda.

Apollo 16 ALSEP

Table 3

PSE Y-axis Leveling

Table 3 reflects those periodic events which occurred in 1973 to date. Previous events are available upon request.

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>DL-07(^oF)</u>	<u>Sun Angle(^o)</u>	<u>Level/Not Level</u>	<u>Lunation</u>
1973				
10 Jan/1727	125.8	2	Level	10th
27 Jan/0545	125.9	164	Not level	10th
10 Feb/0222	126.2	12	Level	11th
25 Feb/0323	125.7	195	Not level	11th
11 Mar/0229	125.8	352	Level	11th
27 Mar/0142	125.9	199	Not level	12th
9 Apr/1103	125.9	2.8	Level	13th
27 Apr/1544	125.9	225	Not level	13th
09 May/1210	126.1	9.4	Level	14th
22 Jun/1947	126.1	191	Not level	15th
27 Jun/1424	125.8	249	Level	15th
5 Jul/1911	125.8	349	Not level	15th
7 Jul/1313	126.1	11	Level	16th
23 Jul/1353	125.9	206	Not level	16th
6 Aug/2210	126.5	22	Level	17th
21 Aug/1346	125.9	200	Not Level	17th
4 Sep/1340	127.3	11	Level	18th
21 Sep/1030	125.9	217	Not Level	18th
24 Sep/1253	125.8	243	Level	18th

Apollo 16 ALSEP

Table 3 (continued)

PSE Y-axis Leveling

Table 3 reflects those periodic events which occurred in 1973 to date. Previous events are available upon request.

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>DL-07(°F)</u>	<u>Sun Angle(°)</u>	<u>Level/Not Level</u>	<u>Lunation</u>
1973				
19 Oct/1641	125.9	202	Not Level	19th
02 Nov/1450	126.2	12	Level	20th
18 Nov/1421	126.0	206	Not Level	20th
01 Dec/1705	126.0	353.6	Level	20th
24 Dec/1634	125.8	285.1	Not Level	21st
31 Dec/1639	126.1	10.3	Level	22nd

Due to limited real-time support of the ALSEP package, it is not possible to accurately track these events. In addition, it is questionable that these events are any longer significant within the scope of engineering analysis on the ALSEP 14 package. Based on this rationale, this table is being discontinued and will no longer appear in these memoranda.

Apollo 16 ALSEP

Table 4

PSE X-axis Leveling

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>DL-07(°F)</u>	<u>Sun Angle(°)</u>	<u>Level/Not Level</u>	<u>Lunation</u>
1973				
30 Jan/1343	125.8	239	Not level	10th
3 Feb/0308	125.8	287	Level	10th
2 Mar/1500	125.8	262	Not level	11th
11 Mar/0226	126.0	5	Level	12th
6 Jul/1411	125.8	359	Not level	15th
7 Jul/1313	126.1	11	Level	16th
23 Jul/1336	125.9	230	Not level	16th
6 Aug/2210	126.5	22	Level	17th

Due to limited real-time support of the ALSEP package, it is not possible to accurately track these events. In addition, it is questionable that these events are any longer significant within the scope of engineering analysis on the ALSEP 14 package. Based on this rationale, this table is being discontinued and will no longer appear in these memoranda.

15 January 1974
9753-117 (R)

Apollo 16 ALSEP
Table 6
PSE Uncage/Arm Circuit

Table 6 reflects events that have occurred in 1973.

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>DL-07 (°F)</u>	<u>Sun Angle (°)</u>	<u>Event</u>
17 Feb/2057	Off Scale HIGH	107	OT state caused by spurious command (octal 073). Commanded to UNCAGED.
20 Feb/1410	Off Scale HIGH	139	OT state caused by spurious command (octal 073). Commanded to UNCAGED.
19 Mar/1640 to 20 Mar/1449	Off Scale HIGH	124-135	OT state caused by spurious command (octal 037). Unable to command to UNCAGED.
24 Mar/0159-0224	Off Scale HIGH	163	Changed from OT to UNCAGED during leveling sequence.
27 Mar/0139-0238	125.9	199	Timer Output
27 Mar/1934 to 28 Mar/1732	125.9	208-219	Timer Output
28 Mar/1901 to 29 Mar/1536	125.8	220-230	Timer Output
29 Mar/1637-1631	125.8	231	Timer Output

Due to limited real-time support of the ALSEP package, it is not possible to accurately track these events. In addition, it is questionable that these events are any longer significant within the scope of engineering analysis on the ALSEP 14 package. Based on this rationale, this table is being discontinued and will no longer appear in these memoranda.

Internal
Memorandum



Date 15 April 1974

Letter No. 9753-117
Rev. U

Ann Arbor, Michigan

To Distribution

From T. Breezy

Subject Apollo 16 ALSEP Anomalies

Since deployment of the Apollo 16 ALSEP, only the passive seismic experiment has experienced a recurring anomalous event. This event appears to be cyclical in nature, resulting from the inexorable temperature changes that occur during each lunar cycle. The experiments package has also experienced sporadic functional changes due to spurious commands generated within the command receiver.

Due to the limited real-time support of the ALSEP 16 package, it is difficult to accurately track the anomalous events. It is also questionable that certain events are any longer of particular value to significantly affect the engineering analysis of the ALSEP 16 package. Therefore, particular tables are being discontinued but will remain on file and be available on request. The anomalies will, however, be reported in the weekly ALSEP PERFORMANCE SUMMARY REPORT as the anomalies may occur.


The retained anomalies are updated as the events occur and are published monthly.

Table No.

Table Contents

1	Apollo 16 ALSEP Functional Changes Without Transmission of Commands
2	LSM Science Data
3	Transmitter and Processor Change
4	Index to Discontinued Anomalies Reports

Prepared by:


T. Breezy

Approved by:


R. Miley

TB:ch

Distribution: TDX/Standard
B. Rusky
D. Fithian
J. McNaughton
W. Tosh

15 April 1974
9753-117 (U)

Apollo 16 ALSEP

Table 1

Spurious Functional Changes in Central Station/Experiments

No Commands Transmitted

Table 1 reflects those functional changes that have occurred in 1974 to date. Previous changes are available upon request.

<u>Function</u>	<u>CVW Received</u>	<u>Date/Time (G.m.t.)</u>	<u>MSFN Site</u>
1974			
NONE			

15 April 1974
9753-117 (U)

Apollo 16 ALSEP

Table 2

LSM Science Data

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>Internal</u> <u>Temp (^oC)</u>	<u>Sun Angle (^o)</u>	<u>Science Data</u>
1973			
15 Feb/0203	53.5	72.7	Intermittent
16 Feb/0209	50.8	84.7	Good
16 Feb/2045	59.4	94.3	Intermittent
17 Feb/1910	23.5	105.7	Intermittent
20 Feb/1318	48.2	138.9	Intermittent
22 Feb/0222	15.8	157.9	Intermittent
7 Aug/0112	29.5	23.7	Good
8 Aug/1638	42.4	31.1	Intermittent
17 Aug/1418	44.6	152.4	Good
1974			Good

Apollo 16 ALSEP

Table 3

Transmitter and Processor Change

Table 3 reflects an event that occurred in 1973.

<u>Date/Time</u> <u>G.m.t.</u>	<u>Event</u>
26 Mar/0926	Transmitter "B" and processor "Y" selected after collapse of bit stream and data quality poor. Decom lock maintained. Resultant gain in signal strength and data quality.

Apollo 16 ALSEP

Table 4

Index to Discontinued Anomalies Reports

Table 4 reflects the Table of Anomalous Events which are referred to in the basic Letter No. 9753-117, Rev. R, 14 December 1973.

<u>Letter No.</u>	<u>Table No.</u>	<u>Table Contents</u>
9753-111 (Q)	1	PSE Temperature (DL-07) ON/OFF Scale
9753-111 (Q)	3	PSE y-axis leveling
9753-111 (Q)	4	PSE x-axis leveling
9753-111 (Q)	6	PSE UNCAGE/ARM Circuit