

Internal
Memorandum



Date 15 August 1972

Letter No. 9753-111
Rev. E

Ann Arbor, Michigan

To Distribution

From J. Urban

Subject Apollo 15 ALSEP Anomalies

Since deployment of the Apollo 15 ALSEP, various anomalous events have occurred within the package. Certain of these events appear to be cyclical in nature, resulting from the inexorable temperature changes that occur during each lunar cycle. These events are approximately predictable based on past occurrences. Other events although influenced by changing temperatures do not occur consistently enough to be classified as periodic. Finally, there are those events that occur sporadically over the entire lunation. Most notable of these are 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.

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Apollo 15 ALSEP

15 August 1972
9753-111 (E)

Table 7

SWS Anomalies

<u>Date/Time</u> <u>(GMT)</u>	<u>Module 300</u> <u>Temperature (°C)</u>	<u>Sun Angle</u> <u>(deg)</u>	<u>Remarks</u>
1971 August through 30 Jun 72			Voltage levels 13 and 14 same as level 12; should be greater.
Note: First indications of anomalous behavior traced to August after initial discovery in November. Subse- quent investigation has revealed anomaly has occurred intermittently during every lunation since deployment.			
1972 30 Jun/1816	Invalid data	146	All instrument words dropped to zero, and a 7 watt decrease in central station reserve power was observed.

Table 1

LSM Field Sensor Heads

<u>Date/Time (GMT)</u>	<u>LSM Internal Temperature (°C)</u>	<u>Sensor Temperature(°C)</u>	<u>Sun Angle (deg)</u>	<u>Remarks and/or X,Y,Z Head Positions</u>
1971				
30 Aug/1620	50.8	(Y) 33.2	29	Y head failed to flip to 0 during flip calibration sequence*(0-180-0)
30 Aug/2009	50.8	(Y) 33.2	31	Subsequent command sequence unlocked Y head (0-0-0)
29 Oct/0940	53.5	(Y) 33.2	37	Y head failed to flip during flip calibration sequence (0-180-0)
29 Oct/0954	53.5	(Y) 33.2	37	Subsequent command sequence failed to unlock Y head. X and Z heads returned to 180 to maintain synchronization (180-180-180)

Since 29 Oct 1971 the Y sensor head has remained locked in the 180° position. Flip calibration sequences are commanded in pairs to maintain head synchronization. It is questionable that this event is any longer significant within the scope of engineering analysis on the Apollo 15 ALSEP package. Based on this rationale, this table is being discontinued and will no longer appear in this memoranda.

*Initiated by timer pulse No. 39

Table 2

9753-111 (E)

LSM Y-Axis Off Scale Low

<u>Date/Time</u> <u>(GMT)</u>	<u>Y Sensor</u> <u>Temperature (°C)</u>	<u>Internal LSM</u> <u>Temperature (°C)</u>	<u>Sun Angle</u> <u>(deg)</u>	<u>Remarks</u>
1972				
4 Jan/1555	48.4	59.4	135	Returned on scale coincident with second raster of flip calibration sequence
30 Jan/0754	70.1	71.4	87	Dropped off scale low coincident with first raster of flip calibration sequence
31 Jan/1516	68	69	103	Returned on scale coincident with first raster of flip calibration sequence
29 Feb/1528	70.9	71.4	96	Dropped off scale low during flip calibration sequence
2 Mar/1607	62	62.6	120	Returned on scale during flip calibration sequence
30 Mar/1428	70.1	69.5	101	Dropped off scale low during flip calibration sequence
1 Apr/1436	57.8	59.4	125	On scale at beginning of real time support

It is questionable that this event is any longer significant within the scope of engineering analysis on the Apollo 15 ALSEP package. Based on this rationale, this table is being discontinued and will no longer appear in this memoranda.

Apollo 15 ALSEP

Table 2

LSM Y-Axis Off Scale Low

<u>Date/Time (GMT)</u>	<u>Y Sensor Temperature (°C)</u>	<u>Internal LSM Temperature (°C)</u>	<u>Sun Angle (deg)</u>	<u>Remarks</u>
2 Nov/1423	63.5	73.3	88	Dropped off scale low coincident with first raster of flip calibration sequence
5 Nov/1500	50.5	62.6	125	On scale at beginning of support
1 Dec/1400	65.1	71.4	81	Dropped off scale low coincident with first raster of flip calibration sequence
5 Dec/1330	50.5	61.0	129	On scale at beginning of support
31 Dec/1620	68.4	73.3	87	Dropped off scale low coincident with first raster of flip calibration sequence
4 Jan/1555	48.4	59.4	135	Returned on scale coincident with second raster of flip calibration sequence
30 Jan/0754	70.1	71.4	87	Dropped off scale low coincident with first raster of flip calibration sequence
31 Jan/1516	68	69	103	Returned on scale coincident with first raster of flip calibration sequence
29 Feb/1528	70.9	71.4	96	Dropped off scale low during flip calibration sequence
2 Mar/1607	62	62.6	120	Returned on scale during flip calibration sequence

Apollo 15 ALSEP

Table 3

PSE Temperature (DL07) Off Scale High/On Scale

<u>Date/Time (GMT)</u>	<u>DL07</u>	<u>Sun Angle (deg)</u>	<u>Remarks</u>
<u>1971</u>			
2 Dec/1346	Off Scale High	93	First time off scale (5th lunar day)
5 Dec/1300	On Scale	129	
31/Dec/1532	Off Scale High	86	Second time off scale(6th lunar day)
<u>1972</u>			
3 Jan/1500	On Scale	122	
29 Jan/1430	Off Scale High	78	Third time off scale(7th lunar day)
31 Jan/1346	On Scale	102	
28 Feb/1417	Off scale High	83	Fourth time off scale (8th lunar day)
2 Mar/1600	On Scale	120	
29 Mar/1424	Off Scale HIGH	89	Fifth Time off scale (9th lunar day)

Table 6

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>
22. Side Stby Power	Yes (octal 053)	26 Feb/1857	MAD
23. HFE Mode 3	No	5 Mar/1700-6 Mar/1500	HAW or MAD or BDA or HSK
24. LSM Thermal Control OFF	Yes (octal 134)	4 Apr/0606	BDA
25. PSE Standby Power	Yes (octal 036)	4 Apr/1802	HAW
26. HFE Mode 3	Yes (octal 140)	6 June/1453	HAW
27. 5 Watt Htr ON	Yes (octal 017)	8 June/1815	HAW

Apollo 15 ALSEP

Table 6

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 Site</u>
1971 1. PSE Y Motor ON	Yes (octal 071)	5 Aug/2121	CYI
2. PSE Uncage to OT	Yes (octal 073)	6 Aug/0943	HAW
3. LSM Flip Cal	Yes (octal 131)	20 Aug/1313	MAD
4. PSE Course Sensor IN	Yes (octal 102)	13 Sep/1117	TEX
5. HF Stby Power	Yes (octal 056)	15 Sep/1028	MAD
6. PSE X Motor ON	Yes (octal 070)	21 Sep/1659	MIL
7. LSM Stby Power	Yes (octal 043)	27 Sep/1248	ACN
8. PSE OT to Uncage (octal 073)	No	4 Oct/1242-1443	GWM
9. PSE Thermal Control Auto ON (octal 076)	No	4 Oct/1242-1443	GWM
10. PSE Filter IN	Yes (octal 101)	24 Oct/2058	BDA
11. PSE SP Cal	Yes (octal 065)	31 Oct/1928	MAD
12. PSE Short Period Gain Change(-10dbm)	Yes (octal 067)	12 Nov/1615	MAD
13. Timer Output Inhibit	Yes (octal 033)	18 Nov/2258	HAW
14. HFE Stby Power	Yes (octal 056)	19 Nov/0026	HAW
15. LSM Flip Cal	No	19 Nov/0026-1330	HAW or ACN
16. C/S Data Processor switch from X to Y	No	8 Dec/2200-2330	HAW
17. PSE Filter IN	Yes (octal 101)	16 Dec/1801	TEX
18. C/S Data Processor Switch from Y to X 1972	No	18 Dec/2313	HAW
19. PSE XY Gain Change to -10db	Yes (octal 063)	6 Jan/2235	CRO
20. HFE Stby Power	Yes (octal 056)	26 Jan/2025	MAD
21. LSM Filter IN	Yes (octal 132)	30 Jan/0631	GDS

Table 1

PSE Temperature (DL07) ON/OFF Scale

Table 1 reflects those periodic events that occurred in 1972 to date. Previous events are available upon request.

<u>Date/Time</u> (G.m.t.)	<u>DL07</u>	<u>Sun Angle (deg)</u>	<u>Event</u>
1972			
3 Jan/1500	On Scale	122	
29 Jan/1430	Off Scale High	78	Third time off scale (7th lunar day)
31 Jan/1346	On Scale	102	
28 Feb/1417	Off Scale High	83	Fourth time off scale (8th lunar day)
2 Mar/1600	On Scale	120	
29 Mar/1424	Off Scale High	89	Fifth time off scale (9th lunar day)
1 Apr/1436	On Scale	125	
29 Apr/0136	Off Scale High	100	Sixth time off scale (10th lunar day)
29 Apr/1900	On Scale	109	
21 Oct/1158	Off Scale High	82	Seventh time off scale (16th lunar day)
24 Oct/1259	On Scale	119	
19 Nov/1357	Off Scale High	77	Eighth Time off scale (17th Lunar day)
23 Nov/1341	On Scale	125	
18 Dec/1230	Off Scale High	69	Ninth Time off scale (18th Lunar day)
23 Dec/0800	On Scale	127	

SIDE MODE CHANGES AND REGISTER LOADS

<u>Date/Time</u> <u>(GMT)</u>	<u>SIDE Temp.2</u> <u>(°C)</u>	<u>Sun Angle</u> <u>(deg)</u>	<u>Remarks</u>
1971			
27 Sep/1519	8	10	CMD Reg contained 010 (LECPA H/Volt ON/OFF)
28 Sep/0245	31	16	CMD Reg contained 010 (LECPA H/Volt ON/OFF)
2 Dec/1311	86.9	93	Side H/Volt went OFF
1972			
24 Jan/1440	39.2	18	CMD Reg contained 010 (LECPA H/Volt ON/OFF)
19 Jul/1731	38.4	18	CMD Reg contained 004 (Reset velocity filter at 9)
22 Jul/?	78.0	54	CMD Reg contained 015 (Reset command register)
23 Jul/?	81.7	65	CMD Reg was clear; 000
24 Jul/?	84.2	78	CMD Reg contained 015 (Reset command register)
29 Sep/?	40.8	177	CMD Reg contained 015 (Reset command register)
15 Oct/?	8.4	10	CMD Reg contained 015 (Reset command register)
14 Nov/?	36.8	17	CMD Reg contained 008 (Master Reset)

HFE TEMPERATURE REFERENCE JUNCTION (TCR2) VALID/INVALID

<u>Date/Time(G.m.t.)</u>	<u>TCR2</u>	<u>TCR 1(^oK)</u>	<u>Sun Angle (Deg)</u>	<u>Remarks</u>
1971				
7 Aug/1027	Invalid	326.0	105	
17 Aug/0007	Valid	283.0	222	
2 Sep/1315-1405	Invalid	323.3	64	Intermittent
3 Nov/1400	Invalid	329.9	100	
13 Nov/2141	Valid	283.1	225	
9 Dec/1845	Invalid	290.8	180	
11 Dec/1732	Valid	283.3	204	
1972				
1 Apr/0417	Invalid	325.8	120	
5 Apr/1351	Valid	295.6	174	
25 Apr/0750	Invalid	319.0	56	
4 May/1859	Valid	299.4	170	
5 May/0106	Invalid	297.2	173	
24 May/0700	Valid	315.5	45	
24 May/1335	Invalid	315.6	51	
28 May/0113	Valid	328.2	82	
29 May/0700	Invalid	326.3	109	
26 Jul/0446	Valid	327.9	97	
26 Jul/0618	Invalid	324.6	99	

Apollo 15 ALSEP

Table 4

Spurious Functional Changes in Central Station/Experiments

No Commands Transmitted

Table 4 reflects those functional changes that have occurred in 1972 to date. Previous experiments package changes are available upon request.

<u>Function</u>	<u>CVW Received</u>	<u>Date/Time (G.m.t.)</u>	<u>MSFN Site</u>
1972			
19. PSE XY Gain Change to -10 db	Yes (octal 063)	6 Jan/2235	CRO
20. HFE Stby Power	Yes (octal 056)	26 Jan/2025	MAD
21. LSM Filter IN	Yes (octal 132)	30 Jan/0631	GDS
22. Side Stby Power	Yes (octal 053)	26 Feb/1857	MAD
23. HFE Mode 3	No	5 Mar/1700-6 Mar/1500	HAW
24. LSM Thermal control OFF	Yes (octal 134)	4 Apr/0606	BDA
25. PSE Standby Power	Yes (octal 036)	4 Apr/1802	HAW
26. HFE Mode III	Yes (octal 140)	6 Jun/1453	HAW
27. HFE Mode III	No	1 Aug/1600-2 Aug/1300	?
28. HBR ON	No (octal 003)	6 Aug/0453	MAD
29. PSE XY Gain Change to -10 db	Yes (octal 063)	28 Aug/1348	GDS
30. PSE Z Mtr ON	Yes (octal 072)	29 Aug/0721	CYI
31. SIDE load 2	Yes (octal 105)	29 Sep/1001	HAW
32. PSE X Mtr ON	Yes (octal 070)	23 Oct/1303	HAW
33. SIDE Standby	Yes (octal 053)	30 Oct/0500	ACN
34. Transmitter OFF	No (octal 014)	11 Nov/1501	ACN

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Table 5

SWS Anomalies

<u>Date/Time (G.m.t.)</u>	<u>Remarks</u>
1971	
August through 30 Jun 72	Voltage levels 13 and 14 same as level 12; should be greater. Note: First indications of anomalous behavior traced to August after initial discovery in November. Subsequent investigation has revealed anomaly has occurred intermittently during every lunation since deployment
1972	
30 Jun/1816	All instrument words dropped to zero, and a 7 watt decrease in central station reserve power was observed.
1 Jul/1400	Instrument commanded to ON and indicated excess power drawn from central station.
3 Jul/1530	Instrument commanded to ON and drew 13 watts of power from central station. Turned to STANDBY at 1607 G.m.t. and will remain in this configu- ration until 25 July 1972.
20 Jul/1943	Experiment commanded to ON to provide data for analysis of high power demand anomaly, and operated for 38 minutes.
21 Jul/0723	Experiment commanded to ON for 95 minutes. The instrument continued to demand excessive power (9 - 10.6 watts) and telemetry data indicated all zeros. It is currently planned to cycle to operate select during real-time support periods only.
22 Jul/1509 23 Jul/1337 24 Jul/1630 27 Jul/1500 30 Jul/1415	The instrument was commanded to ON and operate select and continued to draw excessive power and telemetry data indicated all zeros. The experi- ment was returned to STANDBY prior to termination of real-time support.

Apollo 15 ALSEP
Table 5 (continued)

SWS Anomalies

<u>Date/Time (G.m.t.)</u>	<u>Remarks</u>
1972	
17 Aug/1833	The instrument had been in STANDBY since 30 July 1972. The experiment was commanded to ON and operate select at 1833 G.m.t. for 80 minutes. The experiment continued to draw excessive power (9-10.6 watts), to return telemetry data of all zeros, and was a source of interference to the passive seismometer's operation. The instrument will remain in standby pending analysis per SMEAR #45.
1973	
12 Jan/1438	The instrument commanded ON at 1438 G.m.t. for 3 minutes (Stby 1441 G.m.t., S/A 13.7°). Telemetry data was all zeros.
19 Jan/0736	Commanded ON (0736 G.m.t.) and to standby (0738 G.m.t., S/A 95°). Telemetry data was all zeros.
26 Jan/0156	The instrument commanded ON at 0156 G.m.t. for eight(8) minutes. Still causes interference to passive seismometer. Power requirement appeared normal. The instrument will remain in standby pending analysis per SMEAR #46. Telemetry data was all zeros.

Apollo 15 ALSEP

Table 1

PSE Temperature (DLO7) 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>DLO7</u>	<u>Sun Angle (deg)</u>	<u>Event</u>
1973			
17 Jan/0730	Off Scale High	68	Tenth time off scale (19th Lunar day)
22 Jan/0150	On Scale	128	
16 Feb/0133	Off Scale High	73	Eleventh time off scale (20th lunar day)
20 Feb/1344	On Scale	127	
17 Mar/1616	Off Scale High	73	Twelfth time off scale (21st Lunar day)
22 Mar/2042	On Scale	136	

Due to limited real-time support of the ALSEP 15 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 15 package. Based on this rationale, this table is being discontinued and will no longer appear in these memoranda.

Apollo 15 ALSEP

Table 3

HFE TEMPERATURE REFERENCE JUNCTION (TCR2) VALID/INVALID

Events prior to 1973 are available upon request.

<u>Date/Time(G.m.t.)</u>	<u>TCR2</u>	<u>TCR 1(^oK)</u>	<u>Sun Angle (Deg)</u>	<u>Remarks</u>
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1973

None to date

Due to limited real-time support of the ALSEP 15 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 15 package. Based on this rationale, this table is being discontinued and will no longer appear in these memoranda.

Internal
Memorandum



Date 15 May 1973

Letter No. 9753-111
Rev.

Ann Arbor, Michigan

To Distribution

From T. Breezy

Subject Apollo 15 ALSEP Anomalies

Since deployment of the Apollo 15 ALSEP, various anomalous events have occurred within the package. Certain of these events appear to be cyclical in nature, resulting from the inexorable temperature changes that occur during each lunar cycle. These events are approximately predictable based on past occurrences. Other events although influenced by changing temperatures do not occur consistently enough to be classified as periodic. Finally, there are those events that occur sporadically over the entire lunation. Most notable of these are 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	SIDE Mode Changes and Register Loads
2	Spurious Functional Changes
3	SWS Anomalies

Prepared by:

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Apollo 15 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 experiments package changes are available upon request.

<u>Function</u> 1973	<u>CVW Received</u>	<u>Date/Time (G.m.t.)</u>	<u>MSFN Site</u>
35. "Y" Mtr ON	Yes (octal 071)	26 Jan/1619	HAW
36. DSS-2 Htr OFF	Yes (octal 017)	30 Jan/2107	HAW
37. PSE Uncage/Fire	Yes (octal 073)	14 Feb/0950	HSK
38. SIDE Load 4	Yes (octal 107)	14 Mar/1311	CRO
39. HFE Subsequence No. 1	Yes (octal 144)	18 Mar/0624	TEX
40. Transmitter "B" Select	No (octal 015)	22 Mar/1609	CRO
41. SIDE Load 4	No (octal 107)	10 Apr/0950- 11 Apr/0951	--
42. PCU #2 ON	No (octal 062)	23 Apr/0507-1810	--
43. "Y" Mtr ON	No (octal 071)	16 May/1100- 17 May/1256	--
44. HFE Probe #1 Select	Yes (octal 142)	3 Jun/0712	GWM
45. Timer Output Inhibit	Yes (octal 033)	21 Jul/1908	HSK
46. SWS ON	Yes (octal 045)	8 Aug/0141	HAW
47. SIDE Load 10	No (octal 107)	13 Aug/1459- 14 Aug/2129	---
48. PSE leveling Direction	Yes (octal 074)	20 Aug/1809	CRO
49. "X" Mtr ON (PSE)	Yes (octal 070)	31 Aug/1347	BDA

Apollo 15 ALSEP

Table 2 (continued)

Spurious Functional Changes in Central Station/Experiments

No Command Transmitted

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

<u>Function</u>	<u>CVW Received</u>	<u>Date/Time(G.m.t.)</u>	<u>MSFN Site</u>
1973			
50. "X" Mtr ON (PSE)	Yes (octal 070)	28 Oct/1851	ACN
51. "Y" Mtr ON (PSE)	Yes (octal 071)	09 Nov/0614	BDA
52. PSE Gain Change LPZ	No (octal 064)	14 Nov/0825	MIL
53. LSM Range Select	No (octal 123)	24 Nov/0258- 26 Nov/1425	--
54. PSE Calibration SP ON	Yes (octal 065)	04 Dec/0751	HAW
55. PSE Coarse Level Sensor IN	Yes (octal 102)	04 Dec/2330	CYI

Apollo 15 ALSEP

Table 1

SIDE MODE CHANGES AND REGISTER LOADS

Events prior to 1974 are available upon request.

<u>Date/Time</u> (GMT)	<u>SIDE Temp. 2</u> (°C)	<u>Sun Angle</u> (deg)	<u>Remarks</u>
1973			
14 Mar/1311	75.6	43.5	CMD Reg contained 008 (Master Reset)
11 Apr/1231	32.4	15.9	CMD Reg contained 004 (Reset Frame Counter)
13 Aug/1459- 14 Aug/2129	88.1	107.5	Side Load 10 LECPA voltage zero. LECPA voltage commanded ON at 1414 G.m.t., 29 Aug 73.
12 Sep/1412- 13 Sep/0829	89.5	107.2	High voltage from -3.475KV to -2.535 KV, high and low energy counts to zero. Restored to normal at 1005 G.m.t., 13 Sep 73.
13 Sep/1100- 14 Sep/1259	88.1	121.7	High voltage (-3.5 KV) OFF. SIDE ON at 1313 G.m.t., 15 Sep 73
04 Oct/1500 05 Oct/1609	42.3	5.7-19.0	Side Load 10
02 Nov/1800 03 Nov/1418	15.0	11.7	CMD Reg contained 008 (Master Reset)

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
9753-1111 (T)

Apollo 15 ALSEP

Table 3
SWS Anomalies

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

<u>Date/Time (G.m.t.)</u>	<u>Remarks</u>
1973	
12 Jan/1438	The instrument commanded ON at 1438 G.m.t. for 3 minutes (Stby 1441 G.m.t., S/A 13.7°). Telemetry data was all zeros.
19 Jan/0736	Commanded ON (0736 G.m.t.) and to standby (0738 G.m.t., S/A 95°). Telemetry data was all zeros.
26 Jan/0156	The instrument commanded ON at 0156 G.m.t. for eight (8) minutes. Still causes interference to passive seismometer. Power requirement appeared normal. The instrument will remain in standby pending analysis per SMEAR #46. Telemetry data was all zeros.
21 Mar/1443	The instrument was commanded ON at 1443 G.m.t. for eleven (11) minutes. Power requirement was 13 watts. Telemetry data was all zeros after the ninth level. The instrument will remain in standby pending further analysis.
17 Apr/1017	The instrument was commanded ON at 1017 G.m.t. for three (3) minutes. Power requirement was 13 watts. Telemetry data was all zeros. The instrument is presently in standby.
10 Jul/0527	The instrument was commanded ON at 0527 G.m.t. for four (4) minutes. Power requirement was 9.5 watts. Telemetry data was all zeros. The instrument is presently in STANDBY.
8 Aug/0141	Spurious command (Octal 045) to ON. Returned to STANDBY by Mode 1 command at 0235 G.m.t., 8 Aug 73.
9 Oct/1353	The instrument was commanded ON at 1353 G.m.t., for four (4) minutes. Power requirement was 9 watts. Telemetry data was all zeros. The instrument is presently in STANDBY.

Apollo 15 ALSEP

Table 3

SWS Anomalies

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

Date/Time (G.m.t.)

Remarks

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. 9753-111
Rev. W

Ann Arbor, Michigan

To Distribution

From T. Breezy

Subject Apollo 15 ALSEP Anomalies

Since deployment of the Apollo 15 ALSEP, various anomalous events have occurred within the package. Certain events, resulting from the inexorable temperature changes, appear to be cyclical in nature and are approximately predictable. Other events occur irregularly and are not predictable. Finally, there are the functional changes due to spurious commands generated within the command receiver.

Due to the limited real-time support of the ALSEP 15 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 15 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.

<u>Table No.</u>	<u>Table Contents</u>
1	Spurious Functional Changes
2	LSM Anomalies
3	Index to Discontinued Anomalies Reports

Prepared by: T. Breezy
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Approved by: R. Miley
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W. Tosh

15 April 1974
9753-111 (W)

Apollo 15 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 experiments package changes are available upon request.

<u>Function</u>	<u>CVW Received</u>	<u>Date/Time(G.m.t.)</u>	<u>MSFN Site</u>
1974			
56. PSE Gain Change LPZ	Yes(Octal 064)	14 Jan/0822	MIL
57. PSE Lvl Spd. Chge (HI)	Yes(Octal 075)	29 Jan/0550	HAW
58. SIDE MST RST Load 8	No(Octal 107)	30 Jan/1600- 31 Jan/2354	--
59. HFE Sub-sequence #2	Yes(Octal 145)	05 Feb/2214	CYI
60. HFE Probe No. 1 Sequence Select	Yes(Octal 142)	23 Mar/0020	GWM
61. Xmitter "B" select	No(Octal 015)	04 Apr/0932	GDS

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Table 2

LSM Anomalies

Table 2 reflects an event that occurred in 1973 to date.

<u>Date/Time(G.m.t.)</u>	<u>Sun Angle (°)</u>	<u>Internal Temp °(F)</u>	<u>Remarks</u>
09 Dec/1600- 10 Dec/1410	90.0-102.1	71.38 - 108.91	All engineering and science data invalid.

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Table 3

Index to Discontinued Anomalies Reports

Table 3 reflects the Tables of anomalous events which are referred to in the basic Letter No. 9753-111 Rev. N, 15 June 1973 and No. 9753-111 Rev. S, 14 December 1973.

<u>Letter No.</u>	<u>Table No.</u>	<u>Table Contents</u>
9753-111 (L)	1	PSE Temperature (DL07) ON/OFF Scale
9753-111 (L)	3	HFE TREF 2 (TCR2) Valid/Invalid
9753-111 (S)	1	SIDE Mode Changes and Register Loads
9753-111 (S)	3	SWS Anomalies