



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

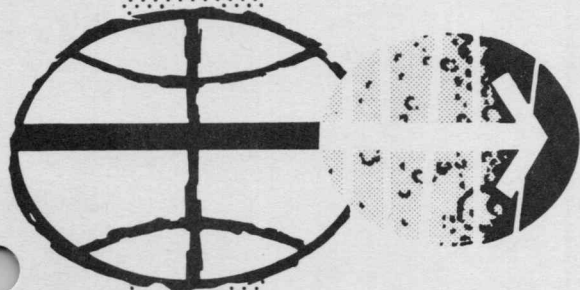
APOLLO 17

DECEMBER 7 LAUNCH

THIS ISSUE IS FOR THE DECEMBER
7 LAUNCH. DO NOT DISCARD
PREVIOUS ISSUES.

CHANGE AA (T+24)
CSM CUE CARDS

PREPARED BY
FLIGHT PLANNING BRANCH
CREW PROCEDURES DIVISION



MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

NOVEMBER 22, 1972

APOLLO 16
CSM CUE CARDS

Change A

NOVEMBER 22, 1972 (T+24)

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Distribution of this document is controlled by Flight Data File Manager, T. W. Holloway, Flight Planning Branch, Crew Procedures Division.

CSM CUE CARDS

DECEMBER 7 LAUNCH

LIST OF EFFECTIVE PAGES

BASIC 9/4/72
 CHANGE A 10/13/72
 REVISION A 11/2/72
 CHANGE B 11/15/72
 CHANGE AA 11/22/72 (T+24)

PAGE		DATE
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*ii	LIST OF EFFECTIVE PAGES CONT'D	11/22/72 (T+24)
iii	CSM CUE CARD LOCATIONS	(Dec 6, T=0)
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1-2	VELCRO LOCATIONS (BACK OF CARD)	(Dec 6, T=0)
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1-4	LMP BOOST/ABORTS	(Dec 6, T=0)
1-5	TLI NO GO's	(Dec 6, T=0)
1-6	LAUNCH ABORT PAD	(Dec 6, T=0)
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1-11	VELCRO LOCATIONS (BACK OF CARD)	(Dec 6, T=0)
*2-1	TLI	11/22/72 (T+24)
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*2-5	NOMINAL SIVB TLI 2	11/22/72 (T+24)
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*Current Changes, data

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*3-4	LOI LIMITS	11/22/72 (T+24)
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3-6	ENTRY	(Dec 6, T=0)
3-7	PRE-ENTRY ATTITUDE TIMELINE	(Dec 6, T=0)
3-8	ENTRY CONT'D	(Dec 6, T=0)
	VELCRO LOCATIONS (BACK OF CARD)	(Dec 6, T=0)
3-9	POWER LOSS	(Dec 6, T=0)
3-10	BRAKING GATES	(Dec 6, T=0)
3-11	ANTENNA LOCATION	(Dec 6, T=0)
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3-12	SIM BASIC CONFIGURATION	(Dec 6, T=0)
3-13	SIM EXP STATUS CODE	(Dec 6, T=0)
3-14	CM EVA	(Dec 6, T=0)
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3-21	VELCRO LOCATIONS (BACK OF CARD)	(Dec 6, T=0)
3-22	PNL 229 cb FUNCTIONS	(Dec 6, T=0)
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*3-24	LOI VGO	11/22/72 (T+24)
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*Current Changes, data

PIA

PIB

TLI

11/22/72

11/22/72

DEC 7 LAUNCH

SIVB SEP

1. MAN ATT (3) - RATE CMD
THC PWR - ON
RHC PWR - NORM/DIRECT
RCS CMD - ON
S/C CONT - SCS
LV XLUNAR - SAFE
2. cb SECS ARM (2) - CLOSE
SECS LOGIC (2) - ON
SECS PYRO (2) - ARM
3. THC +X & HOLD (5 sec)
CSM/LV SEP - PUSH
4. OR - THC CCW (HOLD 5 sec)

O>F:ΔP>36
F>O:ΔP>26
OX:P>50

TLI

EMS ΔV TEST, SET ΔV
cb DIRECT ULL (2) - CLOSE
UP TL - BLK
EDS PWR - ON
PYRO ARM (2) - ON
THC, RHC
SC CONT - SCS
LV IND - SIVB
LV GUID - IU
XLUNAR - INJECT
SET DET : 51:00

*LV GUID LT - ON
*LV GUID - CMC
*RHC DIR (2) - OFF
*V16N20
*MNVR to R2 ALIGN

TB6 (TIG -9:38)
SII SEP LT, UPLK - ON
-9:00 SII SEP LT OUT
START DET UP
(TB6 1 REV IF SAFE)
51:04 (SAFE DELAY TIL 58:36)
51:05 REPRESS START
54:00 ORDEAL 300/LUNAR
56:00 ORDEAL $\theta = 17^\circ$
*ORDEAL $\theta = 0$ (N20)
*R2 ALIGN = 272°
 (57:00) ORDEAL - OPR
 $\theta = 13^\circ$
*R2 IGN 265.5°
58:15 AVG G (MNVR)
58:20 TVC SERVO 1 - AC1/MNA
EMS - NORMAL
58:36 SII SEP LT - ON
(TB6 1 REV IF SAFE)
58:38 SIVB ULLAGE
59:42 SII SEP LT - OFF
(INHIBIT: STG TIL :12)
59:52 FUEL LEAD
59:55 ORDEAL $\theta = 6^\circ$
*ORDEAL $\theta = 0$
*R2 IGN = 265.5°
ULLAGE OFF
59:59 LV ENG 1 LT - ON
*P = 0, Y = 00°

00:00 TIG
VI BT
00:02 LV ENG 1 LT - OFF
00:05 ORB RT OFF - IGN ON
01:32 PU SHIFT
05:46 SIVB ECO, TB7
05:56 LV ENG 1 LT - OFF +10
08:26 SIVB MNVR ORB RT (.3)

MONITOR

10°/s: BMAG 1 - STG C/O
45° P or Y: STG C/O
20°/s R
SIVB GUID LT: CONT - CMC,
GUID CMC, V46 STG C/O
NO ECO @ TFC = 0 + 1 sec or
 $\Delta tB + 1$ sec or EMS -150:
THC - CCW, NEUT in 1 sec

P2X

P2X

11/15/72

NOMINAL SIVB TLI 0

DEC 7 LAUNCH(T+24)

11/22/72

DET	Θ	Ψ	VI	H	H
0:00	272	359.7	25610	-3	95
:30	266	359.3	26161	-13	95
1	264	359.0	26768	8	95
1:30	263	358.5	27402	82	95
2	262	357.9	28160	216	96
2:30	261	357.4	28965	429	98
3	260	356.8	29813	727	100
3:30	259	356.3	30709	1121	105
4	258	355.7	31658	1617	112
4:30	256	355.2	32668	2225	121
5	254	354.7	33748	2948	134
5:30	250	354.2	34917	3774	150
5:47	250	354.2	35642	4307	162

PRINT FLIGHT CONFIGURATION
CARDS ON K10



11/15/72

MANUAL SIVB TLI 0

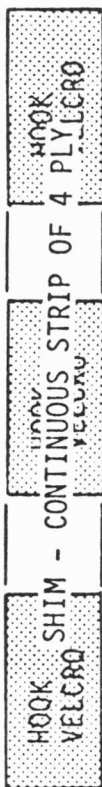
DEC 7 LAUNCH(T+24)

11/22/72

DET	Θ	Ψ	VI	H	H
0:00	266.0	356.5	25610	-3	95
:30	264.9	356.5	26161	-13	95
1	263.8	356.5	26768	8	95
1:30	262.8	356.5	27402	82	95
2	261.7	356.5	28160	216	96
2:30	260.6	356.5	28965	429	98
3	259.5	356.5	29813	727	100
3:30	258.4	356.5	30709	1121	105
4	257.4	356.5	31658	1617	112
4:30	256.3	356.5	32668	2225	121
5	255.2	356.5	33748	2948	134
5:30	254.1	356.5	34917	3774	150
5:47	253.6	356.5	35642	4307	162

LOCATION

MDC-2 covering a
portion of DSKY lights



P3X

P3X

CSM CUE CARDS

P2

11/22/72

NOMINAL SIVB TLI 1

DEC 7 LAUNCH

11/22/72

DET	Θ	Ψ	VI	$\dot{H}$	H
0:00	272	359.9	25605	-4	97
:30	265	358.7	26156	-15	97
1	264	359.1	26765	5	97
1:30	262	359.3	27401	77	97
2	261	359.4	28159	209	98
2:30	260	359.5	28964	418	99
3	259	359.6	29813	713	102
3:30	258	359.7	30710	1102	106
4	257	359.8	31661	1593	113
4:30	255	359.9	32674	2196	122
5	253	0.0	33759	2914	135
5:30	250	0.1	34933	3734	151
5:47	249	0.1	35648	4255	163

MANUAL SIVB TLI 1

DEC 7 LAUNCH

11/22/72

DET	Θ	Ψ	VI	$\dot{H}$	H
0:00	265.5	0	25605	-4	97
:30	264.4	0	26156	-15	97
1	263.3	0	26765	5	97
1:30	262.2	0	27401	77	97
2	261.1	0	28159	209	98
2:30	260.0	0	28964	418	99
3	258.9	0	29813	713	102
3:30	257.8	0	30710	1102	106
4	256.7	0	31661	1593	113
4:30	255.6	0	32674	2196	122
5	254.6	0	33759	2914	135
5:30	253.5	0	34933	3734	151
5:47	252.2	0	35648	4255	163

LOCATION

MDC-2 covering a
portion of DSKY lights

CSM CUE CARDS

P3

P3

P4

P4

11/22/72

NOMINAL SIVB TLI 2

DEC 7 LAUNCH

11/22/72

DET	Θ	Ψ	VI	$\dot{H}$	H
0:00	270	359.9	25600	-5	98
:30	264	358.0	26225	-15	98
1	262	359.5	26931	15	98
1:30	261	0.8	27674	110	99
2	260	2.0	28455	278	100
2:30	259	3.1	29276	529	102
3	258	4.3	30141	869	105
3:30	257	5.4	31055	1308	110
4	256	6.4	32026	1855	118
4:30	254	7.5	33060	2514	129
5	252	8.5	34167	3290	143
5:30	249	9.1	35365	4160	161
5:36	249	9.1	35629	4361	166

11/22/72

MANUAL SIVB TLI 2

DEC 7 LAUNCH

11/22/72

DET	Θ	Ψ	VI	$\dot{H}$	H
0:00	264.2	4.5	25600	-5	98
:30	263.2	4.5	26225	-15	98
1	262.1	4.5	26931	15	98
1:30	261.0	4.5	27674	110	99
2	259.9	4.5	28455	278	100
2:30	258.8	4.5	29276	529	102
3	257.8	4.5	30141	869	105
3:30	256.7	4.5	31055	1308	110
4	255.6	4.5	32026	1855	118
4:30	254.5	4.5	33060	2514	129
5	253.4	4.5	34167	3290	143
5:30	252.4	4.5	35365	4160	161
5:36	252.2	4.5	35629	4361	166

P5

P5

LOCATION

MDC-2 covering a
portion of DSKY lights

HOOK SHIM - CONTINUOUS STRIP OF 4 PLY VELCRO

HOOK SHIM - CONTINUOUS STRIP OF 4 PLY VELCRO

CSM CUE CARDS

K3

LOI LIMITS

DEC 7 LAUNCH

11/22/72

VG0	BT	VM	MODE	ABORT LIMITS	CALL OUT MODES AND LIMITS
2980	00	0	I DPS @ 2hr	TIGHT	EARLY CUTOFF
2180	1+58	800		TK <160 & LO Pc ΔP >20 & LO Pc Pc <80 or DECR >10 & LO ΔV	OUT OF LIMITS: NO RESTART LIMITS GOOD: RESTART
2175	2+03	835	I DPS @ 30m		
			I DPS @ 30m +APS @ 2.5hr NO COMM: APS ASAP	LOOSE	EARLY CUTOFF
1975	2+31	1035		TK <115 & LO Pc Pc <70 & other cues	OUT OF LIMITS: NO RESTART LIMITS GOOD RESTART
1580	3+21	1400	II DPS @ 2hr +DPS @ PC		
			III DPS @ PC	BALL VLV FAIL, SHUTDOWN GOOD BANK 10 sec PRIOR to NOM C/O	
1262	4+03	1718			
0	ECO 6+35	2980	III	TIGHT	

RESIDUALS: DO NOT TRIM
MAX IGN DELAY: 2+00

C/O: BT+10 sec, IGN DELAY ED:
1+00 : BT+5, 2+00 : BT

K15

K15

11/22/72

LOI VGO 11/22/72

HOOK
VELCRO

SHIM - CONTINUOUS STRIP OF 4 PLY

HOOK
VELCRO

SHIM - CONTINUOUS STRIP OF 4 PLY

HOOK
VELCRO

LOI BT	VGO/THRUST	
	100%	80%
:00	2979	2979
:20	2849	2875
:40	2716	2769
1	2581	2662
1:20	2445	2554
1:40	2307	2445
2	2167	2335
2:20	2025	2223
2:40	1881	2111
3	1735	1997
3:20	1587	1881
3:40	1437	1765
4	1284	1646
4:20	1129	1527
4:40	970	1405
5	808	1281
5:20	644	1156
5:40	477	1029
6	307	901
6:20	134	771
6:35	0	672
6:40		639
7		506
7:20		370
7:40		233
8		94
8:13		0

DEC 7 LAUNCH

LOCATION
MDC-2 covering a
Portion of DSKY lights