

GEORGE C. MARSHALL SPACE FLIGHT CENTER
HUNTSVILLE, ALABAMA

Memorandum

TO All Employees DATE November 6, 1969
In reply refer to:
PM-MO-MGR-189-69

FROM Manager, Mission Operations Office,
PM-MO-MGR

SUBJECT Abbreviated Apollo 12 Timeline

Enclosed is an abbreviated Apollo 12 timeline from Liftoff to Splashdown. This timeline is based on a nominal liftoff time of 10:22 a.m. CST on Friday, November 14, 1969, which corresponds to a 72° Launch Azimuth. A space is left in the timeline (CST, Actual) to allow you to make any corrections to this nominal time.

The prime landing site for Apollo 12 is site #7 which is located near Surveyor III. The primary objectives assigned to this mission are: (a) to perform selenological inspection, survey, and sampling; (b) to deploy an Apollo Lunar Surface Experiments Package; (c) to develop techniques for a point landing capability; and (d) to develop mans capability to work in the lunar environment. Highlights of this mission include the LM lunar touchdown at 0:53 a.m. CST on Wednesday, November 19, and two lunar surface EVA operations, one beginning at 4:52 a.m. and the other beginning at 11:27 p.m. on Wednesday, November 19. Each EVA will last 3 1/2 hours. An investigation of Surveyor III is scheduled to take place during the second EVA. Liftoff from the lunar surface is scheduled to occur 31 hours 30 minutes after touchdown, or 8:23 a.m. CST, Thursday, November 20. Splashdown is scheduled to occur in the Mid-Pacific at 2:57 p.m. CST on November 24. Following splashdown the crew will don biological isolation garments and enter the Mobile Quarantine Facility (MQF) much the same as the Apollo 11 crew.

The Flight Crew for Apollo 12 is:

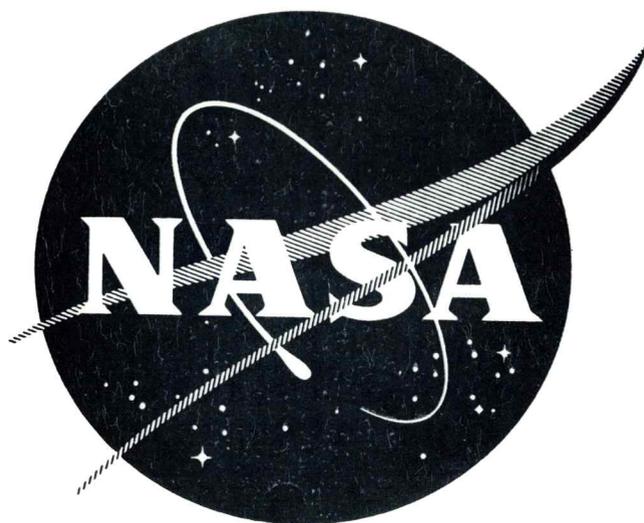
Commander (CDR)	Charles (Pete) Conrad
Command Module Pilot (CMP)	Richard Gordon
Lunar Module Pilot	Alan Bean

A list of acronyms and a TV schedule is included for your information. If additional information is required please contact Mr. Beutjer, 453-2260.

F. A. Speer
F. A. Speer

Distribution: SDL-5

APOLLO 12



AS-507

LUNAR LANDING MISSION

(November 14,-24, 1969)

Abbreviated Timeline

prepared by

MISSION OPERATIONS OFFICE

MARSHALL SPACE FLIGHT CENTER

Huntsville, Alabama

LIST OF ACRONYMS

AOS	Acquisition of Signal
APS	Ascent Propulsion Subsystem
ALSEP	Apollo Lunar Surface Experiment Package
CDH	Constant Delta Altitude
CDR	Commander
CM	Command Module
CMP	Command Module Pilot
CSI	Coelliptic Sequence Initiation
CSM	Command Service Module
CST	Central Standard Time
DOI	Descent Orbit Insertion
DPS	Descent Propulsion Subsystem
EI	Earth (atmosphere) Interface
EVA	Extravehicular Activity
EOI	Earth Orbit Insertion
GET	Ground Elapsed Time
IVT	Intravehicular Transfer
LM	Lunar Module
LMP	Lunar Module Pilot
LOI	Lunar Orbit Insertion
LOS	Loss of Signal
MCC	Midcourse Correction
MNVR	Maneuver
MSFN	Manned Space Flight Network
PDI	Powered Descent Initiate
PGA	Pressure Garment Assembly
PLSS	Portable Life Support System
RCS	Reaction Control System
REV	Lunar Revolution
RNDZ	Rendezvous
SM	Service Module
SPS	Service Propulsion System
SWC	Solar Wind Composition
SR	Sunrise
TEI	Transearch Insertion
TLI	Translunar Insertion
TPI	Terminal Phase Initiation
TV	Television

ABBREVIATED APOLLO 12 TIMELINE
LUNAR LANDING

(BASED ON A NOMINAL LIFTOFF OF 10:22 a.m. CST ON NOVEMBER 14, 1969)

Friday, November 14

GET	CST	CST Actual	EVENT
00:00:00	10:22a		Liftoff
00:02:43	10:25		S-IC/S-II Separation
00:02:44	10:25		S-II Ignition
00:03:18	10:25		Tower Jettison
00:09:14	10:31		S-II/S-IVB Separation
00:09:17	10:31		S-IVB Ignition
00:11:29	10:33		S-IVB Cutoff
00:11:39	10:34		EOI (103 nm)
02:47:20	1:09p		S-IVB Reignition-TLI
02:53:05	1:15		S-IVB Cutoff
03:12	1:34		CSM/S-IVB Separation
03:22	1:44		CSM/LM Docking
03:25	1:47		TV (1 hr 5 min)
04:07:20	2:29		CSM/LM Ejection (RCS: 3 sec)
04:24	2:46		S-IVB Evasive MNVR
04:57	3:19		S-IVB Slingshot MNVR
11:47:20	10:09		MCC ₁

Saturday, November 15

18:00	4:22a		Begin Rest (10 hrs)
28:00	2:22p		End Rest
30:25	4:47		TV (35 min)
30:52:44	5:15		MCC ₂ (SPS:10 sec)

Sunday, November 16

43:00	5:22a		Begin Rest (10 hrs)
53:00	3:22p		End Rest
61:25:18	11:47		MCC ₃

Monday, November 17

GET	CST	CST Actual	EVENT	REV
63:10	1:32a		Pressurize LM	
63:30	1:52		TV (50 min)	
64:10	2:32		Open LM Hatch	
64:15	2:37		LMP IVT to LM	
64:25	2:47		CDR IVT to LM	
64:30	2:52		LM Familiarization	
65:45	4:07		LMP IVT to CSM	
65:50	4:12		CDR IVT to CSM	
66:00	4:22		Close LM Hatch	
68:00	6:22		Begin Rest (8 hrs)	
76:00	2:22p		End Rest	
78:25:18	4:47		MCC ₄	
81:30	7:52		TV (20 min)	
82:48	9:10		Enter Moon's Shadow	
83:15	9:37		LOS LM/CSM	
83:18	9:40		Leave Moon's Shadow	
83:25:18	9:47		• LOI ₁ (SPS:5min 55sec) (59 x 169 nm)	<u>1</u>
83:44	10:06		AOS:84min (SR+26 min)	
84:00	10:22		TV (30 min)	

Tuesday, November 18

GET	CST	CST Actual	EVENT	REV
85:52	0:14a		AOS:85 min(SR+22min)	<u>2</u>
87:44:10	2:06		• LOI ₂ (SPS:17.6sec) (65 x 53 nm)	
88:01	2:23		AOS:72min (SR+23min)	<u>3</u>
89:15	3:37		• Open LM Hatch	
89:20	3:42		• LMP IVT to LM	
89:25	3:47		• CDR IVT to LM (Perform Housekeeping Chores)	
89:59	4:21		AOS:73min (SR+22min)	<u>4</u>
90:30	4:52		Transfer to LM Power	
91:10	5:32		CDR/LMP IVT to CSM	
91:15	5:37		Close LM Hatch	
91:58	6:20		AOS:72min (SR+22min)	<u>5</u>
92:30	6:52		Begin Rest (8.5 hrs)	
101:00	3:22p		End Rest	
101:49	4:11		AOS:72 min (SR+20min)	<u>10</u>
103:35	5:57		• Pressurize LM	
103:47	6:09		AOS:72min (SR+20min)	<u>11</u>
103:50	6:12		CDR Don PGA	
103:55	6:17		LMP Open LM Hatch	
104:00	6:22		LMP IVT to LM	
104:05	6:27		LM Power On	
104:30	6:52		CDR IVT to LM	
104:45	7:07		LMP IVT to CSM & Don PGA	
105:10	7:32		• IMP IVT to LM	
105:35	7:57		• Close & Secure Hatch- CSM & LM	
105:45	8:07		AOS:72min (SR+19min)	<u>12</u>
105:48	8:10		Deploy Landing Gear	
107:43	10:05		AOS:72min (SR+19min)	<u>13</u>
107:50	10:12		TV (40 min)	
107:54:22	10:16		Soft Undock	
108:24:22	10:46		CSM Separation (RCS: 15.8 sec)	
108:52	11:14		Go/No Go For DOI	
109:23:00	11:45		• DOI (DPS:28.2 sec)	

Wednesday, November 19

109:41	0:03a		AOS(CSM):73min (SR+18min)	<u>14</u>
109:43	0:05		AOS(LM)Continuously 32 hrs 44 min	
110:20:00	0:42		PDI (DPS:11min 18.5sec)	
110:31:19	0:53		Touchdown (Lunar Stay 31:29:59)	
110:40	1:02		LM Checkout	
111:40	2:02		AOS(CSM):72min(SR+19min)	<u>15</u>
111:41	2:03		Describe & Photograph Lunar Surface	
112:40	3:02		Cabin Prep. for EVA	
113:35	3:57		Don PLSS (LMP & CDR)	

• Event performed outside range of MSFN

GET	CST	CST Actual	EVENT	REV	GET	CST	CST Actual	EVENT	REV
Wednesday, November 19 (Cont'd)					Thursday, November 20				
113:38	4:00		AOS(CSM):72min (SR+18 min)	16	133:38	0:00a		Geology Traverse. Collect Documented Samples, Core Samples, & make general observations	
114:20	4:42		Cabin Depress					Surveyor site activities	
114:30	4:52		Start EVA		135:05	1:27		AOS(CSM):73 min	<u>27</u>
114:35	4:57		Open Fwd Hatch		135:19	1:41		(SR+14 min)	
114:40	5:02		TV (3 hrs 30 min)		135:35	1:57		Geology Return Traverse	
114:45	5:07		CDR Egress & Descend to Surface		135:55	2:17		Position TV on LM	
114:55	5:17		Contingency Sample Collection		136:05	2:27		Terminate EVA (LMP)	
115:15	5:37		LMP Egress & Descend to Surface		136:10	2:32		Transfer Samples, Surveyor Parts, etc. in LM	
115:20	5:42		S-Band Ant. Deployment		136:30	2:52		Terminate EVA (CDR)	
115:25	5:47		TV Deployment		136:35	2:57		Close Hatch, Repress Cabin End EVA	
115:30	5:52		SWC Deployment		136:50	3:12		Doff PLSS	
115:36	5:58		AOS(CSM):73 min (SR+17 min)	<u>17</u>	137:18	3:40		AOS(CSM):72 min	<u>28</u>
115:40	6:02		LM Inspection/Photograph		137:45	4:07		(SR+14 min)	
115:50	6:12		Deploy ALSEP		137:55	4:17		Depress Cabin-Open Hatch	
117:05	7:27		Collect Samples		138:05	4:27		Jettison Equipment	
117:30	7:52		Terminate EVA (LMP)		139:10	5:32		Close Hatch-Repress Cabin	
117:35	7:57		AOS(CSM):72 min (SR+18 min)	<u>18</u>	139:16	5:38		LM System Checks	
117:50	8:12		Terminate EVA (CDR)		141:14	7:36		AOS (CSM):72 min	<u>29</u>
118:00	8:22		Close Hatch, Repress Cabin, End EVA		141:30	7:52		(SR+14 min)	
119:37	9:59		AOS(CSM):72 min (SR+17 min)	<u>19</u>	142:01:18	8:23		AOS(CSM):72 min	<u>30</u>
119:47:02	10:09		CSM Plane Change #1 (SPS:19.4sec)		142:08:28	8:30		(SR+13 min)	
121:00	11:22		Begin Rest (9 hrs) LM		142:27	8:49		GO/NO-GO for Liftoff	
121:32	11:54		AOS(CSM):72min (SR+17 min)	<u>20</u>	142:58:05	9:20		APS Liftoff (7min10sec)	
122:00	12:22p		Begin Rest-CSM (9.5hrs)		142:08:28	8:30		Lunar Orbit Insertion (45 x 8 nm)	
130:00	8:22		End Rest (LM)		142:27	8:49		LOS (LM)-Rndz Radar Tracking	
131:15	9:37		Begin Cabin Prep for EVA		142:58:05	9:20		● CSI (RCS:45.3 sec) (46 x 45 nm)	
131:23	9:45		AOS(CSM):72 min (SR+15 min)	<u>25</u>	143:13	9:35		AOS(CSM):72min(SR+13min)	<u>31</u>
131:30	9:52		End Rest (CSM)		143:16	9:38		AOS(LM):69min(SR+13min)	
132:10	10:32		PLSS Donning		143:26:28	9:48		Plane Change (LM-RCS)	
132:55	11:17		Cabin Depress		143:56:28	10:18		CDH (LM-RCS)	
133:05	11:27		Start EVA		144:36:26	10:58		● TPI (RCS:22.1 sec) (62x44 nm)	
133:10	11:32		Open Fwd Hatch		144:51:26	11:13		● Rndz MCC ₁ (LM)	
133:15	11:37		CDR Egress & Descend to Surface		145:06:26	11:28		● Rndz MCC ₂ (LM)	
133:20	11:42		TV (6 hrs 5 min)		145:11	11:33		AOS(LM&CSM):72 min	<u>32</u>
133:21	11:43		AOS(CSM):72 min (SR+14 min)	<u>26</u>	145:17:45	11:40		(SR + 13 min)	
133:25	11:47		LMP Egress & Descend to Surface		145:15	11:37		Begin LM RCS Braking (5 Mnvs)	
133:30	11:52		Reposition TV Camera For Geology Traverse		145:40	12:02p		TV (30 min)	
					145:40	12:02p		Docking-CSM Active	
					145:50	12:12		Pressurize Tunnel	
					145:55	12:17		Open Hatch	
					146:00	12:22		Decontamination Procedures	
					146:20	12:42		● Transfer Equipment to CSM	
					147:05	1:27		● CDR IVT to CSM	
					147:09	1:31		AOS:72min(SR+12min)	<u>33</u>

GET	CST	CST Actual	EVENT	REV	GET	CST	CST Actual	EVENT	REV
147:20	1:42p		LMP IVT to CSM		Saturday, November 22				
147:25	1:47		Install Hatch in LM & CSM. Depress Tunnel		184:15	2:37a		End Rest	
147:30	1:52		Configure CSM for LM Jettison		187:21:15	5:43		MCC ₅	
147:57:00	2:19		LM Jettison		198:15	4:37p		Begin Rest (10 hrs)	
147:58:01	2:20		CSM Separation		Sunday, November 23				
			Mnvr (RCS:2.7sec)		208:15	2:37a		End Rest	
149:08	3:30		AOS:72 min(SR+12min) <u>34</u>		222:21:48	4:44p		MCC ₆	
149:24:41	3:47		LM Deorbit Burn (RCS:lmin 23.8sec)		223:15	5:37		TV (30 min)	
149:52:51	4:15		LM Lunar Impact		224:15	6:37		Begin Rest (10 hrs)	
150:00	4:22		Begin Rest (7.5 hrs)		Monday, November 24				
157:30	11:52		End Rest		234:15	4:37a		End Rest	
Friday, November 21					241:21:48	11:44		MCC ₇	
158:59	1:21a		AOS:71 min (SR+11 min) <u>39</u>		242:35	12:57p		Mnvr to Entry Attitude	
159:01:46	1:23		CSM Plane Change #2 (SPS:18.0 sec)		244:10	2:32		CM/SM Separation	
160:00	2:22		Photography and Landmark Tracking for next 10 hrs.		244:21:48	2:44		EI (400,000 Ft)	
170:48	1:10p		AOS:71min (SR+9min) <u>45</u>		244:22:06	2:44		Enter S-Band Blackout	
171:30	1:52		Pre TEI System Checks		244:23:10	2:45		Peak G	
172:21:15	2:43		o TEI (SPS:2min 8.9sec)		244:25:11	2:47		Exit S-Band Blackout	
172:34	2:56		AOS: Continuously		244:29:56	2:52		Drogue Chute Deploy	
172:55	3:17		TV (20 min)		244:30:42	2:53		Main Chute Deploy	
174:15	4:37		Begin Rest (10 hrs)		244:35:23	2:57		Splashdown	

APOLLO 12 TV SCHEDULE

DAY	DATE	CST	GET	DURATION	ACTIVITY/SUBJECT
FRIDAY	NOV. 14	1:47 PM	03:25	1 HR 05 MIN	TRANSPOSITION & DOCKING
SATURDAY	NOV. 15	4:47 PM	30:25	35 MIN	SPACECRAFT INTERIOR
MONDAY	NOV. 17	1:52 AM	63:30	50 MIN	INTERIOR & IVT TRANSFER
MONDAY	NOV. 17	7:52 PM	81:30	20 MIN	PRE LOI 1
MONDAY	NOV. 17	10:22 PM	84:00	30 MIN	PRE LOI 2
TUESDAY	NOV. 18	10:12 PM	107:50	40 MIN	UNDOCKING & FORMATION FLYING
WEDNESDAY	NOV. 19	5:02 AM	114:40	3 HR 30 MIN	LUNAR SURFACE ACTIVITIES
THURSDAY	NOV. 20	11:42 PM	133:20	6 HR 05 MIN	LUNAR SURFACE ACTIVITIES
THURSDAY	NOV. 20	11:37 PM	145:15	30 MIN	DOCKING
FRIDAY	NOV. 21	3:17 PM	172:55	20 MIN	POST TEI - LUNAR SURFACE
SUNDAY	NOV. 23	5:37 PM	223:15	30 MIN	EARTH & SPACECRAFT INTERIOR