



**Aerospace  
Systems Division**

Bob Miley MSC-BxA  
ALSEP Configuration C  
One-Man Deployment Task Sequence

NO.	REV. NO.
ATM-814	
PAGE <u>1</u>	OF <u>41</u>
DATE 12/12/68	

The Apollo Lunar Surface Experiments Package (ALSEP) one-man deployment sequence, based on current flight configurations and design, is incorporated in this ATM. The following assumptions and conditions are applicable to this deployment sequence:

1. The sequence is for ALSEP Flight 4, Configuration C.
2. The sequence is for the one-man deployment capability required for ALSEP.
3. The Lunar Module (LM) is oriented on the lunar surface with the Scientific Equipment Bay (SEQ) facing the sun (lunar east).
4. The Commander, who remains inside the LM, maintains constant voice contact with the LM Pilot while the LM Pilot is deploying ALSEP.
5. The voice link between the LM Pilot and Mission Control Center (MCC), during ALSEP deployment, is through the LM directly to MCC.
6. The LM Pilot is pressurized to 3.75 psi in the Extravehicular Mobility Unit (EMU) during ALSEP deployment.
7. The times in hours, minutes, and seconds are based on part-task tests conducted with Crew Systems and Operations mockups. A whole-task sequence deployment of ALSEP, using the Interim Trainer, was performed to validate those deployment times common to Configurations A and C. Future task sequence/time line validation resulting from tests conducted with the E-2 Trainer, analysis of these tests, and incorporation of the test results in updated One-Man Deployment Task Sequences are beyond the scope of the present effort.

Prepared by:

Leslie D. Marrus  
Leslie D. Marrus, P.E.  
Crew Systems & Operations

Approved by:

H. Y. Grubbs  
H. Y. Grubbs, Mgr.  
Crew Systems & Operations

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
1.0	REMOVE PACKAGE NO. 1 (Total Time = 1:13)					
1.1	Pull "left pin" removal lanyard.	00:00:05	00:00:05	18:40:05		
1.2	Walk to SEQ Bay Compartment I.	00:00:02	00:00:07	18:40:07		
1.3	Retrieve Package No. 1 deployment lanyards.	00:00:05	00:00:12	18:40:12		
1.4	Walk 10 feet from LM.	00:00:07	00:00:19	18:40:19		
1.5	Pull boom/Package No. 1 out of SEQ Bay.	00:00:10	00:00:29	18:40:29		
1.6	Lower Package No. 1 to lunar surface.	00:00:15	00:00:44	18:40:44		
1.7	Walk to Package No. 1.	00:00:05	00:00:49	18:40:49		
1.8	Pull pin to separate Package No. 1 from boom attachment assembly.	00:00:05	00:00:54	18:40:54		
1.9	Lift Package No. 1, carry to a point 5 feet from astronaut protection door, and lower to lunar surface.	00:00:13	00:01:07	18:41:07		
1.10	Walk to SEQ Bay Compartment II.	00:00:06	00:01:13	18:41:13		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
2.0	REMOVE PACKAGE NO. 2 (Total Time = 1:03)					
2.1	Pull "right pin" removal lanyard.	00:00:05	00:01:18	18:41:18		
2.2	Retrieve Package No. 2 deployment lanyard.	00:00:05	00:01:23	18:41:23		
2.3	Walk 10 feet from LM.	00:00:07	00:01:30	18:41:30		
2.4	Pull boom/Package No. 2 out of SEQ Bay.	00:00:10	00:01:40	18:41:40		
2.5	Lower Package No. 2 to lunar surface.	00:00:15	00:01:55	18:41:55		
2.6	Walk to Package No. 2.	00:00:05	00:02:00	18:42:00		
2.7	Pull pin to separate Package No. 2 from boom attachment assembly.	00:00:05	00:02:05	18:42:05		
2.8	(Restow booms.)	00:00:00	00:02:05	18:42:35		
2.9	(Close SEQ Bay Door.)	00:00:00	00:02:05	18:43:35		
2.10	Lift Package No. 2, carry to a point next to astronaut protection door, and lower to lunar surface.	00:00:11	00:02:16	18:43:46		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
3.0	REMOVE ALHT (Total Time = 0:41)					
3.1	Remove two ALHT-restraining pull pins and discard.	00:00:10	00:02:26	18:43:56		
3.2	Release two quarter-turn fasteners.	00:00:08	00:02:34	18:44:04		
3.3	Grasp ALHT, push to stop position, and then lift upward to remove ALHT from Package No. 2.	00:00:08	00:02:42	18:44:12		
3.4	Expand ALHT and lower to lunar surface.	00:00:15	00:02:57	18:44:27		
3.5	(Obtain and stow geological tools.)	00:00:00	00:02:57	18:45:27		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
4.0	REMOVE TOOLS AND ANTENNA MAST SECTIONS (Total Time = 1:23)					
4.1	Remove four tool-restraining pull pins and discard.	00:00:20	00:03:17	18:45:47		
4.2	Remove two Universal Handling Tools (UHT).	00:00:10	00:03:27	18:45:57		
4.3	Engage first UHT in Package No. 2 temporary stowage socket.	00:00:05	00:03:32	18:46:02		
4.4	Walk to Package No. 1.	00:00:03	00:03:35	18:46:05		
4.5	Engage second UHT in Package No. 1 temporary stowage socket.	00:00:05	00:03:40	18:46:10		
4.6	Return to Package No. 2.	00:00:03	00:03:43	18:46:13		
4.7	Remove tool bracket assembly and discard.	00:00:05	00:03:48	18:46:18		
4.8	Remove first antenna mast/carry bar section.	00:00:05	00:03:53	18:46:23		
4.9	Remove second antenna mast/carry bar section.	00:00:05	00:03:58	18:46:28		
4.10	Mate two antenna mast/carry bar sections.	00:00:05	00:04:03	18:46:33		
4.11	Walk to Package No. 1.	00:00:03	00:04:06	18:46:36		
4.12	Install carry bar in fitting on Package No. 1.	00:00:10	00:04:16	18:46:46		
4.13	Walk to astronaut protection door.	00:00:04	00:04:20	18:46:50		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
5.0	ROTATE FUEL CASK (Total Time = 0:44)					
5.1	Retrieve cask lanyard.	00:00:05	00:04:25	18:46:55		
5.2	Walk 11 feet from LM.	00:00:07	00:04:32	18:47:02		
5.3	Pull cask lanyard to rotate levers and remove spline.	00:00:12	00:04:44	18:47:14		
5.4	Continue pulling cask lanyard until cask is rotated to correct fuel transfer attitude.	00:00:10	00:04:54	18:47:24		
5.5	Discard cask lanyard.	00:00:02	00:04:56	18:47:26		
5.6	Walk to Package No. 2.	00:00:08	00:05:04	18:47:34		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
6.0	REMOVE CASK DOME (Total Time = 0:34)					
6.1	Remove Dome Removal Tool (DRT).	00:00:05	00:05:09	18:47:39		
6.2	Walk to fuel cask.	00:00:02	00:05:11	18:47:41		
6.3	Mate DRT with dome locking mechanism and pull outward on DRT to insure it is locked in place.	00:00:10	00:05:21	18:47:51		
6.4	Press inward on DRT and rotate dome locking mechanism 150° clockwise.	00:00:10	00:05:31	18:48:01		
6.5	Remove dome and discard DRT/dome.	00:00:05	00:05:36	18:48:06		
6.6	Return to Package No. 2.	00:00:02	00:05:38	18:48:08		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
7.0	TRANSFER FUEL CAPSULE (Total Time = 1:19)					
7.1	Remove Fuel Transfer Tool (FTT).	00:00:05	00:05:43	18:48:13		
7.2	Use stowed UHT as a handle to rotate Package No. 2 to the fueling position.	00:00:05	00:05:48	18:48:18		
7.3	Walk to fuel cask.	00:00:02	00:05:50	18:48:20		
7.4	Insert FTT fingers into fuel capsule head.	00:00:10	00:06:00	18:48:30		
7.5	Engage FTT fingers in fuel capsule head by rotating knob clockwise.	00:00:15	00:06:15	18:48:45		
7.6	Withdraw fuel capsule from fuel cask.	00:00:10	00:06:25	18:48:55		
7.7	Turn to Package No. 2.	00:00:02	00:06:27	18:48:57		
7.8	Lower fuel capsule into Radioisotope Thermo-electric Generator (RTG).	00:00:10	00:06:37	18:49:07		
7.9	<u>Report RTG fueled.</u>	00:00:02	00:06:39	18:49:09		
7.10	Disengage FTT from fuel capsule by counter-rotation of knob.	00:00:10	00:06:49	18:49:19		
7.11	Discard FTT.	00:00:05	00:06:54	18:49:24		
7.12	Walk to other side of Package No. 2.	00:00:03	00:06:57	18:49:27		



Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
8.0	PREPARE FOR TRAVERSE (Total Time = 0:31)					
8.1	Use stowed UHT as a handle to rotate Package No. 2 to the carrying position.	00:00:06	00:07:03	18:49:33		
8.2	Reposition Package No. 2.	00:00:05	00:07:08	18:49:38		
8.3	Disengage UHT from Package No. 2.	00:00:05	00:07:13	18:49:43		
8.4	Tether UHT to EMU.	00:00:05	00:07:18	18:49:48		
8.5	Install carry bar in fitting on Package No. 2.	00:00:10	00:07:28	18:49:58		
8.6	(Reposition TV camera.)	00:00:00	00:07:28	18:50:13		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
9.0	TRAVERSE TO DEPLOYMENT SITE (Total Time = 5:56)					
9.1	Use carry bar to lift ALSEP packages.	00:00:07	00:07:35	18:50:20		
9.2	Start traverse toward predetermined deployment site 300 feet from LM.	00:01:10	00:08:45	18:51:30		
9.3	Lower ALSEP packages to lunar surface.	00:00:05	00:08:50	18:51:35		
9.4	Rest.	00:01:00	00:09:50	18:52:35		
9.5	Use carry bar to lift ALSEP packages.	00:00:07	00:09:57	18:52:42		
9.6	Continue traverse to deployment site.	00:01:10	00:11:07	18:53:52		
9.7	Lower ALSEP packages to lunar surface.	00:00:05	00:11:12	18:53:57		
9.8	Rest.	00:01:00	00:12:12	18:54:57		
9.9	Use carry bar to lift ALSEP packages.	00:00:07	00:12:19	18:55:04		
9.10	Complete traverse to deployment site.	00:01:00	00:13:19	18:56:04		
9.11	Lower ALSEP packages to lunar surface on N-S axis.	00:00:05	00:13:24	18:56:09		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
10.0	RELOCATE PACKAGE NO. 1 (Total Time = 0:30)					
10.1	Disengage carry bar from Package No. 2.	00:00:10	00:13:34	18:56:19		
10.2	Lift Package No. 1, walk 10 feet east of Package No. 2 on E-W axis and lower Package No. 1 to lunar surface.	00:00:13	00:13:47	18:56:32		
10.3	Return to Package No. 2.	00:00:07	00:13:54	18:56:39		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
11.0	EMPLACE PACKAGE NO. 2 (Total Time = 0:06)					
11.1	Use handle to rotate Package No. 2 to the deployed position on E-W axis.	00:00:04	00:13:58	18:56:43		
11.2	Unstow tethered UHT.	00:00:02	00:14:00	18:56:45		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
12.0	REMOVE SUBPALLET (Total Time = 0:44)					
12.1	Use UHT to release two Boyd bolts on Subpallet.	00:00:16	00:14:16	18:57:01		
12.2	Engage UHT in Subpallet carry socket.	00:00:05	00:14:21	18:57:06		
12.3	Use UHT to remove Subpallet from Package No. 2, walk to the southwest corner of Package No. 1, and lower Subpallet to lunar surface.	00:00:11	00:14:32	18:57:17		
12.4	Disengage UHT from Subpallet.	00:00:05	00:14:37	18:57:22		
12.5	Return to Package No. 2.	00:00:07	00:14:44	18:57:29		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
13.0	DEPLOY RTG POWER CABLE (Total Time = 1:03)					
13.1	Use UHT to release three Boyd bolts on RTG cable reel.	00:00:24	00:15:08	18:57:53		
13.2	Engage UHT in RTG cable reel carry socket.	00:00:05	00:15:13	18:57:58		
13.3	Use UHT to remove RTG cable reel from Package No. 2 and walk to Subpallet, deploying power cable.	00:00:16	00:15:29	18:58:14		
13.4	Remove shorting switch pull pin and discard.	00:00:05	00:15:34	18:58:19		
13.5	Grasp shorting switch assembly.	00:00:04	00:15:38	18:58:23		
13.6	Disengage UHT from RTG cable reel and discard cable reel.	00:00:05	00:15:43	18:58:28		
13.7	Stow tethered UHT.	00:00:02	00:15:45	18:58:30		
13.8	Walk to Package No. 1.	00:00:02	00:15:47	18:58:32		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
14.0	CONNECT RTG POWER CABLE (Total Time = 0:18)					
14.1	<u>Report ammeter reading.</u>	00:00:05	00:15:52	18:58:37		
14.2	Remove Central Station connector dust cover and discard.	00:00:03	00:15:55	18:58:40		
14.3	Remove shorting switch assembly dust cover and discard.	00:00:03	00:15:58	18:58:43		
14.4	Mate power cable to Central Station and check indicator.	00:00:05	00:16:03	18:58:48		
14.5	Return to Subpallet.	00:00:02	00:16:05	18:58:50		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
15.0	REMOVE SIDE/CCIG (Total Time = 1:16)					
15.1	Unstow tethered UHT.	00:00:02	00:16:07	18:58:52		
15.2	Use UHT to release Deutsch fastener on CCIG retention bracket.	00:00:06	00:16:13	18:58:58		
15.3	Use UHT to release four Boyd bolts on SIDE/CCIG.	00:00:32	00:16:45	18:59:30		
15.4	Engage UHT in SIDE/CCIG carry socket.	00:00:05	00:16:50	18:59:35		
15.5	Use UHT to remove SIDE/CCIG from Subpallet.	00:00:02	00:16:52	18:59:37		
15.6	Remove left, front guide cup.	00:00:03	00:16:55	18:59:40		
15.7	Pull lanyard to remove leg-release pull pin.	00:00:05	00:17:00	18:59:45		
15.8	Lower SIDE/CCIG to lunar surface.	00:00:02	00:17:02	18:59:47		
15.9	Disengage UHT from SIDE/CCIG.	00:00:05	00:17:07	18:59:52		
15.10	Use UHT to remove pull pin on SIDE/CCIG cable cradle and to retrieve SIDE/CCIG connector from cable cradle.	00:00:10	00:17:17	19:00:02		
15.11	Stow tethered UHT.	00:00:02	00:17:19	19:00:04		
15.12	Walk to Package No. 1.	00:00:02	00:17:21	19:00:06		



Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
16.0	CONNECT SIDE/CCIG CABLE (Total Time = 0:20)					
16.1	Remove Central Station connector dust cover and discard.	00:00:03	00:17:24	19:00:09		
16.2	Remove SIDE/CCIG connector dust cover and discard.	00:00:03	00:17:27	19:00:12		
16.3	Mate SIDE/CCIG cable to Central Station.	00:00:05	00:17:32	19:00:17		
16.4	Verify that Astronaut Switches No. 4 and No. 5 are in off position.	00:00:05	00:17:37	19:00:22		
16.5	Actuate shorting switch assembly pushbutton.	00:00:02	00:17:39	19:00:24		
16.6	<u>Report opening of shorting switch.</u>	00:00:02	00:17:41	19:00:26		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
17.0	DISCONNECT CARRY BAR (Total Time = 0:22)					
17.1	Disengage carry bar from Package No. 1.	00:00:10	00:17:51	19:00:36		
17.2	Walk to Subpallet.	00:00:02	00:17:53	19:00:38		
17.3	Stow antenna mast/carry bar on Subpallet taper fitting.	00:00:10	00:18:03	19:00:48		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
18.0	DEPLOY PSE STOOL (Total Time = 0:29)					
18.1	Unstow tethered UHT.	00:00:02	00:18:05	19:00:50		
18.2	Use UHT to remove pull pin on PSE stool and discard pull pin.	00:00:05	00:18:10	19:00:55		
18.3	Use UHT to remove PSE stool from Subpallet.	00:00:02	00:18:12	19:00:57		
18.4	Grasp stool and stow tethered UHT.	00:00:04	00:18:16	19:01:01		
18.5	Walk 10 feet east of Package No. 1 and lower PSE stool to lunar surface.	00:00:09	00:18:25	19:01:10		
18.6	Return to Package No. 1.	00:00:07	00:18:32	19:01:17		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
19.0	EMPLACE PACKAGE NO. 1 (Total Time = 0:14)					
19.1	Use stowed UHT as a handle to rotate Package No. 1 to the deployed position and align on E-W axis.	00:00:14	00:18:46	19:01:31		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
20.0	DEPLOY PSE (Total Time = 1:48)					
20.1	Use UHT to release four Boyd bolts on PSE.	00:00:32	00:19:18	19:02:03		
20.2	Engage UHT in PSE carry socket.	00:00:05	00:19:23	19:02:08		
20.3	Use UHT to remove PSE from sunshield and to carry PSE to stool.	00:00:09	00:19:32	19:02:17		
20.4	Remove PSE girdle and discard.	00:00:05	00:19:37	19:02:22		
20.5	Emplace PSE on stool and align.	00:00:05	00:19:42	19:02:27		
20.6	Disengage UHT from PSE.	00:00:05	00:19:47	19:02:32		
20.7	Use UHT to deploy thermal shroud.	00:00:26	00:20:13	19:02:58		
20.8	Observing ball level, use UHT to level PSE.	00:00:10	00:20:23	19:03:08		
20.9	Observing sun compass, <u>report alignment</u> .	00:00:04	00:20:27	19:03:12		
20.10	Return to Central Station.	00:00:07	00:20:34	19:03:19		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
21.0	REMOVE THUMPER/GEOPHONE ASSEMBLY (Total Time = 0:51)					
21.1	Use UHT to release Boyd bolt on Thumper/ Geophone Assembly.	00:00:08	00:20:42	19:03:27		
21.2	Stow tethered UHT.	00:00:02	00:20:44	19:03:29		
21.3	Use restraining arm to remove Thumper/ Geophone Assembly from sunshield.	00:00:04	00:20:48	19:03:33		
21.4	Grasp Thumper/Geophone Assembly, remove from restraining arm/plate assembly, and discard restraining arm/plate assembly.	00:00:10	00:20:58	19:03:43		
21.5	Unfold Thumper/Geophone Assembly and position sleeves to lock sections.	00:00:18	00:21:16	19:04:01		
21.6	Walk to Subpallet.	00:00:02	00:21:18	19:04:03		
21.7	Lean Thumper/Geophone Assembly against Subpallet back support assembly.	00:00:05	00:21:23	19:04:08		
21.8	Return to Central Station.	00:00:02	00:21:25	19:04:10		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
22.0	REMOVE MORTAR PACKAGE ASSEMBLY (Total Time = 1:01)					
22.1	Unstow tethered UHT.	00:00:02	00:21:27	19:04:12		
22.2	Engage UHT in Mortar Package Assembly carry socket.	00:00:05	00:21:32	19:04:17		
22.3	Use UHT to remove Mortar Package Assembly from sunshield.	00:00:03	00:21:35	19:04:20		
22.4	Remove carry socket rotation pull pin and discard.	00:00:05	00:21:40	19:04:25		
22.5	Walk 10 feet southeast of Central Station.	00:00:07	00:21:47	19:04:32		
22.6	Deploy two Mortar Package Assembly support legs.	00:00:08	00:21:55	19:04:40		
22.7	Partially unfold Mortar Package Assembly antenna.	00:00:08	00:22:03	19:04:48		
22.8	Emplace Mortar Package Assembly on lunar surface with grenades directed away from Central Station.	00:00:04	00:22:07	19:04:52		
22.9	Complete Mortar Package Assembly antenna deployment.	00:00:06	00:22:13	19:04:58		
22.10	Disengage UHT from Mortar Package Assembly.	00:00:05	00:22:18	19:05:03		
22.11	Return to Central Station.	00:00:08	00:22:26	19:05:11		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
23.0	DEPLOY CPLEE (Total Time = 1:08)					
23.1	Use UHT to release three Boyd bolts on CPLEE.	00:00:24	00:22:50	19:05:35		
23.2	Engage UHT in CPLEE carry socket.	00:00:05	00:22:55	19:05:40		
23.3	Use UHT to remove CPLEE from sunshield.	00:00:02	00:22:57	19:05:42		
23.4	Remove carry socket pull pin and discard.	00:00:05	00:23:02	19:05:47		
23.5	Walk 10 feet south of Central Station and lower CPLEE to lunar surface.	00:00:10	00:23:12	19:05:57		
23.6	Observing bubble level, use UHT to level CPLEE.	00:00:05	00:23:17	19:06:02		
23.7	Observing shadow cast on dust cover, use UHT to align CPLEE.	00:00:05	00:23:22	19:06:07		
23.8	Disengage UHT from CPLEE.	00:00:05	00:23:27	19:06:12		
23.9	Return to Central Station.	00:00:07	00:23:34	19:06:19		



Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
24.0	RELEASE SUNSHIELD (Total Time = 2:57)					
24.1	Use UHT to release five Boyd bolts on south side of Central Station.	00:00:35	00:24:09	19:06:54		
24.2	Use UHT to release pull pin on SIDE/CCIG connector.	00:00:08	00:24:17	19:07:02		
24.3	Use UHT to release two Boyd bolts on west side of Central Station.	00:00:14	00:24:31	19:07:16		
24.4	Use UHT to release two Boyd bolts on north-west side of Central Station.	00:00:14	00:24:45	19:07:30		
24.5	Use UHT to release antenna cable restraint and deploy cable.	00:00:10	00:24:55	19:07:40		
24.6	Use UHT to release three Boyd bolts on north side of Central Station.	00:00:21	00:25:16	19:08:01		
24.7	Use UHT to release four Boyd bolts on east side of Central Station.	00:00:28	00:25:44	19:08:29		
24.8	Walk to north side of Central Station.	00:00:02	00:25:46	19:08:31		
24.9	Check for release of sunshield from primary structure.	00:00:05	00:25:51	19:08:36		
24.10	Use UHT to release two Boyd bolts on antenna.	00:00:18	00:26:09	19:08:54		
24.11	Use UHT to release two northmost, interior sunshield Boyd bolts.	00:00:14	00:26:23	19:09:08		
24.12	Use UHT to release center Boyd bolt.	00:00:08	00:26:31	19:09:16		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
25.0	DEPLOY SUNSHIELD (Total Time = 0:54)					
25.1	Use UHT to control sunshield deployment.	00:00:10	00:26:41	19:09:26		
25.2	Remove UHT from center guide cup and stow.	00:00:04	00:26:45	19:09:30		
25.3	Complete sunshield deployment, using manual assist.	00:00:20	00:27:05	19:09:50		
25.4	Check for proper deployment of side curtains, remove and discard three sunshield curtain covers.	00:00:17	00:27:22	19:10:07		
25.5	Walk to Subpallet.	00:00:03	00:27:25	19:10:10		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
26.0	ASSEMBLE ANTENNA (Total Time = 2:06)					
26.1	Retrieve antenna mast from Subpallet.	00:00:04	00:27:29	19:10:14		
26.2	Return to Central Station.	00:00:02	00:27:31	19:10:16		
26.3	Install antenna mast on Central Station.	00:00:30	00:28:01	19:10:46		
26.4	Walk to Subpallet.	00:00:02	00:28:03	19:10:48		
26.5	Unstow tethered UHT.	00:00:02	00:28:05	19:10:50		
26.6	Use UHT to release two Boyd bolts on aiming mechanism housing.	00:00:16	00:28:21	19:11:06		
26.7	Engage UHT in aiming mechanism housing carry socket.	00:00:05	00:28:26	19:11:11		
26.8	Use UHT to remove aiming mechanism housing from Subpallet and return to Central Station.	00:00:06	00:28:32	19:11:17		
26.9	Remove cover from aiming mechanism housing and discard.	00:00:10	00:28:42	19:11:27		
26.10	Install aiming mechanism on antenna mast.	00:00:08	00:28:50	19:11:35		
26.11	Disengage UHT from aiming mechanism housing.	00:00:05	00:28:55	19:11:40		
26.12	Stow tethered UHT.	00:00:02	00:28:57	19:11:42		
26.13	Remove aiming mechanism housing and packaging and discard.	00:00:18	00:29:15	19:12:00		
26.14	Rotate antenna tie-down brackets, retrieve antenna and install on aiming mechanism.	00:00:16	00:29:31	19:12:16		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
27.0	ORIENT ANTENNA (Total Time = 2:13)					
27.1	Receive azimuth and elevation offsets.	00:00:05	00:29:36	19:12:21		
27.2	Enter azimuth offset.	00:00:28	00:30:04	19:12:49		
27.3	Enter elevation offset.	00:00:28	00:30:32	19:13:17		
27.4	Observing bubble level, adjust leveling knobs.	00:00:48	00:31:20	19:14:05		
27.5	Observing sun compass, adjust alignment knob.	00:00:16	00:31:36	19:14:21		
27.6	Recheck level and walk to SIDE/CCIG.	00:00:08	00:31:44	19:14:29		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
28.0	DEPLOY SIDE/CCIG (Total Time = 2:52)					
28.1	Unstow tethered UHT.	00:00:02	00:31:46	19:14:31		
28.2	Engage UHT in SIDE/CCIG carry socket.	00:00:05	00:31:51	19:14:36		
28.3	Use UHT to lift SIDE/CCIG, walk 55 feet southwest of Central Station, and lower SIDE/CCIG to lunar surface.	00:00:41	00:32:32	19:15:17		
28.4	Disengage UHT from SIDE/CCIG.	00:00:05	00:32:37	19:15:22		
28.5	Engage UHT in ground screen socket.	00:00:05	00:32:42	19:15:27		
28.6	Rotate UHT clockwise and lift ground screen from ground screen tube.	00:00:07	00:32:49	19:15:34		
28.7	Check ground screen cable deployment.	00:00:02	00:32:51	19:15:36		
28.8	Emplace ground screen on lunar surface.	00:00:04	00:32:55	19:15:40		
28.9	Disengage UHT from ground screen.	00:00:05	00:33:00	19:15:45		
28.10	Engage UHT in SIDE/CCIG carry socket.	00:00:05	00:33:05	19:15:50		
28.11	Use UHT to lift SIDE/CCIG.	00:00:02	00:33:07	19:15:52		
28.12	Pull lanyard to remove dust cover pull pin and discard lanyard/pull pins.	00:00:07	00:33:14	19:15:59		
28.13	Remove CCIG cover assembly and discard.	00:00:08	00:33:22	19:16:07		
28.14	Use lanyard to remove CCIG from stowage cavity.	00:00:08	00:33:30	19:16:15		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
28.15	Emplace SIDE on ground screen with respect to subearth point.	00:00:06	00:33:36	19:16:21		
28.16	Use lanyard to lower CCIG to lunar surface.	00:00:06	00:33:42	19:16:27		
28.17	Orient CCIG orifice and release cable.	00:00:04	00:33:46	19:16:31		
28.18	Observing bubble level, use UHT to level SIDE.	00:00:05	00:33:51	19:16:36		
28.19	Observing shadow cast on side of experiment, use UHT to align SIDE.	00:00:05	00:33:56	19:16:41		
28.20	Disengage UHT from SIDE.	00:00:05	00:34:01	19:16:46		
28.21	Stow tethered UHT.	00:00:02	00:34:03	19:16:48		
28.22	(Photograph SIDE/CCIG.)	00:00:00	00:34:03	19:17:18		
28.23	Walk to CPLEE.	00:00:33	00:34:36	19:17:51		
28.24	(Photograph CPLEE; Walk to PSE; Photograph PSE; Walk to southeast side of Central Station.)	00:00:00	00:34:36	19:19:08		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
29.0	ACTIVATE CENTRAL STATION (Total Time = 1:22)					
29.1	Unstow tethered UHT.	00:00:02	00:34:38	19:19:10		
29.2	Use UHT to turn on Astronaut Switches No. 1 and No. 4.	00:00:08	00:34:46	19:19:18		
29.3	Stow tethered UHT.	00:00:02	00:34:48	19:19:20		
29.4	<u>Request transmitter turn-on.</u>	00:00:02	00:34:50	19:19:22		
29.5	Walk to northwest side of Central Station.	00:00:03	00:34:53	19:19:25		
29.6	Check antenna orientation.	00:01:00	00:35:53	19:20:25		
29.7	Receive confirmation of receipt of RF signal and useful data.	00:00:02	00:35:55	19:20:27		
29.8	Walk to Subpallet.	00:00:03	00:35:58	19:20:30		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
30.0	DEPLOY GEOPHONES (Total Time = 4:35)					
30.1	Retrieve Thumper/Geophone Assembly from lunar surface.	00:00:04	00:36:02	19:20:34		
30.2	Walk to northeast side of Central Station.	00:00:04	00:36:06	19:20:38		
30.3	Select line for geophone deployment northwest of Central Station.	00:00:05	00:36:11	19:20:43		
30.4	Walk 10 feet northwest of Central Station, deploying geophone cable.	00:00:07	00:36:18	19:20:50		
30.5	Emplace first geophone.	00:00:10	00:36:28	19:21:00		
30.6	Walk 150 feet northwest of Central Station, deploying geophone cable.	00:01:40	00:38:08	19:22:40		
30.7	Check geophone deployment line for straightness with respect to Mortar Package Assembly antenna.	00:00:10	00:38:18	19:22:50		
30.8	Emplace second geophone and marker flag.	00:00:15	00:38:33	19:23:05		
30.9	Walk additional 150 feet northwest of Central Station, deploying geophone cable.	00:01:40	00:40:13	19:24:45		
30.10	Check geophone deployment line for straightness with respect to Mortar Package Assembly antenna and marker flag.	00:00:10	00:40:23	19:24:55		
30.11	Emplace third geophone.	00:00:10	00:40:33	19:25:05		



Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
31.0	CONDUCT THUMPER ACTIVITY (Total Time = 9:27)					
31.1	Lower thumper base plate to lunar surface.	00:00:02	00:40:35	19:25:07		
31.2	Rotate squib selection knob to first position.	00:00:03	00:40:38	19:25:10		
31.3	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:40:48	19:25:20		
31.4	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:41:02	19:25:34		
31.5	Rotate squib selection knob to second position.	00:00:03	00:41:05	19:25:37		
31.6	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:41:15	19:25:47		
31.7	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:41:29	19:26:01		
31.8	Rotate squib selection knob to third position.	00:00:03	00:41:32	19:26:04		
31.9	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:41:42	19:26:14		
31.10	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:41:56	19:26:28		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
31.11	Rotate squib selection knob to fourth position.	00:00:03	00:41:59	19:26:31		
31.12	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:42:09	19:26:41		
31.13	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:42:23	19:26:55		
31.14	Rotate squib selection knob to fifth position.	00:00:03	00:42:26	19:26:58		
31.15	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:42:36	19:27:08		
31.16	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:42:50	19:27:22		
31.17	Rotate squib selection knob to sixth position.	00:00:03	00:42:53	19:27:25		
31.18	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:43:03	19:27:35		
31.19	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:43:17	19:27:49		
31.20	Rotate squib selection knob to seventh position.	00:00:03	00:43:20	19:27:52		
31.21	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:43:30	19:28:02		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
31.22	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:43:44	19:28:16		
31.23	Rotate squib selection knob to eighth position.	00:00:03	00:43:47	19:28:19		
31.24	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:43:57	19:28:29		
31.25	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:44:11	19:28:43		
31.26	Rotate squib selection knob to ninth position.	00:00:03	00:44:14	19:28:46		
31.27	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:44:24	19:28:56		
31.28	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:44:38	19:29:10		
31.29	Rotate squib selection knob to tenth position.	00:00:03	00:44:41	19:29:13		
31.30	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:44:51	19:29:23		
31.31	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:45:05	19:29:37		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
31.32	Rotate squib selection knob to eleventh position.	00:00:03	00:45:08	19:29:40		
31.33	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:45:18	19:29:50		
31.34	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:45:32	19:30:04		
31.35	Rotate squib selection knob to twelfth position.	00:00:03	00:45:35	19:30:07		
31.36	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:45:45	19:30:17		
31.37	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:45:59	19:30:31		
31.38	Rotate squib selection knob to thirteenth position.	00:00:03	00:46:02	19:30:34		
31.39	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:46:12	19:30:44		
31.40	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:46:26	19:30:58		
31.41	Rotate squib selection knob to fourteenth position.	00:00:03	00:46:29	19:31:01		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
31.42	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:46:39	19:31:11		
31.43	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:46:53	19:31:25		
31.44	Rotate squib selection knob to fifteenth position.	00:00:03	00:46:56	19:31:28		
31.45	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:47:06	19:31:38		
31.46	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:47:20	19:31:52		
31.47	Rotate squib selection knob to sixteenth position.	00:00:03	00:47:23	19:31:55		
31.48	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:47:33	19:32:05		
31.49	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:47:47	19:32:19		
31.50	Rotate squib selection knob to seventeenth position.	00:00:03	00:47:50	19:32:22		
31.51	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:48:00	19:32:32		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
31.52	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:48:14	19:32:46		
31.53	Rotate squib selection knob to eighteenth position.	00:00:03	00:48:17	19:32:49		
31.54	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:48:27	19:32:59		
31.55	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:48:41	19:33:13		
31.56	Rotate squib selection knob to nineteenth position.	00:00:03	00:48:44	19:33:16		
31.57	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:48:54	19:33:26		
31.58	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:49:08	19:33:40		
31.59	Rotate squib selection knob to twentieth position.	00:00:03	00:49:11	19:33:43		
31.60	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:49:21	19:33:53		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
31.61	Lift thumper from lunar surface, walk 15 feet alongside geophone cable toward Mortar Package Assembly, and lower thumper base plate to lunar surface next to interval marker.	00:00:14	00:49:35	19:34:07		
31.62	Rotate squib selection knob to twenty-first position.	00:00:03	00:49:38	19:34:10		
31.63	Rotate arm/fire switch to arm position, wait at least four seconds, and press to fire.	00:00:10	00:49:48	19:34:20		
31.64	Discard thumper assembly.	00:00:05	00:49:53	19:34:25		
31.65	Return to Central Station.	00:00:07	00:50:00	19:34:32		

Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
32.0	DEPLOY MORTAR PACKAGE ASSEMBLY (Total Time = 0:59)					
32.1	Unstow tethered UHT.	00:00:02	00:50:02	19:34:34		
32.2	Use UHT to turn on Astronaut Switch No. 5.	00:00:05	00:50:07	19:34:39		
32.3	Walk to Mortar Package Assembly.	00:00:07	00:50:14	19:34:46		
32.4	Use UHT to rotate latch on safety pin 90° counterclockwise.	00:00:05	00:50:19	19:34:51		
32.5	Engage UHT in Mortar Package Assembly carry socket.	00:00:05	00:50:24	19:34:56		
32.6	Retrieve safety pin removal lanyard.	00:00:03	00:50:27	19:34:59		
32.7	Pull safety pin removal lanyard, while exerting a counter-force on UHT, to remove safety pin, and discard safety pin.	00:00:10	00:50:37	19:35:09		
32.8	Disengage UHT from Mortar Package Assembly	00:00:05	00:50:42	19:35:14		
32.9	Use UHT to turn on two Mortar Package Assembly safe/arm switches.	00:00:10	00:50:52	19:35:24		
32.10	(Photograph Mortar Package Assembly.)	00:00:00	00:50:52	19:35:54		
32.11	Return to Central Station.	00:00:07	00:50:59	19:36:01		



Task No.	LM Pilot Activity	ALSEP Task Time	ALSEP Time (Cumulative)	Lunar Mission Time (Cumulative)	Energy Expenditure (BTU's) (Cumulative)	Oxygen Consumption (Grams) (Cumulative)
33.0	COMPLETE ALSEP DEPLOYMENT (Total Time = 1:27)					
33.1	Use UHT to turn off Astronaut Switch No. 5.	00:00:05	00:51:04	19:36:06		
33.2	Stow tethered UHT.	00:00:02	00:51:06	19:36:08		
33.3	Walk to northwest side of Central Station.	00:00:03	00:51:09	19:36:11		
33.4	Check antenna orientation.	00:01:00	00:52:09	19:37:11		
33.5	Untether UHT from EMU and discard UHT.	00:00:07	00:52:16	19:37:18		
33.6	Walk to south side of Central Station.	00:00:03	00:52:19	19:37:21		
33.7	Disengage UHT from temporary stowage socket and discard UHT.*	00:00:07	00:52:26	19:37:28		
*NOTE: ALSEP tasks terminate at this point. Crewman returns to LM or collects samples as required by Apollo mission.						