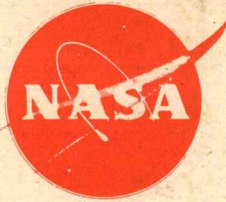


R1SC-5

TEST NUMBER	V-20060
REVISION NO.	027
EFFECTIVITY	AS-509 & SUBS
RELEASE DATE	JANUARY 17, 1971



**JOHN F. KENNEDY
SPACE CENTER**

**RELEASED
FOR AS 509**

**LAUNCH VEHICLE OPERATIONS FOR
SUPPORT OF SPACE VEHICLE
COUNTDOWN DEMONSTRATION TEST
AND LAUNCH COUNTDOWN**

**VOLUME I OF III
ASSEMBLED FOR CD**



**Prepared For
LAUNCH VEHICLE OPERATIONS**

**Prepared By
THE BOEING COMPANY
ATLANTIC TEST CENTER
SATURN V-LAUNCH OPERATIONS**

**THIS TCP CONTAINS
HAZARDOUS OPERATIONS**

THIS REVISION (027) OF THIS PROCEDURE IS A COMPLETE REVISION "ASSEMBLED FOR CD". REVISION 027 INCLUDES THE PCR'S INCORPORATED IN PRIOR REVISIONS AS WELL AS THE FOLLOWING PCR'S:

B-303-20*	N-209-24
B-307-21	XB-244-25
N-207-22	N-210-26
B-310-23	XB-246-27

*REPLACED AND SUPERCEDED BY XB-246-27

TCP NO V-20060
 REVISION 027
 DATE JANUARY 17, 1971
 NO OF PAGES 106
 EFFECTIVITY AS-509 & SUBS

**RELEASED
FOR AS 509**

LAUNCH VEHICLE OPERATIONS FOR
 SUPPORT OF SPACE VEHICLE
 COUNTDOWN DEMONSTRATION TEST
 AND LAUNCH COUNTDOWN

VOLUME I OF III

**THIS TCP CONTAINS
HAZARDOUS OPERATIONS**

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TABLE OF CONTENTS

SUBJECT -----	PAGE -----
APPROVAL PAGE	1
INTRODUCTION AND PROCEDURE EXPLANATION	3
TEST CATALOG SHEET	5
TEST OUTLINE	7
REVISION RECORD	9
LIST OF EFFECTIVE PAGES	11
LV PRECOUNT BAR CHARTS	
PRECOUNT T-116 TO T-79	12
PRECOUNT T-79 TO T-28	13
REQUIRED SUBTASK DOCUMENTATION	14
AUTOMATED PROGRAM INDEX	15
LAUNCH OPERATIONS COMMUNICATIONS	16
LAUNCH VEHICLE CALL STATIONS	17
OIS COMMUNICATIONS MATRIX	18
CDDT & CD OPERATIONAL DIFFERENCES	19
ABBREVIATIONS	20
LAUNCH COMPLEX 39 PAD ACCESS CONTROL & AREA MAPS	21
PRECOUNT TEST CONDITIONS	25
VOLUME I, PRECOUNT	27

A. INTRODUCTION

1. THIS LAUNCH VEHICLE TEST CHECKOUT PROCEDURE IS A TIME SEQUENCE OF OPERATIONS REQUIRED TO PUT THE LAUNCH VEHICLE IN APPROXIMATELY A ONE-DAY-~~PRIOR-TO-LAUNCH~~ CONFIGURATION.
2. LAUNCH VEHICLE TEST AND CHECKOUT PERSONNEL WILL USE THIS PROCEDURE AS THE OFFICIAL DOCUMENT FOR LAUNCH VEHICLE OPERATIONS. THIS DOCUMENT IS ONE OF FIVE RELATED DOCUMENTS USED DURING LAUNCH OPERATIONS. THE OTHER FOUR DOCUMENTS ARE:
 - (A) SPACECRAFT COUNTDOWN PROCEDURE K-0007
 - (B) LUNAR MODULE COUNTDOWN PROCEDURE KL-007
 - (C) SPACE VEHICLE COUNTDOWN PROCEDURE (INCLUDES INFORMATION TO DIRECT INTERFACE OPERATIONS AMONG LAUNCH VEHICLE, SPACECRAFT, SUPPORT AND RANGE). V-40310 (CDDT ONLY) V-40300 (CD ONLY)
 - (D) APOLLO/SATURN V LAUNCH MISSION RULES - AS-509 K-V-05.10/9
3. IN ADDITION, UNDER EMERGENCY CONDITIONS SPECIFIED THEREIN, THE SATURN V LV EMERGENCY PROCEDURE V-20056, WILL BE USED.

B. INTEGRATED TCP INTERFACE

1. SPECIFIC SEQUENCES IDENTIFIED IN THIS TCP WITH THE SYMBOL TCPI (TEST AND CHECKOUT PROCEDURE INTERFACE) HAVE BEEN COORDINATED WITH OTHER ORGANIZATIONS WHOSE CORRESPONDING TCP'S ARE USED DURING THIS TEST. IT IS THE RESPONSIBILITY OF THE ORGANIZATION INITIATING A CHANGE TO A TCPI SEQUENCE TO INSURE THAT COORDINATION WITH AFFECTED ORGANIZATIONS IS ACCOMPLISHED THROUGH THE COORDINATION SUPPORT CONTRACTOR. PROBLEMS RESULTING FROM THE COORDINATION WILL BE RESOLVED BY LV-040-1 PRIOR TO THE DLO PRE-TEST BRIEFING, AND LV-040-3 FROM THE TIME OF DLO PRE-TEST BRIEFING THROUGH COMPLETION OF THE TEST.

C. SAFETY

1. THE LAUNCH VEHICLE COUNTDOWN DEMONSTRATION AND COUNTDOWN OPERATIONS ARE CONSIDERED TO BE HAZARDOUS FOR THE FOLLOWING REASONS:
 - (A) SPACECRAFT HYPERGOLICS WILL BE ON BOARD.
 - (B) RP-1 WILL BE ON BOARD.
 - (C) SPACE VEHICLE ORDNANCE WILL BE INSTALLED AND CONNECTED.
 - (D) SPACE VEHICLE PROPELLANT TANKS AND GAS STORAGE SPHERES WILL BE PRESSURIZED.
 - (E) HAZARDOUS ENVIRONMENTAL CONDITIONS MAY BE ENCOUNTERED (INERT ATMOSPHERES, WORK AT HEIGHTS, RADIATION AND ENGINE GIMBALLING).
 - (F) HEAVY EQUIPMENT MOVEMENTS WILL BE REQUIRED.
 - (G) SPACE VEHICLE CRYOGENIC LIQUIDS (LOX, LH2 & SNE) WILL BE LOADED.
 - (H) THE FLIGHT CREW WILL INGRESS AND THE HATCH WILL BE CLOSED.
 - (I) THE SPACE VEHICLE WILL BE LAUNCHED (CD ONLY).

D. CDDT AND COUNTDOWN PROCEDURE EXPLANATION

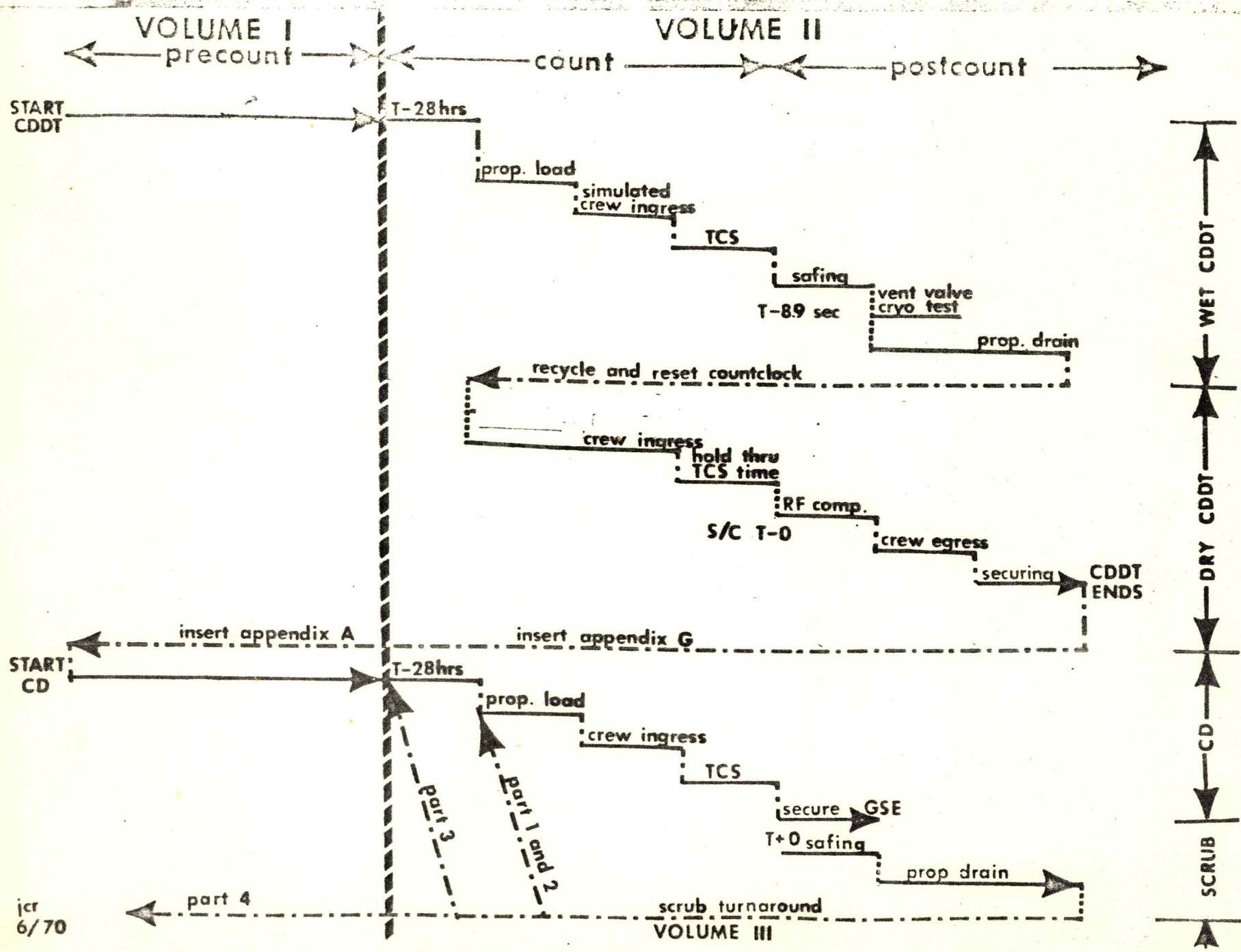
1. THE CDDT/CD WILL BE TREATED AS ONE PROCEDURE BUT WILL BE PUBLISHED SEPARATELY AS FOLLOWS:
 - (A) IN THE ISSUE RELEASED FOR CDDT, THE PAGES IN THE PROCEDURE HAVING A STEP UNIQUE TO CDDT WILL BE MARKED "CDDT ONLY". SUCH PAGES WILL HAVE A COUNTERPART PAGE CONTAINED IN APPENDIX A MARKED "CD ONLY". THIS ISSUE OF THE PROCEDURE WILL BE PROMINENTLY MARKED ON THE FRONT COVER "ASSEMBLED FOR CDDT".
 - (1) PAGES WITH BLACK BARS ARE TO BE USED ONLY DURING THE COUNTDOWN DEMONSTRATION TEST.
 - (B) FOLLOWING CDDT, THE "CDDT ONLY" PAGES WILL BE REPLACED BY THE "CD ONLY" PAGES. ALL APPROVED PERMANENT PROCEDURE CHANGES INCORPORATED, THE PROCEDURE REV NUMBER INCREASED, THE FRONT COVER PROMINENTLY MARKED "ASSEMBLED FOR CD" AND THE PROCEDURE REPUBLISHED AND REDISTRIBUTED.
 - (1) PAGES WITH BLACK DIAMONDS ARE TO BE USED ONLY DURING THE LAUNCH COUNTDOWN.
 - (C) THE "ASSEMBLED FOR CD" VERSION WILL NOT BE DISTRIBUTED UNTIL ABOUT 4 CALENDAR DAYS PRIOR TO THE START OF CD TO AVOID THE RISK OF HAVING THE TWO PROCEDURES CONFUSED.

E. CODES IN REMARKS COLUMN

1. * INDICATES INFORMATION UNIQUE TO CDDT
2. # INDICATES INFORMATION UNIQUE TO LAUNCH CD
3. A INDICATES INFORMATION UNIQUE TO AS-509 ONLY
4. TCPI (SEE PARAGRAPH B.1 ABOVE)

V-20060

CDDT & COUNTDOWN PROCEDURE EXPLANATION



KSC OPERATIONS APOLLO/SATURN TEST AND OPERATIONS CATALOG SHEET			PAGE 1 OF 4	
1. TEST TITLE LAUNCH VEHICLE OPERATIONS IN SUPPORT OF SPACE VEHICLE COUNTDOWN DEMONSTRATION AND COUNTDOWN		2. KSC TEST NUMBER V-20060		
4. TEST OBJECTIVES CDDT 1. To demonstrate the time phasing of the sequences necessary to prepare the launch vehicle for launch. 2. To verify that the launch vehicle and the ground support equipment are in launch status. 3. To demonstrate the ability to safe and drain the launch vehicle. CD 1. To accomplish the operations required to prepare the launch vehicle for launch. 2. To launch the space vehicle.		3. EFFECTIVITY AS-509 & SUBS		
5. TEST DESCRIPTION/EQUIPMENT STATUS/CONFIGURATION THIS TEST ☒ DOES ☐ DOES NOT CONTAIN HAZARDOUS OPERATIONS. It is classified as a test or operation. Operations are considered hazardous for the following reasons: Spacecraft hypergolics will be on board, RP-1 will be on board, ordnance will be installed and connected, propellant tanks and gas storage spheres will be pressurized, hazardous environmental conditions may be encountered (inert atmospheres, work at heights, radiation and engine gimballing), heavy equipment movements will be required, cryogenic liquids will be loaded, the flight crew will ingress and the hatch will be closed. The space vehicle will be launched. With the Space Vehicle on the pad, all tests must have been completed. <u>Test and Checkout Procedure Description</u> The basic procedure is written for CDDT. Insert pages are provided in appendices to convert the CDDT procedure to a CD procedure. It is divided into three volumes. Volume I operating steps will cover launch vehicle operations through spacecraft cryogenic loading. Volume II operating steps will include launch vehicle operations from the completion of spacecraft cryogenic loading through the terminal count sequence. Appendices will include: a) Safing Procedures b) Hold Options and Recycle Procedure c) Drain Operations d) Contingency Procedures e) Pad Access During Hazardous Operations f) Reconfiguration for Dry CDDT, Dry CDDT and LV Securing from Dry CDDT Volume III operating steps will include operations necessary to prepare the launch vehicle for another window after a scrubbed launch attempt.				
0	9-23-70	Revised to cover use of flight batteries during CD only.		
p	12/22/0	Revise test requirements.		
6. REV.	DATE	REASON	Contractor Approval	
7. CONTRACTOR APPROVAL		8. ORGANIZATION	9. DATE	
S/J.C. Doherty		BATC 5-8553	9/24/68	
10. NASA-KSC APPROVAL		11. ORGANIZATION	12. APPROVAL DATE	
S/I.A. Rigell		LV-ENG	10/28/68	

APOLLO/SATURN TEST AND OPERATIONS CATALOG (SHEET 2)			PAGE 2 OF 4	
1. TEST TITLE Launch Vehicle Operations in Support of Space Vehicle Countdown Demonstration and Countdown		2. KSC TEST NUMBER V-20060		
13. LOCATION Pad 39		14. COMPUTER PROC. IDENTIFICATION BE01, BE02, BT01, CTC1, CTC2, CTC3, CTC4,		
16. SUPPORT REQUIREMENTS SD/RD 40000 SD/RD 40001 Ground Power S-IC Stage Power S-II Stage Power S-IVB Stage Power IU Stage Power		15. EST. TEST TIME CDDT 138 Hrs;CD 108 Hrs ETR Range Safety KSC Pad Safety Security Police Fire Fighting Medical Propellants DC Power PTCS (All Systems) DTS DEE-3 RCA-110A Computers CM W-G ECS CCF Searchlights DEE-6		
7. OTHER APPLICABLE REFERENCE DOCUMENTATION L/M Procedure KL-0007 S/V Procedure V-40310 LMRD K-V-05.10 ETR OD 40001 ETR OD 40000 S/C Procedure K-0007 S/V Procedure V-40300 S/V Scrub Turnaround V-40305				
8. ITEM CONTINUATION (14) CTC5, FT03, FT04, FT05, FT06, FT08, FT10, FT20, FT23, FT25, FT31, FT33, FT35, FT37, FT42, FT43, FT45, FT47, FT49, FT55, GT16, KA01, KAF2, KAPW, ME01, MT01, NT60, NT98, QAES, QALS, QAMS, QAPU, QASP, VAED, VAFB, VALL, VAMC, VAPX, VATC, VATS, VZ33, VZEA, VZRE, VZSA, WAPO, WASL, WAST, WASV, WATL, XADS, XAPU, XASS, NT99, KAF1, KAG1, XAPS, NU10, QAEC, QAPO, KAF3, VARS, VALJ, FE50, VAAR, VARY, GE01, XAIC (5) <u>Countdown/Countdown Demonstration Comparison</u> The wet countdown demonstration will be performed the same as the launch countdown with the following major exceptions: Hypergol cartridges, igniters, initiators, safe and arm devices and exploding bridge wire detonators will be inert; DRSCS test code plugs will be used instead of flight code plugs; the service arm and tail service mast pressure hold test will be performed; flight battery simulators will be used; jumpers will be installed to inhibit retraction of service arms 1 & 2; astronauts will not enter the spacecraft; and TCS will be interrupted at time for ignition. The dry countdown demonstration will be the same as the last 3 1/2 hours of the launch countdown with the following major exceptions: LV cryogenic propellants, and the radioisotope thermal generator will not be on board; the primary damper and service arms 1 through 8 will not be retracted; and service arm 9 will be reconnected immediately after disconnection.				

APOLLO/SATURN TEST AND OPERATIONS CATALOG SHEET (CONTINUATION SHEET)		PAGE <u>3</u> OF <u>4</u>	APOLLO/SATURN TEST AND OPERATIONS CATALOG SHEET (CONTINUATION SHEET)		PAGE <u>4</u> OF <u>4</u>																																													
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3. EFFECTIVITY AS-509 & SUBS			3. EFFECTIVITY AS-509 & SUBS																																															
ITEM CONTINUATION (5) <u>Test Description</u> (Countdown Demonstration) <u>Volume I</u> Launch vehicle operations will include the following major operations: Service arm and tail service mast pressure hold test, propellant tank purging, digital range safety command checks, ordnance installation and connection and functional test (with pulse sensors), propulsion system checks, and propellant utilization system calibration. <u>Volume II</u> Launch vehicle operations will include the following major operations: Flight battery (or simulators) installation and connection, launch vehicle emergency detection system checks, telemetry radio frequency checks, launch vehicle power transfer test, range safety command checks, guidance system checks, mobile service structure platform opening and move from the pad, propellant dispersion safe and arm device connection, launch vehicle closeout and access door securing and pad evacuation for launch vehicle propellant loading. Also included will be launch vehicle cryogenic propellant loading, primary damper retraction, computer programs for automated launch vehicle checks, simulated astronaut ingress and terminal count sequence up to interrupt at time for ignition. Launch vehicle safing, drain, and securing operations will be included as will reconfiguration for dry CDDT. Dry CDDT will include operations to simulate the launch vehicle launch configuration at time for closeout crew to leave the mobile service structure parksite, launch vehicle power transfer test, range safety command checks, guidance system checks, propellant dispersion receiver checks, astronaut ingress and service arm 9 disconnect and reconnect. The launch vehicle terminal count sequence will not be run. Launch vehicle securing, radio frequency compatibility test, systems securing, astronaut egress, ground support equipment and launch vehicle securing operations will conclude the CDDT. <u>Test Description (Countdown)</u> The sequence of operations will be the same as the wet countdown demonstration test except the terminal count will result in launch of the space vehicle. Operations to secure ground support equipment after launch will be included. In the event of a scrubbed launch, cryogenic propellants would be drained prior to use of Volume III. <u>Volume III</u> Launch vehicle operations for a 24 hour scrub turnaround will include: Service arm 2 and 3 tip extension and retraction, MSS move to and from the pad, launch vehicle re-entry and closeout, propellant storage tanks sampling and fill, launch vehicle tank sampling, S-II insulation inspection, verification of S-IC forward umbilical reconnection and preparation for propellant loading starting at T-8:59 hours in Volume II.			ITEM CONTINUATION (5) Launch vehicle operations for a 2 day scrub turnaround will include extension and retraction of S/A 2, 3, 6 & 7 tips, MSS move to and from the pad, launch vehicle re-entry and closeout, installation and removal of work platforms and equipment to enable SHe reservicing, propellant storage tanks sampling and fill, launch vehicle tank sampling, verification of S-IC forward umbilical reconnection, S-II insulation inspection, and preparation for propellant loading starting at T-8:59 hours in Volume II. Launch vehicle operations for a 3 day scrub turnaround will include extension of S/A tips, MSS move to pad, launch vehicle re-entry, work platform installation, disconnection of propellant dispersion detonators and confined detonating fuses, connection of pulse sensors, propellant storage tanks sampling and fill, launch vehicle tank sampling, S-II insulation inspection, battery removal and systems retests in preparation for resumption of the launch vehicle countdown at T-28 hrs in Volume II. A barchart will depict the sequence of operations to be performed in the event of a post ignition scrub. <u>Test Requirements, MSFC</u> LV TM-010-002-2H C.2.3.1, C.2.3.2, C.2.3.4, C.2.4.1.1, C.2.5.1, B.1.5.1.2, C.2.2.13.1, B.13.0.1, B.1.8.1.2, B.1.8.1.4, B.1.9.1, B.10.0.1.3, B.10.0.1.4, B.1.5.1.1, B.1.6.1.1, B.1.6.1.2.1, B.1.2.1, B.1.2.1.1, B.1.5.2, B.1.9.2, B.3.1, B.3.1.1, B.12.0.1, C.2.1.1 THRU C.2.1.9 EXCEPT C.2.1.7.1 S-IC 66813618A 4.4.4.3.1 S-II SID 66-1465-7 2.3.3.1, 2.3.2.2 thru 2.3.2.2.4, 2.3.4.2.20 (CD Only), 2.4.2.5.1, 2.7.2.2.3, 2.7.2.3.3, 2.7.2.7.1 (Partial), 2.7.2.7.2, 2.7.2.7.3.1, 2.7.2.7.3.2, 2.7.2.7.5, 2.7.2.7.7, 2.7.2.8 S-IVB IB 76996 None IU 7916404 0.3.4.1.1.1.1, 0.3.5.2.5.2 (6) <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Rev.</th> <th style="text-align: left;">Date</th> <th style="text-align: left;"></th> <th style="text-align: left;"></th> <th style="text-align: left;"></th> </tr> </thead> <tbody> <tr> <td>G</td> <td>9/12/9</td> <td>Update computer programs and test requirements.</td> <td>Doherty/Bryan for Rigell</td> <td>9/19/69</td> </tr> <tr> <td>H</td> <td>10/6/9</td> <td>Volume III description to include 2 day scrub-turn-around. 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TEST OUTLINE					TEST OUTLINE				
1. TCP TITLE LV Operations in Support of Manned SV CDDT & CD	2. TCP NUMBER V-20060	3. REV. 002	4. VEHICLE NUMBER AS-509 ONLY	5. PAGE <u>1</u> OF <u>4</u>	1. TCP TITLE LV Operations in Support of Manned SV CDDT & CD	2. TCP NUMBER V-20060	3. REV. 002	4. VEHICLE NUMBER AS-509 ONLY	5. PAGE <u>2</u> OF <u>4</u>
6. CONTENT: This procedure includes launch vehicle operations for both the Countdown Demonstration Test and Countdown. It is divided into three volumes. Volume I covers launch vehicle precount operations. Volume II covers launch vehicle count operations as well as safing, hold, recycle, securing and Dry Countdown Demonstration Test operations. Volume III includes operations necessary to recycle the launch vehicle for another launch window. <u>Radio Frequency Systems:</u> All RF systems will be functionally checked out by ground stations and the RF checkout equipment. The MSS will be in place and passive repeaters will be connected to the various systems through antenna couplers. All stage command destruct systems will be checked. Antenna couplers will be removed prior to removal of the MSS after all systems have been validated and turned off. The C-band transponder, and the CCS will be turned off after validation. All RF systems will be turned on prior to launch and will again be interrogated and performance evaluated at the ground stations, the RF checkout station, and by correlation of these sources with the digital data acquisition system. <u>Telemetry Systems:</u> The telemetry systems will be turned on from the LCC measuring and RF panels and parameter checks conducted by the CIF ground station. Following these checks, the system will be used as required. <u>Measurement System:</u> The measurement system will be verified after verification of the telemetry systems. The verification will primarily be performed under programmed control of the 110A computer. <u>Guidance, Control and Stabilized Platform:</u> Functional tests of the guidance control and stabilized platform (GC&SP) system will be conducted. These tests will: (a) visually verify system configuration, (b) run automatic turn-on procedures early in the countdown and (c) verify subsystem operation. The flight computer subsystem checks include a repeatable simulated flight sequence, system interface test sequence (discrete check), and LV steering tests. The control computer nulls will be checked for acceptable values during warmup before the vehicle prelaunch checks are made. The ST-124M stabilized platform subsystem will be checked. The automatic long range theodolite true azimuth will be re-established using the reference benchmark and the theodolite system will be functionally tested before ST-124M platform tests are run.					6. CONTENT: The combined GC & SP will be brought to an operating condition to support the space vehicle power transfer test and operation on internal power will be verified to be acceptable. A few hours before T-0, the long range theodolite system will be set up to maintain the ST-124M platform azimuth alignment. The platform will be powered-up, aligned to the launch azimuth and held there until guidance release. In the final minutes of countdown, the combined GC & SP system will be utilized in the stage steering tests. These will be run on the S-IVB stage, then the S-II stage and finally the S-IC stage just before the terminal count sequence. <u>Networks:</u> The networks countdown activities include performance of electrical support equipment (ESE) preparation in the launch umbilical tower (LUT) and pad terminal connection room (PTCR) prior to evacuation of those areas. Preparations of the LUT ESE will include performing bus resistance checks from the LUT power distributors to the stage bus line before applying vehicle power. The various power and control distributors will be inspected for proper cable connections and switch positions. A check will be made to ensure that all cables are clear of movable mechanisms. Final checks will be made of recorder calibration digital events evaluator (DEE) operation and sequencer operation under launch control center (LCC) control. Associated indications at the LCC will be checked against existing conditions in the LUT. Preparations of a similar nature will be given to the PTCR ESE with emphasis on propellant and gases, electrical equipment and data transmission system. The LCC ESE preparations will be performed in conjunction with and following those in the LUT & PTCR. They will consist of visual inspection of power, instrumentation, and control distributors for proper cable connections and switch positions. Patch panel connections to the recorders and between the firing room and the PTCR will be visually inspected. Final recorder calibrations will be completed together with checks on the DEE printout devices. Power transfer tests will be conducted early in the count with final power transfer initiated late in the count. Proper transfer and correct vehicle electrical system buss loading will be verified. Late in the count, approximately T-5 minutes, the terminal countdown and ignition sequencers will be armed in preparation for the automatic terminal sequence start of T-3 minutes 7 seconds. <u>Emergency Detection System:</u> The EDS will be functionally tested after final power up and again shortly before T-0. The ground computer will program simulated malfunctions of input parameters and verify proper voting of the EDS logic units.				
002	12/31/70	Special Tests Revised	John Chou Reed	12/30/70	Frank Loper	12/30/70			
001	10/12/70	General Revision	John Chou Reed	10/12/70	Frank Loper	10/21/70			
7. PREPARED BY		8. DATE	8. CHIEF ENGINEER		10. DATE				
John Chou Reed		6/2/69	J. Rigell		6/9/69				

TEST OUTLINE				
1. TCP TITLE	2. TCP NUMBER	3. REV.	4. VEHICLE NUMBER	5. PAGE
LV Operations in Support of Manned SV CDDT & CD	V-20060	002	AS-509 ONLY	3 OF 4
6. CONTENT:				
7. <u>Propellants</u>: The LOX & LH2 systems will be prepared for tanking during precount operations. Valves will be prepositioned and electrical controls checked. Propellant loading sensors will be checked and the propellants tanking computer system tested. Cryogenic propellants will be loaded during wat CDDT and CD. Following the CDDT terminal count sequence, an S-II LH2 vent valve cryogenic test will be conducted and the propellants will be drained. 8. <u>Propulsion</u>: The S-IC LCC propulsion panels will be continually manned and the condition of the engines monitored. During the last 10 minutes of the count, the S-IC thrust chamber fuel jacket will be topped-off with ethylene glycol. During the last minute of the count, the S-IC engine calorimeter purge will be turned on. The engine checkout valves will be sequenced to the engine position and the high LOX dome and the gas generator LOX injector purge will be initiated by the sequencer. The ignition command will be given. In the demonstration, cutoff will be indicated at T-8.9 seconds. In the countdown, the start sequence will be automatically controlled through launch. 9. <u>Pneumatics</u>: Pneumatics system operations will consist of a visual inspection, verification checks of critical components, pressurization of pneumatic system consoles and supply lines and support of other system preparations. Pneumatics system will supply pressure to required systems upon request or at predetermined times. 10. <u>Hydraulics</u>: Hydraulics system operations will consist of visual inspection, verification checks of critical ground and airborne components, system operation in support of other tests and final hydraulic system operation for terminal count and flight. The S-IVB & S-II auxiliary hydraulic pumps will be turned on to support guidance gimbal commands. Visual inspection of the hydraulic system will be made prior to removal of the last work platforms to verify there is no leakage. 11. <u>Air Frame</u>: Upon completion of the precountdown operation, internal stage work platforms which are not required for the countdown operation will be removed and stored. Prior to removal of the mobile service structure (MSS), test equipment, tools and loose items will be removed from the structure platforms. The structure clamshells will be opened from around the space vehicle, ground connections disconnected and stored and the MSS transferred to its parking area by the crawler-transporter.				
7. PREPARED BY	8. DATE	8. CHIEF ENGINEER	10. DATE	

TEST OUTLINE				
1. TCP TITLE	2. TCP NUMBER	3. REV.	4. VEHICLE NUMBER	5. PAGE
LV Operations in Support of Manned SC CDDT & CD	V-20060	002	AS-509 ONLY	4 OF 4
6. CONTENT:				
The remaining internal stage platforms will be removed and the access doors secured for flight upon completion of all vehicle checks and connection of the Safe and Arm devices. Stage compartments will be inspected for loose equipment or damage prior to the removal and storage of the platforms. 12. <u>Environmental Control</u>: LV interstage areas and various electronic cannisters will be provided with air from prior to test start. These areas will be supplied with gaseous nitrogen prior to cryogenic loading and continued for the duration cryogenics are on board. The Launch Vehicle compartments must be verified clear of personnel prior to performing air to GN2 changeover operations. The S-IC, S-II, S-IVB, IU and SLA Compartments will be provided with GN2 to maintain compartment temperature within limits and to provide for purge of any minor LOX or LH2 leaks. The ECS will function through launch, ECS will provide conditioned air to S/A 9 White Room continuously through launch. 13. <u>Water Systems</u>: The water system dry electromechanical check of critical components will be completed early in the precount. The hydro-pneumatic water tanks will be filled and pneumatically charged. All manual valves and components will be visually inspected. Approximately 5 minutes before launch, the water system will be armed. Flame deflector cooling water and LUT service arm quench water systems will be activated automatically during the terminal count sequence, LUT deck flush will be manually activated just after liftoff. 14. <u>Firing Accessories</u>: A visual inspection will be conducted during the countdown to ensure that all loose equipment has been removed from the LUT. The hammerhead crane will be secured in the launch position. After removal of vehicle internal work platforms and securing of all access doors the service arm extension platforms and service arm 3 will be uncoupled from the vehicle, retracted, and locked. Prior to propellant tanking, all LUT tiedowns, supports and support columns will be inspected. The service arms and tail service masts hydraulic and pneumatic control accumulator pressures will be verified at the pad and at the LCC control and monitor consoles. 15. <u>Special Tests</u>: During CDDT, the following special tests will be performed: 1. S-II Pogo Test 2. S-II LOX Overfill Sensor & Sensor 14 Test 3. S-II LH2 Overfill Sensor Test 4. S-IC LOX Overfill Sensor Test 5. S-IVB LOX Stop Fast Fill Sensor Test 6. S-IVB LH2 Overfill Sensor Test 7. S-IVB Start Tank Warmup and Rechill Test 8. Option 2 Hold Exercise at T-3'20" 9. S-II Start Tank Warmup Test				
7. PREPARED BY	8. DATE	8. CHIEF ENGINEER	10. DATE	

REVISION RECORD PAGE (PRIOR REVISIONS)

REV.	REASON/SUPPORTING DOCUMENT
BASIC	RELEASED FOR AS-504 CDDT 1/13/69.
001	PARTIAL REVISION RELEASED FOR AS-504 CDDT 1/31/69.
002	RELEASED FOR AS-504 CD 2/17/69.
003	PRERELEASE FOR AS-505 DATED 3/12/69.
004	RELEASED FOR AS-505 CDDT 4/7/69.
005	PARTIAL REVISION RELEASED FOR AS-505 CDDT 4/18/69.
006	RELEASED FOR AS-505 CD 5/2/69.
007	NOT USED
008	RELEASED FOR AS-506 CDDT 5/14/69.
009	PARTIAL REVISION RELEASED FOR AS-506 CDDT 6/18/69.
010	RELEASED FOR AS-506 CD 7/3/69.
011	PRERELEASE FOR AS-507 8/13/69.
012	RELEASED FOR AS-507 CDDT 9/12/69.
013	PARTIAL REVISION RELEASED FOR AS-507 CDDT 10/15/69.
014	NOT USED
015	RELEASED FOR AS-507 CD 10/27/69.
016	AS-508 RELEASE 12/31/69, LATER DESIGNATED PRERELEASE
017	RELEASED FOR AS-508 CDDT 1/30/70.
018	PARTIAL REVISION RELEASED FOR AS-508 CDDT 3/9/70.
019	RELEASED FOR AS-508 CD 3/24/70.
020 & 021	NOT USED
022	CONTINGENCY CD FOR AS-508 (NOT RELEASED).
023	PRERELEASE FOR AS-509 10/28/70.

REVISION RECORD PAGE (CURRENT VEHICLE)

PAGES AFFECTED

REV.	REVISED	ADDED	DELETED
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REASON/SUPPORTING DOCUMENT

023 ALL

INCORPORATED AS-508 PCRS
B-256-30 & XB-198-34 NOT
INCORPORATED IN PRIOR
REVISIONS.

INCORPORATED AS-509 PCR'S
XB-204-1, D-76-2, N-173-3,
N-174-4, XB-210-5 & XB-213-6

PRERELEASE FOR AS-509
DATED 10/28/70.

024 ALL

INCORPORATED AS-509 PCR'S
XB-219-7, XB-220-8, I-146-9,
I-147-10, B-271-11, B-275-12,
B-276-13, B-277-14, Q-8-15,
N-189-16 & XB-223-17.

RELEASED FOR AS-509 11/24/70.

025 COVER, 1, 5-8, NONE
10-13,
87,93,100,
A12,A13, A87 & A93

NONE

INCORPORATED AS-509 PCR XB-235-18.

RELEASED FOR AS-509 12/30/70.

026

NOT USED

027 COVER, 1,2,
10,11,A12,
14,29,30,
A31,A34,35,
A40,A41,A45,
55,63,66,A68,
A86.

"CDDT ONLY"
PAGES

INCORPORATED AS-509 PCR'S
B-303-20, B-307-21, N-207-22,
B-310-23, N-209-24, XB-244-25,
N-210-26 & XB-246-27.

RELEASED FOR AS-509 CD 1/17/71.

LIST OF EFFECTIVE PAGES		Date 1/17/71		Effectivity AS-509		Test Number V-20060, VOL I		Revision 027		Page 11	
Page No.	Rev.	Page No.	Rev.	Page No.	Rev.	Page No.	Rev.	Page No.	Rev.		
COVER	027	A89 - A92	024								
1 & 2	027	A93	025								
3 & 4	024	94	024								
5 & 6	P	A95 - A98	024								
7 & 8	002	99	024								
9	024	100-102	024								
10 & 11	027	A103-A106	024								
A12	027										
A13	025										
14	027										
15 - 21	024										
A22	024										
23 - 25	024										
A26 - A28	024										
29 & 30	027										
A31	027										
32	024										
A33	024										
A34	027										
35	027										
36	024										
A37 - A39	024										
A40 & A41	027										
A42	024										
43	024										
A44	024										
A45	027										
46 - 50	024										
A51 & A52	024										
53 & 54	024										
55	027										
56	024										
A57 & A58	024										
59 - 62	024										
63	027										
A64 & A65	024										
66	027										
A67	024										
A68	027										
A69 & A70	024										
71 - 73	024										
A74	024										
75	024										
A76 & A77	024										
78 - 84	024										
A85	024										
A86	027										
A87	025										
88	024										

Date JANUARY 17, 1971

PRECOUNT

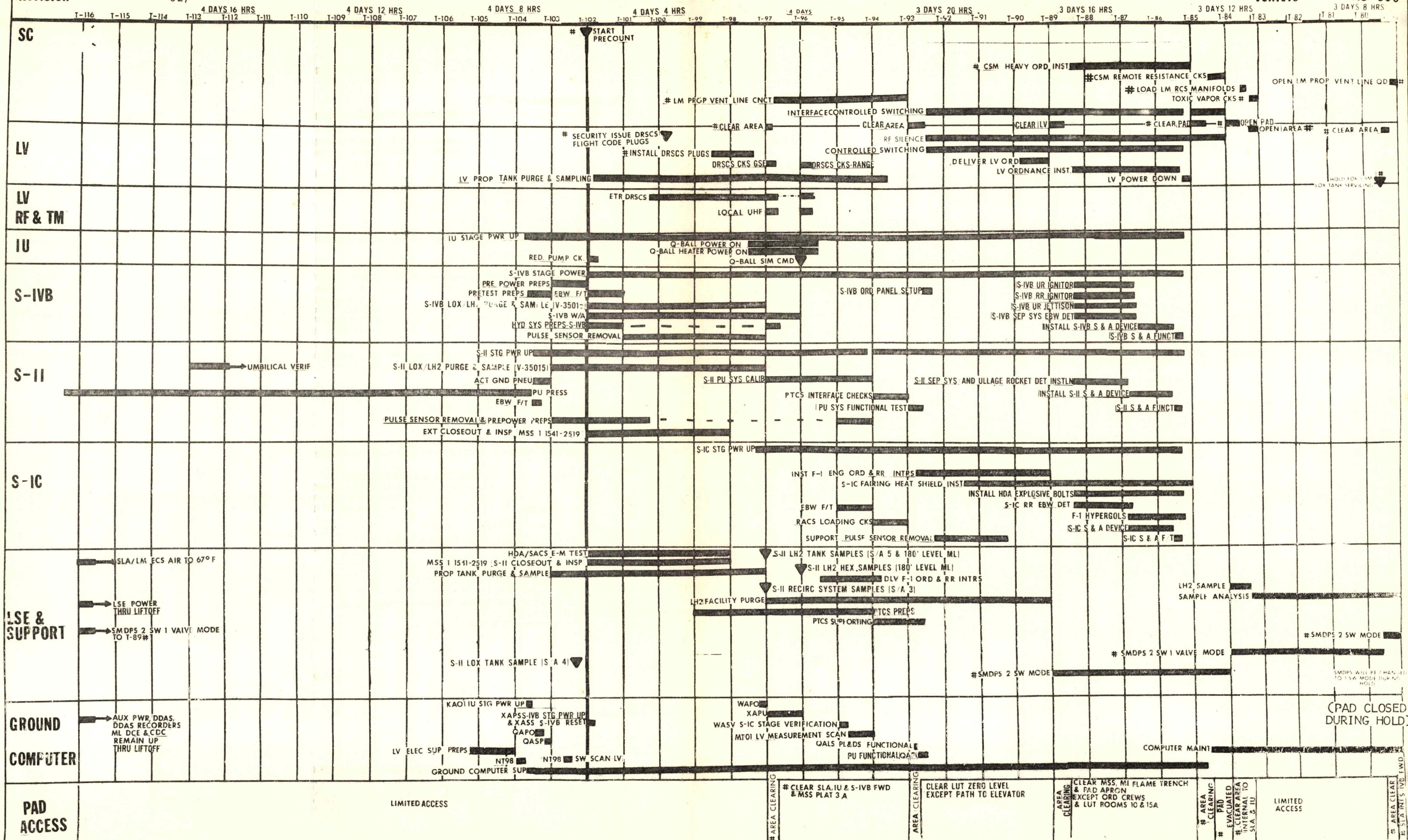
LV COUNTDOWN

CD ONLY

Page
Test No. V-20060, Vol I
Vehicle AS-509

Revision

027



SC

LV

LV
RF & TM

IU

S-IVB

S-II

S-IC

LSE &
SUPPORTGROUND
COMPUTERPAD
ACCESS

LIMITED ACCESS

AREA CLEARING

CLEAR SLA, IU & S-IVB FWD
& MSS PLAT 3 A

AREA CLEARING

CLEAR LUT ZERO LEVEL
EXCEPT PATH TO ELEVATOR

AREA CLEARING

CLEAR MSS, MI FLAME TRENCH
& PAD APRON
EXCEPT ORD CREWS
& LUT ROOMS 10 & 15A

AREA CLEARING

EVACUATED
CLEAR AREA
INTERNAL TO
SLA & IU

LIMITED ACCESS

AREA CLEARING

STA INTS IVB FWD

(PAD CLOSED
DURING HOLD)SMDPS WILL BE CHANGED
TO 15A MODE DURING
HOLD

SMDPS 2 SW MODE

SMDPS 2 SW 1 VALVE MODE

LH2 SAMPLE
SAMPLE ANALYSIS

S-II LH2 TANK SAMPLES (S/A 5 & 180' LEVEL ML)

S-II LH2 HEX SAMPLES (180' LEVEL ML)

S-II RECIRC SYSTEM SAMPLES (S/A 3)

LH2 FACILITY PURGE

PTCS SUPPORTING

PTCS PREPS

S-II LOX TANK SAMPLE (S/A 4)

MSS 1 1541-2519 (S-II CLOSEOUT & INSP)

PROP TANK PURGE & SAMPLE

HDA/SACS E-M TEST

INST F-1 ENG ORD & RR INTR

S-IC FAIRING HEAT SHIELD INST

INSTALL HDA EXPLOSIVE BOLTS

S-IC RR EBW DET

F-1 HYPERGOLS

S-IC S & A DEVICE

S-IC S & A F/T

SUPPORT PULSE SENSOR REMOVAL

RACS LOADING CKS

EBW F/T

S-IC STG PWR UP

PTCS INTERFACE CHECKS

I/P SYS FUNCTIONAL TEST

S-II PU SYS CALIB

S-II SEP SYS AND ULLAGE ROCKET DET INSTLN

INSTALL S-II S & A DEVICE

S-II S & A FUNCT

PU PRESS

EBW F/T

PULSE SENSOR REMOVAL & PREPOWER PREPS

EXT CLOSEOUT & INSP MSS 1 1541-2519

S-II STG PWR UP

S-II LOX/LH2 PURGE & SAMPLE (V-35015)

ACT GND PNEU

UMBILICAL VERIF

PULSE SENSOR REMOVAL

HYD SYS PREPS-S-IVB

S-IVB W/A

S-IVB LOX/LH2 PURGE & SAMPLE (V-35015)

PRETEST PREPS

PRE POWER PREPS

S-IVB STG POWER

RED. PUMP CK

Q-BALL HEATER POWER ON

Q-BALL SIM CMD

Q-BALL POWER ON

IU STAGE PWR UP

LOCAL UHF

DRSCS CKS GSE

DRSCS CKS RANGE

LV PROP TANK PURGE & SAMPLING

SECURITY ISSUE DRSCS
FLIGHT CODE PLUGS

INSTALL DRSCS PLUGS

CLEAR AREA

CONTROLLED SWITCHING

RF SILENCE

CLEAR AREA

CLEAR LV

CLEAR PAD

OPEN PAD

CLEAR AREA

DELIVER LV ORD

LV ORDNANCE INST

LV POWER DOWN

OPEN LM PROP VENT LINE QD

LOAD LM RCS MANIFOLDS

TOXIC VAPOR CKS

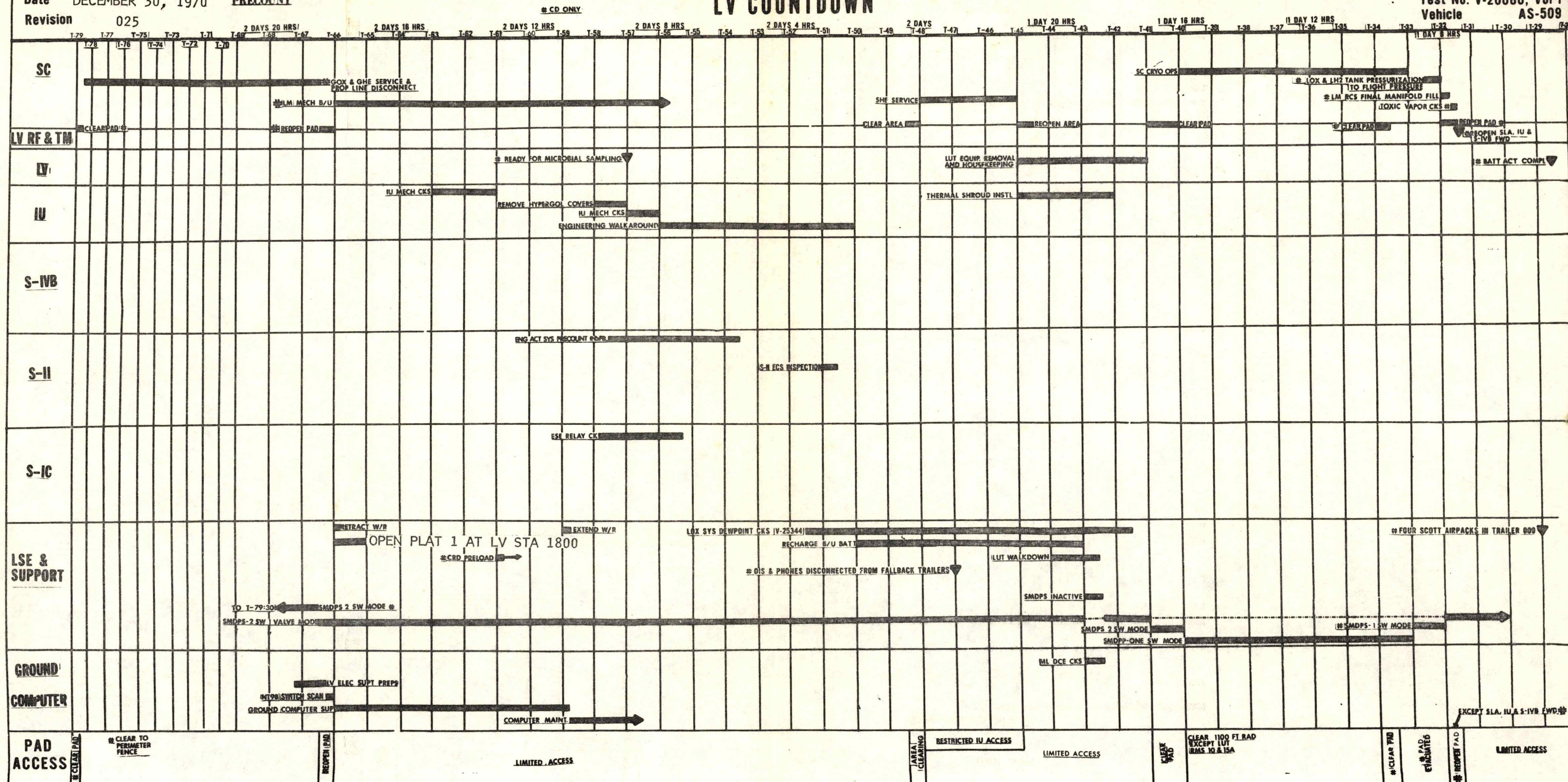
CSM REMOTE RESISTANCE CKS

CSM HEAVY ORD INST

LM PROP VENT LINE CNCT

INTERFACE CONTROLLED SWITCHING

START
PRECOUNT



XB-244-25

REQUIRED SUBTASK DOCUMENTATION

THE TEST AND CHECKOUT PROCEDURES REFERENCED IN THIS DOCUMENT ARE TABULATED BELOW. THE REVISION LEVEL SHOWN IS THE ONE TO BE USED DURING THE LAUNCH VEHICLE COUNTDOWN DEMONSTRATION AND COUNTDOWN. CORRECTIONS AND CHANGES MUST BE PROCESSED IN ACCORDANCE WITH TI-2-17.

S-1C STAGE & GSE SUBTASKS

TCP NO.	REV	TITLE
V-21008	007	ELEC CONNECTION OF S-1C PD EBN DETONATORS (HAZARDOUS)
V-21009	007	ELEC CONNECTION OF S-1C PD S&A UNIT (HAZARDOUS)
V-21012	007	ELEC CONNECTION OF S-1C RR EBN DETONATORS (HAZARDOUS)
V-21014	006	ELEC INSTL/REMOVAL OF HV IGNITERS (HAZARDOUS)
V-21018	009	FLT BATT ACTIVATION & C/O (HAZARDOUS) (CD ONLY)
V-21035	007	PREPS OF S-1C ESE TO SUPPORT LAUNCH CD
V-21036	005	S-1C STAGE ESE POST LAUNCH CHECK LIST
V-21038	008	S-1C POWER ON
V-21097	005	S-1C POWER OFF
V-21194	007	LSE POWER ON & OFF REMOTE CONTROL (LCC)
V-21321	005	ELEC INSTALLATION OF S-1C HDA ORD (HAZARDOUS)
V-21439	002	EMERGENCY BACKUP BATTERY OPERATIONAL TEST
V-24010	002	S-1C INTERNAL WORK PLATFORM REMOVAL (HAZARDOUS)
V-24011	005	S-1C BULKHEAD PROTECTION EQUIPMENT REMOVAL (HAZARDOUS)
V-24023	004	S-1C GROUND HYD SUP & C/O UNIT SETUP (HAZARDOUS)
V-24327	007	S-1C FORWARD UMBILICAL RECONNECTION
V-25003	002	S-1C STAGE PNEU SYS CDDT AND LAUNCH PREPS (HAZARDOUS)
V-25034	004	RP-1 STANDBY
V-25159	008	LM2 STORAGE TANK FILL AND DRAIN (HAZARDOUS)
V-25160	003	PTCS PREPS FOR PROPELLANT LOADING
V-25329	003	DYS/DEE SYSTEM PAD SECURING
V-25331	001	LOX STORAGE AREA TANK FILLING/PAD A (HAZARDOUS)
V-25340	006	LOX TANK SAMPLING/PAD A (HAZARDOUS)
V-25342	003	LOX PREPS FOR VEHICLE LOADING/PAD A (HAZARDOUS)
V-25344	004	LOX SYS SECURING AFTER LOX LOAD/DRAIN (HAZARDOUS)
V-25345	003	TOTAL LOX SYS DEW POINT/PAD A
V-25349	008	LOX SYS SECURING AFTER LAUNCH/PAD A (HAZARDOUS)
V-26046	005	RP-1 AUTO LEVEL ADJUST/LINE INERT (HAZARDOUS)
V-26222	005	HDA UPPER LINK PRELOAD/RELAX PROC (HAZARDOUS)
V-26247	005	PNEU DIST SYS OPERATING PROC (HAZARDOUS)
V-26329	004	ECS DAILY OPS/LC-39A (HAZARDOUS)
V-26476	001	HDA EXPLOSIVE RELEASE SYS PWR CARTRIDGE
V-27087	003	INSTL/REMOVAL (HAZARDOUS)
V-27093	006	CRD INST & TORQUE (HAZARDOUS) (CD ONLY)
V-27098	009	HGD SYSTEM OPERATING PROCEDURE (HAZARDOUS)
V-27153	007	S-1C LOX AND FUEL LIQUID LEVEL AND LOADING
V-27175	007	ELECTRONICS TESTS
V-28186	003	VEH MEAS GSE STA TEST SUPPORT PREPS
V-29003	005	S-1C STAGE MEASURING SCAN TEST HT01
V-29005	006	LCC MEAS STA OPERATION, CAL & MAINT
V-31031	003	S-1C STAGE AND GSE TELEMETRY SUPPORT
V-31045	007	S-1C STAGE ORD INST AT PAD (HAZARDOUS)
V-31047	004	V-1 ENGINE ORDNANCE INSTALLATION (HAZARDOUS)
V-33030	005	IWS ELECTRICAL POWER PREPARATION
V-34012	006	SATS/SLA-ELEC SUPPORT FOR CDDT & LAUNCH
V-35004	005	S-1C UMR CABLE CONNECTION/DISCONNECTION
V-36032	003	S-1C FLIGHT CONTROL SYSTEMS PREPARATIONS
V-36039	005	S-1C PROPULSION SYSTEMS PREPS (HAZARDOUS)
V-36063	006	LM2 SYSTEM PREP FOR VEHICLE LOADING (HAZARDOUS)
V-36064	004	LM2 SYSTEM SECURING AFTER LOADING (HAZARDOUS)
V-36069	004	S-1C AFT SERV ARM LOCAL CONTROL OPERATION (HAZARDOUS)
V-36070	005	TSM SYS PREP & OPS FOR S/V CDDT AND CD (HAZARDOUS)
V-36071	004	SHDPS LAUNCH CONFIGURATION PREPS (HAZARDOUS)
V-36074	005	PNEU DIST SYS LAUNCH PREPS
V-36077	005	HDA & S/A CONTROL SH SUPPORT OPERATIONS (HAZARDOUS)
V-36078	004	PLATFORMS AND TRANSPORTER LAUNCH PREPS (HAZARDOUS)
V-36079	005	S-1C INTERTANK S/A EXTENSION/RECONNECTION (HAZARDOUS)
V-36080	005	S-1C PROP LOAD SUPPORT OPS (HAZARDOUS)
V-36081	004	S-1C INTERTANK S/A SUPPORT OPS CDDT & LAUNCH
V-36082	004	(HAZARDOUS)
V-36083	005	S-1C FWD S/A SUPPORT OPS CDDT & LAUNCH (HAZARDOUS)
V-36084	004	HYD DISTRIBUTION SYS PREPS FOR COUNTDOWN TEST
V-36085	005	S-1C INTERMEDIATE S/A SUPPORT OPS (HAZARDOUS)
V-36086	005	S-1C FWD S/A SUPPORT OPS CDDT & LAUNCH (HAZARDOUS)
V-36087	004	S-1C AFT S/A SUPPORT OPS CDDT & LAUNCH (HAZARDOUS)
V-36088	005	S-1C FWD S/A SUPPORT OPS CDDT & LAUNCH (HAZARDOUS)
V-36089	005	SH S/A SUPPORT OPS CDDT & LAUNCH (HAZARDOUS)
V-36090	004	CM ACCESS ARM (HAZARDOUS)
V-36091	005	DRRS SUPPORT OPS (HAZARDOUS)
V-36092	004	LSE MECH OPS FOR SUPPORT OF MAJOR INTEGRATED TESTS
V-36093	005	G-BALL COVER REMOVAL SYSTEM PREPS/ML (HAZARDOUS)
V-36094	004	INDUSTRIAL WATER SYSTEM LAUNCH PREPS (HAZARDOUS)
V-36095	004	HAZARDOUS GAS DETECTION SYSTEM MAINT PROC (HAZARDOUS)
V-36096	008	DRSCS-PAD, STAGE & VEH SUPPORT
V-36097	003	ECS NETWORKS PREOPERATIONAL CHECKOUT
V-36098	003	LCC/ML ELEC CABLE VERIFICATION
V-21032	006	

S-1I STAGE SUBTASKS

TCP NO.	REV	TITLE
V-21101	008	B012 FLT BATT ACT FOR S-1I STAGE (HAZARDOUS) (CD ONLY)
V-21103	009	B013 S-1I STAGE POWER APPLICATION
V-21293	010	B068 S-1I FINAL ELECTRICAL CHECKS (CD ONLY)
V-21340	005	B019 - PU COMPUTER PRESSURIZATION
V-21438	002	B022 FINAL STAGE ELECTRICAL CHECKS (CDDT ONLY)
V-21492	BASIC	B145 FINAL LUT ELECTRICAL CHECKS (CDDT ONLY)
V-24116	004	B001 PROPELLANT FEED, RECIRCULATION LINES, AND LM2
V-24256	004	TANK VENT LINES VACUUM CHECK (CD ONLY)
V-25191	007	B046 S7-41/A7-71 OP SETUP & SECURING (HAZARDOUS)
V-25311	006	B015 PROP UTILIZATION CAL AND FUNC TEST
V-27154	003	L009 PURGE & VACUUM SYS SECURING (HAZARDOUS)
V-27163	003	B038 LCC RECORDER, FUNC SETUP & VERIFICATION
V-27218	002	(HAZARDOUS)
V-28135	002	G032 MEASUREMENT STATION CHECKOUT/TEST
V-28143	007	G137 GSE ENGR WALKDOWN OF ML INSTR
V-28144	007	G058 PCM - TM CHECKOUT EQUIP TEST (STAGE
V-28161	001	MODULE EQUIP)
V-28203	006	H021 S-1I STAGE RF & TM CLOSEOUT FOR LAUNCH
V-28204	005	H014 S-1I TM OPERATIONAL READINESS CHECK
V-29049	005	G125 FM/FM TM C/O EQUIP TEST (STAGE MODULE)
V-29050	006	Z008 - S-1I EBN DETONATOR INST (HAZARDOUS) (CD ONLY)
V-30029	009	K008 S&A DEVICE INSTL & C/O (HAZARDOUS) (CD ONLY)
V-30575	BASIC	S009 S-1C/S-1I, S-1I/S-1I AND S-1I/S-1IVB PULSE
V-30614	007	SENSOR REMOVAL
		Z038 - INERT EBN DETONATOR INSTL INTO THE S-1I SEP
		SYS (LIVE ORD COMPONENTS) (HAZARDOUS) (CDDT ONLY)
		K010 INERT S&A DEVICE INSTL INTO THE S-1I PD SYS
		(LIVE ORD COMP) (HAZARDOUS) (CDDT ONLY)
		M020 S-1I STAGE & GSE PREPS FOR S/V CDDT & CD
		(HAZARDOUS)
		Z037 MISC EQUIP SECURING SOP (HAZARDOUS)
		E028 - PROPULSION SYSTEM LAUNCH PAD TEST OPS
		(HAZARDOUS)

S-1VB STAGE SUBTASKS

TCP NO.	REV	TITLE
V-21085	005	PROPELLANT UTILIZATION SUBSYSTEM TEST
V-21322	005	FLT BATT ACT, 1468316 FWD NO. 2 (HAZARDOUS) (CD ONLY)
V-21323	005	FLT BATT ACT, 1468317 AFT NO. 2 (HAZARDOUS) (CD ONLY)
V-21324	005	FLT BATT ACT, 1459741 (HAZARDOUS) (CD ONLY)
V-21413	005	VEHICLE BATTERY MONITORING (CD ONLY)
V-30339	006	S-1VB SUPPORT AND PREPS FOR CDDT & CD (HAZARDOUS)

INSTRUMENT UNIT SUBTASKS

TCP NO.	REV	TITLE
V-21222	010	AUXILIARY DAILY POWER ON PROCEDURE
V-21223	010	IU POWER APPLICATION/REMOVAL
V-21254	012	IU BATT ACT MON & DISCHARGE PROC (HAZARDOUS) (CD ONLY)
V-22006	010	GROUND COMPUTER DAILY/TEST OPERATIONS
V-31062	011	IBM SUPPLEMENTAL TO S/V CDDT AND CD (HAZARDOUS)

INTEGRATED PROCEDURES

TCP NO.	REV	TITLE
V-20056	010	SATURN V LAUNCH VEHICLE EMERGENCY PROCEDURE (HAZARDOUS)
V-35014	014	L/V AUTO AND 44V LOX/LH2 LOAD & DRAIN OPS (HAZARDOUS)
V-35015	012	VEHICLE LOX/LH2 TANK AND FACIL LM2 SYS PURGE (HAZARDOUS)

LV PROCEDURES

TCP NO.	REV	TITLE
V-20070	005	S-1G TELEMETRY, MOBILE LAUNCHER GSE READINESS

AUTOMATED PROGRAM INDEX

THE AUTOMATED PROGRAMS (IVARIS) EXECUTED DURING THE COURSE OF THIS TEST AND CHECKOUT PROCEDURE ARE TABULATED BELOW. THE REVISION LEVEL SHOWN IS THE ONE TO BE USED DURING THE LAUNCH VEHICLE COUNTDOWN DEMONSTRATION AND COUNTDOWN. CORRECTIONS AND CHANGES MUST BE PROCESSED IN ACCORDANCE WITH TI-2-17.

IVAR	REV	TITLE	REMARKS
----	---	-----	-----
KAPW	000	LVDC/LVDA POWER ON	
KA01	013	IU STAGE POWER APPLICATION	
MT01	013	MEASUREMENTS CALIBRATION TEST	
NT98	013	DISCRETE INITIALIZATION/REINITIALIZATION	
NT99	004	DISCRETE EXECUTIVE ACTION TABLE MODIFY	
QALS	002	S-II LEVEL & DEPLETION SENSOR TEST	
QAPO	004	S-II STAGE POWER ON	
QAPU	002	S-II PROPELLANT UTILIZATION	
QASP	002	S-II SEPARATION SYSTEM	
WAPD	004	S-IC DAILY POWER ON	
WASV	001	S-IC STAGE SYSTEMS VERIFICATION TEST	
XAPS	012	S-IVB STAGE & GROUND POWER APPLICATION	
XAPU	001	S-IVB PROPELLANT UTILIZATION	
XASS	010	S-IVB SWITCH SELECTOR RESET	

LAUNCH OPERATIONS COMMUNICATIONS

COMPLEX 39 PA SYSTEM:

TO BE UTILIZED FOR ADMINISTRATIVE PHONE CALL ANNOUNCEMENTS, "T"
COUNT ANNOUNCEMENTS, PAGING SPECIFIC PERSONNEL TO AN OIS CHANNEL,
OPERATIONAL & EMERGENCY ANNOUNCEMENTS, AND FOR PAD ACCESS
ANNOUNCEMENTS.

INTERCOMMUNICATIONS:

THE TEST AND CHECKOUT OPERATIONAL COMMUNICATIONS ARE TO BE UTILIZED
AS ASSIGNED OR INDICATED IN THE PROCEDURE. TEST SUPERVISORY
PERSONNEL MUST BE AVAILABLE AT THE FOLLOWING STATIONS.

		ACTIVE -----	MONITOR -----
S-IC TEST CONDUCTOR (TBC)	C1TC	181	121
S-II TEST CONDUCTOR (NR)	C2TC	171	121
S-IVB TEST CONDUCTOR (MDC)	C4TC	161	121
IU TEST CONDUCTOR (IBM)	CUTC	151	121
L/V TEST CONDUCTOR (LVO)	CLTC	121	
S/V TEST SUPERVISOR (DLO)	CVTS	111	
SYSTEMS SAFETY (BENDIX)	CPSS	141	121
TEST SUPPORT CONTROLLER (TSM)	CTSC	112	

CALL STATIONS

ACCF GCF TEST CONDUCTOR
BCMX BENNIX SUPPORT SUPERVISOR
BCFM FACILITY MEASUREMENTS
BCRL RCA/LTV SUPPORT SUPERVISOR
BCSC VEHICLE SUPPORT CONTROLLER
BCWC WATER CONTROL (CCC-CONSOLES)
BDOS LCC DATA DISPLAY STATION
BDTS DATA TRANSMISSION (CPI) INFORMATION SYSTEM
BEHZ HAZARDS MONITORING, INFORMATION SYSTEMS
BELT LIGHTING WARNING
BGCC GROUND COMPUTER COMPLEX FIRING ROOM
BLTM LVO TM ENGINEER
BTMC SUPPORT CONTROLLER, OPERATION (AAS CUE PANEL RM 1P9)
BOIV OTV SYSTEM CENTER
BPPO PHOTOGRAPHY (TECHNICOLOR)
BRFS RF GROUND STATION LCC, RF/DRSCS GND STATION - 2P10A
BTIS INSTALLATION SUPPORT CONTROLLER
BTMC TM CHECKOUT EQUIPMENT, COMMON MODULE - ROOM 2P10
BTMI CIF INTERFACE MODULE - RM 2P10
BTMT TEST COORDINATOR - RF & TM
BUTM IU TM CHECKOUT EQUIPMENT
B1RF S-IC RF SYSTEMS ENGINEER
BLTH TM CHECKOUT EQUIPMENT
B2RF S-II RANGE SAFETY ENGINEER
B2TM TM CHECKOUT EQUIPMENT, S-II MODULE - ROOM 2P10
B4IE S-IVB INSTRUMENTATION ENGINEER
B4HF LCC RF STATIONS
B4TM S-IVB TM CHECKOUT EQUIPMENT
CAJP A. J. PICKETT
CAHE GROUND NETWORKS ENGINEER
CCAP AUXILIARY POWER CONSOLE
CCLH LHM CONTROL CONSOLE
CCLO LOX CONTROL CONSOLE
CCPH NETWORKS POWER MONITOR
CCPI HP-1 CONTROL CONSOLE
CCCT TEST SUPPORT CONTROLLER (SOP)
CCFS ECS CONTROL CONSOLE
CCFK CRT KEYBOARD - EDS OPERATOR
CCIC INSTRUMENTATION CONTROLLER
CCUC HYDRAULIC CHARGING UNIT CONTROL CONSOLE
CHQA HOLDDOWN ARMS CONTROL PANEL
CHGD HAZARDOUS GAS DETECTION SYSTEM - LCC
CHG2 AROPT MON HAZ GAS CUE PANEL CONSOLE BE-11
CIAP I. A. HIGGELL
CLCD LVO GROUND COMPUTER SYSTEMS ENGINEER
CLCE LVO CHIEF, ELEC SYS ENGR
CLCF LVO COMPUTER AUTOMATION PROGRAMMING ENGR
CLDE LUT SYSTEMS DEE PRINTER
CLEG LVO CHIEF, LV ELECTRICAL G & C SYSTEM
CLEI LVO INTEGRATION EQUIP ELEC SYS ENGR
CLEL LVO LAUNCH EQUIP ELEC SYS ENGR
CLER LVO PROPELLANT ELEC SYS ENGR
CLFS ELECTRICAL G&C OPERATIONS ENGINEER
CLEU ELEC NETWKS SYST ENGR IU
CLEV LVO WATER SYST ELEC SYS ENGR
CLF1 ELEC NETWKS SYST ENGR S-IC
CLF2 ELEC NETWKS SYST ENGR S-II
CLF4 ELEC NETWKS SYST ENGR S-IVB
CLFK CRT KEYBOARD - FLIGHT CONTROL
CLFS LVO FLIGHT CONTROL SYSTEM ENGINEER
CLGC LVO GUIDANCE & CONTROL SYSTEM ENGINEER
CLUK CRT KEYBOARD - GUIDANCE
CLUS LVO GND AND STABILIZER SYSTEMS ENGINEER
CLIK LV CRT KEYBOARD - MEASURING
CLIS LVO INSTRUMENTATION SYSTEM ENGINEER
CLMS LV MECHANICAL SYSTEMS ENGINEER
CLNS FLIGHT COMPUTER SYSTEMS ENGR
CLNH LVO OPERATIONS NAVIGATOR
CLPS LV PROPELLANT SYSTEMS ENGINEER
CLVO LV OAL R/W FR
CLOS LV OAL CHIEF
CLSM LSE & EDS CRT
CLTC LAUNCH VEHICLE TEST CONDUCTOR
CLVC VEHICLE NETWORKS PANEL
CPDC PNEUMATIC DISTRIBUTION SYSTEM CONTROL CONSOLE
CPH1 LHM COMPONENTS PANEL #1
CPH2 LHM COMPONENTS PANEL #2
CPH3 LHM COMPONENTS PANEL #3
CPH4 LHM COMPONENTS PANEL #4
CPH5 LHM COMPONENTS PANEL #5
CPH6 LHM COMPONENTS PANEL #6
CPH7 LHM COMPONENTS PANEL #7
CPH8 LHM COMPONENTS PANEL #8
CPH9 LHM COMPONENTS PANEL #9
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CPH95 LHM COMPONENTS PANEL #95
CPH96 LHM COMPONENTS PANEL #96
CPH97 LHM COMPONENTS PANEL #97
CPH98 LHM COMPONENTS PANEL #98
CPH99 LHM COMPONENTS PANEL #99
CPH100 LHM COMPONENTS PANEL #100
CPS1 TEST SUPPORT CONTROLLER
CPS2 TAIL SERVICE MAST 1-2 FIRING AND MONITOR TEST CONSOLE
CPS3 TAIL SERVICE MAST 2-3 FIRING AND MONITOR TEST CONSOLE
CPS4 TAIL SERVICE MAST 3-4 FIRING AND MONITOR TEST CONSOLE
CUCP IU FLIGHT CONTROL RECORDER PANEL
CUCM IU FLIGHT CONTROL RECORDER PANEL
CUCS AIRBORNE COMMAND SIMULATOR
CUEE DIGITAL EVENTS EVALUATOR PRINTER
CUEF EDS FLIGHT MONITOR
CUES EDS PREPARATION
CULV EVENTS DISPLAY PANEL
CUCV IU FLIGHT CONTROL PANEL
CUHF IU FLIGHT CONTROL SYSTEMS ENGINEER
CUFS FLIGHT CONTROL SYSTEM INTEGRATOR
CUGA IU FLIGHT CONTROL EDS RATE GYRO/CONTROL
CUIE INTEGRATION/LUX POWER SYSTEM ENGINEER
CUMI IU INSTRUMENTATION PANEL
CUNE IU GROUND NETWORKS ENGINEER
CUNK IU CRT KEYBOARD-NETWORKS
CUNP IU NETWORKS PANEL
CUPC ST-124H SYSTEM ENGINEER
CUPP IU AC & DC POWER
CUPH FLT CONT CUM INPUT SUBSTITUTE PANEL
CUSN SWITCH SELECTOR PANEL
CUTC IU TEST CONDUCTOR

CVTS SPACE VEHICLE TEST SUPERVISOR
CWCP INDUSTRIAL WATER CONTROL PANEL
C1CS CUTOFF SENSORS PANEL
C1DE DEE PRINTER
C1DP PROPELLANT DISPERSION AND ORDNANCE (DESTRUCT) PANEL
C1EH ENGINE HEATERS PANEL
C1EN S-IC ENGINE PANEL
C1EV EVENT DISPLAY DISCRETE READOUT PANEL
C1FC S-IC ENGINE DEFLECTION
C1FE FLIGHT CONTROL SYSTEM ENGINEER
C1FR FIRING CONSOLE AND COMPONENT TEST PANEL
C1HP HYDRAULICS PANEL
C1NP NETWORKS PANEL
C1LO S-IC LOX CONSOLE
C1MS MEASURING SYSTEM TEST OPERATIONS
C1NE GROUND ELECTRICAL ENGINEER
C1NK CRT KEYBOARD - NETWORKS
C1NP NETWORKS PANEL
C1OU LOX TANKING COMPUTER
C1CP CONTROL AND PURGE PANEL (STAGE PNEUMATICS CONTROL)
C1PE PROPELLANT AND MECHANICAL SYSTEMS ENGINEER
C1PK CRT KEYBOARD - PROPELLSION
C1PP DC POWER PANEL
C1PS GROUND POWER POWER SUPPLY ENGINEER
C1PU S-IC PREFILL PANEL
C1RP HP-1 SYSTEM PANEL
C1RU HP-1 TANKING COMPUTER PANEL
C1SW S-IC STAGE NETWORKS ENGINEER
C1TC S-IC STAGE TEST CONDUCTOR
C2AE ALL ENGINE PANEL
C2DP PD AND EFW AND ORDNANCE PANELS
C2EC ENGINE COMPONENTS PANEL
C2EV EVENTS DISPLAY PANEL
C2HP HYDRAULICS PANEL
C2FE S-II ENGINE DEFLECTION PANEL
C2HG GROUND PNEUMATICS PANEL
C2HO HAZARDOUS GAS DETECTION ENGINEER
C2HU LHM TANKING COMPUTER
C2IP MEASURING AND RF PANEL
C2LA S-II PROPELLANT LOADING ELECT ADVISOR
C2NK CRT KEYBOARD - NETWORKS
C2NP NETWORKS PANEL
C2OU LOX TANKING COMPUTER
C2PA S-II PRESSURIZATION ELECT ADVISOR
C2PC LHM POWER CONTROL PANEL #1
C2PK CRT KEYBOARD - PROPELLSION
C2PM PROPELLANT MONITOR PANEL
C2PU PROPELLANT UTILIZATION AND DEPLETION PANELS
C2PV PURGE AND VACUUM PANEL
C2NP RECIRCULATION PANEL
C2PS LHM RACKS (S-IC AND S-II)
C2SI S-II ACCESS/STRUCTURES
C2SP PRESSURIZATION PANEL
C2ST S-II STAGE TEST CONDUCTOR
C2TV S-II TV CONTROLLER
C3AL APS LAUNCH & MONITOR PANEL
C3AE DIGITAL EVENTS EVALUATOR PRINTER
C3AP PROPELLANT DISPERSION AND ORDNANCE PANEL
C3EP ENGINE PREPARATION PANEL
C3ES S-IVB ELECTRONICS SYSTEM ENGINEER
C3ET ENGINE TEST PANEL
C3EV S-IVB EVENTS DISPLAY PANEL
C3FL S-IVB FLIGHT CONTROL PANEL
C3FS S-IVB FLIGHT CONTROL SYSTEM ENGINEER
C3HC S-IVB HE CONTROL PANEL
C3HM S-IVB H2/H2O2 CONTROL PANEL
C3HU LHM TANKING COMPUTER
C3HP HYDRAULIC PANEL
C3IP S-IVB MEASURING PANEL
C3NK CRT KEYBOARD - NETWORKS
C3NP S-IVB NETWORK PANEL
C3OH 02/H2 BURNER PANEL
C3OU LOX TANKING COMPUTER
C3PP S-IVB PROP, KEYBOARD
C3PR S-IVB DC POWER SUPPLY PANELS
C3PS S-IVB PROPELLANT STATUS PANEL
C3PT S-IVB PROPELLSION SYSTEM ENGINEER
C3PU S-IVB PROPELLANT UTILIZATION SYSTEMS PANEL
C3PV S-IVB PROPELLANT UTILIZATION DISPLAY CONSOLE, AUX LOCATION
C3QC S-IVB QUALITY CONTROL
C3SH S-IVB MECH/STRUCTURES SYSTEM ENGINEER
C3SP S-IVB STAGE PRESSURE PANEL
C3ST S-IVB STAGE TEST CONDUCTOR
C3TC CIF ANTENNA SITE
C3UP COMPUTER FACILITY
C3UP CIF COMPUTER
C3UT CIF DATA DISPLAY ROOM (307)
C3VS DATA TRANSMISSION STATION
C3WH TELETYPE/GROUND STATION (CIF)
C3WI GUIDANCE TM OUTPUT MONITOR (CIF)
C3WM AROPT MONITOR - THRUST CHAMBER PRESS
C3WF CIF S-IC ENG GIMBAL POSITION AROPT MON
C3WG CIF S-IC ENGINE PANEL
C3WH CIF S-IC FLIGHT CONTROL ENGINEER
C3WI CIF S-IC ELECTRICAL ENGINEER
C3WP CIF S-IC NETWORKS CRT KEYBOARD
C3WQ CIF S-IC PROPELLSION ENGINEER
C3WR PROPELLSION CRT KEYBOARD
C3WT CIF S-IC TEST CONDUCTOR
C3WV CIF S-IC MEASURING
C3WY CIF S-IVB INSTRUMENTATION MONITOR
C3WZ UNIFIED S-BAND GROUND STATION
C4FL HOUSTON FLIGHT DIRECTOR
C4ST SPACECRAFT TEST CONDUCTOR
C4SE LSE ELECT ENGR LUT BASE
C4SI LSS POWER SUPPLY AND DIST. RACKS
C4LC CRYNOCLOCK (ML)
C4LS DRAS (ML)
C4LE EMERGENCY BACKUP BATTERIES (ML)
C4LP ENGINE SERVICE PLATFORM
C4LG GROUND COMPUTER COMPLEX (ML)
C4LD HOLDDOWN ARMS
C4LE HAZARDOUS GAS DETECTION SYSTEM, RM 159
C4LF DIGITAL EVENT EVALUATOR (ML) DEEA
C4LR DIGITAL RANGE SAFETY COMMAND SYSTEM GSE
C4LM LAUNCH OPERATIONS MANAGER
C4LP PNEUMATIC DISTRIBUTION COMPLEX
C4LX PROPELLANT LOADING COMPUTERS
C4LY POWER SUPPLY SYSTEM RACKS, AREA 79
C4LP INTEGRATION NETWORKS (ML)
C4LS LUT SIGNAL CONDITIONING TEST PANELS
C4LT LUT TAIL SERVICE MAST ENGINEER
C4LN IU NETWORKS
C4LU ML QUALITY INSPECTION
C4LE S-IC ENGINE AREA
C4LF HANDLING & ORDNANCE ENGINEER, FORWARD SKIRT, S-IC

L1GH S-IC GROUND HYDRAULIC SUPPLY & CHECKOUT
L1MC MOTOR CONTROL CENTER S-IC GND HYD SUPPLY AND C/O
L1IC S-IC INSTRUMENTATION ENGINEER (ML)
L1IH HANDLING & ORDNANCE ENGINEER, INTERTANK, S-IC
L1LS LUT SUPERVISOR
L1NE LUT NETWORKS ENGR (S-IC STAGE)
L1OE S-IC ORDNANCE ENGINEER
L1PS GROUND POWER POWER SUPPLY ENGINEER
L1PU S-IC PREFILL UNIT
L1RS RELAY RACKS AND SEQUENCER RACK
L1SM STAGE MONITOR/OPERATIONS COORDINATOR
L1TH HANDLING & ORDNANCE ENGINEER, THRUST STRUCTURE, S-IC
L1TT TM & RF THRUST STRUCTURE
L2PD S-II POWER DISTRIBUTION RACKS & ROOF BB
L2RR S-II RELAY RACKS (1 THROUGH 5) (ROOM 7A)
L4CR CONTROL ELECTRONIC ENGINEER
L4JR JUNCTION RACKS
L4PV S-IVB POWER RACKS (ROOM 7B)
L4PR GUID & NAV RIGHT SIDE UNIT 4, SC
L4NR GUID & NAV UNIT 14, SC
L4ST NASA SC TEST CONDUCTOR
L4PE TEST PROJECT ENGINEER
L4ST ENGINE SERVICE PLATFORM TRANSPORTER
L4PR PROPELLANT ENGINEER
L4OU LV-OAL-35 GSE & ML
L4OU LV-OAL-34 IU
L4OU LV-OAL-31 S-IC
L4OU LV-OAL-32 S-II
L4OU LV-OAL-33 S-IVB
L4PR S-IVB MONITOR INFORMATION SYSTEM
L4PR IU PAD LEADER
L4PR IRM PAD SAFETY
L4PR TEST SUPERVISOR, PAD
L4PR S-IC GROUND LEVEL ENGINE SERVICING
L4PR LSE TANKING AND NETWORKS ENGR
L4PR CRYNOCLOCK (LCC)
L4PR DRAS GSE RACKS
L4PR DEE-3 SYSTEM ENGINEER
L4PR LV F & I RECORDERS
L4PR DATA TRANSMISSION SYSTEM ENGINEER
L4PR DEE-3 SYSTEM ENGINEER
L4PR LHM NETWORKS ENGINEER
L4PR TSM & SVA RECORDERS
L4PR PROPELLANTS D.C. POWER - LCC
L4PR RANGE SAFETY OFFICER STRIP CHARTS
L4PR IU STRIP CHARTS
L4PR LCC RACKS PATCH DIST.
L4PR S-IC MEASURING STRIP CHARTS
L4PR STRIP CHARTS
L4PR S-II DIGITAL PRINTER
L4PR S-II ENGINES REDLINE ENGINEER
L4PR STRIP CHARTS
L4PR S-IVB GROUND BUSS E & I RECORDERS
L4PR S-IVB HYDRAULIC STRIP CHARTS
L4PR S-IVB PROPELLSION STRIP CHARTS
L4PR S-IVB PU STRIP CHARTS
L4PR STRIP CHART RECORDERS
L4PR SUPPLEMENTATION OF RANGE OPERATIONS
L4PR STRICT QUALITY INSPECTOR
L4PR IU FM STRUCTURE
L4PR IU TM STRUCTURE
L4PR IU VEHICLE NETWORKS
L4PR IU VEHICLE MECHANICAL
L4PR S-IVB CONTROL ELECTRONICS ENGINEER
L4PR S-IVB FLIGHT CONTROL ENGINEER
L4PR S-IVB HYDRAULICS ENGINEER
L4PR INSTRUMENTATION ENGINEER
L4PR AFT STRUCTURAL/MECHANICAL ENGINEER
L4PR FWD STRUCTURAL/MECHANICAL ENGINEER
L4PR S-IVB MOBILE LAUNCHER STRUCTURAL MECHANICAL ENGINEER
L4PR SERVICE STRUCTURE MECHANICAL ENGINEER
L4PR STRUCTURE MEASURING STATION
L4PR S-IVB ORDNANCE ENGINEER
L4PR S-IVB PAD CONTROL
L4PR S-IVB PROPELLSION ENGINEER
L4PR S-IVB SAFETY ENGINEER
L4PR S-IVB STRUCTURE TM ENGINEER
L4PR LSE ELECT ENGR, TOWER
L4PR SERVICE ARMS SYSTEM
L4PR GROUND SUPPORT COOLING UNIT
L4PR IU PNEUMATIC CONSOLE
L4PR IU MECHANICAL, UHMHICAL TOWER
L4PR FORWARD SKIRT ELECTRICAL NETWORKS
L4PR S-IC FORWARD SKIRT TM & RF
L4PR S-II AFT MONITOR
L4PR AIRBORNE SYSTEMS ENGINEER
L4PR S-II AIRBORNE NETWORKS FWD
L4PR S-II AIRBORNE NETWORKS AFT
L4PR ENVIRONMENTAL CONTROL ENGINEER
L4PR S-II ELECTRICAL ORDNANCE ENGINEER
L4PR S-II FLIGHT CONTROL
L4PR S-II FWD MONITOR
L4PR HANDLING AND ORDNANCE ENGINEER
L4PR S-II INSULATION ENGINEER
L4PR ENGINE SYSTEMS ENGINEER
L4PR FLIGHT CONTROL LEADMAN
L4PR S-II HYDRAULIC LEADMAN
L4PR S-II LUT NETWORKS ENGINEER
L4PR S-II PRESSURIZATION LEADMAN
L4PR MECHANICAL AND HYDRAULICS ENGINEER
L4PR S-II MECHANICAL ORDNANCE ENGINEER
L4PR MECHANICAL ENGINEER
L4PR PROPELLANT/PRESSURIZATION ENGINEER
L4PR PROPELLANT FILL ENGINEER
L4PR PROPELLANT MANAGEMENT ENGINEER
L4PR ML PURGE & VACUUM ENGINEER
L4PR ML QUALITY CONTROL REP
L4PR S-II PAD LEADER
L4PR STRUCTURES AND INSULATION ENGINEER
L4PR SAFETY ENGINEER
L4PR TM ENGINEER
L4PR PNEUMATIC CONSOLE S7-45A
L4PR INSULATION PURGE PNEUMATIC CONSOLE, S7-45B
L4PR S-IVB AFT MONITOR
L4PR S-IVB FORWARD MONITOR
L4PR PROPELLSION ENGINEER
L4PR IU MEASURING STATION
L4PR RF, HCR HAND RADAR & CCS CHECKOUT
L4PR MEASURING GSE STATION
L4PR S-II EDS/VEAS ENGINEER
L4PR MEASURING GSE STATION
L4PR S-IVB MEASURING STATION
L4PR AROPT MON VISUAL OBSERVER (CX20, UC4 OR UC5)
L4PR AROPT MON VISUAL OBSERVER (CX34, UC16)
L4PR AROPT MON VISUAL OBSERVER (CX37, UC17 OR UC9)

OIS-RF CHANNELIZATION LC-39

AS-508 & SUBS

LO 111 TEST SUPER. R C U	LV 121 L/V TEST COND. R C U	IN 131 DATA DISPLAY (CIF)	SF 141 PAD SAFETY	LV 151 IU TEST COND.	LV 161 S-IVB TEST COND.	LV 171 S-II TEST COND.	LV 181 S-IC TEST COND.	LS 211 CHIFF S/C TEST COND. U	LS 221 CSM PAD LEADER	LS 231 LM PAD LEADER	IS 241 PHOTO	IN 251 INST CONTROLLER	SO 261 SUPPORT CONTROLLER
TS 112 TEST SUPPORT CONTROLLER R C	IN 122 FAC & ENVIRON. MEAS. C	LV 132 LAUNCHER SYSTEMS	LV 142 S/V PNEU. ECS	LV 152 IU MECH.	LV 162 S-IVB MECH. & ORD.	LV 172 S-II GND & STAGE PNEUM.	LV 182 S-IC MECH. & ORD.	LS 212 CSM STC U	LS 222 CSM TPE	LS 232 LM STE	LS 242 LM STC U	LS 252 LM TROUBLE SHOOTING	IS 262 INSL SUPPORT CONTROLLER
IN 113 OTV CONTROL ENG. C	LV 123 L/V FLIGHT CONTROL	LV 133 L/V OXIDIZER	LV 143 L/V FUEL	LV 153 IU FLIGHT COMP.	LV 163 S-IVB PROP. (STAGE)	LV 173 S-II PROP.	LV 183 S-IC PROP.	LS 213 CSM INST. U	LS 223 CSM EPS	LS 233 LM EPS	LS 243 LM INST.	IN 253 FACILITY & ENVIRON. MEAS.	SO 263 HPG GN 2 & HE PURGING
LV 114 L/V STAB. & LAYING C	LV 124 LSE ELECT.	LV 134 L/V PROP. ELEC.	LV 144 S-IC MEAS. & HGD	LV 154 IU ELECT. (STAGE)	LV 164 S-IVB GND. PNEUMATICS	LV 174 S-II ELECT. (STAGE)	LV 184 S-IC ELECT. (STAGE)	LS 214 CSM COMM. U	LS 224 CSM F/C CRYO	LS 234 LM RADAR	LS 244 LM COMM. U	IN 254 FACILITY & ENVIRON. MEAS.	SO 264 HPG MON. SYS.
SO 115 CRAWLER OP'S C	LV 125 L/V TROUBLE SHOOTING	LV 135 L/V TROUBLE SHOOTING	LV 145 L/V DDAS	LV 155 RCA 110A GND COMP.	LV 165 S-IVB ELEC. SYSTEM	LV 175 S-II GND ELECT.	LV 185 S-IC GND ELECT.	LS 215 CSM G&N	LS 225 CSM SCS	LS 235 LM SCS	LS 245 LM G&N	IN 255 FACILITY & ENVIRON. MEAS.	SO 265 HPG ELECT. CONT'S
LV 116 S-IC MEAS. C	LV 126 S-II LEAK DETECT.	LV 136 SERVICE ARM (MECH)	LV 146 IU MEAS. (GND)	LV 156 IU TM	LV 166 S-IVB STATUS MONITORING	LV 176 S-II TM	LV 186 S-IC TM	LS 216 CSM RCS SA	LS 226 CSM SPS SA	LS 236 LM RCS SA	LS 246 LM PROP.	IN 256 CIF TELEM. GND STA.	SO 266 O2 FAC OPNS
IN 117 OIS CONTROL ENG C	LV 127 L/V TM R	LV 137 L/V RF R U	LV 147 CNTD'N CLOCK & DEE 6	LV 157 IU RF	TS 167 SUPPORT TROUBLE SHOOTING	LV 177 LV QAL	LV 187 S-IC RF	LS 217 CSM AERO- MED	LS 227 CSM ECS	LS 237 LM ECS	LS 247 SC Q/C	IN 257 CIF TELEM. GND STA.	IN 267 KSC TIMING
LV 118 SERVICE ARM MECH. C	LV 128 S-II MEAS.	LV 138 S-IVB DDAS & MEAS.	LV 148 IU MEAS.	LV 158 IU GND ELECT.	LV 168 S-IVB RF & TM	LV 178 S-II FLIGHT CONTROL & HYDRAULICS	188 PAGING	LS 218 CSM GSE	LS 228 CSM ACE	LS 238 LM ACE	LS 248 LM GSE	LO 258 TEST SUPER (BACK-UP)	LS 268 CSM TROUBLE SHOOTING

R = AVAILABLE TO ETR
U = AVAILABLE TO USB - MILA
SA = FOR TEMPORARY USE DURING SERVICE ARM OPERATIONS
C = AVAILABLE TO CRAWLER TRANSPORTER/MOBILE LAUNCHER
BY MICROWAVE DURING TRANSFER OPERATIONS

APPROVED

W. S. Ruffin Jr. 1/22/70
LO/PLN

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APOLLO/SATURN

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VEHICLE AS-509

CDDT & CD OPERATIONAL DIFFERENCES

"CDDT ONLY" AND "CD ONLY" PAGES IN THIS PROCEDURE ARE REQUIRED TO ACCOMMODATE THE FOLLOWING DIFFERENCES BETWEEN CDDT AND CD:

SECTION	DIFFERENCE
BARCHARTS	CDDT/CD TASKS SHOWN ON APPLICABLE BARCHARTS ONLY
PAD ACCESS	PAD ACCESS RESTRICTIONS DIFFER FOR CDDT AND CD
CONDITIONS	INERT ORDNANCE USED DURING CDDT
CONDITIONS	LH2 VENT VALVE CHECKOUT EQUIPMENT INSTALLED FOR CDDT ONLY
CONDITIONS	FLAME DEFLECTOR IN LAUNCH POSITION FOR CD ONLY
PRECOUNT	FUSES REMOVED TO INHIBIT S/A 1 & 2 RETRACT FOR CDDT
DAY HR MIN	DIFFERENCE
-4 20 30	PU COMPUTER PRESSURIZED AND LEAK CHECKED DURING CDDT
-4 20 30	PU COMPUTER PRESSURE VERIFIED UP DURING CD
-4 20 0	STAGE ELEC INSPECTION DURING CDDT ONLY
-4 7 30	PU COMPUTER LEAK CHECK COMPLETED DURING CDDT
-4 6 40	INTERFACE TEST STARTED DURING CD
-4 6 30	FACILITY AIR SYSTEM CHARGED WITH GN2 DURING CDDT
-4 5 45	LSE INTERFACE TEST COMPLETE DURING CD
-4 5 45	SERVICE ARMS PRESSURIZED DURING CDDT
-4 5 45	LSE MECHANICAL OPERATIONS STARTED DURING CDDT
-4 5 45	HCU PREPARED DURING CDDT
-4 5 30	S/A'S 1, 5 & 7 PRESSURE TESTED DURING CDDT ONLY
-4 5 15	HCU SUPPORTING DURING CDDT
-4 5 15	LSE MECH OPERATIONS (S/A'S 1, 5 & 7) DONE DURING CDDT
-4 5 15	TSM E-M AND PRESSURE HOLD TEST DURING CDDT
-4 4 45	S/A 2 PRESSURE TESTED DURING CDDT
-4 4 30	LSE MECHANICAL OPERATIONS (S/A 2) DONE DURING CDDT
-4 4 30	S/A'S 4 & 6 PRESSURE TESTED DURING CDDT
-4 4 15	LSE MECH OPERATIONS (S/A'S 4 & 6) DONE DURING CDDT
-4 4 0	S/A 9 PRESSURE TESTED DURING CDDT
-4 3 45	LSE MECHANICAL OPERATIONS (S/A 9) DONE DURING CDDT
-4 3 45	FLIGHT CODE PLUGS ISSUED DURING CD ONLY
-4 3 30	S/A 8 PRESSURE TESTED DURING CDDT
-4 3 15	LSE MECHANICAL OPERATIONS (S/A 8) DONE DURING CDDT
-4 2 30	FLIGHT CODE PLUGS INSTALLED DURING CD ONLY
-4 2 30	TEST CODE PLUGS INSTALLED FOR CDDT
-4 2 15	S/A & TSM PRESSURE HOLD TEST DURING CDDT
-4 1 30	TEST CODE PLUGS INSTALLED FOR CDDT
-4 1 30	Q-BALL POWER ON FOR SC STRAY VOLTAGE CHECKS DURING CDDT
-4 1 15	FLIGHT CODE PLUGS INSTALLED FOR CD ONLY
-4 1 0	LM PROP LINE ROUTING, CONNECTION/LEAK CHECK DURING CD
-4 1 0	FLIGHT CODE PLUG REMOVED DURING CD ONLY
-4 0 15	FLIGHT CODE PLUGS USED DURING CD ONLY
-4 0 15	TEST CODE PLUGS USED DURING CDDT
-4 0 0	FLIGHT CODE PLUGS USED DURING CD ONLY
-4 0 0	TEST CODE PLUGS USED DURING CDDT
-4 0 0	FLIGHT CODE PLUG SECURED DURING CD ONLY
-3 23 30	Q-BALL HEATER POWER OFF DURING CD
-3 22 15	PRESSURE HOLD TEST COMPLETED DURING CDDT
-3 21 30	Q-BALL HEATER POWER OFF DURING CDDT
-3 21 30	SECURING FROM PRESSURE HOLD TEST DONE DURING CDDT

DAY HR MIN	DIFFERENCE
-3 21 30	FACILITY AIR SYSTEM CHARGED WITH GN2 DURING CDDT
-3 21 0	LM PROP LINE ROUTING, CONNECTION/LEAK CHECK DURING CD
-3 21 0	SC SMALL ORDNANCE INSTALLED DURING CDDT
-3 21 0	PNEUMATIC SYSTEM E-M TEST RUN DURING CDDT
-3 19 0	BATTERY BYPASS CABLES REMOVED DURING CD
-3 18 30	PNEUMATIC SYSTEM E-M TEST RUN DURING CDDT
-3 17 0	CSM HEAVY ORDNANCE CONNECTED DURING CD
-3 17 0	SHDPS RECONFIGURED DURING CD
-3 17 0	SC SMALL ORDNANCE OPERATIONS CONTINUE DURING CDDT
-3 13 0	CSM REMOTE RESISTANCE CHECKS RUN DURING CD
-3 13 0	CSM PROPELLANT LINE DISCONNECTED DURING CDDT
-3 12 0	CSM REMOTE RESISTANCE CHECKS COMPLETED DURING CD
-3 12 0	SHDPS RECONFIGURED DURING CD
-3 11 15	LM RCS MANIFOLD LOADING DURING CD ONLY
-3 8 30	LM ORDNANCE OPERATIONS COMPLETED DURING CDDT
-3 8 30	CDC RESET FOR 5 HR HOLD DURING CDDT
-3 7 30	PROPELLANT VENT LINE GD OPENING DURING CD
-3 7 30	CDC RESET FOR 5 1/2 HR HOLD DURING CD
"HOLD"	PAD REOPEN TO DIFFERENT ACCESS CONDITIONS FOR CDDT/CD
"HOLD"	SHDPS RECONFIGURED DIFFERENTLY FOR CDDT & CD
-3 7 0	SC OPERATIONS UNIQUE TO CD
-3 7 0	SHDPS RECONFIGURED DURING CD
-2 18 30	PAD REOPENED AND SHDPS RECONFIGURED DURING CD
-2 14 0	STAGE ELECTRICAL INSPECTION DURING CDDT
-2 13 0	CRD'S PRELOADED DURING CD
-2 10 0	HYPERGOL COVER CURTAINS REMOVED DURING CDDT
-2 10 0	HYPERGOL COVERS REMOVED DURING CD
-2 10 0	MICROBIAL SAMPLING DURING CD ONLY
-2 9 0	HYPERGOL COVERS REMOVED DURING CD
-2 9 0	MICROBIAL SAMPLING DURING CD ONLY
-2 8 0	FLIGHT BATTERIES ACTIVATED FOR CD ONLY
-2 4 0	CRD PRELOAD COMPLETED DURING CD
-1 9 -	CLEARING FOR CSM LOX AND LH2 TANK PRESSURIZATION (TO FLIGHT PRESSURE) REQUIRED DURING CD
-1 8 -	SLA, CH, IU & 5-IVB FORWARD AREA ARE REOPENED FOR ACCESS LATER DURING CD
-1 6 -	LM RCS MANIFOLD LOADED DURING CD
-1 5 15	FLIGHT BATTERIES USED FOR CD ONLY
-1 5 0	SCOTT AIR PACKS REQUIRED FOR CD ONLY
-1 5 0	IU WATER DELUGE SYSTEM REMOVED DURING CDDT
-1 4 30	BATTERIES ACTIVATED AND MOVED TO PAD DURING CD ONLY

ABBREVIATIONS

PAGE A19

A/B AIRBORNE
AC ALTERNATING CURRENT
ACCEL ACCELERATING
ACE AUTOMATIC CHECKOUT EQUIPMENT
ACS AIRBORNE COMMAND SYSTEM
ACT ACTUATION
ALSEP APOLLO LUNAR SURFACE EXPERIMENTAL PACKAGE
ALT ALTERNATE
AMR AMPLITUDE MODULATION
AMB AMBIENT
AOA ANGLE OF ATTACK
APS AUXILIARY PROPULSION SYSTEM
A/S LM ASCENT STAGE
AS APOLLO/SATURN
ASSY ASSEMBLY
AUTO AUTOMATIC
AUX AUXILIARY
AVP ACCEPTANCE VERIFICATION PULSE
BATT BATTERY
BPC BOOST PROTECTIVE COVER
CALIPS SWITCH TRADE NAME
CAL CALIBRATION
CAM CAM
CB CIRCUIT BREAKER
CCM CONVERTER COMPRESSOR FACILITY
CCMR SWITCH SELECTOR MALFUNCTION COMMAND BOXES
CCR COMMAND COMMUNICATIONS RECEIVER
CCS COMMAND COMMUNICATIONS SYSTEM
CDC COUNTDOWN CLOCK
CDF CONFINED DETONATING FUSE
CDDT COUNTDOWN DEMONSTRATION TEST
CH CHANNEL
CHE COMPONENT HANDLING EQUIPMENT
CIF CENTRAL INSTRUMENTATION FACILITY
CKS CHECKS
CKT CIRCUIT
CL CLOSED LOOP
CM COMMAND MODULE
CMD COMMAND
CMP COMPUTER MANUAL PROCEED
COMM COMMUNICATIONS
COMP COMPUTER
CONT CONTINUOUS
C/O CHECKOUT, CUTOFF
COORD COORDINATION
CRD CONTROLLED RELEASE DEVICE
CRG CONTROL RATE GYRO
CRP COMMAND READ PULSE
CRT CATHODE RAY TUBE
CRVO CRYOGENIC
CSM COMMAND SERVICE MODULE
CT COMPONENT TEST
CWS CONTINUOUS VENT SYSTEM
DAC DIGITAL TO ANALOG CONVERTER
DBM DECIBELS ABOVE ONE MILLIWATT
DCE DIGITAL CHECKOUT EQUIPMENT
DDAS DIGITAL DATA ACQUISITION SYSTEM
DES DIGITAL EVENTS EVALUATION
DEG DEGREE
DIN DIGITAL INPUT
DIR DIRECTIONAL
DISC DISCONNECT
DIST DISTRIBUTION
DTS DATA TRANSMISSION SYSTEM
DRSCS DIGITAL RANGE SAFETY COMMAND SYSTEM
DRRS DAMPER RETRACT RECONNECT SYSTEM
D/S LM DESCENT STAGE
EAS ENGINE ACTUATION SYSTEM
EAW EXPLOSIVE BRIDGE FIRE
EC ENVIRONMENTAL CHAMBER
ECS ENVIRONMENTAL CONTROL SYSTEM
EDS EMERGENCY DETECTION SYSTEM
ELEC ELECTRICAL
EMER EMERGENCY
EMC ELECTROMAGNETIC COMPATIBILITY
EMI ELECTROMAGNETIC INTERFERENCE
E-M ELECTRO-MECHANICAL
ENG ENGINE
ENGR ENGINEER
EQUIP EQUIPMENT
ESF ELECTRICAL SUPPORT EQUIPMENT
ESP ENGINE SERVICE PLATFORM
EST EASTERN STANDARD TIME
ETR EASTERN TEST RANGE
FACIL FACILITY
FCA FUEL CASE ASSEMBLY
FCC FLIGHT CONTROL COMPUTER
F/C FLIGHT CONTROL
FDS FUEL DISTRIBUTION SYSTEM
F & D FILL AND DRAIN
FM FREQUENCY MODULATION
FLT FLIGHT
FPI FUEL PRESSURE INDICATOR
FREQ FREQUENCY
FT FOOT
F/T FUNCTIONAL TEST
F/D FORWARD
FR Firing ROOM
F, U, Firing UNIT
FUNCT FUNCTIONAL
FUSU FORWARD UMBILICAL SERVICE UNIT
GAC GUIDANCE AND CONTROL
GEN GENERATOR, GENERALIZED
GG GAS GENERATOR
GHE GASEOUS HELIUM
GH2 GASEOUS HYDROGEN
GHT GREENHORN MEAN TIME
GN2 GASEOUS NITROGEN
GOX GASEOUS OXYGEN
GRP GROUP
GRP GUIDANCE REFERENCE RELEASE
GRRA GUIDANCE REFERENCE RELEASE ALERT
GSE GROUND SUPPORT EQUIPMENT
GSCF GROUND SPACE FLIGHT CENTER
GUID GUIDANCE
HE HELIUM
HEX HEAT EXCHANGER
HCU HYDRAULIC CHANGING UNIT
HDA HOLD DOWN ARMS
HGD HAZARDOUS GAS DETECTION
H/H HAMMERHEAD
H HIGH
HP HIGH PRESSURE
HRS, HR HOURS
HV HAND VALVE
HYD HYDRAULIC
HZ HERTZ (ONE CYCLE PER SECOND)
IBM INTERNATIONAL BUSINESS MACHINES
IGN IGNITION
IMU INERTIAL MEASUREMENT UNIT
INFLT INFLIGHT
IND INDICATION
INJ INJECTOR OR INJECTION
INS INSTRUMENTATION SYSTEMS DIVISION
INSP INSPECTION
INSTL INSTALLATION
INSTN INSTRUMENTATION
IODC INPUT/OUTPUT DATA CHANNEL
ITI INTEGRATED TEST INSPECTION
IU INSTRUMENT UNIT
IVAR INTERNAL VARIABLE
IWS INDUSTRIAL WATER SYSTEM
KHZ KILOHERTZ
KSC KENNEDY SPACE CENTER
LAR LABORATORY
LC LAUNCH COMPLEX
LCC LAUNCH CONTROL CENTER
LES LAUNCH ESCAPE SYSTEM
LH2 LIQUID HYDROGEN
LPL LM ZERO LEVEL PLATFORM
LM LUNAR MODULE
LNR LAUNCH MISSION RULES
LO LIFT OFF
LOM LAUNCH OPERATIONS MANAGER
LOS LOSS OF SIGNAL, LINE OF SIGHT
LOX LIQUID OXYGEN
L/R LATCH RELIEF
LSE LAUNCH SUPPORT EQUIPMENT
LUT LAUNCH UMBILICAL TOWER
LV LAUNCH VEHICLE
LVL LEVEL
LVDA LAUNCH VEHICLE DATA ADAPTER

LVDC LAUNCH VEHICLE DIGITAL COMPUTER
LVO LAUNCH VEHICLE OPERATIONS
MALF MALFUNCTION
MAINT MAINTENANCE
MAN MANUAL
MAP MESSAGE ACCEPTANCE PULSE
MAX MAXIMUM
MCC-M MISSION CONTROL CENTER - HOUSTON
MDC MCDONNELLDUGLAS
MLC MOBILE LAUNCHER COMPUTER DIGITAL OUTPUT
MDS MEASURE, MEASURING OR MEASUREMENT
MECH MECHANICAL
MHZ MEGAHERTZ
MILA MERRITT ISLAND LAUNCH AREA
MIN MINUTE
MISC MISCELLANEOUS
ML MOBILE LAUNCHER
MNSTG MAINSTAGE
MON MONITOR
MRCV MIXTURE RATIO CONTROL VALVE
MSS MOBILE SERVICE STRUCTURE
MODUL MODULE
MUX MULTIPLEXER
NAV NAVIGATION
NO NUMBER
NPV NOK PROPULSIVE VENT
NR NORTH AMERICAN ROCKWELL
OAT OVERALL TEST
OIS OPERATIONAL INTERCOMMUNICATIONS SYSTEM
OMNI OMNI-DIRECTIONAL
OPS OPERATIONS
ORD ORDINANCE
OTV OPERATIONAL TELEVISION
PA PUBLIC ADDRESS SYSTEM
PCM PULSE CODE MODULATION
PCMU PROPELLANT CALIBRATION MEASURING UNIT
PD PROPELLANT DISPERSION
PM PROPELLANT MONITOR
PNEU PNEUMATIC
PSSG LONGITUDINAL VIBRATION SUPPRESSION SYSTEM
POS POSITIVE
POSN POSITION
PLAT PLATEFORM
PRA PROPELLANT RECORDER AMPLIFIERS
PREFLT PREFLIGHT
PREPFS PREPARATIONS
PREPRESS PREPRESSURIZATION
PRESS PRESSURE
PROC PROCEDURE
PROG PROGRESS
PROP PROPELLSION, PROPELLANT
PSI POUNDS PER SQUARE INCH
PSIA POUNDS PER SQUARE INCH ABSOLUTE
PSV PRESSURE SUPPLY VALVE
PTCR PAID TERMINAL CONNECTION ROOM
PTCS PROPELLANT TANKING COMPUTER SYSTEM
PU PROPELLANT UTILIZATION
PWR POWER
QC QUALITY CONTROL
QD QUICK DISCONNECT
QUAD QUADRANT
RACS REMOTE AUTOMATIC CALIBRATION SYSTEM
RCA RADIN CORPORATION OF AMERICA
RCS REACTION CONTROL SYSTEM
RECIRC RECIRCULATION
RECVR RECEIVER
REF REFERENCE
REG REGULATOR
REPRESS REPRESSURIZATION
REQD REQUIRED
REV REVISION
RF RADIN FREQUENCY
RFI RADIN FREQUENCY INTERFERENCE
RHC2 RIGHT HAND CONTROL #2
RM ROOM
RP-1 REFINED KEROSENE
RR RETRO ROCKET
RS RANGE SAFETY
RSC RANGE SAFETY COMMAND RECEIVER
RSO RANGE SAFETY OFFICER
RTG RADINISOTOPE THERMOELECTRIC GENERATOR
SA SATURN APOLLO
SAF SAFETY ARM CONTROL SWITCHES
SACS SERVICE ARM CONTROL SWITCHES
SAA SAFE AND ARM
SAT SATURN
SC SPACECRAFT
SCO SPACECRAFT OPERATIONS
SEC SECOND
SECT SECTION
SEL SELECT
SEP SEPARATION
SEQ SEQUENCE
SHE SUPERCRITICAL HELIUM
SIG SIGNAL
SIM SIMULATE
SIU SEQUENCE INITIATE UPDATE
SLA SC LUNAR ADAPTER
SM SERVICE MODULE
SMPPS SERVICE MODULE DELUGE PURGE SYSTEM
SOP STANDARD OPERATING PROCEDURE
SP STABILIZED PLATFORM
SPEC SPECIAL
SRD SECURE RANGE SAFETY OFFICER
SSB SINGLE SIDE BAND
STA STATION
STG STAGE
SV SPACE VEHICLE
SW SWITCH
S/S SWITCH SELECTOR
SYS SYSTEM
SYNCH SYNCHRONIZE
S-IC SATURN V 1ST STAGE
S-II SATURN V 2ND STAGE
S-IV SATURN V 3RD STAGE
T TIME
T-0 NOMINAL LIFTOFF
TB TIME BASE
TBC THE BOEING COMPANY
TC TEST CONDUCTOR
TCE TELEMETRY CHECKOUT EQUIPMENT
TCH THRUST CHAMBER
TCP TEST & CHECKOUT PROCEDURE
TCPI TEST & CHECKOUT PROCEDURE INTERFACE
TCS TERMINAL COUNTDOWN SEQUENCER
TEMP TEMPERATURE
THEOD THEODOLITE
TM TELEMETRY
TOK THRUST OKAY
TSM TAIL SERVICE MAST
TV TELEVISION
TWR TOWER
UCS UNIVERSAL CAMERA SITE
UHF ULTRA-HIGH FREQUENCY
UMR UMBILICAL
UR ULLAGE ROCKET
USR UNIFIED S/W AND FACILITY
VAR VEHICLE ASSEMBLY BUILDING
VEH VEHICLE
VLA VARIABLE LAUNCH AZIMUTH
VT VENT
WR WHITE ROOM (S/A 9 ENVIRONMENTAL CHAMBER)
XMTX TRANSMITTER

LAUNCH PAD ACCESS CONTROL

DUE TO HAZARDS WHICH EXIST DURING THIS TEST, CONTROL OF PERSONNEL IN THE PAD AREA IS MANDATORY. THE FOLLOWING IS A SUMMARY OF SYSTEMS SAFETY ITEMS RELATING TO THE LAUNCH VEHICLE PORTION OF THE COUNTDOWN.

DEFINITION:

LAUNCH PAD:

THE AREA WITHIN THE SECURITY FENCE
SURROUNDING THE LAUNCH SITE.

WARNING LIGHTS:

RED:

PAD CLOSED

CONDITION 1

THIS CONDITION EXISTS DURING EXTREMELY
HAZARDOUS OPERATIONS. ACCESS TO THE PAD
AREA DURING THIS PERIOD OF TIME SHALL BE
PROHIBITED OR SHALL BE RIGIDLY CONTROLLED BY
THE TEST SUPERVISOR AND SAFETY. ACCESS
SHALL BE BY SPECIAL PERMISSION ONLY.

FLASHING AMBER:

HAZARDOUS ACCESS

CONDITION 2

THIS CONDITION EXISTS DURING HAZARDOUS
OPERATIONS ON THE PAD WHEN ONLY SPECIFIED
TASKS MAY BE WORKED.

AMBER:

LIMITED ACCESS

CONDITION 3

THIS CONDITION EXISTS DURING HAZARDOUS
OPERATIONS IN THE PAD AREA WHEN ACCESS TO
THE IMMEDIATE AREA MUST BE CONTROLLED.
PERSONNEL ENTERING THE PAD AND/OR CONTROLLED
ACCESS AREA MUST OBSERVE THE PRECAUTIONS
ESTABLISHED FOR THE AREA.

GREEN:

PAD OPEN

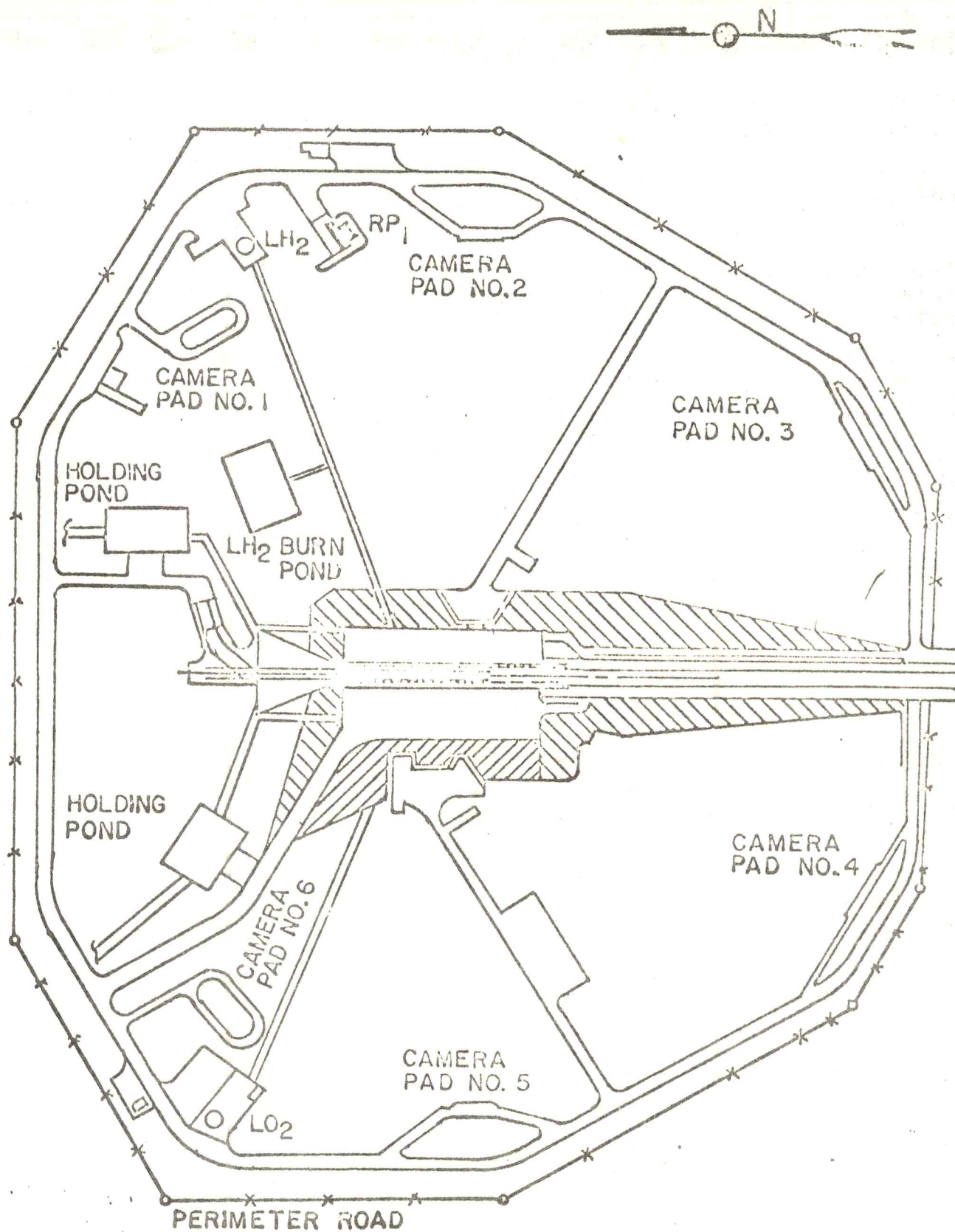
CONDITION 4

THIS CONDITION EXISTS WHEN THE PAD AREA IS
OPEN FOR NORMAL WORK. PAD ACCESS BADGES ARE
REQUIRED AND PAD SECURITY WILL BE IN EFFECT.

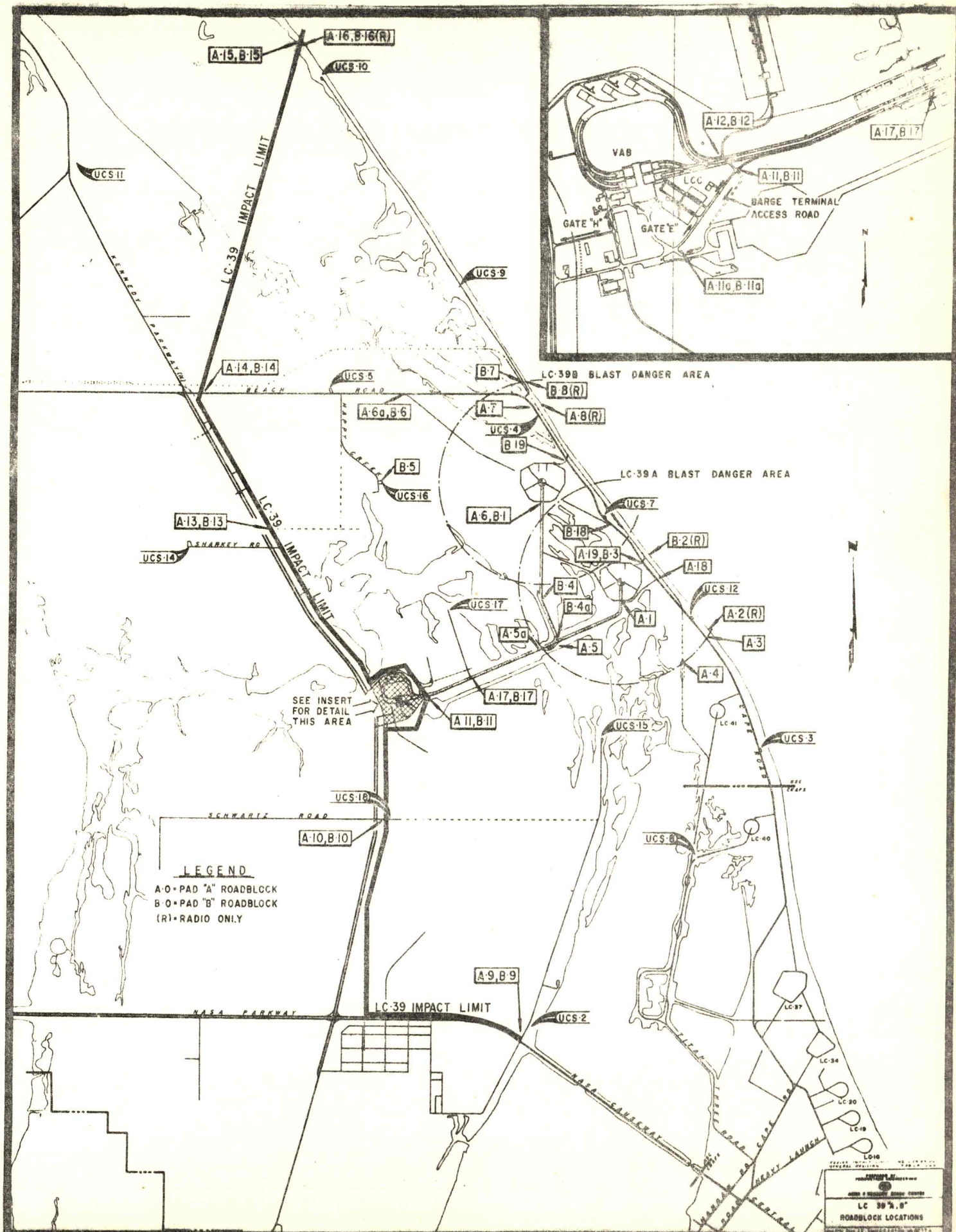
CD ONLY
CD CONTROLLED AREA RESTRICTIONS

1. T-4 DAYS 45 MIN TO T-3 DAYS 21 HRS: THE SLA INTERIOR, IU & S-IVB FORWARD AREAS WILL BE CLEARED FOR LM PROPELLANT LINE ROUTING, CONNECTION AND LEAK CHECK.
2. T-3 DAYS 20:30 HRS TO T-3 DAYS 17 HRS: THE LUT ZERO LEVEL (EXCEPT PATH TO ELEVATOR) WILL BE CLEARED FOR F-1 ENGINE AND RR ORDNANCE INSTALLATION.
3. T-3 DAYS 16:30 HRS TO T-3 DAYS 13 HRS: THE MSS, PAD APRON, FLAME TRENCH AND ML (EXCEPT ROOMS 10 & 15A) WILL BE CLEARED FOR LV INITIATOR DETONATOR HOOKUP AND CSM HEAVY ORDNANCE HOOKUP.
4. T-3 DAYS 12:30 HRS TO T-3 DAYS 12 HRS: THE AREA INSIDE THE PAD PERIMETER FENCE WILL BE CLEARED FOR CSM REMOTE RESISTANCE CHECKS.
5. T-3 DAYS 12 HRS TO T-3 DAYS 11:15 HRS: THE SLA INTERIOR, IU & S-IVB FORWARD AREA WILL BE RESTRICTED TO PERSONNEL ESSENTIAL FOR LM RCS MANIFOLD LOAD.
6. T-3 DAYS 7:15 HRS TO T-3 DAYS 7 HRS: THE SLA INTERIOR, IU & S-IVB FORWARD AREA WILL BE CLEARED FOR PROPELLANT VENT LINE QUICK DISCONNECT OPENING.
7. T-3 DAYS 6:30 HRS TO T-2 DAYS 18:30 HRS: THE AREA INSIDE THE PERIMETER FENCE WILL BE CLEARED FOR LM CSM GHE GOX SERVICING AND PROPELLANT LINE DISCONNECT.
8. T-2 DAYS TO T-1 DAY 21 HRS: THE LM DESCENT AREA INTERNAL TO THE SLA, IU & S-IVB FORWARD AREA WILL BE CLEARED FOR LM SHE SERVICING.
9. T-1 DAY 16 HRS TO T-1 DAY 9 HRS: AN 1100 FOOT RADIUS AROUND THE SV WILL BE CLEARED (EXCEPT ML ROOMS 10 AND 15A) FOR CSM LOX AND LH2 TANKING.
10. T-1 DAY 8:30 HRS TO T-1 DAY 8 HRS: THE AREA INSIDE THE PAD PERIMETER FENCE WILL BE CLEARED FOR CSM LO2 & LH2 TANK PRESSURIZATION.
11. T-1 DAY 8 HRS TO T-1 DAY 7:30 HRS: THE SLA INTERIOR, IU & S-IVB FORWARD AREA WILL REMAIN CLEAR FOR LM RCS FINAL MANIFOLD LOADING.

LV CDDT & CD, VOL 1
DATE: NOVEMBER 18, 1970
REVISION 024



LC-39 PAD



TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					PRECOUNT TEST CONDITIONS -----	
		1			RP-1 LOADED	
		2			S/V ECS AIR ON PER V-26247	
		3			S-IC LOX TANK BULKHEAD COVERS INSTALLED AND INTERNAL WORK PLATFORMS INSTALLED	
		4			ESP AND LUT ZERO PLATFORM RAISED	
		5			ALL S/A'S IN PLACE WITH TIPS EXTENDED	
		6			MSS AT PAD WITH PLATFORMS CLOSED	
		7			50 PSI GN2 DISTR BOX PURGE ON V-36064	
		8			DTS SUPPORTING & PROPELLANTS DC PWR ON	
		9			DEE-3 SYSTEM SUPPORTING	
		10			LSE MECH PRELIM TOWER PREPS IN PROGRESS	
					S/A 1 V-36077 S/A 7 V-36083	
					S/A 2 V-36078 S/A 8 V-36084	
					S/A 3 V-36032 S/A 9 V-36085	
					S/A 4 V-36080 DRRS V-36086	
					S/A 5 V-36081 HDA V-36069	
					S/A 6 V-36082 TSM V-36039	
		11			ML ELEC PREPS IN PROGRESS PER V-31045	
		12			S-IC ESE LAUNCH PREPS IN PROG V-21035	
		13			LSE 42D100 POWER ON	
		14			ML SLUG INST COMPLETE PER V-20072	
		15			S-IVB APS HYPERGOLICS LOADED	
		16			LO AND DESTRUCT ENABLE KEYS TO CPSS	
		17			ALL EBW PULSE SENSORS INSTALLED	
		18			REQ PNEU DIST SYS ARE PRESSURIZED	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CD ONLY	
		19			COUNTDOWN SUPPORTING PER V-31062	
		20			DDAS SUPPORTING PER V-31062 WITH DDAS RECORDERS ON	
		21			AUX PWR SUPPORTING PER V-31062 & ML DCE PWR ON (MANUAL MODE) & 400 HZ PWR ON	
		22			IU THERMAL CONDITIONING SYSTEM CONFIGURED PER V-31062 (CLOSED LOOP) WITH FLIGHT TUBE INSTALLED	
		23			SMDPS IN 2 SWITCH - 1 VALVE MODE	TCPI
		24			READY TO SUPPORT MANDATORY MEAS SPECIFIED IN LMR K-V-05.10/9	
		25			CDDT ONLY	*
		26			CDDT ONLY	*
		27			FLAME DEFLECTOR IN LAUNCH POSITION	#
		28			ECS E-M COMPONENT CHECKOUT COMPLETE	
		29			ESP TRANSPORTER LOCATED UNDER ML	
		30			HDA'S PRELOADED PER V-26046	
		31			INS E-M TEST V-26472 IS COMPLETE	
		32			SLA/LM ECS AIR TEMP CONTROLS 67 DEG F	TCPI
		33			ALL GN2 ELEC ENCLOSURES ARE VALIDATED	
		34			S-IC, S-II, S-IVB AND IU STAGE POWER OFF	
		35			S-IC 118 SECTION CLOSED FOR LAUNCH	
		36			LOX STORAGE TANK FILLED PER V-25329 AND SAMPLED PER V-25331	
		37			LH2 STORAGE TANK FILLED AND SAMPLED PER V-25034	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CDDT ONLY VOLUME I ----- PRECOUNT -----	
	121	1	CLTC	C1TC	CDDT ONLY	*
	121	2	CLTC	C1TC C2TC C4TC CUTC	VERIFY READY TO PROCEED WITH SCHEDULED PRECOUNT OPERATIONS PER V-20060.	
	111	3	CLTC	CVTS	LV IS PROCEEDING WITH PRECOUNT OPERATIONS.	TCPI
		4	CLTC		*** NOTE SC WILL REQUEST VERIFICATION THAT THE SMDPS IS IN THE 2 SWITCH 1 VALVE MODE AND THAT THE SLA/LM ECS AIR TEMPERATURE CONTROLS ARE SET TO 67 DEG F WHEN SC BEGINS POWER ON OPERATIONS.	TCPI
-116:30 4 DAY 20 HRS 30' 0"	171	1	C2TC	U2PF	CDDT ONLY	*
	171	2	C2TC	U2PF	VERIFY PRESSURE IN PU COMPUTER IS 10 +/- 1.0 PSIG. IF PRESSURE IS NOT WITHIN THE SPECIFIED TOLERANCE, PRESSURIZE COMPUTER PER V-30029 (M020) SECTION VI, TASK 93. REPORT WHEN COMPLETE.	#
	171	3	C2TC	U2PM	START C7-84 CAPACITOR CALIBRATION PER V-25151 (M013) SECT D.1.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-116:00	4 DAY					
20 HRS						
0' 0"						
171	1	C2TC	U2J2		START PROPELLANT FEED SYSTEM VACUUM JACKETED LINE PRESSURE CHECKS PER V-24116 (J001), REPORT WHEN COMPLETE.	
171	2	C2TC	C2NP		START NETWORKS PREPOWER TASK PER V-30029 (M020) TASK 0, REPORT WHEN COMPLETE.	
171	3	C2TC	U2A2		START PREPOWER ELECT PREPS PER V-30029 (M020) TASK 8.	
171	4	C2TC	C2SP		START PRESSURIZATION UMBILICAL VERIFICATION PER V-30029 (M020) TASK 1, REPORT WHEN COMPLETE.	
171	5	C2TC	U2J2		START ENGINE/RECIRC UMBILICAL VERIFICATION PER V-30029 (M020) TASK 2, REPORT WHEN COMPLETE.	
171	6	C2TC	U2QC		START CLOSEOUT INSPECTION PER ITI LS008.	
171	7	C2TC	U2LN		START LUT ELEC INSP PER V-21253 (G060) (CD ONLY) V-21452 (G141) (CDDT ONLY)	
171	8	C2TC	U2AN		CDDT ONLY	
-115:00	4 DAY					
16 HRS						
0' 0"						
171	1	C2NP	C2TC		NETWORKS PREPOWER TASK 0 IS COMPLETE.	
-112:00	4 DAY					
16 HRS						
0' 0"						
171	1	C2SP	C2TC		PRESS UMBILICAL VERIFICATION IS COMPLETE	
171	2	U2J2	C2TC		ENG/RECIRC UMBILICAL VERIFICATION IS COMPLETE.	

LV CDDY & CD, VOL I
 DATE: JANUARY 17, 1971
 REVISION 027

APOLLO/SATURN LAUNCH OPERATIONS

5251.60
 PAGE 29
 TAB 20.060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-106130 - 4 DAY 10 HRS 30' 0"		1			DELETED	N-207-22
-105:15 - 4 DAY 9 HRS 15' 0"	121	1	CUTC	CLTC	LV ELECT SUPPORT PREPS PER V-31062, APP B ARE IN PROGRESS	N-210-26
-105:00 - 4 DAY 9 HRS 0' 0"		1			DELETED	N-210-26
	171	2	C2TC	U2PM	VERIFY C7-84 CAPACITOR CALIBRATION PER SECTION D1 OF V-25151 (H013) IS COMPLETE	N-207-22
	171	3	C2TC	U2PM	START MEGGER CHECKS/C7-84 HOOKUP PER SECTIONS D2 AND D3 OF V-25151 (H013).	
	171	4	C2TC	U2A2	START "G" SWITCH CHECKOUT PER V-30029 (M020) TASK 6.	
	121	5	C1TC	CLTC	REQUEST CLEARANCE TO POWER DOWN THE DELUGE PURGE PANEL FOR LSE HARDWARE CONTINUITY CHECKS	XB-246-27
	111	6	CLTC	CVTS	THE DELUGE PURGE PANEL WILL BE POWERED DOWN FOR APPROXIMATELY THE NEXT 2 HOURS FOR LSE HARDWARE CONTINUITY CHECKS. DELUGE PURGE CAPABILITY WILL BE AVAILABLE WITHIN 30 SECONDS IF NEEDED.	XB-246-27
	121	7	CLTC	C1TC	START LSE HARDWARE CONTINUITY CHECKS. REPORT WHEN COMPLETE.	XB-246-27
	181	8	C1TC	CSPP	START HARDWARE CONTINUITY CHECKS PER V-31045. REPORT WHEN COMPLETE.	XB-246-27
-104130 - 4 DAY 8 HRS 30' 0"		1	C2TC	B2TM	SETUP TCE GROUND STATION PER V-28135 (G050). REPORT WHEN COMPLETE.	
-104110 - 4 DAY 8 HRS 10' 0"		1	C2TC	R2SC	SETUP LCC MEASURING STATION PER V-27154 (G031).	
-104100 - 4 DAY 8 HRS 5' 0"						
	121	1	CUTC	CLTC	SUPPORT PREPS ARE COMPLETE - READY TO APPLY S-11 SWITCH POWER.	N-210-26
	121	2	CLTC	C2TC	APPLY SWITCH POWER AND VERIFY.	N-210-26
	121	3	CLTC	CUTC	SWITCH POWER IS ON - INITIALIZE DISCRETES	N-210-26
	181	4	CUTC	BGCC	INITIALIZE DISCRETES PER V-22006, (PROGRAMS NT99 AND NT98). REPORT WHEN SWITCH SCAN IS BEING DISPLAYED.	N-210-26

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-104:05 - 4 DAY 8 HRS 5' 0"						
	151	5	CUTC	RLDE	LOAD AND INITIATE SEQUENCE COMPARE TABLES AS REQUIRED FOR THIS TEST.	N-210-26
-104:00 - 4 DAY 8 HRS 0' 0"						
	171	1	C2TC	V2MS	SETUP VAB MEASURING STATION PER V-27183 (G032).	
	171	2	C2TC	U2PF	VERIFY PU COMPUTER PRESSURE DECAY IS SATISFACTORY PER V-21348 (H017)	
-103:55 - 4 DAY 7 HRS 55' 0"						
	121	1	CUTC	CLTC	SWITCH SCAN IS BEING DISPLAYED FOR VERIFICATION.	N-210-26
	121	2	CLTC	C2TC	SWITCH SCAN IS BEING DISPLAYED FOR VERIFICATION. REPORT WHEN SATISFACTORY.	N-210-26
	151	3	CUTC	CLVN	ML COMPUTER INHIBIT -- AUTO	N-210-26
	151	4	CUTC	CLVN	COMPUTER TEST SWITCH ON AND VERIFY DISCRETE CYCLING.	N-210-26
	151	5	CUTC	CCPM	APPLY 400 HERTZ POWER AND START REDUNDANT POWER SUPPLY PER V-21222. REPORT WHEN COMPLETE.	N-210-26
-103:50 - 4 DAY 7 HRS 50' 0"						
		1			5 SEQUENCES DELETED	N-210-26
-103:40 - 4 DAY 40' 0"						
		1			5 SEQUENCES DELETED	N-210-

LV CDDT & CD, VOL 1
DATE: JANUARY 17, 1971
REVISION 027

APOLLO/SATURN LAUNCH OPERATIONS

5251,60
PAGE
20060, VOL 1
VEHICLE
A31
A9-309

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-103145 4 DAY 7 HRS 45' 0"					CO ONLY	
		121	1	CLTC	CUTC SWITCH SCAN IS SATISFACTORY. BRING UP COMPUTER.	N-210-26
		151	2	CUTC	BGCC ENTER S GO AND PERFORM DATA LINK SWITCH OVER PER V-22006. REPORT WHEN COMPLETE.	N-210-26
		121	3	CUTC	CLTC GROUND COMPUTER IS SUPPORTING.	N-210-26
		188	4	CLTC	ALL GROUND COMPUTER IS SUPPORTING.	N-210-26
		4-1			*** NOTE ALL DISPLAY CONSOLE OPERATORS PRIOR TO SELECTING ANY COMPUTER PROGRAM, ACCOMPLISH THE FOLLOWING: 1. MOMENTARILY DEPRESS TV TRANSMIT. 2. TYPE "1". 3. MOMENTARILY DEPRESS EXECUTE. 4. MOMENTARILY DEPRESS CLEAR	N-210-26
		111	5	CLTC	CVTS LV APPLYING STAGE POWER	TCPI N-210-26
		121	6	CLTC	CUTC APPLY IU STAGE POWER	N-210-26
		151	7	CUTC	CUNP APPLY IU STAGE POWER PER V-21223. REPORT WHEN COMPLETE.	N-210-26
-103:30 4 DAY 7 HRS 30' 0"		1 THRU 4-1			DELETED	N-210-26
		171	5	U2PF	C2TC CDDT ONLY	*
		171	6	C2TC	U2J2 START ENGINE/RECIRC SYSTEMS INSPECTION AND ENGINE COVER REMOVAL PER V-34014 (E023). REPORT WHEN COMPLETE.	
		161	7	C4TC	L4CE S4CE START PRETEST PREPS PER V-30539, SECT A. REPORT WHEN COMPLETE.	
		171	8	R2SC	C2TC LCC MEASURING STATION SETUP IS COMPLETE.	
		171	9	V2MS	C2TC VAB MEASURING STATION SETUP IS COMPLETE.	
		151	10	C2TC	CUTC LOAD S-II POWER UP SEQUENCE COMPARE TABLE	
		121	11	CUTC	CLTC STAGE POWER IS ON AND COOLING IS SUPPORTING	N-210-26
		121	12	CLTC	C2TC APPLY S-II STAGE POWER, CLEAR TO RUN GAPO.	
		171	13	C2TC	U2PM VERIFY PREPS COMPLETE AND READY FOR STAGE POWER.	

LV CDDT & CD, VOL 1
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 32
 TSS-20060, VOL 1
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-103:30 - 4 DAY 7 HRS 30' 0"						
	171	14	C2TC	R2SC	VERIFY READY FOR STAGE POWER.	
	171	15	C2TC	C2NP	REQUEST & EXECUTE QAPO (S-II STAGE POWER UP);	
	171	16	C2TC	C2IP	GROUND POWER TO ON.	
	171	17	C2TC	B2TM	START PCM/DDAS CHECKS PER V-28144 (R014) MODE 1. REPORT WHEN COMPLETE.	
	171	18	C2TC	C2GP	ACTIVATE GROUND PNEUMATICS PER V-30029 (M020) TASK 95 TO SUPPORT PROP TANK PURGING.	
	121	19	C2TC	CLTC	S-II STAGE POWER IS ON. QAPO IS COMPLETE.	
	171	20	C2TC	C2DP C2NK	START SEPARATION SYSTEM CHECKOUT PER V-30029 (M020) TASK 4 (QASP). REPORT WHEN COMPLETE.	
-103:00 - 4 DAY 7 HRS 0' 0"						
	171	1	C2NK	C2TC	SEPARATION SYSTEM CHECKOUT PER QASP IS COMPLETE.	
	171	2	C2TC	U2EO	REMOVE ALL PULSE SENSORS EXCEPT S-IC/ S-II SEPARATION AND PD PER V-29038 (S009)	
	161	3	C4TC	C4ES	START S-IVB PRE-POWER PREPS PER V-30539. APPENDIX A.	
	161	4	C4TC	C4PS	START PROPULSION SYSTEM POWER OFF PREPS PER V-35015.	
	171	5	C2GP	C2TC	GROUND PNEUMATICS ACTIVATED.	
	181	6	C1TC	CCLH	STANDBY TO SUPPORT S-II LH2 TANK PURGING AND SAMPLING PER V-35015	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-103100						
4 DAY						
7 HRS						
0' 0"						
181	7	C1TC	CCLO		STANDBY TO SUPPORT S-II LOX TANK PURGING AND SAMPLING PER V-35015	
121	8	C1TC	CLTC		LOX & LH2 PROPELLANTS SUPPORTING FOR S-II TANK PURGE AND SAMPLING	
121	9	CLTC	C2TC		LOX & LH2 PROPELLANTS SUPPORTING FOR S-II TANK PURGES AND SAMPLING.	
171	10	C2TC	C2SP C2RP		START S-II PROPELLANT TANK AND FEED SYSTEM PURGES PER V-35015.	
-102145						
4 DAY						
6 HRS						
45' 0"						
261	1	C2TC	BOSC		S-II WILL BE READY FOR LOX TANK DEWPOINT GN2 SAMPLE (1 EACH) ON S/A 4 IN 30 MINUTES. LVN-1	TCP!
-102140						
4 DAY						
6 HRS						
40' 0"						
181	1	C1TC	CSPP L1RS		START INTERFACE TEST PER V-31045 ON CH 124. REPORT WHEN COMPLETE.	#
121	2	C1TC	CLTC		LV ECS SUPPORTING PER V-26247.	
-102130						
4 DAY						
6 HRS						
30' 0"						
121	1	C1TC	CLTC		CDDT ONLY	*

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-102130 4 DAY 6 HRS 30' 0"		2			CO ONLY CDDT ONLY	*
181		3	C1TC	CPDC	CDDT ONLY	*
-102125 4 DAY 6 HRS 25' 0"						
121		1	CLTC	C1TC C2TC C4TC CUTC	VERIFY READY FOR LV SWITCH SCAN,	
121		2	CLTC	C4TC	VERIFY STAGE SWITCH POWER IS OFF,	N-210-26
121		3	CLTC	CLVN	COMPUTER TEST SWITCH OFF AND INHIBIT ML COMPUTER,	
121		4	CLTC	C4TC	APPLY SWITCH POWER AND VERIFY,	N-210-26
121		5	CLTC	BGCC	REQUEST & EXECUTE NT98. REPORT WHEN SWITCH SCAN IS BEING DISPLAYED,	
121		6	BGCC	CLTC	SWITCH SCAN IS BEING DISPLAYED FOR VERIFICATION,	
121		7	CLTC	C4TC	SWITCH SCAN IS BEING DISPLAYED FOR VERIFICATION. REPORT WHEN SATISFACTORY,	N-210-26

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-102:15 - 4 DAY 6 HRS 15' 0"						
121		1	CLTC	CLVN	ML INHIBIT TO AUTO COMPUTER TEST SWITCH ON AND VERIFY DISCRETE CYCLING.	
121		2	CLTC	BGCC	ENTER S GO PER V-22006. REPORT WHEN COMPLETE.	
121		3	BGCC	CLTC	GROUND COMPUTER IS SUPPORTING.	
188		4	CLTC	ALL	GROUND COMPUTER IS SUPPORTING.	
181		5	CSPP	C1TC	HARDWARE CONTINUITY CHECKS ARE COMPLETE. SMDPS IS ACTIVE IN THE 2 SWITCH 1 VALVE MODE.	N-210-26 XB-246-27
121		6	C1TC	CLTC	HARDWARE CHECKS ARE COMPLETE. SMDPS IS ACTIVE IN 2 SWITCH 1 VALVE MODE.	N-210-26 XB-246-27
-102:00 - 4 DAY 6 HRS 0' 0"						
111		7	CLTC	CVTS	DELUGE PURGE PANEL IS POWERED UP	TCPI XB-246-27
181		1	C1TC	CSPP	VERIFY LSE POWER ON AND START BATTERY SWITCHOVER TEST PER V-21194. REPORT WHEN COMPLETE.	
		2			DELETED	N-210-26
151		3	CUTC	CUCP	START REDUNDANT COOLANT PUMP CHECK WITH RUBM ON CHANNEL 152 PER V-31062, PART II. REPORT WHEN COMPLETE.	
161		4	C4TC	S4PC	START S-IVB ENGINEERING WALK AROUND PER V-30539, SECT B.	
161		5	C4TC	C4ES	VERIFY PREPOWER PREPARATIONS COMPLETE.	
121		6	CLTC	C4TC	APPLY S-IVB POWER AND RUN EBW FUNCTIONAL TEST. CLEAR TO REQUEST & EXECUTE XAPS & XASS.	
61		7	C4TC	ALL	S-IVB POWER WILL BE APPLIED PER V-30539, APPENDIX B.	
181		8	C1TC	CCLH	STANDBY TO SUPPORT S-IVB LH2 TANK PURGING & SAMPLING PER V-35015.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-102100 - 4 DAY 6 HRS 0' 0"						
181		9	C1TC	CCLO	STANDBY TO SUPPORT S-IVB LOX TANK PURGING AND SAMPLING PER V-35015.	
171		10	C2TC	C2NK	START S-II SYSTEM BYPASS/BYPASS INHIBIT CHECKS PER V-30029 (M020) TASK 3. REPORT WHEN COMPLETE.	
121		11	C1TC	CLTC	LOX AND LH2 PROPELLANTS SUPPORTING FOR S-IVB TANK PURGE AND SAMPLING.	
181		12	C1TC	CHDA	START HDA/SACS ELECTRO-MECHANICAL TESTS PER V-36069.	
171		13	C2TC	B2TM	START S-II STAGE RF & TM CLOSEOUT FOR LAUNCH PER V-28143 (M021).	
121		14	C2TC	CLTC	MSS PLATFORM 1 WILL BE REQUIRED BETWEEN STA 1541 & 2519 FOR THE NEXT 4 HRS TO SUPPORT S-II STAGE EXTERIOR INSPECTION/ CLOSEOUT.	
111		15	CLTC	CVTS	MSS PLATFORM 1 WILL BE REQUIRED BETWEEN STA 1541 & 2519 FOR THE NEXT 4 HRS TO SUPPORT S-II STAGE EXTERIOR INSPECTION/ CLOSEOUT.	TOPI
171		16	C2TC	U2SE	CLOSEOUT MSS PLATFORM 1 PER V-30029 (M020) TASK 9. REPORT WHEN COMPLETE.	
171		17	C2TC	U2SE	START FINAL INSPECTION/CLOSEOUT OF S-II STAGE PER V-30029 (M020) TASK 9. REPORT WHEN COMPLETE. (REQUIRES MSS PLATFORM 1 TO TRAVERSE FROM STA 1541 THROUGH 2519)	
171		18	C2TC	U2QC	VERIFY REMOVAL OF ALL NON-FLIGHT HARDWARE FROM STAGE EXTERIOR PER V-30029 (M020) TASK 47.	

DATE: NOVEMBER 18, 1970
REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE **A37**
 TR-20060, VOL I
 VEHICLE **AS-509**

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-101:50						
4 DAY						
5 HRS						
50' 0"						
121		1	C4TC	CLTC	S-IVB POWER HAS BEEN APPLIED. XAPS AND XASS ARE COMPLETE.	
161		2	C4TC	C4PS	START PROPULSION SYSTEM POWER ON PREPS PER V-35015,	
161		3	C4TC	C4ES	START EBW FUNCTIONAL TEST PER V-30539 SECT C.	
161		4	C4TC	C4HY	START S-IVB HYDRAULIC SYSTEM PREPARATION AND FUNCTIONAL PER V-30539, SECT D.	
-101:45						
4 DAY						
5 HRS						
45' 0"						
181		1	CSPP	C1TC	LSE INTERFACE TEST COMPLETE	#
		2			CDDT ONLY	*
181		3	C1TC	CSAC	CDDT ONLY	*
118		4	CSAC	CHCU	CDDT ONLY	*
-101:30						
4 DAY						
5 HRS						
30' 0"						
188		1	CLTC	ALL	CDDT ONLY	*

LV CDDT & CD, VOL I
DATE: NOVEMBER 18, 1970
REVISION 024

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-100100						
4 DAY						
5 HRS						
01 00						
161		1	C4ES	C4TC	EBW FUNCTIONAL TEST COMPLETE.	
121		2	C4TC	CLTC	EBW FUNCTIONAL TEST COMPLETE	
161		3	C4TC	C4ES	START REMOVAL OF PULSE SENSORS AND BRACKETS PER V-30539, SECT C.	
171		4	C4TC	C2TC	VERIFY SEPARATION AND RETRO ROCKET PULSE SENSORS ARE DISCONNECTED AND READY FOR REMOVAL.	
-100145						
4 DAY						
4 HRS						
45 00						
188		1	CLTC	ALL	CDDT ONLY	
-100130						
4 DAY						
4 HRS						
30 00						
118		1	CSAC	CSA2	CDDT ONLY	
118		2	CLTC	ALL	CDDT ONLY	
-100115						
4 DAY						
4 HRS						
15 00						
121		1	CLTC	CLTC	OBTAIN CLOSED LOOP CLEARANCE FOR 450 MHZ FOR DRSCR PREPS. (PROTECTION NOT REQUIRED).	
111		2	CLTC	CVTS	OBTAIN CLOSED LOOP CLEARANCE FOR 450 MHZ FOR DRSCR PREPS. (PROTECTION NOT REQUIRED).	TCPI

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-100115					GO ONLY	
4 DAY						
4 HRS						
15' 0"						
118		3	CSAC	CSA4	CDDT ONLY	*
118		4	CSAC	CSA6	CDDT ONLY	*
-100100						
4 DAY						
4 HRS						
0' 0"						
181		1	C1TC	BRFS	START DRSCR/GSE PREPS PER V-38000 SECTIONS 1 THRU 11.	
111		2	CLTC	CVTS	CDDT ONLY	* TCP
171		3	U2EO	C2TC	ALL PULSE SENSORS EXCEPT S-IC/S-II SEPARATION AND PD HAVE BEEN REMOVED.	
181		4	C1TC	CLTC	STARTING S-IC STAGE NETWORK HARDWARE CHECKS.	B-307-21
181		5	C1TC	C1NE	START LCC/ML HARDWARE CHECKS PER V-21032. REPORT WHEN COMPLETE.	B-307-21
181		6	C1TC	CECS CWCP	START LCC/PAD HARDWARE CHECKS PER V-31032 AND V-36113. REPORT WHEN COMPLETE.	B-310-23
T-99145						
4 DAY						
3 HRS						
45' 0"						
118		1	CSAC	CSA9	CDDT ONLY	*
121		2	CVTS	CLTC	FLIGHT CODE PLUGS ARE AVAILABLE IN ROOM 4P8	* TCP
121		3	CLTC	C1TC C2TC C4TC	FLIGHT CODE PLUGS ARE AVAILABLE IN ROOM 4P8	*
T-99130						
4 DAY						
3 HRS						
30' 0"						
171		1	C2NK	C2TC	BYPASS/BYPASS INHIBIT CHECKS ARE COMPLETE.	

REVISION 027

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 20060, VOL I
VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-99130 4 DAY 3 HRS 30' 0"					CD ONLY	
	111	2	CLTC	CVTS	CDDT ONLY	* TCP
T-99115 4 DAY 3 HRS 15' 0"						
	181	1	C1TC	B1TM	PREPARE TM GSE PER V-28186. REPORT WHEN COMPLETE.	XB-246-27
	118	2	CSAC	CSA8	CDDT ONLY	*
T-99100 4 DAY 3 HRS 0' 0"						
	171	1	U2J2	C2TC	ENGINE/RECIRC SYSTEMS INSPECTION COMPLETE.	
	181	2	C1TC	LPLX	START PTCS PREPS FOR S-11 PU FACILITY INTERFACE CHECKS PER V-25159.	
T-98130 4 DAY 2 HRS 30' 0"						
	121	1	CLTC	C1TC C2TC C4TC	INSTALL DRSCS FLIGHT CODE PLUGS IN LV	#
	181	2	C1TC	LLRS	INSTALL DRSCS FLIGHT CODE PLUG IN ML CODER PER V-38000 SECT 8. REPORT WHEN COMPLETE.	#
	181	3	C1TC	B1RF	INSTALL DRSCS FLIGHT CODE PLUGS IN STAGE DECODERS. REPORT WHEN COMPLETE.	#
	171	4	C2TC	B2RF	INSTALL DRSCS FLIGHT CODE PLUGS PER V-30029 (M020) TASK 92. REPORT WHEN COMPLETE.	#

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-98130					CD ONLY	
- 4 DAY 2 HRS 30' 0"						
	161	5	C4TC	S4CE	INSTALL DRSCS FLIGHT CODE PLUGS PER V-30539, SECT E.	*
	181	6	C1TC	LLRS	CDDT ONLY	*
	181	7	C1TC	B1RF	CDDT ONLY	*
	161	8	C4TC	S4CE	CDDT ONLY	*
	171	9	C2TC	B2TM	CDDT ONLY	*
T-98115						
- 4 DAY 2 HRS 15' 0"						
	181	1	C1TC	V1MS	PREPARE VAB MEASURING STATION PER V-27098. REPORT WHEN COMPLETE.	
	181	2	CSAC	C1TC	CDDT ONLY	*
	121	3	C1TC	CLTC	CDDT ONLY	*
	118	4	CSAC	CSA1 CSA2 CSA4 CSA5 CSA6 CSA7 CSA8 CSA9	CDDT ONLY	*
	181	5	C1TC	CTS1	CDDT ONLY	*
	181	6	C1TC	C1NE	VERIFY PULSE SENSORS CONNECTED. START S-IC PREPOWER CHECKS PER V-21038.	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 43
 TAG 08.060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-98115 - 4 DAY 2 HRS 15' 0"						
181		7	C1TC	C1MS	START RECORDER PREPS FOR S-IC POWER ON. REPORT WHEN COMPLETE.	
T-98100 - 4 DAY 2 HRS 0' 0"						
171		1	U2SE	C2TC	CLOSEOUT OF MSS PLATFORM 1 IS COMPLETE.	
171		2	U2SE	C2TC	FINAL INSPECTION/CLOSEOUT OF S-II STAGE EXTERIOR IS COMPLETE.	
171		3	U2QC	C2TC	REMOVAL OF ALL NON-FLIGHT HARDWARE FROM STAGE EXTERIOR IS COMPLETE.	
121		4	C2TC	CLTC	S-II STAGE EXTERIOR INSPECTION/CLOSEOUT COMPLETE. MSS PLATFORM 1 IS NO LONGER REQUIRED FOR S-II SUPPORT.	
111		5	CLTC	CVTS	S-II STAGE EXTERIOR INSPECTION/CLOSEOUT COMPLETE. MSS PLATFORM 1 IS NO LONGER REQUIRED FOR S-II SUPPORT.	TCPI
171		6	C2TC	C2DP	VERIFY PD PULSE SENSORS CONNECTED.	
171		7	C2TC	U2PM	VERIFY READY TO APPLY PM POWER.	
171		8	C2TC	C2NP	APPLY PM POWER.	
161		9	C4TC	R4PU	PU STRIP CHARTS TO ON.	
161		10	C4TC	C4PU	PU OVEN AND INVERTER POWER ON THEN AUTO.	
161		11	C4TC	S4CE	VERIFY PD PULSE SENSORS CONNECTED	
T-97145 - 4 DAY 1 HRS 45' 0"						
121		1	CLTC	BTMC	START TCE PREPS PER V-28009. REPORT WHEN COMPLETE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
CDDT ONLY						
T-97135 4 DAY 1 HRS 35' 0"						
	121	1	CLTC	C1TC C2TC C4TC	VERIFY PROPELLANT DISPERSION PULSE SENSOR UNITS CONNECTED,	
	111	2	CLTC	CVTS	ADVISE SCO PERSONNEL THAT Q-BALL POWER IS COMING ON IN APPROXIMATELY FIVE MINUTES,	TOPI
T-97130 4 DAY 1 HRS 30' 0"						
	121	1	CLTC	C1TC C2TC C4TC	CDDT ONLY	*
	121	2	CVTS	CLTC	CDDT ONLY	* TOPI
	121	3	CLTC	CUIP	Q-BALL HEATER POWER ON Q-BALL POWER ON THEN AUTO	TOPI
	181	4	C1TC	CHDA	VERIFY HDA SACS ELECTRO-MECHANICAL TESTS COMPLETE AND SECURE SYSTEM,	
	261	5	C2TC	BOSC	S-11 WILL BE READY FOR LH2 TANK N2 & O2 CONTENT AND DEWPOINT GHE SAMPLES (2 EACH) ON S/A 5 AND LUT 180 FT LEVEL AND RECIRCULATION SYSTEM DEWPOINT GHE SAMPLES (3 EACH) ON S/A 3 IN 30 MINUTES, LVN-2 AND LVN-3.	TOPI
T-97115 4 DAY 1 HRS 15' 0"						
	181	1	B1RF	C1TC	DRSCS FLIGHT CODE PLUG INSTALLATION COMPLETE ON STAGE	#
	181	2	LLRS	C1TC	DRSCS FLIGHT CODE PLUG INSTALLATION COMPLETED IN ML ENCODER	#

DATE: JANUARY 17, 1971

REVISION 027

APOLLO/SATURN LAUNCH OPERATIONS

 PAGE A45
 TIME 00060, VOL 1
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-97:15 4 DAY 1 HRS 15' 0"						
	171	3	B2RF	C2TC	FLIGHT CODE PLUGS INSTALLED	#
	161	4	S4CE	C4TC	FLIGHT CODE PLUGS INSTALLED	#
	121	5	CLTC	C1TC C2TC C4TC	VERIFY LV FLIGHT CODE PLUGS INSTALLED	#
	181	6	B1TM	C1TC	TM GSE PREPS COMPLETE.	
	121	7	B1MC	CLTC	TCE PREPS COMPLETE.	
	181	8	C1TC	C1VE	APPLY S-IC POWER PER V-21038. REPORT WHEN COMPLETE.	
T-97:10 4 DAY 1 HRS 10' 0"						
	121	1	C1TC	CLTC	S-IC STAGE POWER IS ON. WAPO IS COMPLETE.	
	181	2	C1TC	B1TM	START S-IC PCM DDAS CHECKS PER V-28186	XB-246-27
	121	3	CLTC	C4TC	CLEAR TO REQUEST & EXECUTE XAPU (S-IVB PU CAL CHECKS).	
T-97:00 4 DAY 1 HRS 0' 0"						
	181	1	CVTS	PA	ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR LM PROPELLANT LINE ROUTING, CONNECTION AND LEAK CHECK.	# TCP
		1-1			*****WARNING***** * * THE CONTROL AREA FOR LM * * PROPELLANT LINE * * ROUTING, CONNECTION AND * * LEAK CHECK CONSISTS OF * * THE SLA INTERIOR, 1U, * * S-IVB FORWARD AND A 20 * * FT RADIUS AROUND THE * * PURGE ADAPTER ON MSS * * LEVEL 3A. * * *****	# TCP
	161	2	C4TC	C4ES	VERIFY PULSE SENSOR BRACKET REMOVAL COMPLETE	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 46
 T86-28060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-97:00 - 4 DAY 1 HRS 0' 0"						
161		3	C4TC	C4PS	VERIFY TANK PURGE & SAMPLING COMPLETE AND PROPULSION SYSTEMS ARE READY FOR PU CALIBRATION CHECKS.	
161		4	C4TC	C4ES	START PU CALIBRATION CHECK PER V-21085 (XAPU).	
121		5	C4TC	CLTC	S-IVB TANK PURGE AND SAMPLING IS COMPLETE. STARTING PU CALIBRATIONS.	
181		6	CCLD	C1TC	SUPPORT OF S-II/S-IVB LOX TANK PURGING AND SAMPLING IS COMPLETE.	
181		7	CCLH	C1TC	SUPPORT OF S-II/S-IVB LH2 TANK PURGING AND SAMPLING IS COMPLETE.	
171		8	C2SP	C2TC	S-II PROPELLANT TANKS AND FEED SYSTEM PURGES AND SAMPLING COMPLETE. LOX & LH2 TANK ULLAGE PRESSURES 21.7 +/- 1.0 PSIA. READY FOR PU CALIBRATION. (LH2 TANK 90% HE AT 70 DEG +/- 30 DEG F. LOX TANK 90% GN2 AT 70 DEG +/- 30 DEG F.)	
121		9	C2TC	CLTC	S-II PROPELLANT TANKS AND FEED SYSTEM PURGES AND SAMPLING COMPLETE. STARTING PU CALIBRATION.	
171		10	C2TC	U2PM	START FINAL PU CALIBRATION PER V-25151 (H013)	
121		11	CLTC	C1TC	S-II AND S-IVB ARE READY TO SUPPORT LH2 FACILITY SYSTEM PURGE.	
181		12	C1TC	CCLH	START LH2 FACILITY SYSTEM PURGE PER V-35015.	
121		13	C1TC	CLTC	BENDIX SAMPLING IS REQUIRED TO SUPPORT LH2 FACILITY PURGE AND SAMPLING PER V-35015 (RD 41081 ANNEX R)	
261		14	CLTC	BOSC	BENDIX SAMPLING CREW IS REQUIRED TO SUPPORT LH2 FACILITY PURGE & SAMPLING PER V-35015 (RD 41081 ANNEX R)	TCPI

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-97:00 - 4 DAY 1 HRS 0' 0"		15			*****WARNING***** * * THE FOLLOWING SEQUENCE * * IS HAZARDOUS. * * *****	
181	16	C1TC	C1PE		START THRUST CHAMBER PREPARATIONS PER V-34012	
181	17	C1TC	B1TM		VERIFY S-IC PCM DDAS PREPS COMPLETE.	
181	18	C1TC	LLRS		SET SIG GEN NO. 1 FOR NOMINAL 15 KHZ DEVIATION WITH TONE 4 AND SET SIG GEN NO. 2 RF POWER OUTPUT FOR -97 DBM AT LV RECEIVERS. LV DRSCS TEST - GSE (CLOSED LOOP) -----	
181	19	C1TC	BRFS		VERIFY ML-DRSCS/GSE PREPARED TO SUPPORT THE LV DRSCS TEST.	
181	20	C1TC	RRSC		VERIFY READY TO SUPPORT DRSCS TEST.	
121	21	C1TC	CLTC		DRSCS-GSE READY TO SUPPORT CLOSED LOOP TEST.	
111	22	CLTC	CVTS		LV PROCEEDING WITH LV DRSCS GSE TEST. VERIFY CLEARANCE TO BRING UP LOCAL COMMAND CARRIER (PROTECTION REQUIRED), CPSS RELEASE DESTRUCT SYSTEM KEY TO CLVN	TCPI
121	23	CLTC	CLVN		OBTAIN DESTRUCT SYSTEM KEY FROM CPSS.	
188	24	CLTC	ALL		ALL PERSONNEL SUPPORTING LV DRSCS TEST GO TO CHANNEL 121 ACTIVE & MONITOR STAGE TO CHANNEL.	
121	25	CLTC	C1DP C2DP C4DP		VERIFY ALL SWITCHES AUTO EXCEPT; PD RSCR ENABLE - OFF SYSTEMS STATUS SWITCH - OFF S&A STATUS SWITCH - SAFE	

LV CDDT & CD, VOL 1
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 48
 T-97:00
 28.060, VOL 1
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-97:00 - 4 DAY 1 HRS 0' 0"						
	121	26	CLTC	C4DP	PULSE SENSOR POWER ON.	
	121	27	CLTC	RRSC	RECORDERS - ON.	
	121	28	CLTC	CLVN	DESTRUCT SYSTEM TO ENABLE.	
		28-1		C1DP C2DP C4DP	*** NOTE SAFETY BUS ON.	
	121	29	CLTC	C1DP C2DP C4DP	RSCR'S 1 & 2 TRANSFER - EXTERNAL, THEN AUTO.	
	121	30	CLTC	C1DP C2DP C4DP	VERIFY RSCR'S 1 & 2 PD BLOCKED ON.	
		30-1		CRSS	*** NOTE ALL RSCR'S PD BLOCKED ON	
	121	31	CLTC	BRFS	SIG GEN SELECT - #1 AUDIO SELECT - POS. OFF VERIFY REMOTE MONITOR TO HYBRID	
	121	32	CLTC	C1DP C2DP C4DP	RSCR'S 1 & 2 GROUND POWER - ON	
	121	33	CLTC	B1RF B2RF B4RF	VERIFY RSCR LIMITER VOLTAGES OK	
		33-1		CRSS	*** NOTE LIMITER VOLTAGES RECEIVED.	
	121	34	CLTC	RRSC	RECORDERS - FAST SPEED.	
	121	35	CLTC	LLRS	ON YOUR MARK SEND CUTOFF COMMAND FOR 3 SEC.	
	121	36	LLRS	ALL	3-2-1-MARK	
	121	37	CLTC	RRSC	RECORDERS - SLOW SPEED.	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 49
 T-20060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-97:00 - 4 DAY 1 HRS 0' 0"						
121		38	CLTC	B1RF B2RF B4RF	VERIFY CUTOFF INDICATIONS ON CONSTANTLY	
		38-1		C1DP C2DP C4DP CRSS BRFS LLRS	*** NOTE CUTOFF RECEIVED.	
		38-2		C1CS	*** NOTE ENGINE CUTOFF NOT RECEIVED	
121		39	CLTC	C1DP C2DP C4DP	VERIFY EBW'S 1 & 2 CHARGED AND ON INTERNAL POWER,	
		39-1		CRSS	*** NOTE ALL EBW'S CHARGED,	
121		40	CLTC	C1DP C2DP C4DP	EBW'S 1 & 2 - EXTERNAL THEN AUTO AND VERIFY EBW'S NOT CHARGED,	
		40-1		CRSS	*** NOTE ALL EBW'S NOT CHARGED,	
121		41	CLTC	BRFS	SIGNAL GENERATOR SELECT - POS #2	
121		42	CLTC	B1RF B2RF B4RF	VERIFY RSCR LIMITER VOLTAGES AS EXPECTED	
121		43	CLTC	RRSC	RECORDERS - FAST SPEED.	
121		44	CLTC	LLRS	ON YOUR MARK SEND CUTOFF COMMAND FOR 3 SEC.	
121		45	LLRS	ALL	3-2-1-MARK	
121		46	CLTC	RRSC	RECORDERS - SLOW SPEED.	
121		47	CLTC	B1RF B2RF B4RF	VERIFY CUTOFF INDICATIONS ON CONSTANTLY	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-97:00 - 4 DAY 1 HRS 0' 0"						
		47-1		LLRS BRFS CRSS C1DP C2DP C4DP	*** NOTE CUTOFF RECEIVED.	
		47-2		C1CS	*** NOTE ENGINE CUTOFF NOT RECEIVED	
121	48	CLTC		C1DP C2DP C4DP	VERIFY EBW'S 1 & 2 CHARGED AND ON INTERNAL POWER	
		48-1		CRSS	*** NOTE ALL EBW'S CHARGED.	
121	49	CLTC		C1DP C2DP C4DP	EBW'S 1 & 2 - EXTERNAL THEN AUTO AND VERIFY EBW'S NOT CHARGED.	
		49-1		CRSS	*** NOTE ALL EBW'S NOT CHARGED.	
121	50	CLTC		C1DP C2DP C4DP	RSCR'S 1 & 2 GROUND POWER - OFF, THEN AUTO AND VERIFY RSCR'S 1 AND 2 OFF.	
		50-1		CRSS	*** NOTE ALL RSCR'S OFF.	
121	51	CLTC		BRFS	SIGNAL GENERATOR SELECT - STANDBY	
121	52	CLTC		CLVN	DESTRUCT SYSTEM - OFF. DELIVER DESTRUCT SYSTEM KEY TO CPSS AND VERIFY.	
121	53	CLTC		C1DP C2DP C4DP	VERIFY SAFETY BUS - OFF	
111	54	CLTC		CVTS	LV DRSCS GSE TEST COMPLETE. DESTRUCT SYSTEM KEY DELIVERED TO CPSS AND LOCAL COMMAND CARRIER IS OFF.	TCPI
181	55	C1TC		LLRS	SET BOTH SIG GEN'S FOR 30 KHZ DEVIATION WITH TONE 4 AND RF POWER OUTPUT FOR -68 DBM AT LV RECEIVERS.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-97100					CD ONLY	
- 4 DAY 1 HRS 0' 0"						
	121	56	CLTC	LLRS	PATCH RANGE AUDIO LINKS ON DRSCS/GSE TO SUPPORT CLOSED LOOP TEST PER V-38000, SECTION 12;	
	121	57	CLTC	LLRS	REMOVE DRSCS FLIGHT CODE PLUG PER V-38000 SECT 12 DELIVER TO BRFS.	#
	111	58	CLTC	CVTS	REQUEST RANGE TO SUPPORT DRSCR PREPS ON CHANNEL 137	TCP I
	188	59	CLTC	ALL	ALL PERSONNEL WHO SUPPORTED LV DRSCS CHECKS RETURN TO ASSIGNED CHANNELS	
T-96130						
- 4 DAY 30' 0"						
	161	1	C4TC	C4HY	VERIFY S-IVB HYDRAULIC SYSTEM PREPARATIONS AND FUNCTIONAL COMPLETE.	
	261	2	C2TC	BOSC	S-11 WILL BE READY FOR A7-71 LH2 HEAT EXCHANGER GH2 & N2 CONTENT AND DEW POINT GHE SAMPLES (2 EACH) ON 180 FT LEVEL OF LUT IN 30 MINUTES.	TCP I
	171	3	C2TC	B2TM	SETUP TCE GROUND STATION PER V-28181 (G125). REPORT WHEN COMPLETE.	
	111	4	CLTC	CVTS	REQUEST RANGE CLEARANCE FOR S-11 TM LINKS BF-1 & BF-2 (241.5 MHZ AND 234.0 MHZ).	TCP I
	121	5	CLTC	BTMC ETMS	PREPARE STATION RECORDING EQUIPMENT TO SUPPORT MT01 AND "G" SWITCH TEST.	
T-96115						
- 4 DAY 15' 0"						
	111	1	CLTC	CVTS	VERIFY CLEARANCE TO BRING UP THE LOCAL COMMAND CARRIER. VERIFY RANGE IS READY TO SUPPORT DRSCS CLOSED LOOP TEST WITH FLIGHT CODE PLUGS ON CHANNEL 121 (450 MHZ OPEN LOOP PROTECTION REQUIRED)	# TCP I

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-96115 4 DAY 15' 0" CO ONLY						
	121	2	CLTC	BRFS	VERIFY DRSCS FLIGHT CODE PLUG INSTALLED IN LCC DECODER PER V-38000 SECT 12 AND DRSCS GSE READY FOR RANGE TEST.	#
	111	3	CLTC	CVTS	CDDT ONLY	* TCP
	121	4	CLTC	BRFS	CDDT ONLY	*
T-96105 4 DAY 5' 0"						
	111	1	CLTC	CVTS	REQUEST MTPE MONITOR CH 121 FOR Q-BALL SIM COMMAND IN APPROXIMATELY 5 MINUTES. REQUEST MTPE SUPPLY Q-BALL SIM COMMAND READINGS TO VUMS ON CH. 148.	TOPI
T-96100 4 DAY 0' 0"						
	121	1	CLTC	CUIP	Q-BALL SIM COMMAND ON FOR 10 SECONDS ON YOUR MARK	TOPI
	121	2	CUIP	ALL	3-2-1, MARK	TOPI
	161	3	C4ES	C4TC	PU CAL CHECKS COMPLETE.	
	161	4	C4TC	C4PU	PU AND INVERTER POWER -- ON	
	161	5	C4TC	S4PC	VERIFY ENGINEERING WALK AROUND COMPLETE.	
					DRSCS TEST - RANGE (CLOSED ----- LOOP - FLIGHT CODE) -----	#

LV CDDT & CD, VOL 1
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 53
 TS-00060, VOL 1
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-96:00 - 4 DAY 01 00"						
	111	6	CLTC	CVTS	REQUEST CPSS RELEASE DESTRUCT SYSTEM KEY TO CLVN.	TCPI
	121	7	CLTC	CLVN	OBTAIN DESTRUCT SYSTEM KEY FROM CPSS	
	188	8	CLTC	ALL	ALL PERSONNEL SUPPORTING DRCS TEST GO TO CHANNEL 121 ACTIVE AND MONITOR STAGE TC CHANNEL.	
	121	9	CLTC	C1DP C2DP C4DP	VERIFY ALL SWITCHES AUTO EXCEPT: PD RSCR ENABLE - OFF SYSTEMS STATUS SWITCH - OFF S & A SWITCH - SAFE	
	121	10	CLTC	C4DP	VERIFY PULSE SENSOR POWER - ON	
	121	11	CLTC	CLVN	DESTRUCT SYSTEM TO ENABLE.	
		11-1		C1DP C2DP C4DP	*** NOTE SAFETY BUS ON	
		11-2		C1DP C2DP C4DP	*** NOTE RSCR'S 1 & 2 PD BLOCKED.	
		11-3		CRSS	*** NOTE ALL RSCR'S PD BLOCKED ON	
	121	12	CLTC	BTMC	TELEMETRY TAPE RECORDER - ON	
	121	13	CLTC	BRFS	SIGNAL GENERATOR-SELECT #1. VERIFY REMOTE MONITOR TO HYBRID.	
	121	14	CLTC	C1DP C2DP C4DP	RSCR'S 1 & 2 TRANSFER EXTERNAL THEN AUTO.	
	121	15	CLTC	C1DP C2DP C4DP	RSCR'S 1 & 2 GROUND POWER - ON.	
		15-1		C1DP C2DP C4DP	*** NOTE RSCR'S 1 AND 2 POWER ON.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-96100 - 4 DAY 01 00						
121		16	CLTC	B1RF B2RF B4RF	VERIFY RSCR LIMITER VOLTAGES OK.	
		16-1		CRSS	*** NOTE ALL LIMITER VOLTAGES RECEIVED.	
121		17	CLTC	RRSC	RECORDERS - FAST SPEED.	
121		18	CLTC	SRO	ON YOUR MARK SEND CUTOFF ON CLOSED LOOP LINKS WITH CODER #1 FOR 3 SECONDS.	
121		19	SRO	ALL	3-2-1-MARK	
121		20	CLTC	RRSC	RECORDERS - SLOW SPEED.	
121		21	CLTC	CRSS	VERIFY CUTOFF RECEIVED AND ALL EBW'S CHARGED.	
		21-1		BRFS LLRS C1DP C2DP C4DP	*** NOTE CUTOFF RECEIVED	
		21-2		C1CS	*** NOTE ENGINE CUTOFF NOT RECEIVED	
		21-3		C1DP C2DP C4DP	*** NOTE EBW'S 1 & 2 CHARGED AND ON INTERNAL POWER	
121		22	CLTC	RRSC	RECORDERS - FAST SPEED.	
121		23	CLTC	SRO	ON YOUR MARK SEND PD ON CLOSED LOOP LINKS WITH CODER #1 FOR 3 SECONDS.	
121		24	SRO	ALL	3-2-1-MARK	
121		25	CLTC	RRSC	RECORDERS - SLOW SPEED.	
121		26	CLTC	CRSS	VERIFY PD RECEIVED AND EBW'S NOT FIRED	
		26-1		C1DP C2DP C4DP	*** NOTE PD RECEIVED AND EBW'S NOT FIRED	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-96100 - 4 DAY 01 00"						
		26-2		BRFS LLRS	*** NOTE PD RECEIVED	
	121	27	CLTC	C1DP C2DP C4DP	EBW'S 1 & 2 -- EXTERNAL THEN AUTO AND VERIFY EBW'S NOT CHARGED.	
		27-1		CRSS	*** NOTE EBW'S NOT CHARGED.	
	121	28	CLTC	SRO	CONFIGURE RANGE STATION FOR CLOSED LOOP LINKS WITH CODER #2 OPERATION.	
	121	29	CLTC	BRFS	SIGNAL GENERATOR SELECT #2	
	121	30	CLTC	B1RF B2RF B4RF	VERIFY RSCR LIMITER VOLTAGES OK.	
		30-1		CRSS	*** NOTE RSCR LIMITER VOLTAGES RECEIVED.	
	121	31	CLTC	RRSC	RECORDERS - FAST SPEED.	
	121	32	CLTC	SRO	ON YOUR MARK SEND CUTOFF COMMAND ON CLOSED LOOP LINKS WITH CODER #2, FOR 3 SECONDS.	
	121	33	SRO	ALL	3-2-1-MARK	
	121	34	CLTC	RRSC	RECORDERS - SLOW SPEED.	
	121	35	CLTC	CRSS	VERIFY CUTOFF RECEIVED AND ALL EBW'S CHARGED.	
		35-1		C1DP C2DP C4DP BRFS LLRS	*** NOTE CUTOFF RECEIVED.	XB-246-27
		35-2		C1CS	*** NOTE ENGINE CUTOFF NOT RECEIVED	
		35-3		C1DP C2DP C4DP	*** NOTE EBW'S 1 & 2 CHARGED AND ON INTERNAL POWER.	

LV CDDT & CD, VOL 1
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

5251.80
 PAGE 56
 T-96:00, VOL 1
 VEHICLE A8-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-96:00 - 4 DAY 01 00						
121		36	CLTC	RRSC	RECORDERS -- FAST SPEED.	
121		37	CLTC	SRO	ON YOUR MARK SEND PD ON CLOSED LOOP LINKS WITH CODER #2, FOR 3 SECONDS.	
121		38	SRO	ALL	3-2-1-MARK	
121		39	CLTC	RRSC	RECORDERS -- SLOW SPEED.	
121		40	CLTC	CRSS	VERIFY PD RECEIVED AND EBW'S NOT FIRED	
		40-1		C1DP C2DP C4DP	*** NOTE PD RECEIVED AND EBW'S NOT FIRED.	
		40-2		LLRS BRFS	*** NOTE PD RECEIVED.	
121		41	CLTC	C1DP C2DP C4DP	EBW'S 1 & 2 - EXTERNAL THEN AUTO AND VERIFY EBW'S NOT CHARGED.	
		41-1		CRSS	*** NOTE EBW'S NOT CHARGED.	
121		42	CLTC	RRSC	RECORDERS-FAST SPEED.	
121		43	CLTC	SRO	ON YOUR MARK SEND SAFE COMMAND FOR 3 SECONDS ON CLOSED LOOP LINKS.	
121		44	SRO	ALL	3, 2, 1, MARK	
121		45	CLTC	RRSC	RECORDERS-SLOW SPEED.	
121		46	CLTC	CRSS	VERIFY S-II AND S-IVB SAFE COMMAND RECEIVED.	
		46-1		BRFS	*** NOTE S-II AND S-IVB SAFE COMMAND RECEIVED.	
		46-2		C2DP C4DP	*** NOTE RSCR'S 1 & 2 SAFE COMMAND RECEIVED	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE A57
 TV-20060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-96100 - 4 DAY 01 00 GO ONLY						
		46-3		C1DP C2DP C4DP	*** NOTE RSCR'S 1 AND 2 REMAIN ON.	
		46-4		CRSS	*** NOTE ALL RSCR'S REMAIN ON.	
121		47	CLTC	C1DP C2DP C4DP	RSCR'S 1 & 2 GROUND POWER - OFF AND VERIFY.	
		47-1		CRSS	*** NOTE ALL RSCR'S OFF.	
121		48	CLTC	CLVN	DESTRUCT SYSTEM - OFF. DELIVER DESTRUCT SYSTEM KEY TO CPSS. REPORT WHEN COMPLETE.	
		48-1		C1DP C2DP C4DP	*** NOTE SAFETY BUS OFF.	
121		49	CLTC	C1DP C2DP C4DP	SYSTEMS STATUS SWITCH - SAFE.	
121		50	CLTC	BRFS	SIGNAL GENERATOR SELECT - STANDBY.	
121		51	CLTC	BTMC	TM TAPE RECORDING - OFF AND RELOAD	
		51-1		BTMC	*** NOTE DELIVER TAPE TO SECURITY OFFICER (COUNTDOWN ONLY)	
121		52	CLTC	RRSC	RECORDERS - OFF	
121		53	CLTC	BRFS	LUT & LCC/GSE POWER - OFF	
121		54	CLTC	BRFS	SECURE DRSCS FLIGHT CODE PLUG	#
121		55	CLTC	C4DP	PULSE SENSOR POWER OFF	
188		56	CLTC	ALL	ALL PERSONNEL WHO SUPPORTED DRSCS TEST RETURN TO ASSIGNED CHANNELS	
111		57	CLTC	CVTS	LV DRSCS TEST COMPLETED. DESTRUCT SYSTEM KEY RETURNED TO CPSS. LOCAL COMMAND CARRIER IS OFF	TCPI

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
CD ONLY						
T-95135 3 DAY 23 HRS 351 0W						
	111	1	CLTC	CVTS	ADVISE SCO PERSONNEL THAT G-BALL POWER IS GOING OFF IN APPROXIMATELY FIVE MINUTES.	TCPI
	121	2	CLTC	C2TC	PREPARE S-II FOR "G" SWITCH CHECKOUT.	
	121	3	CLTC	BTMC ETMS	TM TAPE RECORDING ON	
	171	4	C2TC	C2IP	RF COUPLER TO ANTENNA	
	171	5	C2TC	C2IP	BF-2 TRANSMITTER ON AND MARK ON CH 171	
T-95130 3 DAY 23 HRS 301 0W						
	121	1	C1TC	CLTC	REQUEST F-1 ENGINE HIGH VOLTAGE IGNITORS AND S-IC RETROROCKET PYROGEN INITIATORS BE DELIVERED TO PAD LEVEL, EAST ELEVATOR.	
	111	2	CLTC	CVTS	REQUEST CTSC DELIVER F-1 ENGINE HIGH VOLTAGE IGNITORS AND S-IC RETROROCKET PYROGEN INITIATORS TO PAD LEVEL, EAST LOW RISE ELEVATOR.	TCPI
	121	3	CLTC	CUIP	G-BALL POWER - OFF G-BALL HEATER POWER - OFF	# TCP
	121	4	CLTC	CUIP	CDDT ONLY	* TCP
	171	5	C2TC	C2EC	START "G" SWITCH CHECKOUT PER V-30029 (M020) TASK 43	
T-95100 3 DAY 23 HRS 01 0W						
	121	1	C1TC	CLTC	REQUEST CLEARANCE TO PROCEED WITH S-IC EBW FUNCTIONAL TEST.	

LV CDDT & CD, VOL 1
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 59
 TAB 20060, VOL 1
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-95100 - 3 DAY 23 HRS 0' 0"		2		C1TC	NOTE ----- PRIOR TO OPERATION OF THESE SEQUENCES, VERIFY S-IC PULSE SENSORS ARE CONNECTED & LIVE DETONATORS ARE NOT INSTALLED.	
	181	3	<u>C1TC</u>	<u>C1NE</u>	PROCEED WITH EBW FUNCTIONAL ON CHANNEL 185.	
	185	4	C1NE	L1RS	VERIFY/INSTALL JUMPER PLUG J2 IN X02-121A2 (OAT PLUGS IN/OUT TEST).	
	185	5	C1NE	C1NP	SET PLUGS IN OAT SWITCH TO ON. VERIFY INDICATION ON.	
	185	6	C1NE	C1NP	SET SWITCH SELECTOR INHIBIT SWITCH TO AUTO.	
		6-1		C1EV	*** NOTE SWITCH SELECTOR INHIBIT - OFF.	
	185	7	C1NE	C1NP	SET EMERGENCY POWER TRANSFER EXTERNAL SWITCH TO EXTERNAL.	
	181	8	C1NE	C1TC	REQUEST CLVN TO SWITCH VEHICLE LIFTOFF ENABLE TO ON.	
	121	9	C1TC	CLTC	REQUEST VEHICLE LIFTOFF ENABLE TO ON	
	111	10	CLTC	CVTS	REQUEST CPSS RELEASE LIFTOFF ENABLE KEY TO CLVN.	TOP1
	121	11	CLTC	CLVN	OBTAIN LIFTOFF ENABLE KEY FROM CPSS.	
	121	12	CLTC	C2TC C4TC CUTC	VEH LIFTOFF ENABLE WILL BE TURNED ON. VERIFY THIS SWITCH ACTION ACCEPTABLE AT THIS TIME, (S-II & S-IVB WILL NOT BE AFFECTED).	
	121	13	CLTC	CLVN	SIMULATE LIFTOFF ENABLE ON	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-95:00 - 3 DAY 23 HRS 0' 0"						
	181	14	C1TC	C1NE	VEHICLE LIFTOFF ENABLE IS ON	
	185	15	C1NE	C1NP	VERIFY VEHICLE LIFTOFF ENABLE ON.	
	185	16	C1NE	C1NK	REQUEST WASV AND PERFORM SEPARATION AND RETROCKET EBW TEST AND SWITCH SELECTOR REGISTER TEST.	
		17		C1NE	NOTE ----- PERFORM THE FOLLOWING SUBSEQUENCES ONLY IF WASV CANNOT BE REQUESTED.	
	185	17-1	C1NE	C1NP	SET S-IC LIFTOFF ENABLE SWITCH TO ON. VERIFY INDICATION ON.	
		17-2		C1NP	*** NOTE LIFTOFF INDICATION REMAINS OFF	
	185	17-3	C1NE	C1NK	ISSUE S-IC SWITCH SELECTOR CHANNEL 10 (ARM SEP #1 AND RR #1 EBW FU).	
	185	17-4	C1NE	C1DP	VERIFY SEP F.U. #1 & #2 METERS INDICATE 2300 +/- 100 VDC	
	185	17-5	C1NE	C1DP	VERIFY RR F.U. #1 & #2 METERS INDICATE 2300 +/- 100 VDC.	
		17-6		C1NP	*** NOTE STAGE LOGIC ZERO - OFF.	
	185	17-7	C1NE	C1NK	ISSUE S-IC SWITCH SELECTOR CHANNEL 15, (S-IC/S-II SEP #1).	
	185	17-8	C1NE	C1DP	VERIFY RR#1 & SEP #1 EBW FIRED INDICATIONS ON.	
	185	17-9	C1NE	C1DP	VERIFY RR #2 & SEP #2 EBW FIRED INDICATIONS REMAIN OFF.	
	185	17-10	C1NE	C1DP	VERIFY RR #1 AND SEP #1 METERS FLUCTUATE TOWARD ZERO VOLTS.	

LV CDDT & CD, VOL 1
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 61
 T86-80.060, VOL 1
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-95:00 - 3 DAY 23 HRS 0' 0"						
185		17-11	C1NE	C1DP	VERIFY RR #2 SEP #2 METERS REMAIN CHARGED.	
185		17-12	C1NE	C1NP	SET STAGE LOGIC SWITCH TO RESET MOMENTARILY. VERIFY STAGE LOGIC ZERO INDICATION ON.	
185		17-13	C1NE	C1DP	VERIFY RR #1 & #2 AND SEP #1 & #2 METERS INDICATE ZERO VOLTS	
185		17-14	C1NE	C1DP	SET PULSE SENSOR SWITCH TO RESET MOMENTARILY. VERIFY RR AND SEP #1 EBW FIRED INDICATION OFF.	
185		17-15	C1NE	C1NK	ISSUE S-1C SWITCH SELECTOR CHANNEL 20, (ARM SEP #2 AND RR #2 EBW FU).	
185		17-16	C1NE	C1DP	VERIFY RR F.U. #1 & #2 METERS INDICATE 2300 +/- 100 VDC.	
185		17-17	C1NE	C1DP	VERIFY SEP F.U. #1 & #2 METERS INDICATE 2300 +/- 100 VDC.	
185		17-18	C1NE	C1NK	ISSUE S-1C SWITCH SELECTOR CHANNEL 19 (S-1C/S-1I SEPARATION #2).	
185		17-19	C1NE	C1DP	VERIFY RR #2 & SEP #2 EBW FIRED INDICATIONS ON.	
185		17-20	C1NE	C1DP	VERIFY RR #1 & SEP #1 EBW FIRED INDICATIONS REMAIN OFF.	
185		17-21	C1NE	C1DP	VERIFY RR #2 AND SEP #2 METERS FLUCTUATE TOWARD ZERO VOLTS.	
185		17-22	C1NE	C1DP	VERIFY RR #1 AND SEP #1 METER REMAIN CHARGED.	
185		17-23	C1NE	C1NP	SET STAGE LOGIC SWITCH TO RESET MOMENTARILY. VERIFY STAGE LOGIC ZERO INDICATION ON.	
185		17-24	C1NE	C1DP	VERIFY RR #1 & #2 AND SEP #1 & #2 METERS INDICATE ZERO VOLTS	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 62
 T-95100, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-95100 - 3 DAY 23 HRS 0' 0"						
185		17-25	C1NE	C1DP	SET PULSE SENSOR SWITCH TO RESET MOMENTARILY. VERIFY RR #2 AND SEP #2 EBW FIRED INDICATIONS OFF.	
185		18	C1NE	C1NP	SET PLUGS IN OAT - OFF THEN AUTO, VERIFY INDICATION OFF.	
185		19	C1NE	C1NP	SET SWITCH SELECTOR INHIBIT SWITCH TO INHIBIT.	
		19-1		C1EV	*** NOTE SWITCH SELECTOR INHIBIT - ON.	
185		20	C1NE	C1NP	SET S-IC LIFTOFF ENABLE SWITCH TO - OFF, VERIFY INDICATION OFF.	
185		21	C1NE	C1NP	EMERGENCY POWER TRANSFER TO OFF.	
181		22	C1NE	C1TC	REQUEST CLVN TO SWITCH VEHICLE LIFTOFF ENABLE TO - OFF.	
121		23	C1TC	CLTC	REQUEST VEHICLE LIFTOFF ENABLE TO OFF	
121		24	CLTC	CLVN	LIFTOFF ENABLE OFF; DELIVER LIFTOFF ENABLE KEY TO CPSS. REPORT WHEN COMPLETE.	
121		25	CLTC	C1TC C2TC C4TC CUTC	VEHICLE LIFTOFF ENABLE IS OFF	
111		26	CLTC	CVTS	LIFTOFF ENABLE KEY RETURNED TO CPSS	TCPI
181		27	C1TC	C1NE	VEHICLE LIFTOFF ENABLE IS OFF	
185		28	C1NE	C1NP	VERIFY VEHICLE LIFTOFF INDICATION OFF.	
185		29	C1NE	C1NK	REQUEST WASV AND RUN SWITCH SELECTOR REGISTER TEST IF SEPARATION AND RETROCKET EBW TEST WAS NOT RUN.	
181		30	C1NE	C1TC	EBW FUNCTIONAL TEST COMPLETE.	
121		31	C1TC	CLTC	S-IC EBW FUNCTIONAL TEST COMPLETE.	

LV CDDT & CD, VOL I
 DATE: JANUARY 17, 1971
 REVISION 027

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 63
 TSS-00060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-95100 - 3 DAY 23 HRS 0' 0"						
	171	32	C1TC	C2TC	S-IC READY FOR S-IC/S-II SEPARATION PULSE SENSOR REMOVAL.	
	171	33	C2TC	U2EO	REMOVE S-IC/S-II SEPARATION PULSE SENSORS PER V-29038 (S009). REPORT WHEN COMPLETE.	
	181	34	C1TC	C1NE	HAVE U1FN MONITOR S-IC/S-II SEPARATION PULSE SENSOR REMOVAL PER V-21012.	
T-94150 - 3 DAY 22 HRS 50' 0"						
	121	1	CLTC	C2TC	PREPARE S-II FOR MT01	
	171	2	C2TC	C2IP	FREQ MEAS CAL TO ON	
	171	3	C2TC	C2IP	BF1 TRANSMITTER ON AND MARK ON CH 171	
T-94145 - 3 DAY 22 HRS 45' 0"						
	181	1	C1TC	C1IP	LOX & FUEL RACKS PWR ON, 400 HZ CAL PWR ON AND 28V RACS PWR ON.	
	151	2	CUTC	CUIP	MEASUREMENT TRANSFER AUTO. S-II BURN TEST & S-IVB COAST TEST - AUTO. (60X-607A6 - CCIS PANEL)	
	121	3	CUTC	BGCC	VERIFY/MOUNT MT01 TAPE.	
	171	4	C2TC	C2EC	VERIFY "G" SWITCH CHECKOUT IS COMPLETE	
	121	5	C2TC	CLTC	"G" SWITCH CHECKOUT COMPLETE.	
	121	6	CLTC	C1TC C2TC C4TC CUTC	VERIFY READY FOR MT01 (LV MEAS SCAN)	

N-209-24

T-94:15
3 DAY
22 HRS
15' 0"

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-94115					CDDT ONLY	
- 3 DAY						
22 HRS						
15' 0"						
181	4	CSAC	C1TC	CDDT ONLY		*
121	5	C1TC	CLTC	CDDT ONLY		*
T-94100						
- 3 DAY						
22 HRS						
0' 0"						
121	1	CLIK	CLTC	LV MT01 COMPLETE.		
121	2	CLTC	C2NP	RACS POWER OFF.		
121	3	CLTC	C2TC	TERMINATE MT01 SUPPORT.		
171	4	C2TC	C2IP	ALL TM TRANSMITTERS OFF IN SEQUENCE LISTED AND MARK ON CH 171.		
171	5	C2IP		F1 RF OFF, MARK F2 RF OFF, MARK		
171	6	C2TC	C2IP	RF COUPLER TO AUTO		
171	7	C2TC	C2IP	FREQ MEAS CAL TO AUTO		
121	8	C2TC	CLTC	S-II MT01 SUPPORT TERMINATION IS COMPLETE.		
121	9	CLTC	BTMC ETMS	TM TAPE RECORDING OFF		
111	10	CLTC	CVTS	RANGE CLEARANCE FOR S-II TM NO LONGER REQUIRED.		TOP!
121	11	CLTC	C1IP	HARDWIRE SWITCH TO GROUND.		
151	12	CUTC	CUIP	MEASUREMENT TRANSFER - OFF, S-II BURN TEST AND S-IVB COAST TEST - OFF (60X-607A6 -- CCIS PANEL)		
121	13	C1TC	CLTC	REQUEST CLIK SWITCH TO CHANNEL 116 TO SUPPORT L1IC ON RACS LOADING SYSTEM CHECKS.		

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-94100 - 3 DAY 22 HRS 0' 0"	121	14	CLTC	C4IP	PRELAUNCH CHECKOUT GROUP-OFF THEN AUTO.	
	181	15	C1TC	L1IC	START RACS LOADING SYSTEM CHECKS PER V-27093. REPORT WHEN COMPLETE.	
	181	16	C1TC	LPLX	VERIFY PTCS IS READY TO SUPPORT S-II PTCS INTERFACE CHECKS.	
	171	17	U2PM	C2TC	S-II PU CALIBRATION COMPLETE.	
	121	18	C2TC	CLTC	S-II PU SYSTEM CALIBRATION COMPLETE.	
	181	19	C2TC	C1TC	REMOVE PTCS POWER.	
	171	20	C2TC	C2NP	REMOVE STAGE POWER PER V-21103 (B011)	
		21			NOTE ----	
					STAGE AND PTCS POWER MUST BE REMOVED PRIOR TO CONFIGURING PU SYSTEM FOR PTCS INTERFACE CHECKS. STAGE POWER APPLICATION AND REMOVAL MUST BE COORDINATED BETWEEN LPLX, C2NP AND U2PM.	
	171	22	C2TC	U2PM	WHEN STAGE AND PTCS POWER HAVE BEEN REMOVED, CONFIGURE PU SYSTEM FOR PTCS INTERFACE CHECKS PER V-25151 (W013). REPORT WHEN COMPLETE.	
		23			DELETED	N-209-24
171	24	U2PM	C2TC		PU SYSTEM CONFIGURED FOR PU FACILITY INTERFACE CHECKS.	
171	25	C2TC	R2SC		VERIFY READY FOR STAGE POWER.	
171	26	C2TC	C2NP		APPLY S-II STAGE POWER PER V-21103 (B011) INCLUDING PM POWER.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-93130 3 DAY 21 HRS 30' 0"					CD ONLY	
		9			CDDT ONLY	
121		10	CLTC	C1TC C2TC C4TC CUTC	LUT LEVEL ZERO WILL BE CLEARED FOR ORDNANCE INSTALLATION IN 30 MIN. A PATHWAY FROM THE ELEVATORS WILL BE PROVIDED FOR ACCESS.	
		11			*****WARNING***** * * THE FOLLOWING SEQUENCE * * IS HAZARDOUS. * * *****	
181		12	C1TC	C1PE	VERIFY ORDNANCE TRUCK HAS ARRIVED AT EAST SIDE OF PAD AND MOVE F-1 ENGINE IGNITORS AND RR PYROGEN INITIATORS TO ML ZERO LEVEL AS SOON AS ZERO LEVEL HAS BEEN CLEARED.	
		13			DELETED	N-209-24

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-93:00 3 DAY 21 HRS 01 00						
188		1	CVTS	PA	LM PROPELLANT LINE ROUTING, CONNECTION AND LEAK CHECK IS COMPLETE. THE CONTROL AREA IS OPEN FOR NORMAL WORK.	# TCP
171		2	U2PM	C2TC	S-11 PTCS INTERFACE CHECKS ARE COMPLETE.	
171		3	C2TC	C2NP	REMOVE PM POWER	
171		4	C2TC	U2PM	RECONNECT PU SYSTEM TO FLIGHT CONFIGURATION PER V-25151 (H013).	
171		5	U2PM	C2TC	THE PU SYSTEM IS CONFIGURED FOR FLIGHT	
171		6	C2TC	C2NP	APPLY PM POWER	
181		7	L1IC	C1TC	RACS LOADING SYSTEM CHECKS ARE COMPLETE	
181		8	C1TC	C1IP	28 VOLT RACS, 400 HERTZ CAL POWER AND LOX AND FUEL RACS OFF	
121		9	BOSC	CLTC	S-1C ORDNANCE DELIVERY COMPLETE	TOPI
111		10	CLTC	CVTS	CLEAR ML ZERO LEVEL FOR S-1C ORDNANCE OPERATIONS.	TCP
188		11	CVTS	PA	ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREAS FOR SPACE VEHICLE ORDNANCE OPERATIONS	TOPI
		11-1			*****WARNING***** * * THE CONTROL AREA FOR LV * * ORDNANCE OPERATIONS * * CONSISTS OF ML ZERO * * LEVEL, A CONTROLLED * * WALKWAY WILL BE KEPT * * OPEN TO THE ELEVATORS * * *****	# TCP
		11-2			CDDT ONLY	* TCP

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-93:00 3 DAY 21 HRS 0' 0"					CD ONLY	
	121	12	C1TC	CLTC	GDDT ONLY	*
	111	13	CLTC	CVTS	GDDT ONLY	* TCP
	181	14	C1TC	CPDC	GDDT ONLY	*
T-92:50 3 DAY 20 HRS 50' 0"						
	181	1	C2TC	C1TC	VERIFY S-II PICS PRA'S ARE ON,	
	181	2	C1TC	C2OU C2HU	VERIFY S-II PRA'S ARE ON,	
	171	3	C2TC	C2PU	START PROPELLANT SYSTEM FUNCTIONAL PER V-30029 (M020), TASK 10 (TEST PROGRAM QALS & QAPU WILL BE EXECUTED,) REPORT WHEN COMPLETE.	
T-92:45 3 DAY 20 HRS 45' 0"						
	111	1	CLTC	CVTS	REQUEST CPSS VERIFY ML LEVEL ZERO IS CLEAR FOR S-IC ORDNANCE OPERATIONS,	TCPI

LV CDDT & CD, VOL 1
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

5251.60
 PAGE 71
 T86728.060, VOL 1
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-92145 - 3 DAY 20 HRS 45' 0"						
181		2	C1TC	C1PE	VERIFY ORDNANCE HAS BEEN DELIVERED TO ML ZERO LEVEL, (S-IC ENG IGNITORS AND RR PYROGEN INITIATORS)	
121		3	CLTC	C1TC	START MECHANICAL INSTALLATION OF S-IC ENGINE HIGH VOLTAGE IGNITORS AND RETROROCKET PYROGEN INITIATORS	
181		4	C1TC	C1PE	VERIFY LEG STAT CHECKS COMPLETE.	
		5			*****WARNING***** * * THE FOLLOWING TWO * SEQUENCES ARE * HAZARDOUS. * *****	
181		6	C1TC	C1PE	INSTALL RETROROCKET PYROGEN INITIATORS PER V-29003.	
181		7	C1TC	C1PE	INSTALL S-IC ENGINE HIGH VOLTAGE IGNITORS PER V-29005.	
181		8	C1TC	RRSC	RECORDERS - ON - SLOW SPEED.	
T-92130 - 3 DAY 20 HRS 30' 0"						
171		1	C2PU	C2TC	THE PM FUNCTIONAL TESTS ARE COMPLETE.	
121		2	C2TC	CLTC	AUTO PROGRAM QALS & QAPU ARE COMPLETE	
121		3	CLTC	CUTC	REQUEST BGCC TO REMOVE LINE PRINTER DATA FROM TEST PROGRAM QAPU FOR C2PU.	
171		4	C2TC	C2NP	STAGE SELECT TO INHIBIT.	
181		5	C2TC	C1TC	REMOVE PTCS POWER	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

5251.60
 PAGE 22
 TAB 28.060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-92:30 - 3 DAY 20 HRS 30' 0"		181	6	C1TC	LPLX PTCS SUPPORT NO LONGER REQUIRED. SECURE SYSTEM. REPORT WHEN COMPLETE.	
		171	7	C2TC	C2NP REMOVE PM POWER	
		121	8	CLTC	CUTC PREPARE IU STAGE FOR RF SILENCE & CONTROLLED SWITCHING PER V-31062, APPENDIX C.	
		161	9	C4TC	C4SM CONFIGURE ORDNANCE CONTROL PANELS PER V-30539, SECT F. REPORT WHEN COMPLETE.	
		171	10	C2TC	C2DP CONFIGURE ORDNANCE AND PD PANEL PER V-30029 (M020) TASK 5. REPORT WHEN COMPLETE.	
		181	11	C1TC	C1NE VERIFY CORRECT PANEL CONFIGURATION FOR ORDNANCE INSTALLATION PER V-21012 & V-21009	
		121	12	CLTC C1TC C2TC C4TC	VERIFY ORDNANCE AND PD PANELS ARE IN CORRECT CONFIGURATION AND READY TO START ORDNANCE INSTALLATION.	
		161	13	C4TC	C4NP INHIBIT SWITCH SELECTOR AND VERIFY.	
		161	14	C4TC	C4ES VERIFY READY FOR CONTROLLED SWITCHING.	
		121	15	CLTC C1TC C2TC C4TC CUTC	VERIFY READY FOR RF SILENCE & CONTROLLED SWITCHING PER TI-2-13 & INHIBIT SWITCH SELECTORS.	
		111	16	CLTC	CVTS REQUEST RF SILENCE, LV CONTROLLED SWITCHING AND LV/SC INTERFACE CONTROLLED SWITCHING IS NOW IN EFFECT	TCPI
		17			NOTE ----- THE FOLLOWING SWITCHES WILL BE CYCLED DURING ELECTRICAL CONNECTION OF THE ENGINE ORDNANCE: C1SP TCS ARM/SAFE SWITCH C1EN IGNITOR MONITOR BUS OFF/ON	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 73
 TAB-28.060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-92:30 - 3 DAY 20 HRS 30' 0"						
	188	18	CVTS	PA	RF SILENCE IS NOW IN EFFECT. CONTROLLED SWITCHING ON THE LV AND ACROSS THE LV/SC INTERFACE IS NOW IN EFFECT. SWITCHING REQUESTS ARE TO BE COORDINATED THROUGH TEST CONDUCTORS WITH CVTS.	TOPI
	121	19	C1TC	CLTC	REQUEST CPSS TO RELEASE TCS KEY TO C1SP	
	111	20	CLTC	CVTS	REQUEST CPSS TO RELEASE TCS KEY TO C1SP	TOPI
	121	21	CLTC	C1TC	START ELECTRICAL CONNECTION OF S-1C ENGINE HIGH VOLTAGE IGNITORS AND RR PYROGEN INITIATORS.	
	181	22	C1TC	C1NE	START ELECTRICAL CONNECTION OF SKIRT IGNITORS PER V-21014.	
T-92:00 - 3 DAY 20 HRS 0' 0"						
	181	1	C1TC	C1PE	VERIFY MECHANICAL INSTALLATION OF SKIRT IGNITORS COMPLETE.	
T-91:30 - 3 DAY 19 HRS 30' 0"						
	181	1	C1TC	C1PE	START FAIRING ACCESS PANEL INSTALLATION PER V-29003.	

LV CDDT & CD, VOL I
DATE: NOVEMBER 18, 1970
REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-91100 3 DAY 19 HRS 01' 0"					CD ONLY	
	171	1	C2TC	C2NP	START C7-92 BATTERY BYPASS CABLE AND BATTERY SIMULATOR BOXES REMOVAL PER V-80029 (M020) TASK 12, REPORT WHEN COMPLETE.	#
T-90130 3 DAY 18 HRS 30' 0"						
	181	1	C1TC	CPDC	CDDT ONLY	*
	121	2	C1TC	CLTC	CDDT ONLY	*
	111	3	CLTC	CVTS	CDDT ONLY	* TCP
T-90100 3 DAY 18 HRS 01' 0"						
	181	1	C1TC	C1PE	VERIFY IN WORK, OR START MECHANICAL INSTALLATION OF GAS GENERATOR IGNITERS.	
	181	2	C1TC	C1NE	VERIFY IN WORK OR START ELECTRICAL CONNECTION OF GG IGNITERS	
T-89145 3 DAY 17 HRS 45' 0"						
	121	1	CLTC	C1TC C2TC C4TC	VERIFY READY FOR PROPELLANT DISPERSION AND SEPARATION ORDNANCE DELIVERY.	
	121	2	CLTC	C1TC C2TC C4TC	START LEG STAT CHECKS AND HAVE ORDNANCE PERSONNEL REPORT TO SAFETY AT BASE OF EAST LOW RISE ELEVATOR IN 35 MINUTES.	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 75
 T-89060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-89:45 - 3 DAY 17 HRS 45' 0"	111	3	CLTC	CVTS	REQUEST CTSC START LV PD, HYPERGOLS, HDA & SEPARATION ORDNANCE DELIVERY;	TCP!
	161	4	C4TC	C4SM	START ORDNANCE CREW RESISTANCE CHECKS PER V-30539. REPORT WHEN COMPLETE.	
T-89:30 - 3 DAY 17 HRS 30' 0"	181	1	C1TC	C1NE	VERIFY ELECTRICAL CONNECTION OF SKIRT IGNITORS COMPLETE.	
	181	2	C1TC	C1PE	VERIFY IN WORK, OR START THERMAL INSULATION CLOSE OUT OF SKIRT IGNITOR ACCESS DOOR.	
T-89:20 - 3 DAY 17 HRS 20' 0"	111	1	CLTC	CVTS	REQUEST A 50 FOOT RADIUS BE CLEARED AROUND THE ML EAST LOW RISE ELEVATORS AT THE GROUND & ML ZERO LEVEL FOR LV ORDNANCE DELIVERY.	TCP!
	181	1	C1TC	C1PE	VERIFY MECHANICAL INSTALLATION OF GG IGNITORS COMPLETE.	
T-89:15 - 3 DAY 17 HRS 15' 0"	181	2	C1TC	C1NE	VERIFY ELECTRICAL CONNECTION OF GG IGNITORS COMPLETE.	
	181	3	C1TC	C1PE	VERIFY IN WORK OR START THERMAL INSULATION CLOSEOUT OF GG IGNITOR ACCESS DOORS.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-89100 3 DAY 17 HRS 0' 0"					GO ONLY	
181		1	CCLH	C1TC	S-II & S-IVB SUPPORT OF LH2 FACILITY SYSTEM PURGES COMPLETED.	
121		2	C1TC	CLTC	S-II & S-IVB SUPPORT OF LH2 FACILITY SYSTEM PURGES COMPLETED.	
161		3	C4TC	C4PS	START PROPULSION SECURING PER V-35015,	
188		4	CVTS	PA	ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR SV ORDNANCE OPERATIONS,	# TPC
		4-1			*****WARNING***** * * THE CONTROL AREA IS * EXPANDED FOR LV * INITIATOR DETONATOR * AND CSM HEAVY ORDNANCE * HOOKUP AND CONSISTS OF * THE ML, MSS, PAD APRON * AND FLAME TRENCH. * *****	# TPC
121		5	CVTS	CLTC	CHANGE THE SMDPS FROM 2 SWITCH 1 VALVE MODE TO 2 SWITCH MODE. REPORT WHEN COMPLETE,	# TPC
121		6	CLTC	C1TC	CHANGE THE SMDPS FROM 2 SWITCH 1 VALVE MODE TO 2 SWITCH MODE. REPORT WHEN COMPLETE,	#
181		7	C1TC	CPDC	CHANGE THE SMDPS FROM 2 SWITCH 1 VALVE MODE TO 2 SWITCH MODE. REPORT WHEN COMPLETE,	#
181		8	C1TC	C1PE C1NE	VERIFY S-IC ENGINE HIGH VOLTAGE IGNITORS INSTALLATION & CONNECTION COMPLETE,	
181		9	C1TC	C1PE	VERIFY INSTALLATION OF PYROGEN INITIATORS COMPLETE,	

APOLLO/SATURN LAUNCH OPERATIONS

5221,00
 PAGE A77
 20060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-89:00					CD ONLY	
3 DAY						
17 HRS						
0' 0"						
121	10	C1TC	CLTC	S-IC ENGINE HIGH VOLTAGE IGNITORS INSTALLATION & CONNECTION AND RR INITIATOR INSTALLATION COMPLETE.		
111	11	CLTC	CVTS	S-IC ENGINE ORDNANCE CONNECTION COMPLETE.		TCPI
181	12	C1TC	C1SP	DELIVER TCS KEY TO CPSS. REPORT WHEN COMPLETE.		
121	13	C1TC	CLTC	TCS KEY RETURNED TO CPSS.		
111	14	CLTC	CVTS	TCS KEY RETURNED TO CPSS.		TCPI
188	15	CVTS	PA	CDDT ONLY		* TCPI
	15-1			CDDT ONLY		* TCPI
261	16	CLTC	BOSC	VERIFY LV ORDNANCE DELIVERY COMPLETE.		TOPI
181	17	C1TC	L1LS	VERIFY HDA POWER CARTRIDGES, S-IC HYPERGOLS, S&A DEVICE AND RR BBW DETONATORS ARE AT THE PAD.		
161	18	C4TC	S4OR	VERIFY ORDNANCE IS AT THE PAD.		
171	19	C2TC	C2GP	SECURE GROUND PNEUMATICS. REPORT WHEN COMPLETE.		

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-89100 - 3 DAY 17 HRS 0' 0"	171	20	C4TC	C2TC	VERIFY S-II OBSERVER AVAILABLE FOR SEPARATION AND RETRO ROCKET DETONATOR INSTALLATION.	
T-88130 - 3 DAY 16 HRS 30' 0"	111	1	CLTC	CVTS	REQUEST CPSS VERIFY AREA CLEAR FOR ORDNANCE INST.	TOPI
	121	2	CLTC	C1TC C2TC C4TC	START ORDNANCE INSTALLATION.	
	181	3	C1TC	C1PE	INSTALL RETRO-ROCKET EBW DETONATORS PER V-29003.	
	181	4	C1TC	LHDA L10E	INSTALL AND CONNECT HOLDDOWN ARMS EXPLOSIVE RELEASE POWER CARTRIDGES PER V-26329 AND V-21321.	
	181	5	C1TC	C1NE	DISCONNECT FLIGHT CABLE FROM INERT S&A DEVICES PER V-21009. MONITOR S-II FIRST PLANE SEPARATION SYSTEM DETONATOR CONNECTION.	
	171	6	C2TC	U2MO	INSTALL & CONNECT S-II SECOND PLANE SEP SYS AND ULLAGE ROCKET DETONATORS PER V-29049 (Z030) (CDDT) V-29023 (Z008) (CD)	
	171	7	C2TC	U2HO	INSTALL AND CONNECT S-II FIRST PLANE SEPARATION SYSTEM DETONATORS PER V-29049 (Z030) (CDDT) V-29023 (Z008) (CD)	
	171	8	C2TC	U2HO	START PREPS FOR S-II S&A INST PER V-29050 (K010) (CDDT) V-29024 (K008) (CD)	
	171	9	C2GP	C2TC	GROUND PNEUMATICS ARE SECURED.	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 79
 T-86060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-88:30 - 3 DAY 16 HRS 30' 0"	161	10	C4TC	C4SM	INSTALL S-IVB ORDNANCE DETONATORS AND CONNECT PER V-30539, SECT F.	
T-87:30 - 3 DAY 15 HRS 30' 0"	181	1	C1TC	C1PE	VERIFY MECHANICAL INSTALLATION OF RETRO-ROCKET EBW DETONATORS COMPLETE.	
	181	2	C1TC	C1NE	START RETRO-ROCKET EBW DETONATOR CONNECTION PER V-21012.	
	181	3	C1TC	LHDA	VERIFY MECHANICAL INSTALLATION OF HDA ORDNANCE COMPLETE.	
	181	4	C1TC	L10E	START ELECTRICAL CONNECTION OF HDA ORDNANCE PER V-21321 OR VERIFY ALREADY STARTED.	
T-87:00 - 3 DAY 15 HRS 0' 0"	181	1	C1PE	C1TC	REQUEST F-1 ENGINE HYPERGOLS DELIVERED TO ML ZERO LEVEL.	
T-86:45 - 3 DAY 14 HRS 45' 0"	181	1	C1TC	C1NE C1PE	INSTALL & CONNECT S&A PER V-21009 AND V-29003.	
		2			NOTE ----- THE FOLLOWING SWITCH WILL BE OPERATED DURING F-1 ENGINE HYPERGOL CARTRIDGE INSTALLATION, C1EN - IGNITORS INSTALLED - ARM	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-86145 - 3 DAY 14 HRS 45' 0"						
181		3	C1TC	C1PE	START HYPERGOL CARTRIDGE INSTALLATION PER V-29005.	
171		4	U2MO	C2TC	S-II SECOND PLANE SEPARATION SYSTEM AND ULLAGE ROCKET DETONATOR INSTALLATION AND CONNECTION HAVE BEEN COMPLETED.	
171		5	U2HO	C2TC	S-II FIRST PLANE SEPARATION SYSTEM DETONATOR INSTALLATION AND CONNECTION HAVE BEEN COMPLETED.	
171		6	U2HO	C2TC	PREPS FOR S&A INSTALLATION HAVE BEEN COMPLETED.	
171		7	C2TC	U2HO	INSTALL S&A PER V-29050 (K010) (CDDT) V-29024 (K008) (CD).	
T-86130 - 3 DAY 14 HRS 30' 0"						
161		1	C4TC	C4SM	VERIFY S-IVB ORDNANCE DETONATOR INSTALLATIONS AND CONNECTIONS COMPLETED.	
161		2	C4TC	C4SM	START INSTALLATION OF S-IVB S&A PER V-30539, SECT F.	
181		3	C1TC	C1NE	VERIFY S-IC RETRO-ROCKET ERW DETONATOR CONNECTIONS COMPLETED.	
181		4	C1TC	C1PE	COMPLETE INSTALLATION OF S-IC FAIRING HEAT SHIELD ACCESS PANELS.	
T-85130 - 3 DAY 13 HRS 30' 0"						
181		1	C1TC	C1PE C1NE	VERIFY S-IC S&A INSTALLATION AND CONNECTION COMPLETE.	

LV CDDT & CD, VOL 1
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 81
 TAB 20060, VOL 1
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-85:30 - 3 DAY 13 HRS 30' 0"						
	121	2	CLTC	CLTC	S-IC S&A INSTALLATION IS COMPLETE.	
	171	3	U2HO	C2TC	S-II S&A INSTALLATION IS COMPLETE.	
	121	4	C2TC	CLTC	S-II S&A INSTALLATION IS COMPLETE.	
	161	5	C4TC	C4SM	VERIFY S-IVB S&A INSTALLATION COMPLETE	
	121	6	C4TC	CLTC	S-IVB S&A INSTALLATION IS COMPLETE.	
	121	7	CLTC	C1TC C2TC C4TC	VERIFY READY FOR S&A FUNCTIONALS.	
	111	8	CLTC	CVTS	VERIFY CPSS ON STATION FOR S&A FUNCTIONALS.	TCPI
	188	9	CLTC	ALL	ALL PERSONNEL SUPPORTING LV S&A FUNCTIONALS GO TO CHANNEL 121 ACTIVE AND MONITOR STAGE TC CHANNEL	
					S&A FUNCTIONAL TEST -----	
		10			*****CAUTION***** * * UNDER NO CIRCUMSTANCES * * SHALL THE S&A DEVICES * * BE OPERATED AT MORE * * THAN FOUR COMPLETE * * CYCLES PER MINUTE, * * SOLENOID OVER-HEATING * * MAY RESULT FROM HIGHER * * FREQUENCY CYCLING, * * *****	
	121	11	CLTC	U1FN U2HO S4OR	VERIFY SHORTING PLUGS INSTALLED ON PROPELLANT DISPERSION DETONATORS AND CDP NOT CONNECTED TO S&A'S,	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-85130 - 3 DAY 13 HRS 30' 0"						
121		12	CLTC	U1FN U2HO S4OR	VERIFY S&A ROTOR MECHANICALLY IN SAFE POSITION.	
121		13	CLTC	C1DP C2DP C4DP	VERIFY S&A SAFE INDICATION ON.	
121		14	CLTC	C1DP C2DP C4DP	S&A TO ARM FOR 2 SECONDS THEN AUTO. VERIFY ARMED INDICATION ON - SAFE INDICATION OFF.	
121		15	CLTC	U1FN U2HO S4OR	VERIFY S&A ROTOR MECHANICALLY IN ARMED POSITION.	
121		16	CLTC	C1DP C2DP C4DP	S&A TO SAFE, VERIFY SAFE INDICATION ON - ARMED INDICATION OFF.	
121		17	CLTC	U1FN U2HO S4OR	VERIFY S&A ROTOR MECHANICALLY IN SAFE POSITION.	
121		18	CLTC	C1DP C2DP C4DP	S&A TO ARM FOR 2 SECONDS THEN AUTO. VERIFY ARMED INDICATION ON - SAFE INDICATION OFF.	
121		19	CLTC	U1FN U2HO S4OR	VERIFY S&A ROTOR MECHANICALLY IN ARMED POSITION.	
121		20	CLTC	C1DP C2DP C4DP	S&A TO SAFE, VERIFY SAFE INDICATION ON - ARMED INDICATION OFF.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
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T-85:30

- 3 DAY

13 HRS

30' 0"

121

21

CLTC

U1FN

U2HO

S4OR

VERIFY S&A ROTOR MECHANICALLY IN SAFE POSITION.

121

22

CLTC

C1TC

C2TC

C4TC

S&A FUNCTIONALS ARE COMPLETE.

188

23

CLTC

ALL

ALL PERSONNEL WHO SUPPORTED S&A FUNCTIONALS RETURN TO ASSIGNED CHANNELS.

T-85:15

- 3 DAY

13 HRS

15' 0"

181

1

C1TC

C1PE

VERIFY HYPERGOL CARTRIDGES ARE INSTALLED IN ENGINE.

181

2

C1TC

C1PE

START THERMAL INSTALLATION CLOSEOUT OF HYPERGOL ACCESS DOOR OR VERIFY IN WORK.

181

3

C1TC

C1PE

C1NE

VERIFY S-IC ORDNANCE INSTALLATION COMPLETED.

181

4

C1TC

LHDA

C1NE

VERIFY HOLDDOWN ARMS EXPLOSIVE RELEASE POWER CARTRIDGES INSTALLATION AND CONNECTION COMPLETED.

181

5

C1TC

C1PE

VERIFY INSTALLATION OF FAIRING HEAT SHIELD ACCESS PANELS COMPLETE.

121

6

CLTC

C1TC

C2TC

C4TC

VERIFY ALL ORDNANCE INSTALLATION COMPLETE.

111

7

CLTC

CVTS

LV CONTROLLED SWITCHING ACROSS LV/SC INTERFACE WILL BE LIFTED FOR LV POWER DOWN OPERATIONS

TCP1

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-85115 - 3 DAY 13 HRS 15' 0"		188	8	CVTS PA	CONTROLLED SWITCHING INCLUDING CONTROLLED SWITCHING ACROSS THE LV/SC INTERFACE IS LIFTED FOR LV POWER DOWN OPERATIONS. RF SILENCE IS STILL IN EFFECT.	TCPI
		121	9	CLTC C1TC C2TC C4TC CUTC	REMOVE STAGE POWER. REPORT WHEN COMPLETE.	
		181	10	C1TC C1NE	REMOVE S-1C STAGE POWER PER V-21097.	
		181	11	C1TC RRSC	DRSCS RECORDERS - OFF	
		171	12	C2TC C2NP	REMOVE S-1I STAGE AND ESE POWER PER V-21103 (B011).	
		161	13	C4TC C4ES	REMOVE S-1VB STAGE & GROUND POWER PER V-30539, APPENDIX C.	
		161	14	CUTC C4TC	VERIFY S-1VB READY FOR REMOVAL OF IU STAGE AND GROUND POWER.	
T-85100 - 3 DAY 13 HRS 0' 0"		151	15	CUTC CUNP	REMOVE IU STAGE AND GROUND POWER PER V-21223. REPORT WHEN COMPLETE.	TCPI
		121	1	C1TC CLTC	S-1C STAGE POWER IS OFF	
		121	2	C2TC CLTC	S-1I STAGE AND ESE POWER IS OFF.	
		121	3	C4TC CLTC	S-1VB STAGE POWER IS OFF.	
		121	4	CUTC CLTC	IU STAGE POWER HAS BEEN REMOVED.	
		111	5	CLTC CVTS	LAUNCH VEHICLE POWER IS OFF.	
		121	6	CLTC CUTC	ESTABLISH CONTROL SWITCHING ACROSS THE INTERFACE PER V-31062 APPENDIX C.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-85:00 3 DAY 13 HRS 01 00						
111	7	CLTC	CVTS		LV INTERFACE CONTROLLED SWITCHING IS IN EFFECT.	TCPI
188	8	CVTS	PA		CONTROLLED SWITCHING ACROSS THE LV/SC INTERFACE IS NOW IN EFFECT. SWITCHING REQUESTS ARE TO BE COORDINATED THROUGH TEST CONDUCTORS WITH CVTS	TCPI
181	9	C1TC	C1PE		VERIFY HYPERGOL CARTRIDGE ACCESS DOOR CLOSEOUT COMPLETE.	
181	10	C1TC	VIMS		SECURE VEHICLE MEASURING GSE PER V-27098.	
121	11	C1TC	CLTC		F-1 ENG HYPERGOL CARTRIDGE ACCESS DOOR CLOSEOUT COMPLETE.	
111	12	CLTC	CVTS		LV ORDNANCE INSTALLATION IS COMPLETE	TCPI
188	13	CVTS	PA		LV ORDNANCE INSTALLATION IS COMPLETE	TCPI
188	14	CVTS	PA		ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR CSM REMOTE RESISTANCE CHECKS.	# TCPI
	14-1				*****WARNING***** * * THE CONTROL AREA FOR * CSM REMOTE RESISTANCE * CHECKS CONSISTS OF THE * AREA CONFINED BY THE * COMPLEX PERIMETER FENCE * *****	# TCPI
188	15	CVTS	PA		CDDT ONLY	# TCPI
	15-1				CDDT ONLY	# TCPI

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-85100 3 DAY 13 HRS 0' 0"					GO ONLY	
	181	16	C1TC	B1TM	SECURE TM GSE PER V-28186	XB-246-27
	121	17	CLTC	BTMC	SECURE TCE PER V-28009,	
T-84145 3 DAY 12 HRS 45' 0"						
	121	1	CLTC	CUTC	SECURE LV ELECT SUPPORT EQUIPMENT PER V-31062, APPENDIX A, REPORT WHEN COMPLETE.	
T-84100 3 DAY 12 HRS 0' 0"						
	188	1	CVTS	PA	CSM ORDNANCE OPERATIONS ARE COMPLETE. RF SILENCE IS ENDED. CONTROLLED SWITCHING ACROSS THE LV/SC INTERFACE IS ENDED. THE CONTROL AREA IS OPEN FOR NORMAL WORK EXCEPT THE SLA INTERIOR, IU & S-IVB FORWARD AREA WHICH IS RESTRICTED TO ESSENTIAL PERSONNEL ONLY FOR RCS MANIFOLD LOADING.	# TCP
	121	2	CVTS	CLTC	CHANGE THE SMDPS FROM 2 SWITCH MODE TO 2 SWITCH 1 VALVE MODE. REPORT WHEN COMPLETE.	# TCP
	121	3	CLTC	C1TC	CHANGE THE SMDPS FROM 2 SWITCH MODE TO 2 SWITCH 1 VALVE MODE. REPORT WHEN COMPLETE.	#
	181	4	C1TC	CPDC	CHANGE THE SMDPS FROM 2 SWITCH MODE TO 2 SWITCH 1 VALVE MODE. REPORT WHEN COMPLETE.	#

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-83:15 3 DAY 11 HRS 15' 0"						
	188	1	CVTS	PA	LM RCS MANIFOLD LOADING IS COMPLETE. THE CONTROL AREA IS OPEN FOR NORMAL WORK.	# TCP
T-80:30 3 DAY 8 HRS 30' 0"						
	188	1	CVTS	PA	CDDT ONLY	* TCP
	188	2	CVTS	PA	CDDT ONLY	* TCP A
T-79:30 3 DAY 7 HRS 30' 0"						
	188	1	CVTS	PA	THE CDC WILL BE RESET TO ----- AND COUNTDOWN INITIATED ON MY MARK FOR THIRD CSM LO2 TANK SERVICING 5 - 4 - 3 - 2 - 1, MARK	# TCP A XB-235-18
"HOLD"		1			NOTE ----- THE FOLLOWING SEQUENCES WILL OCCUR DURING THE HOLD.	A XB-235-18
	188	2	CVTS	PA	ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR THIRD CSM LO2 TANK SERVICING,	TOPI A
		2-1			*****WARNING***** * THE CONTROL AREA FOR * CSM LO2 TANKING AND	TOPI A

(CONTINUED)

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
"HOLD"					* PRESSURIZATION IS AN * * 1100 FOOT RADIUS AROUND * * THE SPACE VEHICLE, * * * * LV COMPUTER MAINTENANCE * * PERSONNEL ARE PERMITTED * * TO REMAIN IN ML ROOMS * * 10 AND 15A DURING CSM * * CRYO SERVICING. * * * *****	
	121	3	CVTS	CLTC	SCO PERSONNEL READY FOR SMDPS CHANGE TO 2 SWITCH MODE. REPORT WHEN COMPLETE.	TCPI A
	121	4	CLTC	C1TC	CHANGE THE SMDPS FROM 2 SWITCH 1 VALVE MODE TO 2 SWITCH MODE. REPORT WHEN COMPLETE.	A
	181	5	C1TC	CPDC	CHANGE SMDPS FROM 2 SWITCH 1 VALVE MODE TO 2 SWITCH MODE. REPORT WHEN COMPLETE.	A
"HOLD"		1			NOTE ----- THE FOLLOWING SEQUENCES ARE TO BE PERFORMED AFTER THE PAD IS CLEAR OF ALL NON-ESSENTIAL PERSONNEL,	A
	121	1-1	CVTS	CLTC	READY FOR SMDPS CHANGE TO 1 SWITCH MODE. REPORT WHEN COMPLETE.	TCPI A
	121	1-2	CLTC	C1TC	CHANGE THE SMDPS TO 1 SWITCH MODE. REPORT WHEN COMPLETE.	A
	181	1-3	C1TC	CPDC	CHANGE THE SMDPS TO 1 SWITCH MODE. REPORT WHEN COMPLETE.	A

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
"HOLD"		1			NOTE ----- THE FOLLOWING SEQUENCES WILL OCCUR APPROXIMATELY 3 HRS AFTER START OF "HOLD", BUT MAY CHANGE REAL TIME DUE TO SPACECRAFT OPERATIONS.	TCPI A
188		2	CVTS	PA	ALL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR CSM LO2 TANK PRESSURIZATION.	TCPI A
		2-1			*****WARNING***** * THE CONTROL AREA FOR * * CSM LO2 TANK * * PRESSURIZATION CONSISTS * * OF THE AREA CONFINED BY * * THE COMPLEX PERIMETER * * FENCE, * * * *****	TCPI A
"HOLD"		1			NOTE ----- THE FOLLOWING SEQUENCES WILL OCCUR APPROXIMATELY 5 HRS AFTER START OF "HOLD", BUT MAY CHANGE REAL TIME DUE TO SPACECRAFT OPERATIONS.	TCPI A
188		2	CVTS	PA	GGDT ONLY	* TCPI A
188		3	CVTS	PA	CSM LO2 CRYO PRESSURIZATION IS COMPLETE. THE CONTROL AREA, EXCEPT FOR THE SLA INTERIOR, IU & S-IVB FORWARD, IS OPEN FOR NORMAL WORK.	* TCPI A

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
"HOLD"					GO ONLY	
121		4	CVTS	CLTC	CDDT ONLY	* TCP A
121		5	CLTC	C1TC	CDDT ONLY	*A
181		6	C1TC	CPDC	CDDT ONLY	*A
121		7	CVTS	CLTC	CHANGE THE SMDPS FROM THE 1 SWITCH MODE TO THE 2 SWITCH MODE. REPORT WHEN COMPLETE.	# TCP A
121		8	CLTC	C1TC	CHANGE THE SMDPS FROM THE 1 SWITCH MODE TO THE 2 SWITCH MODE. REPORT WHEN COMPLETE.	*A
181		9	C1TC	CPDC	CHANGE THE SMDPS FROM THE 1 SWITCH MODE TO THE 2 SWITCH MODE. REPORT WHEN COMPLETE.	*A
		10	LPDC CPDC		NOTE ----- BETWEEN NOW AND START OF LV PROPELLANT LOADING, CPDC SHOULD STANDBY FOR EMERGENCY ARMING OF THE SMDPS. IN THE EVENT OF EMERGENCY EVACUATION OF THE LUT, LPDC MUST OPEN THE GN2 INLET VALVE TO THE SMDPP PRIOR TO EVACUATING. CPDC WILL TURN HIS PANEL POWER ON AT THE DIRECTION OF CVTS, CLTC OR C1TC ONLY. THIS DIRECTION WILL BE GIVEN ONLY AFTER VERIFICATION THAT IU AND SC HAVE BEEN CLEARED OF PERSONNEL.	A

5251,60
PAGE A91
TEST 20060, VOL I
VEHICLE AS-509

APOLLO/SATURN LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-79:00 3 DAY 7 HRS 0' 0"					CD ONLY	
	181	2	CCLH	C1TC	LH2 FACILITY SYSTEM PURGE IS COMPLETE.	
T-67:10 2 DAY 19 HRS 10' 0"						
	121	1	CLTC	CUTC	START LV ELECT SUPPORT PREPS PER V-31062, APPENDIX B.	
T-67:00 2 DAY 19 HRS 0' 0"						
	121	1	CVTS	CLTC	VERIFY READY FOR SERVICE ARM 9 HOOD RETRACT IN ONE HOUR.	TCP1
T-66:30 2 DAY 18 HRS 30' 0"						
	188	1	CVTS	PA	LM AND CSM GOX AND GHE SERVICING AND PROPELLANT LINE DISCONNECT IS COMPLETE. THE CONTROL AREA IS OPEN FOR NORMAL WORK.	# TCP
	121	2	CLTC	C1TC C2TC C4TC CUTC	HAZARDOUS SC HYPERGOLIC VENT LINE OPERATIONS ARE COMPLETE. THE PAD IS OPEN FOR NORMAL WORK.	#
	121	3	CVTS	CLTC	CHANGE THE SMDPS FROM 2 SWITCH MODE TO 2 SWITCH 1 VALVE MODE. REPORT WHEN COMPLETE.	# TCP

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-66130 2 DAY 18 HRS 30' 0"					CD ONLY	
	121	4	CLTC	C1TC	CHANGE THE SMDPS FROM 2 SWITCH MODE TO 2 SWITCH 1 VALVE MODE. REPORT WHEN COMPLETE.	#
	181	5	C1TC	CPDC	CHANGE THE SMDPS FROM 2 SWITCH MODE TO 2 SWITCH 1 VALVE MODE. REPORT WHEN COMPLETE.	#
T-66110 2 DAY 18 HRS 10' 0"						
	121	1	CUTC	CLTC	SUPPORT PREPS ARE COMPLETE. READY TO APPLY LSE SWITCH POWER.	
	121	2	CLTC	C1TC	APPLY SWITCH POWER AND VERIFY.	
	121	3	CLTC	CUTC	SWITCH POWER IS ON - INITIALIZE DISCRETES.	
	151	4	CUTC	BGCC	INITIALIZE DISCRETES PER V-22006 (PROGRAMS NT99 AND 98). REPORT WHEN SWITCH SCAN IS BEING DISPLAYED.	
T-66100 2 DAY 18 HRS 0' 0"						
	111	1	CLTC	CVTS	MSS PLATFORM 1 AVAILABLE FOR OPENING TO LV STA 1800.	TCPI
	121	2	CUTC	CLTC	SWITCH SCAN IS BEING DISPLAYED FOR VERIFICATION.	XB-235-18
	151	3	CUTC	CLVN	ML COMPUTER INHIBIT - AUTO	
	151	4	CUTC	CLVN	COMPUTER TEST SWITCH - ON AND VERIFY DISCRETE CYCLING.	
	151	5	CUTC	CCPM	APPLY 400 HERTZ POWER AND START REDUNDANT POWER SUPPLY PER PROCEDURE V-21222. REPORT WHEN COMPLETE.	

LV CDDT & CD, VOL 1
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

5251.60
 PAGE 94
 T-65-28060, VOL 1
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-66:00 - 2 DAY 18 HRS 01 00"						
	121	6	CLTC	C1TC	SWITCH SCAN IS BEING DISPLAYED FOR VERIFICATION. REPORT WHEN SATISFACTORY.	
	121	7	CLTC	CUTC	SWITCH SCAN IS SATISFACTORY. BRING UP COMPUTER.	
	151	8	CUTC	BGCC	ENTER S GO AND PERFORM DATA LINK SWITCH OVER PER V-22006. REPORT WHEN COMPLETE.	
	121	9	CUTC	CLTC	GROUND COMPUTER IS SUPPORTING.	
	188	10	CLTC	ALL	GROUND COMPUTER IS SUPPORTING.	
	121	11	CVTS	CLTC	DISCONNECT ENVIRONMENTAL CHAMBER FROM SC FOR BPC INSTALLATION. REPORT WHEN COMPLETE.	TCPI
	121	12	CLTC	C1TC	DISCONNECT ENVIRONMENTAL CHAMBER FOR BPC INSTALLATION. REPORT WHEN COMPLETE.	
	181	13	C1TC	CSA9	DISCONNECT ENVIRONMENTAL CHAMBER FROM SC FOR BPC INSTALLATION. REPORT WHEN COMPLETE	
T-65:45 - 2 DAY 17 HRS 45 00"						
	181	1	CSA9	C1TC	ENVIRONMENTAL CHAMBER HAS BEEN DISCONNECTED.	
	121	2	C1TC	CLTC	ENVIRONMENTAL CHAMBER HAS BEEN DISCONNECTED.	
	111	3	CLTC	CVTS	ENVIRONMENTAL CHAMBER HAS BEEN DISCONNECTED.	TCPI
T-65:00 - 2 DAY 17 HRS 01 00"						
	121	1	CVTS	CLTC	MSS PLATFORM 1 IS OPEN AND SECURE.	TCPI

5251.60
PAGE A95
TV-20060, VOL 1
VEHICLE AS-309

3251,60
PAGE A97
20060, VOL I
VEHICLE AS-509

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
						
T-52:00 2 DAY 4 HRS 0' 0"						
181		1	C1TC	LHDA	VERIFY CRD PRELOAD OPERATIONS COMPLETE.	#
T-51:30 2 DAY 3 HRS 30' 0"						
181		1	C1TC	CCLO	START TOTAL LOX SYSTEM DEWPOINT CHECKS PER V-25344.	
121		2	C1TC	C2TC	VERIFY PERSONNEL AVAILABLE TO MONITOR S-II LOX TANK PRESSURE IN SUPPORT OF LOX SYSTEM DEWPOINT CHECKS.	
171		3	C2TC	U24A	MONITOR S-II LOX TANK PRESSURE DURING BOEING LOX SYSTEM DEWPOINT CHECKS.	
T-51:00 2 DAY 3 HRS 0' 0"						
171		1	C2TC	U2EC	START S-II ECS INSPECTION & VERIFICATION PER V-30029 (M020) TASK 11. REPORT WHEN COMPLETE.	
T-50:30 2 DAY 2 HRS 30' 0"						
171		1	U2EC	C2TC	S-II ECS INSPECTION IS COMPLETE.	
T-50:00 2 DAY 2 HRS 0' 0"						
181		1	C1TC	LEBS	SCAN EMERGENCY BACKUP BATTERY CELLS AND RECHARGE AS REQUIRED PER V-21439. REPORT WHEN COMPLETE.	
121		2	CUTC	CLTC	IU ENGINEERING WALKAROUND IS COMPLETE.	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

3251,00
 PAGE 99
 TSS-26060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-48:30 - 2 DAY 30' 0"	188	1	CVTS	PA	ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR LM SHE SERVICE OPERATIONS.	TCPI
		1-1			*****WARNING***** * * THE CONTROL AREA FOR LM * * SHE SERVICE CONSISTS OF * * THE LM DESCENT AREA * * INTERNAL TO THE SLA, * * IU AND S-IVB FORWARD * * *****	TCPI
T-47:00 1 DAY 23 HRS 0' 0"	121	1	CVTS	CLTC	OIS AND PHONES ARE BEING DISCONNECTED FROM FALLBACK TRAILERS (CD ONLY).	TCPI
T-45:00 - 1 DAY 21 HRS 0' 0"	111	1	CLTC	CVTS	VERIFY MSS PLATFORM 2 IS BELOW STATION 2900 (FOR THEODOLITE CHECKS)	TCPI
	188	2	CVTS	PA	LM SHE INITIAL FILL IS COMPLETE. THE CONTROL AREA IS OPEN FOR NORMAL WORK.	TCPI
	151	3	CUTC	SUVM	START INITIAL INSTALLATION OF IU THERMAL ISOLATION BOTTOM SHROUDS PER V-31062, PART II.	
T-44:00 - 1 DAY 20 HRS 0' 0"	181	1	CLTC	L1LS	START FIRST LUT WALKDOWN. REPORT WHEN COMPLETE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-44:00 - 1 DAY 20 HRS 0' 0"		1-1			LV-QAL PARTICIPATION REQUIRED.	
T-43:00 - 1 DAY 19 HRS 0' 0"						
	151	1	CUTC	LGCC	VERIFY SYSTEM CONFIGURED TO START ML DCE SELF TEST.	
		1-1			*****CAUTION***** * * DO NOT PERFORM ML DCE * * TEST UNTIL VERIFICATION * * TO PROCEED HAS BEEN * * OBTAINED FROM CLTC. * * *****	
	121	2	CUTC	CLTC	READY TO START ML DCE TEST; REQUEST ALL ML GROUND POWER BE REMOVED;	
	111	3	CLTC	CVTS	DELUGE PURGE PANEL WILL BE POWERED DOWN FOR THE NEXT 30 MINUTES. DELUGE PURGE CAPABILITY WILL BE AVAILABLE WITHIN 30 SECONDS IF NEEDED.	TCPI
	121	4	CLTC	C1TC	SECURE 42D100 POWER.	
	181	5	C1TC	CSPP	SECURE 42D100 POWER PER V-21194.	
	121	6	CLTC	C1TC C2TC C4TC CUTC	VERIFY ALL ML GROUND POWER IS REMOVED.	
	151	7	CUTC	CCPM	POWER OFF 400 HZ POWER. REPORT WHEN COMPLETE.	
	151	8	CUTC	CLVN	ML DCE TO COMPUTER MODE VERIFY MTOAD INDICATION IS OFF ML COMPUTER INHIBIT -- AUTO	
	121	8-1	CLTC	C1TC C2TC C4TC CUTC	REQUEST PURGE BOX VALIDATION STATUS.	XB-235-18
	121	8-2	CVTS	CLTC	REQUEST PURGE BOX VALIDATION STATUS.	TCPI XB-235-18

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

5251.60
 PAGE 101
 TSS-20.060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
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T-43:00
 - 1 DAY
 19 HRS
 0' 0"

121		9	CLTC	CUTC	START ML DCE CHECKOUT.	
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9-1

CLTC
 CLVN
 CSPP

NOTE

DURING ML DCE CHECKOUT,
 CLVN AND CSPP WILL RESPOND
 AS FOLLOWS UPON COMMAND
 FROM CLTC TO RESTORE DELUGE
 PURGE SYSTEM:

1. CLVN - ML DCE SEQUENCER
 POWER - OFF
2. CSPP - APPLY 42D100
 POWER.

151		10	CUTC	LGCC	START DCE SELF TEST.	
-----	--	----	------	------	----------------------	--

171		11	C2TC	U2MU	START S-II PREPS FOR RELEASE SENSOR CHECKS (V-31045) PER V-30029 (M020) TASK 24. REPORT WHEN COMPLETE.	
-----	--	----	------	------	--	--

T-42:30
 - 1 DAY
 18 HRS
 30' 0"

151		1	LGCC	CUTC	ML DCE SELF TEST IS COMPLETE.	
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151		2	CUTC	CLVN	ML DCE TO MANUAL MODE.	
-----	--	---	------	------	------------------------	--

151		3	CUTC	CLVN	APPLY 400 HZ POWER. REPORT WHEN COMPLETE.	
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121		4	CUTC	CLTC	ML DCE CHECKOUT IS COMPLETE.	
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121		5	CLTC	C1TC	APPLY 42D100 POWER.	
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181		6	C1TC	CSPP	APPLY LSE 42D100 POWER PER V-21194. COMPLETE.	
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LV CDDT & CD, VOL 1
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

5251.00
 PAGE 102
 TAB-20060, VOL 1
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-42:30 - 1 DAY 18 HRS 30' 0"	111	7	CLTC	CVTS	DELUGE PURGE PANEL IS POWERED UP	TCPI
	181	8	L1LS	C1TC	LUT WALKDOWN COMPLETE.	
		8-1			VERIFICATION BY LV-GAL -----	
T-41:30 - 1 DAY 17 HRS 30' 0"	181	1	CCLO	C1TC	TOTAL LOX SYSTEM DEWPOINT CHECKS PER V-25344 ARE COMPLETE.	
	171	2	C1TC	C2TC	LOX SYSTEM DEWPOINT CHECKS COMPLETE. S-II LOX TANK PRESSURE MONITOR NO LONGER REQUIRED.	
T-41:00 - 1 DAY 17 HRS 0' 0"	188	1	CVTS	PA	ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR CSM CRYO SERVICING.	TCPI
		1-1			*****WARNING***** * * THE CONTROL AREA FOR * * CSM LO2 AND LH2 TANKING * * AND PRESSURIZATION IS * * AN 1100 FOOT RADIUS * * AROUND THE SPACE * * VEHICLE. * * * LV COMPUTER MAINTENANCE * * PERSONNEL ARE PERMITTED * * TO REMAIN IN ML ROOMS * * 10 AND 15A DURING CSM * * CRYO SERVICING. * * *****	TCPI

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-41:00	- 1 DAY	17 HRS	0' 0"			
121	2	CVTS	CLTC		SCD PERSONNEL READY FOR SMDPS CHANGE TO 2 SWITCH MODE. REPORT WHEN COMPLETE.	TCPI
121	3	CLTC	C1TC		SCD PERSONNEL READY FOR SMDPS TO BE PUT IN THE TWO SWITCH MODE. REPORT WHEN COMPLETE.	
181	4	C1TC	CPDC		CHANGE SMDPS FROM 2 SWITCH 1 VALVE MODE TO 2 SWITCH MODE. REPORT WHEN COMPLETE.	
	1				NOTE ---- THE FOLLOWING SEQUENCES ARE TO BE PERFORMED AFTER THE PAD IS CLEAR OF ALL NON-ESSENTIAL PERSONNEL.	
121	1-1	CVTS	CLTC		READY FOR SMDPS CHANGE TO 1 SWITCH MODE. REPORT WHEN COMPLETE.	TCPI
121	1-2	CLTC	C1TC		CHANGE THE SMDPS TO 1 SWITCH MODE. REPORT WHEN COMPLETE.	
181	1-3	C1TC	CPDC		CHANGE THE SMDPS TO 1 SWITCH MODE. REPORT WHEN COMPLETE.	
	1				NOTE ---- THE FOLLOWING SEQUENCES WILL OCCUR AT APPROXIMATELY T-1 DAY 9 HRS, BUT MAY CHANGE REAL TIME DUE TO SPACECRAFT OPERATIONS.	TCPI #
186	2	CVTS	PA		ALL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR CSM LOX AND LH2 TANK PRESSURIZATION.	* TCPI

APOLLO/SATURN LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CD ONLY	
		2-1			*****WARNING***** * * THE CONTROL AREA FOR * CSM LO2 AND LH2 TANK * PRESSURIZATION CONSISTS * OF THE AREA CONFINED BY * THE COMPLEX PERIMETER * FENCE. * *****	# TCPI
		1			NOTE ---- THE FOLLOWING SEQUENCES WILL OCCUR AT APPROXIMATELY T-1 DAY 8 HRS, BUT MAY CHANGE REAL TIME DUE TO SPACECRAFT OPERATIONS.	TCPI
184		2	CVTS	PA	CDDT ONLY	* TCPI
182		3	CVTS	PA	CSM LO2 AND LH2 CRYO PRESSURIZATION IS COMPLETE. THE CONTROL AREA, EXCEPT FOR THE SLA INTERIOR, CM INTERIOR, IU & S-IVB FORWARD, IS OPEN FOR NORMAL WORK.	# TCPI
121		4	CVTS	CLTC	CHANGE THE SMDPS FROM 1 SWITCH MODE TO 2 SWITCH 1 VALVE MODE, REPORT WHEN COMPLETE.	TCPI
121		5	CLTC	CLTC	REQUEST CPDC TURN PANEL POWER OFF TO DISARM THE GN2 DELUGE SYSTEM AND CLOSE GN2 INLET HANDVALVE (2 SWITCH 1 VALVE MODE), REPORT WHEN COMPLETE.	
181		6	CLTC	CPDC	TURN PANEL POWER OFF TO DISARM THE GN2 DELUGE SYSTEM AND CLOSE GN2 INLET HANDVALVE. VERIFY SMDPS IN 2 SWITCH 1 VALVE MODE.	

LV CDDT & CD, VOL I
 DATE: NOVEMBER 18, 1970
 REVISION 024

APOLLO/SATURN LAUNCH OPERATIONS

5251.60
 PAGE A105
 TEST 20060, VOL I
 VEHICLE AS-509

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
		6-1		LPDC CPDC	NOTE ----- BETWEEN NOW AND START OF LV PROPELLANT LOADING, CPDC SHOULD STANDBY FOR EMERGENCY ARMING OF THE SMDPS, IN THE EVENT OF EMERGENCY EVACUATION OF THE LUT, LPDC MUST OPEN THE GN2 INLET VALVE TO THE SMDPP PRIOR TO EVACUATING. CPDC WILL TURN HIS PANEL POWER ON AT THE DIRECTION OF CVTS, CLTC OR CLTC ONLY. THIS DIRECTION WILL BE GIVEN ONLY AFTER VERIFICATION THAT IU AND SC HAVE BEEN CLEARED OF PERSONNEL.	
7-29115 1 DAY 3 HRS 15 ON	188	7	CVTS	PA	LM RCS FINAL MANIFOLD LOADING IS COMPLETE. THE SLA INTERIOR, IU AND S-1VB FORWARD AREAS ARE OPEN FOR NORMAL WORK.	# TCP
7-29100 1 DAY 3 HRS 01 ON	161	1	CLTC	S4MA	START FLIGHT BATTERY PREPS FOR TRANSFER TO PAD PER V-30539 SECT H.	#
	261	1	CLTC	BOSC	VERIFY FOUR SCOTT AIR PACKS IN TBC TRAILER 009 FOR BATTERY REMOVAL CREW.	# TCP
	121	2	CVTS	CLTC	CDDT ONLY	# TCP

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-29:00					CDDT ONLY	
1 DAY						
5 HRS						
0' 0"						
121		3	CLTC	C4TC	CDDT ONLY	*
161		4	C4TC	S4MF	CDDT ONLY	*
T-28:30						
1 DAY						
4 HRS						
30' 0"						
262		1	CLTC	BTIS	VERIFY TWA FIRE DEPARTMENT IS ON STANDBY AT PAD SURFACE WITH EMERGENCY EQUIPMENT FOR FLIGHT BATTERY INSTALLATION.	* TCPI
121		2	CLTC	C2TC C4TC CUTC	TWA FIRE DEPARTMENT IS ON STANDBY AT PAD SURFACE WITH EMERGENCY EQUIPMENT. START BATTERY TRANSFER OPERATIONS.	*
151		3	CUTC	CUNE PUPL	VERIFY IU BATTERY ACTIVATION COMPLETE AND TRANSFER BATTERIES TO PAD,	*
161		4	C4TC	S4CE S4MA	VERIFY S-IVB FLIGHT BATTERY ACTIVATION, COMPLETE AND TRANSFER BATTERIES TO PAD,	*
171		5	C2TC	G2NP	VERIFY S-II FLIGHT BATTERY ACTIVATION COMPLETE AND TRANSFER BATTERIES TO PAD,	*
T-28:00						
1 DAY						
4 HRS						
0' 0"						
188		1	CLTC	ALL	ALL PERSONNEL PROCEED WITH LV COUNTDOWN ON PAGE 31 OF VOLUME II,	
END OF TEST PROCEDURE V-20060, VOL I						

RELEASED PROCEDURE DISTRIBUTION

VOLUME

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TAYLOR, C.	AA-SVO-1	7
BLACKWOOD, H.	AA-SVO-3, HQD 3106	14
NIMS, W. Z.	DD-MDD-4	4
SMITH, W. L.	DF-PI0-1	11
ROSS, M.	DO-KSC, HQS 4TH FLOOR	1
KALISHEK, CAPT.	DOOT	1
TAYLOR, MAJOR	ETOSO	3
HARLAN, C.	FC-MSC, AIR EXPRESS	5
MOORE, ROB	I-MO-0, BLDG 4663 MSFC	35
BRIDWELL, C. R.	IN-MSD-32, LCC 2P11	10
COONCE, J. M.	IN-TEC, CIF 392	40
LOVAN, J. G.	IS-ODC-2A, LCC 1R4	2
DALEY, R. C.	IS-PEM	1
RAFAANELI, L. R.	IS-PEM-42, LCC 1P10	1
HARDIN, D. W.	IS-TSM, HQS 3903	1
MOSER, R. E.	LA-PLN, O&C 2038	1
NETHERTON, C. B.	LA-PLN-3, O&C 2041	2
TEST SUPERVISORS	LCC 4P12	7
BLUM, F. W.	LS-ENG-7	1
SCHILER, M.	LS-ENG-22, O&C 3293	1
GRUENE, DR. H.	LV, O&C 2032	2
RIGELL, T. A.	LV-R, O&C 2032	2
PAUL, H. C.	LV-CAP, VAB MM12	3
LEALMAN, R. E.	LV-GDC, O&C 2010	2
CHAMBERS, M.	LV-GDC-1, VAB MM3	12
CHANDLER, W. O.	LV-GDC-2, LCC 2R26	3
WHITESIDE, C. A.	LV-GDC-3, VAB 2D10	9
KELLY, D.	LV-GDC-4, LCC 2R26	6
OVERSTREET, C. F.	LV-GDC-22, LCC 2R26	3
JONES, D. R.	LV-GDC-23, LCC 2R26	4
CLAY, R. P.	LV-GDC-24, LCC 2R26	3
DAVIS, L. R.	LV-GDC-25, VAB 10E19	3
SUMNER, K. W.	LV-GDC-26, LCC 2R26	5
MC CREARY, M. E.	LV-GDC-27, LCC 2R26	5
WHEELER, W. P.	LV-GDC-28, VAB 6D24	3
REGISTER, B. J.	LV-GDC-31, VAB 3D6	1
HARPER, R. Z.	LV-GDC-31, VAB 3D8	3
PERKINSON, J. A.	LV-GDC-32, VAB 3D6	5
ELY, G. W.	LV-GDC-33, VAB 3D6	2
MURRAY, G.	LV-GDC-33, VAB 3D5	1
EDWARDS, M. D.	LV-INS, O&C 2121	4
HUFFMAN, R. R.	LV-INS, O&C 2121	1
CONAHAN, J. D.	LV-INS-4, LCC 2R19	1
MC NATHAN, D.	LV-INS-11, LCC 2R25	1
FITZGERALD, J. J.	LV-INS-2, LCC 2R23	3
BIZZELL, J. S.	LV-INS-11, LCC 2R23	2
BLANCHARD, L. C.	LV-INS-12, LCC 2R23	2
WATT, J. D.	LV-INS-12	2
GRUNENFELDER, A. C.	LV-INS-13, LCC 2R23	13
RALEY, F. O.	LV-INS-21, VAB 27E10	5
JORDAN, A. E.	LV-INS-22, LCC 2R23	3
FANNIN, L. E.	LV-MEC, O&C 2014	1
SCOVILLE, D. A.	LV-MEC-1, LCC 2R12	17
HUMPHREY, J. T.	LV-MEC-2, LCC 2R12	15
CORN, G. F.	LV-MEC-3, LCC 2R11	6
DELA ROSA, W. J.	LV-MEC-11, LCC 2R12	1
ROBINSON, G. H.	LV-MEC-12, LCC 2R12	2
OHARA, A.	LV-OMD, O&C 2022	6
OBLESARY, T. L.	LV-OMD-1, LCC 2R17	1
YOUNG, R. E.	LV-OMD-3, LCC 2R18	5
WILLIAMS, M. C.	LV-PLN-1, O&C 2006	1
COOK, H. D.	LV-PLN-13A	2
PRIDDY, E.	LV-DAL-1	2
ARBOTT, R. G.	LV-DAL-5, VAB 2288	9
OSWALD, D. P.	LV-DAL, O&C 2111	3
MADERY, G. L.	LV-DAL-4, O&C 2112	2
BELL, J. H.	LV-TMO-A, LCC 2R18	8
MC PHERSON, G.	MAS, NASA HQS, ZIP 20546	1
HICKEY, W. P.	MAS-4, NASA HQS, ZIP 20546	1
MSFC REPOSITORY	MS-D, MSFC	1
LEE, C. M.	MSO 1321	2
(MISSION DIRECTOR)		
CAHALAN, P. S.	BOX 2500, DAYTONE BEACH OPS	1
RANGE OPERATIONS	RCC-CKAPS, M/U 5050	2
KING, J.	PA-M18, KSC M7 657	1
WILLIAMS, F. E.	PM-KM-L	8
KIMERY	PM-MO-E	1
KEYES, P.	PM-SAT-A	1
SELLS, H. R.	S&E-ASTN-SO	4
JONES, B.	S&E-ASTR-SI	5
SMITH, R.	S&E-CSE-L	5
MC GOUGH, J. T.	SF-OPN	1
MOSES, C. S.	SO-OPN	1
PYLES, W. R.	SO-OPN-1, LCC 1P12A	1
BRANTLEY, R. A.	SO-OPN-2, LCC 1R18A	1
COOK, J. P.	SO-TSD-402, LCC 1P9	3
PENLAND, D. T.	TS-NTS-2	2
BARFUS, J. N.	TS-TSM-9, LCC 1R15	2
DICKINSON, W.	LCC 2R18	1
DOHLING, J. E.	(GUSE) KSC MS 1494	2

SUPPORT CONTRACTORS

AMES, M. H.	BEN 2100 (BENDIX)	3
ANDERSON, B. C.	VAB 3N9 (ROCKETDYNE)	7
COMPTON, H.	BEN-2350 (BENDIX)	5
CONRAD, H.	LCC 2P23 (CCSD)	5
DABLADO, L. A.	VAB 2N7 (ROCKETDYNE)	3
HARRIS, B. J.	THA 2222, LCC 1P25	3
JANES, L. B.	VAB 3A8 (TECH)	2
LUCKETT, A. W.	LCC 1R148 (PEC)	5
MOMENRY, J.	MSFC-4788-T1 (GE)	2
ODELL, H.	LCC 3A (CCSD)	1
REED, B.	BEN 2500 (BENDIX)	8
SMITH, R. K.	VAB 10E11 (RE)	

STAGE CONTRACTORS

CLOYD, L.	ZK-49 (NR)	2
JARED, L.	DEPT 817, ZK28 (NR LV) VAB	135
BROWN, D.	VK-23, VAB 2789 (MDC)	130
ROSS, J. C.	VAB 2D5 (IBM)	125

BOEING

YANCEY, J. L.	LCC 2P26	10
ADAMS, R. H.	VAB 6D17	10
BAGGETT, J. A.	VAB 6D15	16
BROWN, W. C.	VAB 2D9	1
CALVETTO, R. S.	VAB 6D15	7
CATER, R. B.	VAB 2E7	3
CHANDLER, J. W.	VAB 2L8	3
DREYER, W. F.	VAB 2E7	2
ECKHOFF, J. L.	VAB 2E7	4
FRIEND, C.	VAB 2D9	1
GEORGE, J. A.	VAB 2E9	20
HARDCASTLE, W. S.	VAB 6B20	1
HARR, G. A.	VAB 1E29	6
HENDERSON, H. H.	VAB 6B13	14
HOLLAND, R. E.	VAB 2P19	2
HOLMES, K. C.	VAB 2L2	6
LOONEY, J. H.	VAB 6B16	1
LUNDY, J. H.	VAB 2E6	18
LYONS, B. P.	VAB 6B23	6
MC CRANEY, J. L.	VAB 7B13	2
MC INNIS, F. W.	VAB 2L10	20
NEAL, E. T.	VAB 2L9	3
O'NEIL, J.	VAB 6D18	10
SACK, A.	VAB 3E9	1
SAUBER, P. T.	VAB 3E9	2
SCOTT, N. W.	VAB 6B23	7
STEPHENS, G. H.	VAB 3L15	2
YALOW, D.	VAB 2B12	6
WISSE, D. L.		
YANCEY, J. T.	VAB 6D7	9
ZVZAK, E. E.	VAB 2L1	1
BURKET, B. B.	X6-1045 RM 126	1
CORBRIDGE, L. R.	VAB 2L3	6
DARROW, R. W.	LT-04 MICHOD	3
FOSTER, E. T.	TA-01 MTF	1
GERHARDT, E. D.	HTVL JD-78	1
JONES, L. G.	MICHOD LT-54	2
KIRBY, J. H.	MOBA PP-53	2
KUYKENDALL, M.	VAB 3L19C	1
LARSON, G.	OAC 2023	1
CHAMBLEE, B.	MSFC	MA-04
OWENS, J. D.	VAB 2L3	10
SCHINDLER, D. H.	HTVL AG-80	1
TRC FILE	VAB 3V1	5
WEINBERG, D. B.	OAC 2023	1

NOTE

TO ARRANGE CORRECTIONS,
CHANGES, ADDITIONS OR
DELETIONS, PLEASE SUBMIT AN
AVO TO LV-040-1, LCC 2R17.

DELIVER ALL EXTRAS TO LCC 2R17.

DELIVER ORIGINALS TO VAB 2L3 (J. C. REED)

LIST REVISED 1/14/71