



**JOHN F. KENNEDY
SPACE CENTER**



AS - 202

11 AUGUST 1966

Revision B

LAUNCH VEHICLE COUNTDOWN

7-LSVIB-200

APOLLO SATURN IB

LAUNCH VEHICLE

LAUNCH COUNTDOWN

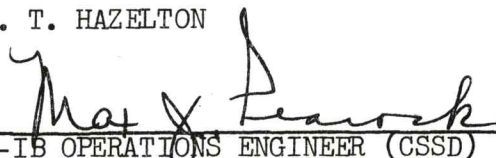
TEST NO. 7-LSVIB-200

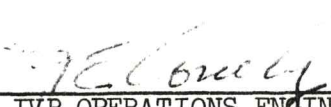
AS-202

REVISION B

PREPARED BY: J. T. HAZELTON

APPROVALS:


S-IB OPERATIONS ENGINEER (CSSD)


S-IVB OPERATIONS ENGINEER (DAC)


IU OPERATIONS ENGINEER (IBM)


LV CHIEF TEST CONDUCTOR (NASA)

AUGUST 11, 1966

LAUNCH OPERATIONS TEST

Page 3

1. TITLE: LV Launch Countdown		2. TEST NUMBER 7-LSVIB-200
		3. Saturn IB Program
4. OBJECTIVES: To provide a sequence of operations which will prepare the Launch Vehicle for flight. This is accomplished in conjunction with Spacecraft Operations. To provide an operational interface for external related functions such as other elements of KSC, ETR, etc.		
5. TEST DESCRIPTION: The launch vehicle ordnance initiators are installed and connected and final propulsion checks are made during Part I. Part II consists of battery installation, G&C, and RF & TM checks are run in connection with power transfer test. Range Safety Command checks and Propellant Dispersion S&A connection is completed prior to propellant loading and Service Structure removal. Spacecraft closeout follows propellant tanking, and continues to the terminal countdown where all systems are brought to operating conditions for Liftoff.		
6. STATUS: All prelaunch testing has been completed satisfactorily. Ordnance has been installed. RP-1 has been tanked on S-IB Stage, APS propellants have been loaded on S-IVB Stage.		
7. PREPARED BY: <i>E M Sestil</i>	9. NASA SYSTEMS ENGINEER	11. DATE December 16, 1965
8. CONTRACTOR GROUP ENGINEER	10. NASA SYSTEMS SUPERVISOR <i>J M Twigg</i>	12. CONTRACTOR REFERENCE NR.

L/V COUNTDOWN
DATE: 11 AUGUST 1966
REVISION B

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE I
TEST NO. 7-LSVIB-200
VEHICLE AS-202

TABLE OF CONTENTS

	PAGE
SUPPORT REQUIREMENTS.....	II
ENGINE CUTOFF AND EMERGENCY OPERATIONS.....	I
COMPLEX 34 COMMUNICATIONS.....	4
OIS CHANNEL ASSIGNMENTS.....	6
STATION DESIGNATIONS.....	8
TV CAMERA LOCATIONS.....	15
PAD ACCESS CONTROL.....	18
TM FREQUENCIES.....	19
RF FREQUENCIES.....	20
COUNTDOWN BARCHART.....	21
PART I - PRELAUNCH PREPARATIONS.....	22
PART II - LAUNCH COUNTDOWN.....	41
RECYCLE PROCEDURES.....	117
COMPUTER FAILURE RECOVERY PROCEDURE.....	125
SCRUB PROCEDURE AFTER CRYOGENIC LOADING.....	127

APOLLO/SATURN
LAUNCH OPERATIONS

SUPPORT REQUIRED

THE FOLLOWING SUPPORT WILL BE REQUIRED FOR THE TEST AND
SHOULD BE AVAILABLE TO SUPPORT THE LAUNCH VEHICLE
THROUGH-OUT THE TEST.

ETR SEQUENCER

ETR COUNTDOWN CLOCK

CRITICAL POWER

PAD SAFETY

RANGE RF AND TM

RANGE COMMAND TRANSMITTER

S. R. O.

R. S. O.

SEARCH LIGHTS

FIRE SUPPORT

MEDICAL SUPPORT

SECURITY POLICE

FOOD SERVICE

CIF DATA

CIF TM GROUND STATION

CIF REAL TIME COMPUTER

CCF

INS MEASURING

OTV

OIS

PHOTO

WEATHER STATION

SERVICE STRUCTURE

APOLLO/SATURN
LAUNCH OPERATIONS

ENGINE CUTOFF AND EMERGENCY OPERATIONS

1. FIRING PANEL CUTOFF (EMERGENCY CUTOFF)

CUTOFF FROM THE FIRING PANEL (C1FR) SHOULD BE INITIATED ONLY IN A SITUATION WHERE A TURBINE SPINNER SQUIB INADVERTENTLY IGNITES PRIOR TO THE IGNITION COMMAND. (FOR DETAILED PROCEDURE SEE "EMERGENCY PROCEDURE" INCORPORATED IN THE LAUNCH COUNTDOWN.) THIS CUTOFF WILL FIRE THE CONAX VALVE SQUIBS AND CLOSE THE PREVALVES

2. NETWORK PANEL CUTOFF

ONCE LAUNCH SEQUENCE START HAS BEEN INITIATED AT T-2'45" AND THE AUTOMATIC SEQUENCE BEGINS, IT IS NECESSARY TO GIVE CUTOFF FROM THE NETWORK PANEL (C1NP) TO STOP THE SEQUENCE AND INTERRUPT THE ASSOCIATED FIRING CIRCUITRY. THIS CUTOFF WILL NOT FIRE THE CONAX VALVE SQUIBS NOR CLOSE THE PREVALVES UNLESS IGNITION COMMAND HAS BEEN INITIATED. (FOR DETAILED PROCEDURE SEE "EMERGENCY PROCEDURE" INCORPORATED IN THE LAUNCH COUNTDOWN)

APOLLO/SATURN
 LAUNCH OPERATIONS

3. AUTOMATIC MALFUNCTION CUTOFFS

* TYPE * OF * CUTOFF	* ACTIVE		* DESCRIPTION
	* FROM	* TO	
* PREMATURE * COMMIT	* POWER ON	* TIME FOR * COMMIT	* THIS CIRCUIT WILL DETECT PRE- * MATURE VOLTAGE ON THE +1D14 BUS.
* SEQUENCE * FAILURE	* TIME FOR * IGNITION	* IGNITION * COMMAND	* THIS CUTOFF WILL COME AT * "TIME FOR IGNITION" IF ANY ONE * OR MORE OF THE PREREQUISITES IN * THE "READY FOR IGNITION" CHAIN * IS NOT MET.
* S-IB VOLTAGE * FAILURE	* IGNITION * COMMAND	* COMMIT	* THIS CIRCUIT DETECTS LOSS OF * THE S-IB BUSES.
* S-IVB FAILURE	* IGNITION * COMMAND	* COMMIT	* THIS CUTOFF WILL BE INITIATED * IF ANY ONE OR MORE OF THE * "LAUNCH" ARE NOT MET BY THE TIME * S-IB IGNITION COMMAND OCCURS.
* IU FAILURE	* IGNITION * COMMAND	* COMMIT	* THIS CUTOFF WILL BE INITIATED * IF ANY OF THE PREREQUISITES IN * THE "IU READY" CHAIN ARE NOT MET * BY THE TIME S-IB IGNITION OCCURS.
* FIRE * DETECTION	* IGNITION * COMMAND	* COMMIT	* THIS CIRCUIT WILL INITIATE * CUTOFF IF THERMOCOUPLES MOUNTED * ON THE FIRE WALL DETECT A * PREDETERMINED RATE OF HEAT RISE.
* THRUST * FAILURE	* TIME FOR * COMMIT	* COMMIT	* THIS CIRCUIT WILL INITIATE * CUTOFF IF ANY ONE OR MORE OF THE * S-IB ENGINES IS NOT RUNNING BY * "TIME FOR COMMIT".
* LAUNCH * FAILURE	* IGNITION * COMMAND	* LIFTOFF	* THIS CIRCUIT WILL INITIATE * CUTOFF 8 SECONDS AFTER IGNITION * IF THE VEHICLE HAS NOT LIFTED * OFF BY THIS TIME. (NOMINAL * TIME IS APPROXIMATELY 3.4").

APOLLO/SATURN
LAUNCH OPERATIONS4. PRIMARY (60 CYCLE AC) POWER FAILURES

A MOMENTARY LOSS OF AC POWER (CAPE CRITICAL) WILL CAUSE ALL DC POWER SUPPLIES TO DROP OUT; HOWEVER, BACKUP BATTERIES (160 AMPERE-HOUR) ACROSS THE DC POWER SUPPLY OUTPUT LINES PROVIDE 28 VDC POWER FOR MAINTAINING THE VEHICLE IN A SAFE CONDITION. DURING ANY EXTENDED LOSS OF AC POWER, ANY UNNECESSARY LOADS WILL BE REMOVED FROM THE BUSES.

APOLLO/SATURN
LAUNCH OPERATIONS

COMPLEX 34 COMMUNICATIONS

PAGING:

COMPLEX PA SYSTEM:

TO BE UTILIZED FOR ADMINISTRATIVE PHONE CALL
ANNOUNCEMENTS, "T" COUNT ANNOUNCEMENTS, PAGING
SPECIFIC PERSONNEL TO A HEADSET CHANNEL,
OPERATIONAL & EMERGENCY ANNOUNCEMENTS, AND FOR
PAD NORCOM REQUEST ANNOUNCEMENTS.

NOTE: THE INTERCOM SYSTEM IS PARALLEL TO THE
---- PA SYSTEM. DEPRESSING EITHER THE I/C OR
PA BUTTON WILL OVERRIDE THE ADMINISTRATIVE
PAGING SYSTEM.

TEST CONDUCTOR PAGING SYSTEM:

A PAGING SYSTEM WHICH IS INTERNAL TO THE BLOCKHOUSE,
USED BY THE TEST SUPERVISOR, LAUNCH VEHICLE TEST
CONDUCTOR, AND THE SPACECRAFT TEST CONDUCTOR.
THIS SYSTEM IS USED TO RELAY INFORMATION TO PERSONNEL
WITHIN THE BLOCKHOUSE.

NORCOM: (OIS)

THE TEST AND CHECKOUT OPERATIONAL COMMUNICATIONS ARE
UTILIZED AS ASSIGNED OR INDICATED IN THE
PROCEDURE FOR THE TEST OPERATIONS. TEST
SUPERVISORY PERSONNEL SHOULD ALWAYS BE AVAILABLE
IN THE FOLLOWING CIRCUITS.

S-IB OPERATIONS ENGINEER (CHRYSLER) - BK5
S-IVB OPERATIONS ENGINEER (DOUGLAS) - BK6
INSTRUMENT UNIT OPERATIONS ENGINEER (IBM) - BL4
LAUNCH VEHICLE TEST CONDUCTOR (NASA-LVO) - BK1
SPACE VEHICLE TEST SUPERVISOR (NASA-DLO) - BK2, SRO
SPACE CRAFT TEST CONDUCTOR (NASA-SCO) - BK3

RANGE PHONE: (SRO)

A SPECIAL COMMUNICATIONS NETWORK IS ESTABLISHED
BETWEEN THE TEST SUPERVISOR AND THE EASTERN TEST
RANGE SUPERVISOR OF RANGE OPERATIONS.

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

**APOLLO/SATURN
LAUNCH OPERATIONS**

PAGE
TEST NO.
VEHICLE

5
7-LSVIB-200
AS-202

NOTE: THE SRO HAS ACCESS TO DIS CHANNELS BK1, BK2, BK3,
---- GY1 & GR5. THE TEST SUPERVISOR WILL REQUEST THE
SRO TO SWITCH TO ONE OF THESE CHANNELS WHEN HIS
ACTIVE PARTICIPATION IS REQUIRED.

APOLLO/SATURN
LAUNCH OPERATIONS

NORCOM CHANNEL ASSIGNMENTS

CHANNEL		PRIMARY FUNCTION
*BLACK 1	(BK1)	LV TEST CONDUCTOR
*BLACK 2	(BK2)	TEST SUPERVISOR & PAD SAFETY
*BLACK 3	(BK3)	SC TEST CONDUCTOR
BLACK 4	(BK4)	CSM PROJECT ENGINEER
BLACK 5	(BK5)	S-IB OPERATIONS ENGINEER
BLACK 6	(BK6)	S-IVB OPERATIONS ENGINEER
*BLACK 7	(BK7)	COMPLEX CONTROL CENTER
RED 1	(RD1)	S-IB VEHICLE MECH
RED 2	(RD2)	S-IVB PROPULSION
RED 3	(RD3)	IU VEHICLE MECH
RED 4	(RD4)	S-IB & SUPPORT MECH. GSE
RED 5	(RD5)	ENVIRONMENTAL CONTROL SYSTEM
RED 6	(RD6)	LV PROPELLANTS
BLUE 1	(BL1)	S-IB VEHICLE ELECTRICAL
BLUE 2	(BL2)	S-IVB VEHICLE ELEC/MECH
BLUE 3	(BL3)	COMPLEX SUPERVISOR
BLUE 4	(BL4)	IU OPERATIONS ENGINEER, IU VEHICLE ELECTRICAL, AND IU GRD NETWORKS
*BLUE 5	(BL5)	LV GROUND ELECTRICAL & TROUBLE SHOOTING
YELLOW 1	(YW1)	LV STABILIZER & ALIGNMENT
YELLOW 2	(YW2)	LV FLIGHT CONTROL
YELLOW 3	(YW3)	LV FLIGHT COMPUTER
YELLOW 4	(YW4)	GROUND COMPUTER
BROWN 1	(BR1)	S-IB MEASURING

APOLLO/SATURN
LAUNCH OPERATIONS

BROWN 2	(BR2)	S-IVB MEASURING
BROWN 3	(BR3)	IU MEASURING
BROWN 4	(BR4)	GROUND MEASURING
GRAY 1	(GY1)	LV RF & TM (TELEMETRY)
GRAY 2	(GY2)	LV RF & TM (RF)
GRAY 3	(GY3)	LV RF & TM (DDAS)
GREEN 1	(GN1)	CSM PAD LEADER
GREEN 2	(GN2)	CSM ELECTRICAL POWER & SEQUENCE SYSTEMS
GREEN 3	(GN3)	CSM GUIDANCE & NAVIGATION
GREEN 4	(GN4)	CSM FLIGHT CONTROL SYSTEM
GREEN 5	(GN5)	CSM RF SYSTEM & RADAR
GREEN 6	(GN6)	CSM TM & INSTRUMENTATION
GREEN 7	(GN7)	CSM PROPULSION SYSTEM
GREEN 8	(GN8)	CSM FUEL CELL & CRYOGENICS
GREEN 9	(GN9)	CSM ENVIRONMENTAL CONTROL SYSTEM
GREEN 10	(GN10)	CSM GROUND SUPPORT EQUIPMENT
GREEN 11	(GN11)	CSM ACE DATA LINK
GREEN 12	(GN12)	CSM GROUND COMMAND SYSTEM
GREEN 13	(GN13)	ACE CONTROL & DISPLAYS

*THESE CHANNELS AVAILABLE ON ALL COMMUNICATIONS STATIONS

APOLLO/SATURN
LAUNCH OPERATIONS

APOLLO/SATURN IB STATION DESIGNATORS

NOTE

STATION DESIGNATOR DEVELOPMENT

A FOUR LETTER/NUMBER CALL IS USED FOR STATION DESIGNATION.

- (1) THE FIRST LETTER DESIGNATES THE GENERAL AREA.
- (2) THE FOLLOWING THREE LETTERS/NUMBERS ARE UNIQUE TO THE SPECIFIC STATION WITH THE FOLLOWING SPECIFICALLY ASSIGNED SECOND LETTER/NUMBER ASSIGNMENTS:

"1" S-IB STAGE ORIENTED POSITIONS
"4" S-IVB STAGE ORIENTED POSITIONS
"U" INSTRUMENT UNIT ORIENTED POSITIONS
"L" LAUNCH VEHICLE ORIENTED POSITION OR LVO MONITOR POSITIONS

A. LC 34/37 AGCS ROOM

A1NE	S-IB AGCS NETWORKS ENGINEER
A1NW	S-IB AGCS NETWORKS
A4CE	S-IVB AGCS ELECTRONICS ENGINEER
A4NW	S-IVB AGCS NETWORKS
ADAS	AGCS DDAS
AEBR	EMERGENCY STANDBY BATTERY ROOM
AECN	ECS NETWORKS
AECS	ECS ON AGCS ROOF
AGCC	AGCS GROUND COMPUTER SYSTEM
ALDE	LAUNCH VEHICLE DIGITAL EVENT EVALUATOR (DEE 6)
APCD	PNEUMATIC CONTROL DISTRIBUTOR
APCE	PCD ENGINEER
AUNW	IU AGCS NETWORKS
AUSA	ST-124 ACCELEROMETER MONITOR OPERATOR
AUSO	ST-124 ALIGNMENT OBSERVER/OPERATOR

B. BLOCKHOUSE 34/37 SUPPORT AREAS (1ST FLOOR)

B1RF	S-IB BLOCKHOUSE RF CHECKOUT STATION
B1TM	S-IB TELEMETRY STATION
B4IE	S-IVB INSTRUMENTATION ENGINEERING
B4RF	S-IVB LCC RF STATION
B4TM	S-IVB TELEMETRY STATION

APOLLO/SATURN
LAUNCH OPERATIONS

BCDC	COUNTDOWN CLOCK
BCOP	COMPLEX OPERATIONS PANEL
BDAS	LCC DDAS
BDOP	ODOP GROUND STATION
BGCC	BLOCKHOUSE GROUND COMPUTER SYSTEM
BGCP	BLOCKHOUSE GROUND COMPUTER PROGRAMMER,
BLDD	LVO DDAS SYSTEMS ENGR
BLRF	LVO RF SYSTEMS ENGR
BLTM	LVO TM SYSTEMS ENGR
BMHM	MEASURING, HAZARDS MONITORING RACKS (INS)
BMMR	MEASURING, METEOROLOGICAL RACKS (INS)
BOIS	OPERATIONAL INTERCOM SYSTEM OPERATOR
BOTV	OPERATIONAL TV SYSTEM OPERATOR
BRCA	RCA SEQUENCER OPERATOR
BRFS	LCC RF GROUND STATION
BSTM	BLOCKHOUSE TM GROUND SUPPORT EQUIPMENT
BURF	1U LCC RF STATION
BUTM	1U LCC TM CHECKOUT STATION

C. BLOCKHOUSE 34/37 FIRING ROOM CONSOLES

C1AC	S-IB 400 CYCLE AC CONTROL PANEL
C1CD	S-IB CRT CONTROL-DISPLAY CONSOLE
C1DP	S-IB PROP, DISPERSION AND ORDNANCE PANEL
C1EV	S-IB EVENT DISCRETE READOUT PNL
C1FP	S-IB FIRING PREP CONSOLE
C1FR	S-IB FIRING CONSOLE & COMPONENT TEST PNL
C1LS	S-IB LAUNCH SEQUENCER CONSOLE
C1IP	S-IB MEASURING PANEL
C1ME	S-IB MECHANICAL ENGINEER
C1NE	S-IB NETWORKS ENGINEER
C1NP	S-IB NETWORKS PANEL
C1OE	S-IB OPERATIONS ENGR
C1PP	S-IB POWER PNL (DC)
C1PS	S-IB POWER SWITCHING PANEL
C1SP	S-IB STAGE PRESSURE PANEL
C4AX	S-IVB AUXILIARY PROPULSION SYSTEM PANEL
C4BE	S-IVB BLOCKHOUSE ELECTRONICS ENGR
C4EN	S-IVB ENGINE PANEL
C4ES	S-IVB ELECTRONICS SYSTEM ENGR
C4EV	S-IVB EVENTS DISPLAY PANEL
C4HC	S-IVB HELIUM CONTROL PANEL
C4HN	S-IVB GH2/GN2 CONTROL PANEL
C4KB	S-IVB CRT CONTROL-DISPLAY CONSOLE
C4IP	S-IVB MEASURING PANEL
C4MS	S-IVB MECH/STRUCTURES SYSTEM ENGR
C4NP	S-IVB NETWORKS PANEL
C4OE	S-IVB LAUNCH PANEL (STAGE OPERATIONS ENGINEER)
C4PP	DC POWER SUPPLY PANELS (S-IVB) (2 PANELS - 1 OPERATOR)
C4PR	S-IVB PROPELLANT STATUS PANEL
C4PS	S-IVB PROPULSION SYSTEM ENGR

APOLLO/SATURN
LAUNCH OPERATIONS

C4PU	S-IVB PU SYSTEMS PANEL
C4RC	S-IVB RECIRCULATION PANEL
C4SP	S-IVB STAGE PRESSURE PANEL
CARE	S-IB GROUND NETWORKS ENGINEER
CGIC	INSTRUMENTATION CONTROLLER
CLAT	LV ASSISTANT TEST CONDUCTOR (NASA)
CLNE	LVO BLOCKHOUSE NETWORKS ENGINEER
CLTC	LAUNCH VEHICLE TEST CONDUCTOR (NASA)
CLVN	VEHICLE NETWORKS CONSOLE
CMCD	INSTRUMENTATION CRT CONTROL-DISPLAY CONSOLE
CMNS	MISSION NETWORKS STATUS MONITOR (INS)
COVD	ODOP VELOCITY DISPLAY
CPER	PERISCOPE
CPSS	B/H PAD SAFETY SUPERVISOR
CQAA	Q-BALL ANGLE OF ATTACK PANEL
CRTE	EDS CRT DISPLAY CONSOLE OPERATOR
CSAT	SC ASSISTANT TEST CONDUCTOR
CSTC	SC CHIEF TEST CONDUCTOR
CTIO	TECHNICAL INFORMATION OPERATIONS CONSOLE (INS)
CUDC	IU CRT CONTROL-DISPLAY CONSOLE
CUEV	IU EVENTS DISPLAY
CUIP	IU MEASURING PANEL
CUNP	IU NETWORKS AND SWITCH SELECTOR PANEL
CUOE	IU OPERATIONS ENGR
CVTS	VEHICLE TEST SUPERVISOR (NASA)

E. MILA CENTRAL INSTRUMENTATION FACILITY

F4IM	S-IVB INSTRUMENTATION MONITOR
EASM	S-IVB INSTRUMENTATION MONITOR
ECOP	CIF COMPUTER OPERATION
EDDS	DATA DISPLAY STATION (CIF)
EDTS	DATA TRANSMISSION STATION
EMSM	CIF MANDY STATION
ERFS	LVO RF STATION (CIF)
ETMS	CIF TELEMETRY STATION
ETOT	CIF JADE TRACKING STATION

O. ETR SUPPORT FUNCTIONS

ORFI	RANGE RF INTERFERENCE MONITOR VAN
ORNG	RANGE OPERATIONS VIA THE SRO

P. 34/37 PAD & COMPLEX AREAS (INCLUDING CCF)

PCCF	CONVERTER COMPRESSOR FACILITY
PCVE	CRYOGENIC VACUUM SYSTEM ENGINEER
PGHF	BENDIX LH2 FACILITY
PH2F	LH2 FACILITY
PLOF	LOX FACILITY

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

11
7-LSVIR-200
AS-202

POCF	BENDIX 02 CONDITIONING FACILITY
PPSS	PAD SAFETY SUPERVISOR
PRPF	RP-1 FACILITY
PUTO	AUTO-THEODOLITE OBSERVER/OPERATOR
PVP1	VALVE PIT #1
PVP3	VALVE PIT #3
PRFI	RF INTERFERENCE MONITOR VAN

APOLLO/SATURN
LAUNCH OPERATIONS

R. BLOCKHOUSE 34/37 FIRING ROOM RACKS

R1BM	S-1B LCC MEASURING STATION
R1CT	GSE COMPONENT TEST PANEL
R1FC	S-1B HYD CONTROL & MONITOR PANEL
R1FM	S-1B FIRE DETECTOR MONITOR
R1FS	S-1B STAGE FLIGHT CONTROL SYSTEM ENG
R1ME	CCSD MEASURING ENGINEER
R4BM	S-1VB LCC MEASURING STATION
R4DP	S-1VB PROPELLANT DISPERSION & ORDNANCE PNL
R4EI	S-1VB VOLTAGE & CURRENT RECORDERS
R4HY	S-1VB HYD CONTROL & MONITOR PNL
R4FC	S-1VB FLIGHT CONTROL SYSTEM ENGR
R4PU	S-1VB PROPELLANT MASS RECORDERS
R4SR	S-1VB STRIP/CHART RECORDERS
R4VC	S-1VB CEC RECORDER
R4VM	S-1VB VACUUM MONITOR PANEL
RAAA	APOLLO ACCESS ARM PANEL
RECE	CCSD ECS ENGINEER
RECS	ENVIRONMENT CONTROL SYSTEM
REDS	EMERGENCY DETECTION SYSTEM PANEL
RFCE	CCSD FLT. CONTROL ENGINEER
RFSE	CCSD RF & TM ENGINEER
RGCC	FLIGHT COMPUTER SYSTEM ENGINEER
RGPP	GROUND PRESSURE PANEL
RGRM	GROUND MEASURING RACKS (INS)
RH2C	LH2 CONTROL
RHDP	HYDROGEN DETECTION PANEL
RHSE	CCSD LH2 SYSTEM ENGINEER
RLAT	LVO AUTO-THEODOLITE CONTROL
RLBM	LVO LCC MEASURING
RLDE	LAUNCH VEHICLE DIGITAL EVENT EVALUATOR (DEE-6)
RLFC	LV FLIGHT CONTROL ENGINEER
RLPL	LVO PROPELLANT LOADING SYSTEM ENGINEER
RLSC	LVO ST-124 CONTROL
RLSE	LVO ST-124 SYSTEM ENGINEER
RLSI	LVO ST-124 IDB CONTROL
RLUC	UMBILICAL ARM CONTROL PANEL
RMAR	MEASURING, ACOUSTICS RACKS (INS)
RO2C	LOX CONTROL
ROSE	CCSD LOX SYSTEM ENGINEER
RPDE	PROPELLANT DIGITAL EVENT EVALUATOR
RPEV	PROPELLANT EVENT DISPLAY PANEL
RPTE	PROPELLANT TANKING COMPUTER ENGINEER
RPHO	PHOTOGRAPHY COORDINATOR
RPME	CCSD PROPELLANT LOADING SYSTEM ENGINEER
RPNE	CCSD PROPELLANT NETWORKS ENGINEER
RRFC	FLIGHT CONTROL RECORDER OPERATOR
RRPC	RP-1 CONTROL
RRPE	CCSD PR-1 ENGINEER
RUAP	IU AUXILIARY POWER
RUAT	AUTO THEODOLITE CONTROL

APOLLO/SATURN LAUNCH OPERATIONS

RUBM	IU LCC MEASURING
RUCP	IU COOLING CONTROL PANEL
RUFC	IU FLIGHT CONTROL PANEL
RUPP	IU AC & DC POWER PANEL
RUSC	ST-124 CONTROL
RUSE	ST-124 SYSTEM ENGINEER
RUSI	ST-124 1DR CONTROL
RUSR	ST-124 RECORDER OBSERVER/OPERATOR
RWCP	WATER CONTROL PANEL

S. 34/37 SVC STRUCTURE AREAS

S1FC	S-1B FLIGHT CONTROL (PEDESTAL)
S1MP	S-1B VEHICLE MECH (PEDESTAL)
S1MS	S-1B STRUCTURE MEASURING STATION
S1NA	S-1B UNITS 1-9 (S-1B AFT)
S1NE	S-1B NETWORKS ENGINEER
S1NF	S-1B UNITS 11, 12, 13 (S-1B FORWARD)
S1OD	S-1B ORDNANCE ENGINEER
S1OE	S-1B PAD OPERATIONS ENGINEER
S1OR	S-1B OAT RECORDERS
S1OT	S-1B OAT STATION
S1RF	S-1B VEHICLE RF
S1TM	S-1B VEHICLE TM
S1VM	S-1B VEHICLE MECHANICAL (ADJUSTABLE 1)
S4CE	S-IVB CONTROL ELECTRONICS ENGINEER
S4EC	S-IVB ENVIRONMENTAL CONTROL ENGR
S4FC	S-IVB FLIGHT CONTROL ENGR (STRUCTURE)
S4HY	S-IVB HYDRAULICS ENGR
S4ME	S-IVB MECH EQUIP ENGR (GSE)
S4MR	S-IVB MATERIAL RESEARCH & PROCESS ENGINEER
S4MS	S-IVB STRUCTURE MEASURING STATION
S4OD	S-IVB ORDNANCE ENGINEER
S4OR	S-IVB OAT RECORDERS
S4OT	S-IVB OAT STATION
S4PC	S-IVB PAD COORDINATOR (OPERATIONS ENGR)
S4PE	S-IVB PROPULSION ENGR
S4PL	S-IVB PROPULSION LEAD MECHANIC
S4RF	S-IVB RF ENGINEER
S4SE	S-IVB STRUCTURES ENGR
S4SY	S-IVB SAFETY ENGR
S4TM	S-IVB TM ENGINEER
SESP	S-1B ENGINE SERVICE PANEL
SGME	CCSD GSE MECHANICAL ENGINEER
SGMP	GSE MECHANICAL ON PEDESTAL
SLMS	LVO STRUCTURE MEASURING STATION
SLOB	OAT BATTERY ROOM
SRFS	STRUCTURE RF MONITOR STATION
SSM1	SHORT CABLE MAST #1
SSM2	SHORT CABLE MAST #2
SSSC	SERVICE STRUCTURE CONTROL
SUFC	IU FLIGHT CONTROL (STRUCTURE)

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE 14
TEST NO. 7-LSVIB-200
VEHICLE AS-202

SUMS	IU STRUCTURE MEASURING STATION
SURF	IU STRUCTURE RF
SUST	ST-124 OBSERVER/OPERATOR
SUTM	IU STRUCTURE TM
SUVM	IU VEHICLE MECHANICAL
SUVE	IU VEHICLE NETWORKS

U. 34/37 UMB TOWER AREAS

U4ME	S-IVB MECHANICAL (GSE) ENGINEER
U4PE	S-IVB PROPULSION ENGR
U4PN	S-IVB PNEUMATIC CONSOLES
UECS	ECS ON UMB TWR
UGRN	UMB TWR GROUND NETWORKS
UGSE	UMBILICAL GSE
UQBL	Q-BALL GSE
USA1	UMB SWING ARM #1 CONTROL PANEL
USA2	UMB SWING ARM #2 CONTROL PANEL
USA3	UMB SWING ARM #3 CONTROL PANEL
USA4	UMB SWING ARM #4 CONTROL PANEL
USA5	APOLLO ACCESS ARM CONTROL PANEL
USAE	CCSD UMB. SWING ARM ENGINEER
UUVM	IU VEH. MECH. ON UMB. TOWER

APOLLO/SATURN
 LAUNCH OPERATIONS

OPERATIONAL TV COVERAGE

SATURN IB, COMPLEX 34

CAMERA & CCU	CAMERA LOCATION	OBSERVATION	TIME CAMERA REQUIRED
#1 CCU #1	LOX STORAGE UNDER MAIN TANK.	S-IB & S-IVB PUMPS MAIN & REPLENISH SYSTEM FACILITY PIPING.	FULL TIME DURING LOX FLOW (TANKING & DETANKING).
#2 CCU #2	LOX STORAGE SOUTHWEST	OVERALL VIEW, REPLENISH TANK CONTROL PIPING, MAIN & REPLENISH VAPORIZERS	SAME AS #1
#3 CCU #3	RP-1 STORAGE	GAUGES, PIPING	RP-1 FLOW
#4 CCU #4	U.T.-140' LEVEL, S.E. CORNER EXTENDED	LH2 VENT COUPLING & LINES	LH2 FLOW UNTIL LINES ARE PURGED AND SECURED.
#5 CCU #5	U.T.-120' LEVEL, INBOARD	LH2 VALVE COMPLEX SKID	SAME AS #4
#6 CCU #6	U.T.-110' LEVEL, INBOARD	HEAT EXCHANGER & LINES	LH2 FLOW
#7 CCU #7	TOP OF BUNKER, LH2 STORAGE	OVERALL LH2 SURVEILLANCE BURN POND, CROSSCOUNTRY PIPING.	LH2 FLOW UNTIL LINES ARE PURGED AND SECURED.
#8 CCU #8	S.S.-260' LEVEL ON N.W. TOWER. -SAME-	NOTE: CCU IS TIME SHARED REQUIRES 15 MIN. TO CHANGE ENTIRE VEHICLE.	WHEN S.S. AT PARK LAUNCH DAY
	U.T. 40' LEVEL, S.E. CORNER	RP-1 MAST & HOSE	RP-1 TANKING & DETANKING
#9 CCU #9	S.S.-27' LEVEL ON N.W. TOWER. 10% TANKING, WET TEST FULL LOADING. S.S. AT PAD FOR L.V.	LOX MAST AND TRANSFER LINE AT 27' LEVEL.	LOX TANKING AND DETANKING.
#10 CCU #10	CAMERA PEDESTAL SOUTH SIDE OF PAD	REPLENISH COUPLING & TRANSFER LINE	LOX TANKING ONLY
#11 CCU #11	U.T.-115' LEVEL, S.E. CORNER.	U.S.A.H2 HEAD LH2 NOZZLE	LH2 FLOW

APOLLO/SATURN
 LAUNCH OPERATIONS

OPERATIONAL TV COVERAGE

SATURN IB, COMPLEX 34

CAMERA & CCU	CAMERA LOCATION	OBSERVATION	TIME CAMERA REQUIRED
#12 CCU #12	S.S. NORTH CORNER OF SOUTHEAST TOWER ON GRD.	HYPERGOLIC PROPELLANT LOADING OBSERVATIONS S-IVB	TRANSFER OF HYPERGOLS (T-21 HOURS TO S.S. MOVING.)
#13 CCU #13	S.S. SOUTH CORNER OF NORTHWEST TOWER ON GRD.	-SAME-	-SAME-
#14 CCU #14	NORTH PAD TOWER	OVERALL LAUNCH VEHICLE	LV CHECKOUT (WHEN S.S. PLATFORMS & SHELL ARE OPEN & S.S. IS AWAY FROM VEHICLE.
#15 CCU #15	HI PRESSURE GAS AREA TOWER	OVERALL LAUNCH VEHICLE, UMB. TOWER AND RP-1 GROSS COUNTRY LINE	-SAME-
#16 CCU #16	S.S.-116' LEVEL OF N.W. TOWER, INSIDE PLATFORM	S-IVB APS PROPELLANT LOADING OPERATIONS)	DURING HYPERGOLIC LOADING UNTIL S.S. IS MOVED BACK.
#17 CCU #17	S.S.-116' LEVEL OF S.E. TOWER, INSIDE PLATFORM	-SAME-	-SAME- PLUS RP-1 LOADING
#18 CCU #18	U.T.-140' LEVEL N.W. CORNER EXTENDED.	U.S.A. #2 HEAD, LOX NOZZLE & LOX VENT	LO2 FLOW
#19 CCU #19	U.T.-230' LEVEL S.E. CORNER EXTENDED.	EGRESS ARM	DURING SWING ARM OAT LAUNCH COUNT-DOWN.
#20 CCU #20	AGCS GRD COMPUTER ROOM	COMP. CONT. MECH. PERIPHERAL EQUIP. COUNTDOWN	FULL TIME WHEN NO PERSONNEL ARE AT PAD DURING FUELING)
#21 CCU #21	LCC FIRING ROOM	PERSONNEL	FULL TIME
#22 CCU #22	LH2 STORAGE, NORTH CORNER	VALVE COMPLEX & TRANSFER EQUIP.	FULL TIME

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 17
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

OPERATIONAL TV COVERAGE

SATURN 1B, COMPLEX 34

CAMERA & CCU	CAMERA LOCATION	OBSERVATION	TIME CAMERA REQUIRED
#23 CCU #23	U.T.-230' LEVEL, N.W. CORNER	UMBILICAL CONNECTIONS, FLUID LINES, REACTION CONTROL MOTORS, ORDNANCE, ACCESS ARM INTERFACE, GEN. CONFIGURATION OF LAUNCH ESCAPE SYSTEM, LES SUPPORT, COMMAND & SERVICE MODULES.	WHEN S.S. PLATFORMS & SHELL ARE OPEN
#24 CCU #24	U.T.-220' LEVEL	WHITE ROOM, PART OF INSIDE OF S/C	DURING WHITE ROOM USE
#25 CCU #25	S.S., N.W. TOWER PLATFORM 6-VEHICLE	FUEL & OXIDIZING LINES, PERSONNEL ACTIVITY, ORDNANCE	DURING FUELING, ARMING
#26 CCU #26	S.S., S.E. TOWER, 188'	FUEL & OXIDIZER SERVICER LINES-PERSONNEL ACTIVITY	-SAME-
#27 CCU #27	S.S., N.W. TOWER, PLATFORM 7-VEHICLE	-SAME-	-SAME-
#28 CCU #28	S.S., S.E. TOWER PLATFORM 7-VEHICLE	-SAME	-SAME-
#29 CCU #29	S.S., N.W. TOWER PLATFORM 8-VEHICLE	-SAME- -SAME-	-SAME- -SAME
#30 CCU #30	S.S., S.E., TOWER PLATFORM 8-VEHICLE	-SAME-	-SAME-
#31 CCU #31	TOP OF LCC	POST LAUNCH TRAJECTORY COMPLEX OBSERVATION	FULL TIME LAUNCH DAY
#32 CCU #32	OTV RACK D-19 LCC 1ST FLOOR	VISUAL COUNTDOWN	-SAME-
ABORT 1 & 2	180 DEG APART	TO VIEW VEHICLE CLEARANCE BETWEEN VEHICLE AND TOWER	
ABORT 3	APPROX. 7000' OF PAD	VEHICLE IN FLIGHT	

APOLLO/SATURN
LAUNCH OPERATIONS

PAD CONTROL DURING HAZARDOUS PERIODS

BECAUSE OF THE HAZARDS WHICH EXIST DURING THE LAUNCH COUNTDOWN IN THE PAD AREA, CONTROL OF PERSONNEL WITHIN THAT AREA IS MANDATORY. AT THE BEGINNING OF COUNT, HYPERGOLIC PROPELLANTS ARE LOADED ABOARD THE SPACECRAFT AND S-IVB STAGE, AND RP-1 IS ABOARD THE S-IB STAGE. AS THE COUNT PROGRESSES, ORDNANCE IS CONNECTED AND CRYOGENICS ARE TANKED.

THE PAD CONTROL IS UNDER THE SUPERVISION OF PAA PAD SAFETY. PAA SECURITY GUARDS MAINTAIN ROADBLOCKS AS DIRECTED BY THE PAD SAFETY OFFICER.

ALL PAD ACCESS LISTS MUST BE VALIDATED THRU THE TEST SUPERVISOR, TEST CONDUCTORS, INSTRUMENTATION CONTROLLER, OR THE COMPLEX MANAGER PRIOR TO SUBMISSION TO THE PAD SAFETY OFFICER. CHANGES AND VARIATIONS WILL FOLLOW THE SAME FLOW TO PAD SAFETY.

WHEN LARGE NUMBERS OF PERSONNEL ARE REQUIRED IN THE PAD AREA, A DECAL ON THE APOLLO/SATURN ACCESS BARDGE WILL BE UTILIZED. THE FOLLOWING OUTLINES THE VARIOUS ACCESS PERIODS:

1. PERSONNEL ON PAD PRIOR TO LES IGNITER RESISTANCE CHECK (OPERATIONAL PERSONNEL ONLY WITH GREEN OR RED OPS BADGE).
2. PERSONNEL IN AGCS FOR LES IGNITER RESISTANCE CHECK (PSO ACCESS LIST).
3. PERSONNEL ON PAD AFTER S/C ARM SAFE CHECK UNTIL S/C HELIUM SERVICING (OPERATIONAL PERSONNEL ONLY WITH GREEN OR RED OPS BADGE).
4. PERSONNEL ON PAD DURING S/C HELIUM SERVICING (PSO ACCESS LIST AND DECAL).
5. PERSONNEL IN AGCS FOR S/C LH2 TOPOFF. (PSO ACCESS LIST)
6. PERSONNEL ON PAD (IN SCAPE) FOR "BRIDGE DISCONNECT" (PSO ACCESS LIST).
7. PERSONNEL ON PAD AND U.T. FOR S/C CLOSEOUT AFTER LH2 LOADING (PSO ACCESS LIST).
8. PERSONNEL AT LOX FARM AFTER LH2 LOADING (PSO ACCESS LIST).
9. PERSONNEL AT LH2 FARM AFTER LH2 LOADING (PSO ACCESS LIST).
10. PERSONNEL AT PAD AFTER LAUNCH FOR GH2 DETECTION AND HAZARD APPRAISAL (PSO ACCESS LIST AND DECAL).
11. PERSONNEL AT PAD FOR LAUNCH SECURING AFTER HAZARD APPRAISAL (PSO ACCESS LIST AND DECAL - IF FOR SCRUB; NOTHING IF AREA IS CLEAR AFTER LAUNCH.

APOLLO/SATURN
LAUNCH OPERATIONS

SPACE VEHICLE TM FREQUENCIES

TM SYSTEMS

TM LINK -----	FREQUENCY -----	SWITCH -----	STAGE -----
1	226.2	SSB	S-IVB
2	232.9	ORBIT	S-IVB
3	237.8	PCM/FM (VHF FM)	CSM
4	240.2	GF-1	S-IB
5	244.3	GF-2	S-IB
6	245.3	DF-2	IU
7	246.3	FLIGHT	S-IVB
8	247.3	CM PAM/FM/FM	CSM
9	250.7	DF-1	IU
10	252.4	GS-1	S-IB
11	253.8	ORBIT	S-IVB
12	255.1	DP-1	IU
13	256.2	GP-1	S-IB
14	257.3	SM PAM/FM/FM	CSM
15	258.5	FLIGHT	S-IVB
16	259.7	DS-1	IU

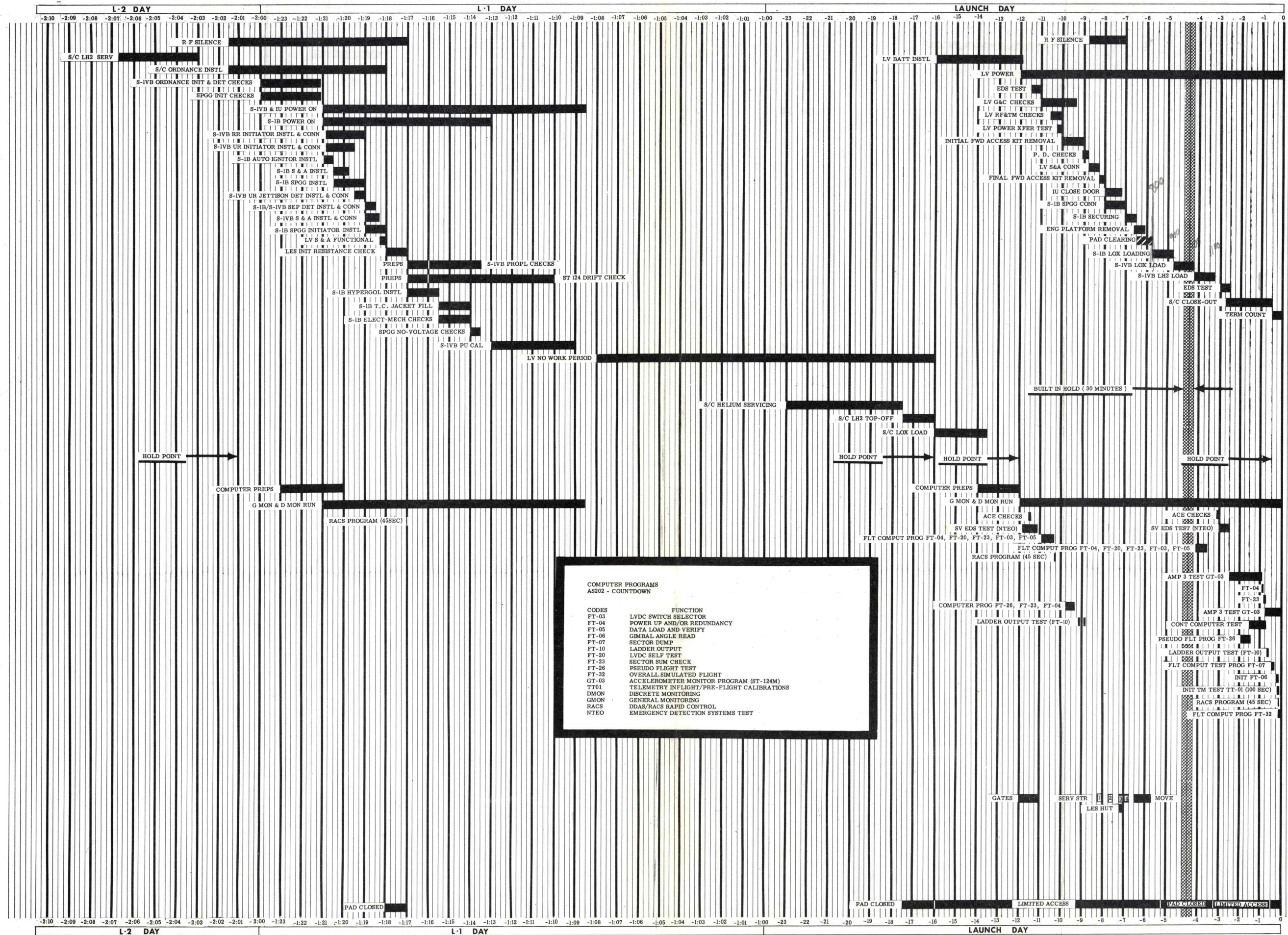
APOLLO/SATURN
 LAUNCH OPERATIONS

SPACE VEHICLE RF FREQUENCIES

RF SYSTEMS

SYSTEM -----	VEHICLE TRANSMIT -----	VEHICLE RECEIVE -----	LOCATION -----
ODOP	960	890	S-IB
CAMERA RECOVERY BEACON	242.0		S-IB
COMMAND (DIGITAL RANGE SAFETY SYSTEM)	----	450	S-IB, S-IVB
GLOTRAC BEACON (AZUSA)	5000	5060	IU
C-BAND RADAR	5765	5690	IU
C-BAND RADAR	5765	5690	CSM
TELEVISION	860	----	IU
UPDATA	----	450	CSM
VHF AM	296.8	----	CSM
HF	10.006	----	CSM
RECOVERY BEACON	243.0	----	CSM
USB	2287.5	2106.4	CSM

AS-202 LAUNCH VEHICLE COUNTDOWN



L/V COUNTDOWN
DATE: 11 AUGUST 1966
REVISION B

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE 21A
TEST NO. 7-LSVIB-200
VEHICLE AS-202

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APOLLO/SATURN LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
PART I						
PRELAUNCH PREPARATIONS						
NOTE: THE SPACECRAFT COUNTDOWN STARTS AT T-2 DAYS 10.5 HRS WITH SC LH2 SERVICING STARTING AT T-2 DAYS, 6 HRS, 45'00" RE SILENCE AND CONTROLLED SWITCHING IS IN EFFECT AT T-2 DAYS, 1 HR, 30'00" FOR SPACECRAFT ORDNANCE INSTALLATION.						
- 2 DAY 01 HRS 00'00"	RD6	1		RPNE	VERIFY PROPELLANT SYSTEM POWER SUPPLY ON PER CSD-N-8026.	
	RD5	2		RECE	START AIR TO SM, IU AND S-IB FWD (A-1 AND A-4 UNITS)	
	RL2	3	C40E	S40D	BEGIN S-1VB ORDNANCE INITIATOR AND DETONATOR CHECKS PER 1B31510 (6-DLSIVBIB-216)	**
	RK5	4	C10E	S10D	BEGIN S-IB SPGG INITIATOR ELECTRICAL CHECKS PER 1-CLSIBIB-206	**
- 1 DAY 23 HRS 00'00"	YW4	1	CLTC	BGCC	BEGIN LV GROUND COMPUTER PREPARATIONS PER PROCEDURE 5-ILGSEIB-204.	
		2		RLDE ALDE	BEGIN LV DEE-6 PREPARATIONS PER PROCEDURE 1-ILGSEIB-202	
	BK2	3	CLTC	CVTS	VERIFY COMPLEX IS ON CRITICAL POWER	
	GY3	4		BDAS	PREPARE AGCS & BH DDAS-ESE PER PROCEDURE IBM-R-8006	
	BK6	5	C40E	S4PC	VERIFY PRE-COUNTDOWN PREPS COMPLETE PER DAC-M-8001	
	RK5	6	C10E	PCVE	PERFORM VACUUM JACKET LINE MONITORING PER PROCEDURE 6-CLGSEIB-285.	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 23
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 22 HRS 40'00"	BL2	1	C40E	S4PC S4ME	OPEN VEHICLE FOR ACCESS AND VERIFY UMBILICALS ARE SAFETIED.	
	BK5	2	C10E	C1ME	OPEN VEHICLE AS REQUIRED FOR ACCESS	
- 1 DAY 22 HRS 10'00"	GY1	1	C10E	S1TM	VERIFY S-IB PCM/DDAS SYSTEM IS CONNECTED IN OPERATIONAL CONFIGURATION.	
	BL2	2	C40E	A4AE S4CE S4PC	PERFORM ELECTRICAL SYSTEMS WALK-A-ROUND INSPECTION PER DAC-N-8002	
	BK5	3	C10E	APCE	BEGIN PNEUMATIC PRE-LAUNCH OPERATIONS PER CSD-E-8018	
	BK5	4	C10E	R1RM	PREPARE BH MEASURING STATION PER CSD-M-8001	
- 1 DAY 22 HRS 00'00"	RL4	1	CU0E	CUNP	APPLY AUXILIARY POWER PER 1-ILIUIB-208	
- 1 DAY 21 HRS 05'00"	BK1	1	CLTC	C40E	VERIFY LIFTOFF JUMPER 1301A1J48/Z (LITTLE Z) TO 1301A1J16/J (LITTLE J) IS NOT INSTALLED.	
	BK5	2	C10E	S10D	REPORT COMPLETION OF S-IB SPGG INITIATOR ELECTRICAL CHECKS	**
	BK1	3	CLTC	C10E C40E CU0E	VERIFY LAUNCH VEHICLE READY FOR ORDNANCE WORK	**
	BK2	4	CLTC	CVTS	REPORT LAUNCH VEHICLE READY TO MAINTAIN RF SILENCE	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 24
 TEST NO. 7-LSVIR-00
 VEHICLE AS-02

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 21 HRS 05:00"	YW4	5	CLTC	BGCC	VERIFY LV GROUND COMPUTER PREPS COMPLETE & READY TO SUPPORT VEHICLE POWER OPERATIONS	
	BL4	6	CUOE	BDAS	VERIFY AGCS AND LCC DDAS PREPS COMPLETE	
	BL2	7	C4OE	S4PC	VERIFY INSPECTION COMPLETE AND VEHICLE AND GSE READY FOR STAGE POWER	
	BL2	8	C4OE	S4OD	VERIFY S-IVB ORDNANCE AND INITIATOR CHECKS ARE COMPLETE	
	BL2	9	C4OE	S4PC	ASSEMBLE ORDNANCE CREWS AND EQUIPMENT IN PRESCRIBED AREAS	
	BK2	10	CLTC	CVTS	VERIFY SPACECRAFT IN CONFIGURATION FOR LAUNCH VEHICLE POWER APPLICATION	
	BK1	11	CLTC	C1OE C4OE CUOE	YOU ARE CLEAR TO APPLY STAGE POWER	
- 1 DAY 21 HRS 00:00"	BK5	1	C1OE	C1NP	APPLY S-IB VEHICLE POWER PER USD-N-8001	
	BK6	2	C4OE	C4NP	APPLY S-IVB VEHICLE POWER PER DAC-N-8003	
	BK1	3	CUOE	CUNP	APPLY IU VEHICLE POWER PER 1-ILIU1B-203	
	BK1	4	CLTC	BDAS	VERIFY 600 KC FROM S-IB, S-IVB & IU DDAS SYNCHRONIZATION	
	BL2	5	C4OE	C4MS	PERFORM PANEL SET-UPS FOR ORDNANCE INSTALLATION PER DAC-O-8001/PART I	
	PA	6		CVTS	LAUNCH VEHICLE POWER IS APPLIED AND RF SILENCE AND CONTROLLED SWITCHING IS IN EFFECT ON SPACE VEHICLE. NOTE: FOR NECESSARY SWITCHING CONTACT ---- C4OE IN BK6.	
	BK5	7	C1OE	ROSE	PERFORM LOX PURGE MOISTURE CHECKS PER 6-CLGSE1B-218	

L/V LAUNCH COUNTDOWN

DATE: AUGUST 11, 1966

REVISION

B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE

TEST NO.

VEHICLE

25
7-LSVIB-200

AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 21 HRS 00'00"	BK5	8	C10E	RPNE	APPLY LOX SYSTEM POWER PER CSD-N-8028	
	BK5	9	C10E	RPNE	APPLY LH2 SYSTEM POWER PER CSD-N-8029	
	BK5	10	C10E	RPNE	APPLY RP-1 SYSTEM POWER PER CSD-N-8027	
- 1 DAY 20 HRS 50'00"	BK5	1	C10E	C1ME	BEGIN S-IB AUTO IGNITER INSTALLATION PER PROCEDURE CSD-O-8016	
	BL2	2	C40E	C4MS	BEGIN RETRO ROCKET INITIATOR INSTALLATION & CONNECTION PER DAC-O-8001 PART III	** ** **
	BL2	3	C40E	C4MS	BEGIN S-IVB ULLAGE ROCKET INITIATOR INSTALLATION & CONNECTION PER PROCEDURE DAC-O-8001/PART II	** ** **
- 1 DAY 20 HRS 30'00"	BK5	1	C10E	C1ME	REPORT COMPLETION OF S-IB AUTO IGNITER INSTALLATION PER PROCEDURE CSD-O-8016	
	BK5	2	C10E	C1ME	BEGIN S-IB S & A INSTALLATION PER PROCEDURE CSD-O-8017	
	BK5	3	C10E	C1ME	BEGIN S-IB SPGG INSTALLATION PER PROCEDURE CSD-O-8012	
	BK5	4	C10E	APCE	REPORT PNEUMATIC PRELAUNCH PREPS COMPLETE PER CSD-E-8018	
- 1 DAY 19 HRS 45'00"	BK5	1	C10E	C1ME	REPORT COMPLETION OF S-IB FLIGHT S&A INSTALLATION PER CSD-O-8017	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 26
 TEST NO. 7-LSVIR-00
 VEHICLE AS-02

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 19 HRS 30'00"	BK6	1	C40E	C4MS	REPORT COMPLETION OF S-IVB ULLAGE ROCKET INITIATOR INSTALLATION & CONNECTION (DAC-O-8001/PART II)	* * * *
	BL2	2	C40E	C4MS	BEGIN S-IVB ULLAGE ROCKET JETTISON DETONATOR INSTALLATION & CONNECTION PER DAC-O-8001/PART IV	* * * *
- 1 DAY 19 HRS 00'00"	BK6	1	C40E	C4MS	VERIFY COMPLETION OF S-IVB ULLAGE ROCKET JETTISON DETONATOR INSTALLATION & CONNECTION (DAC-O-8001/PART IV)	* * * *
	BL2	2	C40E	C4MS	BEGIN S-IB/S-IVB STAGE SEPARATION DETONATOR INSTALLATION & CONNECTION PER DAC-O-8001/PART IV	* * * *
	BK5	3	C10E	C1ME	REPORT COMPLETION OF S-IB SPGG INSTALLATION PER CSD-O-8012	* * * *
	BK6	4	C40E	C4MS	VERIFY COMPLETION OF RETRO ROCKET INITIATOR INSTALLATION & CONNECTION (DAC-O-8001/PART III)	* * * *
	BK5	5	C10E	C1ME	BEGIN S-IB SPGG INITIATOR INSTALLATION PER CSD-O-8013	* * * *
	RD3	6	C00E	RUCP	VERIFY GAS BEARING GN2 1000 PSI O.K.	
	BL2	7	C40E	C4MS	BEGIN S-IVB FLIGHT S&A INSTALLATION AND CONNECTION PER DAC-O-8001/PART VI	
- 1 DAY 18 HRS 30'00"	BK6	1	C40E	C4MS	VERIFY COMPLETION OF S-IB/S-IVB STAGE SEPARATION DETONATOR INSTALLATION & CONNECTION (DAC-O-8001/PART V)	* * * *

L/V LAUNCH COUNTDOWN

DATE: AUGUST 11, 1966

REVISION

B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE

TEST NO.

VEHICLE

7-LSVIR-200

AS-202

27

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 18 HRS 20'00"	BK6	1	C40E	C4MS	VERIFY COMPLETION OF S-IVB S & A INSTALLATION & CONNECTION (DAC-0-8001, PART VI)	
	BL2	2	C40E	C4MS	PERFORM S-IVB S & A FUNCTIONAL TEST PER DAC-0-8001/PART VII (OBTAIN CLEARANCE FROM CPSS)	
	BK5	3	C10E	S1NE	PERFORM S-IB S & A FUNCTIONAL TEST PER 1-CLSIBIB-215 PART I (OBTAIN CLEARANCE FROM CPSS)	
- 1 DAY 18 HRS 00'00"	BK5	1	C10E	C1ME	REPORT COMPLETION OF S-IB SPGG INITIATOR INSTALLATION PER CSD-0-8013	**
	BK6	2	C40E	C4MS	VERIFY COMPLETION OF S-IVB S&A FUNCTIONAL TEST PER DAC-0-8001/PART VII	**
	BK5	3	C10E	S1NE	REPORT COMPLETION OF S-IB S & A FUNCTIONAL TEST	
	BK1	4	CLTC	C10E C40E	VERIFY S & A FUNCTIONAL TEST COMPLETE	
	PA	5		CVTS	ANNOUNCE FOR ALL PERSONNEL TO CLEAR THE COMPLEX TO THE LCC FOR LES INITIATOR RESISTANCE CHECKS.	
	BK5	6	C10E	RPNE	APPLY PTCS POWER PER CSD-N-8030.	
	BK1	7	CLTC	BGCC	VERIFY GMON AND DMON RUNNING.	
- 1 DAY 17 HRS 00'00"	BK1	1	CVTS	CLTC	LES INITIATOR RESISTANCE CHECKS AND ARM/SAFE CHECKS ARE COMPLETE; PAD IS OPEN FOR OPERATING PERSONNEL	
	PA	2		CVTS	ANNOUNCE RF SILENCE AND CONTROLLED SWITCHING IS NO LONGER IN EFFECT.	
	BK1	3	CLTC	C1IP	MEASURING RATE GYRO SWITCH TO ON	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 28
 TEST NO. 7-LSVIR-00
 VEHICLE AS-02

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
1 DAY 17 HRS 00:00"						
	BK1	4	CLTC	C1IP	MEASURING TRANSFER SWITCH TO INFLIGHT	
	BK1	5	CLTC	CMCD	INSERT RACS COMPUTER PROGRAM AND GIVE A MARK AT START OF HI, LO, AND RUN SEGMENTS	
					NOTE: S-IB, S-IVB, AND IU CALIBRATION ---- COMMANDS: HI CAL FOR 15 SECONDS, THEN LO CAL FOR 15 SECONDS, THEN RUN COMMAND.	
	YW1	6	CUOE	RUSE	BEGIN ST-124M SYSTEM PREPS PER IBM-G-8006	
	BK1	7	CLTC	S1MS	START S-IB, S-IVB AND I.U. VEHICLE MEASURING CALIBRATION AUTOMATIC SCAN PER CSD-M-8014 (REPORT TO C1OE, C4OE, AND CUOE AT START AND COMPLETION OF EACH STAGE SCAN)	
	BK1	8	CLTC	C1IP	MEASURING TRANSFER SWITCH TO GROUND AND RATE GYRO SWITCH TO OFF (AFTER S-IB AUTOMATIC SCAN COMPLETE)	
	BK5	9	C1OE	C1ME	BEGIN S-IB HYPERGOL INSTALLATION PER CSD-O-8015	
	BR1	10	C1OE	S1MS	BEGIN VEHICLE MEASURING LAUNCH PREPS PER CSD-M-8013	
	BK6	11	C4OE	C4PS	BEGIN S-IVB PROPULSION PREPS PER DAC-P-8001/PART I	
		12		C4PS	BEGIN S-IVB PROPULSION SYS PURGE PREPS PER DAC-P-8001, PART V	
	BK5	13	C1OE	RHSE	PERFORM LH2 SYSTEM COMPONENT TEST PER LVO-L-8002	
	BK5	14	C1OE	RHSE	PERFORM LH2 SYSTEM PURGE PER LVO-L-8005 AFTER COMPLETION OF LH2 SYSTEM COMPONENT TEST	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 29
 TEST NO. 7-1 SVIR-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 16 HRS 30'00"						
	RK6	1	C40E	C4PS	PERFORM S-IVB PROPULSION POWER ON SET-UPS PER DAC-P-8001/PART II	
	RK5	2	C10E	C1ME	VERIFY 750 CTL REGULATOR AT 750 PSIG AND VERIFY GEARCASE FLOW.	
	RK5	3	C10E	USAE	BEGIN INITIAL UMBILICAL SWING ARM AND APOLLO ACCESS ARM PREPS PER CSD-E-8021	
	BK1	4	CLTC	RUPP	VERIFY AZIMUTH ALIGNMENT BUILDING AC AND DC POWER ON	
- 1 DAY 16 HRS 00'00"						
	RK6	1	C40E	C4PS	VERIFY S-IVB PROP POWER ON SET-UPS COMPLETE	
	RK5	2	C40E	C10E	VERIFY FUNCTION SELECTOR TO PRELAUNCH NOTE: NOTIFY C40E IF FUNCTION SELECTOR ---- SWITCH IS TO BE CHANGED PRIOR TO T-38:45	
	RK6	3	C40E	C4PS	PERFORM S-IVB PROP COMPONENTS CYCLING PER DAC-P-8001/PART III	
	RK6	4	C40E	C4PS	PERFORM AUTO ENGINE SEQUENCE PER DAC-P-8001/PART IV	
	RK5	5	C10E	C1ME	PERFORM S-IB VEHICLE MECHANICAL PREPS FOR E-M TEST PER CSD-P-8013	
	YW1	6	CU0E	RUSE	BEGIN ST-124M SYSTEM DRIFT TEST PER IRM-G-8007	
	RK5	7	C10E	SGME	BEGIN GSE E-M CHECKS PER CSD-E-8011	
- 1 DAY 15 HRS 30'00"						
	RK5	1	C10E	C1ME	REPORT COMPLETION OF S-IB HYPERGOL INSTALLATION PER CSD-Q-8015	
		2		C1FP	NOTE ALL HYPERGOL INSTALLED INDICATION.	

APOLLO/SATURN
LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
1 DAY 15 HRS 30'00"	BK5	3	C10E	C1ME	PERFORM S-IB FUEL JACKET FILL PER CSD-P-8021	**
	BK5	4	C10E	C1ME	BEGIN S-IB VEHICLE ELECTRO MECHANICAL CHECKS PER CSD-P-8013	**
	BK1	5	CLTC	S1RF S4RF	INSTALL DRSCR FLIGHT CODE PLUGS AND VERIFY	**
1 DAY 14 HRS 45'00"	BK6	1	C40E	C4PS	VERIFY S-IVB PROP COMPONENT CYCLING COMPLETE	
	BK6	2	C40E	C4PS	BEGIN PROP SYSTEM PURGES PER LVO-L-8008	
	BK5	3	C10E	C1NP	STANDBY TO TURN ON HEATER POWER.	
	BK5	4	C10E	C1ME	BEGIN S-IB HEATER CHECKS PER 6-CLSIBIR-211	
	BK1	4-1	CLTC	C40E	VERIFY S-IVB PROPULSION COMPONENT CYCLING COMPLETE	**
	BK1	4-2	CLTC	A4NW	INSTALL FUSE IN PULSE SENSOR POWER JUMPER FROM 1301A1J2/E TO 1301A1J15/LITTLE Q.	**
	BK1	4-3	CLTC	C4DP	VERIFY PULSE SENSOR POWER OFF INDICATION NOT ON	**
	BK2	4-4	CVTS	ORNG	VERIFY CLEARANCE TO PROCEED WITH LV DIGITAL RANGE SAFETY COMMAND CHECKS	**
	BK2	4-5	CVTS	ORNG	SWITCH TO BK1 CIRCUIT TO SUPPORT RANGE SAFETY COMMAND CHECKS	**
		5			DIGITAL RANGE SAFETY COMMAND CHECKS ----- VERIFY THAT CAPE COMMAND STATION IS IN CLOSE LOOP CONFIGURATION FOR DRSC CHECKS USING FLIGHT CODE PLUGS AND	**

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DATE:
REVISION

APOLLO/SATURN LAUNCH OPERATIONS

PAGE	TEST NO.	VEHICLE
1	1	1

31
7-LSVIR-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA	DESCRIPTION	REMARKS
- 1 DAY 14 HRS 45'00"					THAT SRQ HAS SWITCHED TO BK1 CIRCUIT *****CAUTION***** * * FLIGHT CODE PLUGS ARE * NOT TO BE RADIATED OPEN * LOOP * *****CAUTION*****	
	BK1	5-1	CLTC	C10E C40E	VERIFY PROPELLANT DISPERSION PULSE SENSORS CONNECTED	
	BK1	5-2	CLTC	CPSS	VERIFY READY TO OBSERVE PROPELLANT DISPERSION CHECKS IN BLOCKHOUSE	
	BK1	5-3	CLTC	B1RF	DIGITAL RANGE SAFETY COMMAND CARRIER ON	
	BK1	5-4	CLTC	CPSS	RELEASE P.D. KEY TO CLVN	
	BK1	5-5	CLTC	CLVN	PROPELLANT DISPERSION ENABLE ON	
	BK1	5-6	CLTC	C1DP R4DP	VERIFY ERW & DRSCR TEST POWER ON INDICATION	
	BK1	5-7	CLTC	R1BM R4VC	DRSC & ERW RECORDERS TO SLOW	
	BK1	5-8	CLTC	ORNG	DIGITAL RANGE SAFETY COMMAND ENCODER NO. 1 ON	
	BK1	5-9	CLTC	C1DP	S-1B DRSCR'S #1 AND #2 GROUND POWER ON	
	BK1	5-10	CLTC	R4DP	S-1VB DRSCR'S #1 AND #2 GROUND POWER ON	
		5-11	CLTC	C40E C4PS	S-1VB CUTOFF WILL BE SENT	
	BK1	5-12	CLTC	R4DP	VERIFY S-1VB ERW'S #1 AND #2 OFF	
	BK1	5-13	CLTC	R1BM R4VC	DRSC & ERW RECORDER TO FAST	
	BK1	5-14	CLTC	ORNG	GIVE CUTOFF COMMAND, RELEASE UPON REQUEST	

APOLLO/SATURN
LAUNCH OPERATIONS

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
1 DAY 14 HRS 45'00"						
	BK1	5-15	CLTC	R1BM R4VC	DRSC & ERW RECORDERS TO SLOW	
		5-16		C1DP R4DP	VERIFY DRSCR' #1 AND #2 CUTOFF	
	BK1	5-17	CLTC	C1DP R4DP	VERIFY ERW'S #1 AND #2 ON INTERNAL AND CHARGED	
	BK1	5-18	CLTC	R1RF	SET SELECTOR PANEL RECEIVER SELECTOR SWITCH TO POSITIONS #1, #2, #3, #4. VERIFY SW. POSITION.	
	BK1	5-19	CLTC	ORNG	REMOVE CUTOFF COMMAND	
		5-20		C4EN	NOTE ENGINE CUTOFF NOT RECEIVED	
	BK1	5-21	CLTC	CPSS	VERIFY S-IB AND S-IVB ERW'S #1 AND #2 VOLTAGE INDICATIONS	
	BK1	5-22	CLTC	R1BM R4VC	DRSC & ERW RECORDERS TO FAST	
	BK1	5-23	CLTC	ORNG	GIVE PROPELLANT DISPERSION COMMAND FOR 3 SEC AND REMOVE	
	BK1	6	CLTC	R1BM R4VC	DRSC & ERW RECORDERS TO SLOW	
	BK1	6-1	CLTC	C1DP R4DP CPSS	VERIFY S-IB AND S-IVR PROPELLANT DISPERSION DOES NOT OCCUR ON VEHICLE	
	BK1	6-2	CLTC	C1DP	ERW'S #1 AND #2 EXTERNAL	
	BK1	6-3	CLTC	C1DP	VERIFY S-IB EBWS #1 AND #2 VOLTAGES OFF	
	BK1	6-4	CLTC	R1BM R4VC	DRSC & ERW RECORDERS TO FAST	
	BK1	6-5	CLTC	ORNG	GIVE SAFE COMMAND FOR 3 SEC AND REMOVE	
	BK1	6-6	CLTC	R1BM R4VC	DRSC AND ERW RECORDERS TO SLOW	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION 8

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

33
 7-LSVIR-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 14 HRS 45:00"						
	BK1	6-7	CLTC	R4DP	VERIFY SAFE COMMAND RECEIVED	**
	BK1	6-8	CLTC	R4DP	VERIFY S-IVB DRSCR'S #1 AND #2 AND EBW'S #1 AND #2 REMAIN ON	**
	BK1	6-9	CLTC	R4DP	EBW'S #1 AND #2 EXTERNAL AND VERIFY OFF	**
	BK1	6-10	CLTC	ORNG	SWITCH TO DIGITAL RANGE SAFETY COMMAND ENCODER #2	**
	BK1	6-11	CLTC	R1BM R4VC	DRSC & EBW RECORDER TO FAST	**
	BK1	6-12	CLTC	ORNG	GIVE CUTOFF COMMAND; RELEASE UPON REQUEST	**
	BK1	6-13	CLTC	R1BM R4VC	DRSC AND EBW RECORDERS TO SLOW	**
	BK1	6-14	CLTC	C1DP R4DP	VERIFY ERWS #1 AND #2 TO INTERNAL AND CHARGED	**
	BK1	6-15	CLTC	B1RF	SET SELECTOR PANEL RECEIVER SELECTOR SWITCH TO POSITION #1, #2, #3, #4. VERIFY SW. POSITION	**
	BK1	6-16	CLTC	ORNG	REMOVE CUTOFF COMMAND	**
	BK1	6-17		C4EN	NOTE ENGINE CUTOFF NOT RECEIVED	**
	BK1	6-18	CLTC	CPSS	VERIFY S-IB AND S-IVR EBW'S #1 AND #2 VOLTAGE INDICATIONS	**
	BK1	6-19	CLTC	R1BM R4VC	DRSC & EBW RECORDERS TO FAST	**
	BK1	6-20	CLTC	ORNG	GIVE PROPELLANT DISPERSION COMMAND FOR 3 SECONDS AND REMOVE	**
	BK1	6-21	CLTC	R1BM R4VC	DRSC AND EBW RECORDERS TO SLOW	**
	BK1	6-22	CLTC	C1DP R4DP CPSS	VERIFY S-IB AND S-IVR PROPELLANT DISPERSION DOES NOT OCCUR ON VEHICLE	**

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 34
 TEST NO. 7-LSV18-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
1 DAY 14 HRS 45:00"						
	RK1	6-23	CLTC	R1BM R4VC	DRSC & EBW RECORDERS TO FAST	
	RK1	6-24	CLTC	DRNG	GIVE SAFE COMMAND FOR 3 SECONDS AND REMOVE	
	RK1	6-25	CLTC	R1BM R4VC	DRSC AND EBW RECORDERS OFF	
	RK1	6-26	CLTC	R4DP	VERIFY SAFE COMMAND RECEIVED	
	RK1	6-27	CLTC	R4DP	VERIFY S-IVB DRSCR'S #1 AND #2 AND ERWS #1 AND #2 REMAIN ON	
	RK1	6-28	CLTC	C1DP R4DP	EBWS #1 AND #2 TO EXTERNAL AND VERIFY OFF	
	RK1	6-29	CLTC	C1DP R4DP	S-IB DRSCR'S #1 AND #2 GROUND POWER OFF	
	RK1	6-30	CLTC	DRNG	DIGITAL RANGE COMMAND ENCODER OFF	
	RK1	6-31	CLTC	B1RF	DIGITAL RANGE SAFETY COMMAND CARRIER OFF	
	RK1	6-32	CLTC	CLVN	PROPELLANT DISPERSION ENABLE OFF	
	RK1	6-33	CLTC	CLVN	RETURN P.D. ENABLE KEY TO CPSS	
	RK1	6-34	CLTC	R4DP	VERIFY LOSS OF EBW AND DRSCR TEST POWER ON INDICATION	
	RK1	6-35	CLTC	A4NW	REMOVE JUMPER 1301A1J2/E TO 1301A1J15/O+	
	RK1	6-36	CLTC		COMMAND CHECKS COMPLETE. ALL PERSONNEL RETURN TO YOUR NORMAL CIRCUIT	
	RK2	6-37	CLTC	CVTS	REPORT DIGITAL RANGE SAFETY COMMAND CHECKS COMPLETE	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 35
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 14 HRS 30'00"	BK5	1	C10E	RECE	START ECS UNIT A-2 TO S-IVB ENGINE COMPARTMENT PER CSD-E-8009, PART II (AFTER CLEARANCE FROM C40E)	
- 1 DAY 14 HRS 05'00"	BK5	1	C10E	A1NW	STANDBY TO TURN IGNITION CIRCUIT BREAKER ON	
	BK5	2	C10E	SGME	REPORT COMPLETION OF GSE E-M TEST PER CSD-E-8011	
	BK1	3	C10E	CLTC	REQUEST CLEARANCE TO INTERRUPT PRE-LAUNCH BUS AT 1-1 DAY, 14 HRS.	
- 1 DAY 14 HRS 00'00"	BK5	1	C10E	C1ME	REPORT COMPLETION OF S-IB ELECTRO MECH CHECKS PER CSD-P-8013	
	BK5	2	C10E	SGME	BEGIN HOLDDOWN ARM PREPS PER CSD-E-8014 PART I	
	BK5	3	C10E	C1ME	REPORT COMPLETION OF S-IB FUEL JACKET FILL PER CSD-P-8021	**
	BK5	4	C10E	C1ME	REPORT COMPLETION OF S-IB HEATER CHECKS PER 6-CLSIBIB-211	**
	BK5	5	C10E	CPSS	IGNITION PERMISSION ON	
	BK5	6	C10E	S1NE	BEGIN SPGG NO VOLTAGE & CONTINUITY CHECKS PER 1-CLSIBIB-218, PART I	
- 1 DAY 13 HRS 30'00"	BK5	1	C10E	S1NE	REPORT SPGG NO VOLTAGE AND CONTINUITY CHECKS COMPLETE PER 1-CLSIBIB-218	
	BK5	2	C10E	CPSS	IGNITION PERMISSION OFF	
	BK6	3	C40E	C4PS	VERIFY S-IVB PROP SYSTEM PURGES	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION 8

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 36
 TEST-NO. 7-LSVIR-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 13 HRS 30'00"					COMPLETE	
	BK6	4	C40E	C4PS	SECURE S-IVB PROP SYSTEMS EXCEPT THAT PORTION REQUIRED TO SUPPORT PU SYSTEM CALIBRATION	
- 1 DAY 13 HRS 00'00"						
	BK2	1	CLTC	CVTS	S-IB STAGE POWER IS BEING REMOVED	
	BK5	2	C10E	C1NP	REMOVE S-IB VEH POWER PER CSD-N-8001	
	BK5	3	C10E	C1NP	REPORT S-IB VEH POWER REMOVED PER CSD-N-8001	
	BK1	4	CLTC	C10E	REPORT S-IB POWER REMOVED	
	BK5	5	C10E	C1ME	REPORT BLAST PLATES AND INSTRUMENT COMPARTMENT COVERS INSTALLED	
	BK5	6	C10E	RHSF	REPORT COMPLETION OF LH2 SYSTEM PURGING	
	RD2	7	C40E	S4CE	PERFORM S-IVB PROPELLANT UTILIZATION SYSTEM CALIBRATION PER 1-DLSIVBIB-206 (1A90538)	
	BK5	8	C10E	S1NE	INSTALL S-IB SAFETY SWITCHES	
	BK5	9	C10E	C1ME	SECURE S-IB VEHICLE FOR BUILT IN HOLD	
- 1 DAY 12 HRS 30'00"						
	BK5	1	C10E	RECE	SECURE UNIT A-2 (S-IVB BOATTAIL) PER CSD-E-8009 (COORDINATE WITH C40E)	
- 1 DAY 12 HRS 00'00"						
	BK5	1	C10E	SGME	BEGIN WATER SYSTEM PREPS FOR LAUNCH PER CSD-E-8012 PART 1	
	BK5	2	C10E	SGME	PREPARE SHORT CABLE MAST FOR LAUNCH PER CSD-E-8015	

L/V LAUNCH COUNTDOWN

DATE: AUGUST 11, 1966

REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

 PAGE
TEST NO.
VEHICLE

 37
7-LSVIR-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 11 HRS 00'00"	BK5	1	C10E	SGME	VERIFY LIFT-OFF AND SWING ARM SWITCHES ARE CALIBRATED AND PURGE HOSES CONNECTED	
	BK5	2	C10E	SGME	BEGIN FUEL AND LOX MAST PREPS FOR LAUNCH PER CSD-E-8016	
	BK2	3	CVTS	CSTC	VERIFY SPACECRAFT READY FOR ENVIRONMENTAL CHAMBER MATE.	
	BK5	4	C10E	RAAA	MATE APOLLO ARM AND ENVIRONMENTAL CHAMBER TO SPACECRAFT	
- 1 DAY 10 HRS 00'00"	BL4	1	CUOE	RUSE	VERIFY COMPLETION OF ST-124M SYSTEM TEST IBM-G-8007.	
	BL4	2	CUOE	RUSE	SECURE ST-124M SYSTEM PER LVO-G-8006, REPORT TO RUCP IN RD3 WHEN SECURE	
- 1 DAY 09 HRS 30'00"	BK5	1	C10E	SGME	REPORT COMPLETION OF SHORT CABLE MAST PREPS FOR LAUNCH PER CSD-E-8015	
	BK5	2	C10E	SGME	REPORT COMPLETION OF HOLDDOWN ARM PREPS FOR LAUNCH PER CSD-E-8014, PART I.	
- 1 DAY 09 HRS 00'00"	RD2	1	C40E	S4CE	VERIFY P.U. SYSTEM CALIBRATION COMPLETE	
	RD2	2	C40E	C4PS	SECURE S-IVB PROPULSION SYSTEMS FOR B.I.H.	

APOLLO/SATURN
 LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 1 DAY 08 HRS 30'00"	BK2	1	CLTC	CVTS	S-IVB AND IU STAGE POWER ARE BEING REMOVED	
	BK6	2	C40E	C4PS	VERIFY S-IVB PROPULSION SYSTEM SECURE	
	RL2	3	C40E	C4ES	SECURE S-IVB STAGE POWER PER DAC-N-8004	
	BL4	4	CUOE	CUNP	REMOVE IU VEHICLE POWER PER 1-ILIUIB-203	
	BK5	5	C10E	SGME	REPORT COMPLETION OF WATER SYSTEM PREPS FOR LAUNCH PER CSD-E-8012	
- 1 DAY 08 HRS 15'00"	BK5	1	C10E	SGME	REPORT COMPLETION OF FUEL AND LOX MAST PREPS FOR LAUNCH PER CSD-E-8016	
	BK5	2	C10E	USAE	REPORT COMPLETION OF SWING ARM AND APOLLO ACCESS ARM PRELAUNCH PREPS PER CSD-E-8021	
- 1 DAY 08 HRS 00'00"	BK6	1	C40E	C4ES	VERIFY S-IVB POWER REMOVED.	
	RL4	2	CUOE	CUNP	VERIFY IU POWER REMOVED	
	BL4	3	CUOE	SUMS	VERIFY ALL COVERS ON UMA RACKS	
	BK1	4	CLTC	C10E C40E CUOE	VERIFY VEHICLE IS SECURE FOR THE BUILT IN HOLD.	
	BK1	5	CLTC	BGCC	VERIFY LAUNCH VEHICLE COMPUTER PREPS COMPLETE FOR B.I.H.	
	BK1	6	CUOE	CUNP	SECURE AUXILIARY POWER SYSTEM PER 1-ILIUIB-208	

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

39
7-LSVIR-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					LAUNCH VEHICLE NO WORK PERIOD ----- FROM T-1 DAY 8 HRS TO T-16 00	
		1			SPACECRAFT ACTIVITIES WHICH CONTINUE INCLUDE THE FOLLOWING:	
		1-1			SPACECRAFT ACE REMOVAL	
		1-2			SPACECRAFT BATTERY INSTALLATION	
					SPACECRAFT LH2 TOP OFF	
					SPACECRAFT LOX LOAD	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION R

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

40.
 7-1 SVIR-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					LAUNCH VEHICLE NO WORK PERIOD -----	
		1		SUVE	PREPARE ID FLIGHT AND BACK-UP BATTERIES FOR INSTALLATION PER 1-ILIUIB-207 (T-1 DAY 4 HRS)	
		2		SLOB	PREPARE S-IB FLIGHT AND BACK-UP BATTERIES PER 1-CLSIBIB-226 (T-18:30 HRS)	
		3		S4CE	PREPARE S-IVB FLIGHT AND BACK-UP BATTERIES PER (T- 1 DAY 14 HRS) FWD BATT #1 - 1B57234 FWD BATT #2 - 1B57235 AFT BATT #1 - 1B57236 AFT BATT #2 - 1B57237	
		4		PCVE	PERFORM PROPELLANT LINE VACUUM MONITORING PER 6-CLGSEIB-285	
		5			THE FOLLOWING S-IVB ITEMS ARE TO BE PERFORMED WITHIN 24 HOURS OF LAUNCH:	
		6		U4PE	PERFORM S-IVB VACUUM JACKETED LINE CHECK PER DAC-M-8009, PART I.	
		7		S4ME	PERFORM S-IVB COLD PLATE PREPS PER DAC-M-8009, PART II.	
		8		S4ME	REMOVE S-IVB ENGINE ACCESS KIT PER DAC-M-8009, PART V.	
		9		S4ME	PRESSURIZE S-IVB FLIGHT ELECTRICAL UNITS PER DAC-M-8009/PART 4	

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L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

41
 7-LSVIR-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
PART II						
LAUNCH COUNTDOWN						

-23 HRS 00'00"		1		CSTC	BEGIN HELIUM SERVICING PREPARATIONS	**
-22 HRS 30'00"		1		CSTC	VERIFY PAD IN SAFE CONDITION FOR HE SERVICING	**
		2		CSTC	BEGIN HELIUM SERVICING	
-17 HRS 30'00"		1		CSTC	VERIFY HE SERVICING COMPLETE	
		2		CSTC	BEGIN LH2 TOP OFF	
-16 HRS 00'00"	BK1	1	CSTC	CLTC	SPACECRAFT LH2 TOP-OFF IS COMPLETE THE PAD IS OPEN FOR OPERATIONAL PERSONNEL	
	PA	2	CVTS		PAD IS OPEN FOR OPERATIONAL PERSONNEL	
		3		CSTC	BEGIN SPACECRAFT LOX LOADING.	
-13 HRS 30'00"		1		CSTC	VERIFY LOX LOADING COMPLETE	
-12 HRS 00'00"					BUILT IN HOLD -----	
NOTE: LAUNCH VEHICLE TASKS FROM						
----- -16 HRS TO -12 HRS WILL BE						
ACCOMPLISHED DURING THE FINAL						
HOURS OF THE BUILT IN HOLD. THE						
COUNTDOWN CLOCK WILL REMAIN AT						
-12 HRS DURING THESE OPERATIONS.						

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

42
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-16 HRS 00'00"	BL2	1	CLOE	SLPC SLME	OPEN VEHICLE AS REQUIRED FOR ACCESS	
	BK5	2	CLOE	CLME	OPEN VEHICLE AS REQUIRED FOR ACCESS (CANNISTERS 12 & 13 AND FUEL BAY 3)	
	BK5	3	CLOE	CLME	INSTALL S-IB FLIGHT BATTERIES	
	BK6	4	CLOE	SLPC SLCE	INSTALL S-IVB FLIGHT BATTERIES PER DAC-N-8005	
					<u>NOTE:</u> SUVM WILL SUPPORT S-IVB BATTERY INSTALLATION PER 6-ILIUIB-225	
-14 HRS 00'00"	BK1	5	CUOE	CUVM	INSTALL IU FLIGHT BATTERIES PER 6-ILIUIB-260 (DO NOT CONNECT)	
	BK5	1	CLOE	CLME	PERFORM PREPS FOR LOX LOADING PER CSD-P-8020	
	BL1	2	CUOE	CUNP	APPLY AUXILIARY GROUND POWER PER 1-ILIUIB-208	
	BK2	3	CLTC	CVTS	VERIFY COMPLEX IS ON CRITICAL POWER	
	YW4	4	CLTC	BGCC	BEGIN LAUNCH VEHICLE GROUND COMPUTER PREPS PER 5-ILGSEIB-204	
	BK1	5	CLTC	RLDE ALDE	BEGIN LV DEE-6 PREPARATIONS PER 1-ILGSEIB-202	
	GY3	6	CLTC	BDAS	PREPARE AGCS & BH DDAS-ESE PER PROCEDURE IBM-R-8006	
	BK6	7	CLOE	SLPC	VERIFY B.I.H. FUNCTIONS COMPLETE	
	BL2	8	CLOE	SLPC	PERFORM PREPOWER PREPS PER DAC-N-8005	
	BL4	9	CUOE	SUVM	PERFORM WALK AROUND INSPECTION (VERIFY WHEN COMPLETE)	
	BK5	10	CLOE	APCE	BEGIN PNEUMATIC PRE-LAUNCH PREPS PER CSD-E-8018	

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L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 43
 TEST NO. 7-LSVIR-200
 VEHICLE 4S-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-14 HRS 00'00"						
	BK5	11	C10E	SGME	BEGIN WATER SYSTEM PREPS PER CSD-E-8012, PARTS I AND II	
	BK5	12	C10E	RECE	BEGIN ECS PREPS PER CSD-E-8009, PART I	
	BK5	13	C10E	S1MS S1VM S1NE	BEGIN INSTALLATION OF OPTICAL INSTRUMENTATION SYSTEM PER 2-CLSIBIB-244	
-13 HRS 35'00"						
	BK5	1	C10E	BSTM	PREPARE BH TELEMETRY GSE PER 3-CLGSEIB-202	
-13 HRS 10'00"						
	BK2	1	CVTS	CGCM	PERFORM RCA SEQUENCER CHECKS AND PROVIDE LIFTOFF SIGNAL TO CIF, BDOP & ANEMOMETER RECORDERS PER 1-ILGSEIB-211	
	PA	2		CVTS	ANNOUNCE THAT COUNTDOWN READOUTS WILL BE INTERRUPTED	
	BK5	3	C10E	USAE	BEGIN INITIAL Q-BALL COVER RETRACT PREPS PER CSD-E-8020	
-12 HRS 45'00"						
	BK5	1	C10E	S1NE	VERIFY S-IB SAFETY SWITCHES INSTALLED	
	GY2	2	CUOE	BURF	PREPARE BH RF-GSE PER PROCEDURE 4-ILIUIB-224, 226, 227, 228	
	BK5	3	C10E	C1ME	PRE-CHARGE S-IB HYDRAULIC ACCUMULATORS PER CSD-P-8001 (250 PSIG/MIN MAX)	
	GY2	4	C10E	S1RF B1RF	PREPARE S-IB RF SYSTEM PER CSD-R-8002 AND INSTALL TEST CODE PLUGS IN RF-GSE	* * * *
	BK5	5	C10E	B1TM	PREPARE S-IB TM SYSTEM PER CSD-R-8001	
	BK6	6	C40E	B4TM S4RF	PREPARE S-IVB RF & TM SYSTEM PER	* * *

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 44
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-12 HRS 45'00"					DAC-N-8002 AND VERIFY FLIGHT CODE PLUGS INSTALLED IN S-IVB DRSC DECODERS	
	GY2	7	CUOE	BURF	PREPARE IU RF SYSTEM PER IBM-R-8008	
	BK6	8	CLOE	SLHY	PREPARE S-IVB HYDRAULIC SYSTEM PER DAC-M-8004, PART III	
	GY1	9	CUOE	BUTM	PREPARE IU TM SYSTEM PER IBM-R-8010	
-12 HRS 30'00"						
	BK5	1	SLOE	SGME	BEGIN HOLDDOWN ARM PREPS FOR LAUNCH PER CSD-E-8014	
-12 HRS 15'00"						
	BK5	1	SLOE	USAE	BEGIN UMBILICAL SWING ARM AND APOLLO ACCESS ARM PREPARATION PER CSD-E-8021	
	BR3	2	CUOE	SUMS	VERIFY FLOWMETERS UNLOCKED AND FLIGHT READY	
	BR3	3	CUOE	SUMS	VERIFY COVER REMOVED FROM ACOUSTIC MICROPHONES	
	RD3	4	CUOE	SUVM	PERFORM IU MECHANICAL LAUNCH PREPS PER 6-ILVIB-269A	
	BL2	5	CLOE	SLPC	VERIFY PRE-POWER PREPS COMPLETE	
	YW2	6	CUOE		VERIFY LCC 37 IN SUPPORT OF COUNTDOWN	
	BL4	7	CUOE	BDAS	VERIFY LCC & AGCS DDAS ESE PREPS COMPLETE	
	BK1	8	CLTC	BGCC	VERIFY COMPLETION OF GROUND COMPUTER PREPS	
	BK1	9	CLTC	CLOE CLOE CUOE	REPORT S-IB, S-IVB, IU VEHICLE TM PREPS COMPLETE	
	BK1	10	CLTC	CLOE CLOE CUOE	REPORT S-IB, S-IVB, IU VEHICLE RF PREPS COMPLETE	
	BK5	11	CLOE	CLIP	VERIFY CAMERA PWR SWITCH OFF AND CAMERA EVENT TEST SWITCH OFF. (PRIOR TO S-IB VEHICLE POWER ON)	

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L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 45
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-12 HRS 15'00"	BK5	✓12	CLOE	ALNW	INSTALL 1 AMP PULSE SENSOR POWER JUMPER FROM 1284A1J2-F TO 1284A1J35-W (CLOSE SWITCH)	
	BK5	✓13	CLOE	CLME	VERIFY COMPLETION OF S-IB BATTERY INSTALLATION	
	BK6	✓14	CLOE	S4PC	VERIFY COMPLETION OF S-IVB BATTERY INSTALLATION	
	BL4	✓15	CUOE	SUVM	VERIFY COMPLETION OF IU BATTERY INSTALLATION	
-12 HRS 05'00"	BK2	1	CVTS	ALL	THE COUNT WILL BE RESUMED AT 1 MINUS 12 HOURS IN FIVE MINUTES.	
-12 HRS 00'00"	BK2	1	✓CLTC	CVTS	LAUNCH VEHICLE POWER WILL BE APPLIED	
	BK6	2	✓CLOE	CLPS	BEGIN S-IVB PROPULSION PREPS PER DAC-P-8002/ PART I, II, III, IV	
	BK5	3	✓CLOE	CLNP	APPLY S-IB VEHICLE POWER PER CSD-N-8001	
	BL4	4	✓CUOE	CUNP	APPLY IU VEHICLE POWER PER 1-ILLIUIB-203	
	BK6	5	✓CLOE	CLNP	APPLY S-IVB VEHICLE POWER PER DAC-N-8006	
	BK6	6	CLOE	CLIP	SSB GROUP ON	
	BL4	7	✓CUOE	CUNP	VERIFY IU SWITCH SELECTOR INHIBITED AND SWITCH SELECTOR COUNTER RESET TO ZERO	
	RD1	8	✓CLFR	CLVM	OPERATE FUEL VENTS TO CLOSE AND RESTORE CONTROL SYSTEM TO FLT. CONFIGURATION.	
	RD1	9	✓CLFR	SIVM	OPERATE FUEL VENTS TO OPEN AND LEAK CHECK VENT CONTROL SYSTEM	
	RD1	10	✓CLFR	CLFP	OPERATE FUEL SPHERE TO AUTO	
	RD4	11	✓CLFP	APCD	OPEN FUEL SPHERES AND CAMERA SPHERE BYPASS HANDVALVES AND CLOSE BYPASS HANDVALVES AFTER OK FROM CLFP	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 46
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-12 HRS 00'00"	BK5	✓12	CLOE	CLIP	S-IB MEASURING RATE GYRO SW. ON	
	BK5	✓13	CLOE	CLIP	CAMERA TIMER POWER ON AND CAMERA TIMER ZERO SWITCH TO ZERO, THEN TO AUTO- (VERIFY ZERO INDICATION).	
	BK1	✓14	CLTC	BDAS	VERIFY S-IB, S-IVB, IU DDAS SYNCHRONIZATION	
	BK5	✓15	CLOE	CLNP	VERIFY SAFETY SWITCHES INSTALLED INDICATION	
	BK6	✓16	CLOE	CLNP	ARM SAFETY SWITCHES. VERIFY ARMED INDICATION	
	BK5	✓17	CLOE	CLNP	VERIFY 1D10 AND 1D20 BATTERY INDICATIONS NOT ON	
	BK5	✓18	CLOE	CLNP	SAFETY SWITCH ARMING OFF	
	BK5	✓19	CLOE	SLNE	CONNECT S-IB BATTERIES	
	CK5	✓19-1	CLOE	CLNP	VERIFY +1D10 AND +1D20 BATTERY INDICATIONS	
	BL4	✓20	CUOE	SUVE CUNP	CONNECT IU BATTERIES; VERIFY +6D10, +6D20, +6D30 AND 6D40 BATTERY INDICATIONS (REPORT WHEN COMPLETE AND LCC 37 MONITORING).	
	BL4	✓21	CUOE	SUVE	PERFORM WALK-AROUND INSPECTION. VERIFY WHEN COMPLETE.	
	BL3	✓22	CLOE	SLCE CLNP	VERIFY +4D10, +4D20, +4D30, +4D40 BATTERY INDICATIONS	
	BK6	✓23	CLOE	SLMS	PERFORM S-IVB AUTO SCAN AND REPORT WHEN COMPLETE	
	BK2	✓24	CVTS	ORNG	PREPARE COMMAND TRANSMITTERS FOR OPEN LOOP OPERATION USING TEST CODE PLUGS	
-11 HRS 45'00"	✓BK5	✓25	CLOE	FLBM	PREPARE FIRE DETECTION SYSTEM PER 2-CLSIBIB-223 AND CSD-M-8012	
	✓BK5	✓26	CLOE	FLBM	PREPARE TRAILING WIRE MEASURING SYSTEM PER CSD-M-8019	
	✓BK1	✓1	CLTC	CLDE CLOE	VERIFY S-IB AND S-IVB PREVALVE CONTROL PRESSURE READY FOR EDS TEST	

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L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 47
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-11 HRS 30'00"	BK2	1	✓ CLTC	CVTS	VERIFY WITH CSTC THAT COVERS ARE REMOVED FROM TV CAMERA CAMERA LIGHTS IN THE SLA	
	BK1	2	✓ CLTC	CUNP	VERIFY SWITCH SELECTOR INHIBIT OFF	
	BK1	3	✓ CLTC	RLFC	VERIFY HYDRUALIC PUMPS OFF UNTIL EDS COMPLETION	
	BK1	4	✓ CLTC	CRTE	PERFORM SV EDS TEST PER LVO-N-8007	
	YW2	5	RLFC RLFC RUFC	RLFC RLFC RUFC	PERFORM FLIGHT CONTROL SYSTEM PREPS PER LVO-G-8010 AND CSD-G-8001	<i>DAC not ready to support EDS - problems</i>
	YW3	6	✓ CUOE	RGCC	BEGIN FLIGHT COMPUTER POWER ON PREPS PER 5-LIUIB-253	
-11 HRS 00'00"	BK1	1	✓ CLTC	CRTE	VERIFY SV EDS TEST COMPLETE	
	BK1	2	✓ CLTC	CUIP	TV SYSTEM ON (AFTER EDS TEST COMPLETE)	
	BK1	3	✓ CLTC	RGCC	INITIATE FLT. COMPUTER POWER ON PER 5-LIUIB-253. (AFTER TV SYSTEM ON)	

APOLLO/SATURN
LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 55'00"	BK1	1	CLTC	CLOE	REPORT TELEMETRY GSE PREPARATIONS COMPLETE	
	BK1	2	CLTC	CLOE CUOE	REPORT S-IB AND IU RF GSE PREPARATIONS COMPLETE	
-10 HRS 50'00"	BK1	1	CLTC	RGCC	REQUEST SWITCH SELECTOR INTERFACE PROGRAM FT 03	
	BK1	2	CLTC	CLNP CLNP CUNP	VERIFY SWITCH SELECTOR INHIBIT OFF	
	BK1	3	CLTC	RGCC	INITIATE SWITCH SELECTOR INTERFACE TEST FT 03	
	BK5	4	CLOE	CARE	BEGIN ESE LIMIT SWITCH FUNCTIONAL PER CSD-N-8005	
	BK5	5	CLOE	CLME	VERIFY S-IB HYD. SYSTEM PRECHARGE COMPLETE	
-10 HRS 45'00"	BK1	1	CLTC	RGCC	VERIFY SWITCH SELECTOR INTERFACE PROGRAM FT 03 COMPLETE	
	BK1	2	CLTC	RGCC	REQUEST AND EXECUTE FT 33 (DISCRETE OUTPUT TEST)	
	BK2	3	CVTS	MSTC REDS	MONITOR BLACK 3 FOR VERIFICATION OF LAUNCH VEHICLE ATTITUDE REFERENCE FAILURE CHECK (BS0016) FROM RGCC. VERIFY WHEN TEST IS COMPLETE	
		4			LV GUIDANCE AND CONTROL CHECKS	

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L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

49
7-LSVIB-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 45'00"	BK2	4-0	CVTS	CSTC	Verify S/C ready to support rate excessive test (Part II) on BK3	
	BK1	4-1	✓ CLTC	RLFC	ALL PERSONNEL CONNECTED WITH FLIGHT CONTROL SYSTEM TESTS SWITCH TO YELLOW 2 CIRCUIT.	10 21
	YW2	4-2	RLFC	RUFC	CONTROL COMPUTER ON.	
	YW2	4-3	RLFC	RUFC	CONTROL ACCELEROMETERS ON.	
	YW2	4-4	RLFC	RUFC	EDS/CONTROL RATE GYROS ON.	
	YW2	4-5	RLFC	RUFC	CONTROL COMPUTER TEST PER 5-ILIUIB-264	
	YW2	4-6	RLFC	RUFC	SET CONTROL COMPUTER COMPARATORS.	
	YW2	4-7	RLFC	REDS	VERIFY EDS READY TO SUPPORT RATE EXCESSIVE TESTS - PART II (MANUAL)	
	YW2	4-7A	RLFC	RUFC	Personnel connected with rate excessive test (Part II) Switch to BK3	
	YW2	4-8	RLFC	RUFC	EDS/CONTROL RATE GYROS TEST PER 5-ILIUIB-265	
	YW2	4-9	RLFC	RUFC	SET EDS/CONTROL RATE GYRO COMPARATORS.	
	YW2	4-10	RLFC	RUFC	CONTROL ACCELEROMETER TEST PER 5-ILIUIB-266	
	YW2	4-11	RLFC	RUFC	ALL FLIGHT CONTROL PERSONNEL RETURN TO BK1 CIRCUIT.	
	BK1	5	✓ CLTC	CQAA	Q-BALL SYSTEM ON	
	BK1	6	✓ CLTC	CQAA	Q-BALL HEATERS ON	
-10 HRS 40'00"	BK1	0	CLTC	RGCC	Request & execute ETOS (Data load/verify)	
	BK1	1	✓ CLTC	C1NP	INHIBIT S-1B SWITCH SELECTOR.	
	BK2	2	✓ CVTS	ORNG	VERIFY CLEARANCE FOR LV RF & IM SYSTEMS	
	BK2	3	✓ CVTS	ORNG	VERIFY IU RADAR IS AWAY FROM THE VEHICLE AND WILL NOT INTERROGATE THE IU C-BAND BEACON UNTIL REQUESTED	
	BK1	4	CLTC	CUNP	VERIFY SWITCH SELECTOR INHIBIT OFF	
	BK2	5	✓ CVTS	ETMS	VERIFY CIF TM STATION IS READY TO SUPPORT TM CHECKS. SWITCH TO BLACK 1.	
	BK2	6	✓ CVTS	CGIC	VERIFY MANDY STATION READY TO SUPPORT TV	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 50.
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 40'00"					SYS CHECKS. SWITCH TO BLACK 1	
	BK2	7	CVTS	ECOP	VERIFY CIF COMPUTER READY FOR TM CHECKS. SWITCH TO BLACK 1	
	BK1	8	CLTC	CPSS CLVN	RELEASE PROPELLANT DISPERSION ENABLE KEY TO CLVN	
	BK1	9	CLTC	B1RF B4RF	VERIFY THE VEHICLE DRSC SYSTEMS ARE USING THE FLIGHT CODE PLUGS	* *
	BK1	10	CLTC	BGCC	VERIFY GMON AND DMON RUNNING.	
-10 HRS 37'00"		1			LAUNCH VEHICLE RF AND TM CHECKS -----	
	BK2	1-1	CLTC	CVTS	REQUEST PERMISSION TO ACTIVATE ALL LAUNCH VEHICLE RF AND TELEMETRY SYSTEMS	
	BK2	1-2	CLTC	CVTS	VERIFY RANGE IS READY FOR OPEN LOOP DRSC CHECKS USING TEST CODE PLUGS AT THE RANGE COMMAND STATION	
	BK2	1-3	CLTC	CVTS	VERIFY THAT THE IU RADAR IS AWAY FROM THE VEHICLE AND WILL NOT INTERROGATE THE IU C-BAND BEACON UNTIL REQUESTED	
	BK1	1-4	CLTC	C1IP	S-IB TRANSMITTER F1, F2, S1 & P1 ON	
	BK1	1-5	CLTC	C4IP	RF CHECKOUT SWITCHES NO. 1 AND NO. 2 ON.	
	BK1	1-6	CLTC	C4IP	SSB TRANSMITTER ON,	
	BK1	1-7	CLTC	C4IP	ORBIT TRANSMITTER GROUP ON	
	BK1	1-8	CLTC	C4IP	S-IVB FLIGHT TRANSMITTER GROUP ON	
	BK1	1-8a	CLTC	C4IP	Flight SCO Group ON	
	BK1	1-9	CLTC	CUIP	IU TM F1 & S1 ON	
	BK1	1-10	CLTC	CUIP	IU RF F1, F2, S1, & P1 ON	
	BK1	1-11	CLTC	C1IP	400 CYCLE CAL SWITCH ON	
	BK1	1-12	CLTC	C1IP	S-IB TM CALIBRATOR POWER ON	

E/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

51
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 37'00"	BK1	1-13 ✓	CLTC	C1IP	S-IB TAPE RECORDER POWER ON	
	BK1	1-14	CLTC	C4IP	S-IVB FLIGHT SCO GROUP ON	
	BK1	1-15 ✓	CLTC	CUIP	IU TM CALIBRATOR ON	
	BK1	1-16 ✓	CLTC	CUIP	IU TAPE RECORDER POWER ON	
	BK1	1-17 ✓	CLTC	C1IP C4IP CUIP	VERIFY TAPE RECORDER READY LIGHT ON	
	BK1	1-18 ✓	CLTC	C1IP CUIP C4IP	TELEMETER CALIBRATION MODE TO PREFLT	
	BK1	1-19 ✓	CLTC	C1IP C4IP CUIP	FM PREFLIGHT LEVELS TO 50%	
	BK1	1-20 ✓	CLTC	BDOP	ODOP GROUND TRANSMITTER ON	
	BK1	1-21 ✓	CLTC	C1IP	ODOP ON	
	BK1	1-22 ✓	CLTC	CUIP	GLOTRAC BEACON (AZUSA) ON	
	BK1	1-23 ✓	CLTC	CUIP	IU C-BAND BEACON ON	
	BK2	1-24	CVTS	ORNG	INTERROGATE GLOTRAC BEACON (AZUSA) AND REPORT RANGE READOUT WHEN COMPLETE IN GY1 CIRCUIT TO BLRF	
					NOTE: GLOTRAC BEACON (AZUSA) NOT TO BE ----- DECLARED NO-GO WITHOUT 5 MINUTES WARMUP	
-10 HRS 33'00"		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC ✓	ETMS BSTM	VERIFY CIF/LC34 DATA TRANSMISSION LINK IS ON	
	BK1	1-2	CLTC ✓	ETMS	BEGIN TELEMETRY PARAMETER CHECK	
	BK1	1-3	CLTC	ETMS		

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 52
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 33'00"					BSTM ✓ TELEMETRY TAPE RECORDING ON	
	BK2	1-4	CVTS	ORNG ✓	RANGE COMMAND CARRIER ON. (TRANSMITTER #1)	
	BK1	1-5	CLTC	R1BM ✓ R4VC ✓	DRSCR AND EBW RECORDERS TO SLOW.	
	BK1	1-6	CLTC	CPSS ✓	VERIFY S-IB AND S-IVB S & A DISCONNECTED	
	BK1	1-7	CLTC	CLVN ✓	PROPELLANT DISPERSION ENABLE ON	
	BK1	1-8	CLTC	R4DP ✓	VERIFY EBW AND DRSCR TEST POWER ON	
	BK1	1-9	CLTC	C1DP ✓ R4DP ✓	VERIFY S&A SAFE	
	BK2	2	CVTS	ORNG ✓	VERIFY READY TO SUPPORT DRSCR & EBW CHECKS ON BK1	
-10 HRS 32'00"		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	C1DP ✓	S-IB DRSCR'S #1 & #2 ON	
	BK1	1-2	CLTC	R4DP ✓	S-IVB DRSCR'S #1 & #2 GRD PWR ON	
	BK1	1-3	CLTC	C1DP ✓ R4DP ✓	VERIFY EBW'S #1 & #2 OFF	
	BK1	1-4	CLTC	C1DP ✓ R4DP ✓	RSCR'S #1 & #2 TO INTERNAL	
-10 HRS 31'00"		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	R1BM ✓ R4VC ✓	DRSCR AND EBW RECORDER TO FAST	
	BK1	1-2	CLTC	ORNG ✓	GIVE CUTOFF COMMAND AND RELEASE AT TEST CONDUCTORS REQUEST	
		1-3		REDS ✓	NOTE DCR NO. 1 AND 2 CUTOFF ON AND OFF	

E/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 53
TEST NO. 7-LSVIB-200
VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 31'00"						
	BK1	1-4	CLTC ✓	B1RF	SET SELECTOR PANEL RECEIVER SELECTOR SWITCH TO POSITIONS #1, #2, #3, #4, AND VERIFY EACH POSITION.	
	BK1	1-5	CLTC ✓	ORNG	REMOVE CUTOFF	
	BK1	1-6	CLTC ✓	ORNG	SWITCH TO RANGE COMMAND TRANSMITTER #2.	
	BK1	1-7	CLTC ✓	ORNG	GIVE CUTOFF COMMAND AND RELEASE ON REQUEST.	
	BK1	1-8	CLTC ✓	B1RF	SET SELECTOR PANEL RECEIVER SELECTOR SWITCH TO POSITIONS #1, #2, #3, #4 AND VERIFY EACH POSITION	
	BK1	1-9	CLTC ✓	ORNG	REMOVE CUTOFF	
	BK1	1-10	CLTC ✓	B4DP	DRSCR'S #1 AND #2 TO EXTERNAL	<i>EBW to external & verify off</i>
	BK1	1-11	CLTC ✓	R1BM R4VC	DRSCR AND EBW RECORDERS TO OFF	
	BK2	1-12	CVTS ✓	ORNG	INTERROGATE IU C-BAND BEACON. REPORT WHEN COMPLETE	
					NOTE: REPORT READOUT TO BLRF IN GY1 AFTER COMPLETION OF RF SYSTEM CHECK.	
	BK2	1-13	CVTS	ORNG	REPORT COMMAND CARRIER DEVIATION, ANTENNA, ANTENNA ORIENTATION, AND POWER OUTPUT OVER GY1 CIRCUIT TO BLRF AFTER COMPLETION OF RF SYSTEM CHECK	
	BK5	2 ✓	C10E	RPNE	VERIFY POWER ON PER CSD-N-8028, CSD-N-8029, CSD-N-8027, AND CSD-N-8030.	
-10 HRS 30'00"						
	BK5	1 ✓	C10E	RRPE	SET UP RP-1 SYSTEM FOR LOADING PER CSD-L-8012	
	BK5	2 ✓	C10E	ROSE	BEGIN LOX SYSTEM PREPS PER CSD-L-8009	
	BK5	3 ✓	C10E	ROSE	PERFORM LOX COMPONENTS TEST PER CSD-L-8004	
	BK5	4 ✓	C10E	RHSE	PERFORM LH2 SYSTEM PREPS PER CSD-L-8019	

APOLLO/SATURN LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 30'00"	BK5	5	C10E	RHSE	PERFORM LH2 COMPONENTS TEST PER PROCEDURE LVO-L-8002	
	BK5	6	C10E	RHSE	START LH2 REPLENISH PREPS PER 6-LLVIB-203A	
	BK2 BL4	7	CVTS	CSTC	<i>Close S/L LH2 vents. Notify C10E if vents must be opened prior to T-6100 HRS (LH2 Burn and Service)</i>	
-10 HRS 29'30"		8	CUDS	SUVM	<i>Remove ST-124M Reference Prism Cover</i>	
		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	C4IP	PREFLT LEVELS TO CYCLE FOR 10 SECONDS, THEN AUTO.	
	BK1	1-2	CLTC	CUIP	TELEMETER CALIBRATION TO AC CAL	
	BK1	1-3	CLTC	CUIP	TELEMETER CALIBRATION COMMAND ON AND OFF	
	BK1	1-4	CLTC	C1IP	TM CALIBRATIONS FM COMMAND ON FOR 30 SECS (DELAY NEXT STEP 30 SECONDS)	
	BK1	1-5	CLTC	CUIP	TELEMETER CALIBRATION TO SSB	
	BK1 BK4	2	CLTC	C1IP		
				C4IP	SSB COMMAND ON AND OFF	
	BK1	2-1	CLTC	CUIP	TELEMETER CALIBRATION COMMAND ON AND OFF	
-10 HRS 28'00"		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	C1IP		
				CUIP	FM PREFLT LEVELS TO AUTO	
-10 HRS 27'40"		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	C1IP	MEASURING TRANSFER TO INFLIGHT	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

55
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 27'00"	RK1	1	CLTC	C1IP CUIP C4IP	FM PREFLT LEVELS TO 100%	
-10 HRS 26'	BK1	1	CLTC	C1IP C4IP	SSB COMMAND ON AND OFF	
	BK1	2	CLTC	CUIP	TELEMETER CALIBRATION COMMAND ON AND OFF (DELAY NEXT STEP 30 SECONDS)	
-10 HRS 25'00"		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	C1IP	TAPE RECORDER TO RECORD	
	BK1	1-2	CLTC	C4IP	TAPE RECORDER FAST RECORD ON	
	BK1	1-3	CLTC	CUIP	TAPE RECORDER RECORD ON	
	BK1	1-4	CLTC	C1IP C4IP CUIP	FM PREFLT LEVELS TO AUTO, 25%, 50%, 75% AND 100% IN 2 SECOND INCREMENTS	
	BK1	1-5	CLTC	C1IP C4IP CUIP	FM PREFLIGHT LEVELS TO 50% (DELAY NEXT STEP 10 SECONDS)	
	BK1	1-6	CLTC	C1IP CUIP C4IP	TM CALIBRATION MODE TO INFLIGHT	
	BK1	1-7	CLTC	C1IP CUIP C4IP	FM PREFLIGHT LEVELS TO AUTO	
	BK1	1-8	CLTC	C1IP	TM CALIBRATION FM COMMAND ON (FOR 5 SEC)	
	BK1	1-9	CLTC	C4IP	REGULAR COMMAND ON FOR 5 SEC	
	BK1	1-10	CLTC	CUIP	TELEMETER CALIBRATION COMMAND ON (FOR 5 SEC)	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION 8

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 56
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 25'00"						
	BK1	1-11	CLTC	C4IP	SPECIAL CAL COMMAND ON	
	BK1	1-12	CLTC	C4IP	REGULAR CAL COMMAND ON (FOR 5 SECONDS)	
	BK1	1-13	CLTC	C4IP	SPECIAL CAL COMMAND OFF	
	BK1	2	CLTC	RUPP	AZIMUTH ALIGNMENT BUILDING AC AND DC POWER ON	
	YW1	3	CUOE	RUSE	PERFORM ST-124M SYSTEM PREPARATIONS FOR LAUNCH COUNTDOWN POWER TRANSFER TEST PER LVO-G-8005.	
	BK1	4	CLTC	COAA	B-BALL SIMULATE COMMAND ON (FOR 10 SECONDS.)	
	BK1	5	CLTC	R1BM	TRAILING WIRE RECORDER TO RECORD	
	BK1	6	CLTC	CMCD	INSERT RACS COMPUTER PROGRAM, REPORT WHEN COMPLETE. GIVE A MARK AT START OF HI, LOW AND RUN SEGMENTS	
					NOTE: S-IB, S-IVB, IU HIGH CALIBRATE ---- COMMAND (15 SECONDS) S-IB, S-IVB, IU LOW CALIBRATE COMMAND (15 SECONDS) S-IB, S-IVB, IU RUN COMMAND	
	BK1	7	CLTC	R1BM	TRAILING WIRE RECORDER OFF.	
-10 HRS 23'00"						
		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	C1IP	TAPE RECORDER TO AUTO	Record-Playback TO AUTO
	BK1	1-2	CLTC	C4IP	TAPE RECORDER FAST RECORD OFF	
	BK1	1-3	CLTC	CUIP	TAPE RECORDER RECORD OFF	
-10 HRS 22'40"						
		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	C1IP	TAPE RECORDER TO PLAYBACK	

L/V. LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

57
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 22'40"	BK1	1-2	CLTC	C4IP CUIP	TAPE RECORDER PLAYBACK ON	
-10 HRS 20'30"		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	C1IP C4IP CUIP	CONFIRM TAPE RECORDER READY INDICATION	
	BK1	1-2	CLTC	C1IP	TAPE RECORDER <i>Record Play-back TO AUTO</i> TO AUTO	
	BK1	1-3	CLTC	CUIP C4IP	TAPE RECORDER PLAYBACK OFF	
-10 HRS 20'00"		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	C1IP	FM CAL COMMAND ON (FOR 5 SEC)	
	BK1	1-2	CLTC	CUIP	TELEMETER CALIBRATION ON (FOR 5 SEC)	
	BK1	1-3	CLTC	C4IP	REGULAR CAL COMMAND ON (FOR 5 SEC)	
	BK1	1-4	CLTC	BMMR	TURN ON WIND LOAD RECORDINGS	
-10 HRS 15'00"	BK1	1	CLTC	RLFC	REPORT COMPLETION OF FLIGHT CONTROL TESTS.	
	BK1	2	CLTC	BSTM	CIF/LC34 DATA TRANSMISSION LINK OFF	
	BK5	3	C10E	RHSE	BEGIN LH2 SYSTEM PURGE PER 6-LSIVBIB-201	
	BK1	4	CLTC	CUNP	SWITCH SELECTOR INHIBIT ON	

APOLLO/SATURN
 LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 13'00"	BK1	0	CLTC	BGCC	Verify S-IB Hyd. monitor and deck in ready	
	BK1	1	CLTC	C1PP RUPP	CHECK VEHICLE GRD PWR SETTINGS FOR POWER TRANSFER	
	BK1	2	CLTC	CUNP	VERIFY IU READY FOR PWR TRANSFER	
		3			LV GUIDANCE & CONTROL CHECKS -----	
	BK1	3-1	CLTC	A1NW	VERIFY S-IB HYDRAULIC PUMP MOTOR CIRCUIT BREAKERS ON.	
	BK1	3-2	CLTC	RLFC	ALL PERSONNEL CONNECTED WITH S-IB "ATTITUDE COMMAND TEST" SWITCH TO YELLOW 2 CIRCUIT.	
		3-2a		RIFS	Enable S-IB Hyd. Monitor	
	YW2	3-3	RLFC	RGCC	REQUEST LADDER OUTPUT TEST FT 10 (PLUS 3 DEGREE ROLL) FOR S-IB STAGE.	
	YW2	3-4	RLFC	RUFC	CONTROL COMPUTER IN S-IB BURN MODE	
	YW2	3-5	RLFC	R1FC	VERIFY OK TO START S-IB HYDRAULIC PUMPS	
	YW2	3-6	RLFC	S1FC	VERIFY S-IB ENGINE AREA CLEAR FOR HYDRAULICS.	
	YW2	3-7	RLFC	R1FC	S-IB HYDRAULIC PUMPS ENABLE ON.	
-10 HRS 11'30"		1			LV GUIDANCE & CONTROL CHECKS -----	
	BK1	1-1	CLTC	C4NP	4D141 POWER ON	
	YW2	1-2	RLFC	R1FC	S-IB HYDRAULIC PUMPS #1, 2, 3, AND 4 ON	
	YW2	1-3	RLFC	RGCC	EXECUTE LADDER OUTPUT TEST OPTION 2 (PLUS 3 DEG. ROLL) FOR S-IB STAGE	
	BK1	1-4	CLTC	S4HY	VERIFY S-IB ENGINE AREA CLEAR FOR HYDRAULICS.	
	BK1	1-5	CLTC	R4HY	S-IB AUXILIARY HYDRAULIC PUMP MOTOR SWITCH ON (NOTIFY C4OE ON BK-6 WHEN SYSTEM IS STABILIZED)	

L/V. LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

59
 7-LSVIR-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 10'00"					LV POWER TRANSFER TEST -----	
	BK1	1	CLTC	RLFC	REPORT FLIGHT CONTROL READY FOR POWER TRANSFER	
	BK1	2	CLTC	C10E C40E CUOE	PERSONNEL CONNECTED WITH LV POWER TRANSFER SWITCH TO YOUR RESPECTIVE DIS CIRCUIT (S-IB TO BK5, S-IVB TO BK6, IU TO BL4)	
	BL4 BK5 BK6 YW2	3	CLTC	C1NP C4NP CUNP	AFTER VERIFICATION OF READY FOR POWER ***** TRANSFER, ALL STAGE POWER TO INTERNAL ***** ON MY MARK *****	9 38
	BK5	3-1	C10E	C1NP	ARM SAFETY SWITCHES. VERIFY INDICATION	
	BK5	3-2	C10E	C1NP	ON MARK FROM CLTC STAGE POWER TEST #1 ON	
	BK1	3-3	CLTC	C10E	VERIFY WHEN READY FOR S-IB POWER TRANSFER	
		3-4	C10E	C1NP R18M	READ OUT +1D11 AND 1D21 VOLTAGES. AND 1D10 & 1D20 CURRENTS	
		3-5		C1NP	NOTE S-IB POWER TRANSFER OK	
		3-6	C10E	C1NP	SAFETY SWITCH ARMING OFF. NOTE INDICATION REMAINS ON.	
	BK5	3-7		C1NP	STAGE POWER TEST #1 OFF *****	
		3-8		C1NP	NOTE SAFETY SWITCH ARMED INDICATION OFF	
		3-9	C10E	CARE S1NE	VERIFY SATISFACTORY POWER TRANSFER	
	BK5	3-10	C10E	ALL	PERSONNEL RETURN TO BK1 CIRCUIT	
	BK1	3-11		C10E	REPORT SATISFACTORY S-IB POWER TRANSFER	

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE
TEST NO. 7-LSV, 1B-200
VEHICLE AS-202

60.

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 10'00"						
	BK6	4	C40E	C4IP	CHECKOUT MEAS GROUP OFF	
	BK6	4-1	C40E	R4DP	DRSCR #1 AND #2 TO INTERNAL	
		4-2	C40E	C4NP	VERIFY EMERGENCY POWER TRANSFER SWITCH TO NORMAL	
	BK6	4-3	C40E	C4NP R4EI	VERIFY READY FOR POWER TRANSFER	
	BK6	4-4	C40E	C4NP	ON MARK FROM CLTC POWER TRANSFER TEST TO INTERNAL	
	BK1	4-5	CLTC	C40E	VERIFY WHEN READY FOR S-IVB POWER TRANSFER	
	BK6	4-6	C40E	C4NP R4EI	VERIFY SATISFACTORY ON INTERNAL	
	BK6	4-7	C40E	C4NP	POWER TRANSFER TEST TO EXTERNAL *****	
	BK6	4-8	C40E	R4DP	DRSCR #1 AND #2 TO EXTERNAL	
	BK6	4-9	C40E	C4IP	C/O MEAS. GROUP ON	
	BK6	4-10	C40E	R4HY	S-IVB AUXILIARY HYDRAULIC PUMP MOTOR SWITCH OFF	
	BK6	4-11	C40E	CMCD	INSERT S-IVB RACS COMPUTER PROGRAM ALL-ALL RUN	
	BK6	4-12	C40E	C4NP R4EI	VERIFY NO DESCREANCIES ON INTERNAL POWER	
	BK6	4-13	C40E	ALL	PERSONNEL RETURN TO BK1 CIRCUIT	
	BK1	4-14		C40E	REPORT SATISFACTORY S-IVB POWER TRANSFER	
	BL4	5	CUOE	CUNP RUBM SUVE	VERIFY READY FOR POWER TRANSFER	
	BL4	5-1	CUOE	CUNP	ON MARK FROM CLTC POWER TRANSFER TEST TO INTERNAL	
	BK1					

E/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1968
REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

61
7-LSV B-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 10:00"	BK1 BL4	5-2	CLTC	CUOE	VERIFY WHEN READY FOR IU POWER TRANSFER	
		5-3		RUBM CUNP SUVE	NOTE IU POWER TRANSFER OK	
	BL4	5-4		CUNP	NOTE VOLTAGE AND CURRENT	
	BL4	5-5	CUOE	CUNP	ON YOUR MARK POWER TRANSFER TEST TO ***** EXTERNAL *****	
	BL4 BK4	5-6	CUOE	RUBM CUNP	<i>Record & read voltages & currents to pump, SUVE & RUBM</i> RECORD VOLTAGE AND CURRENT 6D11 6D10 ----- 6D21 6D20 ----- 6D31 6D30 ----- 6D41 6D40 -----	
	BL4	5-7	CUOE	CUNP RUBM SUVE	VERIFY SATISFACTORY IU POWER TRANSFER <i>TO external except CUNP, RUBM, & SUVE</i>	
	BL4	5-8	CUOE	ALL	PERSONNEL RETURN TO BK1	
	BK1	5-9		CUOE	REPORT SATISFACTORY IU POWER TRANSFER	
		6			LV GUIDANCE & CONTROL CHECKS -----	
	YW2	6-1	RLFC	RUFC	ATTITUDE RATE COMMANDS (PLUS AND MINUS PITCH, YAW, ROLL) (AFTER ATTITUDE COMMANDS)	
	YW2	6-2	RLFC	R1FC	S-IB HYDRAULIC PUMPS OFF,	
	YW2	6-3	RLFC	R1FC	S-IB HYDRAULIC PUMPS ENABLE OFF,	
	YW2	6-4	RLFC	RUFC	RESET EDS/CONTROL RATE GYRO COMPARATORS <i>Cancel S-IB Hyd. Monitor</i>	
	YW2	6-4a 6-5	R1FS RLFC	RUFC R1FC RGCC	ALL PERSONNEL CONNECTED WITH S-IB "ATTITUDE COMMAND TEST" SWITCH BACK TO	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 62
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 10'00"					THE BK1 CIRCUIT.	
	BK1	6-6	CLTC	RLFC	REPORT COMPLETION OF S-IB "ATTITUDE COMMAND TEST".	
	BK5	6-7	C10E	R1FC	REPORT COMPLETION OF S-IB ATTITUDE COMMAND TESTS.	
-10 HRS 08'00"						
	BK1	1	C10E	C11P	VERIFY TRANSFER SWITCH TO IN-FLIGHT	
	BK1	2	C10E	S1MS	START S-IB VEHICLE MEASURING CALIBRATION AUTOMATIC SCAN PER CSD-M-8014	
	BK1	3	CLTC	CQAA	Q-BALL SYSTEM OFF	
	BK1	4	CLTC	CQAA	Q-BALL HEATERS OFF	
-10 HRS 05'00"						
		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	ETMS	VERIFY ALL OUT OF TOLERANCE TM PARAMETERS HAVE BEEN REPORTED TO BLTM	
	BK1	1-2	CLTC	R4DP	S-IVB DRSCR'S #1 AND #2 GROUND POWER OFF	
	BK1	1-3	CLTC	C1DP	S-IB DRSCR'S #1 AND #2 EXTERNAL AND OFF	
	BK2	1-4	CVTS	ORNG	OBTAIN STATUS OF RADAR AND GLOTRAC BEACON (AZUSA) READOUTS	
	BK1	1-5	CVTS	CLTC	REPORT COMPLETION OF C-BAND AND GLOTRAC BEACON (AZUSA) READOUTS.	
	BK1	1-6	CLTC	CUIP	TV SYSTEM OFF	
	BK1	1-7	CLTC	CUIP	C-BAND BEACON OFF WHEN RANGE READOUT COMPLETE	
	BK1	1-8	CLTC	CUIP	GLOTRAC BEACON (AZUSA) OFF WHEN RANGE READOUT COMPLETE	
	BK1	1-9	CLTC	C11P	ODOP OFF	
	BK1	1-10	CLTC	BDOP	ODOP GROUND TRANSMITTER OFF	

L/V. LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION 8

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

63
7-LSVIR-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 05'00"						
	BK1	1-11	CLTC	CLVN	PROPELLANT DISPERSION ENABLE OFF	
	BK2	1-12	CVTS	ORNG	RANGE COMMAND CARRIER OFF.	
	BK1	1-13	CLTC	B1RF	INSTALL FLIGHT CODE PLUGS IN RF-GSE	
	BK2	1-14	CVTS	ORNG	RECONFIGURE RANGE COMMAND STATION FOR CLOSED LOOP DRSCR OPERATION USING FLIGHT CODE PLUGS	
	BK1	1-14	CLTC	B1RF	verify wind Load Recordings complete	
	BK1	1-15	CLTC	C1IP	S-IB TRANSMITTERS F1, F2, S1 AND P1 OFF	
	BK1	1-16	CLTC	CUIP	IU RF F1, F2, S1 & P1 OFF	
	BK1	1-17	CLTC	C1IP CUIP	TAPE RECORDER POWER OFF	
	BK1	1-18	CLTC	C4IP	SSB TRANSMITTER OFF	
	BK1	1-19	CLTC	C4IP	ORBIT TRANSMITTER GROUP OFF	
	BK1	1-20	CLTC	C4IP	FLIGHT TRANSMITTER GROUP OFF	
	BK1	1-21	CLTC	C4IP	RF CHECKOUT SWITCHES NO. 1 AND NO. 2 OFF	
	BK1	1-22	CLTC	BSTM ETMS	TELEMETRY TAPE RECORDING OFF	
	BK5	2	C1OE	APCE	VERIFY COMPLETION OF PNEUMATIC SYSTEM PRE-LAUNCH PREPS PER CSD-E-8018	
	RD1	3	C1FP	S1MP	RECORD S-IB GEARCASE PRESSURE, REMOVE GAUGES AND SECURE FOR LAUNCH.	
		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	BLTM BLRF	MONITOR GY1 CKT FOR RF READOUTS FROM SRO	
	BK2	1-2	CVTS	ORNG	RF & TM CKS ARE COMPLETE, REPORT RF READOUT INFO IN GY1 CKT TO BLRF & BLTM	
	BK1	1-3	CLTC	CUIP	IU TM F1 OFF	

-10 HRS
00'00"

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 64
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-10 HRS 00'00"						
	BK1	1-4	CLTC	C11P	✓ TM CALIBRATOR POWER OFF	
	BK1	1-5	CLTC	CU1P	✓ TELEMETER CALIBRATOR OFF	
	BK1	1-6	CLTC	C10E C40E CU0E	✓ ✓ ✓ UPON SATISFACTORY COMPLETION OF RF & TM CHECKS, VERIFY TELEMETERS OFF; THEN CONNECT TELEMETER SYSTEMS TO VEHICLE TELEMETER ANTENNAS (SUTM USE IBM-R-8010)	
	BK1	1-7	CLTC	C10E C40E CU0E	✓ ✓ ✓ UPON SATISFACTORY COMPLETION OF RF CHECKS, RETURN RF SYSTEMS TO FLIGHT CONFIGURATION.	
	BK5	2	C10E	CARE	✓ VERIFY COMPLETION OF ESE LIMIT SWITCH FUNCTIONAL PER CSD-N-8005	
	BK6	3	C40E	CU0E	✓ VERIFY IU CLEAR FOR PARTIAL FWD ACCESS KIT REMOVAL	
	BK6	4	C40E	S4ME	✓ BEGIN PARTIAL REMOVAL OF S-IVB FWD ACCESS KIT PER DAC-M-8002 (EXCEPT THAT PORTION REQUIRED FOR S & A CONNECTIONS)	
-09 HRS 58'00"						
	BK1	1	CLTC	C4NP	✓ VERIFY 4D141 POWER ON.	
		2			LV GUIDANCE & CONTROL CHECKS	
	BK1	2-1	CLTC	RLFC	✓ ALL PERSONNEL CONNECTED WITH S-IVB "ATTITUDE COMMAND TEST" SWITCH TO YELLOW 2 CIRCUIT	
	YW2	2-2	RLFC	C4AX	VERIFY APS ENGINE VALVE POWER OFF.	
	YW2	2-3	RLFC	RGCC	REQUEST LADDER OUTPUT TEST OPTION 3 (ATTITUDE COMMAND TEST) FOR S-IVB STAGE	
	YW2	2-4	RLFC	RUFC	FLIGHT CONTROL COMPUTER IN S-IVB BURN MODE.	
	YW2	2-5	RLFC	S4HY	VERIFY S-IVB INTERSTAGE CLEAR FOR ENGINE GIMBALING	

L/V. LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

65
 7-LSVIR-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 58'00"						
	YW2	2-6	RLFC	R4HY	S-IVB AUX HYD PUMP MOTOR SWITCH ON	
	YW2	2-7	RLFC	RGCC	INITIATE LADDER OUTPUT TEST FT 10 OPTION 3 (ATTITUDE COMMAND TEST) FOR S-IVB BURN	
	YW2	2-8	RLFC	RUFC	ATTITUDE RATE COMMANDS (PLUS AND MINUS PITCH, YAW, ROLL)	
	YW2	2-9	RLFC	R4HY	S-IVB AUX HYD PUMP MOTOR SWITCH OFF	
	YW2	2-10	RLFC	RUFC	FLIGHT CONTROL COMPUTER IN S-IVB COAST MODE	
	YW2	2-11	RLFC	RGCC	RECYCLE LADDER OUTPUT TEST FT 10 (ATTITUDE COMMAND TEST) FOR S-IVB COAST	
	YW2	2-12	RLFC	RGCC	INITIATE LADDER OUTPUT TEST FT 10 OPTION 3 (ATTITUDE COMMAND TEST) FOR S-IVB COAST	
	YW2	2-13	RLFC	RUFC	ATTITUDE RATE COMMANDS (PLUS AND MINUS PITCH AND YAW) (AFTER ATTITUDE COMMANDS)	
	YW2	2-14	RLFC	RUFC	RESET CONTROL COMPUTER COMPARATORS.	
	YW2	2-15	RLFC	RUFC	FLIGHT CONTROL COMPUTER IN S-IB BURN MODE	
	YW2	2-16	RLFC	RUFC RGCC R4FC R4HY	ALL PERSONNEL CONNECTED WITH S-IVB "ATTITUDE COMMAND TEST" SWITCH BACK TO THE "BK1" CIRCUIT.	
-09 HRS 50'00"		1			LV RF & TM CHECKS -----	
	BK1	1-1	CLTC	C10E✓ C40E✓ CUOE✓	VERIFY TELEMETER SYSTEMS CONNECTED TO VEHICLE TELEMETER ANTENNAS	
	BK1	1-2	CLTC	C1IP✓	S-IB TRANSMITTER S1 ON	

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 66
TEST NO. 7-LSVIR-200
VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 50'00"						
	BK1	1-3	CLTC	CUIP	IU RF S1 ON	
	BK1	1-4	CLTC	C4IP	FLIGHT TRANSMITTER GROUP ON	
	BK1	1-5	CLTC	C10E C40E CUOE	VERIFY RF SYSTEMS CONNECTED IN FLIGHT CONFIGURATION	
	YW1	2	CUOE	RUSE	BEGIN ST-124M ACCEL. CHECKS PER IBM-G-9007.	
	BL4	3	CUOE	SUVE	VERIFY I.U. READY FOR COMPLETION OF S-IVB FWD ACCESS KIT REMOVAL AND IU DOOR INSTALLATION	
	BK6	4	CUOE	C40E	IU READY FOR COMPLETE ACCESS KIT REMOVAL	
	BK1	5	CLTC	ECOP	VERIFY READY TO SUPPORT PSEUDO FLIGHT PROGRAM	
-09 HRS 47'00"						
	BK1	1	CLTC	RGCC	REQUEST FLIGHT COMPUTER PSEUDO FLIGHT PROGRAM FT-26	
		2			LV RF & TM CHECKS -----	
	BK1	2-1	CLTC	BSTM ETMS	REPORT SATISFACTORY TELEMETER SIGNAL RECEPTION	
	BK1	2-2	CLTC	C1IP	S-IB TRANSMITTER S1 OFF	
	BK1	2-3	CLTC	CUIP	IU RF S-1 OFF	
	BK1	2-4	CLTC	CUIP	IU TM S-1 OFF	
	BK1	2-5	CLTC	C4IP	FLIGHT TRANSMITTER GROUP OFF	
	BK1	2-6	CLTC	C4IP	FLIGHT SCO GROUP OFF	
	BK2	2-7	CLTC	CVTS	RF & TM CHECKS ARE COMPLETE AND ALL SYSTEMS ARE OFF.	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

67
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 45'00"						
	BK1	1	CLTC	ETMS	TURN ON CIF TAPE RECORDER	
	BK1	2	CLTC	BDAS	DDAS TAPE RECORDER ON	
	BK1	3	CLTC	C1NP C4NP CUNP	INHIBIT SWITCH SELECTORS	
		4			LV GUIDANCE & CONTROL CHECKS -----	
	BK1	4-1	CLTC	RLFC	REPORT COMPLETION OF S-IVB ATTITUDE COMMAND TESTS AND G & C INTERFACE TESTS	
	BK1	4-2	CLTC	RUFC	CONTROL ACCELEROMETERS OFF.	
	BK1	4-3	CLTC	RUFC	CONTROL COMPUTER OFF.	
	BK1	4-4	CLTC	RUFC	EDS CONTROL RATE GYROS OFF.	
	BK1	4-5	CLTC	RGCC	EXECUTE FLIGHT COMPUTER PSEUDO FLIGHT PROGRAM, FT-26	
-09 HRS 40'00"						
	BK1	1	CLTC	S1MS	VERIFY S-IB MEASURING CALIBRATION AUTOMATIC SCAN COMPLETE	
	BK1	2	CLTC	C1IP	MEASURING TRANSFER TO "GROUND" (AFTER AUTOMATIC SCAN COMPLETE)	
	RK1	3	CLTC	SUMS	IU MEASURING CALIBRATION AUTOMATIC SCAN (AFTER S-IB SCAN COMPLETE)	
-09 HRS 35'00"						
	BK6	1	C4OE	C4PS	REPORT COMPLETION OF S-IVB PROPULSION CHECKS	
	BK6	2	C4OE	S4ME	BEGIN REMOVAL OF AFT ACCESS KIT PER DAC-M-8003	
	BK1	3	CLTC	A1NW	INSTALL LIFTOFF JUMPER 1284A1J10/CC TO 1284A1J38/BIG U	
	BK1	4	CLTC	A4NW	INSTALL LIFTOFF JUMPER 1301A1J48/LITTLE Z TO 1301A1J16/LITTLE J	

APOLLO/SATURN
LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 35'00"	BK1	5	CLTC	A4NW	INSTALL PULSE SENSOR POWER JUMPER FROM 1301A1J2/E TO 1301A1J16/R	
	BK1	6	CLTC	C4DP	VERIFY PULSE SENSOR POWER OFF INDICATION NOT ON	
	BK1	7	CLTC	R4RS	Service structure measuring power OFF	
-09 HRS 30'00"	BK1	1	CLTC	CSTCL SSSC C40EL CUOEL	VERIFY READY TO DISCONNECT SERVICE STRUCTURE CABLE BRIDGE	
	BK5	2	C10E	S10E A1NE	YOU ARE CLEAR TO BEGIN NETWORK STRUCTURE DISCONNECT PER 1-CLGSE1B-216	
-09 HRS 25'00"	BK1	1	CLTC	RGCC	VERIFY PSEUDO FLIGHT COMPLETE	
	BK1	2	CLTC	ETMS	TURN OFF CIF TAPE RECORDER	
	BK1	3	CLTC	RGCC	INITIATE FLIGHT COMPUTER POWER OFF PER 5-LIUIB-253 & verify when complete.	
	BK5	4	C10E	S1NE	VERIFY P.D. PULSE SENSORS AND INERT S & A UNIT INSTALLED AND CONNECTED	
-09 HRS 05'00"	SRO	1	CVTS	ORNG	VERIFY CLEARANCE TO PROCEED WITH LV DIGITAL RANGE SAFETY COMMAND CHECKS.	
	SRO	2	CVTS	ORNG	VERIFY THAT RANGE COMMAND STATION IS IN CLOSED LOOP CONFIGURATION FOR DRSC CHECKS USING FLIGHT CODE PLUGS	
*****CAUTION***** * FLIGHT CODE PLUGS ARE * * NOT TO BE RADIATED OPEN * * LOOP. * *****CAUTION*****						

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

69
7-LSVIB-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 05'00"						
	BK2	3	CVTS	ORNG	SWITCH TO BK1 CIRCUIT TO SUPPORT DIGITAL RANGE SAFETY COMMAND CHECKS.	
		4			DIGITAL RANGE SAFETY COMMAND CHECKS -----	
	<i>BK6</i>	4-1	C40E	C4PS	NOTIFY PERSONNEL THAT PREVALVES AND RECIRC VALVES WILL BE CYCLED DURING COMMAND CHECKS	
	BK2	4-2	CLTC	CVTS	REQUEST PERMISSION TO BRING UP ^{Local} COMMAND TRANSMITTERS FOR ^{and Range Engineers} LV DIGITAL RANGE SAFETY COMMAND CHECKS, AND VERIFY SRO HAS SWITCHED TO BLACK 1 CIRCUIT.	
	BK1	4-3	CLTC	C1IP	S-1B TRANSMITTER F1 ON	
	BK1	4-4	CLTC	C10E C40E	VERIFY PROPELLANT DISPERSION PULSE SENSORS CONNECTED	
	BK1	4-5	CLTC	C10E C40E	VERIFY INERT PROPELLANT DISPERSION S&A UNITS ARE ELECTRICALLY CONNECTED	
	BK2	4-6	CVTS	CPSS	VERIFY READY TO OBSERVE PROPELLANT DISPERSION CHECKS ON VEHICLE AND IN BLOCKHOUSE ON BLACK 1 CIRCUIT.	
		4-7	CLTC	C4NP	S-IVB SWITCH SELECTOR INHIBIT OFF	
	BK1	4-8	CLTC	C4EN	ENGINE CONTROL POWER ON	
	BK1	4-9	CLTC	C4EN	ENGINE READY BYPASS ON - VERIFY INDICATION - THEN AUTO.	
	BK1	4-10	CLTC	B1RF	DIGITAL RANGE SAFETY COMMAND CARRIER ON	
	BK1	4-11	CLTC	C1DP R4DP	VERIFY S&A'S SAFE	
	BK1	4-12	CLTC	CLVN	PROPELLANT DISPERSION ENABLE ON	
	BK1	4-13	CLTC	C1DP R4DP	VERIFY EBW & DRSCR TEST POWER ON INDICATION	
	BK1	4-14	CLTC	C4IP	FLIGHT SCO GROUP ON	

L/V LAUNCH COUNTDOWN
 D/ : AUGUST 11, 1966
 RE ISION 8

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

70-
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 05'00"						
	BK1	4-15	CLTC	C4IP	FLIGHT TRANSMITTER GROUP ON	
	BK1	4-16	CLTC	ETMS		
		<i>4-16A</i>	<i>CLTC</i>	<i>BSTM</i>	TELEMETRY TAPE RECORDER ON	
	BK1	4-17	CLTC	<i>C4NP</i> R1BM R4VC	<i>See Selector inhibit ON</i> DRSCR AND EBW RECORDERS TO SLOW	
	BK1	4-18	CLTC	ORNG	DIGITAL RANGE SAFETY COMMAND ENCODER NO. 1 ON.	
	BK1	4-19	CLTC	C1DP	S-IB DRSCR'S #1 AND #2 ON	
	BK1	4-20	CLTC	C1DP	S-IB DRSCR'S #1 AND #2 TO INTERNAL	
	BK1	4-21	CLTC	R4DP	S-IVB DRSCR'S #1 AND #2 GRD POWER ON	
	BK1	4-22	CLTC	R4DP	VERIFY S-IVB EBW'S #1 AND #2 OFF	
	BK1	4-23	CLTC	R4DP	S-IVB DRSCR'S #1 AND #2 TO INTERNAL	
	BK1	4-24	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO FAST	
	BK1	4-25	CLTC	ORNG	GIVE CUTOFF COMMAND FOR 3 SECONDS AND RELEASE.	
		4-26		REDS	NOTE DCR #1 & #2 CUTOFF ON AND OFF	
	BK1	4-27	CLTC	C1DP R4DP	VERIFY DRSCR'S #1 AND #2 CUTOFF.	
	BK1	4-28	CLTC	C1DP R4DP	VERIFY EBWS #1 AND #2 ON INTERNAL AND CHARGED	
	BK1	4-29		C4EN	NOTE ENGINE CUTOFF NOT RECEIVED	
	BK1	4-30	CLTC	CPSS	VERIFY S-IB AND S-IVB EBWS #1 AND #2 VOLTAGE INDICATIONS	
	BK1	4-31	CLTC	ORNG	GIVE PROPELLANT DISPERSION COMMAND FOR 3 SEC AND RELEASE.	
	BK1	4-32	CLTC	C1DP R4DP CPSS	VERIFY S-IB AND S-IVB PROPELLANT DISPERSION DOES NOT OCCUR ON VEHICLE	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

71
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 05'00"						
	BK1	4-33	CLTC	R1BM R4FC R4VC	DRSCR AND EBW RECORDERS TO SLOW	
	BK1	4-34	CLTC	C1DP R4DP	EBW'S #1 AND #2 EXTERNAL	
	BK1	4-35	CLTC	C1DP	VERIFY S-IB EBWS #1 AND #2 VOLTAGES OFF	
	BK1	4-36	CLTC	R4DP	VERIFY S-IVB EBW'S #1 AND #2 OFF	
	BK1	4-37	CLTC	C1DP R4DP	ARM S-IB AND S-IVB PROPELLANT DISPERSION S&A (INERT)	<i>Verify all allage Rkt EBW' Zero Vols</i>
	BK1	4-38	CLTC	C4NP C1DP R4DP	SIMULATED LIFTOFF ON	<i>Verify allage rkt relay reset indicator OK</i>
		5		R4DP	NOTE DRSCR SIGNAL BLOCKED OFF	
	BK1	5-1	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO FAST	
	BK1	5-2	CLTC	ORNG	GIVE CUTOFF COMMAND FOR 3 SECONDS AND RELEASE.	
	BK1	5-3	CLTC	C1DP R4DP	VERIFY EBWS #1 AND #2 ON INTERNAL AND CHARGED	
	BK1	5-4	CLTC	CPSS	VERIFY S-IB AND S-IVB EBW'S #1 AND #2 VOLTAGE INDICATIONS	
		5-5		CSRP	NOTE S-IB ENGINES CUTOFF DOES NOT OCCUR	
	BK1	5-6	CLTC	C4EN	VERIFY ENGINE CUTOFF ON, AND NON-PROGRAM CUTOFF ON.	
	BK1	5-7	CLTC	C4EN	VERIFY ENGINE READY INDICATION OFF	
	BK1	5-8	CLTC	C4RC	VERIFY LOX AND LH2 PREVALVES AND RECIRC VALVES CLOSED	
	BK1	5-9	CLTC	ORNG	GIVE PROPELLANT DISPERSION COMMAND FOR 3 SECONDS AND RELEASE	
	BK1	5-10	CLTC	C1DP R4DP		

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE 72
TEST NO. 7-LSVIB-200
VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 05'00"					CPSS VERIFY S-IB AND S-IVB PROPELLANT DISPERSION ON VEHICLE	
	BK1	5-11	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO SLOW	
	BK1	5-12	CLTC	ORNG	SWITCH TO DIGITAL RANGE SAFETY COMMAND ENCODER #2.	
	BK1	5-13	CLTC	C1DP R4DP	RESET PULSE SENSORS	
	BK1	5-14	CLTC	C1DP R4DP	EBWS #1 AND #2 TO EXTERNAL	
	BK1	5-15	CLTC	C4EN	VERIFY NON-PROGRAM CUTOFF OFF	
	BK1	5-16	CLTC	C4RC	VERIFY LOX-LH2 PREVLAIVES AND RECIRC VALVES OPEN	
	BK1	5-17	CLTC	C4EN	ENGINE READY BY-PASS ON - VERIFY INDICATION, THEN AUTO	<i>Simulator off & verify voltage Rht firing unit enable off</i>
	BK1	5-18	CLTC	C4EN	VERIFY ENGINE CUTOFF OFF	<i>Sw selector to inhibit ON</i>
	BK1	5-19	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO FAST	
	BK1	5-20	CLTC	ORNG	GIVE CUTOFF COMMAND FOR 3 SECONDS AND RELEASE	
	BK1	5-21	CLTC	C1DP R4DP	VERIFY EBWS #1 AND #2 ON INTERNAL AND CHARGED	
	BK1	5-22	CLTC	CPSS	VERIFY S-IB AND S-IVB EBW'S #1 AND #2 VOLTAGE INDICATIONS	
	BK1	5-23		CSRP	NOTE S-IB ENGINES CUTOFF DOES NOT OCCUR	
	BK1	5-24	CLTC	C4EN	VERIFY ENGINE CUTOFF ON AND NON-PROGRAM CUTOFF ON	
	BK1	5-25	CLTC	C4EN	VERIFY ENGINE READY INDICATION OFF	
	BK1	5-26	CLTC	C4RC	VERIFY LOX-LH2 PREVALVES AND RECIRC VALVES CLOSED	
	BK1	5-27	CLTC	ORNG	GIVE PROPELLANT DISPERSION COMMAND FOR 3 SECONDS AND RELEASE.	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

73
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 05'00"						
	BK1	5-28	CLTC	C1DP R4DP CPSS	VERIFY S-IB AND S-IVB PROPELLANT DISPERSION ON VEHICLE	
	BK1	5-29	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO SLOW	
	BK1	5-30	CLTC	C1DP R4DP	RESET PULSE SENSORS	
	BK1	5-31	CLTC	C1DP R4DP	SIMULATED LIFTOFF OFF	
	BK1	5-32	CLTC	C4EN	VERIFY NON-PROGRAM CUTOFF OFF	
	BK1	5-33	CLTC	C4RC	VERIFY LOX-LH2 PREVALVES AND RECIRC VALVES OPEN.	
	BK1	5-34	CLTC	C4EN	<i>See Sel in liftoff</i> ENGINE READY BYPASS ON - VERIFY INDICATION, THEN AUTO	
	BK1	5-35	CLTC	C4EN	VERIFY ENGINE CUTOFF OFF	
	BK1	5-36	CLTC	C1DP R4DP	EBWS #1 AND #2 TO EXTERNAL AND VERIFY OFF	
	BK1	5-37	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO FAST	
	BK1	5-38	CLTC	ORNG	GIVE CUTOFF COMMAND FOR 3 SECONDS AND RELEASE	
	BK1	5-39	CLTC	C1DP R4DP	VERIFY EBWS #1 AND #2 TO INTERNAL AND CHARGED	
		5-40		C4EN	NOTE ENGINE CUTOFF NOT RECEIVED	
	BK1	5-41	CLTC	CPSS	VERIFY S-IB AND S-IVB EBW'S #1 AND #2 VOLTAGE INDICATIONS	
	BK1	5-42	CLTC	ORNG	GIVE PROPELLANT DISPERSION COMMAND FOR 3 SECONDS AND RELEASE.	
	BK1	5-43	CLTC	C1DP R4DP CPSS	VERIFY S-IB AND S-IVB PROPELLANT	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

74
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQ NCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 05'00"					DISPERSION DOES NOT OCCUR ON VEHICLE	
	BK1	5-44	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO SLOW,	
	BK1	5-45	CLTC	R4DP	S-IVB DRSCR'S #1 AND #2 GRD POWER OFF	
	BK1	5-46	CLTC	R4DP	VERIFY S-IVB DRSCR'S #1 AND #2 REMAIN ON	
	BK1	6	CLTC	ORNG	GIVE SAFE COMMAND FOR 3 SECONDS AND RELEASE	
	BK1	6-1	CLTC	R4DP	VERIFY SAFE COMMAND RECEIVED	
	BK1 BK1	6-2	CLTC	R4DP R4TM	VERIFY S-IVB DRSCR'S #1 AND #2 AND EBWS #1 AND #2 REMAIN ON GO OFF	
	BK1	6-3	CLTC	C1DP R4DP	EBWS #1 AND #2 TO EXTERNAL AND VERIFY OFF	
	BK1	6-4	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO OFF	
	BK1	6-5	CLTC	C4IP	FLIGHT TRANSMITTER GROUP OFF	
	BK1	6-6	CLTC	C4IP	FLIGHT SCO GROUP OFF	
	BK1	6-7	CLTC	C4IP	SINGLE SIDEBAND GROUP OFF	
	BK1 BK1	6-7a 6-8	CLTC CLTC	C4IP C1IP	Inflight/Preflight move to preflight S-IB TRANSMITTER F1 OFF	
	BK1	6-9	CLTC	BSTM ETMS	TELEMETRY TAPE RECORDING OFF	
	BK1	6-10	CLTC	C1DP R4DP	S-IB AND S-IVB PROPELLANT DISPERSION S&A TO SAFE	
	BK1	6-11	CLTC	R4DP	S-IVB DRSCR'S #1 AND #2 TO EXTERNAL AND VERIFY OFF	
	BK1	6-12	CLTC	C1DP	S-IB DRSCR'S #1 AND #2 TO EXTERNAL	
	BK1	6-13	CLTC	C1DP	S-IB DRSCR'S #1 AND #2 OFF	
	BK1	6-14	CLTC	ORNG	DIGITAL RANGE SAFETY COMMAND ENCODER OFF	
	BK1	6-15	CLTC	B1RF	DIGITAL RANGE SAFETY COMMAND CARRIER OFF	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

75
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 05'00"						
	BK1	6-16	CLTC	CLVN	PROPELLANT DISPERSION ENABLE OFF	
	BK1	6-17	CLTC	R4DP	VERIFY LOSS OF EBW & DRSCR TEST POWER ON INDICATION	
	BK1	6-18	CLTC	C4EN	ENGINE READY BYPASS OFF VERIFY INDICATION, THEN AUTO	
	BK1	6-19	CLTC	C4EN	ENGINE CONTROL POWER OFF	
	BK1	6-20	CLTC	CLVN	REMOVE PROPELLANT DISPERSION AND LIFTOFF ENABLE SWITCH KEYS AND GIVE TO THE PAD SAFETY REPRESENTATIVE IN THE BLOCKHOUSE.	
	BK1	6-21	CLTC	A1NW	REMOVE JUMPER 1284A1J2-F TO 1284A1J35-W	
	BK1	6-22	CLTC	A1NW	REMOVE JUMPER 1284A1J10/CC TO 1284A1J38/BIG U	
	BK1	6-23	CLTC	A4NW	REMOVE JUMPER 1301A1J48/LITTLE Z TO 1301A1J16/LITTLE J	
	BK1	6-24	CLTC	A4NW	REMOVE JUMPER 1301A1J2/E TO 1301A1J16/R	
	BK1	6-25	CLTC	\$	COMMAND CHECKS COMPLETE. ALL PERSONNEL RETURN TO YOUR NORMAL CIRCUIT	802
	BK2	6-26	CLTC	CVTS	REPORT COMMAND CHECKS COMPLETE	
	BK5	6-27	C10E	S1NE S1MP	DISCONNECT AND REMOVE PROPELLANT DISPERSION PULSE SENSORS AND SECURE VEHICLE CABLING ASSOCIATED WITH PROPELLANT DISPERSION SYSTEMS.	
	BR1	7	C10E	S1MS	VERIFY INSTALLATION OF OPTICAL INSTRUMENTATION SYSTEM COMPLETE PER 2-CLSIBIB-244	
	BK5	8	C10E	S1ME	SECURE S-IR BLAST SHIELDS FOR FLIGHT, REMOVE ACCESS LADDERS	↑

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 76
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-09 HRS 00'00"	BK6	1	C40E	C4PS	VERIFY FINAL PROPULSION SYSTEM PREPS COMPLETE	
	BK6	2	C40E	S4ME	COMPLETE AFT ACCESS KIT REMOVAL	
	BK6	3	C40E	S4PC	VERIFY AFT INTERSTAGE INSPECTION COMPLETE AND CLOSE AFT INTERSTAGE DOOR.	
	BK5	4	C10E	USAE	BEGIN INSTALLATION OF ENVIRONMENTAL SHEAR DOOR	
-08 HRS 45'00"	BK1	0	CLTC	C10E C40E CUOE	VERIFY LAUNCH VEHICLE READY TO ESTABLISH RF SILENCE AND CONTROLLED SWITCHING	
	BK2	2	CLTC	CVTS	REPORT LV READY FOR RF SILENCE AND CONTROLLED SWITCHING	
	PA	3	CVTS		ANNOUNCE RF SILENCE AND CONTROLLED SWITCHING HAS BEEN ESTABLISHED ON SPACE VEHICLE.	
					NOTE: FOR NECESSARY SWITCHING CONTACT ---- C40E IN BK6 CIRCUIT	
	BK5	4	C10E	S1NE	DISCONNECT INERT S&A PER 1-CLSIBIB-215, PART II.	
	BK6	5	C40E	S40D	DISCONNECT AND REMOVE 1829054-1 PROPELLANT DISPERSION PULSE SENSOR ASSEMBLY.	
	BK5	6	C10E	S1NE	CONNECT S-IB PROPELLANT DISPERSION DETONATORS PER 1-CLSIBIB-217.	**
	BK6	7	C40E	S40D	CONNECT S-IVB PROPELLANT DISPERSION S&A UNIT PER DAC-0-8002	**
	BK6	8	C40E	S4PC	BEGIN FINAL ENGINEERING WALK-A-ROUND OF ALL VEHICLE AREAS	
	BK6	9	C40E	S4ME	BEGIN S-IVB FINAL MECHANICAL PREPS PER DAC-M-8005.	
	BK5	10	C10E	S1NE	REPORT NETWORKS READY TO SECURE FUEL	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

77
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-08 HRS 45'00"					BAYS	
	BK5	11	C10E	C1ME	CLOSE CANNISTERS 12 & 13 FOR FLIGHT AND WITHDRAW PLATFORM INSERTS.	
	RD3	12	CUOE	RUCP	VERIFY COMPLETION OF IU MECHANICAL SECURING	
	BL4	13	CUOE	SUVE	VERIFY READY TO INSTALL THE I,U. DOOR	
-08 HRS 15'00"						
	BK5	1	C10E	S1NE	VERIFY S-IB PROPELLANT DISPERSION S & A & EBW DETONATOR CONNECTIONS COMPLETE	
	BK6	2	C40E	C4MS	VERIFY S-IVB PROPELLANT DISPERSION S & A CONNECTION COMPLETE	
	BK5	3	C10E	SGME	BEGIN REMOVAL OF LAUNCHER AUXILIARY PLATFORMS	
	BK6	4	C40E	S4ME	BEGIN FINAL FWD ACCESS KIT REMOVAL.	
	RD1	5	C1FR	S1MP	VERIFY HYD. PRESSURE, LOW PRESSURE RELIEF CAPPED, SYSTEM FILTER HOLE PLUGGED AND SECURED FOR FLIGHT	
	RD1	6	C1FR	S1MP	VERIFY HYD. PRECHARGE, LOW PRESSURE RELIEF CAPPED, SYSTEM FILTER HOLE PLUGGED AND SECURED FOR FLIGHT.	
-08 HRS 00'00"						
	BK1	1	CLTC	C10E C40E	REPORT COMPLETION OF PROPELLANT DISPERSION SYSTEMS CONNECTIONS PER 1-CLSIBIB-217 & DAC-O-8002	
	BK5	2	C10E	SGME	PREPARE ENGINE SERVICE PLATFORM FOR REMOVAL PER CSD-E-8017	
	BK5	3	C10E	SGME	VERIFY HOLD DOWN ARM PREPS FOR LAUNCH COMPLETE PER CSD-E-8014 PART II	
	BK5	4	C10E	CARE	VERIFY COMPLETION OF UMBILICAL TOWER ESE LAUNCH PREPARATIONS PER PROCEDURE CSD-N-8004	

EMERGENCY PROCEDURE (T-8:30 TO 7:05)

(AFTER SPGG CONNECTION)

PREMATURE ENGINE(S) IGNITION

- | | | |
|---|------|---------------------------------|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON) |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 78
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-08 HRS 00'00"						
	BK5	5	✓ C10E	CARE	VERIFY PREPS COMPLETE FOR SERVICE STRUCTURE REMOVAL PER 1-CLGSEIB-216	
	BK5	6	✓ C10E	S1NE	REPORT NETWORKS READY TO SECURE LOX BAYS	
	BK6	7	✓ C40E	S4ME	VERIFY AFT ACCESS KIT REMOVAL AND DOOR INSTALLATION COMPLETE.	
	BK6	8	✓ C40E	S4ME	VERIFY AFT MECHANICAL PREPS COMPLETE	
	BK6	9	✓ C40E	S4PC	VERIFY S-IVB READY FOR SILO NO. 2 OPENING	
	BK1	10	✓ CLTC	C10E ✓ C40E ✓	VERIFY LAUNCH VEHICLE READY TO OPEN SERVICE STRUCTURE SILOS #1 AND #2	
	BK5	11	✓ C10E	RAAA	VERIFY E/C SHEAR DOOR INSTALLED	
	BK2	12	✓ CLTC	CVTS	LV READY TO OPEN SS PLATFORMS (SILOS #1, #2)	
	BK7	13	✓ CVTS	SSSC	OPEN SERVICE STRUCTURE SILO PLATFORMS IN FOLLOWING SEQUENCE: SILO #1, #2 (TO BE COMPLETED BY -7:30)	
	RD3	14	✓ CUOE	UUVN	VERIFY GSCU AND IU PNEUMATICS CONSOLE OPERATING PROPERLY	
	BK5	15	✓ C10E	RECE	START UNIT A-3 PER CSD-E-8009 PART II (TO S-IB BOATTAIL)	
	BK5	16	✓ C10E	RECE	START UNIT A-2 PER CSD-E-8009, PART II (TO S-IVB ENGINE COMPARTMENT)	
	BK5	17	✓ C10E	S10D	BEGIN S-IB SPGG INITIATOR CONNECTIONS PER 1-CLSIBIB-218	**
	BL4	18	✓ CUOE	C40E	VERIFY S-IVB FWD AREA READY FOR IU DOOR INSTALLATION	**
	RD3	19	✓ CUOE	SUVN	INSTALL IU ACCESS DOOR	
	BK5	20	✓ C10E	USAE	BEGIN FINAL Q-BALL RETRACT PREPS PER CSD-E-8020	

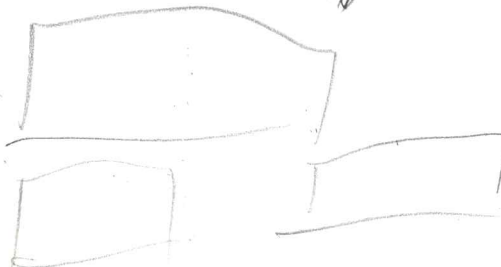
EMERGENCY PROCEDURE (T-8:30 TO 7:05)

(AFTER SPGG CONNECTION)

PREMATURE ENGINE(S) IGNITION

- 1 CLFR GIVE CUTOFF (CAUTION: HOLD ON)
- 2 CLFP PREVALVES 1-8 TO CLOSE POSITION
- 3 CLFP PREVALVE ENABLE TO CLOSE

Antigua



L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

79
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-07 HRS 55'00"	BK5	1 ✓	C10E	S1MS	VERIFY COMPLETION OF VEHICLE MEASURING LAUNCH PREPS PER CSD-M-8013.	
	BK5 BK6	2 ✓	C40E	S4SY	STANDBY ON 108' LEVEL OF UMB. TOWER TO PERFORM GH2 SNIFFER CHECK.	
	BK6	3 ✓	C40E	C4HN	BEGIN FINAL GH2 PREPS (REPORT WHEN COMPLETE)	
	BK5	4 ✓	C10E	C1NP	TURN ON S-IB HEATERS.	
	BK5	5 ✓	C10E	C1ME	VERIFY FUEL BUBBLING ON	
	RD1	6 ✓	C1FP	S1MP	VERIFY 750 REG SETTING AND SECURE FOR LAUNCH	
	RD1	7 ✓	C1FP	S1MP	INSTALL F1, F2, F3 & F4 BAY DOORS AND REMOVE ACCESS LADDERS.	
	RD1	8 ✓	C1FP	S1MP	PERFORM S-IB FAST FILL FINAL SECURING PER CSD-P-8020.	
-07 HRS 15'00"	RD3	1 ✓	CLTC	CUOE	VERIFY IU DOOR SECURED AND SILO #3 READY TO BE OPENED	
	BK6	2 ✓	C40E	S4ME	VERIFY FINAL MECHANICAL PREPS COMPLETE	
	BK2	3 ✓	CLTC	CVTS	REPORT LV READY TO OPEN SILO #3	
	BK2	4 ✓	CVTS	SSSC	OPEN SERVICE STRUCTURE SILO #3.	
	BK2	5 ✓	CVTS	SSSC	OPEN SERVICE STRUCTURE LES HUT	
-07 HRS 00'00"	BK1	1 ✓	CLTC	R4PU	P.U. STRIP CHARTS ON.	
	BK5	2 ✓	C10E	S10D	REPORT COMPLETION OF S-IB SPGG INITIATOR CONNECTIONS PER 1-CLSIBIB-218	
	BK1	3 ✓	CLTC	C10E C40E CUOE	VERIFY LV READY TO LIFT RF SILENCE.	
	BK2	4 ✓	CLTC	CVTS	REPORT LV READY TO LIFT RF SILENCE.	

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- | | | | |
|---|------|--|-------|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON) | ----- |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION | |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE | |
| 4 | CLFR | RELEASE CUTOFF | |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF | |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM | |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN | |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO | |
| 9 | CLFP | VENT S-IB LOX TANKS | |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 80
 TEST NO. 7-LSVIR-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-07 HRS 00'00"	PA	5	✓	CVTS	ANNOUNCE RF SILENCE HAS BEEN REMOVED FROM THE SPACE VEHICLE.	
	BK5	6	✓	C10E SGME	REPORT WATER SYSTEM PREPS COMPLETE PER CSD-E-8012	
	BK5	7	✓	C10E RWCP	VERIFY WATER SYSTEM ARMED	
	BK5	8	✓	C10E RHSE	REPORT COMPLETION OF FOLLOWING: A. LH2 SYSTEM PREPS PER CSD-L-8019 B. LH2 SYSTEM PURGE PER 6-LSIVBIB-201 C. LH2 COMPONENT TEST PER LVO-L-8002 D. LH2 REPLENISH PREPS PER 6-LLVIR-203A	
	BK5	9	✓	C10E ROSE	REPORT COMPLETION OF LOX COMPONENTS TEST PER CSD-L-8004	
	BK5	9A	✓	C10E RRPC	FILL RP-1 CROSS-COUNTRY LINE PER PAD #1 OF CSD-L-8015, REV. A.	
	BK1	10	✓	CUOE AGCC ADAS ALDE AUNW	VERIFY AGCS PAD CLEARING PREPS COMPLETE	
	BK1	11	✓	CLTC C4PU	P.U. POWER ON.	
	BK1	12	✓	CLTC C4NP	LIQUID LEVEL SENSOR POWER ON AND VERIFY	
	BK5	13	✓	C10E APCE	BEGIN FINAL PNEUMATIC LAUNCH PREPS PER CSD-E-8019, (GN2 AND HE PRESSURE TO 3000 PSIG)	
	BK5	1	✓	C10E C1ME	VERIFY FINAL FAST FILL SECURING COMPLETE PER CSD-P-8020.	
	BK5	2	✓	C10E SGME	BEGIN ENGINE SERVICE PLATFORM REMOVAL PER CSD-F-8017.	

-06 HRS
45'00"

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- | | | |
|---|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON) |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 81
 TEST NO. 7-LSVIB-200
 VEHICLE 4S-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-06 HRS 30'00"	BK1 BK2	1	CVTS	BMMR	REPORT PEAK WIND CONDITIONS AT PAD 60' LEVEL (CRITERIA FOR SERVICE STRUCTURE REMOVAL: 30.4 KNOTS MAX PEAK, 15.6 M/SEC)	
	BK7	2	CVTS	SSSC	MOVE SERVICE STRUCTURE TO PARK POSITION	
	BK5	3	C10E	A1NW	OPERATE IGNITION CONTACTOR AND CIRCUIT BREAKER ON. SAFETY WIRE CONTACTOR	
-06 HRS 05'00"	YW1	1	CUOE	RUSE	VERIFY COMPLETION OF ST-124M ACCEL. CHECKS AND SECURE ST-124M PER LVO-G-8005.	
	BK5	2	C10E	SGME	VERIFY ENGINE SERVICE PLATFORM REMOVED.	
	BK5	3	C10E	S10E	VERIFY ALL LAUNCHER AUXILIARY PLATFORMS REMOVED	
	BK5	4	C10E	CARE	VERIFY COMPLETION OF AGCS ESE LAUNCH PREPARATIONS PER PROCEDURE CSD-N-8011	
	BK5	5	C10E	CARE	REPORT COMPLETION OF LAUNCHER ESE PREPS PER CSD-N-8003	
	BK5	6	C10E	USAE	VERIFY COMPLETION OF SWING ARM AND APOLLO ACCESS ARM PREPS PER CSD-E-8021	
	BK5	7	C10E	APCE	VERIFY FINAL PNEUMATIC PREPS COMPLETE PER CSD-E-8019.	
	PA	8	CVTS		ALL PERSONNEL CLEAR THE PAD FOR S-IB LOX LOAD.	
-06 HRS 00'00"	BK5	1	C10E	R1FM	VERIFY MASS SPEC AND FIRE DETECTION MONITOR READY FOR LOX LOADING	

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- | | | |
|---|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON)
----- |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 82
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-05 HRS 55'00"	BK1	1	CLTC	ROSE	PERSONNEL ASSOCIATED WITH S-IB LOX LOADING SWITCH TO THE RD6 CIRCUIT AND CONTINUE PER 6-LLVIB-203A	
-05 HRS 45'00"	BK2	1	CVTS	CPSS	VERIFY PAD IS CLEAR FOR S-IB LOX LOADING.	
	BK1	1a	CLTC	ROSE	TURN ON SIB LOX CAMERAS	
	BK5	2	C10E	ROSE	LOAD S-IB LOX PER 6-LLVIB-203A	
	BK1	3	CLTC	C1NP	SWITCH SELECTOR INHIBIT OFF	
	BK1	4	CLTC	CUNP	SELECT S-IB OCTAL 167 AND GIVE READ COMMAND. (ENABLE LEVEL SENSORS)	
	BK1	5	CLTC	C1NP	INHIBIT SWITCH SELECTOR	
		6		C1NP	DISABLE LOX LEVEL SENSORS AS REQUIRED.	
		7		C1NP	RESET STAGE LOGIC	
-05 HRS 35'00"	BK5	1	C10E	C1FR R1BM	OPERATE LOX BUBBLING SWITCH TO ON AND VERIFY ALL LOX PUMP INLET TEMP. EXHIBIT A DOWNWARD TREND.	
	BK5	2	C10E	C1FR	LOX BUBBLING SWITCH TO OFF	
	PA	3		CVTS	CLEAR BLOCKHOUSE AND PARKING LOT OF NON-ASSIGNED PERSONNEL TO THE ROAD BLOCKS.	
-05 HRS 15'00"	BK1	1	CLTC	C4NP	VERIFY 4D141 POWER ON	
	BK1	2	CLTC	R4HY	GROUND AND COAST MODE RELAY RESET Switch ON	

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- | | | |
|-------|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON) |
| ----- | | |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 83
 TEST NO. 7-LSVIR-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-05 HRS 10'00"						
	BK2	1	CVTS	SSSC	VERIFY THE SERVICE STRUCTURE IS SECURED AT ITS LAUNCH POSITION AND THAT THE SERVICE STRUCTURE CREW IS CLEARING THE AREA.	
	BK2	2	CVTS	CPSS	VERIFY PAD IS CLEAR FOR S-IB LOX MAIN FILL	
	BK5	3	C10E	ROSE	CLEAR TO PROCEED WITH S-IB FAST FILL.	
	BK1	4	CLTC	BPHO	TURN ON S-IB LOX CAMERAS.	
	RD6	5	C10E	ROSE	VERIFY S-IB LOX AT 22%	
	RD6	6	C10E	ROSE	VERIFY S-IB IN FAST FILL (AUTOMATICALLY AT 22%)	
	RD3	7	CUOE	RUCP	AFTER CLEARANCE FROM PAD SAFETY, POSITION HIGH PRESSURE SWITCH TO HIGH AND VERIFY 3000 PSI OK LIGHT ON	
		8			WIND LOAD TEST -----	
	BK1	8-1	CLTC	C4NP	VERIFY SW. SEL. NOT INHIBITED	
	BK1	8-2	CLTC	C1IP	TM CALIBRATOR POWER ON	
	BK1	8-3	CLTC	C4IP	INFLIGHT RELAYS ON	
	BK1	8-4	CLTC	C4IP	FLIGHT SCO GROUP ON	
	BK1	8-5	CLTC	C4IP	SSB GROUP ON	
	BK1	8-6	CLTC	C1IP	S-IB TRANSMITTERS F1, F2, AND P1 ON.	
	BK1	8-7	CLTC	C4IP	S-IVB FLIGHT TRANSMITTER GROUP ON	
	BK1	8-8	CLTC	C4IP	S-IVB ORBIT TRANSMITTER GROUP ON	

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- | | | |
|---|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON) |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

84
7-LSVIB-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-05 HRS 08'00"		1			WIND LOAD TEST -----	
	BK1	1-1	CLTC	✓C1IP	MEASURING TRANSFER TO INFLIGHT	
	BK1	1-2	CLTC	✓BSTM ✓ETMS	TELEMETRY TAPE RECORDING ON.	
-05 HRS 07'00"		1			WIND LOAD TEST -----	
		2			<i>verify inflt/Preflt mode to Preflt.</i> (MANUAL TM CALIBRATION)	
	BK1	2-1	CLTC	✓C4IP	INFLT/PREFLT. MODE TO PREFLT.	
	BK1	2-2	CLTC	C4IP	INFLIGHT RELAYS TO OFF	
	BK1	2-3	CLTC	✓C1IP ✓C4IP	PREFLIGHT LEVELS TO AUTO	
	BK1	2-4	CLTC	✓C1IP	TELEMETER CALIBRATION MODE TO PREFLIGHT	
	BK1	2-5	CLTC	✓C1IP	TM CALIBRATION FM COMMAND ON FOR 30 SECONDS (DELAY NEXT STEP 30 SECONDS)	
	BK1	2-6	CLTC	✓C1IP ✓C4IP	FM PREFLIGHT LEVELS TO 25%, 50%, & 75% IN 2 SECOND INCREMENTS.	
	BK1	2-7	CLTC	✓C1IP ✓C4IP	FM PREFLIGHT LEVELS TO 100%, (DELAY NEXT STEP 15 SECONDS)	
	BK1	2-8	CLTC	✓C1IP ✓C4IP	FM PREFLIGHT LEVELS TO AUTO	
	BK1	2-9	CLTC	✓C1IP ✓C4IP	TM CALIBRATION MODE TO INFLIGHT.	
	BK1	2-10	CLTC	✓C1IP	TM CALIBRATION FM COMMAND ON (FOR 5 SECONDS.)	
	BK1	2-11	CLTC	✓C4IP	REGULAR COMMAND ON (FOR 5 SECONDS.)	
	BK1	2-12	CLTC	✓C4IP	SPECIAL COMMAND ON	

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- | | | |
|---|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON) |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

85
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-05 HRS 07'00"						
	BK1	2-13	CLTC	C4IP	REGULAR COMMAND ON (FOR 5 SECONDS.)	
	BK1	2-14	CLTC	C4IP	SPECIAL COMMAND OFF.	
	BK1	2-15	CLTC	C4IP	TM CALIBRATION MODE TO PREFLT. INFLIGHT RELAYS ON.	
-5 hr -05 HRS 00'00"	BK1		CLTC	C10E	Have ECS sw from air to GN ₂ per CSDE-8009 Part III (20 min prior to S-IVB LOX loading after pad is cleared)	
	BK5	1	C10E	C1FP	PRESSURIZE CONTROL SPHERE TO FLIGHT PRESSURE.	
	BK5	2	C1FP	R1BM	CONTROL SPHERE PRESSURIZE SWITCH TO PRESSURIZE. (NOTIFICATION)	
	BK5	3		C1FP	VERIFY CONTROL 3000 OK ON.	
		4			WIND LOAD TEST -----	
	BK1	4-1	CLTC	C1IP	MEASURING TRANSFER TO GROUND	
	BK1	4-2	CLTC	BMMR	TURN ON WIND LOAD TEST RECORDERS	
-04 HRS 50'00"						
	BK2	1	CVTS	CPSS	ESTABLISH BLAST DANGER AREA ROADBLOCKS TO BE COMPLETE BY T-4:15. (NOTE: CAPE ROAD TO REMAIN OPEN UNTIL 50 MIN PRIOR TO LAUNCH)	
		2			WIND LOAD TEST -----	
	BK1	2-1	CLTC	BPHO	TURN ON VEHICLE SWAY CAMERAS (FOR 5 MINUTES)	
-04 HRS 45'00"						
		1	CLTC	BPHO	TURN ON S-IVB LOX CAMERAS	
		2	C10E	ROSE	BEGIN S-IVB LOX LOADING PER 6-LLVIB-203A AUTOMATICALLY AT S-IB 99% PLUS 30 SECONDS.	
		3			WIND LOAD TEST	

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- | | | |
|---|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON) |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 86
 TEST NO. 7-LSV-R-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-04 HRS 45'00"					-----	
	BK1	3-1	CLTC	BMMR	REPORT COMPLETION OF WIND LOAD RECORDINGS.	
					NOTE: DO NOT PROCEED UNTIL VERIFICATION	
	BK1	3-2	CLTC	C1IP	S-IB TRANSMITTERS F1, F2, & P1 OFF	
	BK1	3-3	CLTC	C4IP	S-IVB ORBIT TRANSMITTER GROUP OFF	
	BK1	3-4	CLTC	C4IP	S-IVB FLIGHT TRANSMITTER GROUP OFF	
	BK1	3-5	CLTC	BSTM ETMS	TELEMETRY TAPE RECORDING OFF	
	BK1	3-6	CLTC	C4IP	FLIGHT SCO GROUP OFF, SSB GROUP OFF	
	BK1	3-7	CLTC	C4IP	INFLIGHT RELAYS OFF	
	BK1	3-8	CLTC	C1IP	TM CALIBRATOR POWER OFF	
	BK1	3-9	CLTC	BPHO	SWAY DATA CAMERAS OFF. (AFTER BEING ON FOR 5 MIN.)	
		4	CUOE	RUSE	PERFORM ST-124M SYSTEM FINAL LAUNCH PREPS PER LVO-G-8006	
	BK2	5	CSTC	CVTS	REQUEST PERMISSION TO BRING UP SC RF	
	BK2	6	CVTS	ORNG	SPACECRAFT C-BAND BEACON INTERROGATION ON	
					NOTE: INFORM BLRF ON GRAY 1 OF BEACON	
					---- REPLY FREQUENCY	
-04 HRS 30'00"						
	YW3	1	CUOE	RGCC	BEGIN FINAL FLIGHT COMPUTER LAUNCH PREPS PER 5-LIUIB-253	
	BK6	2	C4OE	C4AX	OPEN APS 3000 HE SUPPLY VALVE AND MONITOR APS HELIUM CONTROL SPHERES PRESSURE FOR 1500 +/- 100 PSIA.	
	BK1	3	CLTC	BPHO	TURN OFF S-IB LOX CAMERAS	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION 8

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

87
 7-LSVIR-00
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-04 HRS 20'00"	BK5	1	✓ C10E	RHSE	BEGIN FINAL LH2 LOADING PREPS PER 6-LLVIB-203A	
-04 HRS 15'00"					BUILT IN HOLD ----- (30 MINUTE DURATION)	
	BK5	1	C10E	RECE	SWITCH ECS FROM AIR TO GN2 PER CSD-E-8009, PART III (15 MIN PRIOR TO START LH2 LOAD)	
	RD6	2	✓ CLTC	ROSE	VERIFY S-IVB ^{LOX} TANKING COMPLETE	
	BK1	3	✓ CLTC	BPHO	TURN OFF S-IVB LOX CAMERAS	
	BK2	4	✓ CVTS	CPSS	VERIFY BLAST DANGER AREA SECURE FOR LH2 TANKING	
	RD6	5	✓ CLTC	ROSE	VERIFY S-IB AND S-IVB LOX REPLENISHING AUTOMATICALLY	
	RD6	6	✓ C10E	R1FM	VERIFY VEHICLE PURGED WITH GN2 AND LESS THAN 1% OXYGEN PRESENT	
	BK1	7	✓ CLTC	C1PS R4PS RUPS	POWER SUPPLY COMMIT ON	
	BK1	8	✓ CLTC	RUPP	IU DC COMMIT AUX AC-DC COMMIT AND LCC DC POWER COMMIT ON	
	BK2	9	✓ CVTS	CPSS	VERIFY CLEARANCE TO LOAD LH2	
	PA	10		CVTS	COUNT IS BEING RESUMED IN ONE MINUTE AT T-4 HRS AND 15 MINUTES	
-04 HRS 15'00"	BK1	1	✓ CLTC	BPHO	TURN ON S-IVB LH2 CAMERAS	
	BK2	2	CVTS	ORNG	TURN ON TV VIDEO RECORDER	
	RD6	3	✓ CLTC	RHSE	BEGIN S-IVB LH2 LOADING PER 6-LLVIB-203A	
	BK1	4	✓ CLTC	C1NP	VERIFY LOX LEVEL SENSORS ENABLED.	

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- 1 CLFR GIVE CUTOFF (CAUTION: HOLD ON)

- 2 CLFP PREVALVES 1-8 TO CLOSE POSITION
- 3 CLFP PREVALVE ENABLE TO CLOSE
- 4 CLFR RELEASE CUTOFF
- 5 CLFP FUEL BUBBLING SWITCH OFF
- 6 CLFP PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
- 7 CLFP PREVALVE ENABLE SWITCH TO OPEN
- 8 CLFP ALL 8 PREVALVE SWITCHES TO AUTO
- 9 CLFP VENT S-IB LOX TANKS

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 88
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-04 HRS 15'00"						
	RD1	5	C1FR	R1BM	MONITOR LOX BUBBLING CHECK PER CSD-P-8020.	
	BK1	6			PROPELLANT DISPERSION CHECKS -----	
	BK1	6-1	CLTC	CPSS	RELEASE PROPELLANT DISPERSION ENABLE KEY TO CLVN	
	BK1	6-2	CLTC	CLVN	P.D. ENABLE ON	
	BK1	6-3	CLTC	R4DP	VERIFY EBW & DRSCR TEST POWER INDICATION ON	
	BK1	6-4	CLTC	C1DP R4DP	VERIFY S&A SAFE	
	BK1	6-5	CLTC	R1BM R4VC	DRSCR AND EBW RECORDER TO SLOW	
	BK1	6-6	CLTC	C1DP R4DP	EBW'S #1 & #2 GROUND POWER ON	
	BK1	6-7	CLTC	C1DP R4DP CPSS	VERIFY EBW'S #1 & #2 VOLTAGES OK	
	BK1	6-8	CLTC	C1DP R4DP	EBW'S #1 AND #2 GROUND POWER OFF	
	BK1	6-9	CLTC	R1BM R4VC	DRSCR AND EBW RECORDER TO OFF	
	BK1	6-10	CLTC	CLVN	P.D. ENABLE OFF	
	BK1	6-11	CLTC	CLVN	DELIVER P.D. ENABLE KEY TO CPSS	
-04 HRS 10'00"						
	BK1	1	CLTC	RGCC	INITIATE FLT. COMPUTER POWER ON PER 5-LIUIB-253.	

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- | | | |
|---|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON)
----- |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 89
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-04 HRS 00'00"						
	BK1	1	✓ CLTC	RLFC	FLIGHT CONTROL PERSONNEL SWITCH TO YELLOW 2.	
	YW2	1-1	✓ RLFC	RUFC	CONTROL COMPUTER ON	
	YW2	1-2	✓ RLFC	RUFC	EDS/CONTROL RATE GYRO ON	
	YW2	1-3	✓ RLFC	RUFC	CONTROL COMPUTER REDUNDANCY TEST	
	BK5	2	✓ C10E	C1FP	PRESSURIZE FUEL PRESSURIZING SPHERES TO FLIGHT PRESSURE	
	RD1	3	✓ C1FP	R1BM	FUEL SPHERES TO PRESSURIZE (NOTIFICATION)	
	BK5	4	✓ C10E	C1FP	VERIFY FUEL PRESSURIZING 3000 OK ON,	
	BK5	5	✓ C10E	C1FP	PRESSURIZE CAMERA SPHERE TO FLIGHT PRESSURE	
	RD1	6	✓ C1FP	R1BM	CAMERA SPHERE TO PRESSURIZE (NOTIFICATION)	
	RD1	7	✓ C1FP	R1BM	VERIFY 3000 PSI IN CAMERA SPHERE	
-03 HRS 30'00"						
	BK1	1	✓ CLTC	RGCC	FLIGHT COMPUTER PERSONNEL SWITCH TO YW2 FOR FLIGHT CONTROL REDUNDANCY TEST	
	YW2	2	✓ RLFC	RGCC	VERIFY FLIGHT COMPUTER READY FOR FLIGHT CONTROL REDUNDANCY TEST.	
	YW2	3	✓ RLFC	RUFC RGCC	CONTINUE WITH FLIGHT CONTROL COMPUTER REDUNDANCY TEST	
-03 HRS 15'00"						
	BK5	1	✓ C10E	RHSE	VERIFY LH2 LOADING IS COMPLETE	
	BK1	2	CLTC	BPHO	TURN OFF S-IVB LH2 CAMERAS	
	BK2	3	CVTS	BMMR	REPORT PEAK WIND CONDITIONS AT PAD 60' LEVEL (CRITERIA FOR VEHICLE FREE STANDING FULLY LOADED 41.2 KNOTS MAX PEAK 21.2 M/SEC)	

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|-------|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON) |
| ----- | | |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 90
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-03 HRS 15'00"						
	RK2	4	CVTS	CPSS	VERIFY CLEARANCE TO OPEN PAD FOR FINAL OPERATIONS	
					NOTE: BLOCKHOUSE WILL REMAIN CLOSED.	
		5		CSTC	RETURN TO ACCESS ARM FOR FINAL COMMAND MODULE CLOSEOUT AND EDS TEST.	
	RD6	6	CLTC	RHSE	RETURN TO LH2 STORAGE AREA AND REPLENISH LH2 STORAGE TANKS	
	RD6	7	CLTC	ROSE	RETURN TO LOX STORAGE AREA AND REPLENISH LOX STORAGE TANKS PER CSD-L-8023	
-03 HRS 05'00"						
	BK1	1	CLTC	MSTC	BEGIN ACE CHECKS AND VERIFY TO CRTE WHEN COMPLETE.	
-03 HRS 00'00"						
	BK1	1	CLTC	PLFC	VERIFY FLIGHT CONTROL COMPUTER REDUNDANCY TEST COMPLETE	
	BK1	2	CLTC	RUFC	EDS CONTROL RATE GYROS OFF	
	BK1	3	CLTC	RUFC	CONTROL COMPUTER OFF	
	BK1	4	CLTC	R1FC	VERIFY HYDRAULICS OFF UNTIL EDS TEST COMPLETE	
	BK5	5	G10E	C1NP	STANDBY TO TURN OFF HEATER POWER DURING EDS TEST	
	BK1	6	CLTC	C1FR BGCC	VERIFY VEHICLE PNEUMATICS UP IN SUPPORT OF EDS TEST Verify ready to support EDS test as required	
	BK1	7	CLTC	CRTE	PERFORM SV EDS TEST PER LVO-N-8007	
	BK1	8	CLTC	BDAS	DDAS RECORDERS ON	
	BK1	9	CLTC	BGCC	VERIFY GENERAL MONITOR PROGRAM IN PROGRESS	

ADDRESSOGRAPH MULTIGRAPH SYSTEMS, INC. 7-66 LBT-104 12 1/2 38905

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- | | | |
|---|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON)
----- |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

91
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-02 HRS 40'00"	YW1	1	✓ CUOE	RUSE	PERFORM ST-124 AZIMUTH ALIGNMENT	
-02 HRS 30'00"	BK1	1	CLTC	CRTE	VERIFY SV EDS TEST COMPLETE	
	BK1	2	✓ CLTC	RUSE	VERIFY AZIMUTH ALIGNMENT COMPLETE AND READY FOR ST-124M ACCELEROMETER MONITOR PROGRAM	
	BK1	3	✓ CLTC	RGCC	BEGIN AMP-3 TESTING	
-02 HRS 00'00"	BK1	1	✓ CLTC	CQAA	Q-BALL SYSTEM ON	
	BK1	2	✓ CLTC	CQAA	Q-BALL HEATERS ON	
	BK1	3	CLTC	ECOP	VERIFY READY TO SUPPORT PSEUDO FLIGHT PROGRAM,	
-01 HRS 50'00"	BK1	1	CLTC	ETMS	CIF TAPE RECORDER ON	
	BK1	2	CLTC	C1NP C4NP CUNP	VERIFY SWITCH SELECTORS INHIBITED	
	BK1	3	CLTC	RGCC	INITIATE PSEUDO FLIGHT PROGRAM FT 26 <i>Request and execute pseudo flight program FT26</i>	
-01 HRS 30'00"	BK1	1	CLTC	RGCC	VERIFY PSEUDO FLIGHT COMPLETE	
	BK1	2	CLTC	ETMS	CIF TAPE RECORDER OFF	
	BK1	3	CLTC	CQAA	Q-BALL SIMULATE COMMAND ON FOR 10 SECONDS,	
		4			LV GUIDANCE & CONTROL CHECKS	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 92
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-01 HRS 30'00"						
	BK1	4-1	CLTC	CUNP	IU SWITCH SELECTOR INHIBIT SWITCH OFF	
	BK1	4-2	CLTC	RLFC	ALL PERSONNEL CONNECTED WITH FLIGHT CONTROL SYSTEM TESTS SWITCH TO YELLOW 2 CIRCUIT.	
	YW2	4-3	RLFC	BUFC	CONTROL COMPUTER ON.	4-2a CVTS CCTS verify S/C Puro & logic buses safe until completion of rate excessive test
	YW2	4-4	RLFC	BUFC	CONTROL ACCELEROMETERS ON.	
	YW2	4-5	RLFC	BUFC	EDS/CONTROL RATE GYROS ON.	
	YW2	4-6	RLFC	BUFC	CONTROL COMPUTER TEST PER 5-ILIUIB-264.	
	YW2	4-7	RLFC	REDS	VERIFY EDS READY TO SUPPORT RATE EXCESSIVE TEST. PART II (MANUAL)	
	YW2	4-8	RLFC	BUFC	EDS/CONTROL RATE GYRO TEST PER 5-ILIUIB-265.	
	YW2	4-9	RLFC	BUFC	CONTROL ACCELEROMETER TEST PER 5-ILIUIB-266.	
	YW2	4-10	RLFC		ALL PERSONNEL CONNECTED WITH FLIGHT CONTROL SYSTEM TEST RETURN TO BK1 CIRCUIT.	
-01 HRS 00'00"	BK5	5	C10E	RPPC	Replenish 5-IB Fuel Tanks Per ASD-L-8015 Rev. A	
	BK5	1	CLTC	ROSE	VERIFY LOX/LH2 STORAGE TANK REPLENISH COMPLETE AND CLEAR THE PAD	
	BK6	2	C40E	C4ES	PREPARE RECORDERS FOR TERMINAL COUNTDOWN	later (after LH2)
	BK1	3	CLTC	RLDE	SWITCH TO CDC MODE	
	BK1	4	CLTC	CUNP	INHIBIT IU SWITCH SELECTOR	
	BK1	5	C10E	C1FP R1BM	PERFORM GG LOX INJECTOR PURGE TEST (VERIFY PRESSURE WITHIN PROPER LIMITS) (XD35-1 THRU 8)	

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|---|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON)
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| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION: B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 93
 TEST NO. 7-LSVIR-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-1 HR	BK1	6	CLTC ✓	RGCC	TERMINATE AMP III TESTING	
	BK1	7	CLTC ✓	RUFC	CONTROL COMPUTER TO TEST MODE	
	BK1	8	CLTC ✓	RGCC	REQUEST AND EXECUTE FLIGHT COMPUTER POWER OFF FT-04	
-58'00"	BK1	1	CLTC ✓	RGCC	ENTER POWER OFF OPTION	
-56'00"	BK1	1	CLTC ✓	RGCC	VERIFY HALT AND MEMORY RELEASE INDICATIONS	
	BK1	2	CLTC ✓	RGCC	PLACE OFF-AUTO SWITCH ON GUIDANCE PANEL TO OFF POSITION	
	BK1	3	CLTC ✓	RGCC	VERIFY GCO A&B INDICATION	
	BK1	4	CLTC ✓	CUIP	TV SYSTEM ON	
-55'00"	BK1	1	CLTC ✓	RGCC	INITIATE FLIGHT COMPUTER POWER ON SEQUENCE AND VERIFY WHEN COMPLETE (APPROX. 10 MIN.)	
-42'00"	BK1	1	CLTC ✓	RGCC	BEGIN AMP III TESTING	
-37'00"		1			LV GUIDANCE AND CONTROL CHECKS -----	
	BK1	2	CLTC ✓	RLFC	REPORT COMPLETION OF FLIGHT CONTROL TESTS.	
	BK1	2-1	CLTC ✓	C4AX	VERIFY APS ENGINE VALVE POWER OFF.	
	BK1	2-2	CLTC ✓	C4NP	VERIFY 4D141 POWER ON.	
	BK1	2-2A	CLTC ✓	C4NP	SWITCH SELECTOR INHIBIT OFF	
	BK1	2-3	CLTC ✓	BGCC	VERIFY GUIDANCE READY FOR ATTITUDE	

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- | | | |
|---|------|--|
| 1 | CLFR | GIVE CUTOFF (CAUTION: HOLD ON) |
| 2 | CLFP | PREVALVES 1-8 TO CLOSE POSITION |
| 3 | CLFP | PREVALVE ENABLE TO CLOSE |
| 4 | CLFR | RELEASE CUTOFF |
| 5 | CLFP | FUEL BUBBLING SWITCH OFF |
| 6 | CLFP | PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM |
| 7 | CLFP | PREVALVE ENABLE SWITCH TO OPEN |
| 8 | CLFP | ALL 8 PREVALVE SWITCHES TO AUTO |
| 9 | CLFP | VENT S-IB LOX TANKS |

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 94
 TEST NO. 7-LSVIR-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-37'00"					COMMAND TEST	
	BK1	2-4	CLTC	✓ RLFC	ALL PERSONNEL CONNECTED WITH S-IVB ATTITUDE COMMAND TEST SWITCH TO YELLOW 2 CIRCUIT.	
	YW2	2-5	RLFC	RGCC	REQUEST LADDER OUTPUT TEST FT-10 (ATTITUDE COMMAND TEST) FOR S-IVB STAGE	
	YW2	2-6	RLFC	RUFC	FLIGHT CONTROL COMPUTER IN S-IVB BURN MODE	
	YW2	2-7	RLFC	R4HY	S-IVB AUXILIARY HYDRAULIC PUMP MOTOR SWITCH ON.	
	YW2	2-8	RLFC	RGCC	INITIATE LADDER OUTPUT TEST FT-10 OPTION 3 (ATTITUDE COMMAND TEST) FOR S-IVB BURN	
	YW2	2-9	RLFC	RUFC	ATTITUDE RATE COMMANDS (PLUS AND MINUS PITCH, YAW, ROLL) (AFTER ATTITUDE COMMANDS)	
	YW2	2-10	RLFC	R4HY	S-IVB AUXILIARY HYDRAULIC PUMP MOTOR SWITCH OFF	
	YW2	2-11	RLFC	RGCC	RECYCLE LADDER OUTPUT TEST FT-10 (ATTITUDE COMMAND TEST) FOR S-IVB COAST	
	YW2	2-12	RLFC	RUFC	FLIGHT CONTROL COMPUTER IN S-IVB COAST MODE.	
	YW2	2-13	RLFC	RGCC	INITIATE LADDER OUTPUT TEST FT-10 OPTION 3 (ATTITUDE COMMAND TEST) FOR S-IVB COAST	
	YW2	2-14	RLFC	RUFC	ATTITUDE RATE COMMANDS (PLUS AND MINUS PITCH AND YAW) (AFTER ATTITUDE COMMANDS)	
	YW2	2-15	RLFC	RUFC	CONTROL COMPUTER IN S-IB BURN MODE	
	YW2	2-16	RLFC	R4FC RUFC RGCC R4HY	ALL PERSONNEL CONNECTED WITH S-IVB "ATTITUDE COMMAND TEST" SWITCH BACK TO THE "BK1" CIRCUIT.	

EMERGENCY PROCEDURE (T-7:05 TO T-0:30:00)

AFTER S-IB LOX TANKING

PREMATURE ENGINE(S) IGNITION

- 1 CLFR GIVE CUTOFF (CAUTION: HOLD ON)

- 2 CLFP PREVALVES 1-8 TO CLOSE POSITION
- 3 CLFP PREVALVE ENABLE TO CLOSE
- 4 CLFR RELEASE CUTOFF
- 5 CLFP FUEL BUBBLING SWITCH OFF
- 6 CLFP PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
- 7 CLFP PREVALVE ENABLE SWITCH TO OPEN
- 8 CLFP ALL 8 PREVALVE SWITCHES TO AUTO
- 9 CLFP VENT S-IB LOX TANKS

L/V LAUNCH COUNTDOWN
DATE: AUGUST 22, 1966
REVISION B PCD 2

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

95
7-LSVIR-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-35'00"	BK5	✓ 1	C10E	C1NP	VERIFY FLIGHT SIMULATION SWITCHES OFF	
	BK2	2	CVTS	CSTC	PRIOR TO CLEARING PAD INSURE THAT E/C INNER HOOD DOOR IS CLOSED AND LOCKED	
-31'00"	BK5	✓ 1	C10E	C1FR	FUEL PRESSURIZING SWITCH TO AUTOMATIC	
	BK5	✓ 2	C10E	C1FP	G.G. LOX INJECTOR PURGE TO AUTOMATIC	
	BK5	✓ 3	C10E	C1FP	LOX DOME PURGE TO AUTOMATIC	
	BK5	✓ 4	C10E	C1FP	DELUGE PURGE TO AUTOMATIC	
	BK5	✓ 5		CLFR	NOTE PURGES ARMED INDICATION	
	BK5	✓ 6	C10E	C1FR	FUEL VENT SWITCH TO AUTO	
	BK5	✓ 7	C10E	C1FR	LOX VENT AND RELIEF #1 SWITCH TO AUTO	
	BK5	✓ 8	C10E	C1FR	LOX RELIEF #2 SWITCH TO AUTO	
	BK1	✓ 9	CLTC	BOTV	DISPLAY CAMERAS 19 AND 23 ON MONITORS 8 AND 9	
		10	CVTS		ALL STANDBY FOR BUILT-IN HOLD AT T-30'00" (30 MIN. DURATION)	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CL4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CL4EN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CL4AX	APS ENGINE VALVE POWER OFF	22-1	CL4HC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CL4NP	SWITCH SELECTOR INHIBIT OFF
8	RLHM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CL4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CL4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CL4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CL4PS	VERIFY LH2 TANK VENTED	26	RL4HY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CL4SP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	RL4HY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP RL4DP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CL4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CL4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CL4EN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CL4EN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	CL4HN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CL4HC	CLOSE 6000 # HE SUPPLY VALVE			
19	CL4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 96
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-30'00"						
	BK2	1	CVTS	CSTC	VERIFY SECURING CREW COMPLETE, CLEARING THE PAD, AND READY TO RETRACT THE APOLLO ACCESS ARM	
	BK2	2	CVTS	CPSS	VERIFY CLEARANCE TO RETRACT APOLLO ACCESS ARM	
	BK1	3	CLTC	RAAA	RETRACT APOLLO ACCESS ARM	
	BK1	4	CLTC	RECS	SECURE CM ECS AIR PER CSD-E-8013 PART 3	
	BK2	5	CVTS	CPSS	VERIFY THE LAUNCH DANGER AREA IS SECURED AND THE BLOCKHOUSE DOORS ARE LOCKED,	
	BK2	6	CVTS	CPSS	VERIFY HOLDFIRE CHECKS ARE COMPLETE	
	BK1	7	CLTC	C4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY	
	BK1	8	CLTC	RGCC	REQUEST FLT, COMPUTER TEST PROGRAM FT07 (SECTOR PUMP)	
	BK2	9	CLTC	CVTS	VERIFY THE IU RADAR IS AWAY FROM VEHICLE AND WILL NOT INTERROGATE THE IU C-BAND BEACON UNTIL REQUESTED.	
-29'00"						
	BK2	1	CVTS	ETMS	VERIFY CIF TM STATION IS READY TO SUPPORT TM CHECKS. (SWITCH TO BLACK 1.)	
	BK2	2	CVTS	ECOP	VERIFY CIF COMPUTER READY TO SUPPORT TM CHECKS. (SWITCH TO BLACK 1)	delete
	BK1	3	CLTC	CUIP	GLOTRAC BEACON (AZUSA) ON	
	BK1	4	CLTC	CUIP	IU C-BAND BEACON ON	
	BK1	5	CLTC	BDOP	ODOP GROUND TRANSMITTER ON	
	BK1	6	CLTC	C1IP	ODOP ON	
	BK1	7	CLTC	C1IP	S-1B TRANSMITTERS F1, F2, S1 AND P1 ON	
	BK1	8	CLTC	CUIP	IU TM F1 AND S1 ON	
	BK1	9	CLTC	CUIP	IU RF F1, F2, P1 AND S1 ON	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CL4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CL4EN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CL4AX	APS ENGINE VALVE POWER OFF	22-1	CL4HC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CL4NP	SWITCH SELECTOR INHIBIT OFF
8	RLFM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CL4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CL4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CL4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CL4PS	VERIFY LH2 TANK VENTED	26	RL4HY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CL4SP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	RL4HY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP RL4DP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CL4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CL4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CL1FP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CL4EN	CLOSE START TANK SUPPLY VALVE	2	CL1FP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CL4EN	OPEN START TANK SUPPLY VENT	3	CL1FP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CL1FP	VENT S-IB LOX TANKS
18-1	CL4HN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CL4HC	CLOSE 6000 # HE SUPPLY VALVE			
19	CL4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CL _{EN}	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CL _{EN}	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CL _{EN}	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CL _{AX}	APS ENGINE VALVE POWER OFF	22-1	CL _{HC}	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CL _{NP}	SWITCH SELECTOR INHIBIT OFF
8	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CL _{RC}	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CL _{PS}	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CL _{RC}	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CL _{PS}	VERIFY LH2 TANK VENTED	26	RL _{HY}	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CL _{SP}	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	RL _{HY}	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP RLDP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CL _{EN}	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CL _{EN}	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CL _{EN}	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CL _{EN}	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CL _{EN}	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	CL _{HN}	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CL _{HC}	CLOSE 6000 # HE SUPPLY VALVE			
19	CL _{EN}	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 98
TEST NO. 7-LSVIR-200
VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-26'00"						
	BK1	1	CLTC	✓ BSTM ✓ ETMS	VERIFY CIE/LC34 DATA TRANSMISSION LINK IS ON.	
	BK1	2	CLTC	✓ C1IP ✓ C4IP ✓ CUIP	FM PREFLIGHT LEVELS TO AUTO. (DELAY 100% LEVELS ONE (1) MINUTE)	
-25'00"						
	BK1	1	CLTC	✓ C4EN	OPEN START TANK VENT.	
	BK1	2	CLTC	✓ C4EN	OPEN START TANK PURGE VALVE	
	BK1	3	CLTC	✓ C1IP ✓ C4IP ✓ CUIP	FM PREFLIGHT LEVELS TO 100% (DELAY NEXT STEP ONE (1) MINUTE).	
	BK1	4	CLTC	✓ BGCC	VERIFY S-IB HYDRAULIC CARD DECK IN READER.	
-24'00"						
	BK1	1	CLTC	✓ CUIP	TELEMETER CALIBRATION TO AC CAL.	
	BK1	2	CLTC	✓ CUIP	TELEMETER CALIBRATION COMMAND ON AND OFF	
	BK1	3	CLTC	✓ C1IP	TM CALIBRATIONS FM COMMAND ON FOR 30 SECONDS (DELAY NEXT STEP 30 SECONDS)	
	BK1	4	CLTC	✓ CUIP	TELEMETER CAL TO SSB	
	BK1	5	CLTC	✓ C1IP ✓ C4IP	SSB COMMAND ON AND OFF	
	BK1	6	CLTC	✓ CUIP	TELEMETRY CALIBRATION COMMAND ON AND OFF (DELAY NEXT STEP 30 SECONDS)	
	BK1	7	CLTC	✓ C1IP ✓ C4IP ✓ CUIP	TELEMETER CALIBRATION MODE TO INFLIGHT	
	BK1	8	CLTC	✓ CPSS	RELEASE PROPELLANT DISPERSION ENABLE KEY TO CLVN	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CL4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CL4EN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CL4AX	APS ENGINE VALVE POWER OFF	22-1	CL4HC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CL4NP	SWITCH SELECTOR INHIBIT OFF
8	RLFM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CL4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CL4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CL4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CL4PS	VERIFY LH2 TANK VENTED	26	R4HY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CL4SP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	R4HY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP R4DP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CL4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CL4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CL4EN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CL4EN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	CL4HN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CL4HC	CLOSE 6000 # HE SUPPLY VALVE			
19	CL4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 99
 TEST NO. 7-LSVIR-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-23'00"	BK1	1	CLTC	✓B1RF	DIGITAL RANGE SAFETY COMMAND CARRIER ON. NOTE: DRSCR AGC MAY VARY WHEN SWITCHING ----- CARRIERS	
-22'00"	BK2	1	CVTS	ORNG	INTERROGATE SC AND IU C-BAND BEACONS AND REPORT GO/NO-GO (REPORT READOUTS AFTER LAUNCH)	
	BK1	2		C4NP	NOTE S-IVB SWITCH SELECTOR ZERO	
	BK1	3	CLTC	✓CLVN	PROPELLANT DISPERSION ENABLE ON.	
	BK2	4	CVTS	CPSS	BRING UP WATER PUMPS 5 AND 6 TO STANDBY	
	BK1	5	CLTC	✓C1PP ✓RUPP	CHECK VEHICLE GROUND POWER SUPPLIES SETTINGS FOR POWER TRANSFER	
	BK1	6	CLTC	✓BMMR	WIND LOAD RECORDINGS ON	
		7		R1FS	ENABLE S-IB HYDRAULIC DISPLAY MONITOR	
-21'00"	BK1	1	CLTC	✓C1IP	FM COMMAND ON (FOR FIVE SECONDS)	
	BK1	2	CLTC	✓C4IP	SPECIAL COMMAND ON	
	BK1	3	CLTC	✓C4IP	REGULAR COMMAND ON (FOR FIVE SECONDS)	
	BK1	4	CLTC	✓CUIP	TELEMETER CALIBRATION COMMAND ON (FOR FIVE SECONDS)	
	BK1	5	CLTC	✓C4IP	SPECIAL COMMAND OFF	
	BK2	6	CVTS	✓ORNG	VERIFY READY TO SUPPORT CUTOFF COMMANDS ON BK-1	
-20'30"	BK1	1	CLTC	✓RLFC	REPORT COMPLETION OF S-IVB ATTITUDE COMMAND TEST (STARTED AT 1-37 MINUTES)	
	BK1	2	CLTC	✓RLFC	ALL PERSONNEL CONNECTED WITH S-IB "SUBSTITUTE COMMANDS" SWITCH TO THE YELLOW 2 CIRCUIT	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CL4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CL4EN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	FWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CL4AX	APS ENGINE VALVE POWER OFF	22-1	CL4HC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CL4NP	SWITCH SELECTOR INHIBIT OFF
8	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CL4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CL4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CL4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CL4PS	VERIFY LH2 TANK VENTED	26	RL4HY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CL4SP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	RL4HY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP RL4DP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CL4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CL4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CL4EN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CL4EN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	CL4HN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CL4HC	CLOSE 6000 # HE SUPPLY VALVE			
19	CL4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 100
 TEST NO. 7-LSVIR-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-20'30"						
	YW2	2-1	RLFC	R1FC	VERIFY "OK" TO START HYDRAULIC PUMPS	
	YW2	2-2	RLFC	R1FC	S-IB HYDRAULIC PUMPS ENABLE ON	
	YW2	2-3	RLFC	R1FC	S-IB HYDRAULIC PUMPS #1, 2, 3 AND 4 ON	
	YW2	2-4	RLFC	R0FC	ATTITUDE RATE COMMAND (PLUS ROLL ONLY AND HOLD UNTIL IU POWER TRANSFER IS COMPLETE)	
	RK1	3	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO SLOW	
	BK1	4	CLTC	C1DP	S-IB DRSCR #1 AND #2 TO INTERNAL	
	RK1	4-1	CLTC	R4DP	S-IVB DRSCR #1 AND #2 GRD. POWER ON	
	BK1	4-2	CLTC	C1DP R4DP	VERIFY EPW'S #1 AND #2 OFF	
	RK1	5	CLTC	R4DP	S-IVB DRSCR #1 AND #2 TO INTERNAL	
	BK1	6	CLTC	R4HY	INFLIGHT MODE RELAY RESET SWITCH ON (AUX. HYDRAULIC PUMP ON)	
	RK1	7	CLTC	R4HY	GROUND AND COAST MODE RELAY RESET SWITCH OFF	
-20'00"						
	BK1	1		C4EN	OPEN S-IVB THRUST CHAMBER PURGE VALVE	
-19'30"						
	RK1	1	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO FAST	
	BK1	2	CLTC	ORNG	GIVE CUTOFF COMMAND FOR 3 SECONDS AND RELEASE	
	BK1	3	CLTC	C1DP R4DP	VERIFY S-IB AND S-IVB EBW'S #1 AND #2 INTERNAL AND CHARGED	
	RK1	4	CLTC	C1DP R4DP	S-IB AND S-IVB EBW'S #1 AND #2 TO EXTERNAL AND VERIFY OFF	
	BK1	5	CLTC	R1BM R4VC	DRSCR AND EBW RECORDERS TO SLOW	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CL4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CL4EN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CL4AX	APS ENGINE VALVE POWER OFF	22-1	CL4HC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CL4NP	SWITCH SELECTOR INHIBIT OFF
8	RLFM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CL4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CL4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CL4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CL4PS	VERIFY LH2 TANK VENTED	26	R4HY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CL4SP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	R4HY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP R4DP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CL4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CL4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CL4EN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CL4EN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	CL4HN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CL4HC	CLOSE 6000 # HE SUPPLY VALVE			
19	CL4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 101
 TEST NO. 7-1 SVIR-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-19'30"	RK2	6	CVTS	ORNG	RANGE COMMAND CARRIER ON	
					NOTE: DPSCR AGC MAY VARY WHEN ----- SWITCHING CARRIERS.	
	RK1	7		RGCC	NOTE FLIGHT COMPUTER IN MODE SORT (PRIOR TO P.T.)	
	RD6	8		RRPC	DETERMINE RP-1 PTCS SETTING FOR T-0 AND SET THUMBWHEELS. (NOTIFY RGCC BEFORE DIALING)	
-18'30"	RK1	1	CLTC	B1RF	DIGITAL RANGE SAFETY COMMAND CARRIER OFF	
	RK6	2	C40E	C4RC	VERIFY S-IVB LOX AND LH2 RECIRCULATION VALVES TO OPEN	
	RK6	3	C40E	C4RC	S-IVB LOX RECIRCULATION PUMP TO ON (WAIT 3 SECONDS BEFORE NEXT STEP)	
	RK6	4	C40E	C4RC	S-IVB LH2 RECIRCULATION PUMP TO ON (WAIT 5 SECONDS BEFORE NEXT STEP)	
	RK6	5	C40E	C4RC	CLOSE S-IVB PREVALVES	
-18'00"	BK2	1	CVTS	ORNG	MONITOR ALL LAUNCH VEHICLE RF SYSTEMS AND REPORT ANY CHANGE ON INTERNAL POWER	
		2			LV POWER TRANSFER TEST -----	
	BK1	2-1	CLTC	RLFC	VERIFY FLIGHT CONTROL READY FOR POWER TRANSFER (S-IB PUMPS ON)	
	BK1	2-2	CLTC	C10E C40E C00E	PERSONNEL CONNECTED WITH LV POWER TRANSFER SWITCH TO YOUR RESPECTIVE DIS CIRCUIT (S-IB TO BK5, S-IVB TO BK6, IU TO BL4) (REPORT WHEN READY ON BK-1)	
	BL4 BK5 RK6 YW2	2-3	CLTC	C1NP C4NP CUNP	AFTER VERIFY READY FOR POWER TRANSFER ***** ALL STAGE POWER TO INTERNAL ON MY MARK	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	C4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	C4EN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	C4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	FWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	C4AX	APS ENGINE VALVE POWER OFF	22-1	C4HC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	C4NP	SWITCH SELECTOR INHIBIT OFF
8	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	C4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	C4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	C4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	C4PS	VERIFY LH2 TANK VENTED	26	R4HY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	C4SP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	R4HY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CIDP R4DP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	C4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	C4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	C4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	C4EN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	C4EN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	C4HN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	C4HC	CLOSE 6000 # HE SUPPLY VALVE			
19	C4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

APOLLO/SATURN LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-18'00"					*****	
	BK5	2-4	C10E	C1NP	ON MARK FROM CLTC S-IB POWER XFER TEST #2 ON	
	BK1	2-5	CLTC	C10E	VERIFY WHEN READY FOR S-IB POWER XFER	
	BK5	2-6		C1NP	NOTE S-IB POWER TRANSFER OK	
		2-7		R1BM	NOTE S-IB VOLTAGE AND CURRENT VALUES.	
	BK5	2-8		C1NP	S-IB POWER TRANSFER TEST #2 OFF *****	
	BK5	2-9		C1NP	VERIFY SATISFACTORY POWER TRANSFER	
	BK5	2-10	C10E	C1NP	PERSONNEL RETURN TO BK1 CIRCUIT	
	BK6	2-11	C40E	C4IP	CHECKOUT MEAS. GROUP OFF	
	BK6	2-12	C40E	C4NP R4EI	VERIFY READY FOR POWER TRANSFER	
	BK6	2-13	C40E	C4NP	ON MARK FROM CLTC S-IVB POWER TRANSFER TEST TO INTERNAL	
	BK1	2-14	CLTC	C40E	VERIFY WHEN READY FOR S-IVB POWER XFER	
	BK6	2-15	C40E	C4NP R4EI	VERIFY SATISFACTORY ON INTERNAL	
	BK6	2-16	C40E	C4NP	S-IVB POWER TRANSFER TO EXTERNAL *****	
	BK6	2-17	C40E	C4IP	CHECKOUT MEAS. GROUP ON	
	BK6	2-18	C40E	CMCD	INSERT S-IVB RACS COMPUTER PROGRAM ALL-ALL RUN	
	BK6	2-19	C40E	C4RC	OPEN LOX AND LH2 PREVALVES	
	BK6	2-20	C40E	C4RC	S-IVB LOX AND LH2 RECIRCULATION PUMPS OFF	
	BK6	2-21	C40E	ALL	PERSONNEL RETURN TO BK1 CIRCUIT.	
	BL4	3	CUOE	CUNP RUBM	VERIFY READY FOR IU POWER TRANSFER	
	BL4	3-1	CUOE	CUNP	ON MARK FROM CLTC IU POWER TRANSFER TEST TO INTERNAL	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CLEN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CLEN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CLAX	APS ENGINE VALVE POWER OFF	22-1	CLHC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CLNP	SWITCH SELECTOR INHIBIT OFF
8	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CLRC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CLPS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CLRC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CLPS	VERIFY LH2 TANK VENTED	26	RLHY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CLSP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	RLHY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CILS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP RLDP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CLEN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CLEN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CLEN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CLEN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	CLHN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CLHC	CLOSE 6000 # HE SUPPLY VALVE			
19	CLEN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION: B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 103
 TEST NO. 7-LSV R-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-18'00"						
	BK1	3-2	CLTC	CUOE	VERIFY WHEN READY FOR IU POWER XFER	
	BL4	3-3		CUNP RUBM	NOTE IU POWER TRANSFER OK	
	BL4	3-4	CUOE	RUBM	NOTE VOLTAGE AND CURRENT	
	BL4	3-5		CUNP	IU POWER TRANSFER TEST TO EXTERNAL ON YOUR MARK *****	
	BL4	3-6	CUOE	CUNP RUBM	VERIFY SATISFACTORY IU POWER TRANSFER TO EXTERNAL	
	BL4	3-7	CUOE	RUBM	RECORD AND READ VOLTAGES AND CURRENTS TO CUNP AND RUV7 6D11 6D10 ----- ----- 6D21 6D20 ----- ----- 6D31 6D30 ----- ----- 6D41 6D40 ----- -----	
	BL4	3-8	CUOE		ALL PERSONNEL EXCEPT CUNP AND RUBM RETURN TO BK1	
	BK1	4	CLTC	C10E✓ C40E✓ CUOE✓	REPORT SATISFACTORY POWER TRANSFER	
	BK1	5	CLTC	BSTM✓ ETMS✓	TELEMETRY TAPE RECORDING OFF (RELOAD)	
	BK1	6	CLTC	ETMS✓	VERIFY ALL OUT OF TOLERANCE TM PARAMETERS HAVE BEEN REPORTED TO BLTM	
	BK1	7	CLTC	ALL	TERMINATE CRT MONITORING UNTIL COMPLETION OF RACS PROGRAM.	
	BK1	8	CLTC	RGCC	REQUEST FT06 (GIMBAL ANGLE READ)	
		9			LV GUIDANCE AND CONTROL CHECKS -----	
	YW2	9-1	RLFC	RUFC	CONTINUE ATTITUDE RATE COMMANDS (MINUS ROLL AND PLUS AND MINUS PITCH AND YAW)	
	YW2	9-2	RLFC	R1FC	S-IB HYDRAULIC PUMPS #1, 2, 3 AND 4 OFF	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CLEN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CLEN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CLAX	APS ENGINE VALVE POWER OFF	22-1	CLHC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CLNP	SWITCH SELECTOR INHIBIT OFF
8	RLFM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CLRC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CLPS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CLRC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CLPS	VERIFY LH2 TANK VENTED	26	RLHY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CLSP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	RLHY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP RLDP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CLEN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CLEN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CLEN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CLEN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	CLHN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CLHC	CLOSE 6000 # HE SUPPLY VALVE			
19	CLEN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 104
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-18'00"						
	YW2	9-3	RLFC	✓ R1FC	S-IB HYDRAULIC PUMPS ENABLE OFF	
	YW2	9-4	RLFC	✓ RUF R1FC	ALL PERSONNEL CONNECTED WITH THE S-IB "SUBSTITUTE COMMANDS" SWITCH TO THE "BK1" CIRCUIT	
	BK1	10	CLTC	✓ RLFC	REPORT COMPLETION OF SUBSTITUTE COMMANDS	
-15'00"						
	BK1	1	CLTC	✓ RGCC	INITIATE FT06	
	BK1	2	CLTC	✓ CMCD	CALL UP TELEMETRY TEST PROGRAM TT01	
		3		C4EN	CLOSE THRUST CHAMBER PURGE VALVE	
		4		C4EN	OPEN THRUST CHAMBER CHILLDOWN VALVE	
		5		C4SP	OPEN HELIUM CROSSOVER VALVE	
-14'30"						
	BK1	1		C4EN	CLOSE START TANK PURGE VALVE	
	BK1	2		C4EN	OPEN START TANK SUPPLY VALVE	
-14'00"						
	BK1	1	CLTC	✓ C1IP C4IP CUIP	ALL TELEMETRY CALIBRATION CONTROLS TO AUTO POSITION NOTE: C1IP TELEMETER CALIBRATION MODE TO AUTO PREFLIGHT LEVELS TO AUTO C4IP SPECIAL CAL. TO AUTO REGULAR CAL. TO AUTO INFLIGHT RELAYS TO OFF THEN AUTO INFLIGHT/PREFLIGHT MODE TO AUTO PREFLIGHT LEVELS TO AUTO CUIP PREFLIGHT LEVELS TO AUTO TELEMETER CALIBRATION MODE TO AUTO AC-SSR TO AUTO	
	BK1	2	CLTC	CMCD	VERIFY TELEMETRY TEST PROGRAM TT01	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CLEN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CLEN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CLAX	APS ENGINE VALVE POWER OFF	22-1	CLHC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CLNP	SWITCH SELECTOR INHIBIT OFF
8	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CLRC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CLPS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CLRC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CLPS	VERIFY LH2 TANK VENTED	26	RLHY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CLSP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	RLHY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP RLDP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CLEN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CLEN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CLEN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CLEN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	CLHN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CLHC	CLOSE 6000 # HE SUPPLY VALVE			
19	CLEN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

105
 7-LSVIR-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-14'00"					"READY TO EXECUTE" ON CRT	
	BK1	3	CLTC	C1IP	MEASURING TRANSFER TO INFLIGHT	
	BK1	4	CLTC	BSTM EIMS	TELEMETRY RECORDING ON	
	BK2	5	CVTS	ORNG	TM RECORDING ON	
	BK1	6	CLTC	CMCD	INITIATE TELEMETRY TEST PROGRAM TT01 (APPROX. 100 SEC DURATION)	
	BK1	6A 7	CLTC	BPHO CMCD	TURN ON RP-1 CAMERAS FOR LEVEL ADJUST MONITOR DISPLAY CRT AND REPORT TT01 COMPLETION	
	BK1	8	CLTC	C1IP CUIP C4IP	RETURN TELEMETER CALIBRATION CONTROLS TO INFLIGHT POSITION (AFTER TT01 IS COMPLETE)	
					NOTE:	
					C1IP TELEMETER CALIBRATION MODE TO INFLIGHT	
					C4IP REGULAR CAL TO OFF SPECIAL CAL TO OFF INFLIGHT/PREFLIGHT MODE TO PREFLIGHT INFLIGHT RELAYS TO ON	
					CUIP TELEMETER CALIBRATION MODE TO INFLIGHT	
-12'30"		1		C4HN	OPEN CIRCUIT #1 VENT (NOTE: CLOSE CIRCUIT #1 VENT AND CYCLE START TANK SUPPLY VENT AS COMMANDED BY RFSR).	
-11'00"	BK1 BK5	0 1	CLTC CLOE	C1FP RRPC	FUEL BUBBLING SWITCH OFF MAKE RP-1 LEVEL ADJUSTMENT AND LINE INERT PER CSD-L-8014	
	BK1	2	CLTC	R1BM	TRAILING WIRE RECORDER TO RECORD.	
	BK1	3	CLTC	CMCD	INSERT RACS COMPUTER PROGRAM (HIGH 15 SEC., LOW 15 SEC., RUN) VERIFY WHEN COMPLETE	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CLEN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CLEN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	FWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CLAX	APS ENGINE VALVE POWER OFF	22-1	CLHC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	FLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CLNP	SWITCH SELECTOR INHIBIT OFF
8	RLHM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CLRC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CLPS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CLRC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CLPS	VERIFY LH2 TANK VENTED	26	RLHY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CLSP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	RLHY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP RLDP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CLEN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CLEN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CLEN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CLEN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	CLHN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CLHC	CLOSE 6000 # HE SUPPLY VALVE			
19	CLEN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 106
 TEST NO. 7-LSVIR-200
 VEHICLE AS-202

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-11'00"						
	RK1	4	CLTC ✓	RGCC	REQUEST FLIGHT COMPUTER PROGRAM FT32	
	RK1	5	CLTC ✓	RLUC	CONDUCT SWING ARM HYDRAULIC BLEED TEST	
	RK2	6	CVTS	BMMR	REPORT PEAK WIND CONDITIONS AT PAD 60' LEVEL (CRITERIA FOR LAUNCH: 24.5 KNOTS MAX PEAK 12.6 M/SEC).	
-10'00"						
	PA	1		CVTS	THERE WILL BE NO SMOKING IN THE BLOCKHOUSE UNTIL FURTHER NOTICE	
	RK1	2	CLTC ✓	CIIP	MEASURING TRANSFER TO GROUND	
	RK1	3	CLTC ✓	R1BM	TRAILING WIRE RECORDER OFF	
	RK1	4	CLTC ✓	BSTM ETMS	TELEMETRY TAPE RECORDING OFF	
	RK2	4-1	CVTS	ORNG	TM TAPE RECORDING OFF	
	RK1	5	CLTC ✓	C4RC	LOX RECIRC PUMP ON (WAIT 3 SEC)	
	RK1	6	CLTC ✓	C4RC	LH2 RECIRC PUMP ON (WAIT 5 SEC)	
	RK1	7	CLTC ✓	C4RC	CLOSE S-IVB LOX & LH2 PREVALVES	
-08'00"						
	RK1	1	CLTC ✓	COAA	RETRACT G-BALL COVER AND NOTE REMOVED	
	RK1	2	CLTC ✓	C1FR	VERIFY RANGE SAFE INDICATION	
	RK1	3	CLTC ✓	R1FM	ARM FIRE DETECTION MONITOR (NOTE RECORDERS TO SLOW SPEED)	
	RK1	4	CLTC ✓	RGCC	INITIATE FLIGHT COMPUTER PROGRAM FT-32 (LAUNCH DAY OPTIONS)	
	RK1	5	CLTC ✓	C1NP	ARM SAFETY SWITCHES	
	RK1	6	CLTC ✓	R4DP	DRSCR #1 AND #2 GROUND POWER OFF. (NOTE DRSCR'S REMAIN ON)	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CL4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CL4EN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CL4AX	APS ENGINE VALVE POWER OFF	22-1	CL4HC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CL4NP	SWITCH SELECTOR INHIBIT OFF
8	RLFM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CL4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CL4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CL4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CL4PS	VERIFY LH2 TANK VENTED	26	R4HY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CL4SP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	R4HY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP R4DP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CL4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CL4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CL4EN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CL4EN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	CL4HN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CL4HC	CLOSE 6000 # HE SUPPLY VALVE			
19	CL4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 107
 TEST NO. 7-LSVIR-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-07'00"						
	BK1	1	CLTC	✓CPSS	PERMISSION TO ARM IGNITION ON.	
	BK1	2	CLTC	✓C1LS	LAUNCH SEQUENCER ARM ON.	
	BK1	3	CLTC	✓C1LS	TIME PULSE ON.	
		4		C1FR	NOTE LAUNCH SEQUENCER READY.	
	BK1	5	CLTC	✓REDS	EDS MODE SWITCH TO LAUNCH POSITION.	
	BK1	6	CLTC	✓R4DP	VERIFY SYSTEM SAFE SWITCH TO OFF	
	BK1	7	CLTC	✓R4DP	VERIFY EBWS #1 AND #2 EXTERNAL AND OFF.	
	BK1	8	CLTC	✓C4IP	C/O MEAS GROUP OFF	
	BK1	9	CLTC	✓CLVN	CAMERA START TO ARM 6:36	
-06'00"						
	BK1	1	CLTC	✓CUNP	INSERT S-IVB OCTAL CODE 115 AND READ COMMAND (S-IVB ENGINE CUTOFF)	
		2		✓C4EN	NOTE NON-PROGRAM CUT-OFF NOT ON; ENGINE CUTOFF ON	
	BK1	3	CLTC	✓C4SP	CYCLE S-IVB LOX AND LH2 VENTS AND LH2 DIRECTION CONTROL VALVE	
	BK1	4		RRPC	IF RP-1 LEVEL ADJUST IS NOT COMPLETE REPORT TO CLTC	
	BK1	4A	CLTC	✓CLFP	FUEL BUBBLING SWITCH ON, (AFTER LEVEL ADJUST COMPLETE).	
	BK1	5	CLTC	✓C4EN	ENGINE CONTROL POWER ON	
	BK1	6	CLTC	✓C4EN	ENGINE IGNITION POWER ON	
-05'30"						
	BK1	1	CLTC	✓RGCC	VERIFY FLIGHT COMPUTER IN PREPARE TO LAUNCH MODE	
	BK1	2	CLTC	✓C1NP	FUNCTION SELECTOR TO LAUNCH	
	BK1	3	CLTC	✓C1NP	IGNITION ARMING ON	
		4		C1FR	NOTE IGNITION SEQUENCER READY	
	BK2	5	CVTS	ORNG	CLEARANCE TO LAUNCH	
	BK2	6	CVTS	CDLO	CLEARANCE TO LAUNCH	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	CL4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	CL4EN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	FWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	CL4AX	APS ENGINE VALVE POWER OFF	22-1	CL4HC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	CL4NP	SWITCH SELECTOR INHIBIT OFF
8	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	CL4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	CL4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	CL4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	CL4PS	VERIFY LH2 TANK VENTED	26	RL4HY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	CL4SP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	RL4HY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CLDP RL4DP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	CL4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	CL4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CL1FP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	CL4EN	CLOSE START TANK SUPPLY VALVE	2	CL1FP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	CL4EN	OPEN START TANK SUPPLY VENT	3	CL1FP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CL1FP	VENT S-IB LOX TANKS
18-1	CL4HN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	CL4HC	CLOSE 6000 # HE SUPPLY VALVE			
19	CL4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION 8

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 108
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-05'30"		7		C4HN	CLOSE HEAT EXCHANGER CIRCUIT #1 VENT.	
		8		C4EN R4SR	CLOSE START TANK VENT	
					NOTE: WHEN START TANK IS PRESSURIZED, ---- PER R4SR, CLOSE START TANK SUPPLY	
-05'00"	BK1	1	CLTC	BPHO	TURN ON VEHICLE SWAY CAMERAS.	
		2		R4HY	NOTE S-IVB HYDRAULICS READY	
-04'30"		1		RUFC	NOTE CONTROL COMPUTER IN S-IB BURN MODE	
		2		R1FC	NOTE OK TO START S-IB HYDRAULIC PUMPS	
	BK1	3	CLTC	R1FC	S-IB HYDRAULIC PUMPS ENABLE ON	
	BK1	4	CLTC	R1FC	S-IB HYDRAULIC PUMPS #1, #2, #3, #4 ON	
-04'00"	BK1	1		C1FR	NOTE SPACECRAFT READY	
	BK1	2	CLTC	RUFC	ATTITUDE RATE COMMANDS (PLUS PITCH, YAW, ROLL)	
-03'40"	BK1	1	CLTC	C4AX	APS ENGINE VALVE POWER ON	
	BK1	2	CLTC	R1DP R4DP	ARM S&A	
		2-1		C4OE	NOTE S-IVB ALL SYSTEMS READY	
		3		C1FR	NOTE S-IVB READY	
		4		C1FR	NOTE IU READY	
		5		C4NP	S-IVB SWITCH SELECTOR TO INHIBIT	

EMERGENCY PROCEDURE (T-30:00 TO T-02:43)

1	CLNP	IGNITION ARMING OFF	20	C4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
2	CLVN	CAMERA ARMING OFF	21		IF COMPUTER IS UP:
3	CPSS	IGNITION PERMISSION OFF	21-1	C4EN	CLOSE START TANK SUPPLY VENT
4	CPSS	HOLD FIRE ON	21-2	C4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
5	FWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	22		IF COMPUTER IS DOWN:
6	C4AX	APS ENGINE VALVE POWER OFF	22-1	C4HC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	23	C4NP	SWITCH SELECTOR INHIBIT OFF
8	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED	24	C4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
9	C4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	25	C4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
10	C4PS	VERIFY LH2 TANK VENTED	26	RLHY	AUX. HYD. PUMP INFLIGHT MODE RELAY REST OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
11	C4SP	OPEN SIVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	27	RLHY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
12	CLNP	FUNCTION SELECTOR TO PRELAUNCH	28	RLFM	FIRE DETECTION MONITOR ARM OFF
13	CLLS	LAUNCH SEQUENCER ARM OFF	29	RGCC	TERMINATE FT-32, IF REQUIRED
14	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	30	BGCC	THERMAL OVERRIDE SWITCHES OFF
15	CIDP RLDP	SAFE S & A	31		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
16		IF COMPUTER IS UP:	32		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY
16-1	C4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			PREMATURE CLOSURE OF PREVALVES
16-2	C4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			-----
16-3	C4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	1	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE
16-4	C4EN	CLOSE START TANK SUPPLY VALVE	2	CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
17	C4EN	OPEN START TANK SUPPLY VENT	3	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
18		IF COMPUTER IS DOWN:	4	CLFP	VENT S-IB LOX TANKS
18-1	C4HN	CLOSE 6000 # GH2 SUPPLY VALVE			
18-2	C4HC	CLOSE 6000 # HE SUPPLY VALVE			
19	C4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

109
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-03'30"		1		C1IP C4IP CUIP	NOTE TAPE RECORDER READY INDICATIONS	
	BK1	2	✓ CLTC	C1FR	VERIFY PREP COMPLETE	
	BK1	3	CVTS	CLTC	CLEARANCE FOR LAUNCH.	
	BK1	4	✓ CLTC	BGCC	THERMAL OVERRIDE SWITCHES ON (SENSE CONTROL PANEL SWITCHES 21 AND 22)	
	BK1	5	✓ CLTC	C4SP	CLOSE HELIUM CROSSOVER VALVE	
	BK1	6	✓ CLTC	C4SP	COLD HELIUM REG. PRESSURE SWITCH TO DISABLE	
-02'55"						
	BK1	1	CLTC	✓ BSTM ETMS	TELEMETRY TAPE RECORDING ON	
	BK2	2	CVTS	ORNG	LV TM RECORDING ON	

EMERGENCY PROCEDURE (T-0:02:43 TO T-0:00:03)

1	CLNP	GIVE CUTOFF, IF REQUIRED (UNTIL T-5 SEC.)	22		IF COMPUTER IS DOWN:
2		IF CUTOFF FAILS, PERFORM THE FOLLOWING:	22-1	CLHN	CLOSE 6000 # GH2 SUPPLY VALVE
2-1	CLNP	FUNCTION SELECTOR TO PRELAUNCH	22-2	CLHC	CLOSE 6000 # HE SUPPLY VALVE
2-2	CLNP	DISARM LAUNCH SEQUENCER	23	CLEN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT
3	CLVN	COMPUTER BLOCK INHIBIT ON (RESET MTOAD IF REQUIRED)	24	CLEN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
4	CLVN	COMPUTER TEST SWITCH ON	25		IF COMPUTER IS UP:
5	CLNP	IGNITION ARMING OFF	25-1	CLEN	CLOSE START TANK SUPPLY VENT
6	CGCM	CAMERA ARMING OFF	25-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
7	CPSS	IGNITION PERMISSION OFF	26		IF COMPUTER IS DOWN:
8	CPSS	HOLD FIRE ON	26-1	CLHC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
9	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	27	CLNP	SWITCH SELECTOR INHIBIT OFF
10	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	28	CLRC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
11	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED	29	CLRC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
12	CLPS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	30	RLHY	AUX. HYD. PUMP INFLIGHT MODE RELAY RESET OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074.
13	CLPS	VERIFY LH2 TANK VENTED	31	RLHY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
14	CLSP	OPEN S-IVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	32	RLFM	FIRE DETECTION MONITOR ARM OFF
15	CLNP	FUNCTION SELECTOR TO PRELAUNCH	33	RGCC	TERMINATE FT-32, IF REQUIRED
16	CLLS	LAUNCH SEQUENCER ARM OFF	34	BGCC	THERMAL OVERRIDE SWITCHES OFF
17	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	35		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
18	CLDP RLDP	SAFE S & A	36		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY PROCEDURE
19	CLNP	RESET CUTOFF			PREMATURE CLOSURE OF PREVALVES
20	CLAX	APS ENGINE VALVE POWER OFF			-----
21		IF COMPUTER IS UP:			
21-1	CLEN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			
21-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE		CLFP	ALL PREVALVE SWITCHES TO CLOSE
21-3	CLEN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT		CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
21-4	CLEN	CLOSE START TANK SUPPLY VALVE		CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
21-5	CLEN	OPEN START TANK SUPPLY VENT		CLFP	VENT S-IB LOX TANKS

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

110
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-02'43"	BK1	1		C1FR	INITIATE LAUNCH SEQUENCE START AND VERIFY	
		2		REDS	FIRING COMMAND ON	
		3		C1FR	MONITOR S-IB LOX REPLENISH VALVE CLOSED.	
		4		C1FR	MONITOR S-IB LOX VENT & RELIEF VALVES CLOSED.	
		5		C1FR	MONITOR S-IB FUEL VENTS CLOSED	
		6		C1FR	MONITOR FUEL PRESSURIZING.	
		7		C4SP	MONITOR S-IVB LOX VENT CLOSE	
		8		C4SP	MONITOR S-IVB LOX PREPRESS ON	
-02'40"		1		C1FR	MONITOR AND REPORT S-IB FUEL TANK PRESSURIZED	
-02'33"		1		C1FR	MONITOR LOX BUBBLING.	
-02'27"		1			S-IVB LOX TANK PRESSURIZE +16 SECONDS	
-01'53"		1		C4SP	MONITOR LH2 VENT CLOSE	
		2		C4SP	MONITOR LH2 PRE-PRESS ON.	
-01'43"	BK1	1		C1FR	MONITOR S-IB LOX BUBBLING OFF	
		2		C1FR	MONITOR S-IB LOX PRESSURIZING	
		3		R1BM	REPORT S-IB LOX TANK PRESSURES DURING LOX TANK PRESSURIZATION. (XD3-OC)	

EMERGENCY PROCEDURE (T-0:02:43 TO T-0:00:03)

1	CLNP	GIVE CUTOFF, IF REQUIRED (UNTIL T-5 SEC.)	22		IF COMPUTER IS DOWN:
2		IF CUTOFF FAILS, PERFORM THE FOLLOWING:	22-1	CLHN	CLOSE 6000 # GH2 SUPPLY VALVE
2-1	CLNP	FUNCTION SELECTOR TO PRELAUNCH	22-2	CLHC	CLOSE 6000 # HE SUPPLY VALVE
2-2	CLNP	DISARM LAUNCH SEQUENCER	23	CLEN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT
3	CLVN	COMPUTER BLOCK INHIBIT ON (RESET MTOAD IF REQUIRED)	24	CLEN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
4	CLVN	COMPUTER TEST SWITCH ON	25		IF COMPUTER IS UP:
5	CLNP	IGNITION ARMING OFF	25-1	CLEN	CLOSE START TANK SUPPLY VENT
6	CGCM	CAMERA ARMING OFF	25-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
7	CPSS	IGNITION PERMISSION OFF	26		IF COMPUTER IS DOWN:
8	CPSS	HOLD FIRE ON	26-1	CLHC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
9	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	27	CLNP	SWITCH SELECTOR INHIBIT OFF
10	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	28	CLRC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
11	RLHM	VERIFY S-IB FUEL AND LOX TANKS VENTED	29	CLRC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
12	CLPS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	30	RLHY	AUX. HYD. PUMP INFIGHT MODE RELAY RESET OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074.
13	CLPS	VERIFY LH2 TANK VENTED	31	RLHY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
14	CLSP	OPEN S-IVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	32	RLFM	FIRE DETECTION MONITOR ARM OFF
15	CLNP	FUNCTION SELECTOR TO PRELAUNCH	33	RGCC	TERMINATE FT-32, IF REQUIRED
16	CLLS	LAUNCH SEQUENCER ARM OFF	34	BGCC	THERMAL OVERRIDE SWITCHES OFF
17	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	35		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
18	CLDP RLDP	SAFE S & A	36		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY PROCEDURE
19	CLNP	RESET CUTOFF			PREMATURE CLOSURE OF PREVALVES
20	CLAX	APS ENGINE VALVE POWER OFF			-----
21		IF COMPUTER IS UP:			
21-1	CLEN	CLOSE THRUST CHAMBER CHILLDOWN VALVE		CLFP	ALL PREVALVE SWITCHES TO CLOSE
21-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE		CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
21-3	CLEN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT		CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
21-4	CLEN	CLOSE START TANK SUPPLY VALVE		CLFP	VENT S-IB LOX TANKS
21-5	CLEN	OPEN START TANK SUPPLY VENT			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 22, 1966
 REVISION B PCD 2

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

111
 7-LSVIR-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-01'37"		1			LH2 TANK PRESSURE +16 SECONDS.	
-01'00"	BK1	1	CLTC	ALL	*****CAUTION***** * * DO NOT OPERATE ANY * * SWITCHES AFTER MINUS 50 * * SECONDS EXCEPT IN AN * * EMERGENCY OR AS CALLED * * FOR BY PROCEDURE. * * *****CAUTION*****	
		2			R1FM RECORDERS TO FAST SPEED.	
		3			R1BM TRAILING WIRE RECORDER TO RECORD	
-00'50"		1			CLVN COMPUTER TEST SWITCH OFF.	
-00'38"		1			RWCP MONITOR PAD FLUSH ON	**
		2			ORNG NOTE WATER PUMPS 5 AND 6 TO FULL SPEED.	**
-00'28"		1			C1NP MONITOR S-IB POWER TRANSFER	
		2			C4NP MONITOR S-IVB POWER TRANSFER	
		3			CUNP MONITOR IU POWER TRANSFER.	
	BK1	4	CLTC		REPORT LAUNCH VEHICLE POWER TRANSFER	
		5			C1FR MONITOR TC FUEL INJECTOR PURGE ON.	
	BK1	6	C4SP		MONITOR LH2 DIRECTIONAL VENT TO FLIGHT POSITION	
		7			C10E NOTE S-IB READY FOR LAUNCH	
		8			C40E NOTE S-IVB READY FOR LAUNCH	
		9			C1FR MONITOR S-IB GG LOX INJECTOR PURGE ON	

EMERGENCY PROCEDURE (T-0:02:43 TO T-0:00:03)

1	CLNP	GIVE CUTOFF, IF REQUIRED (UNTIL T-5 SEC.)	22		IF COMPUTER IS DOWN:
2		IF CUTOFF FAILS, PERFORM THE FOLLOWING:	22-1	CLHN	CLOSE 6000 # GH2 SUPPLY VALVE
2-1	CLNP	FUNCTION SELECTOR TO PRELAUNCH	22-2	CLHC	CLOSE 6000 # HE SUPPLY VALVE
2-2	CLNP	DISARM LAUNCH SEQUENCER	23	CLEN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT
3	CLVN	COMPUTER BLOCK INHIBIT ON (RESET MTOAD IF REQUIRED)	24	CLEN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE PRESSURE DECREASES TO 700 PSIA
4	CLVN	COMPUTER TEST SWITCH ON	25		IF COMPUTER IS UP:
5	CLNP	IGNITION ARMING OFF	25-1	CLEN	CLOSE START TANK SUPPLY VENT
6	CGCM	CAMERA ARMING OFF	25-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
7	CPSS	IGNITION PERMISSION OFF	26		IF COMPUTER IS DOWN:
8	CPSS	HOLD FIRE ON	26-1	CLHC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
9	RWCP	OPERATE WATER CONTROL SYSTEM, AS REQUIRED	27	CLNP	SWITCH SELECTOR INHIBIT OFF
10	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	28	CLRC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
11	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED	29	CLRC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
12	CLPS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	30	RLHY	AUX. HYD. PUMP INFLIGHT MODE RELAY RESET OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074.
13	CLPS	VERIFY LH2 TANK VENTED	31	RLHY	AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
14	CLSP	OPEN S-IVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	32	RLFM	FIRE DETECTION MONITOR ARM OFF
15	CLNP	FUNCTION SELECTOR TO PRELAUNCH	33	RGCC	TERMINATE FT-32, IF REQUIRED
16	CLLS	LAUNCH SEQUENCER ARM OFF	34	BGCC	THERMAL OVERRIDE SWITCHES OFF
17	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	35		IF COMPUTER IS UP, GO TO APPENDIX "A" FOR RECYCLE PROCEDURE
18	CLDP RLDP	SAFE S & A	36		IF GROUND COMPUTER IS DOWN, GO TO APPENDIX "B" FOR COMPUTER RECOVERY PROCEDURE
19	CLNP	RESET CUTOFF			PREMATURE CLOSURE OF PREVALVES
20	CLAX	APS ENGINE VALVE POWER OFF			-----
21		IF COMPUTER IS UP:			
21-1	CLEN	CLOSE THRUST CHAMBER CHILLDOWN VALVE		CLFP	ALL PREVALVE SWITCHES TO CLOSE
21-2	CLEN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE		CLFP	PRESSURIZE S-IB LOX TANKS TO 20 PSIG MINIMUM
21-3	CLEN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT		CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
21-4	CLEN	CLOSE START TANK SUPPLY VALVE		CLFP	VENT S-IB LOX TANKS
21-5	CLEN	OPEN START TANK SUPPLY VENT			

L/V LAUNCH COUNTDOWN
DATE: AUGUST 22, 1966
REVISION B PCD 2

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE 112
TEST NO. 7-LSVIB-200
VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-00'28"		10			C1FR MONITOR S-1B LOX DOME PURGE ON	
		11			C1FR MONITOR S-1B LOX TANKS PRESSURIZED	
		12			C1FP MONITOR CALORIMETER PURGE ON.	
-00'10"		1			CUEV MONITOR GUIDANCE ALERT	
		2			CUEV MONITOR IU READY TO LAUNCH OFF	
-00'08"		1			C1EV MONITOR SHORT MAST 2 AND 4 PRESSURIZING VALVES #1 OPEN	
-00'05"		1			CUEV MONITOR GUIDANCE RELEASE	**
		2			CUEV MONITOR IU READY TO LAUNCH ON	

EMERGENCY PROCEDURE (T-0:00:03 TO T-0:00:00)

AUTOMATIC CUTOFF

1	CLFR	OBSERVE AUTOMATIC CUTOFF	21-7	CL4EN	OPEN START TANK SUPPLY VENT
2	CLVN	COMPUTER BLOCK INHIBIT ON	22		IF COMPUTER IS DOWN:
3	CLFP	VERIFY DELUGE PURGE ON - IF NOT ON, OPERATE DELUGE PURGE TO MANUAL	22-1	CL4HN	CLOSE 6000 # GH2 SUPPLY VALVE
4	CLVN	COMPUTER TEST SWITCH ON	22-2	CL4HN	CLOSE 6000 # HE SUPPLY VALVE
5	FWCP	OPERATE WATER CONTROL SYSTEM AS REQUIRED	23	CL4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT
6	CL4AX	APS ENGINE VALVE POWER OFF	24	CL4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE DECREASES TO 700 PSIA
7	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	25		IF COMPUTER IS UP:
8	CLNP	FUNCTION SELECTOR TO PRELAUNCH	25-1	CL4EN	CLOSE START TANK SUPPLY VENT
9	CLLS	LAUNCH SEQUENCER ARM OFF	25-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
10	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	26		IF COMPUTER IS DOWN:
11	CLDP RLDP	SAFE S & A	26-1	CL4HC	CYCLE 6000 # HE SUPPLY TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
12	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED TO ZERO PSI	27	CL4NP	SWITCH SELECTOR INHIBIT OFF
13	CL4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	28	CL4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
14	CL4PR	VERIFY LH2 TANK VENTED	29	CL4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
15	CL4SP	OPEN S-IVB LOX TANK VENT WHEN LH2 TANK PRESSURE IS AMBIENT	30	RL4HY	AUX. HYD. PUMP INFLIGHT MODE RELAY RESET OFF. IF NO ACTION CUNP: INSERT AND READ S-IVB OCTAL 074
16	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE	31	RL4HY	AUX. HYD. PUMP GROUND MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
17	CLFP	PREVALVE ENABLE SWITCH TO CLOSE LOX DOME PURGE ON (REQUIRED FOR 15" MINIMUM AFTER CUTOFF)	32	CLFP	PRESSURIZE THE S-IB LOX TANKS TO 20 PSIG MINIMUM
18	CLFP	GG LOX INJECTOR PURGE ON	33	CLFP	PREVALVE ENABLE SWITCH TO OPEN
19	CLNP	IGNITION ARMING OFF	34	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
20	CLNP	RESET CUTOFF	35	CLFP	VENT S-IB LOX TANKS
21		IF COMPUTER IS UP:	36	RGCC	TERMINATE FT-32 AND VERIFY WHEN COMPLETE
21-1	CLNP	SAFETY SWITCH ARMING OFF	37	BGCC	THERMAL OVERRIDE SWITCHES OFF
21-2	CLNP	RESET IGNITION SEQUENCER	38	CLTC	SECURE ALL OTHER EQUIPMENT AS REQUIRED PER APPENDIX "C" (SCRUB PROCEDURE)
21-3	CL4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE			
21-4	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE			
21-5	CL4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT			
21-6	CL4EN	CLOSE START TANK SUPPLY VALVE			

L/V LAUNCH COUNTDOWN
DATE: AUGUST 22, 1966
REVISION B PCD 2

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

113
7-LSVIB-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-00'03"		1			C1FR VERIFY IGNITION COMMAND.	**
-00' 02.98"		1			C1EV MONITOR IGNITION OF ENGINES #5 AND #7.	**
-00' 02.88"		1			C1EV MONITOR IGNITION OF ENGINES #6 AND #8.	**
-00' 02.78"		1			C1EV MONITOR IGNITION OF ENGINES #2 AND #4.	**
-00' 02.68"		1			C1EV MONITOR IGNITION OF ENGINES #1 AND #3.	**
		2			C1EV MONITOR ALL ENGINES RUNNING ON.	**

EMERGENCY PROCEDURE (T-0 TO T+0)
AUTOMATIC CUTOFF

1	CLFR	OBSERVE AUTOMATIC CUTOFF	23-3	CL4EN	CLOSE THRUST CHAMBER CHILLDOWN VALVE
2		IF CUTOFF DOES NOT OCCUR, PERFORM THE FOLLOWING:	23-4	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE
2-1	CLNP	GIVE CUTOFF AT IGNITION PLUS 10 SEC.	23-5	CL4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT
2-2	CLFR	GIVE CUTOFF AT IGNITION PLUS 12 SEC.	23-6	CL4EN	CLOSE START TANK SUPPLY VALVE
3	CLFP	ALL 8 PREVALVE SWITCHES TO CLOSE POSITION	23-7	CL4EN	OPEN START TANK SUPPLY VENT
4	CLFP	PREVALVE ENABLE SWITCH TO CLOSE	24		IF THE GROUND COMPUTER IS DOWN:
5	CLFP	VERIFY DELUGE PURGE ON. IF NOT ON, OPERATE DELUGE PURGE TO MANUAL.	24-1	CL4HN	CLOSE 6000 # GH2 SUPPLY VALVE
6	RWCP	OPERATE WATER CONTROL SYSTEM AS REQUIRED	24-2	CL4HC	CLOSE 6000 # HE SUPPLY VALVE
7	CL4AX	APS ENGINE VALVE POWER OFF	25	CL4EN	OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT
8	RLFC	S-IB HYDRAULIC PUMP ENABLE OFF	26	CL4EN	OPEN ENGINE CONTROL BOTTLE VENT - CLOSE VENT WHEN ENGINE CONTROL BOTTLE DECREASES TO 700 PSIA
9	CLFP	GG LOX INJECTOR PURGE TO ON	27		IF THE GROUND COMPUTER IS UP:
10	CLNP	FUNCTION SELECTOR TO PRELAUNCH	27-1	CL4EN	CLOSE START TANK SUPPLY VENT
11	CLFP	LOX DOME PURGE TO ON	27-2	CL4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT
12	CLNP	RESET CUTOFF	28		IF THE GROUND COMPUTER IS DOWN:
13	CUNP	VERIFY LIFTOFF COMMAND BLOCKED INDICATION ON	28-1	CL4HC	CYCLE 6000 # HE SUPPLY VALVE TO MAINTAIN 700 PSIA IN ENGINE CONTROL BOTTLE
14	CUNP	PRESS STAGE LOGIC RESET	29	CUNP	VERIFY I.U. ON EXTERNAL POWER
15	REDS	PRESS LIFTOFF RESET	30	CL4RC	OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151
16	CPSS	VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	31	CL4RC	LOX AND LH2 RECIRC. PUMP OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)
17	CLDP RLDP	SAFE S & A	32	RL4HY	AUX. HYD. PUMP INFLIGHT MODE RELAY RESET OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 074
18	RLBM	VERIFY S-IB FUEL AND LOX TANKS VENTED TO ZERO PSI	33	RL4HY	AUX. HYD. PUMP GROUND MODE RELAY RESET ON. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003
19	CL4PS	VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	34	CLFP	PRESSURIZE THE S-IB LOX TANKS TO 20 PSIG MINIMUM
20	CL4PR	VERIFY S-IVB LH2 TANK VENTED TO AMBIENT	35	CLFP	PREVALVE ENABLE SWITCH TO OPEN
21	CL4SP	OPEN S-IVB LOX TANK VENT WHEN LH2 TANK PRESSURE IS AMBIENT	36	CLFP	ALL 8 PREVALVE SWITCHES TO AUTO
22	CLLS	LAUNCH SEQUENCER ARM OFF	37	CLFP	VENT S-IB LOX TANKS
23		IF THE GROUND COMPUTER IS UP:	38	RGCC	TERMINATE FT-32 AND VERIFY WHEN COMPLETE
23-1	CLNP	SAFETY SWITCH ARMING OFF	39	CLTC	SECURE ALL OTHER EQUIP. AS REQUIRED PER APPENDIX "C"(SCRUB PROC.)
23-2	CLNP	RESET IGNITION SEQUENCER			

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

114
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
-00'00"		1		C1EV	MONITOR COMMIT.	**
		2		C1EV	MONITOR HOLDDOWNS RELEASE.	**
		3		C1EV	MONITOR S-IB LOX AND FUEL MASTS EJECT VALVES OPEN.	**
+00'00"	BK1	1		CLTC	VERIFY LIFTOFF.	**
		2		C1EV	MONITOR SHORT MAST 2 AND 4 RELEASE.	**
		3		C1EV RLUC	MONITOR UMBILICAL ARMS 1, 2, 3, AND 4 RELEASE AND RETRACT.	**
		4		CVMP	CLOSE VACUUM SUPPLY VALVES.	**
		5		CVMP	OPEN PURGE SUPPLY.	**
		6		RECS	PERFORM ECS POST LAUNCH OPERATIONS PER PROCEDURE CSD-E-8009 PART VII AND CSD-E-8013, PART III.	**
		7		BDAS	SWITCH RECEIVERS TO CHANNEL B	
		8		BDAS	NOTE SWITCHOVER TO CIF DATA	
+00'03"		1		RWCP	TORUS RING WATER VALVES OPEN.	**
		2		RWCP	PAD FLUSH VALVE FAST CLOSES.	**
+00'06"		1		RUCP	GSCU STOP SWITCHES TO STOP	**
		2		C1PS	LAUNCHER POWER OFF.	**
+01'00"	BK1	1		C40E	S-IVB PERSONNEL TO BK6 CIRCUIT FOR SECURING PER DAC-P-8003	**
		2		RLUC	SWING ARM HYDRAULIC PUMP OFF	**
	BK1	3		C10E	ALL S-IB PERSONNEL SWITCH TO BLK5 FOR SECURING VERIFICATION	**

L/V COUNTDOWN
DATE: 11 AUGUST 1966
REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 114A
TEST NO. 7-LSVIB-200
VEHICLE AS-202

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L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

115
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+03'00"	RD6	1		RH2C	INERT LH2 SYSTEM PER 6-LLVIB-203A	**
		2		RWCP	WATER SYSTEM OFF AND ON, (TORUS RING VALVES CLOSE)	**
+05'00"		1		BDAS	TAPE RECORDER OFF	
+06'00"		1		RWCP	SECURE WATER SYSTEMS PER CSD-E-8012	**
		2		RRPC	TURN RP-1 MAST PURGE OFF	**
		1			UPON RETURN TO PAD -----	**
		2		PPSS	PERFORM GH2 DETECTION AND HAZARDS APPRAISAL	**
		3		PPSS	KEEP LAUNCHER CLEAR OF ALL NON DESIGNATED PERSONNEL UNTIL SGMP VERIFIES THE FOLLOWING ARE COMPLETE.	**
		3-1		SGMP	INSTALL LAUNCHER SAFETY ITEMS NET.	**
		3-2		SGMP	SAFETY WIRE HOLDDOWN ARM RELEASE PANEL SUPPLY VALVE CLOSED AND VENT VALVE OPEN.	**
		3-3		APCD	PERFORM POST LAUNCH PNEUMATIC OPERATIONS PER PROCEDURE CSD-E-8022	**
		3-4		SGMP	VERIFY APCD HAS SECURED ALL LAUNCHER PNEUMATICS.	**
		3-5		A1NW	SECURE ESE CIRCUIT BREAKERS PER 1-CLGSEIB-207	**
		3-6		UGSE UQBL	PERFORM UMBILICAL SYSTEMS POST LAUNCH OPERATIONS PER PROCEDURE CSD-E-8023	**
		3-7		SUVM AUNW	SECURE IU PNEUMATICS CONSOLE AND GROUND SUPPORT COOLING UNIT PER 6-ILIUIB-269B	**

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION 8

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

116
7-LSVIB-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
		4		CUNP	SECURE IU GROUND SYSTEMS PER 1-ILIUIB-203	** **
		5		CUNP AUNW	SECURE AUXILIARY POWER SYSTEM PER 1-ILIUIB-208	** ** ** **

APOLLO/SATURN
LAUNCH OPERATIONS

APPENDIX A

RECYCLE PROCEDURE

* HOLD AFTER T-15' *
* OF MORE THAN FIVE *
* MINUTES *

*

* PART I *

* RECYCLE *
* TO *
* T-15' *

***** HOLD > 60' ***** HOLD < 60' *****

* PART II *

* RECYCLE *
* TO *
* T-30' *

* RESUME *

* RESUME & *
* DELETE *
* PWR XFR *

APOLLO/SATURN
 LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					APPENDIX A ----- PART I ----- IF THERE IS A HOLD AFTER T-15 MINUTES OF MORE THAN FIVE MINUTES IT IS NECESSARY TO RECYCLE THE COUNT TO T-15 AND HOLD FOR 5 MINUTES. NOTE: THIS RECYCLE PROCEDURE REQUIRES ----- GROUND COMPUTER OPERATING.	
	BK1	1	CLTC	C1NP	* GIVE CUTOFF, IF REQUIRED	
	BK1	2	CLTC	C1NP	* IGNITION ARMING OFF	
	BK1	3	CLTC	CLVN	* CAMERA ARMING OFF	
	BK1	4	CLTC	CPSS	* IGNITION PERMISSION OFF	
	BK1	5	CLTC	CPSS	* HOLD FIRE ON	
	BK1	6	CLTC	RWCP	* OPERATE WATER CONTROL SYSTEM, AS REQUIRED.	
		7	CLTC	C4NP	VERIFY SWITCH SELECTOR INHIBIT OFF	
		8	CLTC	C4AX	* APS ENGINE VALVE POWER OFF	
	BK1	9	CLTC	R1FC	* S-IB HYDRAULIC PUMP ENABLE OFF	
	BK1	10	CLTC	R1BM	* VERIFY S-IB FUEL AND LOX TANKS VENTED	
	BK1	11	CLTC	C4PS	* VERIFY LH2 DIRECTIONAL VENT CONTROL TO GROUND POSITION	
	BK1	12	CLTC	C4PS	* VERIFY LH2 TANK VENTED	
	BK1	13	CLTC	C4SP	* OPEN S-IVB LOX TANK VENT WHEN LH2 TANK IS AMBIENT	
	BK1	14	CLTC	C1NP	* FUNCTION SELECTOR TO PRELAUNCH	
	BK1	15	CLTC	C1LS	* LAUNCH SEQUENCER ARM OFF	
	BK1	16	CLTC	CPSS	* VERIFY CLEAR TO SAFE PROPELLANT DISPERSION S & A	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 119
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
	BK1	17	CLTC	C1DP R4DP	* SAFE S & A	
	BK1	18	CLTC	C1NP	* RESET CUTOFF	
	BK1	19	CLTC	S4SP	CLOSE HELIUM CROSSOVER VALVE.	
	BK1	20	CLTC	C4EN	* CLOSE THRUST CHAMBER CHILLDOWN VALVE	
	BK1	21	CLTC	C4EN	* CLOSE ENGINE CONTROL BOTTLE SUPPLY VALVE	
	BK1	22	CLTC	C4EN	* OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	
	BK1	23	CLTC	C4EN	* CLOSE START TANK SUPPLY VALVE	
	BK1	24	CLTC	C4EN	* OPEN START TANK SUPPLY VENT	
	BK1	25	CLTC	C4EN	* OPEN START TANK VENT - CLOSE WHEN START TANK AMBIENT	
	BK1	26	CLTC	C4EN	* MAINTAIN ENGINE CONTROL BOTILE PRESSURE AT 2800-3000 PSIA.	
	BK1	27	CLTC	C4EN	* CLOSE START TANK SUPPLY VENT	
	BK1	28	CLTC	C4EN	* CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT	
	BK1	29	CLTC	C4RC	* OPEN LOX AND LH2 PREVALVES. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 151	
	BK1	30	CLTC	C4RC	* LOX AND LH2 RECIRC. PUMPS OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 042 (LOX) AND OCTAL 153 (LH2)	
	BK1	31	CLTC	R4HY	* AUX. HYD. PUMP INFLIGHT MODE RELAY RESET OFF. IF NO ACTION, CUNP: INSERT AND READ S-IVB OCTAL 0/4	
	BK1	32	CLTC	R4HY	* AUX. HYD. PUMP GROUND AND COAST MODE RELAY RESET ON. IF NOT ACTION, CUNP: INSERT AND READ S-IVB OCTAL 003 074	
	BK1	33	CLTC	R1FM	* FIRE DETECTION MONITOR ARM OFF	
	BK1	34	CLTC	RGCC	* TERMINATE FT-32, IF REQUIRED	
	BK1	35	CLTC	C1NP	RESET IGNITION SEQUENCER.	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

120.
 7-LSVIR-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
	BK1	36	CLTC	C1NP	SAFETY SWITCH ARMING OFF.	
	BK1	37	CLTC	R1FC	S-IB HYDRAULIC PUMPS OFF	
	BK1	38	CLTC	BSTM ETMS ORNG	TELEMETRY TAPE RECORDING OFF (RELOAD IF REQUIRED)	
	BK1	39	CLTC	C1LS	LAUNCH SEQUENCER TIME PULSE OFF.	
	BK1	40	CLTC	R4DP	S-IVB DRSCR'S #1 AND #2 GROUND POWER ON.	
	BK1	41	CLTC	R4DP	S-IVB DRSCR'S #1 AND #2 TO EXTERNAL	
	BK1	42	CLTC	C4IP	C/O MEASURING GROUP ON	
	BK1	43	CLTC	RLUC	SWING ARM HYDRAULIC PUMP OFF.	
	BK1	44	CLTC	REDS	EDS SELECTOR SWITCH TO MONITOR POSITION	
	BK1	45	CLTC	C4EN	ENGINE IGNITION POWER OFF	
	BK1	46	CLTC	CUNP	INSERT S-IVB OCTAL CODE 162 AND READ COMMAND (ENGINE CUTOFF OFF)	
	BK1	47	CLTC	C4EN	ENGINE CONTROL POWER OFF	
	BK1	48	CLTC	C4SP	COLD HELIUM PRESSURE REGULATOR TO ENABLE	
	BK1	49	CLTC	C4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VALVE	
	BK1	50	CLTC	BGCC	THERMAL OVERRIDE SWITCHES OFF (IF REQUIRED)	
	BK1	51	CLTC	RWCP	VERIFY WATER SYSTEM ARMED AND T-38 INDICATION OFF.	
	BK1	52	CLTC	CLVN	AGCS COMPUTER INHIBIT SWITCH TO AUTO	
	BK2	53	CLTC	CVTS	THE LAUNCH VEHICLE IS NOW AT T-15' AND HOLDING. THE HOLD MUST CONTINUE FOR 5 MINUTES. REFER TO PART II IF THE HOLD IS EXPECTED TO EXCEED 60 MINUTE DURATION.	
					NOTE: * ASTERISK PRECEEDING DESCRIPTION ---- INDICATES STEP INCLUDED IN EMERGENCY PROCEDURE.	
					NOTE: PRIOR TO PICKING UP COUNT AT T-15 ---- MINUTES, C40E INITIATE 5 MINUTE	

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APOLLO/SATURN
 LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					TIMER AND PERFORM THE FOLLOWING:	
					-5:00 C4EN T/C PURGE ON	
					-3:00 R4HY AUX HYD PUMP INFLT MODE RELAY RESET ON. AUX HYD PUMP GROUND AND COAST MODE RELAY RESET OFF.	
					C4EN OPEN START TANK	
					-2:00 R4DP S-IVB DRSCR'S #1 AND #2 TO INTERNAL	
					-0:00 CVTS START COUNTDOWN CLOCK.	
					NOTE: IF ORNG REQUIRES A ---- REPEAT OF THE CUTOFF COMMAND PRIOR TO PICKUP AT T -15 MIN, PERFORM THE FOLLOWING:	
	BK1	54	CLTC	CVTS	VERIFY IT IS CLEAR TO REMOVE THE RANGE COMMAND CARRIER AND REQUEST SHO TO GO TO BK1 CIRCUIT. (SPACECRAFT COMMAND RECEIVERS MUST BE OFF PRIOR TO RANGE COMMAND CARRIER OFF)	
	BK1	55	CLTC	B1RF	DIGITAL RANGE SAFETY COMMAND CARRIER ON	
	BK1	56	CLTC	ORNG	RANGE COMMAND CARRIER OFF.	
	BK1	57	CLTC	R1BM	DRSCR AND EBW RECORDERS TO SLOW.	
	BK1	58	CLTC	R4VC	EBW RECORDER TO SLOW.	
	BK1	59	CLTC	C1DP	DRSCR'S #1 AND #2 TO INTERNAL.	
	BK1	60	CLTC	R4DP	DRSCR'S #1 AND #2 GROUND POWER ON.	
	BK1	61	CLTC	C1DP R4DP	EBW'S #1 AND #2 OFF.	
	BK1	62	CLTC	R4DP	DRSCR'S #1 AND #2 TO INTERNAL.	
	BK1	63	CLTC	R1BM	DRSCR AND EBW RECORDERS TO FAST.	
	BK1	64	CLTC	R4VC	EBW RECORDER TO FAST.	
	BK1	65	CLTC	ORNG	GIVE CUTOFF COMMAND FOR 3 SECONDS AND	

L/V LAUNCH COUNTDOWN
DATE: AUGUST 11, 1966
REVISION B

APOLLO/SATURN
LAUNCH OPERATIONS

PAGE
TEST NO.
VEHICLE

122
7-LSVIR-200
AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					RELEASE,	
	BK1	66	CLTC	C1DP R4DP	VERIFY EBW'S #1 AND #2 INTERNAL AND CHARGED.	
	BK1	67	CLTC	C1DP R4DP	EBW'S #1 AND #2 TO EXTERNAL AND VERIFY OFF,	
	BK1	68	CLTC	R1BM	DRSCR AND EBW RECORDERS TO SLOW	
	BK1	69	CLTC	R4VC	EBW RECORDER TO SLOW.	
	BK1	70	CLTC	ORNG	RANGE COMMAND CARRIER ON,	
	BK1	71	CLTC	B1RF	DIGITAL RANGE SAFETY COMMAND CARRIER OFF,	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 123
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
(APPENDIX A) ----- PART II -----						
IN ORDER TO RECYCLE THE COUNT TO T-30' THE FOLLOWING MUST BE PERFORMED:						
NOTE: IF APPENDIX B (COMPUTER RECOVERY ----- PROCEDURE) HAS BEEN USED VERIFY RF SILENCE STILL ON.						
	BK1	1	CLTC	RGCC	TERMINATE FLT COMPUTER PROGRAM FT32 AND VERIFY WHEN COMPLETE. (IF REQUIRED)	
	BK1	2	CLTC	R4DP C1DP	DRSCR'S #1 AND #2 OFF.	
	BK2	3	CLTC	CVTS	RANGE COMMAND CARRIER OFF	
	BK1	4	CLTC	CLVN	PROPELLANT DISPERSION ENABLE OFF	
	BK1	5	CLTC	CLVN	RETURN PROPELLANT DISPERSION ENABLE KEY TO CPSS	
	BK1	6	CLTC	CUIP	GLOTRAC BEACON (AZUSA) OFF	
	BK1	7	CLTC	CUIP	IU C-BAND BEACON OFF	
		8	CLTC	CUIP	TV SYSTEM OFF	
	BK1	9	CLTC	C1IP	ODOP OFF	
	BK1	10	CLTC	BDOP	ODOP GROUND TRANSMITTER OFF	
	BK1	11	CLTC	C4IP	SSB GROUP OFF	
	BK1	12	CLTC	C4IP	FLIGHT SCO GROUP OFF	
	BK1	13	CLTC	C4IP	SSB TRANSMITTER OFF	
	BK1	14	CLTC	C4IP	ORBIT TRANSMITTER GROUP OFF	
	BK1	15	CLTC	C4IP	FLIGHT TRANSMITTER GROUP OFF	
	BK1	16	CLTC	CUIP	IU RF F1, F2, P1, AND S-1 OFF	
	BK1	17	CLTC	CUIP	IU TM F1 AND S-1 OFF	
	BK1	18	CLTC	C1IP	S-1B TRANSMITTER F1, F2, S1 AND P1 OFF	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

.124
 7-LSVIP-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
	BK1	19	CLTC	C1IP	TAPE RECORDER POWER OFF	
	BK1	20	CLTC	ETMS	SPECIAL TAPE RECORDER OFF	
	BK1	21	CLTC	C1IP	TM CALIBRATOR POWER OFF	
	BK1	22	CLTC	BMMR	WIND LOAD RECORDINGS OFF	
	BK1	23	CLTC	CVTS	TURN RF SILENCE OFF, IF ON.	
	BK1	24	CLTC	CPSS	WATER PUMPS 5 AND 6 OFF	
	BK1	25	CLTC	C1FP	LOX DOME PURGE TO OFF	
	BK1	26	CLTC	C1FP	GG LOX INJECTOR PURGE TO OFF	
	BK1	27	CLTC	C4EN	CLOSE START TANK PURGE	
	BK1	28	CLTC	C4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY.	
	BK1	29	CLTC	C4EN	OPEN ENGINE CONTROL BOTTLE SUPPLY VENT	
	BK1	30	CLTC	C4EN	VENT ENGINE CONTROL BOTTLE TO 1500 PSIA	
	BK1	31	CLTC	C4EN	CLOSE THRUST CHAMBER CHILLDOWN PURGE.	
	BK1	32	CLTC	C4EN	CLOSE START TANK VENT.	
	BK1	33	CLTC	C4EN	CLOSE ENGINE CONTROL BOTTLE SUPPLY VENT.	
	BK1	34	CLTC	BGCC	THERMAL OVERRIDE SWITCHES OFF (IF REQUIRED)	
	BK1	35	CLTC	CVTS	RESET THE COUNTDOWN CLOCK TO T-30'	
	BK1	36	CLTC	CVTS	THE LAUNCH VEHICLE IS NOW AT T-30' WHEN THE HOLD IS RELEASED THE COUNTDOWN CAN BE RESUMED DELETING THE LV POWER TRANSFER AT T-18	

ADDRESSOGRAPH-MULTIGRAPH SYSTEMS, INC. MASTERED BY LEWIS BUSINESS FORMS, INC. 7-66 LBP 104 12 ② 38505

APOLLO/SATURN
 LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
APPENDIX B ----- PART I ----- COMPUTER FAILURE RECOVERY PROCEDURE -----						
	BK1	1	CLTC	CLVN	AGCS COMPUTER INHIBIT SWITCH ON	
	BK1	2	CLTC	R1FC	S-IB HYDRAULICS PUMPS OFF, IF REQUIRED	
	BK1	3	CLTC	BGCC	STOP LCC ^{and AGCS} COMPUTER (WITH THE "WT OS" AND "INSTR OS")	
	BK1	4	CLTC		ANNOUNCE "ESTIMATED TIME TO COMPUTERS OPERATIONAL IS -----"	
	BK1	5	CLTC	C1DP R4DP	SYSTEM SAFE SWITCH ON AND OFF. VERIFY DRSCR'S OFF	
	BK1	6	CLTC	CLVN	PROPELLANT DISPERSION ENABLE OFF	
	BK1	7	CLTC	CLVN	RETURN PROPELLANT DISPERSION ENABLE KEY TO CPSS	
	BK1	8	CLTC	CPSS	CLEAR COMPUTER PERSONNEL TO AGCS.	
	BK1	9	CLTC	CPSS	OPEN LCC DOOR	
	BK1	10	CLTC	R02C	RESET S-IB AND S-IVB TO REPLENISH MODE	
	BK1	11	CLTC	RH2C	IF THE COUNT HAD PROCEEDED THROUGH T-1 MINUTE 53 SECONDS, RESET S-IVB TO REPLENISH MODE	
	BK1	12	CLTC	C10E C40E CU0E	VERIFY LV READY FOR RF SILENCE	
	BK1	13	CLTC	CVTS	RF SILENCE ON (NOTE: RF SILENCE WILL TURN OFF ALL LV RF AND TELEMETRY)	
	BK1	14	CLTC	C10E	THE FOLLOWING SYSTEMS CAN BE SECURED BY HARDWARE IF REQUIRED: A. ST-124M	

APOLLO/SATURN
 LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					B. EDS CONTROL RATE GYROS C. CONTROL ACCELEROMETERS D. CONTROL COMPUTER	
	BK1	15	CLTC	RGCC	ISSUE POWER OFF	
	BK1	16	CLTC	RGCC	VERIFY POWER OFF	
	BK1	17	CLTC	AGCC	STOP AGCS COMPUTER (WITH THE "WT OS" AND THE "INSTR OS")	
	BK1	18	CLTC	AGCC BGCC	REINITIALIZE AGCS AND LCC COMPUTERS AND ANNOUNCE WHEN READY TO INITIATE OB 65 ZERO OPTION.	
	BK1	19	CLTC	BGCC	INITIATE OB65 FOR RECORD AND VERIFY WHEN READY FOR VERIFICATION OF PANEL LIGHTS AND SWITCHES	
	BK1	20	CLTC	C10E C40E CUOE	VERIFY LIGHTS VERSUS SWITCHES	
	BK1	21	CLTC	C4NP CUNP	INHIBIT STAGE SWITCH SELECTORS	
	BK1	22	CLTC	CLVN	AGCS COMPUTER INHIBIT SWITCH OFF	
	BK1	23	CLTC	BGCC	TERMINATE OB65 AND VERIFY WHEN COMPUTER IS IN SUPPORT OF CHECKOUT	
	BK1	24	CLTC	RGCC	ENERGIZE FLIGHT COMPUTER PER PROCEDURE 5-LIUIB-252	
	BK2	25	CLTC	CUOE	ENERGIZE THE FOLLOWING SYSTEMS PER PROCEDURE, IF REQUIRED: A. ST-124M B. EDS CONTROL RATE GYROS C. CONTROL ACCELEROMETERS D. CONTROL COMPUTER	
	BK1	26	CLTC		AT THIS POINT REFER TO APPENDIX A, PART I AND/OR PART II FOR RECYCLE	

APOLLO/SATURN
 LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+00'00"					APPENDIX C ----- SCRUB PROCEDURE AFTER CRYOGENIC LOADING -----	
					NOTE: PLUS TIMES IN THIS SCRUB ----- PROCEDURE ARE REFERENCED TO A SCRUB DECISION BEING TIME ZERO.	
	BK1	1	CLTC	C10E C40E CUOE	VERIFY ALL SYSTEMS SECURED FOR APPLICABLE EMERGENCY PROCEDURE	
		2	CLTC		PERFORM OR VERIFY THE FOLLOWING SUBSTEPS	
	BK1	2-1	CLTC	C1NP	SAFETY SWITCH ARMING OFF	
	BK1	2-2	CLTC	C1NP	RESET IGNITION SEQUENCER	
	BK1	2-3	CLTC	RGCC	TERMINATE FLIGHT COMPUTER PROGRAM,	
	BK1	2-4	CLTC	R1FC	S-IB HYDRAULIC PUMPS OFF	
	BK1	2-5	CLTC	CGCM	CAMERA START ARMING OFF	
	BK1	2-6	CLTC	BSTM ETMS ORNG	TELEMETRY TAPE RECORDING OFF	
	BK1	2-7	CLTC	C1LS	LAUNCH SEQUENCER TIME PULSE OFF	
	BK1	2-8	CLTC	C1DP R4DP	S-IVB DRSCR'S #1 AND #2 EXTERNAL AND VERIFY OFF	
	BK1	2-9	CLTC	C1DP R4DP	EBW'S EXTERNAL AND OFF	
	BK1	2-10	CLTC	ORNG	RANGE COMMAND CARRIER OFF.	
	BK1	2-11	CLTC	C4IP	C/O MEASURING GROUP ON	
		2-12	CLTC	CMCD	S-IVB ALL RACKS RUN COMMAND	
	BK1	2-13	CLTC	RLUC	SWING ARM HYDRAULIC PUMP OFF	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION 8

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

128
 7-LSVIB-200
 AS-202

ADDRESSOGRAPH-MULTIGRAPH SYSTEMS, INC. 7-66 LBP 104 12 1 38905

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+00'00"						
	BK1	2-14	CLTC	REDS	EDS MODE SWITCH TO MONITOR POSITION	
	BK1	2-15	CLTC	C4EN	ENGINE IGNITION POWER OFF	
	BK1	2-16	CLTC	CUNP	INSERT S-IVB OCTAL CODE 162 AND READ COMMAND (ENGINE CUTOFF OFF)	
	BK1	2-17	CLTC	C4EN	ENGINE CONTROL POWER OFF	
	BK1	2-18	CLTC	R1FM	FIRE DETECTION ARMING OFF	
	BK1	2-19	CLTC	C4EN	TURBINE START BOTTLE PRESSURIZATION OFF	
	BK1	2-20	CLTC	RGCC	TERMINATE FLIGHT COMPUTER PROGRAM FT-32 AND VERIFY WHEN COMPLETE	
	BK1	2-21	CLTC	CLVN	PROPELLANT DISPERSION ENABLE OFF	
	BK1	2-22	CLTC	CLVN	RETURN PROPELLANT DISPERSION ENABLE KEY TO CPSS	
	BK1	2-23	CLTC	CUIP	TV SYSTEM OFF	
	BK1	2-24	CLTC	CUIP	GLOTRAC BEACON (AZUSA) OFF	
	BK1	2-25	CLTC	CUIP	IU C-BAND BEACON OFF	
	BK1	2-26	CLTC	C1IP	ODOP OFF	
	BK1	2-27	CLTC	BDOP	ODOP GROUND TRANSMITTER OFF	
	BK1	2-28	CLTC	C4IP	SSB GROUP OFF	
	BK1	2-29	CLTC	C4IP	FLIGHT SCO GROUP OFF	
	BK1	2-30	CLTC	C4IP	SSB TRANSMITTER OFF	
	BK1	2-31	CLTC	C4IP	ORBIT TRANSMITTER OFF	
	BK1	2-32	CLTC	C4IP	FLIGHT TRANSMITTER GROUP OFF	
	BK1	2-33	CLTC	CUIP	IU RF F1, F2, P1 AND S-1 OFF	
	BK1	2-34	CLTC	CUIP	IU TM F1 AND S-1 OFF	
	BK1	2-35	CLTC	C1IP	S-IB TRANSMITTERS F1, F2, S1 AND P1 OFF	
	BK1	2-36	CLTC	ETMS	SPECIAL TAPE RECORDER OFF	
	BK1	2-37	CLTC	BMRR	WIND LOAD RECORDINGS OFF	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

129
 7-LSVIR-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+00'00"						
	BK1	2-38	CLTC	C1IP	TAPE RECORDER POWER OFF	
	BK1	2-39	CLTC	CPSS	WATER PUMPS 5 AND 6 OFF	
	BK1	2-40	CLTC	C1FP	LOX DOME PURGE TO OFF	
	BK1	2-41	CLTC	C1IP	TM CALIBRATOR POWER OFF	
	BK1	2-42	CLTC	C1FP	GG LOX INJECTOR PURGE TO OFF	
	BK1	2-43	CLTC	C1FP	BOATTAIL DELUGE PURGE TO OFF	
	BK1	2-44	CLTC	C4EN	S-IVB TURBINE START BOTTLE PURGE OFF	
	BK1	2-45	CLTC	RWCP	WATER SYSTEM ARMED ON	
	BK1	2-46	CLTC	R1BM	VERIFY TRAILING WIRE RECORDER OFF	
	BK1	2-47	CLTC	C1DP R4DP	NORMALIZE ALL SWITCHES AND SECURE STATIONS	
	BK1	2-48	CLTC	C4OE	S-IVB PERSONNEL GO TO BK6 FOR INITIAL SECURING STEPS PER DAC-P-8004.	
	BK1	2-49	CLTC	RUSC	SECURE ST-124 M PER	
	BK1	2-50	CLTC	RUAT	SECURE AUTOTHEODOLITE PER	
	BK1	2-51	CLTC	RUFC	CONTROL COMPUTER OFF	
	BK1	2-52	CLTC	RUFC	CONTROL ACCELEROMETERS OFF	
	BK1	2-53	CLTC	CQAA	Q-BALL SYSTEM OFF	
	BK1	2-54	CLTC	RGCC	FLIGHT COMPUTER POWER OFF, VERIFY WHEN COMPLETE	
	BK1	2-55	CLTC	CQAA	Q-BALL HEATERS OFF	
	BK1	2-56	CLTC	RUFC	EDS CONTROL RATE GYROS OFF	
+15 HRS 00'00"		1			PROPELLANT DRAIN SEQUENCE -----	
	BK1	2	CLTC	CPSS	OBTAIN CLEARANCE TO DRAIN LH2	

APOLLO/SATURN
 LAUNCH OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+15 HRS 00'00"	BK1	3	CLTC	C40E	VERIFY S-IVB READY FOR DRAIN	
	BK1	4	CLTC	RH2C	BEGIN LH2 DRAIN PER 6-LLVIB-203A ADDENDUM 4	
+01 HRS 15'00"	BK1	1	CLTC	RH2C	VERIFY LH2 DRAIN COMPLETE AND LH2 SYSTEM INERTING STARTED PER 6-LLVIB-203A, ADDENDUM 6	
	BK1	2	CLTC	RECS	SWITCH ECS FROM GN2 TO AIR PER CSD-E-8009 PART 4	
	BK1	3	CLTC	RO2C	BEGIN S-IB AND S-IVB LOX DRAIN PER 6-LLVIB-203A, ADDENDUM 5,	
	BK1	4	CLTC	C10E	RETURN THE S-IB PNEUMATICS SYSTEMS TO SAFE OR STANDBY LEVELS. VERIFY WHEN COMPLETE	
	BK5	5	C10E	C1FP C1FR	VERIFY FUEL VENT SWITCH IS IN THE OPEN POSITION	
	BK5	6	C10E	R1BM	MONITOR FUEL TANK PRESSURE, FUEL SPHERES PRESSURE AND CONTROL SPHERE PRESSURE	
	BK5	7	C10E	C1FP	OPERATE FUEL SPHERE PRESSURIZING SWITCH TO VENT POSITION	
	BK5	8		C1FP	OPERATE FUEL SPHERES PRESSURE SWITCH TO AUTO AT APPROX. 1400 PSIG 100	
	BK5	9	C10E	C1FR	OPERATE COMPONENTS TEST POWER ON	
	BK5	10	C10E	C1FR	OPERATE FUEL VENTS TO CLOSED POSITION	
	BK5	11	C10E	C1FR	OPERATE LEAK TEST SWITCH TO ON	
	BK5	12	C10E	C1FR	OPERATE FUEL PRESSURE SWITCH TO OPEN	
	BK5	13	C10E	R1BM	REPORT FUEL TANK AND FUEL SPHERES PRESSURE (FUEL TANK PRESS WILL STABILIZE AT APPROX. 10 PSIG)	
	BK5	14	C10E	C1FP R1BM	VENT CONTROL SPHERE TO APPROX. 1700	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN LAUNCH OPERATIONS

PAGE 131
 TEST NO. 7-LSVIB-200
 VEHICLE AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+01 HRS 15'00"					PSIG	
	BK5	15	C10E	C1FP	CONTROL SPHERES SWITCH TO AUTO AT APPROX. 1700 PSIG	
	BK5	16	C10E	C1FP R1BM	VENT CAMERA EJECTION SPHERE	
	BK5	17	C10E	C1FP	CAMERA SPHERES SWITCH TO AUTO WHEN SPHERE IS VENTED	
+02 HRS 15'00"						
	BK1	1	CLTC	R02C	VERIFY S-IB LOX DRAIN COMPLETE	
	RD1	2	C10E	C1FR	SECURE S-IB STAGE PER CSD-P-8020	
+02 HRS 30'00"						
	BK1	1	CLTC	R02C	VERIFY S-IVB LOX DRAIN COMPLETE	
	BK1	2	CLTC	C40E	VERIFY S-IVB HELIUM SPHERE PRESSURES AT SAFE LEVELS	
	BK1	3	CLTC	CPSS	SEND THE HYDROGEN DETECTION CREW TO PAD TO VERIFY AREA IS CLEAR OF HYDROGEN PRIOR TO OPENING THE PAD FOR OPERATIONAL PERSONNEL	
+03 HRS 00'00"						
	BK5	1	C10E	RH2C	VERIFY PRELIMINARY LH2 SYSTEM INERTING COMPLETE	
		2		CPSS	UPON VERIFICATION THAT LH2 SYSTEM IS INERT OPEN PAD TO PERSONNEL ON ACCESS LIST	
	BK1	2-1	CLTC	R1FM	FIRE DETECTION MONITORING OFF	
	BK1	3	CLTC	RWCP	SECURE WATER SYSTEM PER CSD-E-8012	
	BK5	4	C10E	APCD	SECURE PNEUMATIC SYSTEM PER CSD-E-8019 AND VERIFY GN2 SUPPLY TO LOX BUBBLING SYSTEM	
	BK1	5	CLTC	CPSS	WATER PUMPS OFF	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION B

APOLLO/SATURN
 LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

132
 7-LSV-IB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+03 HRS 15'00"	BK1	1	CVTS	SSSC	BEGIN MOVING THE SERVICE STRUCTURE TO THE PAD	
	BK1	2	CLTC	A1NW	IGNITION CONTACTOR AND CIRCUIT BREAKER OFF	
	BK5	3	C10E	SGMP	BEGIN INSTALLATION OF THE ENGINE SERVICE PLATFORM AND VERIFY WHEN COMPLETE	
+04 HRS 00'00"	BK5	1	C10E	SGMP	INSTALL AUXILIARY WORK PLATFORMS ON LAUNCHER AS REQUIRED	
	BK1	2	CLTC	UGSE	SECURE UMBILICAL SWING ARM AND Q-BALL RETRACT SYSTEM PER CSD-E-8021 AND CSD-E-8020	
	BK1	3	CLTC	RAAA RECS	EXTEND APOLLO ACCESS ARM AND PROVIDE CM ECS PER CSD-E-8013, PART I, II	
	BK1	4	CLTC	SSSC	MOVE SERVICE STRUCTURE AROUND THE VEHICLE AND BEGIN CLOSING SILOS (1, 3, 4, 2)	
	BK5	5	C10E	S1MS	REMOVE OPTICAL INSTRUMENTATION SYSTEM.	
+04 HRS 30'00"	BK1	1	CLTC	C40E	INSTALL SAFETY LOCKS AND SECURE FWD AND AFT UMBILICAL CARRIERS, REPORT WHEN COMPLETE	
	RD3	2	CUOE	SUVM	REMOVE IU ACCESS DOOR	
	BK1	3	CLTC	CVTS	ESTABLISH RF SILENCE AND CONTROLLED SWITCHING	
	BK1	4	CLTC	C10E	DISCONNECT SPGG INITIATORS AFTER CLEARANCE FROM CPSS	
	BK1	5	CLTC	C10E	DISCONNECT AND REMOVE S-IB P.D. S & A AFTER CLEARANCE FROM CPSS.	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION 8

APOLLO/SATURN LAUNCH OPERATIONS

PAGE
 TEST NO.
 VEHICLE

133
 7-LSVIB-200
 AS-202

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+05 HRS 00'00"	BK1	1	C40E	S4ME	INSTALL PARTIAL S-IVB FWD. ACCESS KIT	
	BK1	2	CLTC	C40E	DISCONNECT AND REMOVE S-IVB P.D. S & A	
+05 HRS 30'00"		1		CSTC	DISCONNECT LES IGNITER	
	BK1	2	CLTC	C10E C40E	VERIFY P.D. S & A DISCONNECTED AND REMOVED	
	BK1	3	CLTC	C40E	REMOVE AFT ACCESS DOOR AND INSTALL PARTIAL AFT ACCESS KIT	
	BK1	4	CLTC	C40E	DISCONNECT ALL REMAINING ORDNANCE	
+06 HRS 00'00"	BK1	1	CLTC	CSTC	VERIFY LES IGNITER DISCONNECTED	
	BK1	2	CLTC	CPSS	OPEN PAD TO OPERATIONAL PERSONNEL	
	RD3	3	SUVM	UUVN	VERIFY GN2 SPHERE PRESSURE BELOW 1800 PSI	
		4	C10E	S1NE S1VM	DISCONNECT AND REMOVE S-IB BATTERIES	
+06 HRS 30'00"		1		CVTS	LIFT RF SILENCE & TERMINATE CONTROL SW.	
		2	C40E	S4ME	COMPLETE FWD AND AFT ACCESS KIT INSTL	
	BK1	3	CLTC	C40E	CONTINUE SECURING S-IVB SYSTEMS PER DAC-P-8004	
		4	C40E	S4PC S4CE	DISCONNECT AND REMOVE S-IVB BATTERIES	
	BL4	5	CUOE	SUVE SUVM	DISCONNECT AND REMOVE IU BATTERIES	
		6		C10E	SECURE S-IB SYSTEMS.	

L/V LAUNCH COUNTDOWN
 DATE: AUGUST 11, 1966
 REVISION 1 B

APOLLO/SATURN LAUNCH OPERATIONS

PAG.
 TEST NO.
 VEHICLE

134
 7-LSVIB-200
 AS-202

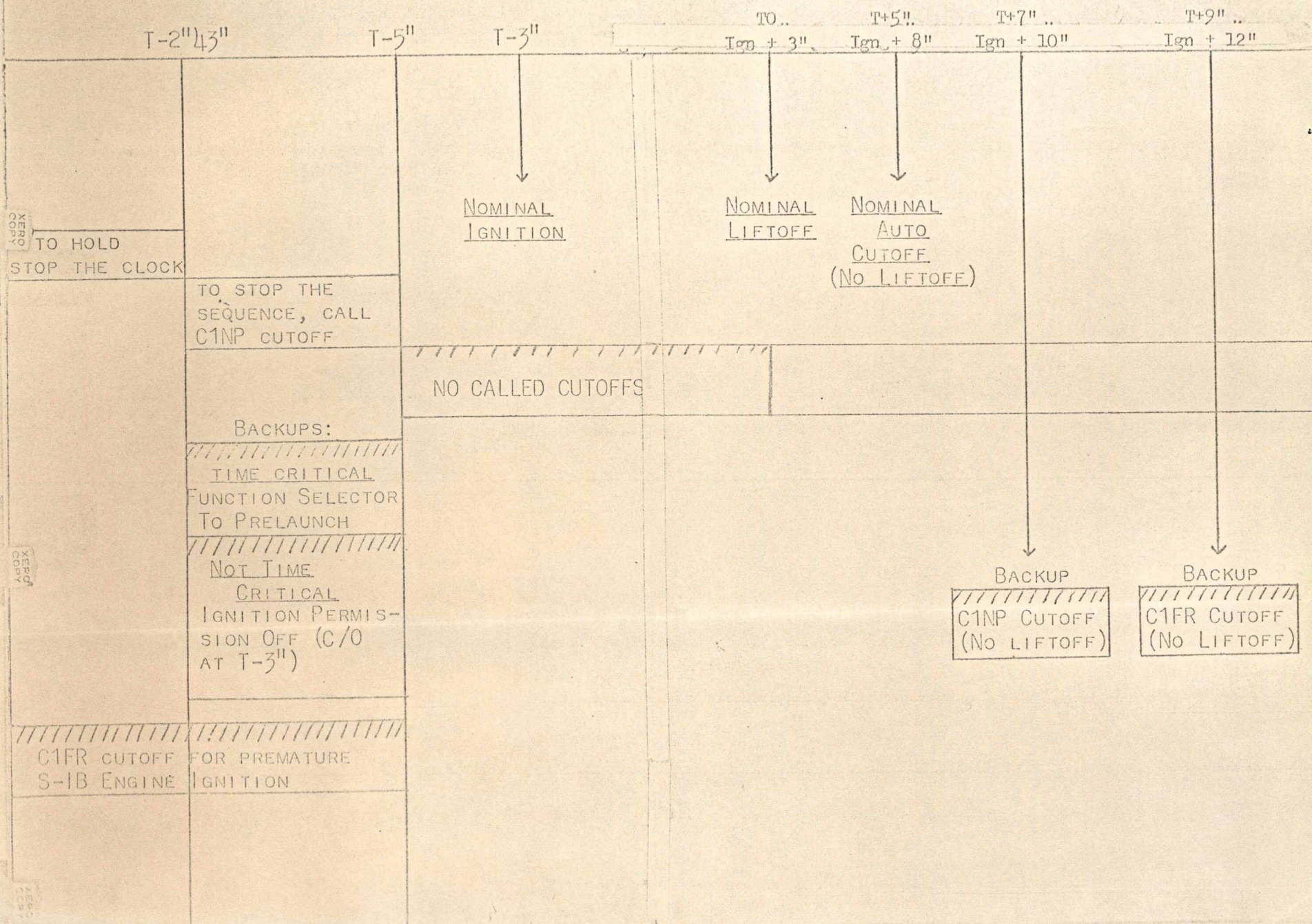
TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+06 HRS 30'00"		7			CUOE SECURE IU SYSTEMS PER 1-ILIUIB-203	
	BK5	8	C10E	A1NW	RECONNECT SERVICE STRUCTURE CABLES PER 1-CLGSEIB-216	
+08 HRS 00'00"						
	BK5	1	C10E	RECS	SECURE ECS PER CSD-E-8009, PART 7 AFTER VERIFICATION THAT VEHICLE HAS BEEN DRIED OUT	
	BK5	2	C10E	S1MP	AFTER BOAT-TAIL DRYING OPERATIONS ARE COMPLETE REMOVE THE SPGG'S HYPERGOL IGNITERS AND LPGG AUTO IGNITERS	

AS-202

HOLD/CUTOFF GUIDELINES

1. The two (2) manual cutoff sources are the S-IB Networks Panel (CLNP) and the S-IB Firing Panel (CLFR). All calls for manual cutoff will be serviced by the CLNP with backup (if required) by the CLFR except as noted below. CLFR cutoff will always fire the conax valves, while CLNP cutoff does so only after ignition. CLNP cutoff is blocked by commit, while CLFR cutoff is not.
2. Prior to "Launch Sequence Start" (T-2'43"), to hold, stop the clock (Launch Sequence Start is given by the clock); announce the hold over BKL; and also announce the requestor and cause. Should premature S-IB engine ignition occur (at any time), give CLFR cutoff (Holding the cutoff command) and execute the emergency procedure detailed in the countdown procedure.
3. After Launch Sequence Start, no hold is possible (the Automatic sequence can only be stopped by cutoff). If a problem is noted its legitimacy may be discussed if necessary until T-45 seconds. If cutoff is required, call cutoff (prior to T-45 seconds); "give CUTOFF"; stop the clock after cutoff occurs. If manual CLNP cutoff fails during the automatic sequence, CLNP should place the function selector to pre-launch and disarm the launch sequencer to back up the CLNP cutoff. (BGCC will have to reset the "MTOAD".
4. After T-45 seconds (Power transfer is T-28 seconds), if cutoff is required, call for cutoff; "give cutoff" over BKL. No cutoff should be called after T-5 seconds. The cutoff sources (CLNP and CLFR) are instructed not to honor a called cutoff after T-5 seconds except as noted in paragraph 5. Stop the clock after cutoff occurs.
5. Manual cutoff after T-5" will be given only if the vehicle fails to lift off and fails to receive automatic cutoff from the ESE. The manual cutoff will be initiated as follows:

At ignition, the senior CCSD Mechanical Engineer will start a stop watch; if lift off does not occur, CLNP cutoff will be given at ignition + ten (10) seconds, followed two (2) seconds later with CLFR cutoff (liftoff should occur at ignition + three (3) seconds or launch failure cutoff will occur automatically at ignition + eight (8) seconds).



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HOSC
OPERATIONS MESSAGE NUMBER _____

subject:

T-14 HR. WIND SIMULATION

for:

M. WILLIAMS, CONSOLE A2 (LIEF), LCC 34

text:

The joint MSC-MSFC Launch Wind Evaluation Group has performed a simulation of the space vehicle response to the winds measured with the T-14 hour balloon release. It is recommended to launch AS-202 under these conditions. The most critical value during simulated flight occurs on the Launch Vehicle at an altitude of 36,250 feet resulting from a wind speed of 13.8 knots at the measured direction with associated wind gradients.

These conditions correspond to 12% of the allowable.

This message refers to altitude winds; surface winds are covered in the launch mission rules.

Previous most critical wind simulation conditions were:

<u>BALLOON RELEASE</u>	<u>ALTITUDE</u>	<u>% Of Allowable Structural Limit Load</u>
T-24 HRS	31,400 FEET	18
T-14 HRS	36,250 FEET	12

date/time originated:

0512 UT/ 8-24

date/time transmitted:

authorized by:

E. Kurtz

HOSC
OPERATIONS MESSAGE NUMBER 3

subject: T-12 HR WIND SIMULATION

to: M. WILLIAMS, CONSOLE A2 (LIEF), LCC 34

text: The joint MSC -MSFC Launch Wind Evaluation Group has performed a simulation of the space vehicle response to the winds measured with the T-12 hour balloon release. It is recommended to launch AS-202 under these conditions. The most critical value during simulated flight occurs on the Launch Vehicle at an altitude of 36,250 feet resulting from a wind speed of 12.4 knots at the measured direction with associated wind gradients.

These conditions correspond to 12% of the allowable.

This message refers to altitude winds; surface winds are covered in the launch mission rules.

Previous most critical wind simulation conditions were:

<u>BALLOON RELEASE</u>	<u>ALTITUDE</u>	<u>% Of Allowable Structural Limit Load</u>
T-24 HR	31,400 FT	18
T-14 HR	36,250 FT	12
T-12 HR	36,250 FT	12

10 HR

date/time originated:
0545 - 8-24

date/time transmitted:

authorized by:
F. Kurtz

AVOID VERBAL ORDERS

No.

D-3

DATE

8/25 1966

TO

ORG

SUBJECT:

LVCH Eng, CVTS
5-143 Recirc pump purge valve
The valve failed to respond to open command
slight current was noted when commanded
open & about 1 PSI increase in pressure.
Sys was shocked by venting control He.
& repressurizing twice & the valve started
to function & has continued.

FROM

ORGANIZATION

EXT.

AVOID VERBAL ORDERS

No.

C-4

DATE

8/25

19

66

TO

LV Ch Eng, CVTS

ORG

SUBJECT:

S-1B 20x relief valve #1

The subject valve closed indication was not received during the bubbling test. This is an indication only - the tank did pressurize. Bubbling & pressurization was satisfactory. CCSD recommends we go as is! Need LV Ch Eng concurrence.

FROM

J M Luegg

ORGANIZATION

EXT.

AVOID VERBAL ORDERS

No.

C-5

DATE

8/25

19

ORG

T-2H43'

SUBJECT:

LV CREng, CVTS
5-IVB Box loading

5-IVB 98% liquid level sensor picked up at 94.3%. Normal ~~sensor~~ ^{slow fill} is 96%. This resulted in slow fill early but operation of system was satisfactory just longer in slow fill.

FROM

J M Twigg

ORGANIZATION

EXT.

AVOID VERBAL ORDERS

No.

C-3

DATE

8/25

19 66

TO

LV Ch Eng, CVTS

ORG

SUBJECT:

ECS

When A-units were switched to GNL, there was a failure of the ECS pneumatic console from primary to secondary side - result - cannot reset primary side. Because 8 PSIG (ball valve) & 20 PSIG (controller) systems are paralleled using primary and secondary sides, it is considered to be satisfactory.

Need concurrence LV Ch. Eng.

FROM

J M Levigg

ORGANIZATION

EXT.

A VOID V ERBAL O RDERS

No.

C-3

DATE

8/25

19

TO

LV Ch Eng, CVTS

ORG

SUBJECT:

ECS

When A-units were switched to GNe, there was a failure of the ECS pneumatic console from primary to secondary side - result - cannot reset primary side. Because 5 PSIG (ball valve) & 20 PSIG (controller) systems are paralleled using primary and secondary sides, it is considered to be satisfactory.

Need concurrence LV Ch. Eng.

FROM

J M Leung

ORGANIZATION

EXT.

A VOID V ERBAL O RDS

No.

C-1

DATE

8/25 1966

ORG

T-5hr 47

TO

SUBJECT:

LV Ch Eng, CVTS

5-1B SP6G hand hole cover

Cover on Eng #4 had one D&ZHS (ZEHS) fastener could not be engaged. The cover was exchanged with Eng #1. Same result so D&ZHS was replaced by nut bolt + washer on Eng #1 cover

FROM

J M Leewig

ORGANIZATION

EXT.

AVOID VERBAL ORDERS

No. D 1

DATE 4/25 1966

TO Chief Eng

ORG 5-11B

SUBJECT: Pwr Xfr

During pwr xfr indications
are that the ground power supply
current load did not drop.
Pwr Xfr was rerun & was
normal on rerun. Suspect VIMS
problem of first power xfr.

FROM J M Liwigg

ORGANIZATION _____

EXT. _____

A VOID V ERBAL O RDERS

No.

I-3

DATE

8/25 1966

TO

LV Ch Eng CVTS

ORG

SUBJECT:

FLT Computer

T-10 hrs 10'

FLT Computer cannot terminate FT-10.
This may be a result of 14 power
transfer. Will have to verify
memory after getting out of FT-10.

RCA 110 tries to get flight computer out of
the FT-10, then reinitiation. — but program is
terminated. In process to power down flight computer.

FROM

J M Jewigg

ORGANIZATION

EXT.

A V O I D V E R B A L O R D E R S

No.

I-3

DATE

8/25 19 66

TO

LV CR Eng CVTS

ORG

SUBJECT:

FLT Computer

T-10 h. 10'

FLT Computer cannot terminate FT-10.
This may be a result of 1H power
transfer. Will have to verify
memory after getting out of T-10

FROM

J M Jerrig

ORGANIZATION

EXT.

A VOID V ERBAL O RDER S

No.

I-4

DATE

8/25

19

66

TO

ORG

SUBJECT:

LV CR Eng, CVTS

14 Pwr transfer

T-10hr 10'

14 Networks 1 & 2 OK was lost at power transfer. Some indications are that 6D11 & 6D21 dropped to ^{2.65}~~2.4~~ for several seconds & then went back to normal. 6D110 Pwr Supply went into oscillation while 14 was on Battery Power.

It seems the setting of the voltage sensing card was too low and is the culprit.

FROM

J M Swigg

ORGANIZATION

EXT.

Under further investigation

A V O I D V E R B A L O R D E R S

No. 1-4

DATE

8/25

19

62

TO

ORG

SUBJECT:

LVCR Eng, CVTS
14 Power transfer T-10hr 10'

14 Networks 1 & 2 OK was lost at power transfer. Some indications are that 6D11 & 6D21 dropped to ^{2.615} 2.6V for several seconds & then went back to normal. 6D10 Power Supply went into oscillation while 14 was on Battery Power.

FROM

J M Swigg

ORGANIZATION

EXT.

T- 11:30 Doc not ready to support
EDS with pneumatics - 25' lts

T- 10 hrs 14 pur xfr not successful
1. flt comp can't get out of FT-10
2. low Volt
3. 6D10 pur supply oscilated during pur xfr

T- 9:05 Hold - 14 at 125 est Est 1 hr
Comp reinitialize to get flt comp out
of FT-10

PU at 2:25 but behind about 1 hr hope
to catch up

T- 10:10' S-11B pur xfr - ground pur current
did not drop
repeated pur xfr & was ok - think
it was meas problem

T- 8:40 14 Pur xfr repeated OK
but RGCC had same problem

T- 8:25 hold 3:05 est 1 hr (held 39 min)

PU @ 3:44 still behind ~45'

T- 20 Hold Houston