TEST NUMBER V-20060
REVISION NO. 027
EFFECTIVITY AS-509 & SUBS
RELEASE DATE JANUARY 21, 1971

JOHN F. KENNEDY SPACE CENTER

RELEASED FOR AS 509

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

VOLUME II OF III

ASSEMBLED FOR CD

Prepared For
LAUNCH VEHICLE OPERATIONS

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

THIS TCP CONTAINS HAZARDOUS OPERATIONS

CD ONLY

Date JANUARY 5, 1971 | COUNT | # CD ONLY

Revision 025

LV COUNTDOWN

Page G1U
Test No. V-20060, Vol II
Vehicle AS-509

1 DAY 4 HRS | 1 DAY | T-28 | T-27 | T-26 | T-25 | T-24 | T-23 | T-22 | T-21 | T-20 | T-19 | T-18 | T-17 | T-16 | T-15 | T-14 | T-13 | T-12 | T-11 | T-10 | T-9 | T-8 | T-7 | T-6 | T-5 | T-4 | T-3 | T-2 | T-1 | T-0

SC
- SHE SERVICE PREPS
- SHE TOPOFF
- LM SHE HEX VENT & SC GSE DISCONNECT
- LM SHE GSE SHUTDOWN & REMOVAL
- FT-33 & EDS
- MSS ELEV 2 RESERVED FOR ALSEP
- ALSEP OPERATIONS
- 525 PLAT REMOVAL
- SLA CLOSEOUT
- RECONFIGURE S/A 8 ECS "Y"
- FPI CKS
- # FLIGHT CREW IN CABIN
- #CLOSEOUT CREW LEAVE MSS PARK SITE
- #LES ARMED
- # CLOSEOUT CREW START CLEARING

LV RF & TM
- GMIL S-BAND
- ETR C-BAND
- LOCAL UHF
- LOCAL S-BAND
- VHF TM
- ETR UHF

LV
- OFFICIAL CDC START
- # EXP IU BATT TO 260°
- CLEAR AREA
- REOPEN AREA
- LV POWER UP → THRU LIFTOFF
- PWR TRANSFER TEST
- LH2+LOX SYSTEM PREPS
- FLT CONT SYS CKS
- RF CKS
- EMI MON
- #REMOVE S/A 7 AUX WM. LINES
- LH2 COMP TEST
- LOX COMP TEST
- LOX LH2 SYS FINAL PREPS
- RSCR CKS
- RS CMD CKS
- SCHEDULED HOLD
- LV PROPELLANT LOAD
- RF SILENCE
- CONTROLLED SWITCHING
- CONNECT PD DETS
- SCHEDULED HOLD #
- FLT CONTROL SYS CKS
- PD RECVR CK
- PROPELLANT REPLENISH
- EMCMON
- RF & TM CKS
- ATTITUDE CMD CKS
- RS CMD CKS
- PWR TRANSFER TEST
- PREPS COMP
- PD RECVR CK
- TCS

IU
- #CHE REMOVAL
- UNPIN FLOWMETERS
- RF GSE SETUP
- # IU BATT CNCT
- INSTALL IU ANTENNA HATS
- FLT CONTROL PREPS
- #INSTALL IU FLT BATT
- FCC/SC CKS
- Q-BALL PWR ON
- Q-BALL SIM CMD
- PRESS ST-124M SPHERE
- ST-124M PREPS & TURN-ON
- IMU CK
- IU HAT REMOVAL
- THERMAL SHROUD INSTL
- CHE INST
- CHE REMOVAL
- REMOVE IU LIGHTS
- REMOVE CANOPY
- SECURE IU DOOR
- RF GSE SETUP
- PRESS ST-124M SPHERE → THRU LIFTOFF
- ST-124M SLIP RING EXERCISE
- ST-124M THRU T-0
- ST-124M DRIFT CKS
- LUT WALKDOWN
- CCS PRN PERF TEST
- Q-BALL PWR ON
- Q-BALL SIM CMD

S-IVB
- S-IVB ENGINEERING WALK-A-ROUND
- # INSTALL S-IVB AFT FLT BATT
- S-IVB PREPOWER PREPS
- #INSTALL S-IVB FWD FLT BATT
- S-IVB STG PWR UP
- S-IV PROPULSION SYS PREPS
- # S-IVB BATT CONNECTION
- REMOVE S-IVB AFT ACCESS KIT
- SECURE S-IVB REARADIATION
- SECURE S-IVB AFT DOOR
- S-IVB AFT CARRIER MECH PREPS
- S-IVB FWD CARRIER MECH PREPS
- S-IVB FWD ACCESS KIT REMOVAL
- SEE PAGE 12 FOR MORE DETAIL OF THIS TIME PERIOD

S-II
- S-II ENG ACT SYS PREPS
- # INSTALL & CNCT S-II FLT BATT
- INITIAL UMB PREPS
- STG PWR UP
- REMOVE S-II AFT ACCESS KIT
- S-II ENG ACT SYS F/T
- SECURE S-II AFT DOOR
- REMOVE S-II FWD ACCESS KIT & BLKD PADS
- S-II FINAL ECS CHECKS
- S-II BULKHEAD EVAC
- ENG CKT TEST
- ARM 4 FINAL UMB PREPS
- ENG SEQ TEST
- SECURE S-II FWD DOORS
- ARM 5 FINAL UMB PREPS
- BOTTLE PRESS TO 3200 PSI

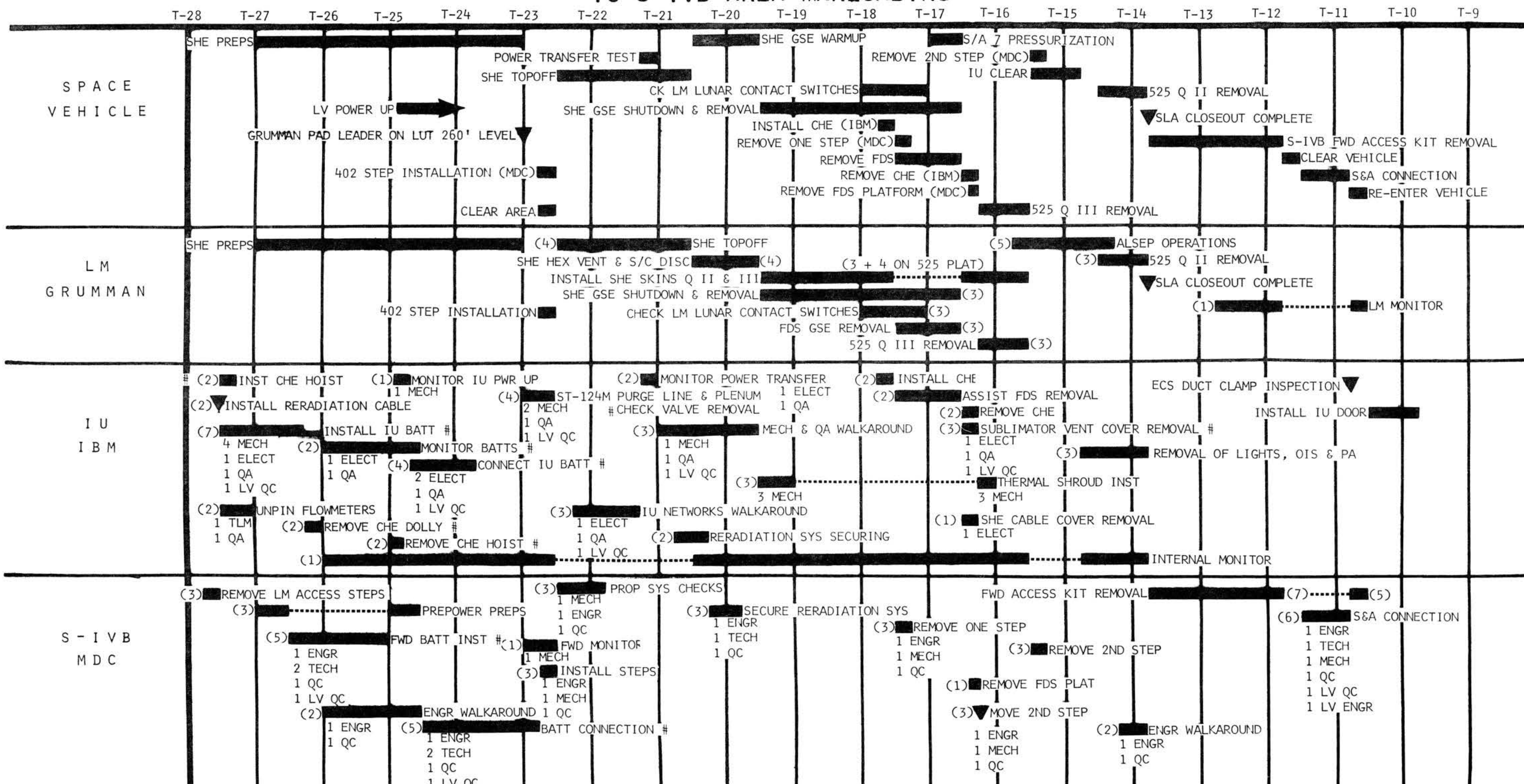
S-IC
- # INSTALL & CONNECT S-IC FLT BATT
- REMOVE S-IC T.S. ACCESS KIT
- S-IC PNEU CONSOLE UP
- F-1 ENG CLOSEOUT
- S-IC T.S. & F.S. WALK THRU INSPEC
- S-IC PNEU FUNCTIONAL
- SECURE S-IC PCMU
- INSTALL S-IC T.S. HEAT SHLDS
- S-IC HYD UP
- RACS LOADING CKS
- START RP-1 TSM FILL
- RP-1 REPLENISH
- REMOVE RAIN CANOPIES
- RP-1 LINE DRAIN
- S-IC FWD ACCESS KIT REMOVAL
- SECURE S-IC FWD DOOR
- RP-1 LEVEL ADJUST
- THRU LIFTOFF

LSE & SUPPORT
- SMDPS-TWO SW ONE VALVE MODE → TO T-9
- IWS PREPS → TO T-9
- PTCS PREPS
- UMB SW F/T
- PREP & LOWER ESP
- LLP PREPS
- 20D271 PWR SUPPLY B/U BATT TEST
- HDA PREPS
- AUX PWR BACKUP BATT CKS
- MSS ELEV No 2 LOCKOUT
- TSM FINAL PREPS & PRESS
- PAD INSP & EQUIP REMOVE
- REDUNDANT DTS → T-0
- OPEN MSS PLAT 2
- SA 1, 5 & 7 PRESSURE
- SA 2, 4 & 6 PRESSURE
- SA 8 & 9 PRESSURE
- LUT WALKDOWN
- OPEN PLAT #4
- SECURE WINCHES
- TRANSPORTER PREPS
- RETRACT S-IVB EXT PLAT 6
- RETRACT S-IC EXT PLAT 1
- ACTIVATE 6000 PSI GN2
- S/A 8 LADDER REMOVAL
- OPEN PLAT #5 & CONNECT Q-BALL CABLE
- LSE PNEU SYS PREPS → TO T-9:00
- PREP/LOWER LLP
- REMOVE S/A 8 ECS "Y"
- ECS GN2 ALSEP SUPPORT
- ECS FLOW NORMAL TO SM
- RETRACT SA 3
- RETRACT S-II EXT PLAT 4 ECS GN2
- LV HAZ GAS DETECTION
- MSS JACK & MOVE
- DAMPER ARM SWITCHOVER
- TSM 3-4 TILT
- MOVE MSS TO PARK SITE
- PLTFM TRNSPR TO LAUNCH POS
- RETRACT SM EXT PLAT 8
- OPEN PLAT #3
- SECURE WR DOOR
- SMDPS-ONE SW MODE
- SMDPS 1 SW 1 VALVE MODE
- THRU LIFTOFF #
- ECS GN2 ON STANDBY
- RETRACT S-IC EXT PLAT 2
- RETRACT S-II EXT PLAT 5
- RETRACT S-IVB EXT PLAT 7
- PARK SA 9
- RETRACT SA 9
- RETRACT PRIMARY DAMPERS

GROUND COMPUTER
- VALJ
- KAO1 IU STG PWR UP
- QAPO
- XAPS S-IVB PWR UP & XASS S-IVB RESET
- WAPO S-IC STAGE POWER UP
- KAF2 FLT CONT PREPS
- CTC4 AUTO FLIGHT CONTROL
- KAPW LVDC/DA PWR ON & SELF CK
- FT 04 FT 08 FT 35 FT 20 FT 23
- FT 25 DISCRETE INPUT TEST (SC)
- BT-01 BE01 & BE02 PROP MON
- LV ELEC SUP PREPS
- INT98 SWITCH SCAN (LV)
- GROUND COMPUTER SUP → THRU LIFTOFF
- KAF1 LINKING
- KAG1 LINKING
- FT 45 CMD SYS INF TEST
- FT 25 DISCRETE INPUT TEST (LV)
- FT 05 DATA VERIFY
- FT 04 LVDC/LVDA PWR OFF
- QAMS
- MT01 MEASUREMENT SCAN (LV)
- CTC5 APS GAIN
- CTC1 S-IVB S-II GAIN CKS
- S-IC
- VATC TM CKS
- VAMC
- VAPX
- QAEC ENG CKT TEST
- VAFC S-IC ENG NULL TEST
- EDS VAED, VZ33, FT 33, VZSA, VZEA, VZRE
- QAES
- WAST
- FT47
- BE 01 S-IC TEMP DENSITY MON & BE-02 LV PROP LEVELS MON
- VALK LINKING PROG
- MCC-H COMMANDS
- EDS (VAED, VZ33, FT 33, VZSA, VZEA, VZRE)
- VALL LINKING PROG
- VATS

PAD ACCESS
- LIMITED ACCESS
- CLEAR AREA
- CLEAR NONESSENTIAL PERSONNEL FROM SLA, IU & S-IVB FWD
- LIMITED ACCESS
- CLEAR IU
- ALSEP
- LIMITED ACCESS
- CLEAR AREA
- CLEAR LUT ZERO LEVEL
- LIMITED ACCESS
- LV CLEARING
- HAZ LV ACCESS
- REOPEN LV
- LIMITED ACCESS
- PAD CLEARING
- PAD EVACUATED FOR LV CRYO LOADING
- #CREW INGRESS
- EVACUATE FOR LAUNCH
- PAD EVACUATED

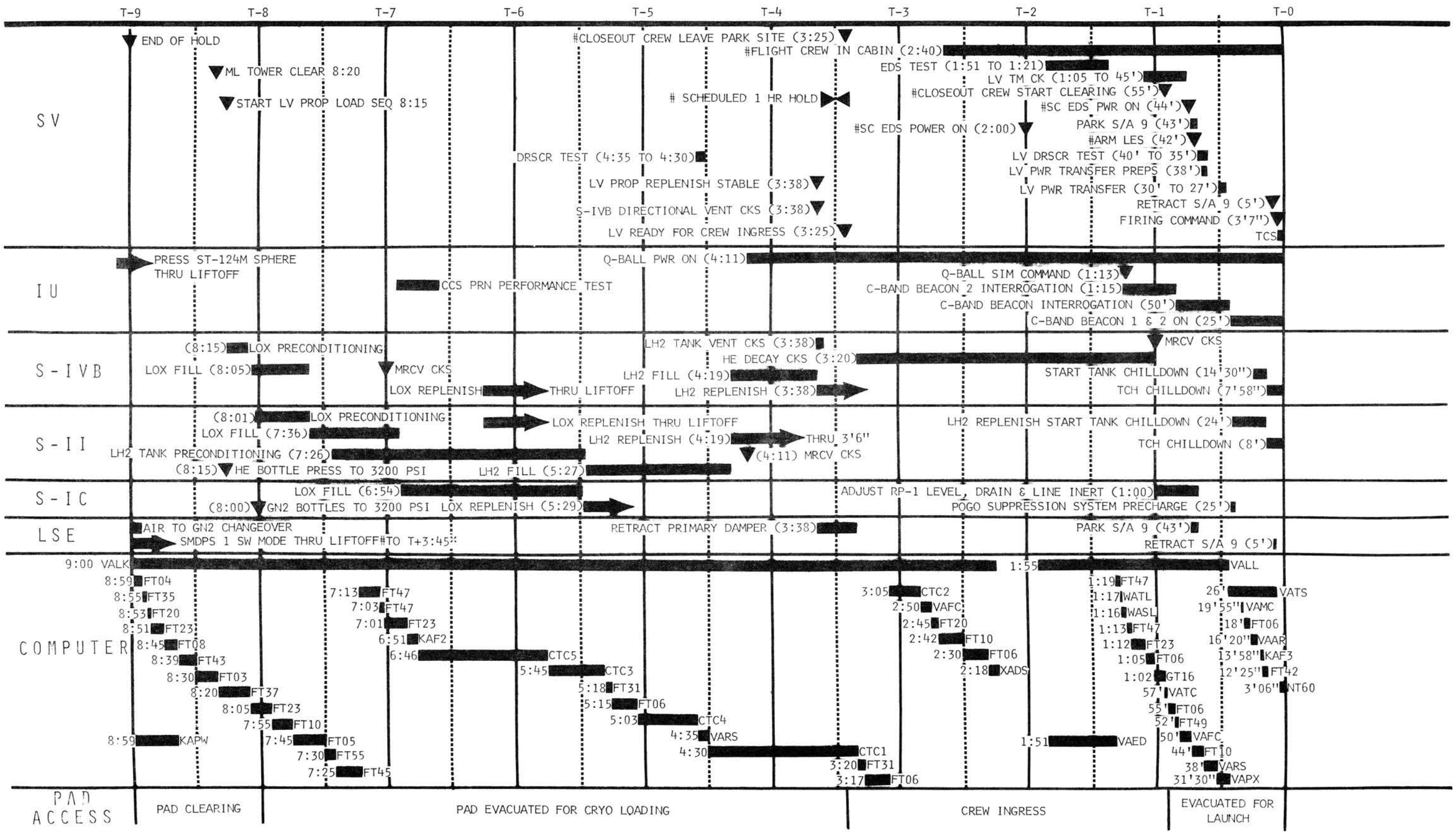
IU S-IVB AREA MANLOADING



LV MANLOADING	0	3	11	9	10	12	10	11	12	10	6	11	9	3	6	3	2	3	5	6	7	4	4	1	1	3	6	3	3	8	4	1	1	3	0	4	4	6	7	7	0	6	5	0
OVERALL MANLOADING	0	3	11	9	10	12	10	11	12	10	6	11	9	7	10	7	6	7	9	10	11	8	10 +4	7 +4	10 +4	12 +4	15	12	9	11 +4	10 +4	7 +4	12 +4	8	5	9	12	9	7	8	0	6	5	0

LV CDDT & CD AFTER T-9 HR HOLD

*CDDT ONLY
#CD ONLY



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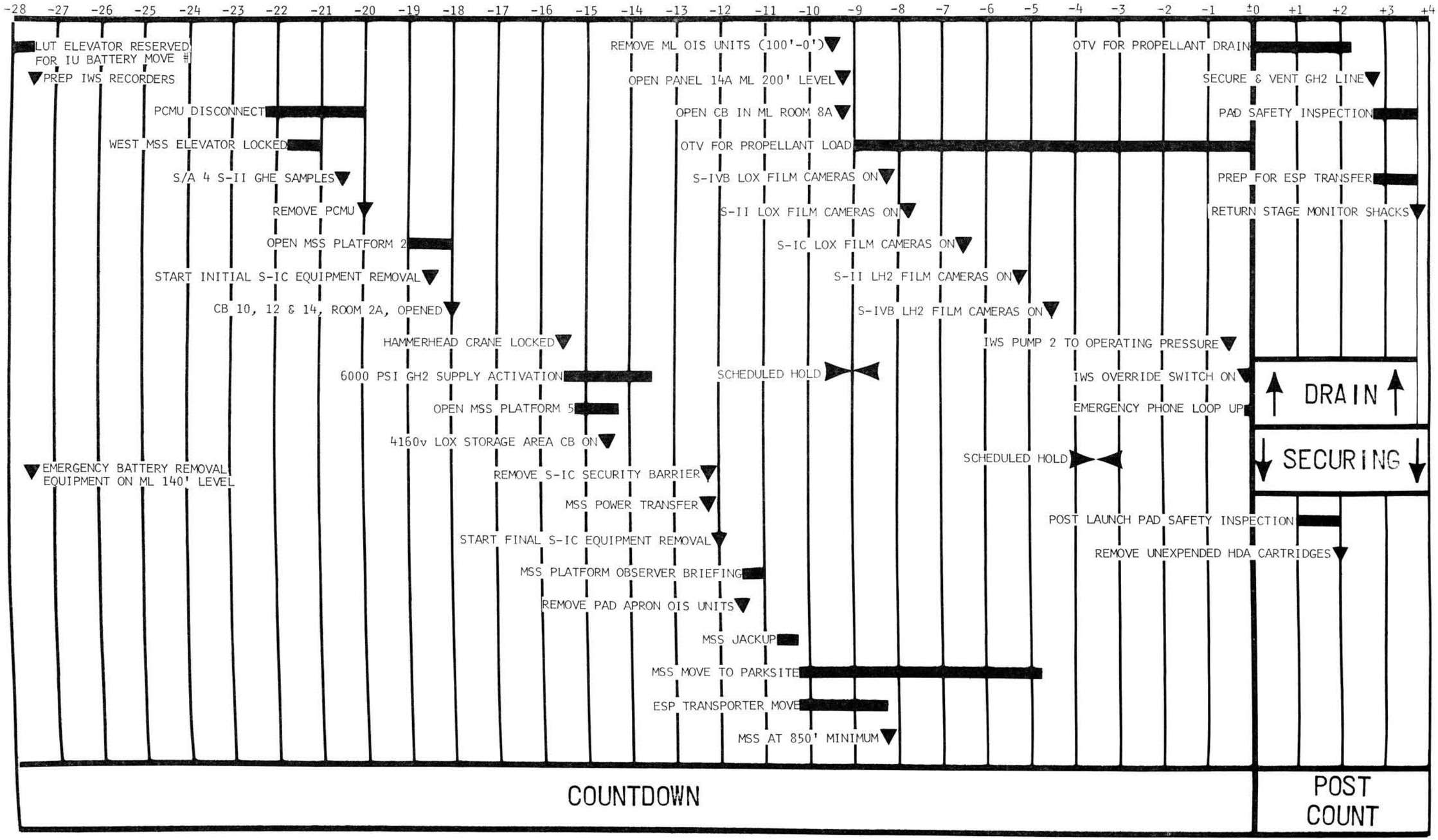
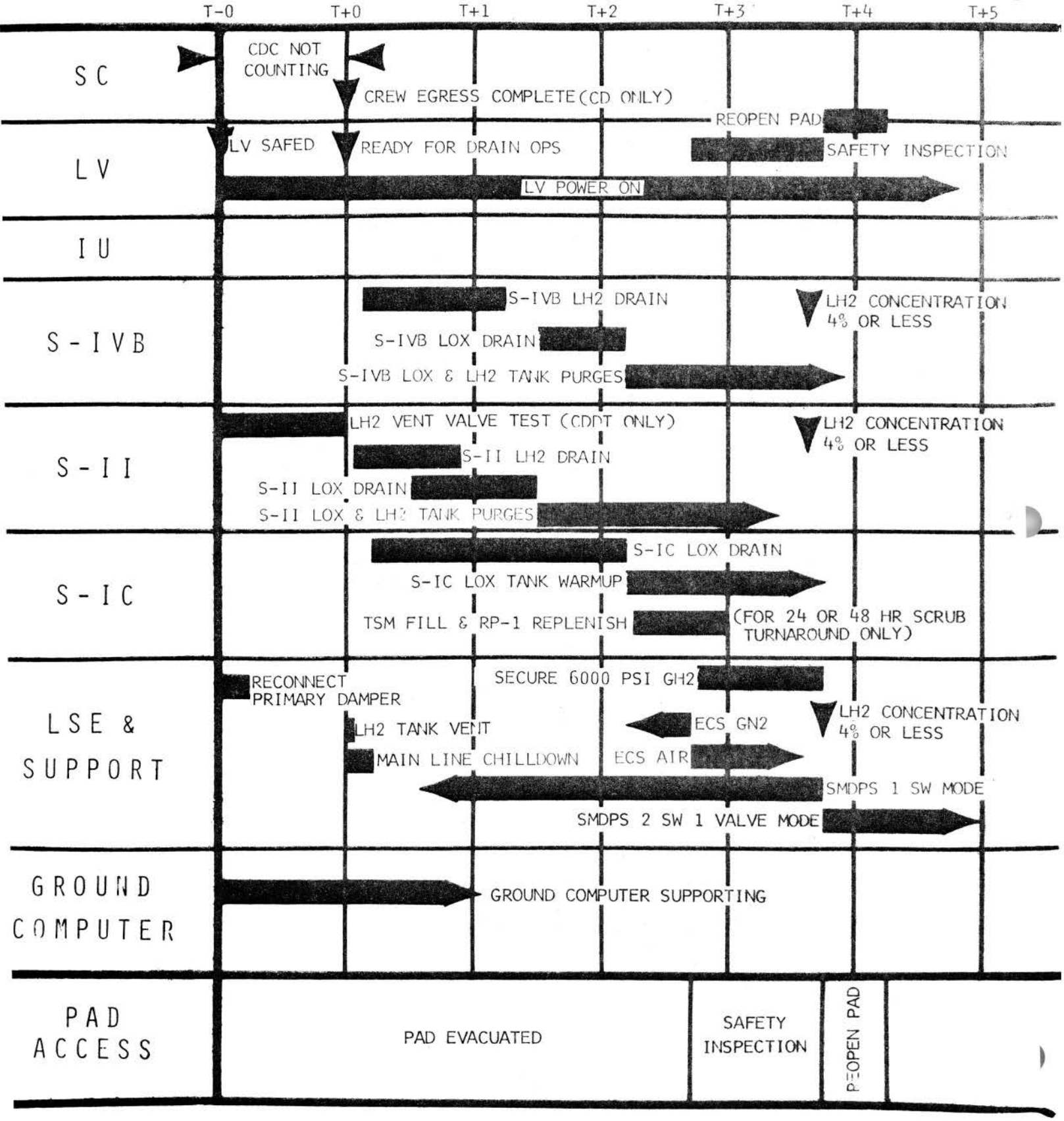
LV CD SUPPORT REQUIREMENTS



LV DRAIN OPERATIONS



LAUNCH OPERATIONS COMMUNICATIONS

COMPLEX 39 PA SYSTEM:

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

INTERCOMMUNICATIONS:

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

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

LV EMERGENCY COMMUNICATIONS

IN THE EVENT OF AN OIS FAILURE, THE YELLOW POINT TO POINT PHONE SYSTEM WILL BE UTILIZED FOR EMERGENCY COMMUNICATIONS. THE STATIONS LISTED BELOW HAVE THE YELLOW PHONES ON OR NEAR THEIR CONSOLE AND ARE TO BECOME ACTIVE ON THIS NETWORK. PRIOR TO CRYOGENIC LOADING A COMMUNICATIONS CHECK WILL BE PERFORMED BY CLTC WITH THE STATIONS LISTED.

LVO:
- CLTC (LV TEST CONDUCTOR)
- CLES (LV ELEC ENGINEER)
- CLMS (LV MECH ENGINEER)
- CIAR (LV CHIEF ENGINEER)
- ELSR (LV CIF 30^7 COOR)

S-1C:
- C1TC (S-IC TEST CONDUCTOR)
- C1MS (S-IC MEAS. SYS.)
- CHGD (HAZARDOUS GAS DET.)
- C1PE (S-IC PROP & MECH)
- C1NE (S-IC ELEC NETS)
- CWCP (IND. WATER CONTROL)
- CPDC (PNEU. DIST. SYS.)
- CSAC (SA CONTROL COOR.)
- CHDA (HOLD DOWN ARM CONTROL)
- CECS (ECS CONTROL)
- CCRP (RP-1 CONTROL)
- CCLO (LOX CONTROL)
- CCLH (LH2 CONTROL)
- RPDC (PROP DC PWR NETS)

S-II:
- C2TC (S-II TEST CONDUCTOR)
- C2EV (S-II EVENTS DISPLAY)
- C2AE (S-II ENGINES)
- C2FC (S-II HYDRAULICS/EAS)
- C2SP (S-II PRESSURIZATION)
- C2PM (S-II PROP MON.)
- C2NP (S-II NETS)
- C2IP (S-II MEAS.)

S-IVB:
- C4TC (S-IVB TEST CONDUCTOR)
- C4ES (S-IVB ELECTRONIC SYS)
- C4PS (S-IVB PROPUL SYS)
- R4PS (PROP STRIP CHARTS)
- R4SC (ELECT STRIP CHARTS)

S-IU:
- CUTC (IU TEST CONDUCTOR)
- CUNP (IU NETS & SW SEL.)
- CCAP (AUX. POWER)
- CLGK (GUID. CRT KYBD)
- CUPC (ST-124M PLATFORM)
- CUFS (FLIGHT CONTROL INTEG)
- CUIP (IU INSTR.)
- BGCC (GROUND COMP.)

DLO:
- CVTS (TEST SUPERVISOR)

SUPPORT:
- BCFM (LCC MEAS.)
- BCWC (FIREX CONTROL)

CALL STATIONS

ACCF	CCF TEST CONDUCTOR
BCBX	BENDIX SUPPORT SUPERVISOR
BCFM	FACILITY MEASUREMENTS
BCRL	RCA/LTV SUPPORT SUPERVISOR
BCSC	VEHICLE SUPPORT CONTROLLER
BCWC	WATER CONTROL (CCC-CONSOLES)
BDDS	LCC DATA DISPLAY STATION
BDTS	DATA TRANSMISSION (2P12) INFORMATION SYSTEM
BEHZ	HAZARDS MONITORING, INFORMATION SYSTEMS
BELT	LIGHTNING WARNING
BGCC	GROUND COMPUTER COMPLEX FIRING ROOM
BLTM	LVO TM ENGINEER
BOSC	SUPPORT CONTROLLER, OPERATIONS CALS CUE PANEL RM 1P9)
BOTV	OTV SYSTEM CENTER
BPHO	PHOTOGRAPHY (TECHNICOLOR)
BRFS	RF GROUND STATION LCC, RF-ORSCS GND STATION - 2P10A
BTIS	INSTALLATION SUPPORT CONTROLLER
BTMC	TM CHECKOUT EQUIPMENT, COMMON MODULE - ROOM 2P10
BTMI	CIF INTERFACE MODULE - RM 2P10
BTTM	TEST COORDINATOR - RF & TM
BUTM	IU TM CHECKOUT EQUIPMENT
B1RF	S-IC RF SYSTEMS ENGINEER
B1TM	TM CHECKOUT EQUIPMENT
B2RF	S-II RANGE SAFETY ENGINEER
B2TM	TM CHECKOUT EQUIPMENT, S-II MODULE - ROOM 2P10
B4IE	S-IVB INSTRUMENTATION ENGINEER
B4RF	LCC RF STATIONS
B4TM	S-IVB TM CHECKOUT EQUIPMENT
CAJP	A. J. PICKETT
CARE	GROUND NETWORKS ENGINEER
CCAP	AUXILIARY POWER CONSOLE
CCLH	LH2 CONTROL CONSOLE
CCLO	LOX CONTROL CONSOLE
CCPM	NETWORKS POWER MONITOR
CCRP	RP-1 CONTROL CONSOLE
CCTC	TEST SUPPORT CONTROLLER (SOP)
CECS	ECS CONTROL CONSOLE
CFDK	CRT KEYBOARD - EDS OPERATOR
CGIC	INSTRUMENTATION CONTROLLER
CHCU	HYDRAULIC CHARGING UNIT CONTROL CONSOLE
CHDA	HOLDDOWN ARMS CONTROL PANEL
CHGD	HAZARDOUS GAS DETECTION SYSTEM - LCC
CH02	ABORT MON HAZ GAS CUE PANEL CONSOLE BE-11
CIAR	I. A. RIGELL
CLCD	LVO GROUND COMPUTER SYSTEM ENGINEER
CLCE	LVO CHIEF ENGINEER
CLCP	LVO COMPUTER AUTOMATION PROGRAMMING ENGR
CLDE	LUT SYSTEMS DEE PRINTER
CLEG	LVO CHIEF LV ELECTRICAL G&C SYSTEM
CLEI	LVO INTEGRATION EQUIP ELEC SYS ENGR
CLEL	LVO LAUNCH EQUIP ELEC SYST ENGR
CLEP	LVO PROPELLANTS ELEC SYST ENGR
CLES	ELECTRICAL G&C OPERATIONS ENGINEER
CLEU	ELEC NETWKS SYST ENGR IU
CLEW	LVO WATER SYST ELEC SYST ENGR
CLE1	ELEC NETWKS SYST ENGR S-IC
CLE2	ELEC NETWKS SYST ENGR S-II
CLE4	ELEC NETWKS SYST ENGR S-IVB
CLFK	CRT KEYBOARD - FLIGHT CONTROL
CLFS	LVO FLIGHT CONTROL SYSTEM ENGINEER
GC	LVO GUIDANCE & CONTROL SYSTEM ENGINEER
GK	CRT KEYBOARD - GUIDANCE
GS	LVO GYRO AND STABILIZER SYSTEM ENGINEER
LIK	L/V CRT KEYBOARD - MEASURING
CLIS	LVO INSTRUMENTATION SYSTEM ENGINEER
CLMS	L/V MECHANICAL SYSTEMS ENGINEER
CLNS	LVO FLIGHT COMPUTER SYSTEMS ENGR
CLOM	LVO OPERATIONS MANAGER
CLPS	L/V PROPELLANT SYSTEMS ENGINEER
CLQD	LV QAL R/U F/R
CLQS	LV QAL CHIEF
CLSK	LSE & ECS CRT
CLTC	LAUNCH VEHICLE TEST CONDUCTOR
CLVN	VEHICLE NETWORKS PANEL
CPDC	PNEUMATIC DISTRIBUTION SYSTEM CONTROL CONSOLE
CPH1	LH2 COMPONENTS PANEL #1
CPH2	LH2 COMPONENTS PANEL #2
CPO1	LOX COMPONENTS PANEL #1
CPO2	LOX COMPONENTS PANEL #2
CPO3	LOX COMPONENTS PANEL #3
CPRK	PROPELLANTS DISPLAY COMPUTER CONSOLE
CPPP	RP-1 COMPONENTS PANEL
CPSS	SYSTEMS SAFETY
CRSS	RANGE SAFETY SUPERVISOR PANEL
CSAC	SERVICE ARMS CONTROL CONSOLE
CSAD	DRRS CONSOLE
CSAM	SERVICE ARMS MEASUREMENTS PANEL
CSA1	SERVICE ARM #1 CONTROL CONSOLE (S-IC INTER TANK)
CSA2	SERVICE ARM #2 CONTROL CONSOLE (S-IC FORWARD)
CSA3	SERVICE ARM #3 CONTROL CONSOLE (S-II AFT)
CSA4	SERVICE ARM #4 CONTROL CONSOLE (S-II INTERMEDIATE)
CSA5	SERVICE ARM #5 CONTROL CONSOLE (S-II FORWARD)
CSA6	SERVICE ARM #6 CONTROL CONSOLE (S-IVB AFT)
CSA7	SERVICE ARM #7 CONTROL CONSOLE (S-IVB FORWARD)
CSA8	SERVICE ARM #8 CONTROL CONSOLE (SERVICE MODULE)
CSA9	SERVICE ARM #9 CONTROL CONSOLE (COMMAND MODULE)
CSPP	SERVICE ARMS POWER PANEL
CTSC	TEST SUPPORT CONTROLLER
CTS1	TAIL SERVICE MAST 1-2 FIRING AND MONITOR TEST CONSOLE
CTS2	TAIL SERVICE MAST 2-3 FIRING AND MONITOR TEST CONSOLE
CTS3	TAIL SERVICE MAST 3-4 FIRING AND MONITOR TEST CONSOLE
CUCP	IU COOLING CONTROL CONSOLE
CUCR	IU FLIGHT CONTROL RECORDER PANEL
CUCS	AIRBORNE COMMAND SIMULATOR
CUDE	DIGITAL EVENTS EVALUATOR PRINTER
CUEF	EDS FLIGHT MONITOR
CUES	EDS PREPARATION
CUEV	EVENTS DISPLAY PANEL
CUFC	IU FLIGHT CONTROL PANEL
CUFE	IU FLIGHT CONTROL SYSTEMS ENGINEER
CUFS	FLIGHT CONTROL SYSTEM INTEGRATOR
CUGA	IU FLIGHT CONTROL EDS RATE GYRO/CONTROL
CUIE	INTEGRATION/AUX POWER SYSTEM ENGINEER
CUIP	IU INSTRUMENTATION PANEL
CUNE	IU GROUND NETWORKS ENGINEER
CUNK	IU CRT KEYBOARD - NETWORKS
CUNP	IU NETWORKS PANEL
CUPC	ST-124M SYSTEM ENGINEER
CUPP	IU AC & DC POWER
CUSP	FLT CONT COMP INPUT SUBSTITUTE PANEL
CUSW	SWITCH SELECTOR PANEL
CUTC	IU TEST CONDUCTOR
CVTS	SPACE VEHICLE TEST SUPERVISOR
CWCP	INDUSTRIAL WATER CONTROL PANEL
C1CS	CUTOFF SENSORS PANEL
C1DE	DEE PRINTER
C1DP	PROPELLANT DISPERSION AND ORDNANCE (DESTRUCT) PANEL
C1EH	ENGINE HEATERS PANEL
C1EN	S-IC ENGINE PANEL
C1EV	EVENT DISPLAY DISCRETE READOUT PANEL
C1FC	S-IC ENGINE DEFLECTION PANEL
C1FE	FLIGHT CONTROL SYSTEM ENGINEER
C1FR	FIRING CONSOLE AND COMPONENT TEST PANEL
C1HP	HYDRAULICS PANEL
C1IP	MEASURING PANEL
C1LO	S-IC LOX CONSOLE
C1MS	MEASURING SYSTEM TEST OPERATIONS
C1NK	CRT KEYBOARD - NETWORKS
C1NP	NETWORKS PANEL
C1NE	GROUND ELECTRICAL ENGINEER
C1OU	LOX TANKING COMPUTER
C1PC	CONTROL AND PURGE PANEL (STAGE PNEUMATICS CONTROL)
C1PE	PROPULSION AND MECHANICAL SYSTEMS ENGINEER
C1PK	CRT KEYBOARD - PROPULSION
C1PP	DC POWER PANEL
C1PS	GROUND POWER POWER SUPPLY ENGINEER
C1PU	S-IC PREFILL PANEL
C1RP	RP-1 SYSTEM PANEL
C1RU	RP-1 TANKING COMPUTER PANEL
C1SN	S-IC STAGE NETWORKS ENGINEER
C1SP	SEQUENCER PANEL
C1TC	S-IC STAGE TEST CONDUCTOR
C2AE	ALL ENGINE PANEL
C2DP	PD AND EBW AND ORDNANCE PANELS
C2EC	ENGINE COMPONENTS PANEL
C2EV	EVENTS DISPLAY PANEL
C2FC	HYDRAULICS PANEL
C2FE	ENGINE DEFLECTION PANEL
C2GP	GROUND PNEUMATICS PANEL
C2HG	HAZARDOUS GAS DETECTION ENGINEER
C2HU	LH2 TANKING COMPUTER
C2IP	MEASURING AND RF PANEL
C2LA	S-II PROPELLANT LOADING ELECTRICAL ADVISOR
C2NK	CRT KEYBOARD - NETWORKS
C2NP	NETWORKS PANEL
C2OU	LOX TANKING COMPUTER
C2PA	S-II PRESSURIZATION ELECTRICAL ADVISOR
C2PC	DC POWER CONTROL PANEL #1
C2PK	CRT KEYBOARD - PROPULSION
C2PM	PROPELLANT MONITOR PANEL
C2PU	PROPELLANT UTILIZATION AND DEPLETION PANELS
C2PV	PURGE AND VACUUM PANEL
C2RP	RECIRCULATION PANEL
C2RR	RELAY RACKS (#1 AND #2)
C2SI	S-II ACCESS/STRUCTURES
C2SP	PRESSURIZATION PANEL
C2TC	S-II STAGE TEST CONDUCTOR
C2TV	S-II TV CONTROLLER
C4AL	APS LAUNCH & MONITOR PANEL
C4DE	DIGITAL EVENTS EVALUATOR PRINTER
C4DP	PROPELLANT DISPERSION AND ORDNANCE PANEL
C4EP	ENGINE PREPARATION PANEL
C4ES	S-IVB ELECTRONICS SYSTEM ENGINEER
C4ET	ENGINE TEST PANEL
C4EV	S-IVB EVENTS DISPLAY PANEL
C4FC	S-IVB FLIGHT CONTROL PANEL
C4FS	S-IVB FLIGHT CONTROL SYSTEM ENGINEER
C4HC	S-IVB HE CONTROL PANEL
C4HN	S-IVB GH2/GN2 CONTROL PANEL
C4HU	LH2 TANKING COMPUTER
C4HY	HYDRAULIC PANEL
C4IP	S-IVB MEASURING PANEL
C4NK	CRT KEYBOARD - NETWORKS
C4NP	S-IVB NETWORK PANEL
C4OH	O2/H2 BURNER PANEL
C4OU	LOX TANKING COMPUTER
C4PK	S-IVB PROPELLANTS KEYBOARD
C4PP	S-IVB DC POWER SUPPLY PANELS
C4PR	S-IVB PROPELLANT STATUS PANEL
C4PS	S-IVB PROPULSION SYSTEM ENGINEER
C4PU	S-IVB PROPELLANT UTILIZATION SYSTEMS PANEL
C4P2	S-IVB PROPULSION CRT DISPLAY CONSOLE, AUX LOCATION
C4QC	S-IVB QUALITY CONTROL
C4SM	S-IVB MECH/STRUCTURES SYSTEM ENGINEER
C4SP	S-IVB STAGE PRESSURE PANEL
C4TC	S-IVB STAGE TEST CONDUCTOR
EASM	CIF ANTENNA SITE
ECOM	COMPUTER FACILITY
ECOP	CIF COMPUTER
EDDS	CIF DATA DISPLAY ROOM (307)
EDTS	DATA TRANSMISSION STATION
ETMS	TELEMETRY GROUND STATION (CIF)
ETOM	GUIDANCE TM OUTPUT MONITOR (CIF)
E1CP	ABORT MONITOR - THRUST CHAMBER PRESS
E1EG	CIF S-IC ENG GIMBAL POSITION ABORT MON.
E1EN	CIF S-IC ENGINE PANEL
E1FC	CIF S-IC FLIGHT CONTROL ENGR
E1NE	CIF S-IC ELECTRICAL ENGINEER
E1NK	CIF S-IC NETWORKS CRT KEYBOARD
E1PE	CIF S-IC PROPULSION ENGINEER
E1PK	CIF S-IC PROPULSION CRT KEYBOARD
E1TC	CIF S-IC TEST CONDUCTOR
E1TP	CIF S-IC MEASURING
E2TM	CIF S-II TM ENGR MONITOR
E4FC	CIF S-IVB FLIGHT CONTROL ENGR MONITOR
GMIL	UNIFIED S BAND GROUND STATION
HFLT	HOUSTON FLIGHT DIRECTOR
KSTC	SPACECRAFT TEST CONDUCTOR
LASE	LSE ELEC ENGR, LUT BASE
LAS1	LSS POWER SUPPLY AND DIST. RACKS
LCDC	COUNT CLOCK (ML)
LDAS	DDAS (ML)
LEBS	EMERGENCY BACKUP BATTERIES (ML)
LESP	ENGINE SERVICE PLATFORM
LGCC	GROUND COMPUTER COMPLEX (ML)
LHDA	HOLDDOWN ARMS
LHGD	HAZARDOUS GAS DETECTION SYSTEM RM 158
LLDE	DIGITAL EVENT EVALUATOR (ML) DEE-6
LLRS	DIGITAL RANGE SAFETY COMMAND SYSTEM GSE
LOM	LAUNCH OPERATIONS MANAGER
LPDC	PNEUMATIC DISTRIBUTION COMPLEX
LPLX	PROPELLANT LOADING COMPUTERS
LP7B	POWER SUPPLY SYSTEM RACKS, AREA 7B
LRPR	INTEGRATION NETWORK (ML)
LSCP	LUT SIGNAL CONDITIONING TEST PANELS
LUQI	ML QUALITY INSPECTION
LTSM	LUT TAIL SERVICE MAST ENGINEER
LUNW	IU NETWORKS
L1EP	S-IC ENGINE AREA
L1FH	HANDLING & ORDNANCE ENGINEER, FORWARD SKIRT, S-IC
L1GH	S-IC GROUND HYDRAULICS SUPPLY & CHECKOUT
L1HC	MOTOR CONTROL CENTER S-IC GRND HYD SUPPLY & C/O
L1IC	S-IC INSTRUMENTATION ENGINEER (ML)
L1IH	HANDLING & ORDNANCE ENGINEER, INTERTANK, S-IC
L1LS	LUT SUPERVISOR
L1NE	LUT NETWORKS ENGR (S-IC STAGE)
L1OE	S-IC ORDNANCE ENGINEER
L1PS	GROUND POWER POWER SUPPLY ENGINEER
L1PU	S-IC PREFILL UNIT
L1RS	RELAY RACKS AND SEQUENCER RACK
L1SM	STAGE MONITOR/OPERATIONS COORDINATOR
L1TH	HANDLING & ORDNANCE ENGINEER, THRUST STRUCTURE, S-IC
L1TT	TM & RF THRUST STRUCTURE
L2PD	POWER DISTRIBUTION RACKS (ROOM 8B)
L2RR	S-II RELAY RACKS (1 THROUGH 5) (ROOM 7A)
L4CE	CONTROL ELECTRONIC ENGINEER
L4JR	JUNCTION RACKS
L4PR	S-IVB POWER RACS (ROOM 7B)
MGNR	GUID & NAV RIGHT SIDE UNIT 4, SC
MGNS	GUID & NAV UNIT 14, SC
MSTC	NASA S/C TEST CONDUCTOR
MTPE	TEST PROJECT ENGINEER
PEHE	ENVIRONMENTAL HEALTH ENGINEER
PEST	ENGINE SERVICE PLATFORM TRANSPORTER
PGHE	PAD HP GAS ENGINEER
PLQG	LV-QAL-35 GSE & ML
PLQU	LV-QAL-34 IU
PLQ1	LV-QAL-31 S-IC
PLQ2	LV-QAL-32 S-II
PLQ4	LV-QAL-33 S-IVB
PRFI	EMC MONITOR INFORMATION SYSTEM
PUPL	IU PAD LEADER
PUSD	IBM PAD SAFETY
PVTS	TEST SUPERVISOR, PAD
P1ES	S-IC GROUND LEVEL ENGINE SERVICING
RAS1	LSE FIRING ROOM NETWORKS ENGR
RCDC	COUNTCLOCK (LCC)
RDAS	DDAS GSE RACKS
RDE3	DEE-3 SYSTEM ENGINEER
RDTS	DATA TRANSMISSION SYSTEM ENGINEER
RDSC	L/V E & I RECORDERS
RESC	ECS STRIP CHARTS
RHSC	LH2 STRIP CHARTS
RLDE	DEE 6 (LCC)
RLDP	LOX NETWORKS ENGINEER
RLSC	TSM & S/A RECORDERS
RPDC	PROPELLANTS D.C. POWER - LCC
RPSC	RP-1 STRIP CHARTS
RRSC	RANGE SAFETY OFFICER STRIP CHARTS
RUBM	IU STRIP CHARTS
RXSC	LOX STRIP CHARTS
R1JR	LCC RACKS PATCH DIST.
R1NE	S-IC MEASURING STRIP CHARTS
R1SC	S-IC STRIP CHARTS
R2DP	S-II DIGITAL PRINTER
R2RL	S-II ENGINES REDLINE ENGINEER
R2SC	STRIP CHARTS
R4EI	S-IVB GROUND BUSS E & I RECORDERS
R4HY	S-IVB HYDRAULIC STRIP CHARTS
R4PS	S-IVB PROPULSION STRIP CHARTS
R4PU	S-IVB PU STRIP CHARTS
R4SC	STRIP CHART RECORDERS
SCDR	S/C COMMANDER
SRO	SUPERINTENDENT OF RANGE OPERATIONS
SUQI	STRUCT. QUALITY INSPECTOR
SURF	IU RF STRUCTURE
SUTM	TM IU STRUCTURE
SUVE	IU VEHICLE NETWORKS
SUVM	IU VEHICLE MECHANICAL
S4CE	S-IVB CONTROL ELECTRONICS ENGINEER
S4FC	S-IVB FLIGHT CONTROL ENGINEER
S4HY	S-IVB HYDRAULICS ENGINEER
S4IE	INSTRUMENTATION ENGINEER
S4MA	AFT STRUCTURAL/MECH ENGR
S4MF	FWD STRUCTURAL/MECH ENGR
S4ML	S-IVB MOBILE LAUNCHER STRUCTURAL/MECHANICAL ENGINEER
S4MM	S-IVB SERVICE STRUCTURE STRUCTURAL/MECH ENGR
S4MS	STRUCTURE MEASURING STATION
S4OR	S-IVB ORDNANCE ENGINEER
S4PC	S-IVB PAD CONTROL
S4PE	S-IVB PROPULSION ENGINEER
S4SY	S-IVB SAFETY ENGINEER
S4TM	S-IVB STRUCTURE TM ENGINEER
USAE	LSE ELEC ENGR - TOWER
USA8	SERVICE ARM #8 SYSTEM
UUCU	GROUND SUPPORT COOLING UNIT
UUPC	IU PNEUMATIC CONSOLE
UUVM	IU MECHANICAL, UMBILICAL TOWER
U1FN	FORWARD SKIRT ELECTRICAL NETWORKS
U1FT	S-IC FORWARD SKIRT TM & RF
U2AM	S-II AFT MONITOR
U2AN	AIRBORNE SYSTEMS ENGINEER
U2A1	S-II AIRBORNE NETWORKS FWD
U2A2	S-II AIRBORNE NETWORKS AFT
U2EC	ENVIRONMENTAL CONTROL ENGINEER
U2EO	S-II ELECTRICAL ORDNANCE ENGINEER
U2FE	S-II FLIGHT CONTROL
U2FM	S-II FWD MONITOR
U2HO	HANDLING AND ORDNANCE ENGINEER
U2IE	S-II INSULATION ENGINEER
U2J2	ENGINE SYSTEMS ENGINEER
U2LF	FLIGHT CONTROL LEADMAN
U2LH	S-II HYDRAULIC LEADMAN
U2LN	S-II LUT NETWORKS ENGINEER
U2LP	S-II PRESSURIZATION LEADMAN
U2MH	MECHANICAL AND HYDRAULICS ENGINEER
U2MO	S-II MECHANICAL ORDNANCE ENGINEER
U2MU	MECH/UMBILICAL ENGINEER
U2PE	PROPELLANT/PRESSURIZATION ENGINEER
U2PF	PROPELLANT FILL ENGINEER
U2PM	PROPELLANT MANAGEMENT ENGINEER
U2PV	ML PURGE & VACUUM ENGINEER
U2QC	ML QUALITY CONTROL REP
U2SE	S-II PAD LEADER
U2SI	STRUCTURES AND INSULATION ENGINEER
U2SY	SAFETY ENGINEER
U2TM	TM ENGINEER
U24A	PNEUMATIC CONSOLE, S7-45A
U245	INSULATION PURGE PNEUMATIC CONSOLE, S7-45
U4A6	S-IVB AFT MONITOR
U4A7	S-IVB FORWARD MONITOR
U4PE	PROPULSION ENGINEER
VUMS	IU MEASURING STATION
VURF	RF, "C" BAND RADAR & CCS CHECKOUT
V1MS	MEASURING GSE STATION
V2MS	MEASURING GSE STATION
V4MS	S-IVB MEASURING STATION
Z1	ABORT MON VISUAL OBSERVER (CX 20, UC4 OR UC5)
Z2	ABORT MON VISUAL OBSERVER (CX 34, UC16)
Z3	ABORT MON VISUAL OBSERVER (CX 37, UC17 OR UC9)

CDDT & CD OPERATIONAL DIFFERENCES

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

BARCHARTS	CDDT/CD TASKS SHOWN ON APPLICABLE BARCHARTS ONLY	
PAD ACCESS	RADIATION AREA CONTROL ENDS AT T-8 HRS DURING CDDT BUT CONTINUES FOR CD,	
PAD ACCESS	CONTROL AREA REOPENING TIMES DIFFERENT AFTER CDDT AND CD,	
PAD ACCESS	CONDITIONS FOR RECONFIGURATION APPLICABLE TO DRY CDDT ONLY,	
-1D 4H 0' 0"	BATTERIES MOVED DURING CD ONLY	
-1D 4H 0' 0"	BATTERY REMOVAL WOULD ONLY OCCUR DURING CD	
-1D 3H 30' 0"	CHE HOIST DOLLY & BATTS INSTALLED DURING CD	
-1D 3H 30' 0"	JUMPER INSTALLED FOR CDDT	
-1D 3H 0' 0"	Q-BALL PORT PLUGS REMOVED DURING CD	
-1D 2H 30' 0"	BATTERIES INSTALLED DURING CD ONLY	
-1D 2H 30' 0"	BATTERY BYPASS INSTALLED FOR CDDT	
-1D 2H 10' 0"	CHE DOLLY REMOVED DURING CD	
-1D 2H 0' 0"	BATTERIES INSTALLED DURING CD ONLY	
-1D 2H 0' 0"	CHE DOLLY REMOVED DURING CD	
-1D 1H 0' 0"	BATTERIES INSTALLED DURING CD ONLY	
-1D 1H 0' 0"	CHE HOIST REMOVED DURING CD	
-24H 40' 0"	BATTERIES CONNECTED DURING CD ONLY	
-24H 40' 0"	OAT & SIM FLT POWER USED DURING CDDT	
-24H 35' 0"	CHE HOIST REMOVED DURING CD	
-24H 20' 0"	BATTERIES CONNECTED DURING CD ONLY	
-24H 0' 0"	BATTERIES CONNECTED DURING CD ONLY	
-23H 40' 0"	BATTERIES CONNECTED DURING CD ONLY	
-23H 0' 0"	ST-124M PURGE LINE AND PLENUM CHECK VALVE REMOVED DURING CD	
-22H 30' 0"	ST-124M PURGE LINE AND PLENUM CHECK VALVE REMOVED DURING CD	
-22H 0' 0"	ST-124M PURGE SUPPLY VALVE CLOSED DURING CDDT	
-21H 40' 0"	BATTERY ACCESS PLATFORMS REQUIRED FOR CD	
-21H 15' 0"	SIM LAUNCH ON DURING CDDT	
-21H 15' 0"	IGN BATT BLEED ON FOR CD	
-21H 15' 0"	SIM FLT POWER ENABLED FOR CDDT	
-21H 15' 0"	SIM LAUNCH POWER ON DURING CDDT	
-21H 14' 30"	SIM LAUNCH POWER OFF DURING CDDT	
-21H 14' 30"	IGN BATT BLEED OFF FOR CD	
-21H 12' 0"	BATTERY ACCESS PLATFORMS REMOVED DURING CD	
-20H 15' 0"	ST-124M SYSTEM PURGED DURING CDDT	
-19H 0' 0"	BATTERY SUBSTITUTE BOXES NOT USED DURING CD	
-19H 0' 0"	BATTERY SUBSTITUTE BOXES USED DURING CDDT	
-19H 0' 0"	FLIGHT CODE PLUG INSTALLED DURING CD ONLY	
-18H 0' 0"	AUX COOLANT LINES REMOVED DURING CD	
-16H 0' 0"	LH2 VENT VALVE CHECKOUT DURING CDDT	
-16H 0' 0"	CPD'S TORQUED DURING CD ONLY	
-16H 35' 0"	S/A 1 SAFE ANGLE SWITCH ACTIVATED DURING CDDT	
-16H 30' 0"	SUBLIMATOR VENT COVERS REMOVED DURING CD	
-16H 5' 0"	S/A 2 SAFE ANGLE SWITCH ACTIVATED DURING CDDT	
-16H 0' 0"	S-II LH2 VENT VALVE CRYO TEST RUN DURING CDDT ONLY	
-16H 0' 0"	DEE 6 DISCRETES MASKED DURING CDDT	
-15H 53' 0"	DRSCR INDICATIONS DIFFERENT FOR CDDT AND CD	
-15H 50' 0"	DRSCR INDICATIONS DIFFERENT FOR CDDT AND CD	
-15H 45' 0"	RANGE RECONFIGURES TO DRSCS FLIGHT CODE PLUGS DURING CD ONLY,	
-15H 45' 0"	DEE 6 DISCRETES UNMASKED DURING CDDT	
-14H 30' 0"	LH2 VENT VALVE CRYO TEST RUN DURING CDDT ONLY	
-14H 0' 0"	ST-124M SYSTEM PURGED DURING CDDT	
-11H 25' 0"	LH2 VENT VALVE CRYO TEST RUN DURING CDDT ONLY	
-10H 0' 0"	LH2 VENT VALVE CRYO TEST RUN DURING CDDT ONLY	
-9H HOLDING	OFF-LUT CABLE ASSEMBLIES REMOVED DURING CD	
-9H HOLDING	READY FOR IGNITION INDICATIONS DURING CDDT	
-9H HOLDING	LH2 VENT VALVE CRYO TEST RUN DURING CDDT ONLY	
-8H 59' 0"	SC EDS POWER TURNED ON DURING CDDT	
-8H 59' 0"	LH2 VENT VALVE INST VERIFICATION DURING CDDT	
-8H 20' 0"	BATT HEATER SHUT OFF DURING CDDT	
-7H 30' 0"	S-IVB APS PRESSURIZED DURING CD	
-5H 55' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-5H 0' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-4H 40' 0"	DRSCS FLIGHT CODE PLUGS INSTALLED DURING CD	
-4H 40' 0"	DRSCS TEST CODE PLUGS INSTALLED DURING CDDT	
-4H 35' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-4H 0' 0"	HE INJ/ACCUMULATOR TEST DURING CD	
-3H 49' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 46' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 45' 0"	HE INJ/ACCUMULATOR TEST DURING CD	
-3H 40' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 40' 0"	S-II LOX HE BLOWDOWN TEST RUN DURING CDDT	
-3H 40' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 30' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 30' 0"	PROP SYS BOTTLE DECAY TEST RUN DURING CD	
-3H 20' 0"	SWITCHES POSITIONED TO COUNT CONFIG DURING CD	
-3H 20' 0"	GAS MANUAL THERMAL CONTROL ESTABLISHED FOR CD	
-3H 20' 0"	S-IVB HE SUPPLY PRESSURE DECREASED DURING CDDT	
-3H 20' 0"	S-IC HE BOTTLE PRESSURE TEST RUN DURING CDDT	
-3H 19' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 18' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 13' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 8' 55"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 8' 50"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 8' 7"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 8' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 5' 9"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 5' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-3H 2' 20"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 55' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 50' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 45' 0"	PROP SYS BOTTLE DECAY TEST RUN DURING CD	
-2H 38' 7"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 35' 30"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 35' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 32' 20"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 32' 19"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 32' 18"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 32' 15"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 32' 14"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 31' 20"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 25' 50"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 25' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 20' 0"	PROP SYS BOTTLE DECAY TEST DURING CDDT	
-2H 20' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 8' 0"	SPECIAL TEST RUN DURING CDDT ONLY	A
-2H 0' 0"	SC EDS POWER TURNED ON DURING CD	
-1H 51' 0"	PROGRAM VZSA IN EDS TEST RUN DURING CD	
-1H 35' 0"	PROP SYS BOTTLE DECAY TEST RUN DURING CDDT	
-1H 27' 0"	CCS BLOCK EXERCISED DURING CD ONLY	
-1H 21' 0"	EDS POWER OFF, CSM READY FOR Q-BALL CAL AND CCS ENABLED DURING CD	
-1H 21' 0"	IU COMMAND SYSTEM ENABLED DURING CDDT	
-1H 19' 0"	CCS BLOCK EXERCISED DURING CD	
-1H 19' 0"	IU SWITCH ACTION (IN PLACE OF MSTC) DURING CDDT	
-1H 0' 0"	HE SUPPLY PRESSURE INCREASED DURING CDDT	
-1H 0' 0"	HELIUM SUPPLY OPENED DURING CD	
-45' 0"	DIGITAL PRINTER POWER ON DURING CDDT	
-44' 0"	SC EDS POWER IS ON DURING CD	
-40' 0"	DRSCS TEST CODE PLUGS INSTALLED DURING CDDT	
-40' 0"	DRSCS FLIGHT CODE PLUGS INSTALLED DURING CD ONLY	
-38' 0"	SIM LAUNCH ON FOR CDDT	
-38' 0"	SIM FLT POWER SWITCH ENABLED FOR CDDT	
-30' 0"	SIM LAUNCH POWER ON FOR CDDT	
-29' 30"	SIM LAUNCH POWER OFF FOR CDDT	
-7' 58"	S/A 1 ARMED FOR RETRACTION DURING CD	
-4' 10"	SCDR IN SC DURING CD	
-3' 40"	OPTION 2 HOLD PLANNED DURING CDDT	
-3' 20"	OPTION 2 HOLD PLANNED DURING CDDT	
-0' 30"	S/A 1 RETRACTED DURING CD	
+16.2' TO +2H 30"	DIFFERENT TCS AND PLUS TIMES FOR CD AND CDDT	
APP A3	S-II SPECIAL START TANK TEST DURING CDDT ONLY	A
APP A3	S-IVB SPECIAL START TANK TEST DURING CDDT ONLY	A
APP C1	S-II LH2 VENT VALVE TEST RUN DURING CDDT DRAIN ONLY	
APP C1	S/C EDS POWER TURNED OFF DURING CD SCRUB	
APP C2	S-II LH2 VENT VALVE TEST RUN DURING CDDT DRAIN ONLY	
APP F	APPLICABLE TO CDDT ONLY	
APP G	APPLICABLE TO CD ONLY	

LV PROPELLANT LOADING SCHEDULE:

LOADING SEQUENCE	TIME	REQUIRED MSS DISTANCE FROM LV
START REPLENISH LINE CHILLDOWN	T-8:15	850 FT.
START S-IVB LOX	T-8:05	850 FT.
START MAIN LINE CHILLDOWN	T-8:01	850 FT.
START S-II LOX	T-7:36	850 FT.
START S-II LH2 PRECONDITIONING	T-7:26	850 FT.
START S-IC LOX	T-6:54	850 FT.
LOX ALL STAGE REPLENISH	T-5:29	3600 FT.
START S-II LH2	T-5:27	3600 FT.
100% S-II LH2	T-4:19	4600 FT.
START S-IVB LH2	T-4:19	4600 FT.
100% S-IVB LH2	T-3:38	4800 FT.

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CD ONLY	
- 8 HRS 20' 0"						
		1-1		ALL	*** NOTE 10 MINUTES AFTER LOX FILL COMMAND, S-IVB SLOW FILL WILL START AUTOMATICALLY	
	121	2	***	CLGK	REQUEST & EXECUTE FT37 (PREPARE TO LAUNCH TEST - REPEATABLE SIM FLIGHT OPTION)	***
	181	3	C1TC	CECS	VERIFY ECS GN2 FLOW FOR 1 HOUR	
	181	4	C1TC	C1NP	HEATER POWER - ON	
	181	5	C1TC	C1EH	HEATER POWER TO ENABLE	
		5-1		C1EH	*** NOTE HEATERS CYCLING	
		5-2		C1DE	*** NOTE DEE 2033 ON (S-IC READY FOR LOX LOADING)	
	181	6	C1TC	CWCP	VERIFY IWS MANUAL ARMING BUS - ON	
	181	7	C1TC	C1PC	PRESSURIZE S-IC GN2 CONTROL & PURGE BOTTLES TO 3200 PSI PER V-24327, REPORT WHEN COMPLETE.	
	171	8	C2TC	C2NP	HEATER POWER AND BATTERY HEATERS ON	
	171	9	C2NP	C2NK	**CDDT ONLY**	*
		10		C2NP	**CDDT ONLY**	*
	171	11	C2TC	C2FC	MANUALLY CYCLE INDIVIDUAL AUX HYDRAULIC PUMPS ON AND OFF TO MAINTAIN SYSTEM OIL TEMP WITHIN 0 TO 65 DEG F ENVELOPE PER V-30029 (M020) TASK 36. COORDINATE ALL SWITCH ACTIONS WITH C2TC AND CUFS PRIOR TO EXECUTION.	
	181	12	C1TC	CPRK	RECALL BE02 AT A 10 SECOND SCAN RATE AND ALL STAGES OPTION.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 8 HRS 18' 0"						
	171	1	C2TC	C2AE	START TURBOPUMP PURGE PER V-30029 (M020) TASK 41,	
		2			DELETED	N-219-136
- 5 HRS 15' 0"						
	121	1	CLTC	C1TC	YOU HAVE CLEARANCE TO START CROSS COUNTRY LINE CHILLDOWN,	
		1-1			NOTE ---- FROM NOW THRU T +0 THE FOLLOWING STATIONS REQUIRE ACCESS TO THE NOTED TV CAMERAS CSA4 - CAMERAS 15, 16, 36 CSA5 - CAMERAS 15, 20, 21, 36 CSA6/7 - CAMERAS 20, 21, 22, 24, 36	
	121	2	C1TC	CLTC	LOX FILL COMMAND HAS BEEN GIVEN (AUTOMATIC PROPELLANT LOADING INITIATED)	
	121	3	CLGK	CLTC	FT37 COMPLETE, REPEATABLE SIM FLIGHT IS IN PROCESS,	
	261	4	CLM4 .	BOSC	REQUEST PRESENT GH2 BATTERY PRESSURE	TCPI
- 6 HRS 10' 0"						
	171	1	C2TC	C2PV	START COMMON BULKHEAD EVACUATION	
		1-1		C2PV	*** NOTE IF THE COMMON BULKHEAD VACUUM DEFINED BY THE LMR CANNOT BE ATTAINED BY T-1 HR, USE THE J-RING EVACUATION, CYCLE VALVES AS NECESSARY TO MAINTAIN THE PURGE AND VACUUM CIRCUITS OPERATION	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
8 HRS 10' 0"						
	171	2	C2RP	C2TC	ACCUMULATOR FILL SYSTEM PURGE COMPLETED,	N-219-136
	171	3	C2TC	C2RP	LH2 PREVALVES TO CLOSE THEN INHIBIT, VERIFY LH2 PREVALVES CLOSED - ON	
		3-1		C2RP	**********CAUTION********** * * MONITOR LH FEED DUCT * * PRESS (D092-201/205) * * DURING PROPELLANT TANK * * CHILLDOWN, IF PRESSURE * * EXCEEDS 35 PSIA: * * * 1. PLACE RECIRC RESET * * TO RESET THEN * * INHIBIT * * * 2. ALL PREVALVES LOX * * RETURN VALVES TO * * OPEN * * * 3. REPEAT SEQ 3, 6, & 7 * * **********	
	171	4	C2TC	C2RP	LH2 PUMP AND RETURN LINE VALVES TO CLOSE VERIFY RETURN LINE VALVES OPEN - OFF	
	171	5	C2TC	C2RP	LOX OVERRIDE TO OPEN,	
	171	6	C2TC	C2RP	ALL PREVALVES LOX RETURN VALVES TO CLOSE VERIFY LOX PREVALVES CLOSED - ON, VERIFY LOX RETURN LINE VALVES OPEN REMAINS ON,	
	171	7	C2TC	C2RP	ACCUMULATOR BLEED VALVE TO CLOSE THEN INHIBIT	
	171	8	C2TC	C2RP	START LOX HE INJECTION PURGE PER V-30029 (M020), TASK 39.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 5 HRS 5' 0"						
	121	1	CLGK	CLTC	REPEATABLE SIM FLIGHT COMPLETE	(FT23)
	121	2	***	CLGK	REQUEST & EXECUTE FT23 (LVDC SECTOR SUM CHECK)	***
	121	3	CLTC	ECOP	STOP REAL TIME REDUCTION PROGRAM	
	121	4	CLTC	ETMS	TM RECORDERS OFF	
	121	5	C1TC	CLTC	STARTING S-IVB SLOW FILL (FAST FILL WILL NOT START UNTIL CLEARANCE RECEIVED).	
	121	6	CVTS	CLTC	PAD CLEARING OPERATIONS HAVE BEEN COMPLETED, CLEAR TO START S-IVB LOX FAST FILL	TCPI
	121	7	CLTC	C1TC	PAD IS CLEAR FOR S-IVB LOX FAST FILL	
	171	8	C2AE	C2TC	START TANK PURGE IS COMPLETE	
- 6 HRS 1' 0"						
	121	1	C1TC	CLTC	STARTING LOX MAINLINE CHILLDOWN AT S-IVB 5%.	
- 8 HRS 0' 0"						
	181	1	C1TC	C1NE	START S-IC LCC ESE CLOSEOUT PER V-21035. REPORT WHEN COMPLETE.	
	111	2	CLTC	CVTS	ALERT MSTC THAT THE PRN MODULATION OF CSM S-BAND UP-LINK WILL BE DISABLED FOR CCS CHECKS IN 5 MINUTES FOR APPROX. 20 MINUTES.	TCPI
- 7 HRS 55' 0"	151	3	CUTC	BGCC	VERIFY/MOUNT VLA DATA LOAD TAPE ON IODC 1-3. REPORT WHEN COMPLETE.	FT05
	121	1	CLGK	CLTC	FT23 COMPLETE	
	121	2	***	CLGK	REQUEST & EXECUTE FT10 (LADDER OUTPUT TEST FULL RANGE OPTION).	***
	111	3	CLTC	CVTS	VERIFY CLEARANCE FOR IU CCS RF SYSTEM.	TCPI

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T 7 HRS 55' 0"						
	111	4	CLTC	CVTS	REQUEST GMIL VERIFY CCS CARRIER IS OFF,	TCPI
	121	5	CLTC	VURF	ENABLE LOCAL CCS CARRIER & VERIFY,	
	121	6	CLTC	CUIP	CCS TRANSPONDER POWER-ON,	
	121	7	CLTC	VURF	VERIFY CCS IN LOCK,	
	121	8	CLTC	CUNP	VERIFY SWITCH SELECTOR INHIBIT OFF	
	121	9	CLTC	CUSW	ISSUE IU OCTAL 007 (OMNI XMT)	
	121	10	CLTC	CUIP	COMMAND DECODER POWER-ON,	
	111	11	CLTC	CVTS	LOCAL CCS CARRIER IS ON, CCS TRANSPONDER AND COMMAND DECODER ARE ON, (IU COMMAND SYSTEM IS DISABLED)	TCPI
	121	12	CLTC	VURF	START CCS RF CHECKS PER V-28069,	
	111	13	CLTC	CVTS	REQUEST GMIL DISABLE CSM S-BAND UP-LINK PRN MODULATION, AND VERIFY. (FOR APPROX 20 MIN)	TCPI
T 7 HRS 54' 0"						
	171	1	C2PM	C2TC	S-II LOX TANK CHILLDOWN IN PROGRESS	
	171	2	C2TC	C2AE C2EC C2RP	START THRUST CHAMBER JACKET PURGE PER V-30029 (M020) TASK 42 AND SECURE LOX DOME, GG, HE INJ AND TURBO PUMP PURGES,	
		2-1		C2PU R2SC	*** NOTE MEASUREMENTS G006-201 THROUGH 205 WILL BE ACTIVE DURING SECURING OF LOX DOME AND GG INJECTOR PURGES	
T 7 HRS 45' 0"						
	121	1	CLGK	CLTC	FT10 COMPLETE,	
	121	2	***	CLGK	REQUEST & EXECUTE FT05 (VLA DATA LOAD)	***

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 7 HRS 39' 0"						
	171	1	C1TC	C2TC	STARTING S-II LOX LOADING, ALL SUPPORT PERSONNEL SWITCH TO CH 133.	
	171	2	C2AE	C2TC	S-II ENGINE PURGES COMPLETED	
- 7 HRS 36' 0"						
	121	1	C1TC	CLTC	S-IVB LOX LOADING TO 99% IS COMPLETED, STARTING S-II LOX LOADING, HAVE ALL PERSONNEL REQUIRED FOR S-II LH2 PRECONDITIONING REPORT FOR COMM CHECKS ON CH 143.	
	188	2	CLTC	ALL	ALL PERSONNEL REQUIRED FOR S-II LH2 PRECONDITIONING REPORT FOR COMM CHECK ON CH 143.	
	111	3	CLTC	CVTS	STARTING S-II LOX LOADING,	TCPI
	171	4	C2TC	C2PU	REPORT WHEN LOX DEPLETION SENSORS ARE COVERED, (LOX 1/2% TO 1% MASS)	
		4-1		C2PU	*** NOTE SENSORS REGISTER INTERMITTENT WET/DRY SIGNALS DURING INITIAL LOADING PHASE,	
	171	5	C2PU	C2TC	ALL LOX DEPLETION SENSORS ARE WET	
	171	6	C2TC	C2RP	VERIFY ENGINE PURGES ARE COMPLETE, ALL PREVALVES LOX RETURN LINE VALVES TO OPEN, VERIFY LOX PREVALVES OPEN - ON,	
	171	7	C2TC	C2RP	LOX OVERRIDE TO CLOSE.	
	161	8	C4TC	C4PS	START LOX CHILLDOWN PUMP CHECKS AND LOX VENT CHECKS PER V-35014,	
- 7 HRS 35' 0"						
	121	1	CLGK	CLTC	FT05 COMPLETE (GIVE DATE OF VLA DATA LOADED),	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CO ONLY	
- 7 HRS 35' 0"						
	121	2	CLTC	ETMS BTMC	TM RECORDERS ON	(FT55)
	121	3	CLTC	ECOP	START REAL TIME REDUCTION PROGRAM	(FT55)
	121	4	CLTC	VURF	VERIFY READY FOR CSM UP-LINK PRN MODULATION.	
- 7 HRS 30' 0"	111	5	CLTC	CVTS	REQUEST GMIL BRING UP PRN MODULATION ON CSM S-BAND UP-LINK.	TCPI
	121	1	CLTC	RLDE	GIVE CDC/GMT TIME CORRELATION ON EVERY HALF HOUR UNTIL T-0 AND UPON ENTERING AND TERMINATION OF HOLDS.	
	121	2	***	CLGK	REQUEST & EXECUTE FT55 (LVDA TM TEST)	***
	121	3	CLTC	VURF	VERIFY READY TO SUPPORT FT45.	(FT45)
	121	4	CLTC	CUSW	ISSUE IU OCTAL 026 (CMD SYS ENABLE)	(FT45)
	111	5	CLTC	CVTS	IU COMMAND SYSTEM IS ENABLED	TCPI
	121	6	CLTC	CUCS	VERIFY ACS IN COMP/COMP MODE.	(FT45)
	161	7	C4TC	C4PS	PROCEED WITH AMBIENT SPHERE PRESSURIZATION	
	161	8	C4PS	C4SP	CLOSE COLD HE SUPPLY	
	161	9	C4PS	C4HC	INCREASE HE SUPPLY PRESSURE TO 3100 +/- 100 PSIA.	
		9-1		C4HC	*** NOTE PRESSURE TO BE MAINTAINED FOR 1 HOUR MINIMUM	
	161	10	C4PS	R4PS	REPORT WHEN AMBIENT SPHERES ARE STABILIZED	
	161	11	C4PS	C4AL	OPEN 3000 PSI SUPPLY	#
	161	12	C4PS	R4PS	MONITOR APS SYSTEMS FOR STABILIZATION	#

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 7 HRS 26' 0"						
	121	1	C1TC	CLTC	STARTING S-II LH2 PRECONDITIONING	
- 7 HRS 25' 0"						
	121	1	CLGK	CLTC	FT55 COMPLETE	
	121	2	***	CLGK	REQUEST & EXECUTE FT45 (CMD SYS - INTERFACE)	***
- 7 HRS 21' 0"						
	121	1	CLGK	CLTC	FT45 COMPLETED	
	121	2	CLTC	CUNP	ISSUE IU STAGE LOGIC RESET	(FT47)
	111	3	CLTC	CVTS	IU COMMAND SYSTEM IS DISABLED, REQUEST USB CCS CARRIER ON AND VERIFY	(FT47 TCPI
	121	4	CLTC	VURF	DISABLE LOCAL CCS CARRIER & VERIFY	(FT47)
	111	5	CLTC	CVTS	LOCAL CCS CARRIER IS DISABLED, REQUEST GMIL VERIFY S-BAND CCS IS IN LOCK,	TCPI (FT47)
	121	6	CVTS	CLTC	USB/CCS TRANSPONDER IN LOCK AND CLEAR TO ENABLE IU COMMAND SYSTEM	(FT47) TCPI
	111	7	CLTC	CVTS	REQUEST GMIL MONITOR CH 121 AND REPORT WHEN READY TO SUPPORT FT47,	(FT47) TCPI
		8			2 SEQUENCES DELETED	N-219-136
	171	10	C2TC	C2RP	LH2 PREVALVES TO CLOSE, HOLD, PLACE RECIRC RESET TO RESET, THEN INHIBIT. RELEASE AND PLACE LH2 PREVALVES TO INHIBIT.	N-219-136
	171	10-1		C2RP	*** NOTE ACCUMULATOR BLEED VALVE OPEN - ON	
		11			DELETED	N-219-136

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 7 HRS 13' 0"						
	121	1	***	CLGK	REQUEST & EXECUTE FT47, (PREFLIGHT COMMAND SYS TEST) (HOUSTON), (OPTION SP1)	***
	121	2	CLGK	CLTC	FLIGHT COMPUTER READY FOR COMMANDS	
	111	3	CLTC	CVTS	LV READY FOR HOUSTON PREFLIGHT COMMANDS REQUEST HFLT REPORT ON CH, 121	TCPI
	121	4	HFLT	ALL	TERMINATE COMMAND ON MY MARK	
	121	5	HFLT	ALL	3, 2, 1, MARK	
	121	6	CLTC	ETOM	VERIFY AVP ONLY,	
	121	7	CLTC	CUSW	ISSUE IU OCTAL 026 (COMMAND SYS ENABLE)	
	121	8	HFLT	ALL	COMMAND - ON MY MARK (GENERAL LOAD 1)	
	121	9	HFLT	ALL	3 - 2 - 1, MARK SINGLE WORD DUMP, LOCATIONS 200 THROUGH 206	
	121	10	CLTC	ETOM	VERIFY AVP, CRP AND SINGLE WORD DUMP	
	121	11	HFLT	ALL	COMMAND - ON MY MARK (GENERAL LOAD 2)	
	121	12	HFLT	ALL	3 - 2 - 1, MARK SECTOR DUMP FOR OTU	
	121	13	CLTC	ETOM	VERIFY AVP, CRP AND SECTOR DUMP	
	121	14	HFLT	ALL	COMMAND - ON MY MARK (GENERAL LOAD 3)	
	121	15	HFLT	ALL	3 - 2 - 1, MARK SECTOR DUMP FOR NAV UPDATE	
	121	16	CLTC	ETOM	VERIFY AVP, CRP AND SECTOR DUMP	
	121	17	CLTC	HFLT	VERIFY HOUSTON COMMANDS COMPLETE,	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
← 7 HRS 5' 0"						
	181	1	C1TC	C1PC	OPERATE ENGINE THERMAL CONDITIONING PURGE AS REQUIRED TO MAINTAIN ENGINE TEMPERATURE	
← 7 HRS 3' 0"						
	121	1	***	CLGK	REQUEST AND EXECUTE FT47 (PREFLIGHT CMD SYS TEST) (HOUSTON) (OPTION SP3)	***
	121	2	CLGK	CLTC	FT47 COMPLETE	
	121	3	CLTC	ECOP	TERMINATE REAL TIME REDUCTION PROGRAM,	
	121	4	CLTC	ETMS BTMC	TM RECORDERS OFF	
	121	5	CLTC	CUIP	COMMAND DECODER POWER OFF CCS TRANSPONDER POWER OFF	
	121	6	CLTC	CUNP	ISSUE IU STAGE LOGIC RESET	
	111	7	CLTC	CVTS	IU CCS RF SYSTEM IS OFF, CLEAR TO BRING DOWN GMIL CCS CARRIER, REQUEST GMIL REPORT IU CCS GO/NO-GO TO VURF ON CH 137,	TCPI
	111	8	CLTC	CVTS	HOUSTON PREFLIGHT COMMAND SYSTEM TEST IS COMPLETE,	TCPI
← 7 HRS 1' 0"						
	121	1	***	CLGK	REQUEST & EXECUTE FT23 (LVDC SECTOR SUM CHECKS),	***
	181	2	C1TC	ALL	PERSONNEL SUPPORTING LOX LOADING GO TO CH 133 ACTIVE,	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+ 7 HRS 0' 0"						
	161	1	C4TC	C4PS	START MIXTURE RATIO CONTROL VALVE (MRCV) CHECKS ON CH 161, REPORT WHEN COMPLETE,	
	161	2	C4PS	V4MS	VERIFY READY TO RECORD K7, K219, D18 & G17,	
	161	3	C4PS	C4ET C4PU R4PS	VERIFY READY FOR MRCV CHECKS,	
	161	4	C4PS	C4PU	MRCV CMD NO, 1 OPEN AND VERIFY RELAYS RESET IND OFF AND MRCV OPEN CMD ON IND ON,	
	161	5	C4PS	C4PU	MRCV CMD NO, 2 OPEN,	
	161	6	C4PS	C4ET	CT HELIUM CONTROL SOLENOID ON,	
		6-1		C4ET	*** NOTE LOX AND LH BLEED VALVES CLOSE,	
	161	7	C4PS	R4PS	VERIFY MRCV OPENS,	
	161	8	C4PS	C4PU	MRCV CMD NO, 1 CLOSE,	
		8-1		C4PU	*** NOTE MRCV OPEN CMD ON IND OFF,	
	161	9	C4PS	C4PU	MRCV CMD NO, 2 CLOSE,	
		9-1		C4PU	*** NOTE RELAYS RESET IND ON,	
	161	10	C4PS	R4PS	VERIFY MRCV CLOSES,	
	161	11	C4PS	C4PU	MRCV CMD NO, 1 OPEN THEN NO, 2 OPEN, DELAY 5 SECONDS, THEN MRCV CMD NO, 1 AND NO, 2 CLOSE,	
	161	12	C4PS	R4PS	VERIFY MRCV OPENS THEN CLOSES,	
	161	13	C4PS	C4ET	CT HELIUM CONTROL SOL OFF,	
	161	14	C4PS	V4MS	REPORT MRCV VALVE MOTION TIMES AND VOLTAGE CHANGE TO C4PS,	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 6 HRS 55' 0"						
	121	1	CLTC	CUFS	START FLIGHT CONTROL SYSTEM PREPS ON CH 123	(KAF2)
	123	2	CUFS	CUSP CUGA	PLACE ALL FCC, CCIS AND EDS/CRG PANEL SWITCHES TO AUTO,	(KAF2)
- 6 HRS 54' 0"						
	181	1	C1TC	C1PC	LOW LOX DOME PURGE SWITCH TO AUTO	(KAF2)
	181	2	C1TC	C1CS	POSITION LOX LEVEL SIMULATE SWITCHES TO WET WHEN FIRST INDICATION OF SENSORS WET IS NOTED, WHEN C1LO HAS TERMINATED LOX BUBBLING, POSITION LOX LEVEL SIMULATE SWITCHES TO AUTO AND VERIFY LOX LEVEL DRY INDICATIONS ARE OFF,	
	121	3	C1TC	CLTC	S-II LOX LOADING TO 99% IS COMPLETED AND STARTING S-IC LOX LOADING,	
	111	4	CLTC	CVTS	STARTING S-IC LOX LOADING,	TCPI
		4-1			NOTE ---- FOR THE NEXT 1 HR AND 25 MIN, CSA1 REQUIRES ACCESS TO TV CAMERAS 7, 11 & 12.	
- 6 HRS 51' 0"						
	121	1	CLGK	CLTC	FT23 COMPLETE	
	121	2	***	C1PC	LOW LOX DOME PURGE ON FOR FLIGHT CONTROL SYSTEM CHECKS	*** (KAF2)
	123	3	***	CLFK	REQUEST & EXECUTE KAF2 (FLT CONTROL PREPS) WITH THE FOLLOWING OPTIONS: PRIMARY OPTION 1 (FCC & GYRO PREPS) SECONDARY OPTION 1 (COMPARATORS RESET)	***

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 6 HRS 51' 0"						
	123	4	CUFS	CUSP	FLIGHT CONTROL COMPUTER SYSTEM POWER - ON	
- 6 HRS 47' 0"						
	121	1	CUFS	CLTC	KAF2 COMPLETE,	
	121	2	CLTC	ALL	THE FOLLOWING STATIONS SWITCH TO CHANNEL 123 TO PREPARE FOR CTC5; CLGK CLFK CUGA CUCR E4FC CUFE C4FC CUSP C4FS C4NP	(CTC5)
	123	3	CUFS	CLGK	VERIFY READY TO SUPPORT CTC5,	(CTC5)
	151	4	CUFS	BGCC	MASK THE FOLLOWING DISCRETES: $FUNC SE 935-38 MMSK (MDI'S 0888 THRU 0911)	(CTC5) I-167-108
- 6 HRS 46' 0"						
	121	1	CLTC	C1TC C2TC C4TC CUTC	DISPLAY DESCRIPTIONS (FORMAT SELECTS) MUST BE COORDINATED WITH CLTC PRIOR TO EXECUTION UNTIL COMPLETION OF VALK,	
	171	2	C2TC	C2NK C2PK	DISPLAY DESCRIPTIONS (FORMAT SELECTS) MUST BE COORDINATED WITH C2TC PRIOR TO EXECUTION UNTIL COMPLETION OF VALK,	
	121	3	***	C1PC	LOW LOX DOME PURGE ON FOR CTC5	***
	123	4	***	CLFK	REQUEST & EXECUTE CTC5 NORM OPTION (LVDC & CRG INPUTS; BURN & COAST MODES; P, Y AND R AXES; SPARE & ACTIVE; APS POWER OFF),	***
		4-1		CLFK	*** NOTE ADVISE ALL PERSONNEL OF MAJOR PROGRAM EVENTS BEING DISPLAYED ON SANDERS CONSOLE,	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CD ONLY	
- 6 HRS 30' 0"						
	161	1	C4PS	C4HC	DECREASE HE SUPPLY TO 1500 +/- 100 PSIA	
	161	2	C4PS	C4SP	OPEN COLD HE SUPPLY	
		2-1		C4SP	*** NOTE RAPID CYCLING OF LOX AND LH2 REPRESS VENTS REQUIRED FOR NEXT TWO SEQUENCES TO PREVENT EXCESSIVE PRESSURE DROP	
	161	3	C4PS	C4SP	DECREASE LOX REPRESS PRESSURE 100-150 PSI BELOW ENGINE BOTTLE PRESSURE	
	161	4	C4PS	C4SP	DECREASE LH2 REPRESS PRESSURE 100-150 PSI BELOW LOX REPRESS BOTTLE PRESSURE	
	161	5	C4PS	R4PS	VERIFY DELTA P'S ARE SATISFACTORY	
- 5 HRS 55' 0"						
	121	1	CLTC	C1TC C2TC	CDDT ONLY	*A
	181	2	C1TC	CCLO	CDDT ONLY	*A
	171	3	C2TC	C2PM	CDDT ONLY	*A
- 5 HRS 45' 0"						
	121	1	CUFS	CLTC	CTC5 COMPLETE. STARTING CTC3.	
	121	2	***	C1PC	LOW LOX DOME PURGE ON FOR CTC3	***
	123	3	***	CLFK	REQUEST AND EXECUTE CTC3, OPTIONS A, CD, EF (LVDC, INPUTS; BURN AND COAST MODE; P,Y, AXES). REPORT WHEN COMPLETE.	***
	151	4	CUFS	BGCC	UNMASK THE FOLLOWING DISCRETES: $FUNC SE 935-38 MREL (MDI'S 0888 THRU 0911)	I-167-108

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 5 HRS 32' 0"						
	171	1	C2PM	C2TC	J-RING TEMP IS BELOW MINUS 160 DEG F, READY FOR LH2 LOADING,	
	171	2	C1TC	C2TC	READY TO START LH2 LOADING, ALL SUPPORT PERSONNEL GO TO CH 143,	
- 5 HRS 29' 0"						
	121	1	C1TC	CLTC	S-IC LOX LOADING IS COMPLETED AND ALL STAGE LOX REPLENISH HAS BEEN INITIATED, REQUEST CLEARANCE TO START LH2 LOAD,	
	181	2	C1TC	C1LO	CYCLE LOX VENTS CLOSED THEN AUTO AS REQUIRED TO MAINTAIN ULLAGE PRESSURE AND VENT VALVE OPERATION	
	181	3	C1TC	C1RP	PRESSURIZE HE BOTTLES TO 3200 PSI PER V-24327, REPORT WHEN COMPLETE,	
	161	4	C4TC	C4PS	VERIFY READY FOR LH2 LOAD,	
	171	5	C2TC	C2EV	VERIFY READY FOR LH2 LOADING ON	
- 5 HRS 27' 0"						
	121	1	C2TC	CLTC	PRECONDITIONING TO MINUS 160 DEG F IS COMPLETE, READY FOR LH2 LOADING,	
	121	2	C4TC	CLTC	READY FOR LH2 LOADING,	
	121	3	C4TC	C1TC	START S-II LH2 LOADING	
	111	4	C4TC	CVTS	STARTING S-II LH2 LOADING,	TOPI
		5			NOTE ---- C2TV REQUIRES CONTROL OF OTV CAMERAS 9, 16, 34 & 35 DURING LH2 LOADING OF S-II STAGE, VIDEO TAPE REQUIRED AS DIRECTED BY C2TV	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 5 HRS 18' 0"						
	121	1	CUFS	CLTC	CTCS COMPLETE	
	121	2	***	C1PC	LOW LOX DOME PURGE OFF	***
	121	3	***	CLGK	REQUEST & EXECUTE FT31 (ACCELEROMETER PULSE COUNT)	***
- 5 HRS 15' 0"						
	121	1	CUGK	CLTC	FT31 COMPLETE	
	121	2	***	CUPC	REQUEST & EXECUTE FT06 (DRIFT CHECKS OPTION)	***
- 5 HRS 8' 0"						
	121	1	CLTC	ALL	THE FOLLOWING STATIONS SWITCH TO CHANNEL 123 TO PREPARE FOR FLIGHT CONTROL SYSTEM GAIN TEST (CTC1): CLGK CUCR C2FC C4HY CUSP CLFK CUFE C1FE V2MS R4HY C2FE CUFS CUGA R2SC C4FS C4FC	(CTC
	123	2	CUFS	C1FE	VERIFY READY TO SUPPORT CTC1	(CTC4
	123	3	CUFS	C2FC	ALL CONTROL SWITCHES TO AUTO POSITION EXCEPT AUX PUMPS SWITCH IN ENABLE POSITION. THERMAL CONTROL SWITCH IN OFF POSITION AND MAIN PUMP CASE BYPASS VALVE SWITCH IN CLOSED POSITION.	(CTC4
		3-1		CLFK	*** NOTE ADVISE C2FC PRIOR TO S-II PROGRAM EVENTS SO R2SC AND V2MS CAN BE COMMANDED TO SWITCH TO FAST SPEED ON RECORDERS.	
	123	4	CUFS	C2FE	VERIFY READY TO SUPPORT CTC1	(CTC4
	123	5	CUFS	C4HY	AUX HYDRAULIC PUMP POWER SWITCH TO AUTO.	(CTC4
	123	6	CUFS	C4FC	VERIFY READY TO SUPPORT CTC1	(CTC4

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 5 HRS 6' 0"						
	151	7	CUFS	CUES	VERIFY EDS AUTO ABORT BUS DE-ENERGIZED AND WILL REMAIN OFF UNTIL COMPLETION OF CTC4	(CTC4)
	123	8	CUFS	CUGA	CONTROL EDS RATE GYRO SYSTEM POWER ON,	(CTC4)
- 5 HRS 5' 0"						
	171	1	C2PM	C2TC	RECIRC ENABLE ON, (LH2 10% MASS),	
	171	2	C2TC	C2RP	RECIRC RESET TO RESET THEN INHIBIT	
	171	3	C2TC	C2RP	VERIFY LH2 PREVALVES OPEN - ON AND RECIRC, RESET - ON,	
		3-1		C2RP	*** NOTE RECORD LH PREVALVE CRYO OPENING TIME IN APPENDIX OF V-30029 (M020) MAXIMUM ALLOWABLE IS 1 SEC,	
	171	4	C2TC	U2SE	S-II LH2 FILL HAS STARTED, RELEASE STAGE ENTRY ONLY RED CREW MEMBERS AND LIFE SUPPORT,	
	261	5	C2TC	BOSC	S-II LH2 FILL HAS STARTED, BENDIX LIFE SUPPORT FOR S-II STAGE ENTRY IS NO LONGER REQUIRED, (LVR-2 & LVR-7),	TCPI
		6			DELETED	N-219-136
		7			DELETED	N-129-136
- 5 HRS 3' 0"						
	121	1	CUPC	CLTC	FT06 COMPLETE	
	123	2	***	CLFK	REQUEST & EXECUTE CTC4 NORM OPTIONS (CRG CALIB TEST; P, Y & R AXES; POS & NEG; BI-LEVEL PKG; COMPARATOR TEST & RATE EXCESSIVE TEST), REPORT WHEN COMPLETE,	***

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CO ONLY	
- 5 HRS 0' 0"						
		1			DELETED	N-219-136
	121	2	CLTC	BRFS	VERIFY RF SELECT TO STANDBY AND REMOTE MONITOR TO SIG GEN 1.	(VARS)
	181	3	C1TC	CCLO	CDDT ONLY	*A
	121	4	C1TC	CLTC	CDDT ONLY	*A
- 4 HRS 40' 0"						
					DRSCR CLOSED LOOP TEST ----------	
	111	1	CLTC	CVTS	VERIFY CLEARANCE TO BRING UP LOCAL COMMAND CARRIER (PROTECTION REQUIRED)	TCPI
	111	2	CLTC	CVTS	REQUEST SRO SWITCH TO CHANNEL 121 TO SUPPORT DRSCR CLOSED LOOP TEST USING FLIGHT CODE PLUGS	TCPI #
	111	3	CLTC	CVTS	CDDT ONLY	TCPI *
	111	4	CLTC	CVTS	REQUEST CPSS RELEASE DESTRUCT SYSTEM KEY TO CLVN	TCPI
	121	5	CLTC	CLVN	OBTAIN DESTRUCT SYSTEM KEY FROM CPSS	
	121	6	CLTC	C1DP C2DP C4DP	VERIFY ALL SWITCHES IN AUTO POSITION EXCEPT: PD RSCR'S ENABLE - OFF SYSTEM STATUS SW - SAFE S & A SWITCH - SAFE	(VARS)
	121	7	CLTC	BTMC	TM TAPE RECORDER ON	(VARS)
		7-1		BTMC	*** NOTE RELOAD AT COMPLETION OF DRSCR TESTS.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 4 HRS 40' 0"						
	121	8	CLTC	RRSC	VERIFY DRSCS RECORDERS ON,	(VARS)
	111	9	CLTC	CVTS	LOCAL CMD CARRIER COMING ON,	TCPI
		10		C2NP	CYCLE MAIN/INSTR BATTERY BLEED SWITCHES TO MAINTAIN BATTERY VOLTAGES IN TOLERANCE (CD ONLY).	
	171	11	C2TC	C2RP	LH2 PUMP DISCHARGE AND RETURN LINE VALVES TO OPEN.	N-219-136
	171	12	C2TC	C2RP	START LH2 RECIRC PUMP TEST PER V-30029 (M020) TASK 61. REPORT WHEN COMPLETE.	N-219-136
- 4 HRS 36' 0"						
	121	1	***	C1PC	LOW LOX DOME PURGE ON	*** (CTC1)
- 4 HRS 35' 0"						
	121	1	CVFS	CLTC	CTC4 COMPLETE	
		2			NOTE ---- IF A TEST IS TO BE PERFORMED MANUALLY, THE SEQUENCES WITH THE AUTO PROGRAM IVAR IN THE COMMAND STATION COLUMN WILL BE COMMANDED BY THE TEST CONDUCTOR ASSOCIATED WITH THE OIS COMM CH SHOWN.	
	121	3	***	C1PK	REQUEST & EXECUTE VARS (DRSCR TEST) (T-3 HR OPTION).	***
	121	4	VARS	C1DP C2DP C4DP	VERIFY S&A SAFE AND RSCR'S 1 & 2 PD BLOCKED - ON	
	121	5	C1PK	CLVN	DESTRUCT SYSTEM TO ENABLE.	
		5-1		C1DP C2DP C4DP	*** NOTE SAFETY BUS ON.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 4 HRS 35' 0"						
	121	6	C½PK	C1DP C2DP C4DP	SYSTEM STATUS SWITCH - OFF	
	121	7	VARS	BRFS	SIG GEN SELECTOR ON AND VERIFY REMOTE MONITOR TO HYBRID	
	121	8	VARS	C1DP C2DP C4DP	RSCR'S 1 & 2 - INTERNAL AND VERIFY	
	121	9	VARS	B1RF B2RF B4RF	VERIFY RSCR LIMITER VOLTAGES OK	
		9-1		CRSS	*** NOTE LIMITER VOLTAGES RECEIVED,	
	121	10	VARS	C1DP C2DP C4DP	VERIFY EBW'S 1 & 2 EXTERNAL & NOT CHARGED	
		10-1		CRSS	*** NOTE ALL EBW'S NOT CHARGED	
	121	11	VARS	C1DP C2DP C4DP	AS SOON AS RSCR'S 1 & 2 CUTOFF INDICATIONS GO OFF, SIMULTANEOUSLY SWITCH EBW'S 1 & 2 TO EXTERNAL THEN AUTO	
	121	12	C½PK	CLTC	READY FOR SRO CUTOFF COMMAND	
	121	13	CLTC	RRSC	RECORDERS - FAST SPEED	
	121	14	CLTC	SRO	ON YOUR MARK SEND CUTOFF ON CLOSED LOOP LINKS FOR 3 SECONDS	
	121	15	SRO	ALL	3-2-1 - MARK	
		16	VARS	C1DP C2DP C4DP	SIMULTANEOUSLY SWITCH EBW'S 1 & 2 TO EXTERNAL THEN AUTO AS SOON AS RSCR'S 1 & 2 CUTOFF INDICATIONS GO OFF	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 4 HRS 35' 0"						
	121	17	CLTC	RRSC	RECORDERS - SLOW SPEED	
	121	18	VARS	C1DP C2DP C4DP	VERIFY EBW'S 1 & 2 WERE INTERNAL & CHARGED WHILE RSCR'S 1 & 2 CUTOFF INDICATIONS WERE ON	
		18-1		CRSS BRFS	*** NOTE CUTOFF RECEIVED	
		18-2		CRSS	*** NOTE ALL EBW'S WERE CHARGED WHILE CUTOFF WAS ON	
	121	19	VARS	C1DP C2DP C4DP	VERIFY EBW'S 1 & 2 EXTERNAL & NOT CHARGED	
		19-1		CRSS	*** NOTE ALL EBW'S NOT CHARGED	
	121	20	VARS	C1DP C2DP C4DP	VERIFY S&A DEVICE SAFE AND RSCR'S 1 & 2 PD BLOCKED	
	121	21	C1PK	CLTC	READY FOR SRO PD COMMAND	
	121	22	CLTC	RRSC	RECORDERS - FAST SPEED	
	121	23	CLTC	SRO	ON YOUR MARK SEND PD COMMAND ON CLOSED LOOP LINKS FOR 1 SECOND	
	121	24	SRO	ALL	3-2-1 - MARK	
	121	25	CLTC	RRSC	RECORDERS - SLOW SPEED	
	121	26	VARS	C1DP C2DP C4DP	VERIFY RSCR'S 1 & 2 PD RECEIVED	
		26-1		CRSS BRFS	*** NOTE PD INDICATIONS RECEIVED	
	121	27	VARS	C1DP C2DP C4DP	VERIFY EBW'S 1 & 2 DID NOT CHARGE	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CDDT ONLY	
T- 4 HRS 35' 0"						
		27-1		CRSS	*** NOTE ALL EBW'S DID NOT CHARGE	
	121	28	VARS	C1DP C2DP C4DP	RSCR'S TRANSFER - EXTERNAL THEN AUTO AND VERIFY RSCR:S OFF.	
		28-1		B1RF B2RF B4RF CRSS	*** NOTE RSCR LIMITER VOLTAGE INDICATIONS OFF.	
	121	29	C1PK	C1DP C2DP C4DP	STATUS SYSTEMS - SAFE	
	121	30	C1PK	CLVN	DESTRUCT SYSTEM - OFF AND RETURN DESTRUCT SYSTEM KEY TO CPSS, REPORT WHEN COMPLETE.	
	121	31	VARS	C1DP C2DP C4DP	VERIFY SAFETY BUS - OFF.	
	121	32	VARS	BRFS	SIGNAL GENERATOR SELECTOR TO STANDBY AND HYBRID TO SELECT MONITOR NO. 1	
	121	33	C1PK	CLTC	VARS COMPLETE.	
	171	34	C2PM	C2TC	CDDT ONLY	*A
	121	35	C2TC	CLTC	CDDT ONLY	*A
	171	36	C2RP	C2TC	LH2 RECIRC PUMP TEST COMPLETE	N-219-136
T- 4 HRS 30' 0"						
	121	1	***	C1PC	LOW LOX DOME PURGE ON FOR CTC1	***
	123	2	***	CLFK	REQUEST & EXECUTE CTC1 WITH THE FOLLOWING OPTIONS AB, C, GH, IJ, M-B, D, GH, IJ, N-AB, C, EF, IJ, O-AB, C, EF, K, M (S-IVB, AO, A1, SPO, PRIM & SPARE, PITCH & YAW - S-IVB, A1, SP6, PRIM & SPARE, PITCH & YAW - S-IC S-II, AO, A1, SP2, PITCH & YAW - S-IC S-II, AO, A1, ROLL AXIS, SPO)	***

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CO ONLY	
- 4 HRS 30' 0"						
		2-1		CLFK	*** NOTE ADVISE ALL PERSONNEL OF MAJOR PROGRAM EVENTS BEING DISPLAYED ON SANDERS CONSOLE.	
	121	3	CLTC	BTMC	TM TAPE RECORDER OFF AND RELOAD	
		3-1		BTMC	*** NOTE DELIVER TAPE TO SECURITY OFFICER (COUNTDOWN ONLY)	
	111	4	CLTC	CVTS	RANGE SAFETY COMMAND CHECKS COMPLETE. LOCAL COMMAND CARRIER IS OFF AND DESTRUCT SYSTEM KEY RETURNED TO CPSS	TCPI
	181	5	CCLO	C1TC	CDDT ONLY	*A
- 4 HRS 22' 0"	121	6	C1TC	CLTC	CDDT ONLY	*A
	161	1	C1TC	C4TC	READY FOR LH2 LOADING. ALL SUPPORT PERSONNEL GO TO CH 143.	
- 4 HRS 19' 0"						
	121	1	C1TC	CLTC	S-II LH2 LOADING IS COMPLETED AND S-IVB LH2 LOADING IN PROGRESS.	
	171	2	C2TC	C2SP	CYCLE THE LH2 VALVES CLOSED THEN OPEN AT LEAST EVERY TWO HOURS. IF THE VALVES SHOULD INADVERTENTLY NOT BE CYCLED AS SPECIFIED, THEY SHOULD BE CYCLED A MINIMUM OF 5 TIMES TO ASSURE NORMAL OPERATION. THE FIRST THREE CYCLES SHALL UTILIZE THE OVERRIDE CLOSE ASSIST.	
- 4 HRS 16' 0"						
	111	1	CLTC	CVTS	ADVISE SCO PERSONNEL THAT Q-BALL POWER IS COMING ON IN APPROXIMATELY 5 MINUTES	TCPI

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 4 HRS 11' 0"						
	121	1	CLTC	CUIP	Q-BALL POWER ON Q-BALL HEATER POWER - ON	TCP1
		1-1		CUIP	*** NOTE Q-BALL POWER SWITCH WILL BE LEFT IN ON POSITION UNTIL T-38 MIN	
	121	2	C2TC	CLTC	STARTING MRCV TEST	
	171	3	C2TC	C2PU	START MRCV TEST, REPORT WHEN COMPLETE,	
	171	4	C2TC	C2NP	SWITCH SELECTOR INHIBIT OFF	
	171	5	C2TC	C2AE	VERIFY ENGINE 201 THRU 205 HELIUM BOTTLE PRESSURE IS 1400 PSIA OR GREATER	
	171	6	C2TC	V2MS	VERIFY READY TO SUPPORT MRCV TIMING (MEASUREMENTS K6-201, K125-201 AND G006-201 THRU 205)	
	171	7	C2TC	R2SC	G006-201 THRU 205 RECORDERS TO FAST	
	171	8	C2TC	C2AE	ALL HELIUM SOL SW TO ON	
	171	9	C2TC	C2AE	ALL HELIUM CONT SOL ON LIGHT - ON	
	171	10	C2TC	V2MS	MEASURE TIME FROM K6-201 ON TO WHEN G006-201 THRU 205 REACHES LOW ENGINE MIXTURE RATIO (EMR) POSITION AND VERIFY THE TIME IS LESS THAN ONE SECOND FOR EACH VALVE.	
	171	11	C2TC	R2SC	VERIFY G006-201 THRU 205 INCREASED 1.3 TO 1.8 VDC,	
	171	12	C2TC	C2PK	VERIFY ENGINE REG OUT PRESS D012-201 THRU 205 IS 415 +/- 25 PSIA,	
	171	13	C2TC	C2PU	MRCV COMMAND NO. 1 SW - HIGH EMR.	
	171	14	C2TC	C2PU	RESET LIGHT - OFF	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CDR ONLY	
4 HRS 11' 0"						
	171	15	C2TC	C2PU	CHECKOUT RESET LIGHT - OFF,	
	171	16	C2TC	V2MS	MEASURE TIME FROM K125-201 OFF TO WHEN G006-201 THRU 205 REACHES HIGH EMR POSITION AND VERIFY THE TIME IS LESS THAN 1,2 SECOND FOR EACH VALVE,	
	171	17	C2TC	R2SC	VERIFY G006-201 THRU 205 DECREASED 1,3 TO 1,8 VDC,	
	171	18	C2TC	C2PU	MRCV COMMAND NO, 2 SW - LOW EMR,	
	171	19	C2TC	C2PU	CHECKOUT RESET LIGHT - ON	
	171	20	C2TC	C2EV	ENG 201 THRU 205 MRCV SOL CMD ON LIGHT - ON	
	171	21	C2TC	R2SC	VERIFY G006-201 THRU 205 INCREASED 1,3 TO 1,8 VDC,	
	171	22	C2TC	C2PU	MRCV COMMAND NO. 1 SW - LOW EMR.	
	171	23	C2TC	C2PU	RESET LIGHT - ON	
	171	24	C2TC	C2AE	ALL HELIUM SOL TO OFF	
	171	25	C2TC	C2AE	ALL HELIUM CONT SOL ON LIGHT - OFF	
	171	26	C2TC	R2SC	VERIFY G006-201 THRU 205 DECREASED 1,3 TO 1,8 VDC,	
4 HRS 5' 0"						
	171	1	C2PU	C2TC	MRCV TEST IS COMPLETE	
	121	2	C2TC	CL7C	MRCV TEST IS COMPLETE	
4 HRS 9' 0"						
	171	1	C2TC	C2RP	START LOX HE INJ/ACCUMULATOR TEST PER V-30029 (M020) TASK 45, REPORT WHEN COMPLETE,	#

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CD ONLY	
- 3 HRS 49' 0"						
	121	1	CLTC	C1TC C2TC	CDDT ONLY	*A
	143	2	C1TC	CCLH	CDDT ONLY	*A
	171	3	C2TC	C2PM	CDDT ONLY	*A
- 3 HRS 45' 0"						
	161	1	C4TC	C4PS	WHEN LH2 LOADING REACHES 100% START CHILLDOWN PUMP CHECKS PER V-35014.	
	123	2	CUFS	C4HY	AUXILIARY PUMP POWER SWITCH TO OFF	
	171	3	C2RP	C2TC	LOX HE INJ/ACCUMULATOR TEST COMPLETED	#
- 3 HRS 40' 0"						
	121	1	CLTC	C1TC C2TC	CDDT ONLY	*A

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 3 HRS 38' 0"						
	121	1	C1TC	CLTC	S-IVB LH2 LOADING IS COMPLETED AND REPLENISH INITIATED. LOX & LH2 STABLE AT 100%.	
	121	2	CLTC	C4TC	START LH2 DIRECTIONAL VENT CHECK. REPORT WHEN COMPLETE.	
	111	3	CLTC	CVTS	LV CRYO LOADING IS COMPLETE AND NORMAL REPLENISH HAS BEEN ESTABLISHED.	TCPI
		4			NOTE ---- FOR THE NEXT 5 MINUTES, CSAD REQUIRES EXCLUSIVE CONTROL OF TV CAMERAS 27 & AA3 OR AA4.	
	121	5	CLTC	C1TC	RETRACT PRIMARY DAMPER	
	181	6	C1TC	CSAC	RETRACT PRIMARY DAMPER. REPORT WHEN COMPLETE	
	118	7	CSAC	CSAD	RETRACT PRIMARY DAMPER PER V-36086.	
	161	8	C4TC	C4PS	START LH2 DIRECTIONAL VENT CHECK, AND LH2 AND LOX TANK VENT CHECKS ON CH 161.	
	143	9	C4PS	C4HU	POSITION S-IVB REPLENISH VALVE OVERIDE CLOSE SWITCH TO CLOSE	
	161	10	C4PS	C4PR	VERIFY LH2 REPLENISH VALVE CLOSED	
	161	11	C4PS	C4SP	LH2 L/R OPEN ON THEN OFF	
	161	12	C4PS	C4SP	VERIFY CLOSED IND ON AND LH2 VENT BOOST CLOSE AND L/R LATCH RESET COMMANDS IND ON.	
	161	13	C4PS	C4SP	VERIFY LH2 TANK VENT CLOSED.	
	161	14	C4PS	C4SP	DIR VENT TO FLIGHT THEN AUTO. VERIFY FLIGHT POSITION.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CD ONLY	
- 3 HRS 38' 0"						
	161	15	C4PS	C4SP	DIR VENT TO GROUND THEN AUTO. VERIFY GROUND POSITION.	
	161	16	C4PS	C4SP	OPEN LH2 TANK VENT.	
	143	17	C4PS	C4HU	POSITION S-IVB REPLENISH VALVE OVERRIDE SWITCH TO NORMAL. VERIFY NORMAL REPLENISH HAS BEEN ESTABLISHED.	
	161	18	C4PS	C4SP	CLOSE LOX TANK VENT THEN OPEN	
	161	19	C4PS	C4SP	LOX TANK NPV OPEN, LATCH, CLOSE, THEN UNLATCH.	
	161	20	C4PS	C4SP	VERIFY VALVE IN AN INTERMEDIATE POSITION	
	161	21	C4PS	C4SP	LOX TANK NPV OPEN THEN CLOSE	
	161	22	C4PS	C4SP	VERIFY FULL CLOSED IND ON, AND LOX VENT/NPV BOOST CLOSE AND NPV LATCH COMMAND RELAYS RESET IND. ON.	
	121	23	C4TC	CLTC	S-IVB VENT CHECKS COMPLETE. READY FOR CREW INGRESS	
	171	24	C2TC	C2RP	CDDT ONLY	*A
		24-1		C2RP	CDDT ONLY	*A

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
3 HRS 35' 0"					CD ONLY	
	181	1	C1TC	CECS	CDDT ONLY	*A
		1-1		CECS	CDDT ONLY	*A
		2			DELETED	
- 3 HRS 30' 0"						
	171	1	C2TC	C2AE C2RP	START PROPULSION SYSTEM BOTTLE DECAY TEST PER V-30029 (M020) TASK 34	#
- 3 HRS 25' 0"						
	111	1	CLTC	CVTS	LV READY FOR CREW INGRESS	TCPI
		2		CLTC	*** NOTE TIME FOR SC GROUND CLOSEOUT CREW TO LEAVE MSS PARKSITE,	
3 HRS 20' 0"						
	123	1	CUFS	C2FC	RETURN PANEL CONTROL SWITCHES TO COUNT CONFIGURATION,	#
		1-1		C2FC	ALL FUNCTIONAL SWITCHES TO OFF OR DOWN POSITION, EXCEPT ALL ACCUMULATOR CONTROL IN AUTO AND AUX PUMPS IN ENABLE	#
	171	2	C2FE	C2TC	FLIGHT CONTROL TEST CTC1 IS COMPLETE,	
	171	2-1	C2FC	C2TC	REQUEST PERMISSION TO ESTABLISH EAS MANUAL TEMPERATURE CONTROL MODE,	
		3		C2FC	VERIFY ACCUMULATORS UNLOCKED	
	171	4	C2FC	R2SC V2MS	HYDRAULIC RECORDERS ON,	
		5		C2FC	S-II AUXILIARY HYDRAULIC PUMPS, ENGINES 1, 2, 3 & 4 - ON, ALLOW SYSTEM PRESSURES TO STABILIZE,	
		6		C2FC	OPEN MAIN PUMP BYPASS VALVE AND ALLOW MAIN PUMP FLUID TEMPS TO STABILIZE WITH RESERVOIR FLUID TEMPS,	

APPENDIX C

LV DRAIN OPERATIONS

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CD ONLY	
					APPENDIX C	
					LV DRAIN OPERATIONS	
					PART 1	
					LV PREPS FOR DRAIN	
	121	1	CLTC	C1DP C2DP C4DP	SYSTEMS STATUS SWITCH TO SAFE	
		1-1		C1DP C2DP C4DP	*** NOTE RSCR EXTERNAL AND OFF	
	121	2	CLTC	CLVN	DESTRUCT SYSTEM OFF	
	121	3	CLTC	CUPC	POWER DOWN ST-124M PER V-33011	
	151	3-1	CUTC	CUNP	CDDT ONLY	*
	121	4	CLTC	CUSP	FLIGHT CONTROL COMPUTER POWER SWITCH - OFF,	
	121	5	CLTC	CUGA	CONTROL EDS RATE GYRO POWER SWITCH - OFF	
	121	6	CLTC	CLGK	REQUEST & EXECUTE FT04 PER V-33033, SECTION IV (POWER OFF LVDC/LVDA)	
	121	7	CLTC	CUPC	TERMINATE GE01 IF EXECUTING	
	121	7-1	CLTC	CUES	THRUST OK SWITCH A&B TO INHIBIT	
	121	8	CLTC	CWCP	RECONFIGURE THE IWS TO AN EGRESS CONFIGURATION PER V-36113,	
	121	9	CLTC	CSPP	REMOVE LSE 43D100 & 43D200 FIRING POWER PER V-21194 & REMOVE LSE POWER OVERIDE REPORT WHEN COMPLETE,	
	121	10	CLTC	C1TC C2TC C4TC CUTC	VERIFY SYSTEMS SAFED & READY FOR CREW EGRESS,	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
	111	11	CLTC	CVTS	LV READY FOR CREW EGRESS.	TCPI
	188	12	CLTC	ALL	ALL LV SYSTEMS WILL BE HELD AT THIS POINT UNTIL FLIGHT CREW EGRESS IS COMPLETE.	
	111	13	CVTS	CSA9	RECONNECT SERVICE ARM 9 PER V-36085 (IF NOT ALREADY CONNECTED)	TCPI
	111	14	CSA9	CVTS	S/A 9 RECONNECTED.	TCPI
	111	15	CVTS	CSA9	RETURN TO CHANNEL 118.	TCPI
	118	16	CSA9	CSAC	S/A 9 HAS BEEN RECONNECTED, CSA9 IS NOW ACTIVE ON CHANNEL 118.	
	181	17	CSAC	C1TC	S/A 9 IS RECONNECTED.	
	118	18	CSAC	CHCU	PLACE ONE PUMP IN STANDBY AND VERIFY OTHER PUMP IS RUNNING.	
	181	19	C1TC	CSPP	PLACE 42D100 LOCKUP ENABLE SWITCH TO OFF AND VERIFY	
		20			NOTE ---- IF FLIGHT CREW IS ABOARD, IT WILL BE APPROXIMATELY ONE HOUR BEFORE ALL PERSONNEL WILL BE CLEAR OF THE CONTROL AREA FOR DRAIN OPERATIONS.	
	121	1	CVTS	CLTC	CREW EGRESS IS COMPLETE, ALL PERSONNEL ARE CLEAR OF THE CONTROL AREA, LV DRAIN OPERATIONS MAY START.	TCPI
		2			NOTE ---- FOR THE NEXT 15 MIN, CSAD REQUIRES EXCLUSIVE CONTROL OF TV CAMERAS 27 AND AA3 OR AA4	XB-247-107
	121	3	CLTC	C1TC	RECONNECT PRIMARY DAMPER	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CD ONLY	
	181	4	C1TC	CSAC	RECONNECT PRIMARY DAMPER	
	118	5	CSAC	CSAD	RECONNECT PRIMARY DAMPER PER V-36086,	
	181	6	C1TC	CTS1	DISARM UMBILICAL SWITCH AND CLOSE UMBILICAL RELEASE SIMULATE VALVE	
		7		CLTC	NOTE ---- IF COMPUTER IS NOT SUPPORTING, ALL PERSONNEL TURN TO APPENDIX C, PART 4, PAGE 391 -----	
	121	8	CLTC	C2TC	TURN TO PART 3 AND START S-II PREPARATIONS FOR PROPELLANT DRAIN ON CHANNEL 171. REPORT WHEN READY FOR LH2 DRAIN	#
	121	9	CLTC	C1TC	**CDDT ONLY**	*
	121	10	CLTC	C2TC	**CDDT ONLY**	*
	171	11	C2TC	C2SP	**CDDT ONLY**	*
	121	12	CLTC	C4TC	START S-IVB PROPELLANT DRAIN PREPS PER V-30539 SECT V.	
	121	13	CLTC	C1IP C2IP C4IP CUIP	ALL TM RF ASSY'S - OFF AND MARK,	
	121	14		C1IP	F1 & P1 TRANSMITTERS OFF	
	121	15		C2IP	F1, F2, & P1 TRANSMITTERS OFF	
	121	16		CUIP	F1 & P1 RF OFF	
	121	17		C4IP	P1 OFF THEN AUTO.	
	121	18	CLTC	CUIP	F1 TM ASSY OFF	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CO ONLY	
	121	19	CLTC	C1IP	28 VOLT RACS AND 400 HERTZ POWER - OFF.	
	121	20	CLTC	ETMS BTMC	TM TAPE RECORDING OFF.	
	121	21	CLTC	C1IP CUIP	TM CALIBRATOR - OFF.	
	121	22	CLTC	CUNP	SWITCH SELECTOR INHIBIT OFF.	
	121	23	CLTC	CUIP	C-BAND BEACON #1 - OFF C-BAND BEACON #2 - OFF CCS TRANSPONDER - OFF COMMAND/DECODER - OFF C-BAND INHIBIT #1 & #2 - OFF	
	121	24	CLTC	CUIP	Q-BALL POWER - OFF Q-BALL HEATER POWER - OFF.	TCPI
	121	25	CLTC	CUCP	HIGH PRESSURE REGULATOR SWITCH TO LOW.	
	121	26	CVTS	CLTC	SC EDS POWER IS OFF	# TCPI
	111	27	CLTC	CVTS	COMMAND DECODER IS OFF.	TCPI
	111	28	CLTC	CVTS	ALL LV RF SYSTEMS ARE OFF.	TCPI
	121	29	CLTC	CUNP	SWITCH SELECTOR INHIBIT ON.	
	121	30	CLTC	BRFS	SECURE GSE FLIGHT CODE PLUG	#
	181	31	C1TC	BRFS	SECURE DRSCS GSE PER V-38000 SCRUB/ RECYCLE PROCEDURE	
	121	32	C1TC	CLTC	PRIMARY DAMPER AND S/A 1 ARE CONNECTED.	
	111	33	CLTC	CVTS	PRIMARY DAMPER IS CONNECTED.	TCPI
		34			**********CAUTION********** * * * THE FOLLOWING SEQ IS * * HAZARDOUS. * * * **********	
	181	35	C1TC	C1RE	CONTINUE THERMAL CONDITIONING PURGE AND ENGINE HEATER OPERATIONS UNTIL RESIDUAL LOX HAS BOILED OFF.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
	121	36	CLTC	C1SP	RETURN TCS KEY TO CPSS	
	121	37	CLTC	CLVN	RETURN DESTRUCT SYSTEM ENABLE KEY TO CPSS	
	111	38	CLTC	CVTS	TCS AND DESTRUCT SYSTEM ENABLE KEYS HAVE BEEN RETURNED TO CPSS	TCPI
		39			NOTE ---- CONTINUED IN APPENDIX C, PART 2,	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					CO ONLY PART 2 --- LV DRAIN ---	
	181	1	C1TC	CCRP	SECURE RP-1 PANEL POWER	
	181	2	C1TC	CCLO	START AUTO SIMULTANEOUS LOX DRAIN PREPS PER V-35014 ADDENDUM B-1. REPORT WHEN READY TO START DRAIN.	
	171	3	C2SP	C2TC	CDDT ONLY	*
	121	4	C2TC	CLTC	CDDT ONLY	*
	121	5	CLTC	C2TC	CDDT ONLY	*
	181	6	CCLO	C1TC	LOX DRAIN PREPS COMPLETED.	
	121	7	CLTC	C1TC C2TC C4TC	VERIFY READY TO START SIMULTANEOUS PROPELLANT DRAIN	
	111	8	CLTC	CVTS	RESET CDC TO T+0 AND START COUNT UP	TCPI
+ 0' 0"						
	121	1	CLTC	C1TC	CLEARED TO START SIMULTANEOUS DRAIN OPERATIONS.	
	181	2	C1TC	CCLH	START AUTO SIMULTANEOUS LH2 DRAIN OPERATIONS PER V-35014 ADDENDUM B-1. REPORT WHEN COMPLETE.	
	181	3	C1TC	CCLO	START AUTO SIMULTANEOUS LOX DRAIN OPERATIONS PER V-35014 ADDENDUM B-1. REPORT WHEN COMPLETE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T- 5' 0"						
	161	1	CCLH	C1TC	S-II LH2 DRAIN IN PROCESS	
T- 8' 0"						
	181	1	CCLH	C1TC	S-IVB LH2 DRAIN IN PROCESS	
T-10' 0"						
	161	1	CCLO	C1TC	S-IC LOX DRAIN STARTED	
T-32' 0"						
	161	1	CCLO	C1TC	S-II LOX DRAIN STARTED (S-II LH2 APPROXIMATELY 50%)	
T-54' 0"						
	161	1	CCLH	C1TC	S-II LH2 DRAIN IS COMPLETE	
T- 1 HRS 15' 0"						
	181	1	CCLH	C1TC	S-IVB LH2 DRAIN IS COMPLETE.	
T- 1 HRS 30' 0"						
	181	1	CCLO	C1TC	S-II LOX DRAIN IS COMPLETE, STARTING S-IVB LOX DRAIN.	
	121	2	CLTC	C1TC C2TC C4TC	START LH2 POST TANKING PURGE PER V-35015, VOL II	
	181	3	C1TC	CCLH	START LH2 SYSTEM PURGE PER V-35015, VOL II	
	171	4	C2TC	C2NP	REMOVE PM POWER	
	171	5	C2TC	C2SP C2RP	START POST TANKING PURGE PER V-35015, VOL II, NOTIFY C2TC WHEN TANK PURGE HAS BEEN IN PROGRESS FOR 30 MINUTES.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+ 1 HRS 30' 0"						
	171	6	C2TC	C2PM	SUPPORT LH2 SYSTEM SECURING PER V-35015, VOL II ON CH 143,	
	171	7	C2TC	C2SP	LOW LEVEL PURGE OFF WHEN NOT REQUIRED,	
	171	8	C2TC	C2GP	START GH2 CIRCUIT SCRUB PURGE PER V-30029 (M020) TASK 54,	
	171	9	C2TC	U2SE	S-II PROPELLANT DRAIN IS COMPLETE, RELEASE S-II RED CREW FROM STANDBY,	
+ 2 HRS 10' 0"						
	181	1	CCLO	C1TC	S-IVB LOX DRAIN COMPLETE	
	121	2	C1TC	CLTC	S-IVB LOX DRAIN COMPLETE,	
	161	3	C4TC	C4HN	SUPPORT LH2 SYSTEM SECURING PER V-35015, VOL II ON CH 143,	
	161	4	C4TC	C4PU	PU POWER OFF THEN AUTO	
	161	5	C4TC	C4PU	LOADING MEASUREMENT ENABLE - OFF	
	181	6	CCLO	C1TC	S-IC LOX DRAIN COMPLETE	
	121	7	C1TC	CLTC	LOX DRAIN IS COMPLETE	
	171	8	C2TC	C2FC	START EAS POST DRAIN PROCEDURE PER V-30029 (M020) TASK 55,	
		8-1		CCLO CCLH	*** NOTE PROPELLANTS SUPPORT WILL BE REQUIRED UNTIL COMPLETION OF S-II & S-IVB PURGES (APPROX T+7:30 HRS)	
	111	9	CLTC	CVTS	LV PROPELLANT DRAIN IS COMPLETE AND TANK PURGES ARE IN PROGRESS,	TCPI

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
▸ 2 HRS 15' 0"						
	121	1	CVTS	CLTC	CLEAR TO START RP-1 REPLENISH (IF RECYCLING TO T-9 HRS)	TCPI
	121	2	CLTC	C1TC	START RP-1 REPLENISH (IF RECYCLING TO T-9 HRS)	
	181	3	C1TC	CCRP	APPLY RP-1 PANEL POWER AND START REPLENISH PER V-25389 (IF RECYCLING TO T-9 HRS)	
		4			NOTE ---- FOLLOWING SUBSEQUENCES ARE TO BE PERFORMED ONLY IF MSS IS RETURNING TO PAD.	
	121	4-1	CVTS	CLTC	MSS OBSERVERS ARE TO REPORT TO PVTS AT LAUNCH OPERATION TRAILER 179 AT THE PAD MAIN GATE FOR BRIEFING IN 45 MINUTES.	TCPI
	121	4-2	CLTC	C1TC C2TC C4TC CUTC	MSS OBSERVERS ARE TO REPORT TO PVTS AT LAUNCH OPERATION TRAILER 179 AT THE PAD MAIN GATE FOR BRIEFING IN 45 MINUTES.	
	171	4-3	C2TC	C2PV	MSS PLATFORM OBSERVERS WITH HEADSETS REPORT TO PVTS AT PAD MAIN GATE (TRAILER 179) FOR BRIEFING IN 45 MINUTES.	
▸ 2 HRS 40' 0"						
	171	1	C2TC	C2SP	VERIFY POST TANKING PURGE IN PROGRESS FOR MINIMUM OF 30 MINUTES AND READY FOR SAFETY INSPECTION TEAM TO ENTER PAD, CONTINUE POST TANKING PURGE AND SUPPORT TBC ON 4% GH2 SNIFFER CHECKS.	
	121	2	C2TC	CLTC	S-II LH2 PROPELLANT TANK PURGED FOR MINIMUM OF 30 MINUTES, READY FOR SAFETY INSPECTION TEAM TO ENTER THE PAD, (POST TANKING PURGE IS CONTINUING)	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
▸ 2 HRS 40' 0"						
	121	3	C4TC	CLTC	S-IVB LH2 PROPELLANT TANK HAS BEEN PURGED FOR MINIMUM OF 30 MINUTES AND READY FOR SAFETY INSPECTION TEAM TO ENTER PAD, (POST TANKING PURGE IS CONTINUING)	
	181	4	C1TC	CCLH	S-II & S-IVB TANKS HAVE BEEN PURGED FOR MINIMUM OF 30 MINUTES, VERIFY GSE READY FOR SAFETY INSPECTION TEAM TO ENTER PAD AND VERIFY LESS THAN 4% GH2 IN STAGE TANKS AND TRANSFER LINE BY SNIFFING AT SAMPLE PORTS ON VALVE SKIDS, VERIFY INITIAL SYSTEM SECURING CREW AT ROAD BLOCK TO FOLLOW SAFETY INSPECTION TEAM TO THE LUT AND TO THE LH2 STORAGE AREA, S-II & S-IVB TANK PURGES WILL CONTINUE,	
	181	5	C1TC	CCLO	VERIFY INITIAL SYSTEM SECURING CREW AT ROAD BLOCK TO FOLLOW SAFETY INSPECTION TEAM TO THE LUT AND TO THE LOX STORAGE AREA, PURGE, INERT AND SECURE LOX SYSTEM PER V-25342,	
	171	6	C2TC	C2SP	SHROUD PURGE TO CLOSE	
	171	7	C2TC	U2IE U2SE	VERIFY S-II INSULATION PERSONNEL ARE AT ROADBLOCK TO ACCOMPANY SAFETY INSPECTION TEAM TO PAD APRON AND 140 FT LEVEL	
	181	8	C1TC	CECS	SWITCH ECS FROM GN2 TO AIR PER V-36074 PART D, VERIFY HANDVALVE SECURING CREW AT ROADBLOCK TO FOLLOW SAFETY INSPECTION TEAM TO ECS ROOM,	
	181	9	C1TC	CHGD	SECURE HGD SYS PER V-37038	
	181	10	C1TC	C1PE	VENT S-IC GN2 BOTTLES TO 1500 PSI PER V-24327,	
	181	11	C1TC	C1NP	HEATER POWER SWITCH TO OFF	
	121	12	C2TC	CLTC	S-II INSULATION PERSONNEL ARE AT ROADBLOCK TO ACCOMPANY SAFETY INSPECTION TEAMS TO PAD APRON AND 140 FT LEVEL,	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
- 2 HRS 4[illegible]' 0"						
	121	13	C1TC	CLTC	ALL SYSTEMS ARE READY FOR SAFETY INSPECTION TEAMS TO ENTER THE PAD, LOX, LH2 AND ECS INITIAL SYSTEM SECURING CREWS ARE AT ROADBLOCK TO ACCOMPANY SAFETY INSPECTION TEAMS TO LUT, LOX & LH2 STORAGE AREAS AND ECS ROOM,	
	111	14	CLTC	CVTS	LV PROPELLANT DRAIN OPERATIONS ARE COMPLETE, LV IS READY FOR SAFETY INSPECTION TEAMS, INITIAL SYSTEM SECURING CREWS AND S-II INSULATION PERSONNEL TO ENTER THE PAD,	TCPI

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
▸ 2 HRS 40' 0"					NOTE ---- A SAFETY INSPECTION OF THE LAUNCH PAD AND INITIAL SYSTEM SECURING OF HAZARDOUS SYSTEMS WILL BE CONDUCTED AT THIS TIME, DESIGNATED LAUNCH VEHICLE PERSONNEL WILL ACCOMPANY THE SAFETY INSPECTION TEAMS TO THE LUT, LOX & LH2 STORAGE AREAS AND ECS ROOM BUT WILL BE PRECEDED BY THEM,	TCPI
					THE LUT AND PTCR MAY BE OPENED FOR STAGE ACCESS CREW ENTRY UPON CPSS VERIFICATION THAT:	
					1, THE S-II & S-IVB LH2 TANKS CONTAIN LESS THAN 4% GH2 BY SNIFFING PURGE GASES AT SAMPLE PORTS AT THE FILTERS ON FILL LINES,	
					2, THE LH2 TRANSFER LINE CONTAINS LESS THAN 4% GH2 BY SNIFFING PURGE GASES AT SAMPLE PORTS AT THE INLET TO VALVE SKIDS,	
					3, THE GN2 HANDVALVES HAVE BEEN CLOSED IN THE ECS ROOM,	
					THE LOX & LH2 STORAGE AREAS MAY BE OPENED FOR ACCESS WHEN CPSS INSPECTION OF EACH AREA IS COMPLETE.	
	111	15	CLTC	CVTS	REQUEST CPSS TO CLEAR BENDIX PERSONNEL TO FACILITY HIGH PRESSURE GH2 AREA TO SECURE AND VENT 6000 PSI GH2 TRANSFER LINE	TCPI

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+ 2 HRS 40' 0"						
	121	16	C1TC	CLTC	REQUEST SUPPORT PREPARE TO HAVE TWO 25 TON FORKLIFTS AND CABLES FOR ESP TRANSPORTER MOVE. FORKLIFTS SHOULD BE AT THE MSS ROAD BLOCK AT T+ 2 HRS 45 MIN AND READY TO PULL THE ESP TRANSPORTER AT THE START OF PAD OPENING,	
	261	17	CLTC	BOSC	REQUEST TWO 25 TON FORKLIFTS AND CABLES FOR ESP TRANSPORTER MOVE, FORKLIFTS SHOULD BE AT THE MSS ROAD BLOCK AT T+ 2 HRS 45 MIN AND READY TO PULL THE ESP TRANSPORTER AT THE BEGINNING OF PAD OPENING,	TCPI
	121	18	BOSC	CLTC	VERIFY S-IVB & S-II PERSONNEL ARE READY TO SUPPORT GH2 CROSS COUNTRY LINE SECURING WITH GHE,	TCPI
	151	19		CUTC	TERMINATE ALTERNATE FIRING ROOM SUPPORT	
	161	20	C1TC	CCLH	VERIFY WHEN SYSTEM INERTING TO LESS THAN 4% GH2 IS SATISFACTORY BY COORDINATING WITH SECURING CREW ON LUT WITH SAFETY INSPECTION TEAM	
+ 2 HRS 45' 0"						
	171	1	C2FC	C2TC	EAS POST DRAIN PROCEDURES ARE COMPLETE	
	171	2	C2TC	C2IP	GROUND POWER TO OFF,	
	171	3	C2GP	C2TC	GH2 CIRCUIT SCRUB PURGE COMPLETE,	
		4			**********CAUTION********** THE FOLLOWING TWO SEQUENCES ARE HAZARDOUS ******************************	
	181	5	C1TC	C1PE	AFTER RESIDUAL LOX HAS BOILED OFF AS INDICATED BY MEASUREMENTS C242-101 THRU -105 & HEATERS CYCLING, TURN OFF ENG, HEATERS, THERMAL CONDITIONING PURGE & HEATER POWER,	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+ 2 HRS 45' 0"						
	181	6	C1TC	C1PE	SECURE APPLICABLE PORTIONS OF S-IC PNEUMATICS SYS PER V-24327, REPORT WHEN COMPLETE.	
	121	7	C1TC	CLTC	ECS SWITCH OVER FROM GN2 TO AIR IS COMPLETE, ECS GN2 IS IN STANDBY CONFIGURATION.	
+ 3 HRS 0' 0"						
	171	1	C2TC	C2PV	SECURE PURGE AND VACUUM SYSTEM PER V-25311 (L009).	
		1-1			NOTE ---- IF REQUIRED, OPERATION WILL CONTINUE PER APPLICABLE SECTIONS OF V-26276 (G058).	
+ 3 HRS 30' 0"						
	121	1	CLTC	C1TC	SEND TSM PERSONNEL TO ZERO LEVEL FOR TSM 3-4 TILT BACK (IF MSS IS TO BE RETURNED TO PAD).	
	181	2	C1TC	CTS1	SEND TSM PERSONNEL TO ZERO LEVEL FOR INSTALLING TSM SAFETY CABLES, RIGGING TSM 3-4 FOR TILT BACK AND SECURING TSM SYSTEMS (IF MSS IS TO BE RETURNED TO PAD).	
+ 3 HRS 40' 0"						
	181	1	COLH	C1TC	SYSTEM INERTING HAS BEEN VERIFIED SATISFACTORILY ON THE LUT	
	181	2	CECS	C1TC	ECS GN2 HANDVALVES HAVE BEEN CLOSED * * * * * * * * * WARNING * * * * * * * * * * * END ECS INERT ATMOSPHERE HAZARD * - RESUME PREVIOUS HAZARD LEVEL *	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
▸ 3 HRS 40' 0"						
	121	3	C1TC	CLTC	ECS GN2 HANDVALVES ARE CLOSED AND LH2 SYSTEM INERTING ON THE LUT ACCEPTABLE FOR AREA OPENING	
	111	4	CLTC	CVTS	ECS GN2 HANDVALVES ARE CLOSED, LH2 SYSTEM INERTING ON THE LUT IS ACCEPTABLE FOR AREA OPENING,	TCPI
▸ 3 HRS 45' 0"						
	121	1	CVTS	CLTC	SAFETY INSPECTION IS COMPLETE, SPECIAL CONTROL AREA IS OPEN FOR REQUIRED PERSONNEL,	TCPI
	151	2	CUTC	CUCP	VENT ST-124M AIR BEARING SYSTEM PER V-34017, REPORT WHEN COMPLETE,	
	151	3	CUTC	CUCP	PUMP PRESSURE SWITCH ACTIVATE OFF THEN AUTO	
	121	4	CLTC	C1TC C2TC C4TC CUTC	SPECIAL CONTROL AREA IS OPEN FOR REQUIRED PERSONNEL,	
	121	5	BUSC	CLTC	25 TON FORKLIFTS & CABLES AT PAD GATE FOR MOVE OF ESP TO ML,	TCPI
	188	6	CLTC	ALL	ALL PERSONNEL TURN TO: (APPENDIX F FOR DRY CDDT OPERATIONS) (VOLUME III FOR LAUNCH VEHICLE SCRUB TO LAUNCH TURNAROUND OPERATIONS)	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					PART 3 S-II PREPARATIONS FOR PROPELLANT DRAIN	
	171	1	C2TC	C2SP	GN PURGE VALVE TO AUTO,	
	171	2	C2TC	C2SP	LH SUPPLY VALVE TO AUTO,	
	171	3	C2TC	C2GP	GH SUPPLY VALVE TO CLOSE,	
	171	4	C2TC	C2GP	START TANK LINE VENT TO OPEN FOR APPROX 10 SECONDS THEN CLOSE,	
	171	5	C2TC	C2GP	GH REG VENTS TO OPEN,	
	171	6	C2TC	C2GP	HE PRESS SEL SW TO 1000 PSIG,	
	171	7	C2TC	C2AE	VERIFY ENGINE PURGES COMPLETE,	
	171	8	C2TC	C2AE	USE ALL HE SOLENOID SWITCH TO VENT ENG HE BOTTLES BELOW 25 PSIA,	
		8-1		C2PU R2SC	*** NOTE MESAUREMENTS G006-201 THROUGH 205 WILL BE ACTIVE,	
	171	9	C2TC	C2RP	PNEU SUPPLY VALVE TO OFF,	
	171	10	C2TC	C2RP	LOX HE INJECTION TO START, THEN AUTO, WHEN RECEIVER PRESS APPROX, 1465 PSIA, HE INJECTION TO STOP, THEN AUTO,	
		10-1		C2SP	*** NOTE LOX HE INJECTION RECEIVER BEING VENTED INTO LOX TANK,	
	171	11	C2TC	C2RP	USE RECIRC ACT SYSTEM VENT SWITCH TO VENT RECIRC RECEIVER TO APPROX, 1465 PSIA,	
	171	12	C2TC	C2AE	START TANK SUPPLY LINE VENT TO OFF,	
	171	13	C2TC	C2AE	VERIFY HE BOTTLE PRESSURES BELOW 25 PSIA,	
	171	14	C2TC	C2AE	VERIFY START TANK PRESSURES BELOW 25 PSIA,	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
	171	15	C2TC	C2AE	ALL ENG EMERGENCY CUTOFF TO AUTO.	
	171	16	C2TC	C2RP	VERIFY LOX HE INJECTION RECEIVER PRESSURE APPROX. 1465 PSIA.	
	171	17	C2TC	C2RP	VERIFY RECIRC RECVR PRESS APPROX. 1465 PSIA.	
	171	18	C2TC	C2RP	PNEUM. SUPPLY VALVE TO PRESSURIZE.	
	171	19	C2TC	C2GP C2PV C2PM C2SP	VERIFY READY FOR PROPELLANT DRAIN.	
	171	20	C2TC	C2PV	MAINTAIN COMMON BULKHEAD VACUUM FOR PROPELLANT DRAIN.	
	121	21	C2TC	CLTC	S-II READY FOR PROPELLANT DRAIN.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					PART 4 LV PREPS FOR COMPUTER DOWN DRAIN	
	121	1	CLTC	CUNP	ISSUE STAGE LOGIC RESET,	
	121	2	CLTC	CLVN	VERIFY/PLACE ML DCE TO MANUAL MODE	
	121	3	CLTC	CLVN	ISSUE THE FOLLOWING MDOS ON OR OFF SIMULTANEOUSLY BY SETTING UP THE DCE BIT PATTERN DEFINED FOR EACH GROUP (ANNOUNCE OVER OIS CH 121 AS EACH GROUP IS ISSUED) PER V-31008,	
		3-1		ALL	*** NOTE ALL PANEL OPERATORS POSITION SWITCHES TO POSITION INDICATED IN PARENTHESIS AFTER THE GROUP IS ISSUED	
	121	3-2		CLVN	GRP 1 - MUX 22, ADDRESS 19, DATA BIT 3 UP, 4 UP, 19 UP, 22 UP, 1467 OFF (S-IC TM CAL POWER OFF) 1468 OFF (S-IC 400 HZ POWER OFF) 1483 OFF (S-IC F1-RF OFF) 1486 OFF (S-IC P1-RF OFF)	
	121	3-3		CLVN	GRP 2 - MUX 22, ADDRESS 20, DATA BIT 2 UP, 1490 OFF (S-IC 28V RACS POWER OFF)	
	121	3-4		CLVN	GRP 3 - MUX NONE, ADDRESS 9, DATA BIT 0 DN, 10 DN, 20 DN, 0216 ON (TSM 1-2 UMB RELEASE SIM VALVE CLOSE) 0226 ON (TSM 3-2 UMB RELEASE SIM VALVE CLOSE) 0236 ON (TSM 3-4 UMB RELEASE SIM VALVE CLOSE)	
	121	3-5		CLVN	GRP 4 - MUX 22, ADDRESS 5, DATA BIT 4 UP, 1132 OFF (C2RP-RECIRC RECEIVER SUPPLY VALVE TO OFF)	
	121	3-6		CLVN	GRP 5 - MUX 22, ADDRESS 2, DATA BIT 17 UP, 1073 OFF (C2GP-HE SELECT TO 1000 PSI)	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
	121	3-7		CLVN	GRP 6 - MUX 21, ADDRESS 2, DATA BIT 16 DN, 0568 ON (C2RP LOX HE INJ START)	
	121	3-8		CLVN	GRP 7 - MUX 22, ADDRESS 10, DATA BIT 14 UP, 11 UP, 9 UP, 6 DN 1262 OFF (C2IP F1-RF OFF) 1259 OFF (C2IP F2-RF OFF) 1257 OFF (C2IP P1-RF OFF) 1254 ON (C2FC MAIN PUMP BYPASS VALVE OPEN)	
	121	3-9		CLVN	GRP 8 - MUX 21, ADDRESS 7, DATA BIT 19 DN, 0691 ON (CCS TRANSPONDER OFF)	
	121	3-10		CLVN	GRP 9 - MUX 21, 22, ADDRESS 13, DATA BIT 18 UP, 19 UP, 22 UP, 23 UP, 1842 OFF (IU TM CAL POWER OFF) 1843 OFF (IU F1-RF OFF) 1846 OFF (IU P1-RF OFF) 1847 OFF (IU F1-TM OFF)	
	121	3-11		CLVN	GRP 10 - MUX 21, 22, ADDRESS 14, DATA BIT 4 UP, 6 UP 1852 OFF (C-BAND BEACON #1 OFF) 1854 OFF (COMMAND DECODER OFF)	
	121	3-12		CLVN	GRP 11 - MUX 21, 22, ADDRESS 16, DATA BIT 12 UP, 16 UP, 1908 OFF (Q-BALL HEATERS OFF) 1912 OFF (C-BAND BEACON #2 OFF)	
	121	3-13		CLVN	GRP 12 - MUX NONE, ADDRESS 18, DATA BIT 17 UP, 0449 OFF (ML/DRSCS/GSE POWER OFF)	
	121	4	CLTC	C2AE	USE ALL HELIUM SOLENOID SWITCH TO VENT ENG HE BOTTLES BELOW 25 PSIA.	
		4-1		C2PU R2SC	*** NOTE MEASUREMENTS G006-20- THROUGH 205 WILL BE ACTIVE.	
	121	5	CLTC	CUNP	SWITCH SELECTOR INHIBIT OFF.	
	121	6	CLTC	CUSW	ISSUE IU OCTAL 054 (C-BAND INHIBIT #1 & #2 OFF)	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
	111	7	CLTC	CVTS	ALL LV RF SYSTEMS ARE OFF EXCEPT S-IVB P1 258.5 MHZ LINK,	TCPI
	121	8	CLTC	BRFS	LCC GSE POWER OFF AND SECURE PER V-38000 SCRUB/RECYCLE PROCEDURE,	
	121	9	CLTC	CUNP	SWITCH SELECTOR INHIBIT ON	
	121	10	CLTC	CUPC	POWER DOWN ST-124M PER V-33011	
	121	11	CLTC	CUSP	FLIGHT CONTROL COMPUTER POWER SWITCH - OFF,	
	121	12	CLTC	CUGA	CONTROL EDS RATE GYRO POWER SWITCH - OFF	
	121	13	CLTC	CLGK	ON-AUTO-OFF SWITCH TO OFF	
	121	14	CLTC	CUDE	VERIFY HALT (728) AND MEMORY RELEASE (730) ARE ON	
	121	15	CLTC	CTS1	DISARM UMBILICAL SWITCH	
	121	16	CLTC	C2GP	GH SUPPLY VALVE TO CLOSE	
	121	17	CLTC	C2GP	START TANK LINE VENT TO OPEN	
	121	18	CLTC	C2RP	USE RECIRC ACTUATION SYSTEM VENT SWITCH TO VENT PNEUMATIC RECEIVER TO 1465 PSIA,	
		18-1		C2AE	*** NOTE HE BOTTLE PRESS BELOW 25 PSIA	
		18-2		C2AE	*** NOTE START TANK PRESS BELOW 25 PSIA	
		18-3		C2RP	*** NOTE HE INJ RECVR PRESS APPROX 0 PSIA	
		18-4		C2RP	*** NOTE RECIRC RECVR PRESS APPROX 1465 PSIA	
	121	19	CLTC	C2PV	MAINTAIN COMMON BULKHEAD VACUUM FOR PROPELLANT DRAIN	
	121	20	CLTC	C1TC C2TC C4TC	VERIFY READY TO START PROPELLANT DRAIN,	
	121	21	CLTC	C1TC	START PROPELLANT DRAIN, PER APPENDIX C, PART 2, PAGE 379	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS

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TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					S-IVB DRAIN PREPS - COMPUTER DOWN	
	121	1	CLTC	C4TC	IDENTIFY THE FOLLOWING STEPS REQUIRED FOR DRAIN PREPS:	
	121	2	CLTC	CLVN	ISSUE THE FOLLOWING MDOIS ON OR OFF SIMULTANEOUSLY BY SETTING UP THE DCE BIT PATTERN DEFINED FOR EACH GROUP (ANNOUNCE OVER OIS CH 121 AS EACH GROUP IS ISSUED) PER V-31008,	
	121	2-1		CLVN	GRP 1 - MUX 21, ADDRESS 3, DATA BIT 3 UP, 7 UP, 579 OFF (LH TANK VENT OPEN OFF) 583 OFF (LOX TANK VENT OPEN OFF)	
	121	2-2		CLVN	GRP 2 - MUX 21, 22, ADDRESS 1, DATA BIT 15 UP, 1551 OFF (CIRCUIT NO, 2 SUPPLY OPEN OFF)	
	121	2-3		CLVN	GRP 3 - MUX 21, 22, ADDRESS 3, DATA BIT 14 UP, 19 UP, 1598 OFF (CONT & REPRESS SUPPLY OPEN OFF) 1603 OFF (COLD HELIUM SUPPLY OPEN OFF)	
	121	2-4		CLVN	GRP 4 - MUX 21, 22, ADDRESS 5, DATA BIT 20 UP, 1652 OFF (APS ENG VALVE POWER OFF)	
	121	2-5		CLVN	GRP 5 - MUX 21, 22, ADDRESS 6, DATA BIT 5 UP, 14 UP, 15 UP, 16 UP, 1661 OFF (APS 3000 HE SUPPLY OPEN OFF) 1670 OFF (DOME CROSSOVER OPEN OFF) 1671 OFF (CIRCUIT NO, 3 SUPPLY OPEN OFF) 1672 OFF (750 HELIUM SUPPLY OPEN OFF)	
	121	2-6		CLVN	GRP 6 - MUX 21, 22, ADDRESS 8, DATA BIT 7 UP, 8 UP, 12 UP, 14 UP, 1711 OFF (ENGINE CONTROL POWER OFF) 1712 OFF (ENGINE IGNITION POWER OFF) 1716 OFF (START TANK VENT OPEN OFF) 1718 OFF (START TANK SUPPLY VENT OPEN OFF)	
	121	2-7		CLVN	GRP 7 - MUX 21, 22, ADDRESS 10, DATA BIT 16 UP, 1768 OFF (START TANK EMERGENCY VENT OPEN OFF)	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
	121	2-8		CLVN	GRP 8 - MUX 21, 22, ADDRESS 3, DATA BIT 21 DN, 1605 ON (COLD HELIUM CROSSOVER OPEN)	
	121	3	CLTC	CUSW	ISSUE S-IVB OCTAL 162 (S/S CUTOFF OFF),	
	121	4	CLTC	C4BE	VERIFY DEE 1930 ON (LH LATCHING RELIEF CLOSED),	
	121	4-1	CLTC	CLVN	IF NOT ON --------- ISSUE GRP 9 - MUX 21, 22, ADDRESS 8, DATA BIT 16 DN 1720 ON (LH LATCH RELIEF VALVE OPEN ON),	
	121	5	CLTC	CLVN	ISSUE GRP 10 - MUX 21, 22, ADDRESS 8, DATA BIT 16 UP, 1720 OFF (LH LATCH RELIEF VALVE OPEN OFF)	
		5-1		C4DE	VERIFY DEE 1930 ON,	
	121	6	CLTC	C4DE	VERIFY DEE 1676 ON (LOX NPV FULL CLOSE),	
	121	6-1	CLTC	CUSW	IF NOT ON --------- ISSUE S-IVB OCTAL 114 (LOX TANK NPV OPEN ON), ISSUE S-IVB OCTAL 165 (LOX TANK NPV OPEN OFF),	
		7		C4DE	VERIFY DEE 1676 ON,	
	121	8	CLTC	C4TC	CONTINUE S-IVB DRAIN PREPS PER V-30539,	