JOHN F. KENNEDY
SPACE CENTER

K-V-0513-2

TCP NO. SV-40300 Vol II
DATE MARCH 15, 1972
REVISION 003
EFFECTIVITY APOLLO 16

f. 4

APOLLO/SATURN V SPACE VEHICLE COUNTDOWN

VOL II OF II

(TURNAROUND FROM SCRUB)

RELEASED
FOR AS-511
AND SUBS

THIS TCP CONTAINS HAZARDOUS OPERATIONS

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APOLLO/SATURN V SPACE VEHICLE COUNTDOWN

VOL II OF II

(TURNAROUND FROM SCRUB)

APPROVAL:

W. J. KAPRYAN
DIRECTOR OF LAUNCH OPERATIONS

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VOL II OF II

(TURNAROUND FROM SCRUB)

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TABLE OF CONTENTS

PART III

LIST OF EFFECTIVE PAGES

TOTAL NUMBER OF PAGES IN THIS DOCUMENT IS 135 CONSISTING OF THE FOLLOWING:

PAGE NUMBER	ISSUE
i THRU ii	003
1 THRU 133	003

REVISION RECORD PAGE

REVISION	REASON/SUPPORTING DOCUMENTATION
ORIGINAL	RELEASED FOR AS-507 AS VOL. II OF THE SV COUNTDOWN TCP V-40300 REPLACING TCP V-40302. (DATED OCTOBER 27, 1969)
001	COMPLETE REVISION RELEASED FOR AS-509 AND SUBS, DATED DECEMBER 18, 1971
002	COMPLETE REVISION RELEASED FOR AS-510 AND SUBS, DATED JUNE 18, 1971.
003	COMPLETE REVISION RELEASED FOR AS-511 AND SUBS.

TEST OUTLINE

SPACE VEHICLE TURNAROUND FROM SCRUB

TEST OBJECTIVES

A. TO PREPARE THE SPACE VEHICLE FOR A SUBSEQUENT LAUNCH ATTEMPT IF A SCRUB OCCURS AFTER THE START OF LV CRYOGENIC LOADING BUT PRIOR TO INITIATION OF LV IGNITION SEQUENCES.

B. TO PROVIDE THE SEQUENCE OF OPERATIONS NECESSARY TO RETURN THE SPACE VEHICLE TO A PRE-DETERMINED CONFIGURATION AT WHICH TIME THE LAUNCH COUNT CAN BE RESUMED OR RESCHEDULED FOR FOLLOWING LAUNCH OPPORTUNITIES.

TEST DESCRIPTION/EQUIPMENT STATUS

1. PREREQUISITES

ALL SAFING OPERATIONS NECESSARY TO BRING ORDNANCE, PROPELLANT FLOW AND TANK AND VESSEL PRESSURES TO A SAFE CONDITION WILL BE ACCOMPLISHED PRIOR TO USE OF THIS PROCEDURE. THE RESULTING SPACE VEHICLE AND GSE CONFIGURATION WILL BE VERIFIED AS SAFE AND CORRECT FOR THE PERFORMANCE OF TURNAROUND OPERATIONS. ALL PERSONNEL WILL BE BRIEFED PRIOR TO THE START OF THE OPERATION AS TO THE SPECIFIC HAZARDS INVOLVED AND THE PROPER MODE OF OPERATIONS FOR EACH HAZARD PERIOD.

2. SAFETY

THIS TEST IS CONSIDERED TO BE HAZARDOUS. STRICT ADHERENCE TO ALL APPLICABLE NASA/CONTRACTOR SAFETY OPERATING PROCEDURES WILL BE IN EFFECT DURING THE OPERATION. THE FOLLOWING TEST OPERATIONS AND CONDITIONS HAVE BEEN IDENTIFIED AS HAZARDOUS.

A. CSM LH2 SERVICING.

B. CSM LO2 SERVICING.

C. LAUNCH VEHICLE LH2 DRAIN.

D. LAUNCH VEHICLE LO2 DRAIN.

E. LAUNCH SRA DEVICE DISCONNECT.

F. RP-1 WILL BE ONBOARD.

G. SPACE VEHICLE HYPERGOLICS WILL BE ONBOARD.

H. LM SHE SERVICING.

I. ALSEP FCA ONBOARD.

CONSIDERATIONS AND CONSTRAINTS

1.0 GENERAL

SCRUB/TURNAROUND TIMES ARE BASED UPON THE AMOUNT OF WORK REQUIRED TO COMPLETE THE RECYCLE ACTIVITIES NECESSARY TO RESUME LAUNCH COUNTDOWN FOR A SUBSEQUENT LAUNCH ATTEMPT. THE CONSIDERATIONS AND CONSTRAINTS THAT ARE THE BASIS FOR SCRUB/TURNAROUND TIMES ARE

2.0 LAUNCH VEHICLE

2.0.1 LV S&A UNITS.

SAFE AND ARM (S&A) UNITS ARE CONNECTED IN THE LV AT T-11 HOURS, 45' 0" OF THE COUNTDOWN. PRIOR TO INSTALLATION, THE UNITS ARE CERTIFIED IN THE PYROTECHNICS AND EXPLOSIVE AREA. THIS QUALITY ASSURANCE CHECK IS VALID FOR A PERIOD OF SEVEN (7) DAYS PRIOR TO THE SCHEDULED LAUNCH DAY AND IS EXTENDED TO THIRTEEN (13) DAYS IF A "SCRUB-TO-LAUNCH TURNAROUND" OCCURS. THE S&A UNITS ARE LOCATED INTERNAL TO THE LV AND ACCESS IS REQUIRED FROM THE SERVICE ARMS (SA). IF ENTRY INTO THE LV IS NOT REQUIRED DURING TURNAROUND OPERATIONS, THE LV S&A UNITS NEED NOT BE DISCONNECTED. IF THE S&A COMPARTMENT IS ENTERED DURING THE TURNAROUND PERIOD, A VISUAL INSPECTION OF PROPELLANT DISPERSION SYSTEM S&A'S FOR PHYSICAL DAMAGE OR DETERIORATION MUST BE CONDUCTED. THIS INSPECTION MUST BE CONDUCTED BY A QUALIFIED ORDNANCE PERSONNEL JUST PRIOR TO COMPARTMENT CLOSEOUT.

2.0.2 LV FLIGHT BATTERIES.

THE LV FLIGHT BATTERIES HAVE A MAXIMUM GUARANTEED LIFETIME OF 120 HOURS OF LAPSED GROUND TIME AFTER THEY ARE ACTIVATED. THE BATTERIES ARE ACTIVATED APPROXIMATELY 28 1/2 HOURS PRIOR TO INSTALLATION AND INSTALLED AT APPROXIMATELY T-1 DAY, 3 HOURS, 30' 0" IN THE COUNTDOWN. IF THE 120-HOUR ACTIVATED LIFETIME OF THE BATTERIES IS EXPECTED TO BE EXCEEDED, THE BATTERIES WILL BE REMOVED AND NEW BATTERIES WILL BE INSTALLED DURING TURNAROUND. IF THE TURNAROUND CAN BE ACCOMPLISHED WITHIN THE BATTERY LIFETIME WITH SUFFICIENT TIME REMAINING FOR THE PLANNED LV MISSION, THE BATTERIES WILL NOT HAVE TO BE CHANGED. LV BATTERY INSTALLATION AND REMOVAL ARE ACCOMPLSIHED THROUGH ENTRY INTO THE LV FROM THE SA.

2.1 S-IC STAGE

2.1.1 F-1 ENGINE DRAIN.

THE F-1 ENGINE DRAIN IS A CONSIDERATION FOR THE S-IC. IF REQUIRED TURNAROUND TIME IS SHORT ENOUGH TO MAINTAIN CONTINUOUS OPERATION OF THE GROUND HYDRAULIC SUPPLY, THEN F-1 ENGINE DRAIN WILL NOT HAVE TO BE PERFORMED. PERFORMANCE OF THIS TASK REQUIRES INSTALLATION OF THE ENGINE SERVICE PLATFORM (ESP).

2.1.2 RP-1 REPLENISH.

RP-1 REPLENISH CAN BE ACCOMPLISHED REMOTELY THRU THE TAIL SERVICE MAST DURING THE TIME PERIOD WHEN LV CRYOGENIC TANKS ARE PURGED AND SAFETY INSPECTION STARTS.

2.2 S-II STAGE

2.2.1 INSULATION INSPECTION.

DUE TO EXTREME THERMAL CONDITIONS, THE EXTERNAL INSULATION OF THE S-II STAGE MUST BE INSPECTED AFTER EACH CRYOGENIC LOADING OF THE STAGE. THIS TASK WILL REQUIRE THE USE OF THE MSS.

2.2.2 FEEDLINE CHECKS.

LIQUID OXYGEN (LOX) AND LIQUID HYDROGEN (LH2) FEEDLINE CHECKS WILL BE REQUIRED AFTER S-II CRYOGENIC DETANKING. THESE CHECKS WILL REQUIRE ENTRY INTO THE S-II STAGE.

2.2.3 SERVOACTUATORS.

A VISUAL INSPECTION OF THE SERVOACTUATORS FOR CRACKS IS REQUIRED WITHIN 78 HOURS OF LAUNCH. THIS TASK IS PERFORMED AT APPROXIMATELY T-2 DAYS IN THE ORIGINAL COUNTDOWN. IF SCRUB OCCURS AFTER THE TASK HAS BEEN PERFORMED IN THE CD, THERE WILL PROBABLY BE INSUFFICIENT TIME TO EFFECT TURNAROUND OPERATIONS WITHIN THE TASK PERFORMANCE CONSTRAINT. THEREFORE, CONSIDERATION MUST BE GIVEN FOR TASK PERFORMANCE. THIS TASK WILL REQUIRE ENTRY INTO THE S-II STAGE.

2.2.4 PU CALIBRATION.

THE S-II PROPELLANT UTILIZATION (PU) SYSTEM CALIBRATIONS ARE PERFORMED AT APPROXIMATELY T-4 DAYS IN THE ORIGINAL COUNTDOWN. CONSIDERATION MUST BE GIVEN TO PERFORMING THIS TASK IF TURNAROUND OPERATIONS SHOULD EXTEND 10 DAYS PAST THE ORIGINAL CALIBRATIONS. THIS TASK CAN BE PERFORMED REMOTELY.

2.2.5 J-2 ENGINE SEQUENCE CHECKS.

THIS TASK REQUIRES PERFORMANCE WITHIN 72 HOURS OF LAUNCH AND IS PERFORMED AT APPROXIMATELY T-15 HOURS, 0' 0" IN THE ORIGINAL COUNTDOWN. IF SCRUB OCCURS AFTER THE ORIGINAL TASK PERFORMANCE, THEN A TURNAROUND OF 2 DAYS DURATION, OR LONGER, WILL REQUIRE THAT CONSIDERATION BE GIVEN TO TASK PERFORMANCE DURING RECYCLE OPERATIONS. THIS TASK CAN BE PERFORMED REMOTELY.

2.2.6 ENGINE COMPARTMENT PURGE MANIFOLD.

IN THE EVENT OF TWO OR MORE SCRUBS, CONSIDERATION MUST BE GIVEN TO PERFORMING THE REQUIRED INSPECTIONS BY ENTRY INTO THE S-II STAGE FOR THE FOLLOWING

1. TEARS
2. BOND SEPARATION
3. PERMANENT DISTORTION
4. SUPPORT STRAP FAILURES

2.3 S-IVB STAGE

2.3.1 PU CALIBRATION.

THE PU CALIBRATION IS A CONSIDERATION FOR THE S-IVB STAGE. PERFORMANCE OF THIS TASK WILL BE REQUIRED EACH TIME THE SYSTEM HAS BEEN EXPOSED TO CRYOGENICS. TASK PERFORMANCE CAN BE ACCOMPLISHED REMOTELY.

2.3.2 APS HYPERGOLIC PROPELLANTS.

THE APS HYPERGOLIC PROPELLANTS REQUIRE REPLACEMENT EVERY 90 DAYS.

2.4 INSTRUMENT UNIT

2.4.1 IU AIR ENTRAINMENT CHECK.

THIS TASK DOES NOT BECOME A CONSTRAINT REQUIRING PERFORMANCE UNLESS THE THERMAL CONDITIONING SUBSYSTEM HAS 230 ACCUMULATED HOURS OF OPERATION, OR 30 CALENDAR DAYS OF OPERATION PRIOR TO LAUNCH. TASK PERFORMANCE WILL REQUIRE S-IVB/IU POWER-DOWN AND ENTRY INTO THE VEHICLE.

2.4.2 IU SUBLIMATOR COVER INSTALLATION.

THIS TASK IS REQUIRED ONLY IF IU ENTRY IS REQUIRED FOR LM SHE SERVICING OPERATIONS.

3.0 LUNAR MODULE

3.0.1 LM SHE RESERVICING.

RESERVICING OF THE LM SUPERCRITICAL HELIUM (SHE) DURING RECYCLE WILL REQUIRE CONSIDERATION AT EACH SCRUB OCCURRENCE. LM CAPABILITY TO HOLD WITHOUT SHE RESERVICING IS DEPENDENT UPON SPECIFIC MISSION REDLINE REQUIREMENTS AND THE POINT OF SCRUB OCCURRENCE IN THE CD. TASK PERFORMANCE WOULD REQUIRE MOBILE SERVICE STRUCTURE (MSS) PLATFORM 3 AND ENTRY INTO SPACECRAFT-LM ADAPTOR (SLA) THROUGH THE IU SA DOOR.

3.0.2 LM BATTERIES.

THE LM ELECTRICAL POWER SUBSYSTEMS (EPS'S) AND ELECTRICAL DEVICES (ED'S) BATTERIES HAVE RESPECTIVE MAXIMUM GUARANTEED LIFETIMES OF 30 AND 24 DAYS. THE EPS BATTERIES ARE ACTIVATED APPROXIMATELY 15 DAYS PRIOR TO LAUNCH AND THE ED BATTERIES ARE ACTIVATED APPROXIMATELY 9 DAYS PRIOR TO LAUNCH. THIS LEAVES 15 DAYS OF GUARANTEED EPS AND ED BATTERY LIFE AVAILABLE FOR THE MISSION AND THE TURNAROUND OPERATIONS. ALSD, PLSS, AND LCRU BATTERIES HAVE LIFETIMES OF 20, 17, AND 21 DAYS. THESE BATTERIES ARE ACTIVATED NO EARLIER THAN 8 DAYS PRIOR TO THE FIRST LAUNCH OPPORTUNITY AND ARE STOWED DURING THE MESA STOWAGE AND CLOSEOUT. SPECIFIC MISSION REQUIREMENTS WILL DETERMINE THE AMOUNT OF GUARANTEED BATTERY LIFE AVAILABLE FOR SCRUB/TURNAROUND OPERATIONS BEFORE THE LM BATTERIES BECOME A CONSTRAINT. TASK PERFORMANCE WOULD REQUIRE ENTRY INTO THE SLA THROUGH THE IU SA DOOR.

3.0.3 LM WATER SYSTEM.

A SAMPLING FROM THE LM WATER SYSTEM MAY BE REQUIRED IF TURNAROUND OPERATIONS EXCEED SPECIFIED TIME LIMITS. THE WATER SAMPLE IS TAKEN FROM THE DESCENT STAGE FILL PORT AND DOES NOT REQUIRE ACCESS INTO THE CABIN. THE WATER SAMPLE RESULTS WILL DETERMINE IF RESERVICING OF THE LM WATER SYSTEM IS REQUIRED. TASK PERFORMANCE WOULD REQUIRE ENTRY INTO THE SLA THROUGH THE IU SA DOOR.

3.0.4 LM HYPERGOLIC SYSTEMS.

THE 75-DAY MAXIMUM EXPOSURE OF LM HYPERGOLIC SYSTEMS TO HYPERGOLIC PROPELLANTS IS NOT A SIGNIFICANT CONSTRAINT TO THE IMPLEMENTATION OF TURNAROUND. HOWEVER, AN EXTENDED PERIOD BETWEEN HYPERGOLIC LOADING AND THE FINAL COUNTDOWN WOULD REQUIRE CONSIDERATION. TASK PERFORMANCE WOULD REQUIRE MSS PLATFORMS 3 AND ENTRY INTO THE SLA THROUGH THE IU SA DOOR.

3.0.5 ALSEP.

THE FCA ALSEP WILL NOT REQUIRE REMOVAL UNLESS LAUNCH ATTEMPTS ARE SEPARATED BY 28 DAYS. REMOVAL ALLOWS OPENING OF RADIATION CONTROL AREAS.

4.0 COMMAND SERVICE MODULE

4.0.1 CSM HYPERGOLIC SYSTEMS.

THE 110-DAY MAXIMUM EXPOSURE OF CSM HYPERGOLIC SYSTEMS TO HYPERGOLIC PROPELLANTS IS NOT A SIGNIFICANT CONSTRAINT TO THE IMPLEMENTATION OF TURNAROUND. HOWEVER, AN EXTENDED PERIOD BETWEEN HYPERGOLIC LOADING AND THE FINAL COUNTDOWN WOULD REQUIRE CONSIDERATION. TASK ACCOMPLISHMENT COULD REQUIRE MSS PLATFORM 4 AND THE CSM SA.

4.0.2 CSM CRYOGENICS.

THE CAPABILITY OF HOLDING WITHOUT RESERVICING CSM CRYOGENICS IS DEPENDENT ON THE LENGTH OF TIME THE CSM HAS BEEN OPERATING AT HIGH INTERNAL ELECTRICAL POWER LOADS AND THE LENGTH OF HOLDS CALLED PRIOR TO THE TIME OF SCRUB. IT IS NECESSARY TO EVALUATE THE QUANTITY OF CRYOGENICS REMAINING IN THE CSM TANKS AT THE TIME OF EACH SCRUB TO DETERMINE IF RESERVICING IS REQUIRED TO MEET SPECIFIC MISSION REDLINE REQUIREMENTS. TASK PERFORMANCE WOULD REQUIRE MSS PLATFORM 4 AND THE CSM SA.

4.0.3 CSM BATTERIES.

THE CSM BATTERIES WILL REQUIRE CONSIDERATION AFTER EACH SCRUB. IF THE AMPERE-HOUR USAGE AFTER AN ACCEPTABLE RECHARGE HAS EXCEEDED THE DESIRED LIMITS NECESSARY TO ACHIEVE MISSION REDLINE REQUIREMENT, THEN THE BATTERIES MUST BE CHANGED. TASK PERFORMANCE IS ACCOMPLISHED WITH THE CSM SA.

5.0 CRYOGENIC STORAGE TANKS

CRYOGENIC PROPELLANT STORAGE TANKS REPLENISHMENT IS REQUIRED DURING TURNAROUND IF THE LV TANKS HAVE BEEN LOADED DURING THE CD AND SUBSEQUENTLY DRAINED. THE LOX STORAGE TANKS CAN BE FILLED TO THE "MINIMUM" QUANTITY (750,000 GALLONS) IN 7.0 HOURS AND COMPLETELY FILLED (900,000 GALLONS) IN 28.5 HOURS. THE LH2 STORAGE TANK CAN BE FILLED TO THE "MINIMUM" QUANTITY (650,000 GALLONS) IN 4.0 HOURS AND COMPLETELY FILLED (900,000 GALLONS) IN 20.0 HOURS. THESE MINIMUM QUANTITIES ARE BASED ON THE ASSUMPTION THAT THERE WERE NO HOLDS IN THE COUNTDOWN AFTER THE START OF LV CRYOGENIC TANKING. MINIMUM QUANTITY IS THAT AMOUNT REQUIRED TO RELOAD THE LV TANKS AND REPLENISH THROUGH THE CD PLUS HOLD THROUGH THE DURATION OF THE LAUNCH WINDOW.

6.0 MOBILE SERVICE STRUCTURE

CONSIDERATION MUST BE GIVEN TO THE 1-HOUR DIFFERENCE IN TIME REQUIRED TO MOVE THE MSS FROM THE PARKSITE TO PAD A OR PAD B.

APOLLO 16 CAPABILITY TO SUPPORT LAUNCH OPPORTUNITIES

FIRST MONTH LAUNCH OPPORTUNITY

ONE LAUNCH DAY, APRIL 16, 1972, IS AVAILABLE FOR THE FIRST MONTH LAUNCH OPPORTUNITY. SHOULD THE FIRST MONTH OPPORTUNITY BE SCRUBBED, A TURNAROUND TO THE NEXT MONTH WILL BE INITIATED.

SECOND AND THIRD MONTH LAUNCH OPPORTUNITIES

THREE (3) LAUNCH DAYS ARE AVAILABLE THE SECOND AND THIRD MONTH. THE CSM CRYOGENIC LOAD WILL SUPPORT ALL THREE (3) DAYS WITH NOMINAL ON-PAD USAGE. THE LM SHE LOAD WILL PROBABLY NOT SUPPORT ALL THREE (3) LAUNCH DAYS WITHOUT RESERVICING DUE TO THE TANK PRESSURE RISE EXCEEDING THE MAXIMUM ALLOWABLE AT THE TIME OF LAUNCH, ASSUMING THIS CONDITION EXISTS, THE FOLLOWING CONSIDERATIONS APPLY

(1) TO PERMIT LAUNCH ATTEMPTS ON THE REMAINING TWO (2) DAYS, THE FIRST DAY COUNTDOWN MUST BE SCRUBBED PRIOR TO T-22 HOURS OF THE COUNTDOWN. THIS RETAINS THE LM SHE GSE LOADING CAPABILITY TO TOP-OFF AT T-22 HOURS IN COUNTDOWN FOR THE SECOND DAY LAUNCH ATTEMPT. A ONE-DAY TURNAROUND IS THEN POSSIBLE SHOULD THE SECOND DAY LAUNCH ATTEMPT BE SCRUBBED.

(2) IF THE FIRST COUNTDOWN PROCEEDS PAST T-22 HOURS AND THE SCRUB OCCURS AS LATE AS T-8.9 SECONDS A DECISION TO LAUNCH ON THE SECOND OR THIRD DAY MAY BE MADE. IF A SCRUB/TURNAROUND TO THE SECOND DAY IS INITIATED, THE OPTION TO LAUNCH ON THE THIRD DAY REMAINS OPEN UNTIL APPROXIMATELY T+13 HOURS. CERTAIN CONDITIONS, HOWEVER, MUST EXIST. THESE CONDITIONS REQUIRE A DELAY IN THE MOVEMENT OF THE MSS TO THE PARK SITE AND THE SCRUB/TURNAROUND PLAN FOR RESERVICING THE LM SHE MUST START AT T+12 HOURS AS IF THE NEXT LAUNCH ATTEMPT IS ON THE THIRD DAY. AT T+13 HOURS THE LM SHE RESERVICING PREPARATIONS CAN BE DISCONTINUED AND A LAUNCH ATTEMPT ON THE SECOND DAY CONTINUED. THE THIRD DAY LAUNCH ATTEMPT IS THEN NO LONGER POSSIBLE.

SCRUB/TURNAROUND OPERATIONS

1.0 GENERAL

SCRUB TURNAROUND TIME IS PREDICTED BASED ON THE AMOUNT OF WORK REQUIRED TO RETURN THE SPACE VEHICLE TO A SAFE CONDITION AND ACCOMPLISH THE NECESSARY RETESTING IN PREPARATION FOR A SUBSEQUENT LAUNCH ATTEMPT. THE TURNAROUND ACTIVITIES ARE ESTABLISHED ON A BASIS OF A NORMAL CD ATTEMPT FOLLOWED BY A SCRUB.

THIS PROCEDURE DOES NOT PROVIDE SERIAL TIME FOR REPAIR, HOLDS, OR SYSTEM RETESTING RESULTING FROM REPAIRS. AT THE TIME OF THE SCRUB, OPERATIONS REQUIRED IN ADDITION TO THOSE CONTAINED IN THIS PROCEDURE MUST BE EVALUATED AS TO THEIR EFFECT UPON THE TURNAROUND.

MISSION PLANNING WHERE ONLY ONE LAUNCH ATTEMPT IS POSSIBLE IN A PARTICULAR MONTH WILL NECESSITATE THE USE OF THE 28-DAY SCRUB/TURNAROUND. WHEN MULTIPLE LAUNCH ATTEMPTS ARE POSSIBLE, USE OF THE ONE-DAY OR TWO-DAY SCRUB/TURNAROUND WILL BE DETERMINED BY REAL TIME EVALUATION AND LAUNCH OPPORTUNITIES.

LAUNCH OPERATIONS MANAGEMENT PERSONNEL WILL, IN REAL TIME, ESTABLISH FROM THIS PROCEDURE THOSE OPERATIONS WHICH ARE REQUIRED BY THE SPECIFIC VEHICLE CONDITION AND THE SPECIFIC TIME OF SCRUB. WAIVERS MAY BE REQUIRED IF THE REAL TIME DECISION CONSTITUTES DELETION OF TURNAROUND ACTIVITIES NOTED IN THIS PROCEDURE.

THESE TURNAROUND FROM SCRUB PROCEDURES COVER SITUATIONS WHERE LV CRYOGENICS HAVE BEEN LOADED AND THE S-IC ENGINES HAVE NOT BEEN IGNITED. RESERVICING OF CSM AND/OR LM CRYOGENICS MAY BE REQUIRED.

2.0 SIGNIFICANT ACTIVITIES

2.1 IMMEDIATE OPERATIONS FOR ALL SCRUB/TURNAROUND CONDITIONS

(T+0 TO T+4 HOURS, 45' 0")

THE FOLLOWING OPERATIONS ARE COMMON TO ALL SCRUB/TURNAROUND CASES SAFE LAUNCH VEHICLE, CREW EGRESS, LV CRYOGENIC UNLOADING, PAD SAFETY INSPECTION AND MSS MOVE TO THE PAD.

2.2 SCRUB/TURNAROUND TO THE NEXT MONTH LAUNCH

2.2.1 INITIAL 24 HOURS

DURING THE TIME PERIOD FROM T+4 HOURS, 45' 0" TO T+24 HOURS, 0' 0" AND PRIOR TO RESUMING NORMAL OPERATIONAL SCHEDULING, THE FOLLOWING MAJOR TASKS WILL BE PERFORMED: ML ZERO LEVEL PLATFORM INSTALLATION, ESP INSTALLATION, S&A REMOVAL, LV BATTERY REMOVAL, ALSEP FCA REMOVAL, S-II INSULATION INSPECTION, SC CRYOGENIC UNLOAD, AND LM SHE TANK VENTING.

2.2.2 RETESTS

SYSTEM REVERIFICATION TESTS ARE SHOWN BY A 28-DAY PROCESSING CHART (SEE PAGE 41).

2.3 SCRUB/TURNAROUND TO A LAUNCH 2 DAYS LATER

(T+4 HOURS, 45' 0" TO T+1 DAY, 17 HOURS, 0' 0") (PART II)

WHEN A MINIMUM OF FIFTY (50) HOURS ARE AVAILABLE BETWEEN LAUNCH SCRUB AND T-0 OF THE SECOND LAUNCH OPPORTUNITY, PART II OF THIS PROCEDURE PROVIDES FOR THE FOLLOWING MAJOR TASKS AFTER T+4 HOURS, 45' 0": LM SHE RESERVICING, S-II INSULATION INSPECTION, CSM CRYOGENIC RESERVICING, AND MSS MOVE TO THE PARKSITE (THE ALSEP FCA WILL NOT BE REMOVED, LV S&A UNITS WILL REMAIN CONNECTED).

2.4 SCRUB/TURNAROUND TO A LAUNCH ONE (1) DAY LATER

(T+4 HOURS, 45' 0" TO T+12 HOURS, 30' 0") (PART III)

WHERE ONLY 24 HOURS ARE AVAILABLE FROM SCRUB TO THE NEXT LAUNCH OPPORTUNITY, ONE MAJOR TASK, S-II INSULATION INSPECTIONS USING THE MSS, IS REQUIRED. PART III OF THE OPERATING STEPS COVERS THIS CASE.

2.5 COUNTDOWN

AFTER COMPLETING THE ABOVE ACTIVITIES, THE OFFICIAL COUNTDOWN BEGINS AT T-9 HOURS, EXCEPT FOR A TURNAROUND TO THE FOLLOWING MONTH. TIME PERMITTING, A BUILT-IN-HOLD IS PLANNED AT T-9 HOURS, 0' 0" TO SYNCHRONIZE THE CD PICKUP TIME WITH OPENING OF LAUNCH WINDOW, REFERENCE THE SV COUNTDOWN TCP SV-40300, VOL I FOR OPERATIONAL SEQUENCES FROM T-9 HOURS, 0' 0" TO LAUNCH. THE NEXT MONTH LAUNCH DAY PROCESSING CHART INCLUDES PROVISIONS FOR FULL COUNTDOWN ACTIVITIES.

3.0 PROCEDURAL IMPLEMENTATION

3.1 SCRUB/TURNAROUND TO THE NEXT MONTH LAUNCH (CASE 1)

THIS OPTION IS DIVIDED INTO THREE (3) SECTIONS. THE FIRST IS THE INITIAL 24 HOURS AFTER SCRUB FOR WHICH A SEPARATE CHART AND OPERATIONAL SEQUENCES ARE PROVIDED. THE SECOND, FOR WHICH A PLANNING CHART AND NO OPERATIONAL SEQUENCES ARE PROVIDED, INCLUDES THE TURNAROUND TESTS AND RESERVICING BEFORE THE NEXT COUNTDOWN STARTS. THE THIRD SECTION, THE COUNTDOWN, IS VOLUME I OF THIS DOCUMENT.

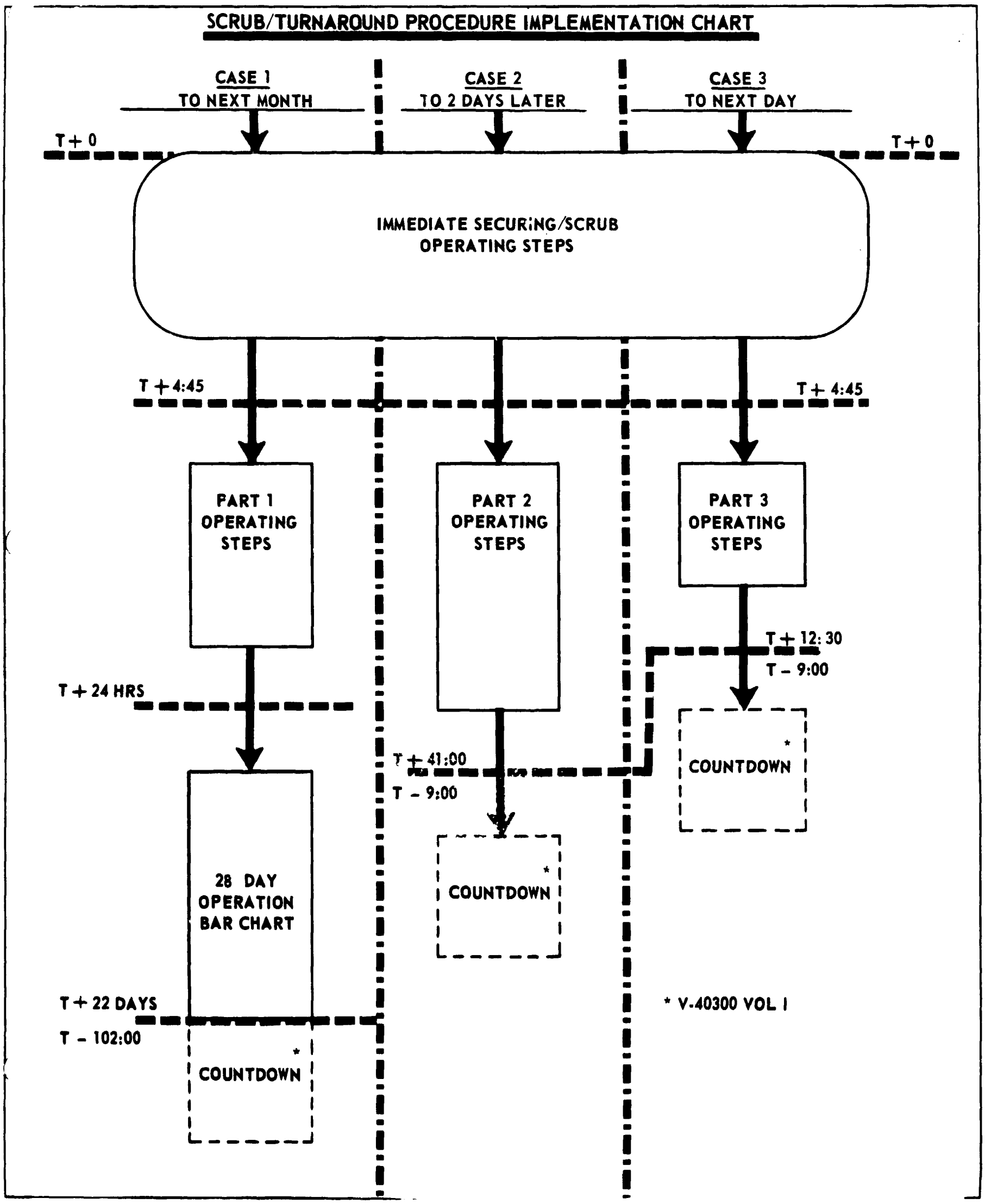
3.2 SCRUB/TURNAROUND TO A LAUNCH TWO (2) DAYS LATER (CASE 2)

A TWO-DAY LAUNCH DELAY AFTER A SCRUB MAY REQUIRE RESERVICING EITHER OR BOTH CSM AND LM CRYOGENIC SYSTEMS. THIS CASE IS HANDLED BY A PLAN AND PROCEDURES WITH OPERATIONAL SEQUENCES TO RESERVICE ALL CSM/LM CRYOGENICS AND OTHER TASKS UP TO PICKING UP THE COUNTDOWN AGAIN AT T-9 HOURS. THE OPERATING STEPS INCLUDE CSM AND LM RESERVICE, S-II INSULATION INSPECTION, AND A MSS MOVE FROM AND TO THE PARKSITE (THE ALSEP FCA WILL NOT BE REMOVED, LV S&A UNITS WILL REMAIN CONNECTED). SHOULD BOTH CSM AND LM CRYOGENICS NEED RESERVICING, A TOTAL OF FIFTY (50) HOURS IS REQUIRED. SHOULD ONE OF THESE COMMODITIES NOT NEED RESERVICING, THE SCRUB/TURNAROUND CAN BE COMPLETED IN LESS THAN FORTY-EIGHT (48) HOURS. FOR THIS SITUATION THE SAME PROCEDURE IS USED AFTER DELETING THOSE TASKS NOT REQUIRED.

3.3 SCRUB/TURNAROUND TO A LAUNCH ONE (1) DAY LATER (CASE 3)

WHERE ONLY TWENTY-FOUR (24) HOURS ARE AVAILABLE FROM SCRUB TO THE NEXT LAUNCH OPPORTUNITY, ONE MAJOR TASK, S-II STAGE INSULATION INSPECTION USING THE MSS, IS REQUIRED. THIS CASE COVERS THE OPERATING STEPS TO A POINT WHERE THE NEXT COUNTDOWN CAN BE PICKED UP AT T-9 HOURS.

SCRUB/TURNAROUND PROCEDURE IMPLEMENTATION CHART



LIST OF REFERENCES

IN ADDITION TO THE REFERENCES LISTED IN TCP V-40300, VOL I, THE FOLLOWING REFERENCES WERE USED IN THE DEVELOPMENT OF TCP V-40300, VOL II

1. APOLLO/SATURN V SPACE VEHICLE SCRUB/TURNAROUND PLAN, APOLLO 10 AND SUBSEQUENT MISSIONS (630-39-0038).
2. LAUNCH VEHICLE OPERATIONS IN SUPPORT OF SPACE VEHICLE COUNTDOWN DEMONSTRATION TEST AND LAUNCH COUNTDOWN, V-20060, VOL III OF III.
3. TECHNICAL SUPPORT OPERATIONS, SPACE VEHICLE TURNAROUND FROM SCRUB, TCP SV89019-5XX.
4. APOLLO/SATURN V SPACE VEHICLE SCRUB/TURNAROUND OPERATIONS INTERFACE CONTROL CHARTS.

SCRUB/TURNAROUND AT POST LV CRYOGENIC LOADING CONFIGURATION

WHEN THE TURNAROUND PLUS TIME IS INITIATED, THE SPACE VEHICLE WILL BE IN THE FOLLOWING CONFIGURATION

1. LV S&A DEVICES ARE SAFE.
2. CSM PYRO BUSSES ARMED (IF SCRUB IS AFTER T-42 MINUTES).
3. RANGE SAFETY COMMAND RECEIVERS ARE OFF.
4. TERMINAL COUNT SEQUENCER IS SAFE.
5. SERVICE ARM 9 IS RETRACTED
   A. 12 DEG IF SCRUB BETWEEN T-43' 0" AND T-5' 0".
   B. FULLY IF SCRUB IS AFTER T-5' 0".

THIS CONFIGURATION WILL BE ACHIEVED BY LV TCP V-20060, CSM TCP K-0007V1, AND LM TCP KL-0007LMX.

DATE MARCH 15, 1972
REVISION : 003

FOLDOUT FRAME 1 APOLLO/SATURN LAUNCH OPERATIONS

SV SCRUB TURNAROUND RF M

REMARKS	LV											CSM								
LV	S – BAND				UHF		C–BAND		VHF			S–BAND	X-BAND	VHF-AM SIMPLEX		VHF-AM DUPLEX		S–B		
	IU–CCS				DRSCS				TM				RR	A	B	A	B			
UP-LINK FREQ MHz	2101.8				450.0		5690.0					2106.4	9832.8	296.8	259.7	259.7	296.8	210		
DN-LINK FREQ MHz	2282.5						5765.0		*			2272.5/2287.5	9792.0	296.8	259.7	296.8	259.7	22		
SUPPORT	GMIL	LOCAL			ETR	LOCAL	ETR	LOCAL				GMIL	LOCAL	LOCAL	GMIL	GMIL	GMIL	GMIL	GMIL	

RESET CDC TO T +0:00:00:00

START TURNAROUND FROM SCRUB

LV TM CALIBRATION

+ 0:01:00:00 (GMIL) + 0:01:00:00 (LOCAL) + 0:01:00:00 (ETR) + 0:01:00:00 (LOCAL) + 0:01:00:00 (VHF)
+ 0:02:00:00 (VHF)
+ 0:05:30:00 (VHF)
+ 0:06:15:00 (S–BAND GMIL)
+ 0:06:15:00 (VHF-AM SIMPLEX B / DUPLEX A, B)

PART I - INITIAL 24 HOURS OF A NEXT MONTH TURNAROUN

LV S&A ORDNANCE OPERATIONS

+ 0:07:30:00
+ 0:08:15:00

PART II - 2 DAY LATER TURNAROUND

T-0:09:00:00 COUNTDOWN TIME

	GMIL	LOCAL	ETR	LOCAL	ETR	LOCAL	VHF	S–BAND GMIL	S–BAND LOCAL	X-BAND	VHF-AM SIMPLEX A	VHF-AM SIMPLEX B	VHF-AM DUPLEX A	VHF-AM DUPLEX B
1	0:23:55:00							0:23:55:00						
2	0:01:00:00	1:13:05:00	1:13:05:00	1:13:05:00	1:13:05:00	1:13:05:00	1:13:05:00	1:01:00:00	1:13:05:00	1:13:05:00	1:13:05:00	1:13:05:00	1:13:05:00	1:13:05:00
3	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00	1:15:10:00
3A	1:15:30:00	1:15:30:00						1:15:30:00	1:15:30:00		1:15:30:00			
4	1:16:30:00	1:16:30:00						1:16:30:00	1:16:30:00		1:16:30:00			

PART III - NEXT DAY TURNAROUND

T-0:09:00:00 COUNTDOWN TIME

	GMIL	LOCAL	ETR	LOCAL	ETR	LOCAL	VHF	S–BAND GMIL	S–BAND LOCAL	X-BAND	VHF-AM SIMPLEX A	VHF-AM SIMPLEX B	VHF-AM DUPLEX A	VHF-AM DUPLEX B
2	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00	0:08:55:00
3	0:11:30:00	0:11:20:00	0:11:00:00	0:11:00:00	0:11:00:00	0:11:00:00	0:11:00:00	0:11:00:00	0:11:00:00	0:11:00:00	0:11:00:00	0:11:00:00	0:11:00:00	0:11:00:00
3A	0:11:20:00							0:11:20:00	0:11:20:00		0:11:20:00			
4								0:12:00:00	0:12:00:00		0:12:00:00			

FOLDOUT FRAME 2

RF MATRIX

-AM DUPLEX A	-AM DUPLEX B	L M S-BAND	L M X-BAND LR	L M X-BAND RR	L M VHF-AM A	L M VHF-AM B	L M VHF-AM A	L M VHF-AM B	L M VHF-AM	REMARKS SC
259.7	296.8	2101.8	9580.0	9832.8	296.8		296.8		279.0	UP-LINK FREQ MHz
296.8	259.7	2282.5	10510.0	9792.0	296.8	259.7	296.8	259.7	279.0	DN-LINK FREQ MHz
C IIL	GMIL	GMIL LOCAL	LOCAL	LOCAL	GMIL	GMIL	LOCAL	LOCAL	LOCAL	SUPPORT

UB

RESET CDC TO T +0:00:00:00

5:00

NTH TURNAROUND

+0:07:30:00
+0:08:15:00
LV S&A ORDNANCE OPERATIONS

ROUND

+0:23:55:00
+1:01:00:00
:13:05:00
+1:13:05:00
15:10:00
+1:15:10:00
15:30:00
+1:15:30:00
16:30:00
CSM RF CHECKOUT
T–0:09:00:00
COUNTDOWN TIME

OUND

0:08:55:00
+0:08:55:00
11:00:00
+0:11:00:00
11:20:00
+0:11:20:00
12:00:00
CSM RF CHECKOUT
T–0:09:00:00
COUNTDOWN TIME

POTENTIAL INTERFERENCE CLEARANCE CHECK LIST

	LV	LM	CSM	LM	LV	CSM	LM	CSM	LM
	S-BAND		VHF		VHF			X-BAND	
	IU CCS		296.8		258.5	259.7		RR	RR
1									
2									
3									
4									
5									
6									
7									
8									

SPACE VEHICLE TM FREQUENCIES

STAGE	LINK	FREQUENCIES
* S-IC	AF-1	256.2
	AP-1	244.3
* S-II	BF-1	241.5
	BF-2	234.0
	BP-1	248.6
* S-IVB	CP-1	258.5
* IU	DF-1	250.7
	DP-1	245.3
	DP-18	2282.5
CSM		2287.5
		2272.5
LM		2282.5
RECOVERY BEACONS		
CSM		243.0
LM	PLSS	279.0

LEGEND:

- ⓞ OPEN LOOP CLEARANCE
- ⓒ CLOSED LOOP CLEARANCE
- POTENTIAL INTERFERENCE
- RF SILENCE
- D H M S T + 0:00:00:00
- ① REQUIRED FOR CIF ANTENNA CALIBRATION (2282.5 MHZ AND 2287.5 MHZ).
- ② REQUIRED FOR GMIL ON-STATION CALIBRATION (2101.8, 2106.4, 2272.5, 2282.5, 2287.5, 245.3, 258.5, 259.7, 296.8 MHZ).
- ③ MCC COMMAND VALIDATION TEST (2101.8 AND 2106.4 MHZ UPLINK).
- ④ MCC AIR GROUND VALIDATION TEST (259.7, 296.8 AND 2106.4 MHZ)

IMMEDIATE OPERATIONS FOR ALL SCRUB/TURNAROUND CONDITIONS

T+0' 0" TO T+4 HOURS, 45' 0"

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

OPERATING STEPS

**********WARNING**********
IN THE EVENT AN EMERGENCY ARISES DURING THE SPACE VEHICLE TURNAROUND FROM SCRUB OPERATIONS, THE PROCEDURES DETAILED IN THE APOLLO/SATURN V SPACE VEHICLE TEST SUPERVISOR EMERGENCY PROCEDURES, TCP NO. V-46001, SHALL BE IMPLEMENTED.
****

**********WARNING**********
IN THE EVENT THAT AN EMERGENCY CONDITION EXISTS WHICH REQUIRES THE EGRESS OF THE FLIGHT CREW AND/OR SUPPORT PERSONNEL FROM THE BLAST DANGER AREA DURING THE TIME PERIOD FROM THE DECISION TO SCRUB TO COMPLETION OF PERSONNEL EGRESS FROM THE BLAST DANGER AREA PRIOR TO LV CRYO DRAIN, THE PROCEDURES DETAILED IN THE APOLLO FLIGHT CREW EMERGENCY EGRESS PROCEDURES LAUNCH COMPLEX 39, TCP NO. V-46002, SHALL BE IMPLEMENTED.
****

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
					NOTE ---- HAZARDOUS OPERATIONS ARE DENOTED WITH THE LETTER "H" IN THE REMARKS COLUMN.	
+0' 0"						S/T TIME
	111	1	CVTS	CLTC MSTC KSTC CTSC CPSS SRO HFLT GMIL LOM	VERIFY READY TO PROCEED WITH SPACE VEHICLE TURNAROUND FROM SCRUB.	
	188 (PA)	2	CVTS		COUNTCLOCK WILL START COUNTING UP FOR SPACE VEHICLE TURNAROUND ON MY MARK AT T+0 HOURS, 0' 0". 5 - 4 - 3 - 2 - 1 - MARK.	
	111	3	CLTC	CVTS	LV IS SAFED. HOLD CONDITION ESTABLISHED.	
	111	4	CVTS	CTSC	REACTIVATE OIS TO AND FROM THE PAD.	
	111	5	CTSC	CVTS	OIS TO THE FROM THE PAD HAS BEEN REACTIVATED.	
	111	6	CLTC	CVTS	LV READY FOR FLIGHT CREW EGRESS.	
	188 (PA)	7	CLTC	ALL	ALL LV SYSTEMS WILL BE HELD AT THIS POINT UNTIL FLIGHT CREW EGRESS IS COMPLETE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+0' 0"	CONTINUED					
	111	8	MSTC	CVTS	CSM BUSSES ARE SAFE. EDS POWER IS OFF. RECONNECT SERVICE ARM 9. CLEAR TO SAFE USB COMMAND SYSTEM. REQUEST CPSS CLEARANCE FOR CLOSEOUT CREW TO RETURN TO PAD.	H
	111	9	CVTS	CPSS	CSM PYRO BUSSES ARE SAFE. VERIFY CLEARANCE FOR CLOSEOUT CREW TO RETURN TO PAD FOR FLIGHT CREW EGRESS.	
	111	10	CVTS	MSTC	CLEAR FOR CLOSEOUT CREW TO RETURN TO PAD FOR FLIGHT CREW EGRESS.	
	105 HF	11	CVTS	ASTRO VAN	CLEAR TO RETURN TO PAD FOR FLIGHT CREW EGRESS.	
	111	12	CVTS	CSA9	RECONNECT SERVICE ARM NO. 9 PER V-36085 AND VERIFY (IF NOT ALREADY CONNECTED).	
	111	13	CSA9	CVTS	SA NO. 9 RECONNECTED.	
	111	14	CVTS	CSA9	RETURN TO CHANNEL 118.	
	111	15	CVTS	MSTC	SA NO. 9 RECONNECTED.	
	111	16	CVTS	CLTC	SC EDS POWER IS OFF.	
	111	17	CVTS	CPSS	VERIFY CLEARANCE FOR MSS MOVE PERSONNEL TO PROCEED TO MSS PARKSITE AND PREVIOUSLY EVACUATED CCF PERSONNEL TO PROCEED TO THE CCF.	
	111	18	CVTS	CTSC	MSS MOVE PERSONNEL CLEAR TO PROCEED TO MSS PARKSITE AND PREVIOUSLY EVACUATED CCF PERSONNEL CLEAR TO PROCEED TO THE CCF.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+0' 0"	CONTINUED					
	111	19	LOM	CVTS	THE ABORT REQUEST PANEL ORDNANCE ARMED LIGHT IS OFF AND ORDNANCE SAFE LIGHT IS ON.	
	111	20	CVTS	HFLT	VERIFY READY TO POWER DOWN THE ABORT ADVISORY SYSTEM. THE USB COMMAND SYSTEM WILL BE SAFED.	
	111	21	CVTS	GMIL	SAFE THE USB COMMAND SYSTEM. DISABLE AND POWER DOWN THE AIU AND VERIFY. CLEAR TO ARM THE COMMAND SYSTEM AS REQUIRED.	
		22		LOM	NOTE THAT THE USB ON INDICATOR IS OFF.	
	111	23	CVTS	LOM	ABORT REQUEST ENABLE SWITCH TO OFF AND VERIFY.	
		24		LOM	NOTE THAT THE FOLLOWING LIGHTS ON THE ABORT REQUEST PANEL ARE OFF: REQUEST A ENABLED AND REQUEST B ENABLED.	
	111	25	CVTS	BWIC	POWER DOWN AAS POWER BUSSES AND POWER SUPPLIES. TURN OFF AAS EVENT RECORDERS.	
		26		LOM	NOTE THAT THE FOLLOWING LIGHTS ON THE ABORT REQUEST PANEL ARE OFF: POWER SUPPLY 1, 2, 3, AAS SUPPLY, AND ORDNANCE SAFE.	
	111	26	CVTS	HFLT GMIL	ABORT ADVISORY SYSTEM IS POWERED DOWN.	
	111	27	BWIC	CVTS	AAS POWER BUSSES AND POWER SUPPLIES ARE POWERED DOWN. AAS EVENT RECORDERS ARE OFF.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+3C' C"						
	111	1	MSTC	CVTS	MSS/PARKSITE GN2/GHE LINES MAY BE DISCONNECTED.	
	111	2	CVTS	CTSC	TERMINATE AND DISCONNECT MSS/PARKSITE GN2 AND GHE LINES.	H
+1 HR 0'0"						
	111	1	MSTC	CVTS	FLIGHT CREW EGRESS IS COMPLETE.	
	111	2	CVTS	CPSS	VERIFY FLIGHT AND CLOSEOUT CREWS ARE CLEARED OF BLAST DANGER AREA. VERIFY CLEARANCE FOR LV TO START DRAIN OPERATIONS. NOTE ---- LV IS SCHEDULED TO ACCOMPLISH LOX AND LH2 DRAIN AND PURGE DURING THE NEXT 2 HOURS, 40' 0".	
	111	3	CVTS	CLTC	FLIGHT CREW EGRESS IS COMPLETE. ALL PERSONNEL ARE CLEAR OF THE CONTROL AREA. LV DRAIN OPERATIONS MAY START.	
	111	4	CLTC	CVTS	COMMAND DECODER IS OFF.	
	111	5	CLTC	CVTS	ALL LV RF SYSTEMS ARE OFF.	
	111	6	CVTS	GMIL	BRING DOWN LV CCS S-BAND CARRIER AND VERIFY. LV COMMAND DECODER IS OFF.	
	111	7	CVTS	SRO	ALL LV RF AND TM SYSTEMS ARE OFF. LV COMMAND DECODER IS OFF. BRING DOWN ETR UHF COMMAND CARRIER.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+1 HR 0'0"	CONTINUED					
	111	8	CVTS	HFLT	CCS S-BAND CARRIER IS OFF. LV COMMAND DECODER IS OFF.	
	111	9	CLTC	CVTS	PRIMARY DAMPER IS CONNECTED.	
	111	10	CLTC	CVTS	TCS AND DESTRUCT SYSTEM ENABLE KEYS HAVE BEEN RETURNED TO CPSS.	
	111	11	CVTS	CPSS	VERIFY TCS AND DESTRUCT SYSTEM ENABLE KEYS RETURNED.	
	111	12	CVTS	CSTO	RETURN ELEVATOR CONTROL PANEL KEYS TO CTSC.	
	111	13	CLTC	CVTS	RESET COUNTDOWN CLOCK TO T+0 AND START COUNTUP.	
	188 (PA)	14	CVTS		THE LCC COUNTDOWN CLOCK (CDC) IS BEING RESET TO T+0 HOURS, 0' 0" AND WILL COUNTUP TO COORDINATE LV CRYO DRAIN AND SAFETY INSPECTION OPERATIONS. THE COC WILL BE RESET TO THE SCRUB/ TURNAROUND OPERATIONAL TIME OF T+4 HOURS 45' 0" AT THE COMPLETION OF SAFETY INSPECTION. 5 - 4 - 3 - 2 - 1 - MARK. NOTE ---- THE SCRUB/TURNAROUND OPERATIONAL TIMES DURING LV DRAIN AND SAFETY INSPECTION WILL BE NOTED IN THE REMARKS COLUMN.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+0' 0"						+1 HR 0' 0"
					NOTE ---- LV IS SCHEDULED TO ACCOMPLISH S-IVB AND S-II LH2 DRAIN FROM T+0' 0" TO T+1 HOUR, 15' 0".	
+0 HR 10'0"						+1 HR 10' 0"
					NOTE ---- LV IS SCHEDULED TO ACCOMPLISH VEHICLE LOX DRAIN FROM T+10'0" TO T+2 HOURS, 10'0".	
+ 0 HR 20' 0"						+1 HR 20' 0"
	111	1	CTSC	CVTS	MSS/PARKSITE COMM AND INSTRUMENTATION CABLES HAVE BEEN DISCONNECTED. MSS OIS TRANSFER TO TRANSPORTER COMPLETE. MSS IS A BRANCH OF TRANSPORTER UHF.	
+ C HR 45' C"						+1 HR 45' 0"
	111	1	CTSC	CVTS	REQUEST CLEARANCE TO JACK MSS TO CLEARANCE HEIGHT.	
	111	2	CVTS	CPSS	VERIFY CLEAR FOR MSS JACKING OPERATIONS.	
	111	3	CVTS	CTSC	JACK MSS TO CLEARANCE HEIGHT.	H
+1 HR 15'0"						+2 HRS 15' 0"
	111	1	CLTC	CVTS	LV-QAL INSPECTION OF MSS PLATFORMS NO. 1 AND NO. 2 PER LV QAL QCP-11 IS COMPLETE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+1 HR 15' 0"	CONTINUED					
	111	2	CVTS	KSTC	VERIFY ALL MSS PREPARATIONS FOR MOVE ARE COMPLETE.	
	111	3	CVTS	MSTC	VERIFY ALL MSS PREPARATIONS FOR MOVE AND PLATFORM OPENING ARE COMPLETE AND GSE MONITORS ARE ON STATION.	
	111	4	CTSC	CVTS	MSS JACKING COMPLETE. REQUEST CLEARANCE TO PROPEL TO PAD.	
	111	5	CVTS	CPSS	VERIFY CLEARANCE TO PROPEL MSS TO THE PAD.	
	111	6	CVTS	CTSC	PROPEL CLEAR OF SUPPORT COLUMNS AND PROCEED WITH MSS TRANSFER OPERATION. CLEAR FOR MSS PLATFORM OPENING. REPORT PROGRESS ENROUTE.	H
	111	7	CTSC	CVTS	MSS/TRANSPORTER FIRST MOTION.	
+2 HRS 10' 0"						+3 HRS 10' 0"
	111	1	CLTC	CVTS	LV PROPELLANT DRAIN IS COMPLETE AND TANK PURGES ARE IN PROGRESS.	
	111	2	CVTS	CPSS	LV PROPELLANT DRAIN IS COMPLETE AND TANK PURGES ARE IN PROGRESS. VERIFY READY TO START LV RP-1 REPLENISH. (1 DAY AND 2 DAY TURNAROUND ONLY) NOTE ---- A MINIMUM OF 30 MINUTES OF LV LH2 TANK PURGING WILL BE ACCOMPLISHED PRIOR TO PAD RE-ENTRY.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+2 HRS 15' C"						+3 HRS 15' 0" H
	111	1	CVTS	CLTC	CLEAR TO START RP-1 REPLENISH. (1 DAY AND 2 DAY TURNAROUND ONLY)	
	111	2	CTSC	CVTS	ALERT ALL LV AND LS OBSERVERS TO BE ON STATION IN 60 MINUTES FOR COMM CHECK IN SUPPORT OF MSS/SV MATING.	
	111	3	CVTS	CPSS	VERIFY MSS PLATFORM OBSERVERS MAY PROCEED TO PAD GATE FOR BRIEFING IN 45 MINUTES.	
	111	4	CVTS	MSTC KSTC CLTC	MSS OBSERVERS ARE TO REPORT TO PVTS AT LO TRAILER 179 AT PAD GATE FOR OBSERVER BRIEFING IN 45 MINUTES. NOTE ---- MSS OBSERVERS WILL BE BRIEFED PER APOLLO/SATURN V LC-39 LAUNCH OPERATIONS INSTRUCTIONS, 600-26-0001.	
+2 HRS 40' C"	111	1	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 PAD.	+3 HRS 40' 0"

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+2 HRS 40' 0"	CONTINUED				NOTE ---- A SAFETY INSPECTION OF THE LAUNCH PAD AND INITIAL SYSTEM SECURING OF HAZARDOUS SYSTEMS WILL BE CONDUCTED FROM T+2 HOURS, 40' 0" TO T+3 HOURS, 45' 0". DESIGNATED LAUNCH VEHICLE PERSONNEL WILL ACCOMPANY THE SAFETY INSPECTION TEAMS TO THE ML, LOX & LH2 STORAGE AREAS AND ECS ROOM BUT WILL BE PRECEDED BY THEM. THE ML 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 SNIFFING PURGE GASES AT SAMPLE PORTS AT THE INLET VALVE SKIDS. 3. THE GN2 HANDVALVES HAVE BEEN CLOSED IN THE ECS ROOM. THE LOX AND LH2 STORAGE AREAS MAY BE OPENED FOR ACCESS WHEN CPSS INSPECTION OF EACH AREA IS COMPLETE. THE PLYWOOD LAYING CREW, WITH SAFETY APPROVAL, WILL BE GIVEN ACCESS AT T+3 HOURS, 30' 0" (CDC TIME).	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+2 HRS 40' C"	CONTINUED					
	111	2	CVTS	CPSS	LV PROPELLANT DRAIN IS COMPLETE. CLEAR TO BEGIN SAFETY INSPECTION.	
	111	3	CLTC	CVTS	REQUEST CPSS TO CLEAR BENDIX PERSONNEL TO FACILITY HIGH PRESSURE GH2 AREA TO SECURE AND VENT 6000 PSI GH2 TRANSFER LINE.	
	111	4	CVTS	CPSS	VERIFY THAT BENDIX PERSONNEL MAY PROCEED TO HIGH PRESSURE GH2 AREA TO SECURE AND VENT 6000 PSI GH2 TRANSFER LINE.	
	111	5	CVTS	CTSC	HAVE BENDIX PERSONNEL PROCEED TO THE HIGH PRESSURE GH2 AREA TO SECURE AND VENT 6000 PSI GH2 TRANSFER LINE. CONFIGURE ML ELEVATORS TO NORMAL MODE AND ELEVATOR SLIDEWIRE PT. - PT. TO ADMIN.	H
	111	6	CVTS	LOM	VERIFY READY FOR CAMERA OVERRIDE CONTROL SYSTEM TO BE SWITCHED TO MODE I OPERATION.	
	111	7	CVTS	CTSC	PLACE CAMERA OVERRIDE CONTROL SYSTEM IN MODE I OPERATION.	
	111	8	CTSC	CVTS	CAMERA OVERRIDE CONTROL SYSTEM IS IN MODE I.	
	111	9	CVTS	LOM	CAMERA OVERKIDE CONTROL SYSTEM IS IN MODE I.	
+3 HRS 0' 0"						+4 HRS 0' 0"
	111	1	CTSC	CVTS	MSS PLATFORMS ARE BEING OPENED.	
	111	2	CVTS	CPSS	VERIFY CLEARANCE FOR LO2 STORAGE TANK REPLENISH. (1 DAY AND 2 DAY TURNAROUND ONLY)	
	111	3	CVTS	CTSC	PROCEED WITH LO2 STORAGE TANK REPLENISH (1 DAY AND 2 DAY TURNAROUND ONLY)	H

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+3 HRS 0' 0"	CONTINUED					
					NOTE ---- LO2 REPLENISHMENT TO 750,000 GALLONS IS SCHEDULED FROM T+4 HOURS 0' 0" TO T+11 HOURS, 0' 0" (SCRUB/TURNAROUND TIME) (1 DAY AND 2 DAY TURNAROUND ONLY)	
	111	4	CVTS	CLTC	VERIFY RP-1 REPLENISH IS COMPLETE (1 DAY AND 2 DAY TURNAROUND ONLY).	
	111	5	CVTS	CPSS	RP-1 REPLENISH IS COMPLETE. (1 DAY AND 2 DAY TURNAROUND ONLY)	
T+3 HRS 15' 0"						T+4 HRS 15' 0"
					NOTE ---- PREPARATIONS FOR ESP MOVE ARE SCHEDULED FROM T+3 HOURS, 15' 0" TO T+3 HOURS 45' 0". (CDC TIME)	
T+3 HRS 30' 0"						T+4 HRS 30' 0"
	111	1	CVTS	CPSS	VERIFY CLEAR TO RETURN PLYWOOD CREW TO PAD.	
	111	2	CVTS	CTSC	RETURN PLYWOOD CREW TO PAD.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+3 HRS 40' CM	111	1	CLTC	CVTS	ECS IS CONFIGURED FOR GN2 STANDBY (HAND VALVES CLOSED). LH2 SYSTEM INERTING ON THE ML IS ACCEPTABLE FOR AREA OPENING. **********WARNING********** * * * ECS IS TO BE CONFIGURED * * FOR GN2 STANDBY WITH * * HAND VALVES CLOSED * * WHILE THE ALSEP FUEL * * CAPSULE IS INSTALLED IN * * THE VEHICLE. FOR AN * * EMERGENCY INVOLVING THE * * FUEL CAPSULE, THE HAND * * VALVES WILL NOT BE * * OPENED UNTIL DIRECTED * * BY CVTS. * * * **********	+4 HRS 40' 0"
	111	2	CVTS	SRO	VERIFY CLEARANCE TO RADIATE LV S-II TM LINKS BF-1 AND BF-2 (241.5 AND 234.0 MHZ).	
+3 HRS 45' CM	111	1	CPSS	CVTS	SAFETY INSPECTION COMPLETE. CLEAR TO OPEN THE CONTROL AREA FOR NORMAL WORK.	+4 HRS 45' 0"
	111	2	CVTS	CLTC	SAFETY INSPECTION IS COMPLETE. CONTROL AREA IS OPEN FOR REQUIRED PERSONNEL.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+3 HRS 45' 0"	CONTINUED					
	111	3	CLTC	CVTS	LV IS STARTING TURNAROUND OPERATIONS. RESET COUNTCLOCK TO T+4 HOURS, 45' 0" AND CONTINUE COUNTING UP. REQUEST RANGE CLEARANCE FOR S-II TM LINKS BF-1 AND BF-2 (241.5 AND 234.0 MHZ).	
	188 (PA)	4	CVTS		THE CDC IS BEING RESET TO SCRUB TURNAROUND OPERATIONAL TIME OF T+4 HOURS, 45' 0" AND COUNTUP INITIATED. 5 - 4 - 3 - 2 - 1 - MARK.	
+4 HRS 45' 0"	188 (PA)	1	CVTS		A (1 DAY) (2-DAY) (NEXT MONTH) TURNAROUND IS BEING ACCOMPLISHED. PROCEED WITH SCHEDULED TASKS. NOTE ---- REMAINING TURNAROUND TASKS ARE CONTAINED IN THE FOLLOWING PARTS OF THIS PROCEDURE: PART I - (PAGE 37) SCRUB/TURNAROUND OPERATIONS TO A NEXT MONTH LAUNCH (T+4 HOURS, 45' 0" TO T+24 HOURS, 0' 0" ONLY). PART II - (PAGE 61) SCRUB/TURNAROUND OPERATIONS TO A 2-DAY LATER LAUNCH DAY (T+4 HOURS, 45' 0" TO T+1 DAY, 17 HOURS, 0' 0"). PART III - (PAGE 109) SCRUB TURNAROUND OPERATIONS TO A NEXT DAY LAUNCH (T+4 HOURS, 45' 0" TO T+12 HOURS, 30' 0").	

PART I

SCRUB/TURNAROUND OPERATIONS TO A NEXT MONTH LAUNCH
T+4 HOURS 45' 0" TO T+24 HOURS 0' 0" ONLY

FOLDOUT FRAME

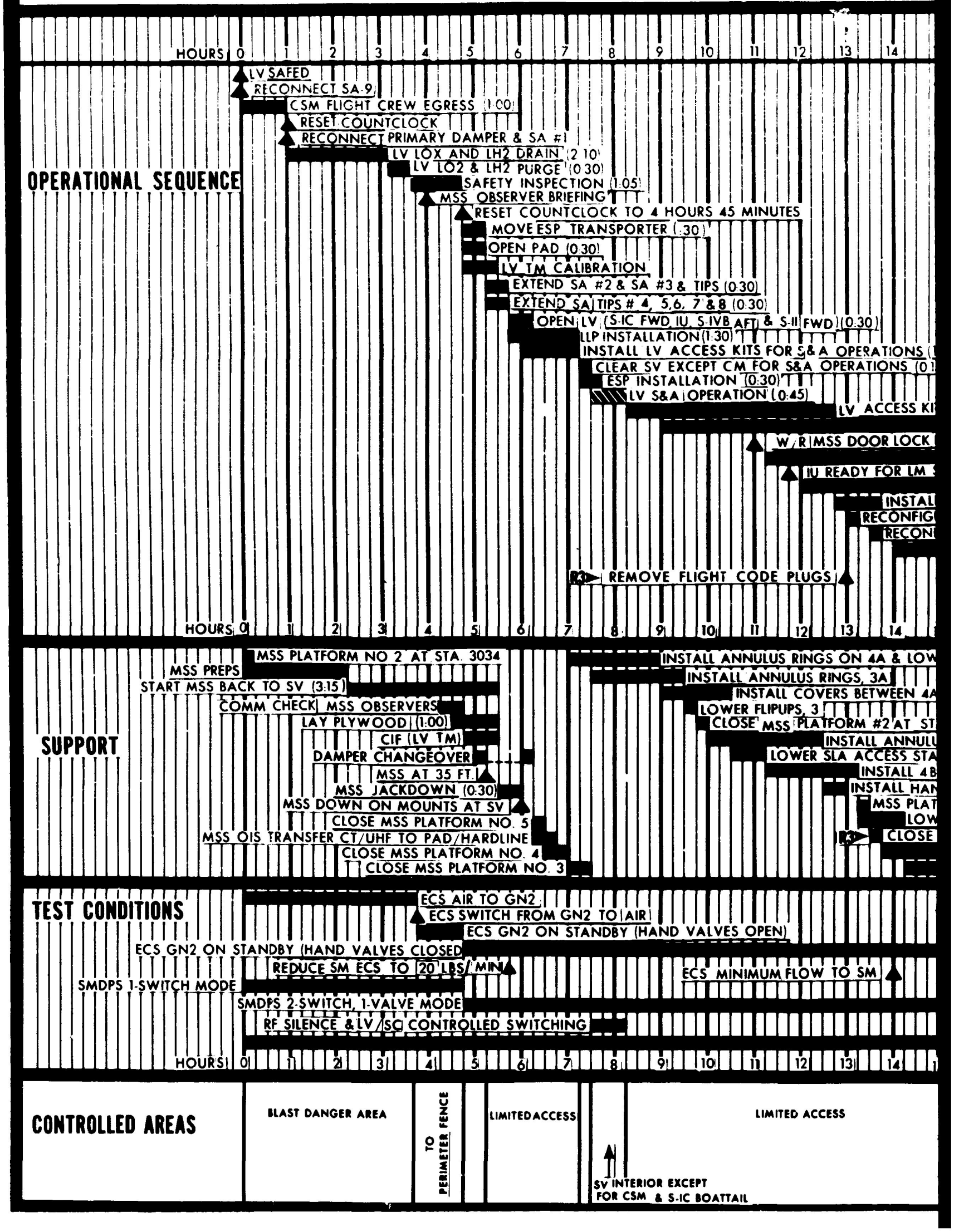
SPACE VEHICLE SCRUB TURNAROUND

DATE: MARCH 15, 1972

REVISION 003

INITIAL 24 HOUR SV SCRUB/RECYCLE OPERA

OPERATIONS INTERFACE



FOLDOUT FRAME 2

ECYCLE OPERATIONS FOR 28 DAY TURNAROUND
NS INTERFACE CONTROL CHART

PAGE 39/40
TEST NO. SV-40300
VEHICLE APOLLO 16

DATE: 2/28/72 LA-PLN
EFFECTIVITY: AS-511 & SUBS
REVISION: 3

CONCURRENCE:

A. GOLDENBERG LS

J.H. SLOGAR LV

R.E. WOODS SF-OPN

APPROVAL:

R.E. MOSER DLO

LEGEND

HAZARDOUS

MINUTES

30)
0.30)
FT & S-II FWD (0.30)
ITS FOR S&A OPERATIONS (1.15)
A FOR S&A OPERATIONS (0.15)
(0.30)
ON (0.45)

LV ACCESS KIT INSTALL & BATTERY REMOVAL (4.30)
SC CRYO PREPS (8.00)
W R MSS DOOR LOCK REMOVED
REMOVE SLA DOOR & COOKIE CUTTER
INSTALL (8.00)
IU READY FOR LM SHe GSE INSTALLATION
SLA PLATFORM INSTL (24.00)
INSTALL IU WATER NOZZLE (1.00)
RECONFIGURE LH2 CVS & NPV NOZZLE COVERS (0.15)
RECONFIGURE LOX NPV NOZZLE COVERS (0.15)
INSTALL SA NO. 8 ECS "Y" (1.30)
S-II INSULATION INSP & REPAIR
CODE PLUGS
FCA REMOVAL (2.00)
SC CRYO UNLOAD & FUEL CELL COOL DOWN (39.00)
LM SHe TANK VENT (5.00)

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

NULUS RINGS ON 4A & LOWER FLIPUPS
ANNULUS RINGS, 3A
INSTALL HANDRAIL - MSS PLATFORM NO. 1
NSTALL COVERS BETWEEN 4A, 3B & SLA
R FLIPUPS, 3
SE MSS PLATFORM #2 AT STA 3034
INSTALL ANNULUS RINGS - PLATFORM (#2
LOWER SLA ACCESS STANDS
INSTALL 4B & 4C ANNULUS RINGS
INSTALL HANDRAILS - PLATFORM NO. 2
MSS PLATFORM NO. 2 AT STATION 2697
LOWER FLIPUPS & INSTALL BRIDGE - 4B & 4C
R3 CLOSE MSS PLATFORM 1 AT LV STA 1848
INSTALL ANNULUS RINGS - MSS PLATFORM NO. 1
INSTALL FLEX COVERS & WEATHERPROOF 5, 4 & 3 INCLUDING ANNULUS RINGS (24 HRS)

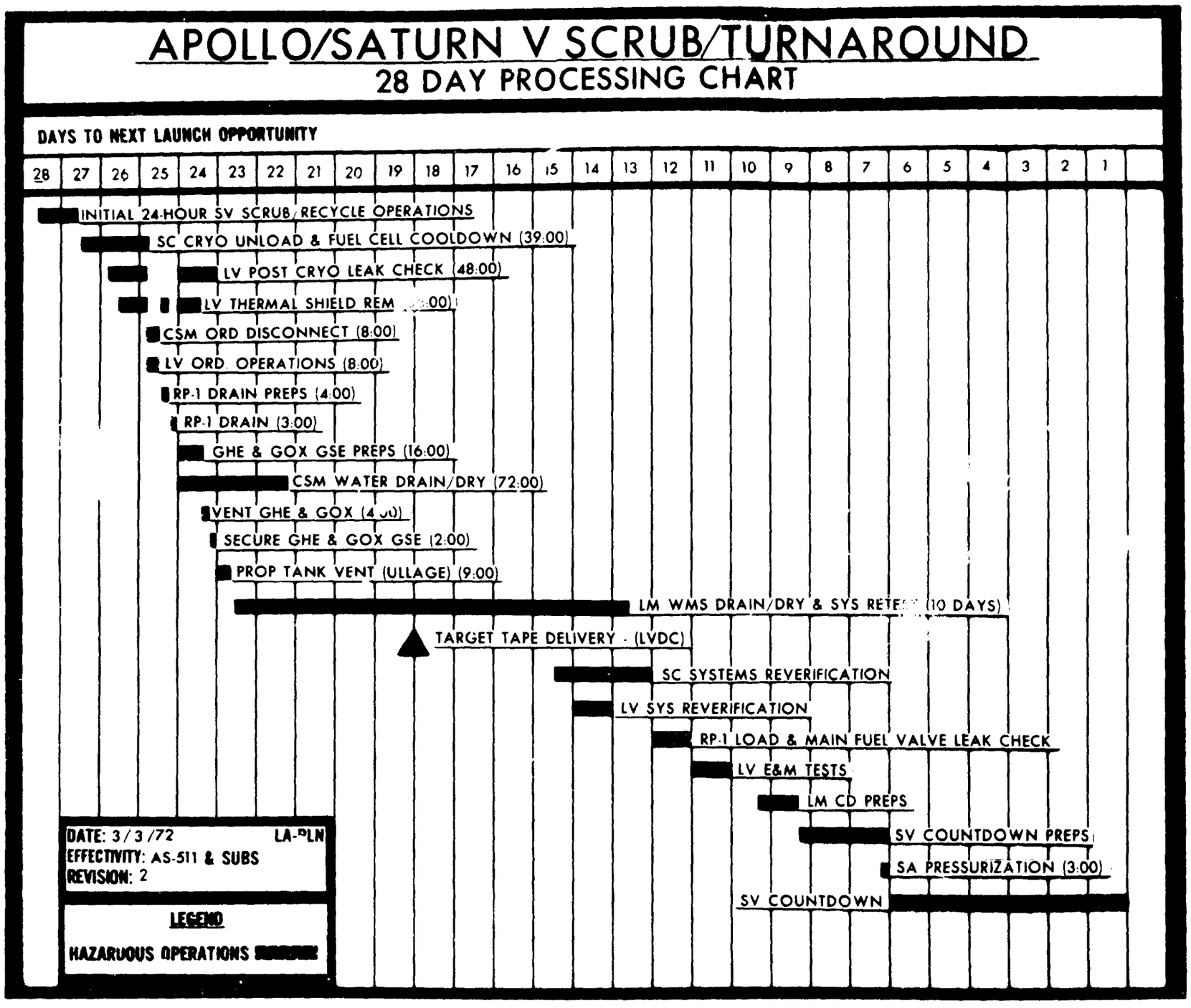
REDUCE IU ECS FLOW RATE TO 135 LBS/MIN
OPEN)
IMUM FLOW TO SM
INCREASE SM ECS TO 100 LBS / MIN

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

LIMITED ACCESS	SLA INTERIOR, IU, S-IVB FWD & 10 FT RADIUS PATHWAY	LIMITED ACCESS	SLA INTERIOR, IU & S-IVB FWD	

IL

APOLLO/SATURN V SCRUB/TURNAROUND
28 DAY PROCESSING CHART



SPACE VEHICLE SCRUB TURNAROUND APOLLO/SATURN
DA MARCH 15, 1972
REVISION 003

PAGE
TEST NO. SV-40303
VEHICLE APOLLO 16

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+4 HRS 45' C"						
	111	1	KSTC	CVTS	ESTABLISH RADIATION BADGING ISSUE STATIONS ON LEVEL 3 AND SA 7 AND RADIATION CONTROL.	
	111	2	CVTS	CTSC	HAVE PEHE ESTABLISH RADIATION BADGING ISSUE STATIONS ON LEVEL 3 AND SA 7. ESTABLISH RADIATION CONTROL. **********WARNING********** * * THE RADIATION CONTROL * * AREA CONSISTS OF SLA * * INTERIOR, IU, S-IVB FWD * * S/A 7, AND INSIDE MSS * * PLATFORM 3A ENCLOSURE. * * ********** NOTE ---- THE FCA WILL BE REMOVED DURING THE SCRUB TURNAROUND FROM T+16 HOURS, 0' 0" TO T+18 HOURS, 0' 0".	
	188 (PA)	3	CVTS		THE CONTROL AREA IS NOW OPEN FOR NORMAL WORK. RADIATION AREA CONTROL REMAINS IN EFFECT.	
	111	4	CVTS	MSTC	THE CONTROL AREA IS OPEN FOR NORMAL WORK.	
	111	5	MSTC	CVTS	CHANGE SMDPS FROM 1-SWITCH MODE TO 2-SWITCH 1-VALVE MODE AND VERIFY. HAVE 280 FT. ACE ROOM OPENED.	
	111	6	CVTS	CTSC	OPEN 280 FT. ACE ROOM.	
	111	7	CVTS	CLTC	CHANGE SMDPS FROM 1-SWITCH MODE TO 2-SWITCH 1-VALVE MODE. REPORT WHEN COMPLETE.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+4 HRS 45' C"	CONTINUED					
	111	8	CVTS	CPSS	SMDPS IS GOING FROM 1-SWITCH MODE TO 2-SWITCH, 1-VALVE MODE.	
	111	9	CVTS	MSTC	SMDPS IS IN 2-SWITCH, 1-VALVE MODE.	
	111	10	CTSC	CVTS	ML EGRESS/LES SPRAY SYSTEM CONFIGURED FROM FIELD ACTIVE MODE TO REMOTE CONTROL.	
					NOTE ---- ESP MOVE IS SCHEDULED FROM T+4 HOURS, 45' 0" TO T+5 HOURS, 15' 0".	
+5 HRS 0' C"	111	1	CVTS	CTSC	REPORT PREVAILING WIND DATA. (REFERENCE LMR ITEM 1-401).	
	111	2	CLTC	CVTS	VERIFY PREVAILING WINDS DO NOT EXCEED REDLINE VALUES FOR FREE STANDING SV (REFERENCE LMR).	
	111	3	CTSC	CVTS	MSS IS APPROXIMATELY 15 MINUTES FROM THE 35 FT. MARK.	
	111	4	CVTS	CLTC	CLEAR TO DISCONNECT AND RETRACT PRIMARY DAMPER.	
	111	5	CVTS	MSTC	PRIMARY DAMPER WILL BE DISCONNECTED.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+5 HRS 15' C"					NOTE ---- EXTENSION OF SA 2, 3, AND 2, 3, 4, 5, 6, 7, 8 TIPS ARE SCHEDULED FROM T+5 HOURS, 15' 0" TO T+5 HOURS, 45' 0".	
	111	1	CTSC	CVTS	ML EGRESS/LES SPRAY SYSTEM CONFIGURED FROM FIELD ACTIVE MODE TO REMOTE CONTROL. ML EGRESS CHUTE SPRAY SYSTEM DEACTIVATED.	
	111	2	CTSC	CVTS	ALL MSS PLATFORMS ARE OPEN.	
	111	3	CTSC	CVTS	MSS IS AT 35 FT. AND READY TO PROPEL TO MATE.	
	111	4	CLTC	CVTS	PRIMARY DAMPER IS DISCONNECTED AND TSM TOWER IS RETRACTED. LV READY FOR MSS MATE.	
	111	5	CVTS	CTSC	PRIMARY DAMPER IS DISCONNECTED AND TSM IS RETRACTED. CLEAR TO PROCEED WITH MSS TO MATE POSITION. REPORT WHEN MSS IS OVER MOUNTS.	
	111	6	CLTC	CVTS	REQUEST PEHE PERFORM SNIFFER CHECKS IN S-IC FWD, S-II AFT, S-II FWD, S-IVB AFT, AND IU/S-IVB FWD AREAS WHEN ACCESS DOORS ARE OPEN.	
	111	7	CVTS	CPSS	VERIFY READY TO SUPPORT LV ACCESS DOORS SNIFFER CHECKS ON CH. 141.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+5 HRS 15' C"	CONTINUED					
	111	8	CVTS	CTSC	PERFORM SNIFFER CHECKS IN S-IC FWD, S-II AFT, S-II FWD, S-IVB AFT, AND IU/S-IVB FWD AREAS WHEN ACCESS DOORS ARE OPEN AND HAVE PEHE ADVISE SYSTEMS SAFETY WHEN PERSONNEL ARE CLEAR TO ENTER. NOTE ---- S-IC FWD AREA ACCESS IS REQUIRED AT T+6 HRS, 0'0". S-II FWD, S-IVB AFT AND IU AREA ACCESS IS REQUIRED AT T+6 HOURS, 15' 0". S-II AFT AREA ACCESS IS REQUIRED AT T+6 HOURS, 45' 0".	H
+5 HRS 30' C"	111	1	CTSC	CVTS	MSS IS IN MATE POSITION. MEASUREMENTS ARE COMPLETE. READY TO JACK DOWN.	
	111	2	CVTS	CLTC	MSS IS OVER MOUNTS. REPORT WHEN TSM 3 - 4 TOWER IS ERECTED AND MSS CAN BE LOWERED.	
	111	3	CLTC	CVTS	TSM 3 - 4 TOWER ERECTED AND CLEAR FOR LOWERING MSS ON MOUNTS. NOTIFY CLTC IF MSS MUST BE REPOSITIONED PRIOR TO LOWERING.	
	111	4	CVTS	CPSS	VERIFY CLEARANCE TO LOWER MSS ON MOUNTS.	
	111	5	CVTS	CTSC	TSM 3 - 4 TOWER ERECTED. CLEAR TO LOWER MSS ON MOUNTS. REPORT IF REPOSITIONING IS NECESSARY.	H

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+5 HRS 30' 0"	CONTINUED					
	111	6	CLTC	CVTS	RANGE CLEARANCE FOR S-II TM IS NO LONGER REQUIRED.	
	111	7	CVTS	SRO	LV S-II TM LINKS BF-1 AND BF-2 ARE OFF.	
+5 HRS 45' 0"						
	111	1	CLTC	CVTS	SA NO. 8 TIP HAS BEEN EXTENDED AND IS OPEN FOR ACCESS.	
	111	2	MSTC	CVTS	REDUCE SM ECS FLOW RATE TO 20 LBS PER MIN.	
	111	3	CVTS	CLTC	REDUCE SM ECS FLOW RATE TO 20 LBS PER MIN. REPORT WHEN COMPLETE.	
					NOTE ---- IU, S-IVB AFT, S-II FORWARD, S-II AFT AND S-IC FORWARD DOOR OPENINGS ARE SCHEDULED TO BEGIN AT THIS TIME.	
+5 HRS 55' 0"						
	111	1	CVTS	GMIL	VERIFY READY TO SUPPORT CSM WITH G&N UPLINK ENABLE.	
	111	2	MSTC	CVTS	VERIFY GMIL SUPPORT FOR G&N UPLINK ENABLE.	
+6 HRS 0' 0"						
	111	1	CTSC	CVTS	MSS IS ON MOUNTS.	
	111	2	CVTS	CLTC	MSS IS ON MOUNTS. READY FOR AUXILIARY DAMPER CONNECTION.	

TIME	COMM CH	SEQUENCE	COMMAND STA	RESPONSE STA	DESCRIPTION	REMARKS
+5 HRS 0' 0"	CONTINUED					
	111	3	CVTS	MSTC	AUXILIARY DAMPER WILL BE CONNECTED.	
	111	4	CPSS	CVTS	SNIFFER CHECK IN S-IC FWD IS COMPLETE. PERSONNEL MAY ACCESS THROUGH SA NO. 2.	
	111	5	CVTS	CLTC	CPSS HAS APPROVED LV ACCESS THROUGH S-IC FWD DOOR (SA NO. 2).	
	111	6	CTSC	CVTS	CONNECTING AND PRESSURIZING MSS/PAD 3000 PSI GN2 HAZARD PURGE SUPPLY LINE.	
					NOTE --- THE INSTALLATION OF LV ACCESS KITS FOR S&A OPERATIONS IS SCHEDULED TO BEGIN AT THIS TIME.	
	111	7	CTSC	CVTS	CONNECTING AND PRESSURIZING MSS/PAD 6000 PSI GHE LINES.	
	111	8	CVTS	CPSS	CONNECTING AND PRESSURIZING MSS/PAD 6000 PSI GHE LINES.	
+6 HRS 15' 0"						
	111	1	CPSS	CVTS	SNIFFER CHECKS IN S-II FWD, S-IVB AFT AND IU AREAS ARE COMPLETE. PERSONNEL MAY ACCESS THROUGH SA NO. 5, 6, AND 7 DOORS.	
	111	2	CVTS	CLTC	CPSS HAS APPROVED LV ACCESS THROUGH S-II FWD, S-IVB AFT AND IU DOORS (SA NO. 5, 6, AND 7).	
	111	3	MSTC	CVTS	CSM RF IS OFF. CSM COMMAND DECODER IS OFF. GMIL SUPPORT NO LONGER REQUIRED.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+6 HRS 15' CM	CONTINUED					
	111	4	CVTS	GMIL	BRING DOWN CSM S-BAND CARRIER AND VERIFY. CSM COMMAND DECODER IS OFF. GMIL SUPPORT NO LONGER REQUIRED.	
	111	5	CVTS	SRO	CSM S-BAND AND VHF ARE OFF.	
	111	6	CVTS	HFLT	CSM S-BAND CARRIER IS OFF. CSM COMMAND DECODER IS OFF.	
	111	7	CLTC	CVTS	AUXILIARY DAMPER IS CONNECTED.	
	111	8	CVTS	CTSC	AUXILIARY DAMPER IS CONNECTED. CLOSE PLATFORMS NO. 5, NO. 4, AND NO. 3. NOTE ---- MSS PLATFORMS NO. 5, NO. 4, AND NO. 3 WILL BE CLOSING FROM T+6 HOURS, 15' 0" TO T+7 HOURS, 30' 0".	H
	111	9	CTSC	CVTS	CONNECTING MSS/PAD COMM AND INSTRUMENTATION CABLES AND CONFIGURING MSS/TRANSPORTER OIS TO HARDLINE PRIOR TO MSS TRANSFER TO PAD POWER.	
	111	10	CVTS	MSTC KSTC CLTC	STANDBY FOR OIS TRANSFER FROM CT TO PAD.	
+6 HRS 30' CM	111	1	CTSC	CVTS	MSS TRANSFER TO PAD POWER WILL OCCUR IN 15 MINUTES.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+6 HRS 30' 0"	CONTINUED					
					NOTE ---- MSS HI-RISE ELEVATORS, HVAC AND FACILITY AIR COMPRESSORS WILL BE POWERED DOWN FOR MSS POWER TRANSFER AND WILL BE POWERED UP AFTER MSS POWER TRANSFER.	
	111	2	CTSC	CVTS	MSS/PAD COMM AND INSTRUMENTATION CABLES CONNECTED AND MSS OIS-RF CONFIGURED TO HARDLINE.	
	111	3	CVTS	MSTC KSTC CLTC	MSS OIS IS CONNECTED TO PAD.	
+6 HRS 45' 0"						
	111	1	CTSC	CVTS	VERIFY READY FOR MSS TRANSFER TO PAD POWER.	
	111	2	CTSC	CVTS	MSS TRANSFER TO PAD POWER COMPLETE.	
	111	3	CTSC	CVTS	TRANSPORTER POWERING DOWN AND PROPELLING TO PARK POSITION.	
	111	4	CPSS	CVTS	SNIFFER CHECK IN S-II AFT IS COMPLETE. PERSONNEL MAY ACCESS THROUGH SA NO. 3.	
	111	5	CVTS	CLTC	CPSS HAS APPROVED LV ACCESS THROUGH S-II AFT DOOR (SA NO. 3).	
+7 HRS 0' 0"						
	111	1	CTSC	CVTS	MSS/PAD 6000 PSI GHE LINE IS CONNECTED AND PRESSURIZED.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+7 HRS 0' 0"	CONTINUED					
	111	2	CTSC	CVTS	MSS/PAD GHE AND GN2 3000 PSI LINES ARE BEING CONNECTED AND WILL BE PRESSURIZED IN APPROXIMATELY ONE HOUR.	
	111	3	CVTS	CPSS	CONNECTING AND PRESSURIZING MSS/PAD GHE AND GN2 3000 PSI LINES.	
	111	4	CTSC	CVTS	MSS/PAD 3000 PSI HAZARD PURGE SUPPLY LINE CONNECTED AND PRESSURIZED.	
+7 HRS 15' 0"						
	111	1	CLTC	CVTS	CLEAR CONTROL AREA FOR LV S&A ORDNANCE OPERATIONS.	
	188 (PA)	2	CVTS		ALL NON-ESSENTIAL PERSONNEL, EXCEPT PERSONNEL WORKING IN THE CSM, CLEAR THE CONTROL AREA FOR LV S&A ORDNANCE OPERATIONS. **********WARNING********** THE CONTROL AREA FOR S&A DISCONNECTION IS THE SPACE VEHICLE INTERIOR EXCEPT FOR THE CSM AND S-IC BOATTAIL.	
	111	3	CVTS	CPSS	CLEAR THE CONTROL AREA FOR LV S&A ORDNANCE OPERATIONS.	
+7 HRS 30' 0"						
	111	1	CVTS	MSTC	VERIFY READY TO MAINTAIN RF SILENCE AND CONTROLLED SWITCHING ACROSS THE LV/SC INTERFACE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+7 HRS 30' 0"	CONTINUED					
	111	2	CLTC	CVTS	REQUEST RF SILENCE. LV CONTROLLED SWITCHING AND CONTROLLED SWITCHING ACROSS THE LV/SC INTERFACE IS IN EFFECT.	
		3		CVTS	TURN RF SILENCE SWITCH ON.	
	188 (PA)	4	CVTS		RF SILENCE IS NOW IN EFFECT. CONTROLLED SWITCHING ON THE LV AND ACROSS THE LV/SC INTERFACE IS NOW IN EFFECT. SWITCHING REQUESTS ARE TO BE COORDINATED THROUGH TEST CONDUCTORS WITH CVTS.	
	111		'SS	CVTS	CLEAR TO PROCEED WITH LV S&A DISCONNECTION.	
	11'	6	CVTS	CLTC	CPSS READY FOR PD DETONATOR AND CDF DISCONNECTION.	H
+8 HRS 0' 0"						
	111	1	CTSC	CVTS	MSS/PAD GHE AND GN2 SYSTEMS PRESSURIZED.	
	111	2	CVTS	MSTC	MSS/PAD GHE AND GN2 3000 PSI LINES HAVE BEEN CONNECTED AND PRESSURIZED.	
+8 HRS 15' 0"						
	111	1	CLTC	CVTS	S&A OPERATIONS COMPLETE. LV READY TO REMOVE RF SILENCE AND CONTROLLED SWITCHING.	
	111	2	CVTS	CPSS	LV S&A OPERATIONS ARE COMPLETE. VERIFY CLEAR TO OPEN THE CONTROL AREA.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+8 HRS 15' 0"	CONTINUED					
		3		CVTS	TURN RF SILENCE SWITCH OFF.	
	188 (PA)	4	CVTS		LV S&A OPERATIONS ARE COMPLETE. RF SILENCE AND CONTROLLED SWITCHING ARE NO LONGER IN EFFECT. THE CONTROL AREA IS OPEN FOR NORMAL WORK.	
	111	5	CVTS	MSTC	RF SILENCE AND CONTROLLED SWITCHING ARE OFF.	
+8 HRS 30' 0"						
	111	1	CTSC	CVTS	MSS PLATFORM NO. 4 IS AVAILABLE FOR JOINT ACCESS.	
	111	2	CVTS	MSTC	MSS PLATFORM NO. 4 IS AVAILABLE FORY JOINT ACCESS.	
					NOTE ---- JOINT PLATFORM USAGE IS REQUIRED UNTIL INSTALLATION OF ANNULUS RINGS ARE COMPLETED.	
+ 9 HRS 0' 0"					NOTE ---- SC CRYO PREPARATIONS ARE SCHEDULED TO BEGIN AT THIS TIME.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+9 HRS 45' C"						
	111	1	CLTC	CVTS	REQUEST MSS PLATFORM NO. 2 BE CLOSED AT STATION 3034.	
	111	2	CVTS	CTSC	CLOSE MSS PLATFORM NO. 2 AT STATION 3034.	H
	111	3	CTSC	CVTS	MSS PLATFORM NO. 3 IS AVAILABLE FOR JOINT ACCESS.	
	111	4	CVTS	KSTC	MSS PLATFORM NO. 3 IS AVAILABLE FOR JOINT ACCESS.	
					NOTE ---- JOINT PLATFORM USAGE IS REQUIRED UNTIL INSTALLATION OF ANNULUS RINGS ARE COMPLETED.	
+11 HRS 0' C"						
	111	1	MSTC	CVTS	READY FOR REMOVAL OF W/R DOOR LOCK.	
	111	2	CVTS	CLTC	REMOVE W/R MSS DOOR LOCK.	
+11 HRS 45' C"						
	111	1	CLTC	CVTS	IU READY FOR LM SHE GSE INSTALLATION.	
	111	2	CVTS	KSTC	IU READY FOR LM SHE GSE INSTALLATION.	
+12 HRS 45' 0"						
	111	1	CLTC	CVTS	LV BATTERY REMOVAL COMPLETE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+12 HRS 45' 0"	CONTINUED					
	111	2	CTSC	CVTS	IU WAT- DELUGE SYSTEM IS DEACTIVATED AND SECURED. CLEAR TO INSTALL IU WATER NOZZLE. (IU WATER DELUGE/FACILITIES HAND VALVES V-4 CLOSED AND V-128 OPEN. SYSTEM ENABLE AND ARM SWITCHES OFF.)	
	111	3	CVTS	CLTC	IU WATER DELUGE SYSTEM IS DEACTIVATED. CLEAR TO INSTALL IU WATER NOZZLE. REPORT WHEN COMPLETE. (IU WATER DELUGE/FACILITIES HAND VALVES V-4 CLOSED AND V-128 OPEN. SYSTEM ENABLE AND ARM SWITCHES OFF).	
+13 HRS 0' 0"	111	1	CVTS	CLTC	REMOVE FLIGHT CODE PLUGS AND DELIVER TO ROOM 4P8.	
	111	2	CVTS	CTNS	FLIGHT CODE PLUGS ARE BEING REMOVED AND WILL BE DELIVERED TO ROOM 4P8.	
	111	3	CTSC	CVTS	MSS PLATFORM NO. 2 IS AVAILABLE FOR ACCESS.	
	111	4	CVTS	CLTC	MSS PLATFORM NO. 2 IS AVAILABLE FOR ACCESS.	
+13 HRS 15' 0"	111	1	CLTC	CVTS	REQUEST MSS PLATFORM NO. 2 BE MOVED TO STATION 2697.	
	111	2	CVTS	CTSC	MOVE MSS PLATFORM NO. 2 TO STATION 2697.	H
	111	3	CTSC	CVTS	MSS LES SPRAY SYSTEM ON PLATFORM NO. 5 AND MSS LEVELS DELUGE SYSTEM HAVE BEEN PLACED IN FIELD ACTIVE MODE. ML LES SPRAY AND ML EGRESS SPRAY SYSTEMS HAVE BEEN SECURED.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+13 HRS 30' 0"						
	111	1	CLTC	CVTS	REQUEST MSS PLATFORM NO. 1 BE POSITIONED AT LV STA 1848 FOR S-II INSULATION INSPECTION.	
	111	2	CVTS	CTSC	CLOSE MSS PLATFORM NO. 1 AT LV STA 1848 FOR S-II INSULATION INSPECTION.	H
	111	3	CTSC	CVTS	MSS PLATFORM NO. 2 POSITIONED AT LV STATION 2697.	
	111	4	CVTS	CLTC	MSS PLATFORM NO. 2 IS AT LV STATION 2697.	
+14 HRS 0' 0"						
	111	1	CVTS	CLTC	REDUCE SA-8 ECS FLOW RATE TO MINIMUM AND VERIFY WHEN COMPLETE.	
	111	2	CVTS	CLTC	INSTALL SA 8 ECS "Y" AND REPORT WHEN COMPLETE.	
	111	3	CVTS	MSTC	RECONFIGURE SA 8 ECS DUCT TO TEST CONFIGURATION. SA 8 ECS FLOW RATE HAS BEEN REDUCED TO MINIMUM.	
+15 HRS 30' 0"						
	111	1	MSTC	CVTS	SA-8 ECS DUCT RECONFIGURATION COMPLETE. INCREASE SM ECS FLOW RATE TO 100 LBS/ MIN.	
	111	2	CVTS	CLTC	INCREASE SA-8 ECS FLOW RATE TO 100 LBS/MIN.	
	111	3	CVTS	CTSC	RESERVE MSS LOW RISE AND ONE HIGH RISE ELEVATOR FOR ALSEP FCA REMOVAL IN 30 MINUTES.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+15 HRS 45' 0"						
	111	1	CTSC	CVTS	MSS PLATFORM NO. 1 IS AVAILABLE FOR ACCESS.	
	111		CVTS	CLTC	MSS PLATFORM NO. 1 IS AVAILABLE FOR ACCESS. NOTE ---- S-II INSULATION INSPECTION IS SCHEDULED TO BEGIN AT THIS TIME.	
+16 HRS 0' 0"						
	111	1	KSTC	CVTS	VERIFY MSS LOW RISE AND ONE HIGH RISE ELEVATOR IS RESERVED FOR ALSEP FCA REMOVAL. CLEAR THE CONTROL AREA FOR FCA REMOVAL. DECREASE IU ECS FLOW RATE TO 135 LBS/ MIN.	
	188 (PA)	2	CVTS		ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR ALSEP FCA REMOVAL. RADIATION AREA CONTROL IS STILL IN EFFECT. **********WARNING********** * * * THE CONTROL AREA FOR * * ALSEP REMOVAL CONSISTS * * OF THE SLA INTERIOR, IU * * AND S-IVB FWD, IN * * TRANSIT, THE CONTROL * * AREA CONSISTS OF A 10 * * FT. RADIUS OF THE FCA. * * * **********	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+16 HRS 0' 0"	CONTINUED					
	111	3	CVTS	CPSS	CLEAR ALL NON-ESSENTIAL PERSONNEL FROM THE CONTROL AREA FOR ALSEP FCA REMOVAL AND VERIFY.	
	111	4	CVTS	CLTC	DECREASE IU ECS FLOWRATE TO 135 LBS/ MIN.	
+16 HRS 15' 0"						
	111	1	CPSS	CVTS	THE CONTROL AREA IS CLEAR OF ALL NON-ESSENTIAL PERSONNEL AND SAFETY IS READY TO BEGIN ALSEP FCA REMOVAL.	
	111	2	KSTC	CVTS	VERIFY CLEARANCE TO BEGIN ALSEP FCA REMOVAL.	H
+17 HRS 0' 0"					NOTE --- SC CRYO UNLOAD AND FUEL CELL COOLDOWN IS SCHEDULED TO BEGIN AT THIS TIME.	
+17 HRS 15' 0"						
	111	1	CTSC	CVTS	ALL PLATFORMS ARE CLOSED AND SECURED. THE MSS IS OPEN FOR NORMAL WORK. WEATHER PROOFING WILL CONTINUE FOR APPROXIMATELY 20 HOURS.	
+18 HRS 0' 0"						
	111	1	KSTC	CVTS	ALSEP FCA REMOVAL IS COMPLETE.	
	111	2	CVTS	CPSS	ALSEP FCA REMOVAL IS COMPLETE. CLEAR TO TERMINATE RADIATION CONTROL.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+18 HRS 0' 0"	CONTINUED					
	188 (PA)	3	CVTS		RADIATION AREA CONTROL IS NO LONGER IN EFFECT.	
	111	4	CVTS	MSTC KSTC CSTC	RADIATION AREA CONTROL IS NO LONGER IN EFFECT.	
	111	5	CVTS	CLTC	ECS CONFIGURED FOR GN2 STANDBY WITH HANDVALVES CLOSED IS NO LONGER REQUIRED.	
+19 HRS 0' 0"						
	111	1	KSTC	CVTS	CLEAR ALL NON-ESSENTIAL PERSONNEL FOR LM SHE VENT.	
	188 (PA)	2	CVTS		ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR LM SHE VENT.	
					**********WARNING********** * * * THE CONTROL AREA FOR LM * * SHE VENT CONSISTS OF * * THE SPACE INTERNAL TO * * THE SLA, IU, AND S-IVB * * FORWARD AREAS. * * * **********	
	111	3	CVTS	CPSS	CLEAR ALL NON-ESSENTIAL PERSONNEL FROM THE CONTROL AREA FOR LM SHE VENT.	
+19 HRS 30' 0"						
	111	1	CPSS	CVTS	THE CONTROL AREA IS CLEAR OF ALL NON-ESSENTIAL PERSONNEL AND SAFETY IS READY TO START LM SHE VENT.	
	111	2	KSTC	CVTS	VERIFY CLEARANCE TO BEGIN LM SHE VENT.	H

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+24 HRS 0' 0"						
	111	1	KSTC	CVTS	LM SHE VENT COMPLETE.	
	111	2	CVTS	CPSS	LM SHE VENT COMPLETE. VERIFY READY TO OPEN THE CONTROL AREA FOR NORMAL WORK.	
	188 (PA)	3	CVTS		LM SHE VENT IS COMPLETE. THE CONTROL AREA IS OPEN FOR NORMAL WORK.	
					END OF INITIAL 24 HOURS OF 28 DAY SCRUB TURNAROUND OPERATING STEPS.	

NOTE

SYSTEM REVERIFICATION TESTS AS SHOWN ON THE 28-DAY PROCESSING CHART ARE SCHEDULED TO BEGIN AT THIS TIME.

PART II

SCRUB/TURNAROUND OPERATIONS TO A 2-DAY LATER LAUNCH DAY T+4 HOURS, 45' 0" TO T+1 DAY, 17 HOURS, 0' 0".

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SPACE VEHICLE SCRUB TURNAROUND

DATE: MARCH 15, 1972

REVISION 003

FOLDOUT FRAME 1

2-DAY A/S V SCRUB/TURNAROUND AT POST - L
OPERATIONS INTER

NOTE

TIMES DEPICT TOTAL ELASPED TIME BETWEEN SCRUB AND 2ND LAUNCH ATTEMPT

OPERATIONAL SEQUENCE

DATE: 2/28/71 LA-PLN
EFFECTIVITY: AS-511 & SUBS
REVISION: 7

CONCURRENCE:

A. GOLDENBERG LS

J.H. SLOGAR LV

R.E. WOODS SF-OPN

APPROVAL:

R.E. MOSER DLO

LEGEND

T–0 D H M S*

* USED WHEN APPLICABLE

0 2 4 6 8 10 12 14 16 18 20 22 1 D 2

LAUNCH VEHICLE SAFED
RECONNECT S A 9
CREW EGRESS (1 00)
RESET CDC T–0
RECONNECT PRIMARY DAMPER & SA #1
LV LOX & LH2 DRAIN (2 10)
LV LOX & LH2 PURGE (0 30)
RP-1 REPLENISH (0 45)
SAFETY INSPECTION (1 05)
MSS OBSERVER BRIEFING
RESET CDC T+4 HOURS 45 MIN
OPEN PAD (0 30)
LV TM CALIBRATION
EXTEND SA 7 TIP
OPEN IU DOOR (0 30)
INSTALL S-IVB ACCESS KIT (1 30)
INSTALL IU LIGHTS, OIS (0 30)
SHe PREPS – INTERIOR SLA, IU, S IVB FWD ON
LM SHe RESERVICE
FDS INSTALLATION (1 00)
LM WATER SAMPLE (2 00)
REMOVE WR/MSS DOOR LOCK
CSM CRYO
S II INS
CLEAR SLA INTER
LM SHe
HEA
CL
CSM CRYO TANK

0 2 4 6 8 10 12 14 16 18 20 22 24

SUPPORT

MSS PREPS (2 15)
MSS MOVE (3 15)
COMM CHECK MSS OBSERVERS
LAY PLYWOOD (1 00)
CIF (LV TM)
CAMPER CHANGEOVER
MSS AT 35 FT
MSS JACKDOWN (0 30)
MSS DOWN ON MOUNTS AT SV
LOX MINIMUM REPLENISH (750,000 GAL 7 00
CLOSE PLATFORM 3, 4 & 5 (6 30)
LH2 MINIMUM REPLENISH (650,000 GAL 4 00
R7 CLOSE PLATFORM NO 1 AT LV STATIC
INSTALL ANNULUS RINGS AND
OPEN PLTFM 1 (1 00
MSS OIS TRANSFER CT UHF TO PAD HARDLINE (0 15)

TEST CONDITIONS

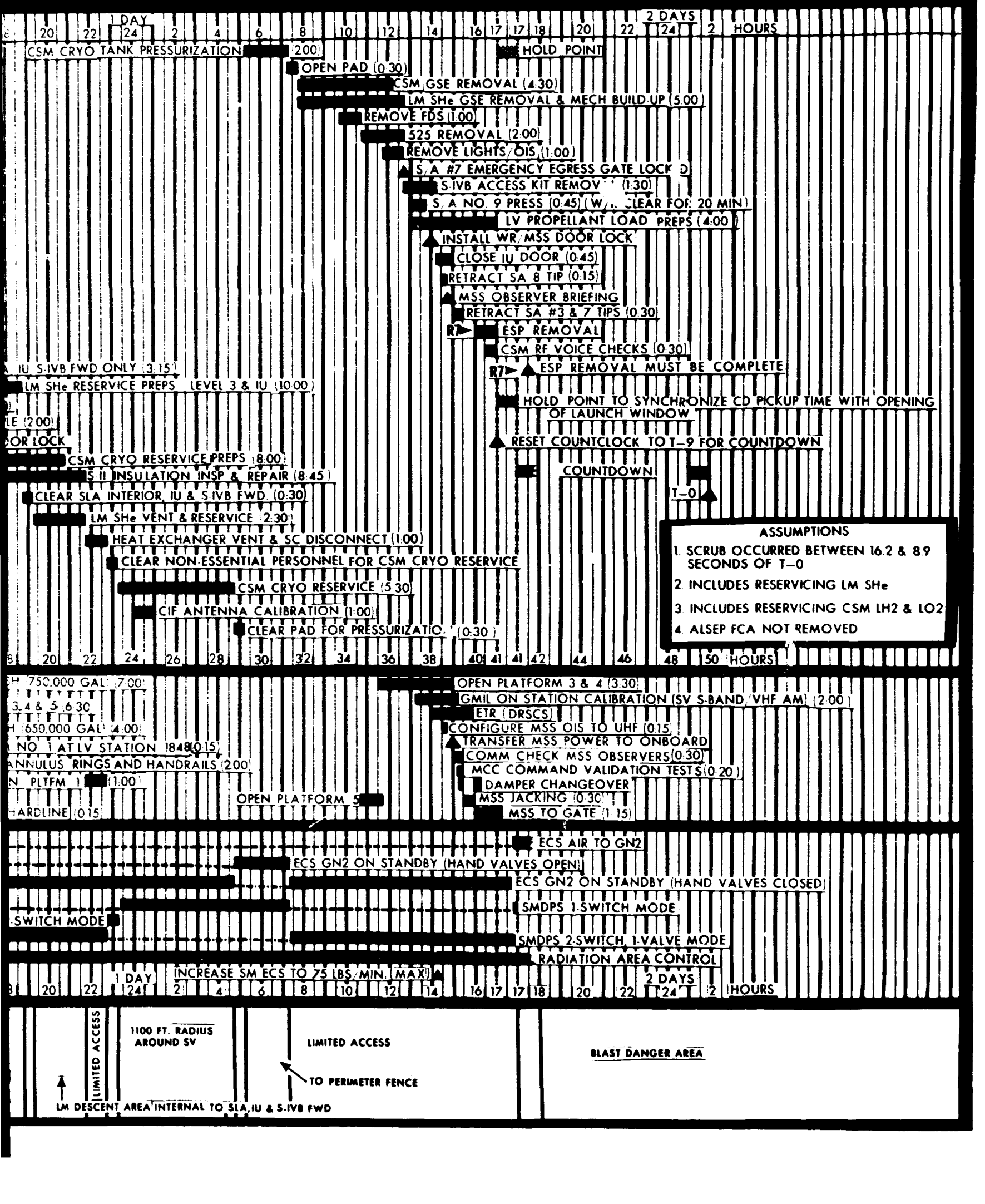
SMDPS 2-SWITCH MODE
REDUCE SM ECS TO 20 LBS MIN

0 2 4 6 8 10 12 14 16 18 20 22 1 DA 24

CONTROLLED AREAS

BLAST DANGER AREA
TO PERIMETER FENCE
LIMITED ACCESS
ML ZERO LEVEL EXCEPT PATH TO ELEVATOR
LM DESCENT AREA

T POST - LV CRYOGENIC LOADING - CSM/LM CRYOGENIC RESERVICING
IONS INTERFACE CONTROL CHART



TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+4 HRS 45' CT						
	111	1	KSTC	CVTS	ESTABLISH RADIATION BADGING ISSUE STATIONS ON LEVEL 3 AND SA 7 AND RADIATION CONTROL.	
	111	2	CVTS	CTSC	HAVE PEHE ESTABLISH RADIATION BADGING ISSUE STATIONS ON LEVEL 3 AND SA 7. ESTABLISH RADIATION CONTROL. **********WARNING********** * * THE RADIATION CONTROL * * AREA CONSISTS OF SLA * * INTERIOR, IU, S-IVB * * FWD, S/A 7, AND INSIDE * * MSS PLATFORM 3A * * ENCLOSURE. * * ********** NOTE ---- THE FCA WILL NOT BE REMOVED DURING THE SCRUB TURNAROUND.	
	188 (PA)	3	CVTS		THE CONTROL AREA IS NOW OPEN FOR NORMAL WORK. RADIATION AREA CONTROL REMAINS IN EFFECT.	
	111	4	CVTS	MSTC	THE CONTRCL AREA IS OPEN FOR NORMAL WORK.	
	111	5	MSTC	CVTS	CHANGE SMDPS FROM 1-SWITCH MODE TO 2-SWITCH 1-VALVE MODE AND VERIFY. HAVE 280 FT. ACE ROOM OPENED.	
	111	6	CVTS	CTSC	OPEN ML 280 FT. ACE ROOM.	
	111	7	CVTS	CLTC	CHANGE SMDPS FROM 1-SWITCH MODE TO 2-SWITCH 1-VALVE MODE. REPORT WHEN COMPLETE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+4 HRS 45' C"	CONTINUED					
	111	8	CVTS	CPSS	SMDPS IS GOING FROM 1-SWITCH MODE TO 2-SWITCH, 1-VALVE MODE.	
	111	9	CVTS	MSTC	SMDPS IS IN 2-SWITCH, 1-VALVE MODE.	
	111	10	CTSC	CVTS	ML EGRESS/LES SPRAY SYSTEM CONFIGURED FROM FIELD ACTIVE MODE TO REMOTE CONTROL. NOTE ---- ESP MOVE IS SCHEDULED FROM T+4 HOURS, 45' 0" TO T+5 HOURS, 15' 0".	
+5 HRS 0' 0"	111	1	CVTS	CTSC	REPORT PREVAILING WIND DATA. (REFERENCE LMR ITEM 1-401).	
	111	2	CLTC	CVTS	VERIFY PREVAILING WINDS DO NOT EXCEED REDLINE VALUES FOR FREE STANDING SV (REFERENCE LMR).	
	111	3	CTSC	CVTS	MSS IS APPROXIMATELY 15 MINUTES FROM THE 35 FT. MARK.	
	111	4	CVTS	CLTC	CLEAR TO DISCONNECT AND RETRACT PRIMARY DAMPER.	
	111	5	CVTS	MSTC	PRIMARY DAMPER WILL BE DISCONNECTED.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+5 HRS 15' C"					NOTE ---- EXTENSION OF SA NO. 7 TIP IS SCHEDULED TO BEGIN AT THIS TIME.	
	111	1	CTSC	CVTS	ML EGRESS/LES SPRAY SYSTEM CONFIGURED FROM FIELD ACTIVE MODE TO REMOTE CONTROL. ML EGRESS CHUTE SPRAY SYSTEM DEACTIVATED.	
	111	2	CTSC	CVTS	ALL MSS PLATFORMS ARE OPEN.	
	111	3	CTSC	CVTS	MSS IS AT 35 FT AND READY TO PROPEL TO MATE.	
	111	4	CLTC	CVTS	PRIMARY DAMPER IS DISCONNECTED AND TSM TOWER IS RETRACTED. LV READY FOR MSS MATE.	
	111	5	CVTS	CTSC	PRIMARY DAMPER IS DISCONNECTED AND TSM IS RETRACTED. CLEAR TO PROCEED WITH MSS TO MATE POSITION. REPORT WHEN MSS IS OVER MOUNTS.	H
	111	6	CLTC	CVTS	REQUEST PEHE PERFORM SNIFFER CHECKS IN S-IC FWD, S-II AFT, AND IU/S-IVB FWD AREAS WHEN ACCESS DOORS ARE OPEN.	
	111	7	CVTS	CPSS	VERIFY READY TO SUPPORT LV ACCESS DOORS SNIFFER CHECKS ON CH. 141.	
	111	8	CVTS	CTSC	PERFORM SNIFFER CHECKS IN S-IC FWD, S-II FWD, S-II AFT AND IU/S-IVB FWD AREAS WHEN ACCESS DOORS ARE OPEN, AND HAVE PEHE ADVISE SYSTEMS SAFETY WHEN PERSONNEL ARE CLEAR TO ENTER.	H

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+5 HRS 15' C"	CONTINUED					
					NOTE ---- S-IC FWD AREA ACCESS IS REQUIRED AT T+6 HOURS 0' 0", IU/S-IVB FWD AND S-II AFT AREA ACCES IS REQUIRED AT T+6 HOURS 15' 0".	
+5 HRS 30' 0"	111	1	CTSC	CVTS	MSS IS IN MATE POSITION. MEASUREMENTS ARE COMPLETE. READY TO JACK DOWN.	
	111	2	CVTS	CLTC	MSS IS OVER MOUNTS. REPORT WHEN TSM 3 - 4 TOWER IS ERECTED AND MSS CAN BE LOWERED.	
	111	3	CLTC	CVTS	TSM 3 - 4 TOWER ERECTED AND CLEAR FOR LOWERING MSS ON MOUNTS. NOTIFY CLTC IF MSS MUST BE REPOSITIONED PRIOR TO LOWERING.	
	111	4	CVTS	CPSS	VERIFY CLEARANCE TO LOWER MSS ON MOUNTS.	
	111	5	CVTS	CTSC	TSM 3 - 4 TOWER ERECTED. CLEAR TO LOWER MSS ON MOUNTS. REPORT IF MSS REPOSITIONING IS NECESSARY.	H
	111	6	CLTC	CVTS	RANGE CLEARANCE FOR S-II TM IS NO LONGER REQUIRED.	
	111	7	CVTS	SRO	LV S-II TM LINKS BF-1 AND BF-2 ARE OFF.	
+5 HRS 45' C"	111	1	MSTC	CVTS	REDUCE SM ECS FLOW RATE TO 20 LBS/MIN.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+5 HRS 45' C"	CONTINUED					
	111	2	CVTS	CLTC	REDUCE SM ECS FLOW RATE TO 20 LBS/MIN.. REPORT WHEN COMPLETE.	
					NOTE ---- IU DOOR OPENING IS SCHEDULED TO BEGIN AT THIS TIME.	
+5 HRS 55' C"	111	1	CVTS	GMIL	VERIFY READY TO SUPPORT CSM WITH G&N UPLINK ENABLE.	
	111	2	MSTC	CVTS	VERIFY GMIL SUPPORT FOR G&N UPLINK ENABLE.	
6 HRS 0' 0"	111	1	CTSC	CVTS	MSS IS ON MOUNTS.	
	111	2	CVTS	CLTC	MSS IS ON MOUNTS. READY FOR AUXILIARY DAMPER CONNECTION.	
	111	3	CVTS	MSTC	AUXILIARY DAMPER WILL BE CONNECTED.	
	111	4	CPSS	CVTS	SNIFFER CHECK IN S-IC FWD AREA IS COMPLETE. PERSONNEL MAY ACCESS THROUGH SA NO. 2.	
	111	5	CVTS	CLTC	CPSS HAS APPROVED LV ACCESS THROUGH S-IC FWD DOOR (SA NO. 2).	
	111	6	CTSC	CVTS	CONNECTING AND PRESSURIZING MSS/PAD 3000 PSI GN2 HAZARD PURGE SUPPLY LINE.	
	111	7	CTSC	CVTS	CONNECTING AND PRESSURIZING MSS/PAD 6000 PSI GHE LINES.	
	111	8	CVTS	CPSS	CONNECTING AND PRESSURIZING MSS/PAD 6000 PSI GHE LINES.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+6 HRS 15' 0"						
	111	1	CPSS	CVTS	SNIFFER CHECKS IN IU/S-IVB FWD AND S-I' AFT ARE COMPLETE. PERSONNEL MAY ACCESS THROUGH SA NO. 3 AND NO. 7 DOORS.	
	111	2	CVTS	CLTC	CPSS HAS APPROVED LV ACCESS THROUGH IU AND S-II AFT DOORS (SA NO. 3 AND NO. 7).	
	111	3	MSTC	CVTS	CSM RF IS OFF. CSM COMMAND DECODER IS OFF. GMIL SUPPORT NO LONGER REQUIRED.	
	111	4	CVTS	GMIL	BRING DOWN CSM S-BAND CARRIER AND VERIFY. CSM COMMAND DECODER IS OFF. GMIL SUPPORT NO LONGER REQUIRED.	
	111	5	CVTS	SRO	CSM S-BAND AND VHF ARE OFF.	
	111	6	CVTS	HFLT	CSM S-BAND CARRIER IS OFF. CSM COMMAND DECODER IS OFF.	
	111	7	CLTC	CVTS	AUXILIARY DAMPER IS CONNECTED.	
	111	8	CVTS	CTSC	AUXILIARY DAMPER IS CONNECTED. CLOSE PLATFORMS NO. 5, NO. 3 AND NO. 4. NOTE ---- MSS PLATFORM NO. 5, NO. 3, AND NO. 4 WILL BE CLOSING FROM T+6 HOURS 15' 0" TO T+12 HOURS, 0' 0".	H

TIME	COMM CH	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+ 6 HRS 15' 0"	CONTINUED					
					NOTE ---- THE INSTALLATION OF S-IVB ACCESS KIT IS SCHEDULED FROM T+6 HOURS, 15' 0" TO T+7 HOURS, 45' 0".	
	111	9	CTSC	CVTS	CONNECTING MSS/PAD COMM AND INSTRUMENTATION CABLES AND CONFIGURING MSS/TRANSPORTER OIS TO HARDLINE PRIOR TO MSS TRANSFER TO PAD POWER. DISCONNECTING MSS TRANSPORTER OIS INTERFACE.	
	111	10	CVTS	MSTC KSTC CLTC	STANDBY FOR OIS TRANSFER FROM CT TO PAD.	
+6 HRS 30' 0"	111	1	CTSC	CVTS	MSS TRANSFER TO PAD POWER WILL OCCUR IN 15 MINUTES.	
					NOTE ---- MSS HI-RISE ELEVATORS, HVAC AND FACILITY AIR COMPRESSORS WILL BE POWERED DOWN FOR MSS POWER TRANSFER AND POWERED UP AFTER MSS POWER TRANSFER.	
	111	2	CTSC	CVTS	MSS/PAD COMM AND INSTRUMENTATION CABLES CONNECTED AND MSS OIS-RF CONFIGURED TO HARDLINE.	

TIME	COMM CH	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+ 6 HRS 30' 0"	CONTINUED					
	111	3	CVTS	MSTC KSTC CLTC	MSS OIS IS CONNECTED TO PAD.	
	111	4	CTSC	CVTS	MSS PLATFORM NO. 5 IS AVAILABLE FOR JOINT ACCESS.	
	111	5	CVTS	MSTC	MSS PLATFORM NO. 5 IS AVAILABLE FOR JOINT ACCESS.	
					NOTE ---- JOINT PLATFORM USAGE IS REQUIRED UNTIL INSTALLATION OF ANNULUS RINGS ARE COMPLETED.	
+ 6 HRS 45' 0"						
	111	1	CTSC	CVTS	VERIFY READY FOR MSS POWER TRANSFER TO PAD POWER.	
	111	2	CTSC	CVTS	MSS TRANSFER TO PAD POWER COMPLETE.	
	111	3	CTSC	CVTS	TRANSPORTER JACKING DOWN AND PROPELLING TO PARK POSITION.	
+7 HRS 0' 0"						
	111	1	CVTS	CPSS	VERIFY CLEARANCE FOR LH2 STORAGE TANK REPLENISH.	
	111	2	CVTS	CTSC	CLEAR TO PROCEED WITH LH2 STORAGE TANK REPLENISH.	H

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+ 7 HRS C° C"	CONTINUED					
					NOTE ---- LH2 STORAGE TANK REPLENISHMENT TO 650,000 GALLONS IS SCHEDULED FROM T+7 HOURS, 0° 0" TO T+11 HOURS, 0° 0".	
	111	3	CTSC	CVTS	MSS/PAD 6000 PSI GHE LINE IS CONNECTED AND PRESSURIZED.	
	111	4	CTSC	CVTS	MSS/PAD GHE AND GN2 3000 PSI LINES ARE BEING CONNECTED AND WILL BE PRESSURIZED IN APPROXIMATELY ONE HOUR.	
	111	5	CVTS	CPSS	CONNECTING AND PRESSURIZING MSS/PAD GHE AND GN2 3000 PSI LINES.	
	111	6	CTSC	CVTS	MSS/PAD 3000 PSI HAZARD PURGE SUPPLY LINE CONNECTED AND PRESSURIZED.	
+7 HRS 45° C"						
	111	1	CLTC	CVTS	S-IVB FORWARD ACCESS KIT REQUIRED FOR LM OPERATIONS IS INSTALLED.	
	111	2	CVTS	KSTC	THE S-IVB FORWARD ACCESS KIT HAS BEEN INSTALLED. BEGIN SHE RESERVICE PREPARATION.	

TIME	COMM CH	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+7 HRS 45' C"	CONTINUED					
					NOTE --- INSTALLATION OF IU LIGHTS IS SCHEDULED TO BEGIN AT THIS TIME. LM SHE PREPS - INTERIOR SLA, IU AND S-IVB FORWARD ARE SCHEDULED TO BEGIN AT THIS TIME.	
+8 HRS C'C"	111	1	CTSC	CVTS	MSS/PAD GHE AND GN2 SYSTEMS PRESSURIZED.	
	111	2	CVTS	MSTC	MSS/PAD GHE AND GN2 3000 PSI LINES HAVE BEEN CONNECTED AND PRESSURIZED.	
+8 HRS 45' C"	111	1	CTSC	CVTS	MSS PLATFORM NO. 3 IS AVAILABLE FOR JOINT ACCESS.	
	111	2	CVTS	KSTC	MSS PLATFORM NO. 3 IS AVAILABLE FOR JOINT ACCESS.	
					NOTE --- JOINT PLATFORM USAGE IS REQUIRED UNTIL INSTALLATION OF ANNULUS RINGS ARE COMPLETED.	

TIME	COMM CH	SEQUENCE	COMMAND STA	RESPONSE STA	DESCRIPTION	REMARKS
+8 HRS 45' 0"	CONTINUED					
					NOTE ---- LM SHE PREPS - MSS PLATFORM NO. 3 AND IU ARE SCHEDULED TO BEGIN AT THIS TIME.	
+11 HRS 0' 0"						
					NOTE ---- LM WATER SAMPLING IS SCHEDULED TO BEGIN AT THIS TIME.	
	111	1	MSTC	CVTS	READY FOR REMOVAL OF W/R MSS DOOR LOCK.	
	111	2	CVTS	CTSC	REQUEST ACCESS TO MSS PLATFORM NO. 4 FOR REMOVAL OF W/R MSS DOOR LOCK.	
	111	3	CVTS	CLTC	REMOVE W/R MSS DOOR LOCK.	
+12 HRS 45' 0"						
	111	1	CTSC	CVTS	MSS PLATFORM NO. 4 IS AVAILABLE FOR JOINT ACCESS.	
	111	2	CVTS	MSTC	MSS PLATFORM NO. 4 IS AVAILABLE FOR JOINT ACCESS.	

TIME	COMM CH	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+12 HRS 5' 0"	CONTINUED					
					NOTE ---- JOINT PLATFORM USAGE IS REQUIRED UNTIL INSTALLATION OF ANNULUS RINGS ARE COMPLETED.	
	111	3	CLTC	CVTS	REQUEST MSS PLATFORM NO. 1 BE POSITIONED AT LV STATION 1848 FOR S-II INSULATION INSPECTION.	
	111	4	CVTS	CTSC	CLOSE MSS PLATFORM NO. 1 AT LV STATION 1848 FOR S-II INSULATION INSPECTION.	H
+13 HRS 0' 0"						
	111	1	CTSC	CVTS	MSS PLATFORM NO. 1 IS AVAILABLE FOR JOINT ACCESS.	
	111	2	CVTS	CLTC	MSS PLATFORM NO. 1 IS AVAILABLE FOR JOINT ACCESS.	
					NOTE ---- JOINT PLATFORM USAGE IS REQUIRED UNTIL INSTALLATION OF ANNULUS RINGS ARE COMPLETE AT T+15 HOURS 0' 0".	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+13 HRS 0' 0"	CONTINUED					
					NOTE ---- S-II INSULATION INSPECTION IS SCHEDULED TO BEGIN AT THIS TIME.	
					NOTE ---- CSM CRYO RESERVICE PREPS ARE SCHEDULED TO BEGIN AT THIS TIME.	
+13 HRS 15' 0"	111	1	CTSC	CVTS	MSS LES SPRAY SYSTEM ON PLATFORM NO. 5 AND MSS LEVELS DELUGE SYSTEM HAVE BEEN PLACED IN FIELD ACTIVE MODE. ML LES SPRAY AND ML EGRESS SPRAY SYSTEMS HAVE BEEN SECURED.	
+18 HRS 45' 0"	111	1	KSTC	CVTS	CLEAR THE CONTROL AREA FOR LM SHE RESERVICE.	
	188 (PA)	2	CVTS		ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR LM SHE RESERVICE OPERATIONS. **********WARNING********** * * THE CONTROL AREA FOR LM * * SHE RESERVICE CONSISTS * * OF THE LM DESCENT AREA * * INTERNAL TO THE SLA, IU * * AND S-IVB FORWARD. * * **********	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+18 HRS 45' 0"	CONTINUED					
	111	3	CVTS	CPSS	CLEAR ALL NON-ESSENTIAL PERSONNEL FROM THE CONTROL AREA FOR LM SHE RESERVICE OPERATIONS. VERIFY CLEARANCE TO TRANSPORT LH2 AND LO2 DEWARS TO LC-39.	
	111	4	MSTC	CVTS	VERIFY CPSS CLEARANCE TO TRANSPORT LH2 AND LO2 DEWARS TO LC-39.	H
+19 HRS 15' 0"	111	1	CPSS	CVTS	THE CONTROL AREA IS CLEAR OF ALL NON-ESSENTIAL PERSONNEL AND SAFETY IS READY TO START LM SHE RESERVICE.	
	111	2	KSTC	CVTS	VERIFY CLEARANCE TO BEGIN SHE VENT AND TANK RESERVICE.	H
	111	3	MSTC	CVTS	CLEAR CONTROL AREA FOR LH2 DEWAR TRANSFER TO MSS LEVEL 4A AND LO2 DEWAR TRANSFER TO MSS +12 FOOT LEVEL. CONFIGURE ELEVATORS FOR TRANSFER. REQUEST CPSS CLEARANCE FOR TRANSFER. REQUEST HAZARD MONITOR SYSTEM ACTIVE. SEND SEHZ TO CH. 222.	
	111	4	CVTS	CPSS	CLEAR CONTROL AREA FOR ARRIVAL OF LH2 AND LO2 DEWARS AND POSITIONING ON SERVICE STRUCTURE. DEWARS ARE TO BE MOVED IN SERIES. MAINTAIN CONTROL AREA AROUND DEWAR CONVOY.	
	111	5	CVTS	CTSC	CONFIGURE AND OPERATE MSS LOW RISE AND HIGH RISE ELEVATORS FOR LH2 DEWAR TRANSFER TO LEVEL 4A. ACTIVATE HAZARD MONITOR SYSTEM. HAVE SEHZ REPORT TO MTPE ON CH. 222.	
	111	6	CTSC	CVTS	HAZARD MONITOR SYSTEM IS ACTIVE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+19 HRS 15' 0"	CONTINUED					
	111	7	CVTS	MSTC	HAZARD MONITOR SYSTEM IS ACTIVE.	
+19 HRS 45' 0"						
	111	1	CPSS	CVTS	THE CONTROL AREA IS CLEAR OF ALL NON-ESSENTIAL PERSONNEL AND SAFETY IS READY TO TRANSFER LH2 DEWAR TO MSS LEVEL 4A.	
	111	2	CVTS	MSTC	CLEAR TO TRANSFER LH2 DEWAR TO MSS LEVEL 4A. NOTE ---- LH2 DEWAR WILL GO TO MSS LEVEL 4A. LOX DEWAR HANDLING WILL START IN PARALLEL WITH LH2 DEWAR AS SOON AS THE HIGH RISE ELEVATOR STARTS UP. BACKUP DEWARS WILL BE HELD IN PAD STORAGE AREAS.	H
+20 HRS 15' 0"						
	111	1	MSTC	CVTS	RELEASE MSS ELEVATORS FROM DEWAR TRANSFER.	
	111	2	CVTS	CTSC	MSS ELEVATORS ARE RELEASED FROM DEWAR TRANSFER OPERATION.	
+21 HRS 15' 0"						
	111	1	CVTS	CPSS	VERIFY SAFETY CLEARANCE TO FLOW GH2 FOR CSM.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA	RESPONSE STA	DESCRIPTION	REMARKS
+21 HRS 15' 0"	CONTINUED					
	111	2	MSTC	CVTS	VERIFY CPSS CLEARANCE TO FLOW GH2.	H
+21 HRS 45' 0"						
	111	1	KSTC	CVTS	LM SHE RESERVICE COMPLETE.	
	111	2	CVTS	CPSS	LM SHE RESERVICE IS COMPLETE. VERIFY READY TO OPEN THE CONTROL AREA FOR NORMAL WORK.	
	188 (PA)	3	CVTS		LM SHE RESERVICE IS COMPLETE. THE CONTROL AREA IS OPEN FOR NORMAL WORK.	
	111	4	CLTC	CVTS	MSS PLATFORM NO. 1 IS AVAILABLE FOR OPENING.	
	111	5	CVTS	CTSC	OPEN AND SECURE MSS PLATFORM NO. 1.	H
					NOTE --- PLATFORM PREPARATION WORK IS TO BE ACCOMPLISHED ON A NON-INTERFERENCE BASIS WITH THE MSS PLATFORM CREW.	
+22 HRS 15' 0"						
	111	1	CVTS	CTSC	POWER DOWN MSS PLATFORM NO. 3 AND NO. 4 AIR CONDITIONING SYSTEM.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+22 HRS 15' 0"	CONTINUED				NOTE --- MSS PLATFORM NO. 3 AND NO. 4 AIR CONDITIONING SYSTEM IS TO BE POWERED DOWN PRIOR TO STARTING CSM LO2 AND LH2 SERVICING.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+22 HRS 45' 0"					**********WARNING********** * * DURING LH2 FLOW, SEHZ * WILL MONITOR HYDROGEN * DETECTION SYSTEM METERS * AND INFORM MSTC OF ALL * HYDROGEN INDICATIONS * SPECIFYING SENSOR I.D. * AND PERCENT GAS * CONCENTRATION. * * SYSTEM SAFETY (PVSS) * WILL VERIFY READINGS * USING A PORTABLE GAS * DETECTOR (A FOUR PERCENT * CONCENTRATION OF * HYDROGEN CONSTITUTES AN * EXPLOSIVE ATMOSPHERE.) * * MSTC WILL DIRECT * SECURING OF LH2 FLOW * UNDER CONDITIONS OF * RAPID INCREASE IN H2 * CONCENTRATION OR A * REPORTED READING NEARING * FOUR PERCENT AT ANY * SENSOR. * * TIME PERMITTING, MSTC * WILL CONFER WITH PVSS * AND MLFC PRIOR TO * DIRECTING ANY * INTERRUPTION OF FLOW. * * CVTS WILL DIRECT THE * USE OF THE GN2 DELUGE * PURGE AS SPECIFIED IN * APOLLO/SATURN V SPACE * VEHICLE TEST SUPERVISOR * EMERGENCY PROCEDURE, * TCP NO. V-46001. * **********	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+22 HRS 45' 0"	CONTINUED					
	111	1	CTSC	CVTS	MSS PLATFORM NO. 1 IS OPEN AND SECURE.	
	111	2	CVTS	CLTC	MSS PLATFORM NO. 1 IS OPEN AND SECURE.	
	111	3	MSTC	CVTS	CLEAR THE CONTROL AREA FOR CSM LH2 RESERVICING. REQUEST CPSS CLEARANCE TO START LH2 RESERVICING. CHANGE SMDPS FROM 2-SWITCH, 1-VALVE MODE TO 1-SWITCH MODE AND VERIFY.	
	111	4	CVTS	MSTC KSTC	VERIFY ALL NON-EXPLOSION-PROOF ELECTRICAL EQUIPMENT ON THE SC LEVELS OF THE MSS HAVE BEEN DISCONNECTED. NOTE ---- SMDPS IS CONFIGURED FOR 1-SWITCH AT THE COMPLETION OF CONTROL AREA CLEARING AT T+23 HOURS, 15' 0".	
	111	5	CVTS	CLTC	CHANGE THE SMDPS FROM 2-SWITCH 1-VALVE MODE TO 2-SWITCH MODE. REPORT WHEN COMPLETE.	
	188 (PA)	6	CVTS		ALL NON-ESSENTIAL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR CSM CRYO RESERVICING.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+22 HRS 45' 0"	CONTINUED					
					**********WARNING********** * * * THE CONTROL AREA FOR CSM * * CRYO RESERVICING * * CONSISTS OF 1100 FT. * * RADIUS AROUND THE SPACE * * VEHICLE. * * * **********	
	111	7	CVTS	CPSS	CLEAR ALL NON-ESSENTIAL PERSONNEL FROM THE CONTROL AREA FOR CSM CRYO RESERVICING. ALL NON-EXPLOSION-PROOF ELECTRICAL EQUIPMENT ON THE SC LEVELS OF THE MSS HAVE BEEN DISCONNECTED.	
+23 HRS 15' 0"						
	111	1	CPSS	CVTS	THE CONTROL AREA IS CLEAR OF ALL NON-ESSENTIAL PERSONNEL AND SAFETY IS READY TO START CSM LH2 RESERVICING. CLEAR TO CHANGE SMDPS FROM 2-SWITCH MODE TO 1-SWITCH MODE FOR LH2 RESERVICING.	
	111	2	CVTS	CLTC	CHANGE SMDPS TO 1-SWITCH MODE. REPORT WHEN COMPLETE.	
	111	3	CLTC	CVTS	SMDPS IS IN 1-SWITCH MODE.	
	111	4	CVTS	MSTC	CLEAR TO START CSM LH2 RESERVICING. SMDPS IS IN 1-SWITCH MODE.	H
+23 HRS 55' 0"						
	111	1	CVTS	SRO	VERIFY RADIATION CLEARANCE FOR CIF ANTENNA CALIBRATION. (2282.5 MHZ AND 2287.5 MHZ).	

TIME	COMM CH	SEQUENCE	COMMAND STA	RESPONSE STA	DESCRIPTION	REMARKS
+1 DAY 0 HRS 0' C"	111	1	CTSC	CVTS	VERIFY RADIATION CLEARANCE FOR CIF ANTENNA CALIBRATION. (2282.5 MHZ AND 2287.5 MHZ).	
T+24:45 + 1 DAY 0 HRS 45' 0"	111	1	CVTS	CPSS	VERIFY READY TO SUPPORT TRANSFER OF LO2 DEWAR TO MSS LEVEL 4A. KEEP CVTS INFORMED OF DEWAR LOCATION RELATIVE TO SPACE VEHICLE.	
	111	2	MSTC	CVTS	CLEAR CONTROL AREA FOR LO2 DEWAR TRANSFER TO 4A. VERIFY CPSS CLEARANCE FOR TRANSFER.	H
T+25:00 1 DAY 1 HR. 0' 0"	111	1	CTSC	CVTS	CIF ANTENNA CALIBRATION IS COMPLETE. TERMINATE CLEARANCE FOR 2282.5 MHZ AND 2287.5 MHZ.	
	111	2	CVTS	SRO	CIF ANTENNA CALIBRATION COMPLETE. RF CLEARANCE NO LONGER REQUIRED.	
T+25:15 + 1 DAY 1 HR. 15' 0"	111	1	CVTS	CPSS	VERIFY SAFETY CLEARANCE TO START CSM LO2 RESERVICING.	
	111	2	MSTC	CVTS	VERIFY CPSS CLEARANCE TO START CSM LO2 RESERVICING.	H

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+28:45 + 1 DAY 4 HRS 45' 0"						
	111	1	MSTC	CVTS	CSM PERSONNEL ARE CLEARING TH NTROL AREA. REQUEST CPSS CLEARANCE TO START SM LO2 AND LH2 TANK PRESSURIZATION TO LESS THAN 25 PERCENT D. B.	
	188 (PA)	2	CVTS		ALL PERSONNEL ARE TO CLEAR THE CONTROL AREA FOR CSM LO2 AND LH2 TANK PRESSURIZATION TO FLIGHT PRESSURES. **********WARNING********** * * * THE CONTRUL AREA FOR CSM* * LO2 AND LH2 TANK * * PRESSURIZATION CONSISTS * * OF THE AREA CONFINED BY * * THE COMPLEX PERIMETER * * FENCE. * * * ********** VERIFY READY FOR ECS GN2 STANDBY. (HAND VALVES OPEN)	
	111	3	CVTS	CPSS	CLEAR ALL PERSONNEL FROM THE CONTROL AREA FOR CSM LO2 AND LH2 TANK PRESSURIZATION TO FLIGHT PRESSURES. VERIFY READY TO START LO2 AND LH2 TANK PRESSURIZATION TO LESS THAN 25 PERCENT D.B.	
	111	4	CVTS	MSTC	CLEAR TO START WITH PRESSURIZATION TO LESS THAN 25 PERCENT D.B.	
	111	5	CLTC	CVTS	REQUEST CPSS VERIFY READY FOR ECS GN2 STANDBY. (HAND VALVES OPEN)	

TIME	COMM CH	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+29:15 +1 DAY 5 HRS 15' 0"						
	111	1	MSTC	CVTS	REQUEST CLEARANCE TO PRESSURIZE LO2 AND LH2 TANKS TO FLIGHT PRESSURES.	
	111	2	CPSS	CVTS	THE CONTROL AREA IS CLEAR OF ALL PERSONNEL AND SAFETY IS READY TO START CSM LO2 AND LH2 TANK PRESSURIZATION TO FLIGHT PRESSURES.	
	111	3	CVTS	MSTC	CLEAR TO PROCEED WITH PRESSURIZATION TO FLIGHT PRESSURES.	H
T+31:15 + 1 DAY 7 HRS 15' 0"						
	111	1	MSTC	CVTS	CRYO TANK PRESSURIZATION IS COMPLETE. TANK PRESSURES HAVE STABILIZED. CONTINUING CM SURGE TANK PRESSURIZATION. CONTROL AREA MAY BE OPENED FOR NORMAL WORK EXCEPT CM INTERIOR. VERIFY WHEN OPEN. CHANGE SMDPS TO 2-SWITCH, 1-VALVE MODE AND VERIFY.	
	111	2	CVTS	CPSS	VERIFY READY TO OPEN THE CONTROL AREA FOR NORMAL WORK EXCEPT FOR CM INTERIOR. SMDPS GOING FROM 1-SWITCH MODE TO 2-SWITCH, 1-VALVE MODE.	
	188 (PA)	3	CVTS		CSM LO2 AND LH2 TANK PRESSURIZATION IS COMPLETE. CONTINUING CM SURGE TANK PRESSURIZATION. THE CONTROL AREA IS OPEN FOR NORMAL WORK EXCEPT FOR CM INTERIOR.	
	111	4	CVTS	CLTC	CHANGE THE SMDPS FROM 1-SWITCH MODE TO 2-SWITCH, 1-VALVE MODE. REPORT WHEN COMPLETE.	

TIME	COMM CH	SEQUENCE	COMMAND STA	RESPONSE STA	DESCRIPTION	REMARKS
T+31:15 + 1 DAY 7 HRS 15' 0"	CONTINUED					
	111	5	CVTS	MSTC KSTC	THE CONTROL AREA IS OPEN FOR NORMAL WORK EXCEPT FOR CM INTERIOR. SMDPS IS IN A 2-SWITCH, 1-VALVE MODE.	H
	111	6	CLTC	CVTS	ECS IS CONFIGURED FOR GN2 STANDBY (HAND VALVES CLOSED) **********WARNING********** * * * ECS IS TO BE CONFIGURED * * FOR GN2 STANDBY WITH * * HAND VALVES CLOSED * * WHILE THE ALSEP FUEL * * CAPSULE IS INSTALLED IN * * THE VEHICLE. FOR AN * * EMERGENCY INVOLVING THE * * FUEL CAPSULE, THE * * HAND VALVES WILL NOT BE * * OPENED UNTIL DIRECTED * * BY CVTS. * * * **********	
	111	7	MSTC	CVTS	CM SURGE TANK PRESSURIZATION COMPLETE. CM INTERIOR MAY BE OPENED FOR NORMAL WORK. VERIFY WHEN OPEN.	
	111	8	CVTS	CPSS	CM SURGE TANK PRESSURIZATION COMPLETE. VERIFY READY TO OPEN THE CONTROL AREA FOR NORMAL WORK.	
	188 (PA)	9	CVTS		CM SURGE TANK PRESSURIZATION IS COMPLETE. THE CONTROL AREA IS OPEN FOR NORMAL WORK.	
	111	10	CVTS	MSTC	THE CONTROL AREA IS OPEN FOR NORMAL WORK.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+31:15 + 1 DAY 7 HRS 15' 0"	CONTINUED					
	111	11	CVTS	CTSC	POWER UP MSS PLATFORM NO. 3 AND NO. 4 AIR CONDITIONING SYSTEM.	
	111	12	MSTC	CVTS	CLEAR TO SECURE HAZARD MONITOR SYSTEM.	
	111	13	CVTS	CTSC	SECURE HAZARD MONITOR SYSTEM.	
T+33:45 + 1 DAY 9 HRS 45' 0"						
	111	1	KSTC	CVTS	LM SHE RESERVICE LINES ARE DISCONNECTED. FDS MAY BE REMOVED.	
	111	2	CVTS	CLTC	LM SHE RESERVICE LINES HAVE BEEN DISCONNECTED AND YOU ARE CLEAR TO REMOVE FDS FROM THE IU/S-IVB.	
T+34:40 + 1 DAY 10 HRS 40' 0"						
	111	1	MSTC	CVTS	MSS PLATFORM NO. 5 IS AVAILABLE FOR OPENING.	
	111	2	CLTC	CVTS	MSS PLATFORM NO. 5 IS AVAILABLE FOR OPENING IN CONJUNCTION WITH Q-BALL CABLE CONNECTION.	
	111	3	CVTS	CTSC	OPEN AND SECURE MSS PLATFORM NO. 5. COORDINATE Q-BALL CONNECTION WITH LV PERSONNEL AT MSS PLATFORM NO. 5.	H
T+35:45 + 1 DAY 10 HRS 45' 0"						
	111	1	KSTC	CVTS	3000 PSI MSS/PAD GN2 AND GHE LINES MAY BE DISCONNECTED AT THIS TIME.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+35:45 + 1 DAY 10 HRS 45' 0"	CONTINUED					
					NOTE ---- CSM REQUIRES MSS/PAD 3000 PSI GN2 AND GHE LINES UNTIL T+1 DAY, 11 HOURS, 45' 0".	
T+35:30 + 1 DAY 11 HRS 30' 0"						
	111	1	KSTC	CVTS	MSS PLATFORM NO. 3 IS AVAILABLE FOR OPENING.	
	111	2	CVTS	CTSC	OPEN AND SECURE MSS PLATFORM NO. 3.	H
					NOTE ---- PLATFORM PREPARATION WORK IS TO BE ACCOMPLISHED ON A NON-INTERFERENCE BASIS WITH THE MSS PLATFORM CREW.	
	111	3	MSTC	CVTS	MSS PLATFORM NO. 4 IS AVAILABLE FOR OPENING.	
	111	4	CVTS	CTSC	OPEN AND SECURE MSS PLATFORM NO. 4.	H
					NOTE ---- PLATFORM PREPARATION WORK IS TO BE ACCOMPLISHED ON A NON-INTERFERENCE BASIS WITH THE MSS PLATFORM CREW.	

TIME	COMM CH	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+35:30 + 1 DAY 11 HRS 30' 0"	CONTINUED					
					NOTE ---- MSS PLATFORMS NO. 3 AND NO. 4 ARE SCHEDULED TO BE OPENED FROM T+1 DAY 11 HOURS, 30' 0" TO T+1 DAY 15 HOURS, 0' 0".	
T+35:45 + 1 DAY 11 HRS 45' 0"	111	1	MSTC	CVTS	CLEAR TO DISCONNECT MSS/PAD 3000 PSI GN2 AND GHE LINES.	
	111	2	CVTS	CTSC	TERMINATE AND DISCONNECT MSS/PAD 3000 PSI GN2 AND GHE LINES.	H
	111	3	CTSC	CVTS	PLATFORM NO. 5 IS OPEN AND SECURE.	
T+36:30 + 1 DAY 12 HRS 30' 0"	111	1	CLTC	CVTS	KSC SYSTEMS SAFETY SUPPORT WILL BE REQUIRED IN 30 MINUTES ON ML LEVEL 240 FOR GH2 SNIFFER CHECKS.	
	111	2	CVTS	CPSS	SUPPORT FOR LV WILL BE REQUIRED IN 30 MINUTES ON ML LEVEL 240 FOR GH2 SNIFFER CHECKS OF THE S-IVB HEAT EXCHANGER UNIT 438A.	
	111	3	CLTC	CVTS	KSC SYSTEMS SAFETY SUPPORT WILL BE REQUIRED IN 30 MINUTES ON ML LEVEL 180 TO PERFORM GH2 SNIFFER CHECKS OF S7-41 "D" UNIT.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+36:30 + 1 DAY 12 HRS 30' 0"	CONTINUED					
	111	4	CVTS	CPSS	SUPPORT FOR LV WILL BE REQUIRED IN 30 MINUTES ON ML LEVEL 180 TO PERFORM GH2 SNIFFER CHECKS OF S7-41 "D" UNIT.	
T+36:45 + 1 DAY 12 HRS 45' 0"						
	111	1	CVTS	KSTC	VERIFY LM 525 PLATFORM REMOVAL IS COMPLETE AND CLEAR TO BEGIN S-IVB FORWARD ACCESS KIT REMOVAL. (QUAD II).	
	111	2	CVTS	CLTC	LM 525 PLATFORM REMOVAL IS COMPLETE. CLEAR TO BEGIN S-IVB FORWARD ACCESS KIT REMOVAL.	
	111	3	CVTS	CPSS KSTC	VERIFY CLEAR TO CLOSE AND LOCK EMERGENCY ACCESS GATE ON S/A 7.	
	111	4	CVTS	MSTC	S/A 7 EMERGENCY EGRESS DOOR IS BEING LOCKED.	
	111	5	CVTS	CLTC	CLEAR TO CLOSE AND LOCK EMERGENCY ACCESS GATE ON S/A 7.	
	111	6	CLTC	CVTS	SA NO. 9 WILL BE PRESSURIZED IN 15 MINUTES. LOCAL CLEARING WILL BE CONTROLLED BY SA PERSONNEL.	
	111	7	CVTS	MSTC KSTC	SA NO. 9 WILL PRESSURIZED IN 15 MINUTES. LOCAL CLEARING WILL BE CONTROLLED BY SA PERSONNEL.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+37:05 + 1 DAY 13 HRS 5' 0"						
	111	1	CVTS	MSTC KSTC CLTC	GMIL BRINGING UP SPACE VEHICLE S-BAND AND VHF CARRIERS FOR ON-STATION CALIBRATION FOLLOWED BY MCC COMMAND VALIDATION AND AIR/GROUND VALIDATION TESTING. VERIFY COMMAND DECODERS ARE OFF.	
	111	2	CVTS	SRO	VERIFY RADIATION CLEARANCE FOR GMIL ON-STATION CALIBRATION. (2101.8, 2106.4, 2272.5, 2282.5, 2287.5, 245.3, 258.5, 259.7, AND 296.8 MHZ)	
T+37:10 + 1 DAY 13 HRS 10' 0"						
	111	1	GMIL	CVTS	VERIFY RADIATION CLEARANCE FOR ON-STATION CALIBRATION.	
T+37:55 + 1 DAY 13 HRS 55' 0"						
	111	1	CVTS	SRO	STANDBY ON CH. 137 TO SUPPORT LV DRSCS PREPS PER V-38000. NOTE ---- LV DRSCS PREPS ARE FOR DRSCS TEST AT T-4 HOURS, 40' 0".	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+38:00 + 1 DAY 14 HRS 0' 0"						
	111	1	MSTC	CVTS	READY FOR MSS/WR DOOR LOCK INSTALLATION AND SA9 HANGER REMOVAL (WITH THE SHEAR DOOR OR TORSIONAL AND SHEAR FRAME IN PLACE. THE MAXIMUM ALLOWABLE LOADING IN THE APOLLO ACCESS ARM ENVIRONMENTAL CONTROL CHAMBER IS 1250 LBS. OR FIVE (5) MEN. OF THIS 1250 LBS., 600 LBS. MAXIMUM ARE ALLOWED ON THE ENVIRONMENTAL CONTROL CHAMBER EXTENSION PLATFORM.)	
	111	2	CLTC	CVTS	VERIFY READY FOR WHITE ROOM MSS DOOR LOCK INSTALLATION AND SA9 HANGER REMOVAL. (SAME LIMITATIONS AS SHOWN ABOVE.)	
	111	3	CLTC	CVTS	REQUEST RANGE SUPPORT OF DRSCS PREPS ON CH. 137 PER V-38000.	
	111	4	CTSC	CVTS	ALERT ALL SCO AND LVO OBSERVERS TO BE ON STATION IN 60 MINUTES FOR COMM CHECKS IN SUPPORT OF MSS MOVE.	
	111	5	CVTS	MSTC KSTC CLTC	MSS PLATFORM OBSERVERS ARE TO REPORT TO PVTS AT THE BASE OF THE MSS LOW RISE ELEVATOR FOR OBSERVER BRIEFING IN 45 MINUTES. NOTE ---- MSS OBSERVERS WILL REPORT ON STATION TO BE BRIEFED PER APOLLO/SATURN V LC-39 LAUNCH OPERATIONS INSTRUCTIONS, 600-26-0001.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+38:15 + 1 DAY 14 HRS 15' 0"						
	111	1	MSTC	CVTS	RAISE SM ECS FLOW RATE TO 75+/-5 LBS./ MIN.	
	111	2	CVTS	CLTC	INCREASE SM ECS FLOW RATE TO 75+/-5 LBS./MIN.	
T+38:30 + 1 DAY 14 HRS 30' 0"						
	111	1	CVTS	MSTC	VERIFY READY FOR SA NO. 8 TIP RETRACTION.	
	111	2	CLTC	CVTS	VERIFY READY FOR SERVICE ARM NO. 8 EXTENSION PLATFORM RETRACTION.	
	111	3	CTSC	CVTS	DISCONNECTING THE PAD/MSS COMM AND INSTRUMENTATION CABLES. CONFIGURING THE MSS OIS-RF TO UHF.	
	111	4	CVTS	MSTC KSTC CLTC	STARTING MSS OIS TRANSFER PAD HARDLINE TC CT UHF. CT OIS CHANNEL ASSIGNMENTS ARE IN EFFECT.	
	111	5	CTSC	CVTS	PROPELLING CT TO MSS MATE POSITION.	
	111	6	CVTS	CPSS	PROPELLING CT TO MSS MATE POSITION.	H
T+38:45 + 1 DAY 14 HRS 45' 0"						
	111	1	CTSC	CVTS	MSS OIS TRANSFER PAD TO CT IS COMPLETE. MSS IS A BRANCH OF CT UHF.	
	111	2	CVTS	MSTC KSTC CLTC	MSS OIS TRANSFER - PAD TO CT IS COMPLETE.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+38:45 + 1 DAY 14 HRS 45' 0"	CONTINUED					
	111	3	CTSC	CVTS	MSS TRANSFER TO ONBOARD POWER WILL OCCUR IN 15 MINUTES. NOTE ---- MSS HI-RISE ELEVATORS, HVAC AND FACILITY AIR COMPRESSORS WILL BE POWERED DOWN FOR MSS POWER TRANSFER AND POWERED UP AFTER MSS POWER TRANSFER.	
T+39:00 + 1 DAY 15 HRS 0' 0"					NOTE ---- A BUILT-IN HOLD TO SYNCHRONIZE COUNTDOWN PICKUP TIME WITH OPENING OF THE LAUNCH WINDOW WILL OCCUR AT T+1 DAY, 17 HOURS, 0' 0".	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+ 39:00 + 1 DAY 15 HRS 0' 0"	CONTINUED					
	111	1	CVTS	SRO GMIL HFLT MSTC KSTC CLTC CPSS CTSC	A HOLD OF ___ HOUR(S) ___ MINUTE(S) WILL START AT T+1 DAY, 17 HOURS, 0' 0" WITH THE CLOCK RESET AND HOLDING AT T-9 HOURS, 0' 0". NOTE HFLT MAY NOT BE ON THE OIS NET AT THIS TIME. IF NO RESPONSE, USE BLACK PHONE: 713-HU3-6336. NOTE CVTS WILL NOTIFY TEST CONDUCTORS OF CHANGES IN HOLD TIME IN EXCESS OF 15 MINUTES DURATION.	
	111	2	CTSC	CVTS	MSS PLATFORMS NO. 3 AND NO. 4 ARE OPEN AND SECURE.	
	111	3	CVTS	CLTC	VERIFY READY FOR MSS POWER TRANSFER FROM PAD TO CT.	
	111	4	CVTS	MSTC	MSS POWER TRANSFER IS TO OCCUR AT THIS TIME.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+39:00 + 1 DAY 15 HRS 0' 0"	CONTINUED					
	111	5	CVTS	CTSC	READY TO TRANSFER MSS POWER TO ON-BOARD.	H
	111	6	CTSC	CVTS	MSS TRANSFER TO ONBOARD POWER COMPLETE.	
T+39:10 + 1 DAY 15 HRS 10' 0"						
	111	1	GMIL	CVTS	ON-STATION CALIBRATION IS COMPLETE. GMIL RF IS OFF. READY FOR MCC COMMAND VALIDATION TEST AND MCC AIR/GROUND VALIDATION TEST.	
	111	2	CVTS	SRO	GMIL ON-STATION CALIBRATION IS COMPLETE. VERIFY RADIATION CLEARANCE FOR MCC COMMAND VALIDATION TEST. (2106.4 AND 2101.8 MHZ UP LINK FREQUENCIES). VERIFY RADIATION CLEARANCE FOR MCC AIR/GROUND VALIDATION TEST. (296.8, 259.7 AND 2106.4 MHZ)	
	111	3	HFLT	CVTS	VERIFY ALL SV COMMAND DECODERS ARE OFF. BRING UP GMIL CSM, LM AND CCS S-BAND CARRIERS FOR THE MCC COMMAND VALIDATION TEST. BRING UP GMIL CSM-VHF AND S-BAND FOR MCC AIR/GROUND VALIDATION TEST.	
	111	4	CVTS	GMIL	BRING UP GMIL CSM, LM AND CCS S-BAND CARRIERS AND VERIFY. BRING UP CSM VHF AND S-BAND FOR MCC AIR/GROUND VALIDATION TEST.	
	111	5	CVTS	HFLT	GMIL CSM AND CCS S-BAND CARRIERS ARE ON FOR THE MCC COMMAND VALIDATION TEST. GMIL STANDING BY WITH CSM-VHF FOR MCC AIR/GROUND VALIDATION TEST.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+39:15 + 1 DAY 15 HRS 15' 0"						
	111	1	CVTS	CTSC	REPORT PREVAILING WIND DATA. (REFERENCE LMR ITEM 1-401).	
T+39:20 + 1 DAY 15 HRS 20' 0"						
	111	1	CVTS	MSTC	VERIFY READY FOR AUXILIARY DAMPER DISCONNECT.	
	111	2	CLTC	CVTS	VERIFY PREVAILING WINDS DO NOT EXCEED REDLINE VALUES FOR FREE STANDING SV (REFERENCE LMR).	
	111	3	CVTS	CLTC	CLEAR TO DISCONNECT AUXILIARY DAMPER.	
T+39:30 1 DAY 15 HRS 30' 0"						
	111	1	CLTC	CVTS	LV-QAL INSPECTION OF MSS PLATFORMS NO. 1 AND NO. 2 PER LV QAL QCP-11 IS COMPLETE. AUXILIARY DAMPER DISCONNECTED AND LV READY FOR MSS JACKING, BUT NOT FOR MOVE.	
	111	2	CVTS	CTSC	AUXILIARY DAMPER IS DISCONNECTED.	
	111	3	CVTS	KSTC	VERIFY ALL MSS PREPARATIONS FOR MOVE ARE COMPLETE AND OBSERVERS ARE ON STATION.	
	111	4	CVTS	MSTC	VERIFY ALL MSS PREPARATIONS FOR MOVE ARE COMPLETE.	
	111	5	CTSC	CVTS	REQUEST CLEARANCE TO JACK MSS TO CLEARANCE HEIGHT.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+39:30 + 1 DAY 15 HRS 30' 0"	CONTINUED					
	111	6	CVTS	CPSS	VERIFY CLEAR FOR MSS JACKING OPERATIONS.	
	111	7	CVTS	CTSC	JACK MSS TO CLEARANCE HEIGHT.	H
	111	8	HFLT	CVTS	MCC COMMAND VALIDATION TEST IS COMPLETE. MCC AIR/GROUND VALIDATION TEST IS COMPLETE. BRING DOWN CSM, LM AND CCS S-BAND CARRIERS. GMIL CSM-VHF NO LONGER REQUIRED.	
	111	9	CVTS	GMIL	BRING DOWN GMIL CSM, LM AND CCS S-BAND CARRIERS AND VERIFY. CSM VHF NO LONGER REQUIRED.	
	111	10	CVTS	SRO	MCC COMMAND VALIDATION AND MCC AIR/GROUND VALIDATION TESTING IS COMPLETE. RF CLEARANCE NO LONGER REQUIRED.	
	111	11	CVTS	MSTC KSTC CLTC	GMIL ON-STATION, MCC COMMAND VALIDATION AND AIR/GROUND TESTING IS COMPLETE. GMIL S-BAND AND VHF CARRIERS ARE OFF.	
T+39:55 + 1 DAY 15 HRS 55' 0"	111	1	CVTS	MSTC	VERIFY READY FOR PRIMARY DAMPER CONNECTION IN 15 MINUTES.	
T+40:00 + 1 DAY 16 HRS 0' 0"	111	1	CTSC	CVTS	MSS IS JACKED TO CLEARANCE HEIGHT. REQUEST CLEARANCE TO PROPEL MSS TO PARKSITE.	

TIME	COMM CH	SEQUENCE	COMMAND STA	RESPONSE STA	DESCRIPTION	REMARKS
T+40:00 + 1 DAY 16 HRS 0' 0"	CONTINUED					
	111	2	CVTS	CLTC	MSS JACKING IS COMPLETE.	
	111	3	CLTC	CVTS	LV IS CLEAR FOR MSS MOVE.	
	111	4	CVTS	CPSS	VERIFY CLEARANCE TO PROPEL MSS TO PARKSITE.	
	111	5	CVTS	CTSC	PROPEL MSS CLEAR OF SUPPORT COLUMNS AND PROCEED WITH TRANSFER OPERATIONS. REPORT PROGRESS ENROUTE.	H
	111	6	CTSC	CVTS	MSS IS IN MOTION.	
	111	7	CVTS	MSTC CLTC	MSS IS IN MOTION.	
T+40:05 1 DAY 16 HRS 5' 0"						
	111	1	CTSC	CVTS	MSS IS AT 35 FT. POSITION.	
	111	2	CVTS	CLTC	READY FOR PRIMARY DAMPER CONNECTION.	
	111	3	CVTS	MSTC	PRIMARY DAMPER BEING CONNECTED.	
T+40:10 + 1 DAY 16 HRS 10' 0"						
	111	1	CLTC	CVTS	PRIMARY DAMPER ARM CONNECTION COMPLETE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+40 :15 + 1 DAY 16 HRS 15' 0"						
	111	1	CVTS	CLTC	HAVE SA NO. 9 PERSONNEL REPORT TO SA NO. 9 IN 15 MINUTES FOR CO2 SYSTEM VERIFICATION.	
	111	2	CVTS	CTSC	PERSONNEL WILL BE REQUIRED ON SA NO. 9 IN 15 MINUTES TO SUPPORT CO2 SYSTEM VERIFICATION.	
T+40 :25 + 1 DAY 16 HRS 25' 0"						
	111	1	CVTS	SRO	VERIFY CLEARANCE FOR CSM S-BAND AND VHF-AM.	
T+40 :30 + 1 DAY 16 HRS 30' 0"						
	111	1	MSTC	CVTS	VERIFY CLEARANCE FOR CSM RF: S-BAND VHF-AM CSM COMMAND DECODER IS OFF. HAVE GMIL AND HFLT PROVIDE SUPPORT ON CH. 212. CSM VERIFIES CCS NOT ENABLED (BLOCKED).	
	111	2	CVTS	HFLT	CSM S-BAND CARRIER IS COMING ON. CSM COMMAND DECODER IS OFF. STANDBY ON CH. 212 TO SUPPORT CSM RF VOICE CHECKS.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T+40:30 + 1 DAY 16 HRS 30' 0"	CONTINUED					
	111	3	CVTS	GMIL	STANDBY ON CH. 212 TO SUPPORT RF VOICE CHECKS. CLEAR TO BRING UP CSM S-BAND CARRIER. KEEP CVTS ADVISED OF CARRIER STATUS.	
	111	4	CVTS	CLTC	CSM CCS SWITCH IN BLOCK POSITION (CSM CCS NOT ENABLED) FOR FT-47 AT T-7 HOURS 13' 0". (COUNTDOWN TIME)	
	111	5	MSTC	CVTS	280 FT. ACE ROOM READY FOR SECURING.	
	111	6	CVTS	CTSC	280 FT. ACE ROOM READY FOR SECURING.	
T+41:00 + 1 DAY 17 HRS 0' 0"						
	111	1	CLTC	CVTS	LV HAS COMPLETED TURNAROUND OPERATIONS. RESET COUNTCLOCK TO T-9 HOURS, 0' 0" AND HOLD AS REQUIRED TO SYNCHRONIZE COUNTCLOCK WITH LAUNCH WINDOW.	
	111	2	CLTC	CVTS	SA NO. 9 CO2 SYSTEM VERIFICATION IS COMPLETE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
HOLDING - 9 HRS 0' 0"					NOTE ---- THE FOLLOWING SEQUENCES ARE SCHEDULED TO OCCUR DURING THE BUILT-IN HOLD AT T-9 HOURS, 0' 0". IF NO HOLD, SEQUENCES WILL OCCUR AT THE TCP TIMES INDICATED IN THE REMARKS COLUMN. PERSONNEL WILL POSSES T-9 HOURS HAZARDOUS BADGES IN THE EVENT THAT THE OPERATIONS OCCUR AFTER BLAST DANGER AREA CLEARING FOR LV PROPELLANT LOADING.	
					--2 HOURS, 45' 0" AFTER START OF HOLD-- **********	-6 HRS 45' 0"
111	1	CTSC	CVTS		MSS IN MATE POSITION. MEASUREMENTS COMPLETE. REQUEST CLEARANCE TO JACK DOWN.	
111	2	CVTS	CPSS		VERIFY CLEARANCE TO LOWER MSS ON SUPPORT COLUMNS.	
111	3	CVTS	CTSC		LOWER MSS ON SUPPORT COLUMNS.	"
					--3 HOURS, 15' 0" AFTER START OF HOLD-- **********	-6 HRS 15' 0"
111	1	CTSC	CVTS		MSS/PARKSITE GHE AND GN2 LINES ARE BEING CONNECTED AND WILL BE PRESSURIZED IN APPROXIMATELY 1 HOUR.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
HOLDING - 9 HRS 0' 0"	CONTINUED					
					--4 HOURS, 0' 0" AFTER START OF HOLD-- **********	-5 HRS 15' 0"
	111	1	CTSC	CVTS	MSS/PARKSITE GHE AND GN2 SYSTEMS PRESSURIZED.	
	111	2	CVTS	MSTC	MSS/PARKSITE GHE AND GN2 SYSTEMS PRESSURIZED.	
					--2 HOURS, 40' 0" PRIOR TO RESUMING COUNT-- **********	+1 DAY 14 HRS 20' 0"
	111	1	CTSC	CVTS	ML NON-CRITICAL POWER WILL BE SECURED IN 10 MINUTES.	
					--1 HOUR, 30' 0" PRIOR TO RESUMING COUNT-- **********	+1 DAY 15 HRS 30' 0"
	111	1	CTSC	CVTS	ML ELEVATORS ARE BEING CONFIGURED FOR LAUNCH.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
HOLDING - 9 HRS 0' 0"	CONTINUED					
					--1 HOUR, 0' 0" PRIOR TO RESUMING COUNT-- **********	+1 DAY 16 HRS 0' 0"
	188 (PA)	1	CLTC		TAIL SERVICE MAST SAFETY CABLES WILL BE REMOVED AT THIS TIME. PERSONNEL USE EXTREME CAUTION IN AREA OF HOLDDOWN ARMS AND TAIL SERVICE MASTS.	
	111	2	CTSC	CVTS	STARTING ML PRESSURIZATION TASK. PRESSURIZATION WILL OCCUR IN APPROXIMATELY 1 HOUR.	
	111	3	CVTS	CLTC MSTC KSTC CPSS	STARTING ML PRESSURIZATION TASK. PRESSURIZATION WILL OCCUR IN APPROXIMATELY 1 HOUR.	
					NOTE ---- LOCAL PAGES WILL BE MADE 15, 10, AND 5 MINUTES PRIOR TO PRESSURIZING THE ML.	
	111	4	CVTS	CTSC	FIRE PROTECTION PERSONNEL ARE REQUIRED ON STATION IN 60 MINUTES IN SUPPORT OF LV PROPELLANT LOADING.	
	111	5	MSTC	CVTS	STANDBY FOR RF COMM CHECKS WITH SPAD USING EEAP.	
	111	6	CTSC	CVTS	UNSECURED FIRE EXTINGUISHERS WILL BE REMOVED FROM THE ML AT THIS TIME.	
					--45' 0" PRIOR TO RESUMING COUNT-- **********	+1 DAY 16 HRS 15' 0"
	111	1	CLTC	CVTS	ALL LV COMPARTMENTS CLOSED OUT AND READY TO SWITCH ECS FROM AIR TO GN2.	
	111	2	CVTS	CPSS	ALL LV COMPARTMENTS ARE CLOSED OUT.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
HOLDING - 9 HRS 0' 0"	CONTINUED					
					--30' GM PRIOR TO RESUMING COUNT-- **********	+1 DAY 16 HRS 30' 0"
	111	1	CTSC	CVTS	PERFORMING ELEVATOR FUNCTIONAL TEST IN EGRESS MODE ON ML ELEVATORS AND CONFIGURING ELEVATORS FOR LAUNCH.	
	111	2	CVTS	MSTC CLTC CTSC	VERIFY FINAL PURGE BOX VALIDATION.	
	111	3	CVTS	CPSS	VERIFY READY TO SWITCH ECS TO GN2.	
	111	4	CLTC	CVTS	REQUEST CPSS VERIFY CLEARANCE TO SWITCH ECS TO GN2.	H
					NOTE ---- SWITCHING OF ECS TO GN2 IS SCHEDULED TO OCCUR 10 MINUTES AFTER CLEARANCE IS GRANTED.	
	111	5	CVTS	CTSC	CONFIGURE SAFETY SIGNAL LIGHTS TO STEADY RED.	
					CLOSE AND DOG THE PAD SURFACE FTCR BLAST DOORS.	
					PLACE SLIDEWIRE CAB IN READINESS CONFIGURATION.	

TIME	COMM CH	SEQUENCE	COMMAND STA	RESPONSE STA	DESCRIPTION	REMARKS
HOLDING - 9 HRS 0' 0"	CONTINUED					
					--15' 0" PRIOR TO RESUME COUNT-- **********	+1 DAY 16 HRS 45' 0"
	111	1	MSTC	CVTS	CHANGE SMDPS FROM 2-SWITCH, 1-VALVE MODE TO 1-SWITCH MODE AND VERIFY.	
	111	2	CVTS	CPSS	VERIFY CLEARANCE TO CHANGE SMDPS FROM 2-SWITCH, 1-VALVE MODE TO 1-SWITCH, MODE.	
	111	3	CVTS	CLTC	CHANGE SMDPS FROM 2-SWITCH, 1-VALVE MODE TO 1-SWITCH MODE. REPORT WHEN COMPLETE.	
	111	4	CLTC	CVTS	SMDPS IS IN A 1-SWITCH MODE.	
	111	5	CVTS	MSTC	SMDPS IS IN A 1-SWITCH MODE.	
					NOTE ---- FROM THIS POINT, THE COUNT-DOWN WILL BE RESUMED USING APPLICABLE COUNTDOWN [illegible]PS. FOR SPACE VEHICLE OPERATIONS REFERENCE TCP V-40300, VOL I AND PROCEED WITH CALLS AT T-9 HOURS, 0' 0".	
					END OF 48 HOUR SCRUB TURNAROUND OPERATING STEPS.	

PART III

SCRUB/TURNAROUND OPERATIONS TO A NEXT DAY LAUNCH

T+4 HOURS, 45' 0" TO T+12 HOURS, 30' 0"

PRECEDING PAGE BLANK NOT FILMED

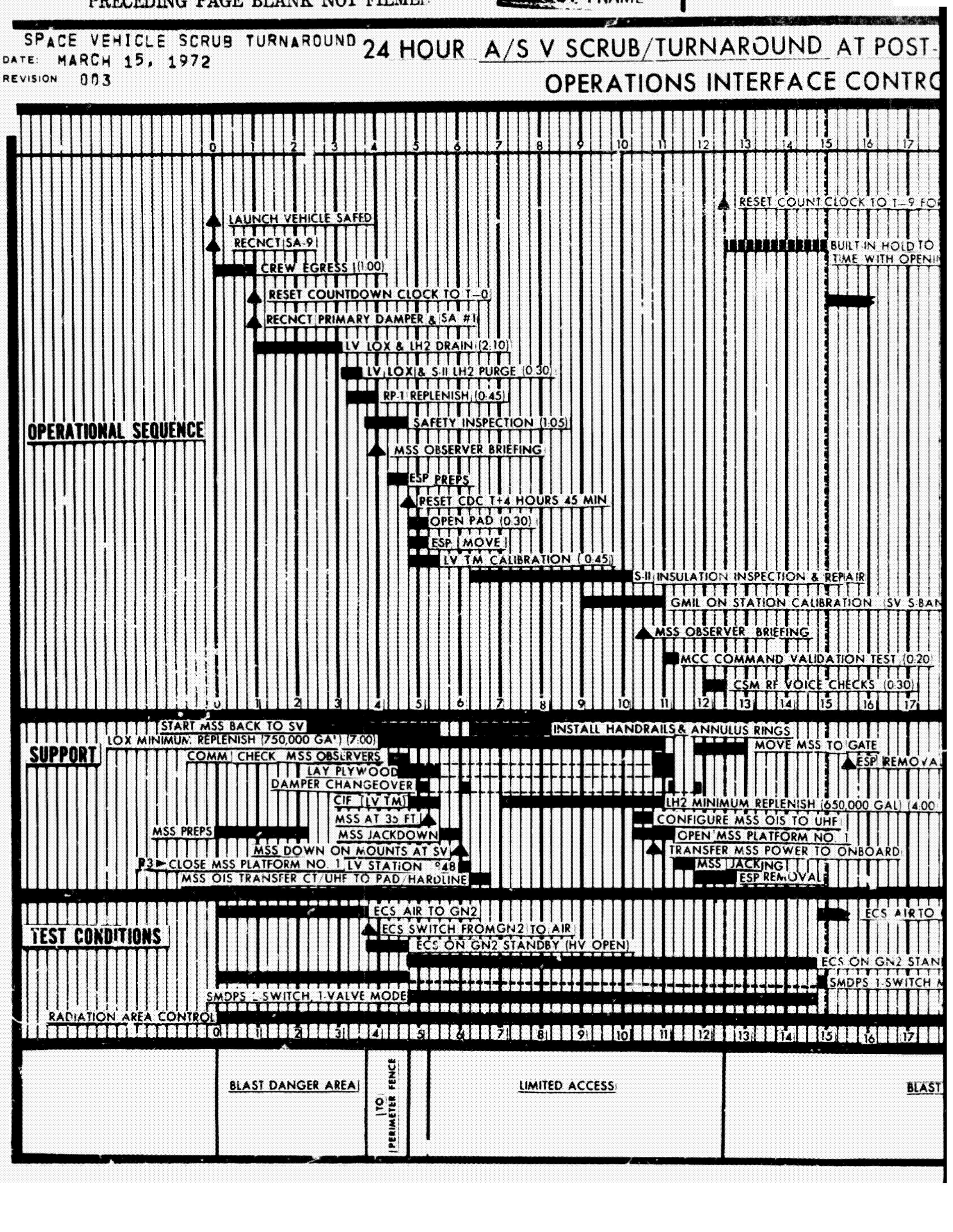
FOLDOUT FRAME 1

SPACE VEHICLE SCRUB TURNAROUND

DATE: MARCH 15, 1972

REVISION 003

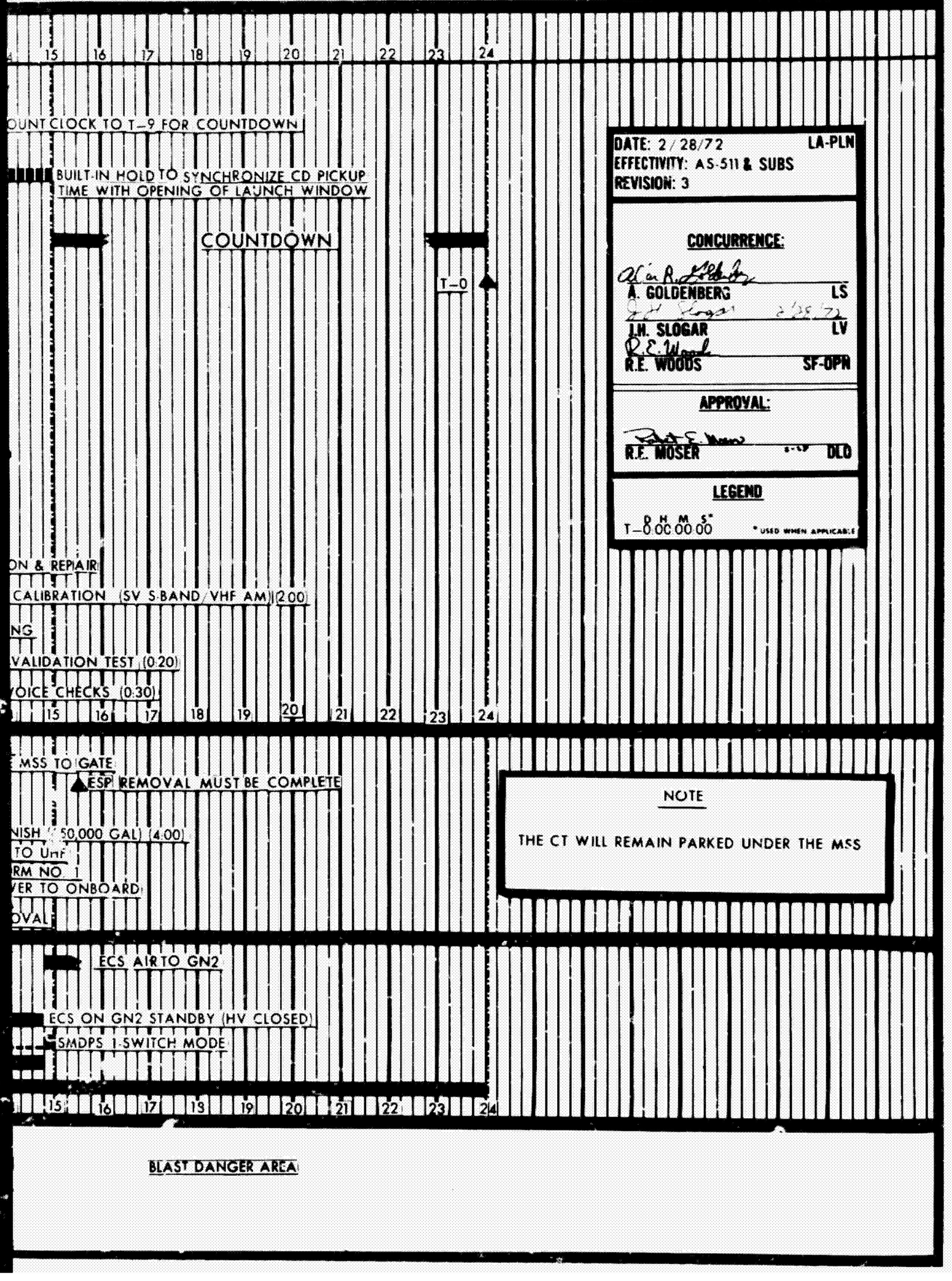
24 HOUR A/S V SCRUB/TURNAROUND AT POST-
OPERATIONS INTERFACE CONTRO



FOLDOUT FRAME 2

ND AT POST-LV CRYOGENIC LOADING
ACE CONTROL CHART

PAGE 111/112
TEST NO. SV-40300
VEHICLE APOLLO 16



DATE: 2/28/72 LA-PLN
EFFECTIVITY: AS-511 & SUBS
REVISION: 3

CONCURRENCE:

A. GOLDENBERG LS

J.H. SLOGAR LV

R.E. WOODS SF-OPN

APPROVAL:

R.E. MOSER DLO

LEGEND

T-0 D H M S* 00 00 00 00 *USED WHEN APPLICABLE

NOTE

THE CT WILL REMAIN PARKED UNDER THE MSS

BLAST DANGER AREA

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+4 HRS 45' C"						
	188 (PA)	1		CVTS	THE CONTROL AREA IS NOW OPEN FOR NORMAL WORK. RADIATION AREA CONTROL REMAINS IN EFFECT.	
	111	2	CVTS	MSTC	THE CONTROL AREA IS OPEN FOR NORMAL WORK.	
	111	3	MSTC	CVTS	CHANGE SMDPS FROM 1-SWITCH MODE TO 2-SWITCH, 1-VALVE MODE AND VERIFY.	
	111	4	CVTS	CLTC	CHANGE SMDPS FROM 1-SWITCH MODE TO 2-SWITCH, 1-VALVE MODE. REPORT WHEN COMPLETE.	
	111	5	CVTS	CPSS	SMDPS IS GOING FROM 1-SWITCH MODE TO 2-SWITCH, 1-VALVE MODE.	
	111		VTS	MSTC	SMDPS IS IN 2-SWITCH, 1-VALVE MODE.	
					NOTE ---- ESP MOVE IS SCHEDULED FROM T+4 HOURS, 45' 0" TO T+5 HOURS, 15' 0".	
+5 HRS 0' 0"						
	111	1	CVTS	CTSC	REPORT PREVAILING WIND DATA. (REFERENCE LMR ITEM 1-401).	
	111	2	CLTC	CVTS	VERIFY PREVAILING WINDS DO NOT EXCEED REDLINE VALUES FOR FREE STANDING SV (REFERENCE LMR).	
	111	3	CTSC	CVTS	MSS IS APPROXIMATELY 15 MINUTES FROM THE 35 FT MARK.	
	111	4	CVTS	CLTC	CLEAR TO DISCONNECT AND RETRACT PRIMARY DAMPER.	
	111	5	CVTS	MSTC	PRIMARY DAMPER WILL BE DISCONNECTED.	

TIME	COMM CH	SEQUENCE	COMMAND STA	RESPONSE STA	DESCRIPTION	REMARKS
+5 HRS 15' 0"						
	111	1	CTSC	CVTS	ML EGRESS/LES SPRAY SYSTEM CONFIGURED FROM FIELD ACTIVE MODE TO REMOTE CONTROL. ML EGRESS CHUTE SPRAY SYSTEM DEACTIVATED.	
	111	2	CTSC	CVTS	ALL MSS PLATFORMS ARE OPEN.	
	111	3	CTSC	CVTS	MSS IS AT 35 FT. AND READY TO PROPEL TO MATE.	
	111	4	CLTC	CVTS	PRIMARY DAMPER IS DISCONNECTED AND TSM TOWER IS RETRACTED. LV READY FOR MSS MATE.	
	111	5	CVTS	CTSC	PRIMARY DAMPER IS DISCONNECTED AND TSM IS RETRACTED. CLEAR TO PROCEED WITH MSS TO MATE POSITION. REPORT WHEN MSS IS OVER MOUNTS.	H
	111	6	CLTC	CVTS	REQUEST PEHE PERFORM SNIFFER CHECKS IN S-II AFT AND S-IC FWD AREAS WHEN ACCESS DOORS ARE OPEN.	
	111	7	CVTS	CPSS	VERIFY READY TO SUPPORT LV ACCESS DOORS SNIFFER CHECKS ON CH. 141.	
	111	8	CVTS	CTSC	PERFORM SNIFFER CHECKS IN S-II AFT AND S-IC FWD AREAS WHEN ACCESS DOORS ARE OPEN, AND HAVE PEHE ADVISE SYSTEMS SAFETY WHEN PERSONNEL ARE CLEAR TO ENTER. NOTE ---- S-IC FWD AREA ACCESS IS REQUIRED AT T+6 HOURS, 0' 0". S-II AFT AREA ACCESS IS REQUIRED AT T+6 HOURS, 10' 0".	H

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+5 HRS 30' 0"						
	111	1	CTSC	CVTS	MSS IS IN MATE POSITION. MEASUREMENTS ARE COMPLETE. READY TO JACK DOWN.	
	111	2	CVTS	CLTC	MSS IS OVER MOUNTS. REPORT WHEN TSM 3 - 4 TOWER IS ERECTED AND MSS CAN BE LOWERED.	
	111	3	CLTC	CVTS	TSM 3 - 4 TOWER ERECTED AND CLEAR FOR LOWERING MSS ON MOUNTS. NOTIFY CLTC IF MSS MUST BE REPOSITIONED PRIOR TO LOWERING.	
	111	4	CVTS	CPSS	VERIFY CLEARANCE TO LOWER MSS ON MOUNTS.	
	111	5	CVTS	CTSC	TSM 3 - 4 TOWER ERECTED. CLEAR TO LOWER MSS ON MOUNTS. REPORT IF REPOSITIONING IS NECESSARY.	H
	111	6	CLTC	CVTS	RANGE CLEARANCE FOR S-II TM IS NO LONGER REQUIRED.	
	111	7	CVTS	SRO	LV S-II TM LINKS BF-1 AND BF-2 ARE OFF.	
+5 HRS 55' 0"						
	111	1	CVTS	GMIL	VERIFY READY TO SUPPORT CSM WITH G&N UPLINK ENABLE.	
	111	2	MSTC	CVTS	VERIFY GMIL SUPPORT FOR G&N UPLINK ENABLE.	
+6 HRS 0' 0"						
	111	1	CTSC	CVTS	MSS IS ON MOUNTS.	
	111	2	CVTS	CLTC	MSS IS ON MOUNTS. READY FOR AUXILIARY DAMPER CONNECTION.	
	111	3	CVTS	MSTC	AUXILIARY DAMPER WILL BE CONNECTED.	
	111	4	CLTC	CVTS	REQUEST MSS PLATFORM NO. 1 BE POSITIONED AT LV STA 1848 FOR S-II INSULATION INSPECTION.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+6 HRS 0' 0"	CONTINUED					
	111	5	CVTS	CTSC	CLOS MSS PLATFORM NO. 1 AT LV STATION 1848 FOR S-II INSULATION INSPECTION.	H
	111	6	CPSS	CVTS	SNIFFER CHECK IN S-IC FWD AREA IS COMPLETE. PERSONNEL MAY ACCESS THROUGH SA NO. 2.	
	111	7	CVTS	CLTC	CPSS HAS APPROVED LV ACCESS THROUGH S-IC FWD DOOR (SA NO. 2).	
	111	8	CTSC	CVTS	CONNECTING AND PRESSURIZING MSS/PAD 3000 PSI GN2 HAZARD PURGE SUPPLY LINE.	
+6 HRS 10' 0"						
	111	1	CPSS	CVTS	SNIFFER CHECK IN S-II AFT AREA IS COMPLETE. PERSONNEL MAY ACCESS THROUGH SA NO. 3 DOOR.	
	111	2	CVTS	CLTC	CPSS HAS APPROVED LV ACCESS THROUGH S-II AFT DOOR (SA NO. 3).	
+6 HRS 15' 0"						
	111	1	MSTC	CVTS	CSM RF IS OFF. CSM COMMAND DECODER IS OFF. GMIL SUPPORT NO LONGER REQUIRED.	
	111	2	CVTS	GMIL	BRING DOWN CSM S-BAND CARRIER AND VERIFY. CSM COMMAND DECODER IS OFF. GMIL SUPPORT NO LONGER REQUIRED.	
	111	3	CVTS	SRO	CSM S-BAND AND VHF ARE OFF.	
	111	4	CVTS	HFLT	CSM S-BAND CARRIER IS OFF. CSM COMMAND DECODER IS OFF.	

TIME	COMM CH	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+6 HRS 15' CM	CONTINUED					
	111	5	CLTC	CVTS	AUXILIARY DAMPER IS CONNECTED.	
	111	6	CVTS	CTSC	AUXILIARY DAMPER IS CONNECTED.	
	111	7	CTSC	CVTS	CONNECTING MSS/PAD COMM AND INSTRUMENTATION CABLES AND CONFIGURING OIS TO HARDLINE PRIOR TO MSS TRANSFER TO PAD POWER.	
	111	8	CVTS	MSTC KSTC CLTC	STANDBY FOR OIS TRANSFER FROM CT TO PAD.	
	111	9	CTSC	CVTS	MSS PLATFORM NO. 1 IS AVAILABLE FOR JOINT ACCESS.	
	111	10	CVTS	CLTC	MSS PLATFORM NO. 1 IS AVAILABLE FOR JOINT ACCESS. NOTE ---- JOINT PLATFORM USAGE IS REQUIRED UNTIL INSTALLATION OF ANNULUS RINGS ARE COMPLETE AT T+8 HOURS, 15' 0". NOTE ---- S-II INSULATION INSPECTION IS SCHEDULED TO BEGIN AT THIS TIME.	

TIME	COMM CH	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+6 HRS 30' C"						
	111	1	CTSC	CVTS	MSS TRANSFER TO PAD POWER WILL OCCUR IN 15 MINUTES.	
					NOTE ---- MSS HI-RISE ELEVATORS, HVAC AND FACILITY AIR COMPRESSORS WILL BE POWERED DOWN FOR MSS POWER TRANSFER AND POWERED UP AFTER MSS POWER TRANSFER.	
	111	2	CTSC	CVTS	MSS/PAD COMM AND INSTRUMENTATION CABLES CONNECTED AND MSS OIS-RF CONFIGURED TO HARDLINE.	
	111	3	CVTS	MSTC KSTC CLTC	MSS OIS IS CONNECTED TO PAD.	
+6 HRS 45' C"						
	111	1	CTSC	CVTS	VERIFY READY FOR MSS POWER TRANSFER TO PAD POWER.	
	111	2	CTSC	CVTS	MSS TRANSFER TO PAD POWER COMPLETE.	
+7 HRS 0' C"						
	111	1	CVTS	CPSS	VERIFY CLEARANCE FOR LH2 STORAGE TANK REPLENISH.	
	111	2	CVTS	CTSC	CLEAR TO PROCEED WITH LH2 STORAGE TANK REPLENISH.	H

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+7 HRS 0' 0"	CONTINUED					
					NOTE ----	
					LH2 STORAGE TANK REPLENISHMENT TO 650,000 GALLONS IS SCHEDULED FROM T+7 HOURS, 0' 0" TO T+11 HOURS, 0' 0".	
+8 HRS 55' 0"	111	1	CVTS	MSTC KSTC CLTC	GMIL BRINGING UP SPACE VEHICLE S-BAND AND VHF CARRIERS FOR ON-STATION CALIBRATION FOLLOWED BY MCC COMMAND VALIDATION AND AIR/GROUND VALIDATION TESTING. VERIFY COMMAND DECODERS ARE OFF.	
	111	2	CVTS	SRO	VERIFY RADIATION CLEARANCE FOR GMIL ON-STATION CALIBRATION (2101.8, 2106.4, 2272.5, 2282.5, 2287.5, 245.3, 258.5, 259.7, AND 296.8 MHZ).	
+9 HRS 0' 0"	111	1	GMIL	CVTS	VERIFY RADIATION CLEARANCE FOR ON-STATION CALIBRATION.	
+9 HRS 45' 0"	111	1	CTSC	CVTS	ALERT ALL SCO AND LVO OBSERVERS TO BE ON STATION IN 60 MINUTES FOR COMM CHECK IN SUPPORT OF MSS MOVE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+9 HRS 45' 0"	CONTINUED					
	111	2	CVTS	MSTC KSTC CLTC	MSS PLATFORM OBSERVERS ARE TO REPORT TO PVTS AT BASE OF THE MSS LOW RISE ELEVATOR FOR OBSERVER BRIEFING IN 45 MINUTES. NOTE ---- MSS OBSERVERS WILL REPORT ON STATION TO BE BRIEFED PER APOLLO/SATURN V LC-39 LAUNCH OPERATIONS INSTRUCTIONS, [illegible]-26-0001.	
+10 HRS 15' 0"	111	1	CLTC	CVTS	MSS PLATFORM NO. 1 IS AVAILABLE FOR OPENING.	
	111	2	CVTS	CTSC	OPEN AND SECURE MSS PLATFORM NO. 1. NOTE ---- PLATFORM PREPARATION WORK IS TO BE ACCOMPLISHED ON A NON-INTERFERENCE BASIS WITH THE MSS PLATFORM CREW.	H
	111	3	CTSC	CVTS	DISCONNECTING THE PAD/MSS COMM AND INSTRUMENTATION CABLES. CONFIGURING MSS OIS-RF TO UHF.	
	111	4	CVTS	MSTC KSTC CLTC	STARTING MSS OIS TRANSFER-PAD HARDLINE TO CT UHF. CT OIS CHANNEL ASSIGNMENTS ARE IN EFFECT.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+10 HRS 25' 0"	111	1	CVTS	SRO	STANDBY ON CH. 137 TO SUPPORT LV DRSCS PREPS PER V-38000. NOTE ---- LV DRSCS PREPS ARE FOR DRSCS TEST AT T-4 HOURS, 40' 0" (COUNTDOWN TIME).	
+10 HRS 30' 0"	111	1	CLTC	CVTS	REQUEST RANGE SUPPORT DRSCS PREPS ON CH. 137 PER V-38000. NOTE ---- A BUILT-IN HOLD TO SYNCHRONIZE COUNTDOWN PICKUP TIME WITH OPENING OF THE LAUNCH WINDOW WILL OCCUR AT T+12 HOURS, 30' 0".	
	111	2	CVTS	SRO GMIL HFLT MSTC KSTC CLTC CPSS CTSC	A HOLD OF HOUR(S) MINUTE(S) --- ---- WILL START AT T+12 HOURS, 30' 0" WITH THE CLOCK RESET AND HOLDING AT T-9 HOURS, 0' 0".	

TIME	COMM CH	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
T-10 HRS 30' 0"	CONTINUED					
					NOTE ---- HFLT MAY NOT BE ON THE OIS NET AT THIS TIME. IF NO RESPONSE, USE BLACK PHONE: 713-HU3-6336.	
					NOTE ---- CVTS WILL NOTIFY TEST CONDUCTORS OF CHANGES IN HOLD TIME IN EXCESS OF 15 MINUTES DURATION.	
111	3	CVTS	MSTC CLTC CTSC		REQUEST PURGE BOX VALIDATION STATUS.	
					NOTE ---- PURGE BOX FINAL VALIDATIONS ARE TO OCCUR NO LATER THAN 30 MINUTES BEFORE PICKING UP THE COUNT AT T-9 HOURS, 0' 0" OR AT T+12 HOURS, 0' 0"	
111	4	CTSC	CVTS		MSS OIS TRANSFER - PAD TO CT IS COMPLETE. MSS IS A BRANCH OF CT UHF.	
111	5	CVTS	MSTC KSTC CLTC		MSS OIS TRANSFER - PAD TO CT IS COMPLETE.	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+10 HRS 30' 0"	CONTINUED					
	111	6	CLTC	CVTS	KSC SYSTEMS SAFETY SUPPORT WILL BE REQUIRED IN 30 MINUTES ON ML LEVEL 240 FOR GH2 SNIFFER CHECKS.	
	111	7	CVTS	CPSS	SUPPORT FOR LV WILL BE REQUIRED IN 30 MINUTES ON ML LEVEL 240 FOR GH2 SNIFFER CHECKS OF THE S-IVB HEAT EXCHANGER UNIT 438A.	
	111	8	CLTC	CVTS	KSC SYSTEMS SAFETY SUPPORT WILL BE REQUIRED IN 30 MINUTES ON ML LEVEL 180 FOR GH2 SNIFFER CHECKS OF S7-41 "D" UNIT.	
	111	9	CVTS	CPSS	SUPPORT WILL BE REQUIRED IN 30 MINUTES ON ML LEVEL 180 FOR GH2 SNIFFER CHECKS OF THE S7-41 "D" UNIT.	
	111	10	CTSC	CVTS	MSS TRANSFER TO ONBOARD POWER WILL OCCUR IN 15 MINUTES. NOTE ---- MSS HI-RISE ELEVATORS, HVAC AND FACILITY AIR COMPRESSORS WILL BE POWERED DOWN FOR MSS POWER TRANSFER AND WILL BE POWERED UP AFTER MSS POWER TRANSFER.	
+10 HRS 45' 0"	111	1	CVTS	CLTC	VERIFY READY FOR MSS POWER TRANSFER FROM PAD TO CT.	
	111	2	CVTS	MSTC	MSS POWER TRANSFER IS TO OCCUR AT THIS TIME.	
	111	3	CVTS	CTSC	READY TO TRANSFER MSS POWER TO ON-BOARD.	H

TIME	COMM CH	SEQUENCE	COMMAND STA	RESPONSE STA	DESCRIPTION	REMARKS
+10 HRS 45' C"	CONTINUED					
	111	4	CTSC	CVTS	MSS TRANSFER TO ONBOARD POWER COMPLETE.	
+11 HRS C' C"						
	111	1	GMIL	CVTS	ON STATION CALIBRATION IS COMPLETE. GMIL RF IS OFF. READY FOR MCC COMMAND VALIDATION TEST AND MCC AIR/GROUND VALIDATION TEST.	
	111	2	CVTS	SRO	GMIL ON-STATION CALIBRATION IS COMPLETE. VERIFY RADIATION CLEARANCE FOR MCC COMMAND VALIDATION TEST. (2106.4 AND 2101.8 MHZ UPLINK FREQUENCIES). VERIFY RADIATION CLEARANCE FOR MCC AIR/GROUND VALIDATION TEST. (296.8, 259.7, AND 2106.4 MHZ).	
	111	3	HFLT	CVTS	VERIFY ALL SV COMMAND DECODERS ARE OFF. BRING UP GMIL CSM, LM AND CCS S-BAND CARRIERS FOR THE MCC COMMAND VALIDATION TEST. BRING UP GMIL CSM VHF AND S-BAND FOR MCC AIR/GROUND VALIDATION TEST.	
	111	4	CVTS	GMIL	BRING UP GMIL CSM, LM AND CCS S-BAND CARRIERS AND VERIFY. BRING UP CSM VHF AND S-BAND FOR MCC AIR/GROUND VALIDATION TEST.	
	111	5	CVTS	HFLT	GMIL CSM, LM AND CCS S-BAND CARRIERS ARE ON FOR THE MCC COMMAND VALIDATION TEST. GMIL STANDING BY WITH CSM-VHF AND S-BAND FOR MCC AIR/GROUND VALIDATION TEST.	
	111	6	CVTS	CTSC	REPORT PREVAILING WIND DATA. (REFERENCE LMR ITEM 1-401).	

TIME	COMM CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+11 HRS 5' 0"						
	111	1	CVTS	MSTC	VERIFY READY FOR AUXILIARY DAMPER DISCONNECT.	
	111	2	CLTC	CVTS	VERIFY PREVAILING WINDS DO NOT EXCEED REDLINE VALUES FOR FREE STANDING SV (REFERENCE LMR).	
	111	3	CVTS	CLTC	CLEAR TO DISCONNECT AUXILIARY DAMPER.	
+11 HRS 15' 0"						
	111	1	CTSC	CVTS	MSS PLATFORM NO. 1 IS OPEN AND SECURE.	
	111	2	CVTS	CLTC	MSS PLATFORM NO. 1 IS OPEN AND SECURE.	
	111	3	CLTC	CVTS	LV-QAL INSPECTION OF MSS PLATFORMS NO. 1 AND NO. 2 PER LV QAL QCP-11 (MSS) IS COMPLETE.	
					AUXILIARY DAMPER DISCONNECTED AND LV READY FOR MSS JACKING, BUT NOT FOR MOVE.	
	111	4	CVTS	CTSC	AUXILIARY DAMPER IS DISCONNECTED.	
	111	5	CVTS	KSTC MSTC	VERIFY ALL MSS PREPARATIONS FOR MOVE ARE COMPLETE AND OBSERVERS ARE ON STATION.	
	111	6	CTSC	CVTS	REQUEST CLEARANCE TO JACK MSS TO CLEARANCE HEIGHT.	
	111	7	CVTS	CPSS	VERIFY CLEAR FOR MSS JACKING OPERATIONS.	
	111	8	CVTS	CTSC	JACK MSS TO CLEARANCE HEIGHT.	H

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+11 HRS 20' 0"						
	111	1	HFLT	CVTS	MCC COMMAND VALIDATION TEST IS COMPLETE. MCC AIR/GROUND VALIDATION TEST IS COMPLETE. BRING DOWN CSM, LM, AND CCS S-BAND CARRIERS. GMIL CSM-VHF NO LONGER REQUIRED.	
	111	2	CVTS	GMIL	BRING DOWN GMIL CSM, LM, AND CCS S-BAND CARRIERS AND VERIFY. CSM VHF NO LONGER REQUIRED.	
	111	3	CVTS	SRO	MCC COMMAND VALIDATION AND AIR/GROUND VALIDATION TESTING IS COMPLETE. RF CLEARANCE NO LONGER REQUIRED.	
	111	4	CVTS	MSTC KSTC CLTC	GMIL ON-STATION, MCC COMMAND VALIDATION AND AIR/GROUND TESTING IS COMPLETE. GMIL S-BAND AND VHF CARRIERS ARE OFF.	
+11 HRS 45' 0"						
	111	1	CTSC	CVTS	MSS IS JACKED TO CLEARANCE HEIGHT. REQUEST CLEARANCE TO PROPEL MSS TO PARKSITE.	
	111	2	CVTS	CLTC	MSS JACKING IS COMPLETE.	
	111	3	CLTC	CVTS	LV CLEAR FOR MSS MOVE.	
	111	4	CVTS	CPSS	VERIFY CLEARANCE TO PROPEL MSS TO PARKSITE.	
	111	5	CVTS	CTSC	PROPEL MSS CLEAR OF SUPPORT COLUMNS AND PROCEED WITH TRANSFER OPERATIONS. REPORT PROGRESS ENROUTE.	H
	111	6	CTSC	CVTS	MSS FIRST MOTION.	
	111	7	CVTS	MSTC CLTC	MSS FIRST MOTION	
	111	8	CVTS	CLTC	HAVE SA NO. 9 PERSONNEL REPORT TO SA NO. 9 IN 15 MINUTES FOR CO2 SYSTEM VERIFICATION.	

TIME	COMM CH	SEQUENCE	COMMAND STA	RESPONSE STA.	DESCRIPTION	REMARKS
+11 HRS 45' 0"	CONTINUED					
	111	9	CVTS	CTSC	PERSONNEL WILL BE REQUIRED ON SA NO. 9 IN 15 MINUTES TO SUPPORT CO2 SYSTEM VERIFICATION.	
+11 HRS 50' 0"						
	111	1	CTSC	CVTS	MSS IS AT 35 FT. POSITION.	
	111	2	CVTS	CLTC	READY FOR PRIMARY DAMPER CONNECTION.	
	111	3	CVTS	MSTC	PRIMARY DAMPER BEING CONNECTED.	
+11 HRS 55' 0"						
	111	1	CLTC	CVTS	PRIMARY DAMPER ARM CONNECTION COMPLETE.	
	111	2	CVTS	SRO	VERIFY CLEARANCE FOR CSM S-BAND AND VHF-AM.	
+12 HRS 0' 0"						
	111	1	MSTC	CVTS	VERIFY CLEARANCE FOR CSM RF: S-BAND VHF-AM CSM COMMAND DECODER IS OFF. HAVE GMIL AND HFLT PROVIDE SUPPORT ON CH. 212. CSM VERIFIES CCS NOT ENABLED (BLOCKED).	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
+12 HRS C' 0"	CONTINUED					
	111	2	CVTS	HFLT	CSM S-BAND CARRIER IS COMING ON. CSM COMMAND DECODER IS OFF. STANDBY ON CH. 212 TO SUPPORT CSM RF VOICE CHECKS.	
	111	3	CVTS	GMIL	STANDBY ON CH. 212 TO SUPPORT RF VOICE CHECKS. CLEAR TO BRING UP CSM S-BAND CARRIER. KEEP CVTS ADVISED OF CARRIER STATUS.	
	111	4	CVTS	CLTC	CSM CCS SWITCH IN BLOCK POSITION FOR FT-47 AT T-7 HOURS, 13' 0". (CSM CCS NOT ENABLED) (COUNTDOWN TIME)	
+12 HRS 30' 0"	111	1	CLTC	CVTS	LV HAS COMPLETED TURNAROUND OPERATIONS, RESET COUNTCLOCK TO T-9 HOURS, C' 0" AND HOLD AS REQUIRED TO SYNCHRONIZE COUNTCLOCK WITH LAUNCH WINDOW.	
	111	2	CLTC	CVTS	SA NO. 9 CO2 SYSTEM VERIFICATION IS COMPLETE.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
HOLDING - 9 HRS 0' 0"						
					NOTE ---- THE FOLLOWING SEQUENCES ARE SCHEDULED TO OCCUR DURING THE BUILT-IN HOLD AT T-9 HOURS, 0' 0". IF NO HOLD, SEQUENCES WILL OCCUR AT THE TCP TIMES INDICATED IN THE REMARKS COLUMN. PERSONNEL WILL POSSES T-9 HOURS HAZARDOUS BADGES IN THE EVENT THAT THE OPERATIONS OCCUR AFTER BLAST DANGER AREA CLEARING FOR LV PROPELLANT LOADING.	
					--2 HOURS, 45' 0" AFTER START OF HOLD-- **********	-6 HRS 45' 0"
	111	1	CTSC	CVTS	MSS IN MATE POSITION. MEASUREMENTS COMPLETE. REQUEST CLEARANCE TO JACK DOWN.	
	111	2	CVTS	CPSS	VERIFY CLEARANCE TO LOWER MSS ON SUPPORT COLUMNS.	
	111	3	CVTS	CTSC	LOWER MSS ON SUPPORT COLUMNS.	H
					--3 HOURS, 15' 0" AFTER START OF HOLD-- **********	-6 HRS 15' 0"
	111	1	CTSC	CVTS	MSS/PARKSITE GHE AND GN2 LINES ARE BEING CONNECTED AND WILL BE PRESSURIZED IN APPROXIMATELY 1 HOUR.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMA
HOLDING - 9 HRS 0' 0"	CONTINUED					
					--4 HOURS, 15' 0" AFTER START OF HOLD-- **********	-5 HRS 15' 0"
111	1	CTSC	CVTS		MSS/PARKSITE GHE AND GN2 SYSTEMS PRESSURIZED.	
111	2	CVTS	MSTC		MSS/PARKSITE GHE AND GN2 SYSTEMS PRESSURIZED.	
					--2 HOURS, 40' 0" PRIOR TO RESUMING COUNT-- **********	+9 HRS 50' 0"
111	1	CTSC	CVTS		ML NON-CRITICAL POWER WILL BE SECURED IN 10 MINUTES.	
					--1 HOUR, 30' 0" PRIOR TO RESUMING COUNT-- **********	+11 HRS 0' 0"
111	1	CTSC	CVTS		ML ELEVATURS ARE BEING CONFIGURED FOR LAUNCH.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
HOLDING - 9 HRS 0' 0"	CONTINUED					
					--1 HOUR, 0' 0" PRIOR TO RESUMING COUNT-- **********	+11 HRS 30' 0"
	188 (PA)	1	CLTC		TAIL SERVICE MAST SAFETY CABLES WILL BE REMOVED AT THIS TIME. PERSONNEL USE EXTREME CAUTION IN AREA OF HOLDDOWN ARMS AND TAIL SERVICE MASTS.	
	111	2	CTSC	CVTS	STARTING ML PRESSURIZATION TASK. PRESSURIZATION WILL OCCUR IN APPROXIMATELY 1 HOUR.	
	111	3	CVTS	CLTC MSTC KSTC CPSS	STARTING ML PRESSURIZATION TASK. PRESSURIZATION WILL OCCUR IN APPROXIMATELY 1 HOUR. NOTE ---- LOCAL PAGES WILL BE MADE 15, 10, AND 5 MINUTES PRIOR TO PRESSURIZING THE ML.	
	111	4	CVTS	CTSC	FIRE PROTECTION PERSONNEL ARE REQUIRED ON STATION IN 60 MINUTES IN SUPPORT OF LV PROPELLANT LOADING.	
	111	5	MSTC	CVTS	STANDBY FOR RF COMM CHECKS WITH SPAD USING EFAP.	
	111	6	CTSC	CVTS	UNSECURED FIRE EXTINGUISHERS WILL BE REMOVED FROM THE ML AT THIS TIME.	

TIME	COMM CH	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
HOLDING - 9 HRS C' 0"	CONTINUED					
					--45' 0" PRIOR TO RESUMING COUNT-- **********	+11 HRS 45' 0"
	111	1	CLTC	CVTS	ALL LV COMPARTMENTS CLOSED OUT AND READY TO SWITCH ECS FROM AIR TO GN2.	
	111	2	CVTS	CPSS	ALL LV COMPARTMENTS ARE CLOSED OUT.	
					--30' 0" PRIOR OT RESUMING COUNT-- **********	+12 HRS 0' 0"
	111	1	CTSC	CVTS	PERFORMING ELEVATOR FUNCTIONAL TEST IN EGRESS MODE ON ML ELEVATORS AND CONFIGURING ELEVATORS FOR LAUNCH.	
	111	2	CVTS	MSTC CLTC CTSC	VERIFY FINAL PURGE BOX VALIDATION.	
	111	3	CVTS	CPSS	VERIFY READY TO SWITCH ECS TO GN2.	
	111	4	CLTC	CVTS	REQUEST CPSS VERIFY CLEARANCE TO SWITCH ECS TO GN2. NOTE ---- SWITCHING OF ECS TO GN2 IS SCHEDULED TO OCCUR 10 MINUTES AFTER CLEARANCE IS GRANTED.	H
	111	5	CVTS	CTSC	CONFIGURE SAFETY SIGNAL LIGHTS TO STEADY RED. CLOSE AND DOG THE PAD SURFACE PTCR BLAST DOORS. PLACE SLIDEWIRE CAB IN READINESS CONFIGURATION.	

TIME	COMM. CH.	SEQUENCE	COMMAND STA.	RESPONSE STA.	DESCRIPTION	REMARKS
HOLDING - 9 HRS 0' 0"	CONTINUED					
					--15' 0" PRIOR TO RESUME COUNT-- **********	+12 HRS 15' 0"
	111	1	MSTC	CVTS	CHANGE SMDPS FROM 2-SWITCH, 1-VALVE MODE TO 1-SWITCH MODE AND VERIFY.	
	111	2	CVTS	CPSS	VERIFY CLEARANCE TO CHANGE SMDPS FROM 2-SWITCH, 1-VALVE MODE TO 1-SWITCH, MODE.	
	111	3	CVTS	CLTC	CHANGE SMDPS FROM 2-SWITCH, 1-VALVE MODE TO 1-SWITCH MODE. REPORT WHEN COMPLETE.	
	111	4	CLTC	CVTS	SMDPS IS IN A 1-SWITCH MODE.	
	111	5	CVTS	MSTC	SMDPS IS IN A 1-SWITCH MODE.	
					NOTE ---- FROM THIS POINT, THE COUNTDOWN WILL BE RESUMED USING APPLICABLE COUNTDOWN TCPS. FOR SPACE VEHICLE OPERATIONS, REFERENCE TCP V-40300, VOLUME I AND PROCEED WITH CALLS AT T-9 HOURS, 0' 0".	
					END OF 24 HOUR SCRUB TURNAROUND OPERATING STEPS.	
					END OF TEST PROCEDURE SV-40300, VOLUME II	