



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

SL-1/SL-2

FIRST SKYLAB MISSION

FINAL
REVISION A

SKYLAB LAUNCH CHECKLIST

PREPARED BY

FLIGHT PROCEDURES BRANCH

CREW PROCEDURES DIVISION

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MARCH 16, 1973

SKYLAB LAUNCH CHECKLIST

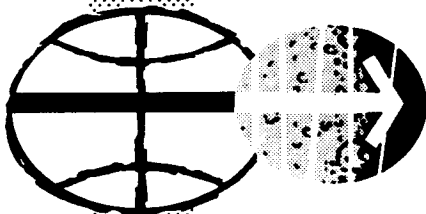
MARCH 16, 1973

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L
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LIFTOFF CONFIGURATION

PANEL 1

EMS FUNC - ΔV
 EMS MODE - STBY
 GTA - off (down)
 EMS GTA COVER - Secure
 CMC ATT - IMU
 FDAI SCALE - 5/5
 FDAI SEL - 1/2
 FDAI SOURCE - CMC
 ATT SET - GDC
 MAN ATT ROLL - RATE CMD
 MAN ATT PITCH - ACCEL CMD
 MAN ATT YAW - RATE CMD
 LIM CYCLE - OFF
 ATT DBD - MIN
 RATE - HIGH
 TRANS CONTR PWR - on (up)
 RHC PWR NORM (2) - AC/DC
 RHC PWR DIR (2) - MNA/MNB
 SC CONT - SCS
 CMC MODE - FREE
 BMAG MODE ROLL - RATE 1
 BMAG MODE PITCH - RATE 1
 BMAG MODE YAW - RATE 1
 SPS THRUST - NORMAL (locked)
 ΔV THRUST (2) - OFF (guarded)
 SCS TVC PITCH - AUTO
 SCS TVC YAW - AUTO
 SPS GMBL MOT PITCH (2) - OFF
 SPS GMBL MOT YAW (2) - OFF
 ATVC GAIN - LO
 ELS LOGIC - OFF (guarded)
 ELS AUTO - MAN
 CM RCS LOGIC - on (up)
 CM PRPLNT DUMP - OFF (guarded)
 CM PRPLNT PURG - off (down) (guarded)
 IMU CAGE - off (down) (guarded)

LIFTOFF
CONFIGURATION

L
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EMS ROLL - OFF
 .05G sw - OFF
 Pc IND sw - Pc
 LV/SPS IND sw - SIVB
 TVC GMBL DR PITCH - AUTO
 TVC GMBL DR YAW - AUTO
 EVNT TMR RSET - up (ctr)
 EVNT TMR STRT - ctr
 EVNT TMR MIN - ctr
 EVNT TMR SEC - ctr

PANEL 2

PL VENT vlv - push (lock)
 DOCK PROBE EXTD/REL - OFF (guarded)
 DOCK PROBE EXTD/RETR (2) tb - gray
 DOCK PROBE RETR PRIM - OFF
 DOCK PROBE RETR SEC - OFF
 S5 - N/A down
 SPOT LIGHT - off (ctr)
 TUNL LT - OFF
 MSN TMR - START
 SM RCS PSM 1 He - ctr (CLOSE*)
 SM RCS PSM 1 He tb - bp
 SM RCS PSM 1 MANF ISOL - ctr (OPEN*)
 SM RCS PSM 1 MANF ISOL tb - gray
 UP TLM CM - BLOCK
 CM RCS PRESS - off (down) (guarded)
 RCS IND sw - TK PRESS/QTY
 SM RCS QUAD He (4) - ctr (OPEN*)
 SM RCS QUAD He (4) tb - gray
 SM RCS PSM PRPLNT (4) - ctr (CLOSE*)
 SM RCS PSM PRPLNT (4) tb - bp
 SM RCS QUAD PRPLNT (4) - ctr (OPEN*)
 SM RCS QUAD PRIM PRPLNT (4) tb - gray
 SM RCS QUAD SEC PRPLNT (4) tb - gray
 RCS CMD - ctr (OFF*)
 RCS TRNFR - ctr (SM*)
 CM RCS PRPLNT (2) - ctr (on,up*)
 CM RCS PRPLNT tb (2) - gray
 SM RCS SEC FUEL PRESS (4) - ctr (CLOSE*)

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EDS AUTO - on (up)
 DOCK RING SEP (2) - off (down) (guarded)
 CM/SM SEP (2) - off (down) (guarded)
 PRPLNT DUMP - AUTO
 2 ENG OUT - AUTO
 LV RATES - AUTO
 TWR JETT (2) - AUTO (down) (guarded)
 LV GUID - IU
 MN REL - off(down)(guarded)
 MSN TMR HR, MIN, SEC - ctr
 C/W NORM - BOOST
 C/W CSM - CSM
 C/W PWR - 1
 C/W LAMP TEST - off (ctr)
 C/W MEMORY - ctr (RSET*)
 RCS IND sel - SM D
 CAB FANS (2) - OFF
 H2 HTRS (2) - AUTO
 O2 PRESS IND - SURGE TK
 O2 HTRS (2) - AUTO
 H2 FANS (2) - AUTO
 ECS IND sel - PRIM
 ECS RAD FLOW AUTO CONT - AUTO
 ECS RAD tb - gray
 ECS RAD FLOW PWR CONT - off (ctr)
 ECS RAD MAN SEL - RAD 1
 ECS RAD PRIM HTR - off (ctr)
 ECS RAD SEC HTR - OFF
 POT H2O HTR - OFF
 SUIT CKT H2O ACCUM AUTO - 1
 SUIT CKT H2O ACCUM ON - ctr
 SUIT CKT HT EXCH - off (ctr) (ON*)
 SEC COOL LOOP EVAP - off (ctr)(RSET*)
 SEC COOL LOOP PUMP - off (ctr)
 SEC EVAP H2O FLOW - off (ctr)
 GLY EVAP IN TEMP - MAN
 GLY EVAP STM PRESS AUTO - MAN
 GLY EVAP STM PRESS INCR - ctr (vlv partially open)
 GLY EVAP H2O FLOW - off (ctr)
 H2O QTY IND sw - POT
 SM H2O TK INLET - CLOSE

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PANEL 3

VHF ANT - SM LEFT
SPS ENG INJ VLV ind (4) - CLOSE
FC RAD (2) - off (ctr) (NORM*)
FC RAD (2) tb - gray
FC HTRS (2) - on (up)
FC IND sel - 1
SPS QTY TEST - off (ctr)
OXID FLOW VLV INCR - NORM
OXID FLOW VLV PRIM - PRIM
PUG MODE - NORM
FC PURG (2) - OFF
SM PWR SOURCE 1 MNA - ctr (on,up*)
SM PWR SOURCE 1 MNA tb - gray
SM PWR SOURCE 2 MNA - OFF
SM PWR SOURCE 2 MNA tb - bp
SM PWR SOURCE 3 MNA - OFF
SM PWR SOURCE 3 MNA tb - bp
MNA RSET - ctr (RSET*)
SPS He vlv (2) - AUTO
SPS He vlv tb (2) - bp
SPS TEMP IND sw - OXID LN
SPS PRESS IND sw - He
FC REACS (2) - ctr (on,up*)
FC REACS (2) tb - gray
H2 VENT - ctr (OFF*)
H2 VENT tb - gray
SM PWR SOURCE 1 MNB - OFF
SM PWR SOURCE 1 MNB tb - bp
SM PWR SOURCE 2 MNB - OFF
SM PWR SOURCE 2 MNB tb - bp
SM PWR SOURCE 3 MNB - ctr (on,up*)
SM PWR SOURCE 3 MNB tb - gray
MNB RSET - ctr (RSET*)
DC IND sel - MNA
BAT CHARGE - OFF
S BD XPNDR - PRIM
S BD PWR AMPL PRIM - PRIM
S BD PWR AMPL HI - HIGH
PWR AMPL tb - gray

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S BD MODE VOICE - VOICE
S BD MODE PCM - PCM
S BD MODE RNG - RNG
S BD AUX TAPE - ctr
S BD AUX TV - ctr
UP TLM DATA - DATA
UP TLM CMD - NORM
S BD ANT OMNI - B
S BD ANT - OMNI
VHF AM SQUELCH A tw - noise +1
VHF AM A - off (ctr)
VHF AM B - DUPLEX
VHF AM RCV - off (ctr)
VHF BCN - OFF
VHF RNG - OFF
S BD SQUELCH - ENABLE
FC REACS vlv - LATCH
H2 PURG LINE HTR - OFF
TV SOURCE - CM
VHF AM SQUELCH B tw - noise +1
TAPE RCDR PCM - PCM/ANLG
TAPE RCDR RCD - RCD
TAPE RCDR FWD - FWD
TAPE MOTION tb - gray
SCE PWR - NORM
PMP PWR - NORM
PCM BIT RATE - HIGH
PTT BU - NORM
AC INV 1 - MNA
AC INV 2 - MNB
AC INV 3 - OFF
INV 1 AC 1 - on (up)
INV 2 AC 1 - OFF
INV 3 AC 1 - OFF
AC 1 RSET - ctr (RSET*)
INV 1 AC 2 - OFF
INV 2 AC 2 - on (up)
INV 3 AC 2 - OFF
AC 2 RSET - ctr (RSET*)
AC IND sel - BUS 2 ØC

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PANEL 4

SPS GAUGING - OFF
TELCOM GRP 1 - AC1
TELCOM GRP 2 - AC2
GLY PUMPS - 1 AC1
SUIT COMPR 1 - AC1
SUIT COMPR 2 - OFF
cb Panel 4 - all closed

PANEL 5

MN BUS TIE (2) - on (up)
SM PWR SOURCE 1 - FC1
SM PWR SOURCE 3 - FC3
FC1 PUMPS - AC1
FC3 PUMPS - AC2
SM RCS ENG PKG HTRS (4) - off (ctr)
SM RCS QUAD HTRS (4) - off (ctr)
SM RCS PSM 1 HTRS - off (ctr)
SPS HTRS - OFF
INTGL LTS - as desired
FLOOD LTS - OFF, (full dim or full brt)
FLOOD DIM - 1
FLOOD FIXED - OFF
BAT CHARGER - AC1
cb Panel 5 all closed except:
cb FLT/PL BUS BAT A,B,C, (3) - open
cb SEC COOL HTR CONTR MNA - open
cb H2O/UR DUMP HTR (2) - open
cb O2 VAC ION PUMPS (2) - open

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PANEL 6

MODE - INTERCOM/PTT
PWR - AUDIO/TONE
PAD COMM - OFF
INTERCOM - T/R
S BD - T/R
VHF AM - T/R
AUDIO CONT - NORM
SUIT PWR - on (up)
tw settings - as desired

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PANEL 7

EDS PWR - on (up)
SCS TVC SERVO PWR #1 - AC1/MNA
SCS TVC SERVO PWR #2 - AC2/MNB
FDAI/GPI PWR - BOTH
LOGIC 2/3 PWR - on (up)
SCS ELEC PWR - GDC/ECA
SCS SIG CONDR/DR BIAS 1 - AC1
SCS SIG CONDR/DR BIAS 2 - AC2
BMAG PWR (2) - ON
DIRECT O2 vlv - OPEN (CCW) (>2 in. H2O on SUIT/CAB ΔP ind)
(O2 flow - 0.7-0.9 lb/hr)

PANEL 8

cb Panel 8 - all closed except:
cb CM RCS HTRS (2) - open
cb SPS GAUGING (4) - open
cb FLOAT BAG (3) - open
AUTO RCS SEL A/C ROLL A1 - OFF
AUTO RCS SEL A/C ROLL C1 - OFF
AUTO RCS SEL A/C ROLL A2 - OFF
AUTO RCS SEL A/C ROLL C2 - OFF
AUTO RCS SEL B/D ROLL B1 - MNA
AUTO RCS SEL B/D ROLL D1 - MNB
AUTO RCS SEL B/D ROLL B2 - MNA
AUTO RCS SEL B/D ROLL D2 - MNB
AUTO RCS SEL PITCH A3 - MNB
AUTO RCS SEL PITCH C3 - MNA
AUTO RCS SEL PITCH A4 - MNA
AUTO RCS SEL PITCH C4 - MNB
AUTO RCS SEL YAW B3 - MNA
AUTO RCS SEL YAW D3 - MNB
AUTO RCS SEL YAW B4 - MNB
AUTO RCS SEL YAW D4 - MNA
INT NUM LT - as desired
INT INTGL LT - as desired
INT FLOOD LT - OFF, full dim, or full brt
FLOOD LTS DIM - 1
FLOOD LTS FIXED - OFF
FLOAT BAG (3) - VENT (locked)
SECS LOGIC (2) - on (up) (locked)
SECS PYRO ARM (2) - on (up) (locked)

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PANEL 9

MODE - INTERCOM/PTT
PWR - AUDIO/TONE
PAD COMM - OFF
INTERCOM - T/R
S BD - T/R
VHF AM - T/R
AUDIO CONT - NORM
SUIT PWR - on (up)
VHF RNG - NORM
tw settings - as desired

PANEL 10

MODE - INTERCOM/PTT
PWR - AUDIO/TONE
PAD COMM - OFF
INTERCOM - T/R
S BD - T/R
VHF AM - T/R
AUDIO CONT - NORM
SUIT PWR - on (up)
tw settings - as desired

PANEL 12

MDA TUNL VENT vlv - MDA/CM ΔP

PANEL 13

FDAI sw (2) - INRTL
EARTH/LUNAR - PWR OFF
ALT SET - 104
LTG - OFF
MODE - HOLD/FAST
SLEW - off (ctr)

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PANEL 15

COAS PWR - OFF
UTIL PWR - OFF
PL BCN LT - off (ctr)
PL DYE MARKER - off (down)(guarded)
PL VENT - OFF

PANEL 16

e-p SPECT - ON
UTIL PWR - OFF

PANEL 98

XMIT/ICOM - off (ctr)
CALL/SLEEP - SLEEP
VOL tw - as req'd
SPKR/HEADSET - HEADSET

PANEL 100

UTIL PWR - ON (CSM 116 only)
FLOOD LTS DIM - 1
FLOOD LTS FIXED - OFF
G/N POWER/OPTICS - OFF
G/N POWER/IMU - on (up)(guarded)
G/N LTS - ACT
NUMERICS LT - as desired
FLOOD LTS - off, full dim, or full bright
INTGL LT - as desired

PANEL 101

SYS TEST (LH) - 3
SYS TEST (RH) - B
CM RCS HTRS - OFF
WASTE H2O DUMP - HTR A
UR DUMP - HTR A

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1-10PANEL 122

OPT ZERO - ZERO
 OPT TELTRUN - SLAVE TO SXT
 OPT COUPLING - DIRECT
 OPT MODE - MAN
 OPT SPEED - LO
 COND LAMPS - ON
 UP TLM - ACCEPT

PANEL 163

GLYCOL EVAP TEMP IN - NORM

PANEL 164

S1 - ON (verified at panel closeout)

PANEL 201

C/W INPUT (all) - ENABLE

PANEL 223

R C/W TONE ADJUST - as des'd
 L C/W TONE ADJUST - as des'd
 CTR C/W TONE ADJUST - as des'd

PANEL 225

cb Panel 225 - all closed

PANEL 226

cb Panel 226 - all closed except:
 cb FC1 RAD BAT RLY - open
 cb H2 VENT BAT RLY - open
 cb FC3 RAD BAT RLY - open
 cb COAS/TUNL LTG MNB - open
 cb CB40 - open

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1-11PANEL 227

SCI PWR - on (up) (CSM 116 only)

PANEL 229

cb Panel 229 all closed except:
 cb PYRO BUS A BAT BUS A - open
 cb PYRO BUS B BAT BUS B - open
 cb MAIN REL PYRO (2) - open

PANEL 230

cb Panel 230 - all open
 CSM/SWS INTERFACE PWR (2) - DISCONNECT
 CSM/SWS INTERFACE PWR tb - gray
 CSM/SWS INTERFACE SIG - DISCONNECT
 CSM/SWS INTERFACE SIG tb - bp

PANEL 250

cb Panel 250 - all closed except:
 cb MN BUS INTERCONNECT (2) - open

PANEL 251

WASTE MGMT OVBD DRAIN vlv - OFF

PANEL 252

BAT VENT vlv - VENT
 WASTE STOWAGE VENT vlv - VENT

PANEL 274

cb Panel 274 - all closed

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cb Panel 275 - all closed except:
 cb MNA BAT C - open
 cb MNB BAT C - open
 cb BAT BUS A MNA - open
 cb BAT BUS A BAT C - open
 cb BAT BUS A PYRO BAT A - open
 cb BAT BUS B MNB - open
 cb BAT BUS B BAT C - open
 cb BAT BUS B PYRO BAT B - open

PANEL 276

cb Panel 276 - all closed

PANEL 277 (CSM 117 only)

EXP S071 - ON
 EXP S072 PWR - on (up)
 EXP S072 START - OFF
 EXP DATA - REAL TIME

PANEL 278

cb UPRT SYS COMPR (2) - open
 cb DOCK RING SEP (2) - open

PANEL 300

RH SUIT FLOW vlv - FULL FLOW

PANEL 301

LH SUIT FLOW vlv - FULL FLOW

PANEL 302

CTR SUIT FLOW vlv - FULL FLOW

PANEL 303

PRIM CAB TEMP vlv - COLD (CW)
 SEC CAB TEMP vlv - MAX COOL (CW)

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PANEL 304

DRNK H2O SUPPLY vlv - OFF (CW)

PANEL 305

FOOD PREP COLD H2O vlv - rel
FOOD PREP HOT H2O vlv - rel

PANEL 306

MSN TMR - START
EVNT TMR RSET - UP (ctr)
EVNT TMR STRT - ctr
EVNT TMR MIN - ctr
EVNT TMR SEC - ctr
MSN TMR HR - ctr
MSN TMR MIN - ctr
MSN TMR SEC - ctr

PANEL 325

CAB PRESS RELF vlv (RH) - BOOST/ENTRY
CAB PRESS RELF vlv (LH) - BOOST/ENTRY
PRIM GLY TO RAD vlv - BYPASS (pull)

PANEL 326

REPRESS PKG vlv - ON
SM O2 SUPPLY vlv - ON
SURGE TK O2 vlv - ON
GLY RSVR IN vlv - OPEN
GLY RSVR BYPASS vlv - CLOSE
GLY RSVR OUT vlv - OPEN

PANEL 350

CO2 CSTR DIVERT vlv - both (ctr)

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PANEL 351

MAIN REG vlv (2) - OPEN
H2O/GLY TK PRESS REG vlv - BOTH
H2O/GLY TK PRESS RELF vlv - BOTH
EMER CAB PRESS vlv - OFF
CAB REPRESS vlv - OFF (CCW)

PANEL 352

WASTE TK SERVICING vlv - CLOSE
PRESS RELF vlv - RELF
POT TK IN vlv - ~~OPEN~~ CLOSE
WASTE TK IN vlv - AUTO

PANEL 375

SURGE TK PRESS RELF vlv - OPEN (CW)

PANEL 376

PLVC - NORMAL (up)

PANEL 377

GLY TO RAD SEC vlv - BYPASS (CCW)

PANEL 378

PRIM GLY ACCUM vlv - open (CCW)

PANEL 379

PRIM ACCUM FILL vlv - OFF (CW)

PANEL 380

O2 DEMAND REG vlv - BOTH
SUIT TEST vlv - OFF
SUIT CKT RET vlv - CLOSE (push)

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PANEL 382

SUIT HT EXCH PRIM GLY vlv - FLOW (CCW)
SUIT FLOW RELF vlv - OFF
PRIM GLY EVAP IN TEMP vlv - MIN (CCW)
SUIT HT EXCH SEC GLY vlv - FLOW (CCW)
SEC EVAP H2O CONT vlv - AUTO (CW)
PRIM EVAP H2O CONT vlv - AUTO (CW)
H2O ACCUM vlv (2) - RMTE (CCW)

PANEL 399

AUX GLY EVAP IN TEMP vlv - MIN (CW)

PANEL 600

EMER O2 vlv - CLOSE

PANEL 601

REPRESS O2 vlv - CLOSE (guarded)

PANEL 602

REPRESS O2 RELF vlv - OPEN (CW)

PANEL 603

IVA STA O2 SUP - OFF

PANEL 604

IVA PWR - OFF

PANEL S015 (EXP)

40X CAMR - NORM

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FWD HATCH

PRESS EQUAL vlv - CLOSE
ACTR HNDL se1 - stow/check locked

SIDE HATCH

CAB PRESS DUMP vlv - CLOSE (CW)
GEAR BOX se1 - LATCH
ACTR HANDLE se1 - UNLATCH
LOCK PIN REL KNOB - LOCK
LOCK PIN ind - flush
GN2 VLV HANDLE - outboard
BPC JETT KNOB - toward BPC JETT

* - last momentary position before liftoff.

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NC1 TARGETING PAD

		NOMINAL	NOMINAL UPDATE	PRELAUNCH UPDATE
N95	HR	+ X X X 0 0 2	+ X X X X X X	+ X X X X X X
TIG NC1	MIN	+ X X X X 2 0	+ X X X X X X	+ X X X X X X
	SEC	+ X X 1 1 9 0	+ X X X X X X	+ X X X X X X
N57 HALF REVS		+ X X X X 0 3	+ X X X X X X	+ X X X X X X
N37	HR	+ X X X 0 0 6	+ X X X X X X	+ X X X X X X
TIG TPI	MIN	+ X X X X 4 9	+ X X X X X X	+ X X X X X X
	SEC	+ X X 3 8 7 0	+ X X X X X X	+ X X X X X X

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TALIGN PAD

		NOMINAL	NOMINAL UPDATE	PRELAUNCH UPDATE
334	HR	+ X X X 0 0 6	+ X X X X X X	+ X X X X X X
GET	MIN	+ X X X X 3 9	+ X X X X X X	+ X X X X X X
ALIGN	SEC	+ X X 5 2 6 0	+ X X X X X X	+ X X X X X X

L
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BOOST PREPARATION

-25:00 Change X STABLE MEMBER AZIMUTH, if necessary:

*V78E *
*F 06 29 X SM AZ (.01° *
*V21E *
*Load new Azimuth *
*PRO *
*ALIGN GDC *

AUTO RCS A/C ROLL (4) - OFF (verify)
AUTO RCS B/D ROLL B1 & B2 - MNA
AUTO RCS B/D ROLL D1 & D2 - MNB
AUTO RCS PITCH A3 & C4 - MNB
AUTO RCS PITCH C3 & A4 - MNA
AUTO RCS YAW B3 & D4 - MNA
AUTO RCS YAW D3 & B4 - MNB

-15:00

CTE UPDATE VERIFICATION

DC IND se1 - BAT C
DC VOLTS ind - 35-37.5 vdc
DC IND se1 - MNA
FDAI-1 total att R=90+AZ, P=90, Y=0
FDAI SCALE - 5/5
RATE - HIGH
TRANS CONTR PWR - on(up) (verify)
RHC PWR DIRECT(2) - MNA/MNB
CMC MODE - FREE
BMAG MODE (3) - RATE 1
RHC #2 - ARMED

ASTRO LAUNCH OPERATIONS VOICE CHECK

PLT S BD sw - OFF
CDR VHF AM sw - OFF

VOICE CHECK WITH MCCH

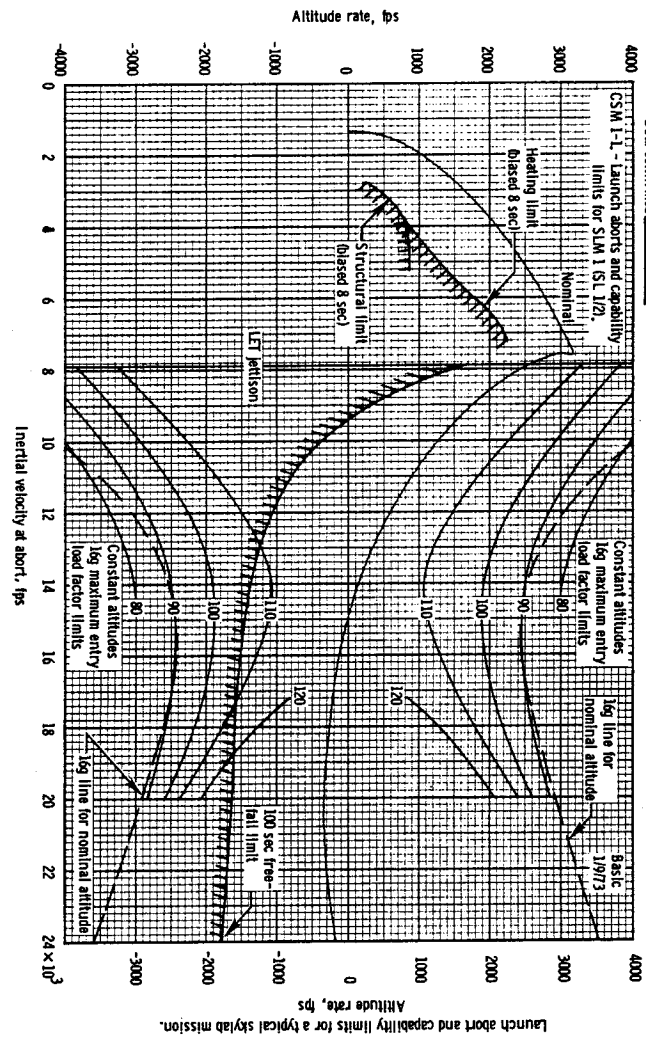
PLT S BD sw - T/R
CDR VHF AM sw - T/R
SPS THRUST - NORMAL (locked)
ΔV THRUST (2) - OFF

BOOST PREPARATION

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Henderson/PMM/PAD
SL-23A-206 LV Operational Trial (ECR Tape #A04529)
Data source: SL-23A-206, 11 Nov. 1972 & Vol. 111 Amend. #208 Nov. 3, 1972
Data confirmed: *PH* 1/1972



Launch abort and capability limits for a typical Skylab mission.

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L
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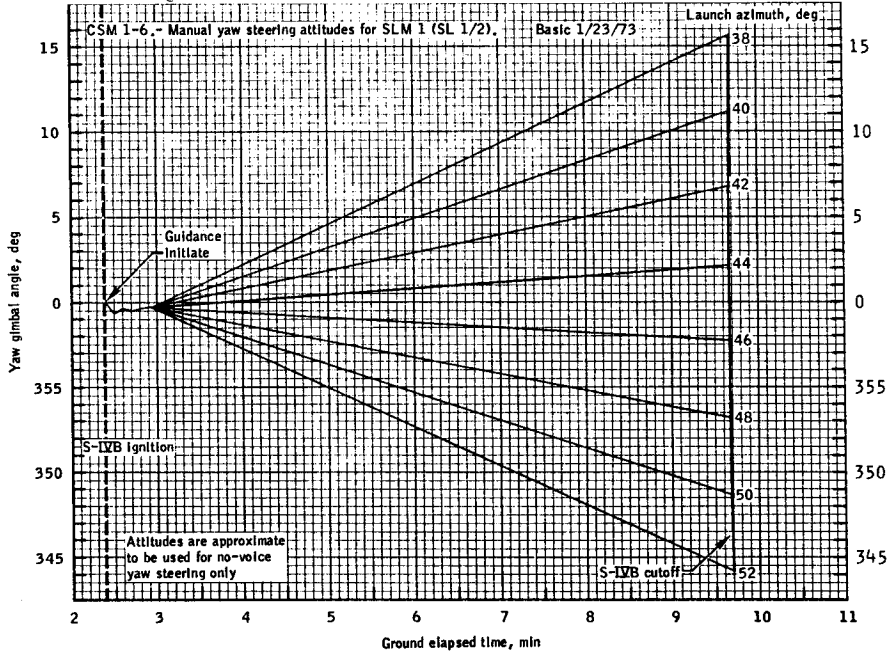
BOOST PREPARATION

- 10:00 EDS AUTO - on (up)
- 08:30 2 ENG OUT - AUTO
- 04:10 LV RATES - AUTO
- 04:00 RCS CMD - OFF
- TVC SERVO PWR #1 - AC1/MNA
- TVC SERVO PWR #2 - AC2/MNB
- FC REAC v1v - LATCH
- SEC COOL LOOP PUMP - off (ctr) (verify)
- L/V ENGINE Its (8) - on
- ASTRO LAUNCH OPERATIONS COMM CHECK
- DSKY - Verify P02
- V75 (Do not ENTR)
- TAPE RCD FWD - FWD (tb-gray)
- PRIM GLY TO RAD - pull (bypass)
- MN BUS TIE (2) - on (up)
- PAD COMM (2) - OFF
- VHF AM VOL tw - increase to above normal listening level
- GDC ALIGN pb - PUSH & HOLD
- R=90+AZ, P=90, Y=0
- FDAI 2 Total att - no motion
- GDC ALIGN pb - release

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YAW STEERING ATTITUDES

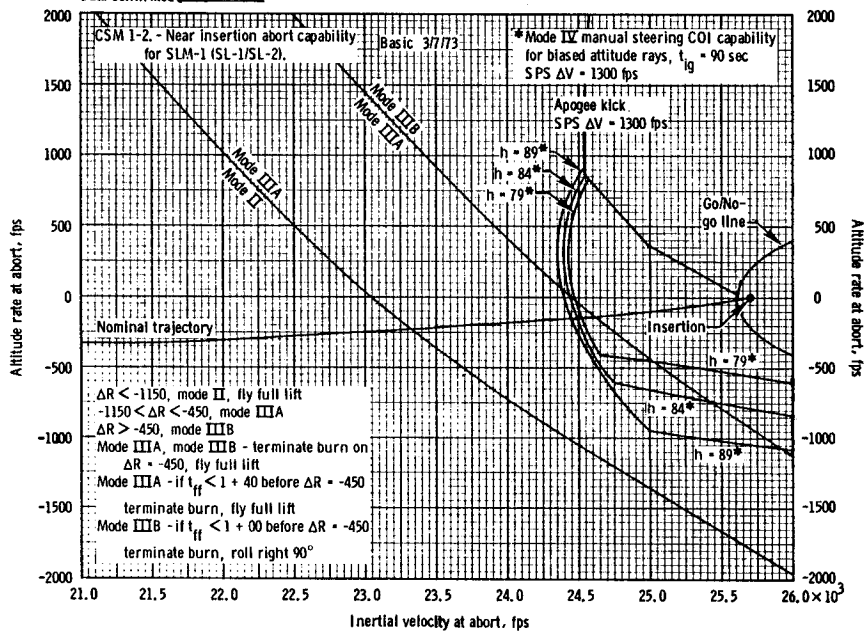
Henderson/FPB/MPAD
 Data source *MISFC/STE-AERO-MFP*
 Data confirmed *1/23/73*



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Henderson/FPB/MPAD
 SL-2(SA-206) LV Operational Traj. (MSC Tape #A04529)
 Data source *SL ODB Vol II Rev B Oct. 1972 & Vol. III Amend. #106 Nov. 3, 1972*
 Data confirmed *1/15/72*



Near-insertion abort capability for a typical sky/ab mission.

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MANUAL STEERING CREW CHART (HP + HA = 208 nm)		
CURRENT ALTITUDE (H, nm)	HP/HA (nm)	INERTIAL VELOCITY (VI, fps)
70	70/138	25,810
72	72/136	25,790
74	74/134	25,780
76	76/132	25,760
78	78/130	25,750
80	80/128	25,740
82	82/126	25,720
84	84/124	25,710
86	86/122	25,690
88	88/120	25,680
90	90/118	25,660
92	92/116	25,650
94	94/114	25,630
96	96/112	25,620
98	98/110	25,600
100	100/108	25,590

NOTE: Assumes inserting at HDOT = 0.
SIVB acceleration at insertion = $\sim 83 \text{ ft/sec}^2$.
CSM acceleration at insertion = $\sim 25 \text{ ft/sec}^2$.

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BOOST

-00:03 Ignition CMD
-00:01 L/V ENGINES lts (8) - out
00:00 LIFTOFF lt - on

*After LIFTOFF verified: *
* IF LIFTOFF lt off: - push *
* If NO AUTO ABORT lt on: - push*

Clock Start (auto) - report
MET Resets & starts counting up auto
P11 auto

*If no P11: - Key ENTR *
* Start DET & reset MET*

06 62 VI,H DOT, H PAD (fps, fps, .1nm)

*If LV GUID lt on: * MODE IA
* LV GUID - CMC *

+00:10 Roll & Pitch Program - report

If LOX TK PRESS >50 psia:
* Abort immediately *

CABIN RELIEVING $\sim 14\text{K}(2.3 \text{ nm})$ - report

*If no Press decrease $\sim 25\text{K}(4.1 \text{ nm})$: *
* CAB PRESS RELIEF vlv(RH)-DUMP *

+00:56 Roll complete - report

+01:01 MODE IB - report
PRPLNT DUMP - RCS CMD

+01:14 MAX Q
V82E, N62E

+01:40 EDS AUTO - OFF - report
2 ENG OUT - OFF
LV RATES - OFF

00:00

+5°/sec P,Y
+20°/sec R

01:01

+5°/sec P,Y
+20°/sec R

MODE IB

BOOST

BOOST

L
2-8

+01:48 MODE IC - report

+02:11 CMC Boost Polynomial stops

+02:18 GO/NO GO FOR STAGING - report
INBOARD CUTOFF - (Its 5,6,7,8 on)
LIFTOFF 1t - out

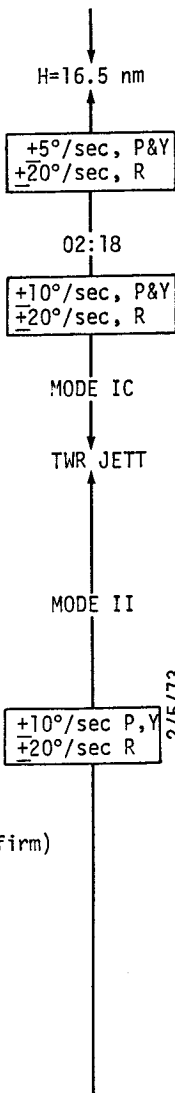
+02:21 OUTBOARD CUTOFF - report (1ts on)
+02:23 SIB STAGING (1ts out)
+02:24 SIVB Ign Command (1t on)
+02:27 SIVB 65% (1t out)

+02:51 TWR JETT (2) - on (up) (TFF>1+20)
(OECO + 30 sec)
*NO TWR JETT, pg L/4-2 *
Twr Jett - report

V46E, V46E, N62E
MAN ATT PITCH - RATE CMD
GLY EVAP STEAM PRESS - AUTO
GLY EVAP H2O FLOW - AUTO

+02:52 Guidance Initiate - report
+03:22 Guidance Good
+04:00 Report Status
+05:00 Report Status
+06:00 Report Status
+06:15 OMNI ANT - D
+07:00 Report Status
GMBL MOT (4) - START - ON (PLT Confirm)
Check GPI:
LV/SPS IND - GPI (Momentarily)
PITCH = +1.2°, YAW = +0.4°

+07:49 PU SHIFT



L
2-9

+08:00 Report Status

+09:00 GO/NO GO FOR ORBIT - report

+09:26 Mode IV - Report
(VI ~ 24,470)
(H DOT ~ -145)
(H ~ 84)

+09:40 SECO (1t on) - report

*If LV GUID - CMC: *
* THC - CCW *
* & neutral in 1 sec *

*If no SECO, (at VI): *
* THC - CCW *
* & neutral in 1 sec *

Log VI _____ (fps)
H DOT _____ (fps)
H PAD _____ (.1nm)

KEY RLSE

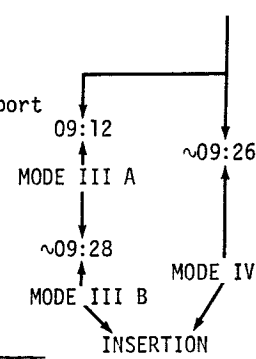
Log HA _____ (.1nm)
HP _____ (.1nm)
TFF _____ (min-sec)

PRO

V37E 00E

Verify LOX TK PRESS decreasing to ~32 psia
and FUEL TK PRESS decreasing

*If $\Delta P > 36$ psid (OXID > FUEL) or *
*If $\Delta P > 26$ psid (FUEL > OXID) or *
*If LOX TK PRESS > 50 psia: *
* EMERGENCY CSM/LV SEP, pg EMER/1-1 *



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2-10

GMBL MTRS (4) - OFF (PLT confirm)
CM RCS LOGIC - OFF
cb ELS/CM-SM SEP (2) - open
cb FLT/PL VENT - open
MN BUS TIE (2) - OFF
CAB PRESS REL vlv (2) - NORMAL/LATCHED
PCM BIT RATE - LOW
Verify DSE tape motion
(LBR/RCD/FWD/CMD RESET)
VHF AM A - SIMPLEX
VHF AM B - OFF
S-BD AUX TAPE - TAPE

CSM/LV SEPARATION

*If LV GUID - CMC: *
* Do not reload DAP *
* MnvR to SEP ATT (180°, 317°, 0°)*

Load RCS DAP
R1=11103, R2=01111
V46E
Load H22 (180°, 170°, 2°), V62E
SM RCS QUAD PRPLNT tb (8) - gray (verify)
AUTO RCS SELECT (10) - MNA/MNB (verify)
EMS FUNC - OFF 12
Set ΔVC to -100.0
EMS FUNC - ΔV
FDAI SCALE - 5/1
ATT DB - MIN/LOW
SC CONT - CMC
B1AG MODE (3) - RATE 2

GO/NO-GO for CSM/LV SEP

14:00 V37E 47E F 16 83 ΔV X,Y,Z (.1fps)
THC - ARMED
RHC #2 - ARMED (verify)
RCS CMD - ON
*If LV GUID - CMC: *
* Insure rates nulled, 3 *
* Load DAP 11103, 01111 *
* V46E, ~~W806~~, V62E *
15:30 EMS MODE - NORMAL

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2-11

15:58 Thrust +X and hold
15:59 CMC MODE - AUTO
16:00 CSM/LV SEP pb - push, hold, and release
LV TANK PRESS - full scale low
*If No Separation: *
* THC - CCW (4 sec min) *
* DET reset and counting up (auto) *
* LV TK PRESS - full scale low (SEP ind)*
16:07 THC - release (ΔV ~3 fps)
PRO
F 37 OOE
V49E (MnvR to 180°, 170°, 2°)

POST SEPARATION

SM RCS QUAD PRPLNT tb (8) - gray (verify)
SM RCS QUAD He tb (4) - gray (verify)
SM RCS QUAD SEC FUEL PRESS (4) - OPEN
FC REAC vlv - NORM
SECS PYRO ARM (2) - SAFE
SECS LOGIC (2) - OFF
cb SECS ARM (2) - open
EDS PWR - OFF
cb EDS (3) - open
THC & RHC - LOCKED
EMS - OFF/STBY
ATT DB - MIN/HIGH
THC PWR - OFF
RHC PWR DIRECT (2) - OFF
LV/SPS IND - GPI
TVC SERVO PWR (2) - OFF
cb RCS LOGIC (2) - open
cb DIRECT ULLAGE (2) - open
(326) REPRESS PKG vlv - OFF
INSTALL COAS
SM RCS ENG PKG HTRS (4) - 1
SM RCS QUAD HTRS (4) - PRIM
SM RCS PSM 1 HTRS - PRIM
SPS HTRS - PRIM
C/W - NORMAL
BPC JETT KNOB - 180° from BPC JETT
GN2 vlv HNDL - VENT (pull)
HATCH GEAR BOX - LATCH (verify)
ACTR HNDL SELECTOR - neutral

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3-1SYSTEMS CHECKS

- 1 CONFIRM NORMAL SUIT AND CABIN PRESSURE
Verify cabin press >4.7 psia
and O2 flow not pegged hi
(351) EMERG CABIN PRESS vlv - BOTH
(380) SUIT CKT RET vlv - open (pull)
Remove helmets & gloves
Stow helmets in helmet bags (U2), gloves in
accessory bags (U2) & put in PGA bag (U2)
- 2 SPT to LEB
STRUT UNLOCK LANYARD (2) - STOW
(304) DRINKING WATER SUPPLY vlv - ON (CCW)
cb COAS/TUNL LTG MNB - close
Unstow Tool E (L2)
- 3 CDR & SPT go to Rendezvous book
PLT continue with Systems Checks
- NOTE: The following steps must be performed prior
to NCI and may be rearranged as req'd for
each mission.
- 4 MAIN REG CHECK
(351) MAIN REG B vlv - close
EMER CABIN PRESS sel - 1
PUSH TO TEST PB - PUSH (O2 FLOW INC)
MAIN REG B vlv - open
MAIN REG A vlv - close
EMER CABIN PRESS sel - 2
PUSH TO TEST PB - PUSH (O2 FLOW INC)
MAIN REG A vlv - open
EMER CABIN PRESS sel - BOTH
- 5 SEC RAD LEAK CHECK
Monitor SEC ACCUM QUANTITY - no change
(377) SEC GLY To RAD vlv - NORM (CW) for 30 sec,
then BYPASS (CDR)

SYSTEMS CHECKS

SYSTEMS CHECKS

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3-2

- 6 ECS POST INSERTION CONFIG
(Must be performed between +20:00m & +55:00m)
(326) GLY RSVR BYPASS vlv - OPEN (CCW)
GLY RSVR OUT vlv - CLOSE (CW)
GLY RSVR IN vlv - CLOSE (CW)
PRIM GLY ACCUM QTY 30-65%
- (379) PRIM ACCUM FILL vlv - ON (CCW) until 40-55%
ECS RAD FLOW CONT - PWR
PRIM GLY TO RAD vlv - NORMAL (push)
ECS RAD HTR - PRIM 1
ECS RAD TEMP PRIM OUT below PRIM IN
After 5 min, if outlet temp > inlet:
* PRIM GLY TO RAD vlv - BYPASS(pull)*
* Recheck in 10 min *
ECS RAD tb - gray
GLY EVAP TEMP IN - AUTO
POT H2O HTR - MNA
cb H2O/URINE DUMP HTR (2) - close
- 7 SM RCS MONITORING CHECK
SM RCS PSM 1 He tb - bp
SM RCS PSM 1 MANF ISOL tb - gray
SM RCS QUAD He (4) tb - gray
SM RCS PSM PRPLNT (4) tb - bp
SM RCS QUAD PRPLNT (8) tb - gray
RCS IND sel - SM QUAD A, B, C, D, PSM 1
PKG TEMP - 115-175°F (PSM - zero)
He TK PRESS - 4100-4200 psia (PSM:3975-4285)
FUEL MANF PRESS - 178-192 psia (PSM:130-150)
OXID MANF PRESS - 178-192 psia (PSM:150-170)
RCS IND sw - TK PRESS/QTY
FUEL TK PRESS - 178-192 psia (PSM:130-150)

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8 CM RCS MONITORING CHECK

CM RCS PRPLNT tb (2) - gray
RCS IND sw - CM 1,2
He TEMP - 60°-80°F
He PRESS - 4100-4200 psia
MANF PRESS - 80-105 psia

9 C/W OPERATIONAL CHECK

C/W LAMP TEST - 1 (LH MA & 18 lts)
C/W LAMP TEST - 2 (RH MA & 17 lts)
C/W CSM - CM (CM RCS 1t (2) - on)
C/W CSM - CSM (CM RCS 1t (2) - out)
C/W MEMORY - RESET

10 EPS MONITORING CHECK

Cryogenic Pressure - Quantity Check
H2 PRESS (2) - 225-260 psia
O2 PRESS (2) - 865-935 psia
SURGE TK PRESS - 865-935 psia
H2 FANS (2) - AUTO (verify)

FC Power Plant Check
FC HTRS(2) - on(up)
FC REAC tb (2) - gray
H2 VENT tb - gray
FC IND sel - 1, 3
H2 FLOW - 0.03-0.15 lb/hr
O2 FLOW - 0.25-1.2 lb/hr
MOD SKIN TEMP - 390-440° F
MOD COND EXH TEMP - 150-175° F
FC pH HI tb - gray

D-C Voltage-Amperage Check

MN BUS TIE (2) - OFF (verify)
SM PWR SOURCE MNA tb - 1 gray, 2 & 3 bp
SM PWR SOURCE MNB tb - 1 & 2 bp, 3 gray
CSM/SWS INTERFACE PWR tb - gray
SM SOURCE 1 & 3 (check amps)
MAIN BUS A, B, (26.5-31 vdc)
BAT BUS A, B, & BAT C (31.5-38 vdc < 3 amp)
PYRO BAT A, B (36.5 - 37.5 vdc)
DC IND sel - MNB
SYS TEST 3B (BAT RLY BUS - 3.4-4.1 vdc)
A C VOLTS - 113 to 117 all phases

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11 ECS MONITORING CHECK

SUIT COMP ΔP - .3-.4 psid
O2 SURGE TANK PRESS - 865-935 psia
REPRESS O2 >865 psia
PRIM RAD tb - gray
*If PRIM RAD tb - 2: *
* ECS RAD FLOW AUTO CONT - 1 until*
* tb gray, then AUTO
ECS RAD TEMP PRIM IN - 67-97° F
ECS RAD TEMP PRIM OUT - -12° to +65° F
PRIM GLY EVAP TEMP OUT - 38-50.5° F
PRIM GLY DISCH PRESS - 40-52 psig
SUIT TEMP - 45-55° F
SUIT PRESS/CABIN PRESS - 4.7-5.3 psia
PART PRESS CO2 < 7.6 mm Hg
POT H2O QTY - 10-50%
WASTE H2O QTY - 10-50%

12 SECONDARY GLYCOL LOOP CHECK

ECS IND sw - SEC
SEC COOL LOOP PUMP - AC1
GLY DISCH SEC PRESS - 39-51 psig
ACCUM SEC QTY IND - 30-60%
SEC EVAP H2O FLOW - AUTO
SEC COOL LOOP - EVAP
After 5 min:
SEC EVAP TEMP OUT - 38-50.5°F
SEC COOL LOOP EVAP - RSET 1 min, off (ctr)
SEC EVAP H2O FLOW - off (ctr)
SEC COOL LOOP PUMP - off (ctr)
ECS IND sw - PRIM

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- 13 SPS MONITORING CHECK
 SPS TEMP ind - +50 +3°F (+55 +3°F for SEC)
 SPS PRESS IND sw - He, N2A, & N2B
 SPS PRESS ind -
 He 3900 psia max
 N2A 2900 psia max
 N2B 2900 psia max
 SPS PRESS IND sw - He
 FUEL & OXID PRESS ind - 170 to 195 psia
 SPS ENG INJ VLVS (4) - CLOSE
 SPS He VLV (1&2) - AUTO, tb - bp
- 14 EXTEND DOCKING PROBE
 cb DOCK PROBE (2) - close (verify)
 DOCK PROBE EXTD/REL - EXTD/REL until
 full probe extension
 (DOCK PROBE tb - gray at full extension)
- | | EXT | RET |
|----------|------|------|
| FULL EXT | Gray | Gray |
| FULL RET | BP | BP |
| PART EXT | BP | Gray |
- DOCK PROBE EXTD/REL - RETRACT (tb-gray)

DATE

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4-1

ABORT PROCEDURES

MODE IA ABORT
(00:00 to 01:01)00:00 THC - CCW then NEUTRAL
*CM/SM SEP (2) - on (up)*00:14 ELS - AUTO
ELS LOGIC - on (up)
TWR JETT (2) - on (up)
APEX COVER JETT PB - PUSH

00:16 *DROGUE DEPLOY PB - PUSH*

00:18 *CM RCS He DUMP PB - PUSH*

Monitor altimeter
If <alidade - DEPLOY MAINS
>alidade - NO ACTION

00:28 If <10,000 ft - DEPLOY MAINS

Note: Alidade set for 3800 ft true altitude
prior to Launch

Go to LANDING PHASE pg L/4-11

MODE IB ABORT
(01:01 to 16.5 nm)00:00 THC - CCW then NEUTRAL
CM/SM SEP (2)-on (up)

00:11 *CANARD DEPLOY PB - PUSH*

00:14 ELS - AUTO
ELS LOGIC - on (up)
RCS CMD - ON

Go to LANDING PHASE pg L/4-11

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MODE I

MODE I

L
4-2MODE IC ABORT
(16.5 nm to TWR JETT)00:00 THC - CCW then NEUTRAL
CM/SM SEP (2) - on (up)
*RCS CMD - ON*00:11 *CANARD DEPLOY PB - PUSH*
CM RCS PRESS - on (up)
RCS TRNFR - CM
RCS IND - CM (1 or 2)
C/W MODE - CMS/C PLATFORM GO/NO GO
KEY RLSE to N44, Check HA

HA>32nm & PLAT GO

HA<32nm or PLAT NO GO

TWR JETT sw(2)-on(up)
MAN PITCH - RATE CMD
BMAG (3)- ATT1/RATE 2
ENT ATT R0°,P135°,Y0°
EMS FUNC - ENTRY
EMS MODE - NORMAL
At .05G Lt,
.05G sw - on (up)
Fly Max Lift

Cmd +5°/sec Pitch rate

If +Pitch rate too hi:

* Roll 90° *
* Damp rate with yaw *
* Roll to HDS DN *P (.05G) _____
GET DRO _____

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Go to LANDING PHASE pg L/4-11

LET FAILS TO JETTISON

LEGS CUT/NO MOTOR FIRE (pyro audible):

LES MOTOR FIRE PB - PUSH

NO RESPONSE to TWR JETT switches:

cb SECS ARM (2) - close (verify)

cb SECS LOGIC (2) - close (verify)

cb EDS (3) - close (verify)

SECS LOGIC (2) - on (up) (verify)

SECS PYRO ARM (2) - on (up) (verify)

EDS PWR - on (up) (verify)

TWR JETT (2) - on (up)

NO TWR JETT: TWR JETT (2) - AUTO

Abort, Mode IC on STDN cue

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L
4-3MODE II RCS ABORT
(TWR JETT to MODE III)00:00 THC - CCW (4 sec min)
If No BECO: - Reset THC
* Req. RSO shutdown *
* Reset & start DET *00:03 *CSM/LV SEP - PUSH*
*RCS CMD - ON *00:05 THC - ARMED
THC - NEUTRAL, Damp rates, then +X
Check SM RCS talkbacks00:24 THC - +X OFF
BMAG MODE (3) - ATT1/RATE 2
KEY RLSE to N44, Check TFF
If TFF>2 min, Yaw 45° (LEFT) out-of-plane
cb MNA&B BAT C (2) - close
CM/SM SEP - on (up)
CM RCS PRESS - on (up)
RCS TRNFR - CM
C&W MODE - CM
Entry ATT - (R=0°,P=130°,Y=0°)(Comp1 by 1:40)
cb DOCK RING SEP (2) - close (pull lanyard)
DOCK RING SEP (2) - on (up)
EMS FUNC - ENTRY GET 300K _____
EMS MODE - NORMAL P (.05G) _____
GET DRO _____At .05G lt - on
.05G sw - on (up)
EMS ROLL - on (up)
Fly Max Lift
N62E VI, HDOT, H

Go to LANDING PHASE pg L/4-11

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MODE II, MODE IIIA

L
4-4

MODE IIIA SPS ABORT (Burn STDN Pad)
($\Delta R = -1150nm$ to $\Delta R = -450nm$)

00:00 THC - CCW (4 Sec Min)
 If No BECO: - Reset THC
 * Req. RSO Shutdown *
 * Reset & start DET *

00:03 *CSM/LV SEP - PUSH*
 *RCS CMD - ON *

THC - ARMED

00:05 THC - NEUTRAL, Damp rates, then +X
 Check SM RCS talkbacks

00:24 THC - +X OFF
 N50E ΔR , HP, TFF (.1nm, min-sec)
 BMAG MODE (3) - ATT1/RATE2
 MNVR to Burn att (180°, 355°, 0°)
 (Scribe on horiz, SEF, Hds dn)
 EMS MODE - NORMAL
 RATE - LOW
 LV/SPS IND - GPI

01:50 ΔV THRUST A - NORMAL
 THC - +X (15 sec)

02:05 THRUST ON PB - PUSH
 Burn to VC ($\Delta R = -450$)
 or TFF = 1+40
 ΔV THRUST (2) - OFF

RATE - HIGH
 If TFF > 2min, Yaw 45° (LEFT)
 out-of-plane
 cb MNA&B BAT C(2) - close
 CM/SM SEP - on (up)
 CM RCS PRESS - on (up)
 RCS TRNFR - CM
 C&W MODE - CM
 MnvR to entry att (R=0°, P=115°, Y=0°)
 (BEF, Hds Dn, Full Lift)
 cb DOCK RING SEP (2) - close (pull lanyard)
 DOCK RING SEP (2) - on (up)

TIG	_____
(1999.9)	_____
ΔV	_____
CUTOFF	_____
BT	_____
P(IGN)	_____
GET 300K	_____
P (.05G)	_____
GET DRO	_____

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L
4-5

Note TFF
 EMS MODE - STBY
 EMS FUNC - ENTRY
 EMS MODE - NORMAL
 At .05G It - on
 .05G sw - on (up)
 EMS ROLL - on (up)
 Fly Max Lift

Go to LANDING PHASE, pg L/4-11

MODE II, MODE IIIA

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MODE IIIB

L
4-6

MODE IIIB SPS ABORT (Burn STDN Pad)
($\Delta R = -450$ nm to INSERTION)

00:00 THC - CCW (4 Sec Min)
 If No BECO: - Reset THC
 * Req. RSO shutdown *
 * Reset & start DET *

00:03 *CSM/LV SEP - PUSH*
 *RCS CMD - ON *

THC - ARMED

00:05 THC - NEUTRAL, Damp rates, then +X
 Check SM RCS talkbacks

00:24 THC - +X OFF
 N50E $\Delta R, HP, TFF$ (.1nm, min-sec)
 BMAG MODE (3) - ATT1/RATE2
 If $\Delta R > -450$:
 MNVR to retro att ($R=180^\circ, P=198^\circ, Y=0^\circ$)
 (Scribe on horiz, BEF, Hds up)
 EMS MODE - NORMAL
 RATE - LOW
 LV/SPS IND - GPI

01:50 ΔV THRUST A - NORMAL TIG
 THC - +X (15 sec) (1999.9)

02:05 THRUST ON PB - PUSH ΔV
 Burn to VC ($\Delta R = -450$) CUTOFF
 or TFF = 1+00 BT
 ΔV THRUST (2) - OFF P(IGN)
 GET 300K
 P (.05G)
 GET DRO

RATE - HIGH
 If TFF > 2min, Yaw 45° (LEFT)
 out-of-plane
 cb MNA&B BAT C(2) - close
 CM/SM SEP - on (up)
 CM RCS PRESS - on (up)
 RCS TRNFR - CM
 C&W MODE - CM
 MnvR to entry att ($R=0^\circ, P=115^\circ, Y=0^\circ$)
 (BEF, Hds Dn, Full Lift)
 cb DOCK RING SEP (2) - close (pull lanyard)
 DOCK RING SEP (2) - on (up)

MODE IIIB

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4-7

Note TFF
 EMS MODE - STBY
 EMS FUNC - ENTRY
 EMS MODE - NORMAL
 At .05G lt - on
 .05G sw - on (up)
 EMS ROLL - on (up)
 Fly Max Lift

Go to LANDING PHASE pg L/4-11

MODE IV P. PROFILE

L
4-8

MODE IV SPS TO ORBIT

(VI ~ 24,470, HDOT ~ -145, H ~ 84)

00:00 THC - CCW (4 sec min)
*If No BECO: - Reset THC *
* Req. RSO shutdown *
* Reset & start DET *

00:03 *CSM/LV SEP - PUSH*
*RCS CMD - ON *

00:05 THC - ARMED
THC - NEUTRAL, Damp rates, then +X
Check SM RCS talkbacks

00:24 THC - +X OFF

Perform PITCH PROFILE or FIXED ATTITUDE BURN:

PITCH PROFILE

BMAG MODE (3) - ATTI/RATE2
Mnvr to Chart Burn Attitude
EMS MODE - NORMAL
RATE - LOW
LV/SPS IND - GPI
 ΔV THRUST A - NORMAL
THC - +X (15 sec)
<01:30 THRUST ON PB - PUSH
SCS TVC (PITCH) - RATE CMD
Fly HDOT to zero (+100 fps), trim YAW with tw
Burn to chart VI, pg L/2-6

*If unable to fly HDOT to <|100|: *
* KEY RLSE to N44 *
* (-HDOT) Burn HP >70nm +4 sec *
* (+HDOT) Burn HA >200nm, then Apogee Kick*

ΔV THRUST (2) - OFF
EMS MODE - STBY

Go to "Log VI", pg L/4-10

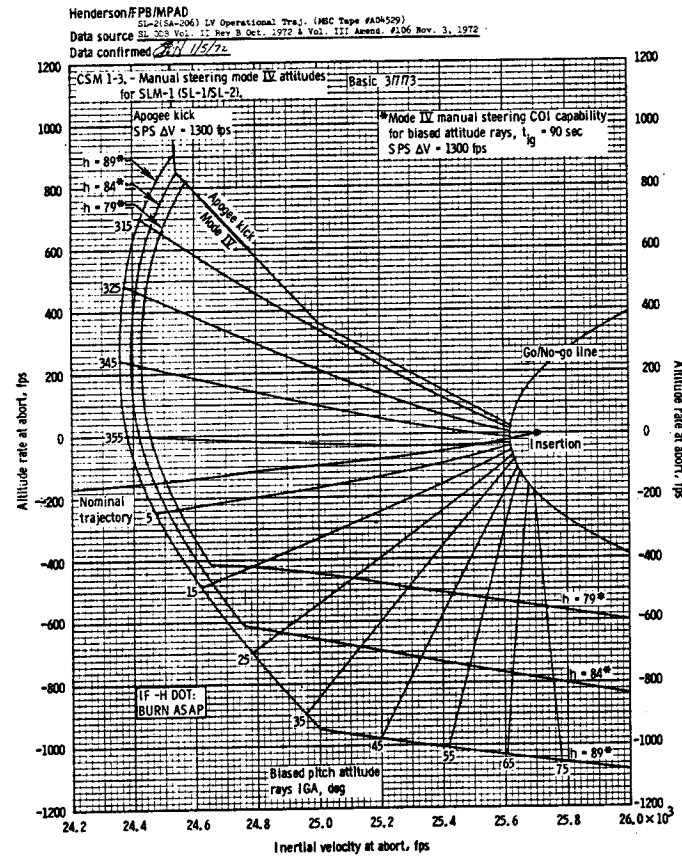
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MODE IV P. PROFILE

MODE IV IGN ATT

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MODE IV,
FIXED ATT

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4-10

or FIXED ATTITUDE BURN (Scribe on horiz, SEF, Hds Dn)

	BMAG MODE (3) - ATTI/RATE2	
	EMS MODE - NORMAL	
	RATE - LOW	
	LV SPS IND - GPI	
	ΔV THRUST A - NORMAL	TIG _____
01:50	THC - +X (15 sec)	1999.9
02:05	THRUST ON PB - PUSH	ΔV _____
	BURN to VC	CUTOFF _____
	ΔV THRUST (2) - OFF	BT _____
	EMS MODE - STBY	P(IGN) _____

Log VI _____ (fps)
 H DOT _____ (fps)
 H PAD _____ (.1nm)

KEY RLSE

Log HA _____ (.1nm)
 HP _____ (.1nm)
 TFF _____ (min-sec)

PRO

V37E 00E
Load DAP, V48: R1=11102, R2=01111
V46E

GMBL MTRS (4) - OFF (PLT confirm)
 CM RCS LOGIC - OFF
 cb ELS/CM-SM SEP (2) - open
 cb FLT/PL VENT - open
 MN BUS TIE (2) - OFF
 CAB PRESS REL vlv (2) - NORMAL/LATCHED
 PCM BIT RATE - LOW
 BMAG MODE (3) - RATE 2
 SC CONT - CMC/AUTO

Go to POST SEPARATION, pg L/2-11

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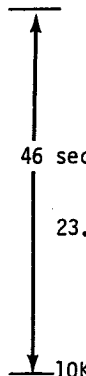
L
4-11

LANDING PHASE (30K, DESCENDING)

30K' ELS LOGIC - on (up)
ELS - AUTO

24K' Twr jett (auto)
 *TWR JETT (2) - on (up) *
 Apex cover jett (auto)
 APEX COVER JETT PB - PUSH
 (wait 2 sec)
 Drogues deployed (auto)
 DROGUE DPLY PB - PUSH

*If Both Drogues Fail: *
 * ELS - MAN *
 * STABILIZE CM (DIRECT RCS)*
 * 5K' MAIN DPLY PB - PUSH *
 * ELS - AUTO *



23.5K' Cabin Pressure increasing
 *If not increasing by 17K': *
 * CABIN PRESS REL vlv (RH) - DUMP*

CM RCS PRPLNT (2) - OFF

10K' Main parachutes deployed (Cab Press = 10 psia)
 MAIN DEPLOY PB - PUSH
 VHF ANT - RECY
 VHF AM A - SIMPLEX
 VHF BCN - ON

*If No Comm and abort occurred between *
 * 1:01 & 2:00 min or if land impact ex- *
 * pected: *
 * Perform CM RCS DUMP, pg L/4-12 *

LANDING PHASE

L
4-12

- CABIN PRESS REL vlv (RH) - DUMP
STRUT LOCKS (4) - UNLOCK
(5) cb FLT & PL BAT BUS A,B,&BAT C (3) - close
cb FLT & PL MNA & B (2) - open
cb BAT RLY BUS (2) - open
(8) cb SPS P&Y (4) - open

ELS - AUTO (verify)
ELS LOGIC - on (up) (verify)
FLOOD Lts - POST LDG

- 800' CAB PRESS REL vlv (2) - CLOSE (latch off)
DIRECT O2 vlv - OPEN (CCW)
MN BUS TIE (2) - OFF

Go to POST LANDING PROCEDURES, pg L/4-13

CM RCS DUMP; if req'd (land landing)

- CABIN PRESS REL vlv (2) - CLOSE
CM RCS LOGIC - on (up)
If main or pyro bus lost:
* Use RHC's for burn, *
* not DUMP sw *
CM PRPLNT - DUMP (burn audible)
MONITOR CM RCS 1&2 for He press decrease
If no burn or press decrease:
* Use both RHC's *
* DO NOT FIRE PITCH JETS *
CM PRPLNT - PURGE
*CM RCS He DUMP PB - PUSH *
RHC (2) - 30 secs, NO PITCH

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4-13POST LANDING PROCEDURES

- (229) cb MAIN REL PYRO (2) - close
MAIN RELEASE - on (up)
SECS PYRO ARM (2) - SAFE
SECS LOGIC (2) - OFF
If no contact with recovery forces:
* VHF AM A&B - off (ctr) *
* VHF AM RCV ONLY - A *
- (8) cb PL VENT - close
cb FLOAT BAG (3) - close
(278) cb UPRIGHT SYS COMPRESS (2) - close
If Stable II:
FLOAT BAG(3) - FILL till 2 min after upright, then - OFF
VHF AM A/B & BCN - OFF while inverted
If Stable I:
After 10 Min Cooling Period,
FLOAT BAG (3) - FILL 7 min, then OFF

POST STABILIZATION AND VENTILATION

- PL BCN LT - BCN LT LO (night landing)
PL VENT vlv - UNLOCK (Pull into detent)
Remove PL VENT Exh Cover
PL VENT - HIGH or LOW
- If dye marker req'd:
PL DYE MARKER - ON
- Release restraints
(275) cb MNA BAT BUS A & BAT C (2) - open
cb MNB BAT BUS B & BAT C (2) - open
(5) cb FLT & PL BUS BAT C - open
(229) cb PYRO BUS A PYRO BAT A - open
cb PYRO BUS B PYRO BAT B - open
Verify voltage > 27.5 vdc
*If < 27.5 vdc: *
* cb FLT & PL BUS BAT A&B (2) -open*
* cb FLT & PL BUS BAT C (1) - close*
* Go to LOW POWER CHECKLIST *
Unstow and install PLV DISTRIB DUCT (3)
Deploy grappling hook and line if req'd

POST LANDING

L
4-14

POST LANDING COMMUNICATIONS

VHF ANT - RECY (verify)

VHF BCN - ON (verify)

If no contact with recovery forces:

* Perform VHF BEACON Check *

MONITOR VHF BEACON transmission with

VHF AM B Rcvr and/or Survival Trncvr (VOICE)

*If VHF Beacon not operating:

* Connect Survival Trncvr cable conn *

* J1 to bcn ant cable conn P112 behind VHF*

* ant access pnl and place radio in BCN *

* mode *

LOW POWER CHECKLIST

VHF BCN - OFF

VHF AM (3) - RCV

FLOOD LTS - OFF

VHF AM A&B - off (ctr)

VHF AM RCV ONLY - A (verify)

POSTLANDING VENT SYS: minimize use

SURV RADIO - plug into VHF BCN ANT cable

conn P112 behind VHF ant access pnl & turn

radio on in BCN mode

*If BAT C <27.5 vdc: *

* cb BAT BUS A BAT A - open *

* cb BAT BUS A PYRO BAT A - close*

* cb FLT/PL BUS BAT A - close *

* cb FLT/PL BUS BAT C - open *

* Monitor PYRO BAT A voltage *

* on BAT BUS A *

*If PYRO BAT A <27.5 vdc: *

* cb BAT BUS B BAT B - open *

* cb BAT BUS B PYRO BAT B - close*

* cb FLT/PL BUS BAT B - close *

* cb FLT/PL BUS BAT A - open *

* Monitor PYRO BAT B voltage *

* on BAT BUS B *

L
4-15

NOMINAL EGRESS & POWER DOWN

PL VENT - OFF

(5) cb FLT/PL BUS BAT C (1) - open

cb BAT CHRG BAT C/EDS 2 (1) - open

cb Pnl 275 (all) - open

Charge hatch counterbalance

Open side hatch (after collar installed)

ACTR HNDL SEL - N

GN2 vlv HNDL - VENT (pull)

GN2 vlv HNDL - PRESS (push)

Check Pressure Gauge (mid-white)

Repeat vent/press to obtain mid-white

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L
4-16

UNAIDED EGRESS PROCEDURES

PREPARATION

Disconnect umbilicals

Neck dams on (if suited)

Configure couch(s) - 270°

Armrests stowed

Unstow survival kits

Connect lanyards, (green to S/C, white to crew)

STABLE I

PL VENT - OFF

(5) cb FLT/PL BUS BAT C (1) - open

cb BAT CHRG BAT C/EDS 2 (1) - open

cb Pnl 275 (all) - open

Charge hatch counterbalance

Open side hatch

ACTR HNDL SEL - N

GN2 vlv HNDL - VENT (pull)

GN2 vlv HNDL - PRESS (push)

Check Pressure Gauge (mid-white)

Repeat vent/press to obtain mid-white

Remove raft from kit No. 2

Put raft overboard & pull inflation lanyard

Pass hardware kit to raft

Egress, inflate life vest, board raft

If no ventilation or CM O2 supply:

* Open side hatch, as req'd *

STABLE II

PWR (3) - OFF

SUIT PWR (3) - OFF

PRESS EQUAL vlv - OPEN

Remove & stow hatch

Lower hardware rucksack down tunnel

Exit feet first; when clear of S/C inflate

water wings

Remove life raft from kit No. 2 and inflate

If no ventilation or CM O2 supply:

* Initiate egress within 2-1/2 hrs*

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