APOLLO 14

LM LUNAR SURFACE CHECKLIST

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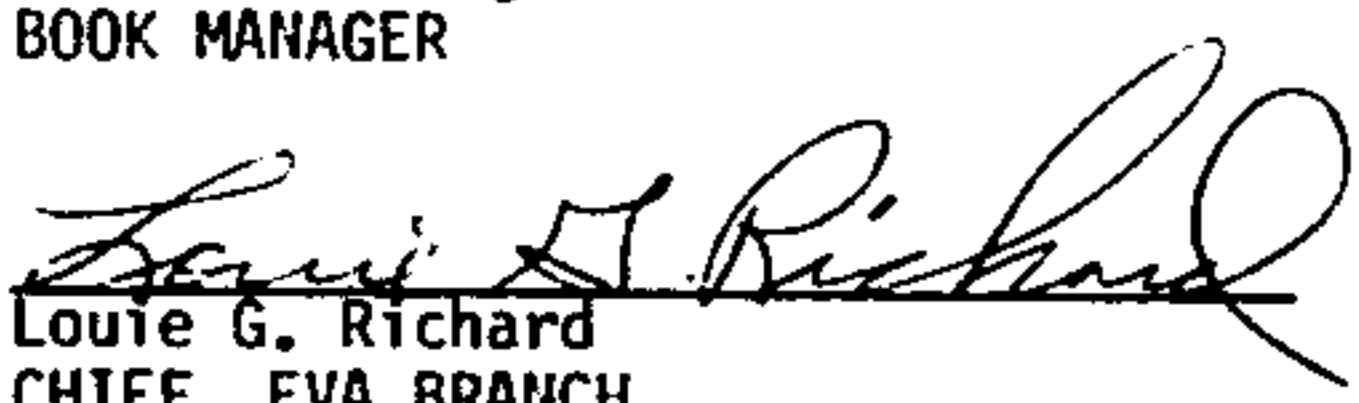
APOLLO 14

LUNAR SURFACE CHECKLIST

JANUARY 20, 1971

PREPARED BY:
John H. Covington
BOOK MANAGER

APPROVED BY: 
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It is requested that any organization having comments, questions, or suggestions concerning this document contact John H. Covington, EVA Branch, CF5, Building 4, room 238, telephone 483-6226.

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Distribution of this document is controlled by J. W. O'Neill, Chief, Flight Planning Branch, Flight Crew Support Division.

ACKNOWLEDGEMENT

AREA	NAME/BRANCH	LOCATION
Flight Plan Timeline (Pg. a & b)	T.V. Johnson Flight Planning CF6	EXT 4271 Bldg 4 Rm 227
EMU Malfunctions (Pg 6-19 thru 6-23)	A.F. Smith EVA CF5	EXT 6226 Bldg 4 Rm 238
Section 1,8,15,16	T. H. Kaiser Spacecraft Systems CF2	EXT 3048 Bldg 4 Rm 255
Section 2,4,5,7,9,13,14	R. S. Millican EVA CF5	EXT 6226 Bldg 4 Rm 238
Section 3,6,10,11,12	R. H. Nute Mission Operations CF7	EXT 3091 Bldg 4 Rm 142

It is requested that any organization having specific comments in his (their) area of responsibility contact the individual(s) listed above.

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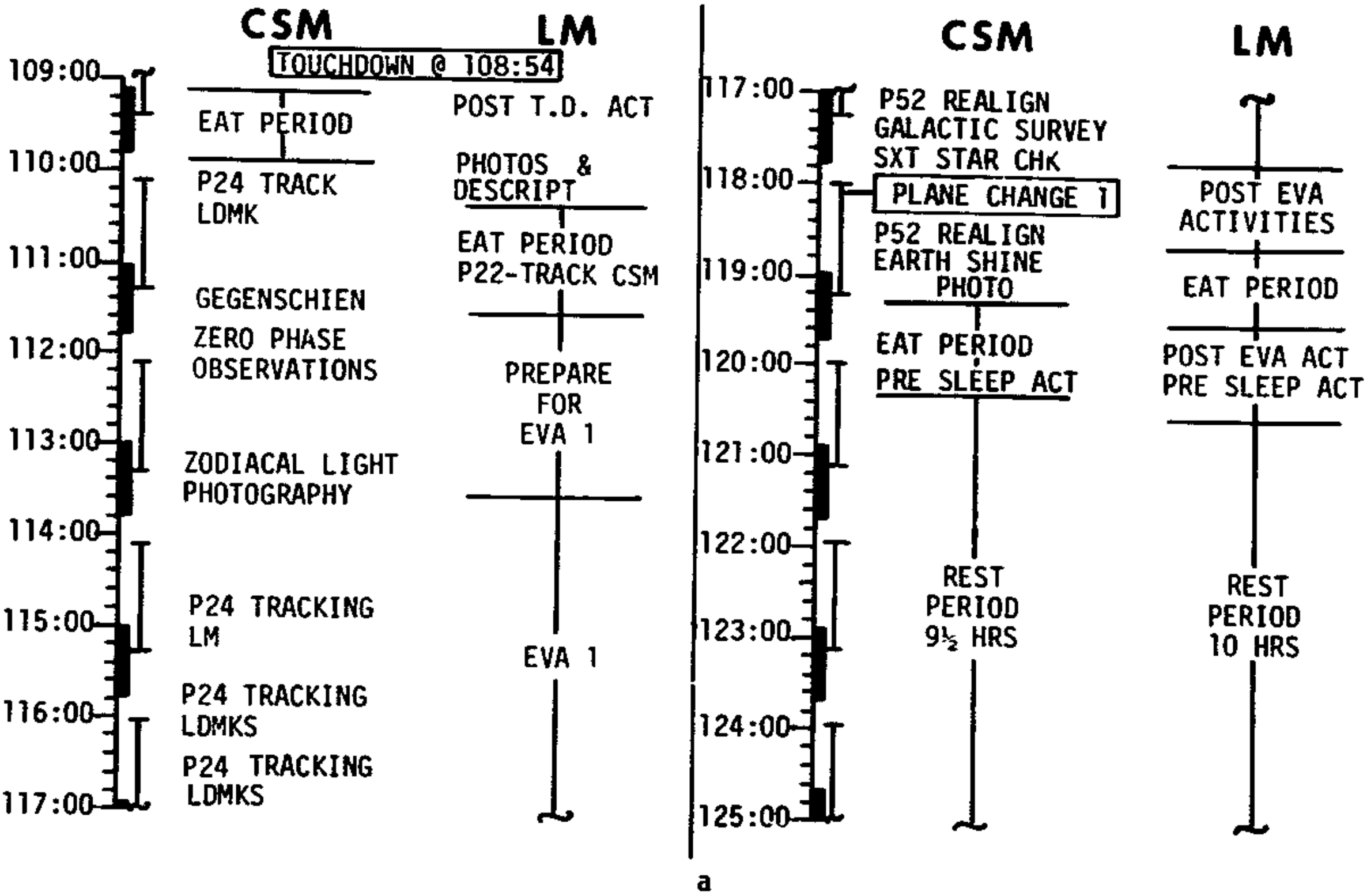
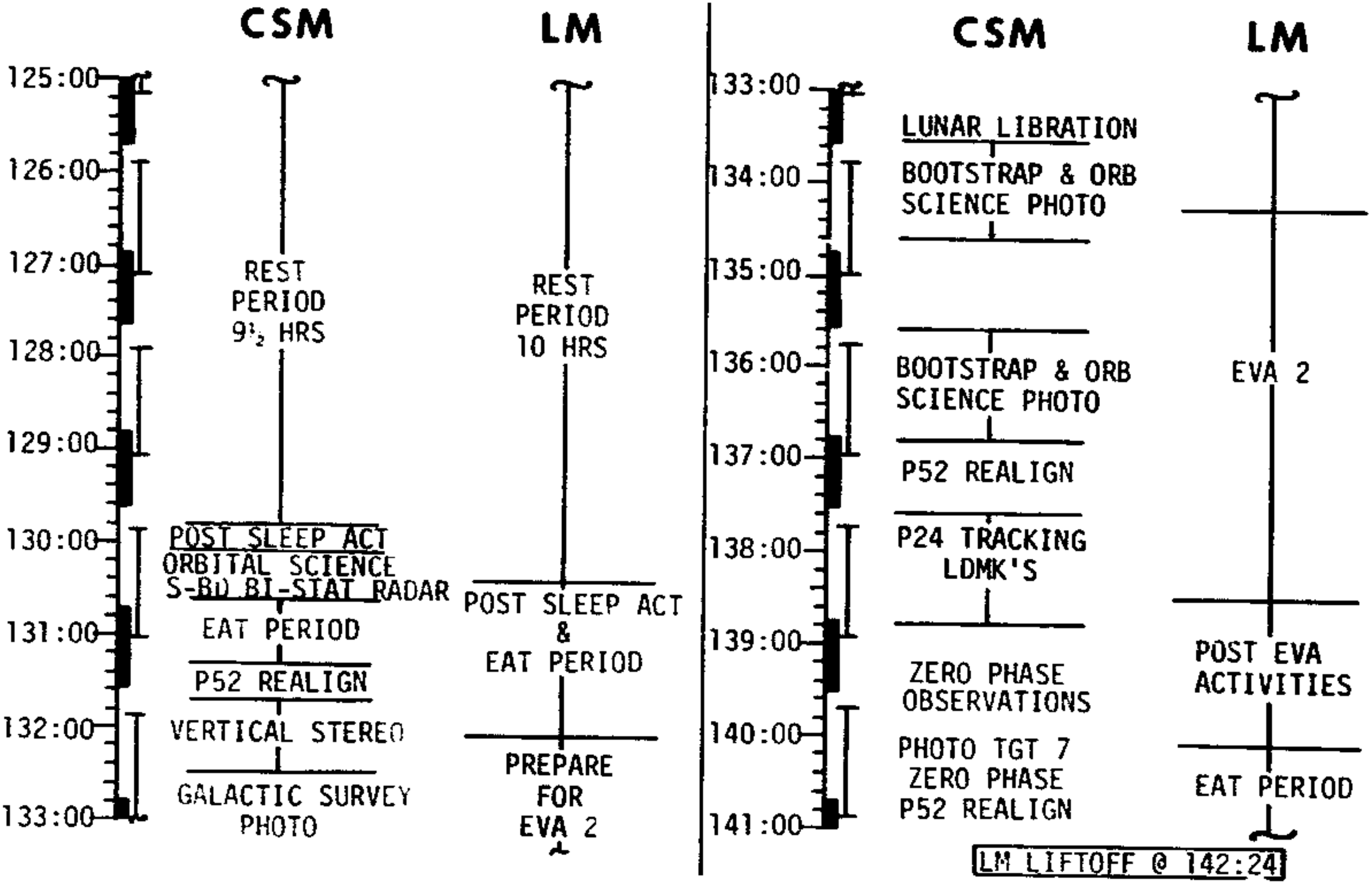
Changed Basic Date 9/15/70

Basic Date 9/15/70

Changed 11/16/70



a



Basic Date 9/15/70

Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

FIRST REV ACTIVITY

********** PDI +20 (109:02) **********

CB(11) PGNS: LDG RDR - Open
PRPLNT TEMP/PRESS MON - DES 1,2
Monitor OXID Press Until 20 to
40 psi Then
OXID VENT - CLOSE
MODE CONTROL (Both) - ATT HOLD

CB (16) ASC ECA CONT - Close
BAT 5,6 - OFF/RESET
INVERTER - 2
CB(16) DES ENG OVRD - Open
ASC ECA CONT - Open
CWEA - Open Then Close
(DES REG-OFF)

Verify Cabin Press
PRESS REG A&B - CABIN
CABIN GAS RETURN - AUTO
SUIT GAS DIVERTER-Push/CABIN
CABIN REPRESS - AUTO
Doff Helmet & Gloves
Remove & Stow Restraints (CDR's To Floor Fittings)

Verify INV - 2 Selected
CB(11) INV 1 - Open
DECA PWR - Open

047 R +37774 Sin Az (To MSFN)
053 R +00541 Cos Az (To MSFN)

V16 N20E
Record _____ OG (.01°)
_____ IG
_____ MG

544 R _____ X Gyro Coeff (.01°/hr)
545 R _____ Y Gyro Coeff
546 R _____ Z Gyro Coeff

P57, R2 00003
N06 00010
00001
00110
(NO ATT Lt-On/Off, Twice)
N04 + 00012 Nav. Err. (.01°)
V32E (Recycle)
N04 _____
PRO
N22 ICDU Angles
PRO (NO ATT LT - On/Off)
N05 _____ Angle Diff (.01°)
PRO
N93 _____X Torquing Angles (.001°)
_____Y
_____Z

V34E, P00E

400 + 6E Calib Gyros

400 R (+0 Calib Complete In
5 min 2 sec)

BIOMED - RIGHT

VHF - OFF, OFF, OFF, OFF
AUDIO (Both): VHF A&B - OFF
S-BD P&Y SET (+119/-39), SLEW
P _____ Y _____
Peak Until > 3.9

Window Shades - Up

Monitor FUEL Press Until <8 psi Then
FUEL VENT - CLOSE

544 R _____ X Gyro Coeff (.01°/hr)
545 R _____ Y Gyro Coeff
546 R _____ Z Gyro Coeff

If Gyro Drift Changes >2.0°/hr.
AGS Failed

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 12/21/70

********** PDI +:45 (109:27) **********

CB (11) AOT LAMP-Close
P57, R2 00003
PRO
N06 00010
00002
00110
PRO

1st STAR _____ (231 ~~327~~ Arcturus)
Cursor _____ (.01°)
Spiral _____
N79 Load Then V32E
Cursor _____
Spiral _____
N79 Load Then PRO

2nd STAR _____ 54 (600 Rigil Kent)
N88 Load Vector For Rigil Kent
X -.37794
Y -.31049
Z -.87221

Cursor _____
Spiral _____
N79 Load Then V32E
Cursor _____
Spiral _____
N79 Load Then V32E
Cursor _____
Spiral _____
N79 Load Then PRO
N88 Values As Above
PRO
N05 _____ Star Angle Diff (.01°)
PRO
N93 _____ X Torquing Angle (.001°)
_____ Y
_____ Z
PRO (Gyro Torquing)

N25 00014
ENTR
N89 _____ Lat (.001°)
_____ Long/2 (.001°)
_____ Alt (.01nm)
Consult MSFN
PRO - (UPDATE RLS)
V34E - (TERM)
P00E

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 12/21/70

********** PDI +1:00 (109:42) **********

P57, R2 00003
PRO
N06 00010
00002
00110
PRO

1st STAR _____ (226 Spica)
Cursor _____ (.01°)
Spiral _____
N79 Load Then V32E
Cursor _____
Spiral _____
N79 Load Then PRO

2nd STAR _____ ~~72 (100 Gacrux)~~ 5C (BETA CENTAURI: HADAR)
N88 Load Vector For Gacrux
X [illegible] — .21408
Y [illegible] — .12572
Z [illegible] — .43401

Cursor _____
Spiral _____
N79 Load Then V32E
Cursor _____
Spiral _____
N79 Load Then V32E
Cursor _____
Spiral _____
N79 Load Then PRO
N88 Values As Above
PRO
N05_____ Star Angle Diff (.01°)
PRO
N93 _____ X Torquing Angle (.001°)
_____ Y
_____ Z
V32E (No Gyro Torquing)

N25 00014
ENTR
N89 -03720 Lat (.001°)
-08761 Long/2 (.001°)
+00000 Alt (.01nm)
Consult MSFN
PRO - (UPDATE RLS)
V34E - (TERM)
CB (11) AOT LAMP - Open, CL/0.0°
POOE

Rejected

-17.1688
937

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed _____

V40N20E
400 + 3E AGS/PGNS Align
413 + 1E Store Azimuth

047 R 37773 Sin Az
053 R 00610 Cos Az } 110 +10 +20

STAY/NO STAY From MSFN

CB (16) AEA - Open
AGS STATUS - STBY
CB (16) AEA - Close

1106 AC DUA

********** PDI +1:15 (109:57) **********

UPDATA LINK - DATA
(MSFN Updates RLS & CSM
State Vectors), OFF

110+22-

Copy Updated P22 Acquisition Time 110 : 50 : 00
DET - Set Counting Down To Acquisition Time

110 : 51:00
+30

Window Shades - Down

Configure CB's Per PARTIAL PWR DN Charts

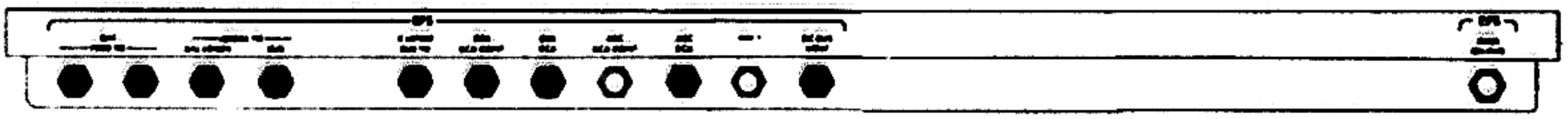
PARTIAL PWR DN

9

11

14

3

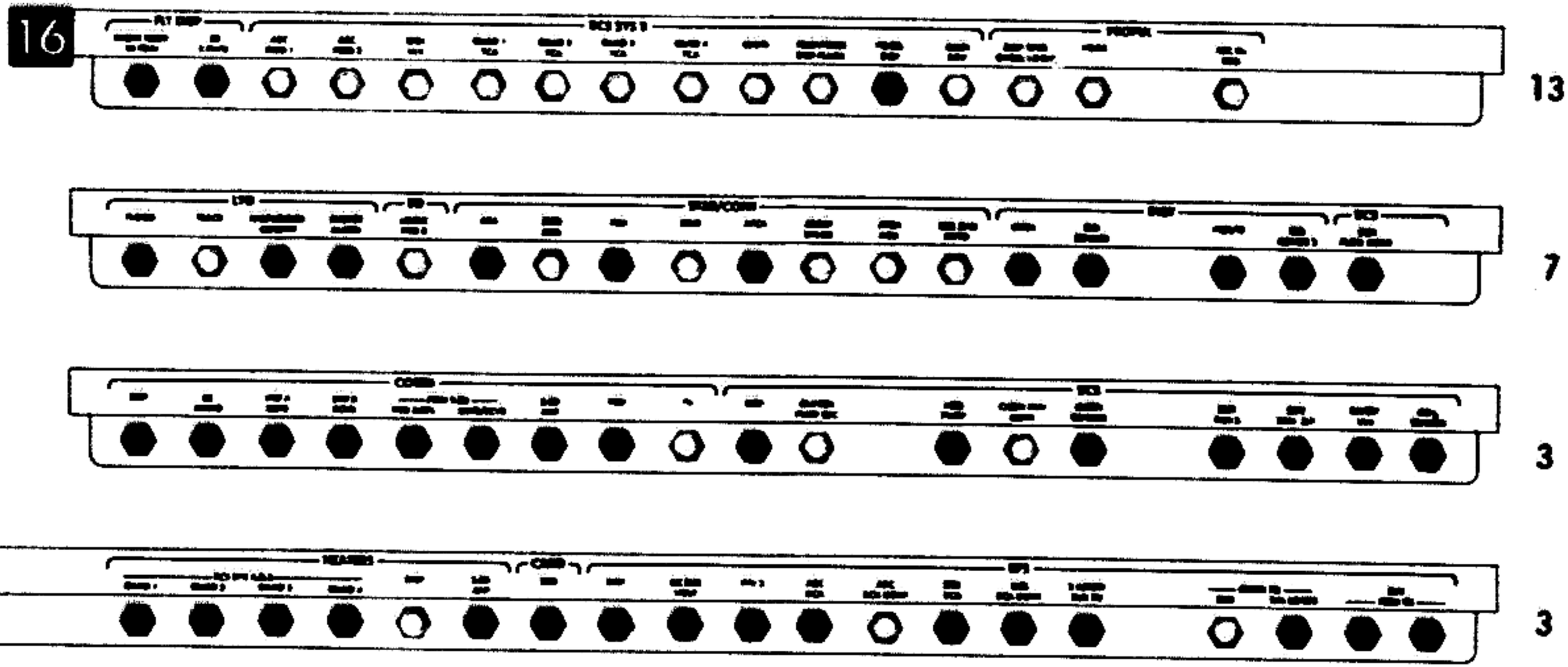


3

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed _____

PARTIAL PWR DN



POWERDOWN SWITCH CONFIG.

FDAI 1&2 - INRTL
EARTH/LUNAR - PWR OFF
LTG - OFF
MODE - HOLD/FAST
ALT SET - 35

FUEL & OXID VENT tb-bp
MASTER ARM - OFF
DES VENT - SAFE
ASC He SEL - BOTH
STAGE - SAFE (guarded)

S BAND T/R - T/R
ICS T/R - T/R
RELAY - OFF
MODE - ICS/PTT
AUDIO CONT - NORM
VHF A - OFF
VHF B - OFF
COAS - OFF

TTCA (CDR) - JETS (Dn)

Eng STOP - Reset
Eng START - Reset

TMR CONT - START
OVERRIDE ANUN - OFF
OVERRIDE NUM - OFF
OVERRIDE INTEGRAL - OFF

X POINTER SCALE - HI MULT
RATE/ERR MON - LDG RDR/CMPTR
ATTITUDE MON (CDR) - PGNS
GUID CONT - PGNS
MODE SEL - PGNS
RNG/ALT MON - RNG/RNG RT
SHFT/TRUN - +50°
RATE SCALE - 25°/SEC
ACA PROP (Both) - ENABLE
THR CONT - AUTO
MAN THROT - CDR
ENG ARM - OFF
ATT/TRANSL - 4 JETS
BAL CPL - ON
PRPLNT QTY MON - OFF
PRPLNT TEMP/PRESS MON - ASC
HELIUM MON - PRESS 1
ABORT - Reset
ABORT STAGE - Reset (Guarded)

Basic Date 9/15/70 Changed 11/16/70

POWERDOWN SWITCH CONFIG.

FDAI 1&2 - INRTL
EARTH/LUNAR - PWR OFF
LTG - OFF
MODE - HOLD/FAST
ALT SET - 35

FUEL & OXID VENT tb-bp
MASTER ARM - OFF
DES VENT - SAFE
ASC He SEL - BOTH
STAGE - SAFE (guarded)

S BAND T/R - T/R
ICS T/R - T/R
RELAY - OFF
MODE - ICS/PTT
AUDIO CONT - NORM
VHF A - OFF
VHF B - OFF
COAS - OFF

TTCA (CDR) - JETS (Dn)

Eng STOP - Reset
Eng START - Reset

TMR CONT - START
OVERRIDE ANUN - OFF
OVERRIDE NUM - OFF
OVERRIDE INTEGRAL - OFF

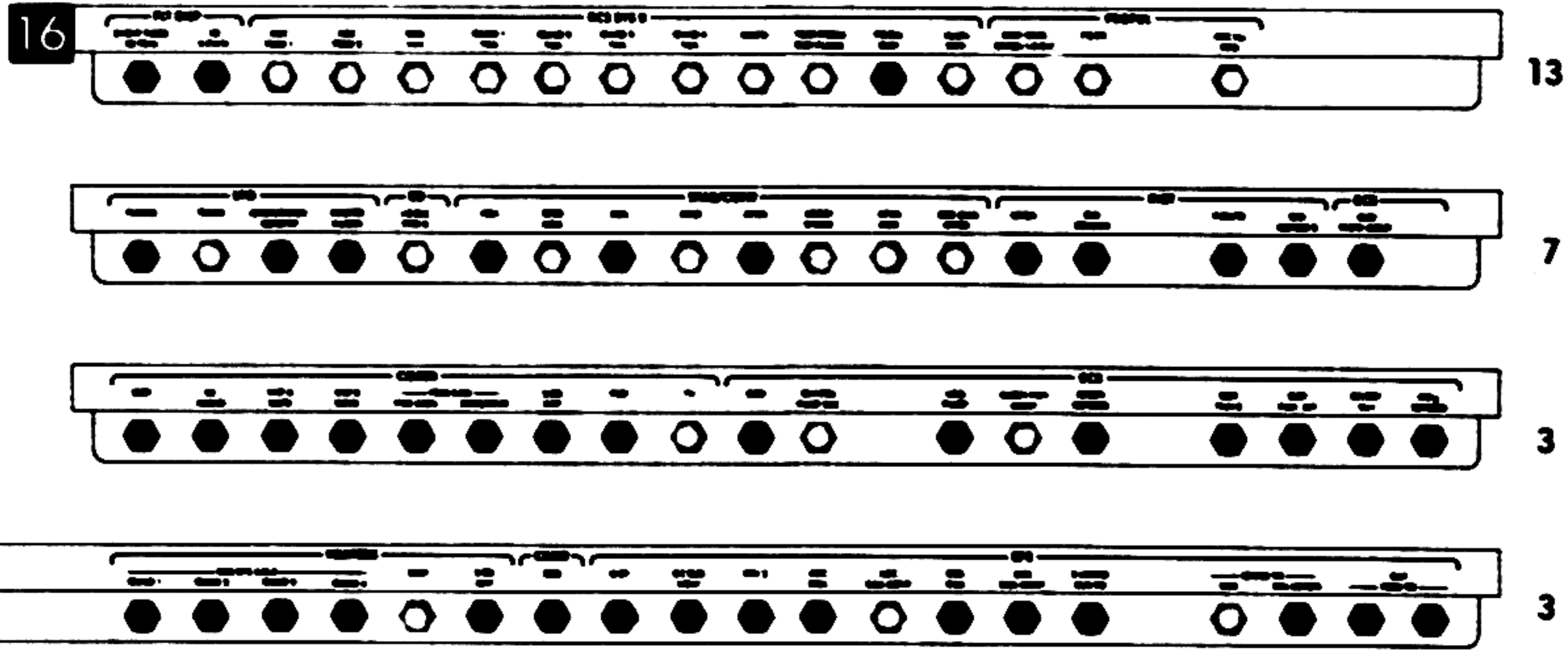
X POINTER SCALE - HI MULT
RATE/ERR MON - LDG RDR/CMPTR
ATTITUDE MON (CDR) - PGNS
GUID CONT - PGNS
MODE SEL - PGNS
RNG/ALT MON - RNG/RNG RT
SHFT/TRUN - +50°
RATE SCALE - 25°/SEC
ACA PROP (Both) - ENABLE
THR CONT - AUTO
MAN THROT - CDR
ENG ARM - OFF
ATT/TRANSL - 4 JETS
BAL CPL - ON
PRPLNT QTY MON - OFF
PRPLNT TEMP/PRESS MON - ASC
HELIUM MON - PRESS 1
ABORT - Reset
ABORT STAGE - Reset (Guarded)

Basic Date 9/15/70

Changed 11/16/70

Basic Date 9/15/70 Changed _____

PARTIAL PWR DN



Basic Date 9/15/70

Changed 12/21/70

TEMP/PRESS MON - OXID MANF
RATE/ERR MON - RNDZ RADAR
ATTITUDE MON (LMP) - AGS
GLYCOL - PUMP 1
SUIT FAN - 1
02/H20 QTY MON - DES

ENG GMBL - ENABLE
DES ENG CMD OVRD - OFF
RDR TEST - OFF
TEST MON - AGC
SLEW RATE - HI
RR MODE - LGC
DEAD BAND - MIN

ATTITUDE CONTROL (3) - MODE CONT
MODE CONTROL (Both) - ATT HOLD
IMU CAGE - OFF
EVENT TIMER - DN And START
TEMP MON - RNDZ RDR
RCS SYS A/B-2 QUAD 1,2,3,4 - AUTO
EXTERIOR LTG - OFF
X POINTER SCALE - LO MULT

ACA/4 JET (2) - ENABLE
TTCA/TRANSL (2) - ENABLE

AOT - CL/0.0°
RR GYRO SEL - PRIM

TTCA (LMP) - JETS (Dn)
Eng STOP - Reset
AGS STATUS - STBY

POWER/TEMP MON - CDR BUS
INVERTER - 2
UP LINK SQUELCH - OFF
UP DATA LINK - OFF

AUDIO CONT - NORM
S BAND T/R - T/R
ICS T/R - T/R
RELAY - OFF
MODE - ICS/PTT
VHF A&B - OFF

S BAND MODULATE - PM
XMTR/RCVR - PRIM
PWR AMPL - PRIM
VOICE - VOICE
PCM - PCM
RANGE - RANGE

VHF A XMTR & RCVR (2) - OFF
VHF B XMTR & RCVR (2) - OFF
BIOMED - As Desired
TLM - HI
RECORDER - OFF

VHF - AFT
TRACK MODE - SLEW
PITCH _____ (From MSFN)
YAW _____ (From MSFN)
S BAND - SLEW

PRESS REG A&B - CABIN
CABIN REPRESS - AUTO
PLSS FILL - CLOSE
DES O2 - OPEN
#1,#2 ASC O2 - CLOSE
SUIT ISOL (Both) - SUIT FLOW
SUIT CIRCUIT RELIEF - AUTO
CABIN GAS RETURN - AUTO
SUIT GAS DIVERTER - PUSH/CABIN
CO2 CANISTER SEL - PRIM
PRIM & SEC CO2 CANISTER - CLOSE
WATER SEP SEL - PUSH SEP 1
ASC H2O - CLOSE
SEC EVAP FLOW - CLOSE
PRIM EVAP FLOW No. 2 - CLOSE
DES H2O - OPEN
PRIM EVAP FLOW No. 1 - OPEN
WATER TANK SELECT - DES
SUIT TEMP - As Required
LIQUID COOLING GARMENT - As Required

CABIN RELIEF & DUMP (Both) - AUTO

Unstow Lunar Maps

Configure 70mm Camr (RHSSC Lower Compt):
Stow Reseau Cover In Camr Compt
Stow Polarizing Filter In Camr Compt
Install B&W Mag KK (ISA Bot Pkt)
Stow Dark Slide In Camr Compt
Unstow Trigger And Handle (RHSSC Camr Pkt)
Unstow RCU/Camr Brkt (ISA Top Pkt)
Stow RCU/Camr Brkt Bag In Purse
Install Trigger, RCU/Camr Brkt, Then Handle

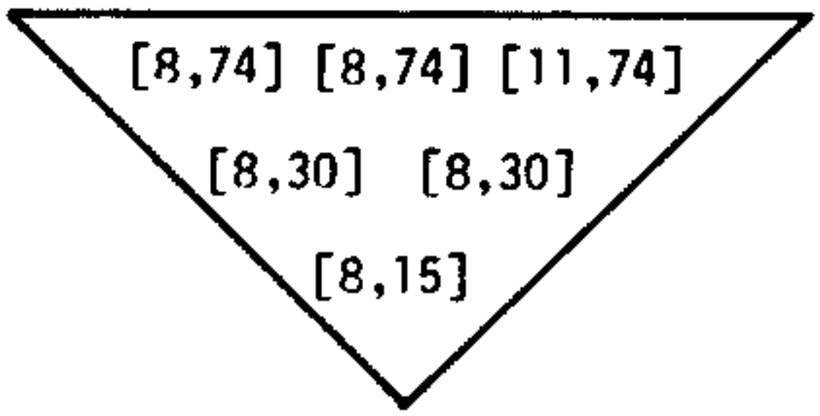
Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70

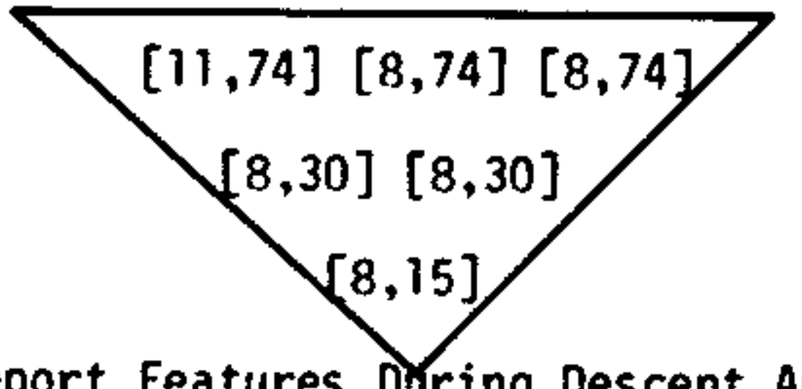
Changed 11/16/70

Describe & Photograph Lunar Surface:
Photo Lunar Surface Out Of Both
Windows Using B&W Film [12] (15min)
Setting: 1/250

CDR



LMP



Report Features During Descent And
Determine LM Location With HOU
Report Angle Of +Z wrt West. Give General Impression (Earth Analog) And
Predominant Features.

Describe

I Near Field (define location by angle and distance from LM)

A Features

1 General Surface
2 Plains
3 Craters
4 Rays
5 Cones
6 Boulder Fields
7 Rilles, Faults, Grabens
8 Rock Fragments
9 Loose Ground-Mass Material
10 Coatings

B General Surface

1 Texture - smooth, flat, gentle rolling, rough, jagged

2 Materials - dust, sand, pebbles, rocks, boulders [note size, angularity, and roundness], cinders, ash fall or flow, lava, pahoehoe, aa, ejecta

3 Aerial distribution - uniform, spotted, patterned

4 Color/albedo pattern

5 Contacts - abrupt texture or material changes, color/albedo discontinuities, elevation changes [note sharp or diffuse character]

6 Origin of surface character - cratering, depositional, flow-like

C Plains

1 Extent
2 Degree of cratering (age)
3 Texture - smooth, flat, gentle rolling
4 Color/albedo

D Craters

1 Type - rayed (youngest), blocky rim, sharp rim, low rim, subdued, shallow depressions (oldest), chain, dimple

2 Size/Shape - diameter, depth (dia/depth ratio), circular, polygonal, square, irregular, elongated

3 Ejecta - size, shape, distribution (fields, loops, branches, clusters), material/color/albedo changes, degree of burial

4 Color/albedo pattern

5 Rim - terraced, hummocky, smooth, radial and concentric patterns, flow patterns, boulder or dune fields, small scale color/albedo variations

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Changed _____

6 Walls - texture, material, small scale color/albedo variations, layers, contacts, strike/dip, bedding, layer thickness and continuity, slump features, flow channels, holes, caves

7 Floor - central peak, eruptive features, radial or concentric flow or fracture patterns, rock/boulder fields, small scale color/albedo variations, spatter

8 Relation to surrounding craters - chain, cluster, random distribution

9 Origin -
Impact: ejecta (direction), central peak, higher rim, rim/wall/floor fragments, impacting material
Volcanic: caldera, flows, cinder, spatter
Collapse: no rim or ejecta evidence of material drainage, similar features along linear faults

E Rays - source, direction, composition, texture/material variations, color/albedo variations, size thickness/width/length ratios

F Boulder Fields - linear, bunched, sloped, size/angularity/roundness/degree of burial

G Rilles, Faults, Grabens

1 Shape - linear, enechelon, angular, sinuous

2 Displacement - relative horizontal and vertical offset of both sides, separation, depth, width

3 Age - angularity and slope of sides, fill at bottom, cratering

4 Color/Albedo variations

5 Walls - texture, material, small scale color/albedo variations, layers, contacts, strike/dip, bedding, layer thickness and continuity, slump features, flow channels, holes/caves

6 Continuity - method of termination, breaks, relative pattern to other similar features, association with other features

H Rock Fragments

1 Size/angularity/roundness

2 Color/albedo relative to surface

3 Height wrt surface - burial, on top, pedestal

4 Surface - visicular, rough, jagged, smooth, layed

5 Distribution - field, cluster, linear group, uniform

I Loose Ground-Mass Material

1 Size - dust, round, gravel, pebbles

2 Sorting - poor, medium, well, bimodal

3 Color/albedo

4 Cohesiveness - loose, friable, cemented, welded

J Coatings

1 Location - windows, LM skin, footpads, rocks, boulders

2 Size - dust, sand, gravel

3 Geometry - uniform, in low spots, rims, fillets, one side only

4 Transport mechanism

Basic Date 9/15/70

Changed _____

Basic Date 9/15/70

Changed ~~11/16/70~~ 11/18/71

II Far Field (define feature location by angle and distance from LM)

A Horizon - flat, smooth, gentle, rolling, scarp (sharp break in slope), jagged, mountains, mesa

B Same as IB to IG

III Ask HOU for questions

Replace B&W Mag With HCEX JJ, RHSSC
Settings: 8,1/250, 5 ft

Stow Camr On Mid-Step Under PLSS

Unstow 3-16mm Mags CC,DD, & EE (RHSSC),
Stow In Purse

EAT PERIOD
110:20 to 111:30

LM CONSUMABLES UPDATE

GET (110:30) ____:____

RCS A	% (77)	____	B	(75)	____
O2 DES	% (~~95.7~~ 78)	____	ASC	(100)	____
H2O DES	% (~~78.7~~ 76.1)	____	ASC	(100)	____
A-H DES	(1225)	____	ASC	(562)	____

110:42 CB(11) RR (2) - Close

V95E
P22E
N06 R2 00001
  PRO
V16 N72E (+18000, +33500)
  (N78E, Rng, Rng Rt)
At End Of CSM Track:
  N72 Goes To (+18000, +27000)
P00E

V41N72E (+00000, +28300)
V16N72E
CB(11) RR (2) - Open
V44E

V48E
  N46 12102
  N47 _____ LM Wt(+10842)
V34E, P00E

Notify MSFN of E-Dump
TLM - HI
V74E (42 Sec)
UPDATA LINK - DATA

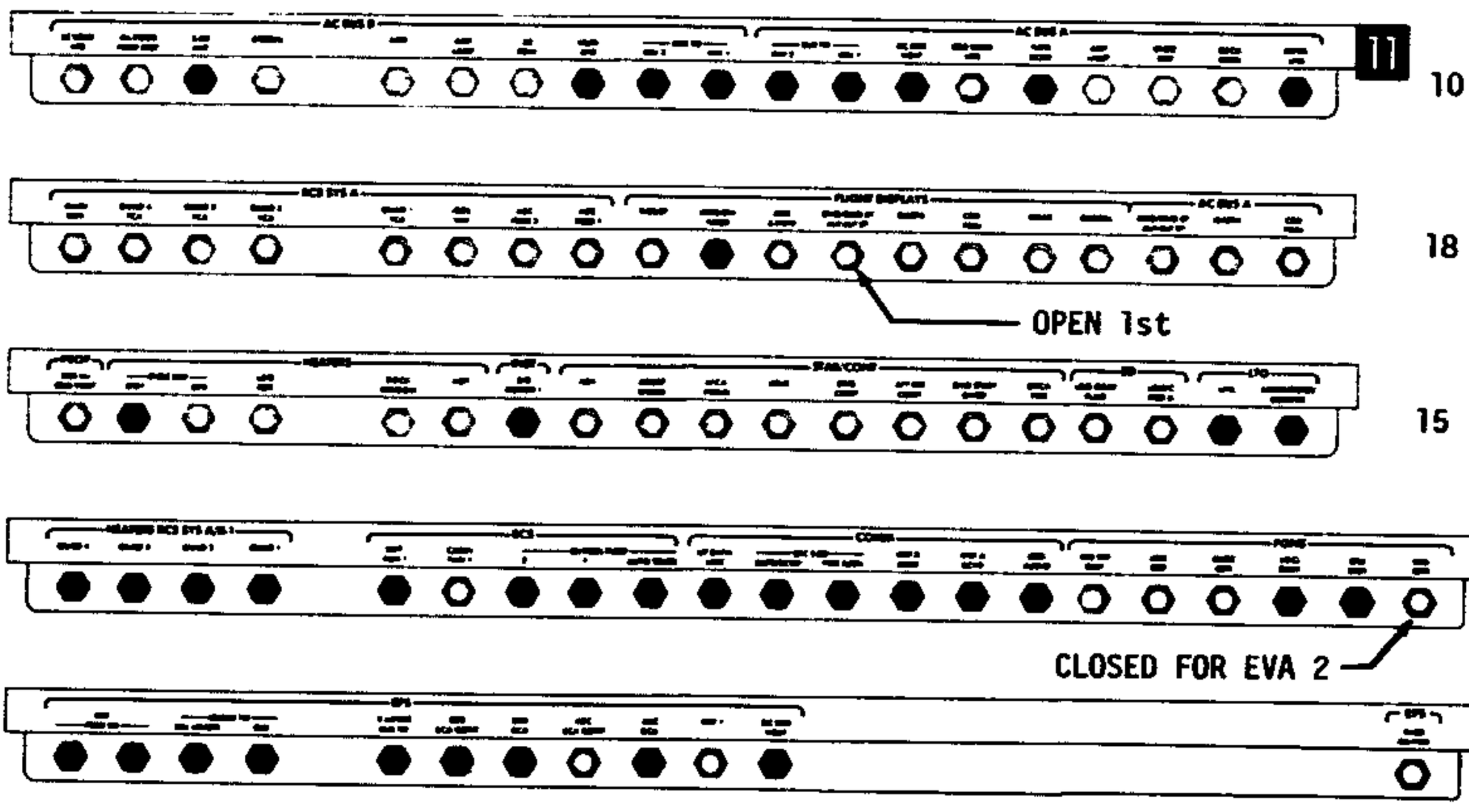
Configure CB's Per PWR DN
  Except CB(11) IMU OPR - Close

Basic Date 9/15/70 Changed 12/21/70

Basic Date 9/15/70

Changed 11/16/70

POWERDOWN & EVA CONFIGURATION



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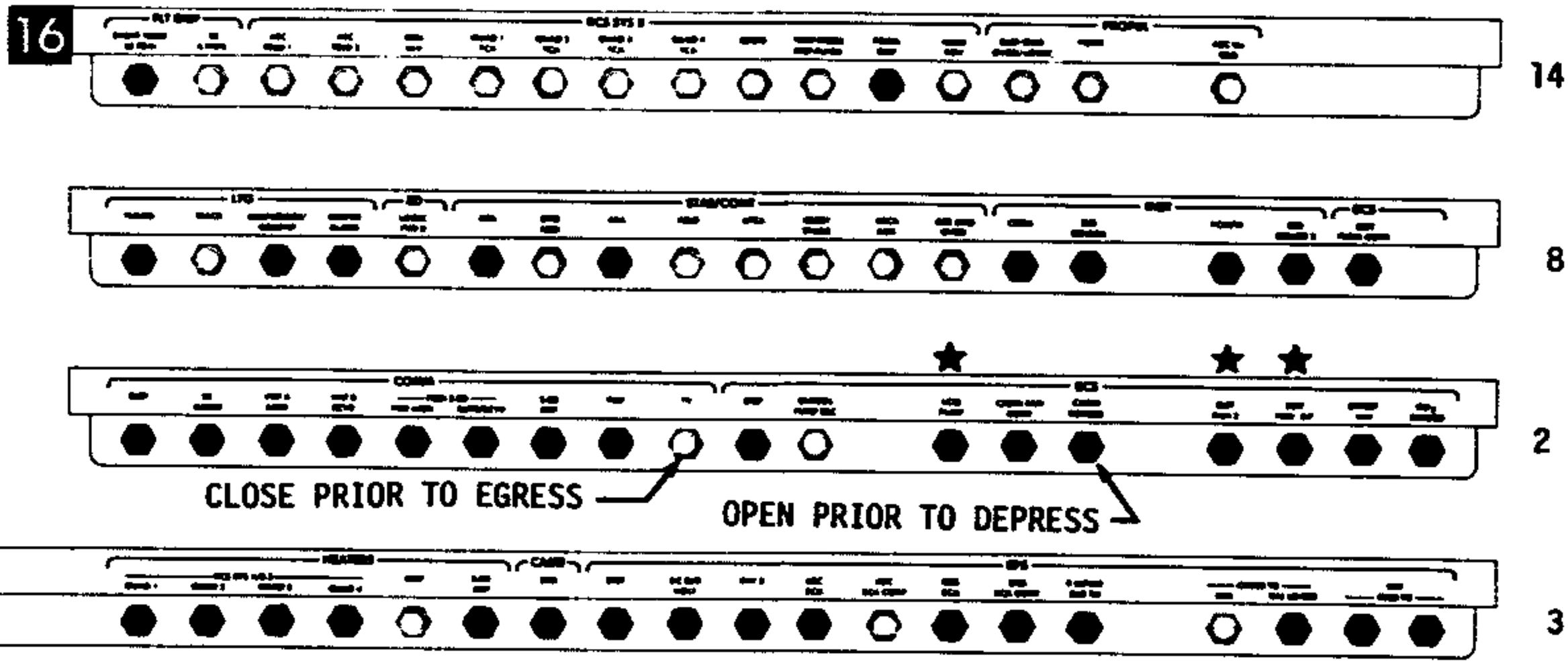
Basic Date 9/15/70 Changed 11/16/70

POWERDOWN & EVA CONFIGURATION



★ —— OPEN FOR EVA

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Basic Date 9/15/70 Changed _____

Basic Date 9/15/70 Changed 11/16/70

Copy Lift-Off Time in Data
Book For Rev 16 thru 19

CREW STATUS REPORT

	CDR	LMP
MED	—	—
PRD	16049	07017

CWEA STATUS:

WARNING	CAUTION
CES AC (Reset via GYRO TEST)	PREAMPS
CES DC (Reset via GYRO TEST)	

Basic Date 9/15/70 Changed 11/16/70

111:30 CABIN PREP EVA 1 8 bites away 111+34

Stow All Loose Items Not Reqd For EVA (10 min ans)

Unstow EVA 1 Prep & Post Card
Remove Transition To One-Man EVA
Page 2-3, Clip To AOT
Unstow EVA 1 Map, Stow In Purse
111:45 Stow Lunar Surface Checklist

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Basic Date 9/15/70 Changed 11/16/70

TRANSITION TO ONE-MAN EVA

BOTH Verify/Perform-As Reqd At Time Of NO GO
- PLSS FEEDWATER - CLOSE
- Fwd Hatch Closed & Locked, Dump Vlvs - AUTO
- CABIN REPRESS - AUTO
- CB(16)ECS: CABIN REPRESS - Close (Cab Warn Lt)
- Verify Press Increasing
- PRESS REGS A & B - CABIN
- PLSS O2 - OFF @ Cabin >2.5 Psia
- CB(16) ECS: SUIT FAN 2 - Close
  - SUIT FAN ΔP - Close
- ECS Caution & H2O SEP Comp Lts - Out
- PGA Press Equal To Cabin, Use Purge Vlv If Reqd
- Cab At 5.0 Psia, Doff Gloves, Helmets With Visors
- PLSS PUMP - OFF
- PLSS FAN - OFF

NO GO CREWMAN:
- PLSS MODE - O
- Discon OPS O2 Hose
- Discon Purge Vlv, Stow In Purse
- Discon OPS Actuator From RCU
- Discon RCU From PLSS, Then PGA
- Discon PLSS COMM, H2O, And O2
- Doff PLSS/OPS
- Connect LM COMM, O2, & H2O (Audio CB, Biomed Sw)
- Comm Sws - As Reqd

OTHER CREWMAN:
- Disconnect PLSS H2O
- Connect LM H2O
- CB (16) ECS: LCG PUMP - Close

BOTH Stow NO GO Equipment
- OPS - Aft Engine Cover (Discon Antenna)
- PLSS - Recharge Station (Remove All 4 Straps, Stow in RHSSC or Exchange On PLSS's If Required)
- RCU - Top Data File

Unstow ONE MAN EVA PREP CARD & LUNAR SURFACE BOOK

LM REPRESS FAILURE PROCEDURE

Verify PRESS REG A & B - EGRESS
Verify LM Suit Circuit 3.6 - 4.0 Psia
CB(16) ECS: SUIT FAN 2 - Close
SUIT FAN ΔP - Close
ECS Caution & H2O SEP Comp Lts - Out

Verify OPS O2 - OFF
Disconnect Purge Vlv, Stow In Purse
Disconnect OPS O2 Hose

Connect to LM ECS Hoses, R/R, B/B
SUIT ISOL - SUIT FLOW
PLSS FAN - OFF
PLSS O2 - OFF

Verify Cuff Gage 3.6 - 4.0 Psig
PGA Diverter Vlvs - Horizontal
PLSS Mode - O
Disconnect PLSS Elec From PGA

Connect To LM Comm(Audio CB, Biomed Sw)

Audio (CDR & LMP)
VHF A - OFF
VHF B - OFF
MODE - ICS/PTT
RELAY - OFF

COMM:
VHF - OFF, OFF, OFF, OFF, LEFT, HI
RECORDER - OFF

PLSS Feedwater - Close
PLSS PUMP - OFF

Disconnect OPS O2 Actuator
Disconnect RCU From PGA, Then PLSS
Stow RCU on Mid-Step

Disconnect PLSS H2O From PGA
Disconnect PLSS Red O2 Hose, Then Blue
Doff PLSS/OPS, Place on Floor
Stow OPS O2 Hoses & Actuator

As Reqd-Connect LM H2O to PGA
CB(16) ECS: LCG PUMP - Close

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 12/21/70

EQUIPMENT PREP EVA 1

DET-Set/Up :15
Unstow BSLSS, Remove From Bag
Stow BSLSS RH Fwd Cabin
Stow BSLSS Bag In Jett Bag (LHSSC)
Stow RCU Brkt Bag (Purse) In Jett Bag
Stow Jett Bag On LH Fwd Floor

Unstow PLSS On Floor, Set Against Hatch
Stow COAS In FWD Window Mount
Secure Util Lts Back Of AOT
Verify O2 EVA Stowage Straps Accessible

Empty UCTA's
Check PGA Zippers, Verify Lock-Lock
Fill Drink Bags(Back ISA)-Evac, Install

Stow PGA Gas Conn Plugs In Purse
Empty PGA Pockets Into Purse
Verify Watch On PGA

Unstow CSRC (LHSSC), Remove Bag, Stow
In LMP Pkt
Unstow Sur Seq Cam (LHSSC) Install Lens
Stow Sur Seq Camr Bag In Jett Bag
Install Mag CC (Purse)
Connect Power Cable, Ver Ops

Settings 2.8/60, TIME FR (2 Places)
Stow Sur Seq Cam In LHSSC,
Handle Aft, Lens Outboard
Unsnap LEC Compt (Aft LHSSC)

Stow LEVA Bags On Floor, 1 Left, 1 Rt
Position Helmets On Armrests

CDR Move To Aft Cabin Area
Deploy LM EVA Antenna
Unstow B&W TV, Stow On Mid-Step
Unstow RCU's, Resnap Flaps
Stow RCU's On Data File

Unstow CDR Boots, Purge Valve In Purse
CDR Don Boots
LMP Move To Aft Cabin Area
Unstow LMP Boots, Purge Valve In Purse

Stow IV Gloves In Bot Boot Comp
LMP Don Boots
Unstow LMP OPS
Remove Pallet, Stow In Jett Bag

Hand LMP OPS To CDR For Checkout
Unstow CDR OPS
Remove Pallet, Stow In Jett Bag
Perform OPS Check (Both)

Stow LMP OPS On RH Floor Under Dump Vlv
LMP Move To LMP Station
Stow CDR OPS On LH Eng Cover

Apply Antifog (ISA Back Pkt)- *2 Coats*
Stow EMU Maint Kit In Purse
Unstow LEVA's
Stow LEVA's, Then Helmets On RH Eng Cov

Stow EV Gloves On Comm Panels
Stow LEVA Bags In SRC Area
Disconnect 3 Armrests, CDR LH,
LMP RH & LH, Stow In Jett Bag

P06E
CB(11) PGNS: IMU OPR - Open
PRO (Hold In Until STBY Lt - On)
UPDATA LINK - OFF

Fwd Hatch Handle - UNLOCK

PLSS DONNING :58

LMP 1st:
Set PLSS On Mid-Step
Retrieve OPS, Unstow Antenna Lead
Verify OPS Reg Decay, Unstow Nozzle
Secure Flap

Attach OPS To PLSS
Connect OPS Antenna Lead To PLSS
Verify Sublimator Exhausts Clear

Unstow PLSS Straps & Hoses
Remove Elect Dust Cap, Stow In Purse
Verify DIVERTER, O2, FEEDWATER - OFF
Connect Battery Cable

Verify The Following Locked:
OPS To PLSS
OPS Antenna To PLSS
PLSS Battery Connection

Don PLSS/OPS, Lift PLSS Hoses Above
LH Lower Strap

Basic Date 9/15/70 Changed 1/18/71 ~~12/21/70~~

Basic Date 9/15/70

Changed 12/21/70

Connect PLSS O2 Hoses To PGA
Verify DIVERTER, O2, FEEDWATER - OFF
Unstow OPS O2 Hose

CDR Repeat PLSS DONNING

Unstow RCU's
Connect RCU To PGA Upper Straps
Verify RCU Controls:
PUMP, FAN - OFF (Left) MODE SEL-0

Connect RCU To PLSS, Snap OPS O2 Hose To Side of PLSS

PLSS COMM CHECK :18

Verify Powerdown CB Configuration
COMM: MODULATE - FM
CB(16) COMM: TV - Close
Verify Voice Comm With Hou

Audio (CDR)
S-BAND - T/R
ICS - T/R
RELAY - OFF
MODE - VOX (VOX SENS MAX)
VHF A - T/R
VHF B - RCV

Audio (LMP)
S-BAND - T/R
ICS - T/R
RELAY - ON
MODE - VOX (VOX SENS MAX)
VHF A - T/R
VHF B - RCV

COMM:
S-BD XMTR/RCVR-SEC
VHF - VOICE, ON, OFF, ON, OFF, HI
RANGE - RANGE
SQUELCH A & B - Noise Thres + 1-1/2
RECORDER - ON
VHF Antenna - EVA
UPLINK SQUELCH - ENABLE

LMP Connect To PLSS Comm (Audio CB Open/Close)

PLSS PTT (LMP) - MAIN (Rt)
PLSS Mode(LMP) - A, Wheel-CCW (Tone-On, Vent Flag- P, Press Flag- 0, O2 Mom)
PLSS O2 Press Gage > 85%
Perform Comm Check With CDR

NOTE: Unstow PLSS Antenna If It
Transmits Garbled And/Or Loses TM

CDR Connect To PLSS Comm (Audio CB
Open/Close)

Audio (CDR)
VHF A - OFF
VHF B - OFF
PLSS PTT (CDR) - MAIN (Rt)

NOTE: No MSFN Reception In PLSS Mode B

PLSS Mode(CDR) - B, Blade-CCW (Tone-On,
Vent Flag- P, Press Flag- O, O2 Mom)
PLSS O2 Press Gage > 85
Perform Comm Check With LMP

PLSS Mode (LMP)- B, Blade-CCW (Tone-On)
PLSS Mode (CDR)- A, Wheel-CCW (Tone-On)
Verify Voice Comm With Each Other

PLSS Mode (Both) - AR (Tone-On)

NOTE: (AR) Wheel-Hou, Blade-EVA

Perform Comm & TM Check With Hou &
Comm Check With Each Other
Read PLSS O2 Qty to Hou

NOTE: If Comm Is NO GO With Hou
S-BD MOD - PM
Verify Comm & TM

CB(16) COMM: TV - Open

FINAL SYSTEMS PREP :28

CB(16) ECS: CABIN REPRESS - Close (Ver)
SUIT FAN ΔP - Open
SUIT FAN 2 - Open
SUIT FAN Sel - 2
Verify ECS Caution & H2O SEP COMP
Lts - On (~ 1 Min)

SUIT GAS DIVERTER - PULL-EGRESS
CABIN GAS RETURN - EGRESS
SUIT CIRCUIT RELIEF - AUTO (Verify)

Basic Date 9/15/70 Changed 11/16/70

OPS CONNECT :29

LMP 1st - Unstow OPS 02 Actuator
Connect Actuator To RCU
SUIT ISOL - SUIT DISC
Discon LM 02 Hoses, Secure About PGA

Connect OPS 02 Hose To PGA B/B
Retrieve Purge Valve (Purse)-
  Verify Closed, Locked & LO
Install Purge Valve In PGA R/R
PGA Diverter Valves - Vertical

CDR Repeat OPS CONNECT

Drink
DES H20 VLV - CLOSE

HELMET/GLOVE DONNING :38

Position Mikes (Both)
PLSS FAN - ON, Rt (Vent Flag - Clear)
Don Helmets, Check Drink Bag Position
Don LEVA's

LCG - Cold, As Reqd
CB(16) ECS: LCG PUMP - Open

Disconnect LM H20 Hose
Connect PLSS H20 Hose
Stow LM Hoses (CDR's To ECS Handhold)

Verify The Following:
  Helmet & Visor (2) - Aligned & Adjusted
  Torso Tiedown (2) - Adjusted
  02 Connectors (6) - Locked
  Purge Valves (2) - Locked
  H20 Connectors (2) - Locked
  Comm Connectors (2) - Locked

Verify EVA CB Configuration
Verify No Fog RH Window
Tie Jett Bag, Transfer to Eng Cover

Don EV Gloves & Verify:
  Wrist Locks (4) - Locked
  Glove Straps (4) - Adjusted

NOTE: If PGA Biting, PLSS 02 - ON/OFF

PLSS DIVERTER - MIN (Verify)
PLSS PUMP - ON, Rt

PRESS REG A & B - EGRESS

PRESSURE INTEGRITY CHECK :52

PLSS O2 - ON (Tone-On, O2 Flag-O)
Press Flag Clear (3.1-3.4 Psid)
Cuff Gage 3.7-4.0 Psig
O2 Flag Clear

PLSS O2 - OFF (Cuff Gage Decay <.3
  Psig In 1 Min)
PLSS O2 - ON (Cuff Gage 3.7-4.0
  Psig, Tone & O2 Flag May Come On)

CABIN DEPRESS :57

Confirm Go For Depress From Hou
CB(16)ECS: CABIN REPRESS - Open
CABIN REPRESS Vlv - CLOSE

Ovhd Or Fwd Dump Vlv - OPEN Then AUTO @
  3.5 Psia (Verify Cuff Gage Does
  Not Drop Below 4.8 Psig)
Verify:
  Cabin At 3.5 Psia
  LM Suit Circuit 3.6 To 4.3 Psia
  PGA > 4.8 Psig & Decaying

Start Wrist Watch :00

Ovhd Or Fwd Dump Valve - OPEN
Verify:
  Tone-On & H2O Flag - A (1.2-1.7 Psia)
  PGA > 4.8 Psig & Decaying

Partially Open Fwd Hatch

FINAL PREP FOR EGRESS :03

PLSS FEEDWATER - OPEN (H2O Flag -
  Clear In About 4 Min)

Fwd Hatch - Open

Rest Until Cooling Sufficient
Verify:
  PGA 3.7 To 4.8 Psig
  CWEA Status:
  Caution
  ~~PREAMPS~~
  ECS

  H2O SEP COMP Lt - ON

Lighting: ANUN/NUM - DIM
DET - STOP
Release PLSS Antennas
Lower EV Visor :10

Basic Date 9/15/70 Changed ———

PLSS TO LM H2O TRANSFER

Torso Tiedown - Loosen as reqd
PLSS Pump - OFF
Disconnect PLSS H2O
Connect LM H2O
CB(16) ECS: LCG Pump - CLOSE

LM TO PLSS H2O TRANSFER

CB(16) ECS: LCG Pump - OPEN
Disconnect LM H2O
Connect PLSS H2O
PLSS Pump - ON
Torso Tiedown - tighten as reqd

LMP 10-31-70

PLSS TO LM H2O TRANSFER

Torso Tiedown - Loosen as reqd
PLSS Pump - OFF
Disconnect PLSS H2O
Connect LM H2O
CB(16) ECS: LCG Pump - CLOSE

LM TO PLSS H2O TRANSFER

CB(16) ECS: LCG Pump - OPEN
Disconnect LM H2O
Connect PLSS H2O
PLSS Pump - ON
Torso Tiedown - Tighten as reqd

COR 10-31-70

LMP-1

LMP - EVA 1

ASSIST, MONITOR

0+10 Assist [egress
CB(16) COMM: TV - CLOSE
Jett bags to A1
Pass LEC to A1
70mm Cam to mid-step

Monitor & photo A1
in shadow: DC(f5.6,125,X)
LDAC(f2.8,60,6fps)
in sun: DC(f11,250,X)
LDAC(f8,250,6fps)

0+16 LM & EMU check
CB & VOX sense check
Confirm 'GO' 2 man EVA

12-11-70

MONITOR

CDR-1

CDR - EVA-1

EGRESS,FAM,MET

0+10 Jett bag ←→ [hand out
Deploy LEC ←→ [assist
Pull safety-deploy [TV CB
MESA
Descend
Ascent check [egress & fam

0+18 Discuss mobility & stability
LM check & rpt

0+22 Adjust MESA for MET offload
Remove MET blanket door
Release MET-stow on +Y footpad

12-11-70

EGRESS

Basic Date 9/15/70

Changed 12/21/70

Basic Date 9/15/70 Changed 11/16/70

EGRESS, CSRC, SWC

LMP-1

0+18 Close hatch & descend
Ascent check [MET
Stability & mobility

0+28 Deploy SRC table
Unstow ETB-offload bags
Load 2 LiOH cans in ETB
Deploy TV cable

[S-Band

0+32 Remove CSRC from pocket
✔ Take sample (stow on ladder)

10-31-70

TV, S-BAND

CDR-1

0+~~28~~ Adjust MESA
Open MESA blanket
Erect TV tripod
Cover lens-Set f22 [ETB
Mount TV camera [TV cable
Position 2:30/50' (NO UPSUN)

0+31 Offload S-Band ant [CSC
32 & carry to 3/20'
Orient wrt Earth [SWC
Deploy mast & legs
41
Steady leg-deploy dish [LR^3
*CAUT: WATCH PLSS ANT/DISH RF cable
43 Align ant & assist

10-31-70

LMP-1

SWC, LR^3, INGRESS

0+37 Unstow SWC(MESA)
Extend shaft
Unroll foil shade
Mount & place in sun 10/60'

0+42 Offload LR^3 to +Z footpad

Get S-Band RF cable
Assist AL [S-Band

0+49 Ingress LM
SW: S-Band - LUNAR STAY
Track Mode - OFF
Check comm

10-31-70

COR-1

ETB TRANS, SITE DESC

0+49 Attach ETB to LEC
47 Put CS into ETB
Trans ETB up ←→ [trans

LM site description

55 Trans ETB dn ←→ [trans

Photo LMP egress [egress
LDAC (f2.8,60,12fps)

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Basic Date 9/15/70 Changed 11/16/70

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ETB TRANS, EGRESS

Trans ETB up ←——→ [trans
Stow cans-top data file
CS to MID-STEP
Load in ETB: [site desc
-B&W TV Cam
-2 70mm cam(HCEX)-(MID STEP)
-16mm cam(CEX)-(LHSSC)
-2 16mm mags-(purse)
-map (purse)
-thermal deg exp-(purse)

Trans ETB dn ←——→ [trans
Close hatch & descend

LMP-1

12-11-70

LMP-1

FLAG,TV,PAN,SITE SURVEY

Close hatch & descend
[photo
1+00 16mm cam-ON(f8,250,12FPS)
Get hammer ←→ [unstow flag
plant lower shaft [mt flag
Pose
16mm cam-OFF-change mag
Photo A1 ←→ [pose
[ldg report
1+06 TV pan(2:30/50',9 pos,
10 sec each,NO UP SUN)
Show-ALSEP & geology sites
-special interest areas

Reorient TV to MESA [photos

10-31-70

FLAG,SITE INSPECT, PANS

1+00 Unstow flag (MESA)
Give Ed the shaft ←→ [plant
Ext horiz & vert shafts
4+05 Mount flag & pose ←→ [photo

1+06 LM & site inspect [TV pan
4+08 Rpt LM cond,ldg effects,ldg
area features
Photo: (LMP 70mm cam)
-pan 12/30', 4/30' & 8/30'
-footpad/surface(stereo pr)
-DPS surface erosion
-spec interest areas

CDR-1

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LMP-1

MET DEPLOY,ALSEP OFFLOAD

1+15 Assist A1 w/MET deploy
Load 70mm on MET
Pos MET for ALSEP
offload [TV

1+20 Open SEQ Bay doors (white)
Pkg 2 out [pkg 1
Remove HTC(5 pins)
& deploy (4 pins)
Mount on MET
Assemble cam
staff

10-31-70

CDR-1

MET DEPLOY,ALSEP OFFLOAD

1+23
1+15 Unfold MET wheels, [assist
legs,hndls
1+26 Cover lens & pos TV 6/30'
to view SEQ Bay [pos MET

1+21 Move to SEQ bay [doors
1+30 Pkg 1 out,clear ←→ [pkg 2
Stow booms
UHT'S off

1+25 Mate mast-attach
to pkg 1
Tip pkg 2 for fuel ←→

10-31-70

LMP-1

RTG FUEL, MET LOAD

1+27 Tilt fuel cask [pos pkg 2
DRT & FTT
Remove dome-read [DRT & FTT
temp label-REPORT
Remove element-fuel RTG
read temp label-REPORT
Make barbell [SEQ doors

1+36 MET to MESA (tail in)
Discard TV bracket
2nd 70mm cam on MET
Unstow & open SRC 1 [check stowage
Stow on MET:
-3 weigh bags
-core tube cap assy & 2 SESC
(seal organic sample)
-closeup cam, large scoop
Hand hammer & gnomon to Al
TRENCH TOOL (optional)

10-31-70

RTG FUEL, MET LOAD

1+30 DRT to Ed ←→ [tilt and open cask
FTT to Ed ←→ [remove fuel elem
Monitor & assist [fuel RTG
Close SEQ Bay doors (striped)
Cover lens-pos TV 2:30/50' to view ALSEP site [MET to MESA
1+36 Return to MESA
B&W TV cam to +Y footpad
Change 16mm mag-stow on staff
Stow on MET:
-35 bag dispenser
-3 core tubes
-2 SESC
-T/G anchor, ext hndl, tongs
-map & tether
-hammer & gnomon (from Ed)
-1 16mm mag
-1 weigh bag

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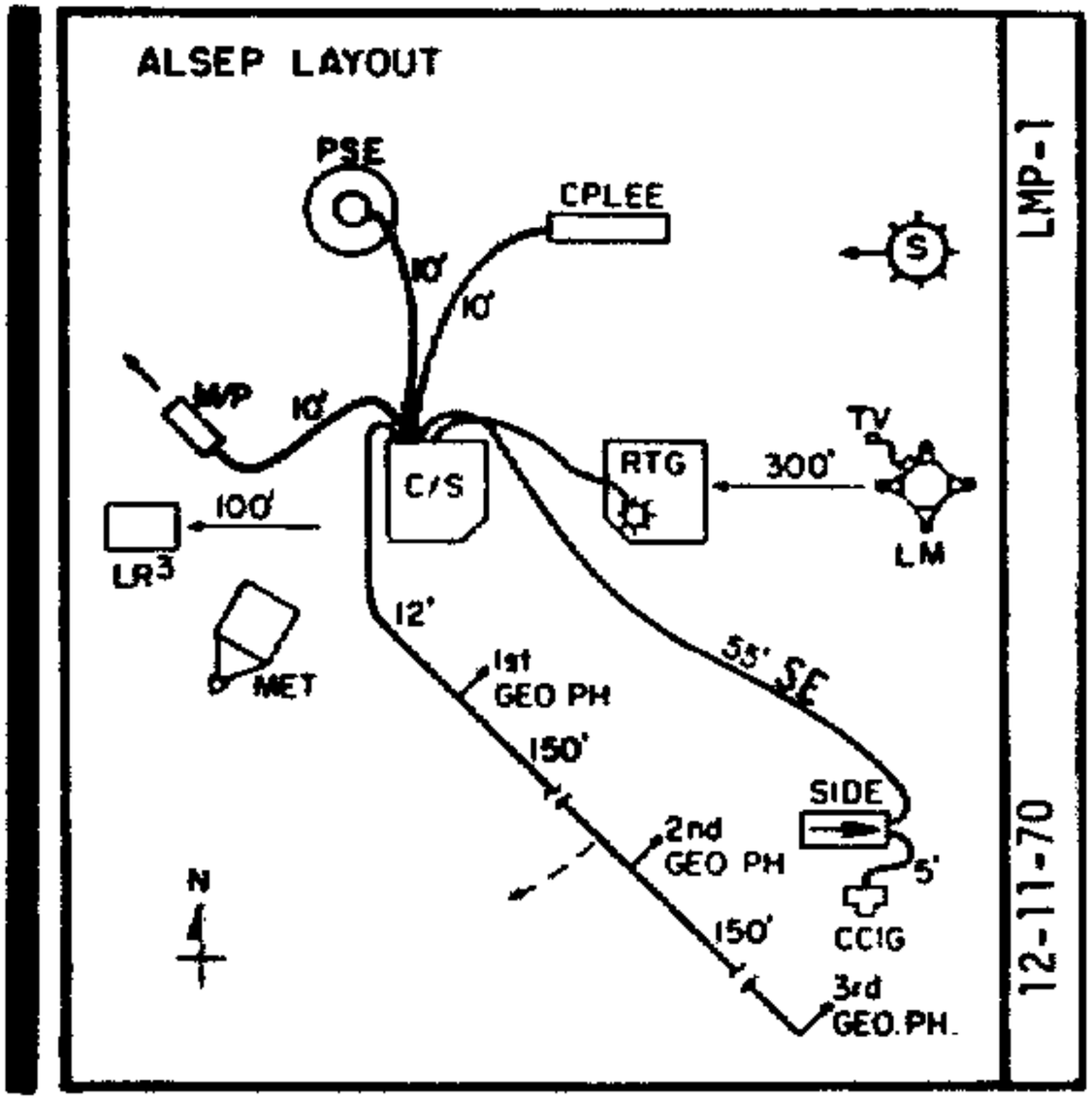
Basic Date 9/15/70

Changed 1/18/71 ~~12/21/70~~

Basic Date 9/15/70

Changed ~~12/21/70~~ 1/18/71



COR-1

MET EQUIP LIST

1+39 CHECK MET STOWAGE:

- core tube cap assy
- ext hndl & tongs
- T/G anchor
- tether
- gnomon
- hammer & scoop
- 3 core tubes
- 35 bag disp
- closeup cam
- 2 SESC
- 2 70mm cam (HCEX)
- 16mm cam & 2 mag (CEX)
- 4 weigh bags
- map
- extra T/G flag
- large scoop
- trench tool (optional)

10-31-70

LMP-1

ALSEP TRAV,RTG,T/G

1+44 Get, carry ALSEP assy to ←→
site-pos barbell-RTG upsun

2+00 Disc pkg 2 [MET
Pos pkg 1 10' West [SIDE
Tilt pkg 2, remove cable
Report amps & connect cable
Get - connect SIDE conn

2+06 DEPRESS SHORT SW [conn
Tilt & align pkg 1 [SIDE
Rel SIDE cable conn
Tether UHT

2+09 Verify RH sw #5-CW [PSE
Rel T/G & deploy-12 slack
Stow on MET

10-31-70

2 to 6

TRAVERSE & ALSEP DEPLOY

1+44 Carry LR^3 & pull MET
Describe terrain, MET hndlng
& stability
Report end of trav
Survey & select ALSEP site
Park MET & LR^3 near pkg 1(SW)

1+57 16mm cam on-(~~11~~ 18,250,6fps)
[pos barbell
Remove subpallet & deploy
10' NE C/S [RTG cable
Remove SIDE-deploy legs

Stow mast on Subpallet

COR-1

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LMP-1

M/P,CPLEE,SIDE

2+15 Deploy M/P to 10' W C/S
Pull pin,rotate socket,
deploy legs & ant base
Place M/P on surface
orient ~ NW
Complete ant deploy

2+20 Remove & deploy CPLEE NE/10'
ARROW EAST - level
Align UHT shadow [ALSEP ant

2+26 Remove CCIG boyd bolt
Deploy SIDE SE/55'
Remove gnd screen & CCIG
Pos SIDE-deploy CCIG S/5'
Check dust cover corners
Pull dust cover pin
Level & align SIDE

12-11-70

COR-1

PSE,SUNSHIELD,ALSEP ANT

2+06 [Short SW

2+08 Deploy stool 10' NW C/S
Interim deploy PSE [T/G
arrow West-Remove girdle
Turn 16mm cam-off-change mag
if empty

2+14 Check C/S level & [M/P-CPLEE
free of cables
Release 16 perimeter boyd
bolts
Free RF cable-check corners
Release inner boyd bolts
Connect curtain corners
Get C/S boyd bolts

10-31-70

LMP-1

T/G,THUMPER

2+36 Take PENT Meas [PSE
Assemble T/G anchor
Get hammer & extra T/G flag
Recon & select deploy line
Install anchor & flag
3+10 Deploy geophones [ALSEP sws
Verify MCC-H ready for T/G activity [LR

2+51 Activate Thumper Δ15' ←→
Notify A1 each shot-All MOVEMENT CEASE FOR 20 SEC BEFORE & 5 SEC AFTER SHOT
TO FIRE: Select ASI, rotate arm sw, wait 4 sec, depress to fire (21 times)

Astro SW #5 - CW [sample

10-31-70

CDR-1

SWITCH,PSE

3+10

2+24 Mount ant mast on C/S [CPLEE
Assemble gimbal & ant
Align & level ant
Enter ELEV-6.41, AZ-15.79

3+13

2+34 Turn(LH)sw #1-CW, sw #5-CCW

2+35 Complete PSE skirt deploy, level & report deg [T/G

2+40 Confirm ALSEP data by MCC-H

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COR-1

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LR^3, ALSEP PHOTOS

3+29

2+42 Deploy LR^3 100' W C/S [T/G

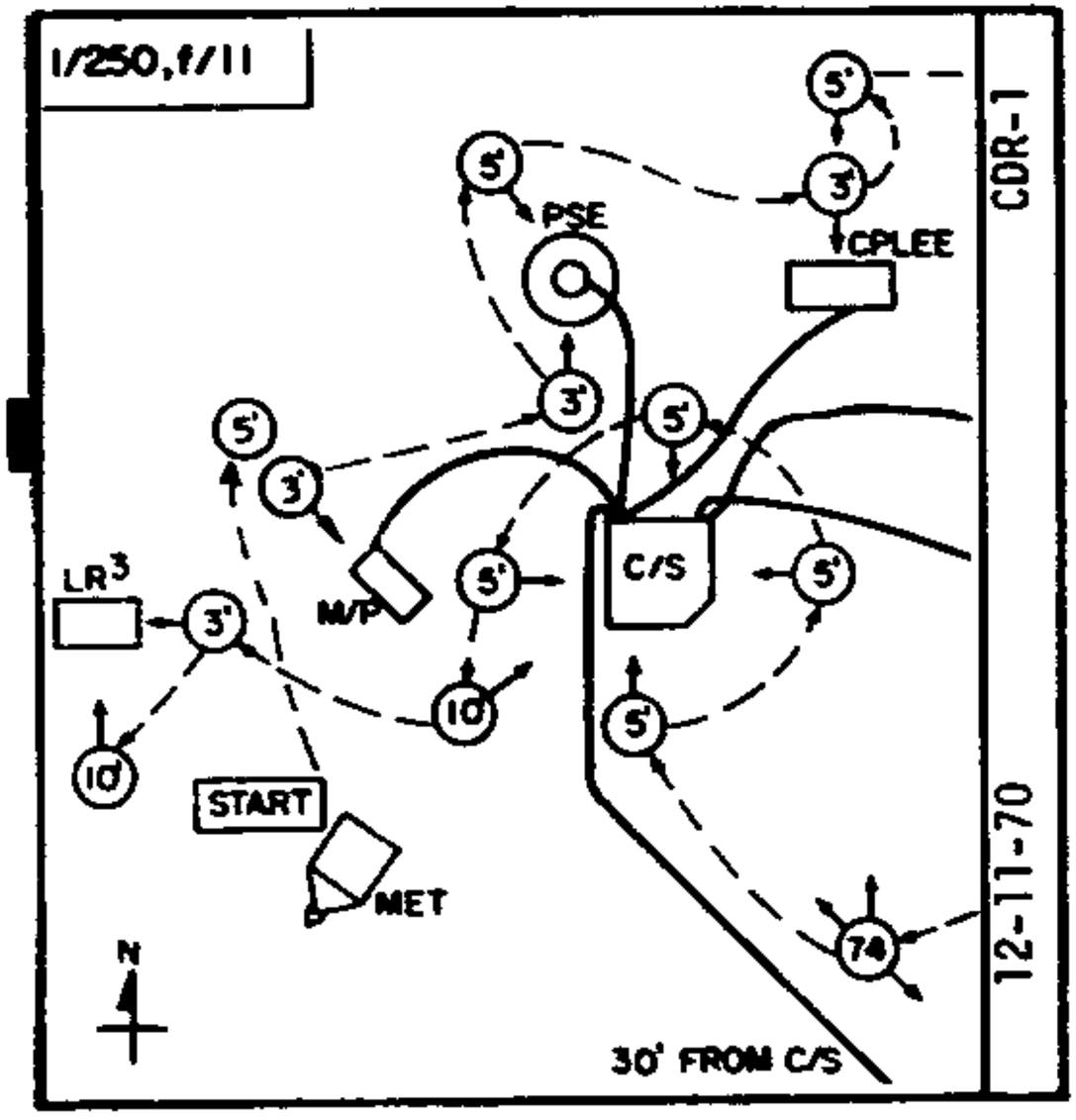
Align & level LR^3

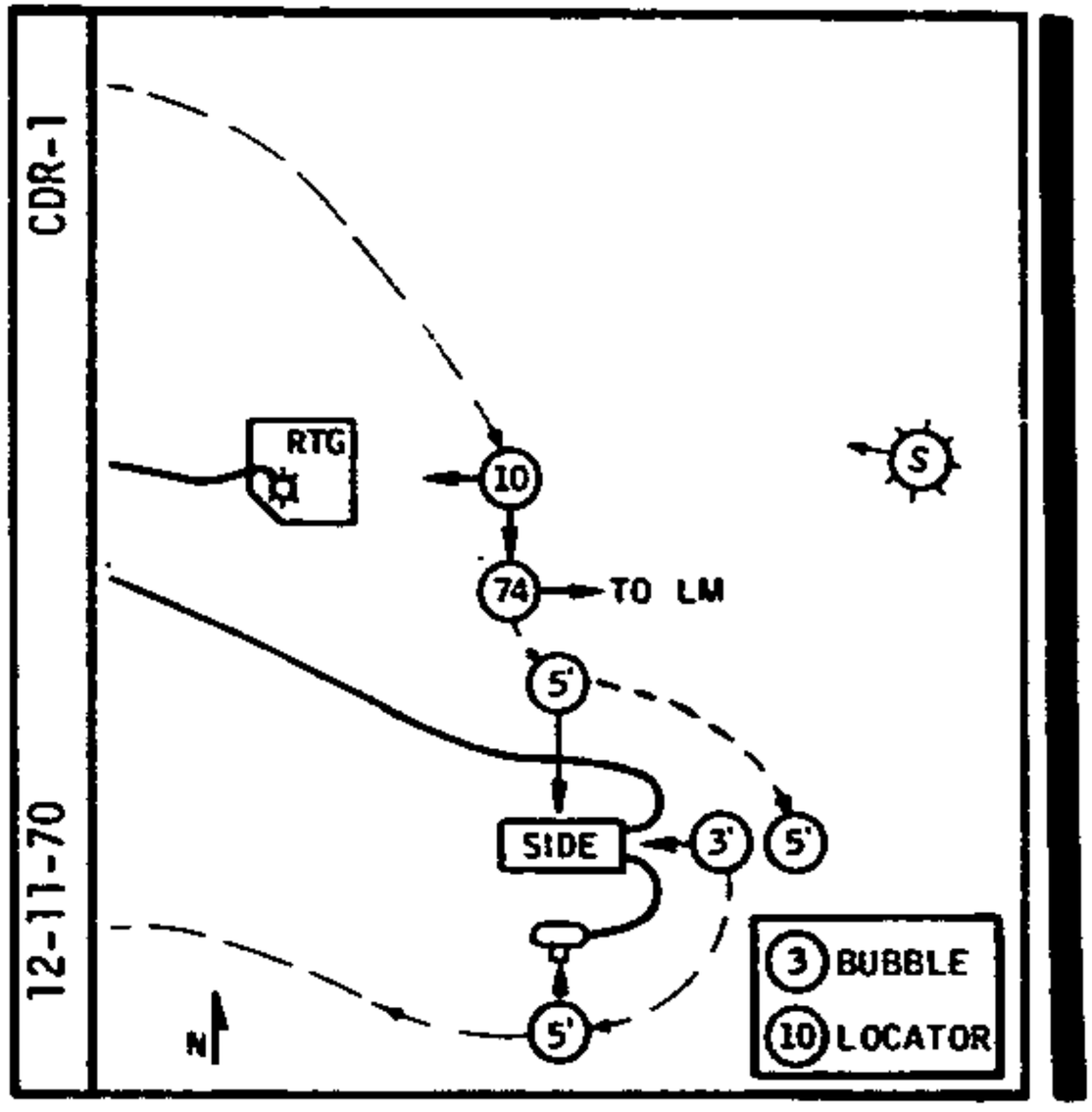
Remove dust cover

Recheck align & level

2+47 Take photos of ALSEP & LR^3

NOTE: CEASE MOTION 20 SEC BEFORE & 5 SEC AFTER THUMP





Basic Date 9/15/70

Changed 12/21/70

Basic Date 9/15/70

Changed 11/16/70

ACT M/P,RET TRAV

3+20 70mm on RCU - pull MET
Begin geology trav
Ret to ALSEP for M/P Act
Check M/P align & level
Unlock & pull safety rods
Set 2 safe sws to ARM
Recheck align & level
Astro sw #5 - CCW

CAUTION: Stay 15' from back of M/P

3+40 Return to LM

LMP-1

10-31-70

SAMPLES,RET TRAV,CLOSEOUT

2+55 Get ext hndl

Pull MET-collect [thumper
Comprehensive Sample
(COORD W/ED TO STOP FOR THUMP SEQ)

3+20 Begin geology trav - collect documented samples

3+35 Ret to ALSEP for M/P Act

3+40 Ret to LM

3+45 Position - TV 2:30/50' view MESA
70mm cam in ETB
Stow samples in SRC
Collect more samples in a weigh bag to fill SRC
Pack SRC

CDR-1

10-31-70

LMP-1

EVA CLOSEOUT, STOW LISTS

3+45 MET near MESA(tail in) [TV
70mm cam in ETB
Therm Deg Sample in cavity
3-16mm mags in ETB [stow
Map in ETB samples
Stow 16mm cam on MET
2 weigh bags on MET
Unstow SRC #2-place on MET
Closeup camera - OFF
Remove tongs

ETB stowage list:
-2 70mm cam
-3 16mm mags
-map
-lens/scribe/brush assy

SRC stowage list:
-documented samples

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CDR-1

SRC & ETB STOWAGE

SRC stowage:
- -organic cont sample
- -comprehensive sample
- -documented samples
- -addtl samples as reqd

Remove skirt-seal SRC

ETB stowage list
-2 70mm cam
-3 16mm mags
-map
-lens/scribe/brush assy

10-31-70

Basic Date 9/15/70

Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

EVA TERM, ETB TRANS

LMP-1

4+00 Clean & check EMU's
Ascend to mid-ladder
Place SRC on porch [hand-up
Ingress

Trans ETB up-stow ←→ [trans
RH eng cover
Check LM systems

[ascent

Pass LEC to A1 ←→ [stow
Rec SRC from A1-stow
LH eng cover, end up

4+11 Assist A1 [ingress

4+13 Repress

10-31-70

EVA CLOSEOUT & TERM

CDR-1

4+00 Clean & check EMU's (TONGS OFF)

Hand SRC to LMP [on ladder
Park MET in sun @ 45° (11/20') [ingress
Cover SRC 2 with S-Band cover

Trans ETB up ←→ [trans

Ascend to LM porch
Stow LEC ←→ [LEC to A1
Hand SRC to Ed ←→

4+11 Ingress

4+13 Repress

10-31-70

Basic Date 9/15/70

Changed 11/16/70

POST EVA 1

PLSS FEEDWATER - CLOSE
Fwd Hatch - Close & Lock
Dump Valves (Both) - AUTO

NOTE: PLSS 02 & PRESS Flags May Come On During Repress. If PLSS 02 <10% Manually Control Cabin Repress To Maintain Positive PGA Pressure. (Leave Cabin Repress CB Open For Manual Repress)

Lighting: ANUN/NUM - BRIGHT

CABIN REPRESS - AUTO
CB(16)ECS: CABIN REPRESS - Close
MASTER ALARM & CABIN Warning Lt - On
Verify Cabin Press Increasing
PRESS REG A & B - CABIN

PLSS 02 - OFF @ Cabin > 2.5 Psia

CABIN Warning Lt - Off
Verify Cabin Press Stable At 4.6-5 Psia
Use Purge Valve To Depress PGA As Reqd
DET - Set/Up :00

POST EVA SYSTEMS CONFIGURATION :00

CABIN GAS RETURN - AUTO
SUIT CIRCUIT RELIEF - AUTO (Verify)
SUIT GAS DIVERTER - PUSH-CABIN

Verify EVA CB Configuration
CB(16) ECS: SUIT FAN 2 - Close
SUIT FAN ΔP- Close
ECS Caution & H20 SEP Comp Lts - Out

Doff Gloves, Stow On Comm Panels
Doff Helmets With Visors, Stow On RH Eng Cover, Top ETB

Verify Safety On Dump Valve
DES H20 Vlv - OPEN
Remove Purge Valve, Stow In Purse
Discon OPS 02 Hose

Connect LM 02 Hoses

SUIT ISOL (Both) - SUIT FLOW
PLSS PUMP - OFF (Left)
PLSS FAN - OFF (Left)

EVA 1 POST

Disconnect PLSS H2O From PGA
Connect LM H2O
CB(16) ECS: LCG PUMP - Close
Adjust LCG Cooling Gradually

PLSS Mode (Both) - O
Connect To LM Comm(Audio CB, Biomed Sw)

AUDIO (CDR & LMP)
  VHF A - RCV
  VHF B - OFF
  MODE - ICS/PTT
  RELAY - OFF

COMM:
S-BD XMTR/RCVR - PRIM
VHF - OFF, ON, OFF, OFF, LEFT, HI
RECORDER - OFF
UPLINK SQUELCH-OFF

PLSS O2 RECHARGE :10

Verify DES O2 >38%

Connect LM O2 To PLSS (LMP's 1st)
PLSS FILL - OPEN Then CLOSE After 2 Min

PLSS Mode - AR (O2 QTY ~85%)
PLSS Mode - O

Repeat O2 Recharge For CDR PLSS

Stow O2 Supply Hose

PLSS/OPS DOFFING :16

Disconnect OPS, Actuator From RCU's
Disconnect RCU's From PGA
Verify Pump, Fan, Mode Sel-Off
Discon RCU's From PLSS, Stow On Mid-Step
Disconnect PLSS O2 Hoses
Doff PLSS/OPS (LMP 1st)
Stow OPS O2 Hose, Actuator, & Antenna
  Blade, Leave Flaps Open For Checkout
Stow LMP PLSS On Floor
Stow CDR PLSS On Mid-Step

Unstow Disp Cont (LHSSC), Set On LH
  Fwd Floor
Install Gas Conn Plugs (Purse) In PGA

CAUTION: Insure PLSS LiOH Carts & Batts
  Numbered 1 & 2 Replaced With 3 Or 4

Basic Date 9/15/70

Changed 12/21/70

Basic Date 9/15/70 Changed 12/21/70

CDR 1st:
Change PLSS Batt, Stow In Disp Cont
Connect Cable To Battery
Stow PLSS Hoses & Straps
Change LiOH Cart, Temp<130°-Read Decals

Disconnect OPS Antenna Connector
Remove OPS & Stow Antenna Connector
Verify OPS 02 Press 5380 - 6380
Stow CDR OPS On LH Eng Cover, End Up
Stow CDR PLSS In Recharge Station

Stow LMP PLSS On Mid-Step, Repeat Above

Stow LMP OPS On Floor Under Dump Vlv
Stow PLSS On Floor Against Hatch

Stow RCU's On Data File
Stow Disp Cont On Mid-Step Under PLSS

POST EVA CABIN CONFIGURATION :43

Stow CSRC (Mid-Step) In ISA Top Pkt
Unstow Scale (Bot LHSSC)

Empty ETB As Follows:
Weigh Sample Bag, Report To Hou,
  Stow Bag In LHSSC
Replace 70mm Camr Mag With B&W LL, MM
Stow 3-16mm Mags In RHSSC
Stow Map As Reqd
Stow Return Items In ISA Back Pkt
Stow Lens/Scribe/Brush In ISA Back Pkt

Stow In ETB:
  BSLSS
  2-70mm Camrs With B&W Mags
  1-B&W Mag KK
  Polarizing Filter (RHSSC)
  3-16mm Mags FF, GG, HH
  EVA 2 Map

Unstow Jett Bag (LHSSC)
Place ETB Inside Jett Bag, Stow On RH
  Cabin Floor, Fwd

Weigh SRC, Report To Hou
CDR Move To Aft Cabin
Stow SRC In Lower Comp

Stow CDR OPS In Top Comp
Stow Scale In Purse

Verify Powerdown CB Configuration
MODULATE - PM

Unstow Lunar Surface Checklist, 4-4
Stow EVA 1 Prep & Post Card

1:03

EAT PERIOD
118:48 TO 119:38

Copy Liftoff Time In Data Book
For Rev 20-25

PLSS FEEDWATER COLLECTION 1:53

Unstow Feedwater Collection Bags (LHSSC)
Remove Spring Scale From Bag
Flatten Bag To Remove Trapped Gas
Zero Spring Scale

Weigh RCU (Kg), Report To Hou
Stow RCU
Connect Bag To PLSS H2O FILL
PLSS O2 - ON, After 30 Sec,
PLSS FEEDWATER - OPEN

Drain Feedwater Bladder 1.5 Minutes
PLSS FEEDWATER - CLOSE
PLSS O2 - OFF
Disconnect Bag From PLSS H2O FILL

Weigh Bag & Record Kg, CDR _____
LMP _____ (Report To Hou)
Stow Bag In Disp Cont
Repeat For 2nd PLSS
Stow Scale In Disp Cont

CB(16) ECS: LCG PUMP - Open
LM O2 Hoses, R/B & B/R

PLSS O2 & H2O RECHARGE

Verify 1 Hr Elapsed Since Initial
O2 Recharge (DES O2 >38%)

Connect LM O2 To PLSS
PLSS FILL - OPEN Then CLOSE
After 10 Min

Basic Date 9/15/70

Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

Perform Feedwater Recharge (Decal):

Connect Condensate Hose To PLSS H2O DRAIN
LM DES H2O Valve - CLOSE
Connect LM Water Hose To PLSS H2O FILL
LM DES H2O Valve - OPEN
Fill At Least 3 Minutes, Verify
  Condensate Flow
LM DES H2O Valve - CLOSE
Connect Condensate Hose To PLSS H2O VENT
LM DES H2O Valve - OPEN
Monitor Vent Flow Indicator, Verify
  Gas Expelled - 10 Sec Max
LM DES H2O Valve - CLOSE
Disconnect Hoses And Stow

Verify PLSS FILL - CLOSED
Disconnect O2 Suppply

Repeat O2 & H2O Recharge For Second PLSS

DES H2O Vlv - OPEN
DET-Stop 2:30

EVA DEBRIEFING WITH HOU (5 MIN)

Report Status Of PLSS Recharge

	CREW STATUS REPORT	
	CDR	LMP
MED		
PRD		

VOICE - DN VOICE BU
PWR AMPL - OFF
VHF ANTENNA - AFT

Configure Sleep Stations

Unstow LMP Restraint Cables
Place Cue Card Over AOT For Sleep
Unstow 2 Interim Stowage Straps (RHSSC),
  Place On 1 LEVA, Blue Tether
Hang LEVA On Recharge Sta Brkt +Z27
Stow Other LEVA Aft LH Eng Cover

CDR Unstow CDR Hammock
CDR Move To Aft Cabin

Doff Lunar Boots If Reqd
Stow Boots LH Cabin Floor

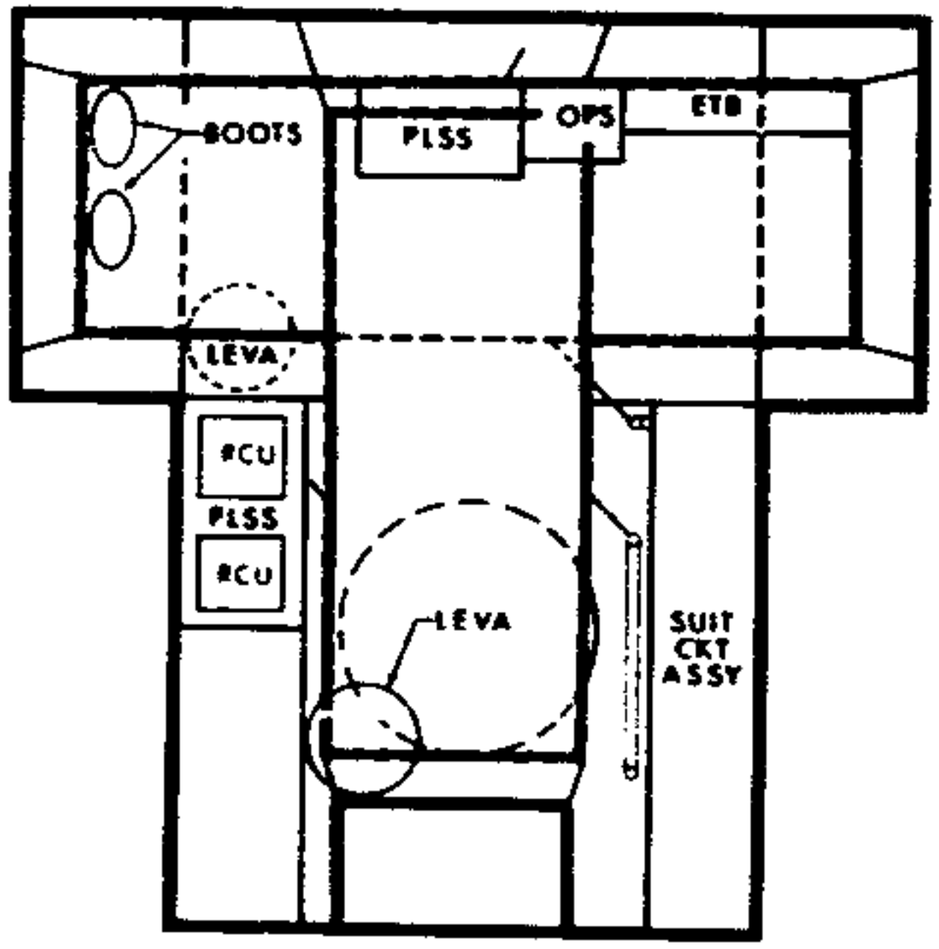
LMP Unroll Hammock
Unstow Towels (Hammock Pouch)

LMP: Attach Straps To RHSSC
 Adjust Strap Tension LHSSC
 Route Inboard Center Support Strap
  Beneath LMP & CDR Umbilicals, Attach
  To Vertical Handhold, ECS Module
 Attach Outboard Center Support Strap
  To Lower ISA Fitting, Straddle/Ingress

CDR:
 Attach Aft Straps -Z27

Route Hammock Beneath Umbilicals
Attach Fwd Straps, Panel 1 & 2
Adjust Strap Tension

Attach Outboard Center Support Strap
 To Horizontal Handhold, ECS Module
Ingress Hammock
Attach Inboard Center Support Strap
 To PLSS Donning Sta, Outboard
Adjust Strap Tension



Basic Date 9/15/70

Changed 12/21/70

Basic Date 9/15/70

Changed ~~12/21/70~~ 1/18/71

REST PERIOD
120:35 TO 130:30

Crew Awake - Verify CWEA Status:
Caution: PREAMPS
Biomed - Right
Stow Hammocks In Disp Cont
Stow LMP Restraint Cables
CB(16) ECS: LCG PUMP - Close

Change LM ECS LiOH Cartridge

Stow Used LiOH Cart & Bracket In Jett Bag
Stow LEVA'S On Aft Eng Cover

STAY/NO STAY For EVA 2 Prep

CREW STATUS REPORT	CDR	LMP
MED	N	N
PRD	16051	07049

Copy Liftoff Time In Data Book For Rev 26-31

LM CONSUMABLES UPDATE

GET (130:40) 129:00

RCS A	% (77)	80	B	(75)	77
O2 DES	% (~~55.0~~ ~~66.7~~)	66.7	ASC	(100)	100/96
H2O DES	% (~~43.0~~ ~~45.7~~)	40.7	ACS	(100)	98 4/98.4
A-H DES	(743)	834	ASC	(562)	572

EAT PERIOD
130:40 TO 131:30

PWR AMPL - PRIM
VOICE - VOICE

IMU ALIGNMENT (131:30)

PRO (Hold In Until
RESTART Lt-On, STBY Lt-Off)
RSET
V96E
CB(11) IMU OPR - Close
(NO ATT Lt-Off In 90 Sec)
CB(11) GASTA (AC&DC) - Close
CDR FDAI (AC&DC) - Close

CB(16) Cycle CWEA

V25 N01E, 1365E
E,E,E
V15 N01E, 1365E

V21 N27E, 10E

15 01 Test Successful When
R2 $\geq$3

V21 N27E, 0E

Verify: INVERTER-2
CB(16) INV 2-Close

POWER/TEMP MON - ED/OFF
Check ED VOLTS, A _____, B _____
POWER/TEMP MON - Check BAT,BUS Volts

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

Notify MSFN of E-DUMP
TLM-HI
V74E (42 sec)

UP DATA LINK - DATA (MSFN Uplinks CSM S.V. & Possible RLS), OFF

CB(11) AOT LAMP-Close
P57, SET R2 00004
N34 (Load REV 31 LO Time), PRO
N06 00010
00003
00010
PRO
(NO ATT Lt - On/Off, Twice)
N04 +_____ Grav. Err. (.01°)
V32E(Recycle)
N04 +_____ Grav. Err. (.01°)
PRO
N22 ICDU Angles
PRO (NO ATT Lt - On/Off)

STAR ID _____ (226 Spica)
  Cursor _____ (.01°)
  Spiral _____
N79 Load Then V32E
  Cursor _____
  Spiral _____
N79 Load Then V32E
  Cursor _____
  Spiral _____
N79 Load Then PRO
N05 _____ Star Angle Diff (.01°)
PRO
N93 _____ X Torquing Angle (.001°)
_____ Y
_____ Z
PRO (Gyro Torquing)
N25 00014, ENTER (TERM)
POOE
CB(11) AOT LAMP - Open
GASTA (AC & DC) - Open
CDR FDAI (AC & DC) - Open

PRE EVA 2 PLANNING WITH HOU (15 MIN)

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

132:15 CABIN PREP EVA 2

Clean & Lub PGA Neckring,
Wristring & Gas Connectors
As Reqd - Wipe With Tissue,
Lub With Pad From EMU
Maint Kit
Stow All Loose Items Not Reqd For EVA
Unstow EVA 2 Prep & Post Card
132:45 Stow Lunar Surface Checklist

EQUIPMENT PREP EVA 2

DET-Set/Up :30 13-13-00
Empty UCTA's
Check PGA Zippers, Verify Lock-Lock
Fill Drink Bags, Evac, Install

Stow Gas Connector Plugs In Purse
Empty PGA Pockets Into Purse
Verify Watch On PGA
CDR Move To Aft Cabin

CDR Don Boots
Unstow CDR OPS
Perform OPS Check (Both)
Stow Both OPS On Floor

Remove ETB From Jett Bag, Stow In LHSSC
Verify Eqpt In ETB:
- 2-70mm Camrs With B&W Mags LL, MM
- Polarizing Filter
- 1-Spare B&W Mag KK
- 3-16mm Mags FF, GG, HH
- EVA 2 Map
- BSLSS

Stow ETB On Mid-Step

LMP Don Boots
Unstow PLSS Condensate Container, Stow On Rock Box

Apply Antifog (Purse)- 2 Coats
Stow Visors & Helmets On RH Eng Cover
Tie Disp Cont, Stow On LH Eng Cover
FWD Hatch Handle - UNLOCK

PLSS DONNING :57

LMP 1st:
Set PLSS On Mid-Step
Retrieve OPS, Unstow Antenna Lead
Verify OPS Reg Decay, Unstow Nozzle
Secure Flap

Attach OPS To PLSS
Connect Antenna Lead To PLSS
Verify Sublimator Exhausts Clear

Unstow PLSS Straps & Hoses
Verify DIVERTER, O2, FEEDWATER - OFF.

Basic Date 9/15/70

Changed 1/18/71 ~~12/21/70~~

Basic Date 9/15/70

Changed 12/21/70

Verify The Following Locked:
OPS To PLSS
OPS Antenna To PLSS
PLSS Battery Connection

Don PLSS/OPS, Lift PLSS Hoses Above
LH Lower Strap

Connect PLSS 02 Hoses To PGA
Verify DIVERTER, 02, FEEDWATER - OFF
Unstow OPS 02 Hose

CDR Repeat PLSS DONNING

Unstow RCU's
Connect RCU To PGA Upper Straps
Verify RCU Controls:
PUMP, FAN - OFF (Left) MODE SEL - 0

Connect RCU To PLSS, Snap OPS 02 Hose
To Side Of PLSS

PLSS COMM CHECK :17

Verify Powerdown CB Configuration
COMM: MODULATE - FM
CB(16) COMM: TV - Close (Verify)
Verify Voice Comm With Hou

Audio (CDR)
S-BAND - T/R
ICS - T/R
RELAY - OFF
MODE - VOX (VOX SENS MAX)
VHF A - T/R
VHF B - RCV

Audio (LMP)
S-BAND - T/R
ICS - T/R
RELAY - ON
MODE - VOX (VOX SENS MAX)
VHF A - T/R
VHF B - RCV

COMM:
S-BD XMTR/RCVR - SEC
VHF - VOICE, ON, OFF, ON, OFF, HI
RANGE - RANGE
SQUELCH A & B - Noise Thres + 1-1/2
RECORDER - ON
VHF Antenna - EVA
UPLINK SQUELCH - ENABLE

LMP Connect To PLSS Comm (Audio CB Open/Close)

PLSS PTT (LMP) - MAIN (Rt)
PLSS Mode(LMP) - A, Wheel-CCW (Tone-On, Vent Flag- P, Press Flag- O, O2 Mom)
PLSS O2 Press Gage >85%
Perform Comm Check With CDR

NOTE: Unstow PLSS Antenna If It Transmits Garbled And/Or Loses TM

CDR Connect To PLSS Comm (Audio CB Open/Close)

Audio (CDR)
VHF A - OFF
VHF B - OFF
PLSS PTT(CDR) - MAIN (Rt)

NOTE: No MSFN Reception In PLSS Mode B

PLSS Mode(CDR) - B, Blade-CCW (Tone-On, Vent Flag - P, Press Flag- O, O2 Mom)
PLSS O2 Press Gage >85%
Perform Comm Check With LMP

PLSS Mode (LMP)- B, Blade-CCW (Tone-On)
PLSS Mode (CDR)- A, Wheel-CCW (Tone-On)
Verify Voice Comm With Each Other .

PLSS Mode (Both) - AR (Tone-On)

NOTE: (AR) Wheel-Hou, Blade-EVA

LMP 87%

Perform Comm & TM Check With Hou & Comm Check With Each Other
Read PLSS O2 Qty To Hou .

CDR 86%

NOTE: If Comm Is NO GO With Hou
S-BD MOD - PM
Verify COMM & TM

FINAL SYSTEMS PREP :27

CB(16) ECS: CABIN REPRESS - Close (Ver)
SUIT FAN ΔP - Open
SUIT FAN 2 - Open
Verify ECS Caution & H2O SEP COMP Lts - On (~1 Min)

SUIT GAS DIVERTER - PULL-EGRESS
CABIN GAS RETURN - EGRESS
SUIT CIRCUIT RELIEF - AUTO (Verify)

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

OPS CONNECT :28

LMP 1st - Unstow OPS O2 Actuator
Connect Actuator To RCU
SUIT ISOL - SUIT DISC
Discon LM O2 Hoses, Secure About PGA

Connect OPS O2 Hose To PGA B/B
Retrieve Purge Valve (Purse) -
  Verify Closed, Locked & LO
Install Purge Valve In PGA R/R
PGA Diverter Valves - Vertical

CDR Repeat OPS CONNECT

Verify Items Prepared For Jettison:
  ECS LiOH Cartridge & Brkt
  Hammocks
  PLSS Batteries & LiOH Carts
  Food Waste, Urine Bags
  Feedwater Bags & Scale

Drink
DES H2O VLV - CLOSE

HELMET/GLOVE DONNING :37

Position Mikes (Both)
PLSS FAN - ON, Rt (Vent Flag - Clear)
Don Helmets With LEVA's, Check Drink
  Bag Position

LCG - COLD, As Reqd
CB(16) ECS: LCG PUMP - Open
Disconnect LM H2O Hose
Connect PLSS H2O Hose
Stow LM Hoses (CDR's To ECS Handhold)

Verify The Following:
  Helmet & Visor (2) - Aligned & Adjusted
  Torso Tiedown (2) - Adjusted
  O2 Connectors (6) - Locked
  Purge Valves (2) - Locked
  H2O Connectors (2) - Locked
  Comm Connectors (2) - Locked

Verify EVA CB Configuration

Don EV Gloves & Verify:
  Wrist Locks (4) - Locked
  Glove Straps (4) - Adjusted

NOTE: If PGA Biting, PLSS 02 - ON/OFF

PLSS DIVERTER - MIN (Verify)
PLSS PUMP - ON, Rt

PRESS REG A & B - EGRESS

PRESSURE INTEGRITY CHECK :52

PLSS 02 - ON (Tone-On, 02 Flag - 0)
Press Flag Clear (3.1-3.4 Psid)
Cuff Gage 3.7-4.0 Psig
02 Flag Clear

PLSS 02 - OFF (Cuff Gage Decay <.3 Psig In 1 Min)
PLSS 02 - ON (Cuff Gage 3.7-4.0 Psig, Tone & 02 Flag May Come On)

CABIN DEPRESS :57

Confirm Go For Depress From Hou
CM(16)ECS: CABIN REPRESS - Open
CABIN REPRESS VLV - CLOSE

Ovhd Or Fwd Dump Vlv - OPEN Then AUTO @ 3.5 Psia (Verify Cuff Gage Does Not Drop Below 4.8 Psig)
Verify:
Cabin At 3.5 Psia
LM Suit Circuit 3.6 To 4.3 Psia
PGA > 4.8 Psig & Decaying

Start Wrist Watch :00

Ovhd Or Fwd Dump Valve - OPEN
Verify:
Tone-On & H20 Flag - A (1.2-1.7 Psia)
PGA > 4.8 Psig & Decaying

Partially Open Fwd Hatch

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

FINAL PREP FOR EGRESS :03

PLSS FEEDWATER - OPEN (H2O Flag -
Clear In 2-4 Min)

Fwd Hatch - Open

Rest Until Cooling Sufficient
Verify:
PGA 3.7 To 4.8 Psig
CWEA Status:
Caution
PREAMPS
ECS

H2O SEP COMP Lt - ON

Lighting: ANUN/NUM - DIM
DET - STOP
Release PLSS Antennas
Lower EV Visor :10

Basic Date 9/15/70

Changed 11/16/70

LMP

DISTANCE ESTIMATION

If LM top to pad:

Wide as Earth - 620 ft.

Eclipsed by thumb - 350 ft. (arm's length)

If LM cluster to cluster:

Wide as Earth - 350 ft.

Eclipsed by thumb - 200 ft. (arm's length)

If Ascent Stage - top to interface:

Wide as Earth - 280 ft.

Eclipsed by thumb - 160 ft. (arm's length)

10-31-70

CDR

DISTANCE ESTIMATION

If LM top to pad:

Wide as Earth - 620 ft.

Eclipsed by thumb - 350 ft. (arm's length)

If LM cluster to cluster:

Wide as Earth - 350 ft.

Eclipsed by thumb - 200 ft. (arm's length)

If Ascent Stage - top to interface:

Wide as Earth - 280 ft.

Eclipsed by thumb - 160 ft. (arm's length)

10-31-70

LMP-2

LMP - EVA 2

ETB TRANS

0+10 Assist A1 [egress
Hand jett bag to A1 ←→
Hook up LEC ←→ [hand in

0+15 Check ETB
-2 70mm cam (HBW)
-70mm mag (HBW)
-3 16mm mags (CEX)
-map
-BSLSS
-Polar Filter

0+18 Trans ETB dn ←→ [trans
Verify CB config & VOX sens
[MET load

10-31-70

CDR-2

CDR - EVA 2

EGRESS, FAM, MET LOAD

0+10 Jett bag ←→ [hand out
Pass LEC to Ed ←→ [hook up
Descend

0+16 Re-fam [load ETB
Trans ETB dn ←→ [trans

0+21 MET near MESA (head in)
SRC to MESA-secure & open
Stow on MET:
-2 weigh bags w/hooks (HTC)
-MSSC (ACC pouch)
-35 Bag Dispenser (HTC)
-3 core tubes & cap assy
Leave SESC in SRC ✓
Seal Organic Sample
Stow SWC bag on MESA

10-31-70

Basic Date 9/15/70

Changed 12/21/70

Basic Date 9/15/70 Changed 11/16/70

MET LOAD, LPM

LMP-2

0+21 Move thru hatch & close
Descend & re-fam [open SRC
0+26 Stow on MET:
-2 70mm cam (HBW)
-70mm mag (HBW)
-3 16mm mags (CEX)-1 on cam
-16mm cam on staff
-map (in HTC)
-trench tool
-MESA brush
-TDS (acc pouch)
-polar filter (acc pouch)
-BSLSS
MET to SEQ bay
0+30 Remove (PM) pallet to MET
Sensor & tripod to A1 [assist
Stow elec & reel on MET
Read & Report temp labels
Turn elec ON - uncage meters

10-31-70

MET STOWAGE CHECK

COR-2

0+26 -BSLSS [MET load
-ext hndl & 2 tongs
-2 core cap assys *(1)
-tether & gnomon
-hammer
-small scoop
-6 core tubes *(3)
-1 35 bag dispenser *(1)
-trench tool *
-16mm cam & 2mags(CEX) *(3)
-2 SESC, MSSC *(1)
-2 70mm cam & 1 mag(HBW) *(3)
-closeup cam (turn on)
-6 weigh bags(2 in HTC) *(2)
-MESA brush *
-TDS *(2)
-Polar Filter (acc pouch)
-map

10-31-70

LMP-2

LPM, BEGIN TRAV

0+35 Pull MET-begin trav
(opt) 16mm cam,on(f~~8~~ 5.6,500,6FPS)

STATION A - 25 min

1. Deploy LPM for point meas
   Photo tripod-tether tongs
   After 60 sec read meters
   (X,Y,Z) 3X
   Repeat meas for pos 2 & 3
   Rewind cable & stow LPM
   Al-TDS & MET track photos
2. Ed-take pan
   Al-Describe site
3. Take samples & dbl core

STATION B - 7 min

1. Pan
2. Samples

10-31-70

CDR-2

TRAVERSE

0+30 Go to SEQ Bay [pos MET remove
Sensor on tripod (#1) pallet
Stow assy on MET [stow elec

Both

0+35 Report start of trav & take photo of LM (@ 200 ft)

10-31-70

Basic Date 9/15/70

Changed ~~11/16/70~~ 1/18/71

Basic Date 9/15/70

Changed 11/16/70

STATION A - 25 min

1. TDS-mate scoop & ext hndl
   Ready MESA brush
   Unstow TDS & unbag
   Take closeup photo 1 side
   Sprinkle dust on sample
   Shake TDS
   Closeup photo both sides
   Brush off sample
   Close-up photo both sides
   Fold TDS & re-bag
   Unstow 2nd TDS
   Sprinkle dust on sample
   Shake TDS
   Closeup photo both sides
   Fold TDS & re-bag
   Ed-LPM

COR-2

10-31-70

CDR-2

2. A1-MET track & footprint eval & photos
3. A1-site description Ed-pan
4. Take samples & dbl core

Station B - 7 min

1. Pan
2. Samples

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Basic Date 9/15/70

Changed 11/16/70

Basic Date 9/15/70

Changed 11/16/70

CONE CRATER 30 min

1. Pan on arrival
2. Collect rocks & soil on rim
   Look for contacts-sample each
   side-sample rock trails
3. If time do polar near-far
4. If time do far polar >100
   ft from 1st then discard
   filter, reset cam 1/250

5. Go SE around rim
6. Take 24fps movie: (1 mag)
   .Kick boulders into crater
   .Crew walk around & pose
   .Pan cam to W and LM
7. Do EVA Comm - A1 behind big
   boulders, Ed document

LMP-2

10-31-70

CONE CRATER - 30 min

1. Pan on arrival
2. Collect rocks & soil on rim
   Look for contacts-sample each
   side-sample rock trails
3. If time do polar near-far
4. If time do far polar >100
   ft from 1st then discard
   filter, reset cam 1/250

5. Go SE around rim
6. Take 24fps movie: (1 mag)
   -Kick boulders into crater
   -Crew walk around & pose
   -Pan cam to W and LM
7. Do EVA Comm - A1 behind big
   boulder, Ed document

CDR-2

10-31-70

LMP-2

8. Pan at S end of rim walk
9. Grab some rocks for radial sample on way to Sta. D

STATION D - FLANK 7 min
Pan & Samples

STATION E - 25 min
1. Al-Dig Trench I & take pan Ed-Trench before shot
   Set up 16mm cam 12fps f/8 LPM
2. Take after photos Trench I
3. Do Trench II, SESC from bottom then bottom, sides, discons, top
4. Ed-footprint & photo
5. If time take single core thru fillet

10-31-70

COR-2

8. Pan at S end of rim walk
9. Grab some rocks for radial sample on way to Sta. D

STATION D - FLANK - 7 min
Pan & Samples

STATION E - 25 min
1. Al-Dig Trench I & take pan Ed-Trench before shot
   Set up 16mm cam 12fps f/8 LPM
2. Take after photos Trench I
3. Do Trench II, SESC from bottom then bottom, sides, discons, top
4. Ed-footprint & photo
5. If time take single core thru fillet

10-31-70

Basic Date 9/15/70

Changed 11/16/70

Basic Date 9/15/70

Changed 11/16/70

LMP-2

STATION F - WEIRD - 17 min

1. Pan - superimposed craters?
2. Samples
3. Triple core
4. If time - 7 radial Sample

STATION G - TRIPLET - 7 min

1. Pan & Samples
2. If time-GAS,MAG,LPM,FOOTBALL

10-31-70

CDR-2

STATION F - WEIRD - 17 min

1. Pan - Superimposed craters
2. Samples
3. Triple core
4. If time - 7-radial Sample

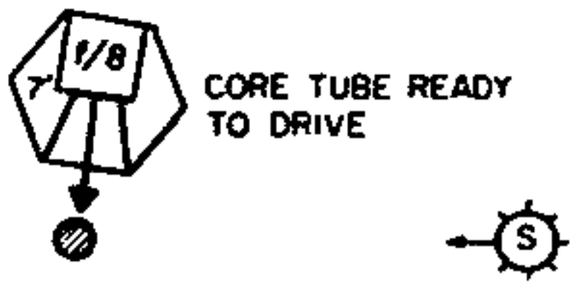
STATION G - TRIPLET - 7 min

1. Pan & Samples
2. If time-GAS,MAG,LPM,FOOTBALL

10-31-70

LMP-2

CORE SAMPLES



• POINTS SPECIFIED ON MAP

10-31-70

CDR-2

GENERAL TRAV INFO

Report:-time to each site
-movement & direction
-location wrt LM
-photos beside nominal
-sample bag numbers
-core tube numbers

SPECIAL PHOTOS

MET eval:
-Wheel track & footprint in LM area
-Wheel track & footprint if sinkage is 2-3 & ≥4 inches

-Motion on various surfaces & dust cloud eval
DAC(f8,1/250,24 fps)
-Closeup cam photo of wheel track & footprint

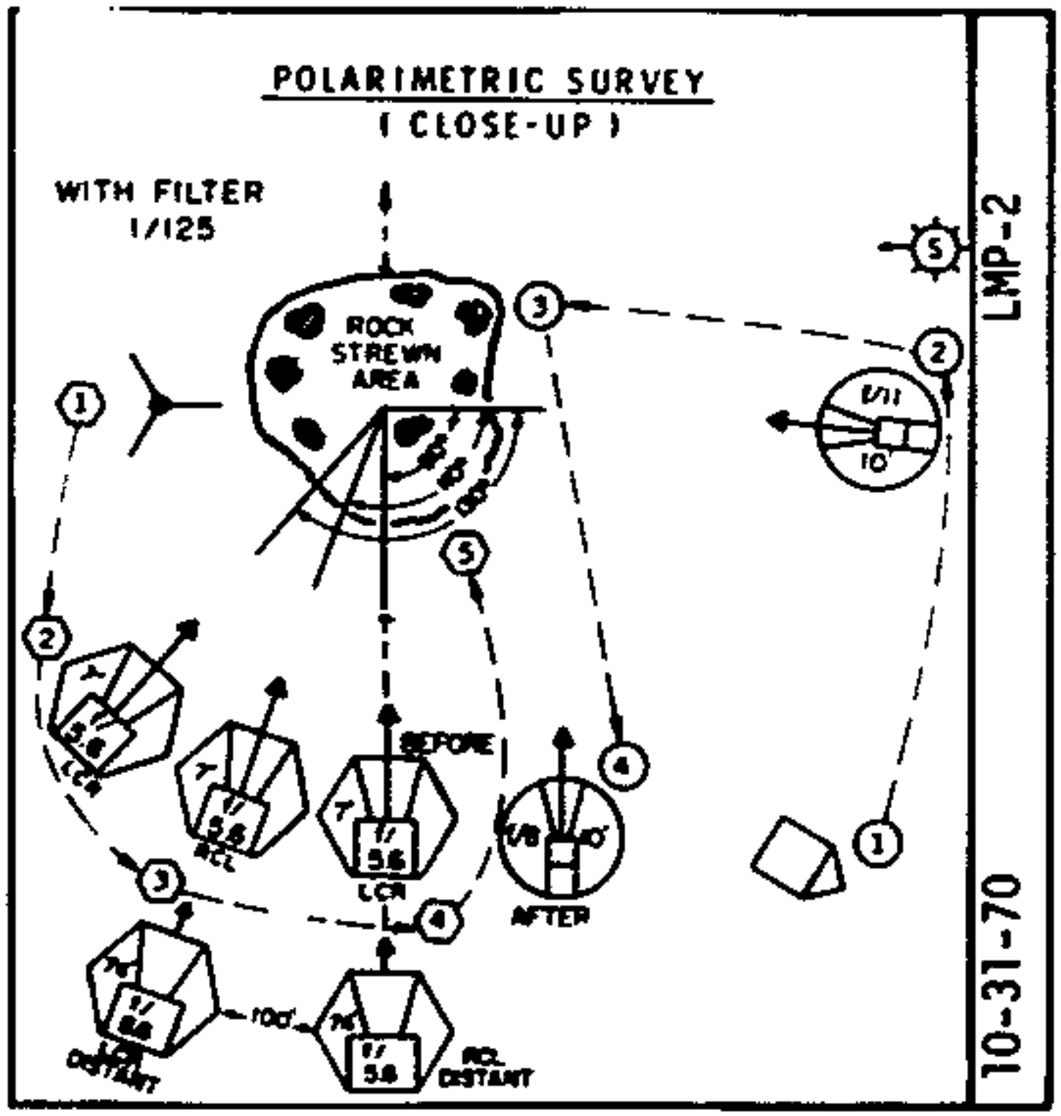
10-31-70

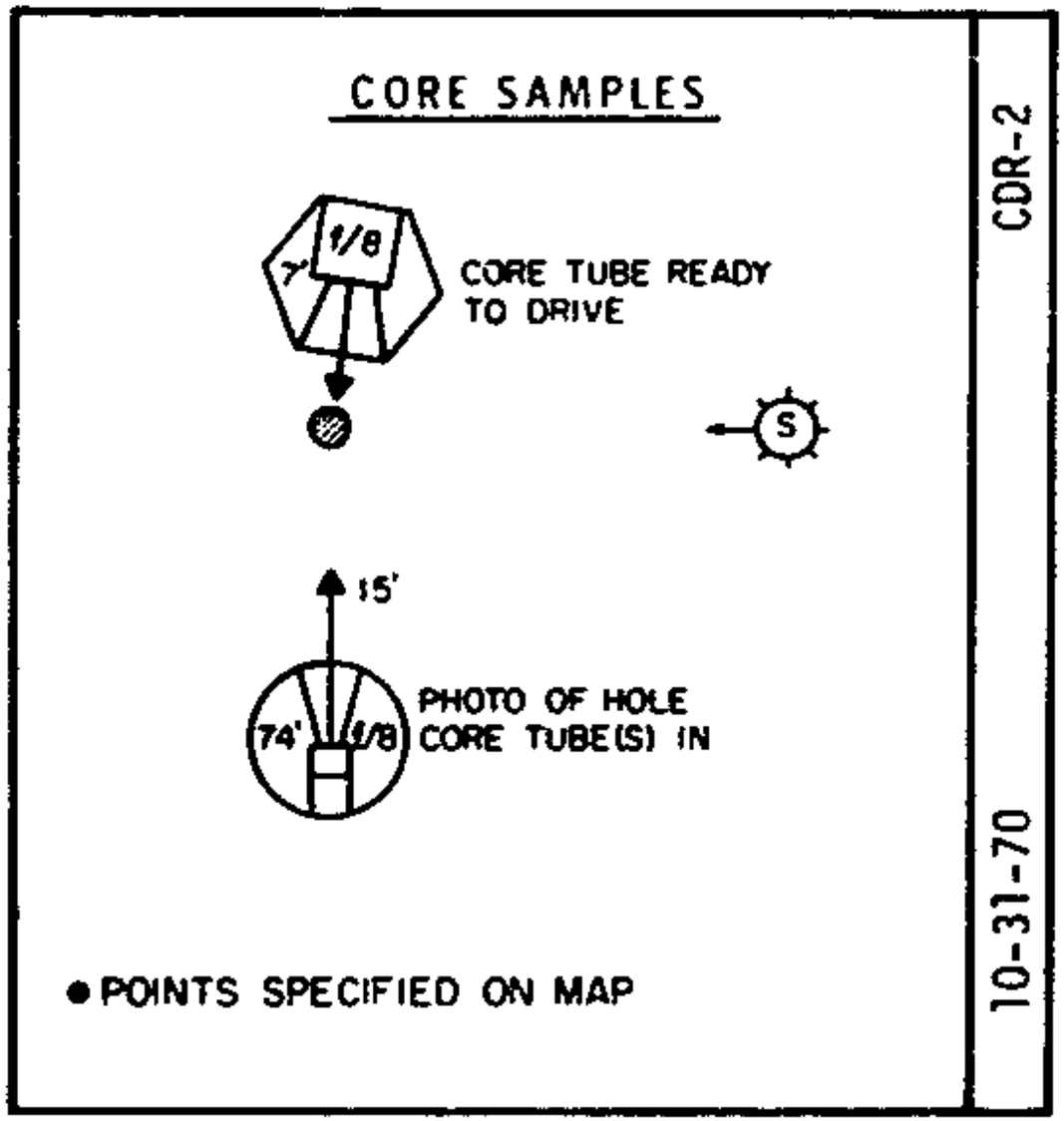
Basic Date 9/15/70

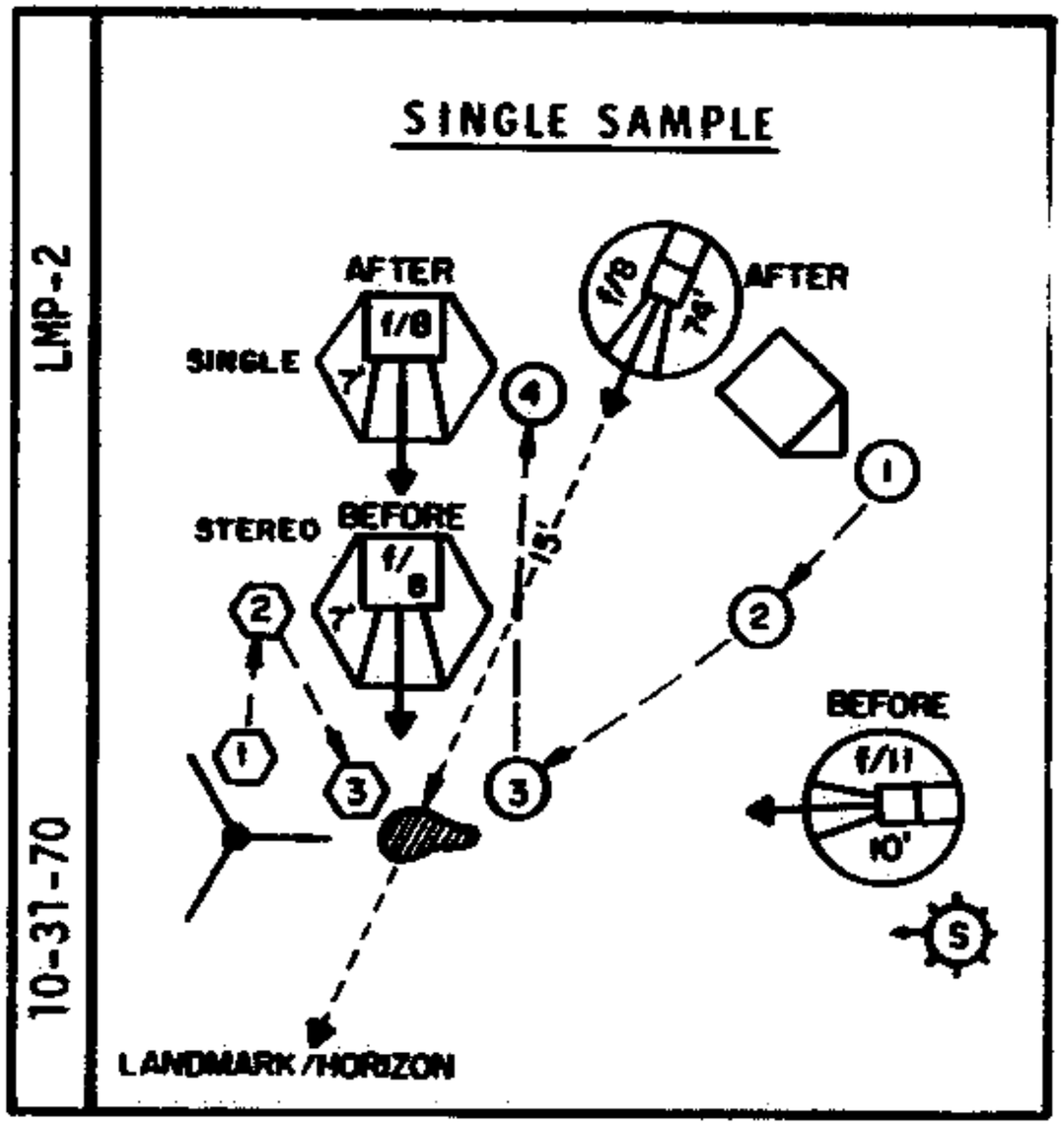
Changed 1/18/71 ~~11/16/70~~

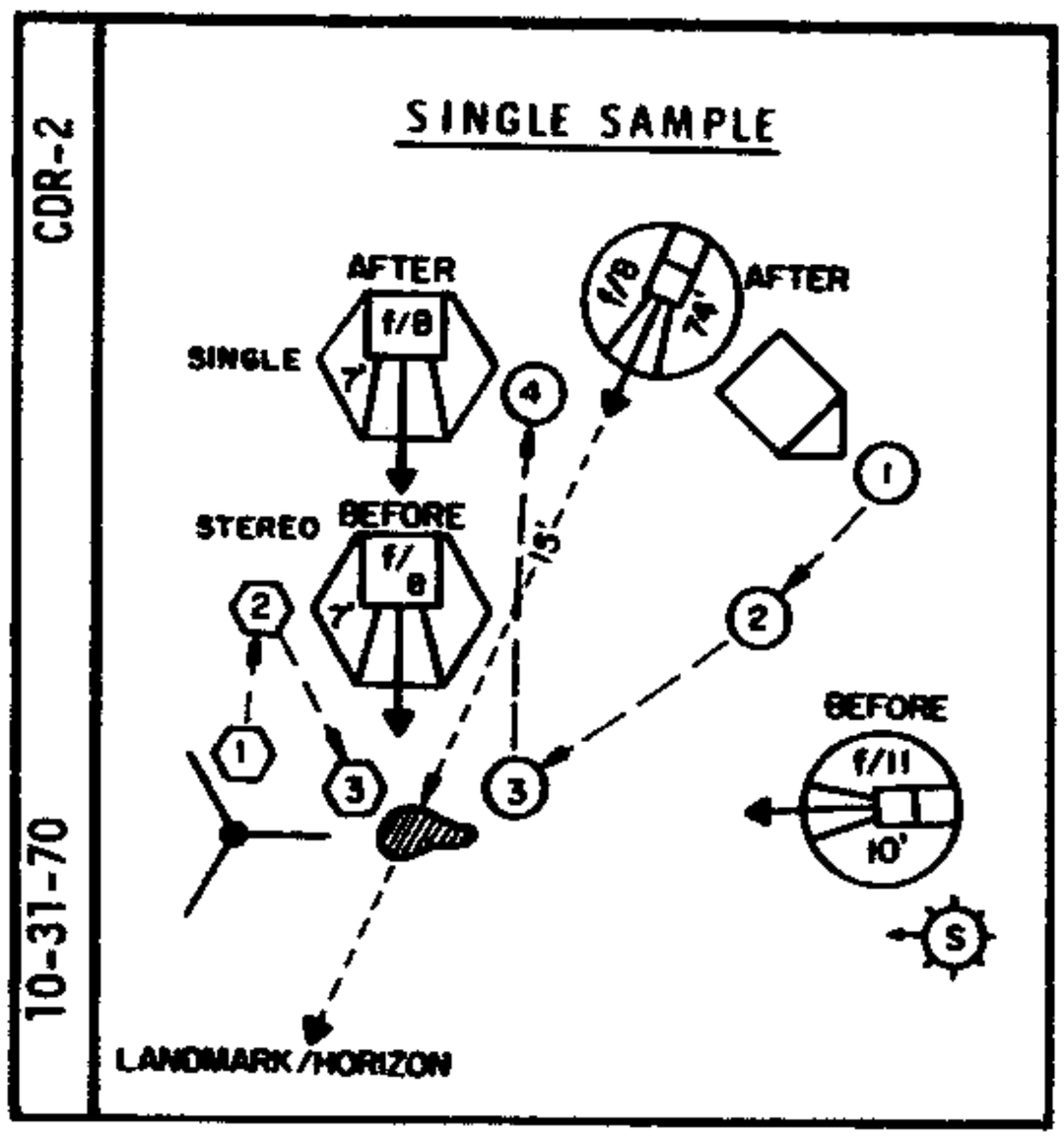
Basic Date 9/15/70

Changed 11/16/70









Basic Date 9/15/70

Changed 11/16/70

Basic Date 9/15/70

Changed 12/21/70

TRENCH - PART 1

LMP-2

1. Al-gnomon, stereo pr xsun 7'
   Ed-MET 16'NE(SE), before dnsun f11,10'

2. Al-Doff cam, get trench tool, trench ~ 2' deep 10° wrt sun (10 min max)
   Ed-16mm cam ON f8,12FPS;LPM

3. Al-after photo f5.6,125,7' xsun 3&9 o'clock & dnsun w/Ed reflecting light
   Ed-after photo upsun f5.6, 125,7' reflect light into trench

4. Al-16mm OFF if empty, get scoop & ext hndl
   Ed-get SESC, open

12-11-70

TRENCH - PART 1

CDR-2

1. Al-gnomon, stereo pr xsun 7'
   Ed-MET 15'NE(SE), before dnsun f11,10'

2. Al-Doff cam, get trench tool, trench ~ 2' deep 10° wrt sun (10 min max)
   Ed-16mm cam ON f8,12fps;LPM

3. Al-after photo f5.6,125,7' xsun 3&9 o'clock & dnsun w/Ed reflecting light
   Ed-after photo upsun f5.6, 125,7' reflect light into trench

4. Al-16mm OFF if empty, get scoop & ext hndl
   Ed-get SESC, open

12-11-70

LMP-2

TRENCH - PART 2

1. Al-sample trench bottom, fill SESC

   Ed-close, seal SESC, rpt, stow closeup photo trench

2. Al-soil sample bottom, side, discon, top

   Ed-photo after each sample xsun f5.6,125,x; bag sample

3. Al-single core thru fillet if avail

   Ed-footprint in soil pile, photo xsun f8,125,5'

12-11-70

CDR-2

TRENCH - PART 2

1. Al-sample trench bottom, fill SESC

   Ed-close, seal SESC, rpt, stow closeup photo trench

2. Al-soil sample bottom, side, discon, top

   Ed-photo after each sample xsun f5.6,125,x; bag sample

3. Al-single core thru fillet if avail

   Ed-footprint in soil pile, photo xsun f8,125,5'

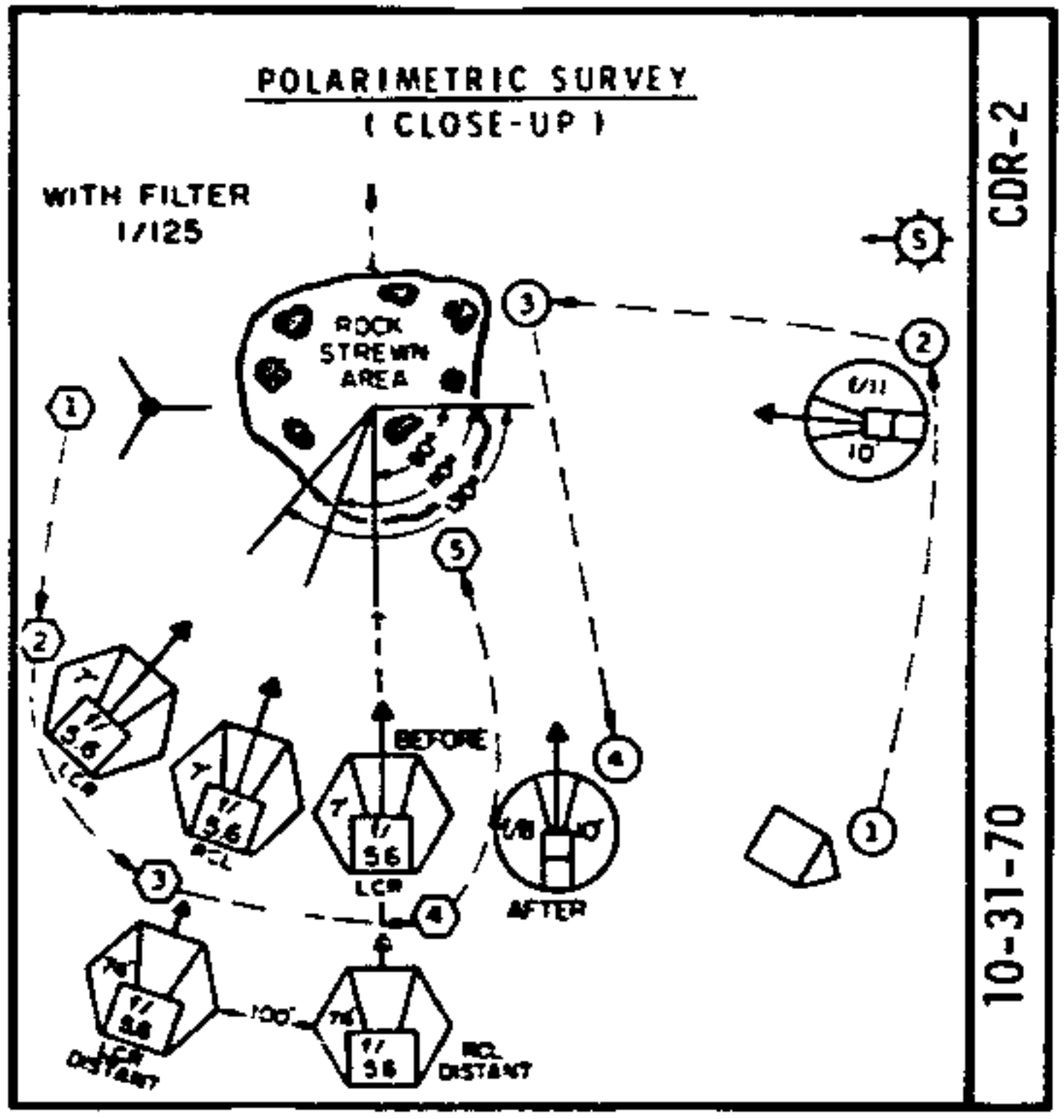
12-11-70

Basic Date 9/15/70

Changed 12/21/70

Basic Date 9/15/70

Changed 11/16/70



CONTAM SAMPLE, CLOSEOUT

LMP-2

3+34 MET Near MESA(tails in)
Get SESC(in SRC) & open
Photo sample area
under Quad III(In sun)
Close SESC-stow in ETB

Stow in ETB: [ETB & SRC load
-1 70mm cam
-1 70mm mag
-3 16mm mags
-close-up cam film(adv film 3X & remove cassette)
-SWC(Get SWC, bag & seal)
-extra sample stowage bags

ETB Stowage list:
-contam sample
-1 70mm cam
-2 70mm mags

10-31-70

CONTAM SAMPLE, CLOSEOUT

CDR-2

[MET to MESA
3+34 Small scoop, ext hndl, [SESC
gnomon, sample under
Quad III-into SESC [close
(photo before/after)
Discard scoop-keep ext hndl

Stow in ETB: [ETB load
-70mm mag
-TDS
-MSSC
-map
-weigh bags (as reqd)

Stow in SRC: (stowage list)
-2 SESC's
-4-6 core tubes (if used)
-documented samples (in weigh bag)
-extra samples (fill SRC)

10-31-70

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70

Changed 11/16/70

LMP-2

ETB & SRC STOWAGE CHECK

✔-3 16mm mags
✔-close-up cam film
✔-SWC
✔-TDS
~~-MSSC~~
✔-map
✔ 2-weigh bags(as reqd)
-extra sample stowage bags

SRC stowage list:
✔ -1 SESC
✔ ~~-4~~ core tubes (if used)
✔ -documented samples(in weigh bag) (1)
~~-extra samples (fill SRC)~~
✔ ORE SAMPLES

10-31-70

ORE SAMPLE

SRC CLOSE

Remove skirt-close & seal SRC

ETB stowage list:
~~-contam sample~~
✔ -1 70mm cam
✔ ~~4~~-2 70mm mags
✔ ~~4~~-3 16mm mags
✔ -close-up cam film
✔ -SWC
✔ -TDS
~~-MSSC~~
-map
✔ 2-weigh bags (as reqd)
~~-extra sample stowage bags~~
✔ TETHER

CDR-2

10-31-70

LMP-2

EVA TERM

Discard tongs
Clean & check EMU
Ascend mid-ladder
SRC to porch [SRC to Ed

4+00 ingress

Trans ETB up (Rh eng cov)

CB(16) LTG TRACK - Close
SW: EXTERIOR LTG - TRACK
[observe
SW: EXTERIOR LTG - OFF
CB(16) LTG TRACK - Open
Hand LEC to Al [discard
Receive SRC [hand in
ASSIST Al [ingress

4+13 Repress

10-31-70

CDR-2

3+58 Discard tongs
Clean & check EMU's [ascent
SRC to ED [on porch
[ingress
Trans ETB up [trans

Check LM Dock Light [turn on

4+06 Ascend to porch
Discard LEC [LEC to Al
SRC to ED
Ingress

4+13 Repress

10-31-70

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

CDR & LMP CUFF CHECKLIST

EMU MALFUNCTIONS

EMU 1: Vent Flag-P, Tone-On
Fan-Off/On
If Flag Still On After 10 Sec:
OPS 02-On, Purge Vlv-LOW
(Fan Fail)

EMU 2: Pres Flag-0, Tone-On
OPS 02-On, Pres Flag-Off
(Leak Or PLSS Reg Fail)
If Flag Still On: Ck Cuff Gage
>3.4, Ver TM, OPS 02-Off
(Pres Sensor Fail)

EMU 3: O2 Flag-O, Tone-On

Ck Cuff Gage & PLSS O2 Qty

If Cuff Gage >4.0: OPS O2-On, PLSS O2-Off (PLSS Reg Fail)

If Cuff Gage <3.7 Or PLSS O2 Decr: OPS O2-On (Leak)

If No Apparent Fail:(O2 Sen Fail)

EMU 4: H2O Flag-A, Tone-On

Ver Feedwater-Open, If Open & Add'l Cooling Reqd, Act. BSLSS (Subl Degrd) [If No BSLSS, OPS O2-On & Purge Vlv-Hi]

If Feedwater-Clsd: Diverter-MIN, Feedwater-Open, Wait 4 Min Or H2O Flag Off, Diverter As Desrd

EMU 5: Tone-On, No Flags

Ck Cuff Gage

If <3.4: OPS O2-On (Pres Flag Fail & Leak Or PLSS Reg Shift)

If >3.4 & After Tone Off: Cycle Mode Sel Sw, No Tone, No Fail. If Tone On Again: Fan-Off 5 Sec, Ver Vent Flag-P, Then Fan-On. If No Flag. OPS O2-On, Purge Vlv LOW (Vent Flag & Fan Fail)

If PLSS O2 Decr: OPS O2-On (O2 Flag Fail & Leak)

Ver Feedwater-Open, If Open & Add'l Cooling Reqd, Act. BSLSS (H2O Flag Fail&Subl Degrd) [If No BSLSS, OPS O2-On, Purge Vlv-Hi]

If Feedwater-Clsd: Diverter-MIN, Feedwater-Open, Wait 4 Min, Diverter As Desrd(H2O Flag Fail)

Basic Date 9/15/70

Changed 11/16/70

Basic Date 9/15/70

Changed 11/16/70

EMU 6: Cuff Gage <3.7, (All Other Indicators OK)
OPS 02-On, Cuff Gage Should Rise (PLSS Reg Shift)
If No Gage Incr, Ver TM, OPS 02-Off (Gage Fail)

EMU 7: PLSS 02 Qty Ind Abnormal
Ck Cuff Gage Or 02 Flag-0
If Cuff Gage >4.0, OPS 02-On, PLSS 02-Off (PLSS Reg Fail)
If Cuff Gage <3.7 Or 02 Flag-0, OPS 02-On (Leak)
If No Apparent Failure, Ver TM (Ind Or X-ducer Fail Or Leak)

EMU 8: Cuff Gage >4.0
If 02 Flag-0 Or PLSS 02 Decr, OPS 02-On, PLSS 02-Off (PLSS Reg Fail)
If Neither, Ver TM (Gage Fail)

EMU 9: Loss Of Pump Noise
If No Side Tone, OPS 02-On, Purge Vlv-LOW, Act. BSLSS (Power Fail) [If No BSLSS, OPS 02-On & Purge Vlv-Hi]
If Sidetone OK, Ver Pump-On. If Add'l Cooling Reqd, Act. BSLSS (Pump Fail) [If No BSLSS, OPS 02-On, Purge Vlv-Hi]

EMU 10: Cooling Inadequate
Ver Diverter-Max
Act. Gas Trap 5 Sec, After 3 Min, If Add'l Cool Reqd, Act. BSLSS (Flow Restr, Subl Degrd, Or Heat Leak) [If No BSLSS, OPS O2-On, Purge Vlv-Hi]

EMU 11: Loss Of Voice Comm
Ck Vol Controls (Wheel-A-Hou, Blade-B-EVA)
Cycle PTT Sw-MAIN & MOM
CDR Mode Sel To B, LMP To A (Hand Signals)
If No Comm, CDR To A, LMP To B

BSLSS Don And Activate

1 Unstow BSLSS
2 Conn Tether Between Crewmen BSLSS H2O Flow Divider At Good PLSS
3 Remove Dust Cover From BSLSS H2O Flow Divider
4 Discon Good PLSS H2O From PGA
5 Conn BSLSS H2O Flow Divider To PGA With Good PLSS
6 Failed PLSS Pump-Off
7 Discon Failed PLSS H2O From PGA & Secure
8 Discon BSLSS H2O From BSLSS H2O Flow Divider
9 Conn BSLSS H2O To PGA With Failed PLSS
10 Conn Good PLSS H2O To BSLSS H2O Flow Divider

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70

Changed _____

BSLSS Doff

1 Discon BSLSS From Failed PLSS PGA
2 Discon Tether From Both PGA's
3 Discon PLSS H20 From BSLSS
4 Discon BSLSS From PGA & Discard
5 Conn Good PLSS H20 To PGA
6 Ingress LM

Basic Date 9/15/70

Changed 11/16/70

POST EVA 2

PLSS FEEDWATER - CLOSE
Fwd Hatch - Close & Lock
Dump Valves (Both) - AUTO

NOTE: PLSS 02 & PRESS Flags May Come
On During Repress. If PLSS 02 <10%
Manually Control Cabin Repress To
Maintain Positive PGA Pressure.
(Leave Cabin Repress CB Open For
Manual Repress)

Lighting: ANUN/NUM - BRIGHT

CABIN REPRESS - AUTO
CB(16)ECS: CABIN REPRESS - Close
MASTER ALARM & CABIN Warning Lt - On
Verify Cabin Press Increasing
PRESS REG A & B - CABIN

PLSS 02 - OFF @ Cabin > 2.5 Psia

CABIN Warning Lt - Off
Verify Cabin Press Stable At 4.6-5 Psia
Use Purge Valve To Depress PGA As Reqd
DET - Set/Up :00

POST EVA SYSTEMS CONFIGURATION :00

Verify EVA CB Configuration
CB(16) ECS: SUIT FAN 2 - Close
SUIT FAN ΔP - Close
ECS Caution & H20 SEP Comp Lts - Out

Doff Gloves, Stow On Comm Panels
Verify Safety On Dump Valve
DES H20 VLV - OPEN

Remove Purge Valves, Stow In Purse
Discon OPS 02 Hose
Connect LM 02 Hoses, R/R & B/B
SUIT ISOL (Both) - SUIT FLOW

PLSS PUMP - OFF (Left)
PLSS FAN - OFF (Left)

Disconnect PLSS H20 From PGA
Connect LM H20 To PGA
CB(16) ECS: LCG PUMP - Close

PLSS Mode (Both) - 0
Connect To LM Comm(Audio CB, Biomed Sw)

AUDIO (CDR & LMP)
VHF A - OFF
VHF B - OFF
MODE - ICS/PTT
RELAY - OFF

COMM:
S-BD XMTR/RCVR - PRIM
VHF - OFF, OFF, OFF, OFF, LEFT, HI
RECORDER - OFF

PLSS/OPS DOFFING :10

Disconnect OPS Actuator From RCU's
Disconnect RCU's From PGA
Verify Pump, Fan, Mode Sel - Off
Disconn RCU's From PLSS, Stow On Mid-Step

Disconnect PLSS O2 Hoses
Doff PLSS/OPS (LMP 1st)
Stow OPS O2 Hose, Actuator & Antenna Blade - Leave Flaps Open For Checkout
Stow LMP PLSS On Floor
Stow CDR PLSS On Mid-Step

Unstow Disp Cont(LHSSC), Set On LH Fwd Floor
Install Gas Conn Plugs (Purse) In PGA

CDR 1st:
Disconnect OPS Antenna Connector
Remove OPS, Stow Antenna Connector

Perform OPS Checkout
Stow OPS On Engine Cover, Top ETB
Stow PLSS Hoses & Upper Straps
Remove Lower PLSS Straps, Clip Straps Together, D-Ring (Name-To-Name)

Remove Yo-Yo, Stow In Disp Cont
Stow Straps In RHSSC (FECAL EMESIS)
Stow PLSS On Floor

LMP Stow PLSS On Mid-Step, Repeat Above

Verify Powerdown CB Configuration
CB(11) HEATERS: RR OPR - Close
RR STBY - Open

Basic Date 9/15/70

Changed 11/16/70

PREP FOR EQUIPMENT JETTISON :26

Verify DES O2 QTY > 20%

Fwd Hatch Handle - UNLOCK

Doff Lunar Boots, Stow In Disp Cont
Stow RCU's In Disp Cont
Unstow PLSS Condensate Container,
  Stow In Disp Cont

Remove Armrest, Stow In Disp Cont
Tie Disp Cont
Position PLSS's For Jettison, Eng
  Cover & Mid-Step

Clean & Lub Wristrings As Reqd
PGA Diverter Vlvs - Horizontal
Don EV Gloves
Check PGA Connectors

PRESS INTEGRITY CHECK :38

NOTE: LM Suit Circuit Shall Not Be
  Maintained At Elevated Press >5 Min

SUIT GAS DIVERTER - PULL-EGRESS (Ver)
CABIN GAS RETURN - EGRESS (Verify)
SUIT CIRCUIT RELIEF - CLOSE

PRESS REG A - EGRESS
PRESS REG B - DIRECT O2
Monitor Cuff Gage To 3.7 - 4.0 Psig
  Then PRESS REG B - EGRESS (Cuff
  Gage Decay <.3 Psig In 1 Min)

SUIT CIRCUIT RELIEF - AUTO (Suit Ckt
  Press Decays To 4.8 Psia)

CABIN DEPRESS FOR JETTISON :41

CB(16)ECS: CABIN REPRESS - Open
Ovhd Or Fwd Dump Valve - OPEN Then AUTO
  At 3.5 Psia
   (Verify Cabin Press 3.5 Psia
    & LM Suit Circuit 3.6 To 4.3
    Psia & Decaying)

Ovhd Or Fwd Dump Vlv - OPEN (Verify LM
  Suit Circuit 3.6 To 4.3 Psia)

HATCH OPENING :44

Partially Open Fwd Hatch
Ovhd Or Fwd Dump Valve - AUTO

Fwd Hatch - Full Open

Jettison The Following:
  Disp Cont
  PLSS On Mid-Step
  PLSS On Eng Cover

Verify Items Clear Of Ascent Stage

Fwd Hatch - Close & Lock

CABIN REPRESS :48

Dump Valves(Both)- AUTO (Verify)
CABIN REPRESS - AUTO (Verify)

CB(16)ECS: CABIN REPRESS - Close
MASTER ALARM & CABIN Warning Lt - On
Verify Cabin Press Increasing
PRESS REG A & B - CABIN

CABIN Warning Lt - Off
Verify Cabin Press Stable At 4.6-5 Psia

CABIN GAS RETURN - AUTO
SUIT GAS DIVERTER - PUSH-CABIN

Doff Gloves, Stow On Comm Panels
Doff Helmets W/Visors, Stow On Eng Cov
VHF ANT SEL - AFT
Verify Safety On Dump Valve

Unstow Lunar Surface Checklist, 7-4
Stow EVA 2 Prep & Post Card

POST EVA CABIN CLEANUP :52

Secure OPS (2) On Floor
Stow Cuff Checklist In ISA Back Pkt
Stow EV Gloves & Visors In LEVA Bags
  (Visors Aft)
Stow LEVA Bags On Floor, 1 Rt, 1 Left

Stow Purge Valves (Purse) In
  RHSSC (FECAL EMESIS)

Basic Date 9/15/70

Changed 12/21/70

Basic Date 9/15/70

Changed 12/21/70

Empty ETB, Stow In ISA Back Pkt:
- 2-Weigh Bags (Scale Purse, Report To Hou)
- 2-Thermal Degredation Samples
- 1-Contaminated Sample (SESC)
- Magnetic Sample Container
- 70mm Camr Trigger, Handle, RCU Brkt
- Return Items

Stow The Following:
- 70mm Camr With Mag In RHSSC
- 1-70mm Mag In ISA Bot Pkt, 1 In RHSSC (Verify 5)
- 3-16mm Mags In RHSSC, Verify 8 (1 In ISA Top Pkt)
- Close Up Cassette In ISA Bot Pkt
- Solar Wind In ISA Bot Pkt
- Map In Data File
- ETB In ISA Back Pkt
- Sample Bag +Z27(Weigh, Report To Hou)
- Place Double Cue Card Between Bag & Blkhd If Reqd, Use Tape (Data File)

Weigh SRC, Report To Hou
Weigh ISA (74# Max) Report To Hou
Stow Scale In ISA

Stow SRC
Stow LM EVA Antenna
Install ISA In Aft Cabin, High
Stow Purse In ISA Bot Pkt

Secure LEVA Bags On Engine Cover
Secure Utility Lights On AOT
Stow All EVA Onboard Data In Flt Data File
REDESIGNATE R.R TO: +00 +30 (FOR COOLING)
DET-STOP 1:30

EVA 2 DEBRIEFING WITH HOU (10 MIN)

EAT PERIOD
140:10 TO 141:10

CREW STATUS REPORT

	CDR	LMP
MED		
PRD	16053	07050

LM CONSUMABLES UPDATE

GET (140:00) ____:____

RCS A	% (77)	____	B	(75)	____
O2 DES	% (~~30.2~~ 31.0)	____	ASC	(100)	____
H2O DES	% (~~30.5~~ 28.0)	____	ACS	(100)	____
A-H DES	(459)	____	ASC	(562)	____

Copy:
LM Consumables
Ascent Pads
CSI Pads
LM & CSM DAP Weight

UPDATA LINK-DATA (MSFN
Uplinks State Vector & Zeros
POS/NEG Cells), OFF

Basic Date 9/15/70 Changed ~~12/21/70~~ 1/8/71

Basic Date 9/15/70 Changed _____

LAUNCH PREP

DVBA

********** L0-1:15 (141:09) **********

Verify:
MASTER ARM - OFF
GUID CONT - PGNS
ENG ARM - OFF
ATTITUDE CONT (3) - MODE CONT
MODE CONT (Both) - ATT HOLD
V40N20E

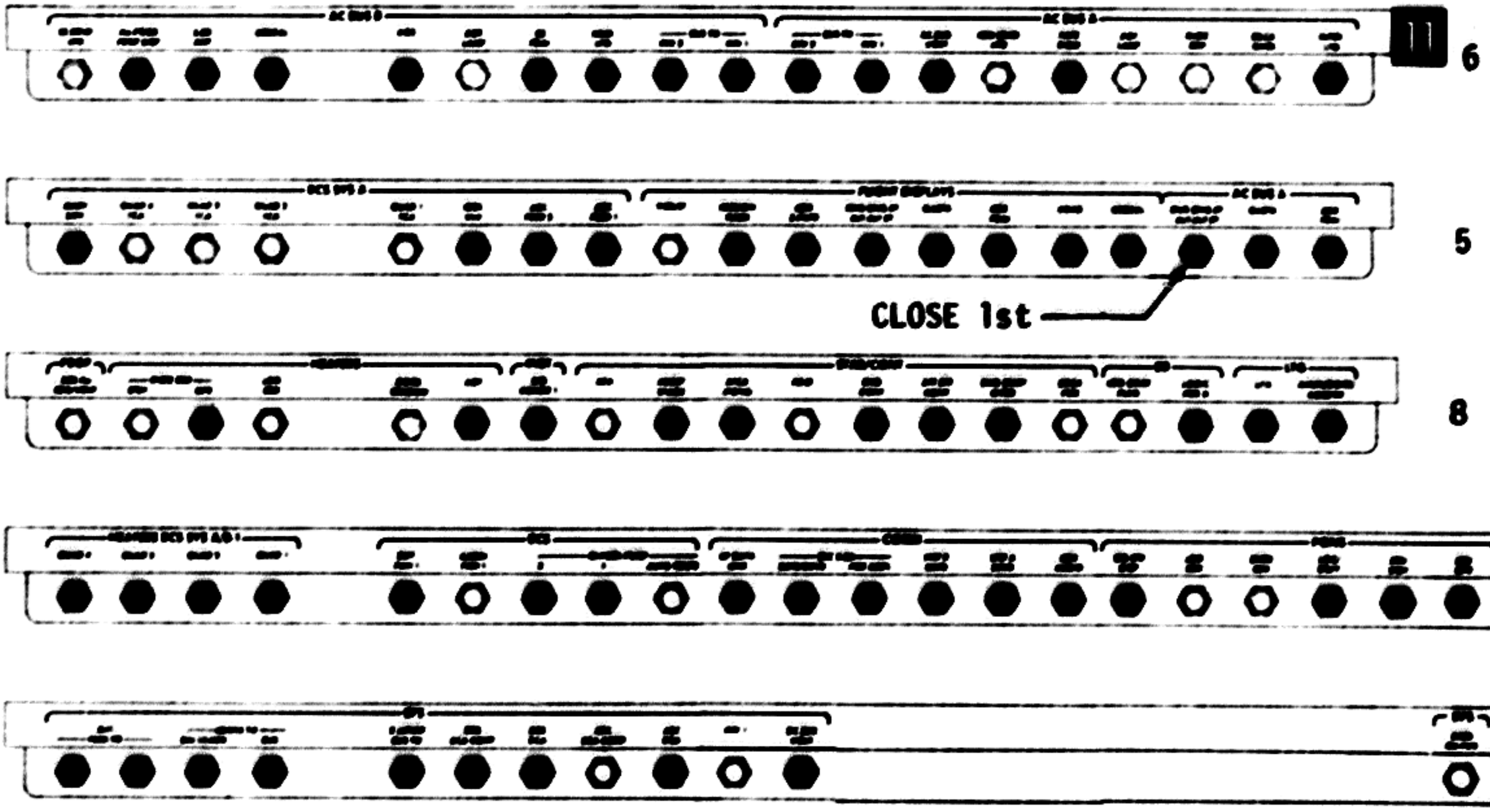
S-BAND-PM,PRIM,~~PRIM~~,VOICE,PCM,
OFF/RESET
VHF - OFF,OFF,OFF,OFF,LEFT,HI

MSFN ADVISE ANTENNAE OF STATUS ON L/O-35 UPLINK REQT.

Configure CB's Per PWR UP Chart

LAUNCH PREP

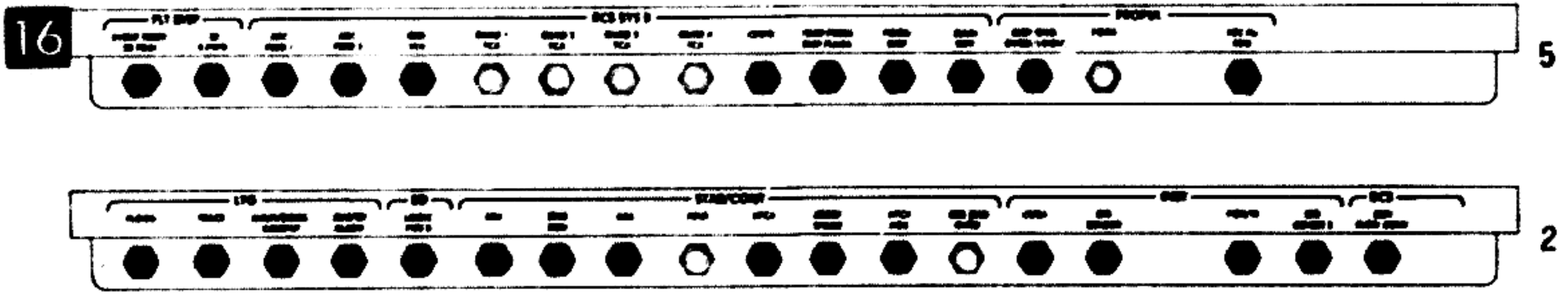
PWR UP



Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed _____

PWR UP



CB(11) RR (2) - Close
X-POINTER SCALE (Both) - HI MULT
RATE/ERR MON (Both) - RNDZ RDR
ATTITUDE MON (Both) - PGNS
MODE SEL - AGS
RNG/ALT MON - RNG/RNG RT
SHFT/TRUN - +50°
TEMP MONITOR - RNDZ (+10° To +75°)
RR MODE - AUTO TRACK
RADAR TEST - RNDZ (Rng Rt Tape
  Drives, X-POINTERS Oscillate &
  FDAI Needles Vary +5°, After 12 sec
  Rng Tape Drives NO TRACK Lt - Off)

TEST/MONITOR - AGC 1.0 To 1.8 (1.5)
- XMTR PWR 2.1 To 4.1 (2.6)
- SHAFT ERR 2.2 To 2.6
- TRUN ERR 2.2 To 2.5
- AGC

SET NORRMON Flag
V25 N07E
101E, 10E, 1E

RR MODE - LGC (NO TRACK Lt - On)

AGS STATUS-OPERATE
(AGS Warn Lt-On)

000+888888 (OPR ERR Lt-On)

123 -45679
412R +1 Satisfactory

574R +Not Staged
604R -On Surface
612R +0 Attitude Hold At
ABORT STAGE

400 + 3 AGS/PGNS Align
544R _____ X Gyro Coeff (.01°/hr)
545R _____ Y Gyro Coeff
546R _____ Z Gyro Coeff

400 + 6E Calibrate Gyros
(Calib. Complete in 5 min 2 sec)

Basic Date 9/15/70 Changed 12/21/70

Basic Date 9/15/70

Changed 11/16/70

V63E, R2 00001, PRO
(NO TRACK Lt - Out After 12 sec)
N72 Varying @ 1/2 cps,
PRO
N78 +195.40 To +195.80 Rng (TM Within ±1.2 of R1)
-00480 To -00520 Rng Rt (TM = R2-2)

V34E, P00E
RADAR TEST - OFF
(NO TRACK Lt - On, X-POINTERS Center)
V41 N72E (+00000, +28300)
V16 N72E
CB(11) RR (2) - Open
V44E

224 _____ Low Lim (+58803)
226 _____ Retgt Val For Term In αL (+58803)
231 _____ RLS (+56978)
232 _____ INS ALT (+00600)
410 +0 ORB INS
465 _____ INS HDOT (+00320)
547 +0 LUNAR ALIGN CORRECTION
662 +0 (4K10)
673 +0

514 R _____ (-60000)
515 R _____ (-44223)
516 R _____ (+00000)

307 _____ ΔT TRANS (+04300)
373 _____ TIG TPI (+01897)
411+1 ASC ENG
451+0 ΔVY

400R (+0 Calib Complete)

544R _____ X (.01°/hr)
545R _____ Y
546R _____ Z

If Gyro Coeff Changes More Than 2.0°/hr, AGS Failed

********** L0-:55 (141:29) **********

RATE GYRO CHECK
GYRO TEST - POS RT (RPY RATE +5°/SEC)
GYRO TEST - NEG RT (RPY RATE -5°/SEC)

RATE SCALE -5°/SEC
Repeat Tests

V16 N65E LGC TIME
377 _____ (Bias 140)
V47E, Set Bias, V34E

P_____, Y_____ (+120/-38) (+120/-40)
S-BAND ANT-SLEW (>3.0)
TRACK MODE-AUTO (>4.0)

********** L0-:50 (141:34) **********

V48E,12102,PRO,V34E
V77E
V15N01E,42E(Rate Cmd Hot Fire Check
ACA to Jets)

Copy Updated AGS K Factor
_____:_____:_____

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

CB(11 & 16) QUAD TCA (8)-Close
CDR ACA (Out-Of-Detent, Pause 2 sec At Null)
Roll Rt 00OXX
Lt 777XX
Pitch Up 00OXX
Dn 777XX
Yaw Rt 777XX ✓
Lt 00OXX ✓
CB(11&16) QUAD TCA (8)-Open

V76E(Min Imp Check of CDR ACA To LGC, ACA Cold Fire CES Voltage, SEC RCS Coil Hot Fire 4-JET In AGS)
V11 N10E, 31E, R1 67777 ——✓ 03 00031
GUID CONT-AGS
ATTITUDE CONT (3)-MODE CONT 67777
CDR ACA (Deflect Slowly To Hardover, Pause 2 sec At Null)
Roll Rt R1 27757 (QUAD Flag & RCS
Lt 27737 TCA Warn Lt-On)
Pitch Up 27776
Dn 27775
Yaw Rt 27767
Lt 27773
GUID CONT - PGNS
MODE CONT (AGS) - AUTO

Cycle CB(16) CWEA ✓

CB(11) AOT LAMP - Close
Window Shades - Up
P57E, R2 00004
N34 Load TIG, PRO 142 -25-4200
N06 00010
00003
00110
PRO
(NO ATT Lt - On/Off, Twice)
N04 +.05 Grav. Err. (.01°)
V32E
N04 +.01 Grav. Err. +.01
PRO
N22 ICDU Angles
PRO (NO ATT Lt - On/Off)

STAR ID 226 (226 Spica) ✓ ✓
Cursor 25788 (.01°) 2916
Spiral 11342
N79 Load Then V32E

~~N79: 2909~~
~~865~~

MARK 54
~~241~~

25788
11342

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

Cursor 25784
Spiral +11335
N79 Load Then V32E
Cursor 25785
Spiral +11334
N79 Load Then PRO
N05 00002 Star Angle Diff (.01°)
PRO
N93 +00119 X Torquing Angles (.001°)
+00135 Y
-00349 Z
PRO (GYRO TORQUING)
N25 00014, ENTR (TERM)
P00E
AOT - CL/0.0°
CB(11) AOT LAMP - Open
Window Shades - Down

CB(11) RR(2) - Close
V41N72E (+17200,+28200)
V16N72E

CB(11) RR (2) - Open
V44E

V40N20E
400+3 AGS/PGNS Align
413+1
047R 37743 Transmit To MSFN
053R 01706 Transmit To MSFN

BAT 5,6 - ON
BAT 1,3 - OFF/RESET, tb-bp
CB(11&16) ASC ECA CONT(2)-Close

Set Camr For Ascent
LM3/DAC/10/CEX (T2.8,1/500,30) Mag(BB),ISA Top Pkt, 12fps,6min

********** LO-:35 (141:49) **********

V48E
N46 12102 PRO
N47 _____ (+10842) LM Wt
_____ (+34666) CSM Wt
PRO
GUID CONT - PGNS

P12E
N33 ___:___:___ TIG (142:24:29.20)
PRO

N76 _____ VH Final (+55408)
_____ HDot Final (+00320)
_____ Xrng (+00000)
PRO
N25 R1 00203 (MODE CONT:PGNS-ATT HOLD)
ENTR
N74 TFI, YAW, PITCH
V77E
DET - Set/DOWN

~~UPDATA LINK - DATA~~
~~(Possible NSFN Update Of~~
~~CSM S.V., RLS and LGC Gyro~~
~~Compensation)~~
~~UPDATA LINK - OFF~~

Basic Date 9/15/70 Changed 12/21/70

Basic Date 9/15/70 Changed _____

********** LO-:30 (141:54) **********

400 + 4E Lunar Align ✓

CB(11) QUAD 4,3,2,1 TCA (4) - Close
DES He REG/VENT - Close
AELD - Close
INV 1 - Close
CB(16) QUAD 1,2,3,4 TCA (4) - Close
AELD - Close
MASTER ARM - OFF
STAGE - SAFE/Guarded

X POINTER SCALE (2) - LO MULT
RATE/ERR MON (2) - LDG RDR/CMPTR
ATTITUDE MON (CDR) - PGNS
GUID CONT - PGNS
MODE SEL - AGS
RNG/ALT MON - ALT/ALT RT
RATE SCALE - 25°/SEC
ACA PROP (2) - ENABLE
ENG ARM - OFF
ATT/TRANSL - 4 JETS
BAL CPL - ON
ABORT - Reset
ABORT STAGE - Reset

ENGINE STOP (2) - Reset
PRPLNT TEMP/PRESS MON - ASC
HELIUM MON - ASC PRESS 1
SYS A&B QUAD 1,2,3,4, (8) tb-gray
SYS A&B ASC FUEL & OXID tb(4)-bp
SYS A&B MAIN SOV tb(2)-gray
CRSFD tb-bp
TEMP/PRESS MON - OXID MANF
GLYCOL - PUMP 1
SUIT FAN - 1
O2/H2O QTY MON - ASC 1
ATTITUDE MON (LMP) - AGS
RADAR TEST - OFF
SLEW RATE - LO
RR MODE - SLEW
DEAD BAND - MIN
ATTITUDE CONTROL (3) - MODE CONT
MODE CONTROL (Both) - AUTO
TEMP MONITOR - RNDZ RDR
RCS SYS A/B-2 QUAD 1,2,3,4 - AUTO
ACA/4 JET (Both) - ENABLE
TTCA/TRANSL (Both) - ENABLE
TTCA (Both) - JETS (On)

Don Helmets, Gloves (Bot Boot Comp),
& Restraints

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed 11/16/70

DES H2O - CLOSE
ASC H2O - OPEN
WATER TANK SEL - ASC
CABIN REPRESS - CLOSE
DES O2 - CLOSE
ASC O2 No. 1 - OPEN

PRESS REG A&B - EGRESS
SUIT GAS DIVERTER - PULL/EGRESS
CABIN GAS RETURN - AUTO
SUIT CIRCUIT RELIEF - AUTO

DES FUEL & OXID VENTS (2) - OPEN
(tb(2)-gray)
DES He REG 1&2 - OPEN
(tb-gray)
CB(11) DES HE REG/VENT - OPEN
ASC He REG 1&2 - tb(2) -gray
MASTER ARM - ON
ASC He SEL - TANK 1
ASC He PRESS - FIRE
HELIUM MON - ASC PRESS 2
ASC He SEL - TANK 2
ASC He PRESS - FIRE
MASTER ARM - OFF

only 19 DISPLAYED. NEED ALSO

EMER LO (APS LEAK)
BAT 2,4-OFF/RESET
V47E, 414+1E
400+1E
GUID CONT - AGS

MASTER ARM - ON
ENG ARM - ASC
ABORT STAGE - Push

ENGINE START - Push
Go To ASCENT MONITOR T+1:00
(No YAW Mnvr)

SYS A ASC FEED 2 - OPEN tb(2)-gray (Unless
Monitor SYS A Manf Press Bus
SYS A MAIN SOV - CLOSE tb-bp Loss)

SYS B ASC FEED 2 - OPEN tb(2)-gray (Unless
Monitor SYS B Manf Press Bus
SYS B MAIN SOV - CLOSE tb-bp Loss)

********** LO-:17 (142:07) **********

V47E, 414 + 1 (Verify AGS Bias)

UPDATA LINK - VOICE/BU
VHF A: XMTR - VOICE/RNG (HOT MIKE TO CSM)
RCVR - OFF
VHF B: XMTR - OFF
RCVR - ON
AUDIO (Both) VHF A - T/R
VHF B - RCV
RECORDER - ON
MODE - ICS/PTT
VHF ANT - AFT

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70 Changed _____

GO For LO & Guidance
Recommendation From MSFN ✓

********** LO-:15 (142:09) **********

BAT 2,4 - OFF RESET, tb-bp
DES BATS - DEADFACE, tb-bp
If tb-bp,
CB(11 & 16) DES ECA - Open
CB(11 & 16) DES ECA CONT - Open

Verify CB's Per LAUNCH Configuration Chart
(Next 2 pages)

LAUNCH

6

1

7

4

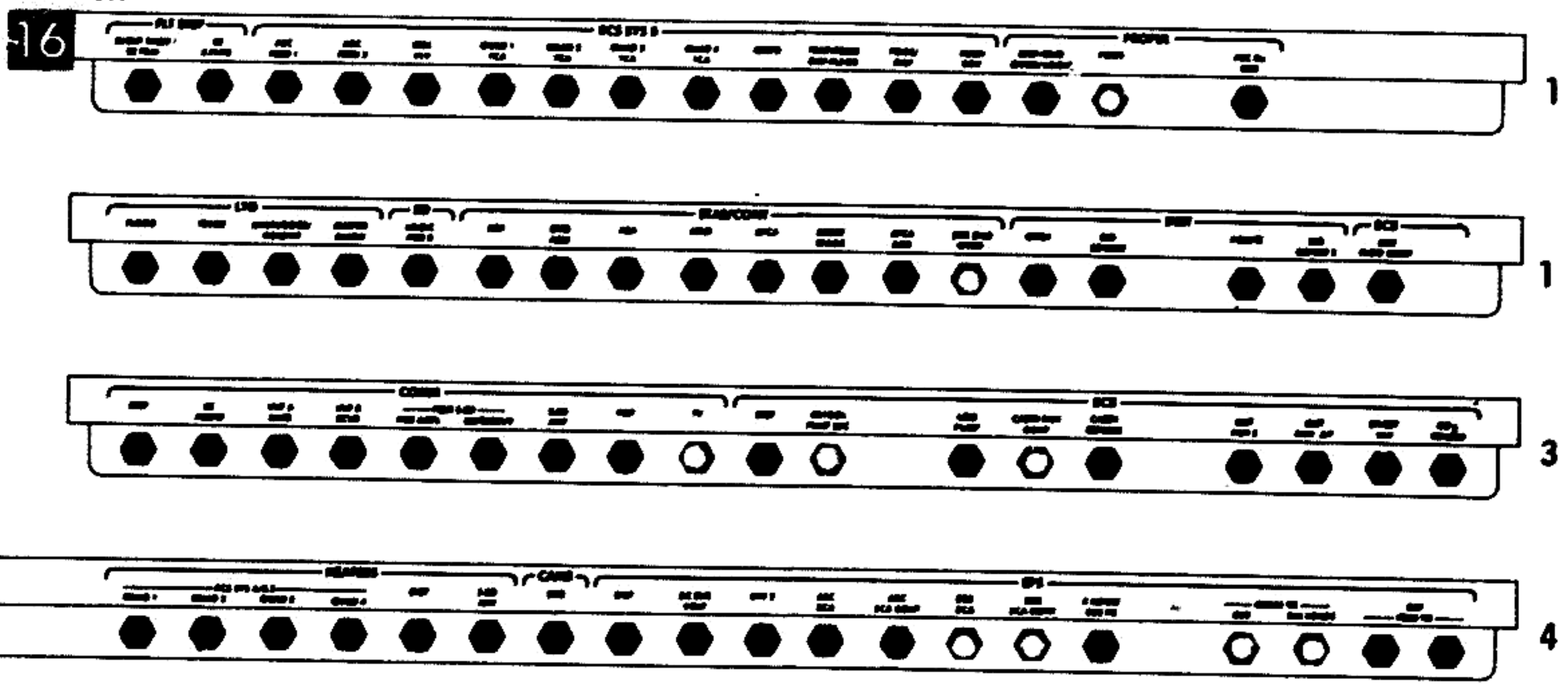
3

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70

Changed _____

LAUNCH



********** LO-:5 (142:19) **********

CB(11) RR (AC) - Close

Check APS BURN CARD
Check APS, RCS, EPS, ECS

GO TO LM TIMELINE BOOK

→ VHF AOS w/CSM.
latest opportunity to shift from Direct to CO-ELLIPTIC RNDX sequence.

Basic Date 9/15/70 Changed _____

Basic Date 9/15/70 Changed _____

ONE MAN EVA PREP

CABIN PREP-Perform EVA 1 Or 2 As Reqd

EQPT PREP-Perform EVA 1 Or 2 As Reqd

PLSS DONNING-Perform EVA 1 or 2 As Reqd

Position Post EVA 1 or 2 Cue Card
For Post EVA

NON EVA CREWMAN-Connected To LM O2,
Comm, & H2O
Gas Connector Plugs In PGA
PGA Diverter Vlvs - Horizontal

EVA CREWMAN: PGA Diverter Vlvs -
Vertical
For EVA 1 (MIN TIME) - CSRC
In PGA Pocket

PLSS COMM CHECK

Verify Powerdown CB Configuration
Verify LM EVA Antenna Deployed
COMM: MODULATE-FM
CB(16) COMM: TV-Close
Verify Voice Comm With Hou

Audio (Non EVA Crewman)
S-BAND - T/R
ICS - T/R
RELAY - OFF
MODE - VOX (VOX SENS MAX)
VHF A - RCV
VHF B - T/R

Audio (EVA Crewman)
S-BAND - T/R
ICS - T/R
RELAY - ON
MODE - VOX (VOX SENS MAX)
VHF A - RCV
VHF B - T/R

COMM:
VHF-OFF, ON, VOICE, ON, NON EVA
CREWMAN POSITION, HI
SQUELCH A & B - Noise Thres + 1-1/2
RECORDER - ON
VHF Antenna - EVA

EVA Crewman Connect to PLSS Comm
(Audio CB Open/Close)

RCU PTT - MAIN (Rt)

PLSS Mode-B, Blade-CCW (Tone-On,Vent
Flag-P, Press Flag-O, O2 Mom)

PLSS O2 Press Gage >85%
Perform Comm Check With CDR

NOTE: Unstow PLSS Antenna If It Transmits Garbled And/Or Loses TM.

Audio (CDR & LMP)
VHF A - T/R
VHF B - RCV

COMM:
VHF A XMTR - VOICE
VHF B XMTR - OFF

PLSS Mode - A, Wheel-CCW (Tone-On)
Perform Comm Check With Each Other &
Comm & TM Check With Hou

Read PLSS O2 Qty To Hou

NOTE: IF Comm Is NO GO With Hou
S-BD MOD - PM
Verify Comm & TM

CB(16) COMM: TV - Open (EVA 1)

FINAL SYSTEMS PREP

CB(16) ECS: CABIN REPRESS - Close (Ver)
SUIT FLOW CONT- Open

SUIT GAS DIVERTER - PULL-EGRESS
CABIN GAS RETURN - EGRESS
SUIT CIRCUIT RELIEF - AUTO (Verify)

OPS CONNECT

Unstow OPS O2 Actuator
Connect Actuator To RCU
SUIT ISOL - SUIT DISC
Discon LM O2 Hoses, Secure About PGA

Connect OPS O2 Hose To PGA B/B
Retrieve Purge Valve (Purse) -
Verify Closed, Locked & LO
Install Purge Valve In PGA R/R

Basic Date 9/15/70 Changed 11/16/70

Basic Date 9/15/70

Changed 12/21/70

FOR EVA 2:
  Verify Items Prepared For Jettison -
    ECS LiOH Cartridge & Brkt
    Hammocks
    PLSS Batteries & LiOH Carts
    Food Waste, Urine Bags
    Feedwater Bags & Scale

Drink
DES H2O VLV - CLOSE

HELMET/GLOVE DONNING

Position Mikes (Both)
PLSS FAN - ON, Rt (Vent Flag - Clear)
Don Helmets, Check Drink Bag Position
Don LEVA

EVA Crewman:
  LCG - COLD, As Reqd
  Disconnect LM H2O Hose
  Connect PLSS H2O Hose
  Stow LM Hoses

Verify EVA Crewman in CDR's Station

Verify The Following:
  Helmet & Visor (2) - Aligned & Adjusted
  Torso Tiedown (2) - Adjusted
  O2 Connectors (7) - Locked
  Purge Valve (1) - Locked
  H2O Connectors (2) - Locked
  Comm Connectors (2) - Locked

Verify No Fog RH Window
If BSLSS Not Reqd, Stow In Jett Bag
Tie Jett Bag & Transfer To Eng Cover

Don EV Gloves & Verify:
  Wrist Locks (4) - Locked
  Glove Straps (4) - Adjusted

NOTE: If PGA Biting, PLSS O2 - ON/OFF

PLSS DIVERTER - MIN (Verify)
PLSS PUMP - ON

PRESSURE INTEGRITY CHECK

(Non EVA Crewman)

NOTE: LM Suit Circuit Shall Not Be Maintained At Elevated Press >5 min

SUIT GAS DIVERTER - PULL-EGRESS(Verify)
CABIN GAS RETURN - EGRESS (Verify)
SUIT CIRCUIT RELIEF - CLOSE

PRESS REG A - EGRESS
PRESS REG B - DIRECT O2
Monitor Cuff Gage To 3.7 - 4.0 Psig
Then PRESS REG B - EGRESS (Cuff Gage Decay <.3 Psig In 1 min)

SUIT CIRCUIT RELIEF - AUTO (Suit Ckt Press Decays To 4.8 Psia)

PLSS/OPS/PGA (EVA Crewman)

PLSS O2 - ON (Tone-On, O2 Flag-O)
Press Flag Clear (3.1-3.4 Psid)
Cuff Gage 3.7-4.0 Psig
O2 Flag Clear

PLSS O2 - OFF (Cuff Gage Decay <.3 Psig In 1 Min)
PLSS O2 - ON (Cuff Gage 3.7-4.0 Psig, Tone & O2 Flag May Come On)

CABIN DEPRESS

Confirm Go For Depress From Hou
CB(16)ECS: CABIN REPRESS - Open
CABIN REPRESS VLV - Close

Ovhd Or Fwd Dump Valve - OPEN Then AUTO At 3.5 Psia (Verify EVA Crewman Cuff Gage Does Not Drop Below 4.8 Psig)
Verify:
Cabin At 3.5 Psia
LM Suit Circuit 3.6 to 4.3 Psia & Decaying
PLSS/OPS/PGA > 4.8 Psig & Decaying

Start Wrist Watch :00

Ovhd Or Fwd Dump Valve - OPEN
Verify:
Tone-On & H2O Flag - A (1.3-1.6 Psia)
LM Suit Circuit 3.6 To 4.3 Psia & Decaying
PLSS/OPS/PGA > 4.8 Psig & Decaying

Basic Date 9/15/70

Changed 12/21/70

Basic Date 9/15/70 Changed 12/21/70

Partially Open Fwd hatch

FINAL PREP FOR EGRESS :03

PLSS FEEDWATER - OPEN (H2O Flag -
Clear In About 4 Min)

Fwd Hatch - Open

Rest Until Cooling Sufficient
Verify:
PLSS/OPS/PGA 3.7 To 4.8 Psig
CWEA Status:
Caution
PREAMPS

CB(16) COMM: TV - Close

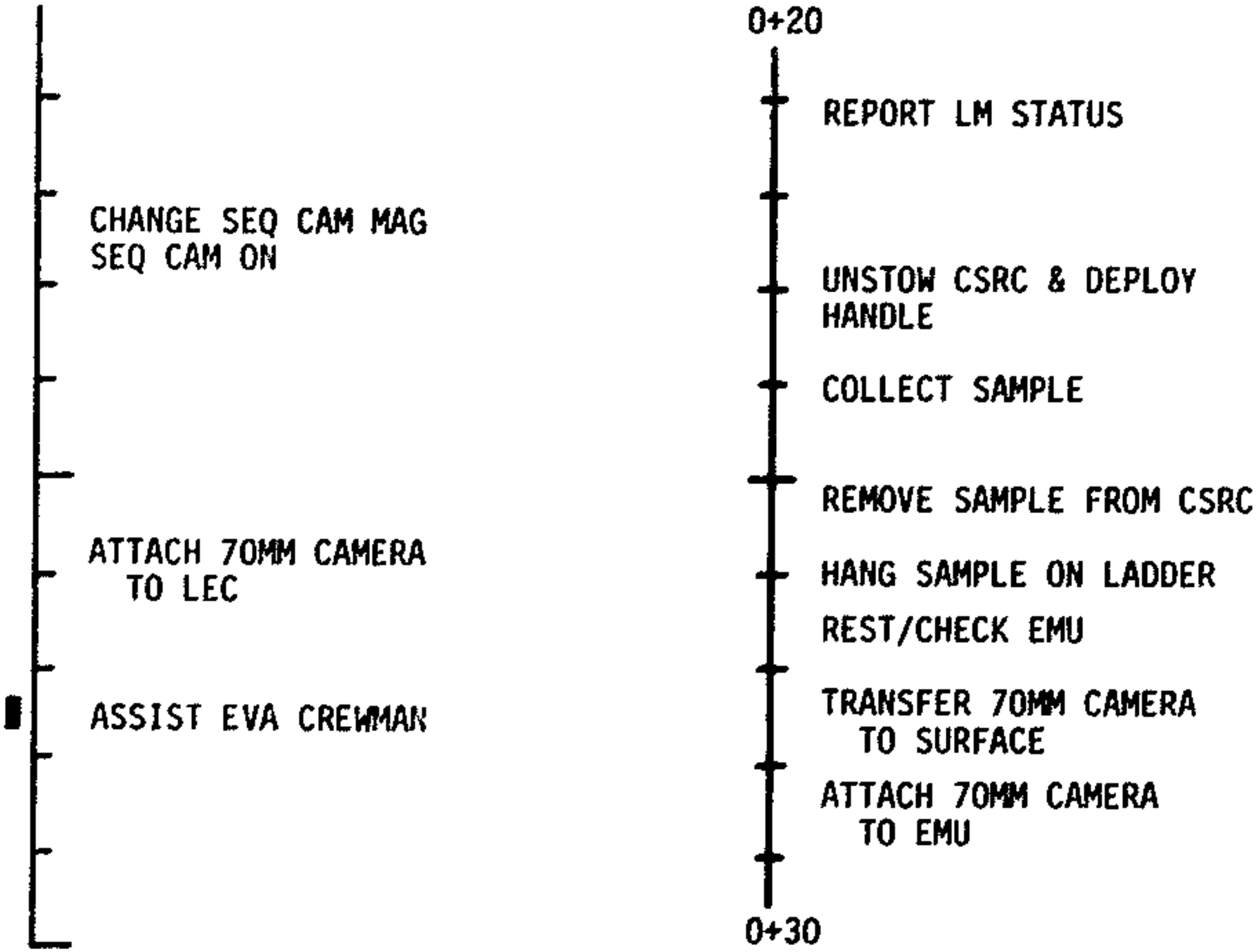
Release PLSS Antenna
Lower EV Visor :10

Basic Date 9/15/70 Changed 12/21/70

IVA ACTIVITIES	EVA TIME	EVA ACTIVITIES
	0+10	
		MOVE THROUGH HATCH
PREPARE LEC		
		CHECK INGRESS PROCEDURES
PASS LEC OUT		
		DEPLOY LEC
PHOTOGRAPH EVA CREWMAN		
		DESCEND TO LADDER
		DEPLOY MESA
SEQ CAM ON		
		DESCEND TO FOOTPAD
NOTE:		
		CHECK ASCENT PROCEDURES
MONITOR & PHOTOGRAPH CDR USING 70MM		
READ PROCEDURES		
TO EVA CREWMAN		STEP TO SURFACE
		CHECK & DISCUSS MOBILITY & STABILITY
	0+20	

ONE-MAN EVA 1
(MIN TIME)

ONE-MAN EVA 1
(MIN TIME)



Basic Date 9/15/70

Changed 12/21/70

Basic Date 9/15/70

Changed _____

CHANGE SEQ CAM MAG

SEQ CAM ON

0+30

CHECK SURFACE LOCOMOTION CAPABILITY

DESCRIBE LANDING SITE

OBTAIN +Z PANORAMA

0+40

ASSIST EVA CREWMAN
CHANGE SEQ CAM MAG

SEQ CAM ON

REMOVE 70MM CAMERA AND
CONTINGENCY SAMPLE FROM LEC

0+40

ATTACH 70MM CAMERA AND
CONTINGENCY SAMPLE TO LEC

TRANSFER 70MM CAMERA AND
CONTINGENCY SAMPLE INTO LM

CLEAN EMU

PULL LEC FROM LM & DISCARD

ASCEND LADDER

INGRESS

JETTISON MALFUNCTION EQUIPMENT
WHICH IS NO-GO FOR EVA

JETTISON BAG AND B&W TV
IF REQ'D

0+50

Basic Date 9/15/70

Changed 12/21/70

Basic Date 9/15/70

Changed 12/21/70

IVA ACTIVITIES		EVA ACTIVITIES
	0+10	MOVE THRU HATCH
PASS LEC OUT		DEPLOY LEC
PASS JETT BAG OUT		JETT BAG
CHECK CB(16) COMM: TV-CLOSE		DESCEND LADDER TO DEPLOY MESA
		DEPLOY MESA
		DESCEND TO FOOTPAD
		STEP TO SURFACE
		CHECK & DISCUSS STABILITY & MOBILITY
	11-1	

ONE MAN EVA 1
(FULL TIME)

ONE MAN EVA 1
(FULL TIME)

IVA ACTIVITIES	EVA ACTIVITIES
	0+20
	CHECK LM AND TERRAIN
	MET OFFLOAD
	RAISE MESA
	REMOVE THERMAL BLANKET DOOR
	RELEASE MET FROM MESA
	STOW MET ON +Y FOOTPAD
	ETB TRANSFERS
	ADJUST MESA IF NECESSARY
	UNFOLD MESA THERMAL BLANKET
	ERECT SRC TABLE
	11-2

Basic Date 9/15/70

Changed _____

Basic Date 9/15/70

Changed _____

IVA ACTIVITIES		EVA ACTIVITIES
	0+30	ATTACH ETB TO SRC TABLE. STOW WEIGH BAGS ON MESA. DISCARD TETHER
		UNSTOW & PACK LiOH CANS IN ETB
		ATTACH LEC TO ETB
		TRANS ETB INTO LM
REMOVE ETB CONTENTS		<u>CS COLLECTION</u>
		REMOVE CSRC FROM POCKET & DEPLOY HANDLE
STOW IN ETB -70MM CAMERA -16MM CAMERA		COLLECT SAMPLE
		DETACH SAMPLE BAG
		STOW SAMPLE ON LADDER
		TRANSFER ETB TO SURFACE

0+40 ATTACH ETB TO MESA

SWC DEPLOYMENT

UNSTOW SWC

EXTEND STAFF

UNROLL FOIL SHADE

PLACE SWC IN SUN (10/60')

TV DEPLOY

UNSTOW AND ERECT TV TRIPOD

SET TV LENS TO f-22

COVER LENS WITH CAP

UNSTOW AND MOUNT TV ON TRIPOD

CARRY TV TO 2:30/50'

0+50 TAKE TV PAN

LM & SITE INSPECTION/PHOTO

OBTAIN 70MM CAMERA

MOVE CCW AROUND LM INSPECTING & REPORTING ON LM CONDITION, & TERRAIN FEATURES IN AREA

PHOTO - LM FOOTPADS/SURFACE (STEREO) PANS AT 8/30', 4/30', 12/30'

Basic Date 9/15/70

Changed _____

Basic Date 9/15/70

Changed _____

1+00

ALSEP OFFLOAD

OPEN SEQ BAY DOORS

OFFLOAD ALSEP PKG #1

DISCONNECT LANYARDS & BOOM CABLE
MOVE PKG #1 CLEAR

OFFLOAD PKG #2

DISCONNECT LANYARDS & BOOM CABLE

1+10

STOW BOOMS

REMOVE UHT'S. STOW ON PKGS

REMOVE & ASSEMBLE CARRY BAR
ATTACH TO PKG #1

REMOVE & EXPAND HTC

PLACE NEAR -Y STRUT

REMOVE DRT & FTT AND
TIP PKG #2 & POSITION FOR
FUELING

TILT FUEL CASK

REMOVE DOME

1+20 READ TEMP LABEL & REPORT

ENGAGE & CHECK FTT
WITHDRAW FUEL ELEMENT

FUEL RTG - REPORT

DISENGAGE FTT, READ TEMP
LABEL & REPORT

ROTATE PKG #2 & POSITION
NEAR PKG #1 - CONNECT TO
CARRY BAR

CLOSE SEQ BAY DOORS

GET T/G FLAG & CARRY ALSEP TO MESA

RETURN TO MESA & RETRIEVE TONGS & TETHER.
GEOPHONE ANCHOR ON EXT HANDLE,
STOW ON ALSEP.

1+30 STOW ANCHOR ON TETHER

ATTACH 70MM CAMERA TO
RCU BRACKET
POINT TV TO ALSEP SITE (FULL ZOOM)
ALSEP TRAVERSE

CARRY ALSEP TO DEPLOY SITE

Basic Date 9/15/70

Changed 1/20/71

Basic Date 9/15/70

1+40 ALSEP SITE SURVEY

SURVEY SITE TO DETERMINE IF SUITABLE FOR ALSEP DEPLOY

CLEAR OR PACK AREAS AS REQUIRED FOR PKG'S 1 & 2

ALSEP SYSTEM INTERCONNECT

POSITION ALSEP FOR DEPLOYMENT

DISENGAGE BAR FROM PKG #2

REPOSITION PKG #1 AND BAR 10 FEET WEST OF PKG 2

TILT PKG #2
REMOVE SUBPALLET & PLACE APPROX 10 FEET NE OF C/S

Changed 1/20/71

RTG CABLE TO CS

1+50 RELEASE RTC CABLE BOYD BOLTS
CAUT: READ TEMP LABEL - DO NOT TOUCH WITH GLOVE IF ALL DOTS ARE BLACK-REPORT

DEPLOY CABLE, DISCARD REEL

REPORT AMPS & CONNECT CABLE
DEPRESS SHORTING SWITCH, CHECK SHORTING SW AMPS ZERO
REMOVE CARRY BAR/ANT MAST FROM PKG #1 & STOW ON SUBPALLET
REMOVE SIDE FROM SUBPALLET(4 BOLTS), DEPLOY LEGS
REMOVE SIDE CONNECTOR FROM CABLE CRADLE ON SUBPALLET
CONNECT SIDE CONNECTOR TO C/S

TILT & ALIGN PKG #1

PULL SIDE CONNECT RELEASE PIN
REMOVE PSE STOOL & EMPLACE

2+00 **PSE OFFLOAD**

RELEASE PSE BOYD BOLTS

USE UHT TO REMOVE PSE FROM C/S

CARRY PSE TO LEVELING STOOL

REMOVE PSE GIRDLE PIN

EMPLACE PSE ON STOOL (ARROW WEST)

REMOVE & DISCARD PSE GIRDLE

T/G OFFLOAD-REMOVE & ASSEMBLE-
INTERIM STOW ON SURFACE

MORTAR PACKAGE DEPLOYMENT

REMOVE MORTAR PACKAGE FROM C/S

CARRY M/P TO DEPLOY SITE 10' NW OF C/S

REMOVE CARRY SOCKET PIP PIN

2+10

DEPLOY TWO M/P LEGS

PARTIALLY DEPLOY M/P ANTENNA

ORIENT M/P TOWARD NW

COMPLETE M/P ANTENNA DEPLOYMENT

CPLEE DEPLOYMENT

RELEASE THREE BOYD BOLTS

REMOVE CPLEE FROM C/S

REMOVE & DISCARD CARRY SOCKET PULL PIN

PLACE CPLEE ON SURFACE 10' [illegible] OF C/S

Basic Date 9/15/70

Changed 1/20/71

Basic Date 9/15/70

Changed _____

2+20

ALIGN & LEVEL CPLEE

SUNSHIELD DEPLOYMENT

CHECK C/S FREE OF CABLES AND OTHER EQUIPMENT

START FRONT CENTER & RELEASE SUNSHIELD BOYD BOLTS CW

UNSTOW ANTENNA CABLE

RELEASE BACK BOYD BOLTS

RELEASE REMAINING PERIMETER BOYD BOLTS

2+30

RESTRAIN SUNSHIELD & RELEASE THREE CENTER BOYD BOLTS

CONTROL SUNSHIELD DEPLOYMENT

USE MANUAL ASSIST IF REQ'D TO RAISE SUNSHIELD

REMOVE & DISCARD CURTAIN COVERS & CONNECT CURTAIN CORNERS

RECHECK C/S LEVEL & ALIGN

ALSEP ANTENNA INSTALLATION

RELEASE ANTENNA GIMBAL BOYD BOLTS & LIFT GIMBAL FROM SUB-PALLET

RETRIEVE ANTENNA MAST FROM SUB-PALLET

INSTALL MAST ON C/S

2+40

REMOVE GIMBAL HOUSING COVER

INSTALL GIMBAL (AIMING MECHANISM) ON MAST

REMOVE & DISCARD GIMBAL HOUSING

INSTALL ANTENNA ON GIMBAL

CHECK C/S LEVEL & ALIGNMENT
LEVEL ANTENNA
ALIGN ANTENNA
ENTER ELEVATION
ENTER AZIMUTH
RECHECK ALIGNMENT & LEVEL

TURN SW #1 - CW, SW #5 CCW

2+50

PSE DEPLOYMENT

USE UHT TO DEPLOY THERMAL SHROUD

LEVEL PSE

REPORT LEVEL & ALIGNMENT

CONFIRM ALSEP DATA BY MCC-H

SIDE CCIG DEPLOYMENT

LIFT SIDE FROM SUBPALLET

DEPLOY LEGS

CARRY SIDE TO DEPLOYMENT SITE

Basic Date 9/15/70

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3+00

APPROXIMATELY 55' SE OF C/S

PLACE SIDE ON SURFACE
RELEASE CCIG BOYD BOLT

REMOVE & EMPLACE SIDE
GROUND SCREEN

LIFT SIDE & REMOVE CCIG
PLACE SIDE ON GROUND SCREEN

IMPLACE & ORIENT CCIG

PULL DUST COVER RELEASE PIN

ALIGN & LEVEL SIDE

REPORT LEVEL & ALIGNMENT

3+10

ALSEP PHOTOS

PHOTO PSE

PHOTO MORTAR PACKAGE

PHOTO CPLEE

PHOTO SIDE/CCIG

PHOTO RTG & LM

PHOTO C/S

GEOPHONE DEPLOYMENT

SELECT DEPLOY LINE SE
OF C/S

3+20

PLACE T/G CABLE ANCHOR IN LOOP

RETRIEVE THUMPER/GEOPHONE

WALK TO SE OF C/S ALONG DEPLOYMENT LINE

DEPLOY GEOPHONE CABLE 10' SE EMPLACE FIRST GEOPHONE

DEPLOY GEOPHONE TO 160' SE OF C/S

EMPLACE SECOND GEOPHONE & MARKER FLAG

3+30

DEPLOY GEOPHONE CABLE TO 310' SE OF C/S

EMPLACE THIRD GEOPHONE

CHECK GEOPHONE CABLE LINE

CONFIRM "READY" FOR THUMPER ACTIVITY WITH MCC-H

THUMPER ACTIVITY

ACTIVATE THUMPER NEAR THIRD GEOPHONE AND AT 75' INTERVALS ALONG CABLE (4 THUMPS)

REMAIN STILL 20 SECONDS BEFORE 5 SECONDS AFTER

11-12

Basic Date 9/15/70

Changed _____

Basic Date 9/15/70

Changed 1/20/71

3+40 MORTAR PACK ACTIVATION

- TURN OFF (CW) SW #5
- UNLOCK SAFETY RODS
  USE UHT TO HOLD MORTAR PACK,
  PULL SAFETY RODS
- CHECK M/P ALIGNMENT
- TURN ON TWO M/P SAFE/ARM SWS
- RECHECK M/P ORIENTATION
- TURN ON SW #5 (CCW) - REPORT
- RETRIEVE EXT HANDLE
- START TRAVERSE BACK
  TO LM
- POSITION TV TOWARD MESA

3+50 DEPLOY MET

- UNFOLD MET WHEELS AND
  HANDLES
- PLACE MET NEAR MESA
- UNSTOW SRC #1 FROM MESA
- PLACE SRC #1 ON +Y FOOTPAD IN
  SHADOW(LID DN-SUN)
- COVER WITH MET BLANKET
- STOW ON MET - WEIGH BAGS
  HTC,TONGS,GNOMON,16MM CAMERA
  STEREO CAM,HAMMER
- STOW IN ETB - 70MM CAMERA
  16MM MAGS
  CSRC

4+00

COLLECT SAMPLES TO FILL WEIGH BAG

PLACE WEIGH BAG IN ETB

PLACE SRC #2 & EXT HANDLE & SCOOP ON MET

PARK MET IN SUN AT 45 DEGREE ANGLE TO SUNLINE

COVER SRC & CAMERAS WITH S-BAND ANTENNA THERMAL COVER

TRANS ETB INTO LM

CLEAN EMU

MOVE TO FOOTPAD

4+10 ASCEND TO PLATFORM

STOW LEC ON PLATFORM

INGRESS

JETTISION MALFUNCTION EQUIPMENT WHICH IS NO-GO FOR EVA
ALSO B&W TV IF REQD.

REPRESSURIZE CABIN

Basic Date 9/15/70

Changed 12/21/70

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IVA ACTIVITIES		EVA ACTIVITIES
0+10		EGRESS
ASSIST CDR EGRESS		MOVE THRU HATCH
PASS EQUIPMENT TO CDR		JETTISON MALFUNCTION EQUIPMENT IS NO-GO FOR EVA. JETT BAG
HOOKUP LEC		HAND LEC TO LMP
LOAD ETB		DEPLOY LEC
70MM CAM & MAG		DESCEND TO LUNAR SURFACE
MAP		
BSLSS		
COMM CHECK		COMM CHECK
		RECONFIGURE TV FOR EVA II
ATTACH ETB TO LEC		
ASSIST ETB TRANSFER		TRANSFER ETB DOWN
PHOTO CDR AS ABLE		STOW ETB ON MESA
READ THIS PROCEDURE TO EVA CREWMAN AS REQUIRED		PUT 70MM CAM ON RCU
		JETTISION BSLSS
0+20	12-1	

ONE MAN EVA 2
(FULL TIME)

ONE MAN EVA 2
(FULL TIME)

EVA :

0+20 MOVE MET NEAR MESA

PLACE & SECURE SRC ON MESA

OPEN SRC 2

STOW SRC EQUIP ON MET
-SESC & GASC
-2 WEIGH BAGS (WITH HOOKS)
-35 BAG DISPENSER
-3 CORE TUBES & CAP ASSY
-MAGNETIC SAMP. CONT.

SEAL ORGANIC SAMPLE
PUT SWC BAG ON MESA

70MM CAM & 1 MAG.
MAP IN HTC POUCH
GNOMON, EXT HANDLE, HAMMER ON HTC
TRENCHING TOOL ON MET

STOW MESA BRUSH IN HTC

0+30

0+30 STOW TDS IN POUCH

RETRIEVE SRC #1 FROM +Y FOOTPAD
PLACE ON MET TABLE
OPEN SRC 1
STOW ON MET:
-2 WEIGH BAGS
-3 CORE TUBES & CAP ASSY
PLACE SRC 1 OUT OF WAY
ON GND

PULL MET TO SEQ BAY

OFFLOAD LPM PALLET

UNSTOW TRIPOD & DEPLOY

PLACE SENSOR ON TRIPOD
STOW CABLE REEL ON MET

0+40

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0+40

STOW TRIPOD/SENSOR ON MET

STOW ELECTRONICS ON MET

UNCAGE METERS & TURN ON ELECTRONICS

DISCARD PALLET

MOVE TO LR^3

REMOVE LR^3 THERMAL SHIELD

OFFLOAD LR^3 FROM LM

0+50

0+50

CARRY LR^3, PICK UP MET

TRAVERSE TO LPM POINT LOCATION

1+00 PLACE LR^3 ON SURFACE

1+00

LPM POINT MEASUREMENT

UNSTOW CABLE REEL

UNSTOW SENSOR/TRIPOD

MOVE SENSOR TO SITE 35' AWAY

ERECT TRIPOD, CHECK SENSOR ORIENTATION (#1, FACING DN SUN)

ALIGN & LEVEL SENSOR/TRIPOD

MOVE TO MET (ELECTRONICS)

PHOTO TRIPOD/SENSOR (LOCALIZATION SHOT)

REPORT X,Y,Z READINGS (3 TIMES)

RETURN TO SENSOR

REORIENT SENSOR TO #2

1+10

1+10

RECHECK ALIGNED & LEVELED

RETURN TO MET

REPORT X,Y,Z READINGS (3 TIMES)

RETURN TO SENSOR

REORIENT SENSOR TO #3

RECHECK ALIGNED & LEVELED

RETURN TO MET

REPORT X,Y,Z READINGS (3 TIMES)

STOW SENSOR/TRIPOD ON MET

REWIND CABLE, STOW ON MET

LR^3 DEPLOY

MOVE LR^3 TO SUITABLE SPOT

1+20

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1+20 DEPLOY LR^3

LEVEL & ALIGN LR^3

REMOVE DUST COVER

PHOTO LR^3 - 3' TO 5'
SHOWING BUBBLE/GNOM

LOCALIZATION SHOT
[f8] SUN 15 FT,
FOCUS 74'(LANDMARK)

COMMENCE LUNAR FIELD
GEOLOGY TRAVERSE

1+30

1+30 TAKE CORE SAMPLE (DOUBLE)
NEAR LR^3 - PLACE GNOMON
ASSEMBLE TUBES
REPORT NO's & ORDER

READY HAMMER

DRIVE TUBES INTO SURFACE

COMMENT ON DIFFICULTY
SOIL CHARACTERISTICS

STEP BACK, TAKE
XSUN,
f8,15 FT]

REMOVE TUBES, DISASSEMBLE,
CAP & STOW TUBES

RESTOW EQUIP & GNOMON

PULL MET

1+40

TRAVERSE CONTINUES

NOTE: STATIONS AND DISTANCES FOR 1-MAN EVA 2 WILL BE DETERMINED BETWEEN EVA'S AND MAY DIFFER FROM NOMINAL. LPM ADD'L MEASUREMENTS WILL BE REDESIGNATED.

SAMPLING/SURVEY PROCEDURAL DIFFERENCES:

SINGLE DOCUMENTED SAMPLE:

NO DOWN SUN SHOT

AFTER SAMPLE: TAKE XSUN

SINGLE AT 15', FOCUS 15'

CORE SAMPLE:

STEREO PR , XSUN AT 15 FT WITH TUBES DRIVEN IN SURFACE

DEEP TRENCH:

STEREO PRS ALL 4 SIDES

SINGLE AFTER ALL SAMPLES TAKEN

Basic Date 9/15/70 Changed _____

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Changed _____

3+25

RETURN TO LM
CONTAMINATED SAMPLE

PARK MET NEAR QUAD III

CONNECT SMALL SCOOP
& EXT HANDLE

OPEN CONTAM. SESC & PLACE
ON TABLE

PLACE GNOMON AT SAMPLE
SITE UNDER QUAD III
STEREO PR XSUN

COLLECT SAMPLE FINES
AND PLACE IN SESC

3+35

3+35

CLOSE SESC & TEMP STOW

PULL MET TO MESA

TDS

TAKE OUT TDS #1
PLACE ON MET TABLE

TAKE CSC PHOTO, ONE SIDE

SPRINKLE FINE MAT'L ON
TDS, SHAKE OFF

TAKE CSC PHOTO, BOTH SIDES
(TDS ON TABLE, ALL PHOTOS)

BRUSH OFF TDS

TAKE CSC PHOTO BOTH SIDES

FOLD TDS, PLACE IN
BAG. TAKE OUT OTHER TDS

SPRINKLE FINE MAT'L
SHAKE OFF, PLACE ON TABLE

TAKE CSC PHOTO, BOTH SIDES

FOLD TDS, PLACE IN BAG

STOW BAG IN ETB

EVA CLOSEOUT

STOW 70MM CAM & MAG IN ETB

3+45

3+45

RETRIEVE SWC FOIL

STOW SWC IN BAG, PLACE BAG IN ETB

STOW ALL INDIVIDUALLY BAGGED DOCUMENTED SAMPLES IN 1 WEIGH BAG. STOW IN SRC

STOW OTHER SAMPLES (IF ANY) COLLECTED DURING TRAVERSE IN SRC

3+55

3+55

(USE 2ND WEIGH BAG)

STOW CORE TUBES IN SRC

PACK & SEAL SRC

NOTE: LMP PHOTO THIS

SCOOP UP 10 LBS. FINES IN WEIGH BAG & STOW

ETB OR SRC 1 (IF SRC 1 USED)

GRAB ROCKS, ETC. AROUND LM & PACK SRC 1

SEAL SRC 1

4+05

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Changed _____

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Changed 12/21/70

IVA ACTIVITIES	EVA ACTIVITIES
4+05	
PULL ETB INTO A/S	TRANSFER ETB
STOW ON ASC. ENG. COVER	
PULL SRC 2 INTO A/S STOW ON ASC. ENG. COVER	TRANSFER SRC 2
PULL SRC 1 INTO A/S	TRANSFER SRC 1 (IF USED)
HAND LEC TO EVA CREWMAN	MOVE TO FOOTPAD & ASCEND TO PLATFORM
ASSIST CDR	DISCARD LEC
	INGRESS
	JETTISION B&W TV IF REQD
CLOSE HATCH	REPRESSURIZE CABIN
4+15	

Basic Date 9/15/70 Changed _____

POST ONE-MAN EVA

Perform POST EVA 1 or 2 As Applicable

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EMER LAUNCH STOW

Emergency Launch Stowage
Before EVA 1

PLSS, OPS, RCU (Both)	Doff
CDR PLSS	Recharge Sta (Remove Lower Adj Strap)
OPS (Both)	Floor (Temporary)
EV Gloves	LEVA Bag, Loose
LEVA	LEVA Bag, Visor Aft
RCU's	ISA Back Pkt
Urine Bags, Used (Jett Bag) .	ISA Top Pkt
Jett Bag	ISA Back Pkt
70mm Camr & Brkt(1)	ISA Back Pkt
BSLSS	ISA Back Pkt
LM1 EVA Antenna-Stow	
ISA (Weigh, 74 Lb Max) . . .	Hung Aft
Purse And Contents	ISA Bot Pkt
LMP PLSS	Donning Sta-Use 2 Adj Straps On Bot: Break 2 Stitches, Remove Keeper, Extend To Max Length. Hang PLSS Upside Down, Conformal Pad Aft. Attach 2 Waist Tethers (LEC Kit, LHSSC) To Handhold On Back Of PLSS Using Small Hooks. Route One Tether To Vertical Handhold On ECS Module And One Tether To Bracket Supporting PLSS In Recharge Sta. Pull Straps Tight.
OPS (Both).	Floor (Secure)
LEVA Bags	Floor, 1 Left, 1 Rt
Fwd Hatch - Verify Locked	
Verify Snaps On RH & LH Side Stowage	

EMER LAUNCH STOW

Emergency Launch Stowage
Before EVA 2

PLSS, OPS, RCU (Both)	Doff
CDR PLSS	Recharge Sta (Remove Lower Adj Strap)
OPS (Both)	Floor (Temporary)
EV Gloves	LEVA Bags, Loose
LEVA	LEVA Bag, Visor Aft
SRC	SRC Compt
LM EVA Antenna - Stow	
Lunar Boots	Donned Or Boot Compt
RCU's	-Z27 Blkhd Or Boot Compt, 1 Top, 1 Bot
Urine Bags, Used (Disp Cont).	ISA Top Pkt
Disposal Container	ISA Back Pkt
Purse & Contents	ISA Bot Pkt (Remove Scale-Purse)
ISA (Weigh, 74 Lb Max) . . .	Hung Aft
Scale	ISA Bot Pkt
LMP PLSS	Donning Sta - Use 2 Adj Straps On Bot: Break 2 Stitches, Remove Keeper, Extend To Max Length. Hang PLSS Upside Down, Conformal Pad Aft. Attach 2 Waist Tethers (LEC Kit, LHSSC) To Handhold On Back Of PLSS Using Small Hooks. Route One Tether To Vertical Handhold On ECS Module And One Tether To Bracket Supporting PLSS In Recharge Sta. Pull Straps Tight.
OPS	Floor (Secure)
BSLSS	ETB
ETB & Contents	Tie To Floor (Strap LHSSC)
	Place Dbl Cue Card On +Z 27 Blkhd If Reqd
LEVA Bags	Floor, 1 Left, 1 Rt

Fwd Hatch - Ver Locked
Verify Snaps On RH & LH Side Stowage

Changed 12/21/70
9/15/70
Basic Date

Changed 12/21/70 — 9/15/70 — Basic Date

Emergency Launch Stowage
Before Equipment Jettison

PLSS, OPS, RCU (Both)	Doff
CDR PLSS	Recharge Sta (Remove Lower Adj Strap)
OPS (Both)	Floor (Temporary)
EV Gloves	LEVA Bag, Loose
LEVA	LEVA Bag, Visor Aft
SRC	SRC Compt
LM EVA Antenna - Stow	
ETB & Contents	ISA Back Pkt
Purse & Contents	ISA Bot Pkt (Remove Scale-Purse)
ISA (Weigh, 74 Lb Max) . . .	Hung Aft
Scale	ISA Bot Pkt
LMP PLSS	Donning Sta - Use 2 Adj Straps On Bot: Break 2 Stitches, Remove Keeper, Extend To Max Length. Hang PLSS Upside Down, Conformal Pad Aft. Attach 2 Waist Tethers (LEC Kit, LHSSC) To Handhold On Back Of PLSS Using Small Hooks. Route One Tether To Vertical Handhold On ECS Module And One Tether To Bracket Supporting PLSS In Recharge Sta. Pull Straps Tight.
OPS	Floor (Secure)
Urine Bags, Used (Disp Cont).	ISA Top Pkt
Disposal Container	Tie To Floor (Strap LHSSC) Place Dbl Cue Card On +Z 27 Blkhd If Reqd
LEVA Bags	Floor, 1 Left, 1 Rt
Fwd Hatch - Ver Locked	
Verify Snaps On RH & LH Side Stowage	

Basic Date 9/15/70 Changed ~~12/21/70~~ 1/18/71

EMERGENCY LIFT-OFF

This Procedure Can Be Used For A Loss Of Circulation In Both Glycol Loops

*-These Steps To Be Performed ONLY For Loss of Glycol

* At Time Of Glycol Failure Perform The Following:

CB(11) GASTA AC & DC	- Open	CB(11) AGS - Open
IMU OPR	- Open	CB(16) AEA - Open
LGC/DSKY	- Open	ASA - Open
NUM LTG	- OPEN	ATCA - Open
cb(11&16)ANUM/DOCK/COMPNT	- OPEN	

********** (L/O-:45) **********

PGNS ACT

* CB(11) LGC/DSKY - Close Or If Closed:
  PRO (Hold In Until RESTART Lt-On, STBY Lt-Off)

Verify:
  CB(16) INV 2 - Close
  INV-2
BAT 5&6 - ON tb-gray
BAT 1&3 - OFF/RESET tb-bp

EMER LIFT OFF

RSET
V96E
CB(11) IMU OPR - Close
(NO ATT Lt-Off In 90 Sec)

* LGC CLOCK SYNC (If Required)
* V25N36E
* Load Mission Time

IF TIME PERMITS:
Don Helmets And Gloves
PRESS REG A&B - EGRESS
SUIT GAS DIV - PULL/EGRESS
SUIT CIRCUIT RELIEF - AUTO

DES H2O - CLOSE
ASC H2O - OPEN
WATER TANK SEL - ASC
* WATER TANK SEL - SEC
* SEC EVAP FLOW - OPEN
CABIN REPRESS - CLOSE
DES O2 - CLOSE
ASC O2 No. 1 - OPEN

* S-BD: XMTR/RCVR - SEC
* PWR AMPL - OFF
* CB(11) CDR AUDIO - Close
* AUDIO CONT (CDR) - NORM
* (LMP) - BU
* CB(16) SEC AUDIO - Open

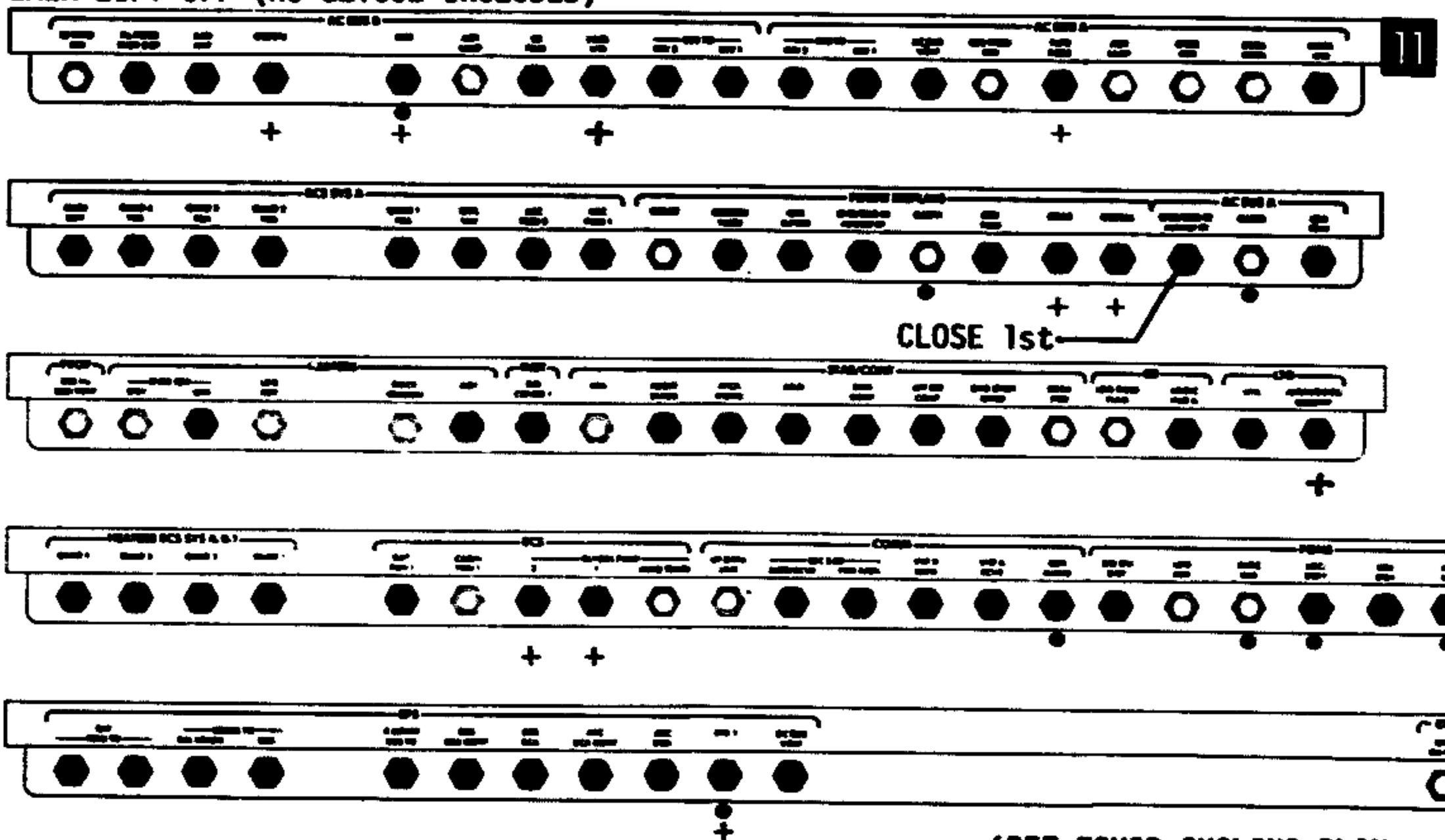
Configure CBs Per EMER LIFT OFF Status Charts

Basic Date 9/15/70 Changed 12/21/70

Basic Date 9/15/70

Changed ~~12/21/70~~ 1/8/71

EMER LIFT-OFF (NO GLYCOL INCLUDED)

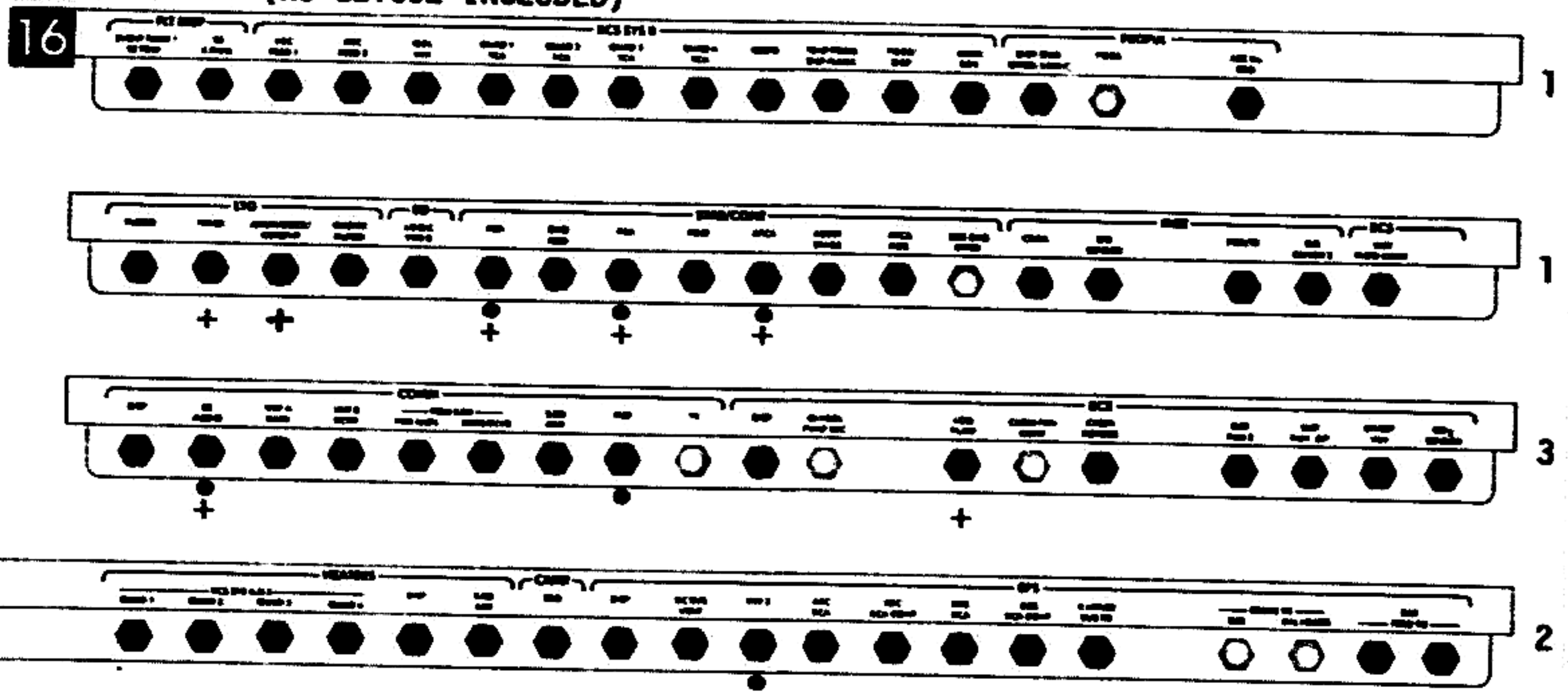


●—{REF EQUIP CYCLING PLAN
CONTINGENCY C/L PG 1-73

+— OPEN FOR LOSS OF GLYCOL

EMER LIFT-OFF (NO GLYCOL INCLUDED)

16



●—{ REF EQUIP CYCLING PLAN
CONTINGENCY C/L PG 1-73

+—— OPEN FOR LOSS OF GLYCOL

Basic Date 9/15/70

Changed ~~12/21/70~~ 1/8/71

MSFN-UPDATE
* CB(11) UP DATA LINK - Close
UPDATA LINK - DATA
(MSFN Updates
State Vector)
UPDATA LINK - VOICE BU
* CB(11) UP DATA LINK - Open

ALIGN PGNS
CB(11) GASTA (AC & DC) - Close
P57E, OPT 4, PRO

N34 Load Time From MSFN, PRO

N06 R1 00010
00001
00010
PRO
(NO ATT Lt - On/Off, Twice)
N04 + _____ Grav. Err.
PRO

N22 ICDU ANGLES
PRO (NO ATT LT - On/Off)

N05 _____ Angle Diff
PRO

N93 Torquing Angles _____ X
PRO _____ Y
_____ Z

N25 00014 ENTR
POOE

********** (L/O-:17) **********

P____, Y____ (+120/-38)
S-BAND ANT-SLEW (>3.0)
TRACK MODE - AUTO (>4.0)

RCS HOT FIRE
CDR ACA (Deflect Out-of-Detent)
Roll Rt, Lt
Pitch Up, Dn
Yaw Rt, Lt

TARGET PGNS

GUID CONT - PGNS
MODE CONT (Both) - AUTO
P12E
N33 ____:____:____ TIG LO
PRO

Basic Date 9/15/70 Changed 12/21/70

Basic Date 9/15/70 Changed 12/21/70

N76 _____ VH FINAL (+55095)
_____ HDOT FINAL (+00195)
_____ XRNG (+00000)
PRO

N74 ___:___ TFI
_____ YAW
_____ PITCH

********** (L/O-:15) **********

AGS ACT AND INITIAL

* CB(11) AGS - Close
* CB(16) AEA - Close
* ASA - Close
* ATCA - Close
AGS STATUS - OPERATE (Master
Alarm, AGS Warn Lt - On)

V16 N65E, 377 _____

V47E, 414+1E

400 + 3E
413 + 1E
400 + 4E

400 + 4E		Lunar Align
240	+56978	X Position Comp
261	+00037	Y Velocity Comp
262	-00147	E Z Velocity Comp
254		E Epoch Time(377R)
414 + 2E		Nav. Initial Via DEDA

TARGET AGS

224 + _____ (+58163)
226 + _____ (+58163)
232 + _____ (+00600)
410 + 0
411 + 1
465 + _____ (+00195)
514 _____ (-60000)
515 _____ (-44223)
516 _____ (+00000)
662 + 0E
673 + 0E

* CB(11) INV 1 - Close
* INV - 1
* CB(16) INV 2 - Open

MASTER ARM - ON
ASC He SEL - BOTH
ASC He PRESS - FIRE
MASTER ARM - OFF
SYS A&B ASC FEED 2 (2) - OPEN
SYS A&B MAIN SOV (2) - CLOSE

ENABLE CONTROLS

ACA PROP (Both) - ENABLE
ACA/4 JET (Both) - ENABLE
ATT CONT (3) - MODE CONT
MODE CONT (Both) - AUTO
TTCA/TRANSL (Both) - ENABLE
MODE SEL - AGS
RNG/ALT MON - ALT/ALT RT

Basic Date 9/15/70 Changed 12/21/70

Basic Date 9/15/70 Changed 12/21/70

CONFIGURE COMM

* S-BD: XMTR/RCVR - PRIM

VHF A: XMTR - VOICE/RNG
: RCVR - ON
VHF B: RCVR - ON
AUDIO (Both): VHF A - T/R
VHF B - RCV

* CB(16) SE AUDIO - Close
* AUDIO CONT (CDR) - BU
* (LMP) - NORM
* CB(11) CDR AUDIO - Open

********** (L/O-:05) **********

BEGIN FINAL COUNTDOWN

BATS 2&4 - OFF/RESET tb-bp
DES BATS - DEADFACE tb-bp
If tb-bp:
CB(11&16) DES ECA (2) - Open
CB(11&16) DES ECA CONT (2) - Open
Check APS Start Card

GO TO LM TIMELINE BOOK

Basic Date 9/15/70 Changed 12/21/70

MANUAL ASCENT

PRO (Hold In Until
RESTART Lt-On, STBY Lt-Off)
RSET
V96E

CB(11) IMU OPR - close
(NO ATT Lt-Off in 90 sec)

If Time Allows:
V41N20E
Load ICDU Angles That
Existed After Touchdown
(See DATA BOOK Pg 7)
V40N20E (Releases IMU)

BAT 5,6 - ON, tb-gray
BAT 1,2,3,4 - OFF/RESET, tb-bp

CB(11) AGS - Close
AGS STATUS - OPERATE
(Master Alarm, AGS Warn Lt-On)

400 + 4E Lunar Align
Wait 30 sec Before:
400 + 0E

MODE CONTROL (Both) - ATT HOLD

Configure CB's Per EMER LIFT OFF
Status Charts (Pages SUR 15-3 & 15-4)

P____, Y____ (+120/-38)
S-BAND - SLEW (>3.0)
TRACK MODE - AUTO (>4.0)

MANUAL ASCENT

CDR ACA (Deflect Out of Detent)
Roll-Rt, Lt
Pitch-Up, Dn
YAW-Rt, Lt

MASTER ARM - ON
ASC He SEL-BOTH
ASC He PRESS - FIRE

Check APS START CARD
Go To Timeline Book (MANUAL ASCENT)

APOLLO XIV/LM-8 MENU

Changed ____ Basic Date ____

FOOD LOG

CHECK ITEMS EATEN

	RED CDR	BLUE LMP
Day 1 Meal B (AFT Food Bag)		
Cream of Tomato Soup		
Bread Slice		
Ham Salad Sandwich Spread (Tube in (Lower Food Bag))		
Caramel Candy		
Pineapple-Grapefruit Drink		
Grapefruit Drink		
Day 1 Meal C (Upper Food Bag)		
Beef & Gravy (WP)		
Cheese Cracker Cubes (4)		
Apricots		
Butterscotch Pudding		
Orange-Grapefruit Drink		
Grape Punch		
Day 2 Meal A (Lower Food Bag)		
Peaches		
Bacon Squares (8)		
Sugar Coated Cornflakes		
Cocoa		
Orange-Pineapple Drink		
Day 2 Meal B (Lower Food Bag)		
Lobster Bisque		
Meatballs w/Sauce (WP)		
Chocolate Bar		
Pineapple Fruitcake (4)		
Grapefruit Drink		

WP = Wet Pack

APOLLO XIV/LM-8 MENU

Changed _____

Basic Date _____

FOOD LOG

CHECK ITEMS EATEN

	RED CDR	BLUE LMP
Day 1 Meal B (AFT Food Bag)		
Cream of Tomato Soup		
Bread Slice		
Ham Salad Sandwich Spread (Tube in (Lower Food Bag))		
Caramel Candy		
Pineapple-Grapefruit Drink		
Grapefruit Drink		
Day 1 Meal C (Upper Food Bag)		
Beef & Gravy (WP)		
Cheese Cracker Cubes (4)		
Apricots		
Butterscotch Pudding		
Orange-Grapefruit Drink		
Grape Punch		
Day 2 Meal A (Lower Food Bag)		
Peaches		
Bacon Squares (8)		
Sugar Coated Cornflakes		
Cocoa		
Orange-Pineapple Drink		
Day 2 Meal B (Lower Food Bag)		
Lobster Bisque		
Meatballs w/Sauce (WP)		
Chocolate Bar		
Pineapple Fruitcake (4)		
Grapefruit Drink		

WP = Wet Pack

APOLLO XIV/LM-8 MENU

Changed _____

Basic Date _____

FOOD LOG

CHECK ITEMS EATEN

	RED CDR	BLUE LMP
Day 1 Meal B (AFT Food Bag)		
Cream of Tomato Soup		
Bread Slice		
Ham Salad Sandwich Spread (Tube in (Lower Food Bag))		
Caramel Candy		
Pineapple-Grapefruit Drink		
Grapefruit Drink		
Day 1 Meal C (Upper Food Bag)		
Beef & Gravy (WP)		
Cheese Cracker Cubes (4)		
Apricots		
Butterscotch Pudding		
Orange-Grapefruit Drink		
Grape Punch		
Day 2 Meal A (Lower Food Bag)		
Peaches		
Bacon Squares (8)		
Sugar Coated Cornflakes		
Cocoa		
Orange-Pineapple Drink		
Day 2 Meal B (Lower Food Bag)		
Lobster Bisque		
Meatballs w/Sauce (WP)		
Chocolate Bar		
Pineapple Fruitcake (4)		
Grapefruit Drink		

WP = Wet Pack