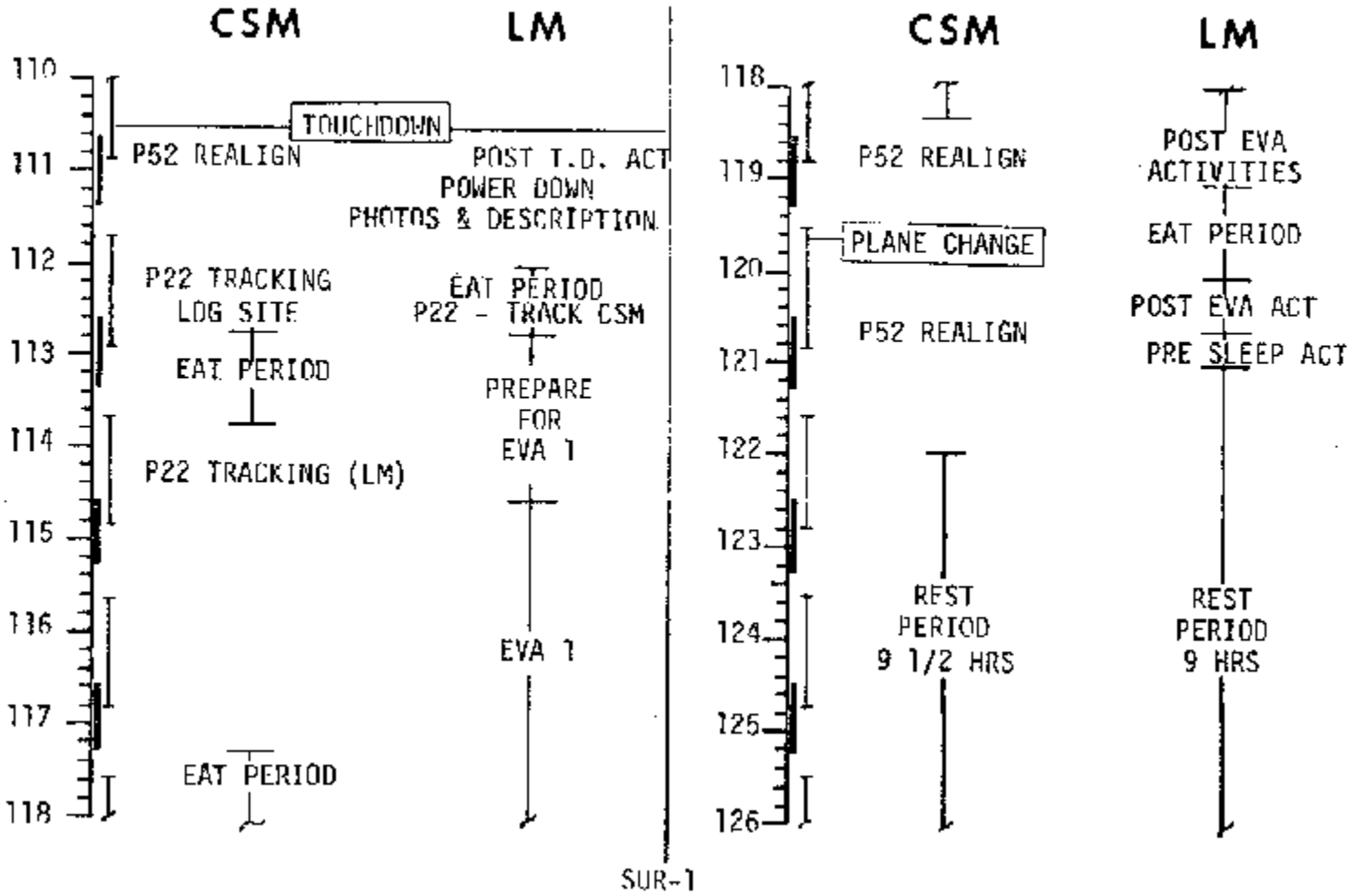
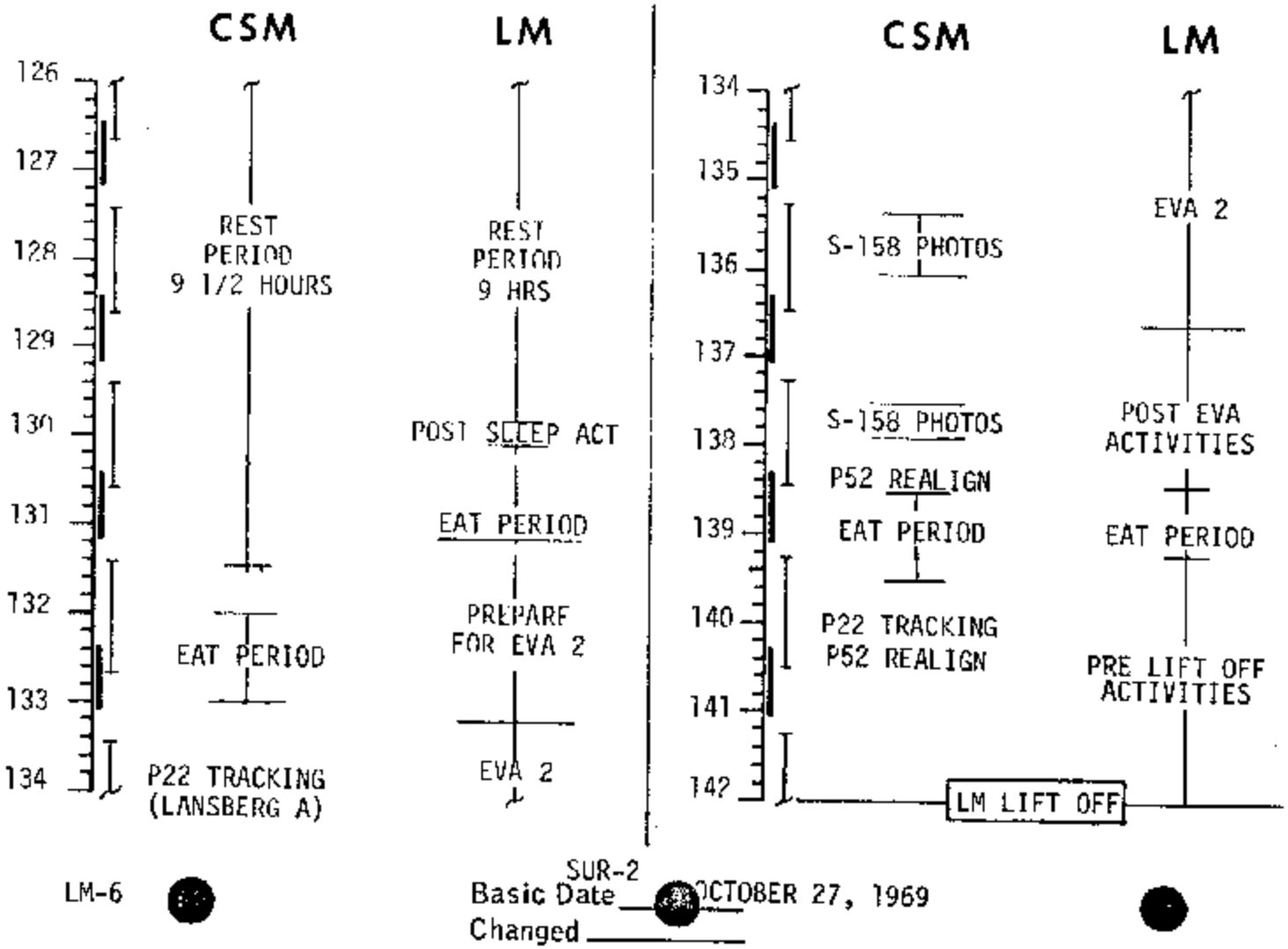
FPO

APOLLO 12	
LM LUNAR SURFACE CHECKLIST	
PART NO	S/N
SKB32100081-363	1002

LM-6

Basic Date OCTOBER 27, 1969
Changed





LM-6

SUR-2

Basic Date OCTOBER 27, 1969

Changed

Basic Date October 27, 1969
Changed

FIRST REV ACTIVITY

********** PDI +20 (110:47) **********

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

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

P57, R2 00003
N06 00010
00001
00110
(NO ATT Lt-On/Off, Twice)
N04 + _____ Tilt (.01°)
V32E (Recycle)
N04 _____
PRO
N22 ICDU Angles
PRO (NO ATT LT - On/Uff)
N05 _____ Angle Diff (.01°)
PRO

SEQ CAMERA - OFF
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)

047 R _____ Sin Az (To MSFN)
053 R _____ Cos Az (To MSFN)
623 R (+0)

544 R _____ X Gyro Coeff
545 R _____ Y Gyro Coeff
546 R _____ Z Gyro Coeff

400 + 6E Calib Gyros

232 R _____ Ins Alt
465 R _____ Ins HDot
400 R (+0 Calib Complete In
5 min 2 sec)

Verify Cabin Press
PRESS REG A&B - CABIN
CABIN GAS RETURN - AUTO

N93 _____ X Torquing Angles (.001°)
_____ Y
_____ Z

SUIT GAS DIVERTER-Push/CABIN
CABIN REPRESS - AUTO
BIOMED - RIGHT

VHF - OFF, OFF, OFF, OFF 122/-32

V34
P00

S-BD P&Y SET ~~(-69/+157)~~, SLEW,
P _____ Y _____

DOFF HELMET & GLOVES
Window Shades - Up

CB (11) RR (2) - Close
RR - LGC
V41N72 (00000,28300)
CB (11) RR (2) - Open

544 R _____ X Gyro Coeff
545 R _____ Y Gyro Coeff
546 R _____ Z Gyro Coeff

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

Basic Date October 27, 1969
Changed November 8, 1969

********** PDI +:45 (111:12) **********

CB AOT LAMP-Closed
P57, R2 00003
PRO
N06 00010
    00002
    00110
PRO

1st STAR _____ ~~(RECOR 17)~~ (SIRIUS 115)
  Cursor _____
  Spiral _____
N79 Load Then V32
  Cursor _____
  Spiral _____
N79 Load Then V32
  Cursor _____
  Spiral _____
N79 Load Then PRO

2nd STAR _____ ~~(PROCYON 16)~~ (POLLUX 200)
~~Cursor~~ _____ _____
~~Spiral~~ _____ _____
N79 Load Then V32
Cursor _____
Spiral _____
N79 Load Then V32
Cursor _____
Spiral _____
N79 Load Then PRO

N88 LOAD VECTORS FOR POLLUX
X -.19245
Y +.39686
Z +.23550

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 (.01°)
Consult MSFN
PRO - (UPDATE RLS)
V34 - (TERM)

POOE

LM-G

Basic Date October 27, 1969
Changed November 8, 1969

********** POI +1:00 (111:27) **********

P57, R2 00003
PRO
N06 00010
    00002
    00110
PRO

1st STAR _____ ~~(SIRIUS 15)~~ (PROCYON 116)
  Cursor _____
  Spiral _____
N79 Load Then V32
  Cursor _____
  Spiral _____
N79 Load Then V32
  Cursor _____
  Spiral _____
N79 Load Then PRO

2nd STAR _____ ~~(DNOCES 20)~~ (REGOR 617)
  Cursor _____
  Spiral _____
N79 Load Then V32
  Cursor _____
  Spiral _____
N79 Load Then V32
  Cursor _____
  Spiral _____
N79 Load Then 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 (.01°)
Consult MSFN
  PRO - (UPDATE RLS)
  V34 - (TERM)
CB AOT - OPEN
POOE

SUR-8

Basic Date October 27, 1969
Changed

V40N20E
400 + 3E AGS/PGNS Align
413 + 1E Store Azimuth
047 R _____ Sin Az
053 R _____ Cos Az

STAY - NO STAY

CB(16) AEA - OPEN
AGS STATUS - STBY
CB(16) AEA - CLOSE
VHF A&B XMTR & RCVR - OFF
AUDIO (Both): VHF A&B - OFF

CB (11) RR (2) - Close
V41N72 (18000,27000)
CB (11) RR (2) - Open

********** PDI +1:15 (111:42) **********

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

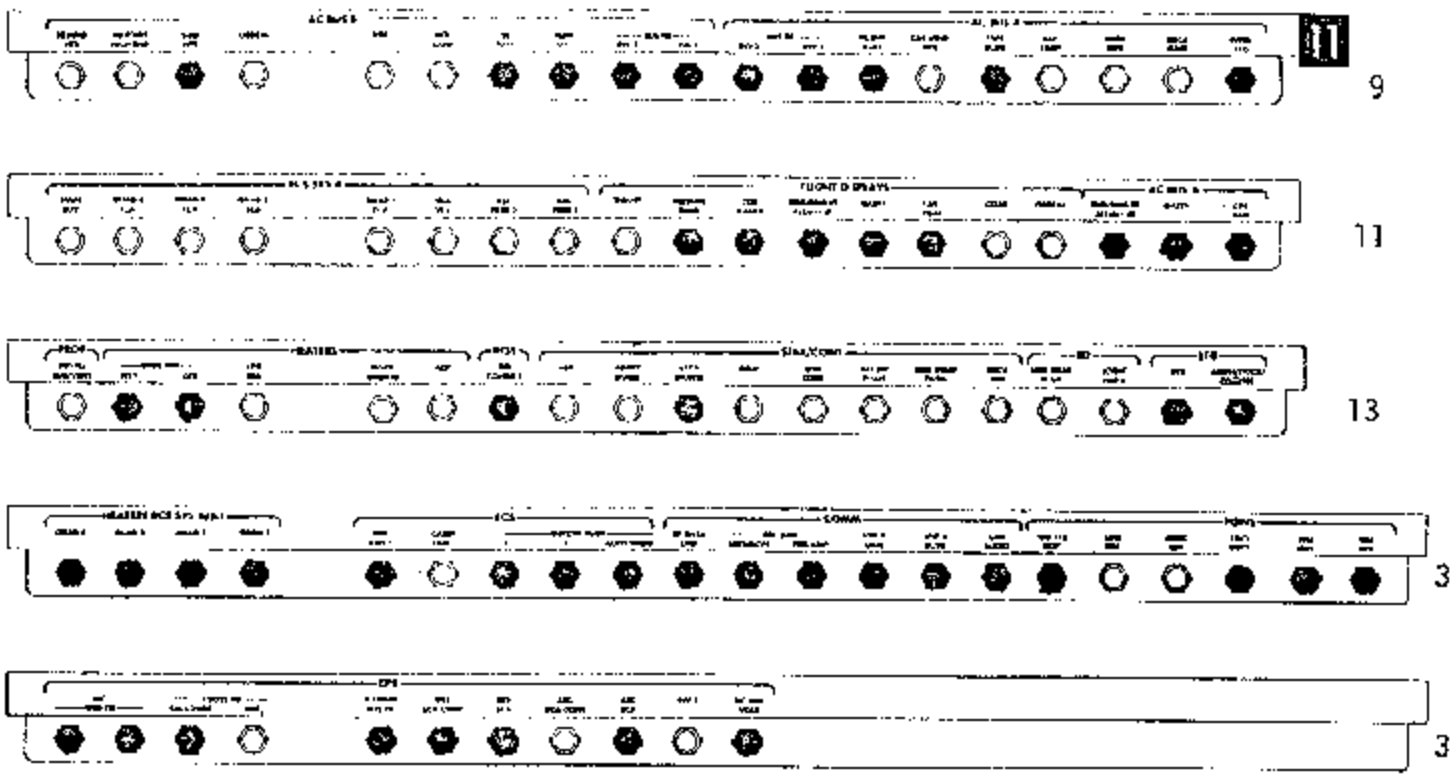
Copy Updated P22 Acquisition Time _____:_____:_____ ___

DET - SET Counting Down To Acquistion Time ____

Window Shades - Down

Configure For Partial Power Down

PARTIAL PWR DN



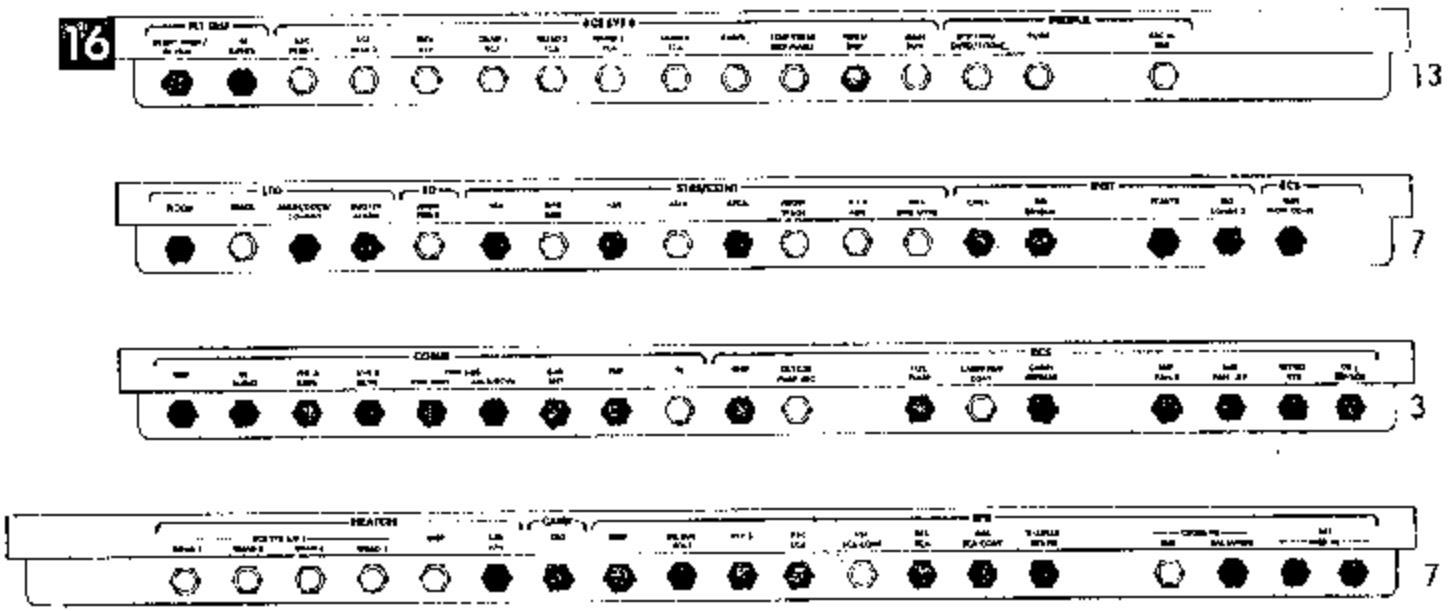
SUR-10

LM-6

Basic Date October 27, 1969

Changed

PARTIAL PWR DN



SUR-11

FDAI 1&2 - INRTL
EARTH/LUNAR - PWR OFF
LTG - OFF
MODE - HOLD/FAST
ALT SET - 45

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 (guarded)
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 October 27, 1969
Changed

TEMP/PRESS MON - OXID MANF
RATE/ERR MON - LDG RDR/CMPTR
ATTITUDE MON (LMP) - AGS
GLYCOL - PUMP 1
SUIT FAN - 1
O2/H2O QTY MON - DES

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 - HI MULT

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

AOT - CL
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 Then CWEA ENABLE

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
SUIT GAS DIVERTER - PUSH/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
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

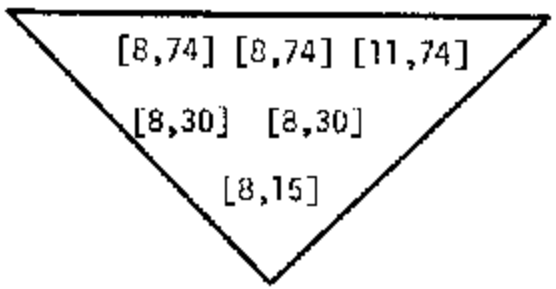
CABIN RELIEF & DUMP (Both) - AUTO

Unstow Lunar Charts, Maps, and
Monocular (Urine Compt)
Configure (2) 70mm Camrs (RHSSC):
Stow RESEAU Covers in Camr Compt
Stow Polarizing Filter In Camr Comp
One Camr - B&W Mag (ISA)
One Camr - HCEX Mag (ISA)
Stow Dark Slides In Camr Comp
RCU/Camr Adapter Bracket - ISA Top Pocket
Triggers And Handles - RHSSC Camr Pocket
Stow Camr With HCEX Mag In LHSSC
(PLSS LiOH Carthridge Compt)

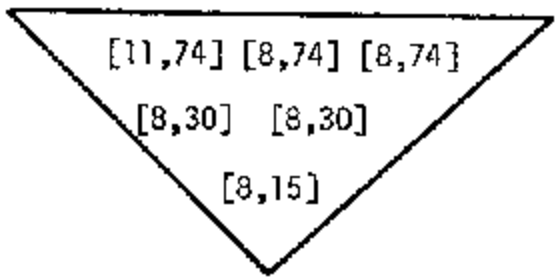
Describe & Photograph Lunar Surface:
Photo Lunar Surface Out Of Both
Windows Using B&W Film [12]

SUR-14

CDR



LMP



Report Features During Descent And Determine LM Location With HOU (5 Min) Report Angle Of +Z Wrt West. Give General Impression (Earth Analog) And Predominant Features.

SUR-15

Describe Using Monocular: (15 Min)

1 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 Contracts - 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

Basic Date October 27, 1969
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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, flow, 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 October 27, 1969
Changed Nov. 10, 1969

2 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 1B to 1G

3 Ask HOU for questions

Replace B&W Mag In One Camr With HCEX
Settings: CDR 5.6/250, 15 ft
LMP 5.6/250, 5 ft

Stow Both Camr In LHSSC (PLSS LiOH Cartridge Compartment)

EAT PERIOD
111:55 to 112:40

LM CONSUMABLES UPDATE				
GET 1 1 2: 5 0				
RCS A 80%	B 75%			
O2 DES 87%	ASC 97%			
H2O DES 78%	ASC 90%			
A-H DES 123	ASC 572			

SUR-19

112:10 CB(11) RR (2) - Close

V95E
P22E
N06 R2 00001
V83E, Rng <400,PRO,PRO
V16 N38E
When N38 = Present Time
& Remains Equal:
V24N01E, 3424E
Load Octal Acq Time
V16N72E (18000,33500)
At End of CSM Track:
V34E, P00E

~~V41 N72D, (18000,37000)~~
CB(11) RR (2) - Open
V48E
N46 _____ Code
N47 _____ LM Wt
V34E
P00E

Notify MSFN of E-Dump
TLM - HI
V74E

P06E
CB(11) IMU OPR - Open
PRD, STBY Lt - On

Configure CB's Per PWR DN
Charts

Copy Lift-Off Time in Data
Book For T - n

CREW STATUS REPORT

	CDR	LMP
MED	No	Med
PRD	11018	11019

CWEA STATUS:

Warning	Caution
ASC PRESS	PREAMPS
DES AC (Reset via GYRO TEST)	
CES DC (Reset via GYRO TEST)	

112:40 CABIN PREP EVA 1

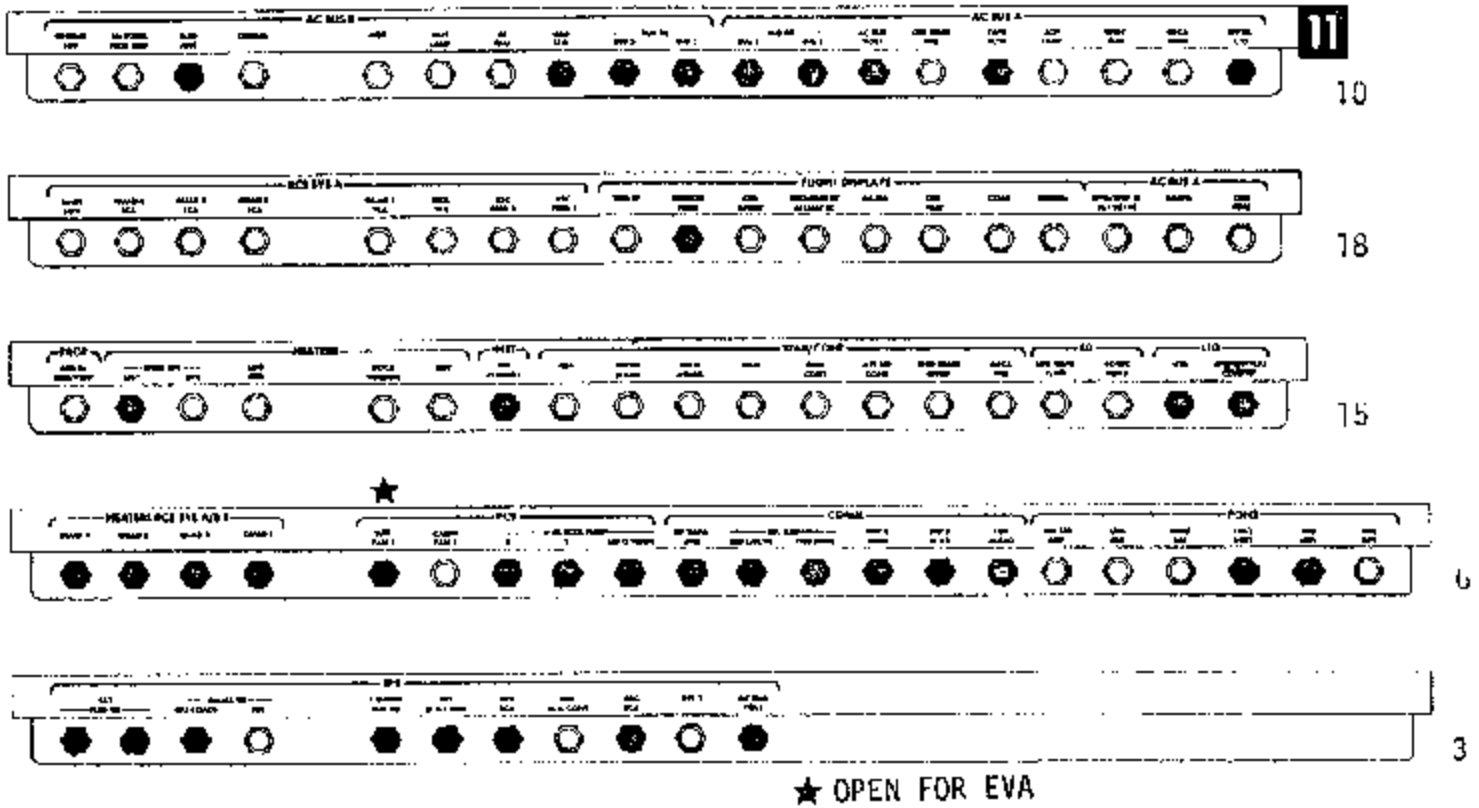
Stow All Loose Items Not Reqd For EVA

Unstow EVA 1 Prep & Post Card
Remove CB Configuration Pages SUR-22 & 23
  Tape Above CB Panels
Remove Transistion To One-Man EVA
  Page SUR-24, Clip To AOT
Stow Lunar Surface Checklist

LM-6

Basic Date October 27, 1969
Changed

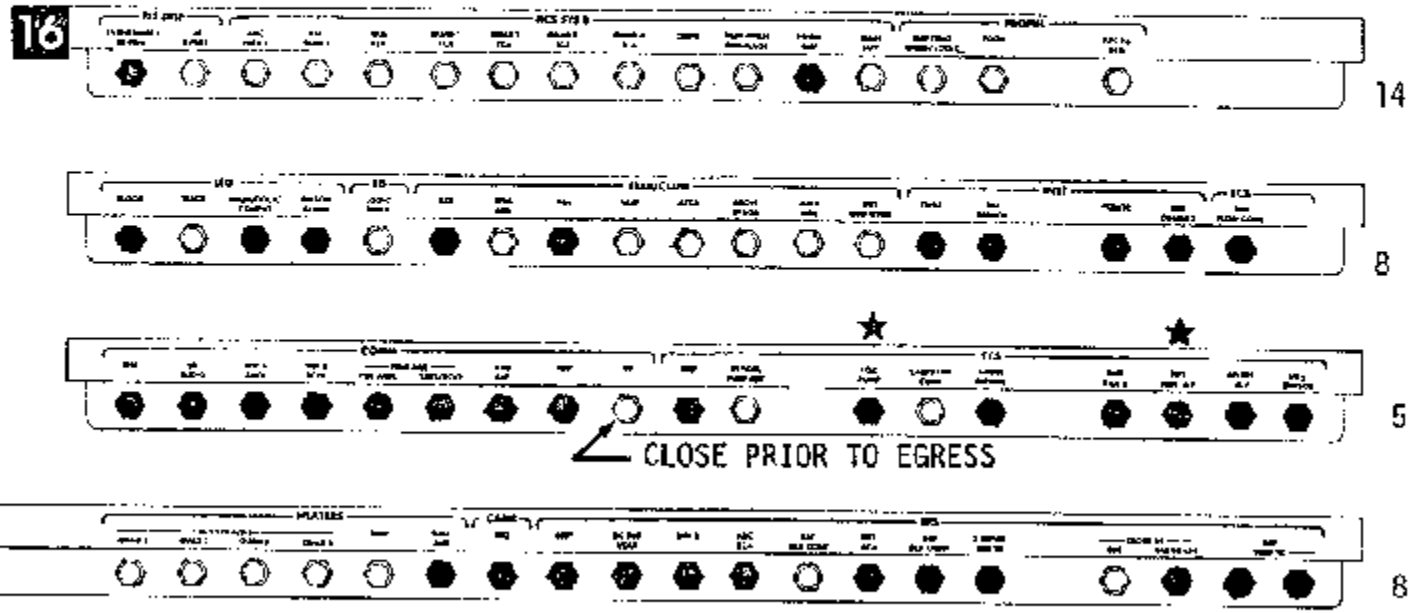
CB (11) POWERDOWN & EVA CONFIGURATION



★ OPEN FOR EVA

SUR-22

CB (16) POWERDOWN & EVA CONFIGURATION



★ OPEN FOR EVA

TRANSITION TO ONE-MAN EVA

BOTH Verify/Perform-As Req'd At Time Of NO GO
- PLSS FEEDWATER - CLOSE
- Fwd Hatch Closed & Locked (Dump Vlv - AUTO)
- CABIN REPRESS - AUTO
- PRESS REGS A&B - CABIN (Cab Warning Lt-On)
- Verify Press Increasing To 5.0 psia
- PLSS O2 - OFF
- CB(11) ECS: SUIT FAN 1 - Close
- CB(16) ECS: SUIT FAN ΔP - Close
- ECS Caution & H2O SEP Comp Lts - Out
- PGA Press Equal To Cabin (Use Purge Vlv, If Req'd)
- Doff Gloves, Helmets With Visors
- PLSS PUMP - OFF
- PLSS FAN - OFF

NO GO CREWMAN:
- PLSS MODE - O
- Disconnect - OPS O2 Hose
  - Purge Vlv - Stow In TSB
  - OPS Actuator From RCU
  - RCU From PGA And PLSS
  - PLSS COMM, H2O, And O2
- Doff PLSS/OPS
- Connect LM COMM, O2, & H2O (Audio, Biomed)
- Comm Sws - As Req'd

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

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

Unstow ONE MAN EVA PREP CARD & LUNAR SURFACE BOOK

Basic Date October 27, 1969
Changed November 3, 1969

LM REPRESS FAILURE PROCEDURE

Verify PRESS REG A&B - EGRESS
Verify LM Suit Circuit 3.6 - 4.0 Psia
CB(11) ECS: SUIT FAN 1 - Close
CB(16) ECS: SUIT FAN ΔP - Close
ECS Caution & H2O SEP Comp Lts-Out

Verify OPS O2 - OFF
Disconnect Purge Vlv, Then OPS O2 Hose
Stow Purge Vlvs In TSB

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,Biomed)

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 Req'd-Connect LM H2O to PGA
CB(16) ECS: LCG PUMP - Close

113:10 EQUIPMENT PREP EVA 1
-1:20

Set DET For Cabin Depress -:20
Counting Down
Unstow PLSS On Floor,
Position Against Hatch
Stow COAS In FWD Window Mount
Remove TSB From Bottom Pocket ISA,
Position On Panel 5
Stow CDR restraint cables

Empty UCTA's
Check PGA Zippers
PGA Diverter Valves - Vertical

Stow Gas Connector Plugs In TSB
Empty PGA Pockets Into TSB
Verify Watch On Left Arm
Verify LM O2 Hoses To PGA R/R & B/B

Unstow LEC And Place On Panel 6
Restow Tether Package

Configure Seq Camr
Rt. Angle Bracket - LHSSC
Remote Control Cable - LHSSC
Utility Bracket - Utility Light
Mag - RHSSC
Settings - 2.8/60, ∞, 12 FR
Verify Operation, Stow On AOT Guard
Place 2 Seq Camr Mags In TSB

Disconnect Utility Lights & Position
On Aft Eng Cover
Verify Interim Stowage Straps Accessible

Apply Antifog (CDR Helmet Bag)
Stow Helmet Bags On Floor
Position Helmets On Aft Eng Cover

CDR Move To Aft Cabin Area
Deploy LM EVA Antenna

Unstow RCU's (Resnap Flaps) & Place
In LHSSC
Unstow CDR Lunar Boots, Remove &
Stow Purge Valve In TSB
CDR Don Lunar Boots

LMP Move To Aft Cabin Area
Unstow LMP Lunar Boots, Remove &
  Stow Purge Valve In TSB
Stow Utility Lights In Bot Boot Comp
LMP Don Lunar Boots

Remove Dust Caps & Shorting Plug From
  ISA Bottom Pocket, Stow In Camr Comp
Jnstow Jett Bag, Aft LHSSC,
  Upper RH Corner
Stow ISA In Jett Bag
Open Top Boot Comp For EVA Stowage

CDR Unstow CSRC From LHSSC & Place
  In PGA Pocket

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 Floor
LMP Move To LMP Station
Stow CDR OPS On LH Eng Cover

Stow Helmet Bags On RH Eng Cover
Disconnect 3 Armrests, CDR LH &
  LMP RH & LH, Place In Jett Bag
Fwd Hatch Handle - UNLOCK

-:59 PLSS DONNING

LMP 1st - Unstow OPS Antenna Lead
  & Secure Flap
Attach OPS To Unstowed PLSS
Connect OPS Antenna Lead To PLSS
Verify Sublimator Exhausts Clear

Unstow PLSS Straps & Hoses
Remove Dust Cover From PLSS Elect
  Conn & Stow In LHSSC
Verify ALL PLSS Valves - Up
Connect Battery Cable

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

Unstow RCU's From LH5SC & Place
On Mid-Step

Don PLSS/OPS (Lift PLSS Hoses Above
LH Lower Strap)
Connect PLSS O2 Hoses To PGA
Verify DIVERTER, O2, FEEDWATER-OFF

Verify Helmets Accesible

Unstow CDR PLSS & Repeat PLSS DONNING

Verify RCU Controls:
PUMP, FAN, MODE SEL - OFF
Vol Cont (2) - FULL INCR
(NOTE: Blade-B & AR, Wheel-A)
PTT - MAIN
Connect RCU To PLSS, Then PGA

-:39 **PLSS COMM CHECK

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:
VHF - VOICE, ON, OFF, ON, OFF, HI
RANGE - OFF/RESET
SQUELCH A&B - Noise Thres + 1-1/2
RECORDER - ON
VHF Antenna - EVA
UPLINK SQUELCH - ENABLE
LMP Connect To PLSS Comm (Audio CB)

PLSS Mode (LMP) - A (Tone-On, Vent Flag - P, Press Flag - O)
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)

Audio (CDR)
VHF A - OFF
VHF B - OFF
No MSFN Reception In PLSS Mode B
PLSS Mode (CDR) - B (Tone-on, Vent Flag - P, Press Flag - O)
PLSS O2 Press Gage > 85%
Perform Comm Check With LMP

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

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

-:33 FINAL SYSTEMS PREP

CB(16) ECS: CABIN REPRESS - Close (Ver)
SUIT FAN ΔP - Open
CB(11) ECS: SUIT FAN 1 - Open

SUIT GAS DIVERTER - PULL-EGRESS
CABIN GAS RETURN - EGRESS
SUIT CIRCUIT RELIEF - AUTO (Verify)
Verify ECS Caution & H2O SEP COMP Lts - On

OPS CONNECT

LMP 1st - Unstow OPS O2 Hose & Actuator
Connect Actuator To RCU
Snap OPS O2 Hose To Side Of PLSS
SUIT ISOL - SUIT DISC
Discon LM O2 Hoses, Secure About PGA

Connect OPS O2 Hose To PGA B/B
Retrieve Purge Valve (TSB) - Verify Closed & Locked
Install Purge Valve In PGA R/R
Verify PLSS Centered & At Proper Height

CDR Repeat OPS CONNECT

Drink
DES H2O VLV - CLOSE

HELMET/GLOVE DONNING

Position Mikes (Both)
PLSS FAN - ON (Vent Flag - Clear)
Don Helmets, Then Visors
Unstow EV Gloves
Position Helmet Bags In SRC Area

CB(16) ECS: LCG PUMP - Open
Disconnect LM H2O Hose
Connect PLSS H2O Hose
Stow LM Hoses (CDR's With Straps To ECS Module Handhold)

Verify The Following:

Helmet & Visor	(2)	- Locked & Adjusted
Torso Tiedown	(2)	- Adjusted
O2 Connectors	(6)	- Locked
Purge Valves	(2)	- Locked
H2O Connectors	(2)	- Locked
Comm Connectors	(2)	- Locked

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

PLSS DIVERTER - MIN (Verify)
PLSS PUMP - ON

PRESS REG A & B - EGRESS

Verify EVA CB Configuration

-:13 PRESSURE INTEGRITY CHECK

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)

-:10 CABIN DEPRESS

Confirm "Go" For EVA From Hou
CABIN REPRESS VLV - CLOSE

Fwd Dump Valve - OPEN Then AUTO At 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 & Decaying
PGA > 4.8 Psig & Decaying

:00

Start Wrist Watch

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
PGA >4.8 Psig & Decaying

Partially Open Fwd Hatch
Fwd Dump Valve - AUTO

:05 FINAL PREP FOR EGRESS

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

Fwd Hatch - Full Open

Rest Until Cooling Sufficient
Verify:
PGA Stable At 3.7 To 4.0 Psig
LM Suit Circuit 3.6 To 4.3 Psia
CWEA Status:

Warning	Caution
ASC PRESS	PREAMPS
	ECS

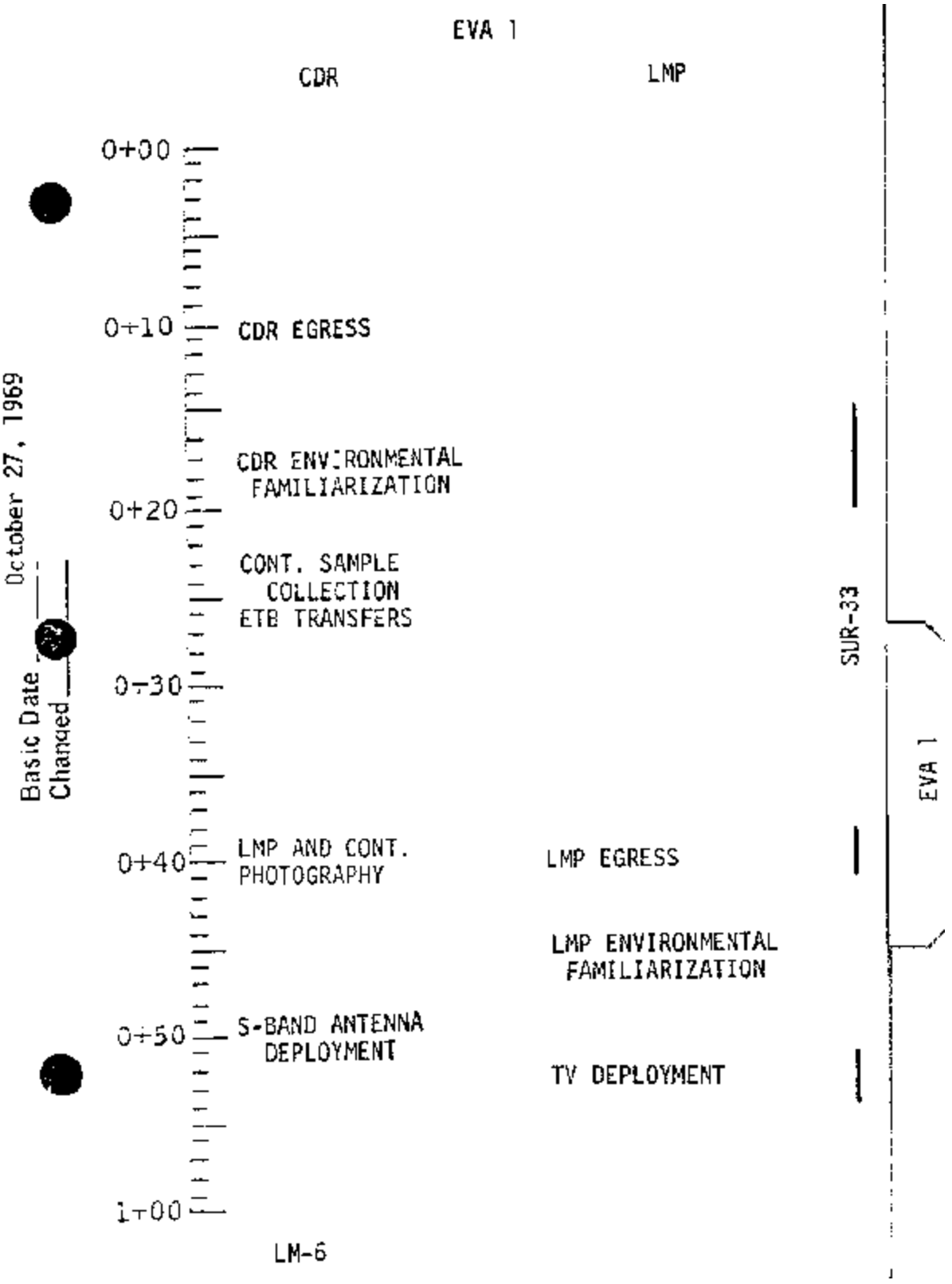
H2O SEP COMP LT - ON

Lighting: ANUN/NUM - DIM

CB(16) COMM: TV - Close
Position Seq Camr On Crash Bar

Release PLSS Antennas

:10 Lower EV Visor

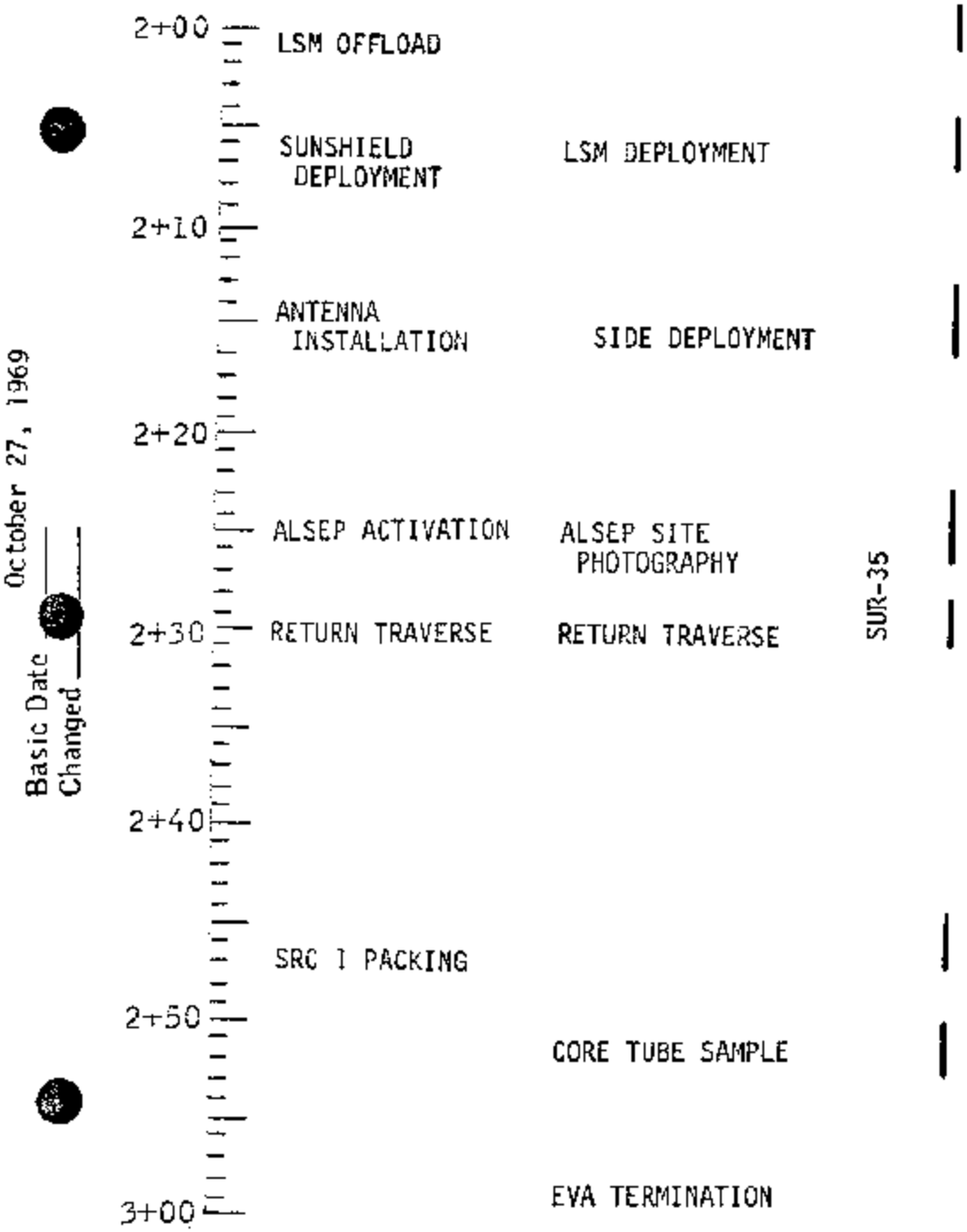

EVA 1
CDR
LMP
0+00
0+10
CDR EGRESS
CDR ENVIRONMENTAL FAMILIARIZATION
0+20
CONT. SAMPLE COLLECTION ETB TRANSFERS
0+30
0+40
LMP AND CONT. PHOTOGRAPHY
LMP EGRESS
LMP ENVIRONMENTAL FAMILIARIZATION
0+50
S-BAND ANTENNA DEPLOYMENT
TV DEPLOYMENT
1+00
October 27, 1969
Basic Date Changed
SUR-33
EVA 1
LM-6

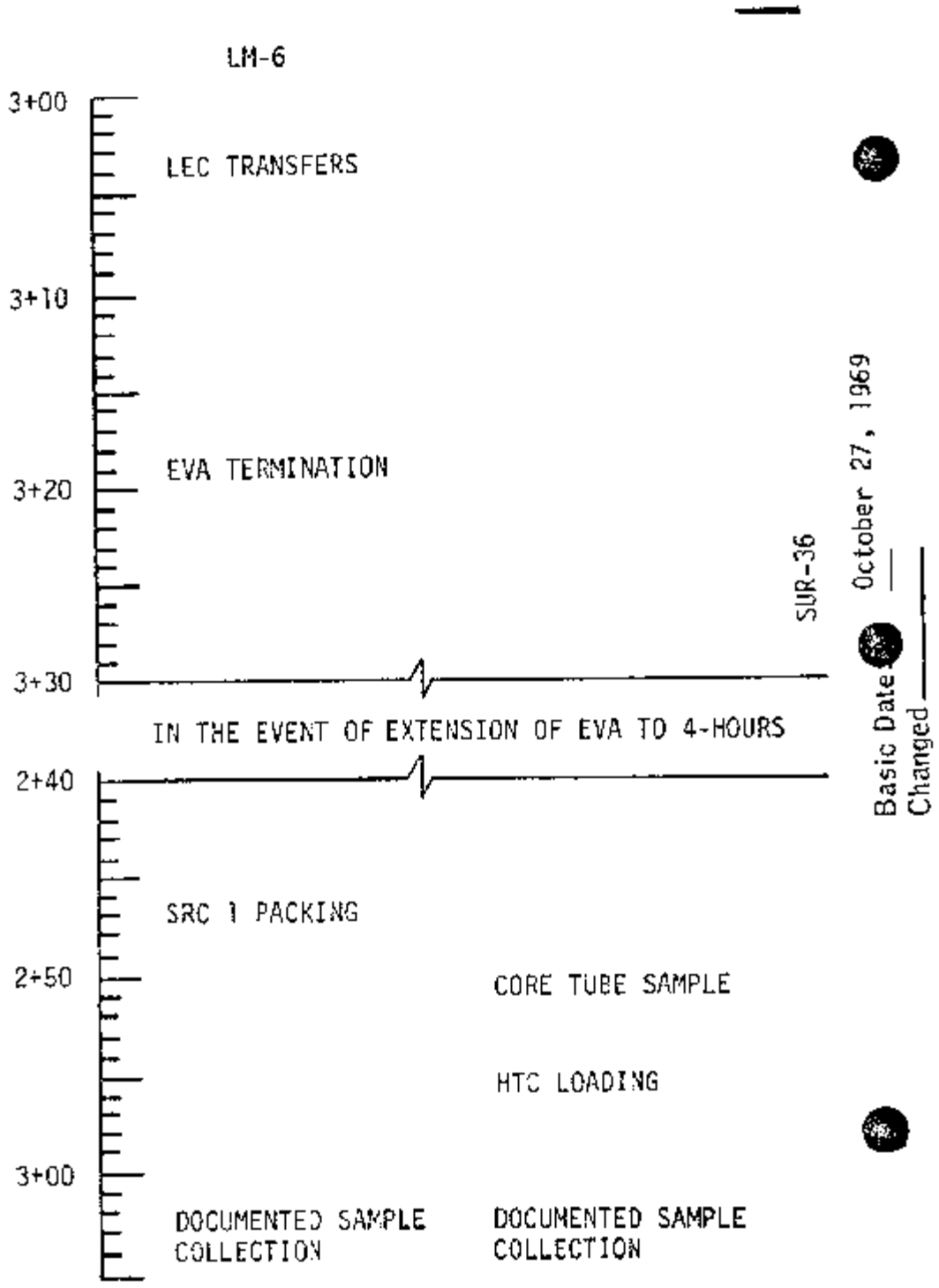
SUR-34

Basic Date October 27, 1969

Changed

LM-6


2+00
LSM OFFLOAD
SUNSHIELD DEPLOYMENT
LSM DEPLOYMENT
2+10
ANTENNA INSTALLATION
SIDE DEPLOYMENT
2+20
ALSEP ACTIVATION
ALSEP SITE PHOTOGRAPHY
2+30
RETURN TRAVERSE
RETURN TRAVERSE
SUR-35
2+40
SRC 1 PACKING
2+50
CORE TUBE SAMPLE
3+00
EVA TERMINATION
October 27, 1969
Basic Date Changed


LM-6
3+00
LEC TRANSFERS
3+10
3+20
EVA TERMINATION
3+30
SUR-36
October 27, 1969
Basic Date
Changed
IN THE EVENT OF EXTENSION OF EVA TO 4-HOURS
2+40
SRC 1 PACKING
2+50
CORE TUBE SAMPLE
HTC LOADING
3+00
DOCUMENTED SAMPLE COLLECTION
DOCUMENTED SAMPLE COLLECTION

October 27, 1969
Basic Date
Changed
3+10
3+20
3+30
3+40
3+50
4+00
SRC 1 CLOSEOUT
EQUIPMENT TRANSFERS
EVA TERMINATION
EVA TERMINATION

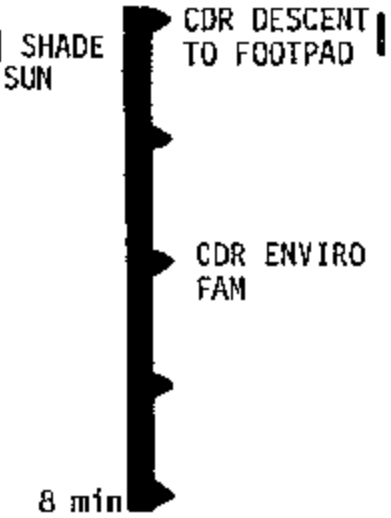
LM-6

SUR-37

Basic Date October 27, 1969
Changed

114:40 EVA 1

CDR ACTIVITIES	LMP ACTIVITES
0+10 CDR EGRESS	
MOVE THROUGH HATCH	PREP/CONNECT LEC
CHECK INGRESS PROC	PASS LEC TO CDR
DEPLOY LEC (MESA SIDE)	
DEPLOY MESA/RESTOW HANDLE	PHOTO CDR (70mm) [5.6,5FT,6]
DESCEND TO FOOTPAD	
CHECK ASCENT PROC	SEQ CAM ON
STEP TO SURFACE	[2.8/60,12FPS] SHADE
	[8/250,12FPS] SUN
0+18 ENVIRONMENTAL FAMILIARIZATION	
CHECK AND DISCUSS:	
• MOBILITY AND STABILITY	
• CG SHIFT-FORWARD, BACK, SIDE	
• DOWNWARD REACH	
• ARM MOTION EFFECTS	
• WALKING (BALANCE, BOOT PENETRATION TRACTION, SOIL SCAT/ADHESION)	
CHECK AND REPORT LM STATUS	
• ATTITUDE, GROUND CLEARANCE,	
• FOOTPAD/SURFACE INTERACTION	
• DPS EXHAUST EFFECTS	
	CHANGE SEQ CAM MAGAZINE



CDR

0+23 CONTINGENCY SAMPLE
COLLECT IN UNDISTURBED AREA

0+26 ETB TRANSFERS
REMOVE MESA COVER
ERECT MESA TABLE
DEPLOY ETB
REMOVE & HANG PHOTO CHARTS ON MESA TABLE
REMOVE & STOW BAGS ON MESA
UNSTOW & PLACE IN ETB:

EVA 2 PLSS RESUPPLY
1. CONTINGENCY SAMPLE
2. LiOH CANISTERS
3. PLSS BATTERIES

(INSIDE ETB)

ATTACH LEC
TRANSFER ETB
REST/CHECK EMU
TRANSFER ETB TO SURFACE
ATTACH ETB TO MESA
(POSSIBLE TV DEPLOY)

LMP

SEQ CAM ON [8,12FPS] — Full — COLLECT SAMPLE

AFTER 3 MIN, — REMOVE MESA COVER

SEQ CAM OFF
PERFORM FINAL LM & EMU CHECK

CONFIRM "GO" FOR EVA

SEQ CAM ON [2.8/60,12FPS]
TRANSFER ETB
STOW BATTS (OPS AREA)
STOW LiOH (ASC ENG COVER)
STOW CONT SAMPLE (LUNAR BOOT COMPT)
PACK CAMERAS IN ETB
TRANSFER ETB
— ETB TRANSFER
VERIFY LM CB & VOX SENS
CHANGE SEQ CAM MAGAZINE
STOW LEC
SEQ CAM ON [8,6FPS]
(FOR FAM, TV AND S-BAND)

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed _____

CDR

0+40 LMP & CONTINGENCY PHOTO
PHOTOGRAPH:
LMP EGRESS [5.6,15FT,6]

CONT SAMPLE AREA [8,5FT,1]

DEPLOY COLOR CHART ON UNDISTURBED SURFACE
NORMAL TO SUNLINE
PHOTOGRAPH COLOR CHART
[11,5FT,1] X SUN
[11,5FT,1] DN SUN
PLACE 70mm CAMERA ON MESA

LMP

0+40 LMP EGRESS
MOVE THROUGH HATCH
CHECK INGRESS PROCEDURE
CLOSE HATCH
DESCEND TO FOOTPAD
CHECK ASCENT PROCEDURE
STEP TO SURFACE

0+45 ENVIRONMENTAL FAMILIARIZATION
CHECK AND DISCUSS:
- MOBILITY AND STABILITY
- CG SHIFT-FORWARD, BACK, SIDE
- DOWNWARD REACH
- ARM MOTION EFFECTS
- WALKING (BALANCING, BOOT PENETRATION, SOIL SCAT/ ADHESION)

CDR

0+50 S-BAND ANTENNA DEPLOYMENT

PULL PIP PINS(s)
DEPLOY HANDLE

(BELOW STOWED ANTENNA)

MOVE TO DEPLOYMENT SITE
(LESS THAN 30 FT, DIRECT LOS,
IN VIEW OF SEQ CAMERA)

GROSS POINTING
UNLOCK LEGS
REMOVE PLATE/PAD

(ON S-BAND PLATE)

LMP

0+53 TV DEPLOYMENT (B & W)

DEPLOY TRIPOD
SECURE TV TO TRIPOD
REPORT TEMP
INSTALL LD LENS
UNSTOW CABLE
POSITION 20 FT AT (10)
PAN (SLOW SCAN, 3 SEC
MINIMUM, FOV
OVERLAP, OMIT
UPSUN)
ORIENT FOR S-BAND

(ON TV)
(COLOR)

TV TO TRIPOD
UNSTOW CABLE
POSITION 20 FT AT (10)
PAN (3 SEC MINIMUM,
FOV OVERLAP, OMIT UPSUN)

Basic Date October 27, 1969
Changed November 3, 1969

Basic Date October 27, 1969
Changed

CDR

S-BAND ANTENNA DEPLOYMENT
(CONT.)

LOCK INNER MAST
LOCK OUTER MAST
EXTEND & LOCK LEGS
ALIGN
DEPLOY LEGS
REMOVE THERMAL COVER
LIFT ANTENNA

(UNDER TOP PLATE)

REMOVE BAR
REMOVE RIB/PORTECTOR
FREE LANYARD/TRIGGER
GRASP LEG AND DEPLOY
ATTACH CABLE
POINT ANTENNA

(ON LEG)

1+02 FLAG DEPLOYMENT

REST/CHECK EMU

LMP

0+56 SWC DEPLOYMENT
ATTACH 70mm TO EMU
UNSTOW SWC
EXTEND SWC SECTIONS
(RED BANDS VISIBLE)
EXTEND SHADE CYLINDER
(RED/RED)
EXTEND FOIL
DEPLOY NORMAL TO SUN
60 FT FROM LM

PHOTO SWC [11,5FT,1]
[11,15FT,1] LM IN BKGND

PHOTO LM/EARTH
[11,74FT,2]
[11,15FT,2]

1+02 FLAG DEPLOYMENT

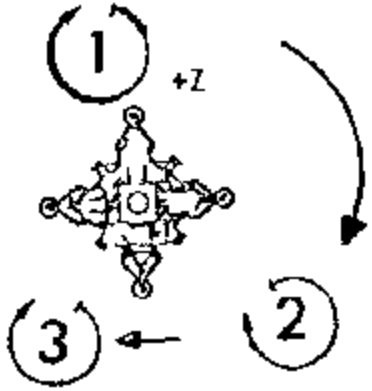
REST/CHECK EMU

CDR

1+07 PANORAMA PHOTOGRAPHY

ATTACH SADDLE BAG TO LMP
ATTACH 70mm CAMERA TO EMU
UNSTOW ALSCC:
  PULL PIP PIN
  LIFT LOCKING BAR
  SWING RETAINER RING CLEAR
  PULL CAMERA FROM MESA
  EXTEND HANDLE
  PLACE CAMERA ON SURF. IN DIRECT SUN

IF CONDITIONS PERMIT THE FOLLOWING PHOTO TREK WILL REDUCE NUMBER OF CAMERA SETTING CHANGES.



LMP

1+07 LM INSPECTION/PHOTO

ATTACH SADDLE BAG TO CDR

POSITION TV 20 FT @ (8) SEQ BAY

PHOTO: -Y PAD/SURFACE [8,5FT,2] X SUN

INSPECT: QUAD 1 AREA

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed

CDR

PANORAMA PHOTOGRAPHY (CONT)

12 PHOTOS AT 3 POINTS, 120° APART

20 FT AT (12)

2 [8,74FT,1]
3 [8,74FT,1]
4 [5.6,74FT,1]
5 [5.6,74FT,1]
6 [5.6,74FT,1]
7 [5.6,74FT,1]
8 [5.6,74FT,1]
9 [8,74FT,1]
10 [8,74FT,1]
11 [8,74FT,1]
12 [11,74FT,1]
1 [8,74FT,1]

LMP

LM INSPECTION (CONT)

PHOTO: +Z PAD/SURFACE [5.6,5FT,2] UP SUN

INSPECT: QUAD IV

CDR

PANORAMA PHOTOGRAPHY (CONT)

20FT AT (4)

11 [8,74FT,1]
12 [11,74FT,1]
1 [8,74FT,1]
2 [8,74FT,1]
3 [8,74FT,1]
4 [5.6,74FT,1]
5 [5.6,74FT,1]
6 [5.6,74FT,1]
7 [5.6,74FT,1]
8 [5.6,74FT,1]
9 [8,74FT,1]
10 [8,74FT,1]

LMP

LM INSPECTION (CONT)

PHOTO: +Y PAD/SURFACE [8,5FT,2] X SUN

INSPECT: QUAD III

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed

CDR

PANORAMA PHOTOGRAPHY (CONT)

20FT AT (8)

11 [8,74FT,1]
12 [11,74FT,1]
1 [8,74FT,1]
2 [8,74FT,1]
3 [8,74FT,1]
4 [5.6,74FT,1]
5 [5.6,74FT,1]
6 [5.6,74FT,1]
7 [5.6,74FT,1]
8 [5.6,74FT,1]
9 [8,74FT,1]
10 [8,74FT,1]

LMP

LM INSPECTION (CONT)

PHOTO: -Z PAD/SURFACE [11,5FT,2] DN SUN

INSPECT: QUAD II

CDR

1+15 ALSEP OFFLOAD

REMOVE PKG 1	
	REMOVE PKG 2
STOW BOOMS	DEPLOY HTC
UNSTOW UHT (2)	UNSTOW CASK TOOLS
CONNECT BAR	
TIP PKG 2	
REMOVE SIDE	LOWER CASK
	FUEL RTG
CLOSE DOORS	CONNECT PKGS

(BACK WALL OF SEQ BAY)

REST/CHECK EMU

LMP

1-15 ALSEP OFFLOAD

OPEN SEQ BAY DOOR

REST/CHECK EMU

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed

	CDR	LMP
	CARRY HTC TO MESA AREA TETHER TONGS PICK UP TV	COUPLE PKG 2 TO CARRY BAR
1+36	ALSEP TRAVERSE REPORT TRAVERSE START CARRY TV, SUBPALLET & UHT POSITION TV TO VIEW ALSEP AREA TRAVERSE > 300 FT REPORT RESTS AND TRAVERSE END REST/CHECK EMU	1+36 ALSEP TRAVERSE REPORT TRAVERSE START CARRY ALSEP PKGS TRAVERSE > 300 FT REPORT TRAVERSE END REST/CHECK EMU

CDR

1+48 ALSEP SYSTEM INTERCONNECT

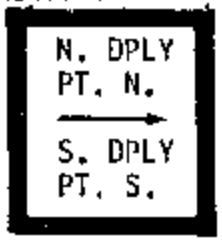
POSITION SUBPALLET
RELEASE SIDE B. BOLTS
REMOVE SIDE
EXTRACT CABLE REEL
DEPLOY SIDE LEGS
PLACE SIDE ON SURFACE
STOW TONGS ON SUBPALLET
TETHER UNIT
CONNECT CABLE TO C/S

*REMOVE & STOW CARRY BAR
*POSITION PSE STOOL
*TILT PKG 1 INTO POSITION
*ALIGN PKG 1
*(IF NOT ACCOMPLISHED BY LMP)

LMP

1+48 ALSEP SYSTEM INTERCONNECT

POSITION ALSEP PACKAGES



(ON PSE GIRDLE)

REMOVE BAR FROM RTG PKG
PLACE C/S TO RIGHT OF RTG

(ON CENTRAL STATION)

TILT PKG 2 INTO POSITION
DEPLOY CABLE - DISCARD REEL
REPORT SHORTING AMPS
CONNECT CABLE

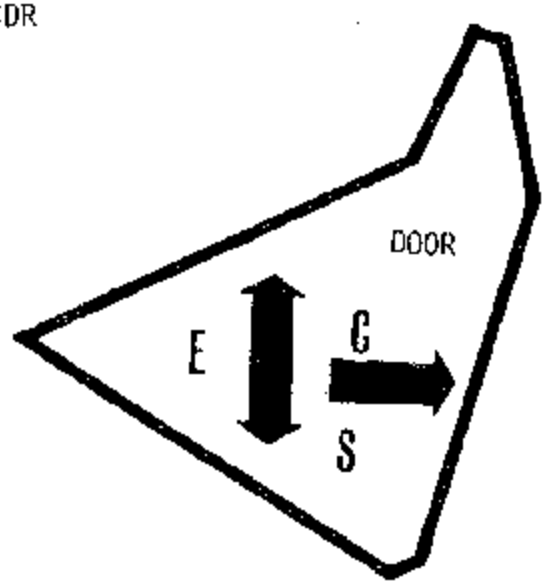
*REMOVE & STOW CARRY BAR
*POSITION PSE STOOL
*TILT PKG 1 INTO POSITION
*ALIGN PKG 1
*(IF NOT ACCOMPLISHED BY CDR)

Basic Date October 27, 1969
Changed

Basic Date ~~October 27, 1969~~
Changed

CDR

LMP



(on SWE)

1+58 SWE DEPLOYMENT

DEPLOY SWE
PHOTOGRAPH SWE

[11,5FT,1] X SUN
REST/CHECK EMU

1+58 PSE DEPLOYMENT

9 FEET

DOME CLEAR

LEVEL

(on PSE)

CDR

2+01 LSM OFFLOAD

REMOVE B. BOLTS (2)
REMOVE HANDLE BRACKET
REMOVE LSM FROM C/S
CHECK CABLE CLEAR OF C/S

2+06 SUNSHIELD DEPLOYMENT

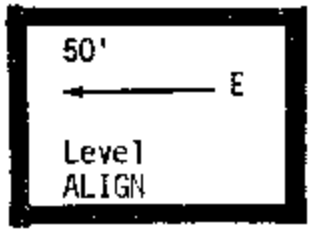
SIDE CABLE HOUSING
ANTENNA CABLE
ANTENNA TIEDOWN
PERIMETER B. BOLTS
INTERIOR B. BOLTS
CENTER B. BOLT
EXTEND SUNSHIELD
CHECK CURTAINS EXTENDED

LMP

PSE DEPLOYMENT (CONT)

REPORT ALIGHMENT
PHOTOGRAPH PSE
[11,5FT,1] X SUN
[11,5FT,1] C/S BKGND
REST/CHECK EMU

2+06 LSM DEPLOYMENT



(ON LSM)
EXTEND SENSOR ARMS
REMOVE PRA COVER
REPORT LEVEL AND ALIGNMENT
PHOTOGRAPH LSM
[11,5FT,1] X SUN
[11,5FT,1] C/S BKGND

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed Nov 10, 1969

CDR

2+14 ANTENNA INSTALLATION

INSTALL ANTENNA MAST
UNSTOW AND INSTALL
  GIMBAL ON MAST
INSTALL ANTENNA
CHECK C/S ALIGNMENT
COARSE LEVEL; SUN ANGLE
ENTER ANTENNA OFFSETS UPDATE
  AZIMUTH 16.44 ( )
  ELEVATION 5.25 ( )
FINE LEVEL & ALIGNMENT

2+25 ALSEP ACTIVATION

CHECK LMP COMPLETE
REPORT SHORTING AMPS
DEPRESS SHORTING SW
REPORT AMPS ZERO
REQUEST TURN ASTRO SW #1
REQUEST XMITTER TURN-ON
CONFIRM DATA RECEIPT BY
  GROUND
REST/CHECK EMU

* TURN ASTRO SW #2
* TURN ASTRO SW #3
* (IF REQUESTED BY HOU)

LMP

2+16 SIDE DEPLOYMENT

(on SIDE/CCIG)

REPORT ALIGNMENT
PHOTOGRAPH SIDE & CCIG
[11,5FT,1] X SUN

2+26 PHOTOGRAPH ALSEP SITE
C/S [11,5FT,2] X SUN
C/S [11,5FT,2] DN SUN
LM [11,74FT,1] C/S FOREG.
SWE [11,15FT,1] C/S FOREG.
SIDE [11,74FT,1] C/S FOREG.
REST/CHECK EMU

74

CDR	LMP
2+30 RETURN TRAVERSE/SEL SAMPLE	2+30 RETURN TRAVERSE/SEL SAMPLE
DISCARD UHT	TRAVERSE TO LM COLLECTING SAMPLES (INCLUDE SOFTBALL SIZE)
RETRIEVE TONGS	REST/CHECK EMU
REPORT TRAVERSE START	POSITION TV 10FT @ (2) /MESA/LADDER
TRAVERSE TO LM COLLECTING SAMPLES (INCLUDE SOFTBALL SIZE)	PHOTO ALSEP SITE FROM LM [11,74FT,2]
REPORT RESTS & TRAVERSE END	
REST/CHECK EMU	

GO/NO GO FOR EVA 1 EXTENSION (4HRS)
NOTE: IF GO FOR EVA 1 EXTENSION TURN TO "EVA 1 EXTENSION (4HRS)" PAGE SUR-56

2+47 SRC 1 PACKING	2+52 CORE TUBE SAMPLE
STOW 70mm CAMERA IN ETB	REMOVE SADDLE BAGS
STOW HAMMER & HANDLE ON HTC	ASSEMBLE HANDLE/CORE TUBE
STOW TONGS ON HTC	PHOTO CORE TUBE SAMPLE SITE
UNSTOW & OPEN SRC 1	[8,5FT,2] X SUN
ATTACH SCALE TO MESA	[11,5FT,1] DN SUN
STOW WEIGH BAGS ON MESA	COLLECT CORE TUBE SAMPLE
UNSTOW FLAT BAG(15) DISP ON HTC	PHOTO CORE TUBE
STOW CORE TUBE/CAP ON HTC	[8,5FT,2] X SUN
SEAL ORGANIC CONTROL SAMPLE	
REMOVE SADDLE BAGS	
FILL SADDLE BAGS WITH LOOSE MATERIAL	
STOW SELECTED SAMPLE BAGS IN SRC	
STOW CORE TUBE IN SRC	STOW CORE TUBE IN SRC 1
CLOSE AND SEAL SRC	REST/CHECK EMU
REST/CHECK EMU	

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed

CDR

3+02 LEC TRANSFERS

PACK 70mms (2) IN ETB

70mms (2)

(INSIDE ETB)

CLOSE ETB TOP FLAP
TRANSFER ETB INTO LM

TRANSFER LEC HOOKS TO SURFACE
ATTACH LEC TO SRC
TRANSFER SRC INTO LM

LMP

2+58 EVA TERMINATION

STOW 70mm IN ETB

CLEAN EMU & CHECK CDR
INGRESS
CHECK EMU AND LM SYSTEMS
S-BAND ANT-LUNAR STAY
TRACK MODE-OFF
COMMUNICATION CHECK
REPOSITION SEQ. CAMERA
MOUNT LEC
ASSIST CDR
REMOVE ETB FROM LEC
STOW ETB ON ENG. COVER

ASSIST CDR
REMOVE SRC FROM LEC
STOW SRC ON ENG. COVER

	CDR	LMP
3+17	EVA TERMINATION UNSTOW & PLACE SRC 2 IN SUNLIGHT ON +Y FOOTPAD	
	CLEAN EMU	STOW SEQ. CAM. ON AOT
	ATTACH LEC TO PORCH INGRESS	HAND LEC TO CDR

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed

EVA 1 EXTENSION (4 HRS)

CDR ACTIVITIES		LMP ACTIVITIES
2+47 SRC PACKING		
STOW 70mm CAMERA IN ETB		
STOW HAMMER & EXT. HANDLE ON HTC		
STOW TONGS ON HTC		
UNSTOW SRC 1		
OPEN SRC		
ATTACH SCALE TO MESA		
STOW FLAT BAG (15) DISP ON HTC		
STOW CORE TUBE/CAP ON HTC		
SEAL ORGANIC CONTROL SAMPLE	2+50	CORE TUBE SAMPLE
REMOVE SADDLE BAGS		REMOVE SADDLE BAGS
ATTACH SADDLE BAG TO SCALE		ASSEMBLE CORE TUBE & HANDLE
FILL SADDLE BAGS WITH LOOSE MATERIAL		PHOTO CORE TUBE SAMPLE SITE
STOW SELECTED SAMPLE BAGS IN SRC		[8,5FT,2] X SUN
STOW CORE TUBE IN SRC		[11,5FT,1] DN SUN
		COLLECT CORE TUBE SAMPLE
		PHOTO CORE TUBE [8,5FT,2] X SUN
		STOW SAMPLE IN SRC
		ASSEMBLE SMALL SCOOP & HANDLE
ATTACH 70mm CAMERA TO EMU		UNSTOW & PLACE GNOMON ON HTC
TETHER TONGS		POSITION TV TO VIEW GEOLOGY TRAVERSE
REST/CHECK EMU		REST/CHECK EMU

EVA 1 EXTENSION (4HRS)

CDR

3+02 GEOLOGY TRAVERSE

CDR CARRY:
- GNOMON
- SMALL SCOOP
- TONGS
- 70mm CAMERA

REPORT:
- START AND END OF TRAVERSE
- LOCATION WITH RESPECT TO LM
- PHOTOS OTHER THAN NOMINAL
- SAMPLE BAG NUMBERS

LMP

3+02 GEOLOGY TRAVERSE

LMP CARRY:
- HTC
- 70mm CAMERA

REPORT:
- START AND END OF TRAVERSE
- LOCATION WITH RESPECT TO LM
- PHOTO OTHER THAN NOMINAL
- SAMPLE BAG NUMBERS

TYPICAL DOCUMENTED SAMPLE COLLECTION

PLACE GNOMON UPSUN
PHOTO SAMPLE
[8,5FT,2] X SUN
COLLECT & PLACE SAMPLE IN BAG

POSITION HTC
PHOTO SAMPLE
[11,5FT,1] ON SUN
DEPLOY AND HOLD FLAT SAMPLE BAG
DESCRIBE & STOW SAMPLE
PHOTO SITE
[8,5FT,1] ON SUN

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed

CDR

LMP

TRENCH SITE SAMPLE COLLECTION
(AT FARTHEST POINT FROM THE LM COLLECT TWO SUBSURFACE MATERIAL SAMPLES)

PLACE GNOMON UPSUN
PHOTO SITE
[8,5FT,2] X SUN
DIG TRENCH ALONG SUNLINE
FILL SAMPLE BAGS WITH SUBSURFACE SOIL

POSITION HTC
PHOTO SITE
[11,5FT,1] DN SUN

DEPLOY AND HOLD FLAT SAMPLE BAGS
STOW SAMPLES IN HTC
PHOTO SITE
[11,5FT,1] DN SUN

3+28 SRC 1 CLOSEOUT
STOW TONGS ON HTC
PACK GEOLOGY SAMPLES IN SRC
CLOSE & SEAL SRC 1

3+28 EVA TERMINATION
POSITION TV 20FT AT (2) /MESA & LADDER
STOW 70mm CAMERA IN ETB
CLEAN EMU AND CHECK CDR EMU
INGRESS

	CDR	LMP
3+32	EQUIPMENT TRANSFERS	EVA TERMINATION (CONT)
	STOW 70mm CAMERA IN ETB	
	CLOSE ETB TOP FLAT	CHECK EMU & LM SYSTEMS
	REST/CHECK EMU	REPOSITION SEQ CAM
		MOUNT LEC
		S-BAND ANT-LUNAR STAY
		TRACK MODE-OFF
		COMMUNICATIONS CHECK
	ATTACH LEC TO ETB	
	TRANSFER ETB INTO LM	ASSIST CDR
	REST	REMOVE ETB FROM LEC
		STOW ETB ON ENGINE COVER
	TRANSFER LEC HOOKS TO SURFACE	ASSIST CDR
	ATTACH LEC TO SRC 1	
	TRANSFER SRC INTO LM	ASSIST CDR
	REST/CHECK EMU	REMOVE SRC FROM LEC
		STOW SRC ON ENGINE COVER
3+47	EVA TERMINATION	
	UNSTOW SRC 2 AND PLACE IN SUN ON +Y FOOTPAD	
	CLEAN EMU	STOW SEQ CAM ON AOT
	ATTACH LEC TO PORCH	HAND LEC TO CDR
	INGRESS LM	

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Changed

POST EVA 1

Jettison Bag

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

Note: PLSS 02 & PRESS Flags May Come On During Repress. If PLSS 02 <10% Manually Control Cabin Repress To Maintain Positive PGA Pressure.

Lighting: ANUN/NUM - BRIGHT

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

PLSS 02 - OFF
Operate OPS Purge Valve To Depress Suit As Required
CABIN REPRESS Valve Closes At 4.4 Psia
Verify Cabin Press Stable At 4.6 To 5.0 Psia (Cabin Warning Lt-Off)

POST EVA SYSTEMS CONFIGURATION

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

Verify EVA CB Configuration
CB(11) ECS: SUIT FAN 1 - Close
CB(16) ECS: SUIT FAN ΔP- Close
(ECS Caution & H20 SEP Comp Lts - Out)
CB(16) COMM: TV - Open

Doff Gloves, Helmets With Visors & Stow On Eng Cover

DES H20 VLV - OPEN
Remove Purge Valve & OPS 02 Hose
Stow Purge Valves In TSB

Connect LM 02 Hoses

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

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

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

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

COMM:
VHF - OFF,OFF,OFF,ON,LEFT,HI
RECORDER - OFF
UPLINK SQUELCH - OFF

PLSS O2 RECHARGE

Verify DES O2 >35%

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

PLSS Mode - AR (O2 QTY ≈75%)
PLSS Mode - O

Repeat O2 Recharge For CDR PLSS

Stow O2 Supply Hose

PLSS/OPS DOFFING

Disconnect OPS Actuator From RCU
Disconnect RCU From PGA
Verify All RCU Controls - Off
Disconnect RCU From PLSS & Stow On
Mid-Step

Disconnect PLSS O2 Hoses
Doff PLSS/OPS

Basic Date October 27, 1969
Changed

Stow LMP PLSS On Floor
Stow CDR PLSS On Mid-Step
Stow OPS 02 Hose, Actuator, & Antenna
Disconnect OPS Antenna Connector
Stow PLSS Hoses

Install Gas Connector Plugs (TSB) In PGA

Caution: Replace Expended PLSS LiOH Carts & Batts Numbered 1 or 2 With New Carts & Batts Numbered 3 or 4

Replace CDR PLSS Batt, Stow In Fwd LHSSC
Connect Cable To Battery
Change LiOH Cart, Temp <130°, Read Decal
Remove OPS & Stow On Eng Cover
Stow CDR PLSS In Recharge Station

Stow One RCU Inside LHSSC, One Outside
Stow EV Gloves, Helmets, & Visors In Helmet Bags
Stow Helmet Bags On Floor

Replace LMP PLSS Batt, Stow In Fwd LHSSC
Connect Cable To Battery
Change LiOH Cart, Temp <130°, Read Decal
Remove OPS
Stow PLSS On Floor

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Perform OPS Check (Both)
Place LMP OPS On Floor

POST EVA CABIN CONFIGURATION

CDR Move To Aft Cabin
Stow SRC In Lower Comp
Stow CDR OPS In Top Comp

Configure Seq Camr (Mag, Settings 11/250,12FR) & Stow Above RH Window
Stow Rt Angle Brkt & Remote Cont Cable In LHSSC
Remove Mags From TSB & Stow In RHSSC

Replace 70mm Camr Mags With B&W
Install Polarizing Filter (Camr Comp)
Stow Cameras In ETB
Unstow Jett Bag From Aft LHSSC, Upper RH Corner
Place ETB In Jett Bag, Stow On RH Cabin Floor, Fwd

Verify Powerdown CB Configuration
MODULATE - PM
CB(16) ECS: LCG PUMP - Open
Reverse 02 Hoses, R/B & B/R

Unstow Lunar Surface Checklist SUR-63
Stow EVA 1 Prep & Post Card

REST CYCLE

EAT PERIOD
118:57 TO 119:57

Copy Liftoff Time In Data Book
For T - n

PLSS RECHARGE

Perform Feedwater Collection:
Unstow Feedwater Collection Bag Aft
Of Lunar Boot Comp
Remove Spring Scale From Bag

Flatten Bag To Remove Trapped Gas
Zero Spring Scale
Weigh RCU, Report to Hou
Stow RCU Inside LHSSC
Connect Bag To PLSS H20 Fill

PLSS 02 - ON
After 30 sec, PLSS H20 Vlv - OPEN
Drain Feedwater Bladder 1.5 Minutes Min
PLSS H20 Vlv - CLOSE
PLSS 02 - OFF

Disconnect Bag From PLSS H20 Fill
Weigh Bag & Record LBS, CDR ____ LMP____
(Report To Hou)
Stow Bag In LHSSC, Fwd Section
Repeat for 2nd PLSS
Stow Scale Aft Of Lunar Boot Comp

Verify 1 Hr Elapsed Since Initial
02 Recharge (DES 02 >35%)

Connect 02 Supply To PLSS
PLSS FILL - OPEN Then CLOSE
After 10 min

Perform Feedwater Recharge (Decal)

Verify PLSS FILL - CLOSED
Disconnect 02 Supply

Repeat 02 & H20 Recharge For Second PLSS

DES H20 Vlv - OPEN

EVA DEBRIEFING WITH HOU (5 MIN)
Report Status Of PLSS Recharge

Basic Date October 27, 1969
Changed

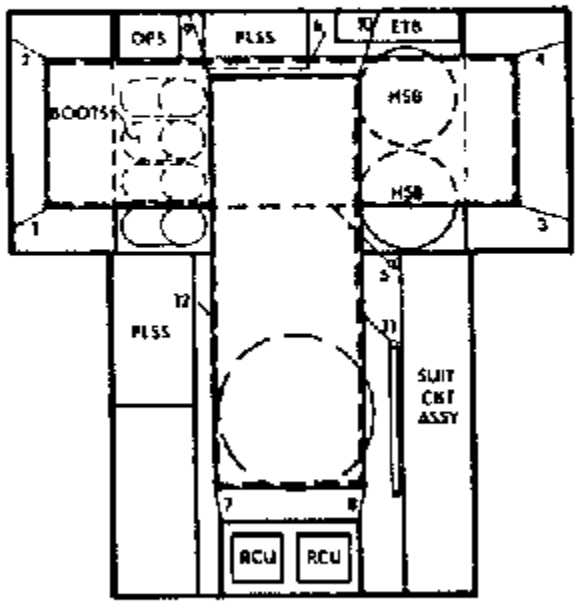
Basic Date October 27, 1969
Changed November 5, 1969

CREW STATUS REPORT	CDR	LMP
MED		
PRD		

GO/NO GO FOR EVA 2 EXTENSION

VOICE - DN VOICE BU
PWR AMPL - OFF UHF ANT - AFT
Configure Sleep Stations and Stowage:
Disconnect LMP Restraint Cables From Stowage
CDR Unstow CDR Hammock, Stow Jett Bag In LHSSC, Move To Aft Cabin, Route Hoses Behind PGA
Doff Lunar Boots
LMP Stow Equipment On Floor Per Diagram
Place Cue Card Over AOT For Sleep
Unstow Towels (Hammock Pouch)

LMP Configure 1-6 & Ingress Hammock
Notes: 1 & 2 - Adjust For Height
5 - Route Under Hoses
CDR Configure 7-11, Ingress Hammock, Configure 12 & Adjust
Notes: 9 & 10 - Route Under CDR Hoses, Adjust For Height



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REST PERIOD
120:55 TO ~~129:55~~

Crew Awake - Confirm No Change
In CWEA Status
PWR AMPL - PRIM
VOICE - VOICE
Unstow Jett Bag, Aft LHSSC,
Upper RH Corner
Stow Hammocks In Jett Bag
Stow Helmet Bags On Eng Cover
Stow LMP Restraint Cables
CB(16) ECS: LCG PUMP - Close

Change LM ECS LiOH Cartridge

PRO, V37E06E, PRO
(STBY Lt - ON)

EAT PERIOD
~~130:05 TO 131:05~~

STAY/NO STAY For EVA 2 Prep

CREW STATUS REPORT

	CDR	LMP
MED	_____	_____
PRD	_____	_____

Copy Liftoff Time in Data Book For T-n

LM CONSUMABLES UPDATE

GET 1 3 0: 0 0

RCS	A	78 %	B	74 %
O2	DES	65 %	ASC	91 %
H2O	DES	50 %	ASC	100%
A-H	DES	901	ASC	572

PRE EVA 2 PLANNING WITH HOU (10 MIN)

Basic Date October 27, 1969
Changed _____

131:15 CABIN PREP EVA 2

Stow All Loose Items Not Reqd For EVA
Unstow EVA 2 Prep & Post Card
Stow Lunar Surface Checklist

EVA 2 PREP

131:45 EQUIPMENT PREP EVA 2
-:20

Set DET For Cabin Depress -:20
Counting Down

Empty UCTA's
Check PGA Zippers
PGA Diverter Valves - Vertical
Stow Gas Connector Plugs In TSB

Empty PGA Pockets Into TSB
Verify Watch On Left Arm
Verify LM O2 Hoses To PGA R/R & B/B

Don Lunar Boots (CDR 1st)
Unsnap LHSSC (Fwd Section) For Jett
Position Utility Lights As Required

Stow Helmet Bags On LH Cabin Floor

Verify 70mm Camrs Configured In ETB,
Settings 5.6/250 (Both),
Stow Jett Bag In LHSSC

Configure Seq Camr - Utility
Bracket, Rt Angle Bracket &
Remote Control Cable (LHSSC)
Settings 8/250, ∞, 6 FR
Stow Seq Camr On AOT Guard

CDR Move To Aft Cabin
Remove PLSS Condensate Container,
Stow In Jett Bag
Remove ECS LiOH Cart & Bracket,
Stow In Jett Bag
Unstow 2 PLSS Feedwater Collection
Bags & Spring Scale Aft of Boot
Comp & Place On Top Of Data File
Unstow CDR OPS

Perform OPS Check (Both)
Stow Both OPS On Floor
FWD Hatch Handle - UNLOCK
CDR Move To CDR Station

Position Helmet Bags On Eng Cover
Apply Antifog (CDR Helmet Bag)
Stow Visors, Helmets, & EV Gloves On
RH Eng Cover
Position Helmet Bags In SRC Area

Basic Date October 27, 1969
Changed November 3, 1969

-:59 PLSS DONNING

LMP 1st - Unstow OPS Antenna Lead
& Secure Flap
Attach OPS To Unstowed PLSS
Connect OPS Antenna Lead To PLSS
Verify Sublimator Exhausts Clear

Unstow PLSS Straps & Hoses
Verify ALL PLSS Valves - Up

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

Unstow RCU's From LHSSC & Place
On Mid-Step

Don PLSS/OPS (Lift PLSS Hoses Above
LH Lower Strap)
Connect PLSS O2 Hoses To PGA
Verify DIVERTER, O2, FEEDWATER-OFF

Verify Helmets Accesible

Unstow CDR PLSS & Repeat PLSS DONNING

Verify RCU Controls:
PUMP, FAN, MODE SEL - OFF
Vol Cont (2) - FULL INCR
(NOTE: Blade-B & AR, Wheel-A)
PTT - MAIN
Connect RCU To PLSS, Then PGA

-:39 **PLSS COMM CHECK

Verify Powerdown CB Configuration
COMM: MODULATE - FM
PWR AMPL - PRIM
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:
VHF - VOICE, ON, OFF, ON, OFF, HI
RANGE - OFF/RESET
SQUELCH A&B - Noise Thres + 1-1/2
RECORDER - ON
VHF Antenna - EVA
UPLINK SQUELCH - ENABLE
LMP Connect To PLSS Comm (Audio CB)

PLSS Mode (LMP) - A (Tone-On, Vent Flag - P, Press Flag - O)
PLSS O2 Press Gage >75%
Perform Comm Check With CDR

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

CDR Connect To PLSS Comm (Audio CB)

Audio (CDR)
VHF A - OFF
VHF B - OFF
No MSFN Reception In PLSS Mode B
PLSS Mode (CDR) - B (Tone-on, Vent Flag - P, Press Flag - O)
PLSS O2 Press Gage >75%
Perform Comm Check With LMP

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

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

-:33 FINAL SYSTEMS PREP

CB(16) ECS: CABIN REPRESS - Close (Ver)
SUIT FAN ΔP - Open
CB(11) ECS: SUIT FAN 1 - Open
Verify ECS Caution & H2O SEP COMP Lts - On

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

OPS CONNECT

LMP 1st - Unstow OPS O2 Hose & Actuator
Connect Actuator To RCU
Snap OPS O2 Hose To Side of PLSS
SUIT ISOL - SUIT DISC
Discon LM O2 Hoses, Secure About PGA

Connect OPS O2 Hose To PGA B/B
Retrieve Purge Valve (TSB) - Verify Closed & Locked
Install Purge Valve In PGA R/R
Verify PLSS Centered & At Proper Height

CDR Repeat OPS CONNECT

Drink
DES H2O VLV - CLOSE

HELMET/GLOVE DONNING

Position Mikes (Both)
PLSS FAN - ON (Vent Flag - Clear)
Don Helmets, Then Visors

CB(16) ECS: LCG PUMP - Open
Disconnect LM H2O Hose
Connect PLSS H2O Hose
Stow LM Hoses

Verify The Following:

Helmet & Visor	(2)	- Locked & Adjusted
Torso Tiedown	(2)	- Adjusted
O2 Connectors	(6)	- Locked
Purge Valves	(2)	- Locked
H2O Connectors	(2)	- Locked
Comm Connectors	(2)	- Locked

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

PLSS DIVERTER - MIN (Verify)
PLSS PUMP - ON

PRESS REG A & B - EGRESS

Verify Items Prepared For Jettison:
  ECS LiOH Cartridge-Jett Bag
  PLSS Condensate Container-Jett Bag
  Hammocks-Jett Bag
  LHSSC (Fwd Section)-PLSS Batteries,
    LiOH Carts, Food Waste, Urine Bags

Position ETB On Eng Cover
Verify EVA CB Configuration

-:13 PRESSURE INTEGRITY CHECK

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 EVA From MSFN
CABIN REPRESS VLV - CLOSE

Fwd Dump Valve - OPEN Then AUTO At 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 & Decaying
PGA >4.8 Psig & Decaying

:00

Start Wrist Watch

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
PGA >4.8 Psig & Decaying

Partially Open Fwd Hatch
Fwd Dump Valve - AUTO

:05 FINAL PREP FOR EGRESS

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

Fwd Hatch - Full Open

Rest Until Cooling Sufficient
Verify:
PGA Stable At 3.7 To 4.0 Psig
LM Suit Circuit 3.6 To 4.3 Psia
CWEA Status:

Warning	Caution
ASC PRESS	PREAMPS
	ECS

H2O SEP COMP LT - ON

Lighting: ANUN/NUM - DIM
CB(16) COMM: TV - Close
Position Seq Camr On Crash Bar

Jettison Bag & LHSSC

Release PLSS Antennas

:10 Lower EV Visor

LM-6
Basic Date
Changed
October 27, 1969
0+0
0+10
0+20
0+30
0+40
0+50
1+00
CDR
CDR EGRESS
ETB TRANSFER
GEOLOGY TRAVERSE PREP
GEOLOGY TRAVERSE
LMP
LMP EGRESS
GEOLOGY TRAVERSE
SUR-73
EVA 2

EVA 2

1+00 1+10 1+20 1+30 1+40 1+50 2+00

CDR

GEOLOGY TRAVERSE (CONT.)

SURVEYOR SITE ACTIVITIES

LMP

GEOLOGY TRAVERSE (CONT.)

SURVEYOR SITE ACTIVITIES

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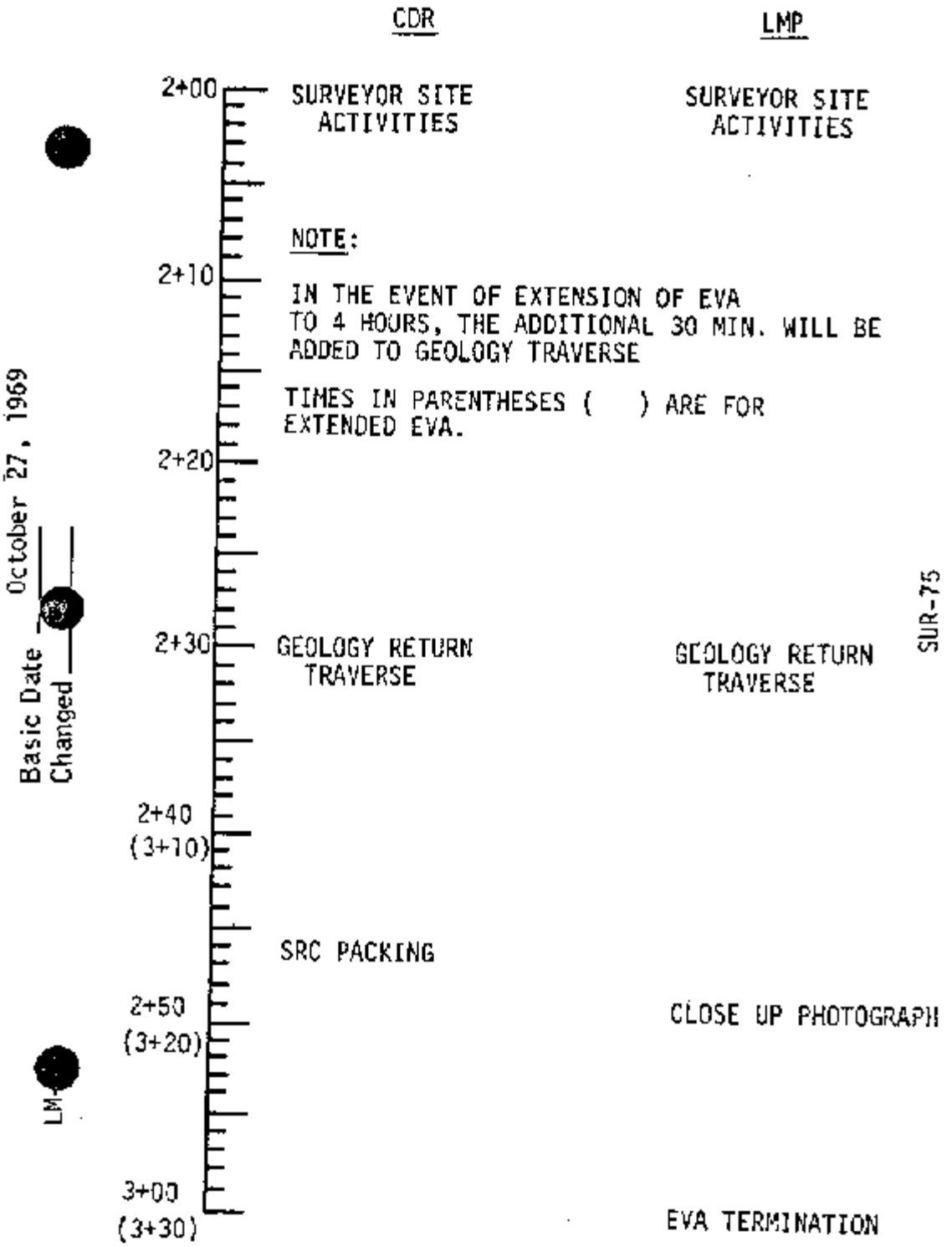
LM-6

Basic Date October 27, 1969

Changed


CDR
LMP
2+00
SURVEYOR SITE ACTIVITIES
SURVEYOR SITE ACTIVITIES
NOTE:
2+10
IN THE EVENT OF EXTENSION OF EVA TO 4 HOURS, THE ADDITIONAL 30 MIN. WILL BE ADDED TO GEOLOGY TRAVERSE
TIMES IN PARENTHESES ( ) ARE FOR EXTENDED EVA.
2+20
October 27, 1969
Basic Date Changed
2+30
GEOLOGY RETURN TRAVERSE
GEOLOGY RETURN TRAVERSE
SUR-75
2+40
(3+10)
SRC PACKING
2+50
(3+20)
CLOSE UP PHOTOGRAPH
LM
3+00
(3+30)
EVA TERMINATION

CDR

LMP

SUR-76

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed November 10, 1969

113:15

EVA 2

CDR ACTIVITIES	LMP ACTIVITIES
0+10 CDR EGRESS MOVE THROUGH HATCH PASS LEC TO LMP DESCEND TO SURFACE	RECEIVE & ATTACH LEC INSIDE LM
	STOW 70mm CAMERAS IN ETB
0+13 ETB TRANSFER TRANSFER LEC HOOKS INTO LM CABIN	ASSIST CDR
TRANSFER ETB TO SURFACE ATTACH ETB TO MESA	ATTACH ETB TO LEC ASSIST CDR STOW LEC VERIFY CB & VOX SENS TURN SEQ CAM ON [6FPS] (CENTER MESA AREA)

CDR	LMP
0+17 GEOLOGY TRAVERSE PREP	0+18 LMP EGRESS
POSITION HTC NEAR MESA	MOVE THROUGH HATCH
STOW ON HTC:	DESCEND TO SURFACE
• CONTRAST CHARTS	
• EXTENSION HANDLE	
• HAMMER	
• SMALL SCOOP	
• GNOMON	
RETRIEVE & OPEN SRC 2	
ATTACH WEIGH BAG TO SCALE	ATTACH SADDLE BAG
ATTACH SADDLE BAG TO LMP	ATTACH PARTS BAG TO CDR PLSS
UNSTOW CUTTERS	STOW CUTTERS IN PARTS BAG
	ATTACH 70mm TO EMU
	STOW SAFETY LINE IN SADDLE BAG

Basic Date October 27, 1969
Changed November 3, 1969

Basic Date October 27, 1969
Changed

CDR

LMP

GEOLOGY TRAVERSE PREP (CONT)

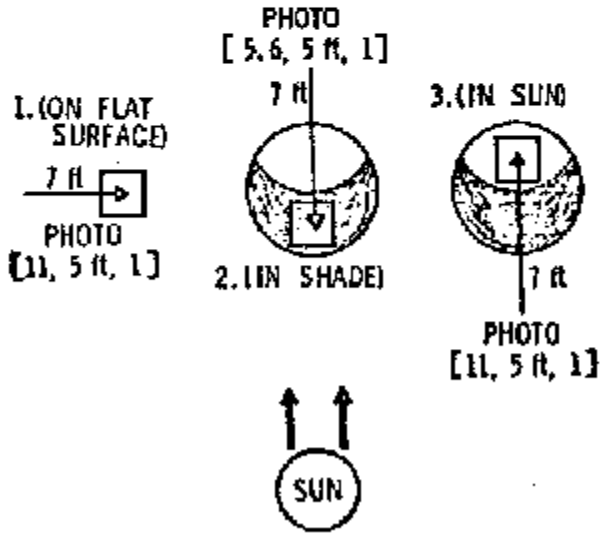
STOW ON HTC:
- CORE TUBES AND CAPS
- DIXIE CUP DISP
- GAS ANALYSIS SAMPLE CAN
- ENVIRON. SAMPLE CAN
- FLAT SAMPLE BAG DISP (15)

STOW SWC BAG ON MESA
SEAL CONTROL SAMPLE
TETHER TONGS TO EMU
ATTACH 70MM TO EMU

DEPLOY & PHOTOGRAPH CONTRAST CHARTS:

CONTRAST CHART PHOTOS

- REPORT-CHART VISIBILITY



SUR-79 REPOSITION TV FOR GEOLOGY TRAVERSE

CDR

LMP

0+30

GEOLOGY TRAVERSE

CDR CARRY:
- SMALL SCOOP
- GNOMON
- TONGS
- 70MM CAMERA
- SURVEYOR PARTS BAG

REPORT:
START AND END OF TRAVERSE
LOCATION WITH RESPECT TO LM
PHOTOS OTHER THAN NOMINAL
SAMPLE BAG NUMBERS

LMP CARRY:
- HTC W/CONTENTS
- 70MM CAMERA

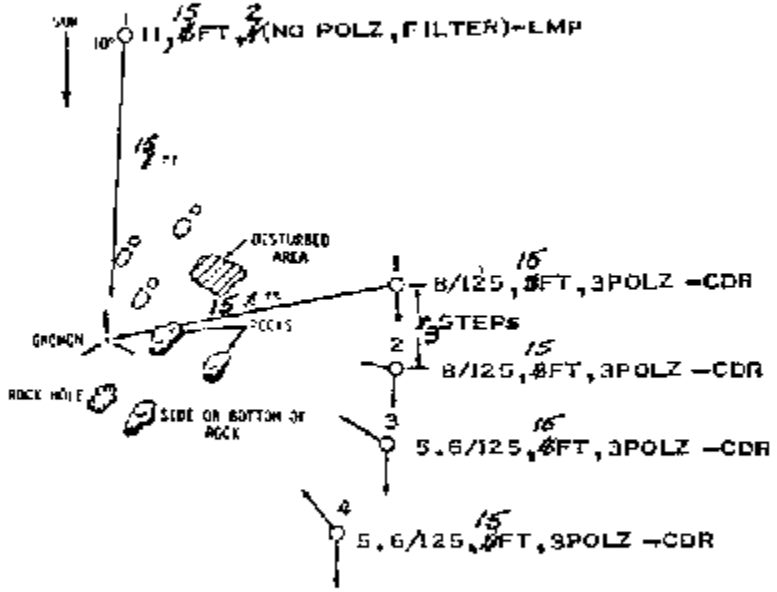
REPORT:
- START AND END OF TRAVERSE
- LOCATION WITH RESPECT TO LM
- PHOTOS OTHER THAN NOMINAL
- SAMPLE BAG NUMBERS

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed Nov. 10, 1969

DOCUMENTED SAMPLE COLLECTION

FIRST DOCUMENTED SAMPLE IS PHOTOGRAPHED WITH POLARIZING FILTER ON CDR'S CAMERA



(THE DOCUMENTED SAMPLES INCLUDE; TOP AND BOTTOM OF ROCKS NEAR AND FAR FROM LM, SOIL NEAR AND FAR FROM LM, AND SOIL NEXT AND UNDER A ROCK)

CDR

LMP

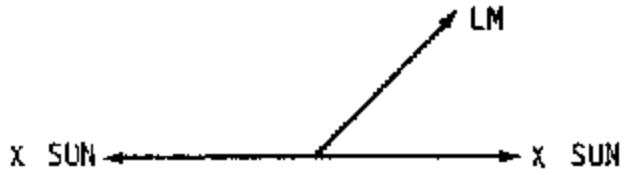
DOCUMENTED SAMPLE COLLECTION (CONT)

PLACE GNOMON UP SUN
PHOTO SAMPLE AND GNOMON
  [8,5FT,2 STEREO] X SUN
COLLECT AND PLACE SAMPLE
  IN BAG

RETRIEVE GNOMON
PROCEED TO NEXT SAMPLE SITE

PLACE HTC NEAR SAMPLE
PHOTO SAMPLE AND GNOMON
  [11,5FT,1] DN SUN
DEPLOY BAG IN DISP
DESCRIBE SAMPLE
CLOSE AND STOW SAMPLE BAG
  IN HTC
PHOTO SAMPLE SITE & GNOMON
  [11,5FT,1] DN SUN

RETRIEVE HTC
PROCEED TO NEXT SAMPLE SITE
MAKE BACK SITE SURVEY BETWEEN
  EACH LEG OF TRAVERSE [3]



TAKE PANORAMA AT FARTHEST POINT
  FROM LM [12]

Basic Date October 27, 1969
Changed

Basic Date October 27, 1969
Changed

CDR

LMP

CORE TUBE SAMPLE

SELECT SAMPLE SITE
PLACE GNOMON UP SUN OF SITE
PHOTO SAMPLE SITE & GNOMON
[8,5FT,2 STEREO] X SUN

RETRIEVE GNOMON
PROCEED TO NEXT SAMPLE SITE

PLACE HTC
ASSEMBLE EXTENTION HANDLE & CORE TUBE
PHOTO SAMPLE SITE & GNOMON
[11,5FT,1] DN SUN
RETRIEVE HAMMER
DRIVE CORE TUBE
PHOTO CORE TUBE & GNOMON
[11,5FT,1] DN SUN
REMOVE BIT & INSTALL CAP
STOW CORE TUBE ON HTC

RETRIEVE HTC
PROCEED TO NEXT SAMPLE SITE

CDR	LMP

TRENCH SAMPLING (ENVIRON./CORE TUBES)

PLACE GNOMON UP SUN	PLACE HTC
PHOTO SITE & GNOMON [8,5FT,2 STEREO] X SUN	PHOTO SITE & GNOMON [11,5FT,2 STEREO] DN SUN
RETRIEVE SCOOP	OPEN ENVIRON. (LARGE) CAN
DIG (TRENCH ALONG SUNLINE)	
FILL ENVIRON. CAN WITH SUBSURFACE SOIL	HOLD CAN FOR SUBSURFACE SOIL
STOW SCOOP	REMOVE SEAL PROTECTOR
ASSEMBLE CORE TUBE & HANDLE	CLOSE & STOW SAMPLE
	PHOTO TRENCH & GNOMON [11,5FT,2 STEREO] DN SUN
	RETRIEVE HAMMER
	DRIVE TUBE IN TRENCH
	PHOTO TUBE & GNOMON [11,5FT,1] DN SUN
	REMOVE BIT & INSTALL CAP
	STOW SAMPLE ON HTC
RETRIEVE GNOMON	RETRIEVE HTC
PROCEED TO NEXT SAMPLE SITE	PROCEED TO NEXT SAMPLE SITE

Basic Date October 27, 1969
Changed

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Changed _____

CDR

SELECT SMALL SURFACE ROCK FRAGMENT
FAR FROM LM/PLUME
PLACE GNOMON UP SUN
PHOTO FRAGMENT & GNOMON
[8,5FT,2 STEREO] X SUN

COLLECT & PLACE FRAGMENT
IN CAN

RETRIEVE GNOMON
PROCEED TO NEXT SAMPLE SITE

LMP

PLACE HTC
PHOTO FRAGMENT & GNOMON
[11,5FT,1] DN SUN
OPEN G.A. (SMALL) CAN
HOLD CAN FOR CDR
REMOVE SEAL PROTECTOR
CLOSE AND STOW SAMPLE
PHOTO SITE & GNOMON
[11,5FT,1] DN SUN

RETRIEVE HTC
PROCEED TO NEXT SAMPLE SITE

GAS ANALYSIS SAMPLE COLLECTION

CDR

LMP

GEOLOGY TRAVERSE COMPLETION

COLLECT LAST THREE DOCUMENTED SAMPLES IN SURVEYOR CRATER:
LUNAR BEDROCK, LAYERED ROCK AND ROUNDED ROCK IN RAY PATTERN.

2+00

SURVEYOR SITE ACTIVITIES

STOW SCOOP AND 70 MM
CAMERA ON HTC
READ LMP CHECKLIST

PHOTO BAY A
[1],15FT,1] DN SUN
PHOTO TV SECTOR
[8,15FT,3] ~~W+30S~~
PHOTO SCOOP IMPRINTS
[8,5FT,2 STEREO] X SUN
PHOTO FOOTPAD 2 PRINTS
[8,5FT,2 STEREO] X SUN
DISTURB SURFACE IN FOOTPAD 2 AREA
PHOTO FOOTPAD 2 AREA
[8,5FT,2 STEREO] X SUN

Basic Date October 27, 1969
Changed November 3, 1969

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CDR LMP

SURVEYOR SITE ACTIVITIES (CONT)

PHOTO VERNIER ENGINE, BAY A
[11,5FT,1]
PHOTO LARGE BOX A
[8,5FT,1]

WIPE TOP OF BOX A
PHOTO BOX A
[8,5FT,1]
PHOTO PWR SUPPLY (SMALL BOX)
[8,5FT,1]
WIPE TOP OF PWR SUPPLY
PHOTO PWR SUPPLY
[8,5FT,1]
PHOTO BAY B
[11,15FT,1]
PHOTO SOLAR ARRAY
[5.6,15FT,1]
PHOTO FOOTPAD 3
[11,5FT,1]
PHOTO SCOOP TRENCHES
[8,5FT,2 STEREO] X SUN

CDR	LMP
	SURVEYOR SITE ACTIVITIES (CONT)
	PHOTO TV MIRROR [8,5FT,1]
	WIPE TV MIRROR
WALK TO TV CAMERA	PHOTO TV MIRROR [8,5FT,1]
	RETRIEVE CUTTERS & LARGE SAMPLE CAN FROM CDR
RETRIEVE CUTTERS FROM LMP	PASS CUTTERS TO CDR
	OPEN CAN AND REMOVE SEAL PROTECTOR
CUT STERILE CABLE & PAINTED TUBE SAMPLE	CATCH STERILE CABLE & PAINTED TUBE SAMPLE
CUT 2ND TV SUPPORT TUBE	CLOSE & SEAL CAN
	STOW CAN IN PARTS BAG
CUT AL TUBE SAMPLE	CATCH AL TUBE IN PARTS BAG
	STOW AL TUBE IN PARTS BAG
	COLLECT GLASS AND REPORT PERCENT DEBONDED
	STOW GLASS IN PARTS BAG
	CARRY PARTS BAG TO TV
CUT THREE REMAINING TV TUBES	CATCH AND BAG TV
DISCARD CUTTERS	RETURN TO HTC
ASSIST LMP	
RETURN TO HTC	

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CDR		LMP
2+30	GEOLOGY RETURN TRAVERSE	
	GO/NO GO FOR EVA 2 EXTENSION (4HRS) NOTE: IF GO FOR EVA 2 EXTENSION (4HRS), "GEOLOGY TRAVERSE" WILL BE EXTENDED BY 30 MIN. EVENT TIMES IN PARENTHESIS ( ) INDICATE 4 HOUR EVA TIMES	
REPORT TRAVERSE COMPLETE		2+45 TRAVERSE COMPLETION
2+46 SRC PACKING (3+16)		(3+15) REPOSITION TV 20 FT at (2)/MESA & LADDER REMOVE & PLACE PARTS BAG IN +Y FOOTPAD
STOW 70MM CAMERA IN ETB REMOVE AND EMPTY LMP SADDLE BAG		REMOVE SADDLE BAG
		2+48 STEREO CLOSEUP PHOTOGRAPHY (3+18)
RETRIEVE SWC ROLL AND REMOVE FOIL INSERT FOIL IN SWC BAG PLACE SWC IN SRC TRANSFER FROM HTC INTO SRC CORE TUBES ENVIRON. (LARGE) SAMPLE CAN G.A. (SMALL) SAMPLE CAN DOCUMENTED SAMPLES		RETRIEVE ALSCC DEPLOY SKIRT

CDR

SRC PACKING (CONT)

PACK SRC WITH WIRE MESH

LMP

CLOSE UP PHOTOGRAPHY (CONT)

OBTAIN SURFACE CLOSE UP
PHOTOGRAPHS:
- •UNEXPECTED FEATURES
- •GLASSY FEATURES
- •ROCK-SOIL JUNCTION (UP/DOWN HILL)
- •UNDISTURBED SURFACE (LEVEL/SLOPING)
- •ROCK SURFACE
- •BOOTPRINTS: LM FOOTPAD
- •MATERIAL ADHEARING (BOOT,LM,EQUIPMENT)
- •CRATERS
- •CLUMPS (DISTURBED/UNDISTURBED)

THREE CLEARING FRAMES
REMOVE/STOW CASSETTE IN ETB

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CDR	LMP
SRC PACKING (CONT)	
CHECK AND CLEAN CMP EMU	
REMOVE SRC SEAL PROTECTOR	
CLOSE AND SEAL SRC	
3+01 EQUIPMENT TRANSFERS	
(3+31) CHECK 70MM (2) IN ETB	
CLOSE ETB TOP FLAP	
TRANSFER ETB INTO LM	
REST	
TRANSFER LEC HOOKS	
ATTACH LEC TO SRC	
TRANSFER SRC INTO LM	
REST	
TRANSFER LEC HOOKS	
TRANSFER PARTS BAG INTO LM	
REST	
3+20 EVA TERMINATION	
(3+50) CLEAN EMU	
ASCEND LADDER TO PLATFORM	
DISCARD LEC	
INGRESS LM	
	2+55 EVA TERMINATION
	(3+25)
	STOW 70mm CAMERA IN ETB
	CLEAN EMU & CHECK CDR
	INGRESS LM
	CHECK EMU & LM SYSTEMS
	REPOSITION SEQ. CAM
	MOUNT LEC
	ASSIST CDR
	REMOVE ETB FROM LEC
	ASSIST CDR
	ASSIST CDR
	REMOVE SRC FROM LEC
	ASSIST CDR
	ASSIST CDR
	REMOVE PARTS BAG FROM LEC
	REMOVE LEC FROM LM ATTACHMENT
	PASS LEC TO CDR

POST EVA 2

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

Note: PLSS O2 & PRESS Flags May Come On During Repress. If PLSS O2<10% Manually Control Cabin Repress To Maintain Positive PGA Pressure.

Lighting: ANUN/NUM - BRIGHT

CABIN REPRESS VLV - AUTO
PRESS REG A & B - CABIN (MASTER ALARM & Cabin Warning Lt - On)
Verify Cabin Press Increasing

PLSS O2 - OFF
Operate OPS Purge Valve To Depress Suit As Required
CABIN REPRESS Valve Closes At 4.4 Psia
Verify Cabin Press Stable At 4.6 to 5.0 Psia (Cabin Warning Lt - Off)

POST EVA SYSTEMS CONFIGURATION

Verify EVA CB Configuration
CB(11) ECS: SUIT FAN 1 - Close
CB(16) ECS: SUIT FAN ΔP - Close
(ECS Caution & H2O SEP Comp Lts - Out)

Doff Gloves

DES H2O VLV - OPEN
Remove Purge Valve & OPS O2 Hose
Stow Purge Valves in TSB

Connect LM O2 Hoses (R/R & B/B)
SUIT ISOL (Both) - SUIT FLOW

PLSS PUMP - OFF
PLSS FAN - OFF

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

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

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/OPS DOFFING

Disconnect OPS Actuator From RCU
Disconnect RCU From PGA
Verify All RCU Controls - OFF
Disconnect RCU From PLSS And Stow
  On Mid-Step

Disconnect PLSS O2 Hoses
Doff PLSS/OPS
Stow LMP PLSS On Floor
Stow CDR PLSS On Mid-Step

Stow OPS O2 Hoses, Actuator, & Antenna
Disconnect OPS Antenna Connector
Doff Yo-Yos, Stow In LHSSC
Stow PLSS Hoses

Remove OPS & Perform Checkout
Stow OPS On Engine Cover, End Up
Remove Lower PLSS Straps, Clip
  Straps Together (Name-To-Name)
  & Stow In RHSSC(FECAL EMESIS)
Stow PLSS (Both) On Floor

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

Unstow 2 Jett Bags, Aft LHSSC,
  Upper RH Corner
Doff Lunar Boots, Stow In Jett Bag
Remove CSC Cassette From ETB, Stow
  In Upper Boot Comp
Unstow 70mm Camrs From ETB
Stow ETB In 2nd Bag, Stow On Eng Cover

PREP FOR EQUIPMENT JETTISON

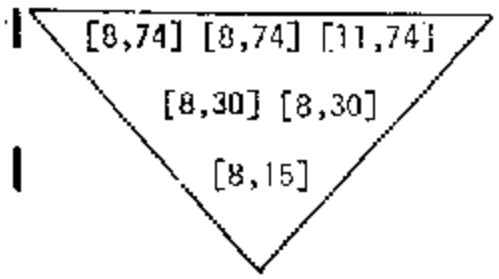
Fwd Hatch Handle - UNLOCK

Verify O2 QTY >25%

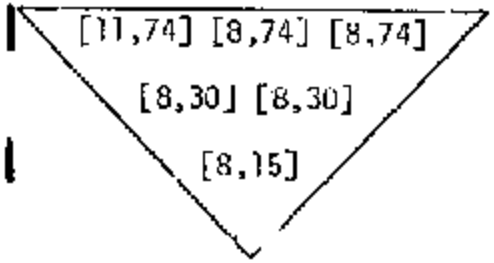
Basic Date October 27, 1969
Changed

Photo Lunar Surface Out Of Both Windows
Using B&W Film [12]

CDR



LMP



Stow 70mm Mags in RHSSC
Stow 70mm Camrs In Jett Bag

Configure Seq Camr - Mag, Settings
2.8/500, 12FR & Stow Above RH Window

Stow In LHSSC:
- Rt Angle Brkt
- Remote Cont Cable
- RCU's (2)
- Unused Def Bags As Desired
- Yo-Yos (2)
- Cuff Checklist (2)
- Food Waste
- Urine Bags

Perform Feedwater Collection:
Unstow Feedwater Bag & Spring
Scale On Top Of Data File
Flatten Bag To Remove Trapped Gas
Zero Spring Scale

Connect Bag To PLSS H2O Fill
PLSS O2 - ON
After 30 sec, PLSS H2O Vlv - OPEN
Drain Feedwater Bladder 1.5 Minutes
Min
PLSS H2O Vlv - CLOSE
PLSS O2 - OFF

Disconnect Bay From PLSS H2O Fill
Weigh Bag & Record LBS,CDR_____ LMP____
(Report To Hou)
Stow Bag In Jett Bag
Repeat For 2nd PLSS (Scissor Name Tags)
Stow Bag & Scale In Jett Bag

Lower CDR RH Attitude Controller
Remove Armrest, Stow In Jett Bag

Position PLSS (2) For Jettison, Eng
Cover & Mid-Step
Position LHSSC And Bag For Jettison

Don EV Gloves

PGA Diverter Vlvs - Horizontal
Check PGA Connectors

PRESS INTEGRITY CHECK

Note: ARS/PGA 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 - CLOSE
PRESS REG B - DIRECT O2
Monitor Suit Press To 8.85 Psia
Then PRESS REG B - CLOSE (Cuff
Gage Decay <.3 Psig In 1 Min)

SUIT CIRCUIT RELIEF - AUTO (Suit
Press Decays To 4.8 Psia)
PRESS REG A & B - EGRESS

CABIN DEPRESS FOR JETTISON

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)

Fwd Dump Valve - OPEN (Verify LM
Suit Circuit 3.6 To 4.3 Psia)

HATCH OPENING

Partially Open Fwd Hatch
Fwd Dump Valve - AUTO

Fwd Hatch - Full Open

Jettison The Following:
LHSSC
PLSS On Mid-Step
Jett Bag
PLSS On Eng Cover

Verify Items Clear Of Ascent Stage

Fwd Hatch - Close & Lock

CABIN REPRESS

Fwd Dump Valve - AUTO (Verify)
CABIN REPRESS - AUTO (Verify)

PRESS REG A & B - CABIN (MASTER
ALARM & Cabin Warning Lts - On)
Verify Cabin Press Increasing &
Stabilizes At 4.6 To 5.0 Psia
(Cabin Warning Lt - Off)

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

Doff Gloves, Helmets With Visors
VHF ANT SEL - AFT

Unstow Lunar Surface Checklist (SUR-97)
Stow EVA 2 Prep & Post Card

CLEAN UP

POST EVA CABIN CLEANUP

Secure OPS (2) On Floor

Stow EV Gloves & Visors In Helmet Bags

Stow Helmet Bags On Floor

Stow Purge Valves (TSB) in
RHSSC (FECAL EMESIS)

Stow SRC
Stow Surveyor Bag

Stow LM EVA Antenna

Secure Helmet Bags On Engine Cover
Secure Utility Lights On AOT
Secure Jett Bag To Cabin Floor,
Insure +Z27 Bulkhead Protected

Stow All EVA Onboard Data
In Flt Data File

EVA 2 DEBRIEFING WITH HOU (5 MIN)

EAT PERIOD
138:25 TO 139:10

Copy Liftoff Time In Data Book For T - n

Copy P22 Acq Time
__ __ __:__ __:__ __ _____
_____

CREW STATUS REPORT		
	CDR	LMP
SLEEP	_____	_____
PRD	_____	_____

LM CONSUMABLES UPDATE				
GET	1 3	8:3 0		
RCS A	78 %	B	74 %	
O2 DDES	35 %	ASC	91 %	
H2O DES	40 %	ASC	100%	
A-H DES	661	ASC	572%	

Basic Date October 27, 1969
Changed November 5, 1969

Basic Date October 27, 1969
Changed

LAUNCH PREP

********** E0-2:50 (139:10) **********

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

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

POWER/TEMP MON - Check BAT,BUS Volts

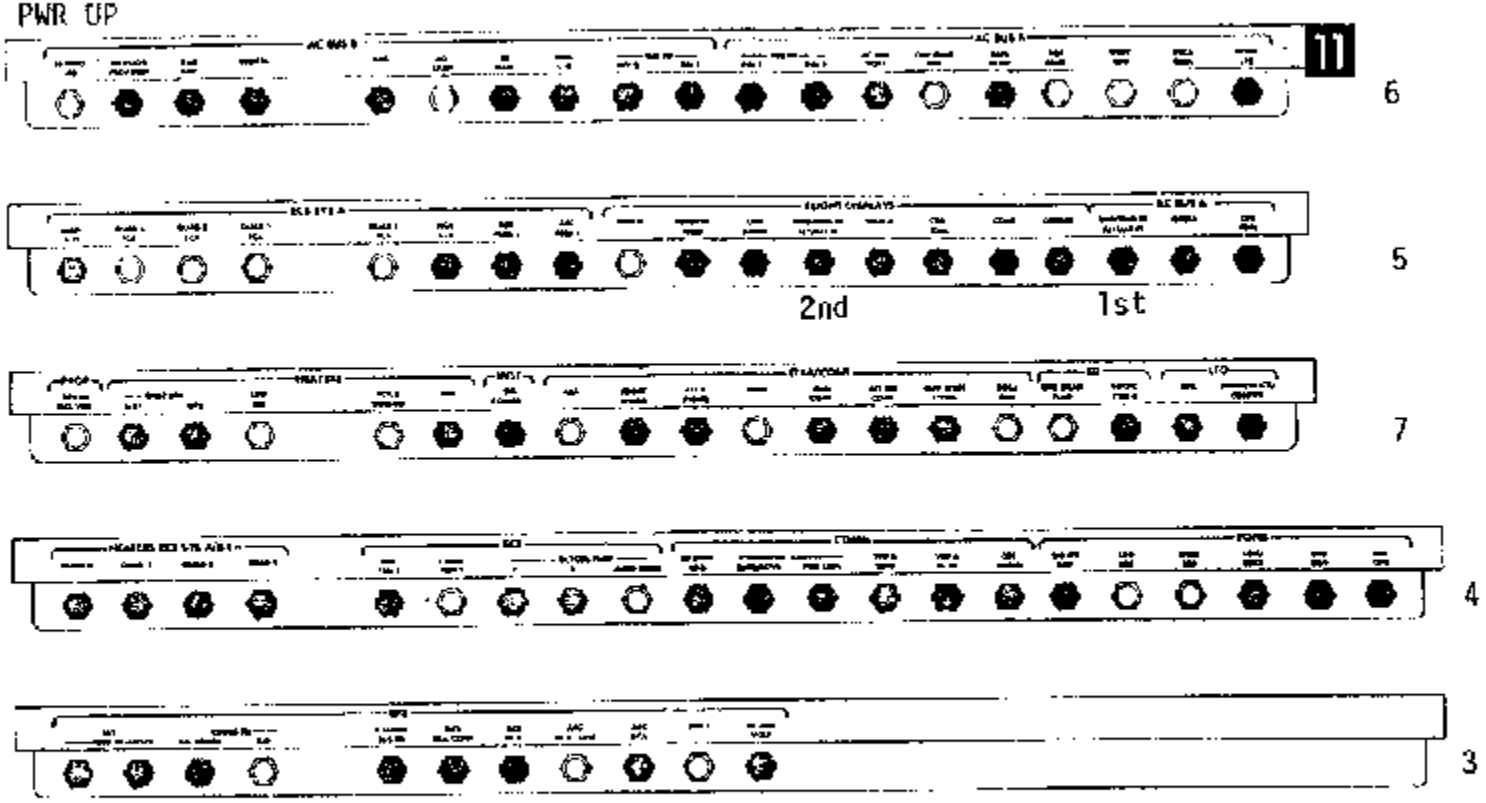
PRO
(RESTART Lt-On, STBY Lt-Off)
RSET
V96E
CB(11) IMU OPR - Close
(NO ATT Lt-Off In 90 Sec)

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

Configure CB's Per PWR UP Chart

SUR-98

PWR UP

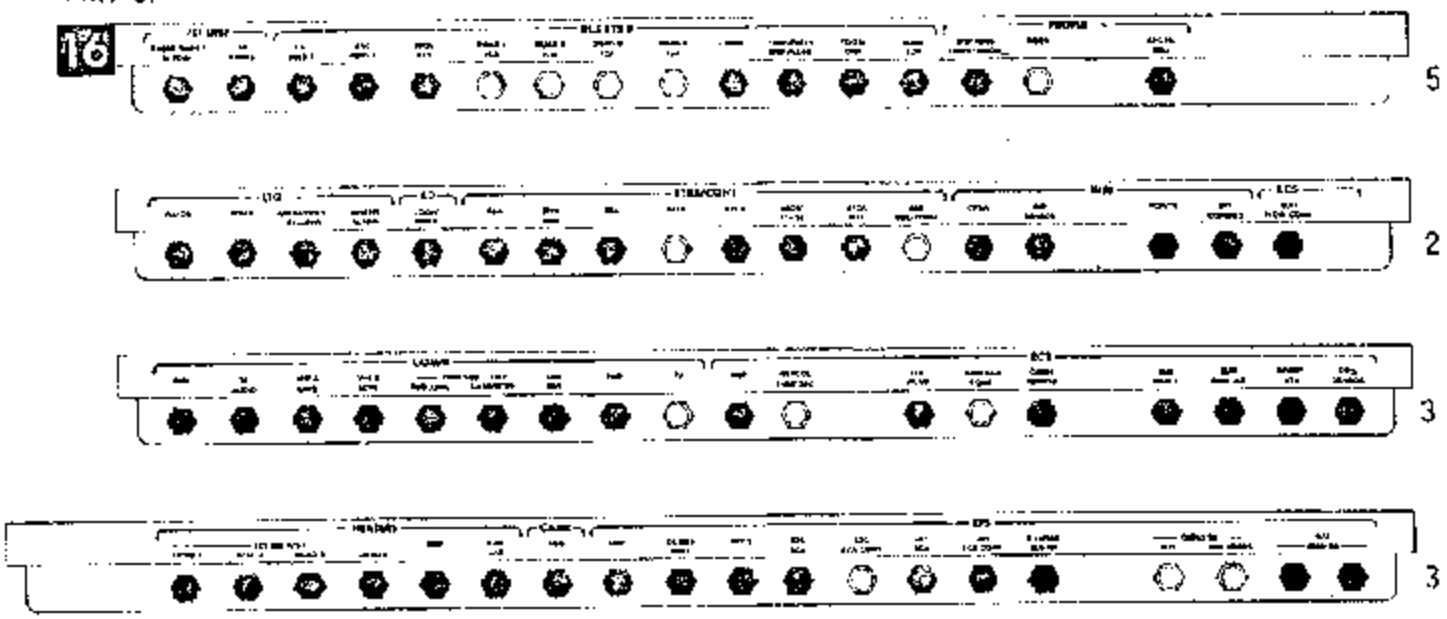


SUR-99

LM-6

Basic Date October 27, 1969
Changed

PWR UP



SUR-100

Basic Date October 27, 1969
Changed

CB(16) Cycle CWEA

V35E
88 88 All Eights
Master Alarm, LGC, ISS
Warning & DSKY Lts - On (5 sec)
RESET

V25 NO1E, 1365E
E,E,E
V15 NO1E, 1365E

V21 N27E, 10E

15 01 Test Successful When
R2 ≥3 (78 sec)

V21 N27E, 0E

Notify MSFN of E-Dump
TLM-HI
V74E

000 + 888888 (OPR ERR Lt-On)

123 - 45679
412R + 1 Satisfactory

574R + Not Staged
604R - On Surface
612R + 0 ATT HOLD At
ABORT STAGE

********** LO-2:40 (139:20) **********

DET-Set Counting Down To Acq Time
UP DATA LINK-DATA (MSFN Uplinks
CSM State Vector), OFF

CB(11) RR (2) - Close
V41N72 (00000,28300)
CB(11) RR (2) - Open

P57, SET R2 00004
N34 (Load LO Time), PRO
N06 00010
00003
00010
PRO
(NO ATT Lt - On/Off, Twice)
N04 + _____ ΔTilt (.01°)
V32 (Recycle)
N04 _____ ΔTilt (.01°)
PRO
N22 ICDU Angles
PRO (NO ATT Lt - On/Off)
STAR ID _____ (431 ARCTURUS)
Cursor _____
Spiral _____
N79 Load Then V32
Cursor _____
Spiral _____
N79 Load Then V32
Cursor _____
Spiral _____ SUR-102

Basic Date _____ October 27, 1969
Changed _____

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Changed November 3, 1969

N79 Load Then PRO
N05 _____ Star Angle Diff (.01°)
PRO
N93 _____ X Torquing Angle (.001°)
_____ Y
_____ Z
PRO (Gyro Torquing)
N25 00014, ENTER (TERM)

P00

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, to - 500 X-POINTERS & FDAI Needles Vary +5°, After 12 sec Rng Tape Drives To 194, NO TRACK - Off)

V40N20E
400 + 3 AGS/PGNS Align
544R _____ X Gyro Coeff
545R _____ Y Gyro Coeff
546R _____ Z Gyro Coeff

400 + 6E Calibrate Gyros

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

TEST/MONITOR - AGC 1.0 To 1.8 (1.5)
- XMTR PWR 2.1 To 4.1 (3.7)
- 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)

V63E, R2 00001, PRO
(NO TRACK Lt - Out After 12 sec)
N72 Varying @ 1/2 cps,
PRO
N78 +195.30 To +195.70 Rng (TM Within +1.2 of R1)
-00480 To -00520 Rng Rt (TM - R2 < 2)

544R _____ X
545R _____ Y
546R _____ Z

V34E
RADAR TEST - OFF
(NO TRACK - ON, X-POINTERS CENTER)
V44E (Resets NORRMON Flag)
V40 N72E

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

V40N20E
400 + 3 AGS/PGNS Align

********** LO-2:05 (139:55) **********

V41N72 (18000,27000)
V95E
P22E
N06 R2 00001
V83E, Rng <400, PRO, PRO
V16 N38E
When N38 = Present Time & Remains Equal:
V24 N01E, 3424E
  Load Octal Acq Time
V16 N72E (18000, 33500)
At End of CSM Track:
V34E
P00E
V41 N72 (00000,28300)
CB(11) RR(2)-Open

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

Wait Until GET > 140:00
V16 N65E LGC TIME
  377 _____ (Bias 140)
V47 Sel Bias, 414+1

********** LO-1:30 (140:30) **********

V48, 11102, PRO, V34E
V77E
V15N01E, 42E,(Rate Cmd Hot Fire Check ACA to Jets)
CB(11 & 16) QUAD TCA (8)-Close

UP DATA LINK-DATA (MSFN Uplinks
LGC Gyro Compensation), OFF

CDR ACA (Out-Of-Detent, Pause 2 sec At Null
Roll Rt 000XX
Lt 777XX
Pitch Up 000XX
Dn 777XX
Yaw Rt 777XX
Lt 000XX
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 N 10E, 31E, R1 67777
GUID CONT-AGS
ATTITUDE CONT (3)-MODE CONTROL
CDR ACA (Deflect Slowly To Handover, Pause 2 sec At Null)
Roll Rt R1 27757
Lt 27737
Pitch Up 27776
Dn 27775
Yaw Rt 27767 (QUAD FLAGS & RCS
Lt 27773 TCA Warn Lt-On)
GUID CONT - PGNS
MODE CONT (AGS) - AUTO

Copy Ascent & CSI Pad

Copy LO DAP PAD

225 _____ Low Lim (58585)
226 _____ Up Lim (58585)
227 (4K10) -50224
231 RLS (56952)
232 +00600 INS AGS
465 + INS HDOT (+00320)
410 +00000 ORB INS
547 +0 LUNAR ALIGN CORRECTION

514 R _____ (-65034)
515 R _____ (-41734)
516 R _____ (+00000)

373 _____ TIG CSI (+0178.1)
275 _____ TIG TPI (+0276.4)
605 +00777 CDT
416+1 1/2 PERIOD
451+0 ΔVY

Cycle CWEA

********** LO-:45 (141:15) **********

CB AOT LAMP - Close
Window Shades - Up
P57E, R2 00004

SUR-106

Basic Date October 27, 1969
Changed November 3, 1969

Basic Date October 27, 1969
Changed

N34 Load TIG, PRO
N06 00010
    00003
    00110
PRO
  (NO ATT Lt - On/Off, Twice)
N04 + _____ ΔTilt (.01°)
  V32
N04 _____ ΔTilt
  PRO
N22 ICDU Angles
  PRO (NO ATT Lt - On/Off)

STAR ID _____
  Cursor _____
  Spiral _____
N79 Load Then V32
  Cursor _____
  Spiral _____
N79 Load Then V32
  Cursor _____
  Spiral _____
N79 Load Then PRO
N05 _____ Star Angle Diff (.01°)
  PRO
N93 _____ Torquing Angles (.001°)
    _____

PRO (GYRO TORQUING)

N25 00014, ENTR (TERM)
P00E
Window Shades - Down

CB(11) RR(2) - Close
V41N72 (00000,00000)
CB(11) RR (2) - Open

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

AOT - CL/0.0°
CB(11) AOT LAMP - Open

Don Helmets, Gloves, & Restraints
Set Camr For Ascent
(LM3/DAC/10/CEX (f2.8,500,30) 1 mag, 12 fps, 8 min)

********** LO-:35 (141:25) **********

V48E
N46 12002 PRO
N47 _____ (+10699) LM Wt
_____ (+35607) CSM Wt
PRO
GUID CONT - PGNS

UPDATA LINK - DATA
(Possible MSFN Update Of
CSM S.V. And RLS)
UPDATA LINK - OFF

Basic Date October 27, 1969
Changed

P12E
N33 ___:___:___ TIG (142:01:17.9)
PRO

N76 _____ VH Final (+55349)

_____ HDot Final (+00322)

_____ Xrng (00000)

PRO
DET - Set/Up

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

GO For LO And Guidance
  Recommendation From MSFN
BAT 5,6 - ON
BAT 1,3 - OFF/RESET, tb-bp
CB(11&16) ASC ECA CONT (2) - Close

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) - HI MULT
RATE/ERR MON (2) - LDG RDR/CMPTR
ATT MON - 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
ASC He REG 1&2 tb(2) -gray
ABORT - Reset
ABORT STAGE - Reset
ENGINE STOP (2) - Reset
PRPLNT TEMP/PRESS - ASC
HELIUM MON - ASC PRESS 2
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

SUR-110

Basic Date October 27, 1969
Changed

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SUIT FAN - 1
02/H20 QTY MON - ASC 1
ATTITUDE MON - AGS
RADAR TEST - OFF
RR MODE - LGC
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 (Dn)

DES H20 - CLOSE
ASC H20 - OPEN
WATER TANK SEL - ASC
CABIN REPRESS - CLOSE
DES 02 - CLOSE
ASC 02 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
ASC He SEL - TANK 2
ASC He PRESS - FIRE
MASTER ARM - OFF

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

SYS B ASC FEED 2 - OPEN tb(2)-gray
Monitor SYS B Manf Press
SYS B MAIN SOV - CLOSE tb-bp
CRSFD - OPEN, tb-gray

Basic Date October 27, 1969
Changed

********** LO-:17 (141:43) **********

V47E, 414 + 1

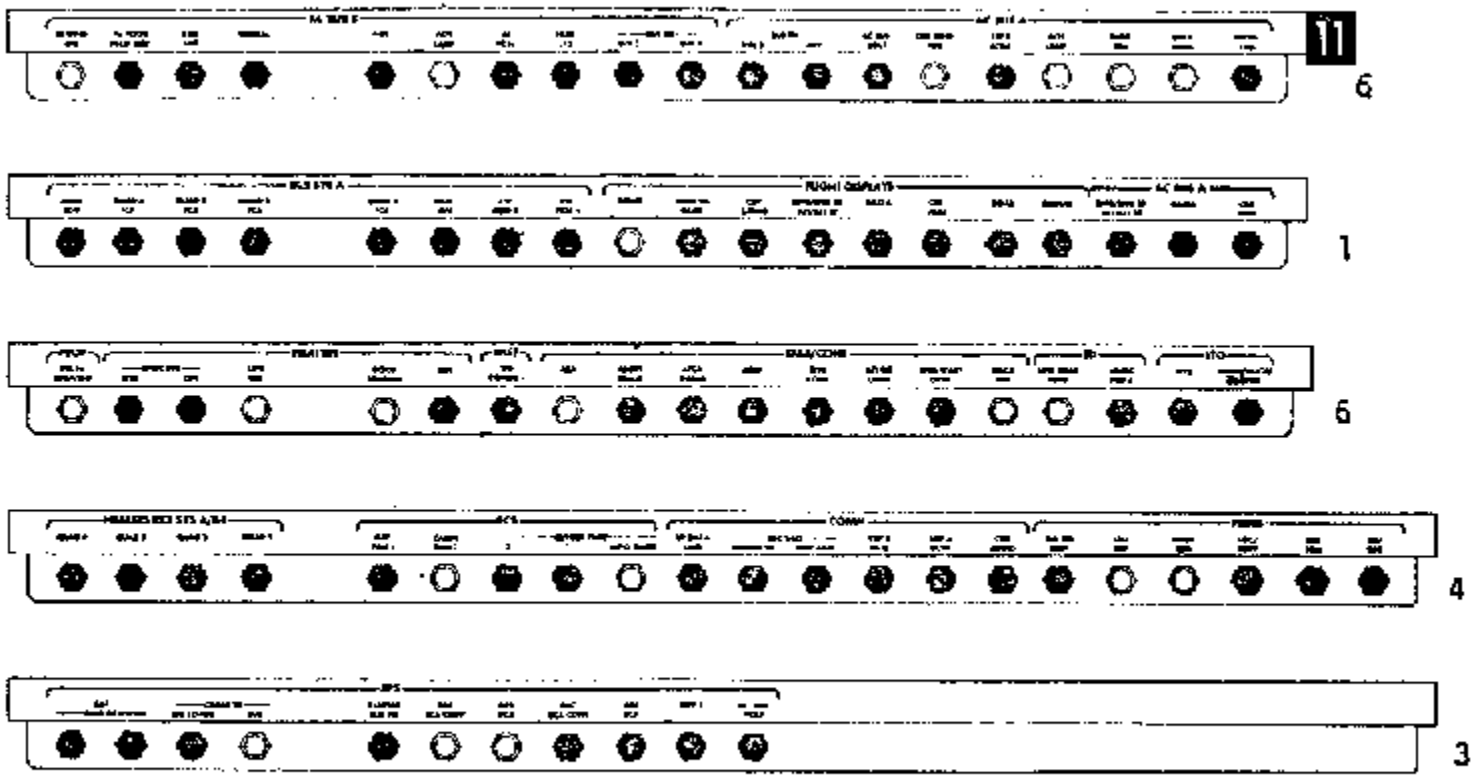
UPDATA LINK - VOICE/BU
VHF A: XMTR - VOICE/RNG (HOT MIKE TO CSM)
RCVR - OFF
VHF B: XMTR - OFF
RCVR - ON
AUDIO (Both) VHF A - T/R
VHF B - RCV
RECORDER - ON
MODE - ICS/PTT
S-BAND ANT - SLEW
TRACK MODE - AUTO
VHF ANT - AFT

********** LO-:15 (141:45) **********

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



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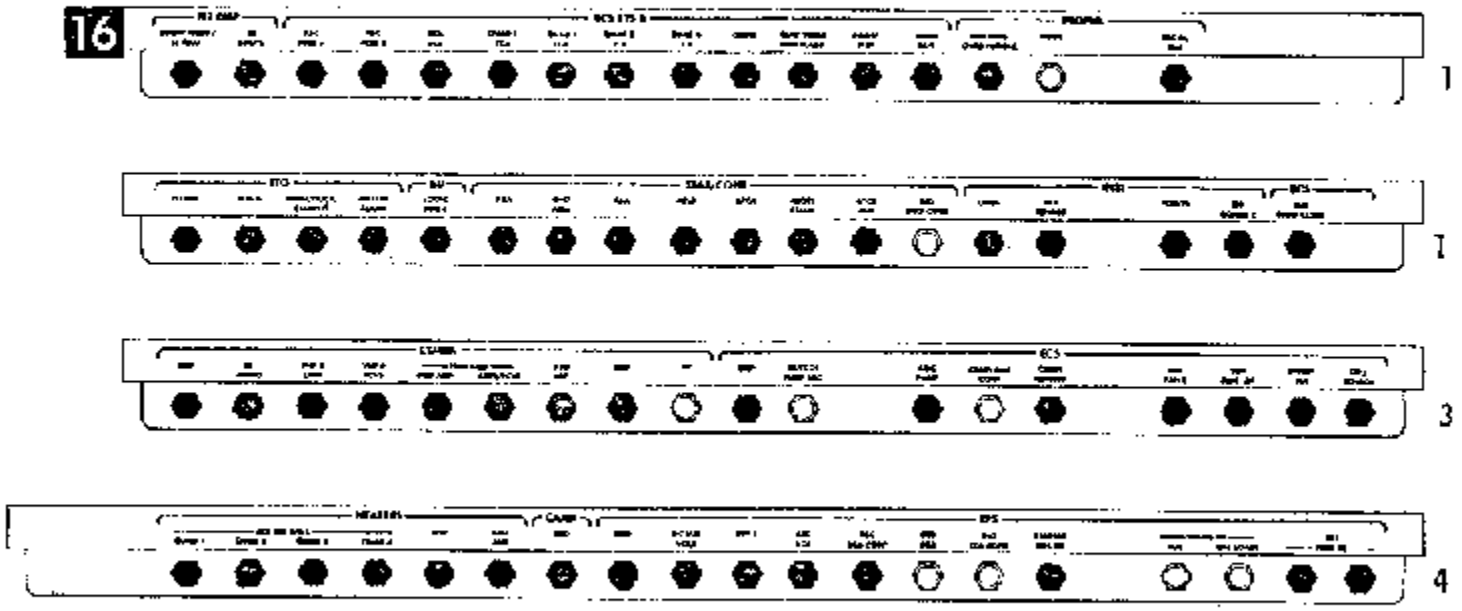
LM-6

Basic Date October 27, 1969

Changed

LAUNCH



********** LO-:10 (141:50) **********

CHECK APS BURN CARD

********** LO-:5 (141:55) **********

CHECK APS, RCS, EPS, ECS

GO TO LM TIMELINE BOOK

SUR-116

Basic Date October 27, 1969
Changed

ONE MAN EVA PREP

CABIN PREP-Perform EVA 1 Or 2 As Req'd
EQUIPMENT PREP-Perform EVA 1 Or 2 As Required
PLSS DONNING-Perform EVA 1 Or 2 As Required

Position Post EVA 1 or 2 Cue Cards
For Post EVA
Fwd Hatch Handle - UNLOCK
NON EVA CREWMAN-Connected To LM O2, COMM, & H2O Gas Connector Plugs In PGA

EVA CREWMAN: For EVA 1-
CSRC In PGA Pocket

PLSS COMM CHECK

Verify PWRDN CB Configuration
Verify LM EVA Antenna Deployed
COMM: MODULATE-FM
PWR AMPL - PRIM
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)

RCU PTT - MAIN

PLSS Mode-B (Tone-On, Vent Flag-P, Press Flag-O)

PLSS O2 Press Gage >885 (75% For EVA 2)
Perform Comm Check With CDR

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

Audio (Non EVA Crewman)
VHF A - T/R
VHF B - RCV

Audio (EVA Crewman)
VHF A - T/R
VHF B - RCV

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

PLSS Mode - A (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

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 Hose & Actuator
Connect Actuator To RCU
Snap OPS O2 Hose To Side Of PLSS
SUIT ISOL - SUIT DISC
Discon LM O2 Hoses, Secure About PGA

Connect OPS O2 Hose To PGA B/B
Retrieve Purge Valve (TSB) -
Verify Closed & Locked
Install Purge Valve In PGA R/R
Verify PLSS Centered & At Proper
Height

Drink
DES H2O VLV - CLOSE

HELMET/GLOVE DONNING

Position Mikes (Both)
PLSS FAN - ON (Vent Flag - Clear)
Don Helmets, Then Visors
Unstow EV Gloves
Position Helmet Bags In SRC Area

EVA Crewman:
Disconnect LM H2O Hose
Connect PLSS H2O Hose
Stow LM Hoses

Verify EVA Crewman in CDR's Station

Verify The Following:

Helmet & Visor	(2)	- Locked & Adjusted
Torso Tiedown	(2)	- Adjusted
O2 Connectors	(7)	- Locked
Purge Valves	(1)	- Locked
H2O Connectors	(2)	- Locked
Comm Connectors	(2)	- Locked

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

PLSS DIVERTER - MIN (Verify)
PLSS PUMP - ON

FOR EVA 2:
Verify Items Prepared For Jettison -
ECS LiOH Cartridge - Jett Bag
PLSS Condensate Container - Jett Bag
Hammocks - Jett Bag
LMSSC (Fwd Section) - PLSS Batteries, LiOH Carts, Food Waste, Urine Bags
Position ETB on Eng Cover

PRESSURE INTEGRITY CHECK

ARS/PGA (Non EVA Crewman)

Note: ARS/PGA 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 - CLOSE
PRESS REG B - DIRECT O2
Monitor Suit Press To 8.85 Psia
Then PRESS REG B - CLOSE (Cuff Gage Decay ≤.3 Psig In 1 min)

SUIT CIRCUIT RELIEF - AUTO (Suit Press Decays To 4.8 Psia)
PRESS REG A & B - EGRESS

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 EVA From Hou
CABIN REPRESS VLV - AUTO (Verify)

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

:00 Start Wrist Watch

Fwd Dump Valve - OPEN
Verify:
  Tone-On & H20 Flag-A(1.3-1.6 Psia)
  LM Suit Circuit 3.6 To 4.3 Psia & Decaying
PLSS/OPS/PGA >4.8 Psig & Decaying

CABIN REPRESS VLV - CLOSE
Partially Open Fwd Hatch
FWD Dump Valve - AUTO

:05 FINAL PREP FOR EGRESS

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

Fwd Hatch - Full Open

Rest Until Cooling Sufficient
Verify:
  PLSS/OPS/PGA Stable 3.7 To 4.0 Psig
  LM Suit Circuit 3.6 To 4.3 Psia
  CWEA Status:

Warning	Caution
ASC PRESS	PREAMPS

CB(16) COMM; TV - Close
Position Seq Camr On Crash Bar

For EVA 1: Jettison At End of EVA 1
Malfunctioned Equipment Which Is
NO-GO For EVT

For EVA 2: Jettison At Start of EVA 2
-Malfunctioned Equipment Which Is
NO-GO For EVT
-Jettison Bag & LHSSC

Release PLSS Antenna

Lower EV Visor

Basic Date Changed — October 27, 1969

EVA 1 - MINIMUM TIME - ONE MAN

SURFACE ACTIVITY — LM CABIN ACTIVITY

0+00
0+10 EGRESS
0+20 ENVIRO FAMILIARIZATION
CONTINGENCY SAMPLE COLLECTION
0+30 EVA & ENVIRO EVALUATION
SITE DOCUMENTATION
0+40 EVA TERMINATION
0+50
1+00

SUR-123

ONE-MAN EVA 1
(MIN TIME)

ONE MAN EVA 1 (MINIMUM TIME)

	CDR ACTIVITIES	LMP ACTIVITIES
0+10	CDR EGRESS MOVE THROUGH HATCH CHECK INGRESS PROC COMMUNICATIONS CHECK DEPLOY LEC (MESA SIDE) DEPLOY MESA/RESTOW HANDLE DESCEND TO FOOTPAD CHECK ASCENT PROC STEP TO SURFACE	PREP/CONNECT LEC COMMUNICATIONS CHECK PASS LEC TO CDR PHOTO EGRESS (70mm) [5.6,5FT,6] SEQ CAM ON [2.8/60,12FPS] SHADE [8/250,12FPS] SUN
0+18	CDR ENVIRONMENTAL FAMILIARIZATION CHECK AND DISCUSS: MOBILITY AND STABILITY CG SHIFT-FORWARD, BACK, SIDE DOWNWARD REACH ARM MOTION EFFECTS WALKING (BALANCE, BOOT PENETRATION TRACTION, SOIL SCAT/ADHESION) CHECK AND REPORT LM STATUS ATTITUDE, GROUND CLEARANCE, FOOTPAD/SURFACE INTERACTION DPS EXHAUST EFFECTS	CDR DESCENT TO FOOTPAD CDR ENVIRO FAM 8 min

SUR-124 CHANGE SEQ CAM MAGAZINE

Basic Date October 27, 1969
Changed _____

Basic Date October 27, 1969
Changed

CDR

0+23 CONTINGENCY SAMPLE COLLECTION
COLLECT IN UNDISTURBED AREA

0+20 EVA & ENVIRON. EVALUATION

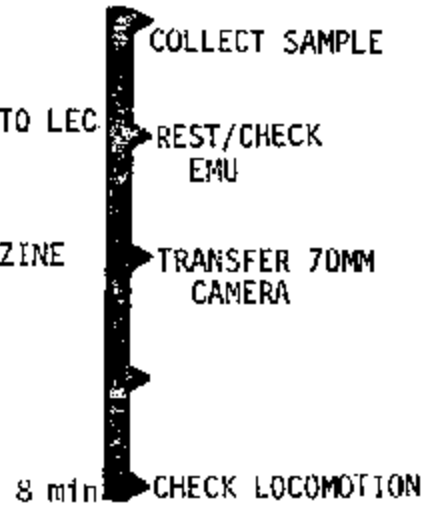
TRANSFER 70 mm CAMERA TO SURFACE
ATTACH 70mm CAMERA TO EMU
CHECK SURFACE LOCOMOTION CAPABILITY
CHECK SURFACE LIGHTING/VISIBILITY

LMP

SEQ CAM ON
[8,12FPS]

ATTACH 70mm CAMERA TO LEC
ASSIST CDR

CHANGE SEQ CAM MAGAZINE



CDR

0+34 SITE DOCUMENTATION
DESCRIBE LUNAR LANDING SITE

OBTAIN PANORAMA PHOTOS
20 FT AT (12)

2 [8,74FT,1]
3 [8,74FT,1]
4 [5.6,74FT,1]
5 [5.6,74FT,1]
6 [5.6,74FT,1]
7 [5.6,74FT,1]
8 [5.6,74FT,1]
9 [8,74FT,1]
10 [8,74FT,1]
11 [8,74FT,1]
12 [11,74FT,1]
1 [8,74FT,1]

LMP

SEQ CAM ON
[8,12FPS]

SITE
DESCRIPTION

PANORAMA
PHOTOGRAPHY

ATTACH CAM &
CONT SAMPLE
TO LEC

8 min

Basic Date October 27, 1969
Changed

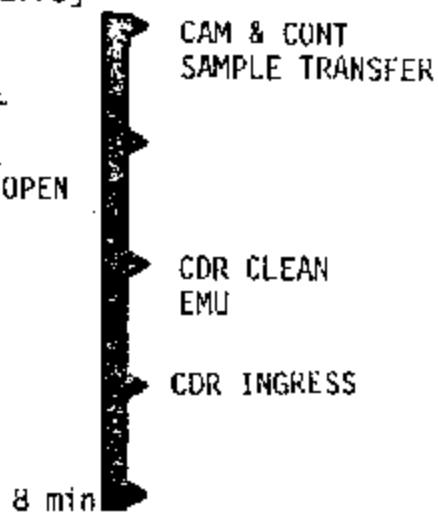
Basic Date October 27, 1969
Changed

0+40 EVA TERMINATION

ATTACH 70mm CAMERA AND CONTINGENCY SAMPLE TO LEC
TRANSFER 70mm CAMERA AND CONTINGENCY SAMPLE INTO LM
CLEAN EMU
ASCEND LADDER TO PLATFORM
DISCARD LEC
INGRESS LM

CHANGE SEQ CAM MAG
SEQ CAM ON [8,12FPS]
ASSIST CDR

REMOVE LEC FROM LM ATTACHMENT
PASS LEC TO CDR
SEQ CAM CB(16) OPEN



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Changed

CONTINGENCY EVA 1 - ONE MAN
SURFACE ACTIVITY
LM CABIN ACTIVITY

0+00
0+10 EGRESS
0+20 ENVIRO FAMILIARIZATION
0+30 CONTINGENCY SAMPLE
ETB TRANSFERS
0+40 TV DEPLOYMENT
0+50 S-BAND DEPLOYMENT
1+00

LM-6

SUR-128

ONE-MAN EVA 1
(FULL TIME)

SUR-129

Basic Date October 27, 1969
Changed

SURFACE ACTIVITY
Basic Date Changed
October 27, 1969
2+00
2+10
2+20
2+30
2+40
2+50
3+00
PSE DEPLOYMENT
SWE DEPLOYMENT
LSM OFFLOAD
SUNSHIELD DEPLOYMENT
ANTENNA INSTALLATION
LSM DEPLOYMENT
SIDE DEPLOYMENT

SUR-131

Basic Date October 27, 1969
Changed

Basic Date Changed
October 27, 1969
3+10
3+20
3+30
3+40
3+50
4+00
IN THE EVENT OF EXTENSION OF EVA TO 4-HOURS
SELECTED SAMPLE COLLECTION
EVA TERMINATION

SUR-132

ONE-MAN EVA I

SURFACE ACTIVITIES

0+10 EGRESS
- MOVE THROUGH HATCH
- CHECK INGRESS PROC
- DEPLOY LEC (MESA SIDE)
- DEPLOY MESA/RESTOW HANDLE
- DESCEND TO FOOTPAD
- CHECK ASCENT PROC
- STEP TO SURFACE

0+18 ENVIRONMENTAL FAMILIARIZATION
- CHECK AND DISCUSS:
  - MOBILITY AND STABILITY
  - CG SHIFT-FORWARD, BACK, SIDE
  - DOWNWARD REACH
  - ARM MOTION EFFECTS
  - WALKING (BALANCE, BOOT PENETRATION TRACTION, SOIL SCAT/ADHESION)
- CHECK AND REPORT LM STATUS
  - ATTITUDE, GROUND CLEARANCE,
  - FOOTPAD/SURFACE INTERACTION
  - DPS EXHAUST EFFECTS
- REST/CHECK EMU

LM CABIN ACTIVITIES

PREP/CONNECT LEC
PASS LEC

PHOTO EGRESS (70mm) [5.6,5FT,6]

SEQ CAM ON
[2.8/60,12FPS] SHADE
[8/250,12FPS] SUN

CHANGE SEQ CAM MAGAZINE

Basic Date October 27, 1969
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SURFACE ACTIVITIES

0+23 CONTINGENCY SAMPLE
COLLECT IN UNDISTRIBUTED AREA

0+26 ETB TRANSFERS
REMOVE MESA COVER
ERECT MESA TABLE
DEPLOY ETB
REMOVE & HANG PHOTO CHARTS ON MESA TABLE
REMOVE & STOW BAGS ON MESA
UNSTOW & PLACE IN ETB:

EVA 2 PLSS RESUPPLY
1. CONTINGENCY SAMPLE
2. LiOH CANISTERS
3. PLSS BATTERIES

(INSIDE ETB)

ATTACH LEC
TRANSFER ETB
REST/CHECK EMU
TRANSFER ETB TO SURFACE
ATTACH ETB TO MESA

LM CABIN ACTIVITIES

SEQ CAM ON [8,12FPS] — Full — COLLECT SAMPLE
AFTER 3 MIN SEQ CAM OFF — REMOVE MESA COVER

SEQ CAM ON [2.8/60,12FPS]
TRANSFER ETB
STOW BATTS (OPS AREA)
STOW LiOH (ASC ENG COVER)
STOW CONT SAMPLE
(LUNAR BOOT COMPT)
— ETB TRANSFER
PACK CAMERA IN ETB
TRANSFER ETB
READ CHECKLIST AND PHOTO SURFACE ACTIVITY

SURFACE ACTIVITIES

0+40 TV DEPLOYMENT
DEPLOY TRIPOD
MOUNT TV CAMERA ON TRIPOD
UNSTOW TV CABLE
POSITION TV AT 20FT/ (10)
PAN (3 SEC WITH MINIMUM FOV
OVERLAP, OMIT UPSUN)
ORIENT FOR S-BAND

0+47 S-BAND ANTENNA DEPLOYMENT

PULL PIP PINS(s)
DEPLOY HANDLE

(BELOW STOWED ANTENNA)

MOVE TO DEPLOYMENT SITE
(LESS THAN 30 FT, DIRECT LOS,
IN VIEW OF SEQ CAMERA)

GROSS POINTING
UNLOCK LEGS
REMOVE PLATE/PAD

(ON S-BAND PLATE)

LM CABIN ACTIVITIES

READ CHECKLIST AND PHOTO
SURFACE ACTIVITIES

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Changed (8)

SURFACE ACTIVITIES

LM CABIN ACTIVITIES

S-BAND ANTENNA DEPLOYMENT (CONT.)

LOCK INNER MAST
LOCK OUTER MAST
EXTEND & LOCK LEGS
ALIGN
DEPLOY LEGS
REMOVE THERMAL COVER
LIFT ANTENNA

(UNDER TOP PLATE)

REMOVE BAR
REMOVE RIB/PROTECTOR
FREE LANYARD/TRIGGER
GRASP LEG AND DEPLOY
ATTACH CABLE
POINT ANTENNA

(ON LEG)

REQUEST ANTENNA SWITCH

S-BAND ANT-LUNAR STAY
TRACK MODE-OFF
COMMUNICATIONS CHECK

COMMUNICATIONS CHECK
REST/CHECK EMU
ATTACH 70mm CAMERA TO EMU
REPOSITION TV TO 20FT/ (8)

SURFACE ACTIVITIES

1+07 ALSEP OFFLOAD
OPEN SEQ BAY DOORS
REMOVE PKG 1
REMOVE PKG 2
POSITION PKG 2
REMOVE TOOL CARRIER
UNSTOW TOOLS & CARRY BAR
TIP PKG 2
FUEL RTG - REPORT
REST/CHECK EMU
CONNECT PKG 2 TO CARRY BAR

STOW BOOMS
CLOSE SEQ BAY DOORS
POSITION TOOL CARRIER IN SHADOW
REPOSITION TV TO VIEW ALSEP SITE

1+33 ALSEP TRAVERSE
REPORT TRAVERSE START
TRAVERSE >300 FT
REPORT RESTS
REPORT COMPLETION OF TRAVERSE
REST/CHECK EMU

LM CABIN ACTIVITIES

READ CHECKLIST

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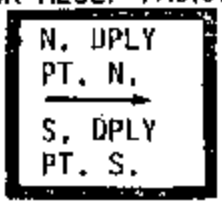
Changed

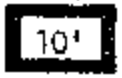
SURFACE ACTIVITIES

1+45 ALSEP SYSTEM INTERCONNECT
POSITION ALSEP PACKAGES



(ON PSE GIRDLE)

REMOVE BAR FROM RTG PKG
PLACE C/S TO RIGHT OF RTG



(ON CENTRAL STATION)

TILT PKG 2 INTO POSITION
REMOVE SUBPALLET
DEPLOY RTG CABLE
REPORT SHORTING AMPS
CONNECT CABLE
STOW CARRY BAR ON SUBPALLET
REMOVE SIDE FROM SUBPALLET
CONNECT SIDE CABLE TO C/S
TIP C/S INTO FINAL POSITION
ALIGN C/S

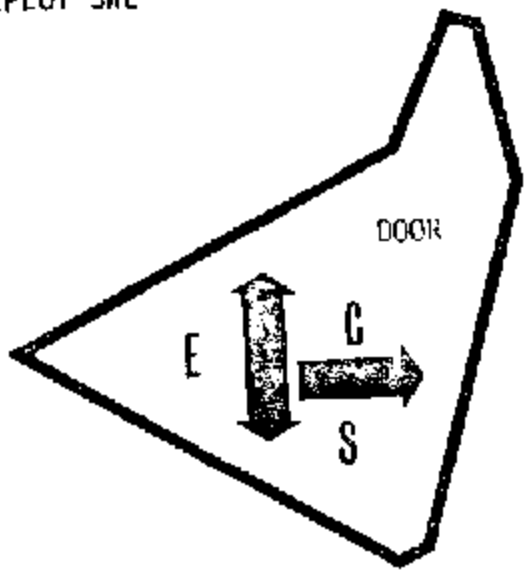
2+03 PSE DEPLOYMENT
DEPLOY PSE STOOL
DEPLOY PSE

(on PSE)

REPORT LEVEL AND ALIGNMENT
PHOTO PSE
[11,5FT,1] X SUN
[11,5FT,1] C/S IN BKGND
REST/CHECK EMU

SURFACE ACTIVITIES

2+13 SWE DEPLOYMENT
DEPLOY SWE



(ON SWE)

PHOTOGRAPH SWE
[11,5FT,1] X SUN
[11,5FT,1] C/S IN BKGND

2+17 LSM OFFLOAD
REMOVE B. BOLTS (2)
REMOVE HANDLE BRACKET
REMOVE LSM FROM C/S
CHECK CABLE CLEAR OF C/S
REST/CHECK EMU

2+23 SUNSHIELD DEPLOYMENT
SIDE CABLE HOUSING
ANTENNA CABLE
ANTENNA TIEDOWN
PERIMETER B. BOLTS
INTERIOR B. BOLTS
CENTER B. BOLT
EXTEND SUNSHIELD
CHECK CURTAINS EXTENDED

2+30 ANTENNA INSTALLATION
INSTALL ANTENNA MAST
UNSTOW AND INSTALL GIMBAL ON MAST
INSTALL ANTENNA
CHECK C/S ALIGNMENT
COARSE LEVEL; SUN ANGLE
ENTER ANTENNA OFFSETS UPDATE
AZIMUTH 16.44 ( )
ELEVATION 5.25 ( )
FINE LEVEL AND ALIGNMENT
REST/CHECK EMU

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SURFACE ACTIVITIES

2+42 LM DEPLOYMENT

(ON LSM)
EXTEND SENSOR ARMS
REMOVE PRA COVER
REPORT LEVEL AND ALIGNMENT
PHOTOGRAPH LSM
[11,5FT,1] X SUN
[11,5FT,1] C/S BKGND
REST/CHECK EMU

2+52 SIDE DEPLOYMENT

(on SIDE/CCIG)

REPORT ALIGNMENT
PHOTOGRAPH SIDE & CCIG
[11,5FT,1] X SUN
[11,5FT,1] C/S BKGND
REST/CHECK EMU

3+02 ALSEP ACTIVITATION
REPORT SHORTING SWITCH AMPS
DEPRESS SHORTING SWITCH
REPORT SHORTING AMPS ZERO
TURN ASTRO SW #1
REQUEST XMITTER TURN-ON

SURFACE ACTIVITIES	LM CABIN ACTIVITIES
3+04 PHOTOGRAPH ALSEP SITE	
C/S [11,5FT,2] X SUN	
C/S [11,5FT,2] DN SUN	
LM [11,15FT,1] C/S FOREG.	
SWE [11,15FT,1] C/S FOREG.	
SIDE [11,74FT,L] C/S FOREG.	
REST/CHECK EMU	
CONFIRM DATA RECEIPT BY GROUND	
3+08 RETURN TRAVERSE	
REPORT TRAVERSE START	
REPORT RESTS & TRAVERSE END	
REPOSITION TV TO 20 FT AT (2) TO VIEW MESA/LADDER	
GO/NO GO FOR EVA 1 EXTENSION TO 4 HRS.	
NOTE: IF GO FOR EVA 1 EXTENSION TURN TO "ONE-MAN EVA 1 EXTENSION (4 HRS)",PAGE SUR-142	
3+13 EVA TERMINATION	
STOW 70 MM CAMERA IN ETB	
TRANSFER ETB INTO LM	ASSIST SURFACE CREWMAN
PLACE SRC 1 AND SRC 2 IN SUN ON +Y FOOTPAD	REMOVE ETB FROM LEC
CLEAN EMU	STOW ETB ON ENGINE COVER
ASCEND TO PLATFORM	
STOW LEC ON PLATFORM	
INGRESS LM	PASS LEC TO SURFACE CREWMAN

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Changed Nov. 10, 1969

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Changed

ONE MAN EVA 1 EXTENSION (4HRS)

	SURFACE ACTIVITIES	LM CABIN ACTIVITIES
3+14	SELECTED SAMPLE COLLECTION	
	STOW 70MM CAMERA IN ETB	
	OPEN SRC 1	
	ATTACH SCALE TO MESA	
	STOW WEIGH BAGS ON MESA	
	STOW FLAT BAGS & CORE TUBE ON TOOL CARRIER	
	SEAL CONTROL SAMPLE	
	TETHER TONGS	
	FILL WEIGH BAGS WITH SELECTED SAMPLES IN VIEW OF SEQ CAM	SEQ CAM ON [2.8/60,6FPS] SHADE [8/250,6FPS] SUN
	PACK & SEAL SRC	

	SURFACE ACTIVITIES	LM CABIN ACTIVITIES
3+36	EVA TERMINATION	
	CHECK 70MM CAMERA IN ETB	
	TRANSFER ETB INTO LM	ASSIST SURFACE CREWMAN
	REST/CHECK EMU	REMOVE ETB FROM LEC
	ATTACH LEC TO SRC	STOW ETB ON ENGINE COVER
	TRANSFER SRC	ASSIST SURFACE CREWMAN
	PLACE SRC 2 IN SUN ON +Y FOOTPAD	REMOVE SRC FROM LEC
		STOW SRC ON ENGINE COVER
	CLEAN EMU	
	ASCENT TO PLAT FORM	
	STOW LEC ON PLATFORM	PASS LEC TO SURFACE CREWMAN
	INGRESS LM	

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CONTINGENCY EVA 2 - ONE MAN
SURFACE ACTIVITY
LM CABIN ACTIVITY

0+00
0+10 EGRESS
0+20 ETB TRANSFER
GEOLOGY TRAVERSE PREP
0+30 GEOLOGY TRAVERSE
0+40
0+50
1+00

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ONE-MAN EVA 2

SUR-145

Basic Date October 27, 1969
Changed

Basic Date
Changed
October 27, 1969
2+00
2+10
2+20
2+30
2+40
(3+10)
2+50
(3+20)
3+00
(3+30)
NOTE: IN THE EVENT OF EXTENSION OF EVA TO 4 HOURS, THE ADDITIONAL 30 MIN WILL BE ADDED TO GEOLOGY TRAVERSE. TIMES IN PARENTHESES ( ) ARE FOR EXTENDED EVA.
TRAVERSE COMPLETION
CONTRAST CHART PHOTOS
STEREO CLOSE-UP PHOTOGRAPHY
SRC PACKING

CONT EVA 2

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Changed Nov. 10, 1969

ONE-MAN EVA 2

SURFACE ACTIVITIES	LM CABIN ACTIVITIES
0+10 EGRESS	
MOVE THROUGH HATCH	
PASS LEC INTO LM CABIN	ATTACH LEC INSIDE LM ETB
DESCEND TO SURFACE	
	STOW 70mm CAMERA IN ETB
0+14 ETB TRANSFER	
TRANSFER LEC HOOKS INTO LM CABIN	ASSIST
	ATTACH ETB TO LEC
TRANSFER ETB TO SURFACE	ASSIST
ATTACH ETB TO MESA	
	TURN SEQ CAM ON [8 ~~12~~, 6FPS]
0+17 GEOLOGY TRAVERSE PREP	READ CHECKLIST AND PHOTO SURFACE ACTIVITIES
POSITION HTC NEAR MESA	
STOW ON HTC:	
CONTRAST CHARTS	
EXTENSION HANDLE	
HAMMER	
SMALL SCOOP	
GNOMON	
UNSTOW & OPEN SRC 2	
ATTACH WEIGH BAG TO SCALE	
STOW SIDE BAG ON MESA	

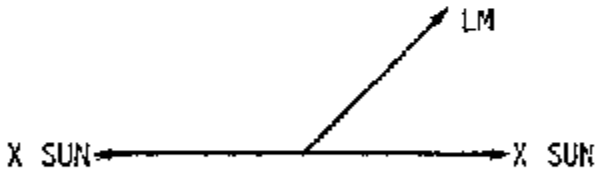
SURFACE ACTIVITIES

0+30 GEOLOGY TRAVERSE

CARRY:
- TONGS
- 70MM CAMERA
- HTC

REPORT:
- START AND END OF TRAVERSE
- LOCATION WITH RESPECT TO LM
- PHOTOS OTHER THAN NOMINAL
- SAMPLE BAG NUMBERS

MAKE BACK SITE SURVEY BETWEEN EACH LEG OF TRAVERSE [3]



TAKE PANORAMA AT FARTHEST POINT FROM LM [12]

LM CABIN ACTIVITIES

SURFACE ACTIVITIES
READ CHECKLIST AND PHOTO

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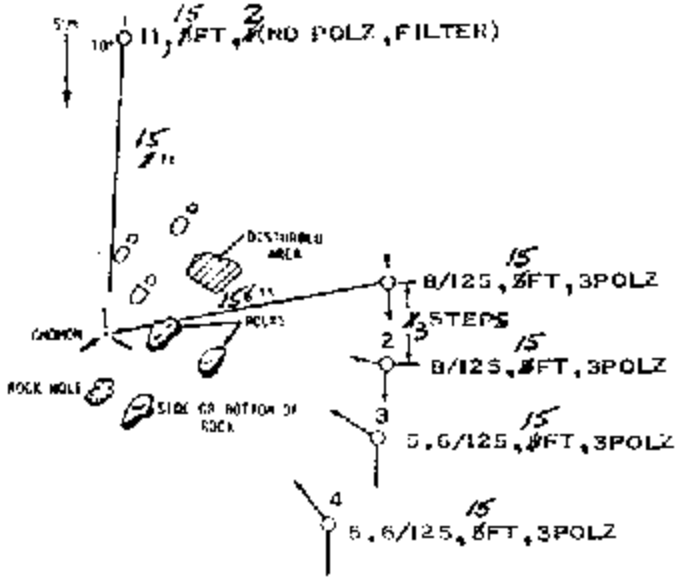
DOCUMENTED SAMPLE COLLECTION

FIRST DOCUMENTED SAMPLE IS PHOTOGRAPHED WITH POLARIZING FILTER



(THE DOCUMENTED SAMPLES INCLUDE: TOP AND BOTTOM OF ROCKS NEAR AND FAR FROM LM, SOIL NEAR AND FAR FROM LM, AND SOIL NEXT AND UNDER A ROCK)

DOCUMENTED SAMPLE COLLECTION

PLACE GNOMON UPSUN OF SAMPLE
PHOTO SAMPLE
  [11,5FT,1] DN SUN
PHOTO SAMPLE
  [8,5FT,2] X SUN
DEPLOY BAGS IN DISP

COLLECTION & BAG SAMPLE

DESCRIBE AND STOW SAMPLE

PHOTO SAMPLE SITE
  [11,5FT,1] DN SUN

NOTE: FIRST D. SAMPLE
WILL BE PHOTOGRAPHED
USING POLORIZING FILTER

CORE TUBE SAMPLE COLLECTION

PLACE GNOMON UPSUN OF SITE
PHOTO SAMPLE
  [11,5FT,1] DN SUN
PHOTO SAMPLE
  [8,5FT,2] X SUN
ASSEMBLE CORE TUBE/HANDLE

REMOVE HAMMER FROM HTC
DRIVE TUBE INTO SURFACE
PHOTO CORE TUBE
  [11,5FT,1] DN SUN
PULL CORE TUBE FROM SURFACE
CAP CORE TUBE

REMOVE AND STOW HANDLE
STOW SAMPLE IN HTC

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SURFACE ACTIVITIES

TRENCH SAMPLING(ENVIRON/CORE TUBES)

PLACE GNOMON UPSUN
PHOTO SITE
  [11,5FT,1] DN SUN
PHOTO SITE
  [8,5FT,2] X SUN
DIG TRENCH ALONG SUNLINE

RETRIEVE ENVIRON.(LARGE) CAN
  FROM HTC
OPEN CAN
FILL CAN WITH SUBSURFACE SOIL
REMOVE SEAL PROCTCTOR
  AND SEAL CAN
STOW CAN IN HTC

PHOTO TRENCH
  [11,5FT,1] DN SUN
REMOVE SCOOP FROM HANDLE
ASSEMBLE CORE TUBE AND
  EXTENSION HANDLE

REMOVE HAMMER FROM HTC
DRIVE TUBE IN TRENCH
PHOTO CORE TUBE
  [11,5FT,1] DN SUN
PULL TUBE FROM SURFACE
STOW HAMMER ON HTC
CAP CORE TUBE
REMOVE AND STOW HANDLE
STOW SAMPLE IN HTC

CAS ANALYSIS SAMPLE COLLECTION

PLACE GNOMON UPSUN
PHOTO SAMPLE
  [11,5FT,1] DN SUN
PHOTO SAMPLE
  [8,5FT,2] X SUN
RETRIEVE G.A. (SMALL) CAN FROM HTC
OPEN CAN
COLLECT SAMPLE IN CAN
REMOVE SEAL PROTECTOR A
  AND SEAL CAN
STOW SAMPLE IN HTC

NOTE: IF SURVEYOR IS CLOSE
ENOUGH, TAKE SURVEYOR PHOTOS
FROM CRATER RIM

SURFACE ACTIVITIES

GO/NO GO FOR EVA 2 EXTENSION (4hrs)

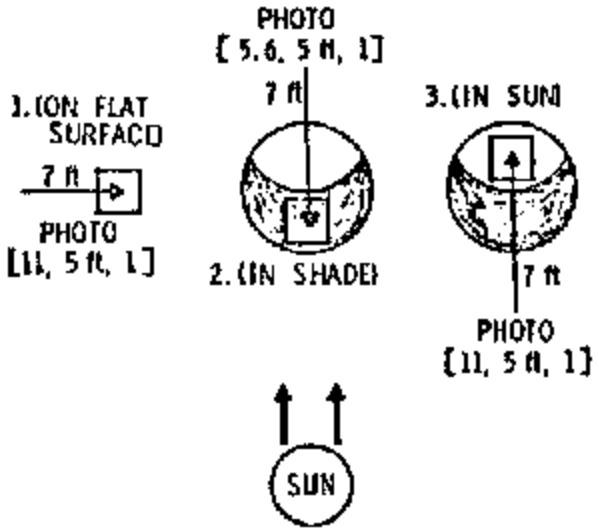
NOTE: IF GO FOR EVA 2 EXTENSION (4 HRS), "GEOLOGY TRAVERSE" WILL BE EXTENDED BY 30 MIN
EVENT TIMES IN PARENTHESIS
( ) INDICATE 4 HOUR EVA TIMES

2+46 TRAVERSE COMPLETION
(3+16) REPORT TRAVERSE COMPLETE
REPOSITION TV TO 20 FT/(2)
TO VIEW MESA/LADDER

2+48 CONTRAST CHART PHOTOS
(3+18)
RETRIEVE CONTRAST CHARTS FROM MESA
DEPLOY CONTRAST CHARTS ON SURFACE
REPORT CHART VISIBILITY
PHOTO CHARTS

CONTRAST CHART PHOTOS

- REPORT-CHART VISIBILITY



STOW 70MM CAMERA IN ETB

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SURFACE ACTIVITIES

STEREO CLOSE-UP PHOTOGRAPHY
RETRIEVE CLOSE-UP CAMERA
DEPLOY SKIRT
OBTAIN SURFACE CLOSE-UP
  PHOTOGRAPHS:
  UNEXPECTED FEATURES
  GLASSY FEATURES
  ROCK-SOIL JUNCTION
    (UP/DOWN HILL)
  UNDISTURBED SURFACE
    (LEVEL/SLOPING)
  ROCK SURFACE
  BOOTPRINTS: LM FOOTPAD
  MATERIAL ADHEARING
    (BOOT,LM,EQUIPMENT)
  CRATERS
  CLUMPS (DISTURBED/UNDISTURBED)
THREE CLEARING FRAMES
REMOVE/STOW CASSETTE IN ETB

2+59 SRC PACKING
(3+29) RETRIEVE SWC & STOW IN SRC
  TRANSFER FROM HTC INTO SRC
    CORE TUBES
    ENVIRON. (LARGE) SAMPLE CAN
    G.A.(SMALL) SAMPLE CAN
    DOCUMENTED SAMPLES

  PACK & SEAL SRC

SURFACE ACTIVITIES	LM CABIN ACTIVITIES
3+10 (3+40) EQUIPMENT TRANSFERS	
CHECK 70MM CAMERA AND FILM CASSETTE IN ETB	
TRANSFER ETB	ASSIST SURFACE CREWMAN
REST/CHECK EMU	REMOVE ETB FROM LEC
ATTACH LEC TO SRC	STOW ETB ON ENGINE COVER
TRANSFER SRC	ASSIST SURFACE CREWMAN
	REMOVE SRC FROM LEC
3+20 (3+50) EVA TERMINATION	
CLEAN EMU	STOW LEC ON ENGINE COVER
ASCEND LADDER TO PLATFORM	REMOVE LEC FROM LM ATTACHMENT
DISCARD LEC	PASS LEC TO CDR
INGRESS LM	SEQ CAM CB(16) OPEN

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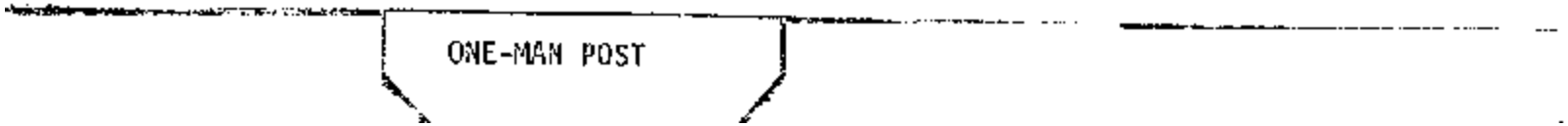
POST ONE-MAN EVA

Perform POST EVA 1 or 2 As Applicable



EMERGENCY LIFT-OFF STOWAGE

ARM RESTS	JETTISON BAG
LUNAR BOOTS	BOOT COMPARTMENT, JETTISON BAG Or ON SUIT
PLSS BATTERIES & CANISTERS	LHSSC
70mm CAMERAS, LENSES, HANDLES, & TRIGGERS	LHSSC or RHSSC
RCU/CAMERA BRACKET	JETTISON BAG Or LHSSC
CLOSE-UP CAMERA CASSETTE	BOOT COMPARTMENT
CONTINGENCY SAMPLE CONTAINER	BOOT COMPARTMENT
ETB	JETTISON BAG
PLSS FEEDWATER BAGS (FULL)	JETTISON BAG Or LHSSC
HAMMOCKS	JETTISON BAG OR LEFT SIDE
HSB'S	ASC ENG COVER OR FLOOR
ISA	JETTISON BAG OR RECHARGE STATION
JETTISON BAG	CABIN FLOOR
LHSSC	SLEEP STATION
OPS'S	FLOOR
PLSS (CDR'S)	RECHARGE STATION
PLSS (LMP'S)	DONNING STATION
PURGE VALVES	TSB Or RHSSC (FECAL EMESIS BAG)
RCU'S	LHSSC
RT ANGLE BRKT	JETTISON BAG
SRC/OPS ADAPTER	JETTISON BAG
SRC'S	SRC RACKS
SURVEYOR BAG	HUNG AFT
TSB	PNL 5

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EMERGENCY LIFT-OFF

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

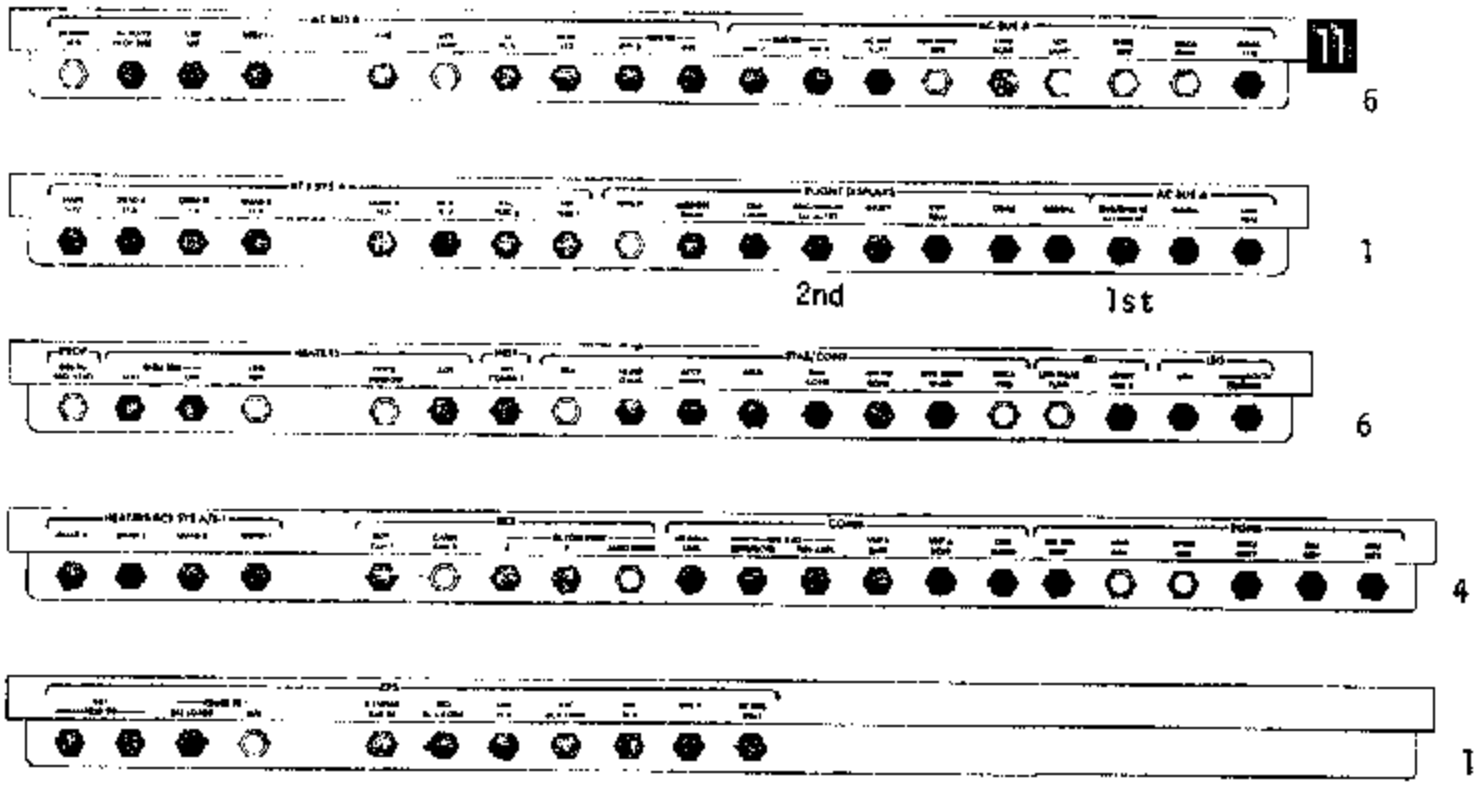
PGNS ACT
PRO
(RESTART Lt-On, STBY Lt-Off)
RSET
V96E
CB(11) IMU OPR - Close
(NO ATT Lt-Off In 90 Sec)

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

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

Configure CBs Per EMER LIFT OFF Status Charts

EMER LIFT OFF



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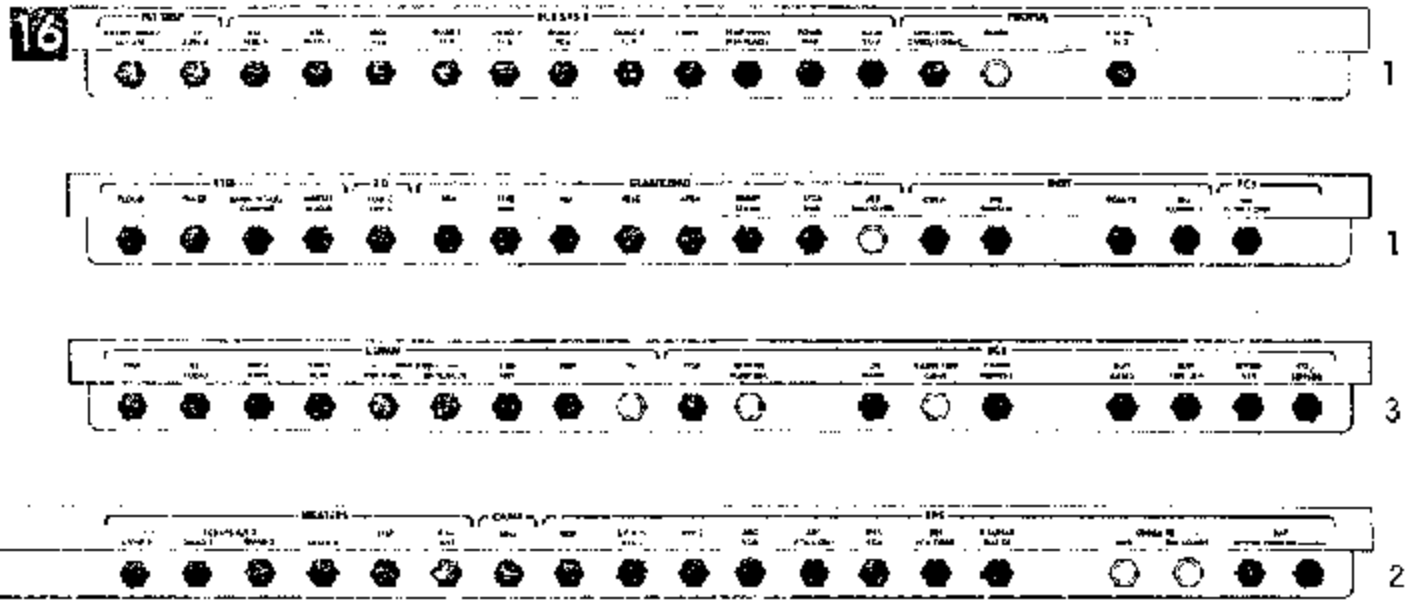
EMER LIFT OFF



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MSFN-UPDATE
UPDATA LINK - DATA
(MSFN Updates
State Vector)
UPDATA LINK - VOICE BU

AGS ACTIVATION

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

ALIGN PGNS
P57E, OPT 4, PRO

N34 0, 0, 0 Present Time, PRO

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

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

N05 _____ Angle Diff
PRO

N93 Torquing Angles _____ X
PRO _____ Y
_____ Z

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Changed November 3, 1969

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Changed — November 3, 1969

N25 00014 ENTR
P00

AGS INITIALIZATION

V16 N55E, 377 _____

V47E, 414+1E

400	+4	LUNAR ALIGN
240	+56952	E 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

400 + 3E
413 + 1E

TARGET PGNS

GUID CONT - PGNS
MODE CONT (Both) - AUTO

P12E
N33 _____:_____:_____ TIG ASC
PRO

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

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N74 ____:____ TFI
_____ YAW
_____ PITCH

TARGET AGS

232 + _____ (+00600)
465 + _____ (+00195)
225 + _____ (+58158)
226 + _____ (+58158)
410 + 0
411 + 1
514 _____ (-65034)
515 _____ (-41734)
516 _____ (+00000)

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
CRSFD - OPEN

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

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CONFIGURE COMM
S-BAND ANT - SLEW
P = _____ (+120)
Y = _____ (-30)
TRACK MODE - AUTO
VHF A: XMTR - VOICE/RNG
: RCVR - ON
VHF B: RCVR - ON
AUDIO (Both): VHF A - T/R
VHF B - RCV

BEGIN FINAL COUNTDOWN

T-5:00 BATS 2&4 - OFF/RESET tb-bp
DES BATS - DEADFACE tb-bp
Check APS Start Card

GO TO LM TIMELINE BOOK