



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

APOLLO 16

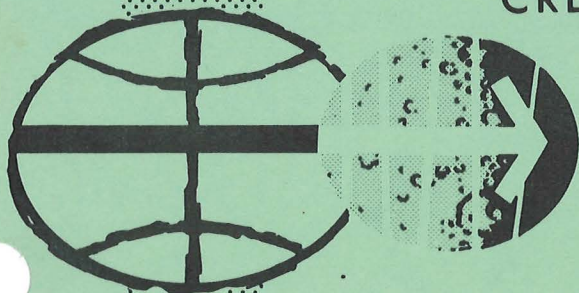
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MAY 15, JUNE 13, & JUNE 14 LAUNCH

CHANGE A
LM ACTIVATION
CHECKLIST

PREPARED BY

SYSTEMS PROCEDURES BRANCH
CREW PROCEDURES DIVISION



MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MARCH 28, 1972

APOLLO 16
LM ACTIVATION CHECKLIST

MARCH 28, 1972

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LM ACTIVATION CHECKLIST

LIST OF EFFECTIVE PAGES

Basic 12/15/71
Revision A 3/9/72
Change A 3/28/72

PAGE	DATE	PAGE	DATE
*i	3/28/72	2-6	12/15/71
ii	3/9/72	2-7	3/9/72
iii	12/15/71	*3-1	3/28/72
iv	12/15/71	*3-2	3/28/72
*1-1	3/28/72	3-3	12/15/71
*1-2	3/28/72	3-4	12/15/71
1-3	12/15/71	3-5	12/15/71
*1-4	3/28/72	3-6	12/15/71
1-5	12/15/71	3-7	12/15/71
1-6	12/15/71	3-8	12/15/71
1-7	12/15/71	3-9	12/15/71
1-8	12/15/71	3-10	12/15/71
1-9	12/15/71	3-11	12/15/71
1-10	12/15/71	3-12	12/15/71
1-11	12/15/71	3-13	12/15/71
1-12	12/15/71	3-14	12/15/71
*1-13	3/28/72	3-15	12/15/71
1-14	3/9/72	3-16	3/9/72
1-15	12/15/71	3-17	12/15/71
1-16	3/9/72	3-18	12/15/71
1-17	3/9/72	3-19	3/9/72
1-18	12/15/71	3-20	12/15/71
*1-19	3/28/72	*3-21	3/28/72
1-20	3/9/72	3-22	12/15/71
*1-21	3/28/72	3-23	12/15/71
2-1	12/15/71	3-24	12/15/71
2-2	12/15/71	3-25	12/15/71
2-3	12/15/71	3-26	12/15/71
2-4	12/15/71	3-27	12/15/71
2-5	12/15/71	3-28	12/15/71

*Current Change

LIST OF EFFECTIVE PAGES (CONT)

PAGE	DATE
3-29	12/15/71
3-30	12/15/71
3-31	12/15/71
3-32	3/9/72
3-33	12/15/71
3-34	12/15/71
3-35	12/15/71
3-36	3/9/72
3-37	12/15/71
3-38	3/9/72
3-39	3/9/72

*Current Change

(TRIM FRONT PAGE ON SOLID CROP MARKS: BACK PAGE ON DASH CROP MARKS.)

iii
CONTENTS

Page

1. TLC DAY

CSM TO LM TRANSFER LIST (TLC)	1-1
IVT TO LM	1-3
ENTRY STATUS CHECK	1-4
HOUSEKEEPING	1-13
COMM ACTIVATION	1-15
S-BAND/VHF SIMPLEX VOICE TEST	1-17
OPS CHECKOUT	1-19
COMM DEACTIVATION	1-20
IVT TO CSM	1-21
LM TO CSM TRANSFER LIST	1-21

2. TELEMETRY ACTIVATION

IVT TO LM	2-1
TELEMETRY ACTIVATION	2-2
TELEMETRY DEACTIVATION	2-4
IVT TO CSM	2-7

3. PDI DAY

CSM TO LM TRANSFER LIST (PDI)	3-1
CDR IVT TO LM	3-3
LMP IVT TO LM	3-3
EPS ACTIVATION	3-4
MISSION TIMER ACTIVATION	3-6
PRIMARY GLYCOL LOOP ACTIVATION	3-6
CAUTION/WARNING CHECKOUT	3-7
ECS ACTIVATION & CHECKOUT	3-8
CDR CONNECT TO LM ECS	3-9
LMP CONNECT TO LM ECS	3-9
ACTIVATE RCS HEATERS	3-12
TB VERIFICATION	3-12
PGNS TURN-ON & SELF TEST	3-13
VHF B CHECKOUT	3-13
VHF A CHECKOUT	3-13
LGC/CMC CLOCK SYNC/TEPHEM UPDATE	3-15
PRIM S-BD T/R & SEC PWR AMPL CK	3-15

DATE 12/15/71

DATE

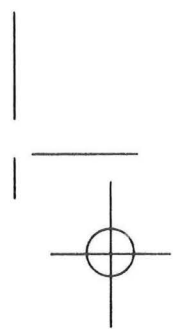
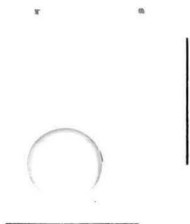
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iv
CONTENTS (CONT)

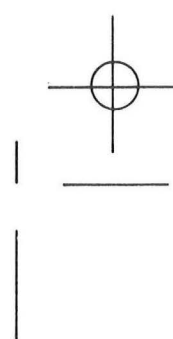
	Page
SEC S-BD T/R & PRIM PWR AMPL CK	3-15
SET DAP	3-16
E-MEMORY DUMP	3-16
S-BAND STEERABLE ANTENNA ACTIVATION	3-16
MSFN UPLINK	3-17
LANDING GEAR DEPLOY	3-17
SUIT FAN/H2O SEP CHECK	3-17
GLYCOL PUMP CHECK	3-18
DOCKED IMU COARSE ALIGN	3-19
ASCENT/LUNAR BAT CHECKOUT	3-19
P52 ALIGN	3-21
RCS PRESSURIZATION	3-23
RCS CHECKOUT	3-25
RNDZ RDR SELF TEST	3-28
DROGUE AND PROBE INSTALLATION	3-28
PGA PRESSURE INTEGRITY CHECK	3-33
REGULATOR CHECK	3-34
RATE GYRO CHECK	3-35
PREP FOR UNDOCKING	3-36

DATE _____

DATE 12/15/71



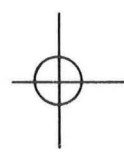
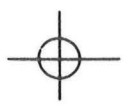
TLC DAY



BACK

COLOR _____

TLC DAY



DATE 3/28/72

1-1

CSM TO LM TRANSFER LIST (TLC)

<u>CSM</u>	<u>ITEM</u>	<u>LM</u>
A2	Jettison Bag	Temp Stwg
ICG	Scissor (1)	Data File
CCU Cable	CWG Elect Adapter w/cap (2)	On Crew
On Crew	Comm Carrier (2)	On Crew
R5	Inflight Straps (4)	On CDR's Umbil
R5	Utility Straps (3)	LHSSC

TRANSFER LIST

TRANSFER LIST

1-2

R13	70mm Mag (4) In Bag
R13	70mm Mag (3) In Bag
A8	70mm Mag (3) In Bag
R13	70mm Mag (3) In Bag
R13	16mm Mag (6) w/Bag Incl Passive DOS
R13	16mm Mag (2) In Bag
R3	LM ACTIVATION C/L (2)

AFT RHSSC (B&W-L;
HCEX-A, E&F)

AFT Eng Cover
(B&W-H&I; HCEX-D)

AFT Eng Cover
(B&W-J,K,M)

FWD RHSSC
(B&W-G; HCEX-B&C)

RHSSC
(P,Q,R,S,T,U)

1 w/Bag-ISA Top
Pkt (0)

1 Window SEQ
Camr (N)

Data File

DATE 3/28/72

DATE 12/15/71

1-3

33:00

IVT TO LM

- 1 Activate CABIN DUMP VALVE & Open Hatch
Carry Comm Carrier, CWG Connector &
CSM 02 Hose
- 2 Record Docking Tunnel Index Angle

_____ Rc
- 3 FLOOD LIGHT - All
EXTERIOR LTG - OFF
Window Shades (3) - Open
- 4 DES H2O - OPEN
DES 02 - OPEN
CABIN REPRESS - AUTO
CB(16) CABIN REPRESS - CLOSE
- 5 Check AOT Visibility

IVT TO LM

IVT TO LM

1-4

33:05

ENTRY STATUS CHECK

- 1 Mount Purse (ISA Bottom Pocket)
Stow Drink Bags (2) (ISA Back Pkt) In Jett Bag
Stow LCG's (LHMS) In ISA Big Pkt
Unstow ISA And Install On AFT
Cabin Rest Station Fittings
Stow Food Stick (1) (Food Compt) In Jett Bag
- 2 Verify CB Status Per INITIAL ACTIVATION
status Chart

DATE 3/28/72

7-5

DATE _____

0 - CLOSED

[illegible]

0 - CLOSED

[illegible]

3 - CLOSED

[illegible]

1 - CLOSED

[illegible]

5 - CLOSED

[illegible]

DATE _____

1-6

INITIAL ACTIVATION STATUS

0 - CLOSED

16	FLT DISP		ASC		ASC		RCS SYS B				PROPUL		ASC H ₂ REG	
	EVENT TIMER/ SE FDAI	SE X-PNTR	FEED 1	FEED 2	QUAD 1 TCA	QUAD 2 TCA	QUAD 3 TCA	QUAD 4 TCA	CRSPD	TEMP / PRESS DISP/FLAGS	POGS DISP	MAIN SOV	DISP ENG OVRD/LOGIC	POGS
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

1 - CLOSED

LTC		ED		STAB/CONT				INST		ECS							
FLOOD	TRACK	ANUN/DOCK/COMPNT	MASTER ALARM	LOGIC PWR B	AEA	ENG ARM	ASA	AELD	ATCA	ABORT STAGE	ATCA (AGS)	DES ENG OVRD	CWEA	SIG SENSOR	PCM/TE	SIG COND 2	SUIT FLOW CONT
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

1 - CLOSED

COMM				ECS													
DISP	SE AUDIO	VHF A XMT	VHF B RCVR	PRIM S-30 PWR AMPL	XMT/RCVR	S-BD ANT	PNP	TV	DISP	GLYCOL PUMP SEC	LCG PUMP	CABIN FAN CONT	CABIN REPRESS	SUIT FAN 2	SUIT FAN 1	DIVERT VLV	CO ₂ SENSOR
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

7 - CLOSED

HEATERS				CAMR		EPS		X LUNAR		CROSS TIE		BAT				
MESA	QUAD 1	QUAD 2	QUAD 3	QUAD 4	DISP	S-BD ANT	DISP	DC BUS VOLT	INV 2	ASC ECA	ASC ECA CONT	DES ECA	DES ECA CONT	BUS	BAL LOADS	FEED TIE
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

DATE 12/15/71

DATE 12/15/71

1-7

- 3 UTILITY LIGHTS (2) - OFF
RR GYRO SEL - PRIM
- 4 FDAI 1&2 - INRTL
EARTH/LUNAR - PWR OFF
LTG - OFF
MODE - HOLD/FAST
ALT SET - 60
- 5 FUEL & OXID VENT (2) -tb-bp (Vlv Open)
LDG GEAR DEPLOY - tb-bp
MASTER ARM - OFF
ASC HE SEL - Both
MESA - LO
URINE LINE - OFF
STAGE - SAFE (Guarded)
- 6 S-BAND T/R - OFF
ICS T/R - OFF
RELAY - OFF
MODE - ICS/PTT
AUDIO CONT - NORM
VHF A&B - OFF
VOX SENS - 9
THUMBWHEEL VOL (5)-6
COAS - OFF
- 7 TTCA (CDR) - JETS

DATE _____

DATE _____

1-8

- 8 TIMER CONT - STOP
 LTG OVERRIDE (3) - OFF
 SIDE PANELS - OFF
 FLOOD OVHD/FWD - BRIGHT
 ANUN/NUM - DIM
 INTEGRAL - DIM
- 9 X-POINTER SCALE - HI MULT
 RATE/ERR MON - LDG RDR/CMPTR
 ATTITUDE MON - PGNS
 GUID CONT - PGNS
 MODE SEL - LDG RADAR
 RNG/ALT MON - ALT/ALT RT
 SHFT/TRUN - +50°
 RATE SCALE - 25°/SEC
 ACA PROP - ENABLE
 THR CONT - AUTO
 MAN THROT - CDR
 ENG ARM - OFF (SW GUARD - 12 o'clock)
 ATT/TRANSL - 4 JETS
 BAL CPL - ON
 ASC He REG 1&2 - tb - gray (vlv Open)
 DESCENT He REG 1 - tb - gray (vlv Open)
 DESCENT He REG 2 - tb - bp (vlv Closed)
 PRPLNT QTY MON - OFF
 PRPLNT TEMP/PRESS MON - ASC
 HELIUM MON - OFF
 ABORT and ABORT STAGE - Flush/Guarded

DATE 12/15/71

DATE 12/15/71

1-9

- 10 SYS A&B ASC FUEL & ASC OXID (4) - tb-bp
 (Feed 2 - Close, Feed 1 - Open)
 SYS A&B QUADS (8) - ENABLE; tb - gray
 CRSFD - tb - bp (v1v closed)
 SYS A&B MAIN SOV - tb - gray (v1v open)
 TEMP/PRESS MON - He
 ACA PROP - ENABLE
 RATE/ERR MON - LDG RDR/CMPTR
 ATTITUDE MON - PGNS
 GLYCOL - PUMP 2
 SUIT FAN - 1
 O2/H2O QTY MON - ASC 2
- 11 ENG GMBL - ENABLE
 DES ENG CMD OVRD - OFF
 LDG ANT - AUTO
 RADAR TEST - OFF
 TEST MONITOR - ALT XMTR
 SLEW RATE - HI
 RNDZ RDR - SLEW
 DEAD BAND - MIN
 GYRO TEST - ROLL
 ATTITUDE CONTROL (3) - MODE CONT
 MODE CONT: (Both) - OFF (PGNS SW GUARD - 9 o'clock)
 EVENT TIMER: TIMER CONT - STOP
 TEMP MON - LDG

DATE _____

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DATE _____

1-10

RCS SYS A/B-2 QUADS (4) - OFF
LTG: SIDE PANELS - OFF
FLOOD-ALL
OVHD/FWD - BRIGHT
LAMP/TONE TEST - OFF
EXTERIOR LTG - OFF
X-POINTER SCALE - HI MULT

12 ACA/4 JET (2) - ENABLE

TTCA/TRANSL (2) - ENABLE

RNDZ RDR ANT - Stowed
AOT - CL, ANGLE - 0000 (Pushed In)
TTCA (LMP) - JETS
AGS STATUS - OFF

13 PWR TEMP MON-ED/OFF
INV-OFF
DES PWR (6)-tb-bp
ASC PWR (4)-tb-bp
UNLINK SQUELCH-ENABLE

DATE 12/15/71

DATE 12/15/71

1-11

- 14 AUDIO CONT - NORM
S-BAND T/R - OFF
ICS T/R - OFF
RELAY - OFF
MODE - ICS/PTT
UPDATA LINK - OFF
VHF A&B - OFF
VOX SENS - 9
THUMBWHEEL VOL (5)-6
- 15 S-BAND MODULATE - PM
XMTR/RCVR - OFF
PWR AMPL - OFF
VOICE - OFF
PCM - OFF
RANGE - OFF/RESET
VHF A (2) - OFF (SQUELCH-3)
VHF B (2) - OFF (SQUELCH-3)
TELEMETRY - OFF/HI
RECORDER - OFF (tb-bp)
VHF - AFT
TRACK MODE - OFF
PITCH - -75°
YAW - -12°
S-BAND - AFT

DATE _____

DATE _____

1-12

- 16 - SUIT GAS DIVERTER - PULL/EGRESS
- CABIN REPRESS - AUTO
- LO PLSS FILL - CLOSE
- PRESS REG A&B - CLOSE
- DES O2 - OPEN
- ASC O2(2) - CLOSE
- SUIT ISOL (2) - SUIT DISC
- SUIT CIRCUIT RELIEF - AUTO
- CABIN GAS RETURN - AUTO
- CO2 CANISTER SEL - PRIM
PRIM & SEC CO2 CANISTER - CLOSE
WATER SEP SEL - PULL/SEP 2
ASC H2O - CLOSE
SEC EVAP FLOW - CLOSE
PRIM EVAP FLOW (2) - CLOSE
DES H2O - OPEN
WATER TANK SELECT - DES
SUIT TEMP - COLD
LIQUID COOLING GARMENT - COLD
WMS Vlv - CLOSE
HI PLSS O2 FILL - CLOSE
DES COOLING VLV - ON
- 17 Verify (192 PKG) Lanyard
Not Seated
- 18 FWD CABIN RELIEF AND DUMP - AUTO

DATE 12/15/71

DATE 3/28/72

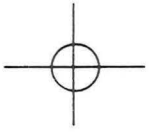
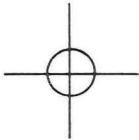
1-13

33:20

HOUSEKEEPING

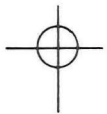
- 1 Install 16mm Camr Wedge - RHSSC
- 2 Tape Broomclip On AOT
- 3 Tape Crash Bar
- 4 Position UTILITY LIGHTS On Back AOT GUARD

HOUSEKEEPING



HOUSEKEEPING

1-14

- 
- 
- 
- 5 Configure 1-70mm Camr (Top RHSSC):
 Stow Reseau Cover In Camr Compt
 Remove Polarizing Filter & Stow in Camr Compt
 Install HCEX MAG A (AFT RHSSC) f11,250, ∞
 Stow Dark Slide In Camr Compt
 Unstow Trigger and Handle (Camr Compt)
 Unstow RCU/Camr Brkt (AFT RHSSC)
 Install Trigger, RCU/Camr Brkt, Then Handle
 Install Bag Dispenser Brkt (Camr Compt)
 Stow Camr In RHSSC Camr Compt, 2 Snaps
- 6 Position Q-Cards

DATE 3/9/72

DATE 12/15/71

1-15

34:17

COMM ACTIVATION

- 1 Transfer To LM POWER (FLOOD Lts. Blink,
C/W PWR Caution Lt - On)

CB(11) EPS: XLUNAR BUS TIE - Close

CB(16) EPS: XLUNAR BUS TIE - Close

CB(11) LTG: UTIL - Close

- 2 CB(11) COMM: VHF B XMTR - Close
: VHF A RCVR - Close
: CDR AUDIO - Close
INST: SIG CONDR 1 - Close
ECS: GLYCOL PUMP 2- Close

- 3 CB(16) INST: SIG CONDR 2-Close
EPS: DISP - Close
: DES ECA CONT-Close

Verify DES POWER: BAT 1,4 - tb-LO
2,3, LUN - tb-bp
DES BAT - tb-gray

COMM ACT & C/O

COMM ACT & C/O

1-16

4 Check BAT and BUS Voltages

When BUS VOLT < 27V, Select HI Voltage Taps
CB(11) EPS: CROSS TIE BUS - Close
CB(16) EPS: CROSS TIE BUS - Close
BAT 1 HI-V-OFF/RESET; tb-bp, then ON; tb-gray
BAT 4 HI-V-OFF/RESET; tb-bp, then ON; tb-gray
CB(16) EPS: CROSS TIE BUS - Open
: CROSS TIE BAL LOADS - Open

When BAT 1 AMP MTR INDICATES > 30

BAT 2 - ON; tb-gray

When BAT 4 AMP MTR INDICATES > 30

BAT 3 - ON; tb-gray

5 CB(11) COMM: SEC S-BD XMTR/RCVR - Close

CB(16) COMM: DISP - Close

: VHF A XMTR - Close

: VHF B RCVR - Close

: PRIM S-BD PWR AMPL - Close

: PMP - Close

INST: SIG SENSOR - Close

: PCM/TE - Close

ECS: DISP - Close

Check Glycol Pressure _____ Psia

6 Connect To LMP COMM Umbilical Using
CWG Connector

CB(16) SE AUDIO - Close

DATE 3/9/72

BACK

COLOR

— DATA LBR

DATE 3/9/72

1-17

34:29

* S-BAND/VHF SIMPLEX VOICE TEST

- 1 AUDIO (LMP): S-BAND T/R - T/R
: VHF A - T/R
: VHF B - OFF
COMM: S-BAND-PM, SEC, PRIM, DN VOICE BU,
PCM, OFF/RESET, OFF, LO
VHF A XMTR - VOICE
VHF A RCVR - ON
VHF ANT - AFT
S-BAND ANT - AFT
Perform VHF A Voice Check With CSM
- 2 COMM: VHF A XMTR & RCVR - OFF
: VHF B XMTR - VOICE
: VHF B RCVR - ON
AUDIO (LMP): VHF A-OFF
: VHF B-T/R
Perform VHF B Voice Check With CSM
- 3 Perform S-BD Voice & LBR Check With MSFN
TLM-HI
Perform Voice & HBR Check With MSFN

Suit Temp _____

Cabin Temp _____

- HBR

DATE _____

(TRIM FRONT PAGE ON SOLID CROP MARKS: BACK PAGE ON DASH CROP MARKS.)

DATE _____

1-18

- 4 BIOMED-RIGHT
Perform Voice & HBR Check With MSFN
- 5 TLM-LO
Perform Voice & LBR Check With MSFN
- 6 S-BAND: VOICE-VOICE
Perform Voice & LBR Check With MSFN
- 7 TLM-HI
Perform Voice & HBR Check With MSFN
- 8 TLM-LO
S-BAND: RANGE-RANGE
Perform Voice & Ranging Check With MSFN
- 9 Record & Report ED BAT Voltage to MSFN
BAT A 370 ; BAT B 370
- 10 CB(16) CAMR: SEQ - Close
Check SEQ Camera Operation

DATE 12/15/71

DATE 3/28/72

1-19

34:44

OPS CHECKOUT

Record Source Pressures & Report To MSFN

CDR OPS 5800

LMP OPS 6000

No ACTION
Real'd
IF OFF
NOMINAL

GET R/O
NEXT HSKPING

*Should be $\approx 5900 \pm 100$ depending on initial charge
Press drops ≈ 100 psi per 10° colder than nominal cabin
Should be no observable leakage.*

NOTE: OPS LEAK WILL SCREW UP
CABIN LEAK RATE CALC.

OPS C/O
COMM DEACTIVATION

OPS C/O
COMM DEACTIVATION

1-20

34:49

COMM DEACTIVATION

- 1 AUDIO (LMP): S-BAND T/R - OFF
: VHF B - OFF
- 2 COMM: S-BAND - PM, OFF, OFF, OFF, OFF,
OFF/RESET, OFF, LO
: VHF B XMTR - OFF
: VHF B RCVR - OFF
- 3 Select LO TAPS

CB(16) EPS: CROSS TIE BUS - Close
: CROSS TIE BAL LOADS - Close
BAT 2 - OFF/RESET; tb-bp
BAT 3 - OFF/RESET; tb-bp
BAT 4 LO-V-OFF/RESET; tb-bp, then ON; tb-LO
BAT 1 LO-V-OFF/RESET; tb-bp, then ON; tb-LO
- 4 Configure CB Panels Per INT ACT STATUS
Chart (1-5, 1-6)
Disconnect From LMP Comm Umbilical
- 5 Transfer To CSM Power, Observe C/W
PWR Lt - Off

DATE 3/9/72

20 min & DATA

DATE 3/28/72

1-21

35:00

IVT TO CSM

- 1 DES 02 - CLOSE
DES H20 - CLOSE
CABIN REPRESS - CLOSE
CB(11) EPS: DC BUS VOLT - Open
CB(16) ECS: CABIN REPRESS - Open
Window Shades (3) - Close
- 2 FLOOD LIGHT - OFF
- 3 CABIN RELIEF & DUMP (OVHD) - Open
IVT TO CSM, Close LM Hatch

LM TO CSM TRANSFER LIST

LM

On Crew -
On Crew -
Temp Stwg -
Temp Stwg -
Jett Bag -
Jett Bag -

ITEM

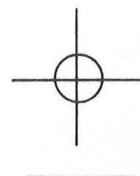
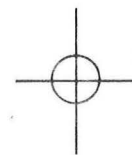
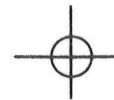
Comm Carriers (2)
CWG Adptr w/cap(2)
Jettison Bag
LM ACTIVATION C/L (1)
Drink Bag (2)
Food Stick (1)

CSM

On Crew -
CCU Cable -
A2 -
R3 -
Temp Stwg -
Temp Stwg -

DATE _____

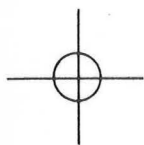
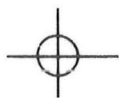
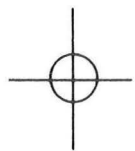
TELEMETRY ACTIVATION



BACK

COLOR _____

TELEMETRY ACTIVATION



DATE 12/15/71

2-1

IVT TO LM

- 1 Activate CABIN DUMP VALVE & Open Hatch
Carry CSM 02 Hose
- 2 FLOOD LIGHT - ALL
Window Shades (3) - Open
- 3 DES H2O - OPEN
DES 02 - OPEN
CABIN REPRESS - AUTO
CB(16) CABIN REPRESS - CLOSE

— SHOULD SAY READ
DICKING TOWER INDEX

IVT TO LM
TLM ACT

IVT TO LM
TLM ACT

2-2

TELEMETRY ACTIVATION

- 1 Transfer To LM POWER (FLOOD Lts. Blink,
C/W PWR Caution Lt - On)

CB(11) EPS: XLUNAR BUS TIE - Close

CB(16) EPS: XLUNAR BUS TIE - Close

- 2 CB(11) INST: SIG CONDR 1 - Close
ECS: GLYCOL PUMP 2 - Close
EPS: DC BUS VOLT - Close

- 3 CB(16) INST: SIG CONDR 2 - Close
EPS: DISP - Close
: DES ECA CONT - Close
Verify DES POWER: BAT 1,4 - tb-LO
2,3,LUN - tb-bp
DES BAT - tb-gray

DATE 12/15/71

BACK

COLOR

DATE 12/15/71

2-3

4 Check BAT and BUS Voltages

When BUS VOLT $< 27V$, Select HI Voltage Taps
CB(11) EPS: CROSS TIE BUS - Close
CB(16) EPS: CROSS TIE BUS - Close
BAT 1 HI-V-OFF/RESET; tb-bp, then ON; tb-gray
BAT 4 HI-V-OFF/RESET; tb-bp, then ON; tb-gray
CB(16) EPS: CROSS TIE BUS - Open
 : CROSS TIE BAL LOADS - Open

When BAT 1 AMP MTR INDICATES > 30
BAT 2 - ON; tb-gray
When BAT 4 AMP MTR INDICATES > 30
BAT 3 - ON; tb-gray

- 5 CB(11) COMM: SEC S-BD XMTR/RCVR - Close
CB(16) COMM: DISP - Close
 : PRIM S-BD PWR AMPL - Close
 : PMP - Close
INST: SIG SENSOR - Close
 : PCM/TE - Close
ECS: DISP - Close
Check Glycol Pressure _____ Psia
- 6 COMM: S-BAND - PM, SEC, PRIM, OFF, PCM, OFF/RESET, OFF, HI
- 7 Allow _____ Minutes For Data Observation

5-10 MINUTES

DATE _____

DATE _____

2-4

TELEMETRY DEACTIVATION

1 COMM: S-BAND - PM,OFF,OFF,OFF,OFF,
OFF/RESET,OFF,LO

2 Select LO TAPS

CB(16) EPS: CROSS TIE BUS - Close
: CROSS TIE BAL LOADS - Close
BAT 2 - OFF/RESET; tb-bp
BAT 3 - OFF/RESET; tb-bp
BAT 4 LO-V-OFF/RESET; tb-bp, then ON; tb-LO
BAT 1 LO-V-OFF/RESET; tb-bp, then ON; tb-LO

4 Configure CB Panels Per INT ACT STATUS
Chart (2-5, 2-6)

5 Transfer To CSM Power, Observe C/W
PWR Lt Off

DATE 12/15/71

DATE 12/15/71

2-5

INITIAL ACTIVATION STATUS

0 - CLOSED

AC BUS B				AC BUS A														
SE WIND	H ₂ /POGS	S-BD	ORDEAL	ACS	AOT	SE	NUM	BUS TIE		BUS TIE		AC BUS	CDR WIND	TAPE	AOT	RNDZ	DECA	INTGL
HTR	PROPUL DISP	ANT		LAMP	FDAI	LTG	INV 2	INV 1	INV 2	INV 1	VOLT	HTR	RCDR	LAMP	RDR	GMBL	LTG	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

11

0 - CLOSED

RCS SYS A				FLIGHT DISPLAYS												AC BUS A		
MAIN	QUAD 4	QUAD 3	QUAD 2	QUAD 1	ASC	ASC	THRUST	MISSION	CDR	RNG	RNG	GASTA	CDR	COAS	ORDEAL	RNG	GASTA	CDR
SOV	TCA	TCA	TCA	TCA	FEED 2	FEED 1	TIMER	X-PNTR	ALT/ALT	ALT/ALT	RT	RT	FDAI			ALT/ALT	RT	FDAI
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

3 - CLOSED

HEATERS				STAB/CONT												ED		LTC	
URINE	RNDZ	LOG	DOCK	AOT	INST	AEA	ABORT	ATCA	AELD	ENG	ATT DIR	ENG START	DECA	LOG GEAR	LOGIC	UTIL	ANUN/DOCK		
LINE	STDBY	RDR	WINDOW	COND 1	SIG	COND 1	STAGE	(PGNS)	CONT	CONT	CONT	OVRD	PWR	FLAG	PWR A	COMPNT	COMPNT		
☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒		

1 - CLOSED

HEATERS RCS SYS A/B-1				ECS												COMM												PGNS			
QUAD 4	QUAD 3	QUAD 2	QUAD 1	SUIT	CABIN	GLYCOL	UP DATA	SEC S-BD	YMF B	YMF A	CDR	SIG STR	LOG RDR	RNDZ	LOC/	IMU	IMU														
				FAN 1	FAN 2	PUMP	LINE	XNTR/RCVR	PWR AMPL	XNTR	AUDIO	DISP	RDR	RDR	DSKY	STBY	OPR														
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐														

5 - CLOSED

BAT				EPS												PROPUL	
FEED TIE	CROSS TIE	BAL LOADS	BUS	X LUNAR	DES	DES	ASC	ASC	INV 1	DC BUS							
				BUS TIE	ECA CONT	ECA	ECA CONT	ECA	VOLT								
☒	☒	☒	☐	☐	☐	☒	☐	☐	☐	☐	☐						

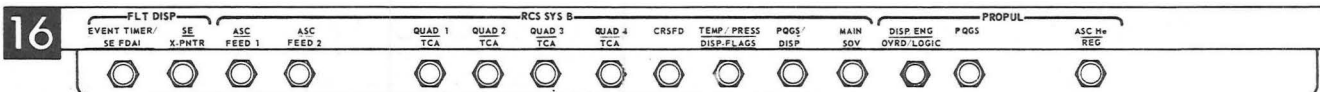
DATE

DATE _____

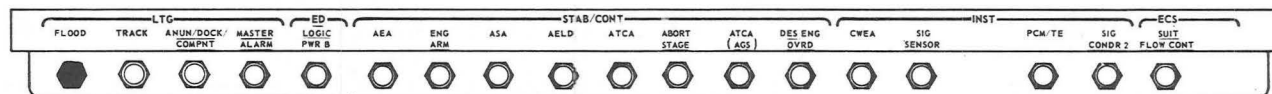
2-6

INITIAL ACTIVATION STATUS

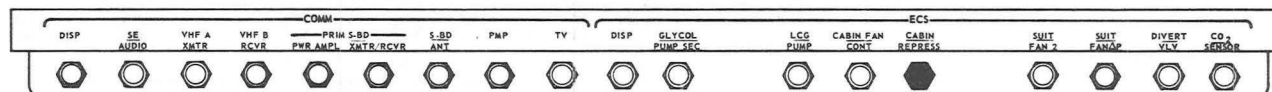
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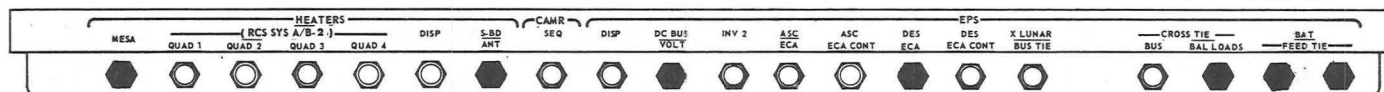
1 - CLOSED



1 - CLOSED



7 - CLOSED



DATE 12/15/71

DATE 3/9/72

2-7

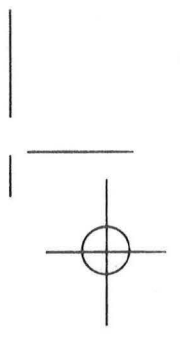
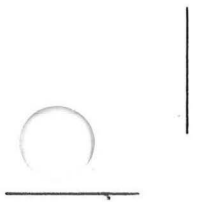
DON SUITS

- 1 IVT TO CSM
Don PGA Without Helmet & Gloves
- 2 IVT To LM
Zip PGA's

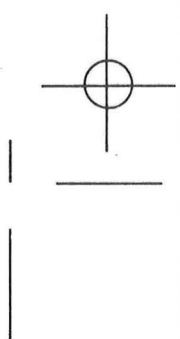
IVT TO CSM

- 1 DES 02 - CLOSE
DES H20 - CLOSE
CABIN REPRESS - CLOSE
CB(11) EPS: DC BUS VOLT - Open
CB(16) ECS: CABIN REPRESS - Open
Window Shades (3) - Close
- 2 FLOOD LIGHT - OFF
- 3 CABIN RELIEF & DUMP (OVHD) - Open
IVT TO CSM, Close LM Hatch

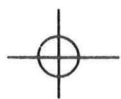
DATE _____



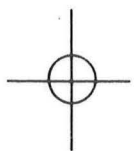
PDI DAY



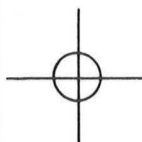
BACK



COLOR _____



PDI DAY



DATE 3/28/72

3-1

CSM TO LM TRANSFER LIST(PDI)

<u>CSM</u>	<u>ITEM</u>	<u>LM</u>
A2	Jettison Bag (1)	Temp Stwg
On Crew	Bio Instrumentation (2)	On Crew
PGA Bag	UCTA (2)	On Crew
A2	FCS (2)	On Crew
U1	LCG (2)	On Crew
Temp Stwg	Drink Bag (2)	On PGA
Temp Stwg	Food Stick (1)	On PGA
PGA Bag	Suit ITSLA-EV (2)	On Crew
ICG	Sunglasses In Pouch (2)	PGA Pocket
On Crew	Watch/Wrist Mirror/Watchband (2)	On PGA
On Crew	Pen (2)	PGA Pocket
On Crew	Pen - Felt Tip (2)	PGA Pocket
On Crew	Pencil (2)	PGA Pocket
On Crew	Pocket, C/L & Scissor (2)	On PGA
On Crew	Pocket, Data (2)	On PGA
On Crew	Scissor	On Crew
On Crew	Pen Light (2)	PGA Pocket
On Crew	Earplug (2 Pr)	PGA Pocket
On Crew	Dosimeter - Personal (2)	PGA Pocket
	Passive (6)	

TRANSFER LIST

TRANSFER LIST

3-2

On Crew

Comm Carrier (2)

On Crew

Helmet Acc Bag
 Helmet Bag
 R8
 CCU Cable
 In Jett Bag
 On PGA
 On PGA
 R3

IV Gloves (2 Pr) - CDR Transfer
 Helmet (2) - CDR Transfer
 CWG Elect Adptr Cap (2)
 CWG Elect Adptr (2)
 LCG Plug (2)
 Gas Connector Plugs (4)
 PGA Elect Conn Cap (2)
 LM XFER DATA CARD KIT
 LM TIMELINE BOOK
 LM DATA CARD BOOK
 LM LUNAR SURFACE C/L
 ORBIT MONITOR CHART (LM)
 ASCENT MONITOR CHART
 LM STAR CHARTS (3)
 LM ACTIVATION C/L (1)
 (RETURN JETTISON BAG TO CSM)

Temp Stwg
 Temp Stwg
 On CWG Adptr
 LHSSC
 Purse
 On PGA
 Purse
 Data File

DATE 3/28/72

DATE 12/15/71

3-3

93:45

LMP IVT TO LM

- 1 Activate CABIN DUMP VALVE & Open Hatch
Carry Comm Carrier & CSM 02 Hose
- 2 Verify Docking Tunnel Index
Angle (See 1-3)
Window Shades (3) - Open
Deploy LMP Crash Bar
- 3 Transfer To LM PWR
(FLOOD Lts. Blink, C/W PWR Caution Lt-On)
CB(11) EPS: XLUNAR BUS TIE - Close
CB(16) EPS: XLUNAR BUS TIE - Close
- 4 FLOOD LIGHT - All
CB(11) LTG: UTIL - Close
- 5 DES H2O - OPEN
DES 02 - OPEN
CABIN REPRESS - AUTO
CB(16) ECS: CABIN REPRESS - Close

93:50

CDR IVT TO LM

CDR IVT To LM With CDR &
LMP Helmet & Gloves

Connect To LM Comm Umbilical
CB(11) COMM: CDR AUDIO - Close
AUDIO (CDR): S-BAND-T/R
 : ICS - T/R

ZIP SUITS & ATTACH RESTRAINTS

SR 93:52

IVT TO LM
EPS ACT

IVT TO LM
EPS ACT

3-4

94:01

EPS ACTIVATION

- 1 LTG: ANUN/NUM - BRIGHT (1 Caution, 9
Power Failure, Glycol COMP Lt-On)
- 2 CB(11) INST: SIG CONDR 1 - Close
EPS: DES ECA CONT - Close
: DC BUS VOLT - Close
CB(16) INST: SIG SENSOR - Close
: PCM/TE - Close
: SIG CONDR 2 - Close
EPS: DISP - Close
: DES ECA CONT - Close
- 3 Connect To LM Comm Umbilical
AUDIO (LMP): S-BAND T/R - T/R
: ICS - T/R
CB(11) COMM: SEC S-BD PWR AMPL - Close
CB(16) COMM: DISP - Close
: S.E. AUDIO - Close
: PRIM S-BD XMTR/RCVR - Close
: S-BD ANT - Close
: PMP - Close
— S-BAND - PM, PRIM, SEC, VOICE, PCM, RANGE, OFF, LO
S-BAND ANT - APT

DATA

DATE 12/15/71

BACK

COLOR

DATE 12/15/71

3-5

- 4 Verify DES POWER: BAT 1,4 tb-L0
2,3,LUN tb-bp
: DES BAT tb-gray
BATS 5&6 NORMAL & BACKUP (4)-tb-bp
Check BAT and BUS Voltages

When BUS Volts $\leq$ 27V, Select High Voltage
Taps

CB(11) EPS: CROSS TIE BUS - Close

CB(16) EPS: CROSS TIE BUS - Close

: CROSS TIE BAL LOADS - Close

BAT 1 HI-V-OFF/RESET;tb-b/p, then ON;
tb-gray

BAT 4 HI-V-OFF/RESET; tb-b/p, then ON;
tb-gray

CB(16) EPS: CROSS TIE BUS - OPEN

CROSS TIE BAL LOADS - OPEN

When BAT 1 AMP MTR INDICATES > 30

BAT 2 - ON; tb gray

When BAT 4 AMP MTR INDICATES > 30

BAT 3 - ON; tb gray

- 5 CB(11) AC BUS B&A: BUS TIE INV 2&1(4)-
Close

AC BUS A : AC BUS VOLT -Close

EPS: INV 1 - Close

CB(16) STAB/CONT: ASA - Close

EPS: INV 2 - Close

DATE _____

DATE _____

3-6

- 6 POWER/TEMP MON - AC BUS
INV -1 Then 2
Verify Voltage in GREEN Band
CB(11) EPS: INV 1 - Open
Power Temp Mon SEL - CDR BUS

94:05

MISSION TIMER ACTIVATION

- 1 CB(11) AC BUS B: NUM LTG - Close
FLIGHT Displays: MISSION TIMER-Close
Set MSN TMR On CSM Mark

94:07

PRIMARY GLYCOL LOOP ACTIVATION

- 1 CB(16) ECS: DISP - Close (3 ☐)
GLYCOL - PUMP 1 _____ psia
- INST(SEC) _____ psia
- PUMP 2
CB(11) ECS: GLYCOL PUMP AUTO TRNFR-Close
: GLYCOL PUMP 1 - Close
: GLYCOL PUMP AUTO TRNFR-Open
GLYCOL - PUMP 1 (Glycol Comp Lt - off)
Verify Press _____ psia
CB(11) ECS: GLYCOL PUMP 2 - Close

DATE 12/15/71

DATE 12/15/71

3-7

94:09

CAUTION/WARNING CHECKOUT

- 1 CB(16) LTG: MASTER ALARM - Close
INST: CWEA - Close

WARN

CES AC

CES DC

LGC

RCS A REG

RCS B REG

CAUT COMP

PREAMP H2O SEP

ECS

GLYCOL(ON IF TEMP
> 50°)

CB(16) LTG: ANUN/DOCK/COMPT - Close

STAB/CONT: ATCA - Close

CB(11) STAB/CONT: ENG CONT - Close

- 2 LAMP/TONE TEST - Check All Positions

C/W CHECKOUT

ECS C/O

C/W CHECKOUT
ECS C/O

3-8

94:11

ECS ACTIVATION & CHECKOUT

- 1 02/H2O QTY MON - ASC 2, ASC 1,
DES 1, DES 2
- 2 SUI T ISOL (2) - SUI T FLOW
SUI T ISOL (2) - ACTUATE OVRD (Suit Disc)
SUI T GAS DIVER TER - PUSH/CABIN
- 3 CB(16) ECS: SUI T FAN 2 - Close
DIVER TER VLV - Close

SUI T FAN - 2 (ECS Caution, H2O SEP Comp
Lts Off In 2 Min)
- 4 PRIM EVAP FLOW NO 1 - Open
GET _____:_____

DATE 12/15/71

BACK

COLOR _____

DATE 12/15/71

3-9

94:13

CDR CONNECT TO LM ECS

(DO NOT CONNECT LCG IF LANYARD STOPPER SEATED)

- 1 Connect To CDR Hoses (R/R & B/B)
PGA DIVERter VLV - IV(HORIZ)
SUIT ISOL - SUIT FLOW

94:13

LMP CONNECT TO LM ECS

- 1 Return CSM 02 Hose To CSM
Connect To LMP Hoses (R/R & B/B)
PGA DIVERter VLV - IV (HORIZ)
SUIT ISOL - SUIT FLOW
PRESS REG A - EGRESS (SUIT GAS DIVERter
Automatically Extends)
CABIN GAS RETURN - EGRESS

Configure CB's Per ACTIVATION PWR UP Chart

***** UD-2:00(94:14) *****

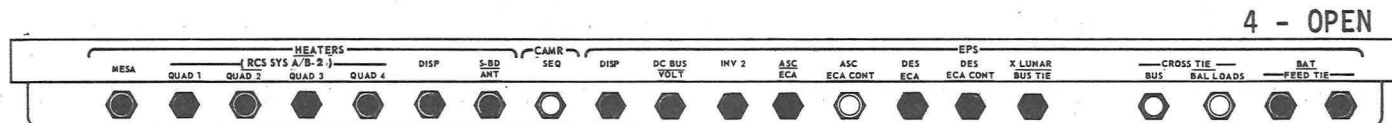
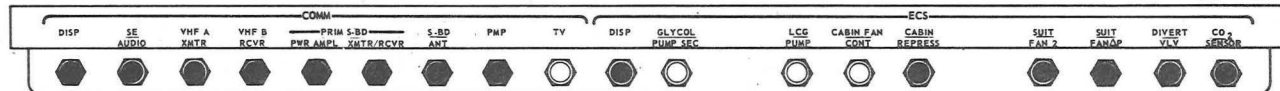
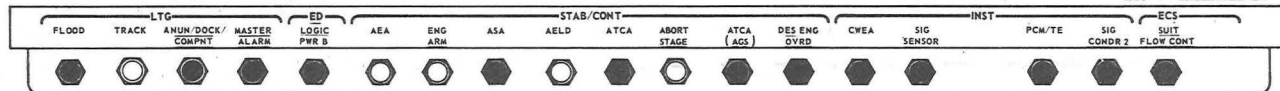
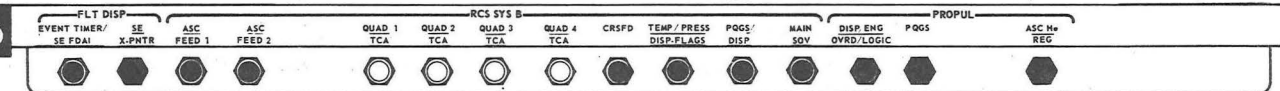
DATE _____

DATE 12/15/71

3-11

ACTIVATION PWR UP

16



RCS HTR T/O
T/B VERIFICATION

RCS HTR T/O
T/B VERIFICATION

3-12

94:17

ACTIVATE RCS HEATERS

- 1 RCS SYS A/B - 2: QUADS(4)-AUTO

When BUS Volts $\leq$ 27V, Select High Voltage
Taps
CB(11) EPS: CROSS TIE BUS - Close
CB(16) EPS: CROSS TIE BUS - Close
 : CROSS TIE BAL LOADS - Close
BAT 1 HI-V-OFF/RESET; tb-b/p, then ON;
 tb-gray
BAT 4 HI-V-OFF/RESET; tb-b/p, then ON;
 tb-gray
CB(16) EPS: CROSS TIE BUS - OPEN
 CROSS TIE BAL LOADS - OPEN
When BAT 1 AMP MTR INDICATES $>$ 30
 BAT 2 - ON; tb-gray
When BAT 4 AMP MTR INDICATES $>$ 30
 BAT 3 - ON; tb-gray

DATE 12/15/71

94:17

TB VERIFICATION

- 1 CB(16) INST: CWEA - Open Then Close

WARN CAUT COMP

RCS A REG
RCS B REG

- 2 FUEL & OXID VENT (2) -tb-gray
LDG GEAR DEPLOY - tb-bp
- 3 ASCENT He REG 1&2 -tb-gray
DESCENT He REG 1-tb-gray
DESCENT He REG 2 -tb-bp
- 4 SYS A&B ASC FUEL & OXID (4)-tb-bp
SYS A&B QUADS (8)-tb-gray
CRSPD tb-bp
SYS A&B MAIN SOV -tb-gray

BACK

COLOR

DATE 12/15/71

3-13

94:19

PGNS TURN-ON & SELF TEST

- 1 Check Bus Voltages
RSET (RESTART LT - OFF)
- 2 V96E
V35E
F 88 88
(Master Alarm, LGC & ISS Warning,
And All DSKY Lts - On, 8's In All
Registers; All Lts Except NO DAP
Reset In 5 sec, LGC Warning Resets
Within 20 Sec)
- 3 CB(11) PGNS: IMU OPR - Close
NO ATT Lt - On (Off In 90 sec)
- 4 V25 NO1E 1365E
E,E,E,
- 5 V15 NO1E 1365E
R1,R2,R3 All Zero

PGNS T/O
VHF C/O

94:19

VHF B CHECKOUT

- 1 CSM Configure for VHF Simplex B
VHF B XMTR - VOICE
VHF B RCVR - ON
VHF ANT - FWD
AUDIO (Both): VHF B - T/R
TAPE RECORDER - ON
- 2 Both CDR & LMP Perform Voice Check
On VHF Simplex B

94:22

VHF A CHECKOUT

- 1 CSM Configure For VHF Simplex A
VHF A XMTR - VOICE
VHF A RCVR - ON
VHF B XMTR - OFF
AUDIO (Both): VHF B - RCV
: VHF A - T/R
- 2 Both CDR & LMP Perform Voice Check On
VHF Simplex A

PGNS T/O
VHF C/O

3-14

- 6 V21 N27E 10E (Test
Erasable And Fixed Memory)
R1 Number Of Errors
R2 Number Of Tests Started
R3 Number Of Erasable Tests Successful
Test Successful If $R2 \geq 3$ (Minimum
78 sec)

```
*PROG Lt-On *
*      V05 N09E 01102 SELF-*
*      TEST ERROR *
* N08E  Record For MSFN *
*      *
*      R1 _____ *
*      *
*      R2 _____ *
*      *
*      R3 _____ *
```

- 7 V21 N27E 0E TERMINATE SELF TEST

***** AOS 94:22 *****

DATE 12/15/71

BACK

COLOR

DATE 12/15/71

3-15

94:25

LGC/CMC CLOCK SYNC/TEPHEM UPDATE

- 1 V25 N36E
- 2 Load Mission Time _____:_____:_____
- 3 V06 N65, On Mark - ENTR
Compare With CSM N65

CSM Time _____:_____:_____
- LM Time _____:_____:_____
- V55E - Load ΔT
Check Mission Timer
- 4 Record CSM TEPHEM
R1 _____
R2 _____
R3 _____
- 5 V25 N01E, 1706E Load TEPHEM (Octal)
- 6 V05 N01E, 1706E Verify TEPHEM

LGC/CMC CLOCK SYNC
S-BD ANT ACT

94:25

*PRIM S-BD T/R & SEC PWR AMPL CK

- 1 Perform PRIM T/R & SEC PWR AMPL
VOICE CK With MSFN
(Up To 60 sec To Lock)
- 2 Notify MSFN of SEC T/R & PRIM PWR AMPL CK

94:30

*SEC S-BD T/R & PRIM PWR AMPL CK

- 1 S-BAND XMTR/RCVR - SEC
S-BAND PWR AMPL - PRIM
(Up To 60 Sec To Relock)
- 2 Report PRIM EVAP FLOW TIME (3-8)
- 3 MSFN UPDATE
Copy AGS Abort Constants

LGC/CMC CLOCK SYNC
S-BD ANT ACT

3-16

94:34

SET DAP

- 1 V48E
F 04 46 Codes (Octal)
R1 _____ (32022)
R2 _____ (00011)
PRO _____
- 2 F 06 47 LM, CSM Wt. (LBS)
R1 _____ (+36685)
R2 _____ (+39354)
PRO _____
- 3 F 06 48 GMBL TRIM, PITCH, ROLL (.01°)
R1 _____ (+00648)
R2 _____ (+00646)
(TERM) V34E

*E-MEMORY DUMP

- 1 Verify MSFN Contact
V74E (Erasable Dump) (42 sec)

DATE 3/9/72

94:34

* S-BAND STEERABLE ANTENNA ACTIVATION

- 1 HTR CONT TEMP MONITOR - S-BAND
(-52° to +135°)
S-BAND -PM,SEC,PRIM,VOICE,PCM,
RANGE,OFF,HI
- 2 STEERABLE: PITCH - -75°
YAW - -12°
TRACK MODE - SLEW (Wait 30 sec)
PITCH (From MSFN) _____ (+109)CCW
YAW (From MSFN) _____ (+18)CCW
ANTENNA S-BAND - SLEW
- 3 Verify Signal Strength > 3.0
TRACK MODE - AUTO
UPLINK SQUELCH - OFF
- 4 S-BAND CHECK WITH MSFN
BIOMED SW - RIGHT

COLOR _____

BACK

DATE 12/15/71

3-17

94:37

*MSFN UPLINK

- 1 UPDATA LINK - DATA
MSFN P-27 Updates LS REFSMMAT, LM
STATE VECTOR AND V66, AND LGC ABORT
CONSTANTS
UPDATA LINK - OFF

94:39

LANDING GEAR DEPLOY

- 1 CB(11) ED: LDG GEAR FLAG - Close
: LOGIC POWER A - Open
MASTER ARM-ON (SYS B Lt-On)
LDG GEAR DEPLOY-FIRE, tb - gray
CB(11) ED: LOGIC POWER A - Close
(SYS A Lt - On)
LDG GEAR DEPLOY - FIRE
MASTER ARM - OFF (SYS A&B Lts - OFF)
CB(11) ED: LDG GEAR FLAG - Open

94:39

SUIT FAN/H2O SEP CHECK

- 1 CB(16) ECS: SUIT FAN 2 - Open
(Master Alarm, SUIT/FAN Warning
SUIT FAN Comp Lts - On)
2 CB(11) ECS: SUIT FAN 1 - Close
H2O SEP SEL - PUSH SEP 1
3 SUIT FAN - 1 (SUIT/FAN Warning, SUIT
FAN Comp Lts - Off
CB(16) ECS: SUIT FAN 2 - Close

LDG GEAR DEPLOY
SUIT FAN/H₂O CK

LDG GEAR DEPLOY
SUIT FAN/H₂O CK

3-18

94:43

GLYCOL PUMP CHECK

- 1 CB(11) ECS: GLYCOL PUMP 1 - Open
(Master Alarm, ECS Caution & Glycol
Comp Lts - On Momentarily)
CB(11) ECS: GLYCOL PUMP 1 - Close
(GLYCOL Comp Lt-On)
- 2 GLYCOL - INST (SEC) (8 psia)
CB(16) ECS: GLYCOL PUMP SEC - Close
(10-20 psi Rise)
: GLYCOL PUMP SEC - Open
(Press Decrease)
- 3 GLYCOL - PUMP 2 (21-37 psi)
(GLYCOL Comp Lt - On Then Off)
CB(11) ECS: GLYCOL PUMP AUTO
TRNFR-Open
GLYCOL - PUMP 1 (21-37 psi)

***** UD -1:30 (94:44) *****

DATE 12/15/71

BACK

COLOR

DATE 3/9/72

3-19

94:47

DOCKED IMU COARSE ALIGN

- 1 Verify CSM In Min DEADBAND ATT HOLD
- 2 Calculate LM Gimbal Angles

<u>OG</u>	<u>IG</u>	<u>MG</u>
300.00	180.00	360.00

Rc (1-3) +

CM - $\frac{(000.00)}{}$ + $\frac{(104.30)}{}$ - $\frac{(360.00)}{}$

LM - $\frac{(300.00)}{}$ - $\frac{(284.30)}{}$ - $\frac{(000.00)}{}$

- 3 V41 N20E COARSE ALIGN IMU
F 21 22 LOAD ICDU ANGLE OG,IG,MG (.01°)
(NO ATT LT - ON, FDAI Torques)
FDAI ANGLES 000,284,060
- 4 V40 N20E ZERO CDU (NO ATT Lt-Off)

94:47

* ASCENT/LUNAR BAT CHECKOUT

- 1 CB(16) EPS: ASC ECA CONT - CLOSE
- 2 POWER/TEMP MON SEL-LUN
LMP LUNAR BAT OFF/RESET; tb - b/p,
then ON; tb - LMP
(VERIFY LUNAR BAT CURRENT)
LMP LUNAR BAT - OFF/RESET; tb - b/p
POWER TEMP MON SEL-BAT 5
BAT 5 NORMAL LMP FEED - ON; tb - gray
(VERIFY BAT 5 CURRENT)
LMP BAT 1 HI V - OFF/RESET; tb - b/p
- 3 CDR LUNAR BAT OFF/RESET; tb - b/p,
then ON; tb - CDR
(VERIFY LUNAR BAT CURRENT)
CDR LUNAR BAT - OFF/RESET; tb - b/p
POWER TEMP MON SEL - BAT 6
BAT 6 NORMAL CDR FEED - ON; tb - gray
(VERIFY BAT 6 CURRENT)
CDR BAT 4 HI V - OFF/RESET; tb - b/p
POWER/TEMP MON SEL - CDR BUS, LMP BUS

IMU C/A
BAT C/O

IMU C/A
BAT C/O

3-20

5 V25 N07E
F 21 07 SET REFSMFLG
77E,10000E,1E, V01 N01E,77E Confirm
Bit 13 Is Set (Set If 1st Digit Is
1,3,5, or 7)

6 V37E 51E
PRO
V37E 00E

7 V06 N20; On LM Mark - ENTR
Note Time, Copy CSM & LM Angles
GET _____:_____:

	<u>OG</u>	<u>IG</u>	<u>MG</u>
CM	_____.	_____.	_____.
LM	_____.	_____.	_____.

8 Verify MSFN Copies Angles & Time

DATE 12/15/71

4 BAT 5 BACKUP CDR FEED - ON; tb - gray
BAT 6 BACKUP LMP FEED - ON; tb - gray
BAT 5 NORMAL LMP FEED-OFF/RESET; tb-b/p
BAT 6 NORMAL CDR FEED-OFF/RESET; tb-b/p
POWER/TEMP MON SEL - LMP BUS, CDR BUS

5 LMP BAT 1 HI V - ON; tb - gray
(VERIFY BAT 1 CURRENT)
LMP BAT 2 - ON; tb - gray
(VERIFY BAT 2 CURRENT)
CDR BAT 3 - ON; tb - gray
(VERIFY BAT 3 CURRENT)
CDR BAT 4 HI V - ON; tb - gray
(VERIFY BAT 4 CURRENT)
BAT 5 BACKUP CDR FEED-OFF/RESET; tb-b/p
BAT 6 BACKUP LMP FEED-OFF/RESET; tb-b/p

6 CB(16) EPS: ASC ECA CONT - OPEN

7 RECORD & REPORT ED BAT VOLTAGE TO MSFN

BAT A _____

BAT B _____

BACK

COLOR _____

DATE 3/28/72

3-21

***** SS - 94:58 *****

94:58

P52 ALIGN

- 1 CB(11) AC BUS B: AOT LAMP - Close
V37E 52E
F 04 06 R2 00003
PRO
- 2 F 50 25 R1 00015
V32E
- 3 F 01 70 R1 00XXX (Load Star Code
335 - RASALHAGUE
231 - ARCTURUS)
PRO
- 4 F 06 79 CUR/Spir (.01°), PRO
- 5 F 01 71 R1 00XXX (Verify Detent)
PRO
- 6 F52/3 71 MARK, Load Cur/Spir, PRO
PRO, To 3 For 2nd Star (RECORD GET)
- 7 F 06 05 STAR Angle Difference (.01°)
PRO

If Adjacent Detent Desired:
V21 N01E, 373E, 32533E,
PRO To 4

P52 ALIGN

P52 ALIGN

- 8 F 06 93 XYZ Torquing Angles (.001°) ³⁻²²
PRO (Gyro Torquing)
- 9 F 50 25 R1 00014
ENTR
OOE
AOT-CL, ANGLE - 0000 (PUSHED IN)
- 10 CB(11) AC BUS B: AOT LAMP - Open
Notify CSM Min Deadband No Longer Required
- 11 V06 N20; On LM Mark - ENTR
NOTE TIME, Copy CSM & LM Angles
GET ____:____:____
- | | <u>OG</u> | <u>IG</u> | <u>MG</u> |
|----|-----------|-----------|-----------|
| CM | ____. | ____. | ____. |
| LM | ____. | ____. | ____. |
- 12 Verify MSFN Copies Angles & Time

DATE 12/15/71

DATE 12/15/71

3-23

95:08

RCS PRESSURIZATION

- 1 RECYCLE: SYS A&B ASC FEED 2(2) - CLOSE
: SYS A&B ASC FEED 1(2) - OPEN
: SYS A&B ASC FUEL & ASC OXID - tb (4) Remain - bp
RECYCLE: CRSFD-CLOSE
: MAIN SOV SYS A&B - OPEN
HTR CONT TEMP MON - Check RCS QUADS ($>120^{\circ}$)
- 2 TEMP/PRESS MON - He (2820-3280 psia)
PRPLNT (40°-100°/10-50 psi)
FUEL MANF (25-90 psi)
OXID MANF (25-90 psi)
RCS QUANTITY A&B - 100%

RCS PRESS

RCS PRESS

3-24

- 3 CB(16) LOGIC PWR B - Open
MASTER ARM - ON (SYS A Lt - ON)
HE PRESS RCS - FIRE
(RCS A&B REG Warning Lts - Off)
MASTER ARM-OFF (SYS A Lt - OFF)
- 4 RECYCLE: SYS A&B ASC FEED 2(2) - CLOSE
: SYS A&B ASC FEED 1(2) - OPEN
: CRSFD - CLOSE
: SYS A&B MAIN SOV-OPEN
CB(16) LOGIC PWR B - CLOSE
- 5 TEMP/PRESS MON - OXID MANF (175-188 psi)
- FUEL MANF (175-188 psi)
- PRPLNT (40°-100°/178-188 psi)
- He (2750-3200 psi)

***** UD - 1:00 (95:14) *****

DATE 12/15/71

BACK

COLOR

DATE 12/15/71

3-25

95:14

*RCS CHECKOUT

- 1 GUID CONT - PGNS
ATT/TRANSL - 4 JET
ATT CONT (3) - PULSE
MODE CONT (Both) - ATT HOLD (PGNS SW GUARD - 6 o'clock)
(NO DAP Lt - OFF)
ACA/4 JET (CDR) - DISABLE
TTCA (BOTH) - JETS
Verify HBR With MSFN & CSM In
Wide Deadband & Attitude Hold
QUAD Flags - Red & RCS TCA Lt - On Will
Occur During Cold Fire Checks
- 2 TTCA (Cold Fire) Check

V76E (NO DAP Lt - ON)

V11N10E, 5E

CDR TTCA

UP (+X) - R1 00252 (4 Flags)

DN (-X) - 00125 (4 Flags)

Repeat For LMP

E, 6E

RIGHT (+Y) - R1 00220

LEFT (-Y) - 00140

FWD (+Z) - 00011

AFT (-Z) - 00006

RCS C/O

RCS C/O

3-26

- 3 PGNS RATE CMD (Cold Fire), AGS PULSE (Cold Fire) Check
CB(11) ATT DIR CONT - CLOSE
V77E (NO DAP Lt - OFF)
V15 NO1E, 42E

CDR ACA (To Soft Stop, Pause 2 sec At Null)
ROLL RIGHT R3 00045-00057
ROLL LEFT 77720-77732
PITCH UP R1 00045-00057
PITCH DN 77720-77732
YAW RIGHT R2 77720-77732
YAW LEFT 00045-00057

- 4 AGS RATE CMD (Cold Fire), 4 JET SEC
COIL (Hot Fire) Check

Verify CMC MODE - FREE
GUID CONT - AGS
ATT CONT (3) - MODE CONT
ACA/4 JET (CDR) - ENABLE
CDR ACA (Deflect Slowly To Hardover, Pause 2 sec At Null)
ROLL - RIGHT
ROLL - LEFT
PITCH - UP
PITCH - DN
YAW - RIGHT
YAW - LEFT

DATE 12/15/71

BACK

COLOR

DATE 12/15/71

- 3-27
5 PGNS MIN IMP (Hot Fire) Check
GUID CONT - PGNS
V76E (NO DAP Lt-ON)

CB(11) RCS SYS A: QUAD TCA (4) - Close
CB(16) RCS SYS B: QUAD TCA (4) - Close
CB(16) INST: CWEA - Open Then Close
(RCS TCA Lt - OFF)
(QUAD FLAGS (8) - Gray)

V11N10E, 31E R1 67777
CDR ACA (Out Of Detent (2 1/2°), Pause 2 sec At Null)
ROLL RIGHT - R1 27757
ROLL LEFT - R1 27737
YAW RIGHT (Twice) - R1 27767
YAW LEFT (Twice) - R1 27773

V48E, V21E, 31022E, PRO, V34E
V11N10E, 31E
CDR ACA (Out of Detent (2 1/2°), Pause 2 sec At Null)
PITCH UP - R1 27776
PITCH DN - R1 27775

Notify CSM Hot Fire Checks Complete
CSM - WIDE Deadband ATT/Hold

- 6 V37E 00E

RR SELF TEST
DROGUE & PROBE

RR SELF TEST
DROGUE & PROBE

3-28

95:23

RNDZ RDR SELF TEST

- 1 CB(11) RR(2) - Close (NO TRACK Lt-On)
Verify: CSM RCS Thruster B3 - Off
: Radar Xponder - Off
RNDZ RDR ANT - Pull Pin & Release
X-POINTERS (Both) - HI MULT
RATE/ERR MON (Both) - RNDZ RADAR
ATTITUDE MON (Both) - PGNS
MODE SEL - LDG RDR
- 2 RNG/ALT MON - RNG/RNG RATE
SHFT/TRUN - +50°
RR MODE - SLEW
TEMP MONITOR - RNDZ (+10° To +75°)
RR GYRO SEL-SEC
CB(11) AC BUS A: RNG/RNG RT/ALT/ALT
RT - Close
FLIGHT DISPLAYS: RNG/RNG RT/ALT/ALT RT-
Close

DATE 12/15/71

95:23

DROGUE AND PROBE INSTALLATION

- 1 Verify:
Both Electrical Umbilicals Removed
Drogue Lock Lever Engaged & Flush
Three Capture Latches Engaged & Locked
LM Hatch Exterior Insulation O.K.
Flaps Secured Around Handles
- 2 Close & Secure Hatch
CABIN DUMP (OVHD) - AUTO & LOCKED
PRESS REG A&B - CABIN
Secure LEVA Bags On Engine Cover

BACK

COLOR

DATE 12/15/71

3-29

- 3 SLEW RATE-HI
Slew Left To Mode I Region (+Z) (18 sec)
Slew Right, Down, Left, Up
(FDAI Needles Right, Down, Left, Up)
SLEW RATE - LO
SHFT/TRUN - +5°
Slew Right, Down, Left, Up
(FDAI Needles Right, Down, Left, Up,
1°/sec; X-Pointer-3 mr/sec)
- 4 RR MODE - AUTO TRACK
RADAR TEST - RNDZ (Rng Rt Tape Drives
To -477 to -517 fps, X-Pointers Oscillate
and FDAI Needles Vary Between +5°.
After 12 sec Rng Tape Drives to
193 to 197NM, NO TRACK & PWR FAIL Lts-Off)
- 5 TEST MONITOR - AGC (1.2 To 1.6)
- XMTR (2.8 To 3.2)
- SHAFT ERR (2.2 To 2.6
@1/2cps)
- TRUN ERR (2.2 To 2.6
@1/2 cps)
- AGC

DATE _____

DATE _____

3-30

- 6 Set NORRMON Flag
V25 NO7E
101E, 10E, 1E
RR MODE - LGC (NO TRACK & PWR FAIL Lts - On)
- 7 V63E Start RR Self Test
F 04 12
R1 00004 Specify Radar
R2 00001 Rndz Radar
PRO (TRACKER LT - ON)
(TRACKER, NO TRACK & PWR FAIL Lts Off After 12 sec)
- 8 F 16 72 TRUN, SHAFT (.01°)
R1 Varying At 1/2 cps
R2 Varying At 1/2 cps
PRO
- 9 F 16 78 RANGE, RANGE RATE, TFI (.01nm,
.1fps, min-sec)
R1 +194.68 To +195.08 (TM 193 To 197)
R2 -0479.5 To -0519.5 (TM -477 To -517)
- 10 V34E (PWR FAIL & NO TRACK Lt-On,
X-PNTR-Center)

DATE 12/15/71

(TRIM FRONT PAGE ON SOLID CROP MARKS: BACK PAGE ON DASH CROP MARKS.)

DATE 12/15/71

3-31

- 11 RADAR TEST -OFF
- 12 V40 N72E RR CDU ZERO (10 sec)
SHFT/TRUN - $\pm 50^\circ$
- 13 V41 N72E (+04000, +04000)
F 04 12
PRO
V16N72E
- 14 SHFT/TRUN - $+5^\circ$
RR GYRO SEL - PRIM
V41 N72E (+35600, +35600)
F 04 12
PRO
V16N72E
- 15 V41 N72E (+00000, +28300)
F 04 12
PRO
V16N72E
CB(11) RR(2) - Open
(NO TRACK Lt-Off)
V44E
RR MODE - SLEW
Notify CSM That Thruster B3-Off, And
Radar Xponder-Off Are No Longer Required

DATE _____

(TRIM FRONT PAGE ON SOLID CROP MARKS: BACK PAGE ON DASH CROP MARKS.)

DATE _____

3-32

***** GO/NO GO FOR UNDOCKING *****

95:26

1 Match Indicated Angles
TRACK MODE - SLEW
S-BD ANT-AFT
Set P _____ (+63)
Y _____ (-32)

VHF B XMTR - DATA
BIOMED-OFF, PCM-LO
UPLINK SQUELCH - ENABLE

***** LOS (95:28) *****

95:33

95:33

Verify Cap Off PGA Relief VLV
Don Helmet & Gloves

Verify Cap Off PGA Relief VLV
Don Helmet & Gloves

***** UD -:30 (95:44) *****

DATE 3/9/72

DATE 12/15/71

3-33

95:44

PGA PRESSURE INTEGRITY CHECK

(DO NOT PERFORM UNTIL SUBLIMATOR ACTIVATED >40 MIN
SUIT LOOP SHOULD NOT BE MAINTAINED AT ELEVATED PRESSURE >5 MIN)

- 1 SUIT GAS DIVERTER - PULL/EGRESS
CABIN GAS RETURN - EGRESS
SUIT CIRCUIT RELIEF - CLOSE
PRESS REG A - EGRESS
PRESS REG B - DIRECT O2 (Monitor Cuff
Gage To 3.7 - 4.0 Psig)
PRESS REG B - EGRESS (Monitor Cuff Gage,
Decay <.3 Psi in 1 min)
- 2 CO2 CANISTER SEL - SECONDARY (CO2 Comp
Lt-On, Monitor Cuff Gage, <.3 psi In
1 min)
CO2 CANISTER SEL - PRIMARY (CO2 Comp
Lt-Off)
- 3 SUIT CIRCUIT RELIEF - AUTO
PRESS REG A&B - CABIN
CABIN GAS RETURN - AUTO
SUIT GAS DIVERTER - PUSH/CABIN

***** SR (95:46) *****

PGA CK
REG CK

PGA CK
REG CK

3-34

95:48

REGULATOR CHECK

- 1 Verify CSM TUNNEL HATCH, PRESS EQUALIZATION, AND TUNNEL VENT VLVS CLOSED, AND TUNNEL VENTED
- 2 CABIN REPRESS VLV - MANUAL (VERIFY FLOW), then AUTO
- 3 VERIFY: OVHD CABIN DUMP VALVE - AUTO
CB(16) ECS: CABIN REPRESS - OPEN
PRESS REG A&B - EGRESS
(SUIT GAS DIVERTER - EGRESS)
CABIN GAS RETURN - EGRESS
- 4 FWD CABIN DUMP VALVE - OPEN then AUTO at 4.5 psia
- 5 SUIT CIRCUIT RELIEF - OPEN (VERIFY SUIT PRESS 4.5 psia),
then CLOSE
PRESS REG A - CABIN
VERIFY SUIT PRESSURE Rises to 4.6-5.0 psia
- 6 PRESS REG A - EGRESS
SUIT CIRCUIT RELIEF - OPEN (SUIT PRESS 4.5 psia), then
CLOSE
PRESS REG B - CABIN
VERIFY SUIT PRESSURE RISES TO 4.6-5.0 psia

DATE 12/15/71

BACK

COLOR

DATE 12/15/71

3-35

- 7 SUIT CIRCUIT RELIEF - AUTO
CABIN GAS RETURN - AUTO
PRESS REG A - CABIN
SUIT GAS DIVERTER - PUSH/CABIN
(CABIN PRESS WILL RISE TO 4.6-5.0 psia IN
APPROXIMATELY 5 MIN.)
CB(16) ECS: CABIN REPRESS - CLOSE

95:54

RATE GYRO CHECK

- 1 Verify CSM Holding Attitude
GYRO TEST - POS RT (RPY RATE +5°/sec)
GYRO TEST - NEG RT (YPR RATE -5°/sec)
- 2 RATE SCALE-5°/SEC
REPEAT Tests
- 3 Notify CSM ATT/HOLD No Longer Required

RATE GYRO CK
PREP FOR UNDOCK

RATE GYRO
PREP FOR UNDOCK

3-36

***** UD - :15 (95:59) *****

95:59

PREP FOR UNDOCKING

- 1 S-BD-PM, SEC, PRIM, VOICE,
PCM, RANGE
VHF-VOICE, ON, DATA, ON, OFF, LO
AUDIO (Both): VHF A-T/R
: VHF B-RCV
- 2 MISSION TIMER-SET
EVENT TIMER-SET, Count DN to 96:13:31 (Undocking)
OVHD HATCH-LOCKED
OVHD CABIN RELIEF & DUMP - AUTO
PRESS REG A&B - CABIN
- 3 RATE ERR MON (CDR) - LDG RDR/CMPTR
ATTITUDE MON (CDR) - PGNS
GUID CONT - PGNS
MODE SEL - LDG RADAR
RNG/ALT MON - RNG/RNG RT
RATE SCALE - 5°/SEC
ATT/TRANSL - 4 JET
BAL CPL - ON
RATE ERR MON (LMP) - LDG RDR/CMPTR

DATE 3/9/72

BACK

COLOR

DATE 12/15/71

3-37

ATTITUDE MON (LMP) - PGNS
RR MODE - SLEW
DEADBAND - MIN
ATTITUDE CONTROL (3) MODE CONT
MODE CONT (Both) - ATT HOLD
TTCA (Both) - JET

- 4 Mount Camera On Window Bar
LM 3 /DAC/10/CEX (N) - ULC
(T8,250,6) 6 fps, .06 Mag (1 min)
LM /DC/60/HCEX (A)
(fTT,250,focus) 10 Pictures
Mount TIMELINE Book
- 5 Configure CB Panels Per UNDOCKING Chart
And Then Go To LM TIMELINE BOOK

DATE _____

3-39

0 - OPEN

[illegible]

5 - OPEN

[illegible]

4 - OPEN

[illegible]

3 - OPEN

[illegible]

* Closed At This Time

NASA — MSC

DATE _____