APOLLO 15

LM
ACTIVATION CHECKLIST

PART NO.	S/N
SKB32100115-366	1002

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OPS C/O
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PDI-
HOUSEKEEPING
IVT TO LM

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7/13/71

CSM TO LM TRANSFER LIST (TLC)

JETTISON BAG

Scissors (1) - Data File

CWG Elect Adapter (2).

Comm Carriers (2)

UTIL Straps (3) - LHSSC

Inflight Retainer Straps (4) - LHSSC

70mm Magazines (13):

3 in Bag - FWD RHSSC (MM, VV, WW)

4 in Bag - AFT RHSSC (KK, LL, NN, OO)

6 in Bag - Behind Engine Cover (PP-UU)

16mm Magazines (10):

6 in Bag w/Dosimeter - RHSSC (CC-HH)

2 in Bag - Behind Engine Cover (II, JJ)

1 in Bag - ISA Top Pocket (BB)

1 - R.H. Window SEQ Camr (AA)

~~Ancilliary Stowage Bag - LHSSC~~

Flight Data In Bag:

LM ACTIVATION CHECKLISTS (2)

DATE ~~6/14/71~~
7/13/71

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33:00

IVT TO LM

1 Activate CABIN DUMP VALVE & Open Hatch
Carry ~~Comm Carrier~~, ~~CWG Connector~~ &
CSM O2 Hose

2 ~~Record Docking Tunnel Index Angle~~

_____ Rc

3 FLOOD LIGHT - All
EXTERIOR LTG - OFF
Window Shades (3) - Open

4 DES H2O - OPEN
DES O2 - OPEN
CABIN REPRESS - AUTO
CB(16) CABIN REPRESS - CLOSE

5 ~~Check AOT Visibility~~

33:05

ENTRY STATUS CHECK

1 Mount Purse (ISA Bottom Pocket)
Unstow ISA And Install On AFT
Cabin Rest Station Fittings

2 Verify CB Status Per INITIAL ACTIVATION
Status Chart

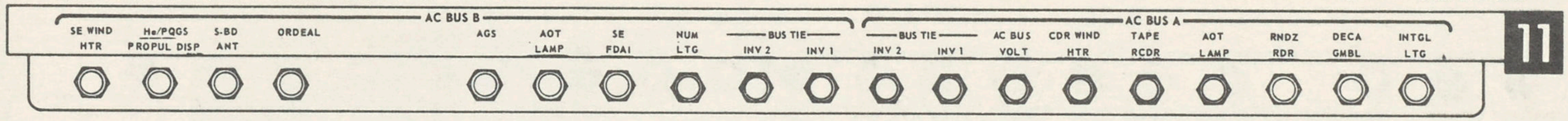
DATE 6/14/71

DATE 4/5/71

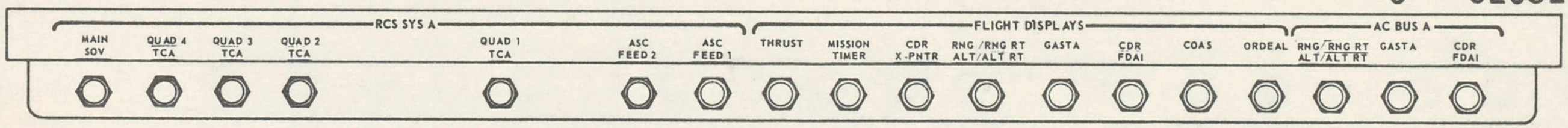
INITIAL ACTIVATION STATUS

11

0 - CLOSED



0 - CLOSED



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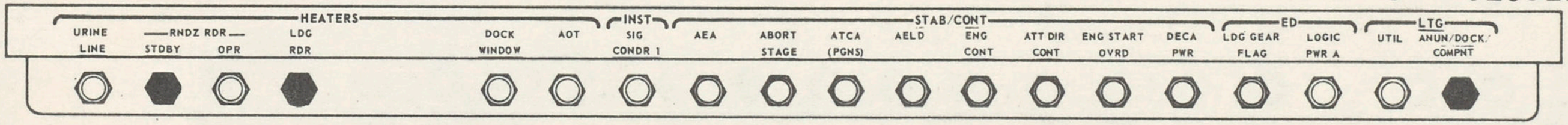

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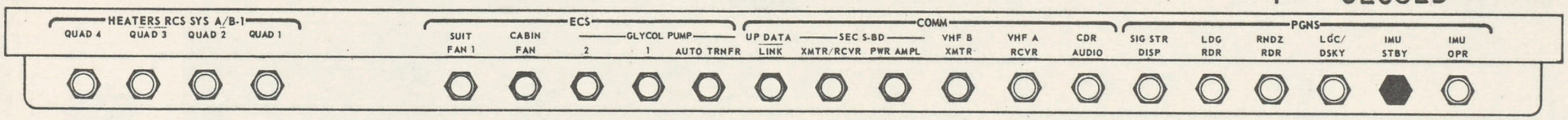

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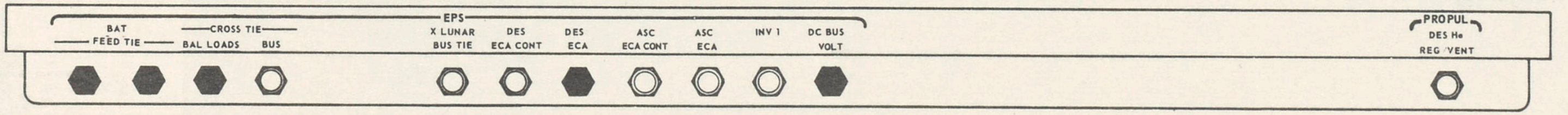
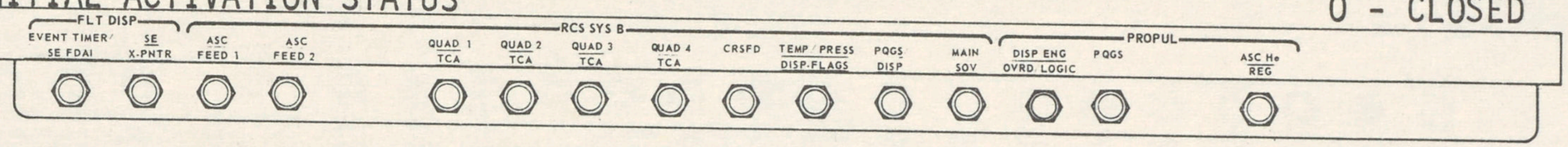


INITIAL ACTIVATION STATUS

16

0 - CLOSED



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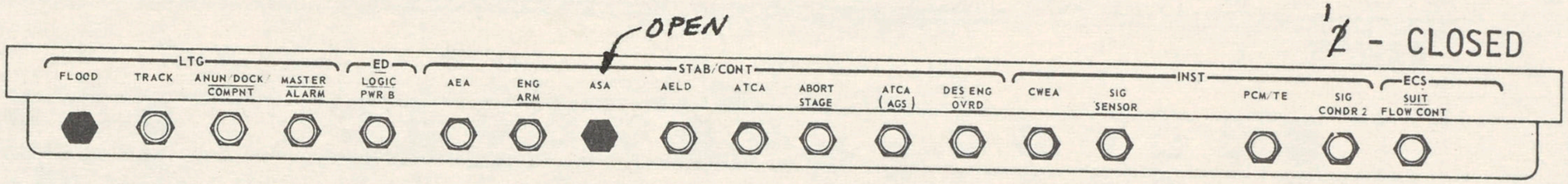
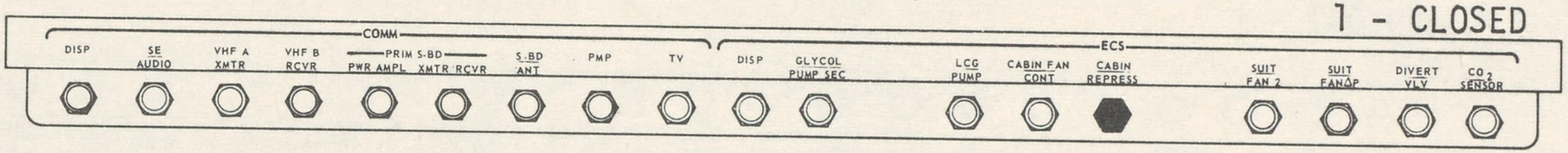


1 - CLOSED



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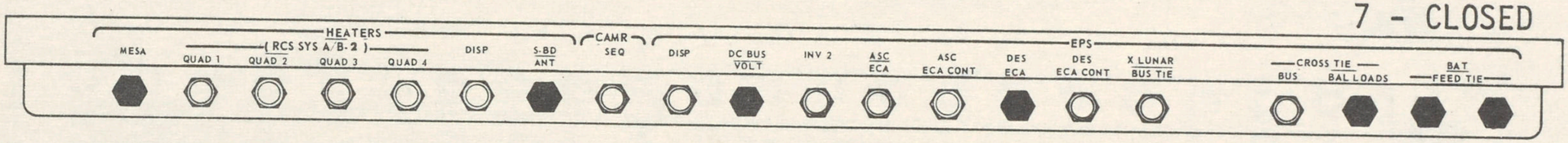

DATE ~~4/5/71~~ 7/23/71

DATE 4/5/71

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 ✓

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 ✓

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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 (vlv closed) ✓
SYS A&B MAIN SOV - tb - gray (vlv 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 ✓

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 4/5/71

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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 ✓

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 ✓
HI PLSS O2 FILL - CLOSE ✓

17 Verify (192 PKG) Lanyard ✓
Not Seated

18 FWD CABIN RELIEF AND DUMP - AUTO ✓

DATE 6/14/71

DATE 6/14/71

1-11

33:19

HOUSEKEEPING

1 Install 16mm Camr Wedge - RHSSC

2 Remove Stowage Bags From Drink Bags - ISA Back Pocket

3 Position 4 Inflight Retainer Straps (LHSSC) Around CDR's Umbilical

4 Tape Broomclip On AOT

5 Tape Crash Bar

6 Position UTILITY LIGHTS On Back AOT Guard

7 Configure 1-70mm Camr (Top RHSSC):
- Stow Reseau Cover In Camr Compt
- Install HCEX MAG KK (AFT RHSSC) f11,250,∞
- Stow Dark Slide In Camr Compt
- Unstow Trigger and Handle (RHSSC Camr Pkt)
- Unstow RCU/Camr Brkt (RHSSC)
- Install Trigger, RCU/Camr Brkt, Then Handle
- Stow Camr In RHSSC Camr Compt, 2 Snaps

DATE 4/5/71

1-13

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 ✓

CB (11) ECS CABIN FAN CLOSE
CB (11) 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 ✓

1-14

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

VACUUM CLEANER
TAPE TO CLEAN

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 20 Psia

6 ~~Connect To LM COMM Umbilical Using CWG Connector~~
~~CB(16) SE AUDIO~~ - Close

COM S-BD
FM SEC PRA off
PCM off/reset off etc

15 min
Total 1-18, 1-19

DATE 4/5/71

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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 ✓
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

✓ 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 37 ; BAT B 37

10 CB(16) CAMR: SEQ - Close
Check SEQ Camera Operation

DATE 4/5/71

DATE 4/5/71

1-17

34:44

OPS CHECKOUT

1 Perform OPS Checkout
Read And Record Source Pressures
CDR OPS 5800 3.8

LMP OPS 5800 3.85

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 (1-3, 1-4)
Disconnect From LM Comm Umbilical

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

DATE 4/5/71

DATE 7/13/71 ~~4/5/71~~

1-19

35:00

IVT TO CSM

1 DES O2 - CLOSE
DES H2O - 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

LM	ITEM	CSM
ON CREW	COMM CARRIERS (2)	ON CREW
ON CREW	CWG ELECT. ADAPTERS (2)	CCU CABLE
TEMPORARY STOWAGE	JETTISON BAG	A2

IVT TO LM

HOUSEKEEPING

COMM ACT & C/O

OPS C/O
COMM DEACTIVATION

IVT TO LM
EPS ACT

PDI-DAY

PGNS T/O
VHF C/O

IVT TO LM

PDI-DAY

OPS C/O
COMM DEACTIVATION

DATE ~~6/14/71~~ 7/13/71

CSM TO LM TRANSFER LIST (PDI)

JETTISON BAG

Suits And Ancillary Eqpt:

CWG

- IV Gloves (CDR Transfer)
- Helmets (CDR Transfer)
- UCTA
- FCS
- Bio Belt & Instrumentation
- (1) Lightweight Headset (2) (1)
- Comm Carriers ~~& earpieces~~
- CWG Elect Adapters ~~(2)~~ WITH CAPS
- Watch & Watchbands (2)
- Sunglasses in pouch
- Pens & Pencils
- Scissors
- Penlights (2)
- Earplugs (2)
- Pocket, Strap On (6)
- LCG Plugs (2)
- Gas Connector Plugs (4)
- PGA Elect Conn Caps (2)
- Personal Radiation Dosimeter (2)
- Passive Dosimeters (6)
- LCG (2) - ISA Big PKT

~~CUGS~~

Flight Data In Bag:

- LM TIMELINE BOOK
- LM DATA CARD BOOK
- LM LUNAR SURFACE CHECKLIST
- ORBIT MONITOR CHART
- ASCENT MONITOR CHART
- LM STAR CHARTS (3)

RETURN JETTISON BAG TO CSM

OPS C/O
COMM DEACTIVATION

PDI-DAY

IVT TO LM

97:50

LMP IVT TO LM

1 Activate CABIN DUMP VALVE & Open Hatch
Carry Comm Carrier & CSM O2 Hose

2 Verify Docking Tunnel Index
Angle (See 1-1)
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 O2 - OPEN
CABIN REPRESS - AUTO
CB(16) ECS: CABIN REPRESS - Close

********** SR 97:54 **********

98:07

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

98:07

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 - AFT

2-3

4 Verify DES POWER: BAT 1,4 tb-LO
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 ≤ 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) EPS: INV 2 - Close

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

98:11

MISSION TIMER ACTIVATION

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

98:13

PRIMARY GLYCOL LOOP ACTIVATION

1 CB(16) ECS: DISP - Close (3☐)
GLYCOL - PUMP 1 8 psia
- INST(SEC) 8 psia
- PUMP 2
CB(11) ECS: GLYCOL PUMP AUTO TRNFR-Close
: GLYCOL PUMP 1 - Close
: GLYCOL PUMP AUTO TRNFR-Open
GLYCOL - PUMP 1
Verify Press 22 psia
CB(11) ECS: GLYCOL PUMP 2 - Close

DATE 4/5/71

DATE 4/5/71

********** UD - 2:00 (98:14) **********

98:15

CAUTION/WARNING CHECKOUT

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

WARN	CAUT	COMP
CES AC ✓	PREAMP ✓	H2O SEP ✓
CES DC ✓	ECS ✓	
LGC ✓	GLYCOL(ON IF TEMP > 50°) ✓	
RCS A REG ✓		
RCS B REG ✓		

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

98:17

ECS ACTIVATION & CHECKOUT

1 O2/H2O QTY MON - ASC 2, ASC 1,
DES 1, DES 2

2 SUIT ISOL (2) - SUIT FLOW
SUIT ISOL (2) - ACTUATE OVRD (Suit Disc)
SUIT GAS DIVERTER - PUSH/CABIN

3 CB(16) ECS: SUIT FAN 2 - Close
: DIVERTER VLV - Close

SUIT FAN - 2 (ECS Caution, H2O SEP Comp
Lts Off In 2 Min)

4 PRIM EVAP FLOW NO 1 - Open
GET 77 : 54 : 55

98:19

CDR CONNECT TO LM ECS

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

98:19

LMP CONNECT TO LM ECS

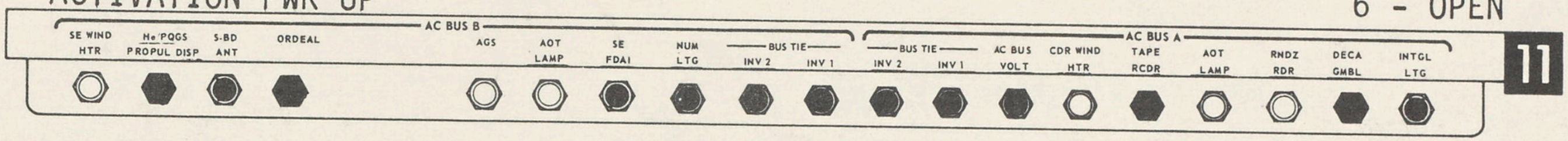
1 Return CSM O2 Hose To CSM
Connect To LMP Hoses (R/B & B/R)
PGA DIVERTER VLV - IV (HORIZ)
SUIT ISOL - SUIT FLOW
PRESS REG A - EGRESS (Suit Gas Diverter Automatically Extends)
CABIN GAS RETURN - EGRESS

Configure CB's Per ACTIVATION PWR UP Chart

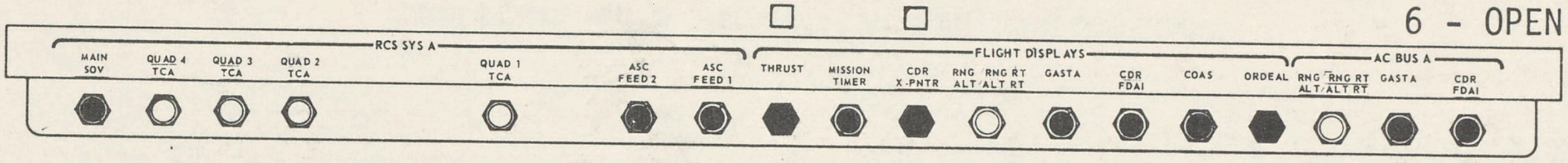
ACTIVATION PWR UP

11

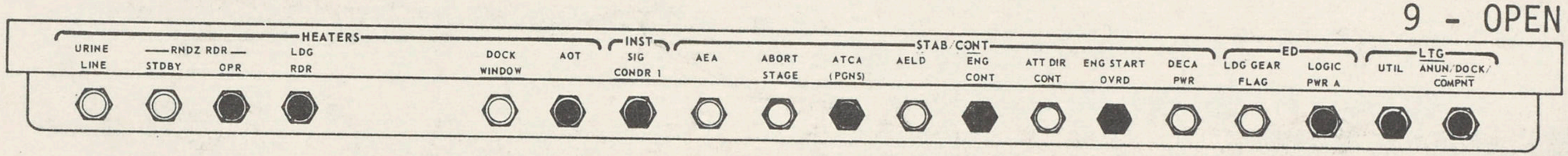
6 - OPEN



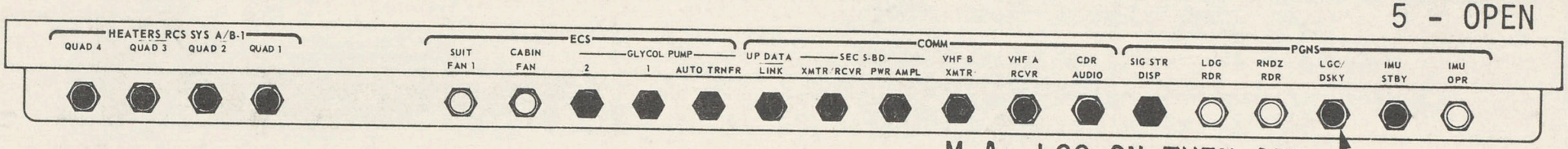
6 - OPEN



9 - OPEN

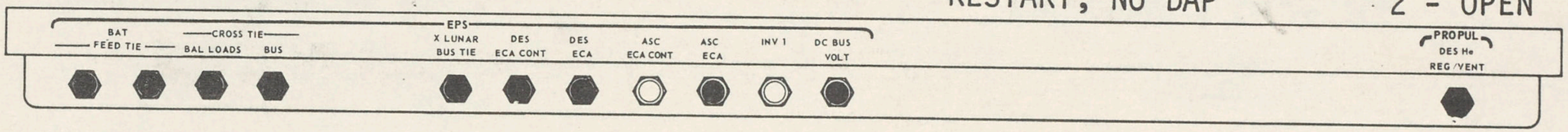


5 - OPEN



M.A., LGC ON THEN OFF,
RESTART, NO DAP

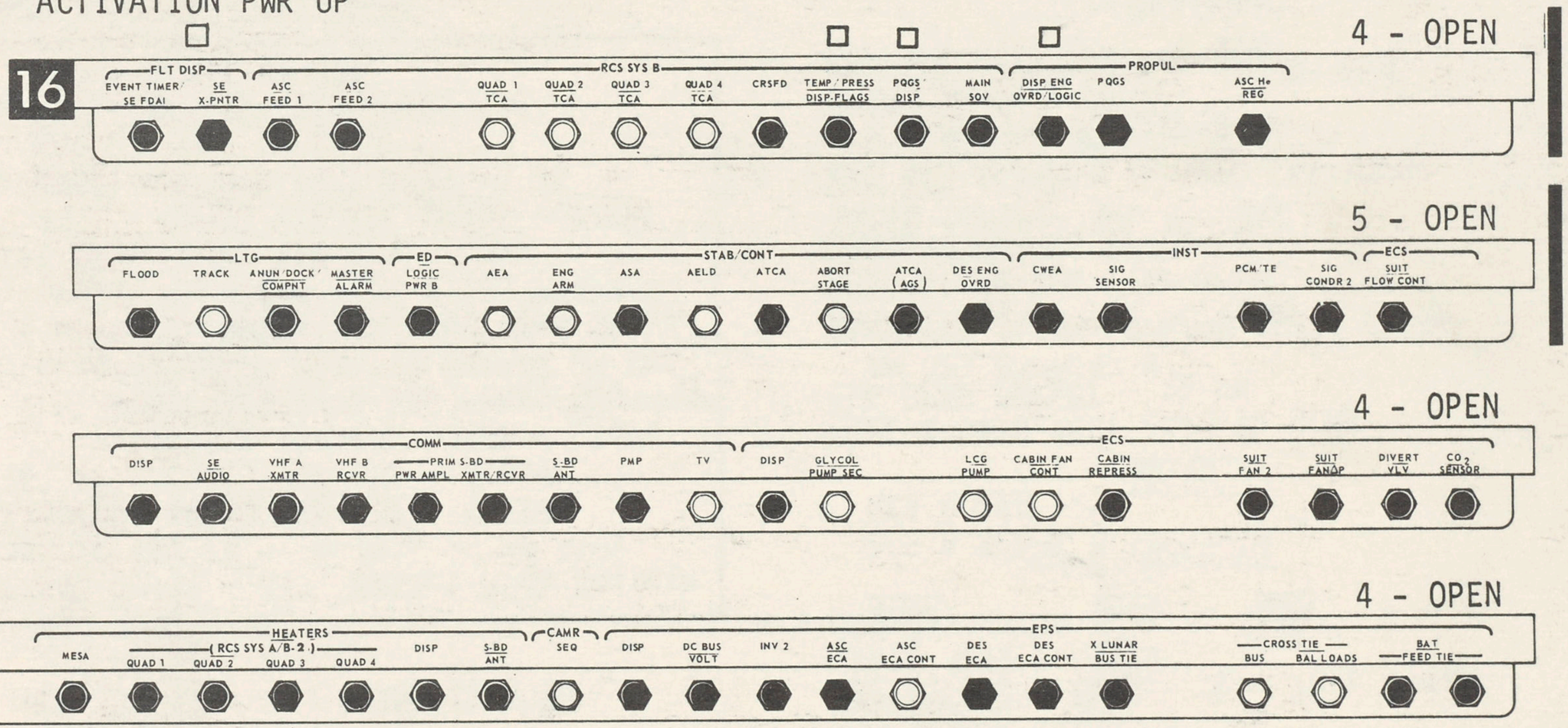
2 - OPEN



DATE 6/14/71

DATE 6/14/71

ACTIVATION PWR UP



LGC/CMC CLOCK SYNC
S-BD ANT ACT

LDG GEAR DEPLOY
SUIT FAN/H2O CK

RCS HTR T/O
T/B VERIFICATION

PGNS T/O
VHF C/O

98:22

ACTIVATE RCS HEATERS

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

When BUS Volts ≤ 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

98:22

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
CRSFD tb-bp
SYS A&B MAIN SOV -tb-gray

********** AOS 98:24 **********

98:24

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

98:24

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

98:28

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

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

DATE 4/5/71

98:30

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 98 : 25 : 4560

LM Time 98 : 25 : 4621

V55E - Load ΔT 00.61
Check Mission Timer

4 Record CSM TEPHEM

R1 00000

R2 32251

R3 26157

5 V25 N01E, 1706E Load TEPHEM (Octal)

6 V05 N01E, 1706E Verify TEPHEM

98:30

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

1 Notify MSFN of PRIM S-BD CK
Perform PRIM S-BD VOICE CK With MSFN
(Up To 60 sec To Lock)

98:35

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

1 Notify MSFN of SEC S-BD CK
S-BAND XMTR/RCVR - SEC
S-BAND PWR AMPL - PRIM
(Up To 60 sec To Relock)

2 Report PRIM EVAP FLOW TIME (2-6)

3 MSFN UPDATE
Copy DAP DATA & AGS Abort Constants

98:38

SET DAP

1 V48E
F 04 46 Codes (Octal)
R1 _____ (32022)
R2 _____ (00011)
PRO

2 F 06 47 LM, CSM Wt. (LBS)
R1 _____ ~~(+36702)~~ (+36698)
R2 _____ ~~(+38641)~~ (+37922)
PRO

3 F 06 48 GMBL TRIM, PITCH, ROLL (.01°)
R1 _____ (+00629)
R2 _____ (+00648)
(TERM) V34E

*E-MEMORY DUMP

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

98:38

* 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 HI GAIN: PITCH - -75°
YAW - -12°
TRACK MODE - SLEW (Wait 30 sec)
PITCH (From MSFN) _____(+134)CCW
YAW (From MSFN) _____(+6)CCW
ANTENNA S-BAND - SLEW

3 Verify Signal Strength > 3.0
TRACK MODE - AUTO
UPLINK SQUELCH - OFF
RANGE - CWEA ENABLE

4 S-BAND CHECK WITH MSFN
BIOMED SW - RIGHT

DATE ~~6/14/71~~
7/13/71

98:40

*MSFN UPLINK

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

98:42

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

98:42

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

********** UD - 1:30 (98:44) **********

98:47

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)

DATE 6/14/71

98:50

DOCKED IMU COARSE ALIGN

1 Verify CSM In Min DEADBAND ATT HOLD

2 Calculate LM Gimbal Angles

	OG	IG	MG
	300.00 299.90	180.00	360.00
Rc (1-1) +	.		
CM	− + 000.24 (000.00)	+ 101.66 (105.50)	− + 005.37 (359.90)
LM	298.66 (300.00)	281.66 (285.50)	354.63 (000.10)

3 V41 N20E COARSE ALIGN IMU
F 21 22 LOAD ICDU ANGLE OG,IG,MG (.01°)
(NO ATT LT - ON, FDAI Torques)
FDAI ANGLES 000,286,060

4 V40 N20E ZERO CDU (NO ATT Lt-Off)

98:50

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

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

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 37

BAT B 37

DATE 6/14/71

********** SS - 98:59 **********

98:59

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 343 / 137) Donob / Nunki
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

— 00000

260 107

259.75 10243 Vert/Dim
26000 98.57
25991 97.60
9965
48 238

4951 23919
4839 24085
4815 24152
4906 24032

8 F 06 93 XYZ Torquing Angles (.001°)
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

99:09

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°)

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%

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 (99:14) **********

99:14

*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

3 PGNS RATE CMD (Cold Fire), AGS PULSE (Cold Fire) Check

CB(11) ATT DIR CONT - CLOSE
V77E (NO DAP Lt - OFF)
V15 N01E, 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

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

DATE 4/5/71

DATE 6/14/71

99:23

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 +50°)
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

99:23

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

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 -478 to -518 fps, X-Pointers Oscillate
and FDAI Needles Vary Between ±5°.
After 12 sec Rng Tape Drives to
194 to 197NM, NO TRACK & PWR FAIL Lts-Off)

5 TEST MONITOR - AGC (1.4 To 1.9)
- XMTR (3.3 To 3.8)
- SHAFT ERR (2.2 To 2.6
@1/2cps)
- TRUN ERR (2.2 To 2.6
@1/2 cps)
- AGC

DATE 6/14/71

DATE 5/4/71

6 Set NORRMON Flag
V25 N07E
101E, 10E, 1E
RR MODE - LGC (NO TRACK Lt - On)

Wait 10 sec

7 V63E Start RR Self Test
F 04 12
R1 00004 Specify Radar
R2 00001 Rndz Radar
PRO

TRACKER & NO TRACK Lt-On (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 +195.29 To +195.69 (TM Within ±1.2
of R1)
R2 -0480.0 To -0520.0 (TM=R2-2)

10 V34E (PWR FAIL & NO TRACK Lt-On,
X-PNTR-Center)

11 RADAR TEST -OFF

12 V40 N72E RR CDU ZERO (10 sec)
SHFT/TRUN - ±50°

13 V41 N72E (+04000, +04000)
F 04 12
PRO
V16N72E

14 SHFT/TRUN - ±5°
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

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

99:27

1 Match Indicated Angles
TRACK MODE - SLEW
S-BD ANT-AFT
Set P _____ (+41)
Y _____ (-55)

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

********** LOS (99:29) **********

99:33

Reconfigure O2 Hoses (R/R & B/B)
Verify Cap Off PGA Relief VLV
Don Helmet & Gloves

99:33

Reconfigure O2 Hoses (R/R & B/B)
Verify Cap Off PGA Relief VLV
Don Helmet & Gloves

********** UD -:30 (99:44) **********

DATE 6/14/71

DATE ~~4/5/71~~

DATE ~~4/5/71~~ 7/13/71

99:44

PGA PRESSURE INTEGRITY CHECK

(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 (~~98:47~~) 99:47 **********

PGA CK
REG CK

RATE GYRO CK
PREP FOR UNDOCK

99:48

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 4/5/71

DATE 4/5/71

DATE 4/5/71

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

99:55

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

********** UD - :15 (99:59) **********

100:00

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 100:13:56 (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 4/5/71

DATE 6/14/71

DATE 6/14/71

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

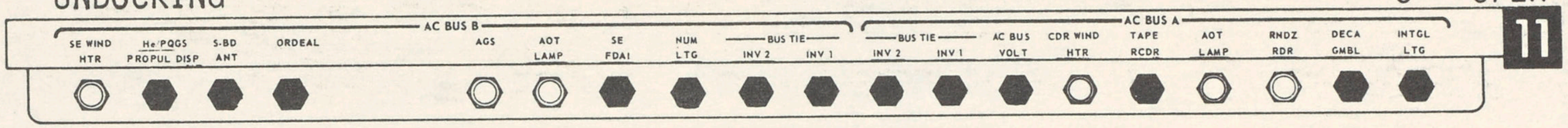
4 Mount Camera On Window Bar
LM 3 /DAC/10/CEX (AA) - ULC
(T8,250,∞) 6 fps, .06 Mag (1 min)
LM /DC/60/HCEX (KK)
(f11,250,focus) 10 Pictures
Mount TIMELINE Book

5 Configure CB Panels Per UNDOCKING Chart
And Then Go To LM TIMELINE BOOK

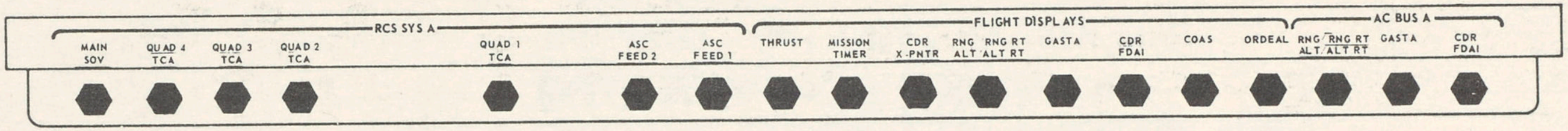
UNDOCKING

6 - OPEN

11



0 - OPEN



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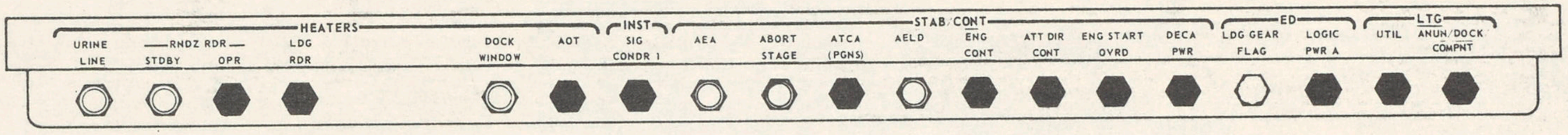
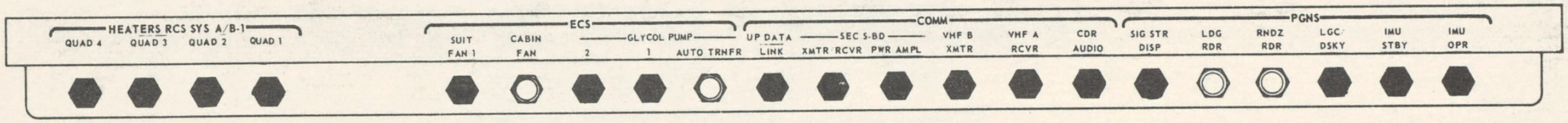
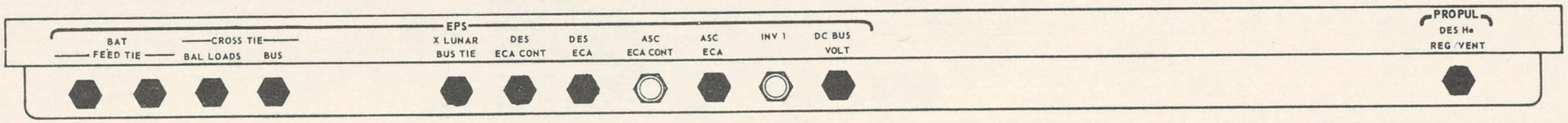


4 - OPEN



2 - OPEN

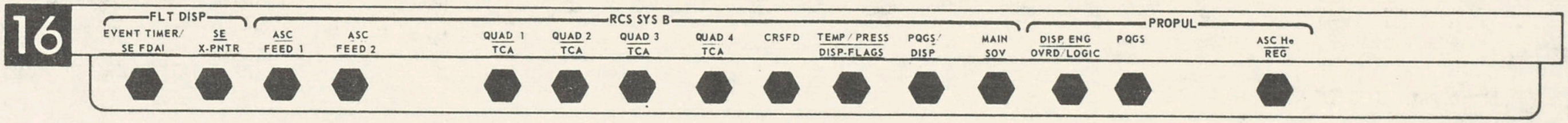


DATE 6/14/71

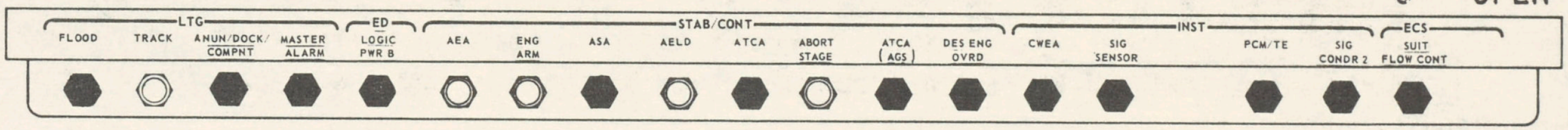
DATE 6/14/71

UNDOCKING

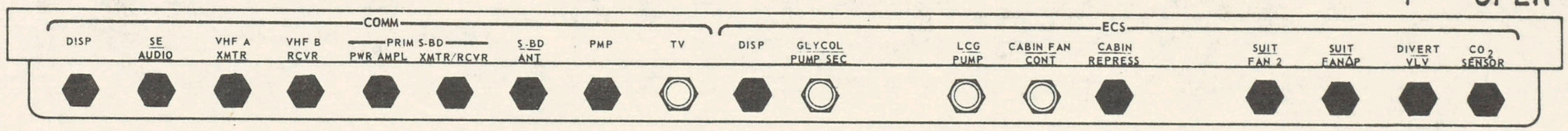
0 - OPEN



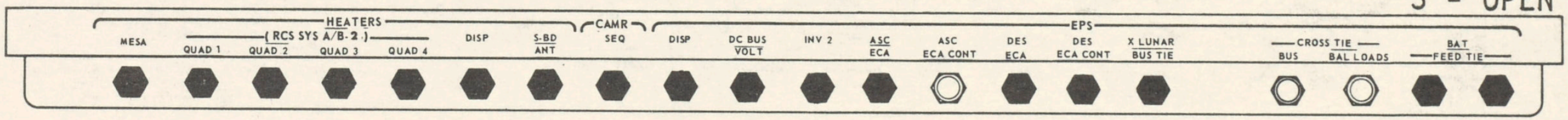
5 - OPEN



4 - OPEN



3 - OPEN



RCS C/O

RR SELF TEST
DROGUE & PROBE

PGA CK
REG CK

RATE GYRO CK
PREP FOR UNDOCK

STRATHMORE
USE EITHER SIDE