APOLLO 13	
LM SYSTEMS ACTIVATION CHECKLIST	
PART NO.	S / N

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

APOLLO XIII
LM-7

ACTIVATION CHECKLIST

PREPARED BY
FLIGHT CREW SUPPORT DIVISION
SPACECRAFT SYSTEMS BRANCH

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FEBRUARY 6, 1970
REVISED MARCH 25, 1970

APOLLO 13

ACTIVATION CHECKLIST

February 6, 1970
REVISED MARCH 25, 1970

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This document is under the configuration control of the Crew Procedures Control Board (CPCB). All proposed changes should be submitted to the Apollo Flight Data File Manager, Mr. T. W. Holloway, CF34, Room 230, telephone HU3-4271.

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

APOLLO FLIGHT DATA FILE

CHANGE DATE 3/25/70

LIST OF EFFECTIVE PAGES

PAGE NO.	BASIC DATE	CHANGED DATE
COVER	2/6/70	3/25/70
SIGNATURE PAGE	2/6/70	3/25/70
CSM to LM Transfer (TLC)	2/6/70	3/16/70
TLC 1 and 2	2/6/70	NONE
ACT 1 thru 3	2/6/70	NONE
ACT 4	2/6/70	3/16/70
ACT 5 thru 9	2/6/70	NONE
ACT 10	2/6/70	3/16/70
ACT 11	2/6/70	3/25/70
ACT 12 thru 14	2/6/70	NONE
ACT 15	2/6/70	3/16/70
ACT 16	2/6/70	NONE
CSM to LM Transfer (PDI)	2/6/70	NONE
ACT 17 and 18	2/6/70	3/16/70
ACT 19 thru 21	2/6/70	NONE
ACT 22	2/6/70	3/16/70
ACT 23 thru 26	2/6/70	NONE
ACT 27 and 28	2/6/70	3/16/70
ACT 29 thru 33	2/6/70	NONE
ACT 34	2/6/70	3/16/70
ACT 35 thru 40	2/6/70	NONE
ACT 41 and 42	2/6/70	3/16/70
ACT 43 thru 49	2/6/70	NONE
ACT 50	2/6/70	3/25/70
ACT 51	2/6/70	3/16/70
ACT 52 thru 56	2/6/70	NONE
ACT 57	2/6/70	3/16/70
ACT 58 and 59	2/6/70	NONE

Basic Date
Changed

Basic Date _____ 2/6/70
Changed _____ 3/16/70

CSM TO LM TRANSFER LIST(TLC)

Tissue Dispenser - RHSSC

16MM LS Camera

16MM Magazines (8)

70MM Magazines in Bag (3)- RHSSC

70MM Magazines HCEX (2) - ISA

SUIT HOSE INTERCONNECT

VACUUM HOSE (3 ft)

VACUUM BRUSH

CWG CONNECTOR

Flight Data In Bag:

LM ACTIVATION CHECKLISTS (2)

Basic Date _____ 2/6/70
Changed _____
TLC-1

58:00

IVT TO LM

1 Activate CABIN DUMP VALVE & Open Hatch
Take CSM 02 Hose When Transfering

2 Record Docking Tunnel Index Angle

_____Rc

3 FLOOD LIGHT - All
EXTERIOR LTG - OFF
Window Shades - Down

4 DES H20 - OPEN
DES 02 - OPEN
CABIN REPRESS - AUTO
CB(16) CABIN REPRESS - CLOSE

5 Check AOT Visibility

TLC-2

59:45

IVT TO CSM

1 DES H2O - CLOSE
DES O2 - CLOSE
CABIN REPRESS - CLOSE
CB(16) CABIN REPRESS - Open
FLOOD LIGHT - OFF
Window Shades - Up

2 CABIN DUMP VALVE - OPEN
IVT TO CSM
CLOSE LM HATCH

Basic Date_____ 2/6/70
Changed _____

Basic Date _____ 2/6/70
Changed _____

	LOI DAY	

Basic Date _____ 2/6/70
Changed _____

Basic Date _____ 2/6/70
Changed _____
ACT-1

83:09

LMP IVT TO LM

1 Activate CABIN DUMP VALVE & Open Hatch
Carry Comm Carrier, CWG Connector &
CSM 02 Hose

2 FLOOD LIGHT - All
Window Shades - Down

3 DES H20 - OPEN
DES 02 - OPEN
CABIN REPRESS - AUTO
CB(16) CABIN REPRESS - Close

********** LOS 83:13 **********

ACT-2

83:14

ENTRY STATUS CHECK

1 Unstow Purse And Give To CSM
Unstow ISA And Install Over PLSS
Recharge Station

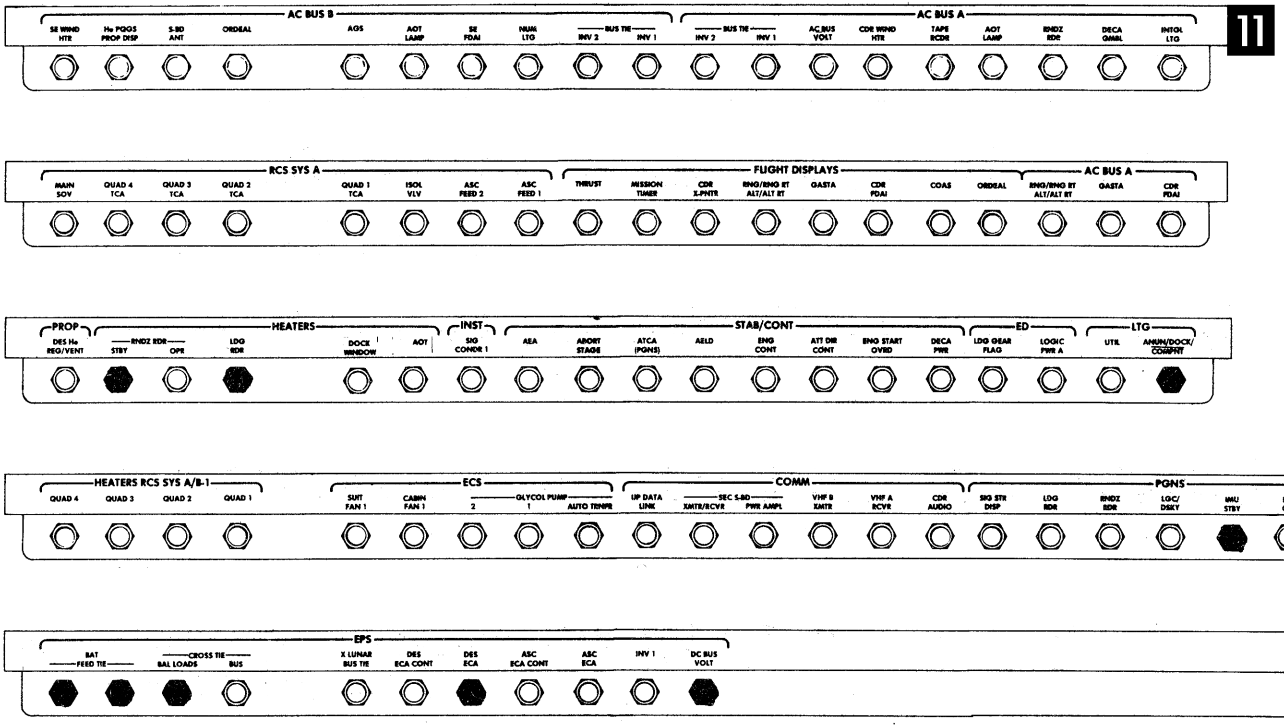
2 Verify CB Status Per INITIAL ACTIVATION
Status Chart

Basic Date _____ 2/6/70
Changed _____

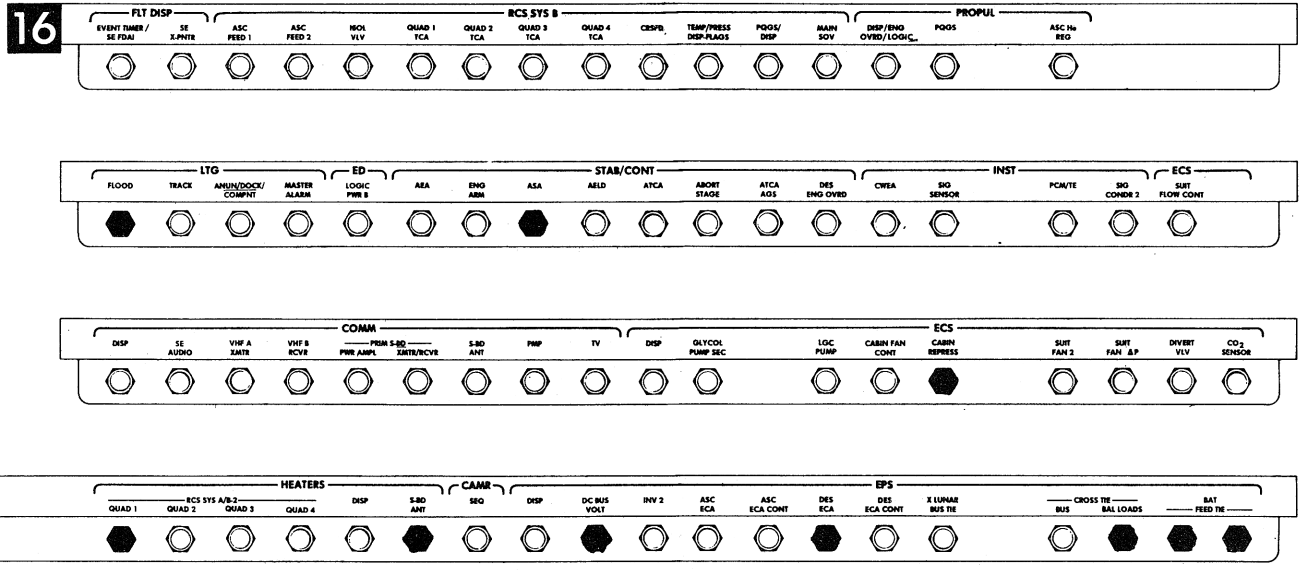
Basic Date ____ 2/6/70
Changed _____

ACT-3

INITIAL ACTIVATION STATUS



INITIAL ACTIVATION STATUS



LM 7

Basic Date 2/6/70

Changed 3/16/70

Basic Date _____ 2/6/70
Changed _____

ACT-5

3 RR GYRO SEL - PRIM

4 FDAI 1&2 - INRTL
EARTH/LUNAR - PWR OFF
LTG - OFF
MODE - HOLD/FAST
ALT SET - 60

5 DES PROP ISOL - SAFE
MASTER ARM - OFF
ASC He SEL - BOTH
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
COAS - OFF
THUMBWHEEL VOL (5)-6

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
ATT/TRANSL - 2 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

Basic Date 2/6/70
Changed

Basic Date _____ 2/6/70
Changed _____

ACT-7

10 SYS A&B ASC FUEL & ASC OXID(4) -tb-bp
(Feed 2-Close, Feed 1-Open)
SYS A&B QUADS (8)-tb-gray (vlv open)
CRSFD -tb-bp (vlv closed)
SYS A&B MAIN SOV - tb-gray (vlv open)
TEMP/PRESS MON - He
ACA PROP - DISABLE
RATE/ERR MON - LDG RDR/CMPTR
ATTITUDE MON - AGS
GLYCOL - PUMP 2
SUIT FAN - 1
02/H20 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
EVENT TIMER: TIMER CONT - STOP
TEMP MON - LDG
RCS SYS A/B-2 QUADS - OFF
LTG: SIDE PANELS - OFF
FLOOD-All

OVHD/FWD - BRIGHT
EXTERIOR LTG - OFF
LAMP/TONE TEST - OFF
X-POINTER SCALE - HI MULT

12 ACA/4 JET (CDR) - ENABLE
ACA/4 JET (LMP) - DISABLE
TTCA/TRANSL (CDR) - ENABLE
TTCA/TRANSL (LMP) - DISABLE
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 (5)-tb-bp
ASC PWR (4)-tb-bp
UPLINK SQUELCH-ENABLE

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

Basic Date 2/6/70
Changed

Basic Date _____ 2/6/70
Changed _____

ACT-9

15 S-BAND MODULATE - PM
XMTR/RCVR - OFF
PWR AMPL - OFF
VOICE - OFF
PCM - OFF
RANGE - OFF/RESET
VHF A - OFF (SQUELCH-3)
VHF B - OFF (SQUELCH-3)
TELEMETRY - OFF/HI
RECORDER - OFF
VHF - AFT
TRACK MODE - OFF
PITCH - -75°
YAW - -12°
S-BAND - AFT

16 SUIT GAS DIVERTER - PULL/EGRESS
CABIN REPRESS - AUTO
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

17 Verify (192 PKG) Lanyard Not Seated

18 FWD CABIN RELIEF AND DUMP - AUTO

83:19

HOUSEKEEPING

1 Unsnap LMP's HSB And Stow Next To CDR's HSB On Floor Velcro. Unsnap CDR's HSB

2 Unstow 70mm Film Bag (Top Left of RHSSC)
Put Up Bungee Straps

3 Install Pnl 16 Qd 1 HTR CB Guard (FDF Acc. Kit)

Basic Date 2/6/70
Changed 3/16/70

Basic Date 2/6/70
Changed 3/25/70

ACT-11

4 Install 16mm CAMR Wedge (LS CAMR Bag)

********** SR 83:37 **********

********** AOS 84:01 **********

84:17

COMM ACTIVATION

1 Transfer To LM POWER (FLOOD Lts. Blink, C/W PWR Caution Lt - On)
GET ___:___:___ (Report To MCC)
CB(11) EPS: XLUNAR BUS TIE - Close
CB(16) EPS: XLUNAR BUS TIE - Close
CB(11) LTG: UTIL - Close
Activate Utility Lights

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

ACT-12

3 CB(16) INST: SIG CONDR 2-Close
EPS: DISP - Close
: DES ECA CONT-Close
Verify DES BATS tb(4) - LO,DES BATS-tb gray
PWR/TEMP MON - Check Voltages

When BUS VOLT < 27V, Select HI Voltage Taps
CB(16)EPS: CROSS TIE BAL LOADS - Open
BAT 1 HI VOLTAGE - OFF/RESET
BAT 1 HI VOLTAGE - ON
Repeat For BATS 2,3,4
CB(16) EPS: CROSS TIE BAL LOADS - Close

4 CB(16) COMM: DISP - Close
: VHF A XMTR - Close
: VHF B RCVR - Close
: PRIM S-BD (2) - Close
: PMP - Close
INST: SIG SENSOR - Close
: PCM/TE - Close
ECS: DISP - Close

5 Connect To LM COMM Umbilical Using CWG Connector

6 CB(16) SE AUDIO - Close

Basic Date 2/6/70
Changed

Basic Date 2/6/70
Changed
ACT-13

84:29

* 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,PRIM,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 CB(16) CAMR: SEQ - Close
Check SEQ Camera Operation

********** SS 84:42 **********

84:44

OPS CHECKOUT

1 Perform OPS Checkout
Read And Record Source Pressures
CDR OPS _____

LMP OPS _____

2/6/70
Basic Date _____
Changed _____

Basic Date 2/6/70
Changed 3/16/70
ACT-15

84:49

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 CB(16)EPS: CROSS TIE BAL LOADS-Open
Select LO TAPS
UTILITY LTS - OFF

4 Configure CB Panels Per INT ACT STATUS
Chart (ACT 3,4)
Disconnect From LM Comm Umbilical

5 Transfer To CSM Power, Observe C/W
PWR Lt - Off
GET ____:____:____ (Report To MCC)

ACT-16

85:00

LMP IVT TO CSM

1 DES O2 - CLOSE
DES H2O - CLOSE
CABIN REPRESS - CLOSE
CB(16) ECS: CABIN REPRESS - Open
Window Shades - Up

2 FLOOD LIGHT - OFF
Check AOT Visibility

3 CABIN RELIEF & DUMP (OVHD) - Open
IVT TO CSM, Close LM Hatch

********** LOS 85:06 **********

********** SR 85:31 **********

Basic Date 2/6/70
Changed

Basic Date 2/6/70
Changed

PDI DAY

Basic Date _____ 2/6/70
Changed _____

LM 7

Basic Date _____ 2/6/70
Changed _____

CSM TO LM TRANSFER LIST(PDI)

Suits And Ancillary Eqpt:

- Liners
- IV Gloves
- Helmet
- Bio belt & Instrumentation
- Comm Cap
- Wristwatch (2)
- Sunglasses in pouch
- Pens & Pencils
- Penlight
- Scissors

Personal Radiation Dosimeter

Flight Data In Bag:

- LM TIMELINE BOOK
- LM DATA CARD BOOK
- LM LUNAR SURFACE CHECKLIST
- LM ORBIT MONITOR CHART
- LUNAR PHOTO CHARTS
- STAR CHARTS

Basic Date 2/6/70
Changed 3/16/70
ACT-17

96:39

LMP IVT TO LM

1 Activate CABIN DUMP VALVE & Open Hatch
Carry Comm Carrier & CSM 02 Hose
Mount Purse

2 Verify Docking Tunnel Index
Angle (See TLC-1)
Window Shades - Down
Deploy LMP Crash Bar

3 Transfer To LM PWR
GET ____:____:____
(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
Activate Utility Lts

5 DES H20 - OPEN
DES 02 - OPEN
CABIN REPRESS - AUTO
CB(16) ECS: CABIN REPRESS - Close

ACT-18

********** UD - 2:30 (96:46) **********

********** SR 96:54 **********

96:56

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

96:56

EPS ACTIVATION

1 LTG: ANUN/NUM - BRIGHT (1 Caution, 9
Power Failure, 1 COMP Lt - On)

2 CB(11) INST: SIG CONDR 1 - Close
EPS: DES ECA CONT- 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

Basic Date 2/6/70
Changed 3/16/70

Basic Date 2/6/70
Changed

ACT-19

AUDIO (LMP): S-BAND T/R - T/R
: ICS - T/R
CB(11) COMM: SEC S-BD(2) - Close
CB(16) COMM: DISP - Close
: S.E. AUDIO - Close
: S-BD ANT - Close
: PMP - Close
S-BAND - PM,SEC,SEC,VOICE,PCM,RANGE,
OFF,LO
S-BAND ANT - AFT

4 Verify BAT 1,2,3,4 - tb-LO
DES BATS 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(16) EPS: CROSS TIE BAL LOADS - Open
BAT 1 HI VOLTAGE-OFF/RESET
BAT 1 HI VOLTAGE-ON
Repeat for BATS 2,3,4

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

97:00

MISSION TIMER ACTIVATION

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

97:02

PRIMARY GLYCOL LOOP ACTIVATION

1 CB(16) ECS: DISP - Close
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
Verify Press _____ psia
CB(11) ECS: GLYCOL PUMP 2 - Close

Basic Date 2/6/70
Changed

Basic Date 2/6/70
Changed
ACT 21

97:04

CAUTION/WARNING CHECKOUT

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

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

CB(16) LTG: ANUN/DOCK/COMPT - Close
STAB/CONT: ATCA - Close
HEATER: DISP - Close
CB(11) STAB/CONT: ENG CONT - Close

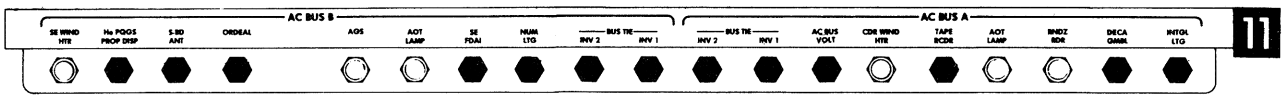
2 RCS SYS A/B-2: QUADS(4) - AUTO
HTR TEMP MONITOR - Cycle Then LDG
(HEATER Lt - Off)
LAMP/TONE TEST - Check All Positions

3 PRIM EVAP FLOW No 1 - OPEN
GET _____:_____:_____

4 Close CB's Per ACTIVATION PWR UP Chart

ACT-22

ACTIVATION PWR UP



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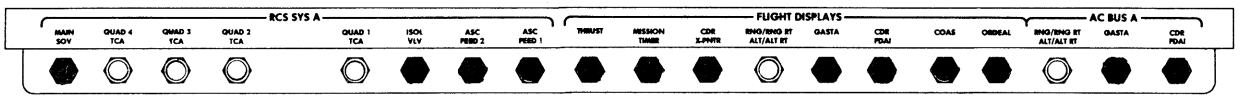

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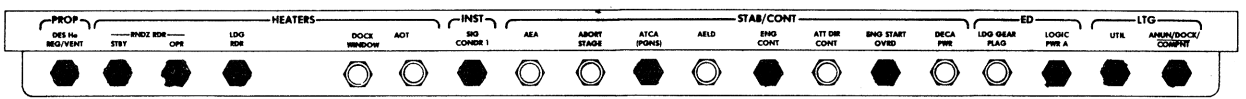

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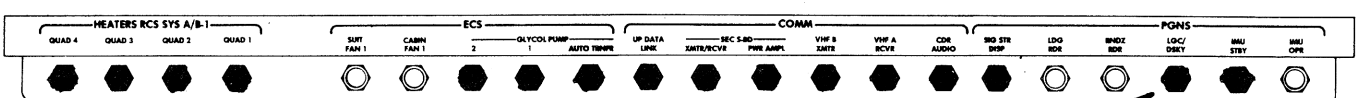

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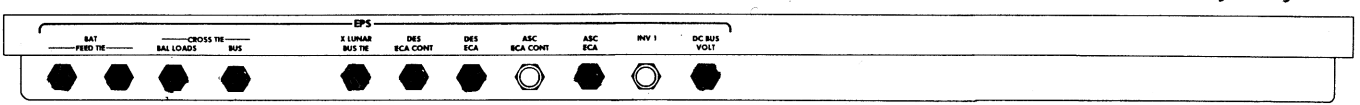
M.A.,LGC,RESTART



2

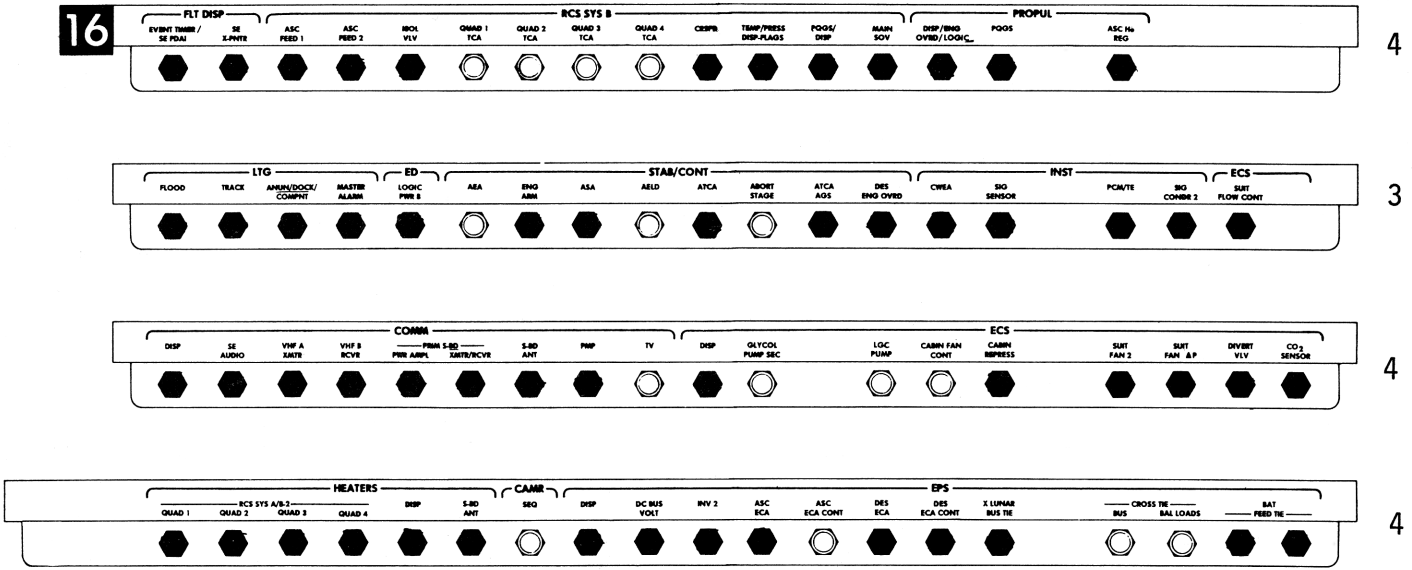
LM 7

Basic Date 2/6/70
Changed 3/16/70

Basic Date 2/6/70
Changed

ACT-23

ACTIVATION PWR UP



TB VERIFICATION

ACT-24

97:10

TB VERIFICATION

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

WARN	CAUT	COMP
ASC PRESS	ECS	SUIT FAN
RCS A REG		H2O SEP
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

5 RECORDER - OFF - tb-bp

Basic Date 2/6/70
Changed

Basic Date 2/6/70
Changed

ACT-25

97:12

PGNS TURN-ON & SELF TEST

1 Check Bus Voltages

2 V35E
F 88 88
(Master Alarm, LGC & ISS Warning, And All DSKY Lts - On, 8's In All Registers; Lts Reset In 5 sec)

3 CB(11) PGNS: IMU OPR - Close
NO ATT Lt - On (Off In 90 sec)
Wait 20 sec After NO ATT Lt - Off, then
V37E00E

4 V25 N01E 1365E
E,E,E

5 V15 N01E 1365E
R1,R2,R3 All Zero

ACT-26

6 V21 N27E 10E (Test
Fixed And Erasable Memory)

R1 Number Of Errors
R2 Number Of Tests Started
R3 Number Of Tests Successful
(Test Successful If R2 $\geq$ 3 Within
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

Basic Date _____ 2/6/70
Changed _____

LM 7

Basic Date 2/6/70
Changed 3/16/70
ACT 27

********** UD - 2:00 (97:16) **********

********** AOS 97:16 **********

Report LM Pwr Transfer Time (ACT-17)

97:16

* SEC S-BAND VOICE CHECK

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

97:18

* PRIM S-BAND T/R AND PWR AMPL CHECK

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

2 Perform Comm Check With MSFN

ECS ACT
S-BD ANT ACT

97:21

ECS ACTIVATION & CHECKOUT

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

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

3 SUIT FAN - 2 (Master Alarm (Twice),
SUIT/FAN Warning Lt-On &
SUIT FAN Comp Lt-On
Momentarily, ECS Caution,
H2O SEP Comp Lts - ON
Then Off In 2 Min)

97:21

* S-BAND STEERABLE ANTENNA ACTIVATION

1 HTR CONT TEMP MONITOR - S-BAND
(-52° to +135°)
S-BAND -PM,PRIM,PRIM,VOICE,PCM,
RANGE,OFF,HI
CSM Mnvr To Proper Attitude

2 HI GAIN: PITCH - -75°
YAW - -12°
TRACK MODE - SLEW (Wait 30 sec)
PITCH (From MSFN) _____(+112)CCW
YAW (From MSFN) _____(+ 34)CCW
ANTENNA S-BAND - SLEW

3 Verify Signal Strength > 3.0
TRACK MODE - AUTO (>4.0)

4 S-BAND CHECK WITH MSFN

Basic Date 2/6/70
Changed 3/16/70

Basic Date 2/6/70
Changed 3/16/70
ACT 29

97:23

CDR CONNECT TO LM ECS

1 Connect To CDR Hoses
(Stow Gas Connector Plugs In Purse)
SUIT ISOL - SUIT FLOW
Verify (192 PKG) Lanyard Stopper Not Seated
CB(16) ECS: LCG PUMP - Close
PRESS REG A - EGRESS (Suit Gas Diverter Automatically Extends)

97:23

LMP CONNECT TO LM ECS

Disconnect CSM O2 Hose & Return Hose to CSM
Connect To LMP Hoses
SUIT ISOL - SUIT FLOW

IMU C/A
SUIT FAN/H2O CK

IMU C/A
SUIT FAN/H2O CK

ACT 30

97:26

DOCKED IMU COARSE ALIGN

1 Verify CSM In Min DEADBAND ATT HOLD

2 Calculate LM Gimbal Angles

OG	IG	MG
300.00	180.00	360.00
. +Rc (See TLC-1)		
. -CM	. +CM	. -CM
(7.5)	(112.5)	(22.5)
. LM	. LM	. LM
(292.5)	(292.5)	(337.5)

3 V41 N20E COARSE ALIGN IMU
F 21 22 LOAD ICDU ANGLES OG,IG,MG (.01°)
(NO ATT Lt - On, FDAI Torques)

```
*PROG Lt-On          *
*V05 N09E 00211 COARSE *
*        ALIGN ERROR,Go*
*        To 3          *
```

1

97:26

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,
FAN Comp Lts-Off,ECS Caution,
H2O SEP Comp Lts -Off In 2 min)
CB(16) ECS: SUIT FAN 2 - Close

97:28

GLYCOL PUMP CHECK

1 CB(11) ECS: GLYCOL PUMP 1 - Open
(Master Alarm, ECS Caution
Lt - On Momentarily)
CB(11) ECS: GLYCOL PUMP 1 - Close
(GLYCOL Comp Lt-On)

Basic Date 2/6/70
Changed

4 V40 N20E ZERO CDU (NO ATT Lt-Off)
Notify CSM ATT HOLD No Longer Required

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 OG, IG, MG
GET ___:___:___

OG		IG		MG	
_____.	CM	_____.	CM	_____.	CM
_____.	LM	_____.	LM	_____.	LM

8 Voice Gimbal Angles And Time To MSFN

2 GLYCOL - INST (SEC) (8 psia)
CB(16) ECS: GLYCOL PUMP SEC - Close
(10-20 psi Rise)
: GLYCOL PUMP SEC - Open

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)

4 Biomed Sw - Right

97:30

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

2 Both CDR & LMP Perform Voice Check
On VHF Simplex B

VHF C/O
LGC/CMC CLOCK SYNC

ACT 32

********** UD - 1:45 (97:31) **********

97:34

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

97:36

*LGC/CMC CLOCK SYNC/TEPHEM UPDATE

1 V25 N36E

2 Load CSM Time _____:_____:_____

3 On CSM Mark - ENTR

4 V06 N65, On Mark - ENTR
Compare With CSM N65

CSM Time _____:_____:_____

LM Time _____:_____:_____

V55E - Load ΔT
Check Mission Timer

Basic Date 2/6/70
Changed _____

Basic Date 2/6/70
Changed _____
ACT 33

97:38

5 Record CSM TEPHEM

R1 _____

R2 _____

R3 _____

6 V25 N01E, 1706E Load TEPHEM (Octal)

7 V05 N01E, 1706E Verify TEPHEM

8 Verify MSFN Contact
V74E (Erasable Dump) (42 Sec)

ASCENT BATTERY ACTIVATION & CHECKOUT

1 CB(16) EPS: ASC ECA CONT - Close

2 POWER/TEMP MON SEL - BAT 5
BAT 5 NORMAL FEED-ON (Verify BAT Current)

3 POWER/TEMP MON SEL - SE BUS Then BAT 6
BAT 6 NORMAL FEED-ON (Verify BAT Current)

4 BAT 1,2 HI-VOLT-OFF/RESET
BAT 3,4 HI-VOLT-OFF/RESET
Verify BAT Current = 0
POWER/TEMP MON SEL-CDR BUS Then SE BUS

5 BAT 5 BACKUP FEED-ON
BAT 6 BACKUP FEED-ON
BAT 5 NORMAL FEED-OFF/RESET
BAT 6 NORMAL FEED-OFF/RESET
POWER/TEMP MON SEL-CDR BUS, SE BUS, Then BAT Current

DAP SET
ASC BAT CK

ACT-34

97:41

SET DAP

1 V48E
R1 32022
PRO

2 F 06 47 LM, CSM Wt. (lbs)
R1 _____ (33731)
R2 _____ (37500)
PRO

3 F 06 48 GMBL TRIM, PITCH, ROLL (.01°)
R1 _____ (+00476)
R2 _____ (+00572)
(TERM) V34E

6 BAT 1&2 HI VOLT-ON
BAT 3&4 HI VOLT-ON
Verify BAT Current

7 BAT 5 BACKUP FEED-OFF/RESET
BAT 6 BACKUP FEED-OFF/RESET
Verify BAT Current = 0

8 CB(16) EPS: ASC ECA CONT - Open

9 Record ED BAT Voltage For MSFN

BAT A _____

BAT B _____

Basic Date _____ 2/6/70
Changed _____ 3/16/70

97:43

LANDING GEAR DEPLOY

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

97:45

RCS PRESSURIZATION

1 RECYCLE: SYS A&B ASC FEED 2(2) - CLOSE
SYS A&B ASC FEED 1(2) - OPEN

2 RCS QUANTITY A&B - 100%
SYS A&B ASC FUEL & ASC OXID - tb(4) Remain-bp
SYS A&B THRUSTER PAIR QUADS - tb(8) gray
(Possible tb-Red, Cycle CWEA If Necessary)
RECYCLE: CRSFD-CLOSE
: MAIN SOV SYS A&B - OPEN
HTR CONT TEMP MON - Check RCS QUADS ($\geq$120°)

LDG GEAR DEPLOY
RCS PRESS

ACT 36

3 TEMP/PRESS MON - He (2820-3280 psia)
PRPLNT (40°-100°/10-50 psi)
FUEL MANF (25-90 psi)
OXID MANF (25-90 psi)

4 CB(16) LOGIC PWR B-Open
MASTER ARM - ON
HE PRESS RCS - FIRE
(RCS A&B REG Warning Lts-Off)
RECYCLE: SYS A&B ASC FEED 2(2) - CLOSE
CB(16) LOGIC PWR B-Close
MASTER ARM-OFF

5 RECYCLE: SYS A&B ASC FEED 1(2) - OPEN
: SYS A&B THR PAIR QUADS(8)-OPEN
: CRSFD - CLOSE
: SYS A&B MAIN SOV-OPEN

6 TEMP/PRESS MON - OXID MANF (175-188 psi)
- FUEL MANF (175-188 psi)
- PRPLNT (40°-100°/178-188 psi)
- He (2750-3200 psi)
Read He Pressure To MSFN

********** UD - 1:30 (97:46) **********

Basic Date 2/6/70
Changed

Basic Date 2/6/70
Changed

ACT 37

97:49

*RCS CHECKOUT

1 GUID CONT - PGNS
ATT TRANSL - 4 JET
ATT CONT (3) - PULSE
MODE CONT (Both) - ATT HOLD
ACA/4 JET (CDR) - DISABLE
TTCA (CDR) - 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
V11N10E, 5E
CDR TTCA

UP	(+X)	- R1	00252
DN	(-X)	-	00125

E, 6E

RIGHT	(+Y)	- R1	00220
LEFT	(-Y)	-	00140
FWD	(+Z)	-	00011
AFT	(-Z)	-	00006

ACT 38

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

CB(TT) ATT DIR CONT - CLOSE
V77E
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

Basic Date 2/6/70
Changed

Basic Date 2/6/70
Changed

ACT 39

5 PGNS MIN IMP (Hot Fire) Check
GUID CONT - PGNS
V76E

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
CYCLE TEMP MON
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, 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

6 ATT/TRANSL - 2 JET
V37E 00E

ACT 40

********** SS 97:59 **********

97:59

*IMU FINE ALIGN

1 Copy Ground Calculated Gyro Torquing Angles

X_____, Y_____, Z_____

2 V76E (Verify)
V42E Fine Align IMU
F 21 93 Load Gyro Torquing Angles X,Y,Z (.001°)

3 V16 N93E Monitor Torquing (All Zero)

97:59

*MSFN UPLINK/UPDATE

1 UPDATA LINK - DATA
MSFN P-27 Updates LS REFSMMAT,
LM STATE VECTOR And LGC Abort Constants
UPDATA LINK - OFF

2 Copy Updates
Gyro Torquing Angles
AGS Abort Constants
DAP Data

********** UD - 1:15 (98:01) **********

Basic Date 2/6/70
Changed _____

Basic Date 2/6/70
Changed 3/16/70

ACT-41

98:01

AGS ACTIVATION AND SELF TEST

1 AGS STATUS - STBY (Master Alarm, AGS Warning Lt-On)
CB(16) STAB/CONT: AEA-Close (AGS Warning Lt-Off)
CB(11) AC BUS B: AGS - Close
AGS STATUS - OPERATE (Master Alarm & AGS Warning Lt-On)
O2/H2O QTY MON-C/W RESET

2 000+888888 (OPR ERR Lt-On)

3 123-45679

4 412+0 REINITIATE TEST
412R +1 SELF TEST SATISFACTORY
+3 LOGIC TEST FAILURE
+4 MEMORY TEST FAILURE
+7 LOGIC AND MEMORY TEST FAILURE

5 574R DESCENT STAGE FLAG (+ Not Staged)

6 604R LUNAR SURFACE FLAG (+ NOT On Lunar Surface)

7 612R STAGING SEQ COUNTER (+0 Nom)

98:04

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
PRESS REG A&B - CABIN
SUIT GAS DIVERTER - PUSH/CABIN

DROGUE & PROBE
AGS T/O

ACT-42

98:07

AGS TIME INITIALIZATION

1 V16 N65E
Set AGS Time (377) 90 hr Bias

98:09

LOAD AGS PAD

1	224	_____	(+60427)
	225	_____	(+29402)
	226	_____	(+60469)
	305	_____	(-01718)
	662	_____	(-54500)
	673	_____	(-31701)
2	232	+00600	
	233	+00250	
	464	+00500	

LM 7

Basic Date 2/6/70
Changed 3/16/70

Basic Date _____ 2/6/70
Changed _____
ACT-43

465 +00195

616 +0

623 +0
514 R _____ (-60000)
515 R _____ (-44223)
516 R _____ (+00000)

3 Copy AGS K FACTOR Update

_____:_____:_____

V47E
N16 GET Of AGS CLOCK
V25E LOAD AGS K FACTOR UPDATE
V34E

********** UD - 1:00 (98:16) **********

98:19

1 Match Indicated Angles
TRACK MODE - SLEW,
Set P _____ (+130)
Y _____ (+ 40)
S-BD ANT - AFT
VHF B XMTR - DATA
BIOMED-OFF, PCM-LO
UPLINK SQUELCH - ENABLE

********** LOS (98:21) **********

98:21

Don Helmet & Gloves

98:21

Don Helmet & Gloves

Basic Date 2/6/70
Changed _____

LM 7

Basic Date 2/6/70
Changed

ACT 45
98:28

PGA PRESSURE INTEGRITY CHECK

1 SUIT GAS DIVERTER - PULL/EGRESS
CABIN GAS RETURN - EGRESS
SUIT CIRCUIT RELIEF - CLOSE
PRESS REG A - CLOSE
PRESS REG B - DIRECT O2 (Suit Press to 8.85 psia)
PRESS REG B - CLOSE (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

********** UD -:45 (98:31) **********

PGA CK
REG CK

PGA CK
REG CK

ACT-46

98:33

REGULATOR CHECK

1 Verify CSM Tunnel Hatch, Press Equalization, And Tunnel Vent vlvs Closed, And Tunnel Vented

2 CABIN GAS RETURN - EGRESS
Verify: OVHD CABIN DUMP VALVE - AUTO
: CABIN REPRESS - AUTO
PRESS REG A&B - EGRESS
(SUIT GAS DIVERTER - EGRESS)
READ STEP 3 BEFORE PROCEEDING

3 FWD CABIN DUMP VALVE - OPEN Then AUTO At Master Alarm, CABIN Warning Lt - On
Verify AUTO CABIN REPRESS Between 4.45 to 3.7 psi

As Soon As Possible:
CB (16) ECS: CABIN REPRESS - Open
(CABIN Warning Lt - Off, Cabin Repress Stops)

4 FWD CABIN DUMP VALVE - OPEN Then AUTO At 3.5 psi (Verify Suit Press 3.6 to 4.3 psi)

LM 7

Basic Date 2/6/70
Changed

Basic Date 2/6/70
Changed

ACT-47

5 PRESS REG A&B - CLOSE
SUIT CIRCUIT RELIEF - OPEN
At Suit Press of Approximately 3.5 psi,
SUIT CIRCUIT RELIEF-AUTO
PRESS REG B - EGRESS (Suit Press
3.6 to 4.0 psi)

6 PRESS REG A&B - CABIN
CB (16) ECS: CABIN REPRESS - CLOSE
(CABIN Warning Lt - On,
REPRESS Vlv Opens)
Cabin Press Rises 4.6 to 5.0 psia
(CABIN Warning Lt-Off)
CABIN GAS RETURN - AUTO
SUIT GAS DIVERTER - PUSH/CABIN

DOFF HELMET & GLOVES (CREW OPT)

DRIFT CK
RATE GYRO CK

DRIFT CK
RATE GYRO CK

ACT-48

98:43

DRIFT CHECK

V06N20 On LM MARK - ENTR

GET _____:_____:_____

OG	IG	MG
_____. CM	_____. CM	_____. CM
_____. LM	_____. LM	_____. LM

(Will Transmit Angles To MSFN At AOS)

98:43

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

********** UD - :30 (98:46) **********

********** SR 98:48 **********

Basic Date 2/6/70
Changed _____

LM 7

Basic Date 2/6/70
Changed ____ ____

ACT-49

98:49

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 - Released
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°)

CB(11) AC BUS A: RNG/RNG RT/ALT/ALT
RT - Close
RR GYRO SEL - SEC
FLIGHT DISPLAYS: RNG/RNG RT/ALT/ALT
RT-Close

98:49

AGS UPDATE & ALIGN

1 TLM-HI
V47E, 414+1

2 400 + 3 AGS/PGNS Align

3 V83E, 317R, 440R

4 TLM-LO

98:54

AGS CALIBRATION

1 V16 N20E
16 20 ICDU Angles, O, I, M
CSM Mnvr Until LM ICDU'S:
292.5 (OG)
292.5 (IG)
337.5 (MG)
RATES <.075°/sec In All Axes

2 V40 N20E ICDU ZERO

RR SELF TEST
AGS CAL

RR SELF TEST
AGS CAL

ACT-50

3 SLEW RATE-HI
Slew Left To Mode I Region (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 RDR (Rng Rt Tape Drives To -473 to -515 fps, X-Pointers and FDAI Needles Vary Between ±5°. After 12 sec Rng Tape Drives to 194.19 to 196.99 NM, NO TRACK Lt-Off)

5 TEST MONITOR - AGC (1.6)
- XMTR (2.4)
- SHAFT ERR (2.0 To 2.8 @1/2cps)
- TRUN ERR (2.1 To 2.7 @1/2cps)
- AGC

3 Read and record: ACCEL BIAS COEFF

540 X _____ (.001 ft/sec 2)
(-00002)

541 Y _____ (.001 ft/sec 2)
(+00001)

542 Z _____ (.001 ft/sec 2)
(-00002)

GYRO DRIFT COEFF

544R X _____ (.01/hr)
(-00006)

545 Y _____ (.01°/hr)
(+00030)

546R Z _____ (.01°/hr)
(+00047)

4 Verify CSM Thrusters Disabled

Basic Date 2/6/70
Changed 3/25/70

Basic Date _____ 2/6/70
Changed _____ 3/16/70
ACT-51

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
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

RR SELF TEST
AGS CAL

9 F 16 78 RANGE,RANGE RATE,TFI (.01nm, fps,min-sec)
R1 +195.39 To +195.79 (TM Within ±1.2 of R1)
R2 -00475 To -00517 (TM=2<R2)

10 V34E

11 RADAR TEST -OFF (NO TRACK Lt-On, X-Pntr-Center)

5 400+6 CALIBRATE GYRO & ACCEL
After 32 sec:
Read and Record

540R _____ (.001 ft/sec 2)
541R _____ (.001 ft/sec 2)
542R _____ (.001 ft/sec 2)
Values Should Not Change From Step 3 By More Than .039 ft/sec 2 (.008nom)

6 400R (+0 After 302 sec)
Notify CSM To Enable All Thrusters Except B3 (B3 Can Be Enabled If RR SELF TEST Complete)

Read and Record
544R _____ (.01°/hr)

545R _____ (.01°/hr)

546R _____ (.01°/hr)
Values Should Not Change From Step 3 By More Than 2.0°/hr (.9 Nominal)

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

13 V41 N72E (+04000, +04000)
PRO
V16N72E
V44E

14 SHFT/TRUN -±5°
RR GYRO SEL - PRIM
V41 N72E (+35600, +35600)
PRO
V16N72E
V44E

15 V41 N72E (+00000, +28300)
PRO
V16N72E
CB(11) RR(2) - Open
(NO TRACK Lt-Off)
V44E
Notify CSM That Thruster B3-Off, And
Radar Xponder-Off Are No Longer Required

16 RATE/ERR MON (LMP)-LDG RDR/CMPTR
ATT MON (LMP) - AGS

********** UD - :15 (99:01) **********

Basic Date 2/6/70
Changed

Basic Date 2/6/70
Changed

ACT-53

99:01

PREP FOR UNDOCKING

1 Verify Undocking Attitude (0,XXX/282,060)
S-BD-PM, PRIM, PRIM, VOICE,
PCM, RANGE
VHF-VOICE, ON, DATA, ON, RIGHT, LO
AUDIO (Both): VHF A-T/R
: VHF B-RCV

2 MISSION TIMER-SET
EVENT TIMER-SET, Count Up to 99:16:21 (Undocking)
OVHD HATCH-LOCKED
OVHD CABIN RELIEF & DUMP - AUTO
PRESS REG A&B - CABIN

3 GUID CONT - PGNS
MODE SEL - LDG RADAR
RNG/ALT MON - RNG/RNG RT
RATE ERR MON (CDR) - RNDZ RDR
(LMP) - LDG RDR/CMPTR
ATTITUDE MON (CDR) - PGNS
(LMP) - AGS
RATE SCALE - 5°/SEC

ACT-54

4 ATT/TRANSL - 2 JET
BAL CPL - ON
DEADBAND - MAX
ATTITUDE CONTROL (3) MODE CONT
MODE CONT (Both) - ATT HOLD
TTCA (Both) - JET
RR MODE - SLEW
CB(11) HTRS: AOT - Close
Mount Camera On Window Bar
LM 3 /DAC/10/CEX-ULC
($\overline{fTT}$,250,∞) 6 fps, .06 Mag (1 min)
LM /DC/60/HCEX
($\overline{fTT}$, 250,focus) 10
Mount TIMELINE Book

5 Configure CB Panels Per UNDOCKING Chart

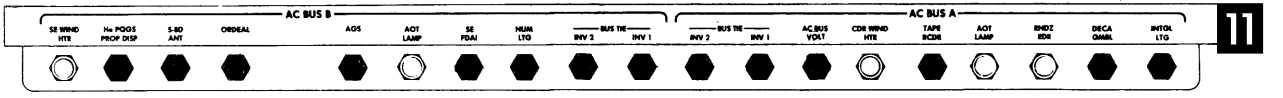
Basic Date 2/6/70
Changed

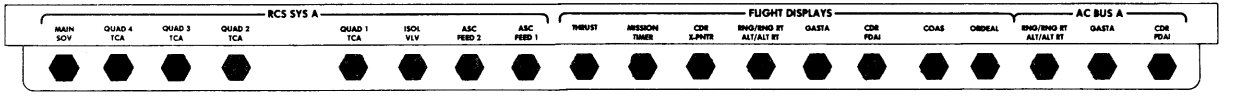
LM 7

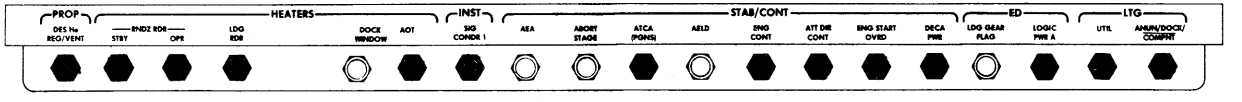
Basic Date 2/6/70
Changed

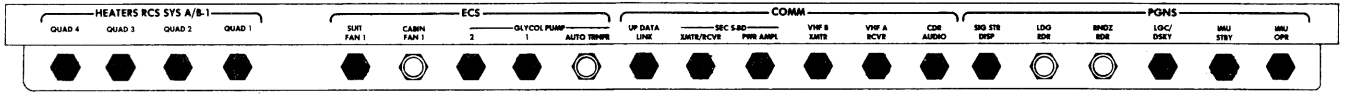
ACT-55

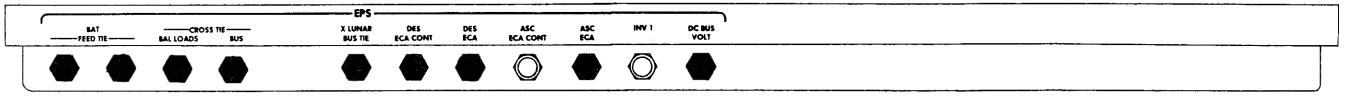
UNDOCKING



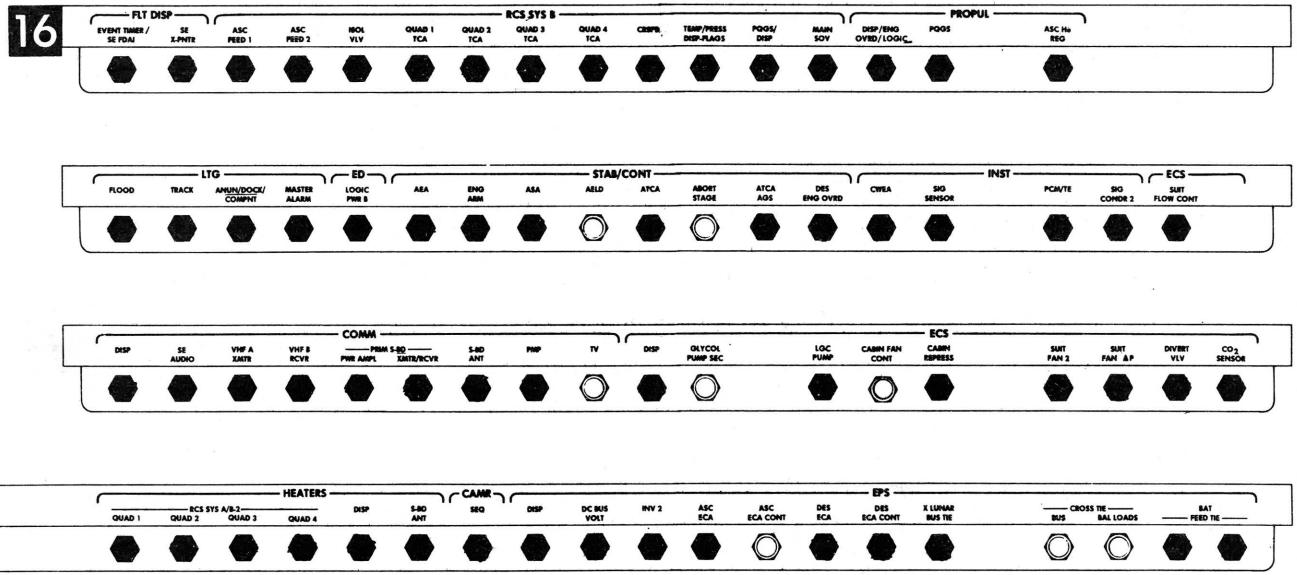








UNDOCKING



NASA — MSC

LM 7

Basic Date 2/6/70

Changed

********** UD -:10 (99:06) **********

6 CHECK ATTITUDE (0,150/282, 060)
V62E

7 V48E
R1 21002
PRO

F 06 47 LM,CSM Wt. (lbs)
R1 _____ (33731)
R2 _____ (37500)
PRO

F 06 48 GMBL TRIM,PITCH,ROLL (.01)
R1 _____ (+00476)
R2 _____ (+00572)
(TERM) V34E

HELMET AND GLOVES ON

********** AOS 99:10 **********

99:10

S-BD ANT-AFT, Verify Comm
CK S-BD P _____ (+130)
Y _____ (+ 40)
S-BD ANT - SLEW (>3.0)
TRACK MODE - AUTO (>4.0)
VHF B XMTR - OFF
BIOMED - LEFT, PCM-HI
UPLINK SQUELCH - OFF

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

Voice DRIFT CHECK Gimbal Angles
& Time To MSFN
(SEE ACT-48)

Basic Date _____ 2/6/70
Changed _____

ACT-59

8 TAPE RECORDER - ON

9 P47
404 + 0E
405 + 0E
406 + 0E
470R

Insert V77 (DO NOT ENTR)

99:16:21

********** UNDOCKING **********

Go To LM TIMELINE BOOK