FINAL

APOLLO 13 FLIGHT PLAN

AS-508/CSM-109/LM-7

MARCH 16, 1970

FLIGHT PLANNING BRANCH
FLIGHT CREW SUPPORT DIVISION

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
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FLIGHT PLAN

UPDATE TO CSM
Z TORQUING ANGLE

00:00

LIFT-OFF APRIL 11, 1970

LAUNCH OPERATIONS CHECKLIST

SECO
INSERTION AND SYSTEMS CHECKS

00:30

P52 - IMU REALIGN
OPTION 3 - REFSSMAT
(LAUNCH ORIENT)

GDC ALIGN

00:50

SET UP CAMERA EQUIPMENT

REPORT GYRO TORQUING ANGLES

NOTES

LIFT-OFF CREW POSITIONS
LEFT COUCH - CDR
CENTER COUCH - CMP
RIGHT COUCH - LMP
AT SECO+20 SEC, S-IVB
MNVRS TO LH AND
INITIATES ORB RATE
(HEADS DOWN)

DUMP DSE

01:00

MISSION EDITION DATE TIME DAY/REV PAGE
APOLLO 13 FINAL (APRIL) MARCH 16, 1970 00:00 - 01:00 1/E.0. 3-1
FLIGHT PLAN

1413 CST

01:00

H

S

K

01:30

SCS ATT REF COMPARISON CK
EXTEND DOCKING PROBE

T\sqrt{\text{(MILA)}}

01:40

MSFN

GO/NO-GO FOR PYRO ARM (CUE MSFN)
LOGIC ON
TLI PREPARATION CHECKLIST
GUC ALIGN
PYRO ARM

02:00

DUMP DSE

UPLINK TO CM
CSM S.V. & V66
UPDATE TO CSM
TLI PAD
TLI +90 MIN
ABORT PAD
P37 (L/0+8) PAD
GO/NO-GO FOR PYRO ARM

NOTES

AS A GENERAL RULE, EXCEPT DURING TEC, UPLINK THE STATE VECTOR TO THE CSM SLOT AND TRANSFER IT VIA V66 TO THE LM SLOT IN ORDER TO HAVE REDUNDANT STATE VECTORS ONBOARD

<table>
<thead>
<tr>
<th>MISSION</th>
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<th>PAGE</th>
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<tr>
<td>APOLLO 13</td>
<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>01:00 - 02:00</td>
<td>1/E.0.</td>
<td>3-2</td>
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</table>
# FLIGHT PLAN

## TLI BURN TABLE

<table>
<thead>
<tr>
<th>P OR Y RATES</th>
<th>ATT DEVIATION</th>
<th>SHUTDOWN TIME</th>
<th>RESIDUALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10°/SEC SHUTDOWN</td>
<td>+45° SHUTDOWN</td>
<td>BT + 6 SEC &amp; $V_1 = $ PAD VALUE</td>
<td>NO TRIM</td>
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</table>

**TABLE 3-1**

3-2A
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FLIGHT PLAN

GO/NO-GO
GO/NO-GO FOR TLI
T8-6 (02:25:49.65)
P47 - THRUST MONITOR

TLI
TIG: 02:35:27.65
BT: 5 MIN 55.7 SEC

POO - CMC IDLING
V66 - TRANS CSM SV TO LM SLOT
TLI BURN STATUS REPORT
CDR - TRANS TO CENTER COUCH, CMP - LEFT COUCH
LMP - RIGHT COUCH
WASTE STOWAGE VENT - CLOSED
DIRECT O2 VLV-OPEN, UNTIL CABIN IS 5.7 PSI, THEN CLOSE
GDC ALIGN
SIVB MNVRS TO SEP ATT
(2:56:25)

AT SECO: S-IVB INERTIAL
AT SECO+2 MIN 31 SEC:
S-IVB TO LOCAL
HORIZONTAL ORB RATE,
HEADS DOWN

R 358 OMNI C
P 140
Y 320

<table>
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<th>PAGE</th>
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</thead>
<tbody>
<tr>
<td>APOLLO 13</td>
<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>02:00 - 03:00</td>
<td>1/TLC</td>
<td>3-3</td>
</tr>
</tbody>
</table>
FLIGHT PLAN

ACTIVATE AND LOAD DAP N46 (11103, 11111)
LOAD DOCKING GIMBAL ANGLES
CSM SEP PREPARATION

CSM/SIVB SEP (GET: 03:06)

CSM MNVR TO DOCK ATT (03:10) R 302 HGA
HGA TRACK - REACQ Y 040 Y 287
HGA BEAM - WIDE DAP 11102
TV (GDS) 03:15 TO 04:23 CM4/TV - PEAK, BRKT (F 22)
VISUALLY INSPECT AND PHOTOGRAPH SIVB AND LM

DOCK (GET: 03:16)

BEGIN CSM/LM CABIN PRESSURE EQUALIZATION

CDR: CONFIGURE FOR LM EJECTION
TUNNEL PRESSURE INTEGRITY CHECK
CHECK DOCKING LATCHES
VENT DOCKING PROBE
LM UMBILICAL CONNECTION
REINSTALL TUNNEL HATCH
LM TUNNEL VENT VALVE - LM/CM AP
LEAVE TUNNEL EQUALIZATION VALVE CLOSED
CYCLE O₂ & H₂ FANS
S-IVB NON PROPULSIVE VENT START (GET: 03:41)
GO/NO-GO PYRO ARM (CUE MSFN)
LOGIC ON
LOAD DAP N46 (21101, 11111)
PYRO ARM
P47 - THRUST MONITOR
PHOTOGRAPH LM EJECTION
S-IVB VENT COMPLETE (GET: 03:56)
CSM/LM EJECTION

MISSION EDITION DATE TIME DAY/REV PAGE
APOLLO 13 FINAL (APRIL) MARCH 16, 1970 03:00 - 04:00 1/TLC 3-4
FOV 10°
GET 04:12
CSM/SIVB RANGE 803 FT

FOV 1°
GET 04:34
CSM/SIVB RANGE 12,227 FT
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FLIGHT PLAN

POO, V66 - TRANS CSM S.V. TO LM SLOT
MNVR TO ACQUIRE S-IVB IN HATCH WINDOW (04:12)  R 094 OMNI D
                              P 323
                              Y 355

S-IVB APS EVASIVE MNVR (GET = 04:14) (GROUND COMMAND)
ΔV: 9.4 FPS
LOAD DAP, N46 (21111, 11111)
S-IVB MNVRS TO PROPELLANT DUMP ATT (GET: 04:24)
MNVR TO P52 ATT R 052  HGA P -10
(04:25)              P 234
                              Y 010

S-IVB CONTINUOUS H2 VENT ON (GET: 04:31)
S-IVB LOX DUMP (GET: 04:36)

DOFF & STOW PGA's
TRANSFER ITEMS OUT OF PGA POCKETS

NOTES
THE S-IVB 80° YAW MNVR IS PLANNED FOR LM EJECTION +3 MIN. THE MNVR WILL NOT BE STARTED UNTIL CREW REPORTS GOOD EJECTION. THE S-IVB EVASIVE MNVR WILL NOT BE STARTED UNTIL THE CREW HAS THE S-IVB IN SIGHT.

NOTE: DURING TLC, HGA IS REQUIRED ONLY FOR TD&E, TV TRANSMISSIONS AND MCC'S. THE ANTENNA WILL BE STOWED AT OTHER TIMES.

LOX DUMP ΔV = 28.1 FPS
S/C INTERIOR PHOTOGRAPHY AT CREW OPTION
CM/DAC/5/CIN-SPOT (f2.8, 60, fixed)
6 fps, 1 mag MAG J

<table>
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<td>APOLLO 13</td>
<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>04:00 - 05:00</td>
<td>1/TLC</td>
<td>3-5</td>
</tr>
</tbody>
</table>
FLIGHT PLAN

PREPARE FOR LAUNCH VEHICLE SYSTEMS PERFORMANCE DEBRIEFING AT 25 HRS. SEE QUESTIONS ON PAGE 3-21

UPLINK TO CSM DESIRED ORIENTATION (PTC) ZERO TRUNION BIAS

05:30
P52 - IMU REALIGN
OPTION 1 - PREFERRED (PTC ORIENT)
GYRO TORQUE
REPORT GYRO TORQUING ANGLES
GDC ALIGN

STARS ____,____
SA ____,____
TA ____,____

UPDATE TO CSM P37 PAD (L/0+15)

06:00
SECURE HGA, HGA TRACK MAN, HGA PITCH -52, HGA YAW 570
VHF A SIMPLEX - OFF
VERIFY WASTE STOWAGE VENT VALVE - VENT

P52 IMU REALIGN
N71: ____,____
N05: ____,____
N93:
X ____,____
Y ____,____
Z ____,____
GET ____,____

P 37 PAD ASSUMES NO MCC-1

<table>
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<tr>
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<td>APOLLO 13</td>
<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>05:00 - 06:00</td>
<td>1/TLC</td>
<td>3-6</td>
</tr>
</tbody>
</table>
FLIGHT PLAN

06:00
MNVR TO OPTICS CALIBRATION ATT R 147 OMNI
LOAD DAP, N46 (21101, 11111) P 340
P23 - CISLUNAR NAVIGATION Y 0
OPTICS CALIBRATION STAR 4 0
P00
V49 - MNVR TO SIGHTING ATT R 159
STAR/EARTH HORIZON P 297
P23 - CISLUNAR NAVIGATION Y 0
LOAD W MATRIX (R1 + 8 0 0 0 0)(R2 + 0 0 7 0)

1. STAR 33 EFH (R3 00120) ANTAES
2. STAR 221 ENH (R3 00110) DELTA CAPRICORNI
   N88: (R1 +39954)(R2 -26599)(R3 -14003)
3. STAR SCORPII (R3 00120) (EPS/LOW)
   N88: (R1 -40000)(R2 -40000)(R3 -40000)
4. STAR 40 ENH (R3 00110) ALTAIR
5. STAR 42 ENH (R3 00110) PEACOCK

O2 FUEL CELL PURGE } IF NO MCC-1
WASTE WATER DUMP

NOTES
S-IVB APS MCC-1
GET: 06:00
AV ~3 FPS
3 MARKS ON EACH STAR
INCORPORATE P23
MARK DATA AND
UPDATE ONBOARD
STATE VECTOR

MISSION | EDITION | DATE       | TIME       | DAY/REV | PAGE
--------|----------|------------|------------|---------|------
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 06:00 - 07:00 | 1/TLC | 3-7
FLIGHT PLAN

MCC-H

2013 CST

07:00

MNVR TO PTC ATTITUDE
PREPARE FOR EARTH WEATHER
PHOTOGRAPH
CM /EL/250/CAX - RING
(f'/T, 250, \infty\)')

P 90
Y 0

PHOTOGRAPH EARTH
1 FRAME EVERY 20
MIN FOR 3 HOURS.
MCC-H WILL RECORD
PRECISE TIMES
FOR EACH FRAME ON
MARK

NOTES
GO TO PTC ATTITUDE
AND NULL RATES TO
+ 0.5° DB. DISABLE
TWO ADJACENT QUADS.
MONITOR FOR 20 MIN-
UTES THEN SELECT
+ 30° DB AND 0.3°/SEC
RATE, THEN DISABLE
THE REMAINING QUADS
AFTER SPIN UP.

07:30

EAT PERIOD

07:40

07:50

08:00

MISSION | EDITION | DATE       | TIME          | DAY/REV | PAGE
---------|---------|-------------|---------------|---------|-----
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 07:00 - 08:00 | 1/TLC  | 3-8
FLIGHT PLAN

DEACTIVATE PRIMARY EVAPORATOR
GLY EVAP H2O FLOW - OFF (CTR)
GLY EVAP STM PRESS AUTO - MAN
GLY EVAP STM PRESS INCR - INCR FOR 1 MIN

SELECT NORMAL LUNAR COMM EXCEPT:
S-8D AUX TAPE - OFF
TAPE RCVR FWD - OFF

GET 16 HRS F.O.V. 10°

LiOH CANISTER CHANGE
(3 INTO A, STOW 1 IN B5)

S-IVB MCC-2 APPROX
09:00 GET, ΔV IS
NOMINALLY ZERO

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<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>08:00 - 09:00</td>
<td>1/TLC</td>
<td>3-9</td>
</tr>
</tbody>
</table>
FLIGHT PLAN

EMS ACCEL NULL BIAS TEST (REPORT)

MCC-H 2313 CST

10:00

UPLINK TO CSM
CSM S.V. & V66
MCC-1 TGT LOAD

10:10

20

10:30

SF

UPDATE TO CSM
MCC-1 MNVR PAD

10:40

50

11:00

PTC

P 90, Y 0

CONTINUE EARTH WEATHER PHOTOGRAPHY TO 11:30 IF MCC-1 IS NOT PERFORMED

CONTINUE PTC IF MCC-1 IS NOT PERFORMED

PTC - IMU REALIGN
OPTION 3 REFSSMAT
(PTC ORIENT)

REPORT GYRO TORQUING ANGLES

MISSION | EDITION | DATE       | TIME       | DAY/REV | PAGE
---------|----------|------------|------------|---------|-----
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 10:00 - 11:00 | 1/TLC | 3-11
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**FLIGHT PLAN**

MCC-1
BURN TABLE

<table>
<thead>
<tr>
<th>POR Y RATES</th>
<th>ATT DEVIATION</th>
<th>SHUTDOWN TIME</th>
<th>RESIDUALS</th>
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<tbody>
<tr>
<td>10°/SEC TAKEOVER</td>
<td>±10° TAKEOVER</td>
<td>BT + 1 SEC</td>
<td>IF &lt; 2FPS, TRIM X AXIS TO 0.2 FPS, IF &gt; 2FPS, NO TRIM</td>
</tr>
</tbody>
</table>

TABLE 3-2
3-11A
FLIGHT PLAN

P30 - EXTERNAL ΔV

V49 - MNVR TO BURN ATT
P40/41 - SPS/RCS THRUST
SXT STAR CHECK

02 FUEL CELL PURGE IF NOT PERFORMED
WASTE WATER DUMP AT 06:55

GDC ALIGN

MCC-1

V66 - TRANSFER CSM SV TO LM SLOT
MCC-1 BURN STATUS REPORT

REPORT: LM/CM ΔP
WASTE STOWAGE VENT VLV - CLOSE (Δ8HRS FROM VENT)
VENT BATS UNTIL SYSTEM TEST METER (4A) = 0

MCC-1 WILL BE DELAYED TO MCC-2 IF PROPELLANT COST IS NOT PROHIBITIVE

*ITEMS TO BE REPORTED TO MSFN

TIG: 11:41:25
BT: NOM. ZERO
ΔVR: NOM ZERO
ULLAGE: NONE
ORBIT: N/A

BURN STATUS REPORT

ΔTIG
BT
Vg

TRIM
R
P

Vg
Vgy

ΔVc

FUEL
OX

UNBAL

<table>
<thead>
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<tr>
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<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>11:00 - 12:00</td>
<td>1/TLC</td>
<td>3-12</td>
</tr>
</tbody>
</table>
FLIGHT PLAN

12:00
MNVR TO PTC ATT P 90 Y 0
START PTC

12:30
EAT PERIOD

MCC-H
0113 CST

UPDATE TO CSM
QUADS TO DISABLE
FOR PTC (LOWEST
QUANTITY PRPLNT)

UPDATE TO CSM
P37 PADS (L/0 +
25, 35, 45 & 60)

PTC
P 90, Y 0

NOTES

ONBOARD READOUT
BAT C
PYRO BAT A
PYRO BAT B
RCS A
B
C
D
DC IND SEL - MNA OR B

MISSION | EDITION | DATE | TIME | DAY/REV | PAGE
--- | --- | --- | --- | --- | ---
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 12:00 - 13:00 | 1/TLC | 3-13
FLIGHT PLAN

MCC-H 0213 CST

13:00  

14:00  REST PERIOD (10 HOURS)

15:00  

DURING REST PERIOD TWO CREWMEN IN REST STATIONS AND ONE IN COUCH

MISSION  EDITION    DATE         TIME      DAY/REV    PAGE
APOLLO 13 FINAL (APRIL) MARCH 16, 1970 13:00 - 15:00 1/TLC  3-14
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<tbody>
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<td>APOLLO 13</td>
<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>17:00 - 19:00</td>
<td>1/TLC</td>
<td>3-16</td>
</tr>
</tbody>
</table>

**FLIGHT PLAN**

- REST PERIOD (10 HOURS)
- PTC P 90 Y 0

MCC-H 0613 CST
MCC-H 0813 CST

FLIGHT PLAN

M S F N

REST PERIOD (10 HOURS)

PTC P 90 Y 0

0813 CST

19:00

20:00

21:00

20:00

21:00

M S F N

REST PERIOD (10 HOURS)

PTC P 90 Y 0

MISSION | EDITION | DATE       | TIME        | DAY/REV | PAGE
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<tbody>
<tr>
<td>APOLLO 13</td>
<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>21:00 - 23:00</td>
<td>1/TLC</td>
<td>3-18</td>
</tr>
</tbody>
</table>
FLIGHT PLAN

POSTSLEEP CHECKLIST
LISOH CANISTER CHANGE
(4 INTO B, STOW 2 IN B5)
BATTERY CHARGE, BATTERY A

REPORT LM/CM AP

CSM CONSUMABLES UPDATE
GET: ___ ___:___
RCS TOTAL ________
QUAD A ___ B ___
C ___ D ___
H₂ TOTAL ________
O₂ TOTAL ________

MISSION | EDITION | DATE | TIME | DAY/REV | PAGE
---|---|---|---|---|---
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 23:00 - 24:00 | 2/TLC | 3-19
**FLIGHT PLAN**

- P52 IMU REALIGN
- OPTION 3 REF SMMAT (PTC ORIENT)
- REPORT GYRO TORQUING ANGLES
- GDC ALIGN

**NOTES**

P52 IMU REALIGN
N71: ___ ___ ___
N95: ___ ___ ___
N93: ___ ___ ___
X ___ ___ ___
Y ___ ___ ___
Z ___ ___ ___
GET ___ ___ ___

---

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<tr>
<td>APOLLO 13</td>
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<td>MARCH 16, 1970</td>
<td>24:00 - 25:00</td>
<td>2/TLC</td>
<td>3-20</td>
</tr>
</tbody>
</table>
FLIGHT PLAN

LAUNCH VEHICLE SYSTEMS PERFORMANCE DEBRIEFING

1. Were there any significant changes in noise level between stages of powered flight?
2. Were there any significant changes in noise/vibration level during a single stage of powered flight?
3. Were there any unexpected acceleration transients experienced at initiation of IGN, SII CECO, MAX Q or M/R shift for both SII and S-IVB?
4. After SC separation, describe the conditions of the IU thermal shroud. Was there any looseness?
5. How was ground/SC comm at ignition/liftoff time region relative to vibration and acoustic environments?
6. Describe any visible venting or suspected leak after separation.
7. When, and at what distance, was the S-IVB seen for the last time?
8. Are there any comments relative to S-IVB/IU TLI guidance cutoff conditions (predicted vs actual SC display)?
FLIGHT PLAN

1713 CST

28:00

EAT PERIOD

P52 - IMU REALIGN
OPTION 3 - REFSSMMAT
(PTC ORIENT)

REPORT GYRO TORQUING ANGLES
STOP PTC
EMS ACCEL NULL BIAS TEST (REPORT)
H₂ PURGE LINE HTS ON
P30 EXTERNAL ΔV

V49 - MNVR TO BURN ATT

UPLINK TO CSM
CSM S.V. & V66
MCC-2 TGT LOAD

UPDATE TO CSM
GO/NO-GO MCC-2
MCC-2 MNVR PAD

NOTES
PTC
P90, Y 0

P52 IMU REALIGN
N71: ___.___
N05: ___.___
N93:
X ___.___
Y ___.___
Z ___.___
GET ___.___

MISSION EDITION DATE TIME DAY/REV PAGE
APOLLO 13 FINAL (APRIL) MARCH 16, 1970 28:00 - 30:00 2/TLC 3-23
## FLIGHT PLAN

### MCC-2

**BURN TABLE**

<table>
<thead>
<tr>
<th>P OR Y RATES</th>
<th>ATT DEVIATION</th>
<th>SHUTDOWN TIME</th>
<th>RESIDUALS</th>
</tr>
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<tbody>
<tr>
<td>10°/SEC TAKEOVER</td>
<td>±10° TAKEOVER</td>
<td>BT + 1 SEC</td>
<td>IF ≤ 2 FPS, TRIM X AXIS TO 0.2 FPS IF &gt; 2 FPS, NO TRIM</td>
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</table>

TABLE 3-3
3-23 A
FLIGHT PLAN

P40 - SPS THRUST
SXT STAR CHECK

TV (GDS) 30:15 TO 30:45
CM4/TV-AVG (f5.6)
H₂ & O₂ FUEL CELL PURGE
WASTE WATER DUMP
H₂ PURGE LINE HEATERS - OFF

GDC ALIGN

TLI CUTOFF + 28 HRS

MCC-2

V66 - TRANSFER CSM SV TO LM SLOT
MCC-2 BURN STATUS REPORT

ΔTIG
BT
TRIM
UX
Vx
Vy
Vz
ΔC
FUEL
OX
UNBAL

NOTE: MCC-2 WILL BE ACCOMPLISHED ON BANK A ONLY

TIG: 30:40:49
BT: 2.2 SEC
ΔVR: 15.1 FPS
ULLAGE: - NONE
ORBIT: N/A

*ITEMS TO BE REPORTED TO MSFN
ATTITUDE FOR MCC-2 BURN IS CONSTRAINED IN ROLL FOR HGA ACQUISITION FOR TV AND BY SXT STAR CHECK

MISSION | EDITION  | DATE           | TIME       | DAY/REV | PAGE
--------|----------|----------------|------------|---------|------
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 30:00 - 31:00 | 2/TLC  | 3-24
FLIGHT PLAN

MNVR TO OPTICS CALIBRATION ATT R 147
P23-CISLUNAR NAVIGATION P 340
OPTICS CALIBRATION Y 0
STAR 4 0

3 MARKS EACH STAR
INCORPORATE P23
MARK DATA AND
UPDATE ONBOARD
STATE VECTOR

V49 - MNVR TO SIGHTING ATT R 136
STAR/EARTH HORIZON P 307
P23 - CISLUNAR NAVIGATION Y 0
LOAD W MATRIX (R1 + 4 5 0 0 0) (R2 + 0 0 0 0 0)

1. STAR 37 EFH (R3 00120) NUNKI

GET 30 HRS F.O.V. 4°

2. STAR 221 ENH (R3 00110) DELTA CAPRICORNI
N88: (R1 370551)(R2 13277)(R3 -29542)

3. STAR 44 EFH (R3 00120) DELTA SAGITTARIUS II

4. STAR 44 ENH (R3 00110) ENI.

5. STAR 77 EFH (R3 00120) KAUS AUST
N88: (R1 +03986)(R2 -41062)(R3 -28249)

MISSION | EDITION | DATE | TIME | DAY/REV | PAGE
---|---|---|---|---|---
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 31:00 - 32:00 | 2/TLC | 3-25
FLIGHT PLAN

UPDATE TO CSM
QUADS TO DISABLE
FOR PTC (LOWEST
QUANTITY PRPLNT)

2113 CST

32:00

MANEUVER TO PTC ATTITUDE P 90
START PTC Y 0
S-BAND ANT - OMNI B ON MCC CUE

SECURE HGA
HGA TRACK - MAN
HGA PITCH -52°
HGA YAW 270°
CHECK BAT VENT (TEST METER 4A)

NOTES

MISSION | EDITION | DATE       | TIME       | DAY/REV | PAGE
--------|---------|------------|------------|---------|-------
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 32:00 - 33:00 | 2/TLC  | 3-26  
<table>
<thead>
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<td>APOLLO 13</td>
<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>33:00 - 35:00</td>
<td>2/TLC</td>
<td>3-27</td>
</tr>
</tbody>
</table>
FLIGHT PLAN

LIOH CANISTER CHANGE
(5 INTO A, STOW 3 IN B5)

REPORT LM/CM ΔP

EAT PERIOD

PRESLEEP CHECKLIST

MISSION | EDITION | DATE | TIME | DAY/REV | PAGE
---------|---------|------|------|---------|------
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 35:00 - 37:00 | 2/TLC | 3-28

NOTES

ONBOARD READOUT
BAT C
PYRO BAT A
PYRO BAT B
RCS A
B
C
D
DC IND SEL - MNA OR B
FLIGHT PLAN

MCC-H 0413 CST

39:00 ~

~

:20 ~

:40 ~

40:00 MSFN

REST PERIOD (10 HOURS)

41:00 ~

:20 ~

:40 ~

PTC P 90 Y 0

<table>
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<th>MISSION</th>
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<th>DAY/REV</th>
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<td>39:00 - 41:00</td>
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<td>3-30</td>
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<td>41:00 - 43:00</td>
<td>2/TLC</td>
<td>3-31</td>
</tr>
</tbody>
</table>
FLIGHT PLAN

POST SLEEP CHECKLIST

EAT PERIOD

LiOH CANISTER CHANGE
(6 INTO B, STOW 4 IN B5)

REPORT LM/CM ΔP

CSM CONSUMABLES UPDATE
GET: __ __ __: __
RCS TOTAL ________
QUAD A ___ B ___
C ___ D ___
H₂ TOTAL ________
O₂ TOTAL ________

MISSION | EDITION     | DATE      | TIME        | DAY/REV | PAGE
---------|-------------|-----------|-------------|---------|-----
APOLLO 13| FINAL (APRIL) | MARCH 16, 1970 | 47:00 - 49:00 | 3/TLC | 3-34
FLIGHT PLAN

P52 - IMU REALIGN
OPTION 3 - REFSSMAT
(PTC ORIENT)

REPORT GYRO TORQUING ANGLES

GET 50 HRS F.O.V. 3°

NOTES

P52 IMU REALIGN
N71: __ __ __
N05: __ __ __
N93:
  X __ __ __
  Y __ __ __
  Z __ __ __
GET __ __ __

MISSION | EDITION     | DATE          | TIME        | DAY/REV | PAGE
---------|-------------|---------------|-------------|---------|------
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 49:00 - 51:00 | 3/TLC   | 3-35
FLIGHT PLAN

MCC-H 1613 CST

1613 CST

51:00

52:00

EAT PERIOD

53:00

PTC

P 90 Y 0

NOTES

<table>
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<tr>
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<th>DAY/REV</th>
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<td>FINAL (APRIL)</td>
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<td>51:00 - 53:00</td>
<td>3/TLC</td>
<td>3-36</td>
</tr>
</tbody>
</table>
FLIGHT PLAN

MCC-H 1813 CST

53:00

54:00

55:00

UPLINK TO CSM
CSM S.V. & V66
MCC-3 TGT LOAD
UPDATE TO CSM
GO/NO-GO MCC-3
MCC-3 MNVR PAD

NOTES

FUEL CELL PURGE AND
WASTE WATER DUMP
SCHEDULED AT 55:08
WILL BE DELAYED
TO 57:50 IF MCC-3
IS NOT PERFORMED

P52 IMU REALIGN
OPTION 3 REFSSMAT
(PTC ORIENT)

CONTINUE PTC IF MCC-3 IS NOT PERFORMED
REPORT GYRO TORQUING ANGLES

P30 - EXTERNAL ΔV

<table>
<thead>
<tr>
<th>MISSION</th>
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<tr>
<td>APOLLO 13</td>
<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>53:00 - 55:00</td>
<td>3/TLC</td>
<td>3-37</td>
</tr>
</tbody>
</table>
## MCC-3
### BURN TABLE

<table>
<thead>
<tr>
<th>P OR Y RATES</th>
<th>ATT DEVIATION</th>
<th>SHUTDOWN TIME</th>
<th>RESIDUALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10°/SEC TAKEOVER</td>
<td>±10° TAKEOVER</td>
<td>BT + 1 SEC</td>
<td>IF &lt; 2 FPS, TRIM X AXIS TO 0.2 FPS IF &gt; 2 FPS, NO TRIM</td>
</tr>
</tbody>
</table>

**TABLE 3-4**
3-37A
FLIGHT PLAN

MCC-3 WILL BE DELAYED TO MCC-4
IF PROPELLANT COST IS NOT PROHIBITIVE

MCC-3 BURN STATUS REPORT

BATTERY CHARGE, BATTERY B
START PTC
LM TUNL VENT VALVE - LM/CM ΔP
IF LM/CM ΔP < 1.7 psid - VENT UNTIL ΔP ≥ 1.7

MISSION | EDITION | DATE           | TIME      | DAY/REV | PAGE
---------|---------|----------------|-----------|---------|-----
APOLLO 13 | FINAL (APRIL) | MARCH 16, 1970 | 55:00 - 56:00 | 3/TLC | 3-38
**FLIGHT PLAN**

- **MCC-H**
- **2113 CST**
- **56:00**
- **56:10**
- **56:20**
- **56:30**
- **56:40**
- **56:50**
- **57:00**

<table>
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<td>APOLLO 13</td>
<td>FINAL (APRIL)</td>
<td>MARCH 16, 1970</td>
<td>56:00 - 57:00</td>
<td>3/TLC</td>
<td>3-39</td>
</tr>
</tbody>
</table>

**NOTES**

- LUNAR PHOTOGRAPHY
- AT CREW OPTION
- CM/EL/80 or 250/BW
- RING (15.6.250.-) 10
- MAG P
- CM/EL/80 or 250/CEX-RING (15.6.250.-) 10
- MAG L
FLIGHT PLAN

UPLINK TO CSM
ΔH (IF REQUIRED)

2213 CST

57:00
PRESSURIZE CSM TO 5.7 PSIA
PRESSURIZE LM

:10

:20
T EPHM: V05N01 1706E
COPY IN LM ACTIVATION CHECKLIST (ACT 33)

57:30
CLEAR TUNNEL OF
CM HATCH
INSPECT TUNNEL &
DOCKING LATCHES
REMOVE PROBE & DROGUE

:40
TV (GDS) 58:00 TO 58:30
CM_TV-AVG (f5.6)

:50
LOAD DAP: N46 (21111, 11111)

58:00
STOP PTC ROLL AT __.
HGA P ___ Y ___

NOTES
ΔH DETERMINED
FROM STAR/earth
HORIZON SIGHTINGS
WILL BE UPLINKED
IF IT DIFFERS FROM
ΔH IN E-MEmory
BY MORE THAN 5.0 KM

O2 FUEL CELL PURGE
& WASTE WATER DUMP
@ 57:50 IF NOT
PERFORMED AT 55:08

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