

APOLLO 8

FLIGHT PLAN VOL. II

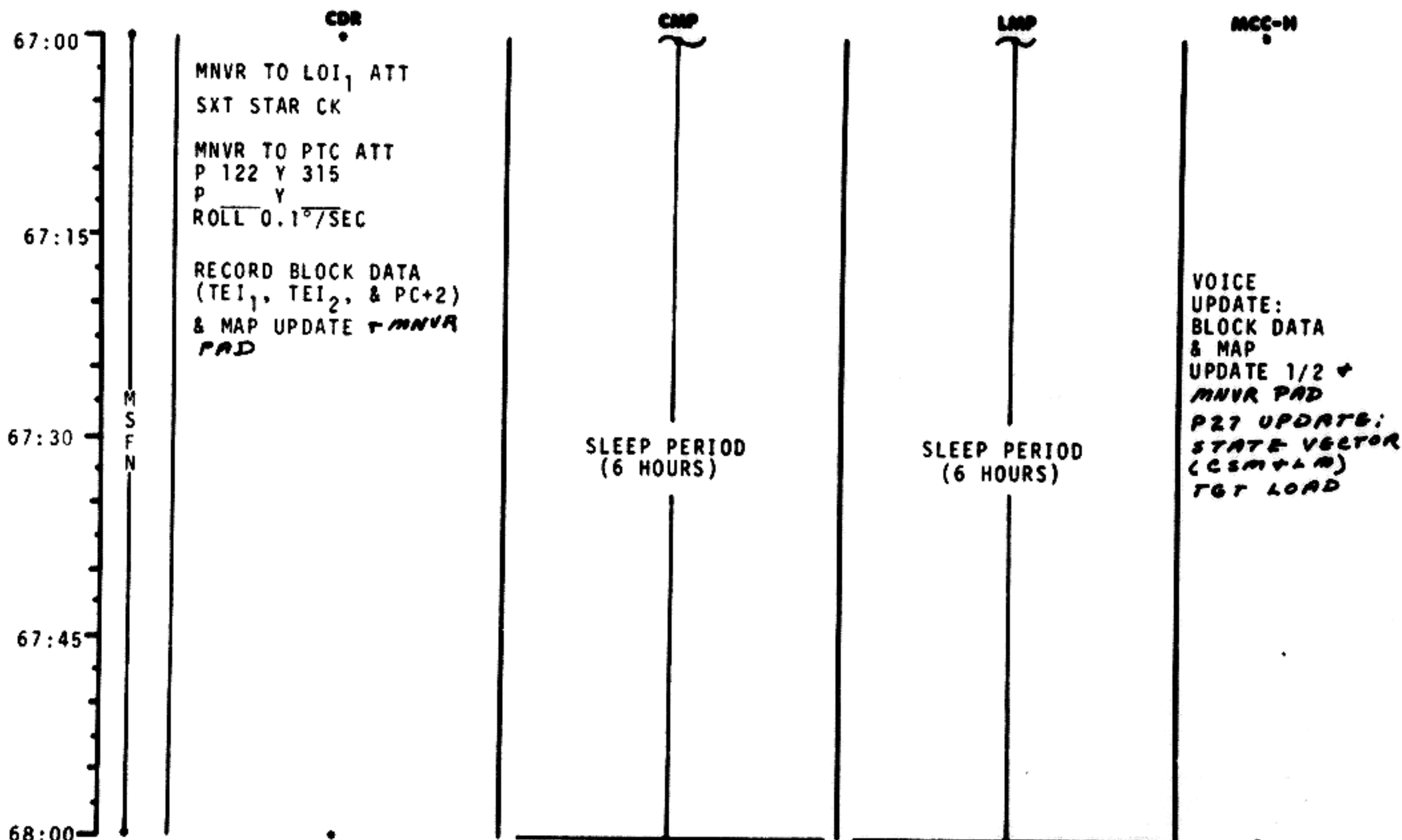
PART NO. ·

S/N

SKB 32100031-201

1004

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE

CDR	CMP	LMP	REC-11
68:00 GO/NO GO FOR LOI ₁ MNVR TO P52 ATT	GROUND TRACK DET - P21 (LOI ALTITUDE DET)	CMP/LMP CREW STATUS REPORT RECORD MANEUVER PAD	GO/NO GO P27 UPDATE: STATE VECTOR TARGET LOAD VOICE UPDATE: MNVR PAD
68:30 M S F N EXTERNAL ΔV P30 EMS CK SPS THRUST P40 MNVR TO BURN ATT GDC ALIGN TO IMU	IMU REALIGN P52 OPTION 3 - REFSMMAT AND GYRO DRIFT TEST STAR ID STAR ANGLE DIFF TORQUE ANGLES: X Y Z SXT STAR CK TRANSFER TO COUCH	PRE LOI SYSTEMS CKS: C&W CK CM RCS CK SM RCS CK SPS PERIODIC MONITOR EPS PERIODIC MONITOR ECS PERIODIC MONITOR <i>NON ESS BUS AND INITIATE WATER BOILER</i>	
68:57			
69:00			

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	68:00 - 69:00	3/TLC	2-50

FLIGHT PLANNING BRANCH

h_a = 169.1
h_p = 63.5

BURN STATUS REPORT

X X :O.T. ΔTIG
X X 4:06.5BT
 1.4 V_{gx}
TRIM
X X X R
X X X *NON* P
X X X Y
 -1.4 V_{gx}
 2.0 V_{gy}
 0.2 V_{gz}
 2.0.2 ΔV_c
X X X FUEL
X X X OX
X X X UNBALANCE

LOI₁
BURN CHART

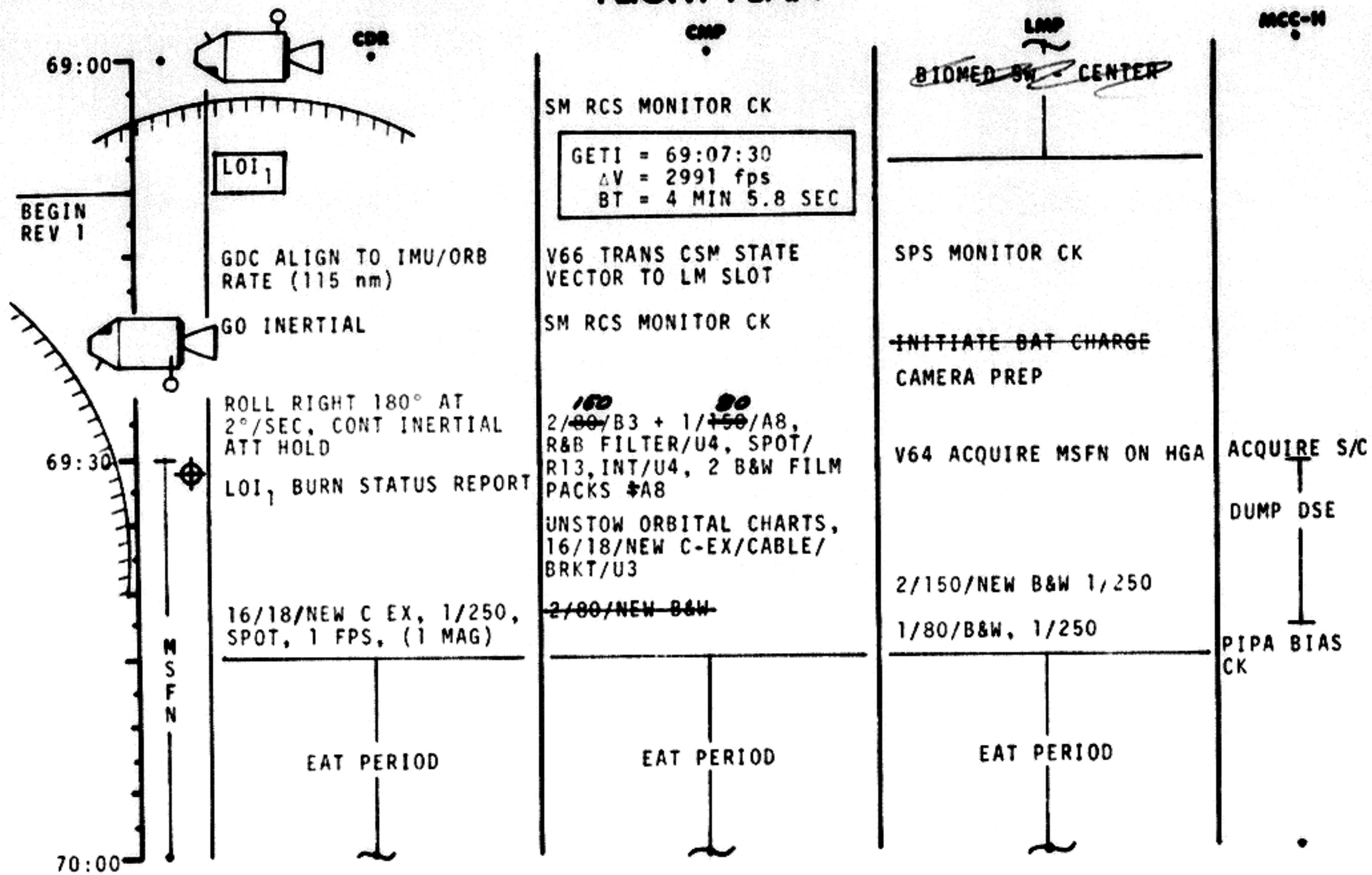
	P or V RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
LOI ₁	10°/SEC TAKEOVER	10° TAKEOVER	B/T+6 SEC	NO TRIM

LOI₁ ABORT MODES

LOI V _{go}	B/T	TRAJECTORY	ABORT MODE
3050-2100	0 -1:20	HYPERBOLIC	COAST OUT OF SPHERE-P37
2100-1650	1:20-2:00	UNSTABLE	5 HR COAST. MODE I ABORT
1650-0	2:00-4:06	LUNAR ORBIT	MODE III ABORT AFTER 1 REV

REMARKS:

2-50a

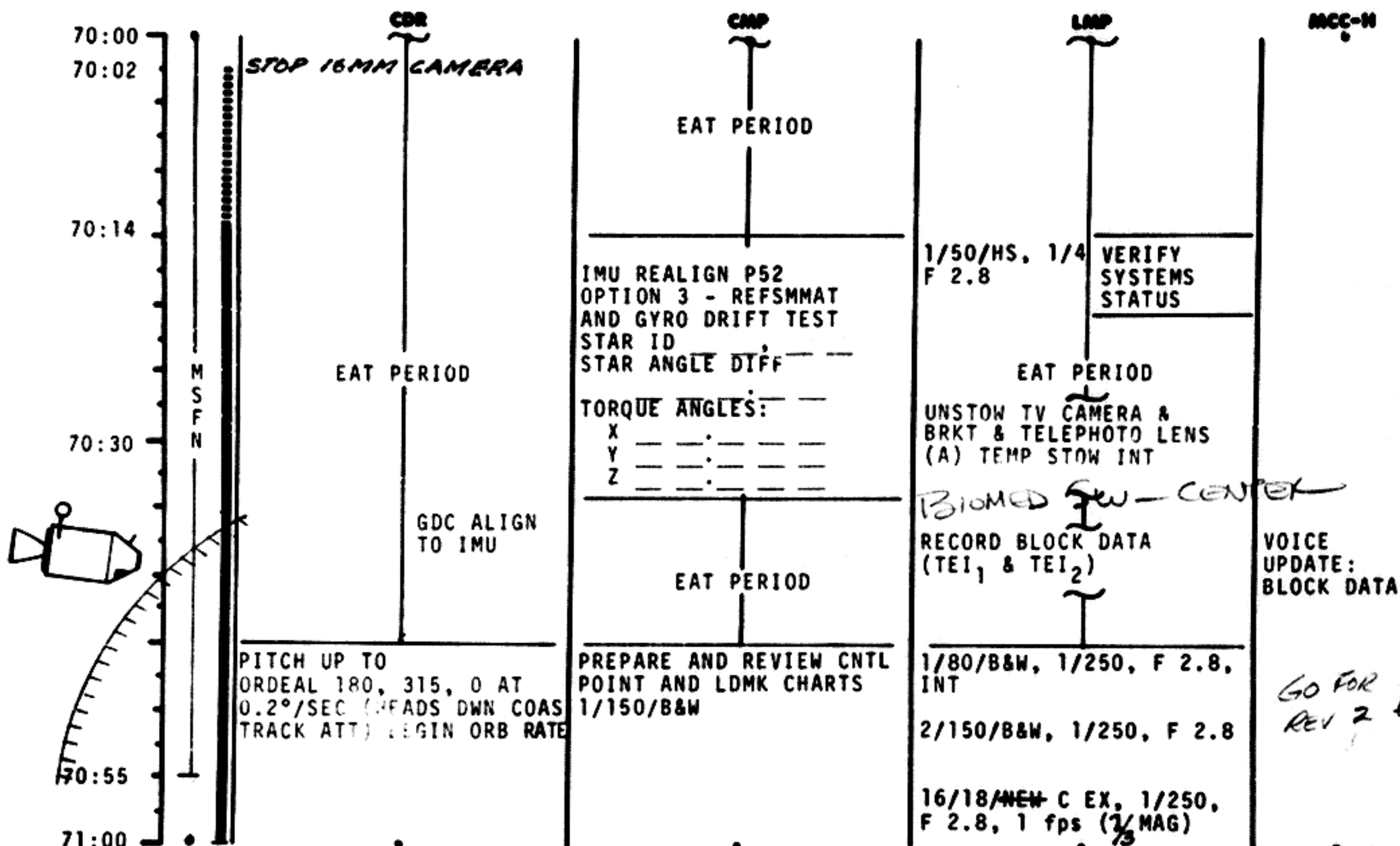


MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	69:00 - 70:00	3/LPO 1	2-51

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FLIGHT PLANNING BRANCH

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	70:00 - 71:00	3/LPO 1	2-51

MCC-N

<p>71:00</p> <p>71:09</p> <p>BEGIN REV 2</p> <p>71:30</p> <p>71:38</p> <p>72:00</p>	<p style="text-align: center;">CDR</p> <p>MAINTAIN ORB RATE AND BEGIN COAS GROUND TRACK DETERMINATION</p> <hr/> <p>YAW RT 45° FOR TV ORDEAL 180, 315, 45 315°</p> <hr/> <p style="text-align: center;">TV</p> <hr/> <p>YAW LEFT 45° TO ORDEAL 180, 315, 0</p>	<p style="text-align: center;">CMP</p> <div style="border: 1px solid black; padding: 2px;">CONTROL PT (CP) SIGHTING (THRU HATCH WINDOW)</div> <p>CP1 7 1: 1 3: 4 6 TCA <u>7 1: 1 4: 5 7</u></p> <p>CP1 NO. 504 LAT -05.250°S LONG -162.700°W ALT 000.00 nm</p> <hr/> <p>CP2 7 1: 2 7: 4 0 TCA <u>7 1: 2 8: 3 2</u></p> <p>CP2 NO. 526 LAT -10.200°S LONG +155.100°E ALT 000.00 nm</p> <hr/> <p>CP3 7 1: 4 6: 3 8 TCA <u>7 1: 4 7: 2 6</u></p> <p>CP3 NO. 334 LAT -09.000°S LONG +95.000°E +96.350°E ALT 000.00 nm</p> <hr/> <div style="border: 1px solid black; padding: 2px;">PSEUDO LDG SITE LDMK SIGHTING (THRU HATCH WINDOW)</div>	<p>START 16 MM CAMERA AT TERMINATOR</p> <p>SPOT METER READINGS</p> <p>PHOTOGRAPH TARGETS OF OPPORTUNITY</p> <p>CONFIGURE FOR TV</p> <p>V64 ACQUIRE MSFN ON HGA</p> <p>RECORD MAP UPDATE</p>	<p>ACQUIRE S/C</p> <p>P27 UPDATE: STATE VECTOR (CSM + LM) TARGET LOAD</p> <p>VOICE UPDATE: MAP UPDATE 2/3</p>
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MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	71:00 - 72:00	3/LPO 1+2	2-53

MSC Form 1910 (Nov 68)

FLIGHT PLANNING BRANCH

FLIGHT PLAN

MCC-N

<p>72:00</p> <p>72:10</p> <p>72:23</p> <p>72:30</p> <p>73:00</p>	<p style="text-align: center;">CDR</p> <p>MAINTAIN ORBITAL RATE AND COAS GROUND TRACK DETERMINATION</p> <hr/> <p>GO/NO GO FOR LOI₂</p> <hr/> <p>GO INERTIAL</p> <hr/> <p>EXTERNAL ΔV P30</p> <p>EMS CK</p> <p>SPS THRUST - P40 MNRV TO BUAN ATT GO INERTIAL</p>	<p style="text-align: center;">CMP</p> <p>B-1 7 2: 0 9: 1 0 TCA <u>7 2: 0 9: 4 2</u></p> <p>LDMK NO. B1 LAT +02.675°N LONG +35.025°E ALT -000.99 nm</p> <hr/> <p>L10H CANISTER CHANGE (CARTRIDGE 9 FROM B₆ INTO CANISTER A)</p> <hr/> <p>IMU REALIGN P52 OPTION 3 - REFSMMAT AND GYRO DRIFT TEST STAR ID _____ STAR ANGLE DIF. _____</p> <p>TORQUE ANGLES: _____ X _____ Y _____ Z _____</p> <hr/> <p style="text-align: center;">CHLORINATE WATER</p> <p style="text-align: right;"><i>Put off til later</i></p>	<p style="text-align: center;">LMP</p> <p>BIOMED Sw - LEFT</p> <p>STOP 16 MM CAMERA</p> <p>RECORD MNRV PAD, BLOCK DATA (TEI₃, TEI₃ NO LOI₂).</p> <hr/> <p style="text-align: center;"><i>Crop per cycle</i></p> <p>1/80/HS 1/4, F 2.8</p> <hr/> <p>PRE LOI SYSTEMS CKS:</p> <p>C&W CK CM RCS CK SPS PERIODIC MONITOR EPS PERIODIC MONITOR ECS PERIODIC MONITOR</p>	<p>GO/NO GO</p> <p>VOICE UPDATE: MNRV PAD BLOCK DATA</p> <p>DUMP DSE</p> <p>PIPA BIAS CK</p>
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MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	72:00 - 73:00	4/LPO 2	2-54

LOI₂
BURN CHART

BURN STATUS REPORT

X X : 0.7 ΔTIG
 X X / / : 0.0 BT
 : 0.2 V_{gx}

TRIM

X X X
 X X X
 X X X

R

P

Y

0.2 V_{gx}
 1.8 V_{gy}
 0.2 V_{gz}
 9.4 ΔV_c

X X X
 X X X
 X X X

FUEL

OX

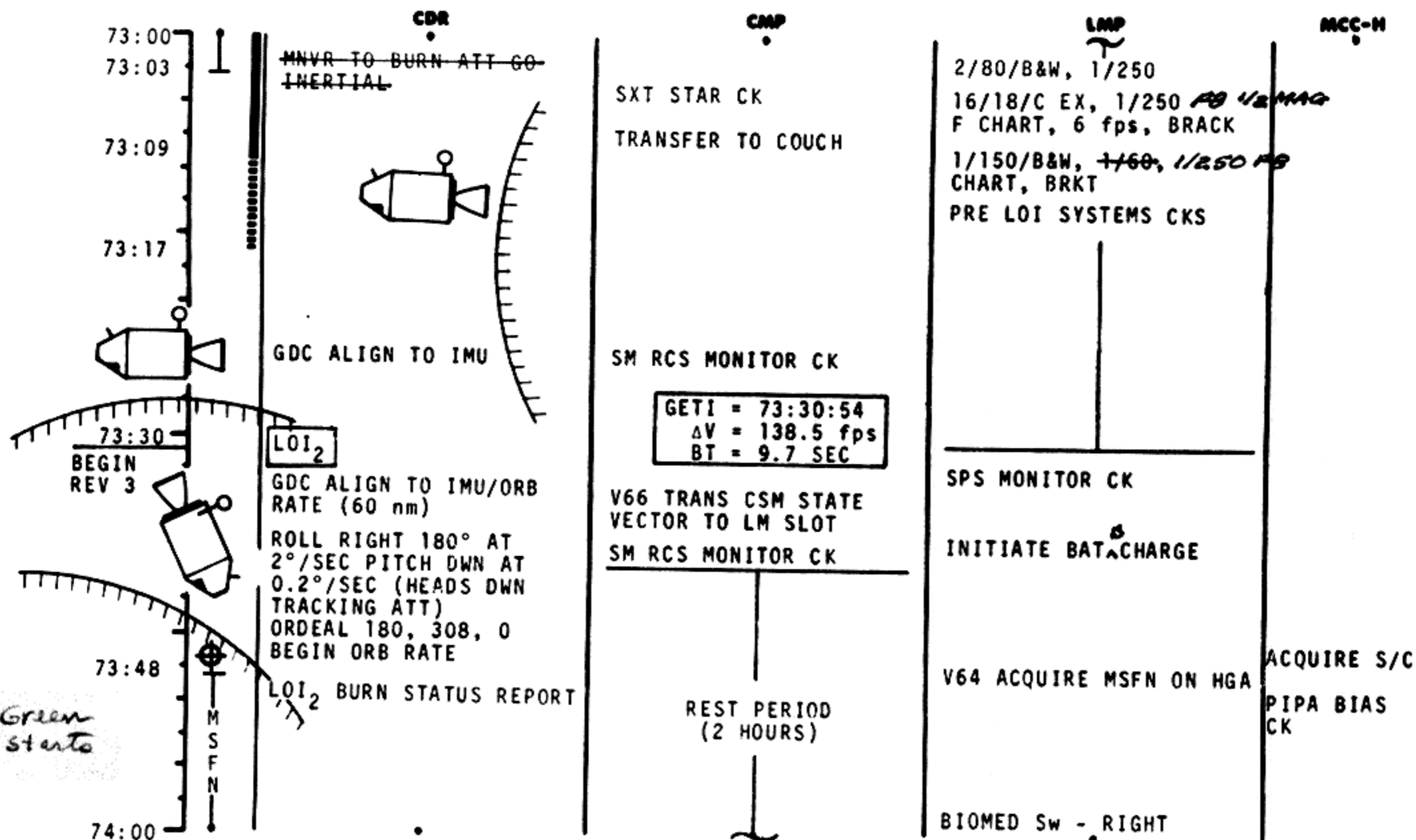
UNBALANCE

REMARKS:

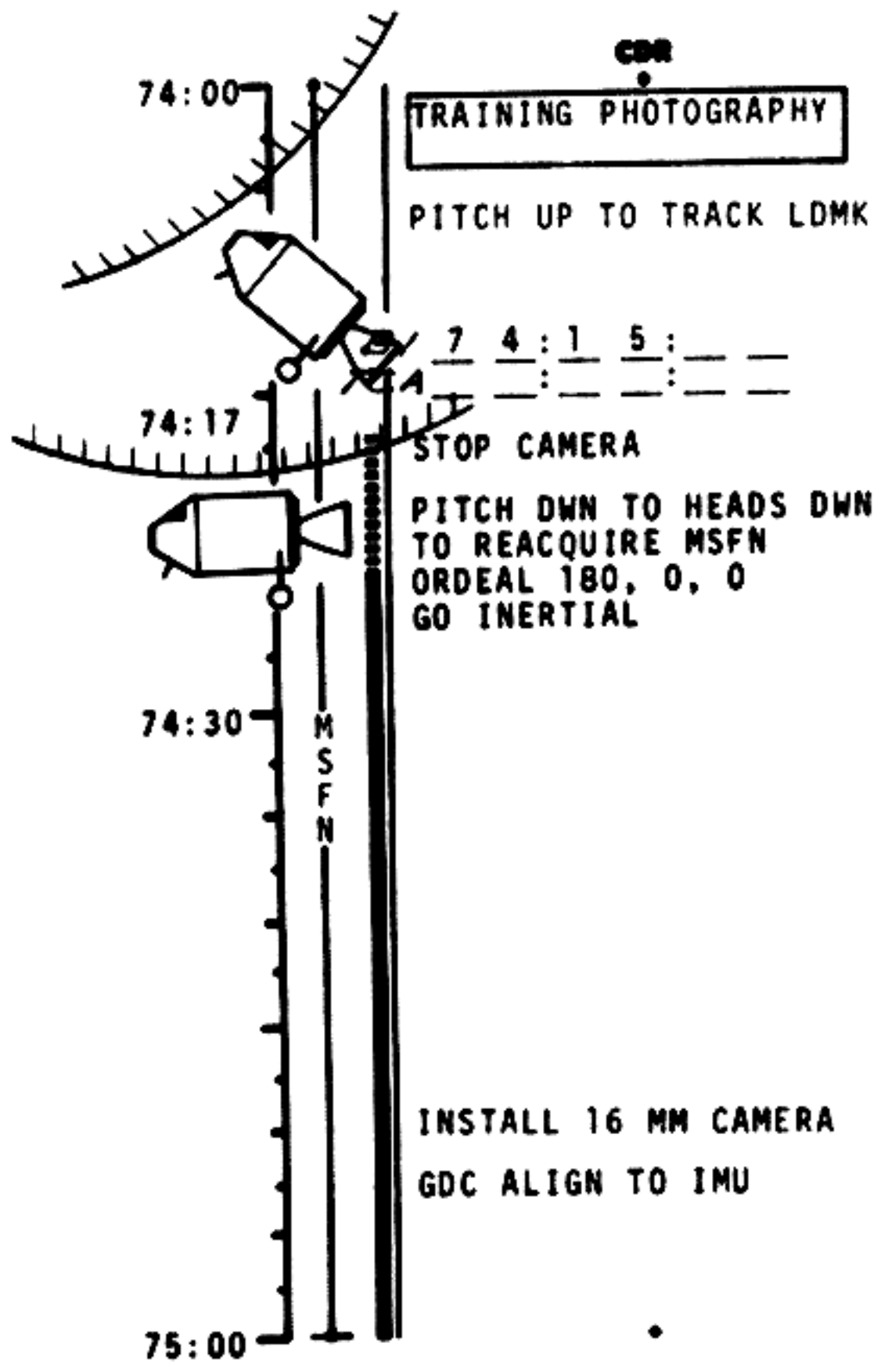
Ha 62.0
 Hp 60.8

	P or Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
LOI ₂	10°/SEC TAKEOVER	10° TAKEOVER	B/T +1 SEC	NO TRIM

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
				4/10 2+2	2-55



CDR
TRAINING PHOTOGRAPHY
 PITCH UP TO TRACK LDMK
 7 4 : 1 5 :
 : : : :
STOP CAMERA

PITCH DWN TO HEADS DWN
 TO REACQUIRE MSFN
 ORDEAL 180, 0, 0
 GO INERTIAL

INSTALL 16 MM CAMERA
 GDC ALIGN TO IMU

CMP
 TO = BITCA

	F ₁₆	F ₇₀
78-7	8	8
-4	5.6	5.6
-2	4	-
-1	2.8	1/60
0	2	-

REST PERIOD
 (2 HOURS)

TRAINING PHOTOGRAPHY
 70mm & 16mm
 START CAMERAS 7 MIN PRIOR
 LDMK, 70mm - 20 SEC INT
 UNTIL TRACKING - THEN
 5 SEC, F STOP FROM CHART

STOP CAMERAS
 1/80/HS, 1/4, F 2.8

VERIFY SYSTEMS STATUS
 RECORD MAP UPDATE

IMU REALIGN P52
 OPTION 3 - REFSMMAT
 AND GYRO DRIFT TEST
 STAR ID
 STAR ANGLE DIFF

TORQUE ANGLES:
 X
 Y
 Z

RECORD BLOCK DATA
 (TEI₃ & TEI₄)
 GEGENSCHHEIN/LIBRATION

VOICE
 UPDATE:
 MAP UPDATE
 3/4

DUMP DSE

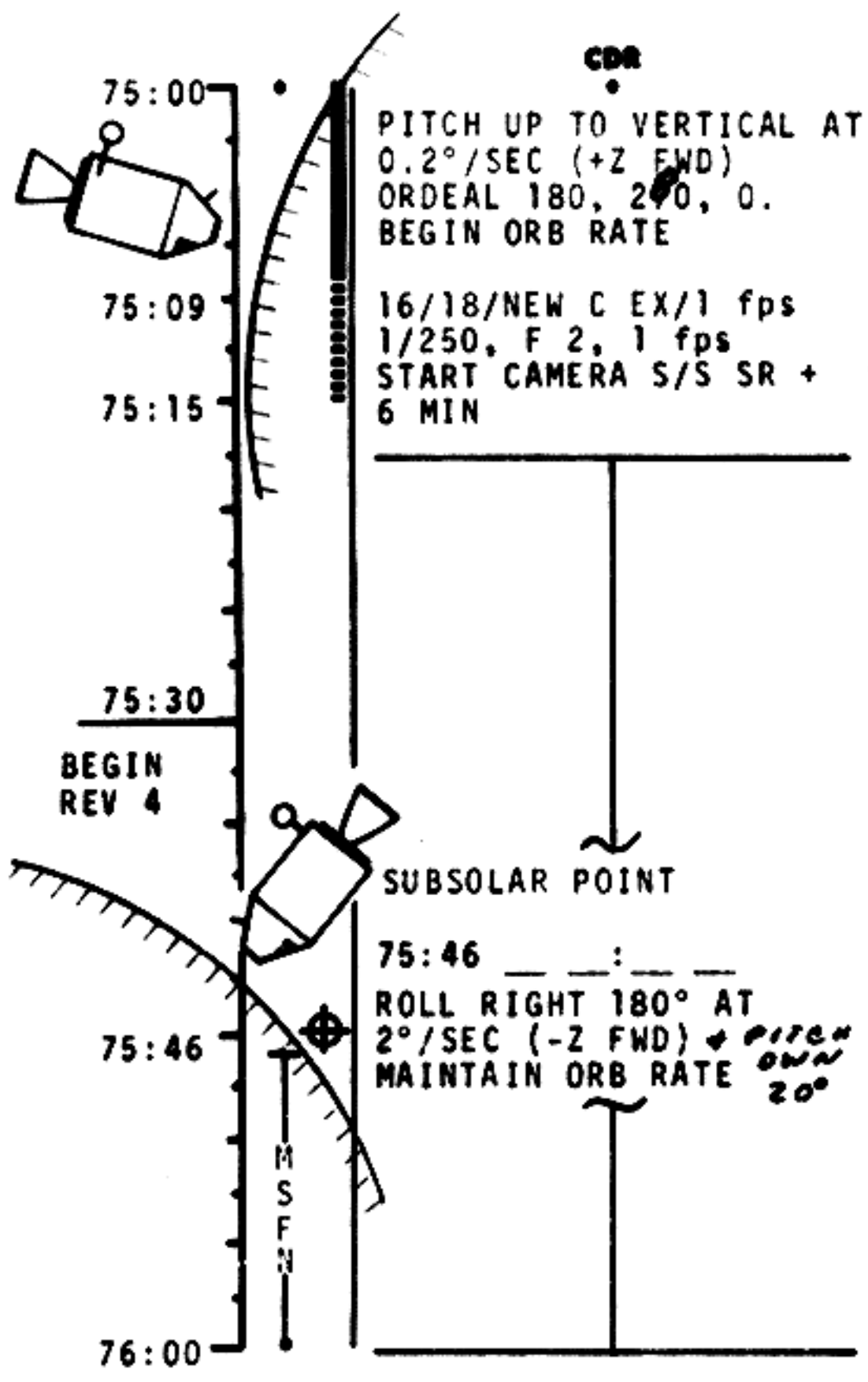
VOICE
 UPDATE:
 BLOCK DATA

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	74:00 - 75:00	4/LPO 3	2-56

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FLIGHT PLANNING BRANCH

FLIGHT PLAN



CDR
 PITCH UP TO VERTICAL AT
 0.2°/SEC (+Z FWD)
 ORDEAL 180, 270, 0.
 BEGIN ORB RATE

16/18/NEW C EX/1 fps
 1/250, F 2, 1 fps
 START CAMERA S/S SR +
 6 MIN

SUBSOLAR POINT
 75:46 :
 ROLL RIGHT 180° AT
 2°/SEC (-Z FWD) + PITCH
 MAINTAIN ORB RATE
 DOWN 20°

INSTALL SXT BRKT &
 16mm CAMERA. TAKE
 PHOTOS AS TIME PERMITS.

SA 0° TA 0°
 16/SXT/CRK 1/2 MAG
 1/60 6FPS

REST PERIOD
 (2 HOURS)

LMP
 1/80/NEW B&W, 1/250,
 F 2.8 BRKT/INT
 2/150/B&W

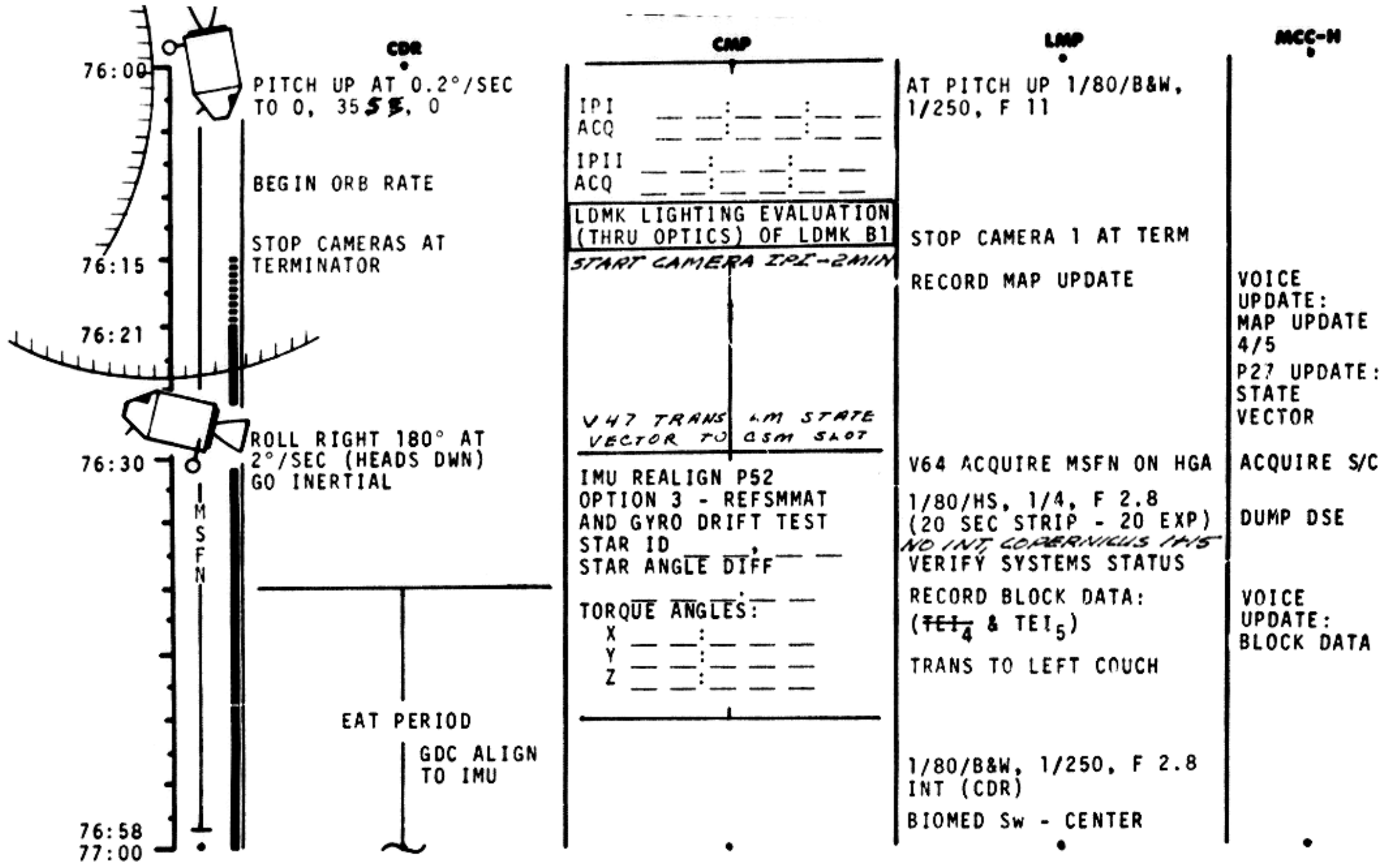
START CAMERA 1 S/C
 SR + 6 MIN

**VERTICAL STEREO
 PHOTOGRAPHY**
 EXTRA EXP EACH
 5 MIN - NOTE TIME

ACQUIRE
 MSFN ON
 OMNI ANT

MCC-N
 ACQUIRE S/C

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	75:00 - 76:00	4/LPO 3+4	2-57

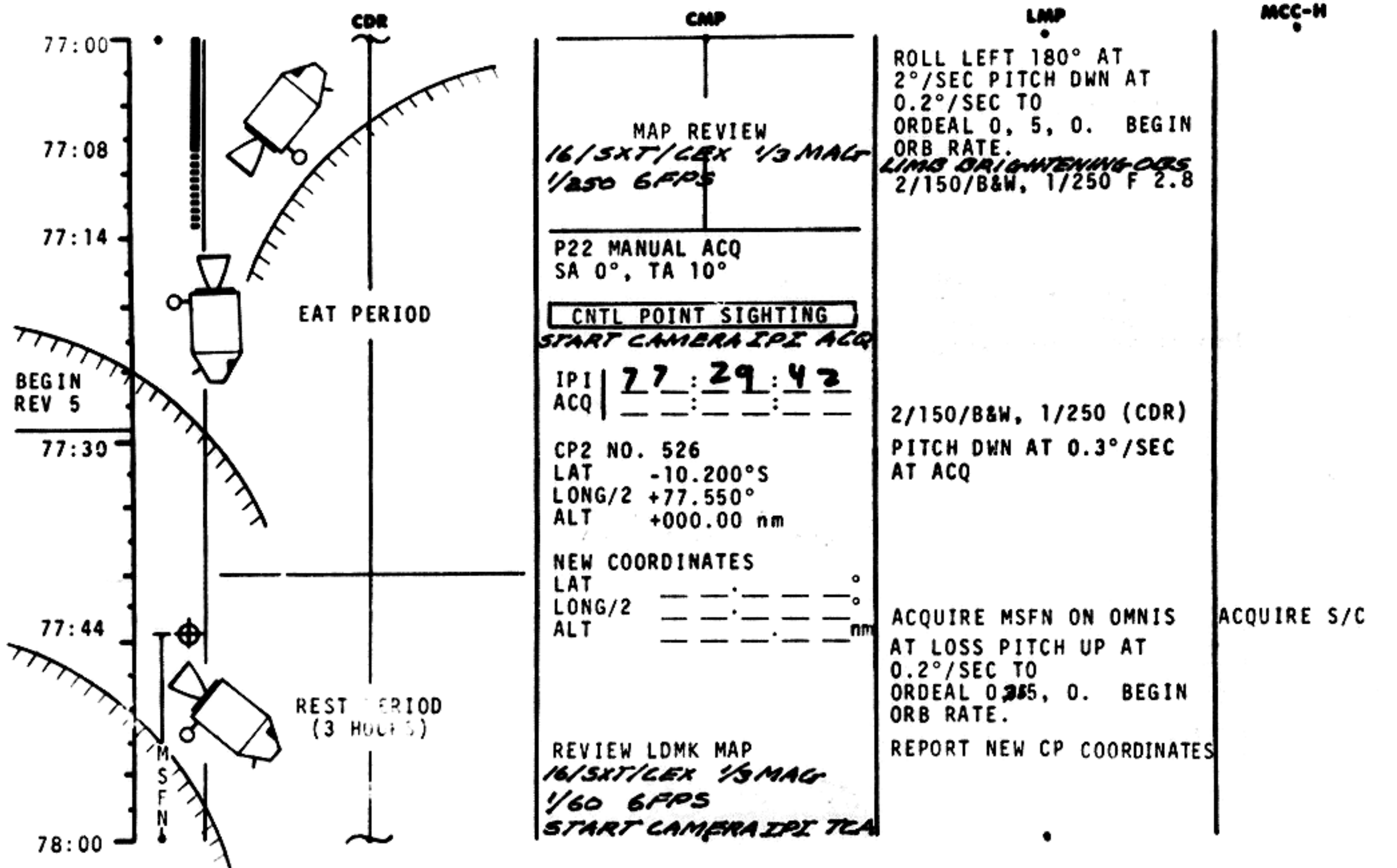


MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	76:00 - 77:00	4/LPO 4	2-58

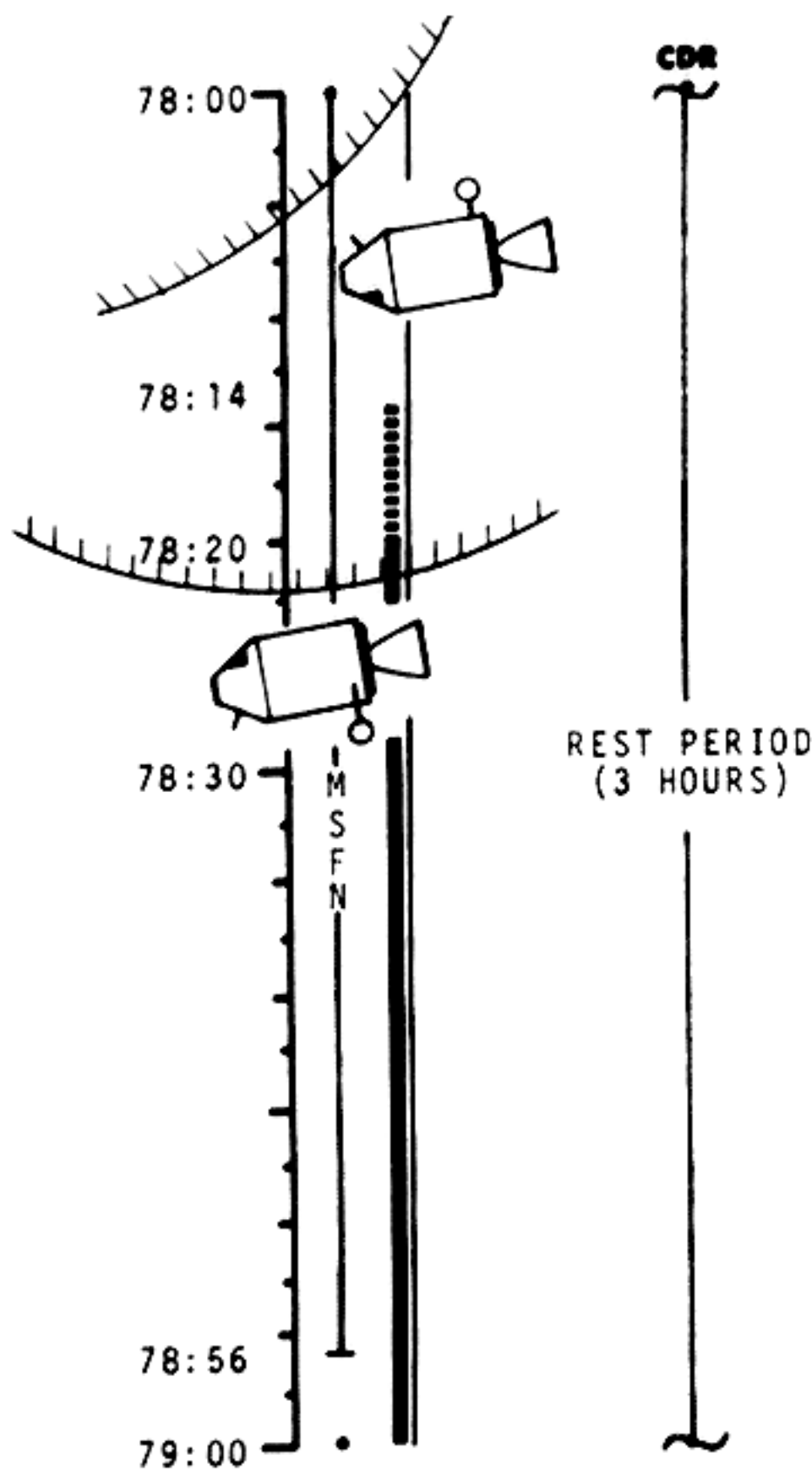
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FLIGHT PLANNING BRANCH

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE



CMP

PSEUDO LDG SITE SIGHTINGS
P22 - AUTO OPTICS
IPI ~~17~~ ~~29~~ ~~42~~
TCA ~~12~~ ~~10~~ ~~35~~
LDMK NO. B1
LAT +02.675°N
LONG/2 +17.512°
ALT -000.99 nm
NEW COORDINATES
LAT + 02.515°
LONG/2 + 17.665°
ALT - 02 nm

V47 TRANS LM STATE VECTOR TO CSM SLOT

IMU REALIGN P52
OPTION 3 - REFSMMAT
AND GYRO DRIFT TEST
STAR ID _____
STAR ANGLE DIFF _____

TORQUE ANGLES:
X _____
Y _____
Z _____

LMP

PITCH DWN 0.3°/SEC AT ACQ
AT LOSS ROLL RIGHT 180°
AT 2°/SEC TO HEADS DWN
GO INERTIAL

V64 ACQUIRE MSFN ON HGA
1/80/HS, 1/4, F 2.8

REPORT NEW COORDINATES
RECORD BLOCK DATA
(TEI₆), & MAP UPDATE
VERIFY SYSTEMS STATUS

SC EXT ATM (EARTHSHINE)
1/80/HS F2.8
B 6 SEC, B 1 SEC, 1/60
90° FROM SUN

GDC ALIGN TO IMU
16/18/ C EX, 1/250, 1 fps
(____ MAGS)

2/150/C121/1/250 SPOT
GENERAL OBSERVATIONS
SC EXT ATM (DARKNESS)

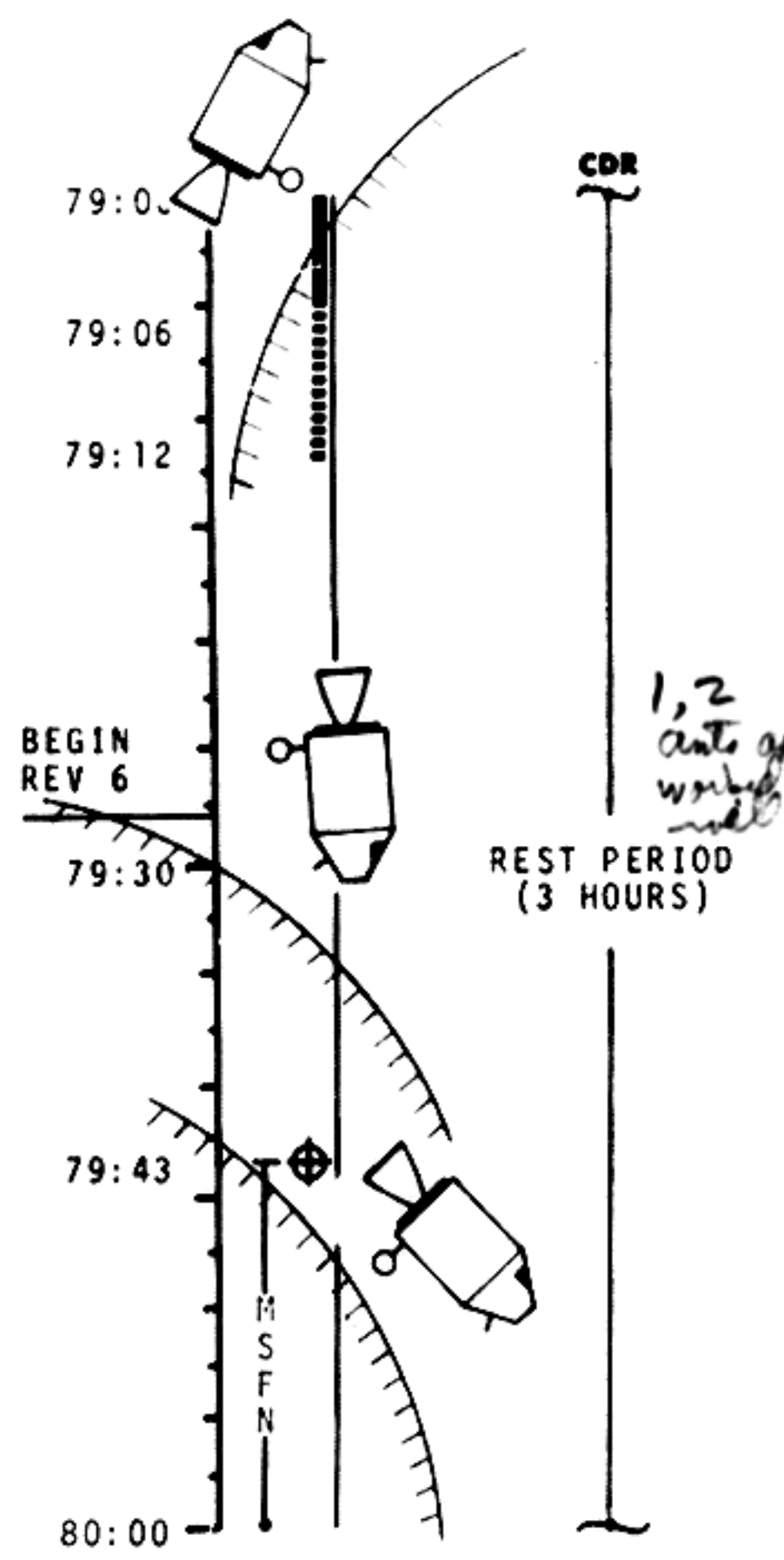
ACQUIRE S/C
P27 UPDATE:
STATE VECTOR
VOICE UPDATE:
BLOCK DATA & MAP UPDATE
5/6

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	78:00 - 79:00	4/LPO 5	2-60

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FLIGHT PLANNING BRANCH

FLIGHT PLAN



CMP

REVIEW CONTROL POINT MAP

*16/5XT/CEX 1/3 MAG
1/500 1 FPS*

CNTL POINT SIGHTING
START CAMERA IPI TCA

P22 - AUTO OPTICS
IPI ~~17~~ ~~10~~ ~~35~~
TCA _____
CP2 NO. 526
LAT -10.200°S
LONG/2 +77.550°
ALT +000.00 nm

NEW COORDINATES
LAT _____°
LONG/2 _____°
ALT _____ nm

REVIEW LDMK MAP
*CP3 New Coord.
08766
48631*

PSEUDO LDG SITE SIGHTING
START CAMERA IPI TCA
1/60 1 FPS

LMP

ROLL 180° AT 2°/SEC
PITCH DWN AT 0.2°/SEC TO
OPDEAL 0, 5, 0.
BEGIN ORB RATE
LIMB BRIGHTENING
1/80/HS 1/60 F2.8
SR-15 SEC TO SR

SC EXT ATM (SUNLIT)

PITCH DWN 0.3°/SEC AT ACQ

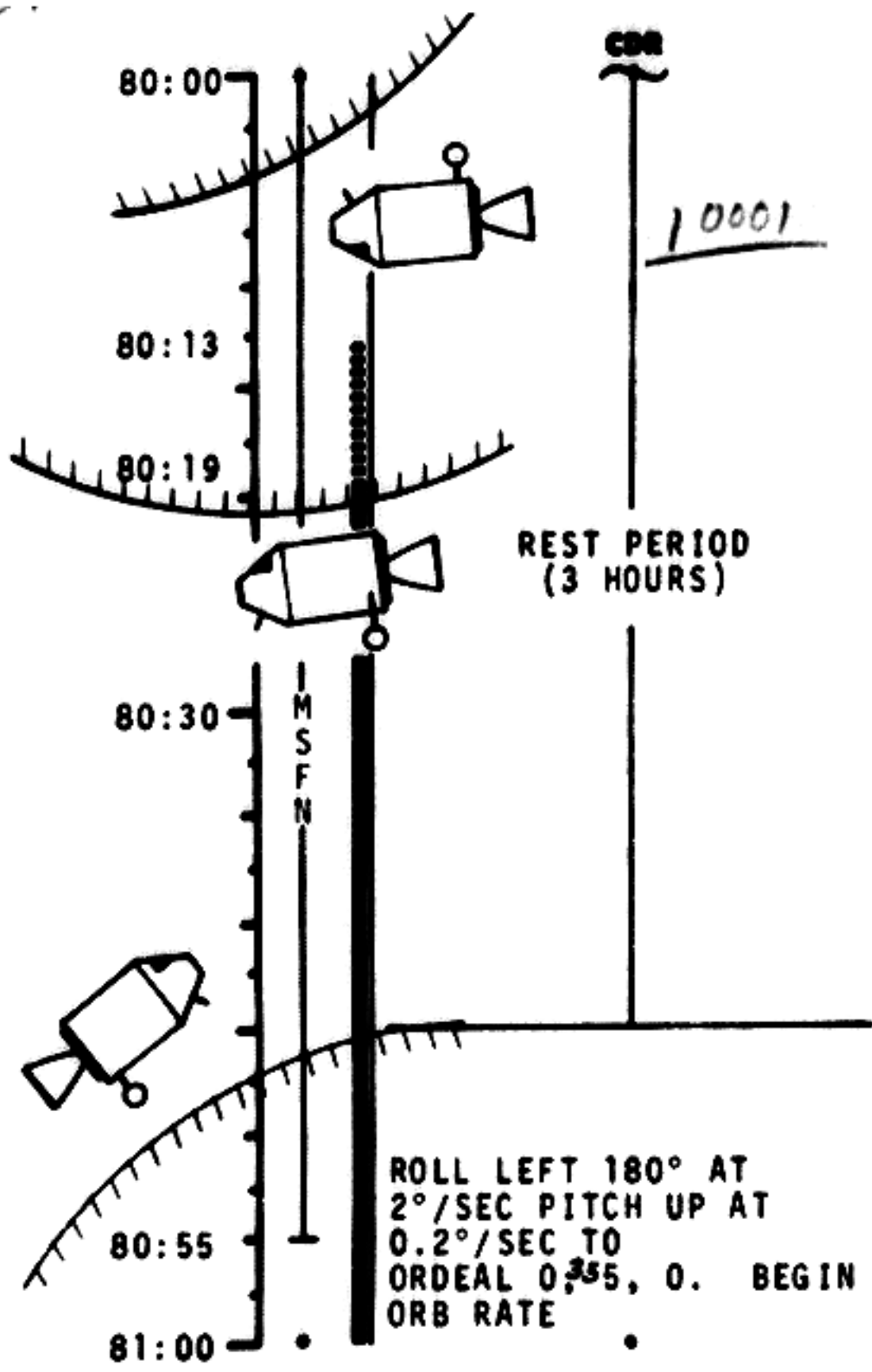
AT LOSS PITCH UP AT
0.2°/SEC TO
ORDEAL 0.255, 0. BEGIN
ORB RATE

ACQUIRE MSFN ON OMNIS
REPORT NEW COORDINATES

MCC-N

ACQUIRE S/C

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
			79:00 - 80:00	4/LPO 5+6	2-61



CMP
P22 AUTO OPTICS
IPI | 80:09:08
TCA | : : :
LDMK NO. B1
LAT +02.675°N
LONG/2 +17.512°
ALT -000.99 nm
NEW COORDINATES
LAT 02.457°
LONG/2 17.618°
ALT -000.45 nm

PITCH DWN 0.3°/SEC AT ACQ
AT LOSS ROLL RIGHT 180° AT 2°/SEC. GO INERTIAL
V64 ACQUIRE MSFN ON HGA
REPORT NEW COORDINATES
RECORD BLOCK DATA (TEI₇) & MAP UPDATE
VERIFY SYSTEMS STATUS
1/80/B&W, 1/250 F 2.8 INT
2/150/B&W, 1/250 (R&B)
TRANS TO RIGHT COUCH

ACQUIRE S/C
P27 UPDATE:
STATE VECTOR VOICE UPDATE:
BLOCK DATA & MAP UPDATE 6/7
DUMP DSE

V47 TRANS LM STATE VECTOR TO CSM SLOT
IMU REALIGN P52
OPTION 3 - REFSMAT AND GYRO DRIFT TEST
STAR ID 20, 21
STAR ANGLE DIFF 000.01
TORQUE ANGLES:
X- 00.052
Y+ 02.002
Z+ 02.071

16/SXT/NEW CXT, CEX 1/3 MAG
8/fps

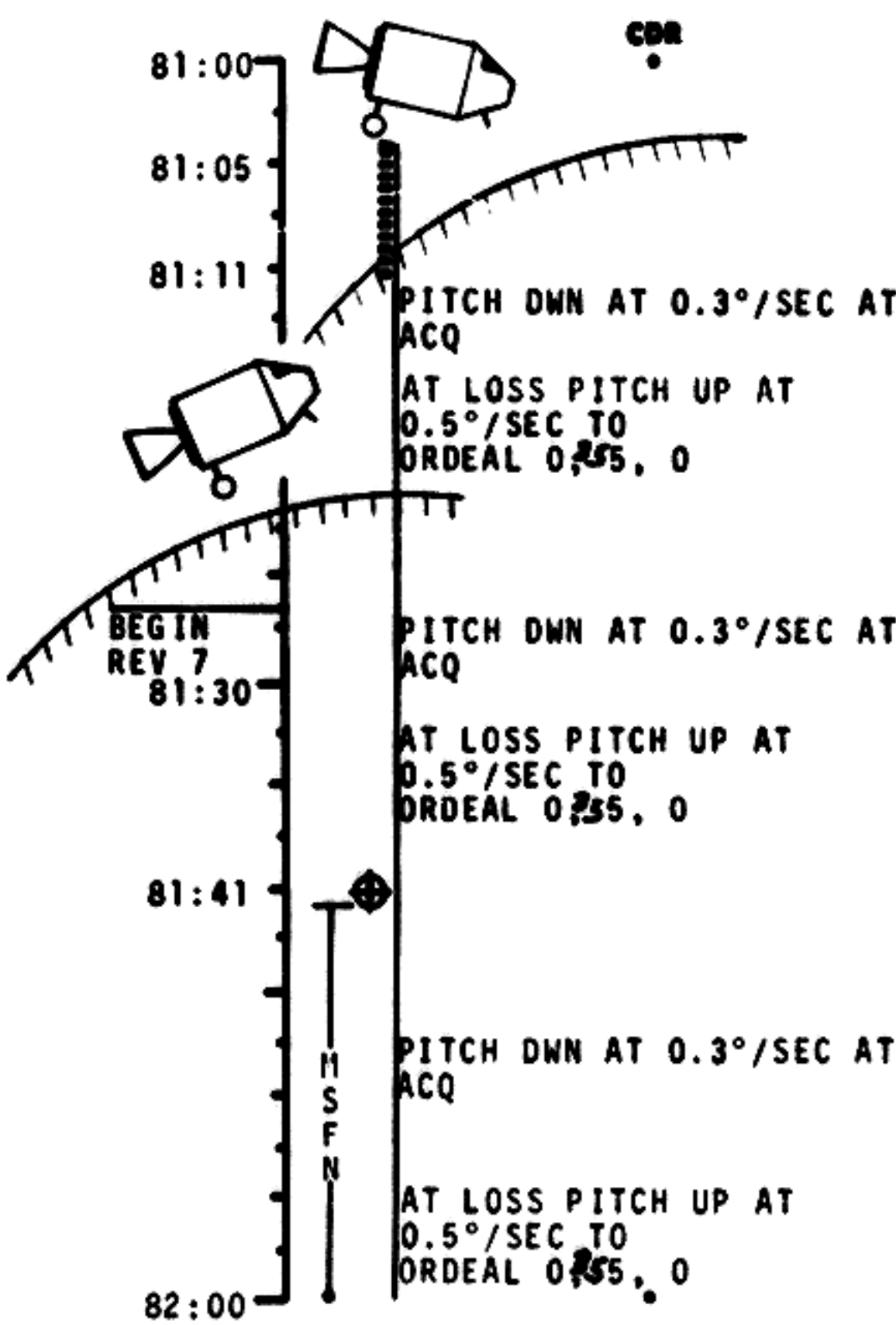
EAT PERIOD

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	80:00 - 81:00	4/LPO 6	2-62

MSC Form 1810 (Nov 68)

FLIGHT PLANNING BRANCH

FLIGHT PLAN



CMP
CNTL PT SIGHTINGS (3)
START CAMERA AT EPI ACQ OR TCA
P22 MAN ACQ SA 0° TA 10°
IPI | : : :
ACQ | : : :
CP1 NO. 504
LAT -05.250°S 1/60
LONG/2 -81.350°
ALT +000.00 nm

BIOMED Sw - LEFT
EAT PERIOD
NEW COORDINATES
LAT : : :
LONG/2 : : :
ALT : : : nm

CMP
P22 AUTO OPTICS
IPI | : : :
TCA | : : :
CP2 NO. 526
LAT -10.200°S 1/500
LONG/2 +77.550°
ALT +000.00 nm

EAT PERIOD
NEW COORDINATES
LAT : : :
LONG/2 : : :
ALT : : : nm

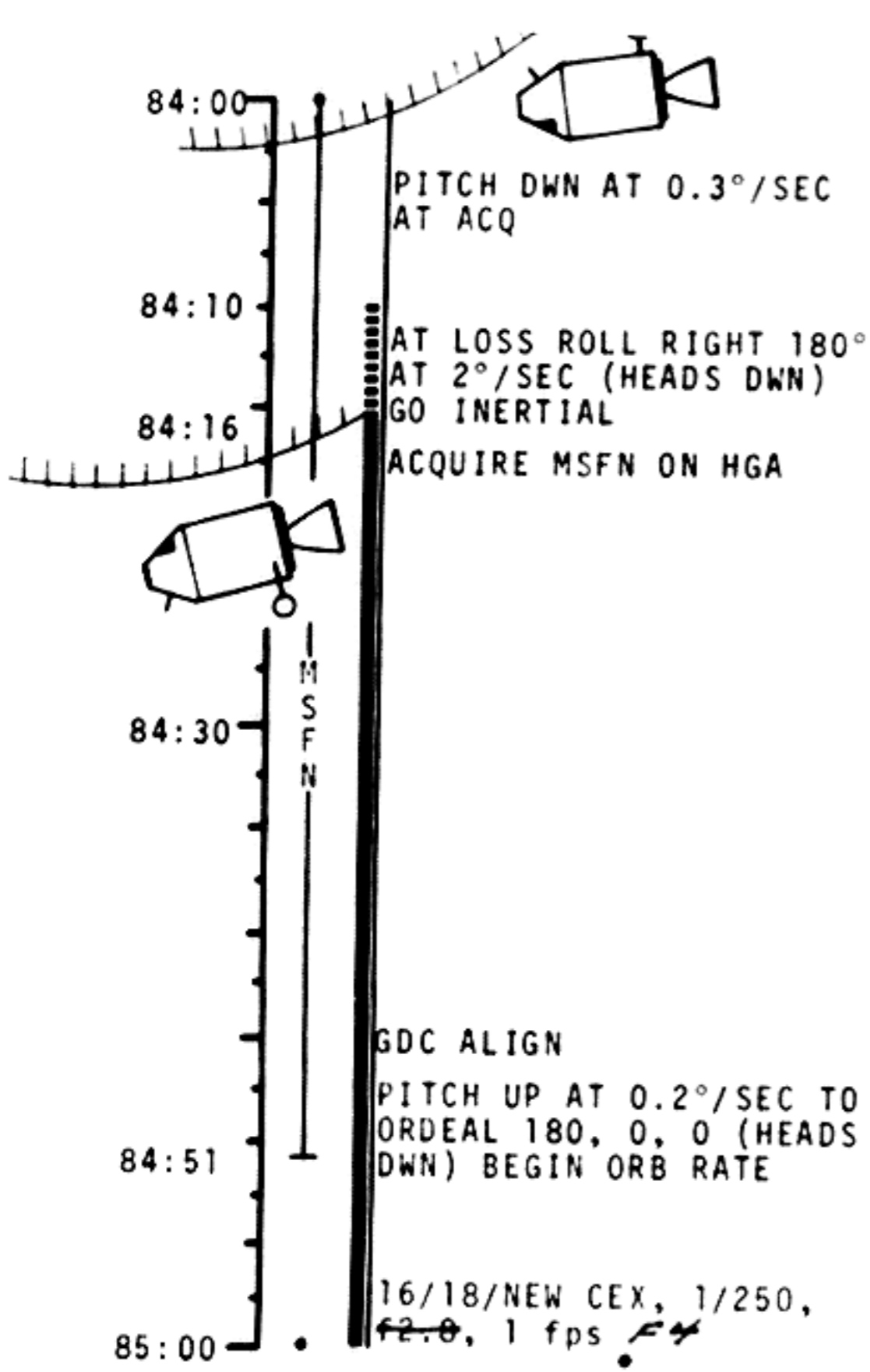
CMP
P22 MAN ACQ SA 0° TA 10°
IPI | : : :
ACQ | : : :
CP3 NO. 334
LAT -09.000°S 1/500
LONG/2 +47.950° 1/175
ALT +000.00 nm

NEW COORDINATES
LAT : : :
LONG/2 : : :
ALT : : : nm

PSEUDO LDG SITE SIGHTING
P22 AUTO OPTICS

ACQUIRE S/C

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	81:00 - 82:00	4/LPO 6+7	2-63



IPI | --- : --- : ---
 TCA | --- : --- : ---
 LDMK NO. B1
 LAT +02.512°N 1/60
 LONG/2 +17.512°
 ALT +000.99 nm

LiOH CANISTER CHANGE
 (CARTRIDGE 10 FROM B56
 INTO CANISTER B)
 V47 TRANS LM STATE
 VECTOR TO CSM SLOT

IMU REALIGN P52
 OPTION 3 - REFSMMAT
 AND GYRO DRIFT TEST
 STAR ID
 STAR ANGLE DIFF

TORQUE ANGLES:
 X --- : --- : ---
 Y --- : --- : ---
 Z --- : --- : ---

REST PERIOD
 (2 HOURS)

NEW COORDINATES
 LAT --- : --- : --- °
 LONG/2 --- : --- : --- °
 ALT --- : --- : --- nm

REST PERIOD
 (2 HOURS)

ACQUIRE S/C
 P27 UPDATE:
 STATE
 VECTOR

DUMP DSE
 VOICE
 UPDATE:
 MAP UPDATE
 8/9
 BLOCK DATA

2/150/NEW B&W, 1/250
 (R&B)
 BIOMED Sw - RIGHT
 VERIFY SYSTEMS STATUS

RECORD MAP UPDATE &
 BLOCK DATA (TEI_g)

1/80/H.S. B, f2.8, POL
 POS/CORONA HORIZON

SR -12 MIN: START DARK ZODIACAL
 3 1/2 MIN EXP, Δ POL 60°
 1/80/B&W, 1/250, f2.8, POL
 HS, B, F2.8

SR -4 MIN: START CORONA
 3 1/2 SEC EXP, Δ POL 60°
 SR -3 MIN: 3 1/2 SEC EXP, Δ POL 60°

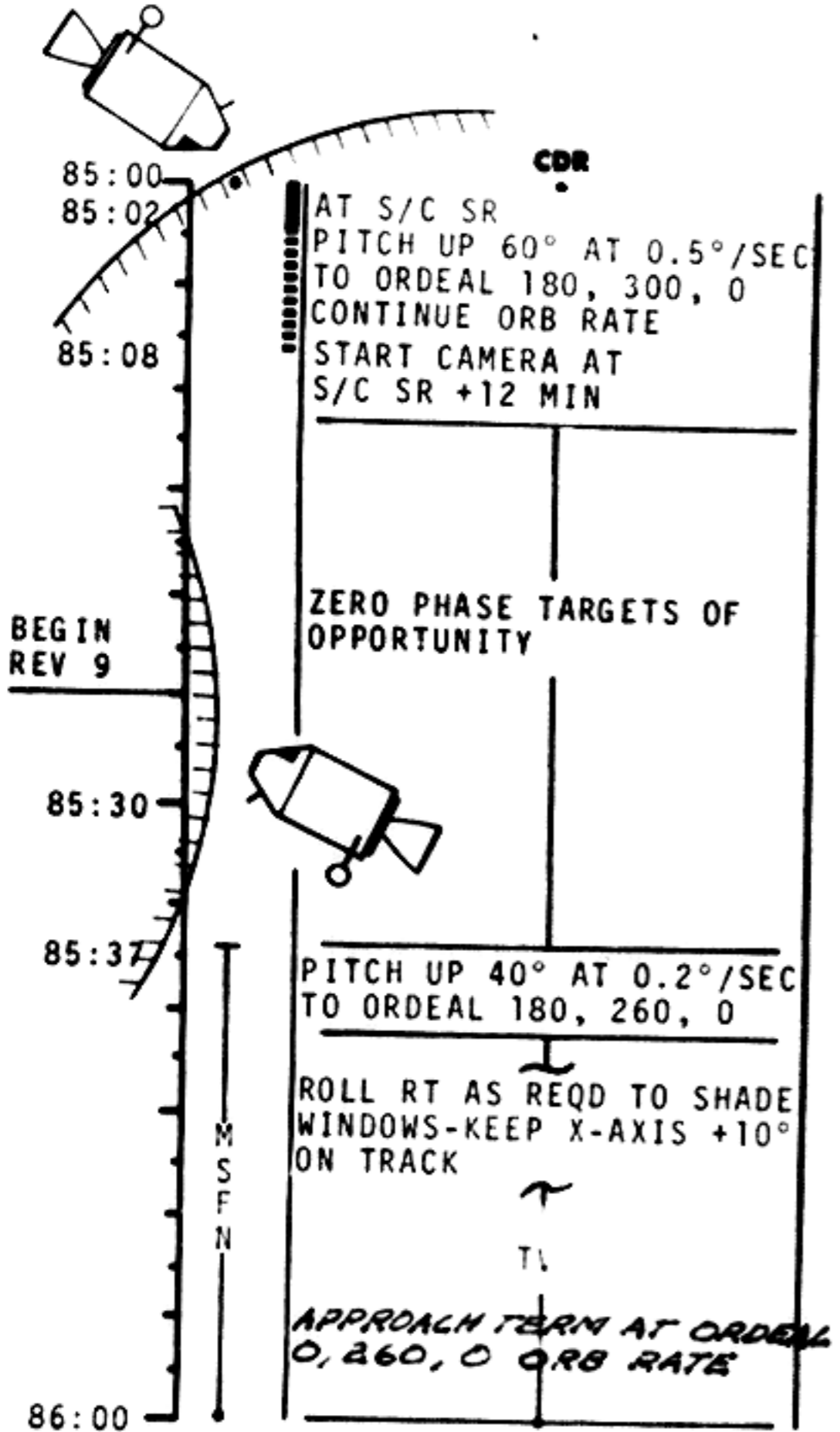
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	84:00 - 85:00	4/LPO 8	2-66

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FLIGHT PLANNING BRANCH

SR-1 MIN: SEVERAL 1/2 SEC EXP,
 Δ POL 60°
 SR-15 SEC: 1/60 SEC EXP TO SUNRISE,
 Δ POL 60° AS FEASIBLE

FLIGHT PLAN



REST PERIOD
 (2 HOURS)

1/80/NEW C BRKT INT
 1/250 F4

START CAMERA 1 AT
 SR +12 MIN

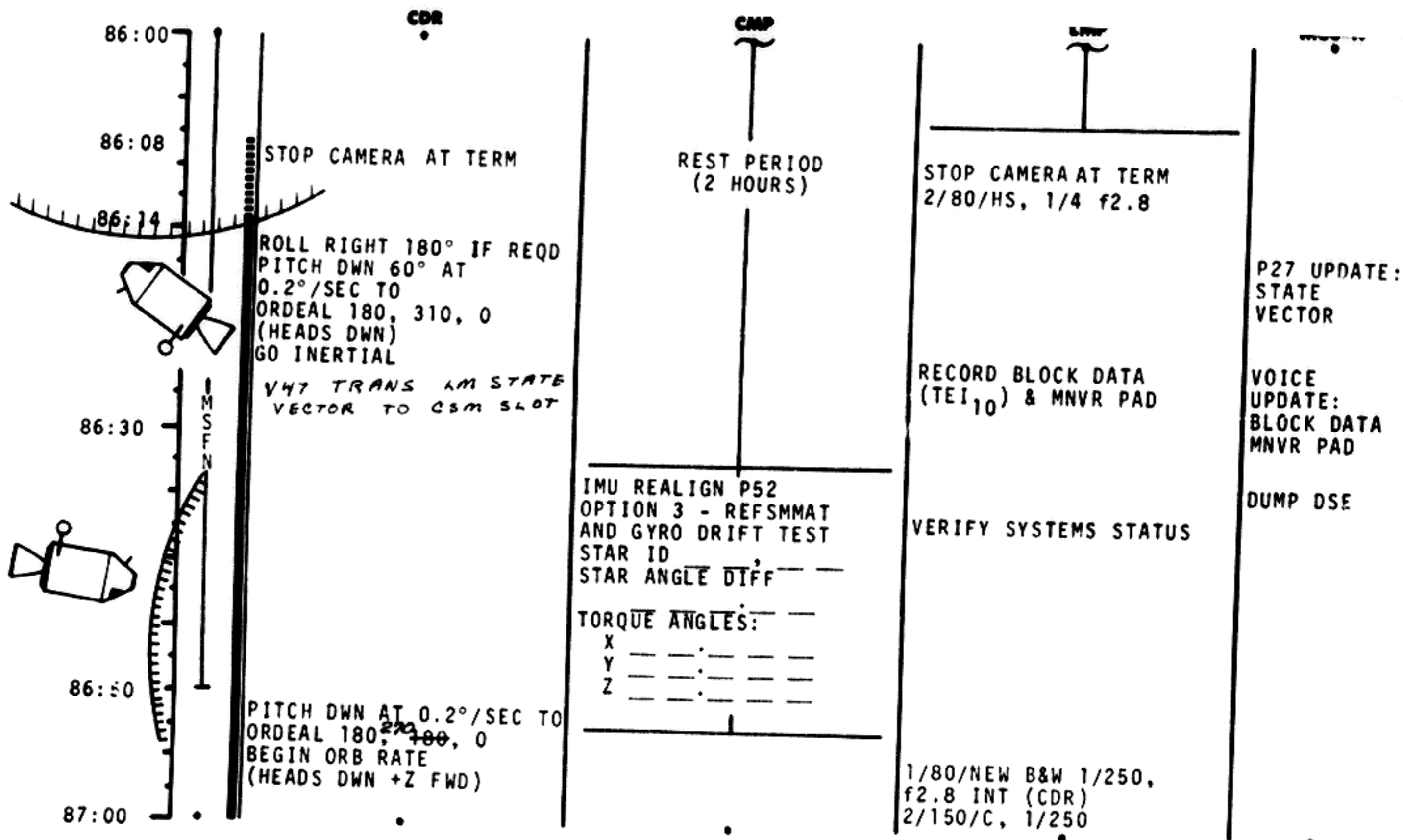
CONVERGENT STEREO
 PHOTOGRAPHY-EXTRA
 EXP EACH 5 MIN -
 NOTE TIME

ACQUIRE MSFN ON HGA
 RECORD MAP UPDATE

2/80 B&W/R&B
 4 STOPS WIDER

ACQUIRE S/C
 VOICE
 UPDATE:
 MAP UPDATE
 9/10

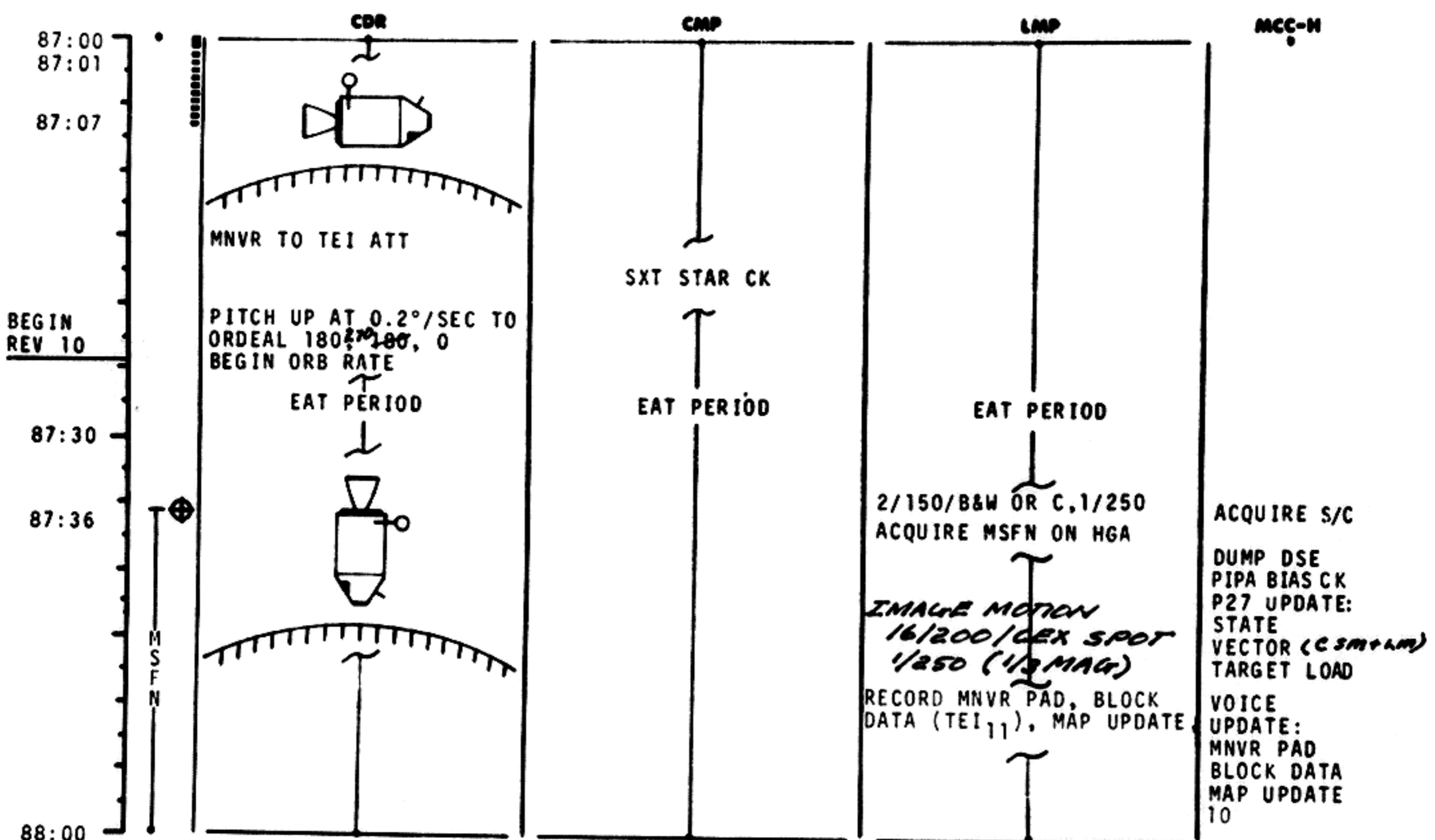
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
			85:00 - 86:00	4/LPO 8+9	2-67



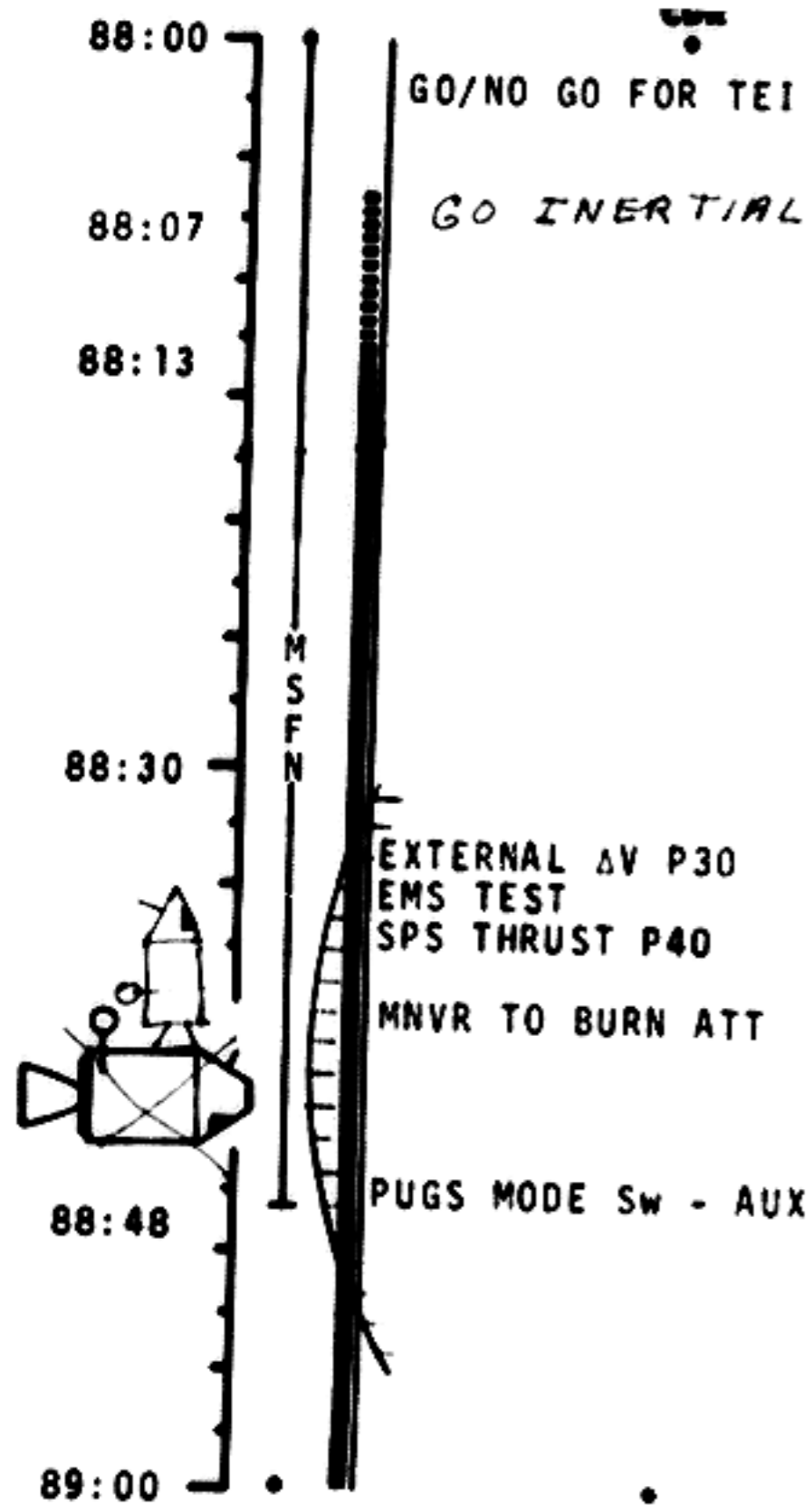
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	86:00 - 87:00	4/LPO 9	2-68

MSC Form 1910 (Nov 68) FLIGHT PLANNING BRANCH

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
		November 22, 1968	87:00 - 88:00	4/LPO 10	2-69



IMU REALIGN P52
 OPTION 3 - REFSMMAT
 AND GYRO DRIFT TEST
 STAR ID
 STAR ANGLE DIFF

TORQUE ANGLES:

X _____
 Y _____
 Z _____

SXT STAR CK
 TRANSFER TO COUCH

BIOMED Sw - GO/NO GO
 LEFT

2/150/C SPOT
 16/75/CEX/1 fps/SPOT

PRE TEI SYSTEMS CKS
 C&W CK
 CM RCS CK
 SM RCS CK
 SPS PERIODIC MONITOR
 EPS PERIODIC MONITOR
 ECS PERIODIC MONITOR

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	88:00 - 89:00	4/LPO 10	2-70

NSC Form 1010 (Nov 68)

FLIGHT PLANNING BRANCH

BURN STATUS REPORT

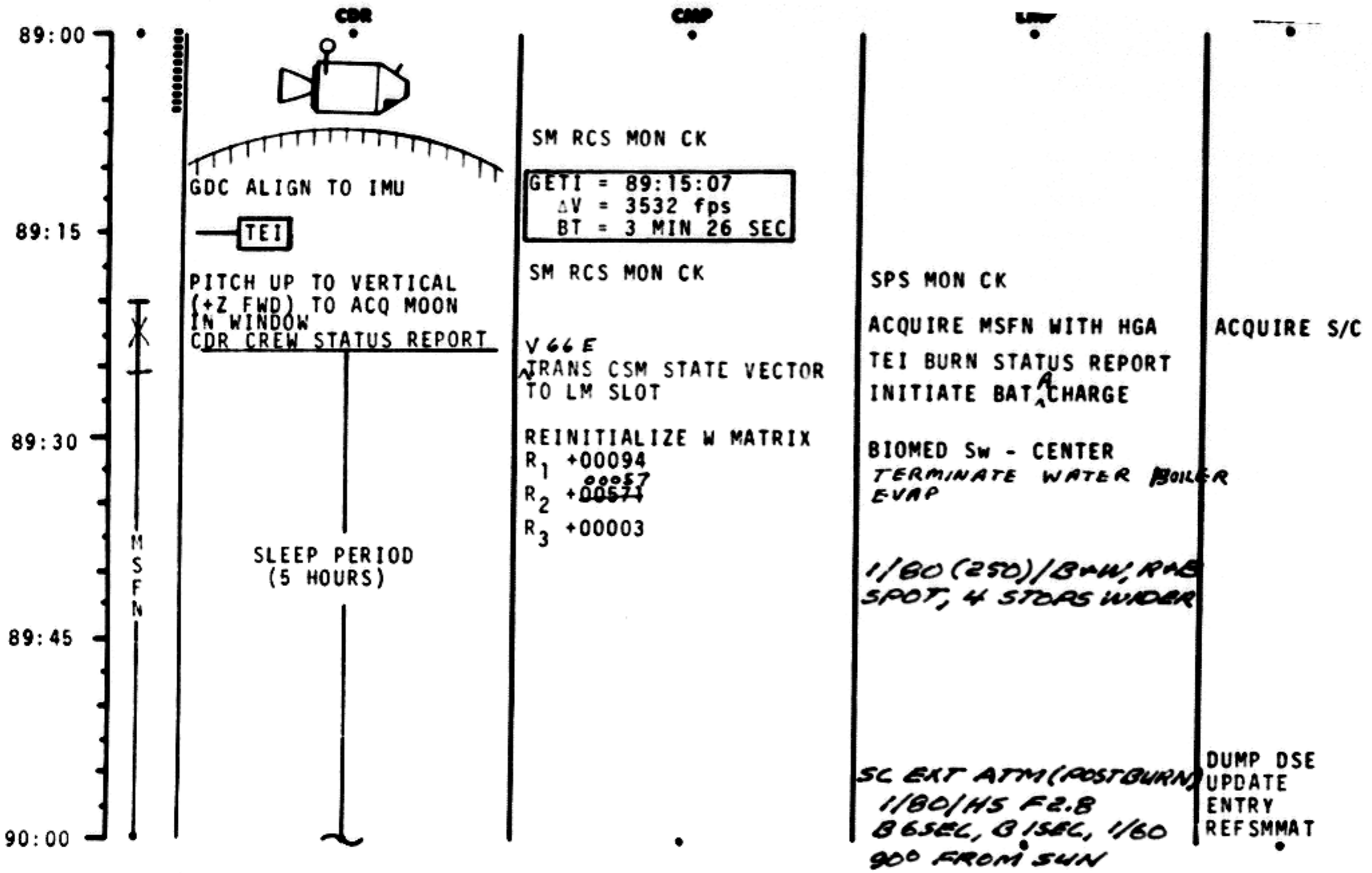
X X : ΔTIG
 X X : BT
 . V_{gx}
 --- TRIM ---
 X X X R
 X X X P
 X X X Y
 . V_{gx}
 . V_{gy}
 . V_{gz}
 . ΔV_c
 X X X FUEL
 X X X OX
 X X X UNBALANCE

REMARKS:

TEI
 BURN CHART

	P or Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
TEI	10°/SEC TAKEOVER	10° TAKEOVER	B/T+2 SEC & ΔV _c = -40 fps	TRIM TO 2.0 fps
TEI ABORT MODES-SYSTEMS PROBLEMS: 15-MIN ABORT CHART OTHERWISE				
TEI V _{go}	B/T	TRAJECTORY	ABORT MODE	
2850-950	0 -2:00	LUNAR ORBIT	MODE III AFTER 1 REV	
950-600	2:00-2:20	UNSTABLE	5-HR COAST, MODE I	
600-0	2:20-2:54	HYPERBOLIC	COAST OUT OF SPHERE - P37	

2-70a

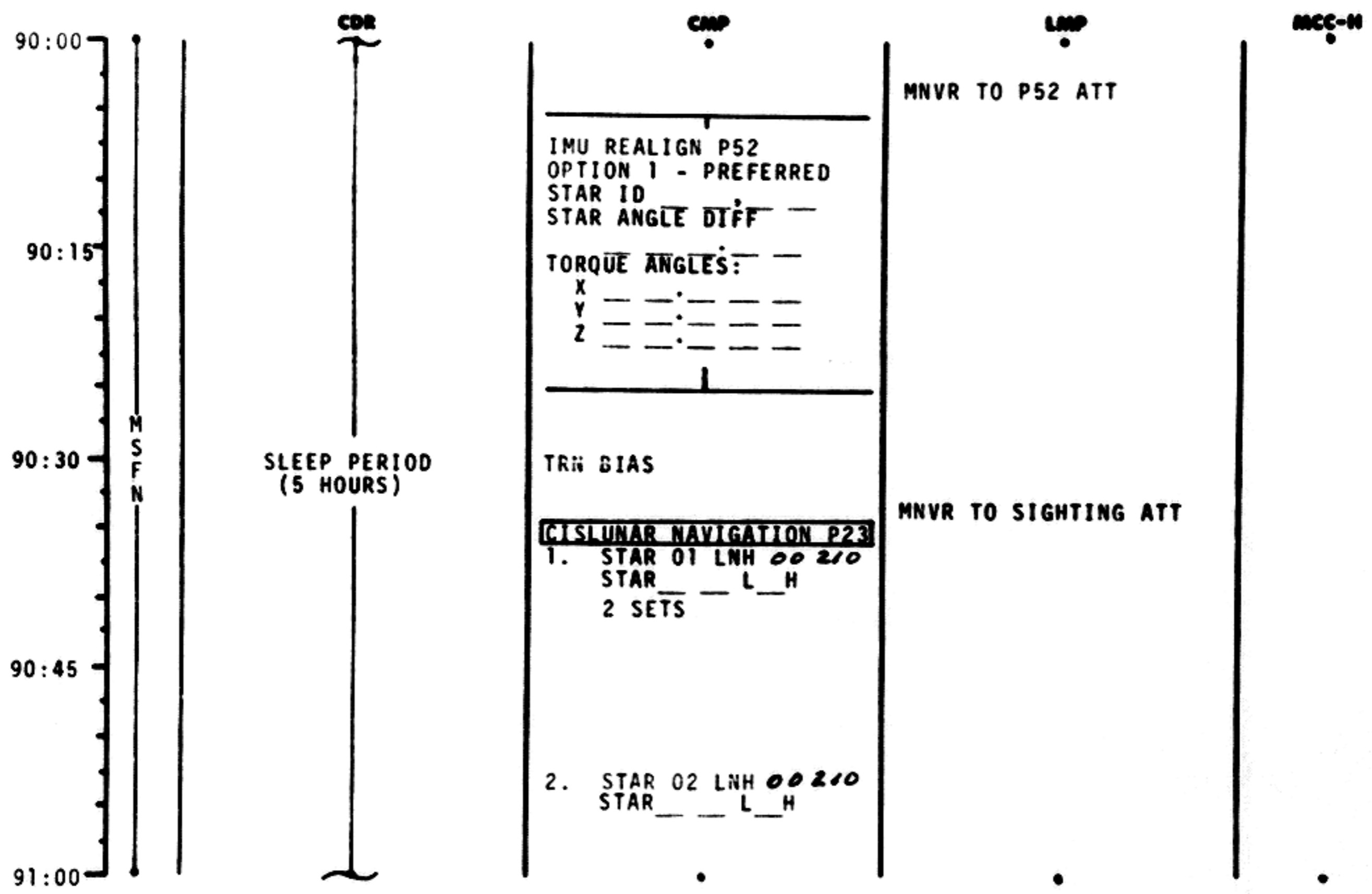


MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	89:00 - 90:00	4/TEC	2-71

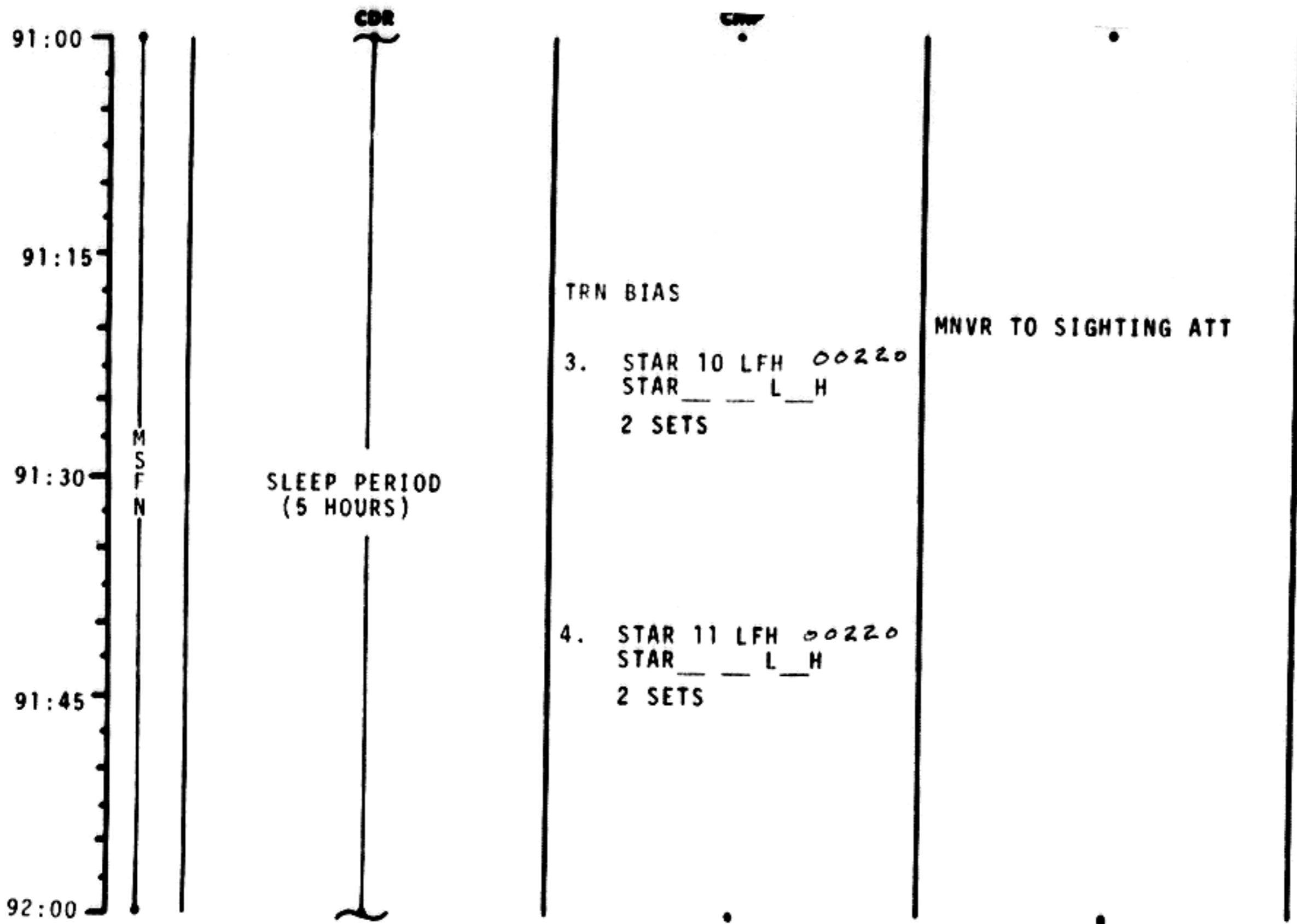
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FLIGHT PLANNING BRANCH

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	90:00 - 91:00	4/TEC	2-72

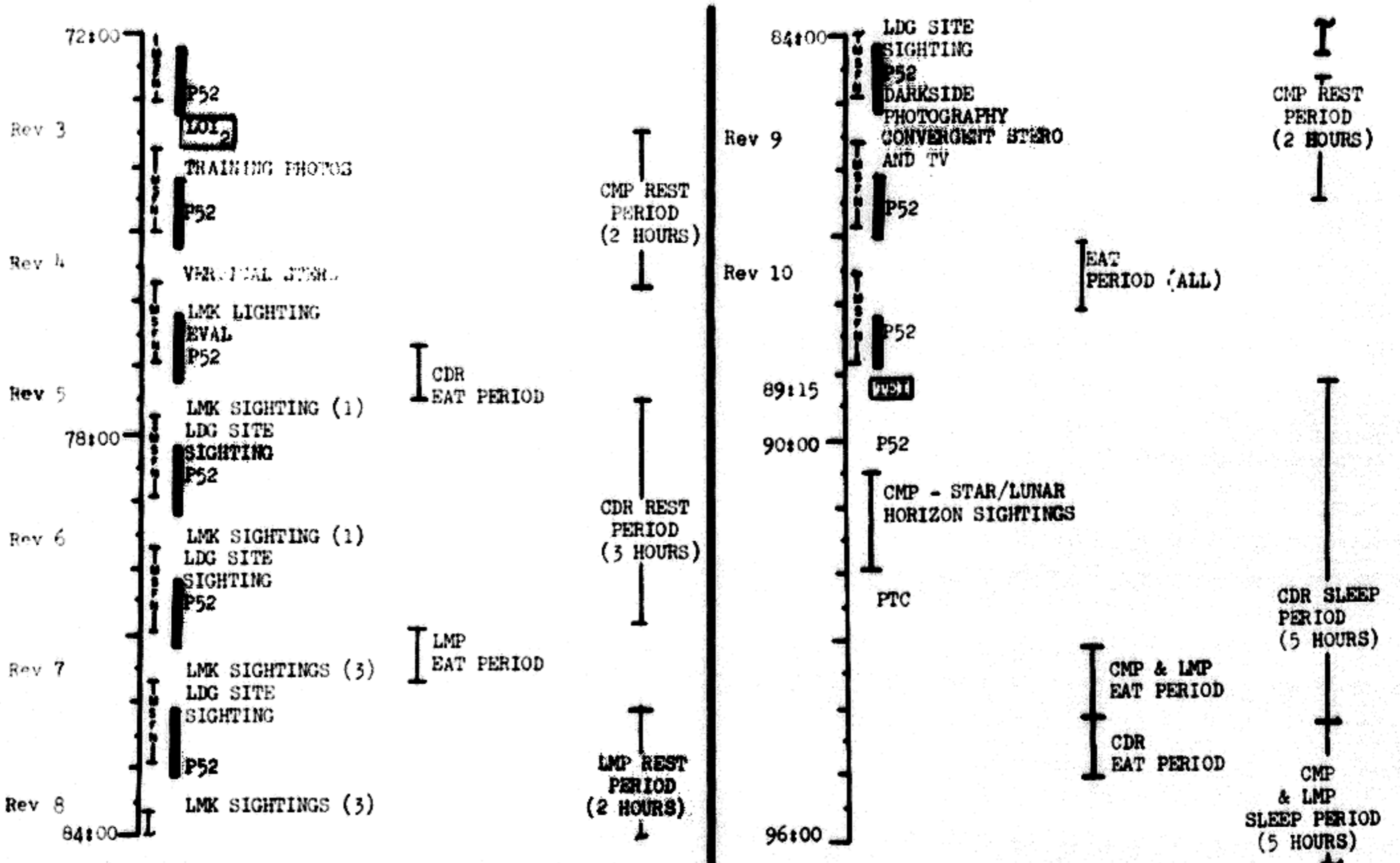


MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	91:00 - 92:00	4/TEC	2-73

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FLIGHT PLANNING BRANCH

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	72:00 - 96:00	4	5-4

FLIGHT PLANNING BRANCH