

APOLLO 8

FLIGHT PLAN VOL. II

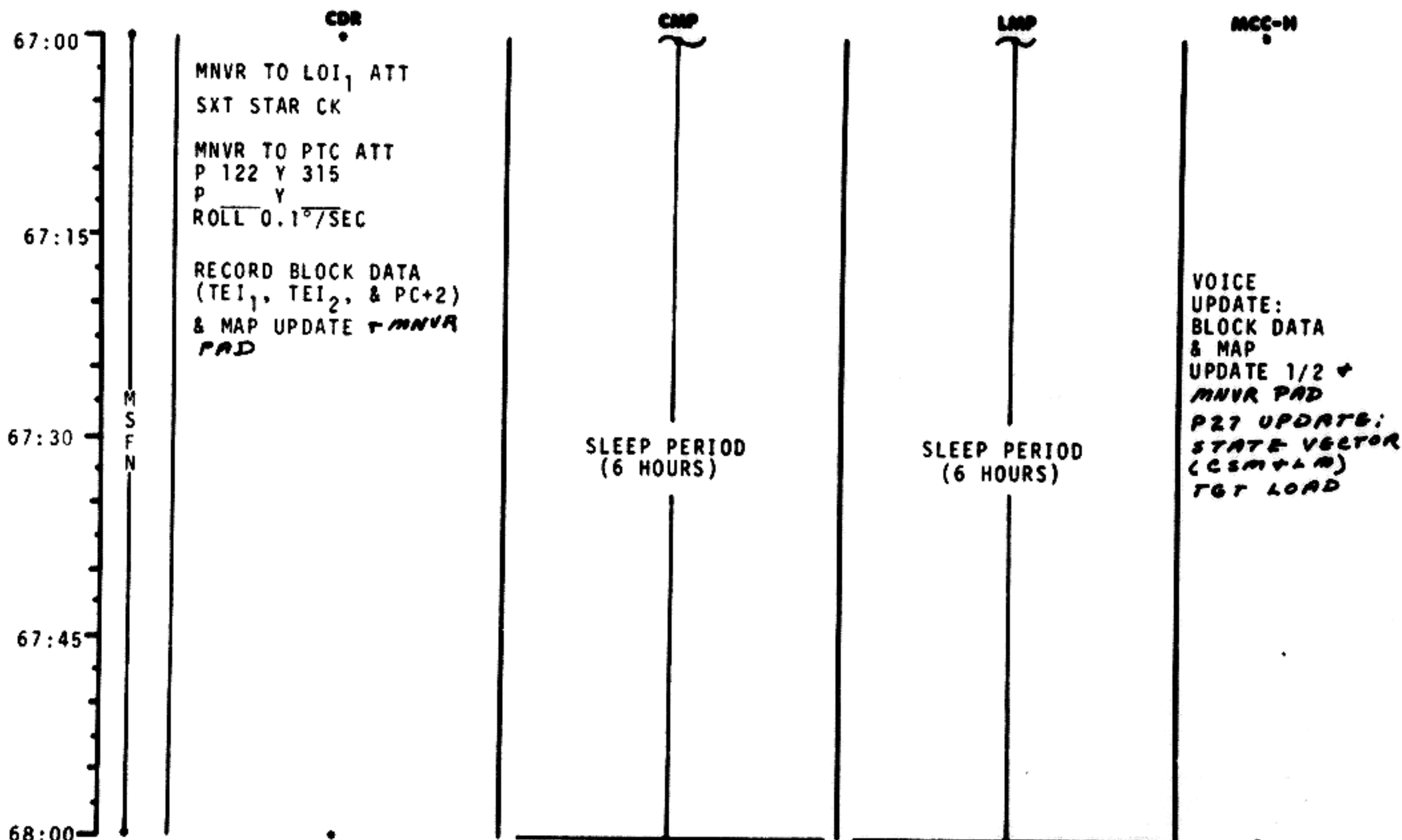
PART NO. ·

S/N

SKB 32100031-201

1004

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE

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

REMARKS:

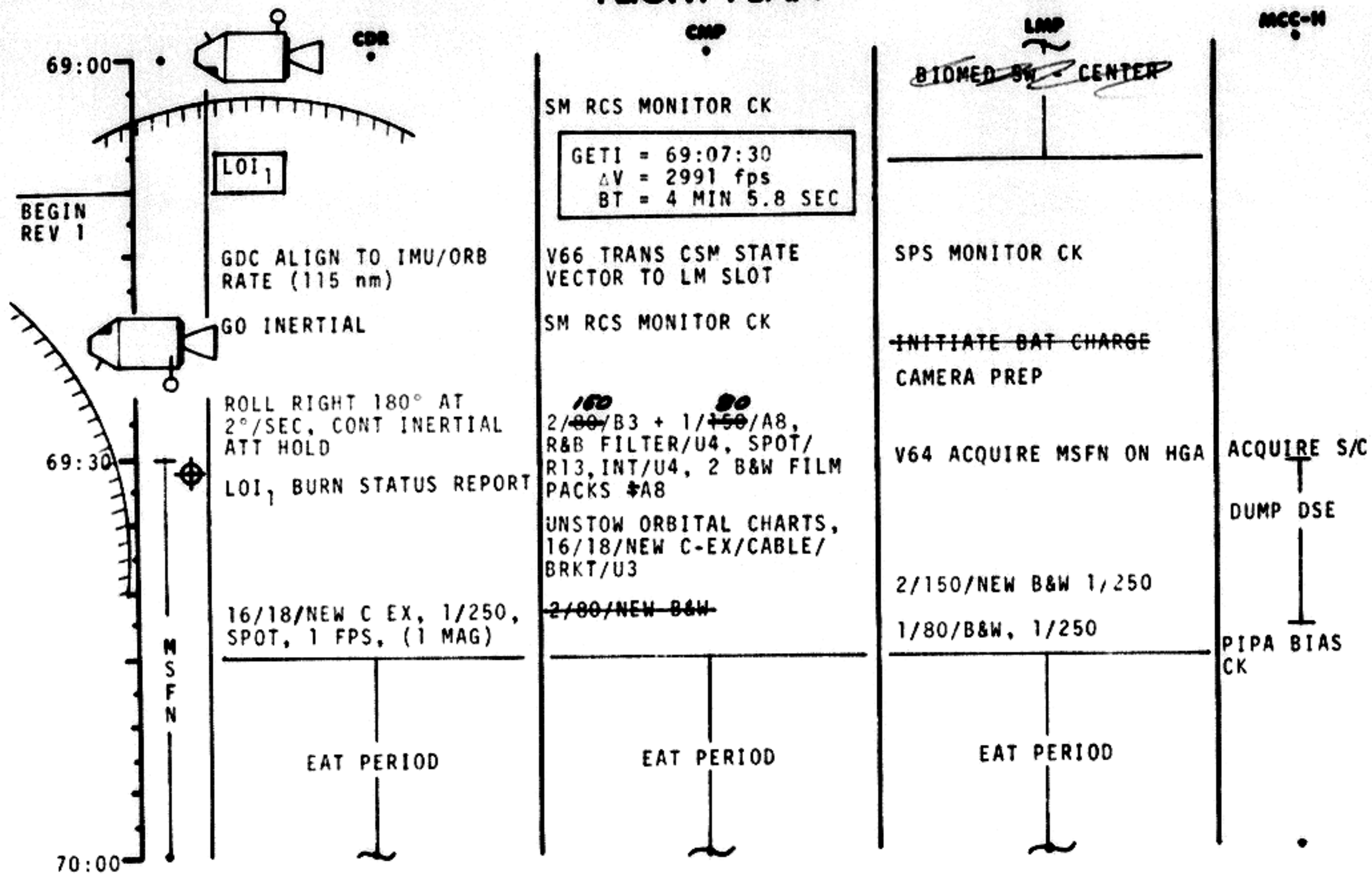
LOI₁
BURN CHART

	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

2-50a

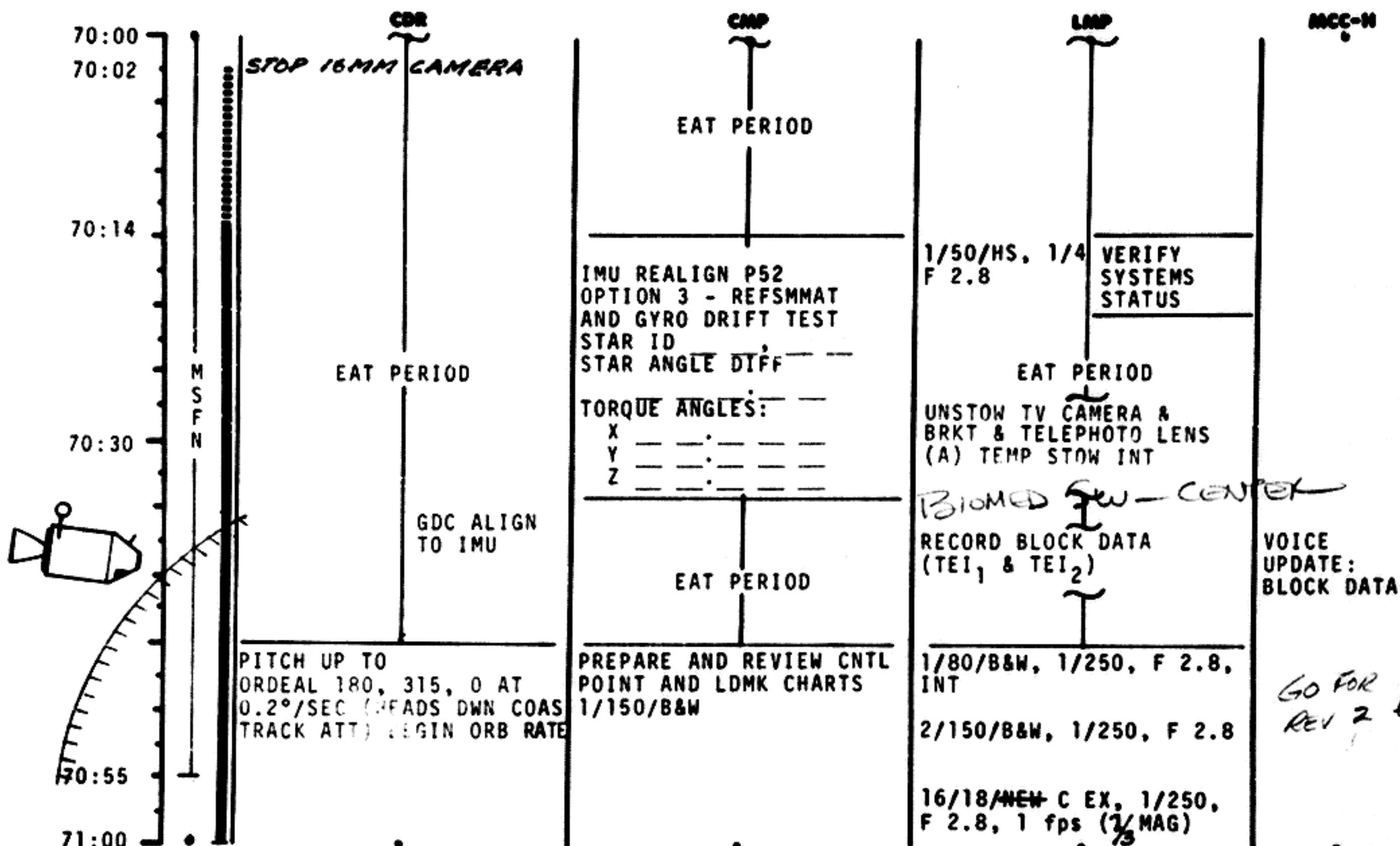


MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	69:00 - 70:00	3/LPO 1	2-51

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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

71:00 CDR CONTROL PT (CP) SIGHTING (THRU HATCH WINDOW)

71:09 MAINTAIN ORB RATE AND BEGIN COAS GROUND TRACK DETERMINATION

BEGIN REV 2

71:30 YAW RT 45° FOR TV ORDEAL 180, 315, ~~45~~ 315°

71:38 TV

72:00 YAW LEFT 45° TO ORDEAL 180, 315, 0

CMP CP1 7 1: 1 3: 4 6
TCA 7 1: 1 4: 5 7
CP1 NO. 504
LAT -05.250°S
LONG -162.700°W
ALT 000.00 nm

CMP CP2 7 1: 2 7: 4 0
TCA 7 1: 2 8: 3 2
CP2 NO. 526
LAT -10.200°S
LONG +155.100°E
ALT 000.00 nm

CMP CP3 7 1: 4 6: 3 8
TCA 7 1: 4 7: 2 6
CP3 NO. 334
LAT -09.000°S
LONG ~~+95.000°E~~ +96.350°E
ALT 000.00 nm

LMP START 16 MM CAMERA AT TERMINATOR
SPOT METER READINGS
PHOTOGRAPH TARGETS OF OPPORTUNITY
CONFIGURE FOR TV
V64 ACQUIRE MSFN ON HGA

MCC-N ACQUIRE S/C
P27 UPDATE: STATE VECTOR (CSM + LM)
TARGET LOAD
VOICE UPDATE: MAP UPDATE 2/3

PSEUDO LDG SITE LDMK SIGHTING (THRU HATCH WINDOW)

RECORD MAP UPDATE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	71:00 - 72:00	3/LPO 1+2	2-53

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FLIGHT PLANNING BRANCH

FLIGHT PLAN

72:00 CDR MAINTAIN ORBITAL RATE AND COAS GROUND TRACK DETERMINATION

72:10 GO/NO GO FOR LOI₂

72:23 GO INERTIAL

72:30 MSFN

73:00 EXTERNAL ΔV P30
EMS CK
SPS THRUST - P40
MNR TO BURN ATT
GO INERTIAL

CMP B-1 7 2: 0 9: 1 0
TCA 7 2: 0 9: 4 2
LDMK NO. B1
LAT +02.675°N
LONG +35.025°E
ALT -000.99 nm

L10H CANISTER CHANGE (CARTRIDGE 9 FROM B₅ INTO CANISTER A)

IMU REALIGN P52 OPTION 3 - REFSMMAT AND GYRO DRIFT TEST
STAR ID
STAR ANGLE DIF. — —

TORQUE ANGLES: — —
X — — — —
Y — — — —
Z — — — —

CHLORINATE WATER

LMP BIOMED Sw - LEFT
STOP 16 MM CAMERA
RECORD MNVR PAD, BLOCK DATA (TEI₃, TEI₃ NO LOI₂).

Crup for cycle
1/80/HS 1/4, F 2.8

PRE LOI SYSTEMS CKS:
C&W CK
CM RCS CK
SPS PERIODIC MONITOR
EPS PERIODIC MONITOR
ECS PERIODIC MONITOR

MCC-N GO/NO GO
VOICE UPDATE: MNVR PAD BLOCK DATA
DUMP DSE
PIPA BIAS CK

Put off til later

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE

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

.2 V_{gx}
 1.8 V_{gy}
 .2 V_{gz}
 9.4 ΔV_c

X X X
 X X X
 X X X

FUEL

OX

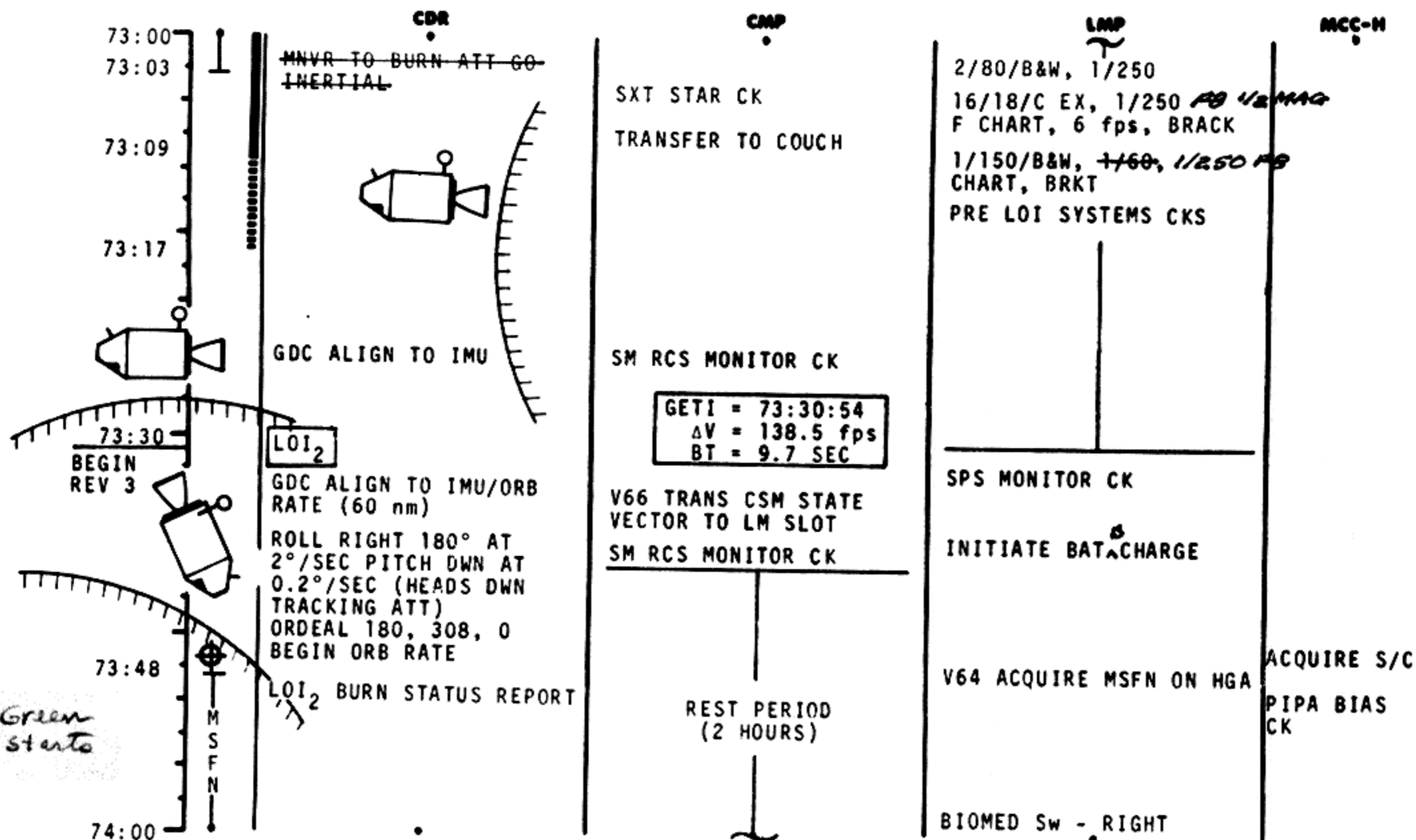
UNBALANCE

REMARKS:

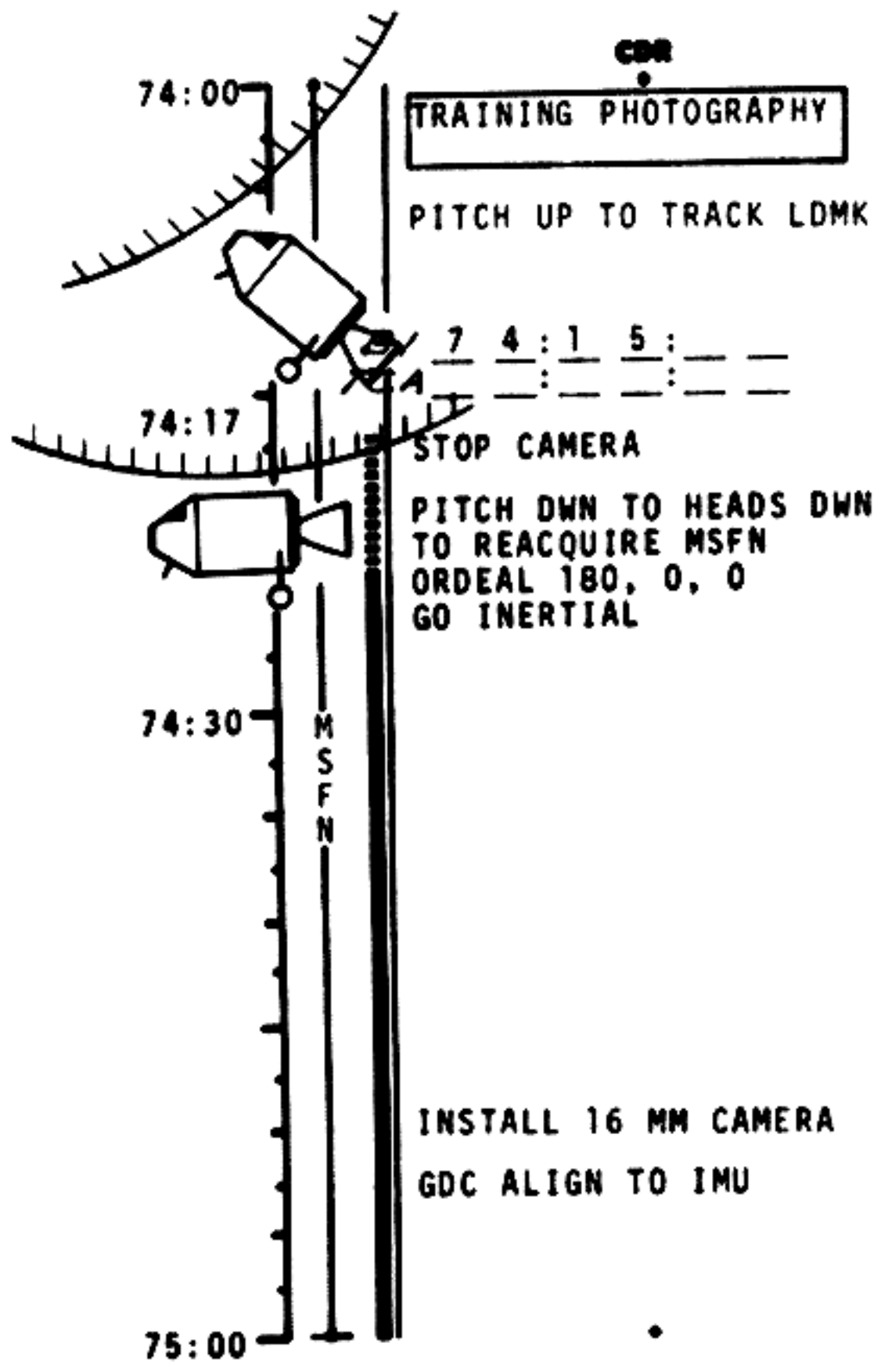
Ha 62.0
 Hp 60.8

	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
				4/100 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

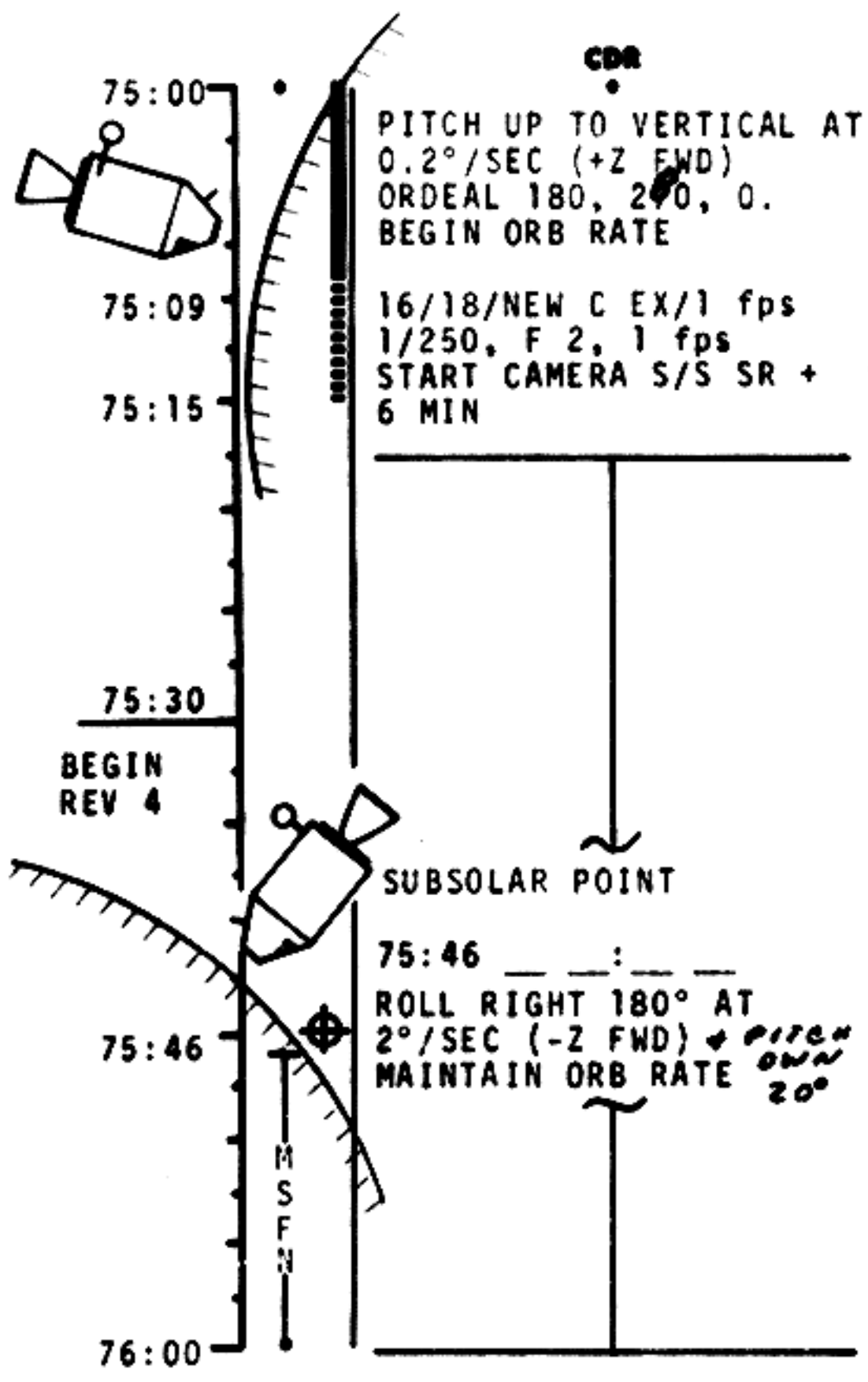
VOICE
 UPDATE:
 BLOCK DATA

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

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

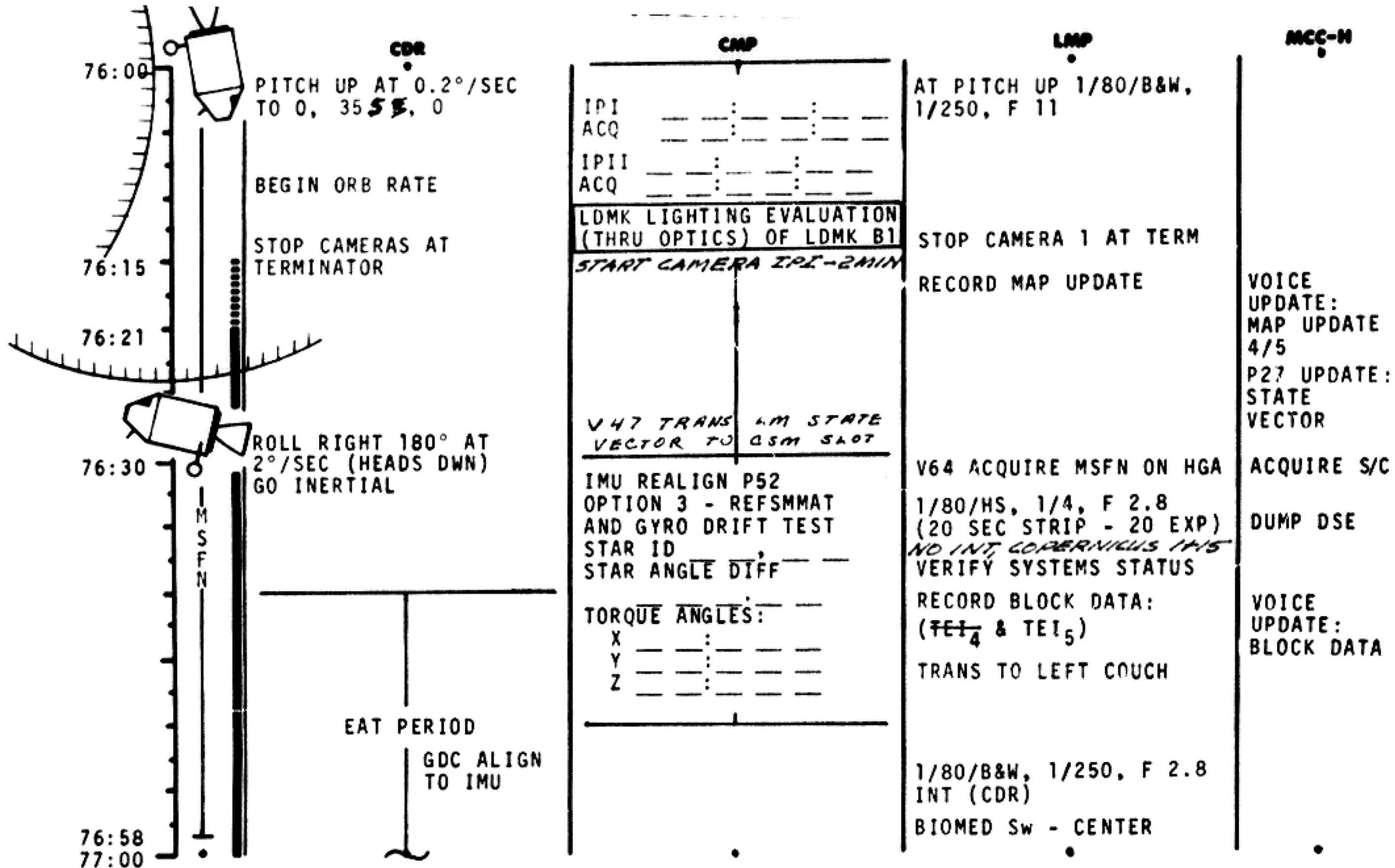
START CAMERA 1 S/C
 SR + 6 MIN

**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

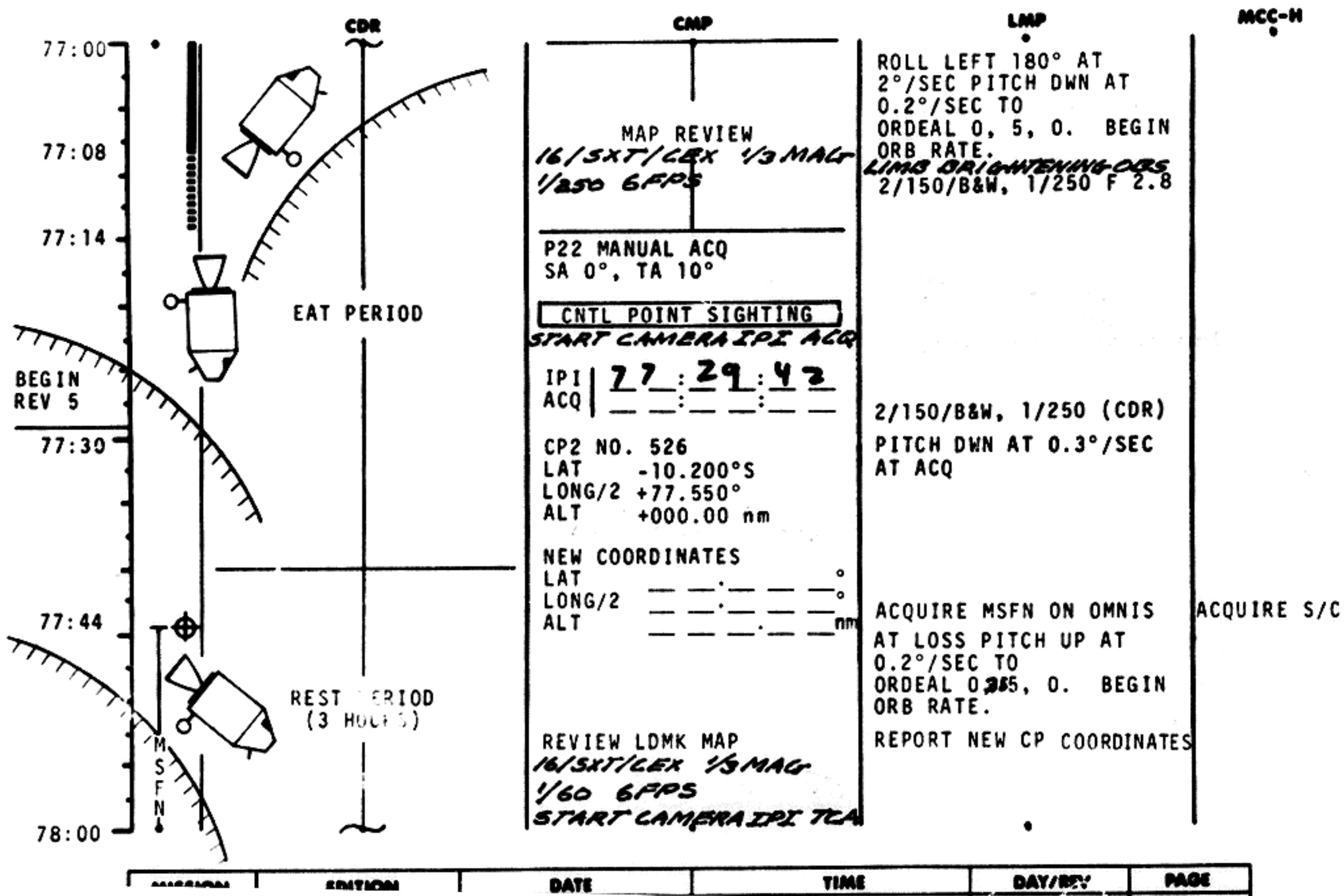


MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	76:00 - 77:00	4/LPO 4	2-58

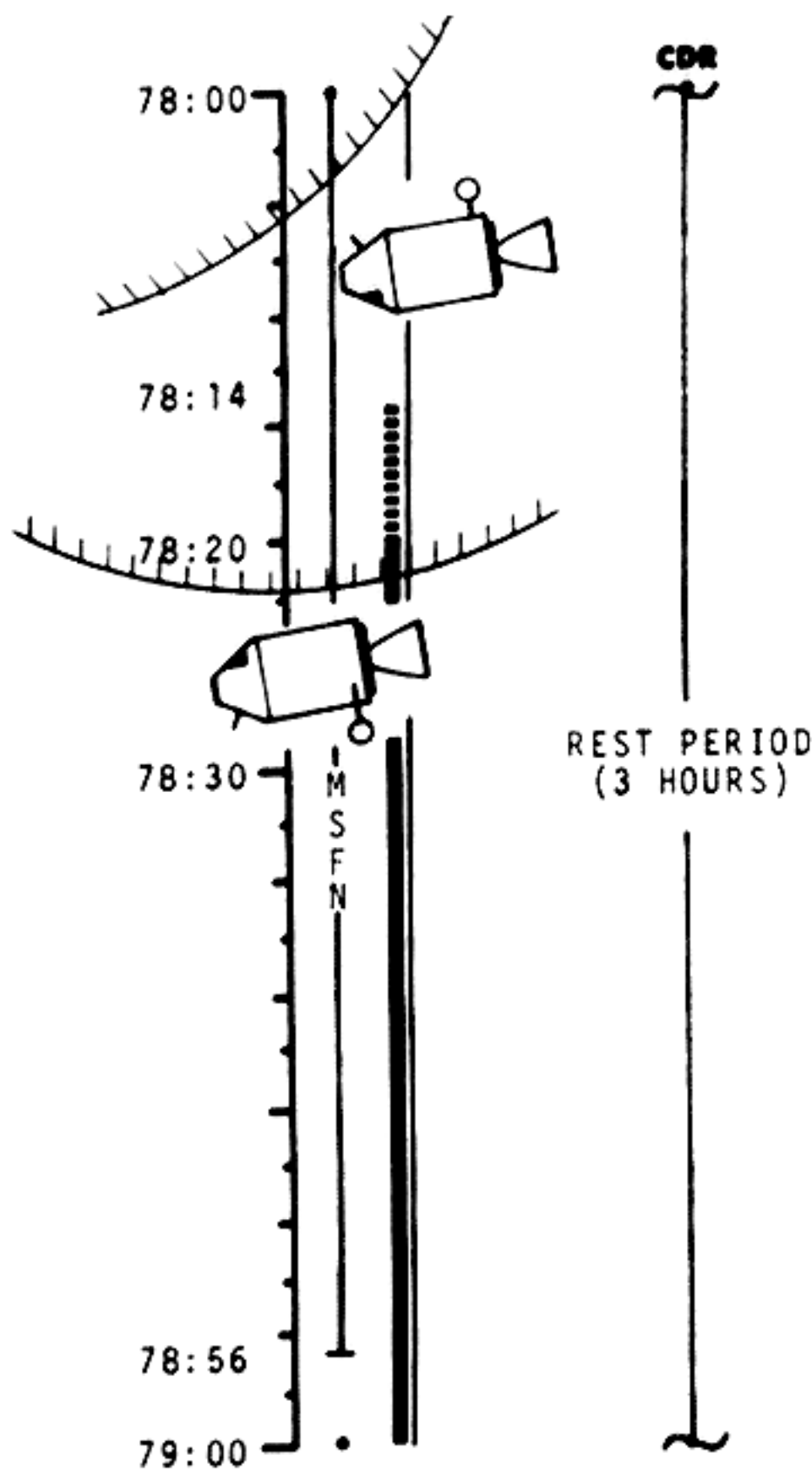
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FLIGHT PLANNING BRANCH

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 -000.22 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)

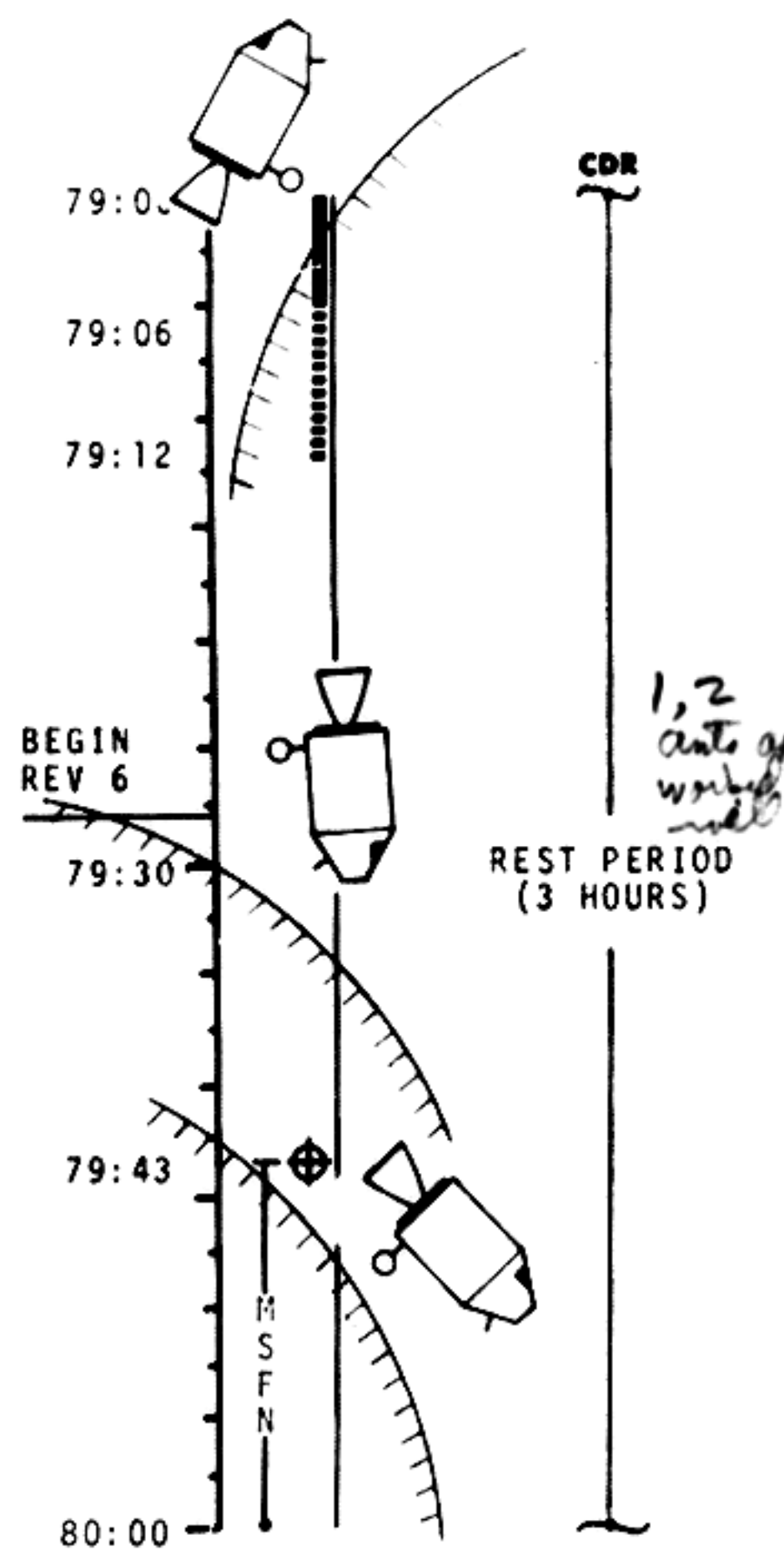
MCC-N

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

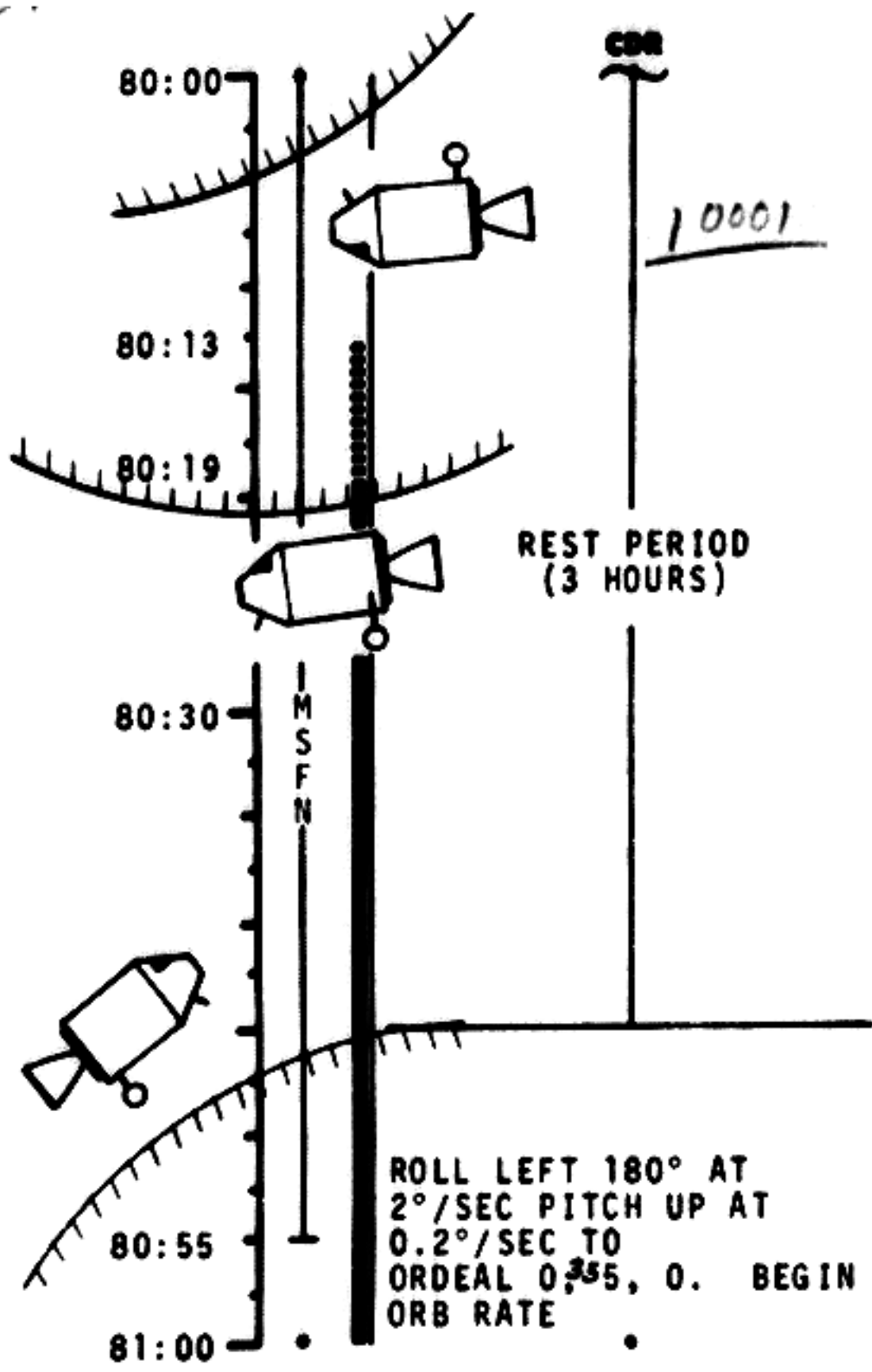
AT LOSS PITCH UP AT
 0.2°/SEC TO
 ORDEAL 0.255, 0. BEGIN
 ORB RATE

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

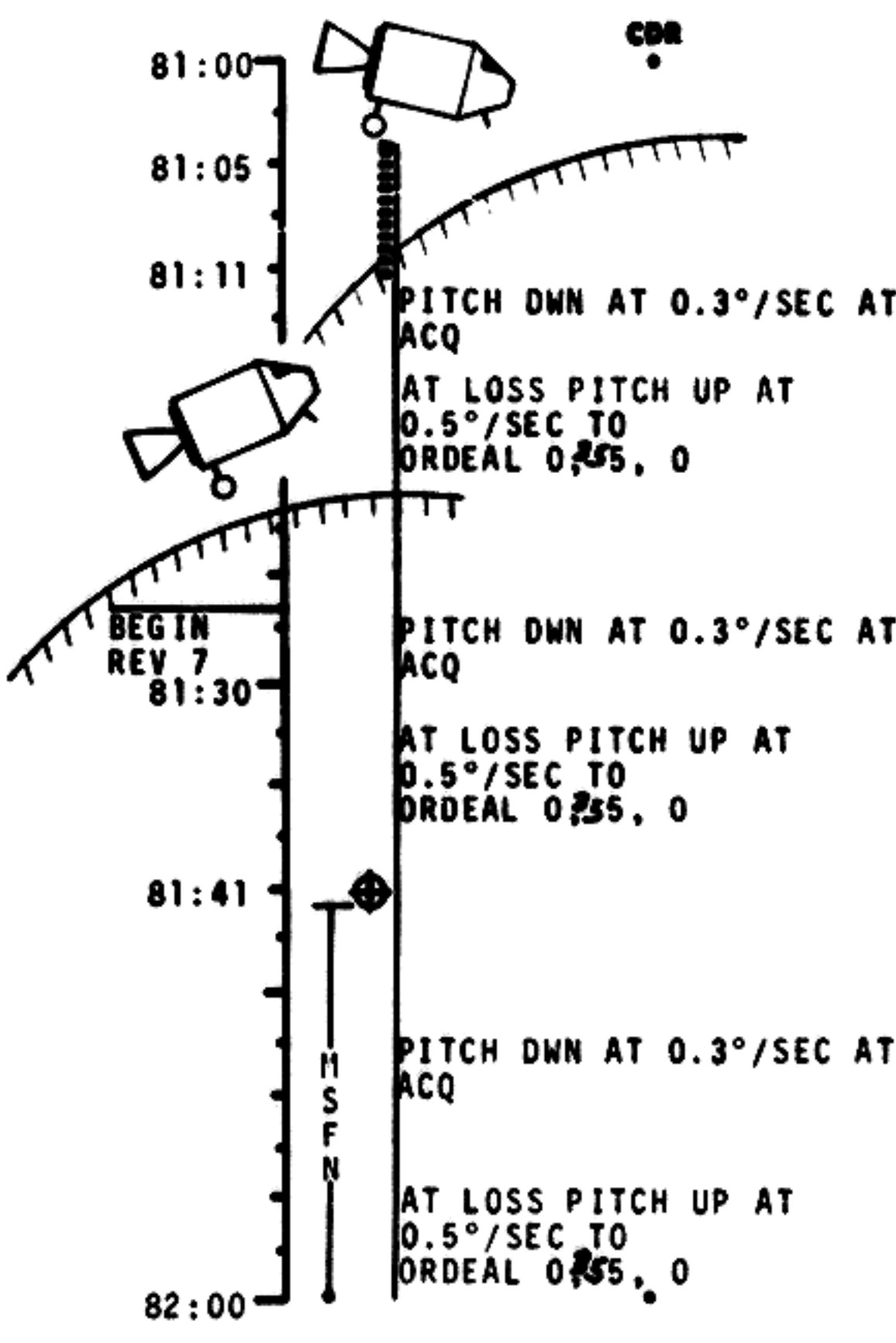
EAT PERIOD

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

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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

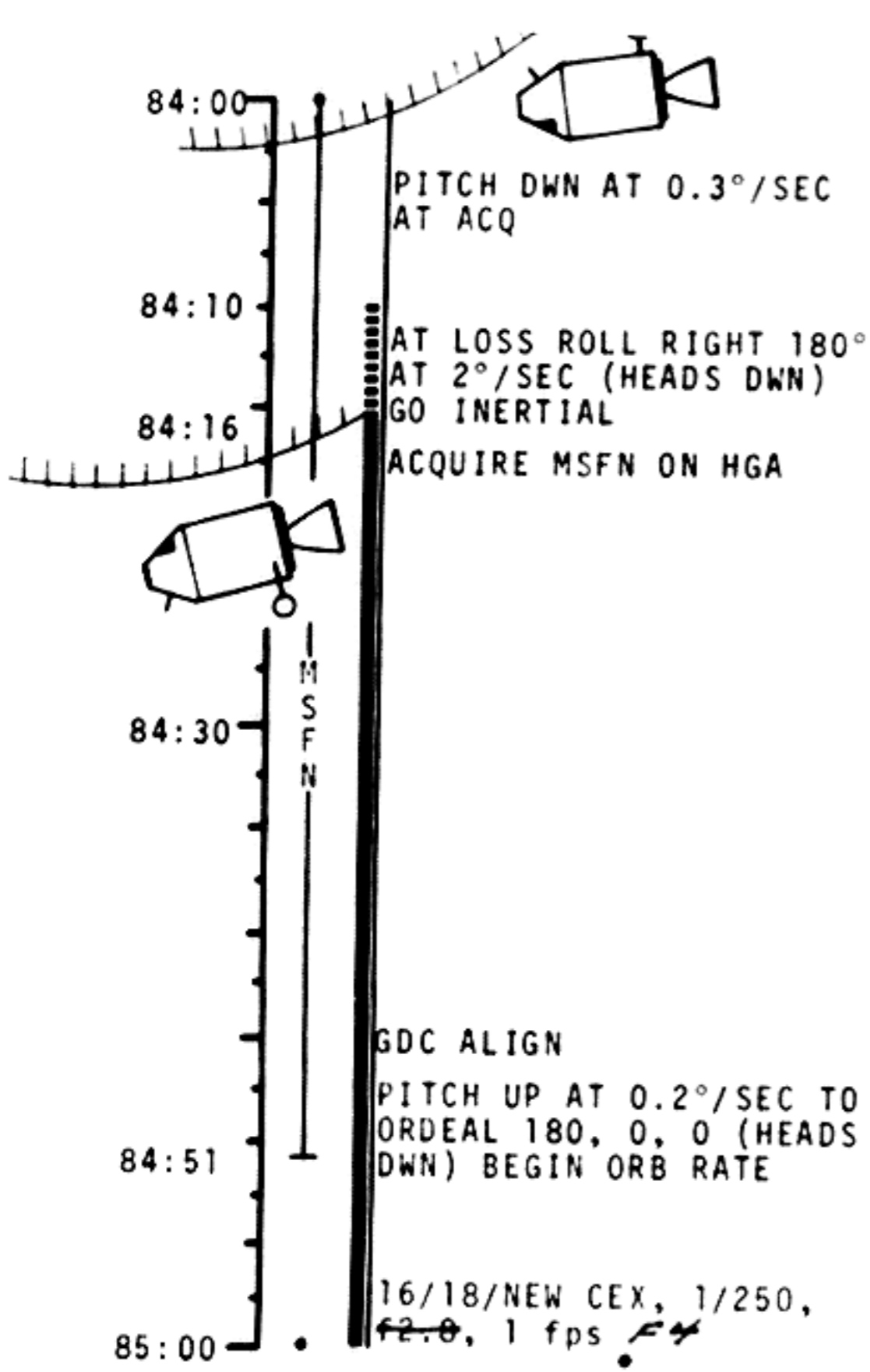
CMP
P22 MAN ACQ SA 0° TA 10°
IPI | : : :
ACQ | : : :
CP3 NO. 334
LAT -09.000°S 1/500
LONG/2 +47.950° 1/175
ALT +000.00 nm

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



CMP

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)

LMP

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°

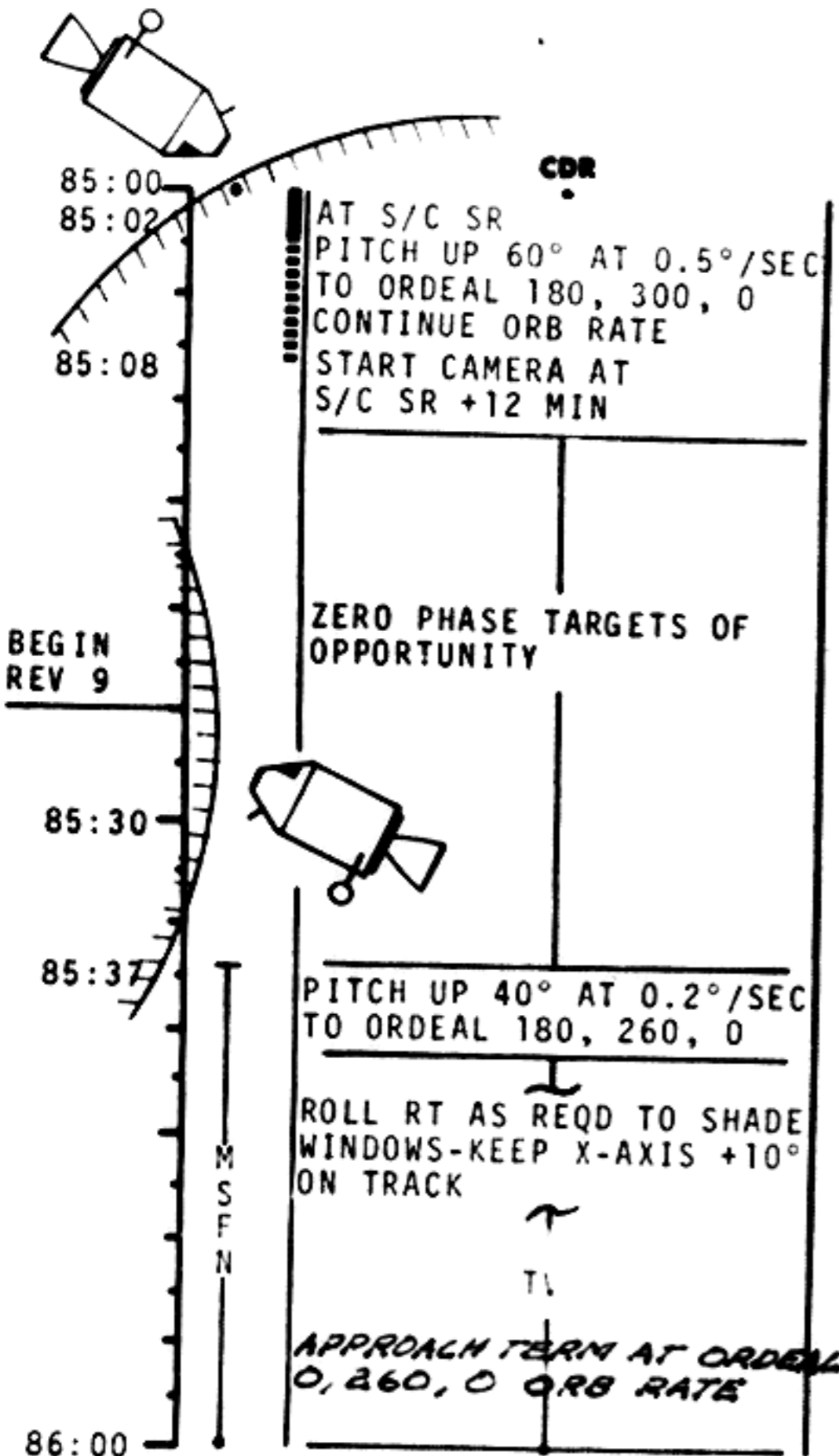
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	84:00 - 85:00	4/LPO 8	2-66

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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



CMP

REST PERIOD (2 HOURS)

LMP

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

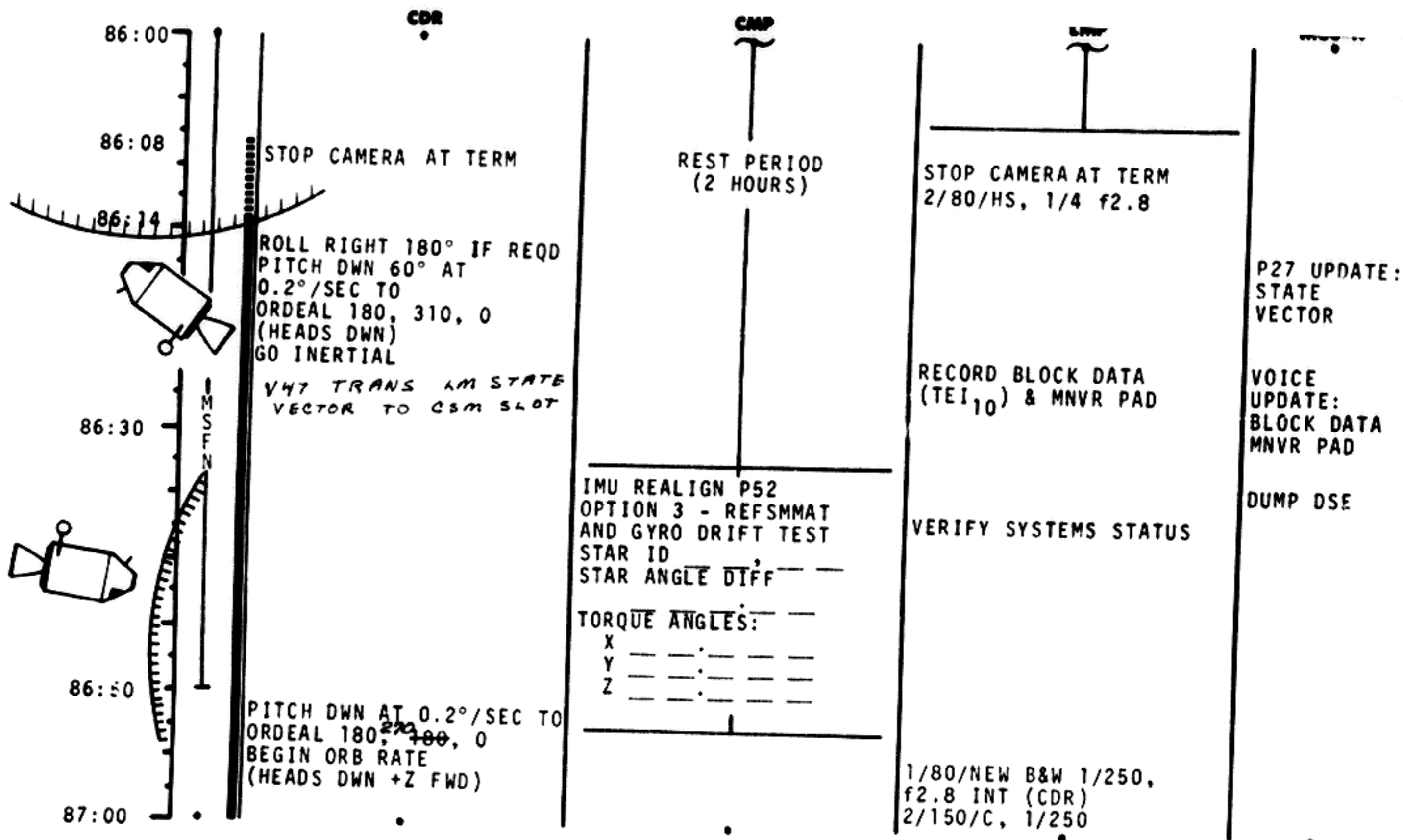
ACQUIRE MSFN ON HGA
RECORD MAP UPDATE

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

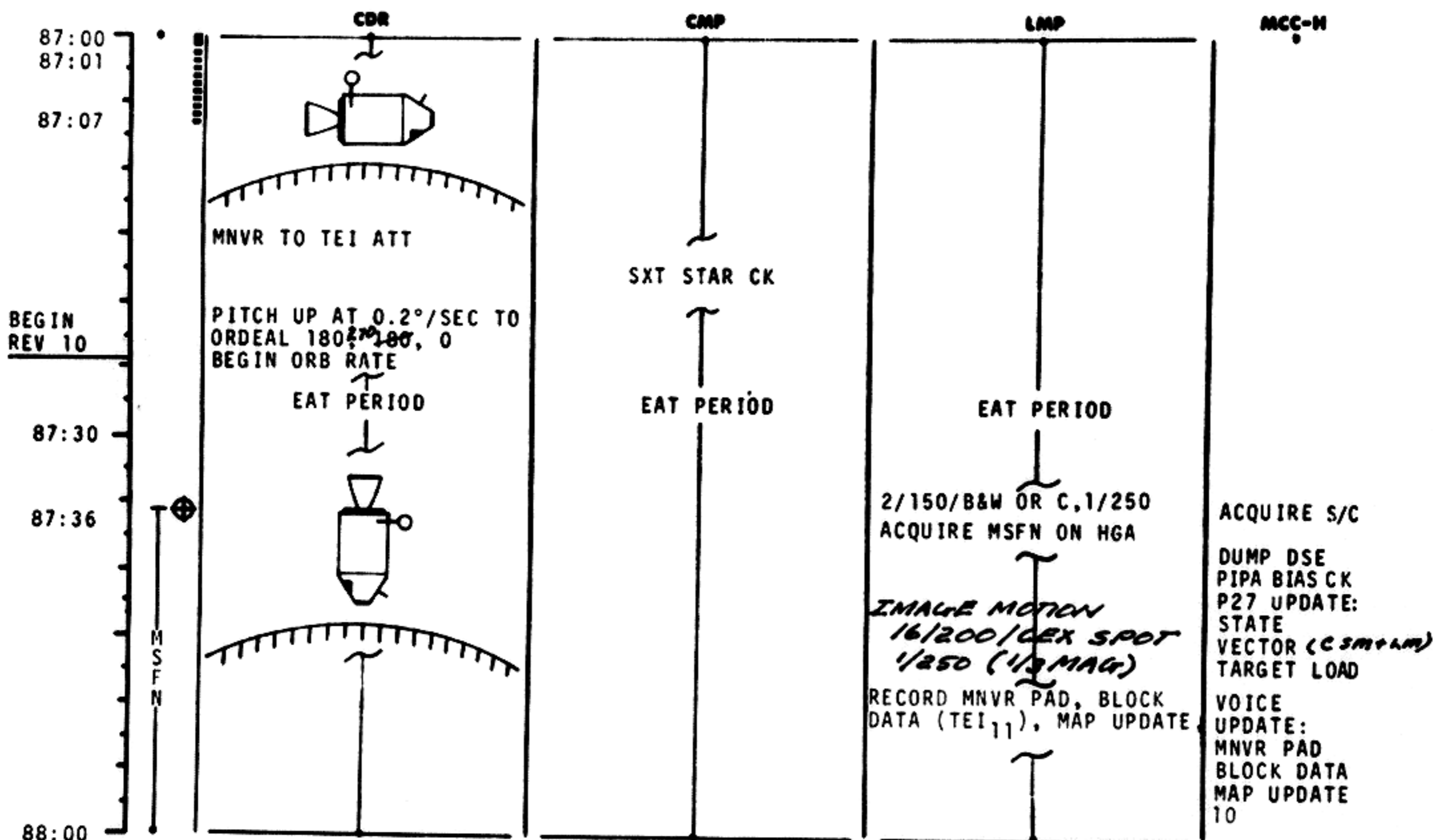
MCC-H

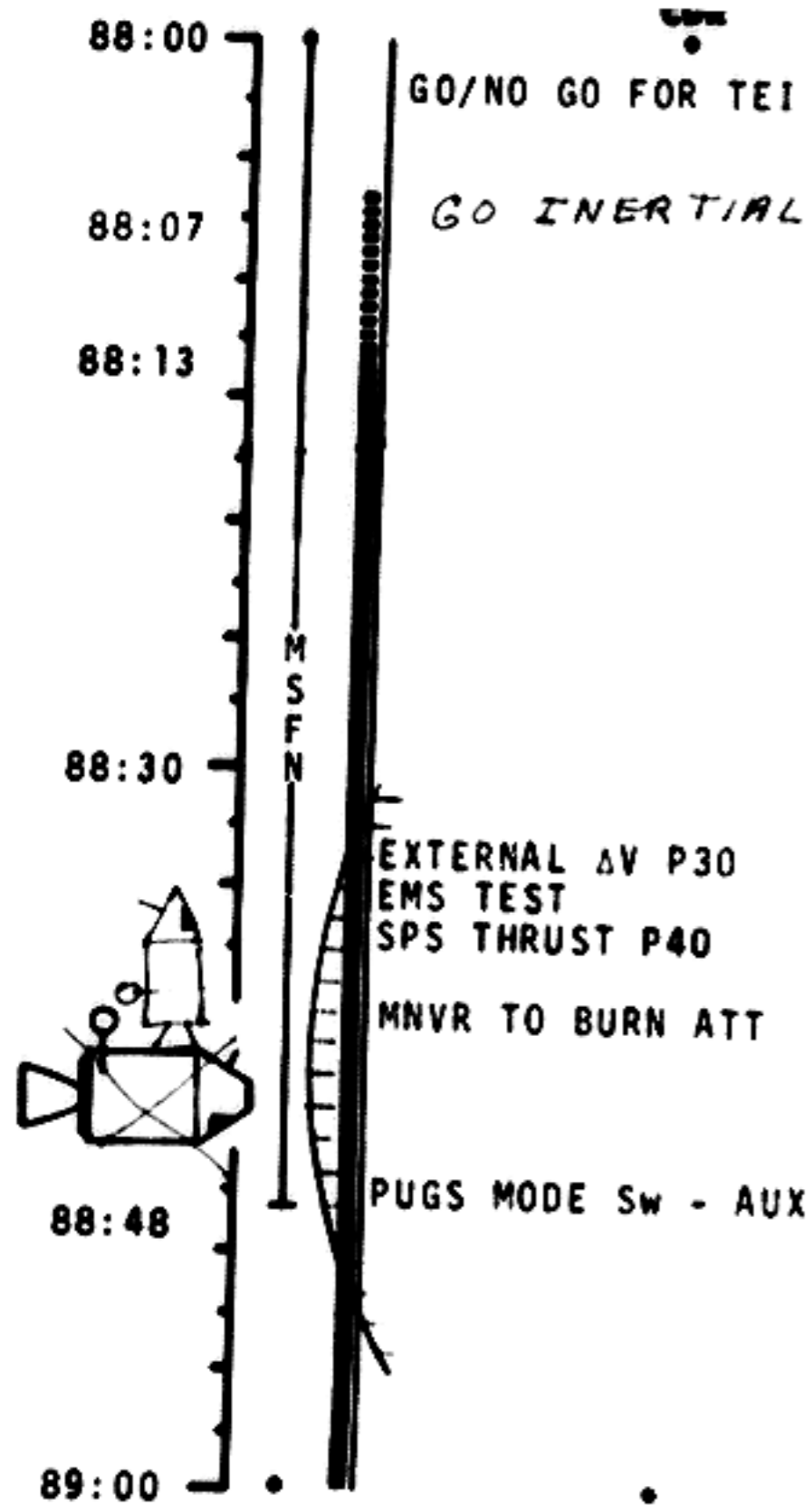
ACQUIRE S/C
VOICE UPDATE: MAP UPDATE 9/10

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



FLIGHT PLAN





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

TORQUE ANGLES:

X _____
Y _____
Z _____

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

BIOMED Sw - GO/NO GO LEFT

SXT STAR CK
TRANSFER TO COUCH

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

MSC Form 1010 (Nov 68)

FLIGHT PLANNING BRANCH

BURN STATUS REPORT

X X : ΔTIG
X X : BT

TRIM

X X X R
X X X P
X X X Y

V_{gx}
V_{gy}
V_{gz}
ΔV_c

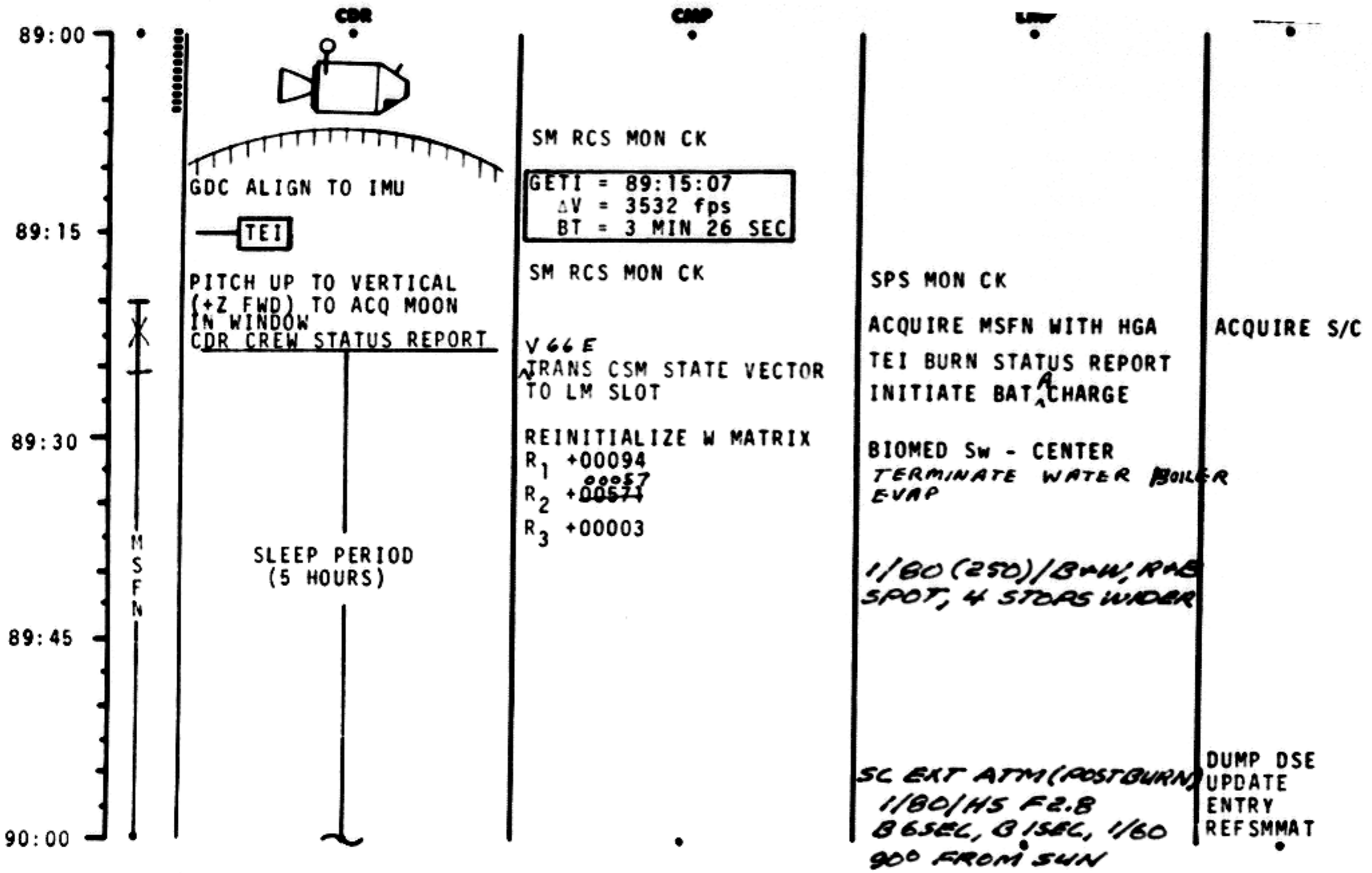
X X X FUEL
X X X OX
X X X UNBALANCE

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

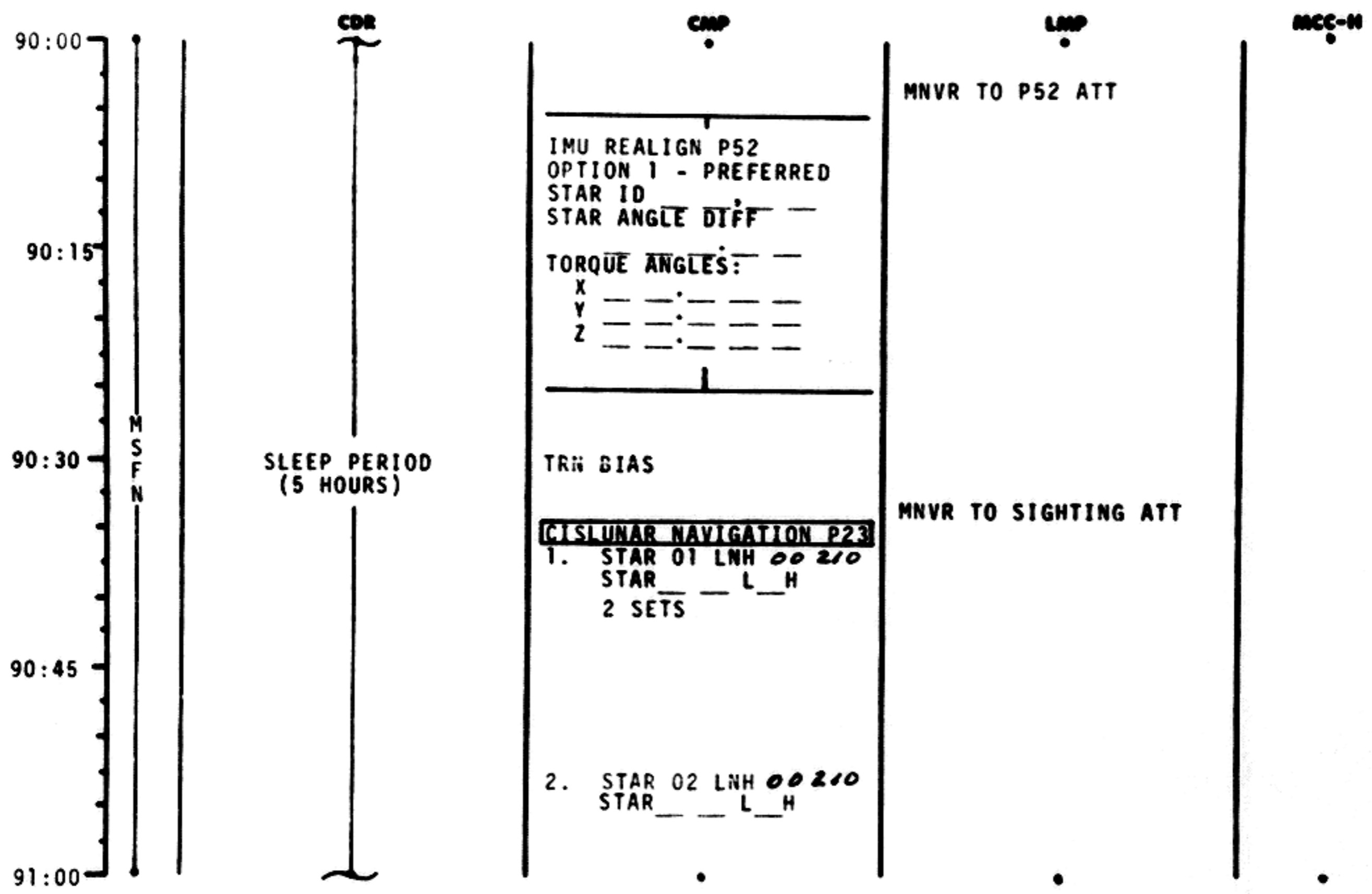


MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	89:00 - 90:00	4/TEC	2-71

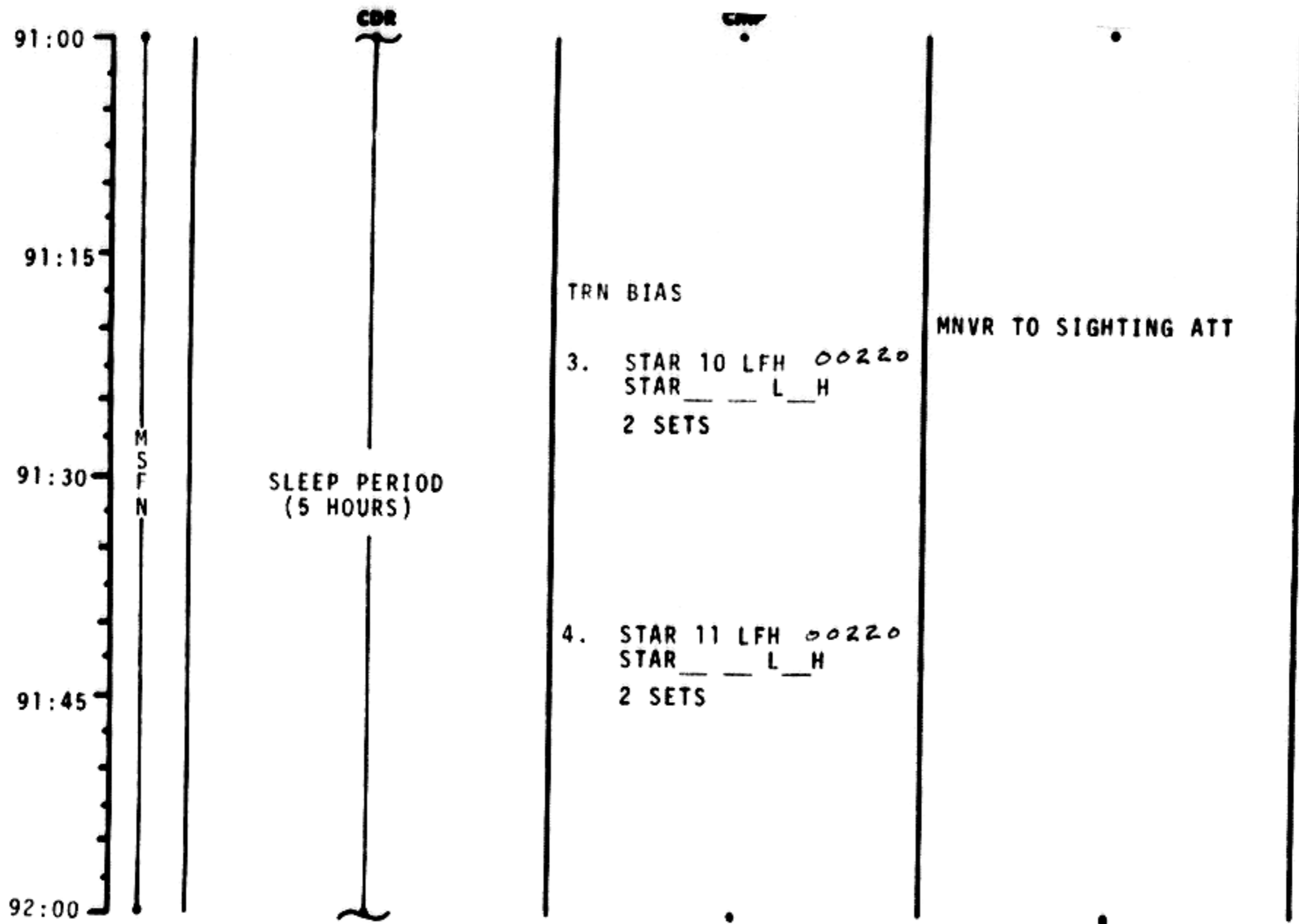
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FLIGHT PLANNING BRANCH

FLIGHT PLAN



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

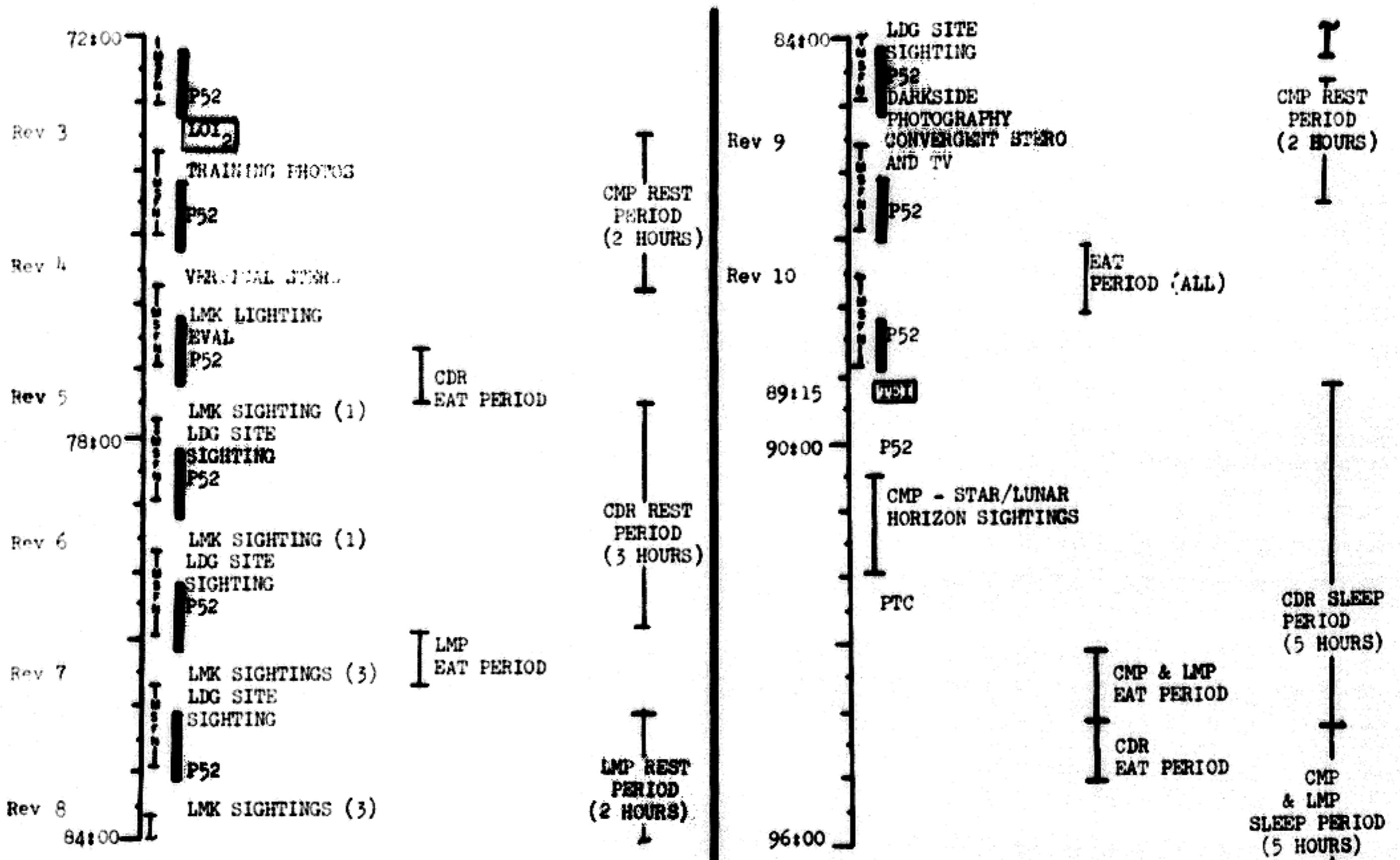


MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AS503/103	FINAL	November 22, 1968	91:00 - 92:00	4/TEC	2-73

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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