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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION *total 405A*

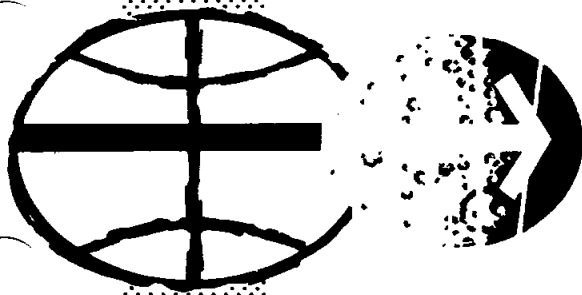
APOLLO 14 (JAN 31, 1971)

AS-509/CSM-110/LM-8

FINAL

FLIGHT PLAN

PREPARED BY
APOLLO FLIGHT PLANNING SECTION
FLIGHT PLANNING BRANCH
FLIGHT CREW SUPPORT DIVISION



MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CHANGED

JANUARY 18, 1971

INDEXING DATA

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APOLLO 14
(January 31, 1971)
FLIGHT PLAN

January 18, 1971

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It is requested that any organization having comments, questions, or suggestions concerning this document contact C. L. Stough, Flight Planning Branch, CF62, Building 4, room 231, telephone 483-4271.

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 T. W. Holloway, CF62, Building 4, room 230, telephone 483-4271.

Distribution of this document is controlled by W. J. North, Chief, Flight Crew Support Division.

FLIGHT DATA FILE PEN AND INK CHANGES

The enclosed pen and ink changes are included with change B to the Apollo 14 Flight Plan dated 1/11/71. The list of effective pages for change B reflect these pen and ink changes.

- ✓ 1. Page 1-16: Under CST and GET for Friday 5, FEB. Change "8:20 AM" to "8:06 AM" and "113:40" to "113:43".
- ✓ 2. Page 1-16: Under CST and GET for Saturday 6, FEB. Change "3:59AM" to "3:56 AM" and "133:31" to "133:33".
- ✓ 3. Page 3-78: Change CSM IMU roll angle for LOI +2 hr DPS abort from "301" to "121".
- ✓ 4. Page 3-78: Change LM FDAI angles for LOI +2 hr DPS abort from "10,81,1" to "170,261,359".
- ✓ 5. Page 3-79: At bottom of page change edition from "FINAL (JAN)" to "CHANGE B (JAN)" and Date from "DECEMBER 2, 1970" to "JANUARY 11, 1971".
- ✓ 6. Page 3-79: In the Notes column under S-IVB LUNAR IMPACT change "LONG 33.250" to "LONG -33.250".
- ✓ 7. Page 3-82: Change "AOS to LOS = 874 SEC" to "AOS TO LOS = 450 SEC".
- ✓ 8. Page 3-86: At bottom of page change edition from "FINAL (JAN)" to "CHANGE B (JAN)" and Date from "DECEMBER 2, 1970" to "JANUARY 11, 1971".
- ✓ 9. Page 3-86: Delete "V48 (21111)(X1111)" and "(21111)" at the bottom of the page. (X1111)
- ✓ 10. Page 3-87: At bottom of page change edition from "FINAL (JAN)" to "CHANGE B (JAN)" and Date from "DECEMBER 2, 1970" to "JANUARY 11, 1971".

11. Page 3-87: Change DAP LOAD STATUS at top of time column from "21111" to "21101".
Delete "V48 (21101)(X1111)" and "(21101)" at bottom of page. (X1111)

12. Page 3-106: At bottom of page change edition from "CHANGE A (JAN)" to "CHANGE B (JAN)" and date from "DECEMBER 23, 1970" to "JANUARY 11, 1971".

13. Page 3-106: Under CSM LOW ALTITUDE LANDMARK TRACKING PROFILE change "AOS TO LOS = 72 SEC" to "AOS TO LOS = 52 SEC"

14. Page 3-128: At bottom of page change edition from "CHANGE A (JAN)" to "CHANGE B (JAN)" and date from "DECEMBER 23, 1970" to "JANUARY 11, 1971".

15. Page 3-128: At 111:58 add "TERMINATE WASTE WATER DUMP".

16. Page 3-136: At bottom of page change edition from "FINAL (JAN)" to "CHANGE B (JAN)" and date from "DECEMBER 2, 1970" to "JANUARY 11, 1971".

17. Page 3-136: At 114:32 in the time column change "(10101)" to "(11101)"
(X1111) to (X1111)

18. Page 3-148: At bottom of page Change edition from "CHANGE A (JAN)" to "CHANGE B (JAN)" and date from "DECEMBER 23, 1970" to "JANUARY 11, 1971".

19. Page 3-148: At 118:24 change "CM4/DC/80/VHBW-BRKT-IVL (f2.8/1/60,∞) (51 FR)" to "CM4/DC/80/VHBW-BRKT,IVL, PCM CABLE (f2.8,1/60,∞) (51 FR)".

20. Page 3-214: At bottom of page change edition from "FINAL (JAN)" to "CHANGE B (JAN)" and date from "DECEMBER 2, 1970" to "JANUARY 11, 1971".

✓ 21. Page 3-214: At 144:16, delete the following: "REMOVE DECONTAMINATION BAGS (A8) UNSTOW AND ASSEMBLE: VACUUM CLEANER, PWR CABLE, HOSE, AND BAG (SIDE A12, SIDE A8) CONNECT PWR CABLE (PNL 201)".

✓ 22. Page 3-216: At 144:32, change "DECONTAMINATION BAGS (A8, U1)" to "DECONTAMINATION BAGS".

✓ 23. Page 3-216: At bottom of page change edition from "CHANGE A (JAN)" to "CHANGE B (JAN)" and date from "DECEMBER 23, 1970" to "JANUARY 11, 1971".

✓ 24. Page 3-225: At bottom of page change edition from "CHANGE A (JAN)" to "CHANGE B (JAN)" and date from "DECEMBER 23, 1970" to "JANUARY 11, 1971".

✓ 25. Page 3-225: In the LM LUNAR IMPACT BOX change "LONG 1929°W" to "LONG 19.27°W".

✓ 26. Page 3-225: In Notes column change "LAT 3.32°S" to "LAT 3.04°S" and "LONG 23.38°W" to "LONG 24.64°W".

Flight Plan (January 31, 1971 Launch)
Pen & Ink 1/18/71

Flight Data File Pen and Ink Changes

The enclosed pen and ink changes are included with change C to the Apollo 14 Flight Plan dated 1/18/71. The list of effective pages for change C reflect these pen and ink changes.

1. Page 3-142: At bottom of page change edition from "Final (Jan)" to "Change C (Jan)" and Date from "December 2, 1970" to "January 18, 1971." ✓
2. Page 3-142: At 116:50 change "(000,114,045) HGA P -84, Y 356" to "(184,202,045) HGA P 3, Y 229" ✓
3. Page 3-196: At bottom of page change edition from "Change A (Jan)" to "Change C (Jan)" and date from "December 23, 1970" to "January 18, 1971" ✓
4. Page 3-196: At 139:55 change "CM/EL/250/CEX (f11,1/250,∞)(31FR)" to "CM/EL/250/CEX (f8,1/250,∞)(31FR)" ✓
5. Page 3-198: At bottom of page change edition from "Final (Jan)" to "Change C (Jan)" and date from "December 2, 1970" to "January 18, 1971" ✓
6. Page 3-198: At 140:06 change "Photo TGT 7, North (f11,1/250,∞)" to "Photo TGT 7, North (f8,1/250,∞)" ✓
7. Page 1-16: Delete TV show on Thursday 4, February 7:23 pm CST. ✓
8. Page 3-96: At bottom of page change edition from "CHANGE A (JAN)" to "CHANGE C (JAN)" and date from "DECEMBER 23, 1970" to "JANUARY 18, 1971" ✓
9. Page 3-96: At 100:58, delete TV callout "CM5/TV-AVG (f22) TV (GDS) 101:00 - 101:14" ✓
10. Page 3-98: At bottom of page change edition from "CHANGE A (JAN)" to "CHANGE C (JAN)" and date from "DECEMBER 23, 1970" to "JANUARY 18, 1971" ✓
11. Page 3-98: From 101:00 to 101:14 delete TV show ✓

FLIGHT PLAN
(January 31, 1971 Launch)

LIST OF EFFECTIVE PAGES

FINAL DATE 12/2/70
CHANGE DATE 12/23/70
CHANGE DATE 1/11/71
CHANGE DATE 1/18/71

* INDICATES CURRENT CHANGE

PAGE NUMBER	CHANGE DATE
*i thru iia	1/18/71
iii thru vi	12/23/70
vii thru xx	FINAL
1-1 thru 1-15	FINAL
*1-16	1/18/71
1-17 thru 1-27	FINAL
2-1 thru 2-5	FINAL
3-1 thru 3-8	FINAL
3-9 thru 3-14	12/23/70
3-15 thru 3-31	FINAL
3-32	12/23/70
3-33 thru 3-36	FINAL
3-37	12/23/70
3-38 thru 3-49	FINAL
3-50	12/23/70
3-51	FINAL
3-52	12/23/70
3-53 thru 3-76	FINAL
3-77	12/23/70
3-78 and 3-79	1/11/71
3-80 thru 3-81	FINAL
3-82	1/11/71
3-83 thru 3-85	FINAL
*3-86	1/18/71
3-87	1/11/71
3-88 thru 3-95	FINAL
*3-96	1/18/71
3-97	FINAL
*3-98	1/18/71

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3-104	12/23/70
3-105	FINAL
3-106	1/11/71
3-107 thru 3-109	FINAL
3-110	12/23/70
3-111 thru 3-116	FINAL
3-117	12/23/70
3-118	FINAL
3-119	12/23/70
3-120	FINAL
3-121 thru 3-123	12/23/70
3-124	FINAL
3-125	12/23/70
3-126 and 3-127	FINAL
3-128	1/11/71
3-129 thru 3-131	FINAL
3-132	12/23/70
3-133 and 3-134	FINAL
3-135	12/23/70
3-136	1/11/71
3-137 and 3-138	FINAL
3-139	12/23/70
3-140 and 3-141	FINAL
*3-142	1/18/71
3-143 thru 145	FINAL
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3-147	FINAL
3-148	1/11/71
3-149	FINAL
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3-151	FINAL
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3-155 thru 3-173	FINAL
3-174	12/23/70
3-175	FINAL
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3-177 thru 3-179	FINAL
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3-181 thru 3-195	FINAL
*3-196	1/18/71
3-197	FINAL
*3-198	1/18/71
3-199 thru 3-203	FINAL

LIST OF EFFECTIVE PAGES (CONT)

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3-205	FINAL
3-206	12/23/70
3-207	FINAL
3-208	12/23/70
3-209 and 3-210	FINAL
3-211	12/23/70
3-212 and 3-213	FINAL
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3-216	1/11/71
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3-246 and 3-247	FINAL
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6-1 and 6-2	FINAL

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CHARTS AND GRAPHS

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ABBREVIATIONS

ABB	abbreviation or abbreviated
AC	alternating current
ACCEL	accelerometer
ACN	Ascension
ACT	activation
ACQ	acquisition or acquire
AEA	abort electronics assembly
AGS	abort guidance subsystem
AH	ampere hours
ALSCC	Apollo lunar surface close-up camera
ALSD	Apollo lunar surface drill
ALSEP	Apollo lunar surface experiment package
ALT	altitude
AM	amplitude modulation
AMP or amp	amperes
AMPL	amplifier
ANG	Antigua
ANT	antenna
AOH	Apollo Operations Handbook
AOL	Atlantic Ocean line
AOS	acquisition of signal or acquisition of site
AOT	alignment optical telescope
APS	ascent propulsion subsystem
ARIA	Apollo range instrumentation aircraft
ARS	atmosphere revitalization system
ASC	ascent
A/T	alignment technique
ATT	attitude
AUX	auxiliary
AZ	azimuth
BAT	battery
BEF	blunt end forward
BD	band
BDA	Bermuda
BIOMED	bio-medical data
BP	barber pole
BRKT	bracket
BSLSS	buddy secondary life support system
BT	burn time
BU	backup
BW	black and white (Film 3400)
BWD	backward
BWI	black and white (Film 3401)

ABBREVIATIONS (CONT)

CAP COM	capsule communicator
CALIB	calibration
CAM	camera
CB	circuit breaker
CCGE	cold cathode gage experiment
CCIG	cold cathode ion gage
CCW	counter clockwise
CDH	constant delta altitude
CDR	Commander
CDU	coupling data unit
CEX	color external (S0358)
CIN	color internal (S0168)
CIRC	circulation
CK	check
CKT	circuit
C/L	centerline or checklist
CM	command module
CMC	command module computer
CMD	command
CMP	Command Module Pilot
CNTL	control
C/O	check out
COAS	crew optical alignment sight
COMM	communications
CONFIG	configuration
COMP	compare
CONT	continue or contingency
CP	control point
CPLEE	charged particle lunar environment experiment
CRO	Carnarvon, Australia
CRYO	cryogenic
CS	contingency sample
CSC	close-up stereo camera
CSI	coelliptic sequence initiation
CSM	command and service modules
CST	central standard time
C/S	central station
C&WS	caution and warning system
CW	clockwise
CWEA	caution and warning electronics assembly
CYI	Grand Canary Island
DAC	data acquisition camera
DAP	digital auto pilot
DB	deadband
DC	direct current or data camera (70mm)

ABBREVIATIONS (CONT)

DCA	digital command assembly
DEDA	data entry and display assembly
DEG	degrees
DEPL	depletion
DES	descent
DET	digital event timer
DIFF	difference
DIR	direct
DK	docked
DO	detailed objective
DOI	descent orbit insertion
DPS	descent propulsion system
DRT	dome removal tool
DS	documented sample
DSE	data storage equipment(CSM)
DSEA	data storage equipment assembly (LM)
DSKY	display and keyboard
DTO	detailed test objective
DUA	digital uplink assembly
DWN	down
E	erasable or enter
ECS	environmental control system
ED	explosive device
EDT	eastern daylight time
EFH	earth far horizon
EI	earth (atmosphere) interface and entry interface
EKG	electrocardiogram
EL	electric Hasselblad camera
ELEV	elevation
EMER	emergency
EMS	entry monitor system
EMU	extravehicular mobility unit
ENG	engine
ENH	earth near horizon
ENT	entry
E.O.	earth orbit
EOM	end of mission
EPO	earth parking orbit
EPHEM	Ephemeris
EPS	electrical power subsystem
EQUIP	equipment
ERECT	erectable
EST	eastern standard time
ETB	equipment transfer bag
EVA	extravehicular activity

ABBREVIATIONS (CONT)

EVAP	evaporator
EVCS	extravehicular communications system
EVT	extravehicular transfer
EXT	external
f	f-stop
FAM	familiarize or familiarization
FC	fuel cell
FCS	fecal containment system
FDAI	flight director attitude indicator
FLT	flight
FM	frequency modulated
FOV	field of view
FPS	feet per second
fps	frames per second
FR	frame(s)
FT or ft	feet
FTO	flight test objective
FTP	full throttle position
FTT	fuel transfer tool
FWD	forward
G.A.	gas analysis
GA	gimbal angle
GBI	Grand Bahama Islands
GBM	Grand Bahama (MSFN)
GDC	gyro display coupler
GDS	Goldstone, California
GET	ground elapsed time
GETI	ground elapsed time of ignition
GETIL	ground elapsed time of landing for TIG time of abort burn
GLY	glycol
GMT	Greenwich mean time
G&N	guidance and navigation
GNCS	guidance, navigation and control system (CSM)
GWM	Guam
GYM	Guaymas, Mexico
H ₂	hydrogen
HA	apogee altitude
HAW	Hawaii
HBR	high bit rate (TLM)
HD	highly desirable
HFE	heat flow experiment
HGA	high-gain antenna
HI	high (switch position)

ABBREVIATIONS (CONT)

HOR	horizon
H ₂ O	water
HP	perigee altitude
HR	hour(s)
HSK	Honeysuckle (Canberra, Australia)
HTC	hand tool carrier
HTR	heater
HTV	USNS Huntsville
ICDU	inertial coupling data unit
ID	identification
IGA	inner gimbal angle
IGN	ignition
IMU	inertial measurement unit
IND	indicator
INIT	initialization
INT	interval
IP	initial point
ISA	interim stowage assembly
IU	instrumentation unit
IVC	intervehicular communications
IVL	intervalometer
IVT	intravehicular transfer
i_R	inclination of the ascending return
JETT	jettison
KM	kilometer
kwh	kilowatt hour
LA	launch azimuth
LAT	latitude
LBR	low bit rate (TLM)
LB or lb	pound(s)
LCG	liquid cooled garment
L/D	lift/drag
LD	lunar day (TV lens)
LDG	landing
LDMK	landmark
LEB	lower equipment bay
LEC	lunar equipment conveyor
LEVA	lunar extravehicular visor assembly
LFH	lunar far horizon
LGC	LM guidance computer
LH	left-hand
L/H	local horizontal

ABBREVIATIONS (CONT)

LHEB	left-hand equipment bay
LHFEB	left-hand forward equipment bay
LHSSC	left-hand side storage container
LiOH	lithium hydroxide
LLM	lunar landing mission
LLOS	landmark line of sight
LM	lunar module
LMP	Lunar Module Pilot
LNH	lunar near horizon
L/O	lift-off
LOI	lunar orbit insertion
LONG	longitude
LOS	loss of signal or loss of site
LPD	landing point designator
LPO	lunar parking orbit
LPM	lunar portable magnetometer
LR	landing radar
LRRR or LR ³	laser ranging retro-reflector
L/S	landing site or lunar surface
LSM	lunar surface magnetometer
LT	light
LTC	lunar topographic camera
LTG	lighting
LV	launch vehicle
L/V	local vertical
LVPD	launch vehicle pressure display
M	mandatory
MAD	Madrid, Spain
MAG	magazine (camera)
MAN	manual
MAX	maximum
MAX Q	maximum dynamic pressure
MBW	medium black and white film
MCC	midcourse correction
MCC-H	Mission Control Center - Houston
MDC	main display console
MEAS	measurement
MESA	modular experiment stowage assembly
MET	mission event timer
MGA	middle gimbal angle
M/I	minimum impulse
MIN	minimum or minutes(s)
MIR	mirror
MLA	Merrit Island, Florida, launch area
mm or MM	millimeter

ABBREVIATIONS (CONT)

MNA or MNB	main electrical bus A or B
MNVR	maneuver
MON	monitor
MPL	mid-Pacific line
MPS	main propulsion system
M/R	mixture ratio (fuel to oxidizer)
MSFN	Manned Space Flight Network
MTVC	manual thrust vector control
N_2	nitrogen
NAV	navigation
NM	nautical miles
NO.	number
NOM	nominal
NXX	Noun XX
O_2	oxygen
OBS	observation
O/F	oxidizer to fuel ratio
OGA	outer gimbal angle
OID	octal identifier
OMNI	omnidirectional antenna
OPR	operate
OPS	oxygen purge system
OPT	option
ORB	orbital
ORDEAL	orbit rate display earth and lunar
ORIENT	orientation
OVBD	overboard
OVHD	overhead
P	pitch or program
PAD	voice update
PCM	pulse code modulation
PC	plane change or chamber pressure
PDI	powered descent initiation
PER	Pericyynthion
PGA	pressure garment assembly
PGNCS	primary guidance, navigation and control system (LM)
PGNS	primary guidance navigation system (LM)
PHOTO	photograph
PIPA	pulse integrating pendulous accelerometer
PKG	package
PLSS	portable life support system
PM	phase modulated
POL	polarity or polarizing

ABBREVIATIONS (CONT)

PRE	Pretoria, South Africa
PREF	preferred
PREP	preparation
PRESS	pressure
PRIM	primary
PROP	proportional
PRN	pseudo random noise
PRPLNT	propellant
PSE	passive seismic experiment
PSIA	pounds per square inch absolute
PSID	pounds per square inch differential
PSIG	pounds per square inch gage
PT	point
PTC	passive thermal control
PU	propellant utilization
PUGS	propellant utilization gaging system
PWR	power
PXX	Program XX
PYRO	pyrotechnic
QTY	quantity
QUAD	quadrant
R	roll or range
R&B	red and blue
RAD	radiator, radial, or radiation
RCDR	recorder
RCS	reaction control system
RCU	remote control unit
RCV	receiver
REACQ	reacquire
REFSMAT	reference stable member matrix
REG	regulator
REQD	required
REV	revolution
RH	right-hand
RHC	rotational hand controller
RING	ringsite
RLS	radius of landing site
RNDZ	rendezvous
RNG	range or ranging
RR	rendezvous radar
RSI	roll stability indicator
RSLV	resolver
RT	realtime
RTC	realtime command
RTG	radioisotope thermoelectric generator
RXX	Routine XX

ABBREVIATIONS (CONT)

SA	shaft angle
SC	spacecraft
SCE	signal conditioning equipment
SCS	stabilization control system
SCT	scanning telescope
SE	southeast or subearth
SEC	secondary
SECO	S-IVB engine cutoff
SECS	sequential events control system
SEF	sharp end forward
SEL	select
SEP	separate
SEQ	sequence
SHUT	shutter speed, TOPO camera
SIDE	suprathermal ion detector experiment
SII	Saturn II (second stage)
S-IVB	Saturn IVB(third stage)
SLA	service module LM adapter
SLOS	star line-of-sight
SM	service module
SPOT	spot meter
SPS	service propulsion system
SR	sunrise
SRC	sample return container
SRX	S-Band receiver mode no. X
SS	sunset or subsolar
STBY	standby
STX	S-Band transmit mode no. X
S.V.	state vector
SW	switch
SWC	solar wind composition
SWE	solar wind experiment
SXT	sextant
SYS	system
T EPHEM	time of Ephemeris update
TA	trunnion angle
TAN	Tananarive, Madagascar
TB	time base or talkback
TCA	time of closest approach
TD	touchdown
T&D	transposition and docking
TD&E	transposition docking and LM ejection
TDS	thermal degradation sample
TEC	transearth coast
TECH	technique

ABBREVIATIONS (CONT)

TEI	transearth injection
TEMP	temperature
TERM	terminate
TEX	Corpus Christi, Texas
TGT	target
THC	translation hand controller
TIG	time of ignition
TLC	translunar coast
TLI	translunar injection
TLM or TM	telemetry
TPF	terminal phase final
TPI	terminal phase initiation
TPM	terminal phase midcourse
T/R	transmitter/receiver
TRANS	translation
TRK	track or tracking
TRUN	trunnion
TV	television
TVC	thrust vector control
TWR	tower
UCTA	urine collection transfer assembly
UHT	universal hand tool
ULC	utility light clamp
ULL	ullage
UMB	umbilical
UNBAL	unbalance (meter)
UNDK	undock
US	United States
V	velocity
VG _{IMU}	velocity to be gained as related to IMU orientation
VGX	velocity to be gained (X-body axis)
VGY	velocity to be gained (Y-body axis)
VGZ	velocity to be gained (Z-body axis)
VR	resultant velocity
VX	velocity along the X-axis
VY	velocity along the Y-axis
VZ	velocity along the Z-axis
VAN	USNS vanguard
VHBW	very high speed black and white film
VHF	very high frequency
VLV	valve
VOX	voice keying
VXX	Verb XX

ABBREVIATIONS (CONT)

WRT	with respect to
X	time of closest approach (symbol)
XDOT	rate of change along the X-axis
XFER	transfer
XMIT	transmit or transmitter
XPNDER	transponder
Y	yaw
YDOT	rate of change along the Y-axis
ZDOT	rate of change along the Z-axis
ZPN	impedance pneumogram
Δ Az	azimuth change (difference)
Δ H	altitude change (difference)
Δ P	pressure change (difference)
Δ R	position change (difference)
Δ V	velocity change (difference)
Δ VC	velocity change at engine cutoff
Δ VT	velocity change loaded pre-burn
#	frame number(s) (for camera data)
ϕ	latitude
λ	longitude

PHOTOGRAPHIC NOMENCLATURE

AAA/BBB/CCC/DDD - EEE, EEE, (fGG, HHH, III) JJ fps or (JJ FR) (KK% MAG)

AAA - Location from which photography is to be accomplished

BBB - Camera

CCC - Lens (film type on LTC camera only)

DDD - Film Type (direction of flight of CM, i.e., SEF, BEF, for LTC camera only)

EEE - Photography aids (i.e., brackets, intervalometer, mirror, etc.)

fGG - Lens Aperture Setting

HHH - Shutter Speed

III - Focus Distance in Feet

JJ - Number of frames for DC, LTC, EL or

JJ - Frame Rate for the DAC only

KK - Magazine percent for the DAC only

CODE EXAMPLE:

1. CM4/DAC/18/CEX-BRKT, SPOT (fGG,1/250, ∞) 12 fps (50% MAG)

Meaning: Photos are taken from CM right hand rendezvous window using the DAC with 18mm lens and S0368 film. The camera will be bracket mounted with the following camera settings: f-stop from spotmeter reading, shutter speed 1/250 of a second, focus at infinity, 12 frames per second, and 50% of MAG to be used.

2. CM4/EL/80/BW-BRKT, IVL (f6.5,1/125, ∞) (10 FR)

Meaning: Photos are taken from CM right hand rendezvous window using the Electric Hasselblad camera with the 80mm lens and black & white film (3400). The camera will be bracket mounted with the following settings f-stop (aperture) f6.5, shutter speed 1/125, and focus at infinity. The operation of the shutter will be controlled by the intervalometer. Ten frames have been allotted for this sequence.

PHOTOGRAPHIC NOMENCLATURE (CONT)

3. CM3/LTC/BW/SEF - SHUT-1/100, RNG - 74.2, INT 66.0) (164 FR)

Meaning: Photos are taken from the hatch window of the CM with the Lunar Topographic camera, with black and white film. The SC is oriented such that the sharp end (+X axis) is forward (in the direction of flight) and the camera is mounted with the "arrow" pointing in the direction of flight. The controls are set for a shutter speed of 1/100 of a second, the range to the calculated counter setting of 74.2 and the interval of 66.0 frames per minute. One hundred and sixty four (164) frames have been allotted for this photographic sequence.

CAMERA LOCATIONSCOMMAND MODULE

CM-1	LH Side Window
CM-2	LH Rendezvous Window
CM-3	Hatch Window
CM-4	RH Rendezvous Window
CM-5	RH Side Window

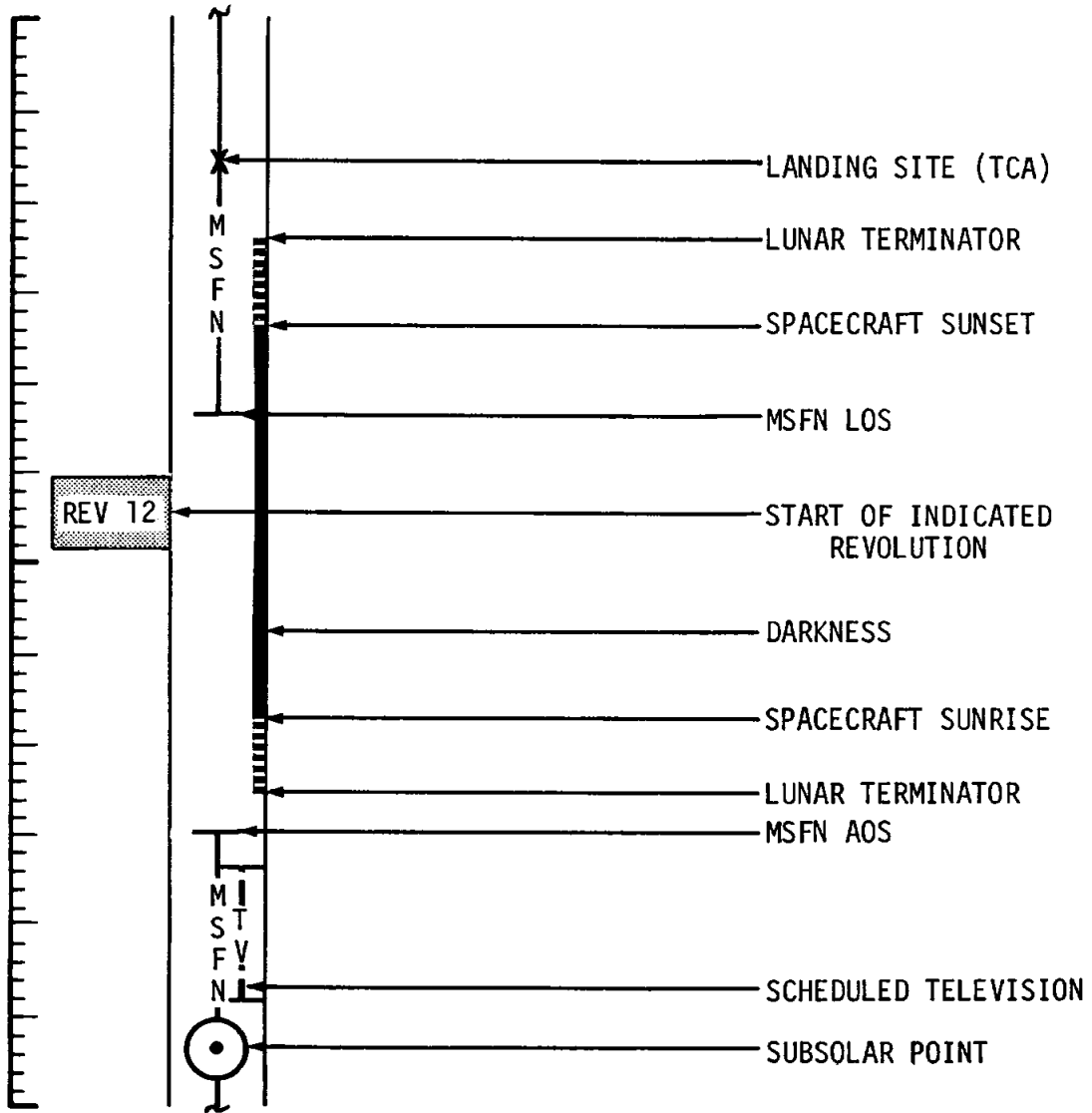
LUNAR MODULE

LM-1	LH Window
LM-2	Docking Window
LM-3	RH Window

CAMERA MOUNTSCSM

CM4 - Electric Hasselblad (EL) +X axis +12°
 CM4 - Electric Hasselblad reseau (DC) +X axis +12°
 CM4 - Electric Hasselblad (EL) with 500mm lens only +X axis +10°
 CM2 or 4 - Data Acquisition Camera with right angle mirror (DAC) +X axis
 SXT - Data Acquisition Camera with SXT Adapter - same as SXT shaft & trunnion
 CM3 - Lunar Topographic Camera - (perpendicular to hatch window) +X axis +57°
 CM3 - Electric Hasselblad (EL) +X axis +57°
 CM3 - Electric Hasselblad (DC) +X axis +57°

SYMBOL NOMENCLATURE



SECTION I - FLIGHT PLAN NOTES

FLIGHT PLAN NOTES

I. Crew

A. Crew designations are as follows:

<u>Designation</u>	<u>Prime</u>	<u>Backup</u>
Commander (CDR)	Shepard	Cernan
Command Module Pilot (CMP)	Roosa	Evans
Lunar Module Pilot (LMP)	Mitchell	Engle

B. The nominal CM couch positions are:

<u>Activity</u>	<u>Left</u>	<u>Center</u>	<u>Right</u>
Launch thru TLI	CDR	CMP	LMP
T&D thru Entry	CMP	CDR	LMP

C. The PGA's will be worn as follows:

ACTIVITY	PRESSURIZED HARD SUIT	SUITED (SOFT SUIT)	PARTIAL SUIT WITHOUT HELMET & GLOVES	SHIRT SLEEVES
LAUNCH		ALL		
EARTH ORBIT THRU S-IVB EVASIVE MNVR			ALL	
TLC & TEC				ALL
LM ACTIVATION			ALL	
UNDOCKING THRU CIRC		CDR & LMP	CMP	
CIRC TO TD		CDR & LMP		CMP
LUNAR STAY EXCEPT EVA	VARIES ACCORDING TO CHECKLIST FOR CDR & LMP			CMP
SURFACE EVA	CDR & LMP			CMP
LIFT-OFF THRU DOCKING		CDR & LMP	CMP	
LM JETTISON THRU TEI				ALL
ENTRY				ALL

- D. Crew status reports will be voiced to MCC-H before and after crew sleep periods. After waking, the crew will report sleep obtained during the last 24 hours and personal dosimeter readings. Before going to sleep, the crew will report medication used and any other pertinent information on activities performed. Before ascent prep, the LM crew will report personal dosimeter readings and medication used.
- E. Negative reporting will be used in reporting completion of each checklist.
- F. All onboard gauge readings will be read directly from the gauges with no calibration bias applied.

II. CSM Systems

A. Communications

1. The preferred S-Band communication modes are:
 - (a) Uplink Mode 6 (Voice, PRN, and Udata)
 - (b) Downlink Mode 2 (Voice, PRN, TLM-HBR)
2. OMNI B and VHF LEFT will be selected for lift-off. OMNI D will be selected by the crew during boost. OMNI D will probably be the best antenna for earth orbit.
3. VHF Duplex B will be used for launch, and Simplex A will be used for earth-orbit operations.
4. During TLC and TEC, OMNI antennas will normally be used. The CSM X-axis will be pitched up 90° (north) for TLC and pitched down 90° (south) for TEC with the Y&Z axes in the plane of the ecliptic. These attitudes permit high-gain antenna coverage and simultaneous viewing of the earth and moon through side windows.
5. MSFN relay will be used for LM/CSM communication during descent and ascent frontside passes. Communications during lunar stay periods will be through MCC-H.
6. Table 1-1 is a summary of the MSFN coverage available for the CSM.
7. Table 1-2 contains a summary of the scheduled CSM TV transmissions.

8. During PTC, the OMNI antennas will be switched via ground command. During periods of attitude control other than PTC, the crew will manage antenna operations.

B. DSE

1. The DSE will be normally operated via ground command except for special cases where the operation is time-limited. In these cases, the crew may be asked to rewind the tape.
2. During the earth-orbit phase, the CSM LBR data will be recorded when the CSM is not within MSFN coverage. The DSE will be dumped during the pass over the US and over CRO prior to TLI if possible.
3. CSM HBR DATA for stereo and LTC photographic strips are required for a minimum of 5 minutes at the beginning and at the end of the strip. If HGA coverage is not available, these data will be recorded on the DSE.
4. During the lunar-orbit phase, the CSM LBR data will be recorded when the CSM is not within MSFN coverage. The DSE will normally be dumped at AOS.
5. CSM LBR data will be recorded during all P24 landmark tracking.
6. CSM HBR will be recorded during all CSM engine burns.
7. LM LBR data will be recorded during LOS periods before PDI.
8. All entry data will be recorded in HBR during the blackout.
9. All HGA activations will be recorded on DSE.

C. Electrical Power

1. The CSM will normally remain powered up throughout the mission.
2. Table 1-3 lists the fuel cell purges and waste water dumps.
3. Based on cryo purity and performance, the time between fuel cell O₂ purges will be increased to coincide with water dump times. The O₂ purge at 6 hours will allow a judgement to be made on the defined purge schedule.

4. The cryogenic heaters will be managed such that the planned usage is obtained out of each O_2 tank. The H_2 heaters will be in AUTO during the mission. The H_2 fans will be operated manually for one minute before and after each sleep cycle, prior to SPS or S-IVB thrusting and pre-CSM/LM ejection.
5. Table 1-9 contains the battery charge schedule.

D. ECS and Water Management

1. Potable water will be chlorinated once a day after the eat period prior to each sleep period.
2. Waste water dump and fuel cell purge criteria:
 - (a) Waste water dumps and fuel cell purges will be scheduled as follows:
 - (1) Once during each 24 hours, if possible, following the initial dump and purge
 - (2) H_2 fuel cell purges will be scheduled at every other O_2 fuel cell purge after the first O_2 fuel cell purge
 - (b) The most opportune time to perform waste water dumps and fuel cell purges are as follows:
 - (1) Immediately after the sextant star check in maneuver preparation or cislunar navigation
 - (2) Behind the moon, with completion of dump or purge before AOS
 - (c) If possible, dumps and purges will not be scheduled during the following periods:
 - (1) Ten hours before MCC-2 or a TLC P23
 - (2) Eight hours before MCC-5 or a TEC P23
 - (3) MSFN tracking periods during two lunar orbits before TEI

- (d) Dumps and purges will not be scheduled during the following MSFN tracking periods:
 - (1) Ten hours before MCC-4 until after LOI
 - (2) Four hours before DOI until six hours after PDI
 - (3) Six hours before ascent from the lunar surface until after LM jettison
 - (4) Ten hours before MCC-7 until entry
- (e) All waste water dumps will be manual.
- 3. Only one CO₂ absorber filter (LiOH canister) is changed at a time. Table 1-4 lists the LiOH canister change schedule. There are 20 filters on board, with 18 stowed at launch.
- 4. At lift-off, the cabin will contain 60% O₂ and 40% N₂. The CM will be purged after launch. The purge is terminated prior to LM pressurization after TLI. After the LM is configured for ejection, it will be isolated and the CM will be purged for eight more hours.
- 5. CSM O₂ will be used to pressurize the LM after transposition and docking; and repressurizing the LM before TLC LM entry, LOI and LM activation.

E. Guidance and Navigation

1. REFSMMAT Definitions

- (a) The "Launch Pad" REFSMMAT will be used for launch, TLI, and TD&E. This REFSMMAT places the IMU X-axis along the launch azimuth at the pad and the Z-axis along the negative radius vector. The FDAI, at launch, will display roll 162° (launch azimuth +90°), pitch 90°, and yaw 0°.
- (b) The "PTC" REFSMMAT will be used for all midcourse maneuvers (except MCC-7) and for other operations during TLC

and TEC. This REFSMMAT places the X-axis in the ecliptic plane and perpendicular to the earth-moon line projection in the ecliptic plane at the average time of transearth injection for the monthly launch window and azimuth range. The Z-axis is then perpendicular to the ecliptic and directed south. At the beginning of the PTC Mode, during TLC, the spacecraft will maneuver to an FDAI display of pitch 90° . During TEC, the pitch attitude will be 270° .

- (c) The "Landing Site" REFSMMAT will be used for LOI, DOI, PDI, landing, and CSM lunar orbit activities up to the first plane change. This REFSMMAT places the CSM IMU X-axis along the positive lunar radius vector at the landing site at the predicted landing time and places the Z-axis in the direction of flight parallel to the CSM orbital plane. At nominal touchdown, the LM FDAI will display roll 0° , pitch 0° , and yaw 0° .
- (d) A "Preferred" REFSMMAT will be used by the CSM for all lunar-orbit plane changes, and TEI. The CSM IMU X-axis will normally be aligned with the spacecraft X-body axis at the vehicle attitude for ignition with the thrust directed through the center of gravity. In the case of large plane change maneuvers, the IMU X-axis may be aligned 45° from the spacecraft body axis at ignition attitude. The Z-axis will be in the plane formed by the X-axis and the position vector and directed up away from the moon for plane changes. At burn ignition, the FDAI will display roll 0° (180° for TEI), pitch 0° , and yaw 0° .
- (e) The "Lift-Off" REFSMMAT will be used for all lunar activities after plane change 1, through rendezvous, and LM jettison. This REFSMMAT places the CSM IMU X-axis along the positive lunar radius vector at the landing site at predicted lift-off time, with the Z-axis parallel to the CSM orbital plane. At nominal lift-off time, the LM FDAI will display roll 0° , pitch 0° , and yaw 0° with slight differences reflecting actual touchdown yaw and slope tilt angles.
- (f) The "Entry" REFSMMAT aligns the IMU X-axis in the local horizontal plane in the direction of flight at entry interface. The entry REFSMMAT is used for MCC-7 and all

remaining activities. The Z-axis is down along the negative radius at entry interface. At entry interface, with wings level, local horizontal, heat shield forward, lift up, heads down, the FDAI will display roll 0° , pitch 180° , and yaw 0° .

2. The CSM external lighting will be operated during the rendezvous from lift-off to docking. The running lights only will be on from CSM/LM separation to PDI.
3. The time tags on maneuvers in Section 3 indicate the completion time of the maneuvers unless otherwise stated. All maneuver angles are the angles read on the FDAI after the maneuver has been completed.
4. CSM/LM and CSM attitude maneuvers will normally be at the rate of $0.2^{\circ}/\text{sec}$ ($0.5^{\circ}/\text{sec}$ after rendezvous and docking) unless other rates are required.
5. Undocking will be done radially, CSM below, using the soft-undocking procedure. The probe will be extended its full length with the LM held on by the capture latches. When the rates are nulled, the CSM will then release the LM. The separation maneuver will then be performed immediately.
6. LM jettison will be done radially, CSM below, with jettison providing approximately 0.4 foot per second thrust radial. The separation burn will be performed five minutes after jettison, providing one foot per second thrust retrograde.

F. Propulsion Systems

1. In order to conserve SM RCS, the SPS engine will be used to "back-up" all LM rendezvous burns. The SPS gimbal motors will not be turned on during the normal maneuver preparation.
2. The SPS will always be started using a single bank, however, the other bank will be opened 2 to 5 seconds after ignition for burns longer than 6 seconds. The first engine ignition will be started on bank A.
3. Table 1-5 lists the CSM propulsion burns.

III. LM Systems

A. Communications

1. The preferred S-Band communications are:
(1) Uplink Mode 7 (Voice, Udata)
(2) Downlink Mode 1 (Voice, TLM-HBR)
2. The LM voice recorder (DSEA) will be used to record LM voice. Table 1-8 is a schedule of LM voice recorder usage.
3. Figure 1-1 shows the communications mode for the first part of the EVA (CDR EVA only) and for the one-man contingency EVA. Figure 1-2 shows the nominal two-man EVA communications configuration.

B. ECS

1. The LM will contain ambient air at lift-off. During launch the pressure will bleed to zero psia. CSM O₂ will be used to pressurize the LM after T&D. After T&D, the LM will be isolated and allowed to bleed down via leakage. After the first LM egress, the LM will be isolated and allowed to leak down. For the entry into the LM before undocking, the CSM O₂ will be used to pressurize the LM. This procedure insures a higher percentage of oxygen in the LM at the first EVA.
2. LM O₂ will be used to pressurize the LM three times; after EVA-1 and EVA-2, and after equipment jettison.

C. Guidance Systems

1. The LGC and CMC will use the same landing site and lift-off REFSMMATS.
2. The AGS will be placed in standby after the "GO" is given for lunar stay.
3. The RR will be powered down after TD plus 2 hours until lift-off preparation.
4. The IMU will be powered down and the LGC placed in standby approximately 3 hours and 25 minutes after TD until after the eat period following sleep on the lunar surface.

5. To prevent overheating of the antenna, the rendezvous radar will be pointed away from the sun and will be turned off when no functional use is required.

D. Propulsion Systems

1. The APS/RCS interconnect will be used during the lunar lift-off and ascent only.
2. Table 1-6 lists the LM propulsion burns.

IV. Procedures

- A. CSM - Crew procedures called out in the flight plan may be found in the following documents:

1. Apollo Operations Handbook - CSM 110 (AOH), Volume 2
2. Crew Checklists
3. CSM Rendezvous Procedures
4. Photographic and TV Procedures
5. Lunar Landmark Tracking Attitude Studies
6. Lunar Orbit Attitude Sequence for Mission H-3

- B. LM - Crew procedures called out in the flight plan may be found in the following documents:

1. Apollo Operations Handbook LM-8, Volume 2
2. Crew Checklists
3. LM Rendezvous Procedures
4. LM Descent/Ascent Procedures
5. Photographic and TV Procedures
6. Orbital EVA Procedures
7. Lunar Surface Procedures

V. Medical Data During Sleep Periods

- A. During translunar and transearth coast phases, and in lunar orbit when all three crewmembers are in the CSM, an EKG and ZPN will be transmitted continuously from at least one crewman.
- B. During lunar orbit, when the CMP is the sole occupant of the CSM, the CMP's EKG and ZPN will be transmitted to MCC-H.
- C. While on the lunar surface, an EKG will be transmitted continuously from at least one crewman.

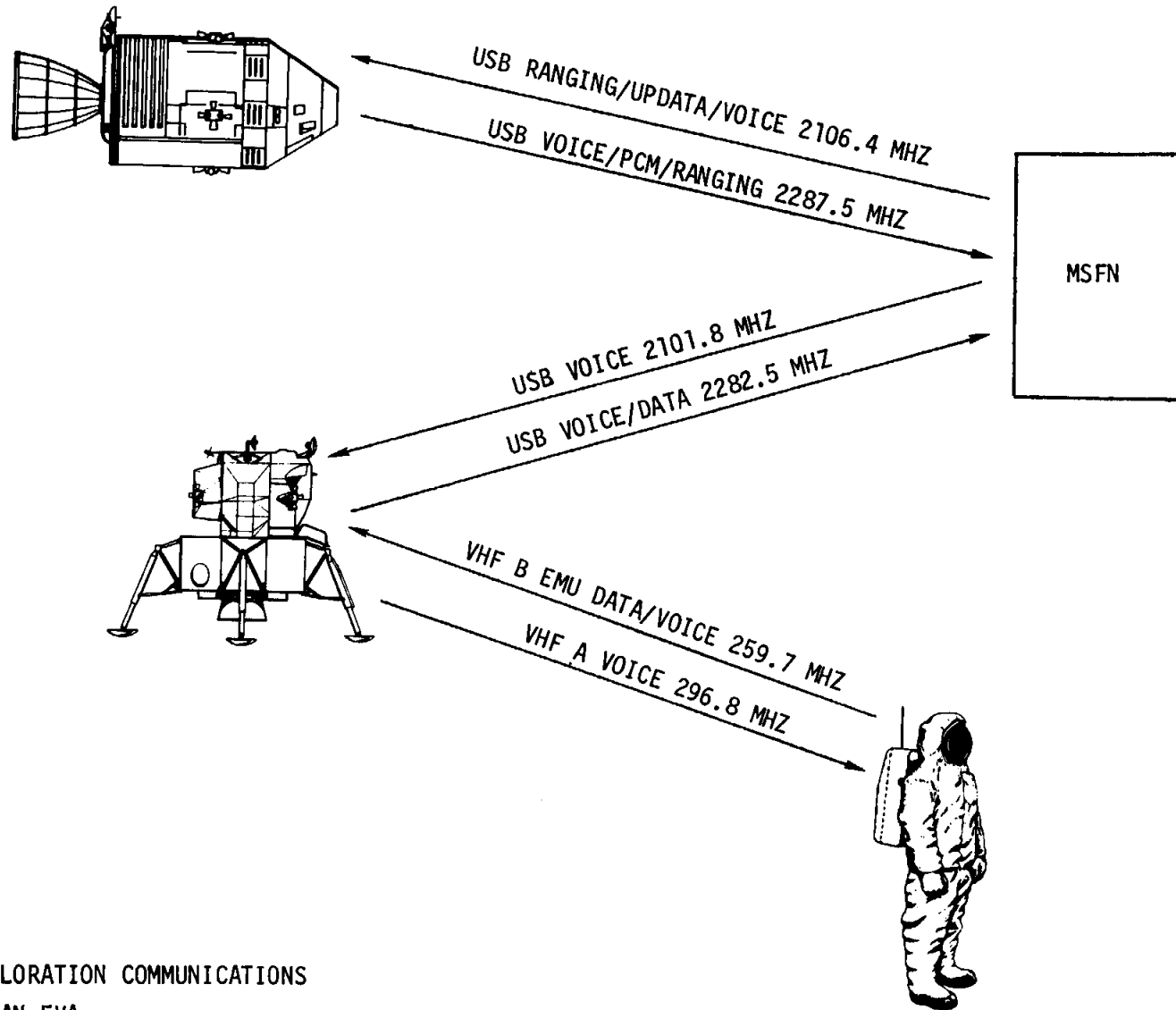
VI. Synchronization of Ground Elapsed Time (GET)

The realtime GET will be synchronized with the flight plan GET if the difference is more than ± 1 minute. The time changes will occur approximately 30 hours before the second lunar orbit, and prior to LOS on the tenth orbit. The time changes will be based on the expected difference between realtime and flight plan GET's at the start of lunar orbit revs 2 and 20. The synchronization is performed by a V70 uplink from the ground followed by the crew synchronizing the mission time to the CMC clock.

VII. Miscellaneous

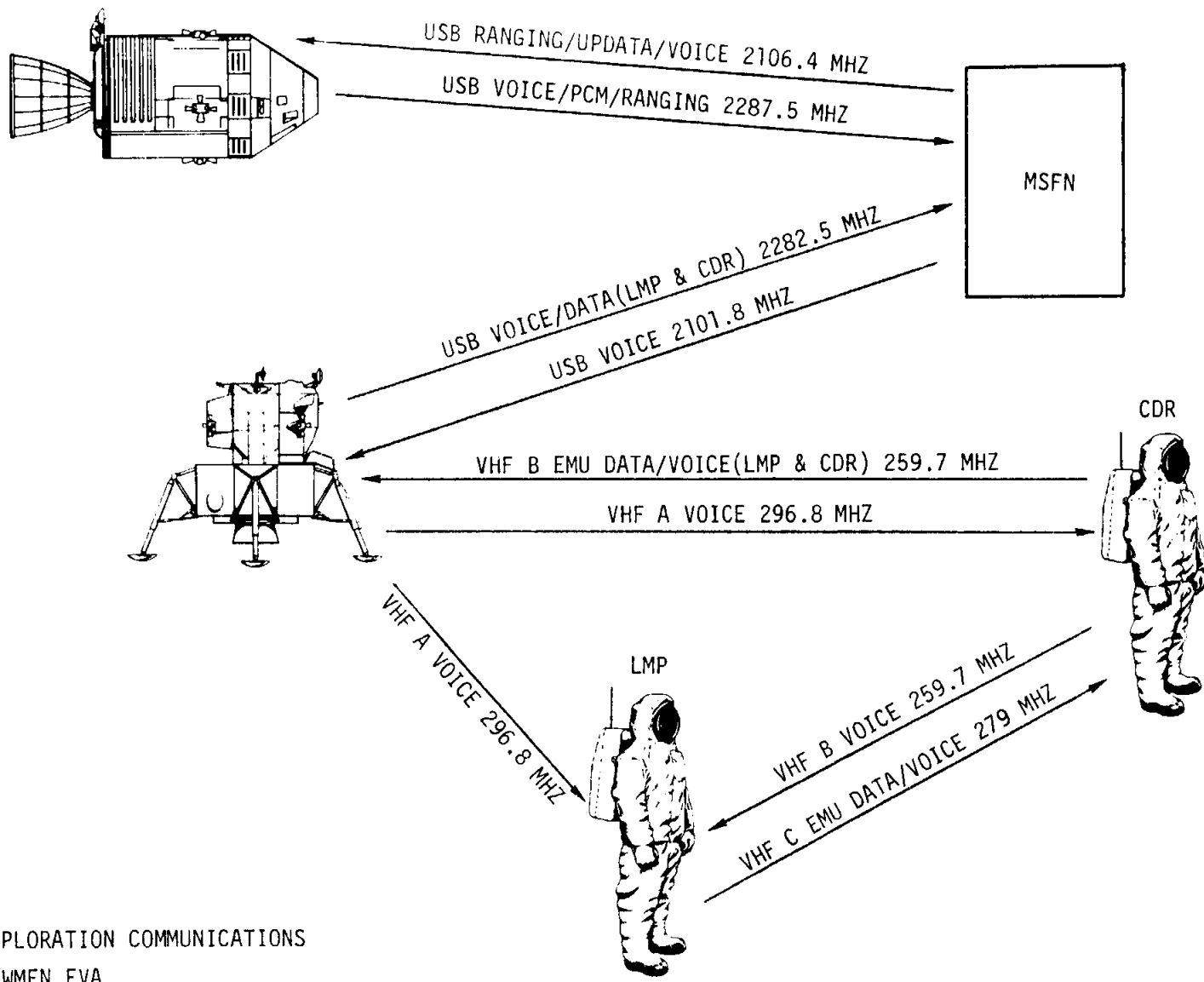
- A. Table 1-7 contains a summary of the expected block data update times.
- B. Table 1-10 is the Landmark Tracking Table.
- C. Table 1-11 is a schedule of the P23 cislunar navigation sightings.
- D. Table 1-12 is the Mission Activity Summary.

1-11



LUNAR EXPLORATION COMMUNICATIONS
ONE CREWMAN EVA
PRIMARY MODE

Figure 1-1



LUNAR EXPLORATION COMMUNICATIONS
BOTH CREWMEN EVA
EVCS DUAL MODE (RELAY)

Figure 1-2

TABLE 1-1

SC Coverage By MSFN Stations Using 85FT/210FT Dish/Antenna

	GOLDSTONE (GDS)		PARKS		HONEYSUCKLE (HSK)		MADRID (MAD)	
	AOS	LOS	AOS	LOS	AOS	LOS	AOS	LOS
EARTH ORBIT					1:00	1:06		
	1:29	1:34			2:36	2:37		
TRANS- LUNAR COAST	2:50	13:11						
					7:47	16:18		
							14:38	30:36
	22:49	30:36					30:36	30:37
	30:36	37:55			32:27	41:11	39:20	54:50
	47:16	62:05			56:34	65:29	63:36	78:52
	71:28	82:25			80:32	82:24		
TRANS- EARTH COAST	149:25	160:25					149:26	153:13
			159:15	159:41	154:54	164:00	162:08	177:09
	170:00	184:25						
					178:56	188:17		
			182:40	184:40			186:31	201:08
	194:30	208:29						
					203:12	214:07		
			206:22	210:32				
							212:56	215:12
				216:01	216:27			

TABLE 1-1 (CONTINUED)

SC Coverage By MSFN Stations Using 85FT/210FT Dish/Antenna

REV	GET AT END OF REV	GOLDSTONE (GDS)		PARKS AUSTRALIA		HONEYSUCKLE (HSK)		MADRID (MAD)	
		AOS	LOS	AOS	LOS	AOS	LOS	AOS	LOS
1	84:45	82:57	84:22			82:57	84:21		
2	86:53	85:05	86:11			85:05	86:30		
3	88:47					87:15	88:20	87:49	88:20
4	90:41					89:09	89:45	89:09	90:14
5	92:34							91:03	92:08
6	94:28							92:56	94:02
7	96:22	95:54	95:55					94:50	95:55
8	98:16	96:44	97:49					96:44	97:49
9	100:09	98:38	99:43					98:38	99:43
10	102:03	100:31	101:36					100:32	101:37
11	103:57	102:26	103:30					102:26	103:31
12	105:51	104:19	105:24						
13	107:49	106:12	107:24			106:12	107:23		
14	109:47	108:11	109:22			108:10	109:22		
15	111:46	110:09	111:42			110:09	111:21		
16	113:44					112:07	113:19	112:39	113:18
17	115:42					114:05	114:37	114:05	115:17
18	117:41							116:04	117:15
19	119:39							118:02	119:14
20	121:38	120:48	121:12					120:00	121:12

TABLE 1-1 (CONTINUED)

SC Coverage By MSFN Stations Using 85FT/210FT Dish/Antenna

REV	GET AT END OF REV	GOLDSTONE (GDS)		PARKS AUSTRALIA		HONEYSUCKLE (HSK)		MADRID (MAD)	
		AOS	LOS	AOS	LOS	AOS	LOS	AOS	LOS
21	123:36	121:58	123:10					121:59	123:11
22	125:34	123:57	125:09					123:57	125:09
23	127:32	125:55	127:07					125:56	127:07
24	129:31	127:54	129:06					127:54	128:37
25	131:29	129:52	131:04			130:20	131:04		
26	133:27	131:51	133:03			131:50	133:02		
27	135:26	133:49	135:01			133:49	135:01		
28	137:24	135:47	136:03			135:47	136:59		
29	139:22					137:46	138:57	137:46	138:57
30	141:21							139:44	140:56
31	143:19							141:42	142:54
32	145:17							143:41	144:52
33	147:16	145:45	146:51					145:39	146:51
34	149:14	147:37	148:48					147:37	148:49

TABLE 1-2
 APOLLO 14 TV SCHEDULE

DAY	DATE	CST	GET, HR:MIN	DURATION, HR:MIN	ACTIVITY SUBJECT	VEHICLE	STATION
SUNDAY	31 JAN	5:28 PM	03:05	00:25	TRANSPOSITION & DOCKING	CSM	GDS
WEDNESDAY	3 FEB	4:08 AM	61:45	00:45	INTERIOR & IVT TO LM	CSM	GDS/HSK
THURSDAY	4 FEB	7:23 PM	101:00	00:14	FRA MAURO LANDING SITE	CSM	GDS
FRIDAY	5 FEB	8:20 AM	143:40	04:00	LUNAR SURFACE EVA-1	LM	HSK/MAD
SATURDAY	6 FEB	3:59 AM	133:51	07:43	LUNAR SURFACE EVA-2	LM	HSK/GDS/MAD
SATURDAY	6 FEB	2:14 PM	143:51	00:06	RENDEZVOUS	CSM	MAD
SATURDAY	6 FEB	2:29 PM	144:06	00:04	DOCKING	CSM	MAD
SUNDAY	7 FEB	6:53 PM	172:30	00:30	INFLIGHT DEMONSTRATIONS	CSM	GDS

TABLE 1-3

FUEL CELL PURGE AND WATER DUMP SCHEDULE

<u>GET,</u> <u>HR:MIN</u>	<u>O₂ FUEL CELL PURGE</u> <u>AND WATER DUMP</u>		<u>H₂ FUEL CELL PURGE</u>		<u>REMARKS</u>
	<u>NUMBER</u>	<u>ΔTIME,</u> <u>HR:MIN</u>	<u>NUMBER</u>	<u>ΔTIME,</u> <u>HR:MIN</u>	
05:55	1	05:55			IF NO MCC-1
11:30	1	11:30			IF MCC-1 PERFORMED
30:15	2	24:20/18:45	1	30:15	MCC-2
60:20	3	30:05			MCC-3
84:50	4	24:30	2	54:35	LOI+2HR
111:40	5	26:50			LOS MIDPOINT
139:20	6	27:40	3	54:30	
166:00	7	26:40			MCC-5
193:10	8	27:10		53:50	IF NO MCC-6
194:10	8	28:10	4	54:50	IF MCC-6 PERFORMED
216:12		23:02/22:02			CM/SM SEPARATION

TABLE 1-4
LiOH CANISTER CHANGE SCHEDULE

CHANGE NO.	APPROXIMATE GET, HR:MIN	APPROXIMATE ΔT , HR	INSTALL		REMOVE & STOW	
			CANISTER	POSITION	CANISTER NO.	STOWAGE LOCATION
1	12:00	14	3	A	1	B5
2	26:10		12	4	B	2
3	38:00	13		5	A	3
4	51:10		13	6	B	4
5	64:12	12		7	A	5
6	76:10		14	8	B	6
7	90:15	13		9	A	7
8	103:38		16	10	B	8
9	119:30	27		11	A	9
10	147:05		15	12	B	10
11	162:10	12		13	A	11
12	174:00		13	14	B	12
13	187:00	12		15	A	13
14	199:00		11	16	B	14
15	210:00			17	A	15

TABLE 1-5
CSM BURN SCHEDULE

BURN MNVR	GETI BURN TIME	ΔVT , FPS	ULLAGE ΔV , FPS	REFSMAT	RESULTANT HA & HP	REMARKS
TLI	02:30:38 5 MIN 55.6 SEC	10353.1		PAD		S-IVB BURN
CSM/LM EJECTION	03:56 3.0 SEC	0.4	-----	PAD	-----	RCS BURN
MCC-1	11:36:33	-----	-----	PTC	-----	NOM ZERO
MCC-2	30:36:07 11.08 SEC	73.40	NOT REQ'D	PTC	-----	SPS BURN
MCC-3	60:38:14	-----	-----	PTC	-----	NOM ZERO
MCC-4	77:38:14	-----	-----	PTC	-----	NOM ZERO
LOI	82:38:14 6 MIN:06.6 SEC	2986.0	NOT REQ'D	LDG SITE	HA 170.00 HP 57.14	SPS BURN
DOI	86:56:57 21.38 SEC	206.6	4 JET 14.0 SEC	LDG SITE	HA 58.44 HP 9.77	SPS BURN
BAILOUT BURN	87:27:31 10.17 SEC	100.0	4 JET 14.0 SEC	LDG SITE		SPS BURN
UNDOCK & SEP	104:27:31 3.07 SEC	1.00	-----	LDG SITE	HA 59.48 HP 8.23	RCS BURN
CIRC BURN	105:46:48 3.79 SEC	72.46	4 JET 11.0 SEC	LDG SITE	HA 63.51 HP 56.04	SPS BURN
PC-1	118:09:40 18.4 SEC	360.70	4 JET 11.0 SEC	PLANE CHANGE	HA 61.71 HP 57.41	SPS BURN
CSM SEP BURN	146:28:31	1.00		LIFT-OFF	HA 58.26 HP 60.24	3 AXIS RCS BURN
TEI	149:14:50 2 MIN 27.4 SEC	3449.55	4 JET 12 SEC	TEI	-----	SPS BURN
MCC-5	166:14:50	-----	-----	PTC	-----	NOM ZERO
MCC-6	194:26:59	-----	-----	PTC	-----	NOM ZERO
MCC-7	213:26:59	-----	-----	ENTRY	-----	-----

NOTES: 1. HA & HP ARE HEIGHTS ABOVE LANDING SITE RADIUS (937.73488 NM).
2. BURN TIME DOES NOT INCLUDE ULLAGE OR TAILOFF BT.

TABLE 1-6

LM BURN SCHEDULE

BURN MNVR	GETI BURN TIME	Δ VT, FPS	ULLAGE Δ V,FPS	REFSMMAT	RESULTANT HA & HP	REMARKS
PDI	108:42:01 11 MIN 31.5 SEC	6637.7	2 JET 7.5 SEC	LDG SITE	-----	DPS BURN
ASCENT	142:24:29 7 MIN 10.7 SEC	6053.4	NONE	LIFT-OFF	HA 50.96 HP 9.14	APS BURN
TPI	143:09:40 4.0 SEC	92.2	2 JET 13 SEC	LIFT-OFF	HA 61.0 HP 44.6	APS BURN
LM DEORBIT	147:52:58.9 1 MIN 17 SEC	183.7		LIFT-OFF	N/A	RCS BURN

NOTES: 1. HA & HP ARE HEIGHTS ABOVE LANDING SITE RADIUS (937.73488 NM).
2. BURN TIME DOES NOT INCLUDE ULLAGE OR TAILOFF BT.

TABLE 1-7
FINAL APOLLO 14 RETURN TO EARTH
BLOCK DATA SCHEDULE

BLOCK DATA	PASSED DATA, GET, HR:MIN	GETI, HR:MIN	ΔV , FPS	GETIL, HR:MIN	i_R , DEG	PAD TYPE
TLI + 90 MIN	1:40	4:00	7488	12:12	32.8°D	COMPLETE P30
L/O + 8 HR	1:40	8:00	3209	46:29	32.8°A	P37
L/O + 15 HR	6:00	15:00	5557	45:56	32.8°A	P37
L/O + 25 HR	14:00	25:00	4873	70:03	33.0 A	P37
L/O + 35 HR	14:00	35:00	7376	69:28	33.3 A	P37
L/O + 45 HR	14:00	45:00	5630	93:49	34.1 A	P37
L/O + 60 HR	14:00	60:00	5166	117:53	36.9 A	P37
LOI-5 FLYBY	35:00	77:38	403	165:57	40.0 D	COMPLETE P30(DOCKED)
PC + 2	76:00	84:36	1519	141:42	30.1 D	ABB P30 (DOCKED)
TEI 4	79:30	91:15	3955	141:47	40° A	ABB P30
TEI 5	85:05	92:30	3220	166:14	40° A	ABB P30
TEI 12	89:20	105:54	3630	166:24	40° A	ABB P30
TEI 19	100:45	119:38	3326	191:13	40° A	ABB P30
TEI 34 (PRELIM)	115:00	149:15	3451	216:40	40° A	COMPLETE P30
TEI 34 (NOM)	147:40	149:15	3451	216:40	40° A	COMPLETE P30
TEI 35	147:40	151:14	3523	216:16	40° A	ABB P30

NOTES:

1. The TLI + 90 minute abort is to the AOL. All other block data maneuvers are to the MPL line [Nominal TEI (REV 34) is to EOM ϕ, λ].
2. Lift-off + 15 hours abort assumes no MCC-1.
3. Lift-off + 35 hours abort assumes MCC-2.
4. Update flyby early if pericyynthion is not clear of moon.
5. Pericynthion + 2 hours fast return to MPL assumes MCC-4.
6. TEI 4 assumes LOI and no DOI.
7. TEI 5 assumes DOI.
8. TEI 12 assumes no circularization maneuver.
9. TEI 19 assumes circularization and no plane change maneuvers.
10. TEI 34 (PRELIM) assumes the plane change maneuver.
11. All TEI's are $i_R = 40^\circ$ ascending returns.

TABLE 1-8

APOLLO 14/LM - 8 DSEA SCHEDULE

ACTIVITY	GET, HR:MIN	MODE	RECORD TIME x DUTY CYCLE (%) = TAPE TIME USED, HR:MIN	TOTAL TAPE TIME USED* HR:MIN
UNDOCK PREP TO POST-UNDOCKING	104:26 104:35	ICS/PTT	00:09 x 100% = 00:09	00:09
PDI PREP TO POST-TD (PDI+20)	108:20 109:02	VOX	00:42 x 63% = 00:27	00:36
EVA-1 PLSS COMM TO POST-EVA-1	112:50 117:55	VOX	5:05 x 63% = 3:12	03:48
EVA-2 PLSS COMM TO POST-EVA-2	133:35 138:40	VOX	5:05 x 63% = 3:12	07:00
LIFT-OFF (-16) TO LIFT-OFF (-) 2	142:08 142:22	ICS/PTT	00:14 x 100% = 00:14	07:14
LIFT-OFF (-) 2 TO INSERTION	142:22 142:34	VOX	00:12 x 63% = 00:08	07:22
INSERTION TO POST-DOCKING	142:34 144:15	ICS/PTT	1:41 x 100% = 1:41	09:03

*REMAINING TAPE WILL BE REQUIRED IF EVA'S ARE EXTENDED

TABLE 1-9
BATTERY CHARGE SCHEDULE

GET, HR:MIN	BATTERY
04:25	B
26:15	A
32:20	A
53:00	B
106:15	B
112:30	A
132:20	B
136:15	A
166:18	B
186:25	A

TABLE 1-10
 LANDMARK AND LANDING SITE DATA

<u>SITE</u>	<u>REV</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>*ALTITUDE (NM)</u>
MÖSTING A	2	3.250°S	5.283°W	000.00
H-3	3	3.691°S	7.542°W	000.00
14-1	12, 13, 15	4.046°S	15.600°W	-000.44
14-2		3.610°S	15.317°W	-000.15
14-3		3.919°S	15.139°W	-000.38
14-4		3.470°S	14.890°W	-000.87
RP3	15	3.533°S	131.700°E	000.00
RP5	15	10.567°S	99.400°E	000.00
DAGUERRE 66	15	11.717°S	33.200°E	000.00
LDG SITE	17	3.672°S	17.463°W	-000.76
RP2	18	0.283°S	141.250°E	000.00
12-1	18	5.736°S	112.309°E	000.00
DOLLOND E	18	10.433°S	15.733°E	000.00
FM1	18	3.246°S	17.317°W	000.00
RP4	29	5.850°S	120.250°E	000.00
ANSGARIUS N	29	11.633°S	81.067°E	000.00
DE2	29	9.250°S	19.592°E	000.00
ENKE E	29	0.283°N	40.300°W	000.00

*Difference between landmark radius vector and 938.4935 NM (mean lunar radius)

TABLE 1-11

P23 CISLUNAR NAVIGATION

<u>GET</u>	<u>STAR/HORIZON</u>	<u>COMMON NAME</u>
9:30	72/EFH 236/ENH 53/EFH 202/ENH	GACRUX DELTA OPHIUCHI GAMMA CENTAURI ZETA OPHIUCHI
28:30	202/ENH 165/EFH 33/ENH 172/EFH	ZETA OPHIUCHI ETA CENTAURI ANTARES BETA LIBRAE
164:00	40/ENH 212/EFH 33/EFH 35/EFH* 211/EFH* 214/ENH*	ALTAIR DELTA SAGITTARII ANTARES RASALHAGUE BETA OPHIUCHI ZETA SAGITTARII
166:45 (TEI+17.5)	16/MFH 50/MFH 22/MNH	PROCYON POLLUX REGULUS
167:15 (TEI+18)	40/ENH 212/EFH 33/EFH	ALTAIR DELTA SAGITTARII ANTARES
173:00 (TEI+24)	40/ENH 212/EFH 33/EFH 35/EFH* 211/EFH* 42/ENH*	ALTAIR DELTA SAGITTARII ANTARES RASALHAGUE BETA OPHIUCHI PEACOCK
188:27 (EI-28)	37/EFH 33/EFH 120/ENH 40/ENH* 35/EFH* 211/EFH*	NUNKI ANTARES AL NA'IR ALTAIR RASALHAGUE BETA OPHIUCHI

*Constraint Stars

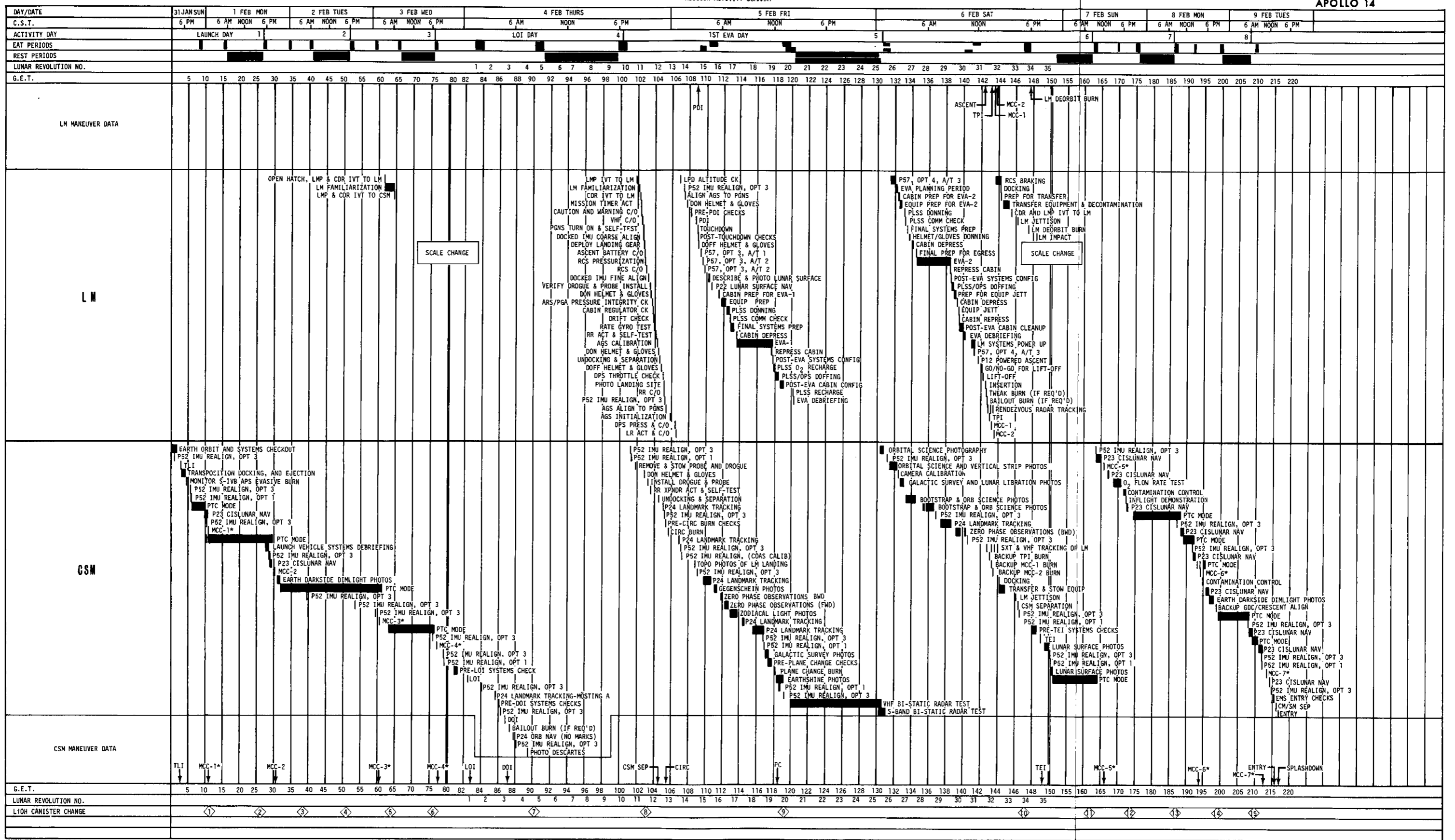
TABLE 1-11

P23 CISLUNAR NAVIGATION (CONT)

<u>GET</u>	<u>STAR/HORIZON</u>	<u>COMMON NAME</u>
192:27 (EI-24)	37/EFH 33/EFH 120/ENH	NUNKI ANTARES AL NA'IR
196:27 (EI-20)	37/EFH 33/EFH 120/ENH 40/ENH* 211/EFH* 214/EFH*	NUNKI ANTARES AL NA'IR ALTAIR BETA OPHIUCHI ZETA SAGITTARII
208:27 (EI-8)	44/ENH 212/EFH 213/EFH 45/ENH	ENIF DELTA SAGITTARII LAMBDA SAGITTARII FOMALHAUT
211:27 (EI-5)	22/MFH 64/MNH 23/MFH 151/MFH 16/MNH	REGULUS ALHENA DENEbola GAMMA-PRIME LEONIS PROCYON
213:57 (EI-2.5)	22/MFH 23/MFH 16/MNH	REGULUS DENEbola PROCYON

*Constraint Stars

TABLE 1-12
MISSION ACTIVITY SUMMARY
APOLLO 14



*MAY NOT BE REQUIRED

SECTION 2 - MISSION OBJECTIVES

SECTION 2
MISSION OBJECTIVES

This section contains an activity summary, reflecting the objectives for Apollo 14 as described in "Mission Requirements H-3 Type Mission." Table 2-1 provides a functional breakdown of the objectives and indicates the page(s) in the timeline where the activity occurs. The alphanumeric listing presented in Table 2-1 is not intended to represent a priority or a sequential listing.

Details of the implemented test requirements are adequately covered in the Mission Requirements Document, the Lunar Surface Procedures Plan, and the Photographic and TV and Procedures Document.

TABLE 2-1
MISSION OBJECTIVE SUMMARY
REFERENCE

NUMBER	OBJECTIVE	ACTIVITY	PAGE NUMBER
4.1	Photographs of Candidate Exploration Sites		
4.1.1	Obtain photographs of a selected lunar site from low altitude	LUNAR ORBIT	3-89
4.1.2	Obtain stereoscopic photographs and landmark tracking of selected lunar sites	LUNAR ORBIT	3-176-178/190-194
4.1.3	Obtain high-resolution photographs of selected lunar sites	LUNAR ORBIT	3-180-186
4.2	Modular Equipment Transporter Evaluation		
4.2.1	Demonstrate that an astronaut can unload and deploy the MET from a landed LM	EVA-1	3-133
4.2.2	Obtain data on the dynamic interaction between the MET and the lunar surface	EVA-2	3-183
4.3	Selenodetic Reference Point Update	LUNAR ORBIT	3-83/120-124
4.3.1	Obtain lunar landmark tracking data to permit an update of the selenodetic coordinates of selected lunar reference points.	LUNAR ORBIT	3-138-142 3-190-194
4.4	Transearth Lunar Photography		
4.4.1	Obtain lunar photographs after TEI to permit extension of selenodetic control and mapping	TEC	3-227/231/232
4.5	EMU Water Consumption Measurement		
4.5.1	Obtain data for improving confidence in present method of computing water remaining during EVA	LUNAR SURFACE	3-153
4.6	CSM Oxygen FLOW RATE		
4.6.1	Obtain data on a single O2 tank under a maximum flow rate conditions when the quantity is between 60% and 40%	TEC	3-244-248
4.6.2	Obtain data on a single O2 tank under nominal flow rate conditions when the quantity is between 20% and 5%	TEC	3-248-288
4.7	Visibility at High Sun Angles		
4.7.1	Obtain crew comments and photographs while viewing pre selected target areas under specified sun elevation and line-of-sight elevation angles	LUNAR ORBIT	3-128-130 3-196-198

TABLE 2-1
MISSION OBJECTIVE SUMMARY
REFERENCE (CONT)

NUMBER	OBJECTIVE	ACTIVITY	PAGE NUMBER
4.8	Thermal Coating Degradation		
4.8.1	Obtain data on the optical properties of twelve thermal control coatings after being covered with lunar dust	EVA-2	3-183/184
4.8.2	Obtain data on the optical properties of twelve thermal control coatings after the lunar dust has been removed by brushing	EVA-2	3-183/184
4.9	EVA Communication System Performance		
4.9.1	Determine the effects upon communication of obstructing lunar surface features between EVC-1 and the LM	EVA-2	3-187
4.10	CSM Orbital Science Photography		
4.10.1	Obtain photographs of lunar surface areas of prime scientific interest, using the Lunar Topographic Camera	LUNAR ORBIT	3-89/118 3-180-182 3-186 3-225
4.10.2	Obtain photographs of lunar surface areas of prime scientific interest, using the Hasselblad camera with the 250mm lens.	LUNAR ORBIT	3-174/178 3-184-186/198
4.10.3	Obtain the photographs of specific segments of the lunar surface in earthshine and in low level light near the terminator, using the 16mm sequence camera with the 18mm lens and either type of Hasselblad camera with an 80mm lens	LUNAR ORBIT	3-150-152
4.11	Dim Light Photography		
4.11.1	Obtain photographs of diffuse galactic light of four celestial subjects	LUNAR ORBIT	3-144/178/180
4.11.2	Obtain photographs of zodiacal light as the CSM approaches sunrise	LUNAR ORBIT	3-132
4.11.3	Obtain photographs of the Lunar libration region, L4	LUNAR ORBIT	3-180
4.11.4	Obtain photographs through the CSM sextant of the earth's darkside	TLC/TEC	3-33/271
4.11.5	Obtain earth limb photographs during solar eclipse by the earth; and obtain comet photography, if appropriated trajectory and celestial conditions exist	TEST CONDITIONS DO NOT EXIST	
5.1	Contingency Sample Collection		
5.1.1	Provide a contingency sample for postflight scientific investigation	EVA-1	3-135

TABLE 2-1
MISSION OBJECTIVE SUMMARY
REFERENCE (CONT)

NUMBER	OBJECTIVE	ACTIVITY	PAGE NUMBER
5.2	Selected Sample Collection		
5.2.1	Collect rock samples and fine-grained fragmental material	EVA-2	3-189
5.2.2	Collect one large rock	EVA-2	3-189
5.5	Apollo Lunar Surface Experiments Package		
5.5.1	Deploy the passive seismic experiment (S-031)	EVA-1	3-141
5.5.2	Deploy the active seismic experiment (S-033)	EVA-1	3-141
5.5.3	Deploy the suprathreshold ion detector experiment (S-036) and the cold cathode ion gauge experiment (S-058)	EVA-1	3-141
5.5.4	Deploy the charged particle lunar environment experiment (S-038)	EVA-1	3-141
5.5.5	Deploy the lunar dust detector experiment (M-515)	EVA-1	3-139
5.6	Lunar Geology Investigation		
5.6.1	Examine, describe, photograph, and collect lunar geologic samples for return to earth	EVA-1 & 2	3-145/185/187
5.6.2	Examine, describe, and photograph field relationships (such as shape, size, range, patterns of alignment or distribution) of all accessible types of lunar topographic features	EVA-2	3-185/187/189
5.6.3	Collect special soil samples (i.e., core tube samples, a 4-kilogram sample and trench samples) from the lunar surface and subsurface	EVA-1	3-143
5.6.4	Collect large equidimensional rock samples from the lunar surface	EVA-1	3-142-145
5.6.5	Collect special container soil samples (i.e., lunar environment soil sample and exhaust-contaminated sample) from the lunar surface and subsurface	EVA-2	3-189/191
5.7	Laser Ranging Retro-Reflector		
5.7.1	Deploy the laser ranging retro-reflector (LR3) experiment (S-078)	EVA-1	3-141
5.8	Solar Wind Composition		
5.8.1	Conduct the solar wind composition experiment (S-080)	EVA-1 & 2	3-135/193

TABLE 2-1
MISSION OBJECTIVE SUMMARY
REFERENCE (CONT)

NUMBER	OBJECTIVE	ACTIVITY	PAGE NUMBER
5.9	CSM/LM S-Band Transponder Experiment		
5.9.1	Obtain S-Band Doppler tracking measurements of the docked CSM/LM and the undocked CSM during non powered flight while in lunar orbit	PASSIVE	
5.9.2	Obtain S-Band Doppler tracking measurements of the LM during non-powered portions of the lunar descent	PASSIVE	
5.9.3	Obtain S-Band Doppler tracking measurements of the LM ascent stage during non powered portions of the descent for lunar impact	PASSIVE	
5.10	Down-Link Bi-static Radar Observations of the Moon		
5.10.1	Obtain data on the spectral properties of S-band bistatic radar echoes from the lunar crust	CSM SOLO	3-174-176
5.10.2	Obtain data to allow a determination of the Brewster angle of the lunar crust in the S-band	CSM SOLO	3-174-176
5.10.3	Obtain data on the spectral properties of VHF bi-static radar echoes from the lunar crust	CSM SOLO	3-152-176
5.10.4	Obtain data to allow a determination of the Brewster angle of the lunar crust in the VHF band	CSM SOLO	3-152-176
5.11	Portable Magnetometer		
5.11.1	Obtain data on the local magnetic field by use of a portable magnetometer	EVA-2	3-183/185/189
5.12	Soil Mechanics		
5.12.1	Obtain data on the lunar surface and subsurface characteristics relative to the origin and nature of the lunar soil, to construction of a shelter and to mobility of a roving vehicle	EVA-2	3-189
5.12.2	Obtain data on lunar soil mechanical behavior	EVA-2	3-189
5.12.3	Obtain a representative sample of fine-grained fragmental material	EVA-1	3-143
5.13	Gegenschein from Lunar Orbit		
5.13.1	Obtain data on the spatial distribution of the Gegenschein and Moulton point	CSM SOLO	3-126-128
S-176	Apollo Window Meteoroid Experiment	PASSIVE	
T-029	Pilot Describing Function	PASSIVE	

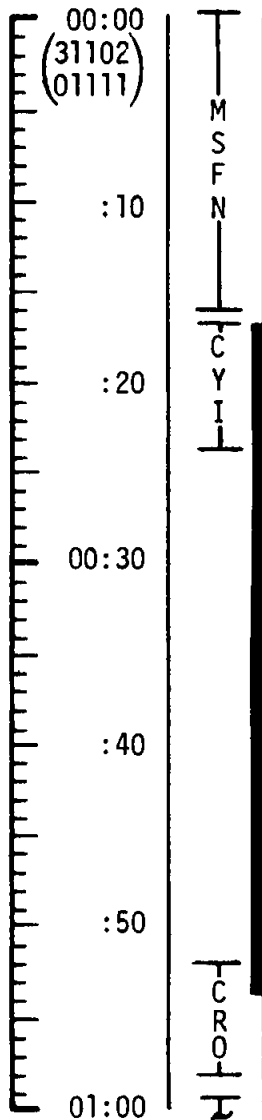
SECTION 3 - DETAILED TIMELINE

MCC-M

1423 CST

FLIGHT PLAN

NOTES



LIFT-OFF JANUARY 31, 1971

CSM LAUNCH CHECKLIST

SECO
INSERTION AND SYSTEMS CHECKS PAGE L 2-11

L/O 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)

THE DAP LOAD WILL
BE SHOWN WHEN
APPLICABLE IN THE
TIME COLUMN OR
AS A NOTE TO
INDICATE STATUS

UPDATE TO CSM
Z TORQUING ANGLE

P52 IMU REALIGN
OPTION 3 REFSMMAT
(LAUNCH ORIENT)

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

DUMP DSE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	00:00 - 01:00	1/E.0.	3-1

MCC-H

1523 CST

FLIGHT PLAN

NOTES

01:00
 (31102)
 (01111)
 :10
 :20
 01:30
 :40
 :50
 02:00

H
S
K

M
S
F
N

S
Y

REPORT: GYRO TORQUING ANGLES

DUMP DSE

UPDATE TO CSM

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

SCS ATT REF COMPARISON CHECK
 EXTEND DOCKING PROBE

PAGE L 2-17
 PAGE L 2-18

GO/NO-GO FOR PYRO ARM (CUE MSFN)
 LOGIC ON

TLI PREPARATION PAGE L 2-23

PYRO ARM

AS A GENERAL RULE,
 EXCEPT DURING TEC,
 UNDOCKED PERIODS
 AND WHILE THE LM
 IS ON THE LUNAR
 SURFACE, MCC-H
 WILL 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

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	01:00 - 02:00	1/E.0.	3-2

FLIGHT PLAN

TLI
BURN TABLE

P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TERMINATE	+45° TERMINATE	$V_i = \text{PAD VALUE} + 2 \text{ SEC}$	NO TRIM

TABLE 3-1
3-4

MCC-H

1623 CST

FLIGHT PLAN

NOTES

02:00
 (31102)
 (01111)

:10

:20

02:30

:40

(11103)
 (01111)

:50

03:00

T
C
R
O

A
R
I
A

M
S
F
N

NOMINAL TLI CHECKLIST PAGE L 2-24
 TB6 02:21:00.1

GO/NO-GO FOR TLI
 P47 THRUST MONITOR

TLI

POO CMC IDLING
 V66 SET CSM S.V. INTO LM S.V.
 TLI BURN STATUS REPORT
 CDR - TRANS TO CENTER COUCH, CMP - LEFT COUCH
 LMP - RIGHT COUCH
 WASTE STOWAGE VENT - CLOSED
 NORMAL SC/BOOSTER SEPARATIONS PAGE L 3-1
 DIRECT O₂ VLV - OPEN, UNTIL CABIN IS 5.7 PSI, THEN CLOSE
 V48 (11103)(01111)

S-IVB MNVRS TO SEP ATT 02:51:34

(000,158,319) OMNI_C

GO/NO-GO FOR TRANSPOSITION AND DOCKING

CSM SEPARATION PREPARATION PAGE L 3-1

TIG: 02:30:38
 BT: 5 MIN 55.6 SEC
 ΔVT: 10 353.1 FPS

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

GO/NO-GO FOR TLI

DUMP DSE

GO/NO-GO FOR T&D

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	02:00 - 03:00	1/TLC	3-5

MCC-H

1723 CST

FLIGHT PLAN

NOTES

03:00
 (11102)
 (01111)

:10

:20

03:30

(21101)
 (X1111)

:40

:50

04:00

T
V
M
S
F
N

CSM/S-IVB SEP 03:01
 CSM MNVR TO DOCK ATT (301,338,041)(03:05)
 V48 (11102)(01111) HGA P -3, Y 299
 TV (GDS) 03:05 TO 03:30 CM4/TV - PEAK, BRKT (f22)
 VISUALLY INSPECT AND PHOTOGRAPH S-IVB AND LM

DOCK 03:11

CSM/LM PRESSURE EQUALIZATION PAGE L 3-5
 TUNNEL HATCH REMOVAL PAGE L 3-5
 DOCKING LATCH VERIFICATION PAGE L 3-6
 LM UMBILICAL CONNECTIONS PAGE L 3-6
 HATCH INSTALLATION PAGE L 3-6
 PRE LM SEP & EJECTION PAGE L 3-7

S-IVB NON-PROPULSIVE VENT START (03:36:33.7)
 V48 (21101) (X1111)
 GO/NO-GO PYRO ARM (CUE MSFN)
 LOGIC ON
 PYRO ARM
 P47 THRUST MONITOR

S-IVB NON-PROPULSIVE VENT COMPLETE (03:51:33.7)
 PHOTOGRAPH LM EJECTION

CSM/LM EJECTION
 P00, V66 SET CSM S.V. INTO LM S.V.
 REPORT: GOOD EJECTION

T&D MNVR
 +X FOR 3 SEC ($\Delta V \approx 0.5$ FPS),
 AFTER 15 SEC PITCH UP AT
 0.5°/SEC. V49 AUTO MNVR
 TO DOCKING ATT. NULL
 TRANSLATION AND RATES,
 +X FOR 4 SEC ($\Delta V \approx 0.7$ FPS)

DURING TLC, HGA IS
 REQUIRED ONLY FOR
 TD&E, TV TRANSMISSION,
 AND MCC'S. THE
 ANTENNA WILL BE
 STOWED AT OTHER TIMES.
 DURING PTC
 MCC-H WILL COMMAND
 OMNI SELECTION.

SPRING ACTUATOR
 $\Delta V \approx 0.8$ FPS. 5 SEC
 AFTER EJECTION THERE
 IS A 4 JET RCS -X
 TRANSLATION FOR 3 SEC
 ($\Delta V \approx 0.4$ FPS). TOTAL
 $\Delta V \approx 1.2$ FPS.

TIG: 03:56
 BT: 3 SEC
 ΔVT : 0.4 FPS
 ULLAGE: NONE
 ORBIT: N/A

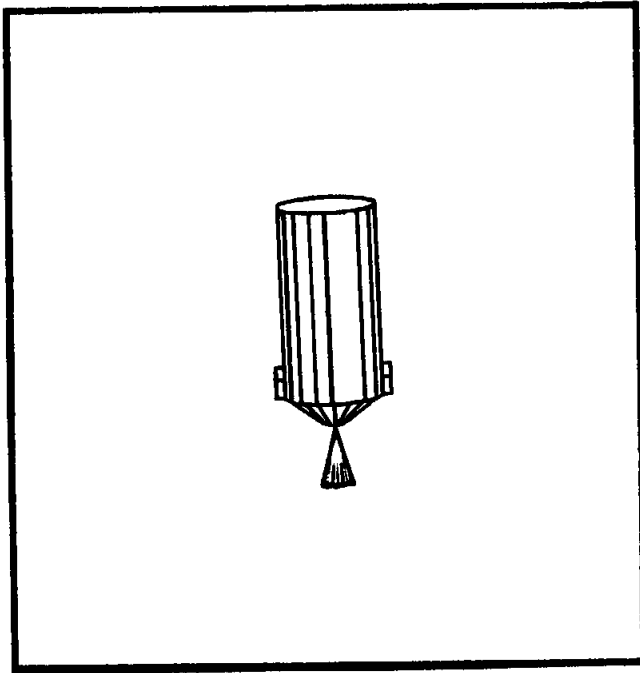
GO/NO-GO FOR
 PYRO ARM AND
 CSM/LM EJECTION

TLI CUTOFF +
 1 HR 20 MIN

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	03:00 - 04:00	1/TLC	3-6

GET 04:19

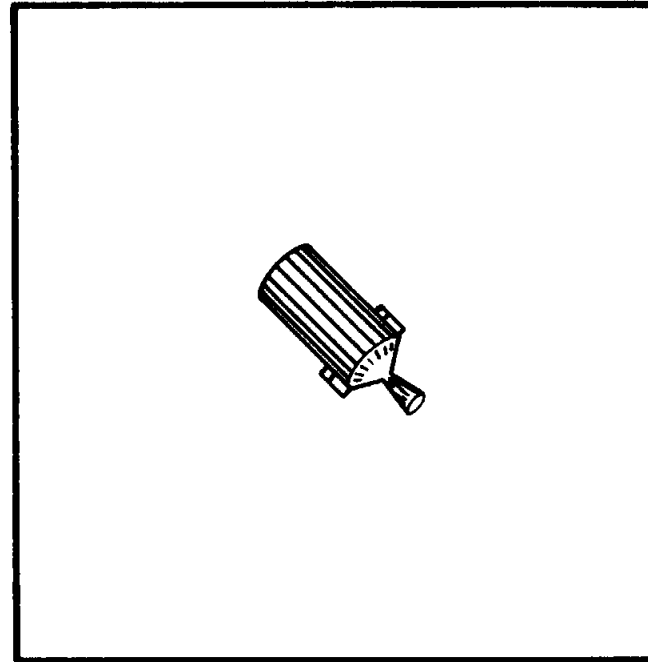
FOV 5°



S-IVB APS EVASIVE INITIATION
CSM/S-IVB RANGE 1583 FT

GET 04:40

FOV 1°



S-IVB LOX DUMP INITIATION
CSM/S-IVB RANGE 12 023 FT

MCC-H

1823 CST

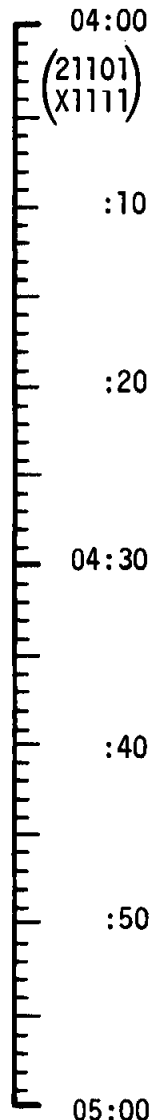
FLIGHT PLAN

NOTES

GO FOR S-IVB YAW
MNVR INITIATION

GO/NO-GO FOR S-IVB
EVASIVE BURN

DUMP DSE



V49 MNVR TO VIEW S-IVB IN HATCH WINDOW BY 04:09
(090,340,356) OMNI D
REPORT: GO FOR S-IVB YAW MNVR
VISUALLY INSPECT S-IVB/IU THERMAL SHROUD, TAKE PHOTOS IF
DAMAGE IS EVIDENT

S-IVB YAW MNVR 04:09 (GROUND COMMAND)

REPORT: GO FOR S-IVB EVASIVE BURN

S-IVB APS EVASIVE BURN 04:19 (GROUND COMMAND)

CHARGE BATTERY B

S-IVB MNVRS TO PROPELLANT DUMP ATT (04:29)

REPORT: LM/CM ΔP

S-IVB CONTINUOUS H₂ VENT-ON (04:36)

V49 MNVR TO P52 ATTITUDE (05:20)

(230,300,356) HGA P 31, Y 310

S-IVB LOX DUMP (04:40)

DOFF PGA'S

TRANSFER ITEMS OUT OF PGA POCKETS
ZIP SUIT AND INSTALL ELECTRICAL
COVER PRIOR TO STOWING (PGA BAG)
STOW COMM CARRIERS & UCTA (PGA BAG)

THE MNVR TO ACQUIRE
THE S-IVB WILL BE
PERFORMED AT 0.2°/
SEC AND WILL BE INI-
TIATED AFTER GOOD
EJECTION IS VERIFIED

GO FOR S-IVB YAW MNVR
INDICATES THAT THE
S-IVB IS IN THE CREW
FIELD OF VIEW AND
ADEQUATE SPACECRAFT
SEPARATION HAS BEEN
ACHIEVED.

THE S-IVB YAW MNVR
WILL BE PERFORMED
NOMINALLY AT LM
EJECTION +13 MIN

EVASIVE BURN ΔV
≈ 9.4 FPS

LOX DUMP ΔV ≈ 28 FPS

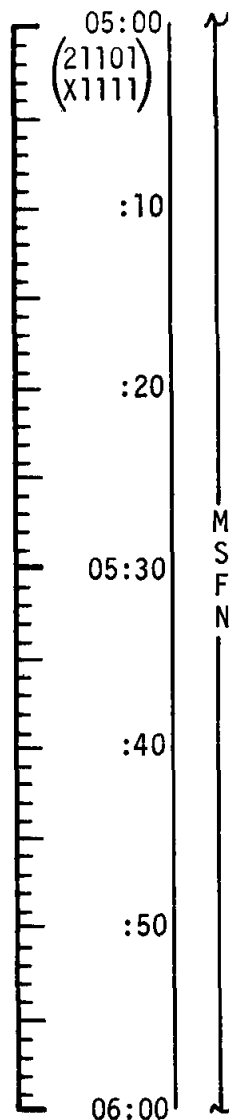
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	04:00 - 05:00	1/TLC	3-9

MCC-H

1923 CST

FLIGHT PLAN

NOTES



PREPARE FOR LAUNCH VEHICLE
 SYSTEMS PERFORMANCE DEBRIEFING
 AT 27 HOURS. SEE QUESTIONS ON
 PAGE 3-28

ATT DEADBAND - MIN
 RATE - LOW
 BMAG (3) - ATT 1/RATE 2
 SC CONT - SCS

P52 IMU REALIGN
 OPTION 3 REFSMMAT
 (LAUNCH ORIENT)

REPORT: GYRO TORQUING ANGLES

P52 IMU REALIGN
 OPTION 1 PREFERRED
 (PTC ORIENT)

SC CONT - CMC
 BMAG (3) - RATE 2

OMNI C

SECURE HGA, HGA TRACK - MAN HGA P -52, Y 270

O₂ FUEL CELL PURGE } IF NO MCC-1

WASTE WATER DUMP

VHF A SIMPLEX - OFF

VERIFY WASTE STOWAGE VENT VALVE - VENT

STARS _____, _____

SA _____, _____

TA _____, _____

SC INTERIOR PHOTOGRAPHY AT CREW OPTION
 CM/DAC/10/CIN- SPOT
 (T2.8,1/60,3) 6 fps
 (87% MAG)
 (MAG (H) _____, FR # _____)

P52 IMU REALIGN

N71: _____, _____

N05: _____

N93: _____

X _____

Y _____

Z _____

GET _____: _____: _____

UPLINK TO CSM
 DESIRED ORIENTATION
 (PTC)
 ZERO TRUNNION BIAS

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

P37 PAD ASSUMES
 NO MCC-1

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	05:00 - 06:00	1/TLC	3-10

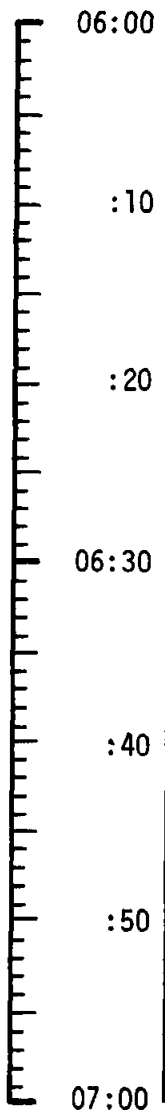
MCC-H

2023 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
QUADS TO ENABLE
FOR PTC SPINUP



M
S
F
N

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N) PAGE G 8-2
 V49 MNVR TO PTC ATTITUDE
 (N20,090,000)
 V79 (-0.3750)
 (+030.00)
 (+00000)

CREW EXERCISE PERIOD

PTC

S-IVB APS MCC-1
 GET ≈ 06:30
 ΔV ≈ 30 FPS
 DAP LOAD STATUS
 (21101)(X1111)

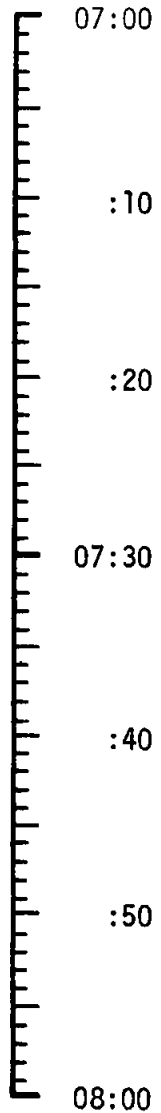
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	06:00 - 07:00	1/TLC	3-11

MCC-H

2123 CST

FLIGHT PLAN

NOTES



M
S
F
N

EAT PERIOD

PTC

DAP LOAD STATUS
(21101)(X1111)

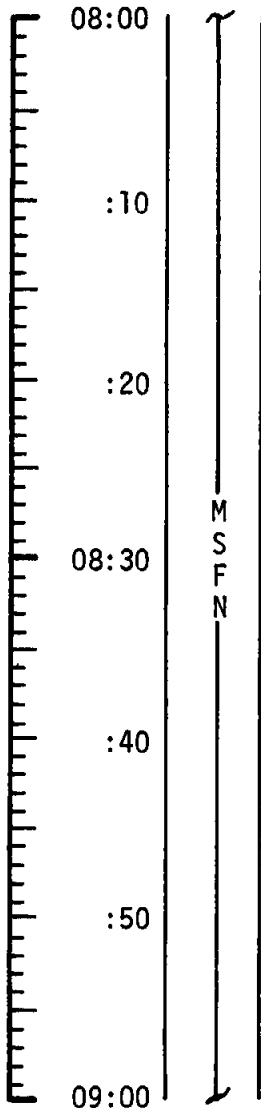
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	07:00 - 08:00	1/TLC	3-12

MCC-H

2223 CST

FLIGHT PLAN

NOTES



DAP LOAD STATUS
(21101)(X1111)

PTC

GET: 9:00

F.O.V. 10°

EAT PERIOD

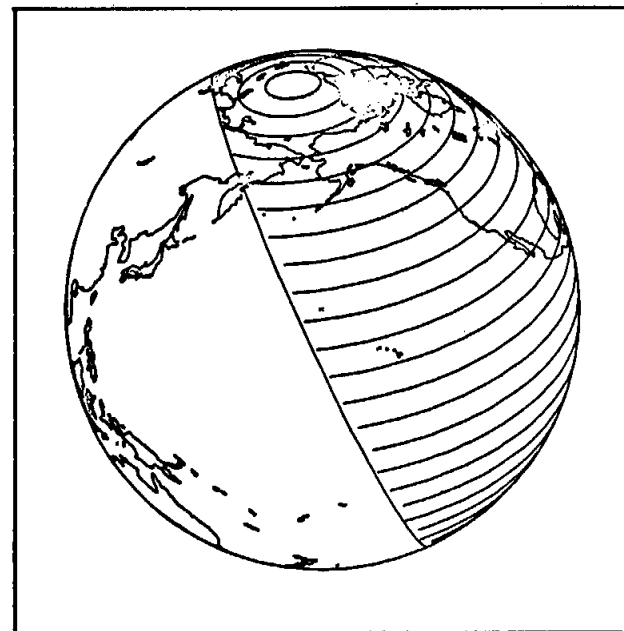
CSM SYSTEMS CHECKLIST

DEACTIVATE PRIMARY EVAP

PAGE S 1-13

COMM MODE -
NORMAL LUNAR CONFIGURATION
COAST AWAKE

PAGE S 1-24



S-IVB MCC-2 GET ≈ 09:30
ΔV IS NOMINALLY ZERO
EARTH DISTANCE
≈ 44 241 NM

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	08:00 - 09:00	1/TLC	3-13

MCC-H

2323 CST

FLIGHT PLAN

NOTES

09:00

:10

:20

09:30
(21101)
(X1111)

:40

:50

10:00

P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES

CSM G&C CHECKLIST

Δ V TEST & NULL BIAS CHECK PAGE G 2-5
REPORT: BIAS

EXIT G&N PTC PAGE G 8-3
V49 MNVR TO OPTICS CALIBRATION ATTITUDE
(153,224,328)

OMNI A
P23 CISLUNAR NAVIGATION
OPTICS CALIBRATION STAR N70 (00034)
POO

V49 MNVR TO SIGHTING ATTITUDE
(173,275,310) OMNI B
V67 (+80000) (+00070) (+00003)

P23 CISLUNAR NAVIGATION
5 MARKS ON EACH STAR, UPDATE STATE VECTOR
1. N70 (00000) (00000) (00120)
N88 (-54083) (-07011) (-83821)

PTC

DAP LOAD STATUS
(21101)(X1111)

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

LOAD W MATRIX

72 GACRUX
(EFH)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	09:00 - 10:00	1/TLC	3-14

MCC-H

0023 CST

FLIGHT PLAN

NOTES

10:00
 (21101)
 (X1111)
 :10
 :20
 10:30
 :40
 :50
 11:00

M
S
F
N

2. N70 (00000)(00000)(00110)
N88 (-44989)(-89085)(-06316)
3. N70 (00000)(00000)(00120)
N88 (-64872)(-11412)(-75242)
4. N70 (00000)(00000)(00110)
N88 (-35412)(-91724)(-18240)

POO
 V49 MNVR TO OPTICS CALIBRATION ATTITUDE
 (153,224,328) OMNI A
 P23 CISELUNAR NAVIGATION
 OPTICS CALIBRATION STAR N70 (00034)

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N) PAGE G 8-2
 V49 MNVR TO PTC ATTITUDE
 (N20,090,000)
 V79 (-0.3750)
 (+030.00)
 (+00000)

PTC

236 DELTA
OPHIUCHI (ENH)

53 GAMMA
CENTAURI (EFH)

202 ZETA
OPHIUCHI (ENH)

DAP LOAD STATUS
(21101)(X1111)
START PTC IF
MCC-1 NOT REQUIRED

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

UPDATE TO CSM
 QUADS TO ENABLE
 FOR PTC SPINUP

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	10:00 - 11:00	1/TLC	3-15

FLIGHT PLAN

MCC-1
BURN TABLE

P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TERMINATE	+10° TERMINATE	BT + 1 SEC	IF <2 FPS, TRIM X AXIS TO 0.2 FPS IF >2 FPS, NO TRIM

TABLE 3-2
3-16

MCC-H

0123 CST

FLIGHT PLAN

NOTES

11:00
(21101)
(X1111)

:10

:20

11:30

:40

:50

12:00

MSFN

P30 EXTERNAL ΔV

V49 MNVR TO PAD BURN ATTITUDE
WASTE STOWAGE VENT VLV - CLOSE (8 HOURS FROM VENT)
O₂ HEATERS 1&2 (2) - OFF
O₂ HEATERS 3 (1) - AUTO

SXT STAR CHECK
P40 SPS THRUSTING OR P41 RCS THRUSTING
O₂ FUEL CELL PURGE } IF NOT PERFORMED AT 05:55
WASTE WATER DUMP }

TIG: 11:36:33
BT: NOM ZERO
ΔVT: NOM ZERO
ULLAGE: NONE
ORBIT: N/A

MCC-1

V66 SET CSM S.V. INTO LM S.V.
BURN STATUS REPORT

REPORT: LM/CM ΔP

VENT BATTERIES UNTIL SYSTEM TEST METER 4A=0

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

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

BURN STATUS REPORT

X	X	<input type="checkbox"/>	•	ΔTIG
X	X	<input type="checkbox"/>	•	BT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	•	V _{gx}
TRIM				
X	X	X		R
X	X	X		P
X	X	X		Y
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	•	V _{gx}
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	•	V _{gy}
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	•	V _{gz}
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	•	ΔV _c *
X	X	X		FUEL*
X	X	X		OX*
X	X	X		UNBAL

PTC

*ITEMS TO BE
REPORTED TO MSFN

TLI CUTOFF +9 HR

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	11:00 - 12:00	1/TLC	3-17

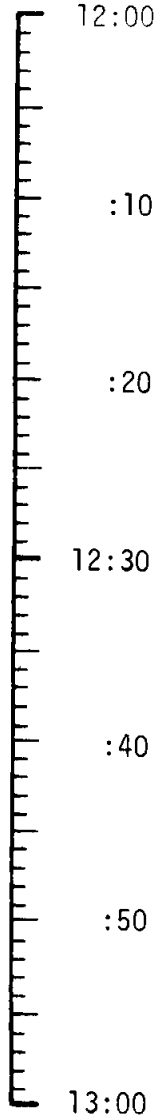
MCC-H

0223 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
QUADS TO ENABLE
FOR PTC SPINUP



M
S
F
N

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N) PAGE G 8-2

V49 MNVR TO PTC ATTITUDE

(N20,090,000)

V79 (-0.3750)
(+030.00)
(+00000)

PTC

DAP LOAD STATUS
(21101)(X1111)

START PTC IF
MCC-1 WAS
PERFORMED

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	12:00 - 13:00	1/TLC	3-18

MSC Form 29 (May 69)

FLIGHT PLANNING BRANCH

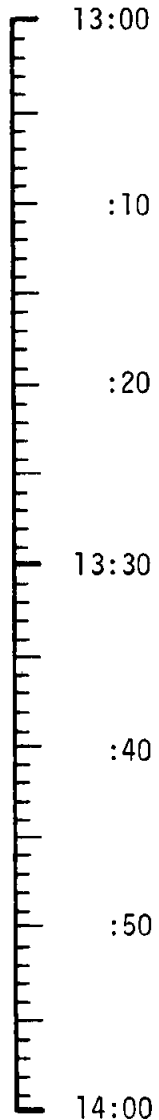
NASA — MSC

MCC-H

0323 CST

FLIGHT PLAN

NOTES



M
S
F
N

PTC

DAP LOAD STATUS
(21101)(X1111)

UPDATE TO CSM
P37 PADS (LAUNCH
+ 25, 35, 45 & 60)

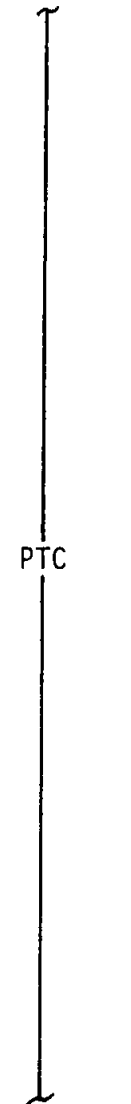
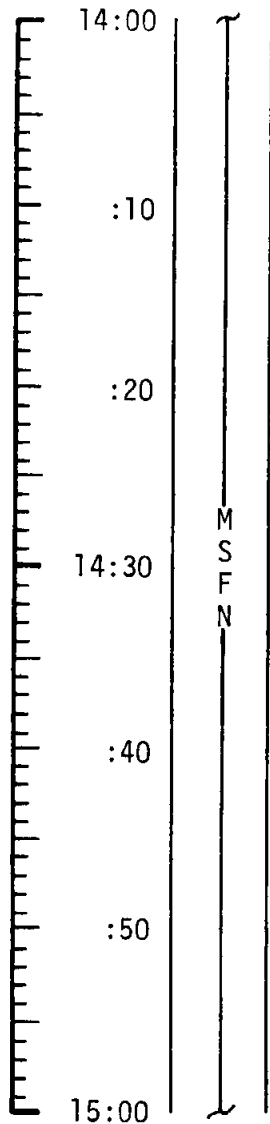
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	13:00 - 14:00	1/TLC	3-19

MCC-H

0423 CST

FLIGHT PLAN

NOTES



DAP LOAD STATUS
(21101)(X1111)

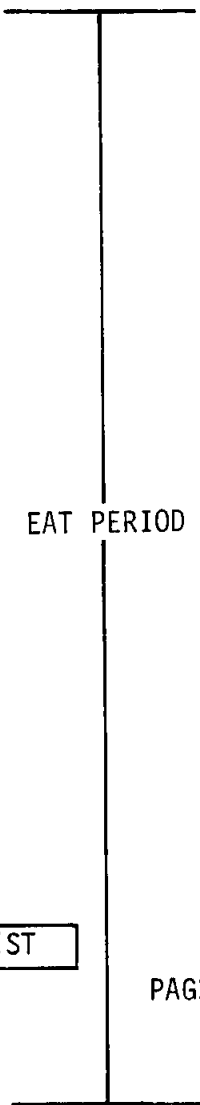
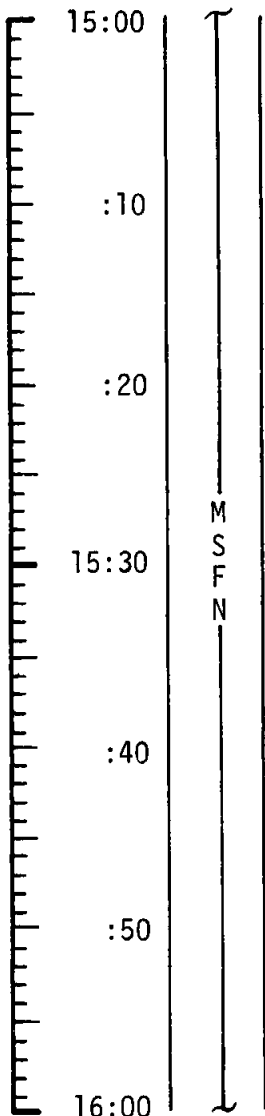
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	14:00 - 15:00	1/TLC	3-20

MCC-H

0523 CST

FLIGHT PLAN

NOTES



DAP LOAD STATUS
(21101)(X1111)

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

PTC

CSM SYSTEMS CHECKLIST
PRE-SLEEP CHECKLIST

PAGE S 1-26

EARTH DISTANCE
≈ 73 991 NM

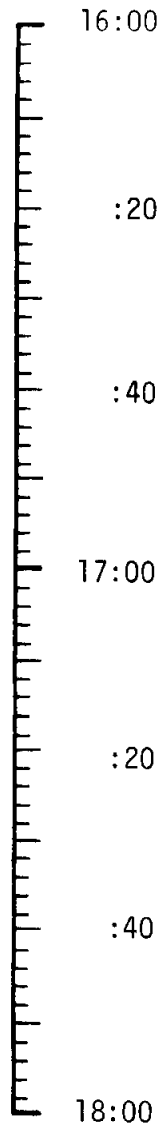
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	15:00 - 16:00	1/TLC	3-21

MCC-H

0623 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(21101)(X1111)
DURING REST PERIOD,
TWO CREWMEN IN
REST STATIONS AND
ONE IN COUCH

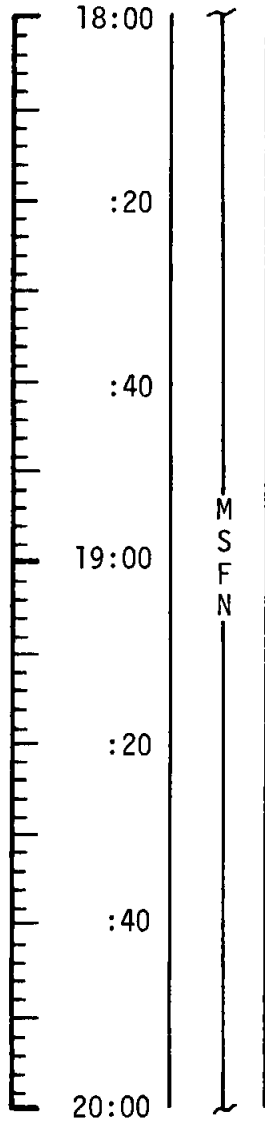
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	16:00 - 18:00	1/TLC	3-22

MCC-H

0823 CST

FLIGHT PLAN

NOTES



REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(21101)(X1111)

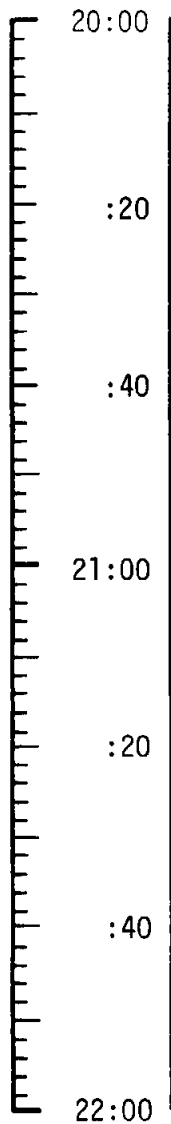
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	18:00 - 20:00	1/TLC	3-23

MCC-H

1023 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(21101)(X1111)

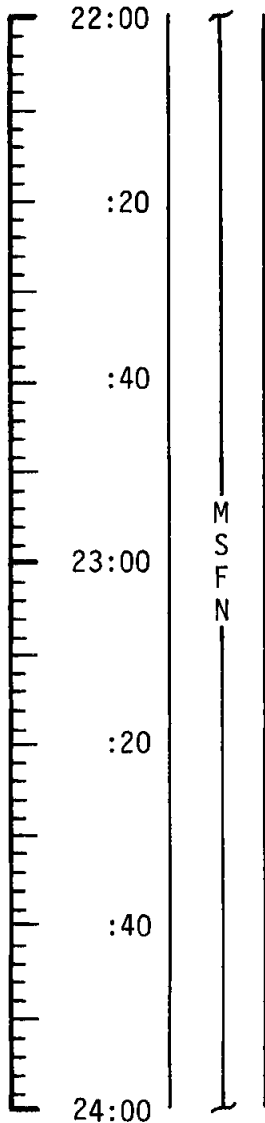
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	20:00 - 22:00	1/TLC	3-24

MCC-H

1223 CST

FLIGHT PLAN

NOTES



REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(21101)(X1111)

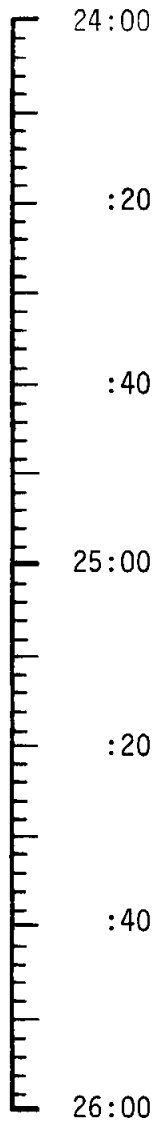
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	22:00 - 24:00	1/TLC	3-25

MCC-H

1423 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(21101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	24:00 - 26:00	1/TLC	3-26

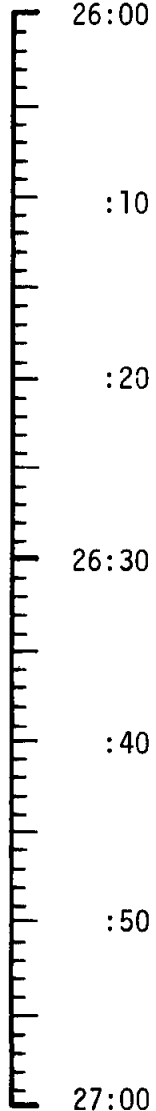
MCC-H

1623 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
CONSUMABLES
FLIGHT PLAN



M
S
F
N

CSM SYSTEMS CHECKLIST

POST-SLEEP CHECKLIST

PAGE S 1-26

LiOH CANISTER CHANGE
(4 INTO B, STOW 2 IN B5)

CHARGE BATTERY A

EAT PERIOD

REPORT: LM/CM ΔP

DAP LOAD STATUS
(21101)(X1111)

CSM CONSUMABLES UPDATE

GET: ____:____

RCS TOTAL _____

QUAD A _____ B _____

C _____ D _____

H₂ TANK 1 _____ 2 _____

O₂ TANK 1 _____ 2 _____

3 _____

PTC

EARTH DISTANCE
≈ 106 014 NM

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	26:00 - 27:00	2/TLC	3-27

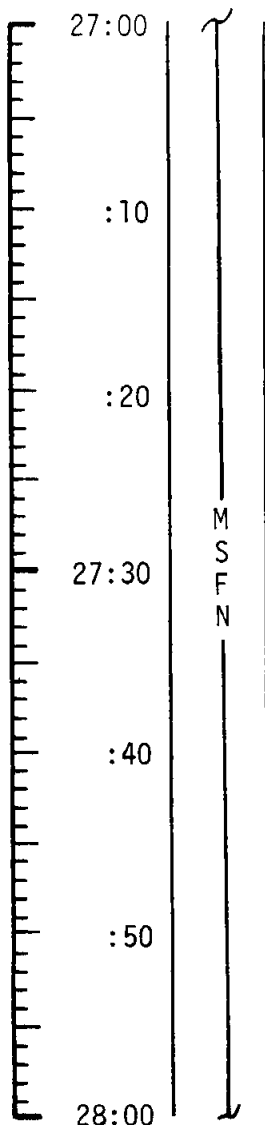
MCC-H

1723 CST

FLIGHT PLAN

NOTES

LAUNCH VEHICLE
DEBRIEFING



LAUNCH VEHICLE SYSTEMS
PERFORMANCE DEBRIEFING

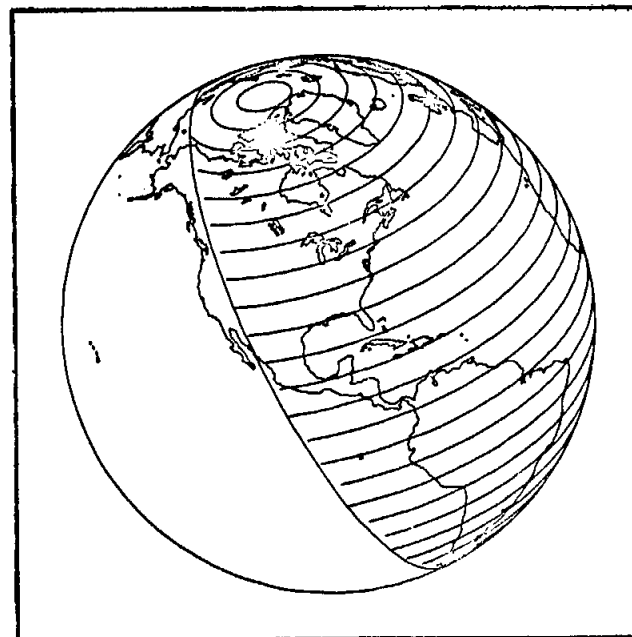
1. WERE THERE ANY SIGNIFICANT CHANGES IN NOISE LEVEL BETWEEN STAGES OF POWERED FLIGHT?
2. WERE THERE ANY SIGNIFICANT CHANGES IN NOISE/VIBRATION LEVEL DURING A SINGLE STAGE OF POWERED FLIGHT?
3. WERE THERE ANY UNEXPECTED ACCELERATION TRANSIENTS EXPERIENCED AT INITIATION OF IGN, SII SECO, MAX Q OR M/R 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/LIFT-OFF 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)?
9. WHAT DID THE ORDEAL BALL LOOK LIKE DURING TLI?

PTC

DAP LOAD STATUS
(21101)(X1111)

GET: 28:30

F.O.V. 4°



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	27:00 - 28:00	2/TLC	3-28

MCC-H

1823 CST

FLIGHT PLAN

NOTES

28:00

:10

:20

(21101)

(X1111)

:30

:40

:50

29:00

M
S
F
N

CSM G&C CHECKLIST

ΔV TEST & NULL BIAS CHECK PAGE G 2-5
REPORT: BIAS

P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES

EXIT G&N PTC PAGE G 8-3

V49 MNVR TO OPTICS CALIBRATION ATTITUDE
(151,227,333)

OMNI A
P23 CISELUNAR NAVIGATION
OPTICS CALIBRATION STAR N70 (00034)

POO
V49 MNVR TO SIGHTING ATTITUDE
(155,265,310) OMNI B
V67 (+45000) (+00006) (+00003)

P23 CISELUNAR NAVIGATION
5 MARKS ON EACH STAR, UPDATE STATE VECTOR
1. N70 (00000)(00000)(00110)
N88 (-35412)(-91724)(-18240)

2. N70 (00000)(00000)(00120)
N88 (-58200)(-46152)(-66954)

PTC

DAP LOAD STATUS
(21101)(X1111)

P52 IMU REALIGN

N71: _____

N05: _____

N93: _____

X _____

Y _____

Z _____

GET _____:_____:_____

EARTH DISTANCE
≈ 114 188 NM

LOAD W MATRIX

202 ZETA
OPHIUCHI (ENH)

165 ETA
CENTAURI (EFH)

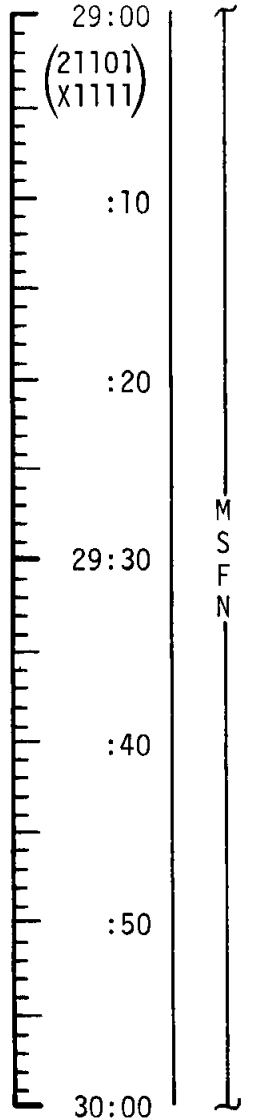
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	28:00 - 29:00	2/TLC	3-29

MCC-H

1923 CST

FLIGHT PLAN

NOTES



3. N70 (00033)(00000)(00110)

33 ANTARES
(ENH)

4. N70 (00000)(00000)(00120)
N88 (-64929)(-74326)(-16121)

172 BETA
LIBRAE (EFH)

P00
V49 MNVR TO OPTICS CALIBRATION ATTITUDE
(151,227,333)
P23 CISLUNAR NAVIGATION
OPTICS CALIBRATION STAR N70 (00034)
ACQUIRE MSFN HGA P -64 Y 102

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

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

H₂ PURGE LINE HEATERS - ON

IF HGA LOCK
IS LOST ACQUIRE
MANUALLY WITH
HGA P -2 Y 356

P30 EXTERNAL ΔV
V49 MNVR TO PAD BURN ATTITUDE
(208,347,316)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	29:00 - 30:00	2/TLC	3-30

FLIGHT PLAN

MCC-2 BURN CHART

P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TERMINATE	+10° TERMINATE	BT + 1 SEC	IF <2FPS, TRIM X AXIS TO 0.2FPS IF >2FPS, NO TRIM

EARTH DARKSIDE DIM LIGHT PHOTOGRAPHY

CONFIGURE CAMERA
CM/DAC/SXT/VHBW, (EXP 1/500) 24 fps (2.5% MAG)
MAG (J) _____ MAG % _____

UTILITY POWER - ON

V49 MNVR TO EARTH DARKSIDE PHOTO ATTITUDE (30:55)
(156,269,310) OMNI B
SECURE HGA, HGA TRACK-MAN, HGA P -52, Y 270

DAMP VEHICLE RATES PER PTC PROCEDURE STEP 5
AFTER 20 MIN DISABLE ALL JETS

P22 ORBIT NAVIGATION (NO MARKS)

LDMK: LAT + 15.000 SA +314.00
LONG/2 - 42.500 TA + 04.000
ALT +000.00

VERIFY THRU SXT THAT OPTICS BORESIGHTED ON EARTH DARKSIDE
MOUNT DAC ON SXT, DAC-ON AT 24 fps FOR 2 SEC
CHANGE DAC TO TIME & 1/60

1 FRAME, EXP TIME 60 SEC
1 FRAME, EXP TIME 20 SEC
1 FRAME, EXP TIME 5 SEC

CHANGE DAC TO 24 fps & 1/500; DAC ON AT 24 fps FOR 2 SEC
CYCLE CMC MODE - FREE AUTO
ENABLE JETS
RECORD MAG % _____
REMOVE AND STOW DAC

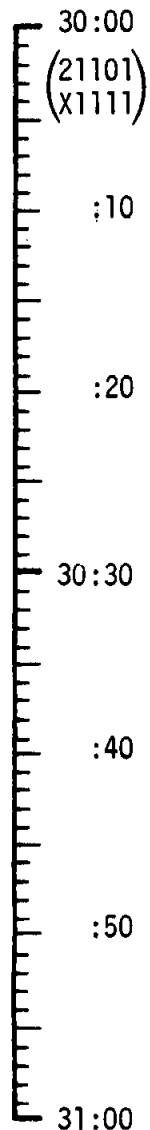
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	30:50 - 31:30	2/TLC	3-32

MCC-H

2023 CST

FLIGHT PLAN

NOTES



SXT STAR CHECK
 P40 SPS THRUSTING
 H₂ & O₂ FUEL CELL PURGE
 WASTE WATER DUMP
 H₂ PURGE LINE HEATERS - OFF

MSFN

MCC-2
 V66 SET CSM S.V. INTO LM S.V.
 BURN STATUS REPORT

TIG: 30:36:07
 BT: 11.08 SEC
 Δ VT: 73.40 FPS
 ULLAGE: NONE
 ORBIT: N/A

EARTH DARKSIDE
 DIM LIGHT PHOTOGRAPHY

BURN STATUS REPORT				
X	X	<input type="checkbox"/>	•	Δ TIG
X	X		•	BT
<input type="checkbox"/>			•	V _{gx}
TRIM				
X	X	X		R
X	X	X		P
X	X	X		Y
<input type="checkbox"/>			•	V _{gx}
<input type="checkbox"/>			•	V _{gy}
<input type="checkbox"/>			•	V _{gz}
<input type="checkbox"/>			•	Δ V _c *
X	X	X		FUEL*
X	X	X		OX *
X	X	X		UNBAL

*ITEMS TO BE REPORTED TO MSFN

TLI CUTOFF +28 HR

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	30:00 - 31:00	2/TLC	3-33

MCC-H

2123 CST

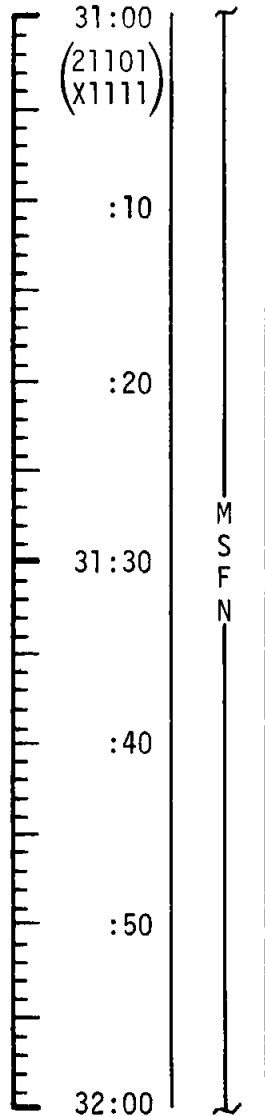
FLIGHT PLAN

NOTES

GET: 31:00

F.O.V. 4°

UPDATE TO CSM
QUADS TO ENABLE
FOR PTC SPINUP

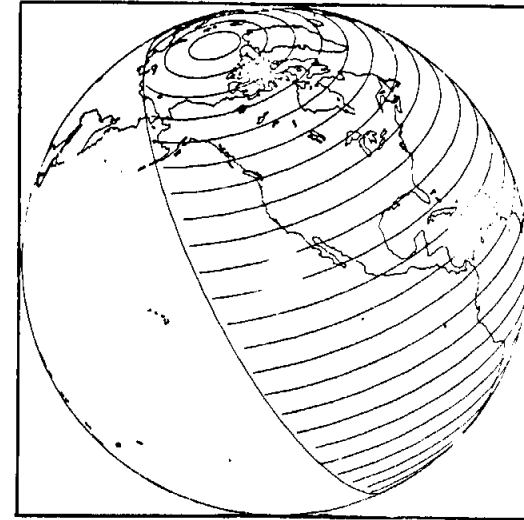


M
S
F
N

EARTH DARKSIDE
DIM LIGHT PHOTOGRAPHY

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N) PAGE G 8-2
 V49 MNVR TO PTC ATTITUDE
 (N20,090,000)
 V79 (-0.3750)
 (+030.00)
 (+00000)



DAP LOAD STATUS
(21101)(X1111)

PTC

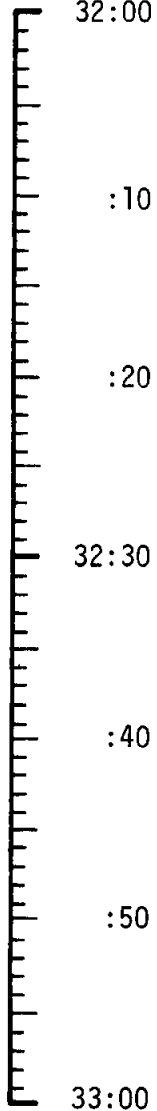
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	31:00 - 32:00	2/TLC	3-34

MCC-H

2223 CST

FLIGHT PLAN

NOTES



M
S
F
N

VENT BATTERIES UNTIL SYSTEM TEST METER 4A=0
CREW EXERCISE PERIOD

CHARGE BATTERY A

PTC

DAP LOAD STATUS
(21101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	32:00 - 33:00	2/TLC	3-35

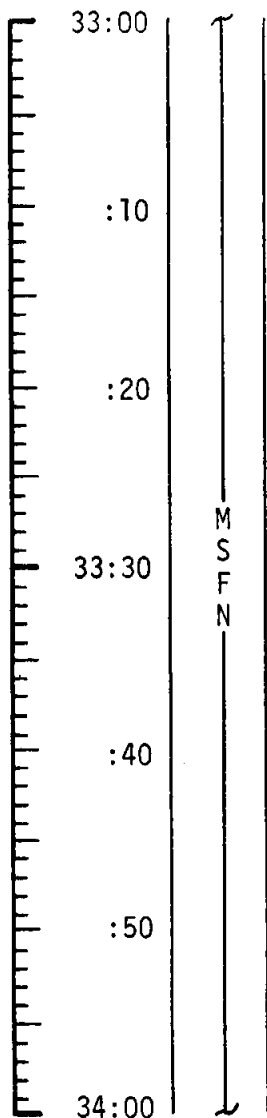
MCC-H

2323 CST

FLIGHT PLAN

NOTES

DAP LOAD STATUS
(21101)(X1111)



M
S
F
N

EAT PERIOD

PTC

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	33:00 - 34:00	2/TLC	3-36

MCC-H

0123 CST

FLIGHT PLAN

NOTES

35:00
 :10
 :20
 35:30
 :40
 :50
 36:00

M
S
F
N

PTC

DAP LOAD STATUS
(21101)(X1111)

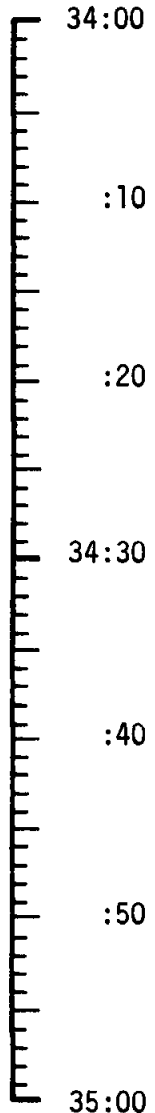
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	35:00 - 36:00	2/TLC	3-38

MCC-H

0023 CST

FLIGHT PLAN

NOTES



M
S
F
N

LTC CHECKOUT
 UNSTOW LTC
 CM3/LTC/MBW/BEF - (SHUT 1/100, RNG 10.0, INT 8) (12 FR)
 MAG (V) _____, FR # _____
 LTC INSTALLATION (DECAL)
 RECORD LTC CLOCK TIME
 RECORD TIME __:__:__ & DAY ____ (LTC CLOCK)
 AT GET _____:_____:_____
 LTC CHECKOUT (DECAL)
 LTC FILM MAGAZINE CHANGE (DECAL)
 ADVANCE 4 FRAMES, RECORD FR # _____
 PUT MAG (W) ON LTC
 RESET FRAME COUNTER
 LTC REMOVAL (DECAL) & STOW

PTC

DAP LOAD STATUS
(21101)(X1111)

LOI MINUS 5 HR
FLYBY IS A
CIRCUMLUNAR
TRAJECTORY TO THE
PRIME MPL AND WITH
A PERICYNTHION
BETWEEN 60 AND
1500 NM

UPDATE TO CSM
LOI MINUS 5 HR
FLYBY

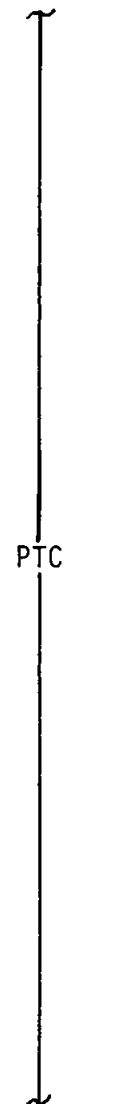
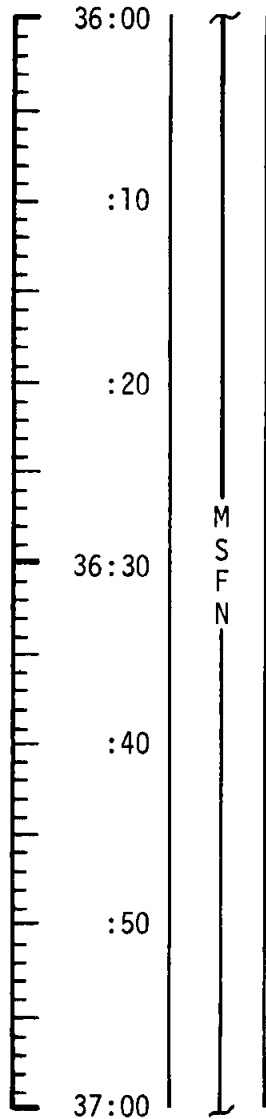
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	34:00 - 35:00	2/TLC	3-37

MCC-H

0223 CST

FLIGHT PLAN

NOTES



DAP LOAD STATUS
(21101)(X1111)

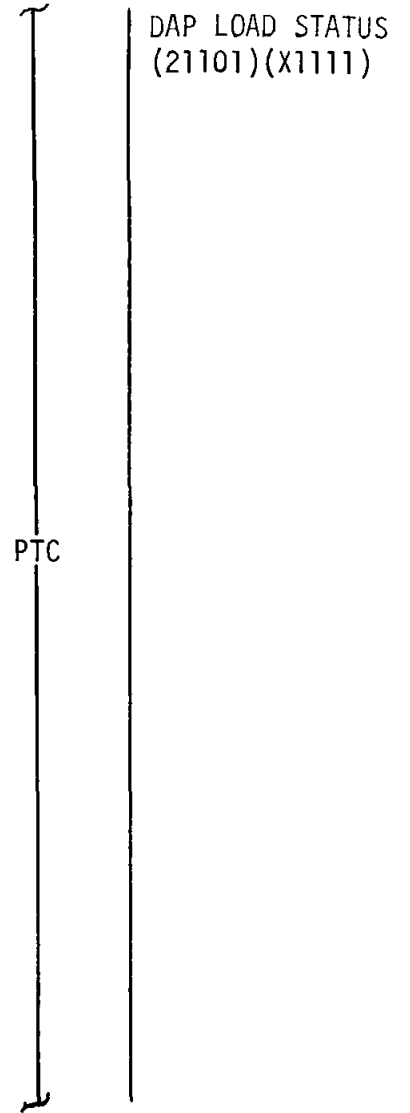
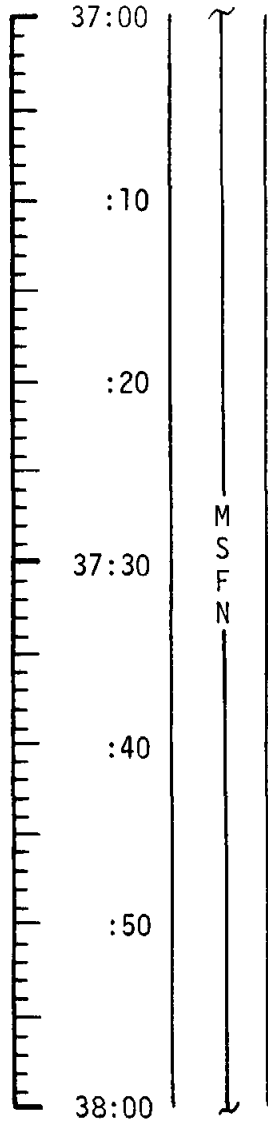
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	36:00 - 37:00	2/TLC	3-39

MCC-H

0323 CST

FLIGHT PLAN

NOTES



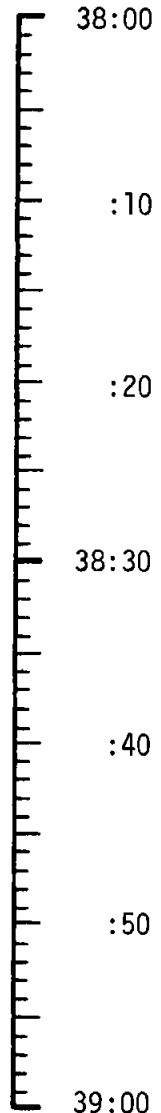
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	37:00 - 38:00	2/TLC	3-40

MCC-H

0423 CST

FLIGHT PLAN

NOTES



M
S
F
N

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

PTC

DAP LOAD STATUS
(21101)(X1111)

REPORT: LM/CM ΔP

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	38:00 - 39:00	2/TLC	3-41

MCC-H

0523 CST

FLIGHT PLAN

NOTES

39:00

:10

:20

39:30

:40

:50

40:00

M
S
F
N

PTC

DAP LOAD STATUS
(21101)(X1111)

UPLINK TO CSM
CSM S.V. & V66

P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES

P52 IMU REALIGN

N71: _____, _____

N05: _____ . _____

N93:

X _____ . _____

Y _____ . _____

Z _____ . _____

GET _____ : _____ : _____

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	39:00 - 40:00	2/TLC	3-42

MCC-H

0623 CST

FLIGHT PLAN

NOTES

40:00
:10
:20
40:30
:40
:50
41:00

M
S
F
N

EAT PERIOD

PTC

DAP LOAD STATUS
(21101)(X1111)

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

CSM SYSTEMS CHECKLIST
PRE-SLEEP CHECKLIST PAGE S 1-26

EARTH DISTANCE
≈ 141 981 NM

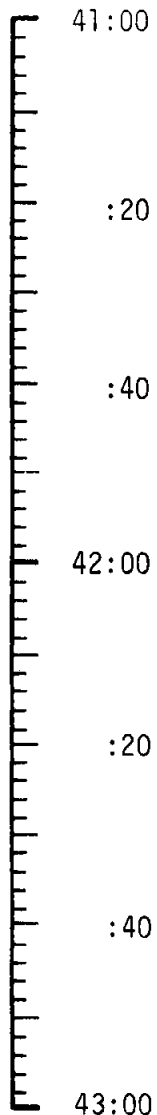
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	40:00 - 41:00	2/TLC	3-43

MCC-H

0723 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(21101)(X1111)
DURING REST PERIOD,
TWO CREWMEN IN
REST STATIONS AND
ONE IN COUCH

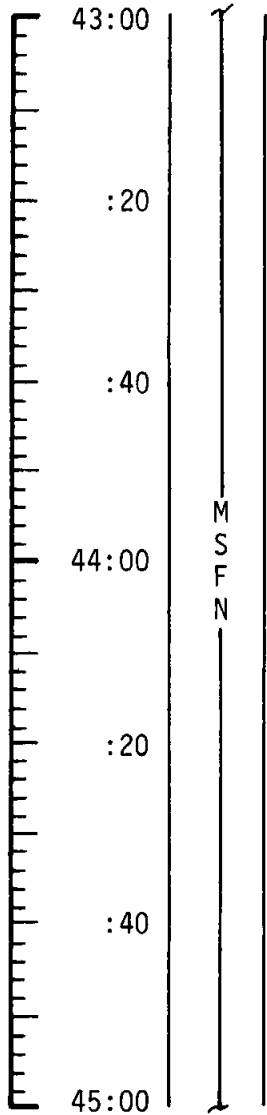
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	41:00 - 43:00	2/TLC	3-44

MCC-H

0923 CST

FLIGHT PLAN

NOTES



REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(21101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	43:00 - 45:00	2/TLC	3-45

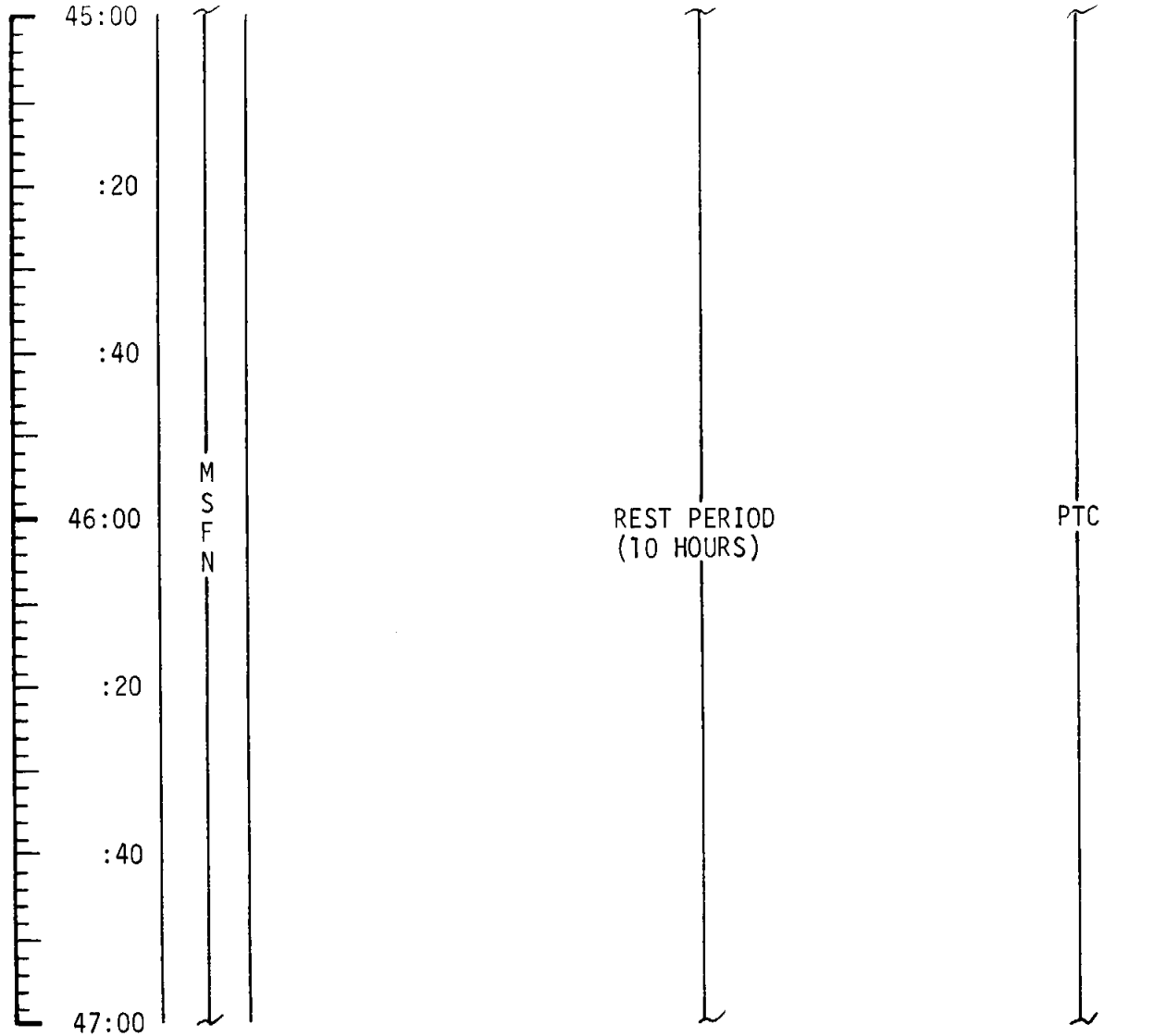
MCC-H

1123 CST

FLIGHT PLAN

NOTES

DAP LOAD STATUS
(21101)(X1111)



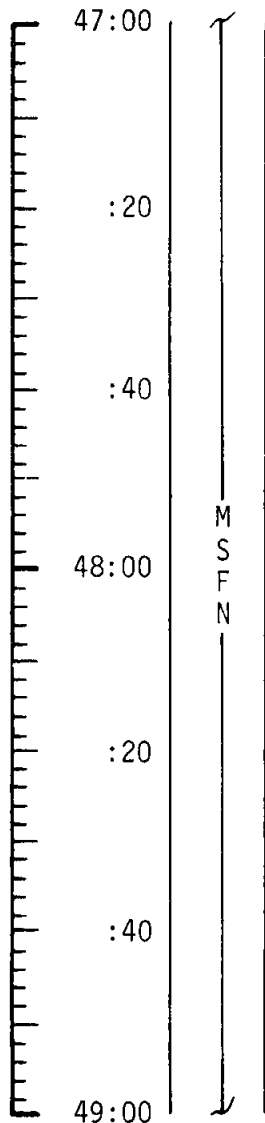
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	45:00 - 47:00	2/TLC	3-46

MCC-H

1323 CST

FLIGHT PLAN

NOTES



REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(21101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	47:00 - 49:00	2/TLC	3-47

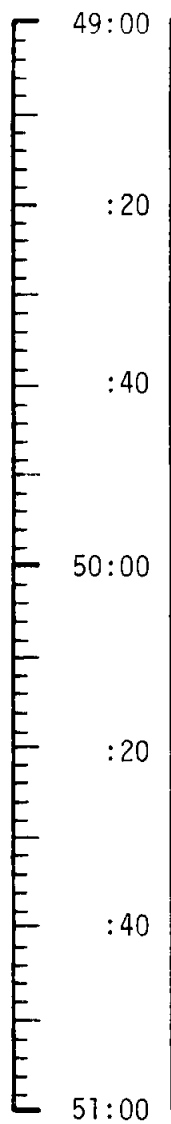
MCC-H

1523 CST

FLIGHT PLAN

NOTES

DAP LOAD STATUS
(21101)(X1111)



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	49:00 - 51:00	2/TLC	3-48

MCC-H

1723 CST

FLIGHT PLAN

NOTES

51:00
:10
:20
51:30
:40
:50
52:00

M
S
F
N

CSM SYSTEMS CHECKLIST

POST-SLEEP CHECKLIST

PAGE S 1-26

L10H CANISTER CHANGE
(6 INTO B, STOW 4 IN B5)

REPORT: LM/CM ΔP

EAT PERIOD

PTC

DAP LOAD STATUS
(21101)(X1111)

CSM CONSUMABLES UPDATE

GET: _____:_____

RCS TOTAL _____

QUAD A _____ B _____

C _____ D _____

H₂ TANK 1 _____ 2 _____

O₂ TANK 1 _____ 2 _____

3 _____

EARTH DISTANCE
≈ 160 954 NM

UPDATE TO CSM
CONSUMABLES
FLIGHT PLAN

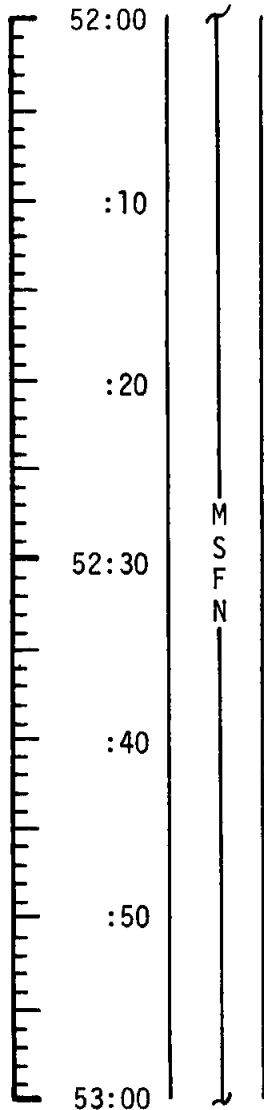
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	51:00 - 52:00	3/TLC	3-49

MCC-H

1823 CST

FLIGHT PLAN

NOTES



S-170 BISTATIC RADAR FREQUENCY CHECK

VHF AM B - DUPLEX

VHF RANGING - ON

VHF ANT - LEFT (VERIFY)

NOTE: MSFN WILL TURN OFF

S-BAND UPLINK FOR

APPROXIMATELY 5 MIN

WHILE S-BAND DOWNLINK

FREQUENCY IS MEASURED

ON GROUND CUE:

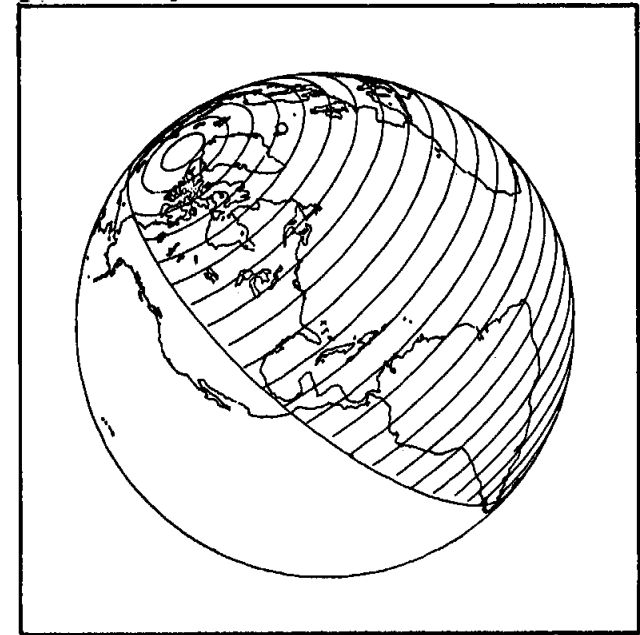
VHF AM B - OFF

VHF RANGING - OFF

DAP LOAD STATUS
(21101)(X1111)

GET: 52:00

F.O.V. 3°



PTC

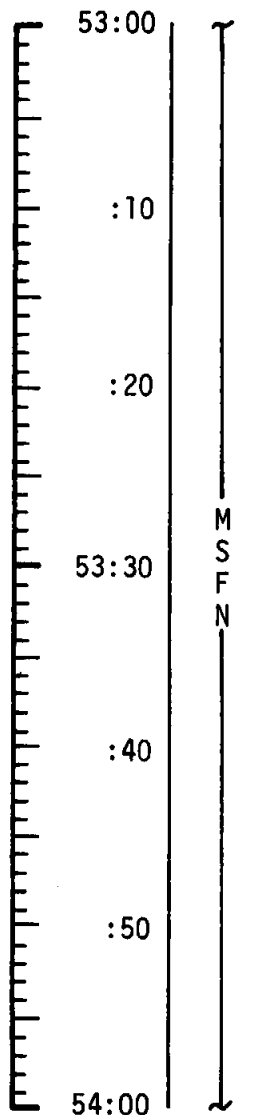
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	52:00 - 53:00	3/TLC	3-50

MCC-H

1923 CST

FLIGHT PLAN

NOTES



CHARGE BATTERY B

P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES

DAP LOAD STATUS
(21101)(X1111)

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

PTC

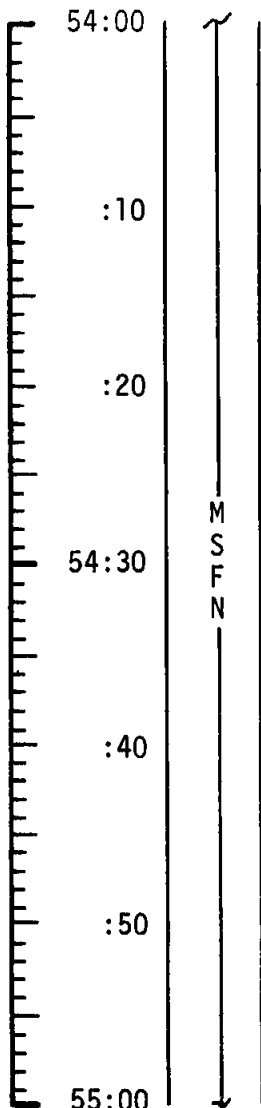
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	53:00 - 54:00	3/TLC	3-51

MCC-H

2023 CST

FLIGHT PLAN

NOTES



UPLINK TO CSM
 LIFT-OFF TIME
 (IF REQ'D)
 UPDATE TO CSM
 T EPHEM
 (IF REQ'D)
 P37 (L/O +60 TIG)
 (IF REQ'D)
 LOI-5 FLYBY TIG
 (IF REQ'D)

SYNCHRONIZE MISSION TIMER TO CMC (IF REQUIRED)
 V05N01E, 1706 E

DAP LOAD STATUS
 (21101)(X1111)

T EPHEM UPDATE	
OID	LOAD B
03	_____
04	_____
05	_____

LIFT-OFF TIME WILL
 BE UPDATED IF THE
 TIME PROPAGATED
 AHEAD TO START OF
 REV 2 DIFFERS FROM
 84:45:12 BY MORE
 THAN 1 MIN

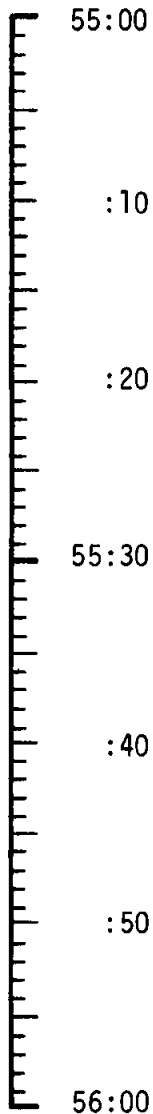
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	54:00 - 55:00	3/TLC	3-52

MCC-H

2123 CST

FLIGHT PLAN

NOTES



M
S
F
N

PTC

DAP LOAD STATUS
(21101)(X1111)

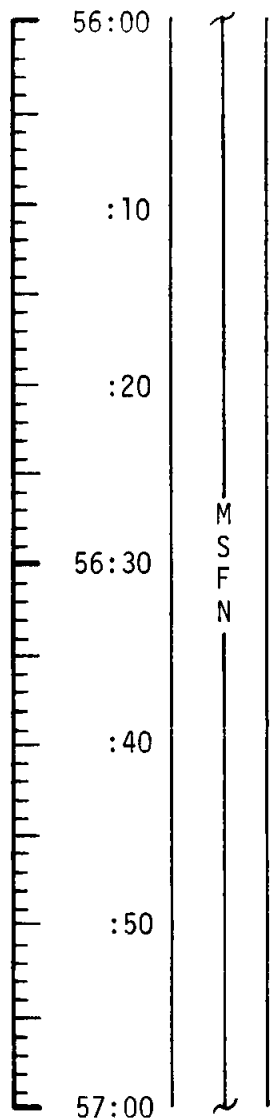
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	55:00 - 56:00	3/TLC	3-53

MCC-H

2223 CST

FLIGHT PLAN

NOTES



DAP LOAD STATUS
(21101)(X1111)

PTC

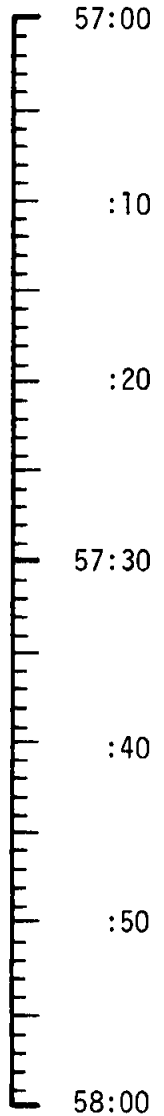
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	56:00 - 57:00	3/TLC	3-54

MCC-H

2323 CST

FLIGHT PLAN

NOTES



MSFN

CREW EXERCISE PERIOD

PTC

DAP LOAD STATUS
(21101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	57:00 - 58:00	3/TLC	3-55

MCC-H

0023 CST

FLIGHT PLAN

NOTES

58:00

:10

:20

58:30

:40

:50

59:00

M
S
F
N

EAT PERIOD

PTC

DAP LOAD STATUS
(21101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	58:00 - 59:00	3/TLC	3-56

MCC-H

0123 CST

FLIGHT PLAN

NOTES

59:00

:10

:20

59:30

:40

:50

(21101)
(X1111)

60:00

M
S
F
N

CSM G&C CHECKLIST

ΔV TEST & NULL BIAS CHECK
REPORT: BIAS

PAGE G 2-5

IF LM/CM ΔP < 2.7 PSID - VENT
UNTIL ΔP ≥ 2.7

O₂ HEATERS 1&2 (2) - AUTO
O₂ HEATERS 3 (1) - OFF

P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES

EXIT G&N PTC IF MCC-3
IS REQUIRED

PAGE G 8-3

DAP LOAD STATUS
(21101)(X1111)

P52 IMU REALIGN

N71: _____

N05: _____

N93: _____

X _____

Y _____

Z _____

GET _____ : _____ : _____

PTC

J

UPLINK TO CSM
CSM S.V. & V66
MCC-3 TGT LOAD

UPDATE TO CSM
GO/NO-GO MCC-3
MCC-3 MNVR PAD

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	59:00 - 60:00	3/TLC	3-57

FLIGHT PLAN

MCC-3
BURN CHART

P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TERMINATE	+10° TERMINATE	BT + 1 SEC	IF <2 FPS, TRIM X AXIS TO 0.2 FPS IF >2 FPS, NO TRIM

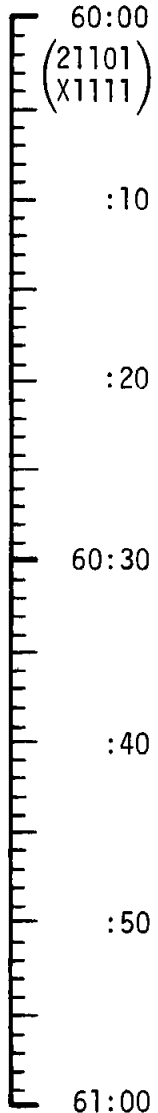
TABLE 3-4
3-58

MCC-H

0223 CST

FLIGHT PLAN

NOTES



P30 EXTERNAL ΔV
 V49 MNVR TO PAD BURN ATTITUDE

SXT STAR CHECK
 P40 SPS THRUSTING OR P41 RCS THRUSTING
 O₂ FUEL CELL PURGE
 WASTE WATER DUMP

V66 SET CSM S.V. INTO LM S.V.

BURN STATUS REPORT

PREPARE TRANSFER ITEMS PER
 LM ACTIVATION CHECKLIST
 REMOVE 16MM & 70MM MAG FROM R13

TIG: 60:38:14
 BT: NOM. ZERO
 ΔVT : NOM. ZERO
 ULLAGE: NONE
 ORBIT: N/A

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

BURN STATUS REPORT				
X	X	<input type="checkbox"/>	•	ΔTIG
X	X	<input type="checkbox"/>	•	BT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	•	V _{gx}
TRIM				
X	X	X		R
X	X	X		P
X	X	X		Y
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	•	V _{gy}
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	•	V _{gz}
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	•	ΔV_c *
X	X	X		FUEL *
X	X	X		OX *
X	X	X		UNBAL

*ITEMS TO BE
 REPORTED TO MSFN

LOI - 22 HR

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	60:00 - 61:00	3/TLC	3-59

MCC-H

0323 CST

FLIGHT PLAN

NOTES

UPLINK TO CSM
ΔH (IF REQUIRED)

61:00
(21101)
(X1111)

:10

:20

61:30

:40
(21111)
(X1111)

:50

62:00

M
S
F
N

T
V

CSM SYSTEMS CHECKLIST

IVT TO LM (CHECK OUT, TLC)

PAGE S 2-1

PRESSURIZE CSM TO 5.7 PSIA

TV (HSK) 61:45 to 62:30
CM/TV - AVG (f5.6)

PAGE G 8-3

PRESSURIZE LM
EXIT G&N PTC
V48 (21111)(X1111)
V49 MNVR TO TV ATTITUDE (61:45)
(282,090,000)
ACQ MSFN HGA P 34, Y 263

PREPARE FOR LM INGRESS
REMOVE TUNNEL HATCH AND STOW
REMOVE PROBE & DROGUE AND STOW

PTC

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

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	61:00 - 62:00	3/TLC	3-60

FLIGHT PLAN

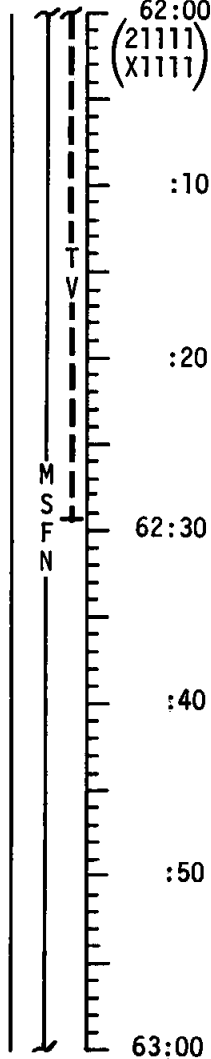
CSM

LM

MCC-H

CMP
 REPORT: DOCKING
TUNNEL INDEX ANGLE

0423 CST



62:00
 (21111)
 (X1111)

:10

:20

62:30

:40

:50

63:00

OMNI C

SECURE HGA,
 HGA TRACK-MAN,
 HGA P -52, Y 270

CDR

LMP

ACTIVATION CHECKLIST

PAGE 1-1

IVT TO LM	IVT TO LM
IVT TO LM	ENTRY STATUS CHECK
HOUSEKEEPING	HOUSEKEEPING

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	62:00 - 63:00	3/TLC	3-61

FLIGHT PLAN

CSM

CMP

LM

MCC-H

0523 CST

63:00

(21111)
(X1111)

:10

:20

63:30

:40

:50

64:00

M
S
F
N

CSM POWER TO LM-OFF
(AT LMP REQUEST)

VHF SIMPLEX VOICE
CHECK WITH LM

CSM POWER TO LM - ON
(AT LMP REQUEST)

CDR

LMP

HOUSEKEEPING	HOUSEKEEPING
COMM ACTIVATION	COMM ACTIVATION
	S-BAND/VHF SIMPLEX VOICE TEST
OPS CHECKOUT	OPS CHECKOUT
COMM DEACTIVATION	COMM DEACTIVATION

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	63:00 - 64:00	3/TLC	3-62

MSC Form 1674 (OT)(June 69)

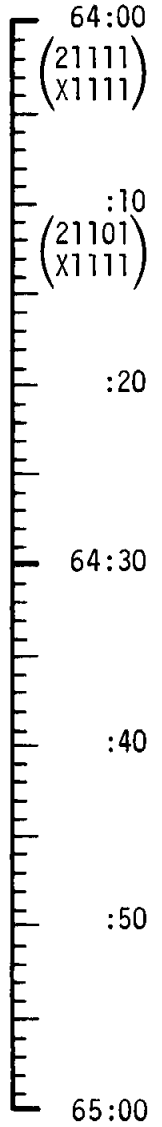
FLIGHT PLANNING BRANCH

MCC-H

0623 CST

FLIGHT PLAN

NOTES



64:00
(21111)
(X1111)

:10
(21101)
(X1111)

:20

64:30

:40

:50

65:00

M
S
F
N

LMP & CDR IVT TO CSM & CLOSE LM HATCH
INSTALL PROBE, DROGUE AND CM HATCH

LM TUNNEL VENT VALVE - LM/CM ΔP
CYCLE CMC MODE - FREE/AUTO
V48 (21101)(X1111)
LiOH CANISTER CHANGE
(7 INTO A, STOW 5 IN B6)

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N)
(N20,090,000)
V79 (-0.3750)(+030.00)(+00000)

PAGE G 8-2

PTC

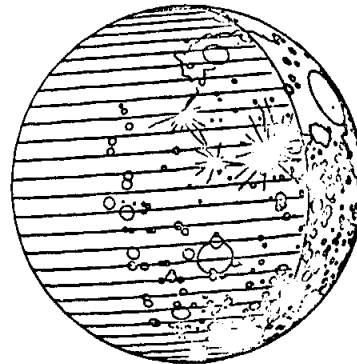
DAP LOAD STATUS
(21101)(X1111)

GET: 65:00

F.O.V. 3°

GET: 65:00

F.O.V. 5°



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	64:00 - 65:00	3/TLC	3-63

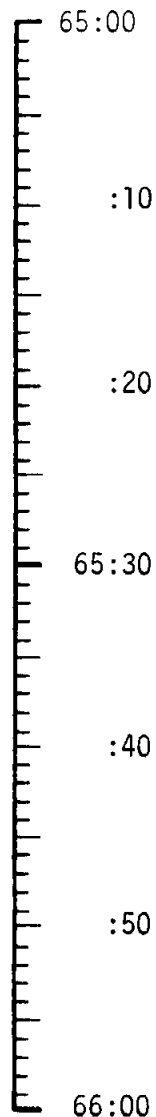
UPDATE TO CSM
QUADS TO ENABLE
FOR PTC SPINUP

MCC-H

0723 CST

FLIGHT PLAN

NOTES



M
S
L
N

O₂ HEATERS 1&2 (2) - OFF
 O₂ HEATERS 3 (1) - AUTO

EAT PERIOD

PTC

CSM SYSTEMS CHECKLIST
 PRE-SLEEP CHECKLIST

PAGE S 1-26

DAP LOAD STATUS
(21101)(X1111)

ONBOARD READOUT

BAT C _____

PYRO BAT A _____

PYRO BAT B _____

RCS A _____

B _____

C _____

D _____

DC IND SEL - MNA OR B

EARTH DISTANCE
 ≈ 184 307 NM

UPDATE TO CSM
 CSM S.V. (67:00)

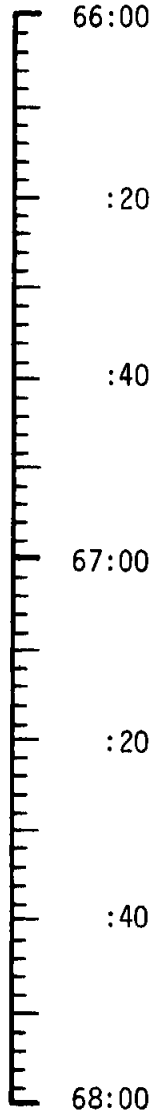
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	65:00 - 66:00	3/TLC	3-64

MCC-H

0823 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(9 HOURS)

PTC

DAPLOAD STATUS
(21101)(X1111)

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

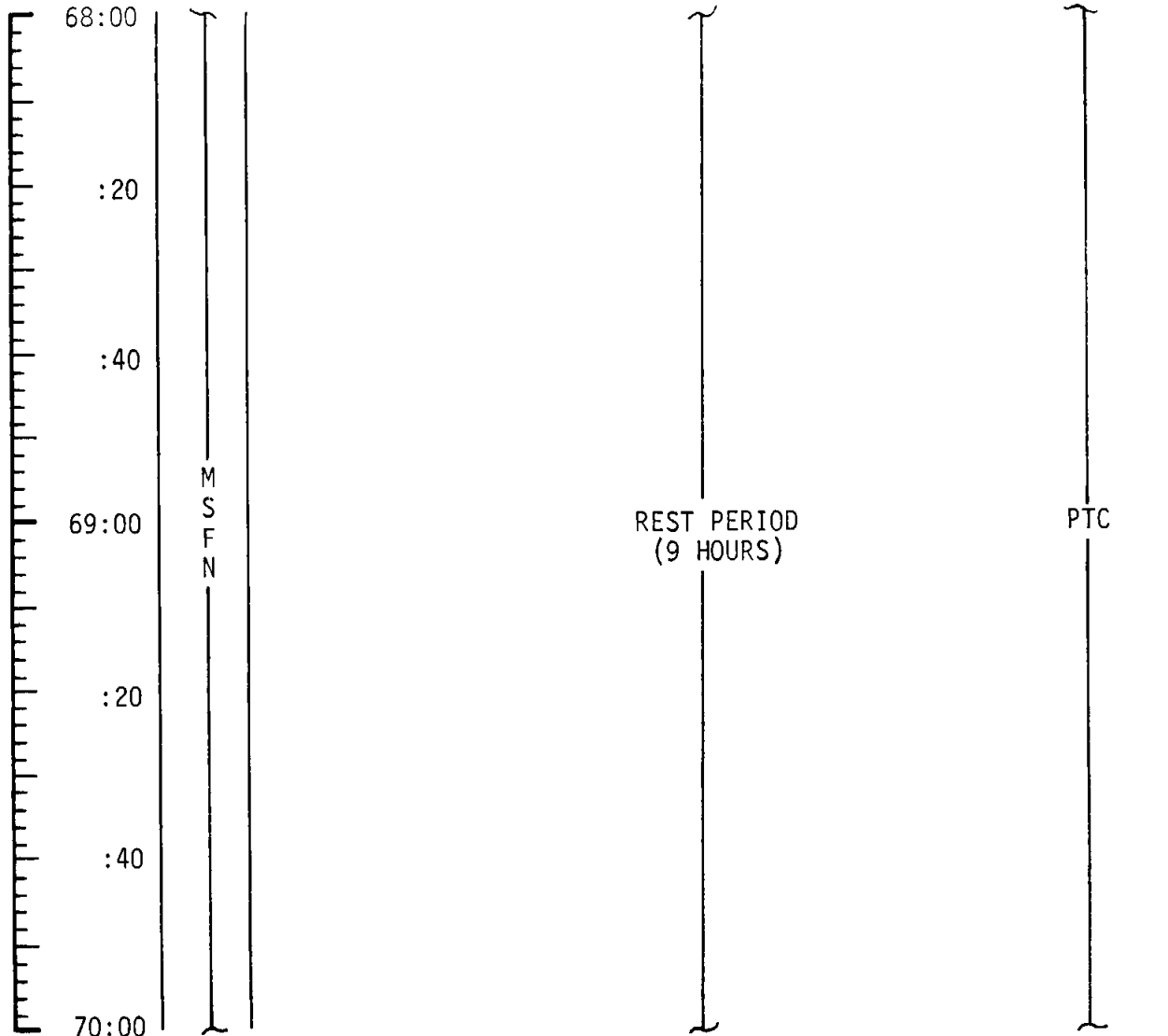
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	66:00 - 68:00	3/TLC	3-65

MCC-H

1023 CST

FLIGHT PLAN

NOTES



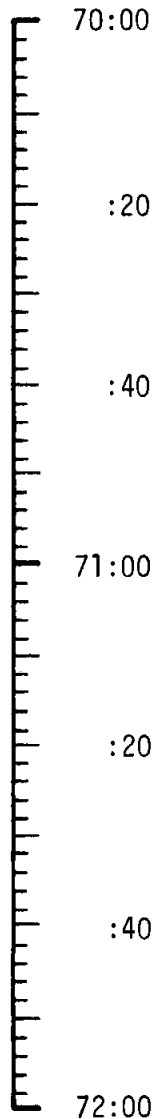
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	68:00 - 70:00	3/TLC	3-66

MCC-H

1223 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(9 HOURS)

PTC

DAP LOAD STATUS
(21101)(X1111)

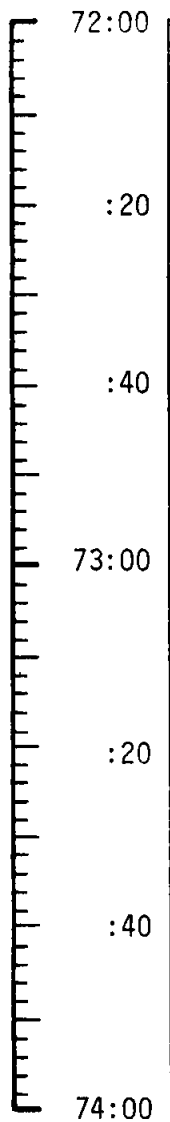
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	70:00 - 72:00	3/TLC	3-67

MCC-H

1423 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(9 HOURS)

PTC

DAP LOAD STATUS
(21101)(X1111)

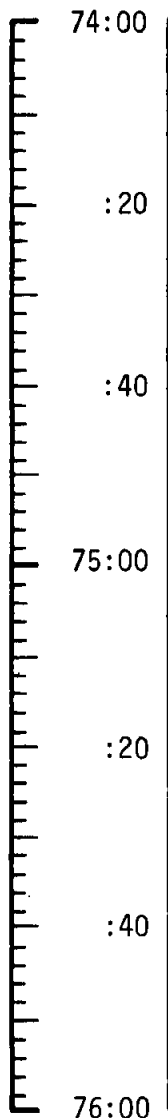
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	72:00 - 74:00	3/TLC	3-68

MCC-H

1623 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(9 HOURS)

CSM SYSTEMS CHECKLIST

POST-SLEEP CHECKLIST

PAGE S 1-26

PTC

EAT PERIOD

DAP LOAD STATUS
(21101)(X1111)

IF MCC-4 IS NOT
PERFORMED, CREW
AWAKE TIME IS 78:00

EARTH DISTANCE
≈ 196 739 NM

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	74:00 - 76:00	3-4/TLC	3-69

MCC-H

1823 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
 FLIGHT PLAN
 CONSUMABLES
 PERICYNTHION +2 HR
 ABORT PAD
 MCC-4 MNVR PAD

76:00
 :10
 :20
 76:30
 :40
 :50
 (21101)
 (X1111)
 77:00

M
S
F
N

CSM G&C CHECKLIST

ΔV TEST & NULL BIAS CHECK PAGE G 2-5
 REPORT: BIAS
 LiOH CANISTER CHANGE
 (8 INTO B, STOW 6 IN B6)

NOTE: PERICYNTHION +2 HR
 ABORT PAD TARGETED PTC
 FOR A FAST RETURN
 TO MPL.

P52 IMU REALIGN
 OPTION 3 REFSMMAT
 (PTC ORIENT)

REPORT: GYRO TORQUING ANGLES
 EXIT G&N PTC PAGE G 8-3

DAP LOAD STATUS
 (21101)(X1111)

CSM CONSUMABLES UPDATE

GET: ____:____

RCS TOTAL _____

QUAD A _____ B _____

C _____ D _____

H₂ TANK 1 _____ 2 _____

O₂ TANK 1 _____ 2 _____

3 _____

P52 IMU REALIGN

N71: _____

N05: _____

N93: _____

X _____

Y _____

Z _____

GET ____:____:____

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	76:00 - 77:00	4/TLC	3-70

FLIGHT PLAN

MCC-4
BURN CHART

P OR Y RATE	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TERMINATE	±10° TERMINATE	BT + 1 SEC	TRIM X AXIS ONLY TO 1.0 FPS

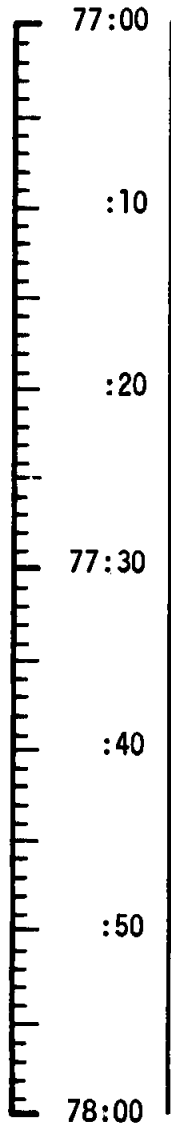
TABLE 3-5
3-72

MCC-H

1923 CST

FLIGHT PLAN

NOTES



MSFN

P30 EXTERNAL ΔV
V49 MNVR TO PAD BURN ATTITUDE

SXT STAR CHECK
P40 SPS THRUSTING OR P41 RCS THRUSTING

MCC-4

V66 SET CSM S.V. INTO LM S.V.
BURN STATUS REPORT

TIG: 77:38:14
BT: NOM. ZERO
ΔVT: NOM. ZERO
ULLAGE: NONE
ORBIT: N/A

PTC

DAP LOAD STATUS
(21101)(X1111)

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 _{gy}
				•	V _{gz}
				•	ΔV _c *
X	X	X			FUEL *
X	X	X			OX *
X	X	X			UNBAL

*ITEMS TO BE REPORTED TO MSFN

LOI -5 HR

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	77:00 - 78:00	4/TLC	3-73

MCC-H

2023 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
 (IF NO MCC-4)
 FLIGHT PLAN
 CONSUMABLES (76:10)
 PERICYNTHION +2 HR
 ABORT PAD

78:00
 :10
 :20
 78:30
 :40
 :50
 (21111)
 (X1111)
 79:00

M
S
F
N

CSM SYSTEMS CHECKLIST

PRE-LOI SECONDARY GLYCOL LOOP CHECK PAGE S 1-15

REPORT: LM/CM ΔP

VERIFY LM/CM ΔP <2.4 PSID
 IF LM/CM ΔP >2.4 PSID
 PRESSURIZE CSM TO 5.7 PSIA

EXIT G&N PTC PAGE G 8-3
 V48 (21111)(X1111)

V49 MNVR TO MOON VIEW ATTITUDE (79:10)
 (352,110,311) (HATCH WINDOW)
 HGA P -30, Y 293

PTC

DAP LOAD STATUS
(21101)(X1111)

IF NO MCC-4, CREW
 WILL BE AWAKENED
 AT 78:00. CREW
 WILL ACCOMPLISH
 THE FOLLOWING:
 EAT PERIOD (75:00)
 POST-SLEEP C/L (75:05)
 CANISTER CHANGE (76:10)
 AND PROCEED WITH
 ACTIVITIES AT 78:00

EARTH DISTANCE
≈ 200 444 NM

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	78:00 - 79:00	4/TLC	3-74

MCC-H

2123 CST

FLIGHT PLAN

NOTES

79:00
(21111)
(X1111)

UPLINK TO CSM
CSM S.V. & V66
(PRELIMINARY)
LOI TGT LOAD
(PRELIMINARY)
DESIRED ORIENTATION
(LDG SITE)

UPDATE TO CSM
LOI MNVR PAD
(PRELIMINARY)
TEI 4 PAD

:10

:20

79:30

:40

:50

80:00

M
S
F
N

CSM SYSTEMS CHECKLIST

CSM/LM PRESSURE EQUALIZATION (DECAL) PAGE S 2-3

CHECK MISSION TIMER AGAINST CMC CLOCK

ATT DEADBAND - MIN
RATE - LOW
BMAG (3) - ATT 1/RATE 2
SC CONT - SCS

P52 IMU REALIGN STARS _____, _____
OPTION 3 REFSMMAT SA _____, _____
(PTC ORIENT) TA _____, _____

REPORT: GYRO TORQUING ANGLES

P52 IMU REALIGN
OPTION 1 PREFERRED
(LDG SITE ORIENT)

SC CONT - CMC
BMAG (3) - RATE 2

TEI 4 PAD
ASSUMES NO DOI

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

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	79:00 - 80:00	4/TLC	3-75

MCC-H

2223 CST

FLIGHT PLAN

NOTES

80:00
(21111)
(X1111)

:10

:20

80:30

:40

:50

81:00

M
S
F
N

CSM G&C CHECKLIST

Δ V TEST & NULL BIAS CHECK
REPORT: BIAS

PAGE G 2-5

LUNAR PHOTOGRAPHY
AT CREW OPTION

CM /EL/80 OR 250/BW
(f5.6,250, ∞)(10 FR)
MAG (P)__, FR # __

CM /EL/80 OR 250/CEX
(f5.6,250, ∞)(10 FR)
MAG (L)__, FR # __

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	80:00 - 81:00	4/TLC	3-76

MCC-H

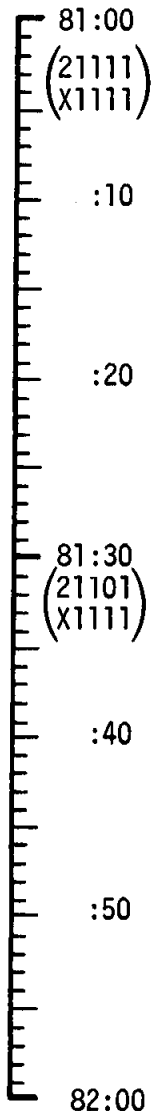
2323 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
LOI MNVR PAD
MAP UPDATE REV 1

UPLINK TO CSM
CSM S.V. & V66
LOI TGT LOAD



M
S
F
N

CSM SYSTEMS CHECKLIST

C&W SYSTEM OPERATIONAL CHECK PAGE S 1-17
 CM RCS MONITORING CHECK PAGE S 1-1
 SM RCS MONITORING CHECK PAGE S 1-1
 SPS MONITORING CHECK PAGE S 1-1
 ECS MONITORING CHECK PAGE S 1-5
 OXIDIZER FLOW VALVE INCR - INCR (VERIFY)
 O₂ HEATERS 1&2 (2) - AUTO
 O₂ HEATERS 3 (1) - OFF
 CYCLE CMC MODE - FREE/AUTO
 V48 (21101) (X1111)
 P30 EXTERNAL ΔV
 V49 MNVR TO PAD BURN ATTITUDE (82:00)
 (355,261,327)
 ACQ MSFN OMNI C

MAP UPDATE REV	<u>1</u>
LOS:	_____ : _____ : _____
180°:	_____ : _____ : _____
AOS WITH LOI:	_____ : _____ : _____
AOS WITHOUT LOI:	_____ : _____ : _____

THE PU VALVE SHOULD BE USED TO MAINTAIN THE INDICATED UNBALANCE TO WITHIN ±50 LBS OF THE STABILIZED READING (TIG +25 SEC) UNTIL CROSSOVER. AFTER CROSSOVER THE VALVE SHOULD BE USED TO CONTROL THE UNBALANCE WITHIN THE GREEN BAND (0 ± 100 LBS). DURING NORMAL ENGINE OPERATION THE PU VALVE DECREASE POSITION SHOULD NOT BE USED.

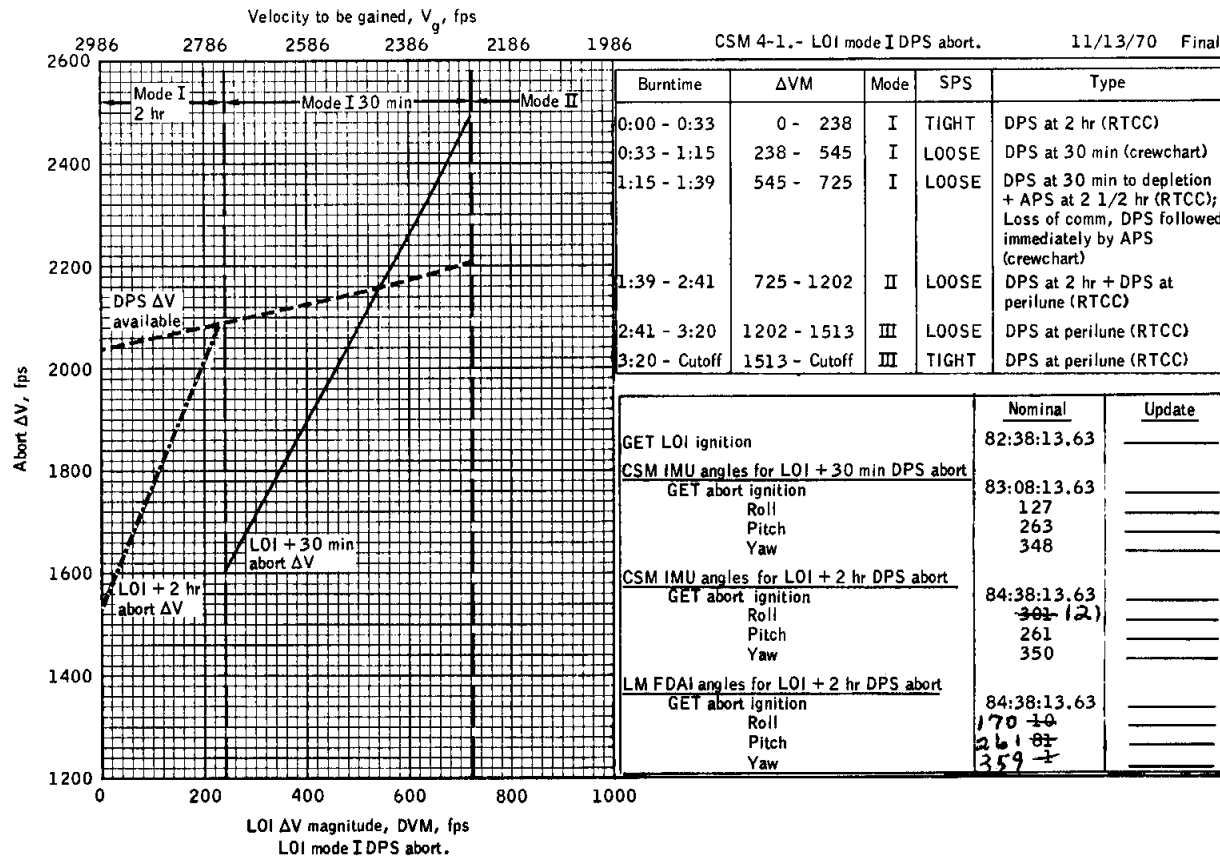
THE APPROXIMATE TIME OF CROSSOVER IS 04:06 TO 04:10 INTO THE LOI BURN.

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	81:00 - 82:00	4/TLC	3-77

FLIGHT PLAN

TABLE 3-6
LOI
BURN TABLE AND ABORT CHART

P OR Y RATES	ATT DEVIATION	SHUT DOWN TIME	RESIDUALS
10°/SEC COMPLETE	±10° COMPLETE	BT + 10 SEC	DO NOT TRIM



MCC-H

0023 CST

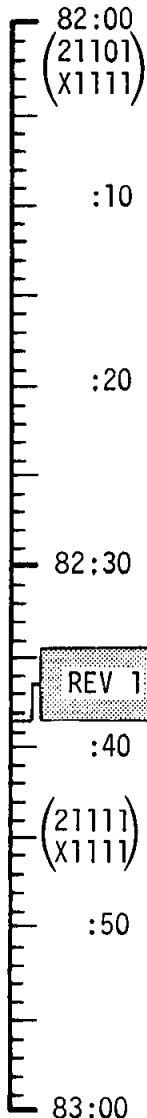
FLIGHT PLAN

NOTES

RECORD VG_{IMU} DATA

GO/NO-GO FOR LOI

DUMP DSE



SXT STAR CHECK

P40 SPS THRUSTING

GO/NO-GO FOR LOI

VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

V66 SET CSM S.V. INTO LM S.V.

V48 (21111)(X1111)

V49 MNVR TO COMM ATTITUDE (82:57)

(000,176,000)

ACQ MSFN HGA P -15, Y 180

BURN STATUS REPORT

LOI

TIG: 82:38:14

BT: 6 MIN 06.6 SEC

ΔVT: 2,986.0 FPS

ULLAGE: NONE

ORBIT: 170x57.1 NM

BURN STATUS REPORT				
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		UNBAL

*ITEMS TO BE REPORTED TO MSFN

**REPORT IF OFF MORE THAN 1 SEC

***REPORT IF >0.2 FPS

S-IVB LUNAR IMPACT (GET 83:07:46.5)

LAT -1.596

LONG-33.250

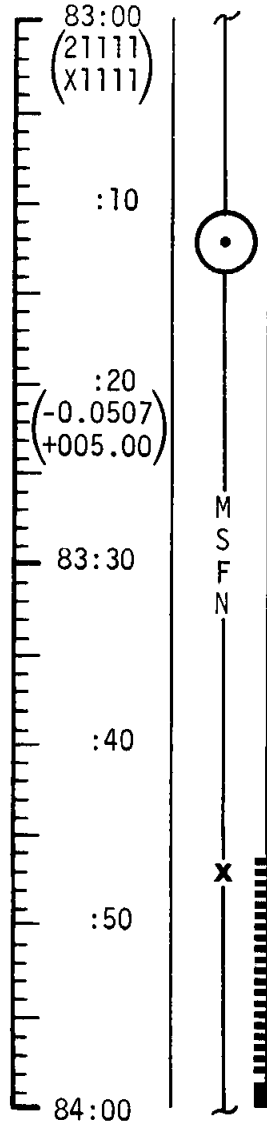
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	<i>Change B</i> FINAL (JAN)	<i>Jan 11, 1971</i> DECEMBER 2, 1970	82:00 - 83:00	4/1	3-79

MCC-H

0123 CST

FLIGHT PLAN

NOTES



ESTABLISH ORB RATE TO OBSERVE LUNAR SURFACE
 V79 (-0.0507)
 (+005.00)
 (+00001)
 PRO TO START PITCH RATE (000, 215/176,000)

EAT PERIOD

LINE UNDER PITCH
 ATTITUDE INDICATES
 AN ORDEAL (LOCAL
 HORIZONTAL) ANGLE.

THE SC CONTROLLING
 RATE AND DEADBAND
 WILL BE SHOWN IN THE
 TIME COLUMN IF OTHER
 THAN THE DAP LOAD

UPDATE TO CSM
 MAP UPDATE REV 2

MAP UPDATE REV <u>2</u>		
LOS	:	_____ : _____ : _____
180°	:	_____ : _____ : _____
AOS	:	_____ : _____ : _____

DURING LUNAR ORBIT,
 URINE DUMPS SHOULD
 BE PERFORMED, WHEN
 REQUIRED, WHILE THE
 SC IS ON THE BACK
 SIDE OF THE MOON

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	83:00 - 84:00	4/1	3-80

MCC-H

0223 CST

FLIGHT PLAN

NOTES

84:00
(21111)
(X1111)

:10

:20

84:30

(21101)
(X1111)
:40

REV 2

:50

85:00

↑
M
S
F
N
↓

STOP ORB RATE AT P52 ATTITUDE (84:05)
(000,065,000) HGA P -54, Y 0

P52 IMU REALIGN
OPTION 3 REFSMMAT
(LDG SITE ORIENT)

REPORT: GYRO TORQUING ANGLES

VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

CSM SYSTEMS CHECKLIST

COMM MODE - NORMAL LUNAR CONFIGURATION

PAGE S 1-23

H₂ PURGE LINE HEATERS ON
CYCLE CMC MODE - FREE/AUTO

V48 (21101)(X1111)
V49 MNVR TO LDMK TRACK ATTITUDE (85:00)
(000,262,000)

H₂ & O₂ FUEL CELL PURGE
WASTE WATER DUMP
H₂ PURGE LINE HEATERS - OFF

P52 IMU REALIGN

N71: ____ , ____

N05: ____ . ____

N93: _____

X ____ . ____

Y ____ . ____

Z ____ . ____

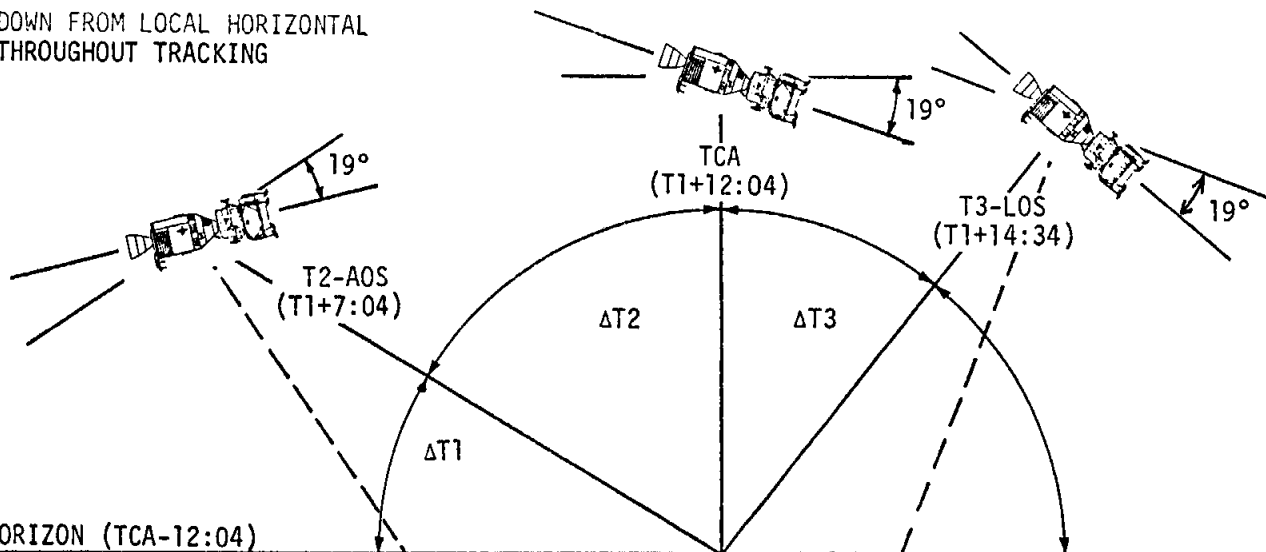
GET ____ : ____ : ____

PERICYNTHION +2 HR

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	84:00 - 85:00	4/1-2	3-81

CSM LANDMARK TRACKING PROFILE
(60 x 170 NM ORBIT)

19 DEG PITCH DOWN FROM LOCAL HORIZONTAL
ORBITAL RATE THROUGHOUT TRACKING



ΔT1 = 424 SEC
 ΔT2 = 300 SEC
 ΔT3 = 150 SEC
 AOS TO LOS = ~~874 SEC~~
 450 sec

P24 LDMK TRACKING		(1/60)
TGT: MÖSTING A		
T ₁	— — — — —	— — — — —
T ₂	— — — — —	— — — — —
TCA	— — — — —	— — — — —
T ₃	— — — — —	— — — — —
R	— — — — — °P	— — — — — °Y (T2 ACQ)
N or S NM	— — / SA	TA — — (T2 ACQ)
N89		
LAT	-03.250	
LONG/2	-02.642	
ALT	+000.00	

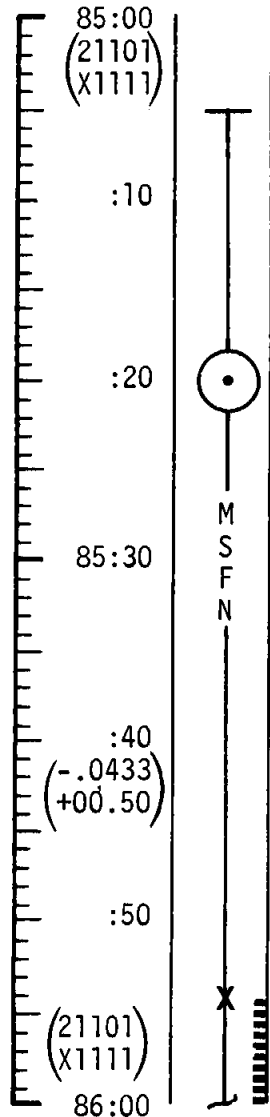
MCC-H

0323 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
 LDMK TRK PAD REV 2
 TEI 5 PAD
 LDMK H-3 PAD REV 3
 MAP UPDATE REV 3
 UPLINK TO CSM
 CSM S.V. & V66



ACQ MSFN OMNI C

CSM G&C CHECKLIST

ΔV TEST & NULL BIAS CHECK PAGE G 2-5
 REPORT: BIAS

CONFIGURE CAMERA: (LDMK TRACK)
 CM/DAC/SXT/CEX (EXP PAD) 1 fps (9% MAG)
 MAG (B) _____ MAG % _____
 UTILITY POWER-ON _____
 P24 (MÖSTING A)
 OPT ZERO-OFF
 OPT MODE-CMC
 SC CONTROL-CMC/AUTO (VERIFY)
 V79 (N16 LOAD T2 TIME)
 (-0.0433)
 (+000.50)
 (+00001)
 PRO (AUTO PITCH RATE AT T2 TIME)

TRACK LDMK MÖSTING A START DAC AT T2 -1 MIN
 30 SEC BETWEEN MARKS STOP DAC AT T3

RECORD MAG % _____
 V49 MNVR TO BURN PAD ATTITUDE EXCEPT IN ROLL (86:10)
 (060,269,000) HGA P 29, Y 255

TEI 5 PAD ASSUMES
 NOMINAL DOI
 ACCOMPLISHED

MAP UPDATE REV 3
 LOS : _____ : _____ : _____
 180° : _____ : _____ : _____
 AOS : _____ : _____ : _____

LDMK IS AT 10.6°
 SUN ANGLE

RECORD PCM LBR ON
 DSE DURING P24

UPDATE TO CSM
 DOI MNVR PAD

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	85:00 - 86:00	4/2	3-83

FLIGHT PLAN

DOI BURN TABLE

P OR Y RATES	ATT DEVIATIONS	SHUTDOWN TIME	RESIDUALS
10°/SEC TERMINATE	+10° TERMINATE	BT	*TRIM OVERBURNS IN X TO WITHIN 1 FPS, DO NOT TRIM Y & Z

*IF OVERBURN IS >2.2 FPS PITCH 180 AND TRIM

TABLE 3-7
3-84

MCC-H

0423 CST

FLIGHT PLAN

NOTES

CSM SYSTEMS CHECKLIST

C&W SYSTEM OPERATIONAL CHECKLIST	PAGE S 1-17
CM RCS MONITORING CHECK	PAGE S 1-1
SPS MONITORING CHECK	PAGE S 1-1
ECS MONITORING CHECK	PAGE S 1-5

P52 IMU REALIGN
 OPTION 3 REFSMMAT
 LDG SITE ORIENT

REPORT: GYRO TORQUING ANGLES
 P30 EXTERNAL ΔV
 P40 SPS THRUSTING
 V49 MNVR TO PAD BURN ATTITUDE (86:40)
 (000,269,000)
 VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

SXT STAR CHECK
 P40 SPS THRUSTING

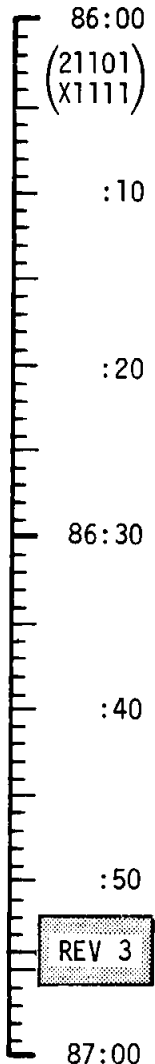
DOI
 V66 SET CSM S.V. INTO LM S.V.

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

TIG:	86:56:57
BT:	21.38 SEC
ΔVT :	206.6 FPS
ULLAGE:	4 JET 14 SEC
ORBIT:	58.4x9.8 NM

DUMP DSE
 UPLINK TO CSM
 DOI TARGET LOAD
 CSM S.V. & V66
 (IF REQ'D)
 PIPA BIAS CHECK
 GO/NO-GO FOR DOI

RECORD VG_{IMU} DATA



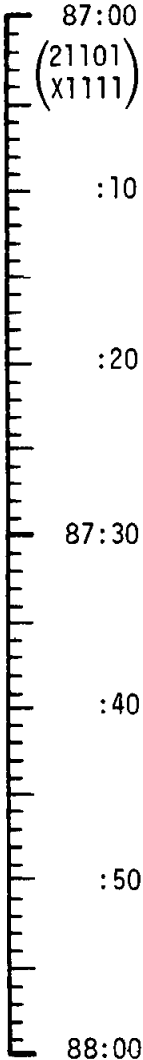
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	86:00 - 87:00	4/2-3	3-85

MCC-N

0523 CST

FLIGHT PLAN

NOTES



STAY/BAILOUT
DUMP DSE

V49 MNVR TO BAILOUT BURN ATTITUDE (87:10)
(325,063,000)

 AOS - NO UP VOICE PROCEDURE
 *1. WAIT 30 SEC, CHECK HGA *
 *2. SELECT OMNI B *
 *3. SELECT SEC XPNDR *
 *4. AFTER 3 MIN GO TO LOSS *
 * OF COMM CUE CARD *

ACQ MSFN HGA P-39, Y325
BURN STATUS REPORT

SC CONTROL-SCS
 P47 THRUST MONITOR
 BAILOUT BURN

IF REQ'D

TIG: 87:27:31
 BT: 10.17 SEC
 ΔVC: 100.0 FPS
 ULLAGE: 4 JET 14 SEC
 ORBIT: N/A

V49 MNVR TO LANDMARK OBSERVATION ATTITUDE (87:45)
(000,292,000) OMNI D

P24 ORB NAV
 MONITOR LDMK
 NO MARKS

LDMK H-3
 T HOR: _____:_____:_____
 TCA -20 SEC: _____:_____:_____
 LAT: -03.691
 LONG/2: -03.771
 ALT: +00000

BURN STATUS REPORT				
X	X	<input type="checkbox"/>	●	ΔTIG**
X	X	<input type="checkbox"/>	●	BT*
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	V _{gx}
TRIM				
X	X	X		R
X	X	X		P
X	X	X		Y
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	V _{gx} ***
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	V _{gy} ***
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	V _{gz} ***
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	ΔV _c *
X	X	X		FUEL *
X	X	X		OX *
X	X	X		UNBAL

*ITEMS TO BE REPORTED TO MSFN
 **REPORT IF OFF MORE THAN 1 SEC
 ***REPORT IF >0.2 FPS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE C (JAN)	JANUARY 18, 1971	87:00 - 88:00	4/3	3-86

MCC-H

0623 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
MAP UPDATE REV 4

88:00
~~21101~~
~~(X1111)~~
(X1111)

:10

:20

88:30

:40

REV 4

:50

~~(21101)~~ Delete
~~(X1111)~~
89:00

M
S
F
N

P52 IMU REALIGN
OPTION 3 REFSMMAT
(LDG SITE ORIENT)

REPORT: GYRO TORQUING ANGLES
VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

V49 MNVR TO LTC ATTITUDE (89:05)
(181,257,359)

CONFIGURE CAMERA: TARGET 9 (DESCARTES)
CM3/LTC/BW/BEF - (SHUT 1/200, RNG PAD, INT 65.0) (402 FR)
MAG (W) _____, FR # _____
LTC INSTALLATION (DECAL)
RECORD TIME: ____:____:____, DAY _____ (LTC CLOCK)
AT GET: ____:____:____
LTC CHECKOUT (DECAL)
CYCLE CMC MODE - FREE/AUTO
V48 ~~(21101)(X1111)~~ Delete

MAP UPDATE REV 4

LOS : _____:_____:_____

180° : _____:_____:_____

AOS : _____:_____:_____

P52 IMU REALIGN

N71: _____

N05: _____

N93: _____

X _____

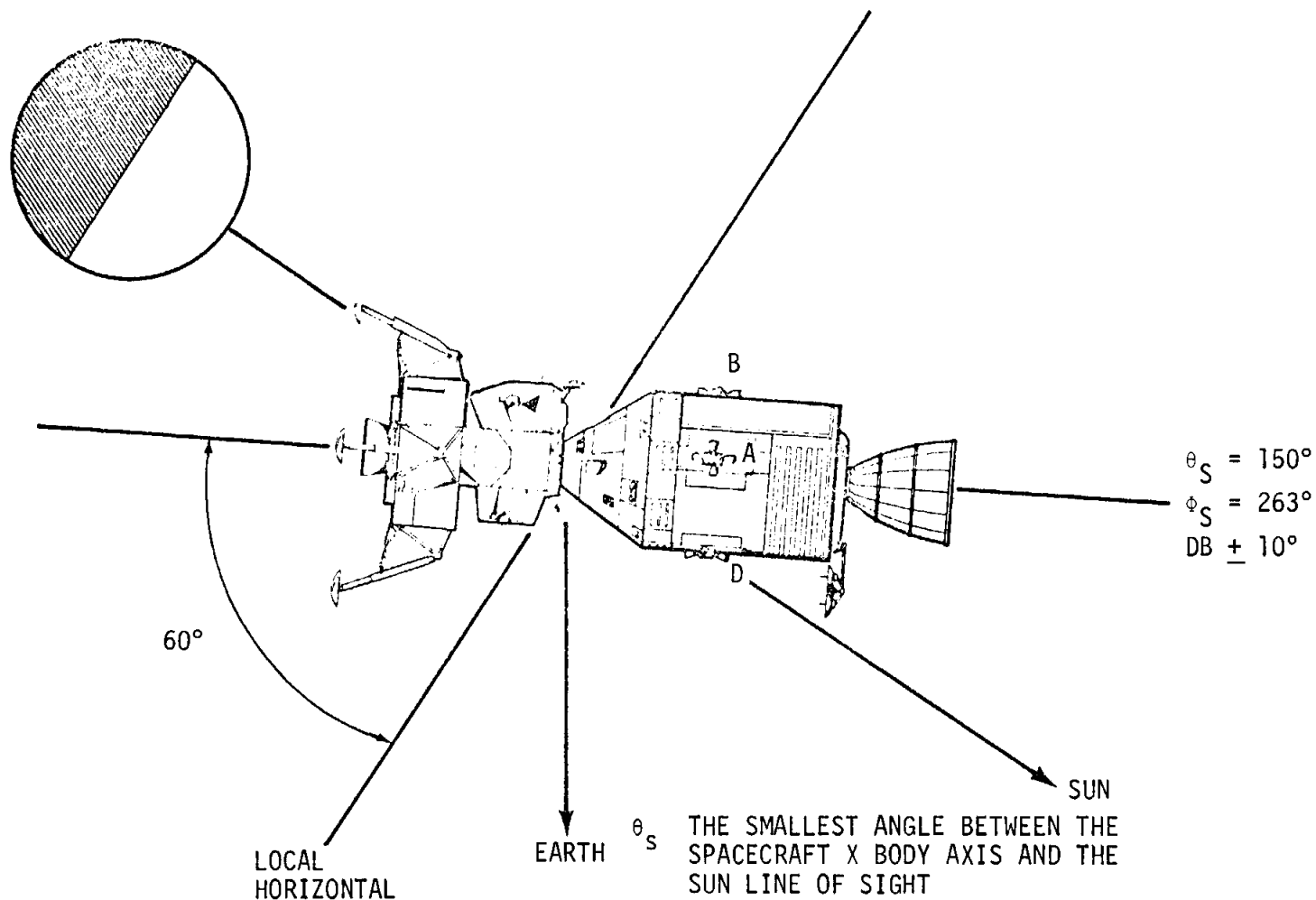
Y _____

Z _____

GET _____:_____:_____

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL <i>Change 8</i> (JAN)	DECEMBER 2, 1970 <i>Jan 11, 1971</i>	88:00 - 89:00	4/3-4	3-87

LUNAR ORBIT REST PERIOD ATTITUDE



θ_S THE SMALLEST ANGLE BETWEEN THE SPACECRAFT X BODY AXIS AND THE SUN LINE OF SIGHT

ϕ_S THE ANGLE WHICH IS MEASURED FROM THE MINUS Z SPACECRAFT BODY AXIS POSITIVELY ABOUT THE X BODY AXIS TO THE SUN LINE OF SIGHT VECTOR PROJECTION IN THE Y - Z AXIS PLANE

MCC-H

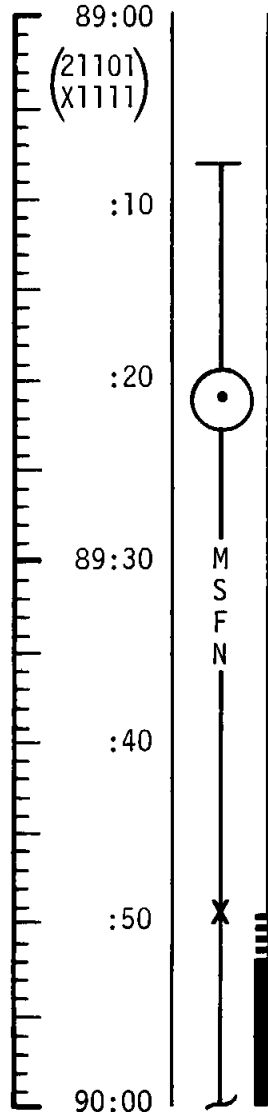
0723 CST

FLIGHT PLAN

NOTES

DUMP DSE

UPDATE TO CSM
LTC PHOTO PAD
TEI 12 PAD
MAP UPDATE REV 10
UPLINK TO CSM
CSM S.V. & V66



ACQ MSFN HGA P -64, Y 177

V49 TWEAK MNVR TO LTC PAD ATTITUDE

VERIFY LTC MODE - STANDBY/PWR - ON (T START - 1 MIN)
ZERO DET

LTC MODE - AUTO, DET - START/UP (T START)
 PHOTO TGT 9 (DESCARTES)
 (SEE PAD FOR RANGE CHANGES)
 LTC MODE - STANDBY (T STOP)
 LTC FILM MAG CHANGE (DECAL)
 ADVANCE 4 FRAMES, RECORD FR # _____
 PUT MAG (V) ON LTC
 RESET FRAME COUNTER
 LTC REMOVAL (DECAL) & STOW
 V49 MNVR TO REST ATTITUDE (90:00)
 (126,286,000) HGA P -35, Y 272
 MAN ATT (3) - ACCEL CMD
 SC CONT - CMC/AUTO (VERIFY)
 V79 (-0.0000) (+010.00) (+00001)
 MAN ATT (3) - RATE CMD

LTC PHOTO PAD TGT: 9 (DESCARTES)
 (181,257,359)
 R _____ P _____ Y _____
 T START: _____ : _____ : _____
 T STOP: _____ : _____ : _____
 RNG: _____ (51.7) (T START)
 RNG: _____ (53.0) (T START + 00:54)
 RNG: _____ (44.5) (T START + 01:23)
 RNG: _____ (36.4) (T START + 02:21)
 RNG: _____ (33.0) (T START + 04:41)
 RNG: _____ (28.1) (T START + 05:18)

MAP UPDATE REV 10
 LOS : _____ : _____ : _____
 180° : _____ : _____ : _____
 AOS : _____ : _____ : _____

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	89:00 - 90:00	4/4	3-89

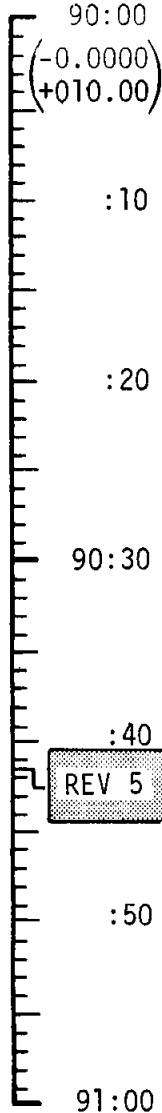
MCC-H

0823 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
TRAJECTORY STATUS



CSM SYSTEMS CHECKLIST
 PRE-SLEEP CHECKLIST PAGE S -126
 (DO NOT CHLORINATE WATER UNTIL AFTER
 EAT PERIOD)
 VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)
 LiOH CANISTER CHANGE
 (9 INTO A, STOW 7 IN B6)

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

EAT PERIOD

REST ATT

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	90:00 - 91:00	4/4-5	3-90

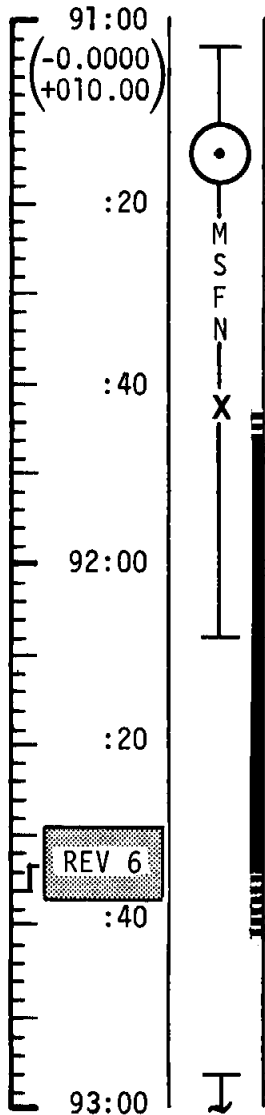
MCC-H

0923 CST

FLIGHT PLAN

NOTES

DUMP DSE



DAP LOAD STATUS
(21101)(X1111)

REST PERIOD
(8.5 HOURS)

REST ATT

DUMP DSE

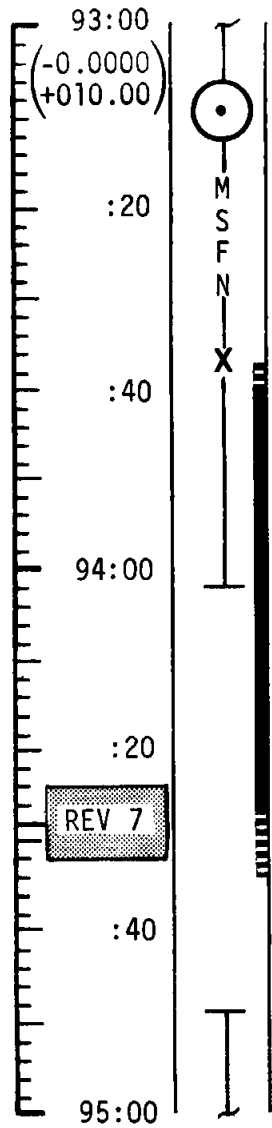
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	91:00 - 93:00	4/5-6	3-91

MCC-H

1123 CST

FLIGHT PLAN

NOTES



DAP LOAD STATUS
(21101)(X1111)

REST PERIOD
(8.5 HOURS)

REST ATT

DUMP DSE

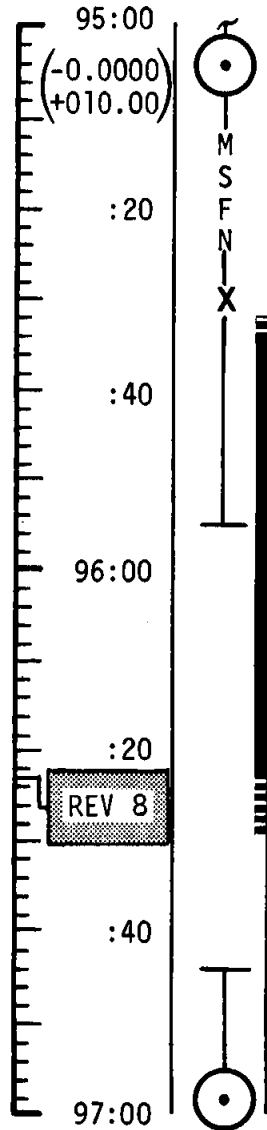
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	93:00 - 95:00	4/6-7	3-92

MCC-H

1323 CST

FLIGHT PLAN

NOTES



DAP LOAD STATUS
(21101)(X1111)

REST PERIOD
(8.5 HOURS)

REST ATT

DUMP DSE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	95:00 - 97:00	4/7-8	3-93

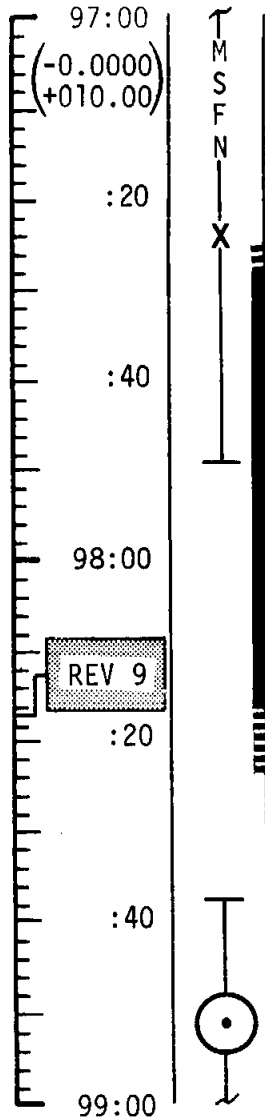
MCC-H

1523 CST

FLIGHT PLAN

NOTES

DAP LOAD STATUS
(21101)(X1111)



REST PERIOD
(8.5 HOURS)

REST ATT

DUMP DSE

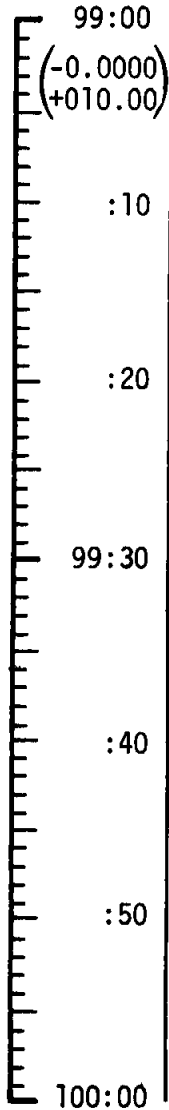
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	97:00 - 99:00	4/8-9	3-94

MCC-H

1723 CST

FLIGHT PLAN

NOTES



REST PERIOD
(8.5 HOURS)

DAP LOAD STATUS
(21101)(X1111)

WAKE CREW AT 99:00
IF TWEAK BURN IS
REQUIRED AT 99:46

REST ATT

CSM SYSTEMS CHECKLIST

POST - SLEEP CHECKLIST PAGE S 1-26

VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

EAT PERIOD

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	99:00 - 100:00	5/9	3-95

CSM FLIGHT PLAN

<p>100:00</p> <p>(-.0000) (+10.00)</p> <p>REV 10</p> <p>100:10</p> <p>100:20</p> <p>100:30</p>	<p style="text-align: center;">SET UP TV (101:00) DAP LOAD STATUS (21101) (X1111)</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">CSM CONSUMABLES UPDATE</p> <p>GET: _____</p> <p>RCS TOTAL _____</p> <p>QUAD A _____ B _____</p> <p>C _____ D _____</p> <p>H₂ TANK 1 _____ 2 _____</p> <p>O₂ TANK 1 _____ 2 _____</p> <p>3 _____</p> </div> <p style="text-align: center;">EAT PERIOD REST ATTITUDE</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">CSM TO LM TRANSFER ITEMS:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> SUIT WITH ACCESSORIES (EACH CREWMAN) UCTA FCS (U1) LCG (U1) SUNGLASSES WITH POUCH WRISTWATCH PEN PEN - FELT TIP PENCIL CHECKLIST POCKET SCISSORS POCKET GLOVES HELMET BIO-INSTRUMENTATION EQUIPMENT SCISSORS (1 ONLY) PENLIGHT EAR PLUGS DOSIMETER COMM EARMOLD </td> <td style="width: 50%; border: none;"> FLIGHT DATA IN BAG LM TIMELINE BOOK LM DATA CARD BOOK LM LUNAR SURFACE CHECKLIST LM ORBIT MONITOR CHART LM LANDING SITE MONITOR CHART LM ASCENT MONITOR CHART LM STAR CHARTS (4) </td> </tr> </table> </div>	SUIT WITH ACCESSORIES (EACH CREWMAN) UCTA FCS (U1) LCG (U1) SUNGLASSES WITH POUCH WRISTWATCH PEN PEN - FELT TIP PENCIL CHECKLIST POCKET SCISSORS POCKET GLOVES HELMET BIO-INSTRUMENTATION EQUIPMENT SCISSORS (1 ONLY) PENLIGHT EAR PLUGS DOSIMETER COMM EARMOLD	FLIGHT DATA IN BAG LM TIMELINE BOOK LM DATA CARD BOOK LM LUNAR SURFACE CHECKLIST LM ORBIT MONITOR CHART LM LANDING SITE MONITOR CHART LM ASCENT MONITOR CHART LM STAR CHARTS (4)	<p>100:30</p> <p>(-.0000) (+10.00)</p> <p>ACQ MSFN HGA P <u>-34</u>, Y <u>266</u></p> <p>MSFN: DUMP DSE</p> <p>LMP DON LCG & PGA WITHOUT HELMET AND GLOVES</p> <p>MSFN UPLINK: CSM S.V. AND V66 DESIRED ORIENT (LDG SITE) LIFT-OFF TIME (IF REQ'D)</p> <p>NOTE: LIFT-OFF TIME WILL BE UPDATED IF THE TIME OF REV 20 MERIDIAN CROSSING DIFFERS MORE THAN ± 1 MIN FROM 119:39:13</p> <p>MSFN UPDATE: TRAJECTORY STATUS CONSUMABLES FLIGHT PLAN T EPHEM (IF REQ'D) REFSMAT 00 TIME COPY AT (101:22) MAP UPDATE REV 11 (101:35) TEI 12 TIG (IF REQ'D) TEI 19 PAD</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">REST ATTITUDE</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 20%;"></td> <td style="text-align: center;">T EPHEM UPDATE</td> </tr> <tr> <td></td> <td style="text-align: center;">OID LOAD B</td> </tr> <tr> <td style="text-align: center;">03</td> <td style="text-align: center;">_____</td> </tr> <tr> <td style="text-align: center;">04</td> <td style="text-align: center;">_____</td> </tr> <tr> <td style="text-align: center;">05</td> <td style="text-align: center;">_____</td> </tr> </table> </div> <p>MSFN</p> <p>MSFN UPDATE: TRAJECTORY STATUS CONSUMABLES FLIGHT PLAN T EPHEM (IF REQ'D) REFSMAT 00 TIME COPY AT (101:22) MAP UPDATE REV 11 (101:35) TEI 12 TIG (IF REQ'D) TEI 19 PAD</p> <p>SYNCHRONIZE MISSION TIMER TO CMC (IF REQ'D) VOSNOTE, 1706 E</p> <p>VERIFY LM/CM ΔP < 2.4 IF ΔP > 2.4 PRESSURIZE CSM TO 5.7 REPORT ΔP TO MSFN</p> <p>CDR DON LCG & PGA WITHOUT HELMET AND GLOVES</p> <p>MSFN TV - AVG (F22) TV (205) 101-00 101-10 <i>Delete</i></p>		T EPHEM UPDATE		OID LOAD B	03	_____	04	_____	05	_____
SUIT WITH ACCESSORIES (EACH CREWMAN) UCTA FCS (U1) LCG (U1) SUNGLASSES WITH POUCH WRISTWATCH PEN PEN - FELT TIP PENCIL CHECKLIST POCKET SCISSORS POCKET GLOVES HELMET BIO-INSTRUMENTATION EQUIPMENT SCISSORS (1 ONLY) PENLIGHT EAR PLUGS DOSIMETER COMM EARMOLD	FLIGHT DATA IN BAG LM TIMELINE BOOK LM DATA CARD BOOK LM LUNAR SURFACE CHECKLIST LM ORBIT MONITOR CHART LM LANDING SITE MONITOR CHART LM ASCENT MONITOR CHART LM STAR CHARTS (4)													
	T EPHEM UPDATE													
	OID LOAD B													
03	_____													
04	_____													
05	_____													

MISSION	EDITION	DATE	PAGE
APOLLO 14 <i>Chyl</i>	CHANGE (JAN)	DECEMBER 20, 1970	3-96

Jan 18, 1971

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CSM FLIGHT PLAN

Delete TV Show

101:00
(-.0000)
(+10.00)

101:10

101:20

101:30

M
S
F
N

X

M
S
F
N

REST ATTITUDE

16MM & 70MM CAMERA MAGAZINES USED FROM 100:00 TO 120:00			
CAMERA	MAGAZINES	TYPE (DECAL-COLOR)	STOWAGE LOCATION
EL	L	CEX (BLUE)	B3
	N	CEX (BLUE)	A13
DC	R	MBW (SILVER)	A10
	S	VHBW (SILVER/BLACK)	A10
DAC	B, C	CEX (BLUE)	B8 Cushion
	J, K	*VHBW (SILVER/BLACK)	B2

*Should be left in B2 or kept out of direct sunlight.

REFSMAT 00 TIME					
+	0	0			HRS
+	0	0	0		MIN
+	0				SEC

CYCLE CMC MODE-FREE/AUTO
P52 (OPTION 3)
(LDG SITE ORIENT)

REPORT: GYRO TORQUING ANGLES

P52 (OPTION 1)
(LDG SITE ORIENT)

CDR V49 MNVR TO AGS CALIB ATTITUDE (101:36)
(007.5, 112.5, 022.5) HGA P -80, Y 98

P52 IMU REALIGN

N71:	_____
N05:	_____
N93:	_____
X	_____
Y	_____
Z	_____
GET	_____

101:30
(21101)
(X1111)

101:40

101:50

102:00

M
S
F
N

CMR DON PGA WITHOUT HELMET AND GLOVES

LMP VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)
V48 (21111)
(X1111)

MAP UPDATE REV <u>11</u>	
LOS :	_____
180°:	_____
AOS :	_____

PREPARE COUCH FOR HATCH
REMOVE PROBE STRAPS (A1)

VERIFY LM/CM $\Delta P < 0.2$
IF $\Delta P > 0.2$ PERFORM CM/LM PRESSURE EQUALIZATION (DECAL)
TUNNEL HATCH REMOVAL (DECAL); STOW HATCH
PROBE REMOVAL (DECAL); STOW PROBE
DROGUE REMOVAL (DECAL); STOW DROGUE

RECORD DOCKING TUNNEL INDEX ANGLE _____

AT LMP REQUEST:
LM PWR - RESET/OFF
SYS TEST - 4D
SYS TEST ind - 0 volts

MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-98

Jan 18, 1971

LM FLIGHT PLAN

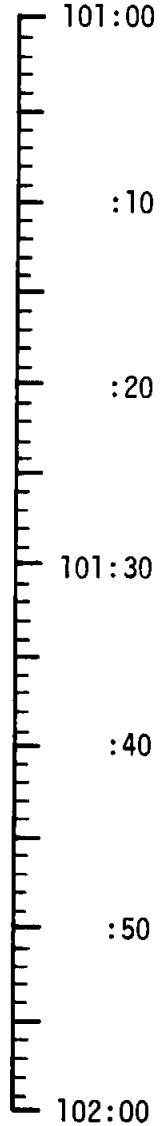
MCC-H

1923 CST

CDR

LMP

NOTES



LM ACTIVATION CHECKLIST

PAGE 2-1

- IVT TO LM
- OPEN HATCH
- VERIFY DOCKING ANGLE
- TRANSFER POWER

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	101:00 - 102:00	5/10	3-99

CSM FLIGHT PLAN

<p>102:00</p> <p>(21111) (X1111)</p> <p>REV 11</p> <p>MARK TO LM FOR LM MISSION TIMER SYNC AT CDR REQUEST</p> <p>102:10</p> <p>CONFIGURE CAMERAS FOR UNDOCKING CM2/EL/80/CEX (f8,1/250, FOCUS) (10 FR)</p> <p>MAG (N) _____, FR # _____ CM2/DAC/18/CEX-BRKT,MIR (T8,1/250,7) 12 fps (100% MAG)</p> <p>MAG (C) _____, MAG % _____ UTILITY PWR - ON</p> <p>SWITCH TO CDR COMM UMB</p> <p>102:20</p> <p>VHF C/O AT LMP REQUEST VHF ANT - RIGHT VHF AM B - SIMPLEX FOR VHF B CHECK VHF AM A - SIMPLEX FOR VHF A CHECK</p> <p>ACQ MSFN HGA P <u>-80</u>, Y <u>98</u></p> <p style="text-align: center;">M S F N</p> <p>102:30</p>	<p>102:30</p> <p>(21111) (X1111)</p> <p>REPORT DOCKING TUNNEL INDEX ANGLE TO MSFN MSFN UPLINK: CSM S.V. AND V66</p> <p>MSFN UPDATE: DAP DATA (103:20) MAP UPDATE REV 12 (103:30) UNDOCK/SEP PAD COPY AT (104:05) P24 TRK PAD: (L/S LDMK 14-X) (104:35)</p> <p>MAN ATT(3) RATE CMD ATT DB - MIN RATE - LOW SC CONT - SCS BMAG (3) - ATT 1/RATE 2</p> <p style="text-align: center;">* * * * *</p> <p>LM DOCKED IMU COARSE ALIGN V06N20E VOICE ANGLES TO LM ON CDR MARK - ENTER RECORD GIMBAL ANGLES VOICE ANGLES TO LM</p> <p style="text-align: center;">* N20: * R _____ * P _____ * Y _____ * * * * *</p> <p style="text-align: center;">M S F N</p> <p>102:40</p> <p>SC CONT - CMC, ATT DB - MAX BMAG MODE (3) - RATE 2</p> <p>LM CLOCK SYNC: V16N65E ON CDR MARK - V06N65E</p> <p>102:50</p> <p>LM T EPHEM UPDATE: V05N01E, 1706E DON HELMET AND GLOVES</p> <p>LM LANDING GEAR DEPLOY</p> <p>SUIT CKT INTEGRITY CHECK (DECAL)</p> <p>103:00</p>
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MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-100

LM FLIGHT PLAN

MCC-H

2023 CST

CDR

LMP

NOTES

DUMP DSE
 UPLINK TO CSM
 CSM S.V. & V66
 UPDATE TO CSM
 DAP DATA
 MAP UPDATE REV 12
 UNDOCK & SEP PAD
 P24 TRK PAD

102:00 <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">REV 11</div> :10 :20 102:30 :40 :50 (32022) 103:00	M S F N	IVT TO LM TRANSFER HELMETS & GLOVES MISSION TIMER ACTIVATION ECS ACTIVATION AND C/O CONNECT TO LM ECS PGNS TURN-ON & SELF-TEST DOCKED IMU COARSE ALIGN REPORT: <u>GIMBAL ANGLES</u> & <u>GET</u> LGC/CMC CLOCK SYNC T EPHEM UPDATE E-MEMORY DUMP V48 (32022) DEPLOY LANDING GEAR RCS PRESSURIZATION REPORT: <u>He PRESSURE</u>	LIGHTS ON DES O ₂ AND H ₂ O - OPEN EPS ACTIVATION CONNECT TO LM COMM CONFIGURE S-BAND PRIMARY GLYCOL LOOP ACT CAUTION/WARNING C/O CONNECT TO LM ECS CB ACTIVATION VHF CHECKOUT REPORT: <u>LM POWER TRANSFER</u> <u>TIME</u> SEC S-BAND VOICE CHECK, PRIM S-BAND CHECK, STEERABLE ANTENNA ACTIVATION <u>P116, Y41</u> SUIT FAN/H ₂ O SEP CHECK GLYCOL PUMP CHECK BIOMED - RIGHT ASCENT BATTERY ACTIVATION AND C/O REPORT: <u>ED BAT VOLTAGE</u>
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MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	102:00 - 103:00	5/10-11	3-101

CSM FLIGHT PLAN

103:00	(21111) (X1111) AT CDR'S REQUEST DURING RCS CHECKOUT CMC - FREE FOR RCS HOT FIRE * * * * * * <u>PANEL 10</u> * * * * * * * MODE - VOX * * VOX SENS tw - 5 * * S-BD - OFF * * INTERCOM - OFF * * VHF AM T/R - T/R (VERIFY) * * * * * *	103:30	(21101) (X1111) VERIFY DEL TAPE MOTION (LDR/PCD/FLO/CMO RESET) DOFF HELMET AND GLOVES <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> MAP UPDATE REV <u>12</u> LOS : • • • • 180°: • • • • AOS : • • </div> LIQH CANISTER CHANGE: (10 INTO B, STOW 8 IN B6) RR XPNDR ACTIVATION AND SELF-TEST (DECAL) RNDZ XPNDR - HTR																								
103:10	AFTER LM RCS CHECKOUT CMC - AUTO ROLL (8) - OFF UNTIL LM/CM ΔP > 3.5 PSID REMOVE AND STOW CSM/LM UMBILICAL IN F1 or F2 INSTALL DROGUE AND PROBE (DECAL) PRE-LOAD PROBE (DECAL) DOCKING LATCH RELEASE (DECAL) HATCH INSTALLATION (DECAL) HATCH INTEGRITY CHECK (DECAL)	103:40	RR XPNDR ACTIVATION AND SELF-TEST (DECAL) RNDZ XPNDR - HTR																								
103:20	CYCLE CMC MODE - FREE/AUTO ROLL (4) - ON V48 (21101) (X1111) LOAD N47 & N48 V49 TRIM TO AGS CALIB ATT (007.5,112.5,022.5)	103:50	SET DET COUNTING UP TO UNDOCK/SEP UNDOCK CUE CARD LM DRIFT CHECK VO6N20E ON CDR MARK - ENTER RECORD GIMBAL ANGLES VOICE ANGLES TO LM																								
(21101) (X1111)	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 5%;">+</td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;"> </td> <td style="width: 5%;">WT</td> <td style="width: 5%;">N47</td> </tr> <tr> <td>0</td> <td>0</td> <td> </td> <td> </td> <td> </td> <td> </td> <td>P TRIM</td> <td>N48</td> </tr> <tr> <td>0</td> <td>0</td> <td> </td> <td> </td> <td> </td> <td> </td> <td>Y TRIM</td> <td> </td> </tr> </table> V49 TRIM TO AGS CALIB ATT (007.5,112.5,022.5)	+						WT	N47	0	0					P TRIM	N48	0	0					Y TRIM		104:00	LM DRIFT CHECK VO6N20E ON CDR MARK - ENTER RECORD GIMBAL ANGLES VOICE ANGLES TO LM LM RR SELF-TEST RNDZ XPNDR - HTR (VERIFY) AUTO RCS SEL B3 - OFF
+						WT	N47																				
0	0					P TRIM	N48																				
0	0					Y TRIM																					
103:30	* * * * * * CB RNDZ XPNDR FLT BUS - CLOSE (VERIFY) * * RNDZ XPNDR - HTR (VERIFY) * * VHF ANT - RIGHT (VERIFY) * * VHF RCV ONLY - B DATA * * VHF AM A - SIMPLEX * * VHF AM B - OFF * * * * * *	104:00	* * * * * * N20: * R _____ * * P _____ * * Y _____ * * * * * *																								

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-102

REV 12

LM FLIGHT PLAN

MCC-H

2123 CST

CDR

LMP

NOTES

UPLINK TO LM
 LS REFSMMAT
 LM S.V. & V66
 LGC/CMC CLOCK SYNC
 LGC ABORT CONSTANTS
 E-MEMORY
 PIPA BIAS (IF REQ'D)
UPDATE TO LM
 GYRO TORQUING
 ANGLES
 AGS ABORT CONSTANTS
 DAP DATA
UPDATE TO LM
 AGS K FACTOR

103:00
 (32022)
 (31022)
 :10
 :20
 103:30
 :40
 :50
 REV 12
 104:00

X
 M
 S
 F
 N

RCS CHECKOUT	
V48 (31022)	
DOCKED IMU FINE ALIGN	COPY UPDATES
VERIFY DROGUE & PROBE INSTALLATION	AGS ACTIVATION & SELF-TEST
CLOSE AND SECURE HATCH	AGS TIME INITIALIZATION LOAD AGS PAD COPY AGS K FACTOR V47 INITIALIZE AGS (K) CONFIGURE COMM FOR LOS STEERABLE ANT <u>P132, Y48</u>
DON HELMETS & GLOVES	
ARS/PGA INTEGRITY CHECK	
CABIN REGULATOR CHECK	
DOFF HELMETS & GLOVES (CREW OPTION)	
DRIFT CHECK	RATE GYRO TEST

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	103:00 - 104:00	5/11-12	3-103

CSM FLIGHT PLAN

104:00
(21101)
(X1111)

104:10

104:20

(11101)
(X1111)

104:30

VERIFY:
CM2/EL/80/CEX (f8,1/250,FOCUS)
CM2/DAC/18/CEX-BRKT, MIR (T8,1/250,7) 12 fps
UTILITY PWR - ON

LM AGS CALIB
RATE < 0.075°/SEC
CMC MODE - FREE
AFTER COMPLETION OF AGS CALIB
(APPROX 6 MIN) CMC MODE - AUTO

P30; LOAD UNDOCK/SEP

WHEN LM RR SELF-TEST COMPLETE:
AUTO RCS SEL B3 - ON, RNDZ XPNDR - PWR

V49 MNVR TO UNDOCK PAD ATT (104:19)

LOAD ΔV IN EMS TO -100.0
CHECK NULL BIAS
VERIFY EMS -100.0/ΔV/STBY

GDC ALIGN
VERIFY ORDEAL
ALT SET = 40 NM

PERFORM UNDOCKING SWITCH
CONFIGURATION:

UNDOCKING SWITCH CONFIGURATION

ATT DB - MIN
RATE - LOW
RHC PWR NORM - AC/DC
RHC PWR DIR - MNA/MNB
AUTO RCS (16) - MNA/MNB
CB DOCKING PROB (2) - CLOSED

ACQ MSFN HGA P -80, Y 13

GO/NO-GO FOR UNDOCK/SEP
P41 (TRIM)

SC CONT - SCS
BMAG (3) - ATT 1/RATE 2

V48 (11101)
(X1111)
RHC & THC - ARMED

PERFORM UNDOCKING CHECKLIST

UNDOCK/SEPARATION (000,090/102,000)	TIG: 104:27:31
	BT: 3.07 SEC
	ΔVT: 1 FPS
	ULLAGE: N/A
	ORBIT: 59,5 x 8,2

P30 MANEUVER

	C	S	M	S	E	P	PURPOSE
SET STARS	R	C	S	G	&	N	PROP/GUID
	+			N	/	A	WT N47
R ALIGN _____		0	0	N	/	A	P TRIM N48
P ALIGN _____		0	0	N	/	A	Y TRIM
Y ALIGN _____	+	0	0				HRS GETI
	+	0	0	0			MIN N33
	+	0					SEC
ULLAGE _____	+	0	0	0	0	0	ΔV _X N8T
	+	0	0	0	0	0	ΔV _Y
	-	0	0	0	1	0	ΔV _Z
	X	X	X				R (000)
	X	X	X				P (102)
	X	X	X				Y (000)

UNDOCKING CHECKLIST

59:30 EMS MODE - NORM, DAC - ON
THC PWR - ON

00:00 PROBE EXT/REL - EXT/REL (MOM)
VERIFY PROBE EXTENDED, LM ATTACHED
ALLOW MOTION TO DAMP (5 SEC)
PROBE EXT/REL - EXT/REL (HOLD) (< 20 SEC)
AFTER 2 SEC XLATE (4 JET) AFT
FOR ~ 3 SEC (VGX to + 2.0)
AFTER PROBE/DROGUE DISENGAGED,
PROBE EXT/REL - OFF
THC & RHC - LOCKED, THC PWR - OFF
POO
SC CONT - CMC, ATT DB - MAX
ΔV CG - CSM
BMAG (3) - RATE 2
RHC PWR DIR - OFF
ROLL (4) - OFF
EMS FUNC - ΔV SET/VHF RNG
EMS MODE - VHF RNG
VHF ANT - LEFT
VHF AM A - OFF
VHF AM B - DUPLEX
VHF RANGING - RANGING

LM FLIGHT PLAN

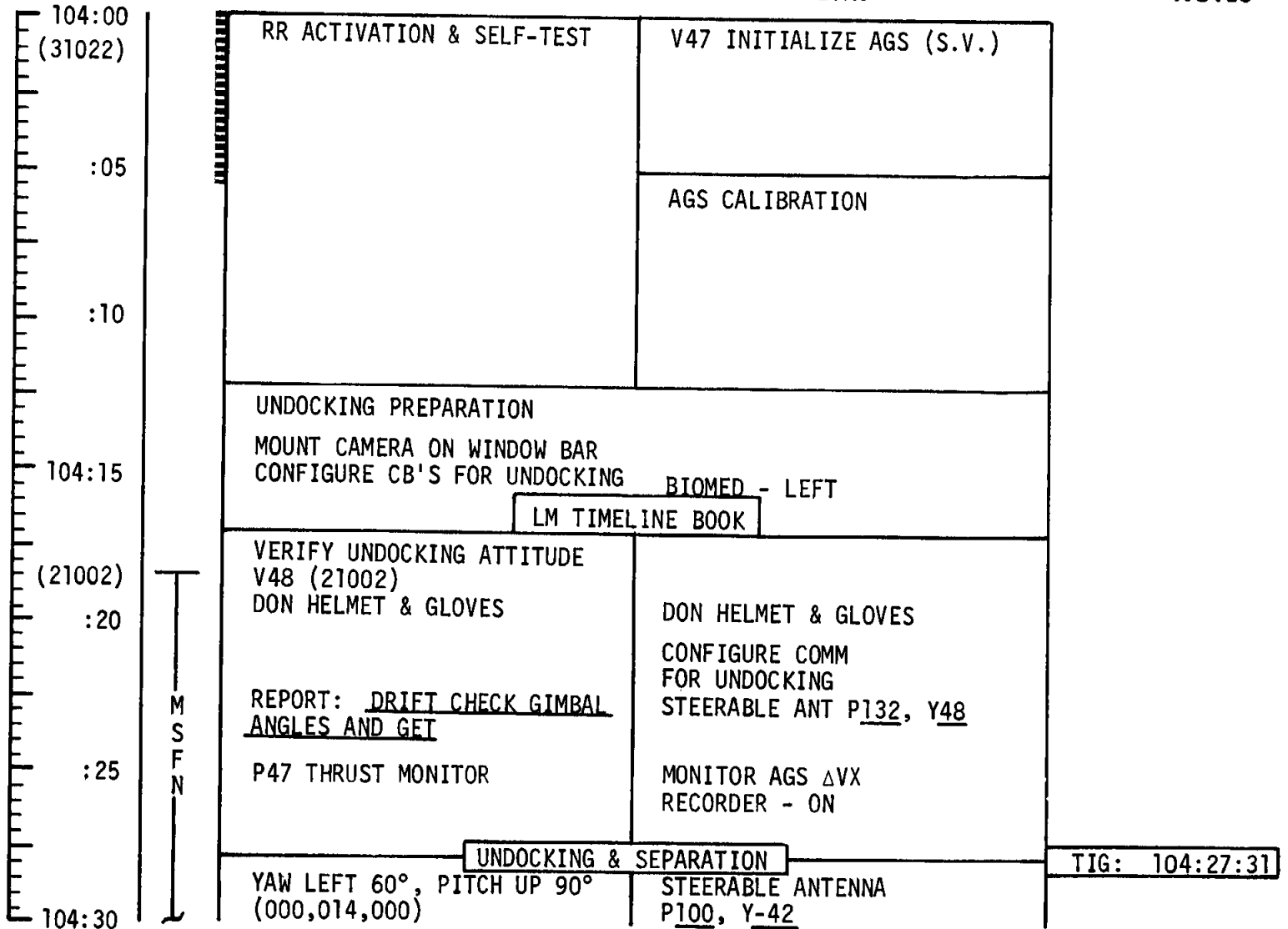
MCC-H

2223 CST

CDR

LMP

NOTES



GO/NO-GO FOR
UNDOCKING &
SEPARATION

DUMP DSE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	104:00 - 104:30	5/12	3-105

CSM FLIGHT PLAN

(11101)
(X1111)

104:40

M
S
F
N

104:50

(-2.000)
(+00.50)

105:00

VERIFY LM TRACKER LT - ON
DAC - OFF

RECORD MAG % _____, FR # _____
GDC ALIGN
VERIFY ORDEAL
ALT SET = 40 NM
V49 MNVR TO LDMK TRK PAD ATT 104:48
OMNI C

MONITOR S-BAND

CONFIGURE CAMERA: (LDMK TRK)
CM/DAC/SXT/CEX (EXP-PAD) 1 fps (2.7% MAG)

MAG (B) _____, MAG % _____
UTILITY PWR - ON

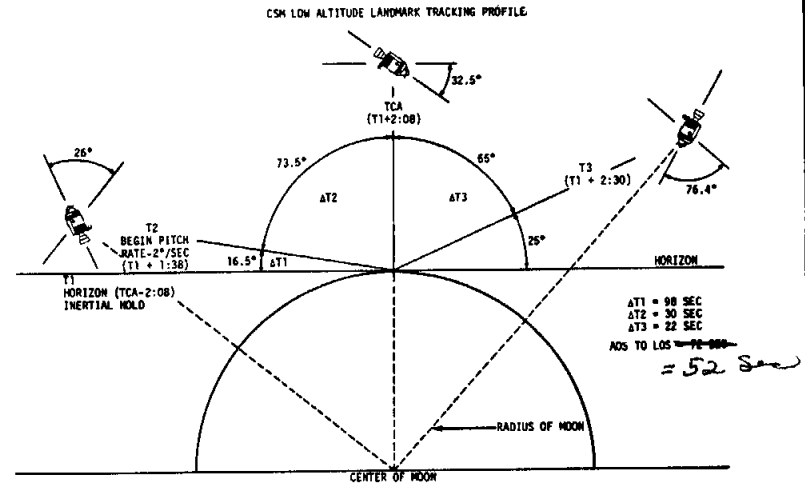
P24 (L/S LDMK 14-X)
OPT ZERO - OFF, OPT MODE - CMC
OPT TEL TRUN - SLAVE TO SXT
OPT COUPLING - RSLV, OPT SPEED - HI

SC CONT - CMC/AUTO & MAN ATT (3) - RATE CMD (VERIFY)
V79 (N16 LOAD T2 TIME)
(-2.0000)
(+000.50)
(+00001)

PRO

0:00 - T1 (HORIZON) DET - ZERO/UP/START, DAC - ON

1:38 - T2 (AUTO PITCH RATE BEGINS) OPT MODE - MAN, TAKE MARKS
2:08 - TCA
2:30 - T3 (LDMK LOSS) DAC - OFF



P24 LDMK TRACKING (1/60)

TGT: L/S LDMK 14-X

T₁ _____

T₂ _____

TCA _____

T₃ _____

R _____ °P _____ °Y _____ ° (T2 ACQ)
(020) (298) (000)

N or S NM _____ / SA _____ TA _____ (T2 ACQ)

NB9	14-1	14-2	14-3	14-4
LAT	-04.046	-03.610	-03.919	-03.470
LONG/2	-07.800	-07.659	-07.570	-07.445
ALT	-000.44	-000.15	-000.38	-000.87

LM FLIGHT PLAN

MCC-H

2253 CST

CDR

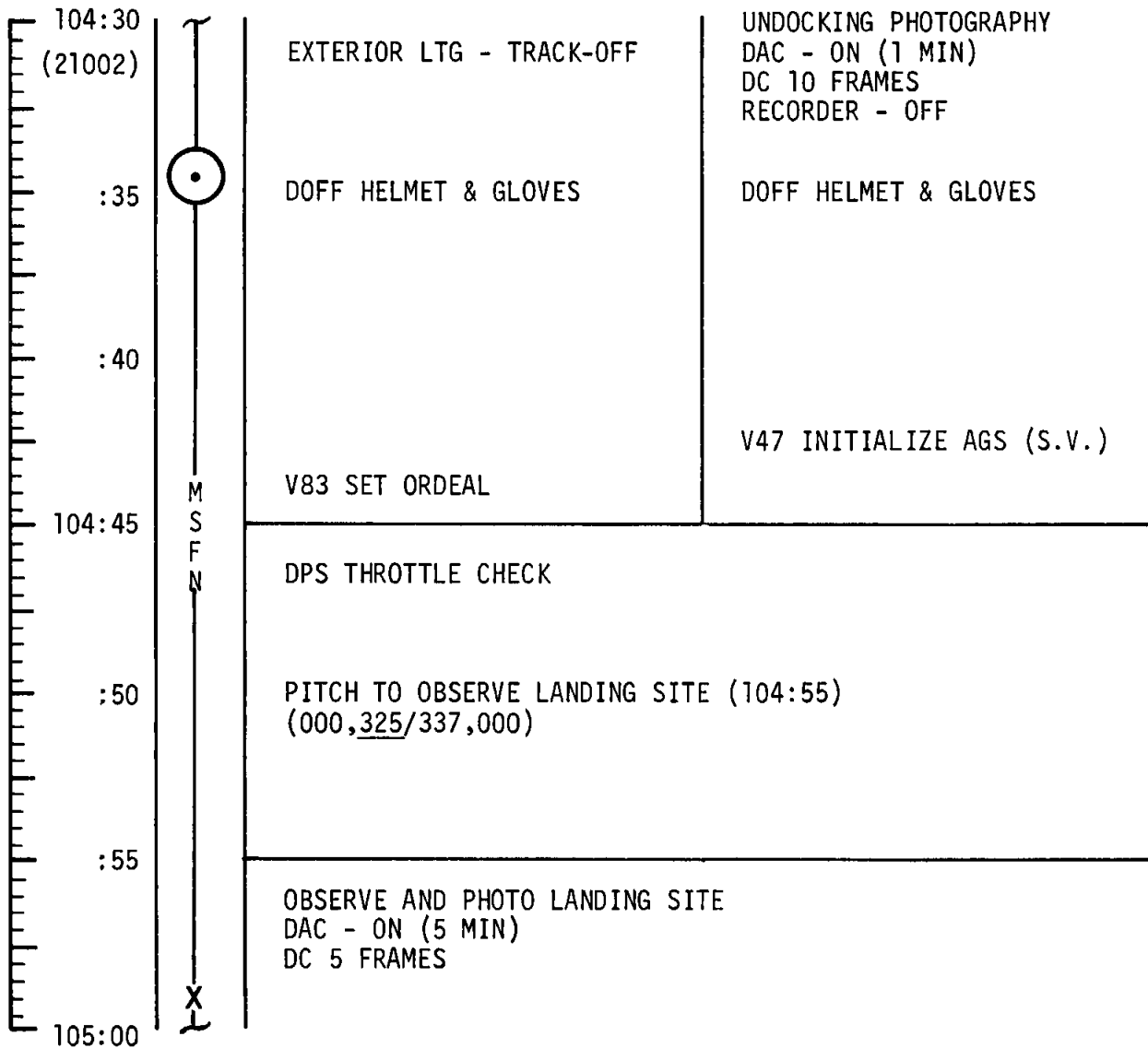
LMP

NOTES

UPDATE TO LM
REV 12 TCA (LS)

UPLINK TO LM
CSM S.V.
PIPA BIAS (IF REQ'D)
GYRO COMPENSATION
(IF REQ'D)

RECORD PCM LBR
ON DSE DURING P24



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	104:30 - 105:00	5/12	3-107

CSM FLIGHT PLAN

105:00

(11101)
(X1111)

105:10

M
S
F
N

(P40)
(0.5° DB)

105:20

105:30

STOP PITCH RATE AT BURN ATT P 110
VHF RNG - RESET, COMPARE RR AND VHF RANGE
ACQ MSFN HGA P -6Z, Y 85

RECORD MAG %
REMOVE & STOW DAC

P52 (OPTION 3)
(LDG SITE ORIENT)

REPORT: GYRO TORQUING ANGLES

MSFN UPLINK:
CSM S.V.
CIRC TARGET LOAD

MSFN UPDATE:
CIRC PAD
MAP UPDATE REV 13
PADS A-D COPY AT (106:10)
P24 TRK PAD: (L/S LDMK 14-1) (106:35)

P30; VERIFY CIRC TIG AND ΔV'S

V49 TRIM TO CIRC BURN PAD ATT

SXT STAR CHECK

P40 (TRIM)

GO/NO-GO FOR CIRC

* VHF AM B - OFF *
* VHF AM A - SIMPLEX *
* VHF RCV ONLY - B DATA *

VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

GDC ALIGN
VERIFY ORDEAL
ALT SET = 50 NM

P52 IMU REALIGN

N71: _____

N05: _____

N93: _____

X _____

Y _____

Z _____

GET _____

MAP UPDATE REV 13

LOS : _____

180°: _____

AOS : _____

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-108

LM FLIGHT PLAN

MCC-H

2323 CST

CDR

LMP

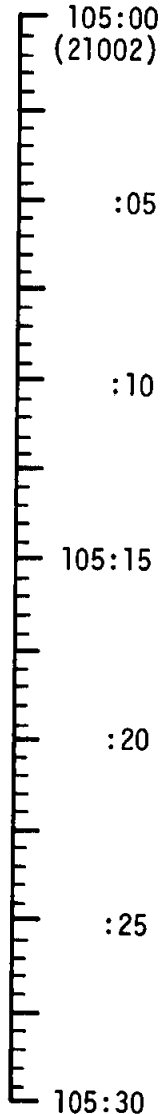
NOTES

DUMP DSE

UPDATE TO LM
PDI ABORT PAD

UPLINK TO CSM
CSM S.V.
CIRC TARGET LOAD
UPDATE TO CSM
CIRC PAD
MAP UPDATE REV 13
PADS A-D
P24 TRACK PAD

GO/NO-GO FOR CIRC



M
S
F
N

MNVR TO RR CHECKOUT ATTITUDE
(000,329,000)

STEERABLE ANTENNA
P 150, Y -23

RR & VHF RANGING CHECKOUT
COPY CSM CIRC TIG & ΔVS

P52 IMU REALIGN
OPTION 3 REFSMMAT
(LDG SITE ORIENT)

CONFIGURE COMM FOR LOS
SLEW STEERABLE ANTENNA
P 14, Y -10
BIOMED - OFF

LPD CALIBRATION

V49 MNVR TO AGS CALIB ATT (105:31)
(024,239,021)

ALIGN AGS TO PGNS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	105:00 - 105:30	5/12	3-109

CSM FLIGHT PLAN

105:30
(P40)
(0.5° DB)

105:40

(11101)
(X1111)

105:50
REV 13

(11111)
(X1111)

106.00

SLT GET COUNTING UP TO CIRC

CIRC BURN TABLE			
P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC	+10°	BT + 1 SEC	TRIM X TO < 1 FPS TRIM Y TO < 0.2 FPS DO NOT TRIM Z
TERMINATE	TERMINATE		

CSM CIRCULARIZATION(000,352/110,359)	TIG: 105:46:48
	BT: 3.79 SEC
	ΔVT: 72.46 FPS
	ULLAGE: 4 JET, 11 SEC
	ORBIT: 63.5 x 56

P00; VOICE P76 BURN DATA TO LM
V82

V48 (11111)
(X1111)

DOFF PGA

ZIP SUIT & INSTALL ELECTRICAL COVER PRIOR TO STOWING (PGA BAG)
STOW COMM CARRIERS & UCTA (PGA BAG)

P30 MANEUVER

SET STARS	C	I	R	C			PURPOSE
	S	P	S	G	&	N	PROP/GUID
	+						WT N47
R ALIGN _____		0	0				P TRIM N48
P ALIGN _____		0	0				Y TRIM
Y ALIGN _____	+	0	0				HRS GETI
	+	0	0	0			MIN N33
	+	0					SEC
ULLAGE _____							ΔV _X N81
							ΔV _Y
							ΔV _Z
	X	X	X				R (000)
	X	X	X				P (110)
	X	X	X				Y (359)
	+						H _A N44
							H _P
	+						ΔVT
HORIZON/WINDOW _____	X	X	X				BT
	X						ΔVC
	X	X	X	X			SXTS
	+					0	SFT
	+					0 0	TRN
	X	X	X				BSS
	X	X					SPA
	X	X	X				SXP
OTHER _____		0					LAT N61
							LONG
	+						RTGO EMS
	+						V10
							GET 0.056

LM FLIGHT PLAN

MCC-H

2353 CST

CDR

LMP

NOTES

105:30
(21002)

(21012)
:35

:40

105:45

:50
REV 13

:55

106:00

UNDOCKED AGS CALIBRATION V48 (21012)	
SYSTEMS CHECKS	
MNVR TO OBSERVE CSM CIRCULARIZATION BURN (105:45) (000,236,000)	DAC-ON (5 MIN) DC 2 FRAMES
P76 TARGET ΔV (UPDATE CSM S.V.)	V47 INITIALIZE AGS (S.V.)
V83 SET ORDEAL ESTABLISH ORBITAL RATE (000,325/148,000)	

CSM CIRCULARIZATION 105:46:48

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	105:30 - 106:00	5/12-13	3-111

LM FLIGHT PLAN

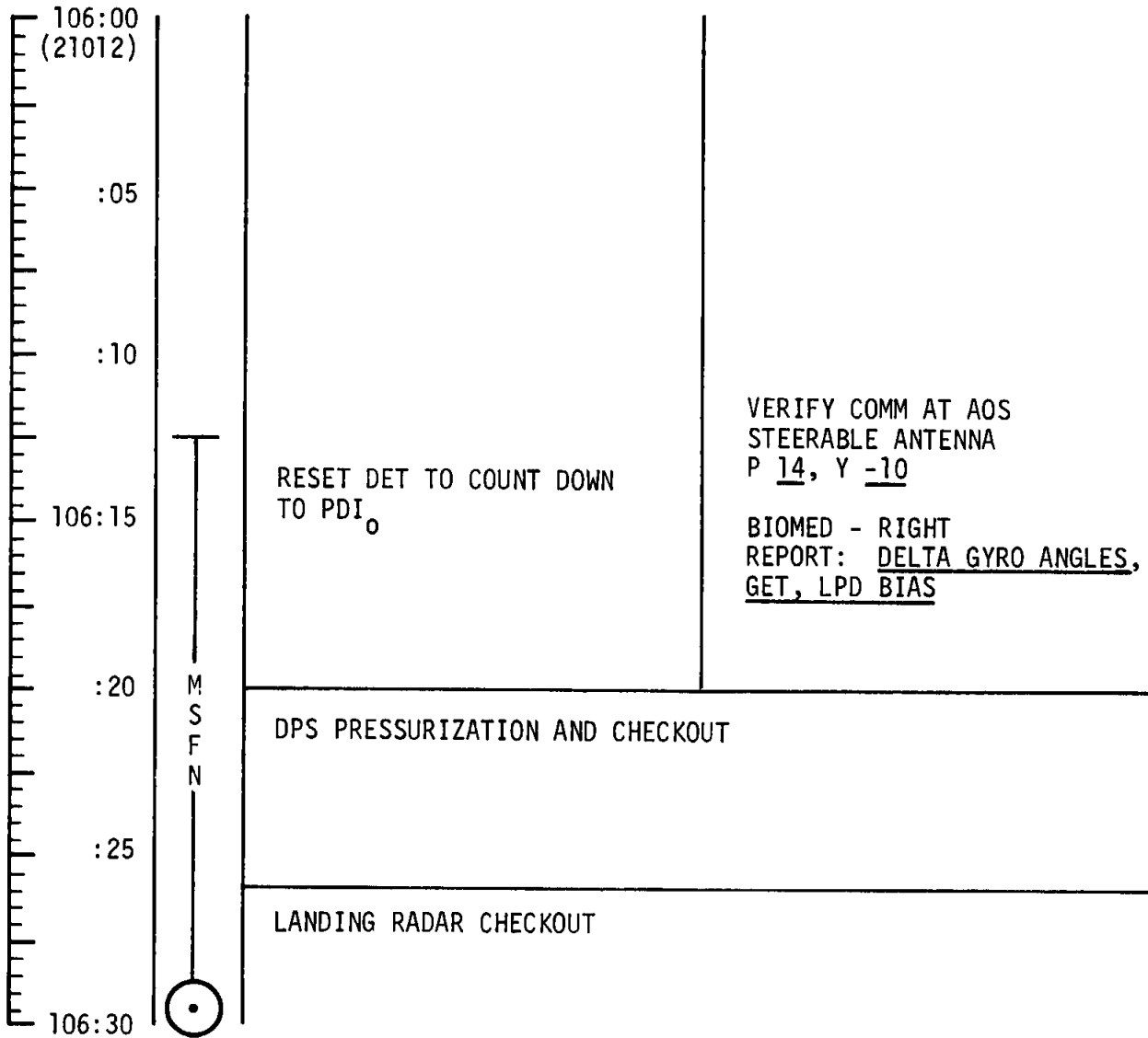
MCC-H

0023 CST

CDR

LMP

NOTES



DUMP DSE

UPLINK TO CSM
 CSM S.V. (PDI-10)
 LM S.V.
 PIPA BIAS
UPDATE TO CSM
 PADS E-N
UPDATE TO LM
 NO PDI + 12 PAD
 PDI PAD
 PDI ABORT EARLY
 PDI ABORT LATE
 T2 ABORT PAD
 AND T3 TIG

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	106:00 - 106:30	5/13	3-113

CSM FLIGHT PLAN

106:30
(11101)
(X1111)

106:40

(-0.0507)
(+00.50)

106:50

(11112)
(X1111)

107:00

CONFIGURE CAMERA: (LDMK TRACKING)
CM/DAC/SXT/CEX (EXP-PAD) 1 f/ps (3.8% MAG)

MAG (B) _____, MAG % _____
UTILITY PWR - ON

VERIFY ORDEAL
ALT SET = 60 NM

P24 (L/S LDMK 14-1)
OPT ZERO - OFF, OPT MODE - CMC
SC CONT - CMC/AUTO
V79 (N16 LOAD ALL ZERO'S)
(-0.0507)
(+000.50)
(+00001)

PRO TO START PITCH RATE (000,338/274,000)

0:00 - T1 (HORIZON) DET - ZERO/UP/START

3:50 - DAC - ON

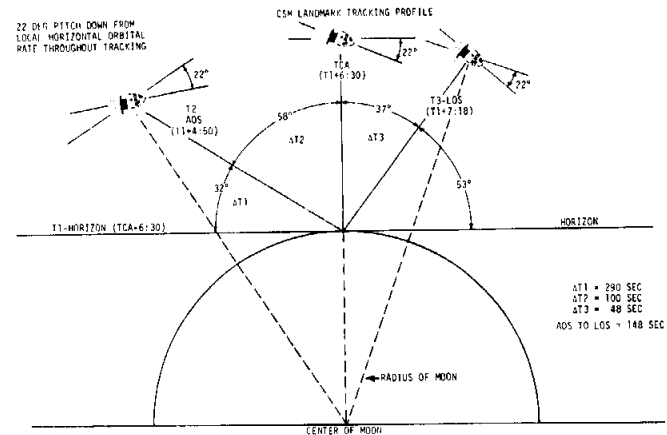
4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA

7:18 - T3 (LDMK LOSS) DAC - OFF

V48 (11112)
(X1111)

V49 MNVR TO P52 AND COAS CALIB ATT (107:05)
(180,236,354) HGA P -32, Y 177



P24 LDMK TRACKING
TGT: L/S LDMK 14-1 (1/60)

T ₁	_____	_____	_____
T ₂	_____	_____	_____
TCA	_____	_____	_____
T ₃	_____	_____	_____
R	_____ °P	_____ °Y	_____ ° (T2 ACQ)
N or S NM	_____ / SA	_____ TA	_____ (T2 ACQ)
N89			
LAT	-04.046		
LONG/2	-07.800		
ALT	-000.44		

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-114

LM FLIGHT PLAN

MCC-H

0053 CST

CDR

LMP

NOTES

UPLINK TO LM
CSM S.V. (PDI-10)
LM S.V.
PIPA BIAS
DESCENT TARGET
LPD BIAS (IF REQ'D)

106:30
(21012)

:35

:40

106:45

:50

:55

107:00

M
S
F
N

X

V83 SET ORDEAL

V47 INITIALIZE AGS (S.V.)

MNVR TO LPD ALTITUDE CHECK ATTITUDE
ESTABLISH ORBITAL RATE
(000,295/354,000)

LPD ALTITUDE CHECK
(IF DESIRED)

PITCH TO OBSERVE LANDING SITE

RECORD PCM LBR
ON DSE DURING P24

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	106:30 - 107:00	5/13	3-115

CSM FLIGHT PLAN

107:00
(11112)
(X1111)

MSFN UPDATE:
MAP UPDATE REV 14
LTC PADS (TGT 16, 12 (LDG LM) (108:15))

107:10

P52 (OPTION 3)
(LDG SITE ORIENT)
REPORT: GYRO TORQUING ANGLES

P52 IMU REALIGN

N71: _____

N05: _____

N93: _____

X _____

Y _____

Z _____

GET _____

P52 (COAS CALIB)
USE POLLUX N88 (-.38513)
(+.79364)
(+.47097)

COAS CALIB - N92

SHAFT: _____

TRUN: _____

GDC ALIGN
VERIFY ORDEAL

VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

* MSFN ENABLES MSFN S-BAND RELAY*

MAP UPDATE REV 14

LOS : _____

180°: _____

AOS : _____

107:20

107:30

107:30

(11101)
(X1111)

CYCLE CMC MODE - FREE/AUTO
V48 (11101)
(X1111)
V49 MNVR TO LTC TGT: 16 PHOTO PAD ATT (107:52)

CONFIGURE CAMERAS: (LTC & EL ORB SCIENCE PHOTOS)
CM/EL/500/CEX (f8,1/125,∞)(133 FR)

MAG (L) _____, FR # _____

CM3/LTC/MBW/BEF (SHUT 1/100,RNG 1-PAD, INT 8.2)(127 FR)

MAG (V) _____, FR # _____
LTC INSTALLATION (DECAL)
LTC CHECKOUT (DECAL)

107:40

LTC PHOTO PAD TGT: 16 (000,302,000)

R _____ P _____ Y _____

T START: _____

T STOP : _____

RNG 1 _____(91.1) T START

RNG 2 _____(90.0) T START + 7:10

ORBITAL SCIENCE PHOTOGRAPHY

107:50

REV 14

SC CONT - CMC/AUTO (VERIFY)
V79 (-0.0507)
(+000.50)
(+00001)
PRO TO START PITCH RATE AT ORDEAL P 212

(-.0507)
(+00.50)

108:00

PHOTO TGT 14, SOUTH (f8,1/125,∞) 30 FR AT 4 SEC (500 NM)
(180° +0:10)

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-116

LM FLIGHT PLAN

MCC-H

0123 CST

CDR

LMP

NOTES

UPDATE TO CSM
MAP UPDATE REV 14
LTC PADS (TGT 16,
12 (LDG LM))

107:00
(21012)
:10
:20
107:30
:40
(22112)
:50
108:00

M
S
F
N

P52 IMU REALIGN
OPTION 3 REFSMMAT
(LDG SITE ORIENT)

REPORT: DELTA GYRO ANGLES, GET

COAS CALIBRATION

CONFIGURE COMM FOR LOS
STEERABLE ANT P 2, Y 2
BIOMED - OFF
RELOCATE DAC ABOVE RH WINDOW

ENABLE MSFN
S-BD RELAY

START MNVR TO PDI ATTITUDE
P30 EXTERNAL ΔV
(NO PDI + 12 ABORT)
V48 (22112)
P63 MNVR TO PDI ATT (107:45)
(000,113,000)
P00
COAS TO OVERHEAD WINDOW
DON HELMET & GLOVES

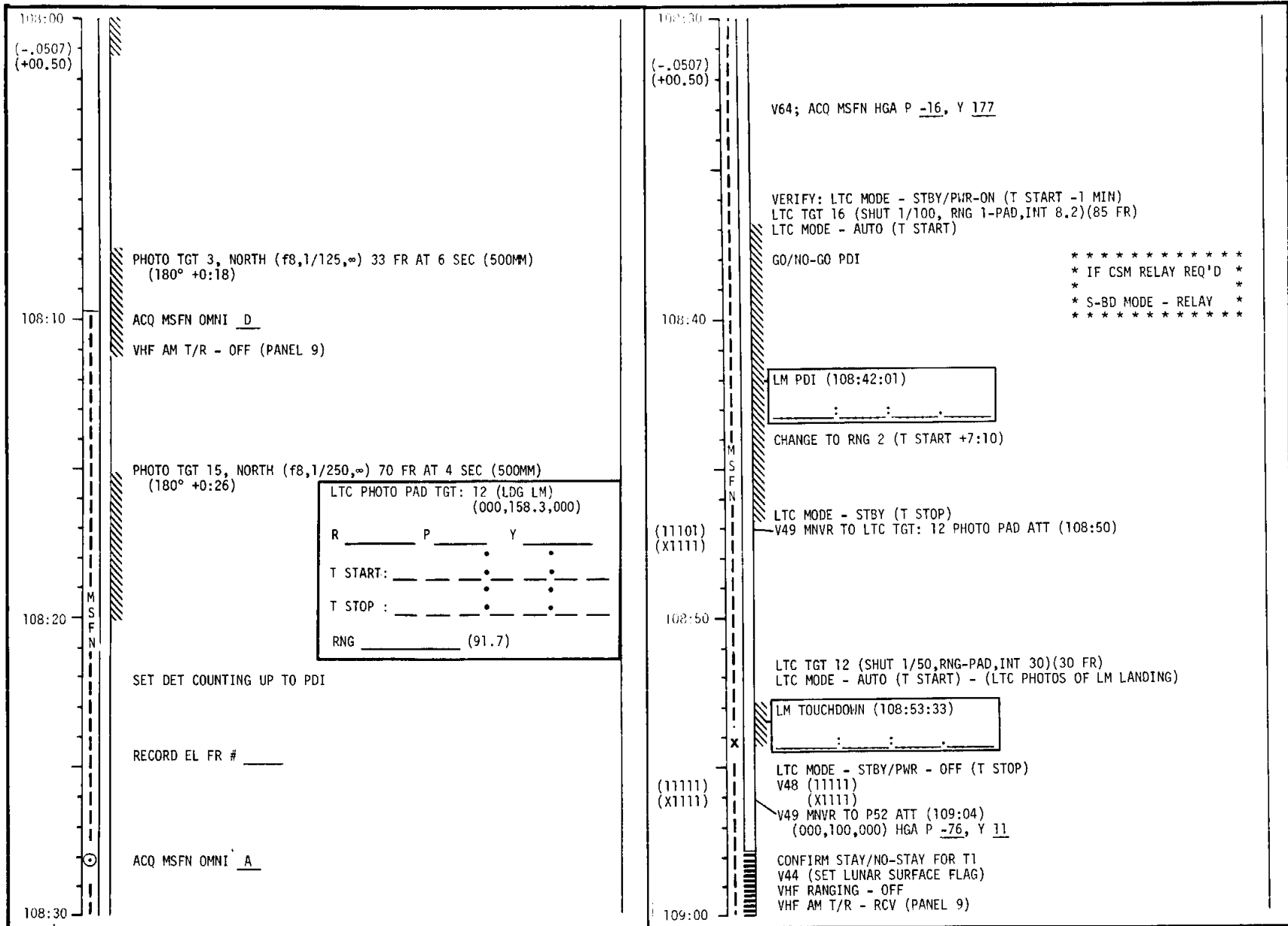
ALIGN AGS TO PGNS
VERIFY LOOSE GEAR STOWED
RESTRAINTS ATTACHED

DON HELMET & GLOVES
CONFIGURE EGRESS MODE
CHECK SYSTEMS CONFIGURATION

REV 14

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	107:00 - 108:00	5/13-14	3-117

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-118

LM FLIGHT PLAN

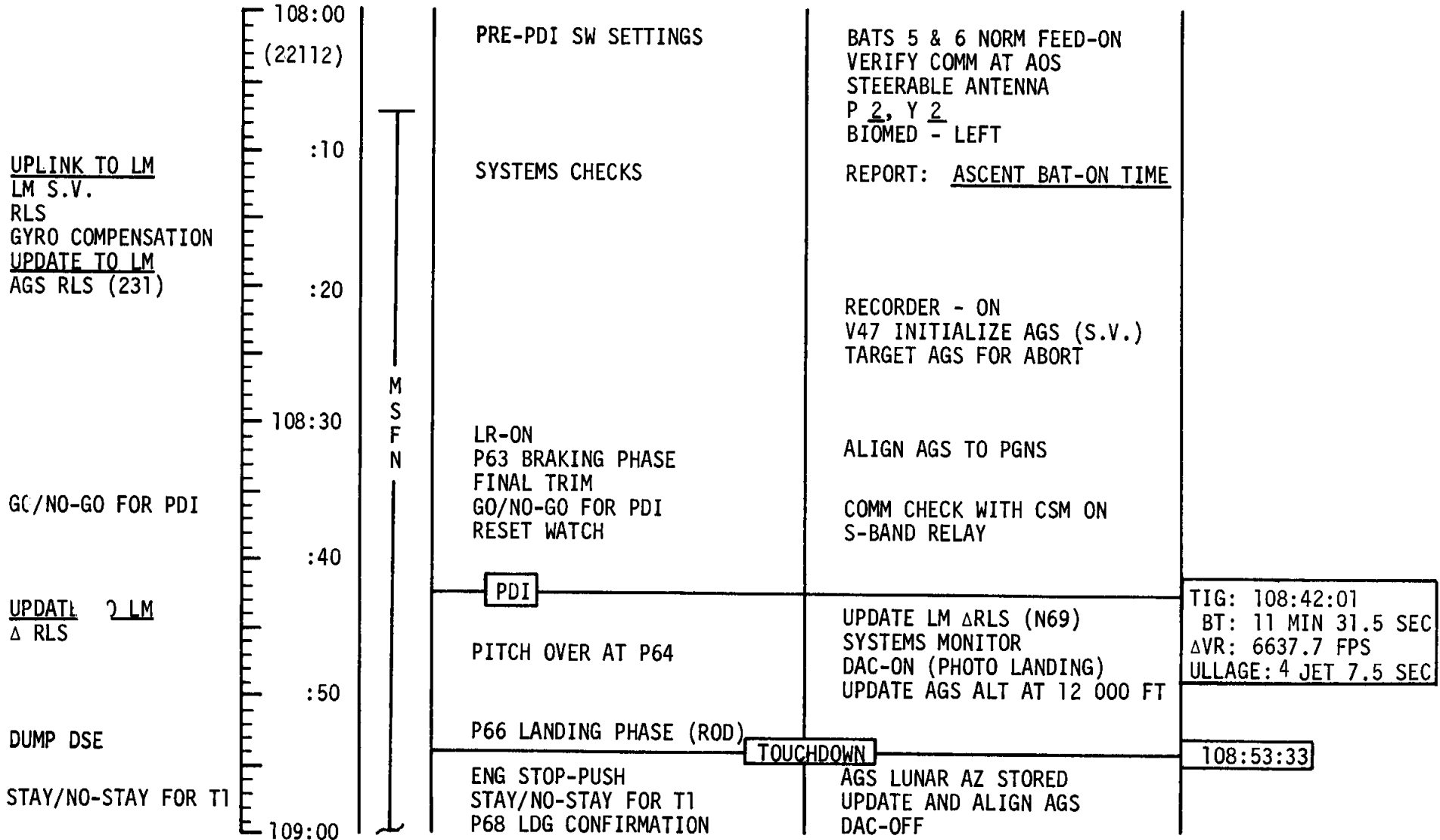
MCC-H

0223 CST

CDR

LMP

NOTES



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	108:00 - 109:00	5/14	3-119

CSM FLIGHT PLAN

109:00
(11111)
(X1111)

S-BAND MODE - VOICE (VERIFY)
CONFIRM STAY/NO-STAY FOR T2

P52 IMU REALIGN

N71: _____

N05: _____

N93: _____

X _____

Y _____

Z _____

GE1 _____

P52 (OPTION 3)
(LDG SITE ORIENT)

REPORT: GYRO TORQUING ANGLES

109:10

GDC ALIGN
VERIFY ORDEAL

MSFN UPDATE:
MAP UPDATE REV 15
P24 TRK PADS: (RP-3, RP-5, DAGUERRE 66, L/S LDMK 14-X) (109:45-110:50)

EAT PERIOD

MSFN UPLINK:
CSM S.V.

CONFIGURE CAMERA: (LDMK TRK)
CM/DAC/SXT/CEX (EXP-PAD) 1 fps (15.2% MAG)

MAG (B) _____, MAG % _____
UTILITY PWR = ON

109:20

LTC FILM MAG CHANGE (DECAL)
ADVANCE 4 FRAMES, RECORD FR #
PUT MAG (U) ON LTC, RESET FRAME COUNTER
LTC REMOVAL (DECAL) & STOW
VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

EAT PERIOD

CYCLE CMC MODE - FREE/AUTO
V48 (11101)
(X1111)

V49 MNVR TO LDMK TRK ATT (109:50)
(000,066,000)

MAP UPDATE REV 15

LOS : _____

180°: _____

AOS : _____

109:30

109:50
(11101)
(X1111)

P24 LDMK TRACKING (1/125)

TGT: RP-3

T₁ _____

T₂ _____

TCA _____

T₃ _____

R _____ °P _____ °Y _____ ° (T2 ACQ)

N or S NM _____ / SA _____ TA _____ (T2 ACQ)

N89

LAT -03.533

LONG/2 +65.850

ALT +000.00

EAT PERIOD

REV 15

109:50

P24 (RP-3)
OPT ZERO - OFF, OPT MODE - CMC
SC CONT - CMC/AUTO
V79 (N16 LOAD ALL ZERO'S)
(-0.0507)
(+000,50)
(+00001)

PRO TO START PITCH RATE (000,338/066,000)

(-0.0507)
(+00.50)

0:00 - T1 (HORIZON) DET -ZERO/UP/START

110:00

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-120

LM FLIGHT PLAN

MCC-H

0323 CST

CDR

LMP

NOTES

STAY/NO-STAY FOR T2

COPY AGS AZIMUTH
UPDATE TO CSM
MAP UPDATE REV 15
P24 TRACK PADS
UPLINK TO CSM
CSM S.V.

DISABLE MSFN
S-BD RELAY

STAY/NO-STAY FOR
POWER DOWN

UPLINK TO LM
RLS (IF REQ'D)
CSM S.V.

109:00
(22112)
:10
:20
109:30
:40
:50
110:00

M
S
F
N

P12 POWERED ASCENT STAY/NO-STAY FOR T2 LR-OFF	RECORDER-OFF <div style="border: 1px solid black; padding: 2px; text-align: center;">LUNAR SURFACE CHECKLIST</div>
DOFF HELMET & GLOVES	BAT 5&6 - OFF DOFF HELMET & GLOVES REPORT DEDA 047,053
P57 IMU ALIGN OPTION 3 REFSMMAT A/T 1-GRAVITY & LM Z AXIS (LDG SITE ORIENTATION)	AGS LUNAR SURFACE GYRO CALIBRATION, BIOMED - RIGHT CONFIGURE COMM FOR LUNAR SURFACE STEERABLE ANT: P 119, Y-39
INSTALL WINDOW SHADES	TERMINATE AGS GYRO CALIBRATION
P57 LUNAR SURFACE ALIGN OPTION 3 REFSMMAT A/T 2 - TWO CELESTIAL BODIES (LDG SITE ORIENTATION)	
P57 LUNAR SURFACE ALIGN OPTION 3 REFSMMAT A/T 2 - TWO CELESTIAL BODIES (LDG SITE ORIENTATION)	
ALIGN AGS TO PGNS STORE AZIMUTH	
STOW WINDOW SHADES	AGS TO STBY

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	109:00 - 110:00	5/14-15	3-121

CSM FLIGHT PLAN

110:00
 (-.0507)
 (+00.50)

3:50 - DAC - ON

4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA

7:18 - T3 (LDMK LOSS) DAC - OFF

P24 (RP-5)
 V79E, PRO, PRO
 OPT ZERO - OFF, OPT MODE - CMC

0:00 - T1 (HORIZON) DET - ZERO/UP/START
 ACQ MSFN OMNI D

110:10

3:50 - DAC - ON

4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA

7:18 - T3 (LDMK LOSS) DAC - OFF

P24 (DAGUERRE 66)
 V79E, PRO, PRO
 OPT ZERO - OFF, OPT MODE - CMC

110:20

M
S
F
N

0:00 - T1 (HORIZON) DET -ZERO/UP/START

110:30

P24 LDMK TRACKING (1/250)

TGT: **RP-5**

T₁ _____ · _____ · _____
 T₂ _____ · _____ · _____
 TCA _____ · _____ · _____
 T₃ _____ · _____ · _____

R _____ °P _____ °Y _____ ° (T2 ACQ)

N or S NM _____ / SA _____ TA _____ (T2 ACQ)

N89

LAT -10.567

LONG/2 +49.700

ALT +000.00

P24 LDMK TRACKING (1/250)

TGT: **DAGUERRE 66**

T₁ _____ · _____ · _____
 T₂ _____ · _____ · _____
 TCA _____ · _____ · _____
 T₃ _____ · _____ · _____

R _____ °P _____ °Y _____ ° (T2 ACQ)

N or S NM _____ / SA _____ TA _____ (T2 ACQ)

N89

LAT -11.717

LONG/2 +16.600

ALT +000.00

MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-122

LM FLIGHT PLAN

MCC-H

0423 CST

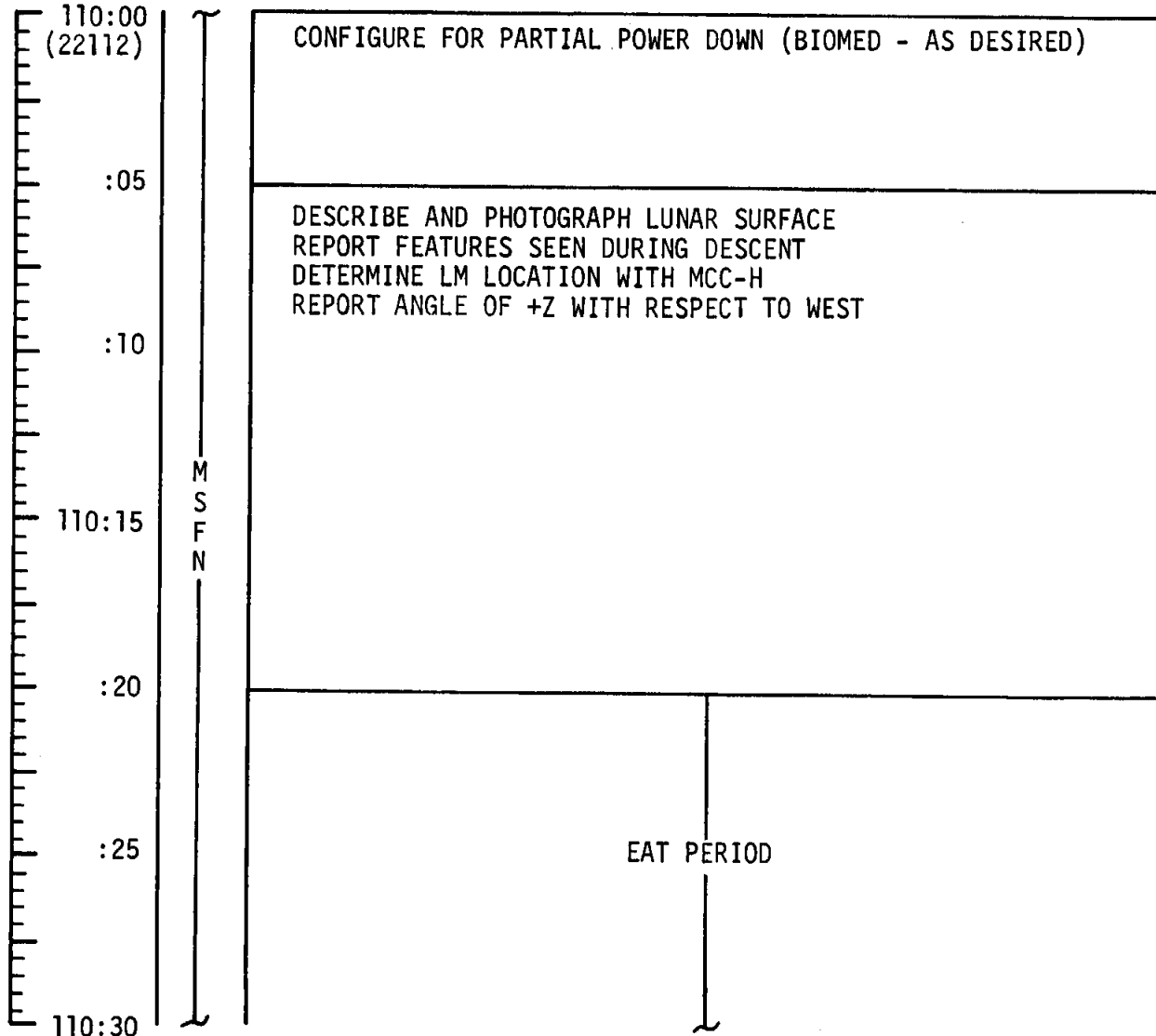
CDR

LMP

NOTES

UPDATE TO LM
P22 ACQ TIME

RECORD PCM LBR
ON DSE DURING P24



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	110:00 - 110:30	5/15	3-123

CSM FLIGHT PLAN

11:00

(-.0507)
(+00.50)

3:50 - DAC - ON

4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA

7:18 - T3 (LDMK LOSS) DAC - OFF

P24 (L/S LDMK 14-X)
V79E, PRO, PRO
OPT ZERO - OFF, OPT MODE - CMC

110:40

M
S
F
N

0:00 - T1 (HORIZON) DET - ZERO/UP/START

110:50

3:50 - DAC - ON

4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA

7:18 - T3 (LDMK LOSS) DAC - OFF
V48 (11102) (X1111)
V49 MNVR TO ANTI-SOLAR PT ATT (111:05)
(197,251,346) HGA P -41, Y 156

(11102)
(X1111)

RNDZ XPNDR - OFF

RECORD MAG % _____

111:00

P24 LDMK TRACKING (1/60)

TGT: L/S LDMK 14-X

T₁ --- · --- · ---
T₂ --- · --- · ---
TCA --- · --- · ---
T₃ --- · --- · ---

R _____ °P _____ °Y _____ ° (T2 ACQ)

N or S NM _____ / SA _____ TA _____ (T2 ACQ)

N89	14-1	14-2	14-3	14-4
LAT	-04.046	-03.610	-03.919	-03.470
LONG/2	-07.800	-07.659	-07.570	-07.445
ALT	-000.44	-000.15	-000.38	-000.87

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-124

LM FLIGHT PLAN

MCC-H

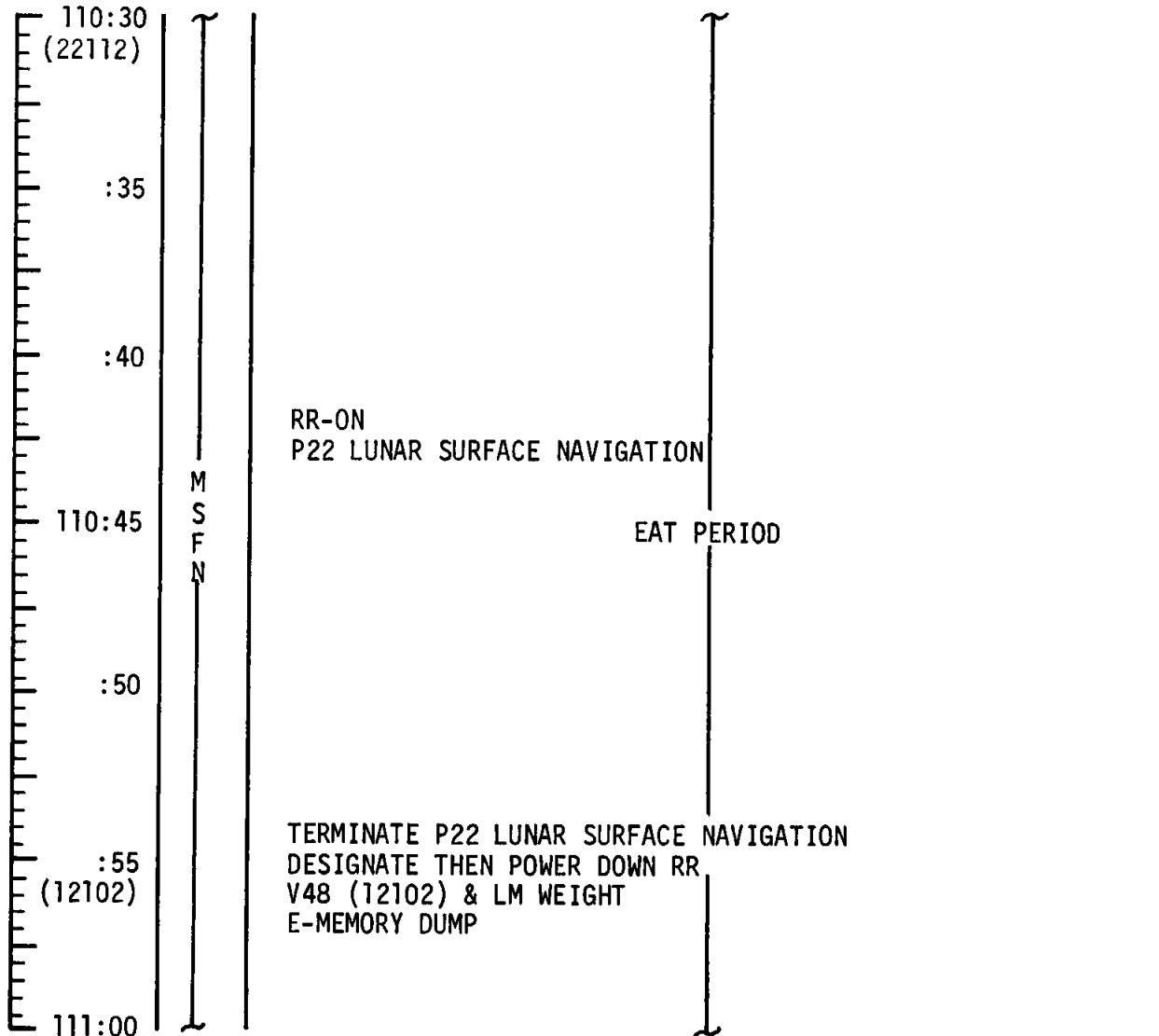
0453 CST

CDR

LMP

NOTES

UPDATE TO LM
LM CONSUMABLES



UPDATE TO LM
DAP LOAD

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	110:30 - 111:00	5/15	3-125

CSM FLIGHT PLAN

111:00
 (11102) CONFIGURE CAMERA: (GEGENSCHIEIN)
 (X1111) INSTALL CAMERA SHIELD
 CM4/DAC/18/VHBW-BRKT, MIR, CONT (T1,1/500,∞) 24fps (7.4% MAG)
 MAG (J) _____, MAG % _____
 UTILITY PWR - ON

(11101) V48 (11101)
 (X1111) (X1111)

MAP UPDATE REV 16
 LOS : _____
 180°: _____
 AOS : _____

111:10
 M S F N
 MSFN UPDATE:
 MAP UPDATE REV 16
 ZERO PHASE PADS (111:45, 112:10)

GEGENSCHIEIN PHOTOGRAPHY

111:20
 VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

INHIBIT - A3,C4,B3,D4 THRUSTERS
 DAC - ON AT 24fps FOR 2 SEC, CHANGE TO TIME & 1/60
 DIM INTERIOR LIGHTS
 2 FRAMES, EXP TIME 20 SEC
 1 FRAME, EXP TIME 5 SEC
 CHANGE TO 24fps & 1/500, RUN DAC FOR 2 SEC, LIGHTS UP

ENABLE - A3,C4,B3,D4 THRUSTERS
 V49 MNVR TO MIDWAY PT ATT (111:27)
 (197,261,346)

INHIBIT - A3,C4,B3,D4 THRUSTERS
 DAC - ON AT 24fps FOR 2 SEC, CHANGE TO TIME & 1/60
 DIM INTERIOR LIGHTS
 2 FRAMES, EXP TIME 20 SEC
 1 FRAME, EXP TIME 5 SEC

111:30

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-126

LM FLIGHT PLAN

MCC-H

0523 CST

CDR

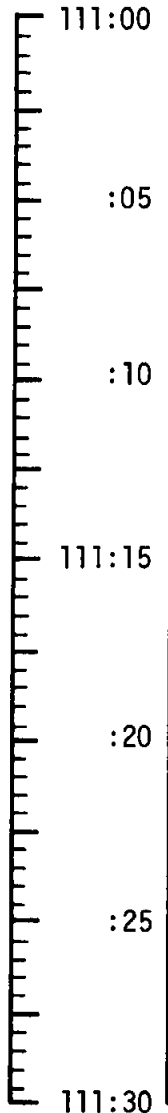
LMP

NOTES

UPLINK TO LM
 INITIATE GRAVITY
 MEASUREMENT TEST

 DUMP DSE
UPDATE TO LM
 TIME OF LIFT-OFF
 FOR REV 16 THRU 19

UPDATE TO CSM
 MAP UPDATE REV 16
 ZERO PHASE PADS



M
S
F
N

CONFIGURE CB'S FOR POWER DOWN (EXCEPT IMU OPR - CLOSE)
 UPDATA LINK - DATA

CREW STATUS REPORT (DOSIMETER, MEDICATION)

EAT PERIOD

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	111:00 - 111:30	5/15	3-127

CSM FLIGHT PLAN

111:30 CHANGE TO 24fps & 1/500, RUN DAC FOR 2 SEC, LIGHTS UP

(11101) ENABLE - A3,C4,B3,D4 THRUSTERS
(X1111) V49 MNVR TO MOULTON PT ATT (111:34)
(197,272,346)

INHIBIT - A3,C4,B3,D4 THRUSTERS
DAC - ON AT 24fps FOR 2 SEC, CHANGE TO TIME & 1/60
DIM INTERIOR LIGHTS
2 FRAMES, EXP TIME 20 SEC
1 FRAME, EXP TIME 5 SEC
CHANGE TO 24fps & 1/500, RUN DAC FOR 2 SEC, LIGHTS UP

ENABLE - A3,C4,B3,D4 THRUSTERS

RECORD MAG % _____

111:40 V48 (11102)
(X1111) V49 MNVR TO ZERO PHASE TGT 1 & 2 ATT (111:50)
(196.8,358.1,359.3)

O₂ FUEL CELL PURGE
WASTE WATER DUMP

REV 16 CONFIGURE CAMERA: (ZERO PHASE)
CM3/DC/80/MBW-BRKT, IVL, PCM CABLE (f5.6,1/250,∞) (46 FR)

MAG (R) _____, FR # _____

111:50 SC CONT - CMC/AUTO (VERIFY)
V79 (-0.0507)
(+000.50)
(+00001)

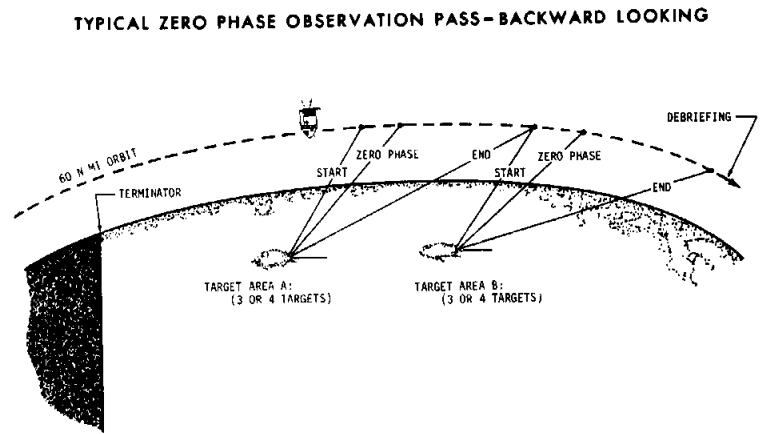
(-0.0507) PRO TO START PITCH RATE (196.8,268/358.1,359.3)
(+00.50)

ZERO PHASE OBSERVATIONS - BACKWARD LOOKING

SELECT OMNI A

111:58 - *Perminate Waste Water Dump*
111:58:40 - DET - ZERO/UP/START (T START)
REVIEW TGT 1 & 2 MAPS

112:00



ZERO PHASE PAD (BACKWARD)

R _____ ° P _____ ° Y _____ °

T START: _____

START DET AT 1ST TGT AREA ACQ -5 MIN

MISSION	EDITION	DATE	PAGE
APOLLO 14	<i>Ch...</i>	1979 DECEMBER 23 1979	3-128

LM FLIGHT PLAN

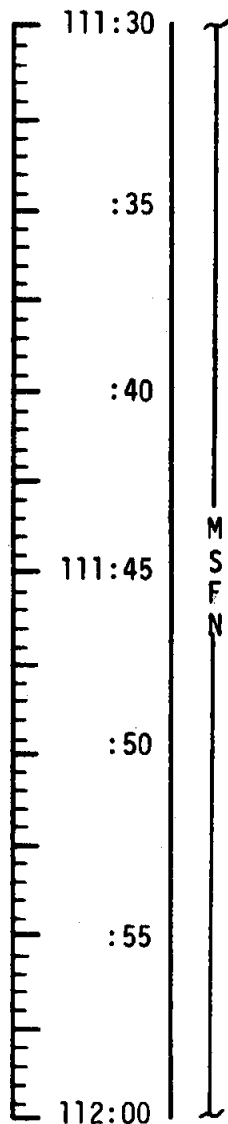
MCC-H

0553 CST

CDR

LMP

NOTES



<p><u>CABIN PREP FOR EVA-1</u></p> <p>STOW ALL LOOSE ITEMS NOT REQUIRED FOR EVA</p> <p>UNSTOW EVA-1 PREP & POST CARD</p> <p>STOW LUNAR SURFACE CHECKLIST</p>	
<p><u>EQUIPMENT PREP FOR EVA-1</u></p> <p>SET DET</p> <p>UNSTOW BSLSS</p> <p>UNSTOW LMP PLSS FROM LM FLOOR</p> <p>PREPARE LUNAR SURFACE 16MM CAMERA</p>	<p>-1:45</p> <p>-1:40</p> <p>-1:30</p>

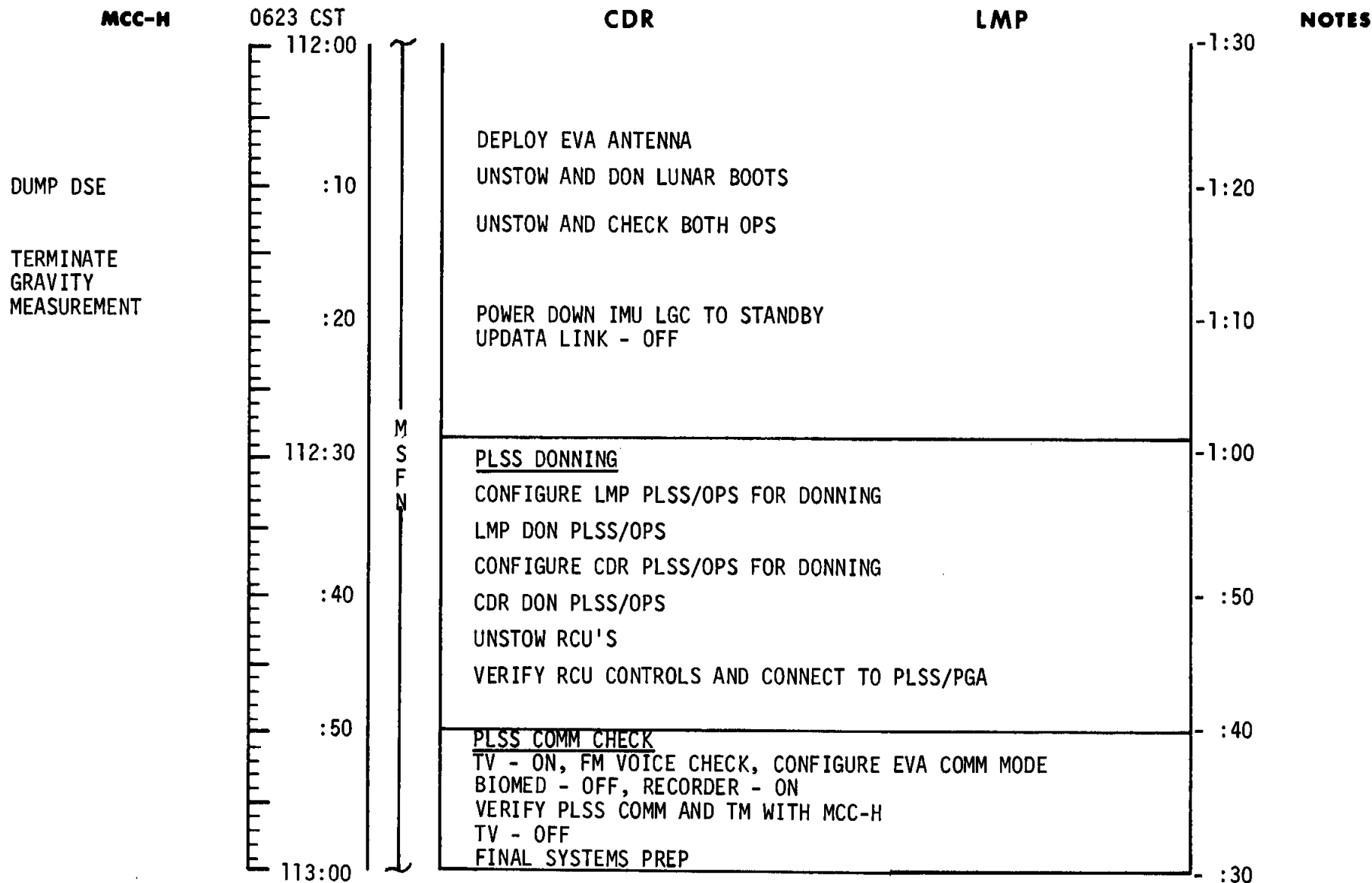
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	111:30 - 112:00	5/15-16	3-129

CSM FLIGHT PLAN

<p>112:00</p> <p>(-.0507) (+00.50)</p> <p>5:00 - DC - ON, START OBSERVATIONS (TGT AREA 1)</p> <p>6:40 - ZERO PHASE POINT (TGT AREA 1)</p> <p>ACQ MSFN OMNI <u>A</u></p> <p>8:24 - STOP OBSERVATIONS START OBSERVATIONS (TGT AREA 2)</p> <p>8:54 - ZERO PHASE POINT (TGT AREA 2)</p> <p>112:10</p> <p>11:54 - STOP OBSERVATIONS DEBRIEF (~30 SEC)</p> <p>12:24 - DC - OFF ACQ MSFN HGA P <u>-76, Y 80</u></p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">ZERO PHASE PAD (FORWARD)</p> <p style="text-align: center;">R *P *Y *</p> <p style="text-align: center;">T START: * *</p> <p style="text-align: center;">START DET AT 1ST TGT AREA ACQ -5 MIN</p> </div> <p style="text-align: center;">TYPICAL ZERO PHASE OBSERVATION PASS - FORWARD LOOKING</p> <div style="text-align: center;"> </div> <p>112:20</p> <p>(11102) (X1111) → V49 MNVR TO ZERO PHASE TGT 3 & 4 ATT (112:25) (346.9, 239.8, 358.5) OMNI <u>D</u></p> <p>112:30</p> <p>CHARGE BATTERY A</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">ZERO PHASE OBSERVATIONS - FORWARD LOOKING</p> <p>SC CONT - CMC/AUTO (VERIFY) V79 (-.0507) (+000.50) (+00001)</p> <p>→ PRO TO START PITCH RATE (346.9, 276/239.8, 358.5)</p> <p>112:35:38 - DET - ZERO/UP/START (T START) REVIEW TGT 3 & 4 MAPS</p> </div> <p>112:40</p> <p>5:00 - DC - ON, START OBSERVATIONS (TGT AREA 3)</p> <p>8:40 - ZERO PHASE POINT (TGT AREA 3)</p> <p>9:32 - STOP OBSERVATIONS START OBSERVATIONS (TGT AREA 4)</p> <p>11:16 - ZERO PHASE POINT (TGT AREA 4)</p> <p>12:02 - STOP OBSERVATIONS DEBRIEF (~ 30 SEC)</p> <p>12:32 - DC - OFF, REMOVE CAMERA FROM WINDOW</p> <p>112:50</p> <p>RECORD FR # _____</p> <p>(11111) (X1111) → V48 (11111) (X1111)</p> <p>→ V49 MNVR TO ZODIACAL LIGHT ATT (113:10) (180,200,000) OMNI <u>C</u></p> <p>CONFIGURE CAMERA: (ZODIACAL LIGHT) CM4/DAC/18/VHBW-BRKT, MIR, CONT (T1,1/500,∞) 24 fps (3% MAG)</p> <p>MAG (J) _____, MAG % _____ UTILITY PWR - ON</p> <p>113:00</p>
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MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-130

LM FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	112:00 - 113:00	5/16	3-131

CSM FLIGHT PLAN

113:00

(11111)
(X1111)

MSFN UPDATE:
ZODIACAL PHOTO PAD
MAP UPDATE REV 17

MAP UPDATE REV 17

LOS : _____

180°: _____

AOS : _____

ZODIACAL LIGHT PHOTO PAD(SR)

T START: _____

START DET AT SUNRISE -30 MIN

113:10

SC CONT - CMC/AUTO (VERIFY)
V79 (-0.0507)
(+005.00)
(+00001)

PRO TO START PITCH RATE (180,352/200,000)

ZODIACAL LIGHT PHOTOGRAPHY

113:17:34 - DET - ZERO/UP/START (T START) (SR-30 MIN)
INHIBIT - A3,C4,B3,D4 THRUSTERS
DAC - ON AT 24fps FOR 2 SEC
CHANGE FRAME RATE TO TIME & SHUTTER SPEED TO 1/60
VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)
DIM INTERIOR LIGHTS

113:20

5:00 - 1 FRAME, 20 SEC EXP TIME (SR -25:00)
1 FRAME, 10 SEC EXP TIME
1 FRAME, 5 SEC EXP TIME

8:20 - 1 FRAME, 20 SEC EXP TIME (SR -21:40)
1 FRAME, 10 SEC EXP TIME
1 FRAME, 5 SEC EXP TIME

11:40 - 1 FRAME, 16 SEC EXP TIME (SR -18:20)
1 FRAME, 8 SEC EXP TIME
1 FRAME, 4 SEC EXP TIME

113:30

113:30

(-.0507)
(+05.00)

15:00 - 1 FRAME, 16 SEC EXP TIME (SR -15:00)
1 FRAME, 8 SEC EXP TIME
1 FRAME, 4 SEC EXP TIME

18:20 - 1 FRAME, 8 SEC EXP TIME (SR -11:40)
1 FRAME, 4 SEC EXP TIME
1 FRAME, 2 SEC EXP TIME

21:40 - 1 FRAME, 8 SEC EXP TIME (SR -8:20)
1 FRAME, 4 SEC EXP TIME
1 FRAME, 2 SEC EXP TIME

25:00 - 1 FRAME, 4 SEC EXP TIME (SR -5:00)
1 FRAME, 2 SEC EXP TIME
1 FRAME, 1 SEC EXP TIME
SET FRAME RATE TO 1fps

29:00 - DAC ON FOR 1 SEC (SR -1:00)
CHANGE SHUTTER TO 1/125

29:15 - DAC ON FOR 1 SEC (SR -0:45)
CHANGE SHUTTER TO 1/250

29:30 - DAC ON FOR 1 SEC (SR -0:30)
CHANGE SHUTTER TO 1/500

29:45 - DAC ON FOR 1 SEC (SR -0:15)
CHANGE TO 24 FPS AND RUN DAC FOR 2 SEC PRIOR TO SUNRISE
LIGHTS UP

113:40

113:50

114:00

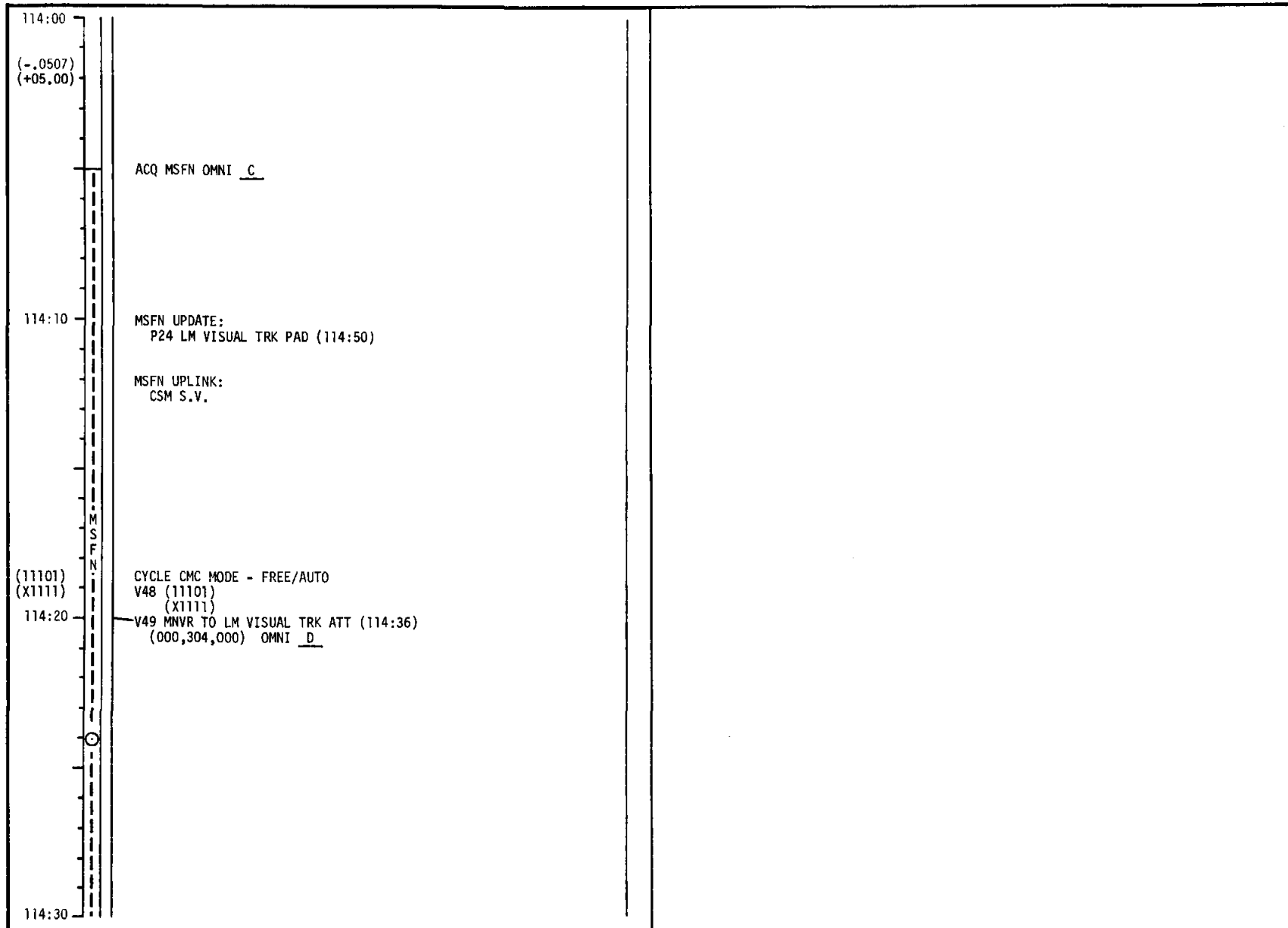
ENABLE - A3,C4,B3,D4 THRUSTERS

RECORD MAG % _____

ZODIACAL LIGHT PHOTOGRAPHY

MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-132

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-134

LM FLIGHT PLAN

MCC-H

0823 CST

CDR

LMP

NOTES

UPDATE TO CSM
P24 LM VISUAL TRACK
PAD

UPLINK TO CSM
CSM S.V.

114:00			POSITION TV 50 FT NORTH TO VIEW MESA AND LADDER AREAS	DEPLOY TV CABLE	0:30
:05			<u>S-BAND ERECT ANT DEPLOY</u> UNSTOW S-BAND ANTENNA	CONTINGENCY SAMPLE COLLECTION	
:10			ORIENT ANTENNA TOWARD EARTH DEPLOY LEGS ERECT MAST	SWC DEPLOYMENT	
:15			DEPLOY DISH ALIGN S-BAND ANTENNA	OFFLOAD LR ³	0:40
:20				ASSIST CDR WITH S-BAND ANTENNA ALIGNMENT	
:25			<u>EXPENDABLES TRANSFER</u> STOW CS IN ETB TRANSFER ETB INTO LM LM AND SITE INSPECTION TRANSFER ETB TO SURFACE	<u>S-BAND SWITCHING</u> ASCEND LADDER SWITCH TO ERECTABLE ANTENNA TRANSFER ETB INTO LM REMOVE AND STOW CONTENTS FROM ETB AND REPACK TRANSFER ETB TO SURFACE	0:50
114:30			ATTACH ETB TO MESA PHOTO LMP EGRESS	EGRESS LM DESCEND LADDER	1:00

M
S
T
F
V
N

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	114:00 - 114:30	5/17	3-135

CSM FLIGHT PLAN

114:30
~~(110)~~
 (X1111)

 (-.0507)
 (+00.50)

 114:40

 M
 S
 T
 I
 N

 114:50
 (11111)
 (X1111)

 115:00

P24 (LM VISUAL)
 OPT ZERO - OFF, OPT MODE - CMC
 SC CONT - CMC/AUTO (VERIFY)
 V79 (N16 LOAD ALL ZERO'S)
 (-0.0507)
 (+000.50)
 (+00001)

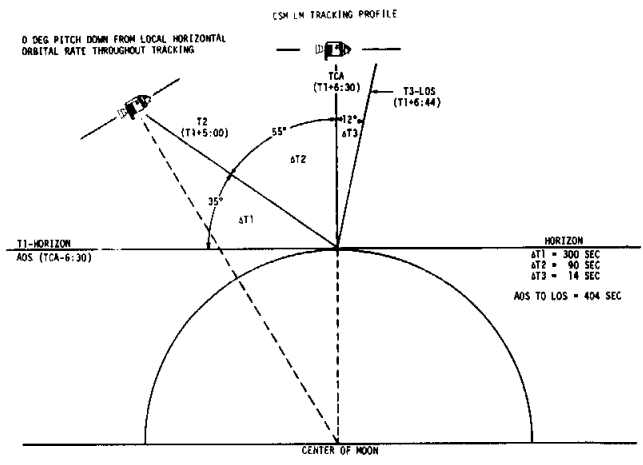
PRO TO START PITCH RATE (000,000/304,000)

0:00 - T1 (HORIZON-LM ACQ) DET - ZERO/UP/START

5:00 - T2 OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA
 6:44 - T3 (LM LOSS)
 V48 (11111)
 (X1111)

V49 MNVR TO COMM ATT (114:56)
 (060,268,000) HGA P 29, Y 236



P24 LDMK TRACKING
 TGT: **LM VISUAL**

T₁ _____ : _____
 T₂ _____ : _____
 TCA _____ : _____
 T₃ _____ : _____
 R _____ °P _____ °Y _____ (T2 ACQ)

N or S NM _____ / SA _____ TA _____ (T2 ACQ)

N89
 LAT -03.672
 LONG/2 -08.732
 ALT -000.76

MISSION	EDITION	DATE	PAGE
APOLLO 14 <i>Phy B</i>	1 (JAN)	DECEMBER 2, 1970 <i>Jan 11, 1971</i>	3-136

LM FLIGHT PLAN

MCC-H

0853 CST

RECORD PCM LBR
ON DSE DURING P24

CDR

LMP

NOTES

DUMP DSE

114:30	M	FLAG DEPLOYMENT	<u>FLAG DEPLOYMENT</u> PLACE 16 MM CAMERA ON SRC TABLE AND TURN ON ASSIST CDR TURN 16 MM CAMERA OFF	1:00
:35	S	LM & SITE INSPECTION AND PHOTOGRAPHY	TV PANORAMA SITE SURVEY	1:10
:40	T	MET DEPLOYMENT	MET DEPLOYMENT	
114:45	F	CARRY TV 30 FT EAST OF LM POSITION TO VIEW ALSEP OFFLOAD	PULL MET TO QUAD II	
:50	V	<u>ALSEP OFFLOAD</u> OFFLOAD ALSEP PKG NO. 1	<u>ALSEP OFFLOAD</u> OPEN SEQ BAY DOORS	1:20
:55	N	REMOVE AND ASSEMBLE BAR ATTACH CARRY BAR TO PACKAGE NO. 1	OFFLOAD ALSEP PKG NO. 2 REMOVE AND EXPAND ALHTC REMOVE DRT & FTT	
115:00				1:30

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	114:30 - 115:00	5/17	3-137

CSM FLIGHT PLAN

115:00 MSFN UPDATE:
P24 TRK PADS: (RP-2, LDMK 12-1, DOLLOND E, FM-1)(115:50-116:45)
MAP UPDATE REV 18
TEI 34 PAD (PRELIMINARY)

P24 LDMK TRACKING
TGT: **RP-2** (1/60)

T₁ --- · --- · ---
T₂ --- · --- · ---
TCA --- · --- · ---
T₃ --- · --- · ---
R --- °P --- °Y --- ° (T2 ACQ)

N or S NM ___ / SA ___ TA ___ (T2 ACQ)
N89
LAT -00.283
LONG/2 +70.625
ALT +000.00

P24 LDMK TRACKING
TGT: **LDMK 12-1** (1/250)

T₁ --- · --- · ---
T₂ --- · --- · ---
TCA --- · --- · ---
T₃ --- · --- · ---
R --- °P --- °Y --- ° (T2 ACQ)

N or S NM ___ / SA ___ TA ___ (T2 ACQ)
N89
LAT -05.736
LONG/2 +56.155
ALT +000.00

VERIFY DSE TAPE MOTION
(LBR/RCD/FWD/CMD RESET)

CYCLE CMC MODE - FREE/AUTO
V48 (11101)
(X1111)
V49 MNVR TO LDMK TRK ATT (115:43)
(000,075,000) OMNI D

MAP UPDATE REV 18

LOS : --- · --- · ---
180°: --- · --- · ---
AOS : --- · --- · ---

115:30 (11101)
(X1111)

115:40 CONFIGURE CAMERA: (LDMK TRK)
CM/DAC/SXT/CEX (EXP-PAD) 1fps (15.2% MAG)

MAG (B) _____, MAG % _____
UTILITY POWER - ON

REV 18

115:50 (-.0507)
(+00.50)

115:50 P24 (RP-2)
OPT ZERO - OFF, OPT MODE - CMC
SC CONT - CMC/AUTO (VERIFY)
V79 (N16 LOAD ALL ZERO'S)
(-0.0507)
(+000.50)
(+00001)
PRO TO START PITCH RATE (000,338/075,000)

115:50 0:00 - T1 (HORIZON) DET - ZERO/UP/START

3:50 - DAC - ON

4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA

7:18 - T3 (LDMK LOSS) DAC - OFF

P24 (LDMK 12-1)
V79E, PRO, PRO
OPT ZERO - OFF, OPT MODE - CMC
0:00 - T1 (HORIZON) DET -ZERO/UP/START

116:00

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-138

LM FLIGHT PLAN

MCC-H
 RECORD RTG REPORT
 UPDATE TO CSM
 P24 TRACK PADS
 MAP UPDATE REV 18
 PRELIM TEI 34 PAD

0923 CST

115:00
 :10
 :20
 115:30
 :40
 :50
 116:00

M
S
T
F
V
N

CDR
 TIP PKG NO. 2 AND POSITION
 FOR FUELING, TAKE 70MM
 PHOTOS IF TIME PERMITS
 CARRY TV 50 FT NORTH OF LM
 BW TV CAM TO +Y FOOTPAD
 POSITION TO VIEW ALSEP SITE
 UNSTOW THUMPER/GEOPHONE
 AND PLACE ON MET

ALSEP TRAVERSE
 CARRY LR³, PULL MET
 DESCRIBE MET HANDLING
 AND STABILITY

ALSEP SITE SURVEY
 16 MM CAMERA - ON

ALSEP DEPLOYMENT
 PLACE SUBPALLET ABOUT
 10 FEET NE OF C/S
 PACK SURFACE FOR PSE STOOL
 10 FEET NORTH

PSE OFFLOAD
 16 MM CAMERA - OFF

SUNSHIELD DEPLOYMENT

ALSEP ANTENNA INSTALLATION

LMP
 REPORT: FUEL RTG, DRT, &
FTT TEMP
 PULL MET TO MESA
 DISCARD TV BRACKET
 PUT 70MM CAMERA ON MET
 PLACE 16MM CAMERA ON STAFF
 UNSTOW AND OPEN SRC 1
 UNSTOW CLOSEUP STEREO CAMERA

ALSEP TRAVERSE
 CARRY ALSEP

ALSEP SITE SURVEY

ALSEP DEPLOYMENT
 POSITION PKG NO. 1 & BAR
 10 FEET WEST OF PKG NO. 2

THUMPER/GEOPHONE OFFLOAD

MORTAR PACKAGE DEPLOYMENT

CPLEE DEPLOYMENT

SIDE/CCIG DEPLOYMENT

NOTES

1:30
 1:40
 1:50
 2:00
 2:10
 2:20
 2:30

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	115:00 - 116:00	5/17-18	3-139

LM FLIGHT PLAN

	1023 CST		CDR	LMP	NOTES	
<p>MCC-H</p> <p>RECORD PCM LBR ON DSE DURING P24</p>	<p>116:00</p>	M S T V F N	<p>SWITCH NO. 1 - CW SWITCH NO. 5 - CCW</p>	<p>ALIGN AND LEVEL</p>	<p>2:30</p>	
	<p>:05</p>		<p><u>PSE DEPLOYMENT</u></p>	<p><u>GEOPHONE DEPLOYMENT</u></p>		
<p>CONFIRM ALSEP DATA</p>	<p>:10</p>		<p>CONFIRM ALSEP DATA WITH MCC-H</p>	<p>FIRST GEOPHONE 10 FT SE OF C/S</p>		<p>2:40</p>
<p>UPDATE TO CSM MAP UPDATE REV 19 PLANE CHANGE MNVR PAD</p>	<p>116:15</p>		<p>DEPLOY LR³ 100 FT W OF C/S</p>	<p>SECOND GEOPHONE 160 FT SE OF C/S</p> <p>THIRD GEOPHONE 310 FT SE OF C/S</p>		
	<p>:20</p>		<p><u>ALSEP PHOTOGRAPHY</u></p> <p>PHOTOGRAPH PSE, MORTAR PKG, CPLEE, SIDE/CCIG, RTG & LM, C/S, LR³</p> <p>GEOPHONES AND THUMPER</p>	<p><u>THUMPER ACTIVITY</u></p>		<p>2:50</p>
	<p>:25</p>		<p><u>SAMPLE COLLECTION</u></p>	<p>ACTIVATE THUMPER NEAR THIRD GEOPHONE AND AT 15 FOOT INTERVALS ALONG CABLE BACK TO C/S (TOTAL 21)</p>		
	<p>116:30</p>		<p>COLLECT COMPREHENSIVE SAMPLE</p>	<p>ADVISE CDR OF IMPENDING ACTIVATIONS</p>	<p>3:00</p>	

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	116:00 - 116:30	5/18	3-141

CSM FLIGHT PLAN

116:30 0:00 - T1 (HORIZON) DET - ZERO/UP/START
 (-.0507)
 (+00.50)

3:50 - DAC - ON

4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA

7:18 - T3 (LDMK LOSS) DAC - OFF

P24 (FM-1)
 V79E, PRO, PRO
 OPT ZERO - OFF, OPT MODE - CMC

116:40 0:00 - T1 (HORIZON) DET - ZERO/UP/START

3:50 - DAC - ON

4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA

7:18 - T3 (LAST MARK) DAC - OFF RECORD MAG % _____
 V48 (11112)
 (X1111)

116:50 V49 MNVR TO P52 ATT (116:55)
 (11112) ~~(000,114,045) HGA P 04, Y 356~~
 (X1111) ~~(184,202,045) HGA P3, Y 229~~

CONFIGURE CAMERA: (GALACTIC SURVEY)
 CM4/DAC/18/VHBW-BRKT, MIR, CONT (T1,1/500,∞) 24fps (2.5% MAG)

MAG (J) _____, MAG % _____
 UTILITY PWR - ON

MSFN UPLINK:
 CSM S.V.
 PLANE CHANGE TGT LOAD
 DESIRED ORIENT (PLANE CHANGE)

P52 (OPTION 3)
 (LDG SITE ORIENT)

117:00

P24 LDMK TRACKING
 TGT: FM-1 (1/60)

T₁ — — — — — • — — — — —
 T₂ — — — — — • — — — — —
 TCA — — — — — • — — — — —
 T₃ — — — — — • — — — — —
 R — — — — — °P — — — — — °Y — — — — — ° (T2 ACQ)

N or S NM — — — / SA — — — TA — — — (T2 ACQ)

N89
 LAT -03.246
 LONG/2 -08.659
 ALT +000.00

P52 IMU REALIGN

N71: — — — — —
 N05: — — — — — • — — — — —
 N93: — — — — —

X — — — — — • — — — — —
 Y — — — — — • — — — — —
 Z — — — — — • — — — — —
 GET — — — — — • — — — — —

MISSION	EDITION	DATE	PAGE
APOLLO 14 <i>Chase</i>	FINAL (JAN) <i>Chase</i>	DECEMBER 2, 1970	3-142

Jan 18, 1971

LM FLIGHT PLAN

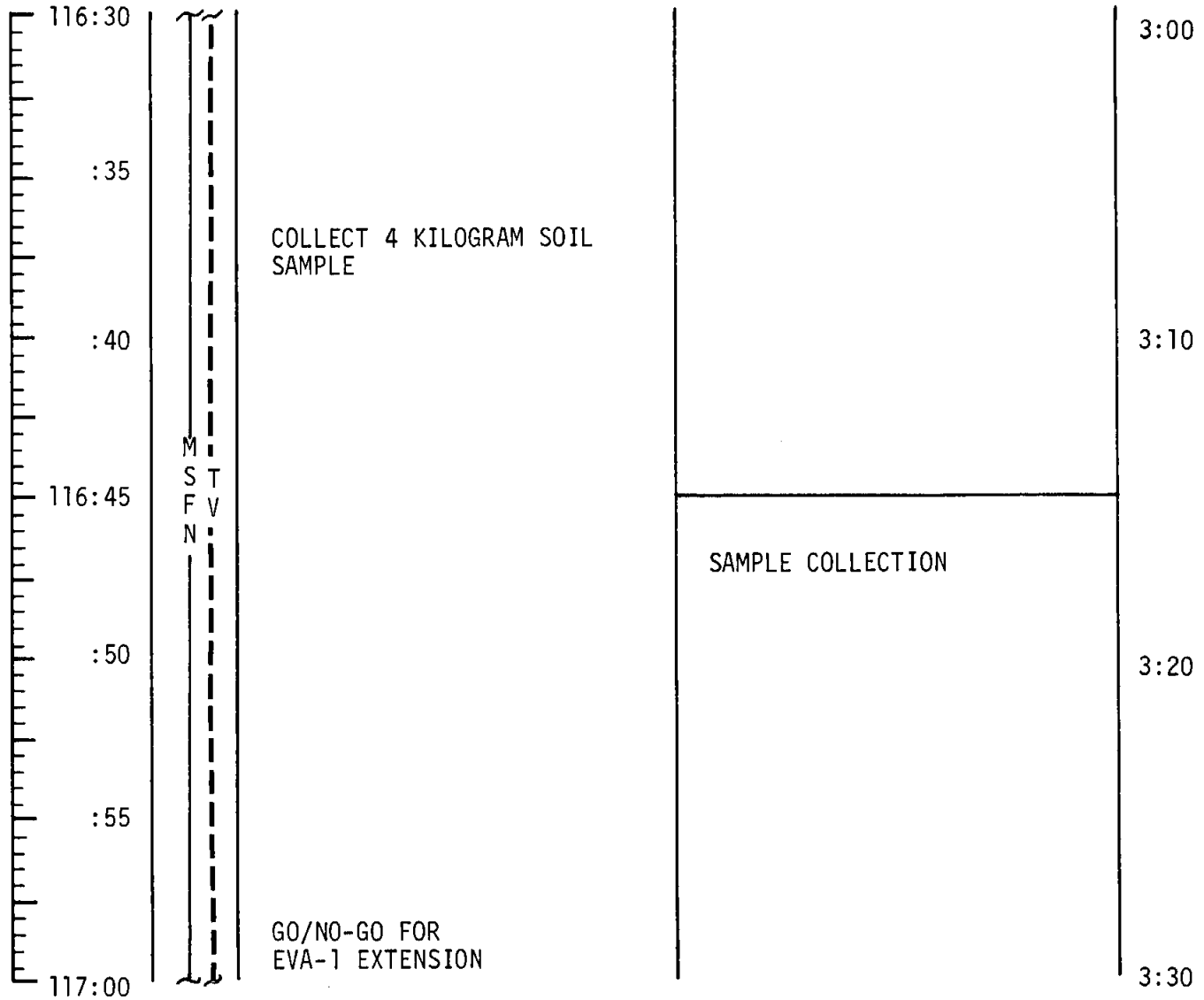
MCC-H

1053 CST

CDR

LMP

NOTES



UPLINK TO CSM
 CSM S.V.
 PLANE CHANGE TGT
 LOAD
 DESIRED ORIENT
 (PLANE CHANGE)

GO/NO-GO FOR
 EVA-1 EXTENSION

GO/NO-GO FOR
 EVA-1 EXTENSION

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	116:30 - 117:00	5/18	3-143

CSM FLIGHT PLAN

117:00		REPORT: <u>GYRO TORQUING ANGLES</u>	
(11112) (X1111)	M S F N	P52 (OPTION 1) (PLANE CHANGE ORIENT)	
117:10 (11101) (X1111)		GDC ALIGN VERIFY ORDEAL CYCLE CMC MODE - FREE/AUTO V48 (11101)(X1111) V49 MNVR TO N. ECLIPTIC POLE ATT (117:16) (272,009,356)	
		GALACTIC SURVEY PHOTOGRAPHY	
		VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)	
		DAMP RATES: VERIFY FDAI SCALE - 5/1 DISABLE ALL JETS ON TWO ADJACENT QUADS WAIT 5 MINUTES FOR RATES TO DAMP CMC MODE - FREE VERIFY RATES ON FDAI ARE < 0.2°/SEC IN ALL AXIS DAC - ON AT 24 fps FOR 2 SEC CHANGE FRAME RATE TO <u>TIME</u> & SHUTTER SPEED TO <u>1/60</u> DIM INTERIOR LIGHTING	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> MAP UPDATE REV <u>19</u> </div> LOS : _____ 180° : _____ AOS : _____
117:20		START PHOTO SEQUENCE: 2 FRAMES, EXP TIME 20 SEC 1 FRAME, EXP TIME 5 SEC	
		VERIFY RATES NOT > 0.2°/SEC IN ANY AXIS, IF RATES > 0.2°/SEC, AND TIME PERMITS - DAMP RATES FOR 60 SEC AND REPEAT EXPOSURE SEQUENCE	
		CHANGE TO <u>24fps</u> & <u>1/500</u> , RUN DAC FOR 2 SEC LIGHTS UP, CMC MODE - AUTO, ENABLE ALL QUADS REMOVE DAC FROM WINDOW	
		RECORD MAG % _____	
		REMOVE CAMERA SHIELD	
117:30			

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-144

LM FLIGHT PLAN

	MCC-H	1123 CST	CDR	LMP	NOTES
DUMP DSE		117:00			3:30
		:05	COLLECT FOOTBALL SIZE ROCK	MORTAR PACK ACTIVATION	IF EXTENSION GRANTED MORTAR PACK ACTIVATION WILL BE DELAYED UNTIL AFTER TRAVERSE
		:10	RETURN TRAVERSE	<u>RETURN TRAVERSE</u> PULL MET ON TRAVERSE BACK TO LM	3:40
		117:15	<u>EVA CLOSEOUT</u> POSITION TV TO VIEW MESA AND LADDER AREAS	<u>EVA CLOSEOUT</u> PULL MET NEAR MESA	
		:20	STOW DOCUMENTED SAMPLES IN SRC NO. 1	STOW 70MM CAMERA IN ETB	3:50
		:25	COLLECT ADDITIONAL SAMPLES TO FILL SRC NO. 1	STOW 16MM CAMERA ON MET	
		:30	REMOVE SKIRT AND SEAL SRC NO. 1	UNSTOW AND PLACE SRC NO. 2 ON MET	
		117:30	CLEAN AND CHECK EMU'S		4:00

M
S
T
F
V
N

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	117:00 - 117:30	5/18	3-145

CSM FLIGHT PLAN

117:30
 (11101)
 (X1111)

 117:40
 REV 19

 (11112)
 (X1111)
 117:50
 (P40)
 (0.5° DB)

 118:00

P30; VERIFY PC-1 TIG AND ΔV 's
 V49 MNVR TO PC-1 BURN PAD ATT (117:38)

SXT STAR CHECK

SET DET COUNTING UP TO PLANE CHANGE

SECURE EQUIPMENT FOR PC-1

V48 (11112)
 (X1111)

P40 (TRIM)

P30 MANEUVER

	C	S	M	P	C	1	PURPOSE
	S	P	S/G	&	N		PROP/GUID
SET STARS							WT N47
R ALIGN		0	0				P TRIM N48
P ALIGN		0	0				Y TRIM
Y ALIGN		+	0	0			HRS GETI
		+	0	0	0		MIN N33
		+	0				SEC
ULLAGE							ΔV_X N81
							ΔV_Y
							ΔV_Z
	X	X	X				R (180)
	X	X	X				P (354)
	X	X	X				Y (003)
							H _A N44
							H _P
							ΔVT
HORIZON/WINDOW	X	X	X				BT
	X						ΔVC
	X	X	X	X			SXTS
						0	SFT
						0	TRN
	X	X	X				BSS
	X	X					SPA
	X	X	X				SXP
OTHER		0					LAT N61
							LONG
							RTGO EMS
							VIO
							GET 0.05G

MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-146

LM FLIGHT PLAN

MCC-H

1153 CST

CDR

LMP

NOTES

117:30 :35 :40 117:45 :50 :55 118:00	M S T F V N	TRANSFER ETB INTO LM TRANSFER SRC INTO LM ASCEND LADDER STOW LEC AND INGRESS CLOSE HATCH	EVA TERMINATION INGRESS CHECK LM & EMU ASSIST CDR TRANSFER LEC TO CDR	4:00 4:10 4:15/0:00
		REPRESSURIZE CABIN		
		<u>POST-EVA SYSTEMS CONFIGURATION</u> CONFIGURE LM ECS DOFF HELMETS AND GLOVES CONNECT LM ECS HOSES TO SUIT CONNECT TO LM COMM AND RECONFIGURE COMM BIOMED-LEFT, RECORDER-OFF		
		<u>PLSS O₂ RECHARGE</u> CONNECT LMP PLSS TO LM O ₂ SUPPLY AND FILL (2 MIN) CONNECT CDR PLSS TO LM O ₂ SUPPLY AND FILL (2 MIN)		

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	117:30 - 118:00	5/18-19	3-147

CSM FLIGHT PLAN

118:00
 (P40)
 (0.5° DB)
 118:10
 (11112)
 (X1111)
 M
 S
 F
 N
 118:20
 118:30

ACQ MSFN HGA P 3, Y 274

GO/NO-GO FOR PLANE CHANGE 1

CSM PLANE CHANGE 1 BURN TABLE			
P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC	+ 10°	BT + 1 SEC	NO TRIM
TERMINATE	TERMINATE		

CSM PLANE CHANGE (180, 354,003) TIG: 118:09:40
 BT: 18.4 SEC
 ΔVT: 360.7 FPS
 ULLAGE: 4 JET, 11 SEC
 ORBIT: 61.7 X 57.4

POO
 REPORT: BURN STATUS

MSFN UPLINK:
 DESIRED ORIENT (LIFT-OFF)
 RLS UPDATE (IF REQ'D)

REFSMMAT 00 TIME					
+	0	0	0	0	HRS
+	0	0	0	0	MIN
+	0	0	0	0	SEC

MSFN UPDATE:
 REFSMMAT 00 TIME
 EARTHSHINE PHOTO PAD (118:45)
 MAP UPDATE REV 20 (119:10)

V49 MNVR TO P52 ATT (118:28)
 (329,336,319) HGA P -27, Y 135

CONFIGURE CAMERAS: (EARTHSHINE)
 CM4/DAC/18/VHBW-BRKT, MIR, CONT (T1,1/500,∞) 24 fps (25% MAG)

MAG (K) _____, MAG % _____
 UTILITY PWR - ON
 DAC-ON AT 24FPS for 2 SEC (COVER LENS)
 CHANGE FRAME RATE TO 1 FPS & SHUTTER SPEED TO 1/250

CM4/DC/80/VHBW-BRKT, IVL ^{PCM CABLE} (f2.8,1/60,∞) (51 FR)

MAG (S) _____, FR # _____
 COVER LENS, CYCLE 3 FRAMES

P52 (OPTION 1) GYRO TORQUE
 (LIFT-OFF ORIENT)

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										FUEL*
X										OX*
X										UNBAL

*ITEMS TO BE REPORTED TO MSFN

MISSION	EDITION	DATE	PAGE
APOLLO 14	Chg B CHANGE A (JAN)	DECEMBER 29, 1970	3-148

Jan 11, 1971

LM FLIGHT PLAN

MCC-H

1223 CST

CDR

LMP

NOTES

GO/NO-GO FOR PLANE CHANGE

UPLINK TO CSM
DESIRED ORIENT
(LIFT-OFF)
RLS (IF REQ'D)
UPDATE TO CSM
REFSMMAT 00 TIME
EARTHSHINE PHOTO
PAD
MAP UPDATE REV 20

DUMP DSE

<p>118:00</p> <p style="text-align: center;">:05</p> <p style="text-align: center;">:10</p> <p>118:15</p> <p style="text-align: center;">:20</p> <p style="text-align: center;">:25</p> <p>118:30</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">M S T F V N</p>	<p><u>PLSS/OPS DOFFING</u></p> <p>REMOVE RCU'S, DOFF PLSS/OPS</p> <p>REPLACE LMP PLSS BAT & LiOH CARTRIDGE</p> <p>REMOVE OPS, CHECK PRESSURE, AND STOW ON ENGINE COVER</p> <p>STOW PLSS (RECHARGE STATION)</p> <p>REPLACE LMP PLSS BAT & LiOH CARTRIDGE</p> <p>REMOVE OPS AND STOW PLSS ON FLOOR</p> <p>CHECK OPS PRESSURE</p> <p>STOW LMP OPS ON FLOOR</p> <p>STOW PLSS ON FLOOR</p> <p>STOW RCU'S ON DATA FILE</p> <p>STOW DISP CONT ON MID-STEP</p> <p>STOW LEVA'S ON LH FORWARD FLOOR</p>	<p>0:20</p> <p>0:30</p> <p>0:40</p>
		<p><u>POST-EVA CABIN CONFIGURATION</u> UNSTOW SCALE</p>	

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	118:00 - 118:30	5/19	3-149

CSM FLIGHT PLAN

118:30 (11112) (X1111)	GDC ALIGN VERIFY ORDEAL V49 MNVR TO EARTHSHINE ATT (118:41) (000,164,000) HGA P <u>-27</u> , Y <u>180</u>	<h3 style="text-align: center;">EARTHSHINE PHOTOGRAPHY</h3>
118:40 (-.0507) (+05.00)	SC CONT - CMC/AUTO (VERIFY) V79 (-.0507) (+005.00) (+00001) PRO TO START PITCH RATE (000,258/164,000)	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> EARTHSHINE PHOTOGRAPHY 118:44:39 - DET-ZERO/UP/START (T START)(SS -13 MIN) INHIBIT - A3,C4,B3,D4 THRUSTERS DIM INTERIOR LIGHTS </div>
118:50	5:20 - DAC - ON (SS -7:40) 5:30 - DC - ON (SS -7:30)	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> EARTHSHINE PHOTO PAD T START: _____ START DET AT SUNSET -13 MIN </div>
119:00	7:30 - CHANGE DC SHUTTER TO 1/15 SEC (SS -5:30) CHANGE DAC SHUTTER TO 1/60 SEC	

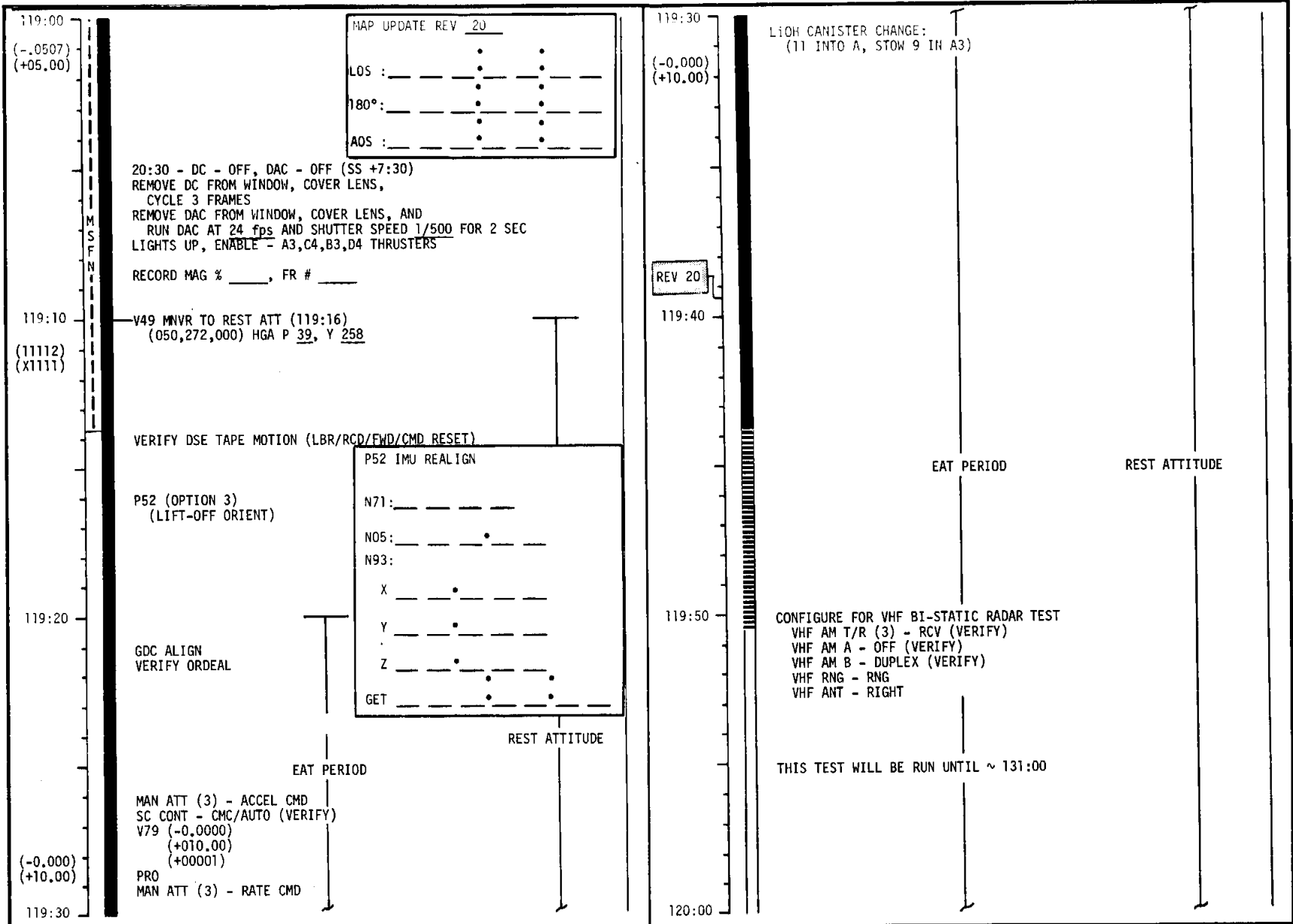
MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-150

LM FLIGHT PLAN

MCC-H	1253 CST	CDR	LMP	NOTES
RECORD SAMPLE BAG WEIGHT	118:30	T V M S F N		POST-EVA CABIN CONFIGURATION (CONT) WEIGH SAMPLE BAG, REPORT: <u>WEIGHT</u> EMPTY ETB RECONFIGURE CAMERAS STOW CSRC REPACK ETB WEIGH SRC, REPORT: <u>WEIGHT</u> VERIFY CB CONFIGURATION MODULATE-PM UNSTOW LUNAR SURFACE CHECKLIST STOW EVA-1 PREP & POST CARD
RECORD SRC WEIGHT	:35 :40 118:45			0:50 1:00
	:50 :55 119:00	EAT PERIOD		1:10

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	118:30 - 119:00	5/19	3-151

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-152

LM FLIGHT PLAN

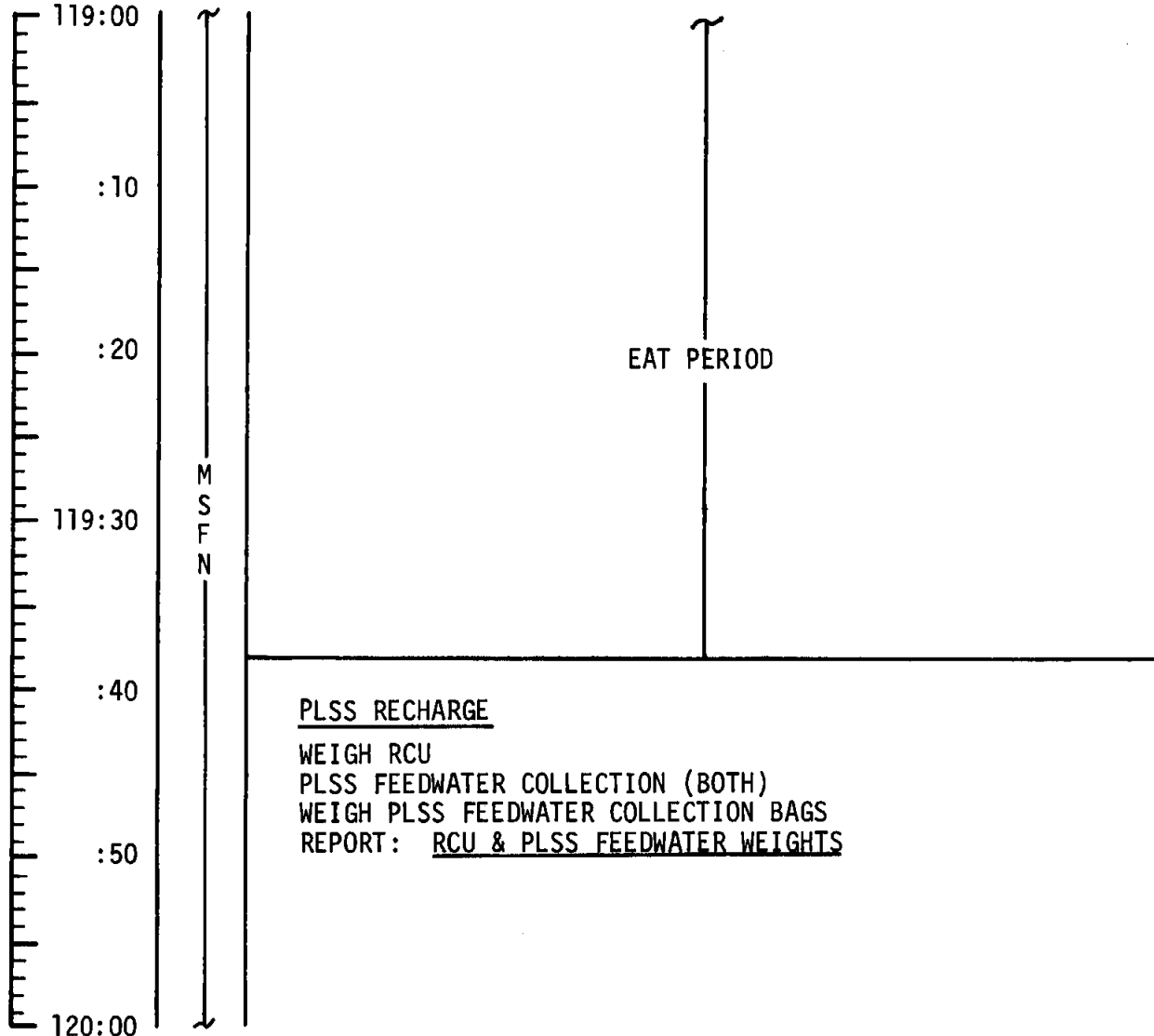
MCC-H

1323 CST

CDR

LMP

NOTES



UPDATE TO LM
TIME OF LIFT-OFF
FOR REV 20 THRU 25

RECORD RCU & PLSS
FEEDWATER WEIGHTS

1:20

1:30

1:40

1:50

TIME OF LIFT-OFF
ASSUMES NOMINAL
PLANE CHANGE
2:00

2:10

PLSS RECHARGE

WEIGH RCU

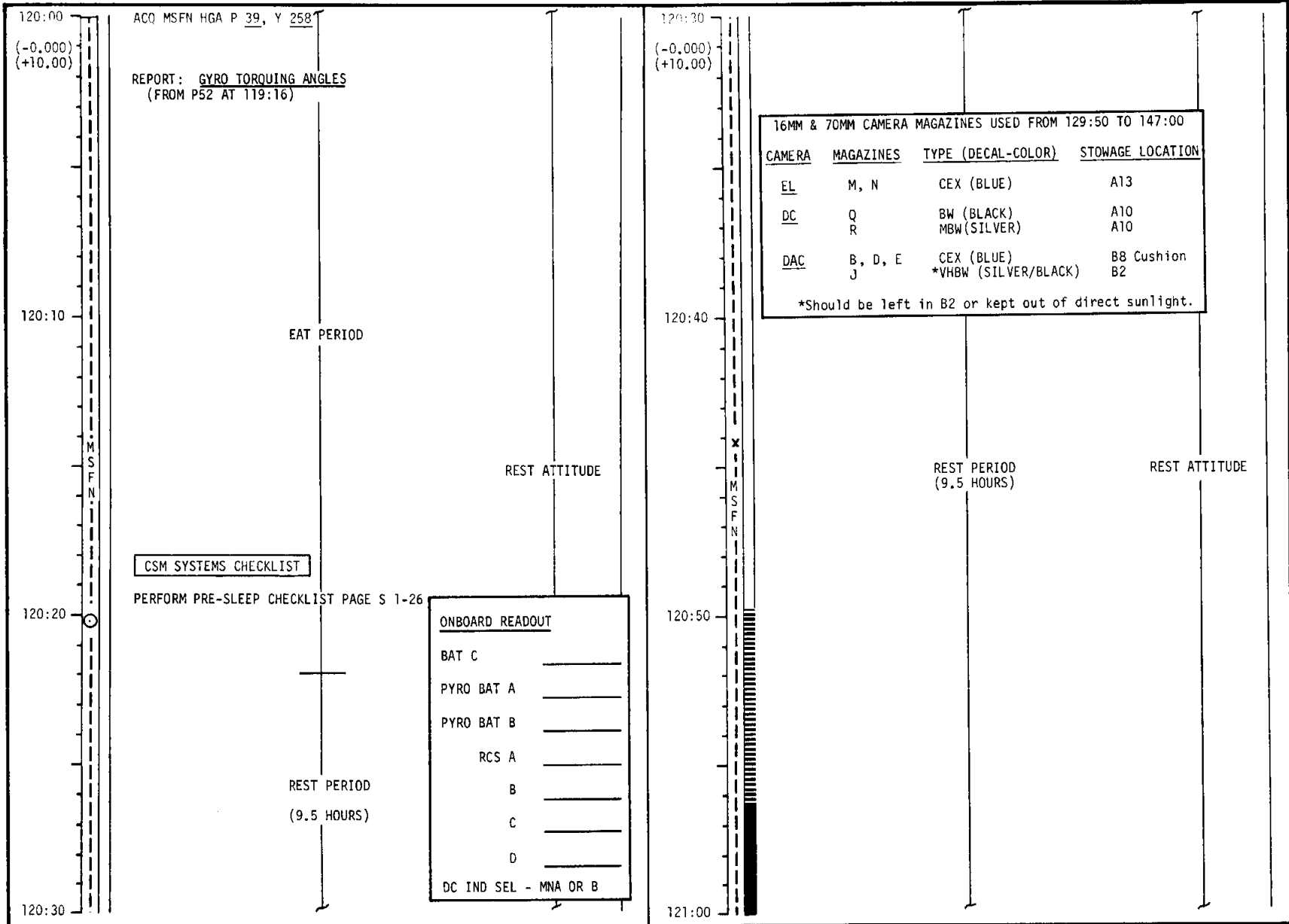
PLSS FEEDWATER COLLECTION (BOTH)

WEIGH PLSS FEEDWATER COLLECTION BAGS

REPORT: RCU & PLSS FEEDWATER WEIGHTS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	119:00 - 120:00	5/19-20	3-153

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-154

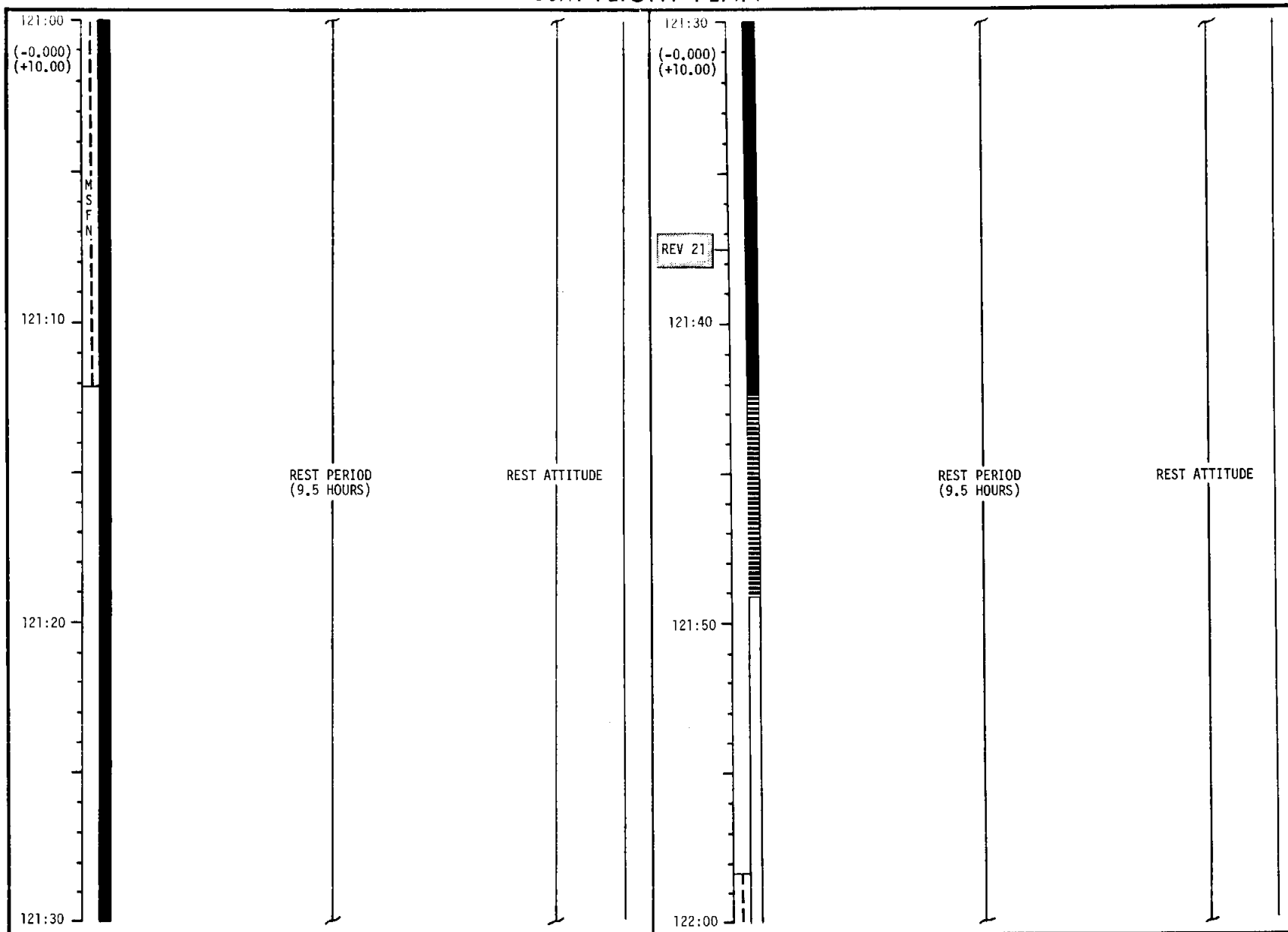
LM FLIGHT PLAN

	MCC-H	1423 CST	CDR	LMP	NOTES
DUMP DSE		120:00	LCG PUMP CB - OPEN CONNECT LM O ₂ SUPPLY TO PLSS AND FILL (10 MIN) CONNECT LM H ₂ O SUPPLY TO PLSS AND FILL (3 MIN) CONNECT LM O ₂ SUPPLY TO 2ND PLSS AND FILL (10 MIN) CONNECT LM H ₂ O SUPPLY TO 2ND PLSS AND FILL (3 MIN)		2:20
UPDATE TO LM FLIGHT PLAN FOR POSSIBLE EVA-2 EXTENSION		:10	EVA DEBRIEFING (5 MIN) CREW STATUS (RADIATION, MEDICATION) VOICE - DN VOICE BU S-BD PWR AMPL - OFF VHF ANT -AFT		2:30
		:20	CONFIGURE SLEEP STATIONS		2:40
		120:30	REST PERIOD (10 HOURS)		2:50
		:40			
		:50			
		121:00			

M
S
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N

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	120:00 - 121:00	5/20	3-155

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-156

LM FLIGHT PLAN

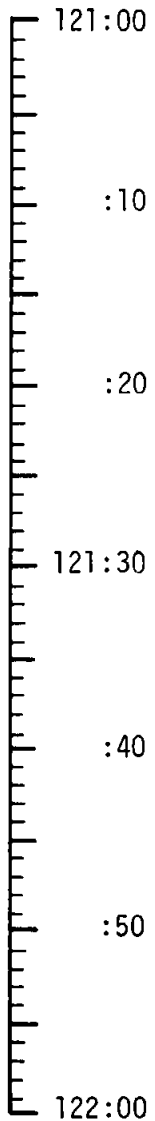
MCC-H

1523 CST

CDR

LMP

NOTES



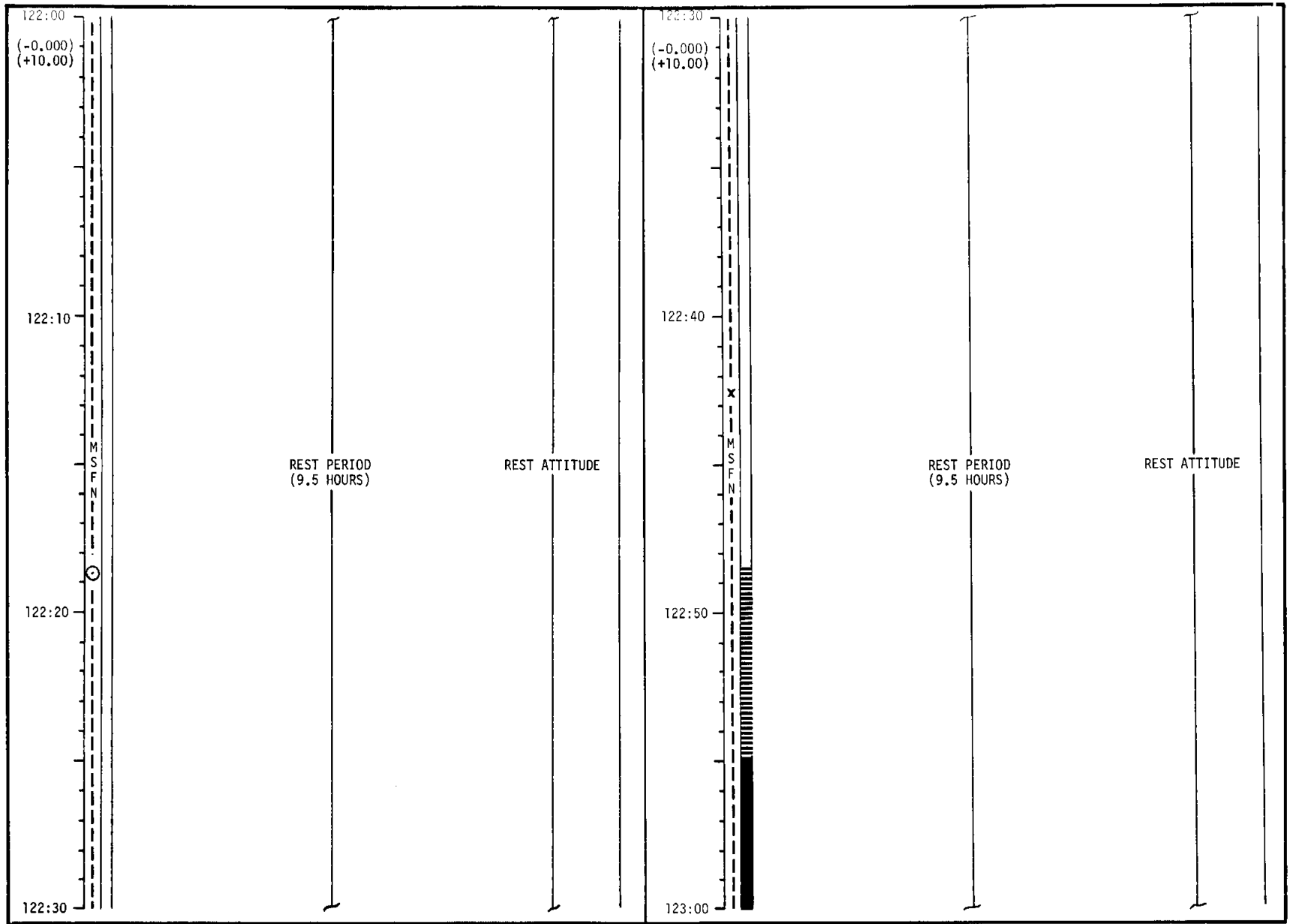
M
S
F
N

REST PERIOD
(10 HOURS)

DUMP DSE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	121:00 - 122:00	5/20-21	3-157

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-158

LM FLIGHT PLAN

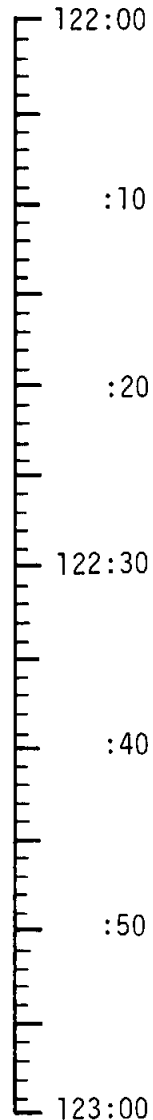
MCC-H

1623 CST

CDR

LMP

NOTES

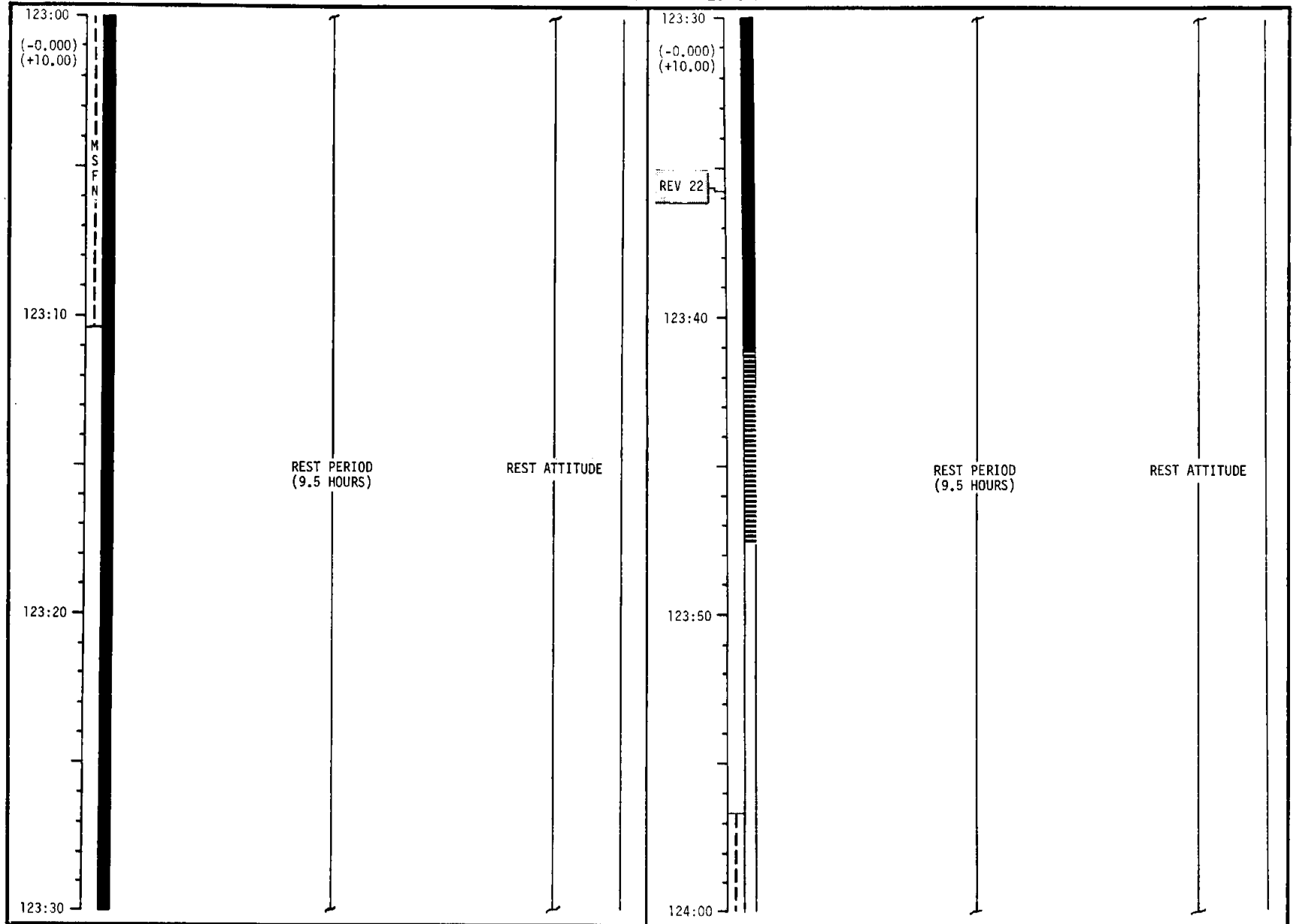


M
S
T
N

REST PERIOD
(10 HOURS)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	122:00 - 123:00	5/21	3-159

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-160

LM FLIGHT PLAN

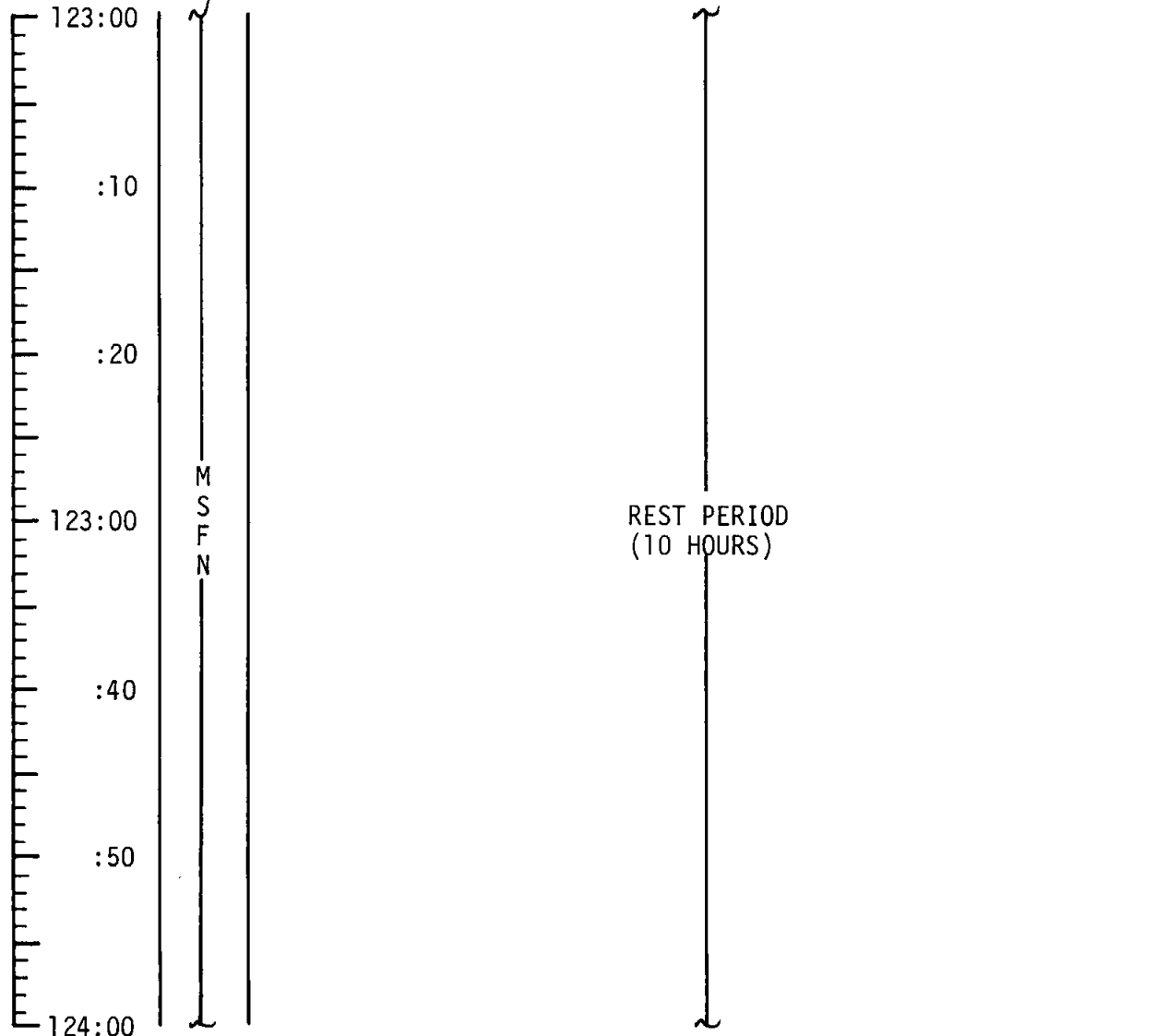
MCC-H

1723 CST

CDR -

LMP

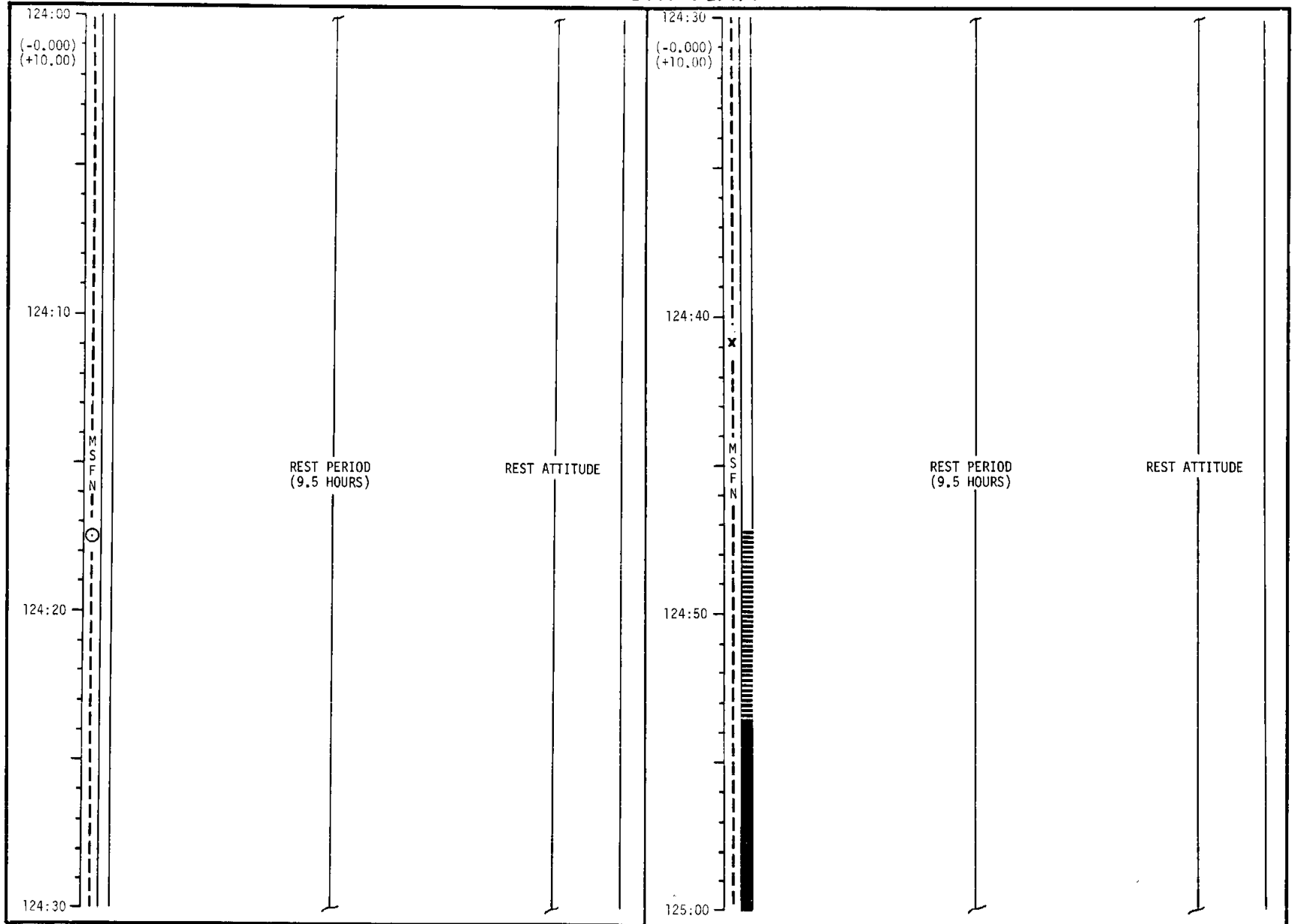
NOTES



DUMP DSE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	123:00 - 124:00	5/21-22	3-161

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-162

LM FLIGHT PLAN

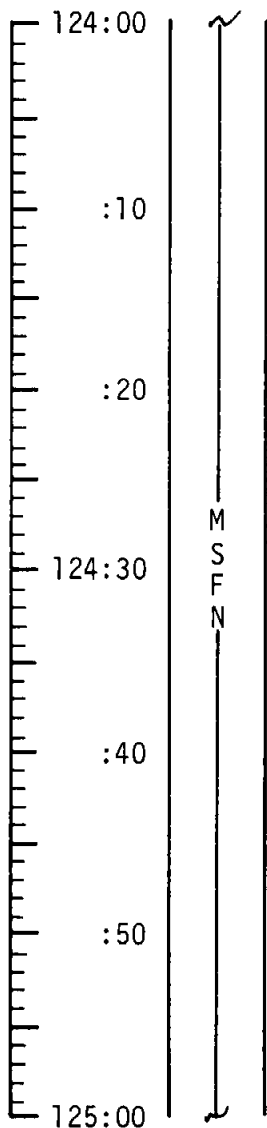
MCC-H

1823 CST

CDR

LMP

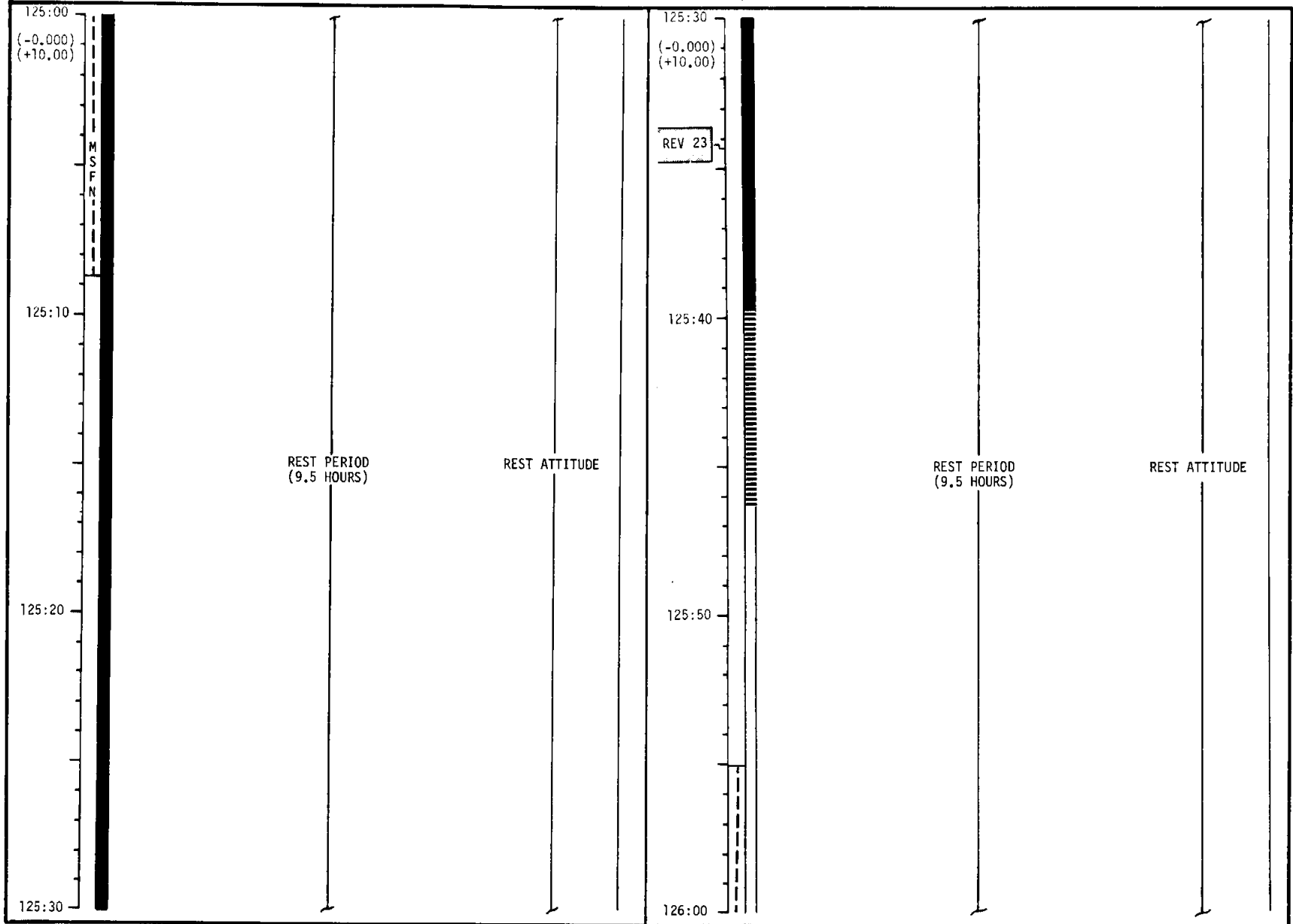
NOTES



REST PERIOD
(10 HOURS)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	124:00 - 125:00	5/22	3-163

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-164

LM FLIGHT PLAN

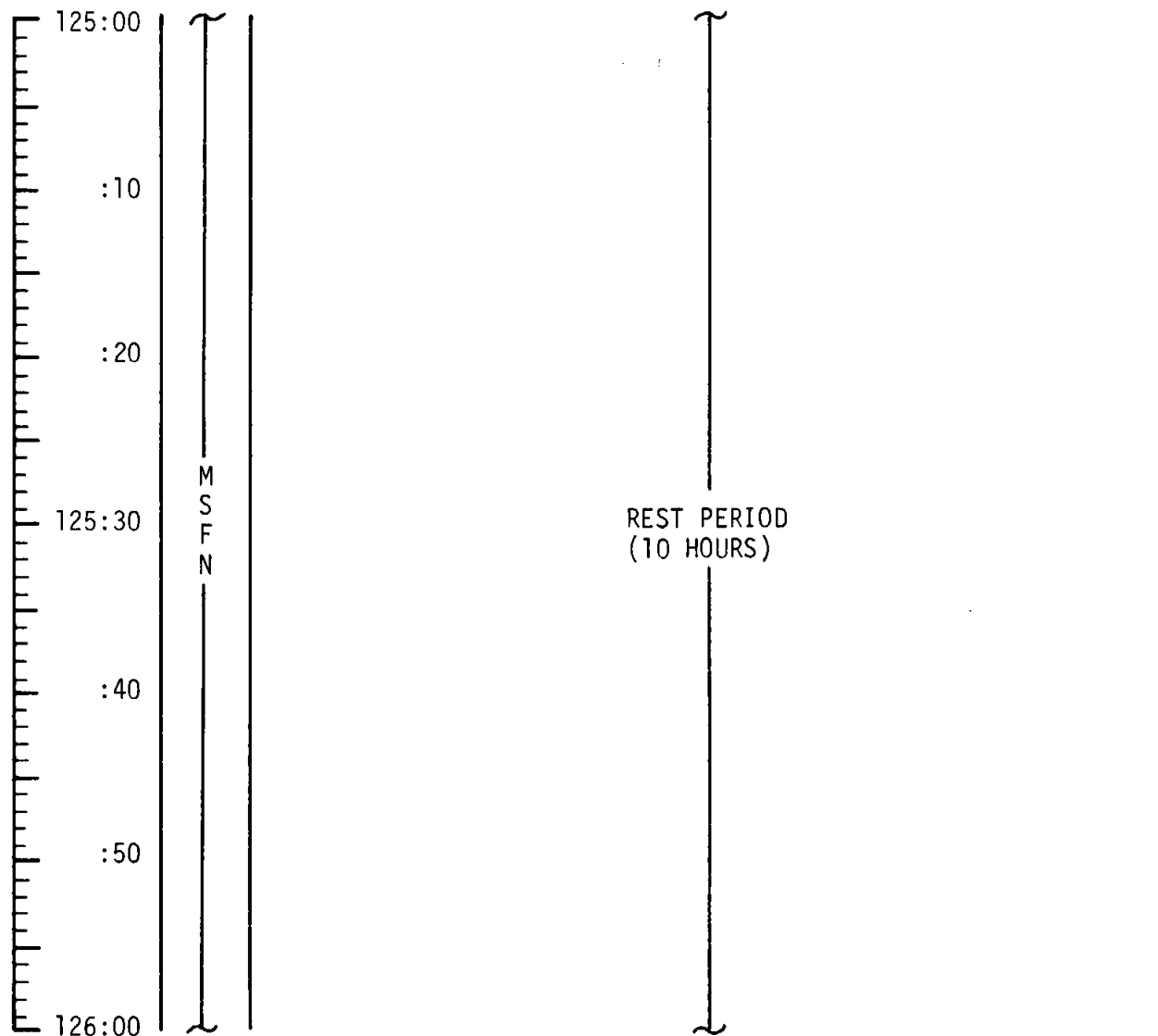
MCC-H

1923 CST

CDR

LMP

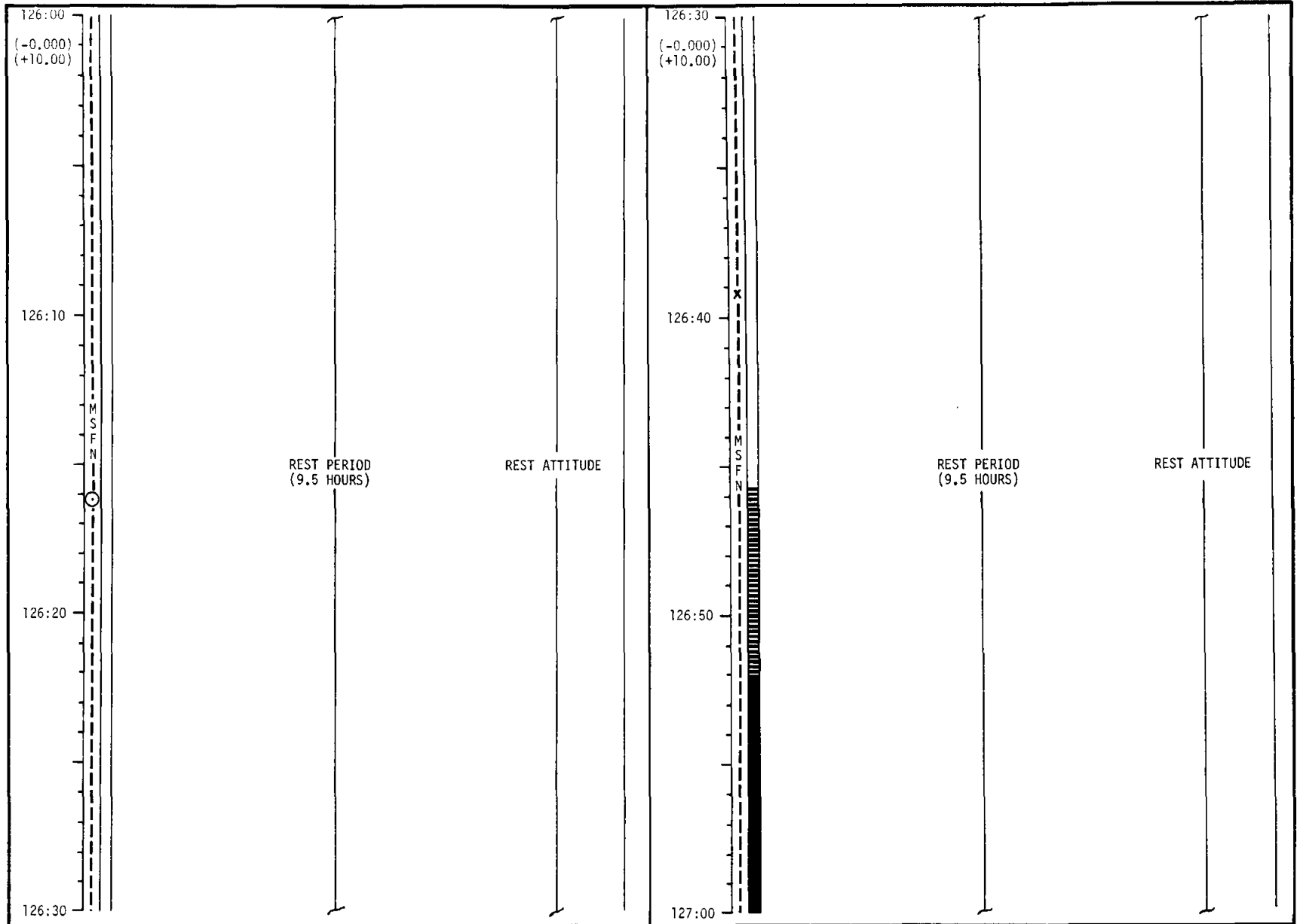
NOTES



DUMP DSE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	125:00 - 126:00	5/22-23	3-165

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-166

LM FLIGHT PLAN

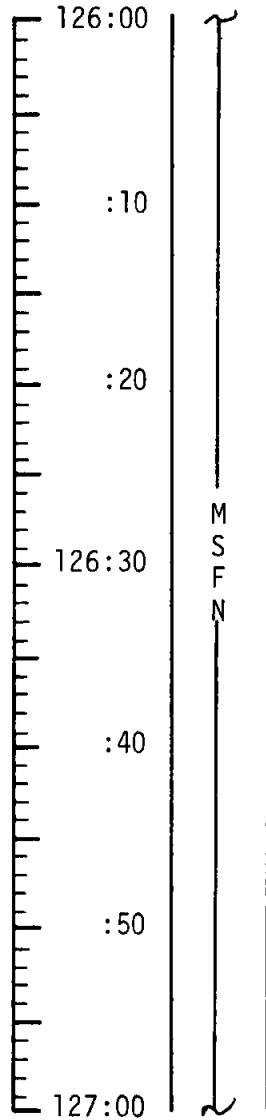
MCC-H

2023 CST

CDR

LMP

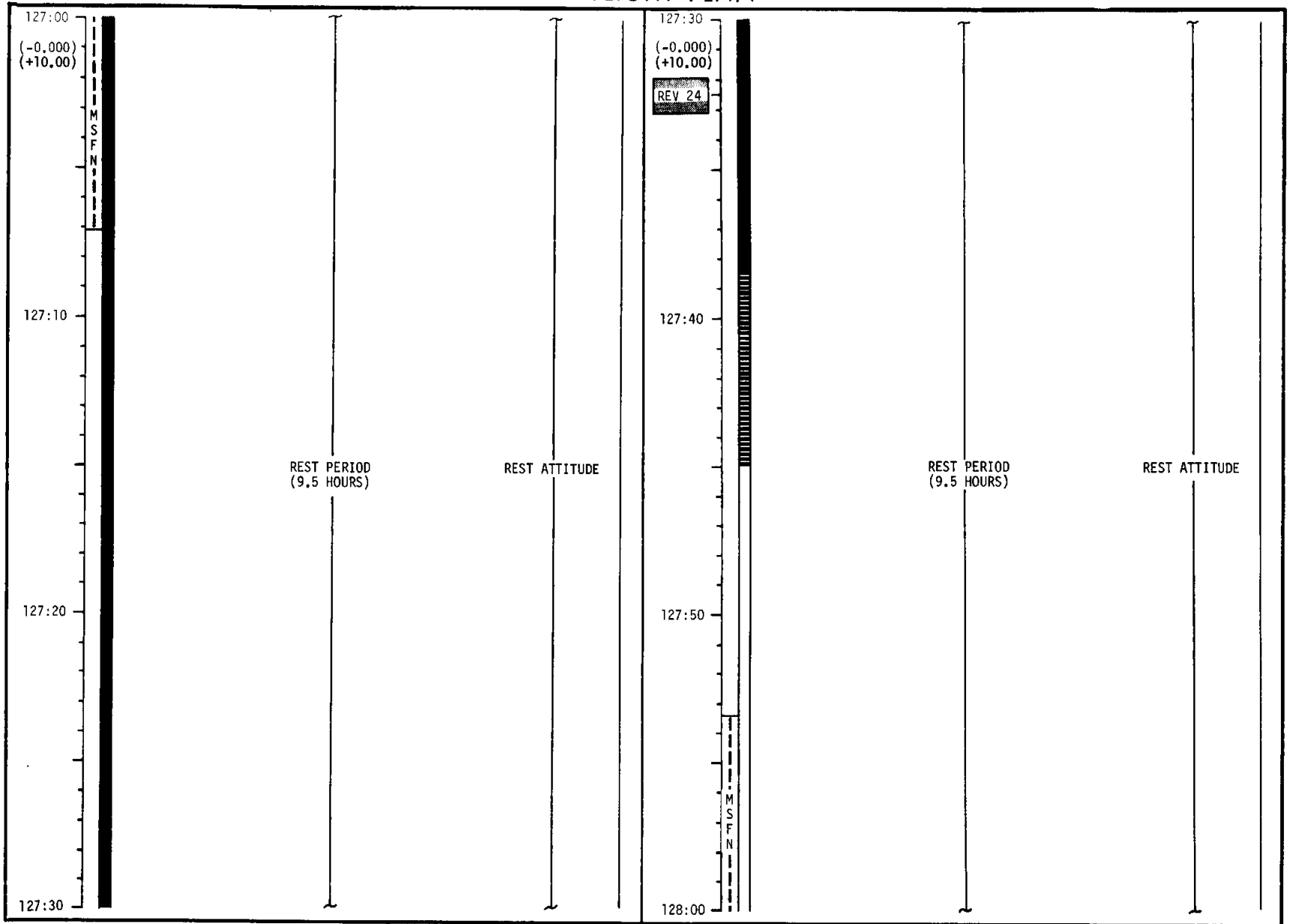
NOTES



REST PERIOD
(10 HOURS)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	126:00 - 127:00	5/23	3-167

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-168

LM FLIGHT PLAN

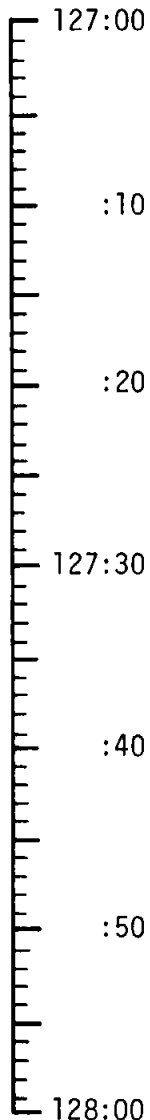
MCC-H

2123 CST

CDR

LMP

NOTES



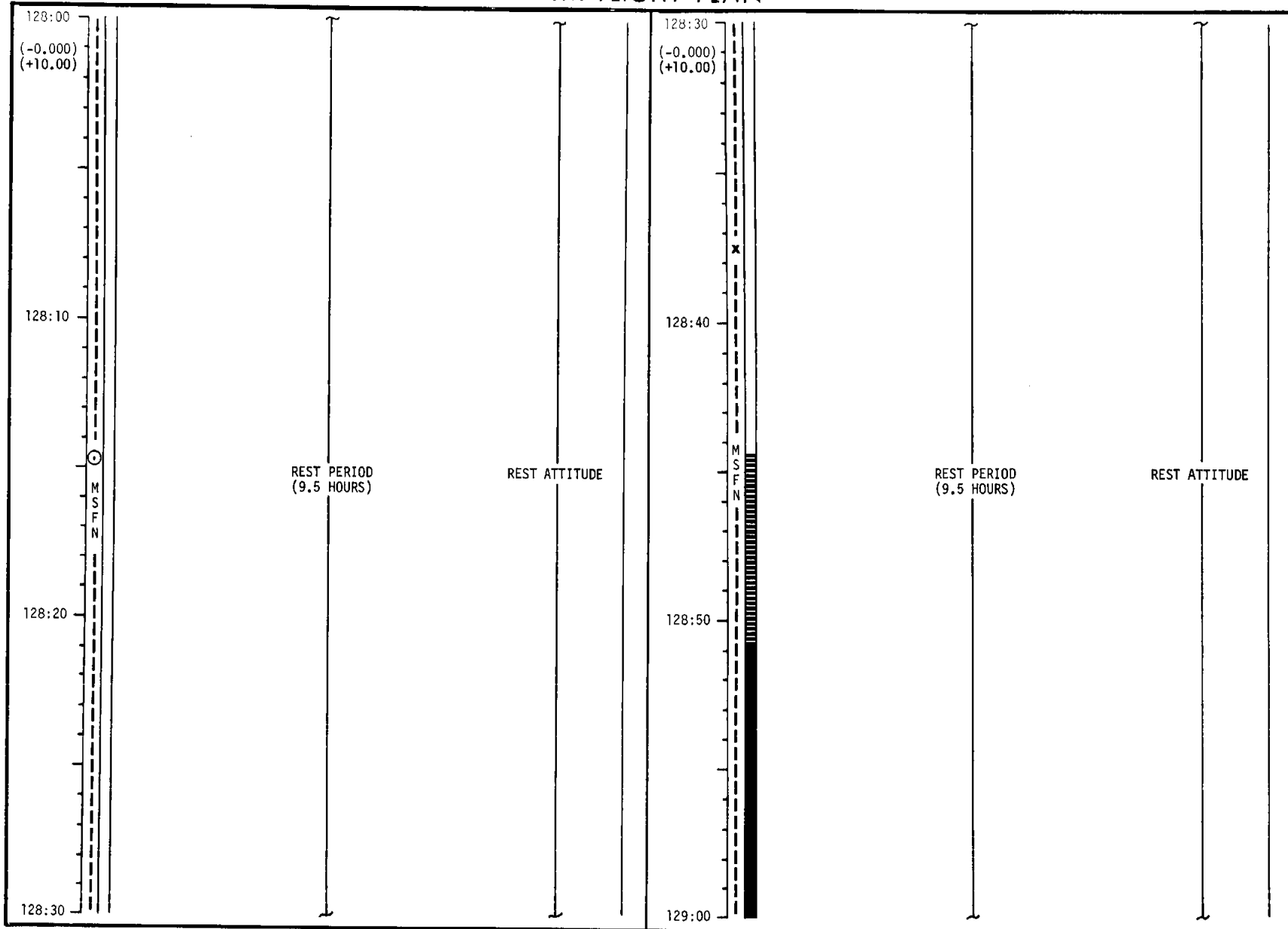
M
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REST PERIOD
(10 HOURS)

DUMP DSE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	127:00 - 128:00	5/23-24	3-169

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-170

LM FLIGHT PLAN

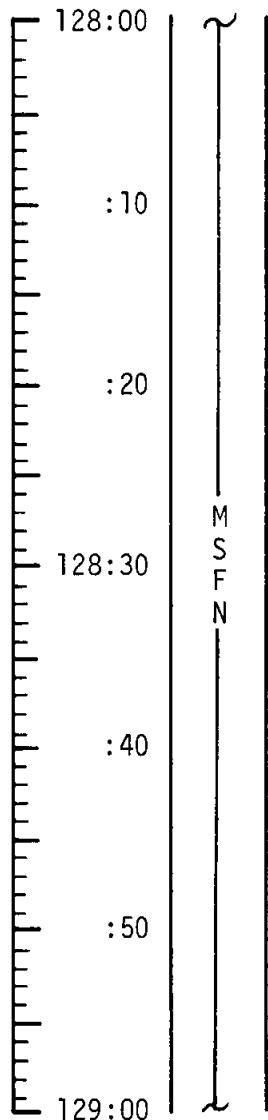
MCC-H

2223 CST

CDR

LMP

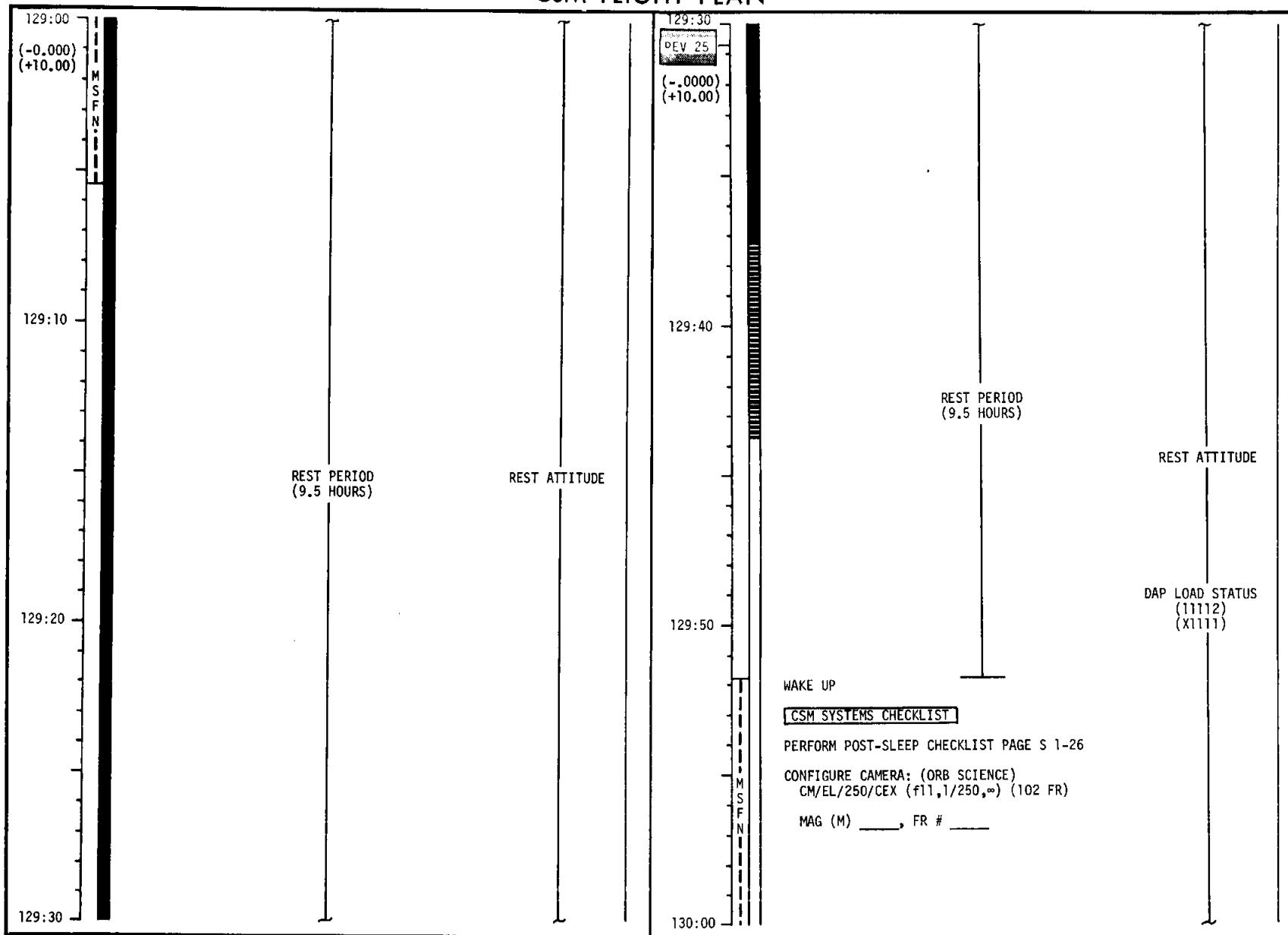
NOTES



REST PERIOD
(10 HOURS)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	128:00 - 129:00	5/24	3-171

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-172

LM FLIGHT PLAN

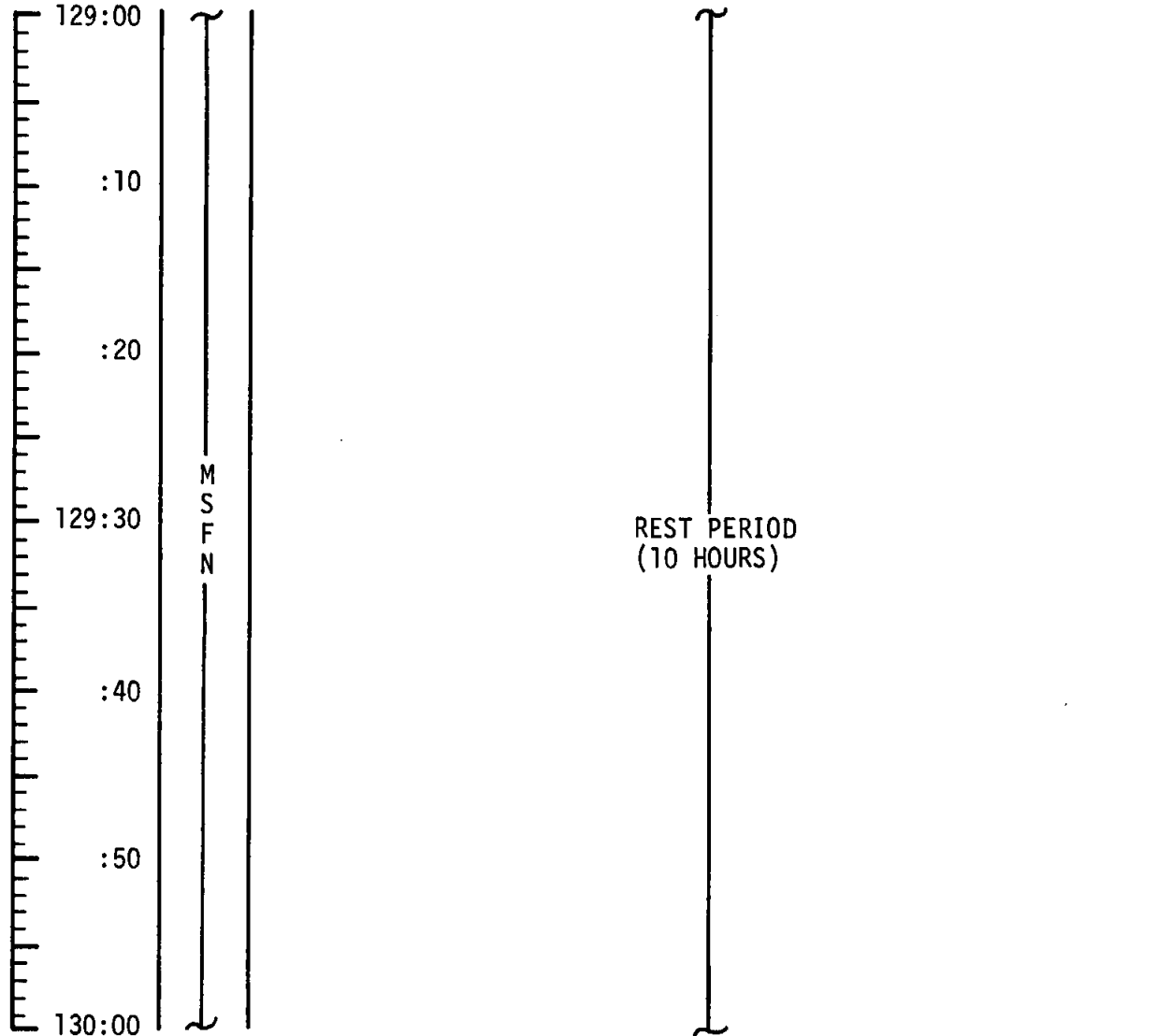
MCC-H

2323 CST

CDR

LMP

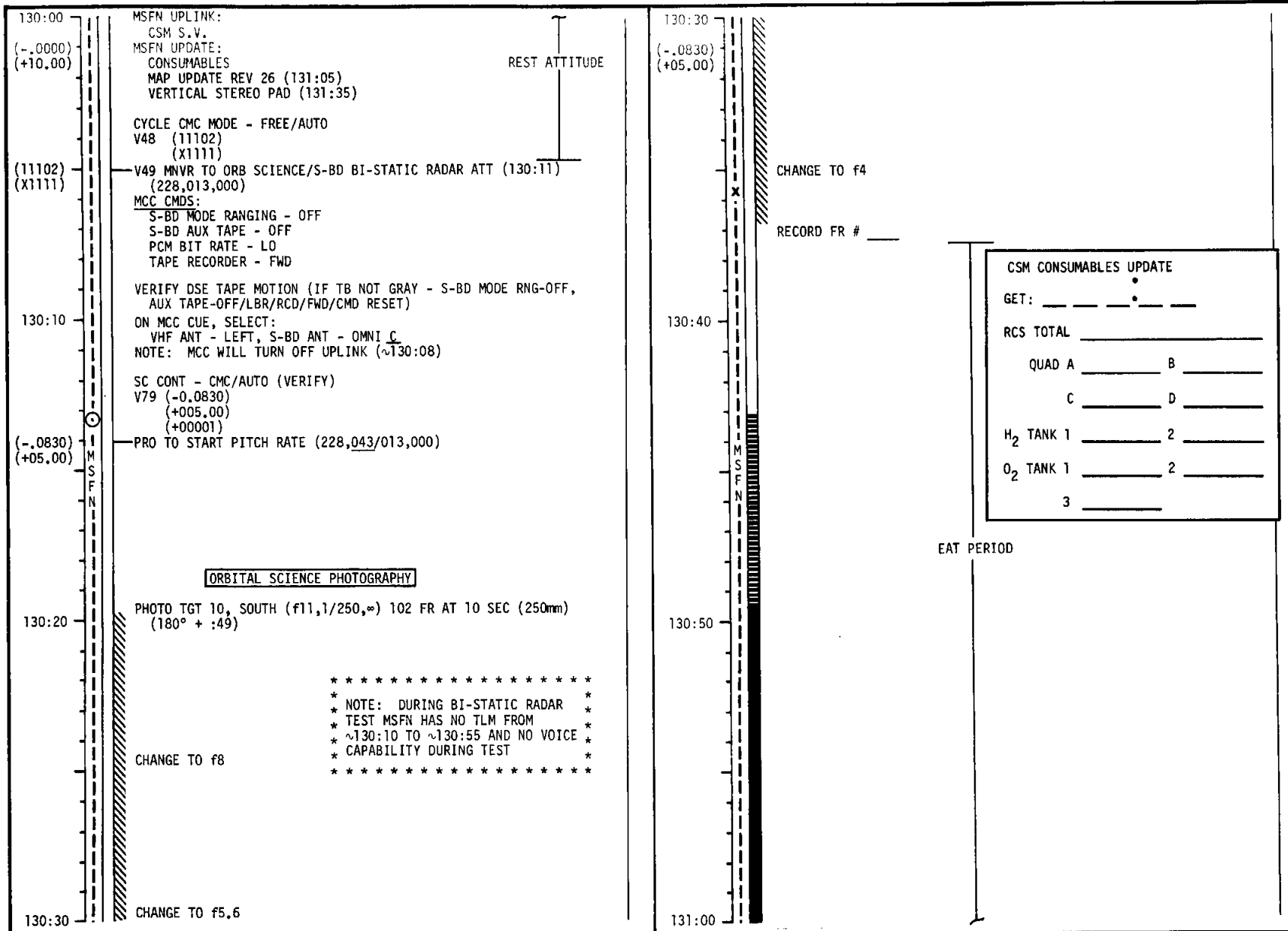
NOTES



DUMP DSE

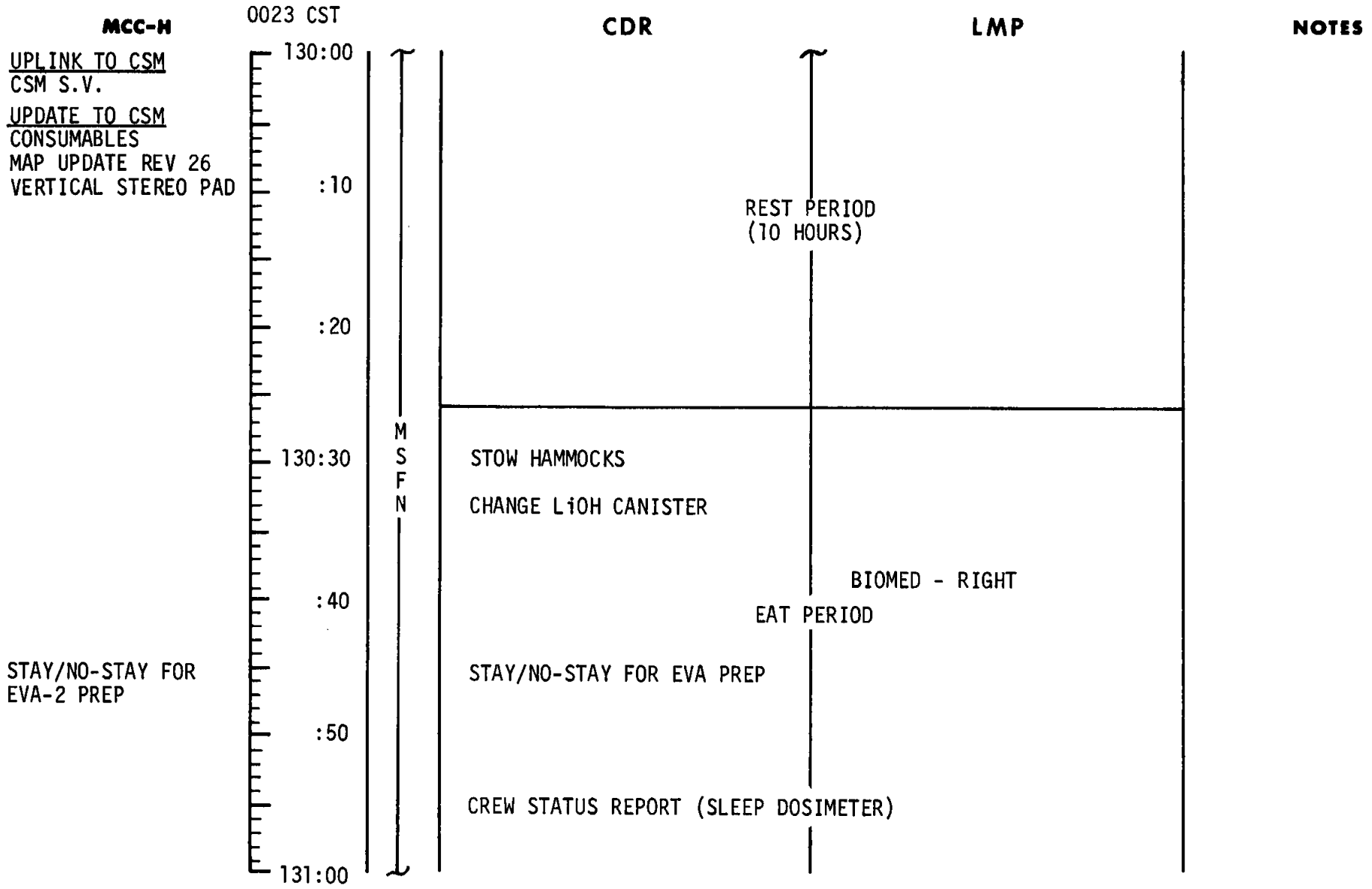
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	129:00 - 130:00	5/24-25	3-173

CSM FLIGHT PLAN



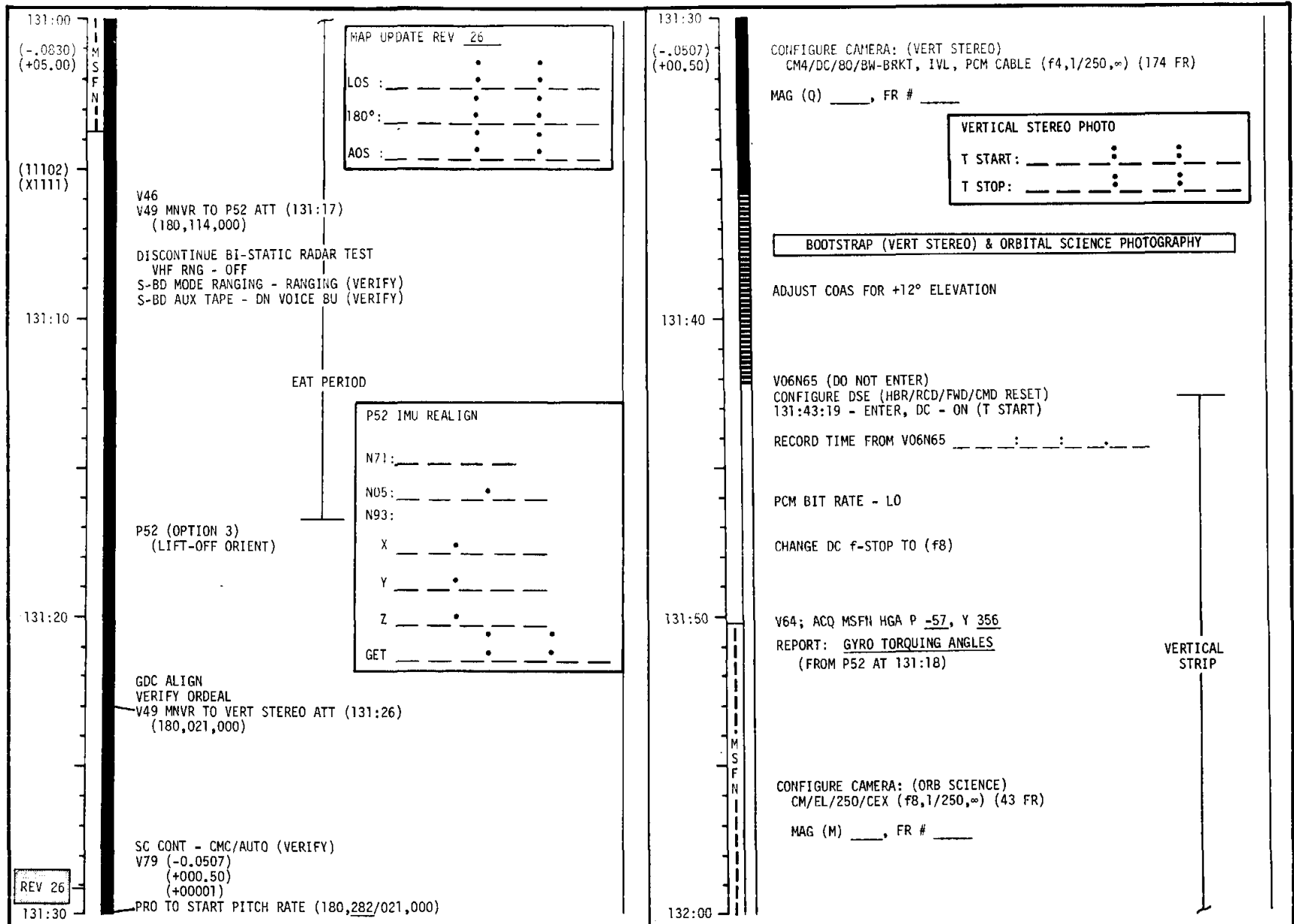
MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-174

LM FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	130:00 - 131:00	6/25	3-175

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-176

PGS 3-177 €

3-178 MISSING

LM FLIGHT PLAN

MCC-H

0223 CST

CDR

LMP

NOTES

132:00
(12102)

:10

:20

132:30

:40

:50

133:00

M
S
F
N

EVA PLANNING PERIOD

CABIN PREP FOR EVA-2

CLEAN AND LUBRICATE SEALS AS REQUIRED
STOW ALL LOOSE ITEMS NOT REQUIRED FOR EVA
UNSTOW EVA-2 PREP & POST CARD
STOW LUNAR SURFACE CHECKLIST

EQUIPMENT PREP FOR EVA-2

SET DET
CDR DON BOOTS
UNSTOW AND CHECK BOTH OPS
VERIFY EQUIPMENT IN ETB AND STOW FOR EVA
LMP DON BOOTS

-1:30

-1:20

UPDATE TO CSM
LTC PHOTO PAD
MAP UPDATE REV 27

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	132:00 - 133:00	6/26	3-179

CSM FLIGHT PLAN

<p>133:00</p> <p>(11101) (X1111)</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">M S F N</p> <p>133:10</p> <p>133:20</p> <p>133:30</p>	<p>DAC - ON AT 24 fps FOR 2 SEC CHANGE TO TIME & 1/60 SEC VERIFY DSE TAPE MOTION (LGR/RCD/FWD/CMD RESET) DIM INTERIOR LIGHTING</p> <p>START PHOTO SEQUENCE: 2 FRAMES, EXP TIME 20 SEC 1 FRAME, EXP TIME 5 SEC</p> <p>VERIFY RATES NOT > 0.2°/SEC IN ANY AXIS IF RATES > 0.2°/SEC, AND TIME PERMITS - DAMP RATES FOR 60 SEC AND REPEAT EXPOSURE SEQUENCE</p> <p>CHANGE TO 24 fps & 1/500, RUN DAC FOR 2 SEC LIGHTS UP, CMC MODE - AUTO, ENABLE ALL QUADS</p> <p>V49 MNVR TO LUNAR LIBRATION ATT (133:20) (180,320,349)</p> <p>CONFIGURE CAMERA: (BOOTSTRAP/ORB SCIENCE) CM3/LTC/MBH/SEF (SHUT 1/50,RNG 1-PAD,INT 8.1)(436 FR)</p> <p>MAG (U) _____, FR # _____</p> <p>LTC INSTALLATION (DECAL) LTC CHECKOUT (DECAL)</p> <div style="border: 1px solid black; padding: 2px; text-align: center; margin: 10px 0;">LUNAR LIBRATION PHOTOGRAPHY</div> <p>INHIBIT - A3,C4,B3,D4 THRUSTERS DAC - ON AT 24 fps FOR 2 SEC, CHANGE TO TIME & 1/60 SEC DIM INTERIOR LIGHTING</p> <p>1 FRAME, EXP TIME 60 SEC 2 FRAMES, EXP TIME 20 SEC 1 FRAME, EXP TIME 5 SEC</p> <p>CHANGE TO 24 fps & 1/500, RUN DAC FOR 2 SEC LIGHTS UP, ENABLE - A3,C4,B3,D4 THRUSTERS REMOVE CAMERA FROM WINDOW</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>MAP UPDATE REV 27</p> <p>LOS : _____</p> <p>180°: _____</p> <p>AOS : _____</p> </div> <p>RECORD MAG % REMOVE CAMERA SHIELD</p>	<p>133:30</p> <p>(11102) (X1111)</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">M S F N</p> <p>133:40</p> <p>133:50</p> <p>134:00</p>	<p>V48 (11102) (X1111)</p> <p>V49 MNVR TO VERT LTC TGT: 2/8 PAD ATT (133:30)</p> <div style="border: 1px solid black; padding: 2px; text-align: center; margin: 10px 0;">BOOTSTRAP (VERT LTC) & ORB SCIENCE PHOTOGRAPHY</div> <p>SC CONT - CMC/AUTO (VERIFY) V79 (-0.0507) (+000.50) (+00001)</p> <p>PRO TO START PITCH RATE AT ORDEAL P 328</p> <p>CONFIGURE DSE (HBR/RCD/FWD/CMD RESET)</p> <p>VERIFY: LTC MODE - STBY/PWR - ON, ZERO DET (T START -1 MIN) LTC TGT 2/8 (SHUT 1/50, RNG 1-PAD, INT 8.1) (424 FR) LTC MODE - AUTO, DET - UP/START (T START)</p> <p>PCM BIT RATE - LO ACQ MSFN OMNI_B</p> <p>CHANGE SHUTTER TO 1/100 SEC</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>LTC PHOTO PAD TGT: 2/8 (180,032,000)</p> <p>R _____ P _____ Y _____</p> <p>T START: _____</p> <p>T STOP : _____</p> <p>RNG 1 _____ (91.0) T START</p> <p>RNG 2 _____ (91.1) T START +21:25</p> <p>RNG 3 _____ (90.9) T START +39:50</p> <p>RNG 4 _____ (91.0) T START +44:10</p> <p>RNG 5 _____ (91.1) T START +47:30</p> </div> <p>V64; ACQ MSFN HGA P -47, Y 357</p>
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REV 27

MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-180

LM FLIGHT PLAN

MCC-H

0323 CST

CDR

LMP

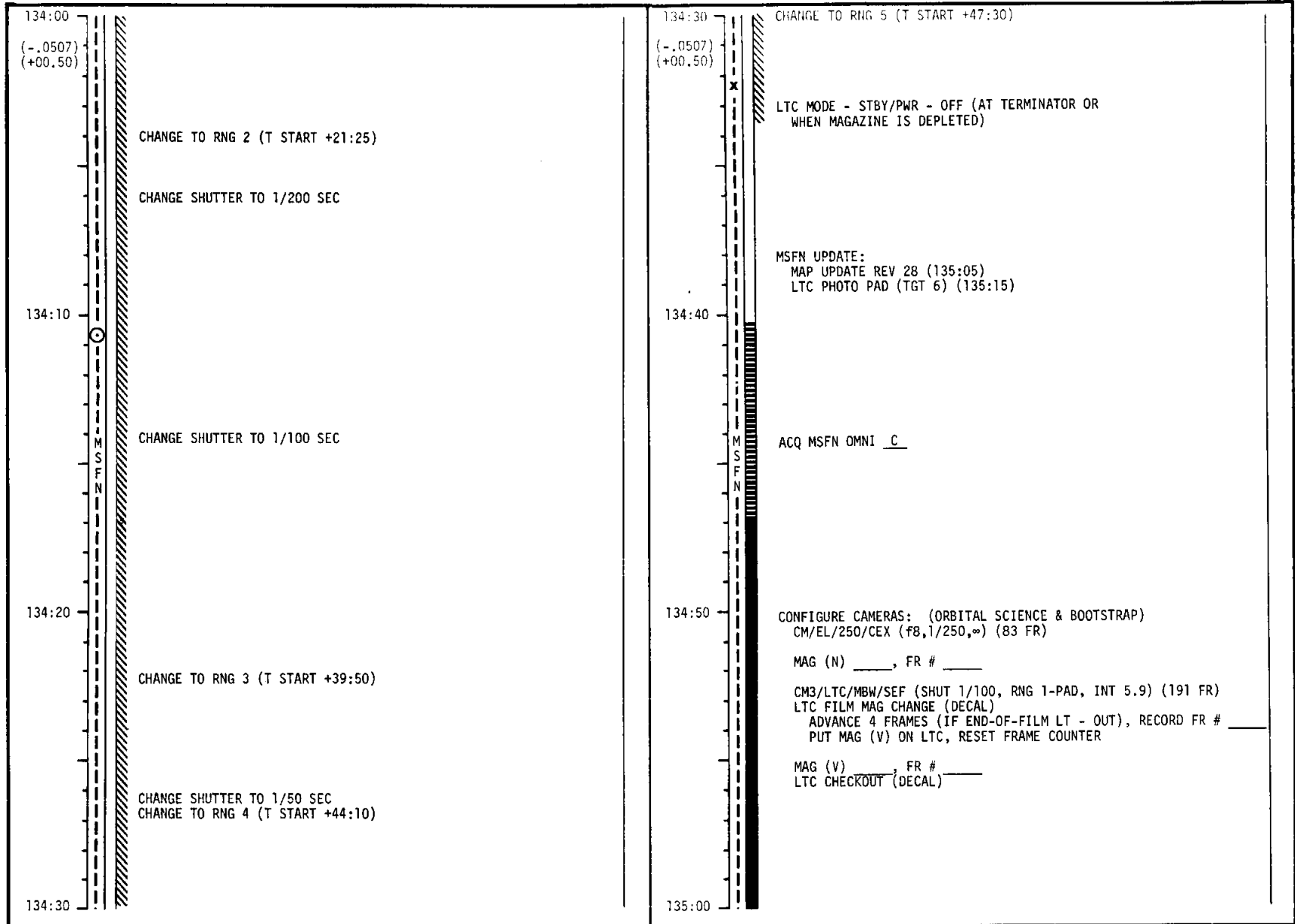
NOTES

<p>133:00 (12102)</p> <p style="text-align: center;">:10</p> <p style="text-align: center;">:20</p> <p style="text-align: center;">133:30</p> <p style="text-align: center;">:40</p> <p style="text-align: center;">:50</p> <p style="text-align: center;">134:00</p>	<p>M S F N</p> <p>T V</p>	<p>PREPARE VISORS & HELMETS FOR EVA UNLOCK FORWARD HATCH HANDLE</p> <hr/> <p><u>PLSS DONNING</u> CONFIGURE LMP PLSS FOR DONNING LMP DON PLSS CONFIGURE CDR PLSS FOR DONNING CDR DON PLSS UNSTOW RCU'S AND VERIFY CONFIGURATION CONNECT RCU TO PLSS</p> <hr/> <p><u>PLSS COMM CHECK</u> FM VOICE CHECK (TV ON) CONFIGURE FOR EVA COMM, BIOMED-OFF RECORDER - ON VERIFY PLSS COMM & TM</p> <hr/> <p>FINAL SYSTEMS PREP</p> <hr/> <p><u>OPS CONNECT</u> LMP UNSTOW OPS AND CONNECT TO RCU & PLSS CDR UNSTOW OPS AND CONNECT TO RCU & PLSS VERIFY ITEMS PREPARED FOR JETTISON</p> <hr/> <p><u>HELMET/GLOVE DONNING</u> DON HELMETS & LEVA'S STOW LM HOSES</p>	<p>-1:10</p> <p>-1:00</p> <p>-0:05</p> <p>-0:40</p> <p>-0:30</p> <p>-0:20</p>
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DUMP DSE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	133:00 - 134:00	6/26-27	3-181

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-182

LM FLIGHT PLAN

MCC-H

0423 CST

CDR

LMP

NOTES

134:00
(12102)

:10

:20

134:30

:40

:50

135:00

M
S
T
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V
N

VERIFY PGA CONFIGURATION
VERIFY CB CONFIGURATION FOR EVA
DON GLOVES

-0:10

PRESSURE INTEGRITY CHECK
PLSS O₂ - ON

CABIN DEPRESS
DEPRESS CABIN TO 3.5 PSIA, START EVA WATCH
OVHD OR FWD DUMP VALVE - OPEN
PARTIALLY OPEN FWD HATCH

0:00 START EVA

FINAL PREP FOR EGRESS
PLSS FEEDWATER - OPEN, FWD HATCH - OPEN
VERIFY CWEA & PGA STATUS
RELEASE PLSS ANTENNAS, LOWER VISOR

0:10

CDR EGRESS AND TRANSFER

DESCEND TO SURFACE
DEPLOY LEC
TRANSFER ETB TO SURFACE AND
STOW ON MESA

RECEIVE AND HOOK UP LEC
LOAD ETB FOR TRANSFER

0:20

MET LOAD

MOVE MET NEAR MESA
OPEN SRC AND STOW EQUIPMENT
ON MET

LMP EGRESS
CLOSE HATCH AND DESCEND

MET LOAD ASSIST
STOW CAMERAS AND TOOLS ON
MET. PULL MET TO SEQ BAY

0:30

MAGNETOMETER OFFLOAD
MET TRACK & FOOTPRINT EVAL

MAGNETOMETER OFFLOAD,
STOW ON MET

TRAVERSE TO STATION A
PHOTOGRAPH AND COMMENT ON
MET TRACKS

TRAVERSE TO STATION A

0:40

STATION A
TDS EXPERIMENT

STATION A
LMP POINT MEASUREMENT

UPDATE TO CSM
LTC PHOTO PAD
MAP UPDATE REV 28

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	134:00 - 135:00	6/27	3-183

CSM FLIGHT PLAN

135:00
 (-.0507)
 (+00.50)

135:10

135:20
 (11101)
 (X1111)

135:30

VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

MAP UPDATE REV 28	
LOS : _____	_____
180°: _____	_____
AOS : _____	_____

LTC PHOTO PAD TGT: 6 (180,013,000)		
R _____	P _____	Y _____
T START: _____	_____	_____
T STOP : _____	_____	_____
RNG 1 _____ (93.3) T START		
RNG 2 _____ (93.1) T START +4:50		
RNG 3 _____ (93.2) T START +12:00		
RNG 4 _____ (93.3) T START +19:40		

V48 (11101)
 (X1111)
 V49 MNVR TO OBLIQUE LTC TGT: 6 PAD ATT (135:33)

REV 28

135:30
 (11101)
 (X1111)

135:40

135:50

136:00

SC CONT - CMC/AUTO (VERIFY)
 V79 (-0.0507)
 (+000.50)
 (+00001)

PRO TO START PITCH RATE AT ORDEAL P 298

BOOTSTRAP (OBLIQUE LTC) & ORB SCIENCE PHOTOGRAPHY

PHOTO TGT 3, NORTH (f8,1/250,∞) 10 FR AT 20 SEC (250mm)
 (180° +0:18)

V64; ACQ MSFN HGA P -45, Y 356

PHOTO TGT 4, SOUTH (f8,1/250,∞) 73 FR AT 10 SEC (250mm)
 (180° +0:30)

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-184

LM FLIGHT PLAN

MCC-H

0523 CST

CDR

LMP

NOTES

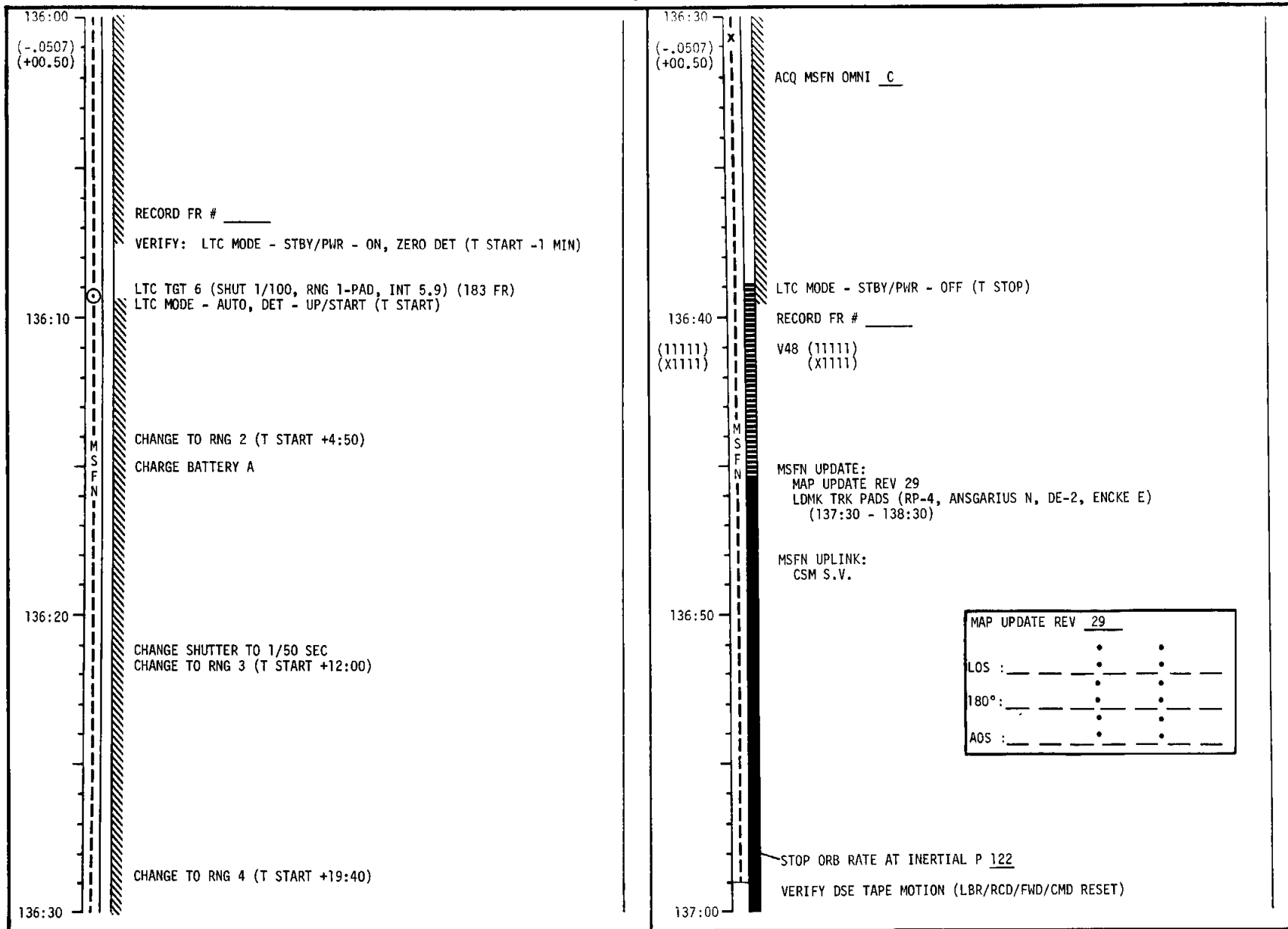
135:00 (12102)	M S T F V N	REBAG AND STOW TDS SAMPLES PHOTO PANORAMA SITE DESCRIPTION COLLECT SAMPLES	REPORT X,Y,Z READINGS AT EACH OF THREE POSITIONS PHOTOGRAPH SITE	0:50
:10			STOW SENSOR/TRIPOD ON MET REWIND CABLE, STOW ON MET	1:00
:20		DOUBLE CORE PLACE GNOMON HAMMER TUBES INTO SURFACE STOW HAMMER & GNOMON	DOUBLE CORE ASSEMBLE TUBES PHOTOGRAPH TUBES IN SURFACE REMOVE AND STOW TUBES	
		TRAVERSE TO STATION B		1:10
135:30		STATION B SAMPLE COLLECTION	STATION B PHOTO PANORAMA SITE DESCRIPTION SAMPLE COLLECTION	
		TRAVERSE TO BEND AREA		1:20
		BEND AREA: PHOTO PANORAMA AND SITE DESCRIPTION		
:40		TRAVERSE TO CONE CRATER VIA STATION D REST EN ROUTE		1:30
:50		CONE CRATER RIM SITE DESCRIPTION SAMPLE COLLECTION PROCEED TO SOUTH RIM	CONE CRATER RIM PHOTO PANORAMA SAMPLE COLLECTION PROCEED TO SOUTH RIM	1:40
136:00				

DUMP DSE

GO/NO-GO FOR EVA-2
EXTENSION

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	135:00 - 136:00	6/27-28	3-185

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-186

LM FLIGHT PLAN

MCC-H

0623 CST

CDR

LMP

NOTES

136:00 (12102)		SAMPLE COLLECTION	SAMPLE COLLECTION	
		SAMPLE BOULDER TRACKS	SAMPLE BOULDER TRACKS	1:50
:10		ROLL BOULDERS INTO CRATER		
		EVA COMM EVALUATION	PARTIAL PANORAMA TO WEST	2:00
:20		SITE DESCRIPTION	PHOTO PANORAMA	
		<u>TRAVERSE TO STATION D</u>		2:10
		SAMPLE COLLECTION		
136:30		<u>STATION D</u>	<u>STATION D</u>	
		SITE DESCRIPTION SAMPLE COLLECTION	PHOTO PANORAMA SAMPLE COLLECTION	2:20
:40		TRAVERSE TO STATION E		
		REST EN ROUTE		2:30
:50		<u>STATION E</u>	<u>STATION E</u>	
		DIG TRENCH 10° OFF DOWNSUN	LPM MEASUREMENT (SINGLE)	2:40
137:00		PHOTOGRAPH TRENCH		

M
S
T
V
N

UPDATE TO CSM
MAP UPDATE REV 29
LDMK TRACK PADS
UPLINK TO CSM
CSM S.V.

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	136:00 - 137:00	6/28	3-187

CSM FLIGHT PLAN

137:00
 (11111)
 (X1111)

 (11101)
 (X1111)
 137:10

 137:20

 REV 29

 137:30

P52 (OPTION 3)
 (LIFT-OFF ORIENT)

GDC ALIGN
 VERIFY ORDEAL

CYCLE CMC MODE - FREE/AUTO
 V48 (11101)
 (X1111)

V49 MNVR TO LDMK TRK ATT (137:30)
 (000,053,000)

CONFIGURE CAMERA (LDMK TRK)
 CM/DAC/SXT/CEX (EXP - PAD) 1 fps (15.2% MAG)

MAG (B) _____, MAG % _____
 UTILITY POWER - ON

LTC REMOVAL (DECAL) & STOW

P52 IMJ REALIGN

N71: _____

N05: _____ • _____

N93: _____

X _____ • _____

Y _____ • _____

Z _____ • _____

GET _____ • _____

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-188

LM FLIGHT PLAN

MCC-H

0723 CST

CDR

LMP

NOTES

137:00 (12102)	M S T F V N	MAKE BOOTPRINT IN FILL SPECIAL ENVIRONMENTAL SAMPLE SAMPLE TRENCH INTERIOR	PHOTOGRAPH TRENCH SPECIAL ENVIRONMENTAL SAMPLE SAMPLE TRENCH INTERIOR	2:50
:05		TRAVERSE TO STATION F		3:00
:10		STATION F SITE DESCRIPTION SAMPLE COLLECTION	STATION F PHOTO PANORAMA SAMPLE COLLECTION	3:10
:20		TRIPLE CORE SAMPLE	TRIPLE CORE SAMPLE	
:25				
137:30				

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	137:00 - 137:30	6/28-29	3-189

CSM FLIGHT PLAN

137:30
 (11101)
 (X1111)
 P24 (RP-4)
 OPT ZERO - OFF, OPT MODE - CMC
 SC CONT - CMC/AUTO
 V79 (N16 LOAD ALL ZERO'S)
 (-0.0507)
 (+000.50)
 (+00001)
 (-.0507) — PRO TO START PITCH RATE (000,338/053,000)
 (+00.50)

0:00 - T1 (HORIZON) DET - ZERO/UP/START

137:40

3:50 - DAC - ON
 4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA
 7:18 - T3 (LDMK LOSS) DAC - OFF

ACQ MSFN OMNI D

P24 (ANSGARIUS N)
 V79E, PRO, PRO
 OPT ZERO - OFF, OPT MODE - CMC

137:50

0:00 - T1 (HORIZON) DET - ZERO/UP/START

MSFN

3:50 - DAC - ON
 4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA
 7:18 - T3 (LDMK LOSS) DAC - OFF

138:00

P24 LDMK TRACKING (1/125)
 TGT: RP-4

T₁ ———— · ———— · ————
 T₂ ———— · ———— · ————
 TCA ———— · ———— · ————
 T₃ ———— · ———— · ————
 R ———— °P ———— °Y ———— ° (T2 ACQ)

N or S NM — / SA — TA — (T2 ACQ)

N89
 LAT -05.850
 LONG/2 +60.125
 ALT +000.00

P24 LDMK TRACKING (1/250)
 TGT: ANSGARIUS N

T₁ ———— · ———— · ————
 T₂ ———— · ———— · ————
 TCA ———— · ———— · ————
 T₃ ———— · ———— · ————
 R ———— °P ———— °Y ———— ° (T2 ACQ)

N or S NM — / SA — TA — (T2 ACQ)

N89
 LAT -11.633
 LONG/2 +40.533
 ALT +000.00

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-190

LM FLIGHT PLAN

MCC-H

0753 CST

CDR

LMP

NOTES

137:30 (12102)					
:35	M S T F V N	TRAVERSE TO STATION G	3:20		
:40		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"><u>STATION G</u> SITE DESCRIPTION SAMPLE COLLECTION</td> <td style="width: 50%;"><u>STATION G</u> PHOTO PANORAMA SAMPLE COLLECTION</td> </tr> </table>	<u>STATION G</u> SITE DESCRIPTION SAMPLE COLLECTION	<u>STATION G</u> PHOTO PANORAMA SAMPLE COLLECTION	
<u>STATION G</u> SITE DESCRIPTION SAMPLE COLLECTION	<u>STATION G</u> PHOTO PANORAMA SAMPLE COLLECTION				
137:45		TRAVERSE TO LM	3:30		
:50		<u>AT LM</u> CONTAMINATED SAMPLE COLLECTION			
:55		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"><u>EVA CLOSEOUT</u> STOW CAMERA FILM</td> <td style="width: 50%;"><u>EVA CLOSEOUT</u> STOW CAMERA FILM</td> </tr> </table>	<u>EVA CLOSEOUT</u> STOW CAMERA FILM	<u>EVA CLOSEOUT</u> STOW CAMERA FILM	3:40
<u>EVA CLOSEOUT</u> STOW CAMERA FILM	<u>EVA CLOSEOUT</u> STOW CAMERA FILM				
138:00		STOW DOCUMENTED SAMPLES			

RECORD PCM LBR
ON DSE DURING P24's

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	137:30 - 138:00	6/29	3-191

CSM FLIGHT PLAN

138:00
 (-.0507)
 (+00.50)

P24 (DE-2)
 V79E, PRO, PRO
 OPT ZERO - OFF, OPT MODE - CMC

138:10

0:00 - T1 (HORIZON) DET - ZERO/UP/START

3:50 - DAC - ON

4:50 - T2 (LDMK ACQ) OPT MODE - MAN, TAKE MARKS 10 SEC APART

6:30 - TCA

7:18 - T3 (LDMK LOSS) DAC - OFF

138:20

P24 (ENCKE E)
 V79E, PRO, PRO
 OPT ZERO - OFF, OPT MODE - CMC

REPORT: GYRO TORQUING ANGLES
 (FROM P52 AT 137:00)

138:30

P24 LDMK TRACKING (1/250)

TGT: **DE-2**

T₁ _____ · _____ · _____

T₂ _____ · _____ · _____

TCA _____ · _____ · _____

T₃ _____ · _____ · _____

R _____ °P _____ °Y _____ ° (T2 ACQ)

N or S NM _____ / SA _____ TA _____ (T2 ACQ)

N89

LAT -09.250

LONG/2 +09.796

ALT +000.00

P24 LDMK TRACKING (1/60)

TGT: **ENCKE E**

T₁ _____ · _____ · _____

T₂ _____ · _____ · _____

TCA _____ · _____ · _____

T₃ _____ · _____ · _____

R _____ °P _____ °Y _____ ° (T2 ACQ)

N or S NM _____ / SA _____ TA _____ (T2 ACQ)

N89

LAT +00.283

LONG/2 -20.150

ALT +000.00

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-192

LM FLIGHT PLAN

MCC-H

0823 CST

CDR

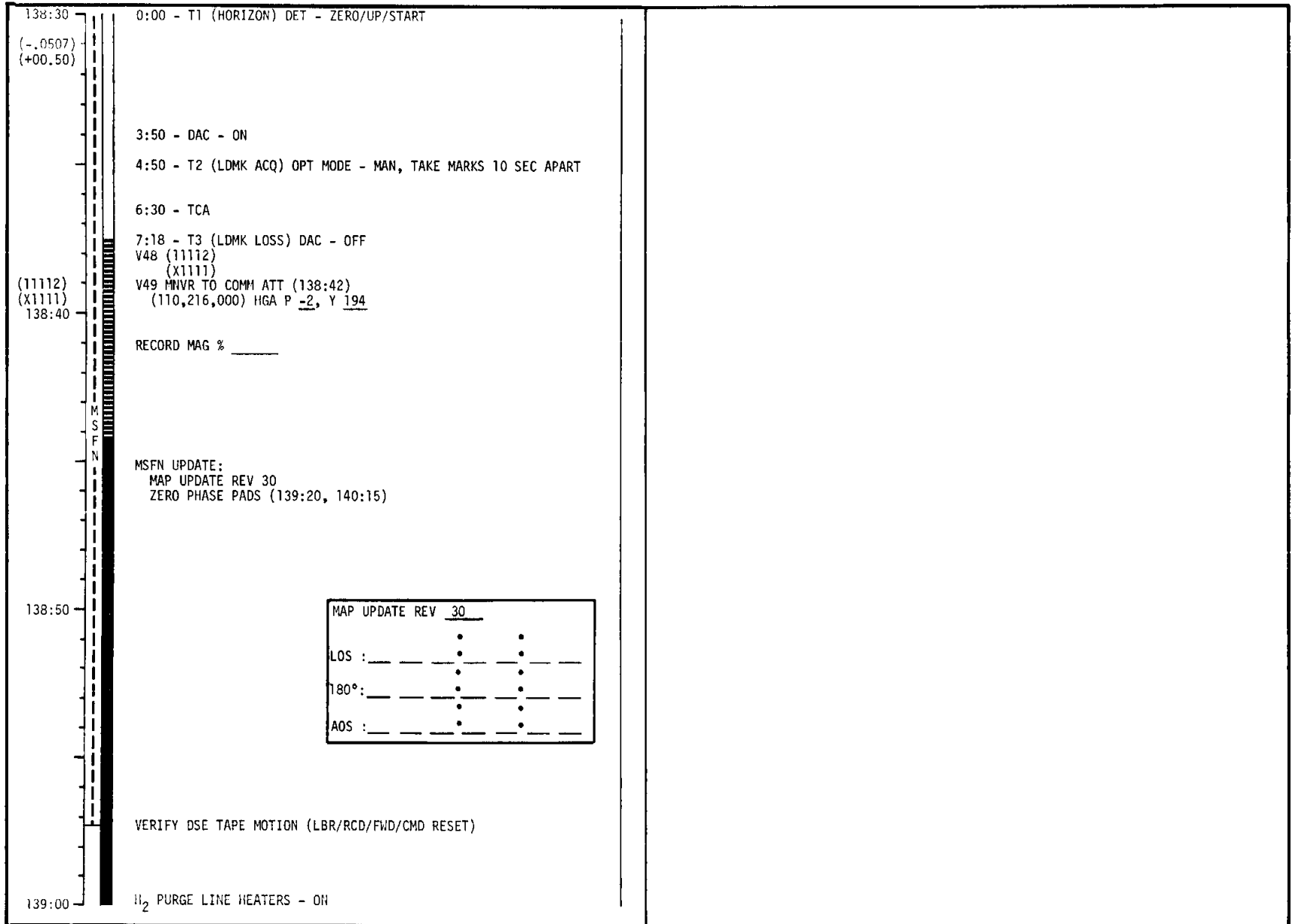
LMP

NOTES

138:00 (12102)			RETRIEVE AND STOW SWC FOIL	
:05		PACK AND SEAL SRC STOW WEIGH BAGS IN ETB CLEAN AND CHECK EMU'S	ASSIST CDR	3:50
:10		HAND SRC TO LMP TRANSFER ETB VIA LEC	<u>EVA TERMINATION</u> CLEAN EMU'S ASCEND TO MIDDLE LADDER RUNG RIG LEC FOR ETB AND TRANSFER	
138:15	M S T F V N		INGRESS TRACKING LIGHT TEST PLACE ETB ON ASC ENG COVER CHECK EMU & LM SYSTEMS	4:00
:20		<u>EVA TERMINATION</u> ASCEND TO PLATFORM DISCARD LEC	PASS LEC TO CDR STOW SRC ON ASC ENG COVER ASSIST CDR	
:25		INGRESS	CLOSE HATCH	4:10
138:30		REPRESSURIZE CABIN		4:15/0:00

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	138:00 - 138:30	6/29	3-193

CSM FLIGHT PLAN



MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-194

LM FLIGHT PLAN

MCC-H

0853 CST

CDR

LMP

NOTES

138:30
(12102)

:35

:40

138:45

:50

:55

139:00

M
S
T
F
V
N

POST-EVA SYSTEMS CONFIGURATION
CONFIGURE LM ECS, DOFF GLOVES

CONNECT LM ECS HOSES TO SUIT

CONNECT TO LM COMM AND RECONFIGURE
BIOMED - LEFT, RECORDER - OFF

PLSS/OPS DOFFING

DISCONNECT OPS & RCU FROM PLSS

DISCONNECT AND DOFF PLSS/OPS (LMP FIRST)

CDR, THEN LMP, DISASSEMBLE PLSS/OPS
CHECKOUT AND STOW OPS

VERIFY POWER DOWN CB CONFIGURATION

PREP FOR EQUIPMENT JETTISON

DOFF LUNAR BOOTS, STOW IN DISPOSABLE CONTAINER

STOW RCU'S IN DISPOSABLE CONTAINER

STOW PLSS CONDENSATE CONTAINER IN DISPOSABLE CONTAINER

4:15/0:00

0:10

0:20

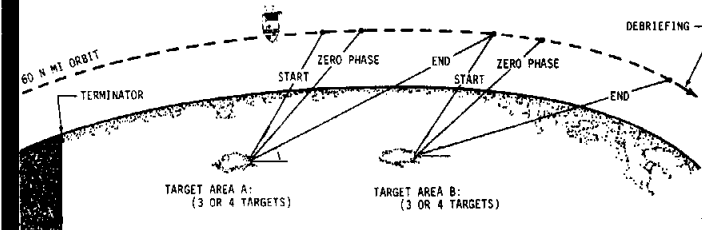
0:30

DUMP DSE

UPDATE TO CSM
MAP UPDATE REV 30
ZERO PHASE PADS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	138:30 - 139:00	6/29	3-195

CSM FLIGHT PLAN

<p>139:00 (-.0507) (+00.50)</p> <p>139:10</p> <p>(11101) (X1111)</p> <p>139:20</p> <p>REV 30</p> <p>139:30</p>	<p>CONFIGURE CAMERA: (ZERO PHASE) CM3/DC/80/MBW-BRKT, IVL, PCM CABLE (f5.6,1/250,∞) (41 FR) MAG (R) _____, FR # _____</p> <p>RR XPNDR ACTIVATION AND SELF-TEST (DECAL)</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> <p style="text-align: center;">ZERO PHASE PAD (BACKWARD)</p> <p style="text-align: center;">R °P °Y °</p> <p style="text-align: center;">T START: _____</p> <p style="text-align: center;">START DET AT 1ST TGT AREA ACQ -5 MIN</p> </div> <p>V48 (11101) (X1111) V49 MNVR TO ZERO PHASE TGT 5 & 6 ATT (139:30) (196.1,341.6,359.3)</p> <p>H₂ & O₂ FUEL CELL PURGE WASTE WATER DUMP H₂ PURGE LINE HEATERS - OFF TYPICAL ZERO PHASE OBSERVATION PASS-BACKWARD LOOKING</p> 	<p>139:30</p> <p>(11101) (X1111)</p> <p>(-.0507) (+00.50)</p> <p>139:40</p> <p>139:50</p> <p>M S F N</p> <p>140:00</p>	<p>SC CONT - CMC/AUTO (VERIFY) V79 (-.0507) (+000.50) (+00001) PRO TO START PITCH RATE (196.1,268/341.6,359.3)</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> <p style="text-align: center;">ZERO PHASE OBSERVATIONS - BACKWARD LOOKING</p> </div> <p>139:40:12 - DET - ZERO/UP/START (T START) REVIEW TGT 5 & 6 MAPS</p> <p>ACQ MSFN HGA P <u>-68</u>, Y <u>34</u></p> <p>5:00 - DC - ON, START OBSERVATIONS (TGT AREA 5)</p> <p>6:40 - ZERO PHASE POINT (TGT AREA 5)</p> <p>8:06 - STOP OBSERVATIONS START OBSERVATIONS (TGT AREA 6)</p> <p>8:46 - ZERO PHASE POINT (TGT AREA 6)</p> <p>11:48 - STOP OBSERVATIONS DEBRIEF (~ 30 SEC)</p> <p>12:18 - DC - OFF</p> <p>CONFIGURE CAMERA: (ORBITAL SCIENCE) CM/EL/250/CEX (f11,1/250,∞) (31 FR) CM/EL/250/CEX (f8, 1/250, ∞) (31 FR) MAG (N) _____, FR # _____</p> <p>V48 (11102) (X1111)</p>
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MISSION	EDITION	DATE	PAGE
APOLLO 14	Chg CHANGE A (JAN)	DECEMBER 20, 1970 Jan 18, 1971	3-196

LM FLIGHT PLAN

MCC-H

0923 CST

CDR

LMP

NOTES

139:00 (12102)		REMOVE AND STOW ARMREST IN DISPOSABLE CONTAINER POSITION PLSS'S FOR JETTISON DON EV GLOVES	0:30
:10		PRESSURE INTEGRITY CHECK	0:40
		CABIN DEPRESS FOR JETTISON	
		OPEN HATCH, JETTISON DISPOSABLE CONTAINER AND PLSS'S CLOSE HATCH	
:20		DUMP VALVES - AUTO REPRESSURIZE CABIN	0:50
		<u>POST-EVA CABIN CLEANUP</u>	
		SECURE OPS ON CABIN FLOOR	
139:30	M S T F V N	STOW EQUIPMENT FOR RETURN	1:00
		WEIGH SRC, ISA, & WEIGH BAGS, REPORT TO MCC-H	
		STOW SCALE & SRC	
:40		STOW LM EVA ANTENNA	1:10
		INSTALL ISA IN AFT CABIN	
		STOW EVA ONBOARD DATA IN FLIGHT DATA FILE	
:50			1:20
140:00			1:30

DUMP DSE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	139:00 - 140:00	6/29-30	3-197

CSM FLIGHT PLAN

140:00 (11102) (X11111) V49 MNVR TO ZERO PHASE TGT 7 & 8 ATT (140:06) (347.0,222.4,358.7) OMNI D

f8

PHOTO TGT 7, NORTH (~~180~~, 1/250,∞) 31 FR AT 10 SEC (250mm) (180° + 1:15)

140:10

SC CONT - CMC/AUTO (VERIFY)
V79 (-0.0507) (+000.50) (+00001)

M
S
F
N
PRO TO START PITCH RATE (347.0, 276/222.4, 358.7)

ZERO PHASE OBSERVATIONS - FORWARD LOOKING

140:17:24 - DET - ZERO/UP/START (T START)
REVIEW TGT 7 & 8 MAPS

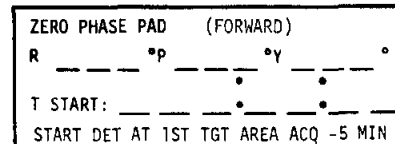
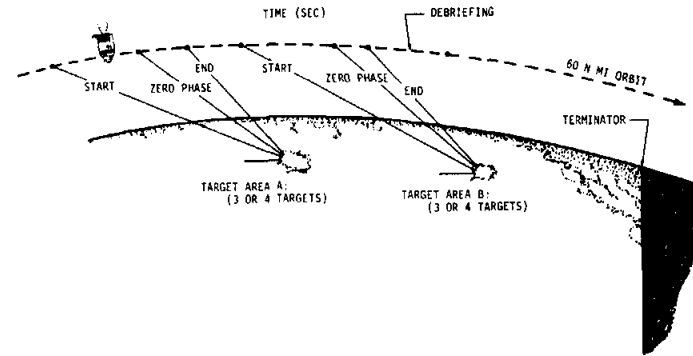
140:20

5:00 - DC-ON, START OBSERVATIONS (TGT AREA 7)

8:40 - ZERO PHASE POINT (TGT AREA 7)
9:00 - STOP OBSERVATIONS
START OBSERVATIONS (TGT AREA 8)
9:56 - ZERO PHASE POINT (TGT AREA 8)
10:38 - STOP OBSERVATIONS
DEBRIEF (~ 30 SEC)
11:08 - DC-OFF, REMOVE CAMERA FROM WINDOW

140:30 RECORD FR # _____

TYPICAL ZERO PHASE OBSERVATION PASS - FORWARD LOOKING



MISSION	EDITION	DATE	PAGE
APOLLO 14	<i>Chy</i> FINAL (JAN)	DECEMBER 2, 1970	3-198

Jan 18, 1971

LM FLIGHT PLAN

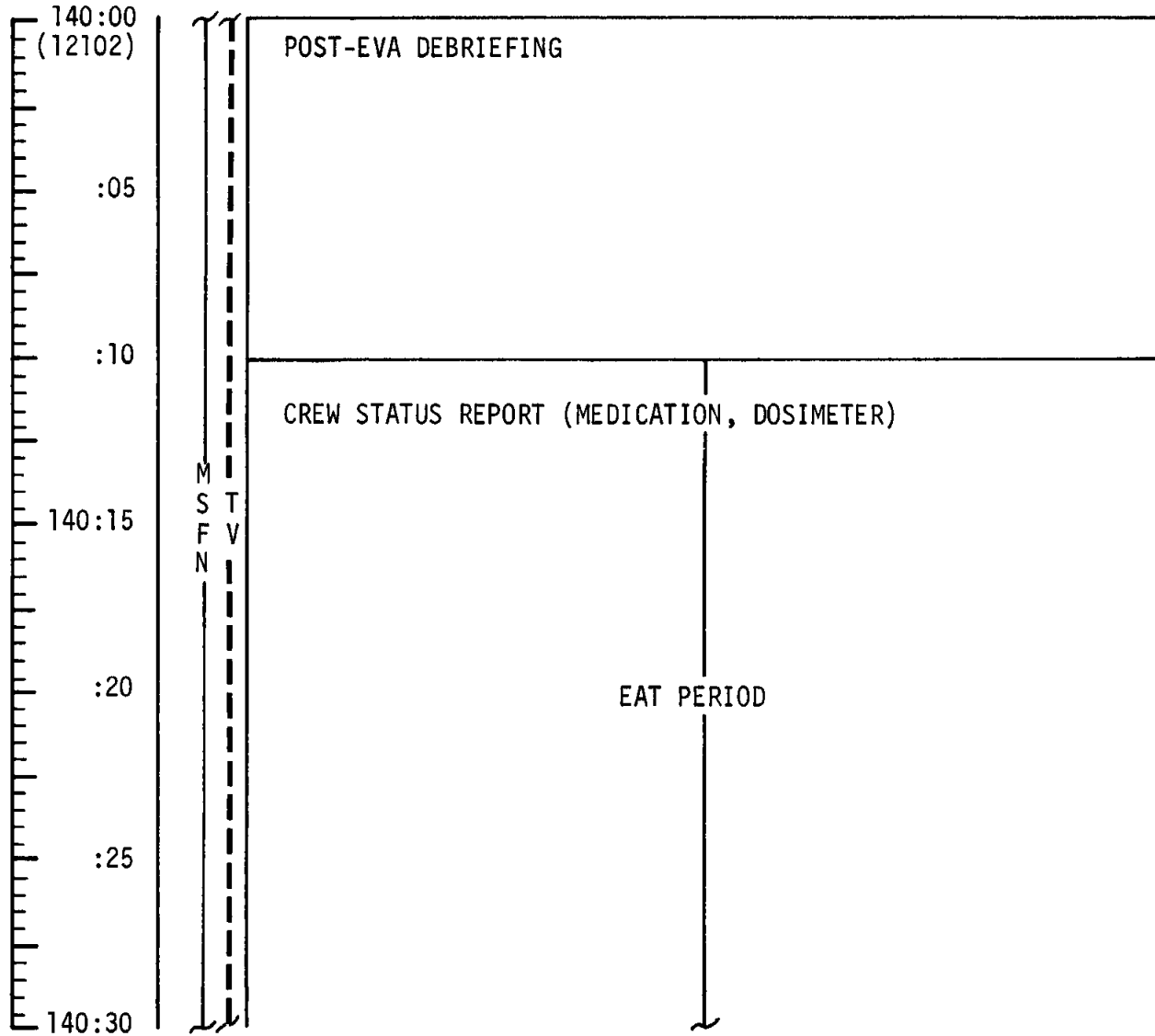
1023 CST

MCC-H

CDR

LMP

NOTES



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	140:00 - 140:30	6/30	3-199

CSM FLIGHT PLAN

140:30
(11112)
(X1111)

V48 (11112)
(X1111)

V49 MNVR TO P52 COAS CALIB ATT (140:38)
(180,254,348)

V64; ACQ MSFN HGA P -52, Y 173
MSFN UPLINK:
LM S.V. (INS + 18)
CSM S.V. (L/O)
RESET SURFACE FLAG

140:40
M
S
F
N

MSFN UPDATE:
CONSUMABLES (IF REQ'D)
MAP UPDATE REV 31
CSM S.V. (L/O) COPY AT 141:15

MSFN UPDATE TO LM WITH CSM COPY:
ASCENT PADS AND CSM WEIGHT COPY AT 142:10

P52 (OPTION 3)
(LIFT-OFF ORIENT)
REPORT: GYRO TORQUING ANGLES

140:50

P52 (COAS CALIB)
USE STAR NO. 22

141:00

VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)
MSFN ENABLES MSFN S-BAND RELAY

CSM CONSUMABLES UPDATE

GET:

RCS TOTAL _____

QUAD A _____ B _____

 C _____ D _____

H₂ TANK 1 _____ 2 _____

O₂ TANK 1 _____ 2 _____

 3 _____

P52(IMU REALIGN)

N71: _____

N05: _____ . . .

N93: _____

X

Y

Z

GET _____

COAS CALIB - N92

SHAFT: _____

TRUN:

MAP UPDATE REV 31

LOS : _____

180°: _____

AOS : _____

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-200

LM FLIGHT PLAN

MCC-H

1053 CST

CDR

LMP

NOTES

UPLINK TO CSM
LM S.V. (INS +18)
CSM S.V. (L/O)
RESET SURFACE FLAG

:35

UPDATE TO CSM
CONSUMABLES
(IF REQ'D)
MAP UPDATE REV 31
CSM S.V. (L/O)

:40

UPDATE TO CSM
ASCENT PADS
CSM WEIGHT
UPDATE TO LM
LM CONSUMABLES

140:45

ASCENT PADS
CSI PAD
UPLINK TO LM
CSM S.V. (L/O)
ZERO POS/NEG CELLS

:50

:55

ENABLE MSFN
S-BD RELAY

141:00

M
S
T
F
V
N

EAT PERIOD

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	140:30 - 141:00	6/30	3-201

CSM FLIGHT PLAN

141:00
(11112)
(X1111)

CONFIGURE CAMERAS FOR DOCKING:

CM2/DAC/18/CEX-BRKT,MIR (T8,1/250,7) 6 fps (100% MAG)

MAG (D) _____, MAG % _____
UTILITY PWR - ON

CM/EL/80/CEX (f8,1/250,FOCUS) (10 FR)

MAG (N) _____, FR # _____

CM4/TV/PEAK, BRKT
(f44) 11 MIN

141:10



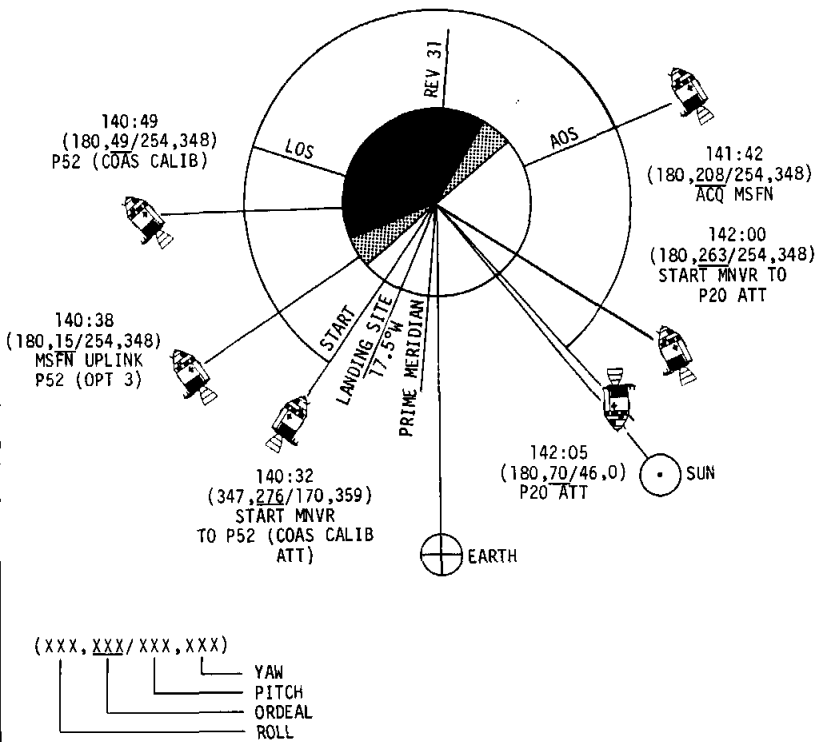
EAT PERIOD

141:20

REV 31

141:30

CSM S.V. (L/O)		P27 UPDATE	
PURP		V	V
GET		:	:
304 01	INDEX		INDEX
02			
03			
04			
05			
06			
07			
10			
11			
12			
13			
14			
15			
16			
17			
20			
21			
22			
23			
24			



LM FLIGHT PLAN

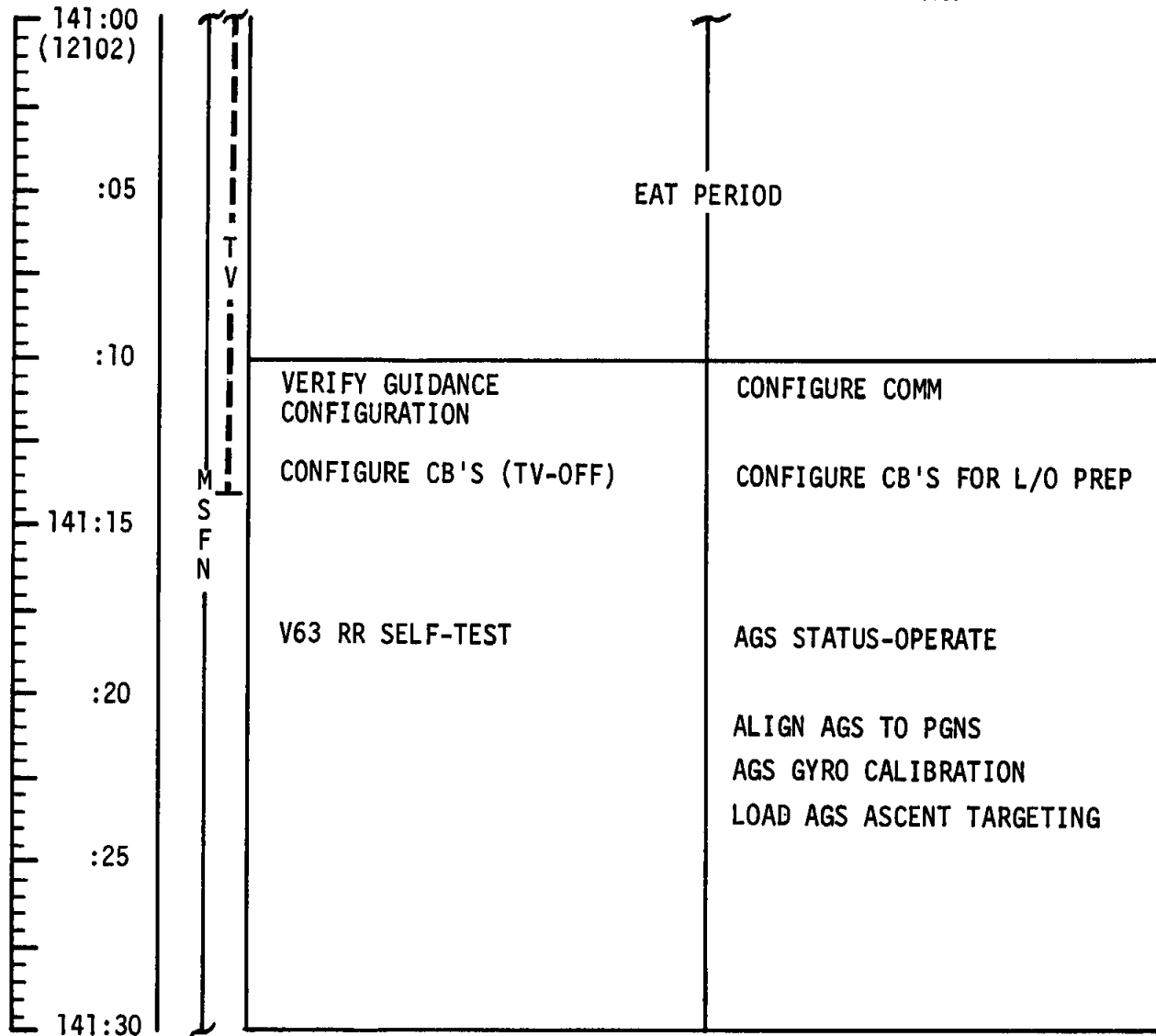
MCC-H

1123 CST

CDR

LMP

NOTES



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	141:00 - 141:30	6/30-31	3-203

CSM FLIGHT PLAN

141:30
(11112)
(X1111)

141:40

141:50
M
S
F
N

142:00

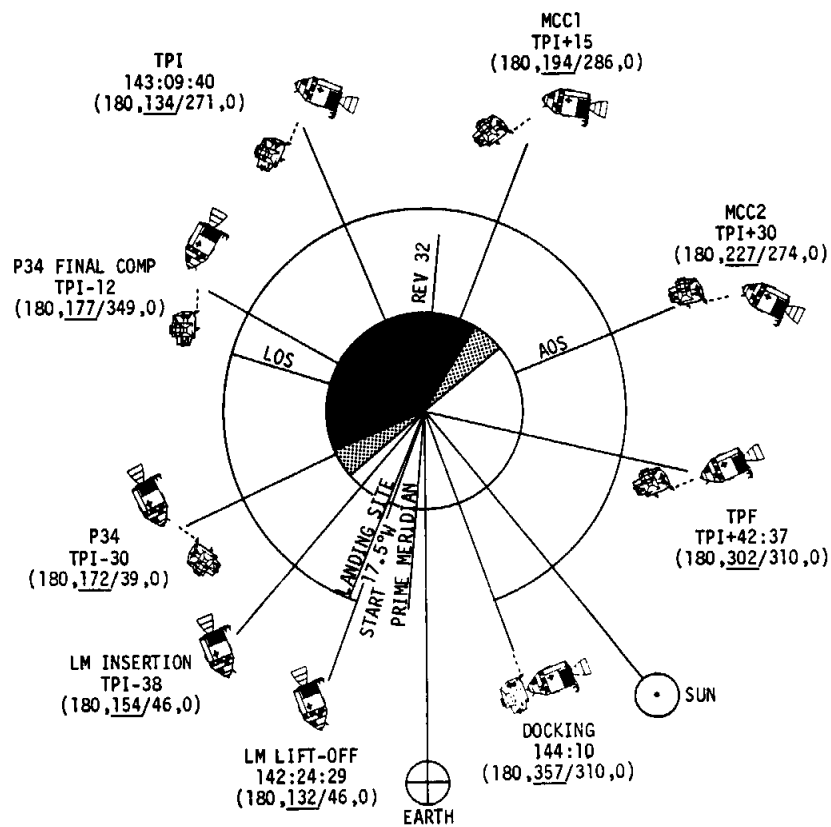
DON PGA WITHOUT HELMET AND GLOVES

UNSTOW JETTISON BAG (R13)
PACK JETTISON ITEMS
INSTALL CABIN FAN LUNAR DUST FILTER (PGA BAG)
INSTALL SPRINGS AND CLIPS ON A8, A6, A3, AND PNL 350
INSTALL TEMP STOWAGE BAGS ON LH AND RH SIDES OF LEB
REMOVE B5 AND B6 POUCHES
REMOVE COVERALLS, CWG AND INSTALL T-ADAPTERS
UNSTOW AND ASSEMBLE:
VACUUM CLEANER, PWR CABLE, HOSE AND BAG (SIDE A12, SIDE A8)
REMOVE DECONTAMINATION BAGS (A8, U1)

ACQ MSFN HGA P -52, Y 173
MSFN UPDATE TO LM WITH CSM COPY:
ASCENT UPDATE PAD (IF REQ'D) COPY AT 142:15

EAT PERIOD

VHF AM B - DUPLEX (VERIFY)
VHF AM A - OFF (VERIFY)
VHF RANGING - ON (UP)
VHF AM T/R - OFF (PANEL 9)
VHF ANT - LEFT
RNDZ XPDR - PWR (VERIFY)
EXT RNDZ LT - ON
EXT RUN/EVA LT - ON



(XXX,XXX/XXX,XXX)

YAW
PITCH
ORDEAL
ROLL

MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE B (JAN)	JANUARY 11, 1971	3-204

LM FLIGHT PLAN

MCC-H

1153 CST
141:30
(12102)

CDR

LMP

NOTES

UPDATE TO LM
AGS K-FACTOR

:35

DUMP DSE
UPDATE TO CSM
ASCENT PAD
(IF REQ'D)

:40

UPDATE TO LM
ASCENT PAD
(IF REQ'D)
UPLINK TO LM
CSM S.V. (L/O)
(IF REQ'D)
RLS (IF REQ'D)
LGC GYRO COMP
(IF REQ'D)

141:45

:50

:55

142:00

M
S
F
N

RATE GYRO TEST	LGC CLOCK SYNC V47 AGS INITIALIZATION (SET BIAS)
RCS CHECKOUT	
P57 LUNAR SURFACE ALIGN OPTION 4 LANDING SITE A/T 3 - GRAVITY AND CELESTIAL BODY (LIFT-OFF ORIENTATION)	
P12 POWERED ASCENT	ALIGN AGS TO PGNS BATS 5&6-ON, 1&3-OFF/RESET SET CAMERA: LM3/DAC
PRELAUNCH SWITCH CHECKS	AGS LUNAR ALIGN PRELAUNCH SWITCH CHECKS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	141:30 - 142:00	6/31	3-205

CSM FLIGHT PLAN

142:00
(11102)
(X1111)

CYCLE CMC MODE - FREE/AUTO
V48 (11102)
(X1111)
V49 MNVR TO P20 ATT (142:05)
(180,46,0) OMNI D

GDC ALIGN
VERIFY ORDEAL

-15
142:10

GO/NO GO FOR LM LIFT-OFF
AND DIRECT ASCENT RNDZ
MSFN UPDATE:
MAP UPDATE REV 32
COPY AT 142:50

M
S
F
N

V67 (+10000, +00100, +00001)
LOAD N37 AND N55

-5
142:20

VHF VOICE CHECK

VHF ANT - RIGHT
VHF RNG - RESET

LM LIFT-OFF

142:24:29

X

142:30

CONFIGURE SWITCHES FOR BAILOUT:

FDAI SCALE - 5/5	SCS TVC (2) - RATE CMD
MAN ATT (3) - RATE CMD	TVC GMBL DRIVE (BOTH) - AUTO
ATT DB - MIN	SPS He VLVS (2) - AUTO
RATE - HIGH	AUTO RCS SEL(16) - MNA/MNB
THC PWR - ON (UP)	
RHC PWR DIR (BOTH) - MNA/MNB	
BMAG MODE (3) - RATE 2	

DIRECT ASCENT RNDZ PAD				UPDATE (IF REQ'D)			
GETI LIFT-OFF	HRS	+	0 0			+	0 0
	MIN	+	0 0 0			+	0 0 0
	SEC	+	0			+	0
GETI	HRS	+	0 0			+	0 0
TPI	MIN	+	0 0 0			+	0 0 0
N37	SEC	+	0			+	0

CSM WT	+					
LM WT	+	0	5	7	0	0

COELLIPTIC RNDZ PAD				UPDATE (IF REQ'D)			
GETI LIFT-OFF	HRS	+	0 0			+	0 0
	MIN	+	0 0 0			+	0 0 0
	SEC	+	0			+	0
GETI	HRS	+	0 0			+	0 0
CSI	MIN	+	0 0 0			+	0 0 0
N11	SEC	+	0			+	0
GETI	HRS	+	0 0			+	0 0
TPI	MIN	+	0 0 0			+	0 0 0
N37	SEC	+	0			+	0

LM FLIGHT PLAN

MCC-H

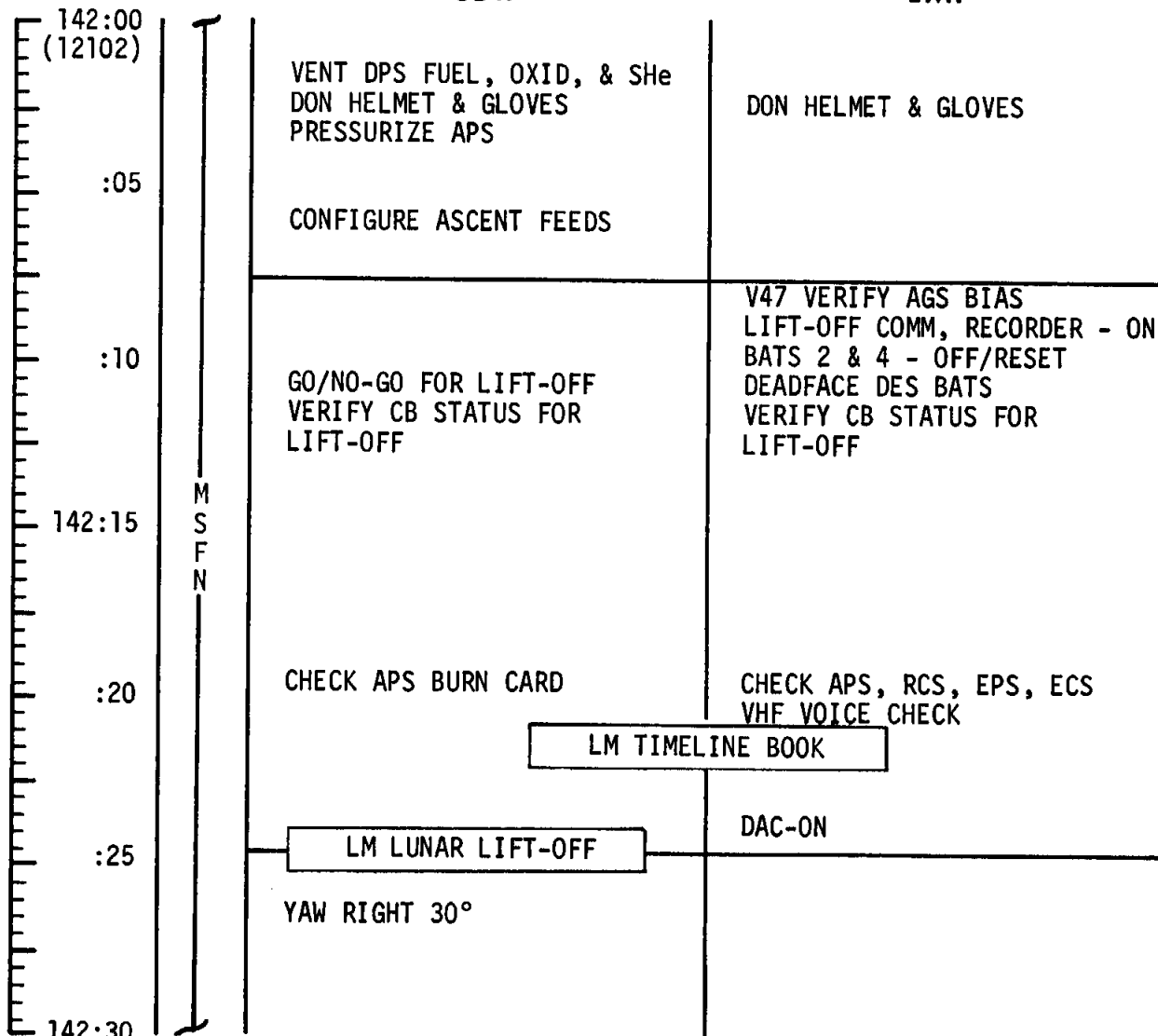
1223 CST

CDR

LMP

NOTES

GO/NO-GO FOR LIFT-OFF ON REV 31,
GUIDANCE RECOMMENDATION & DIRECT ASCENT
UPDATE TO CSM
MAP UPDATE REV 32



TIG: 142:24:29
 BT: 7 MIN 10.7 SEC
 ΔVT: 6053.4 FPS
 ULLAGE: NONE
 ORBIT: 50.96x9.14 NM

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	142:00 - 142:30	6/31	3-207

CSM FLIGHT PLAN

142:30
(11102)
(X1111)
-38

142:40
-30

142:50

-12

143:00

142:31:40
R=146.16
Ṙ=-449.5

142:31:40

LM INSERTION

COMPUTE LM RDOT IF REQ'D *****

*IF LM BAILOUT REQ'D: *****
* COPY P76 DATA FROM LM *****

*33

:	:	.
:	:	.

*84

.	.	.
.	.	.

MSFN UPLINK:
LM S.V.
MSFN DISABLES MSFN
S-BAND RELAY
GO VHF COMM

P20(TRIM)(180,171/44,0)
P34; VERIFY N37 AND N55
V57;V87

VERIFY LM TRACK LT-ON

(IF NO SXT, V77; V54; VHF ONLY UNTIL TPI-18, THEN VHF/COAS(6))

142:45
R=91.27
Ṙ=-370.0

BEFORE STEADY STATE
PRE-TPI: N49 > (+00020,+00120) REJECT/REPEAT
POST-TPI:N49 > (+00008,+00050) REJECT/REPEAT
AFTER STEADY STATE
ANYTIME: N49 > (+00003,+00020) REJECT/REPEAT

VHF/RR COMPARISON

MAP UPDATE REV 32

LOS : : :

180°: : :

AOS : : :

VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

P34 FINAL COMP (COPY ON NEXT PAGE)

143:00
R=47.77
Ṙ=-212.3

BACKUP RR CHECK		
R ₁	.	$\dot{R} = \frac{100 \times \Delta R}{\text{MIN}}$
R ₂	.	$\dot{R} =$.
ΔR	.	

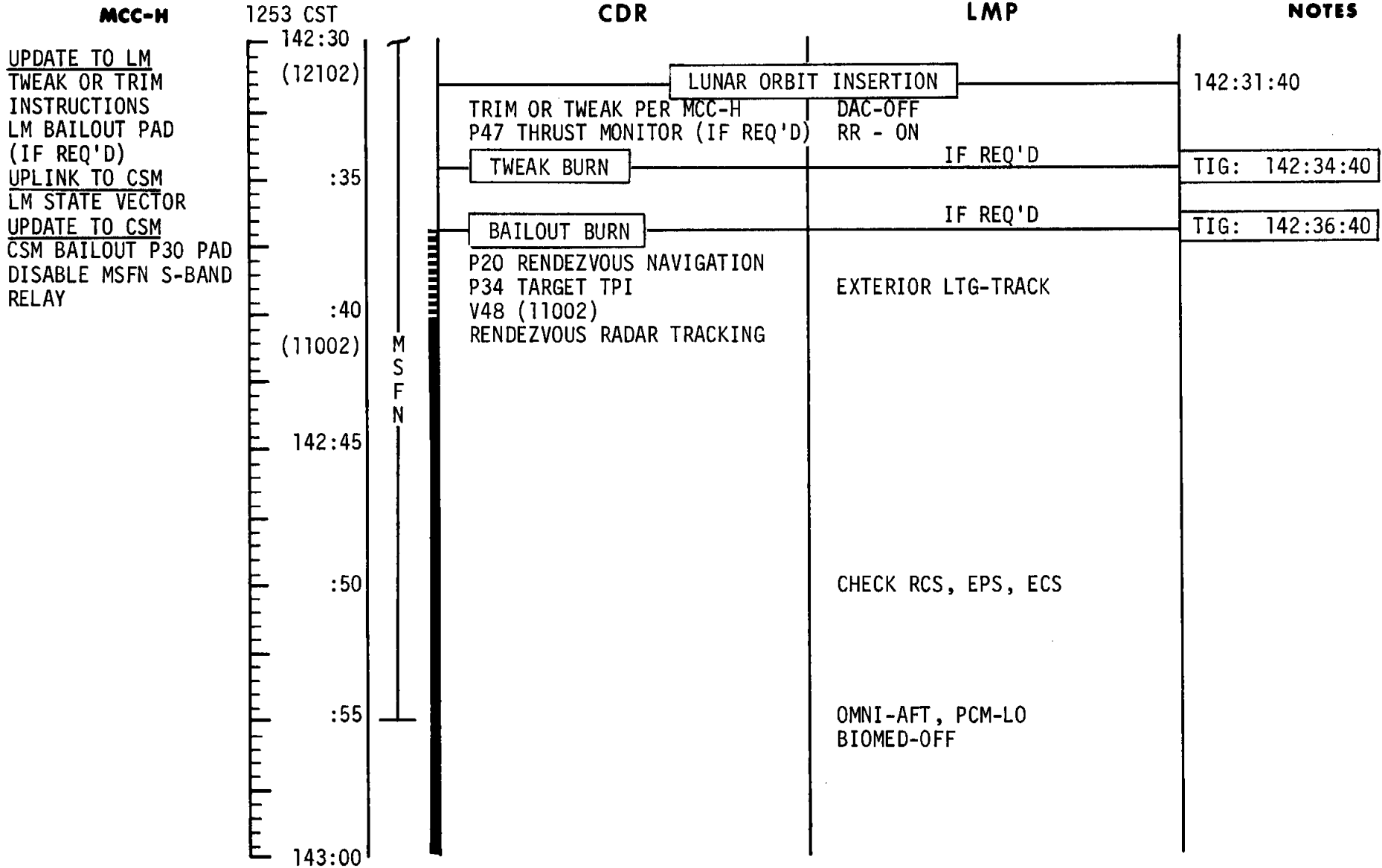
P30 MANEUVER

	N/A	C	S	M	B	/	O	PURPOSE	
		S	P	S	G	&	N		PROP/GUID
SET STARS								WT	N47
R ALIGN	N / A		0	0	N	/	A	P TRIM	N48
P ALIGN	N / A		0	0	N	/	A	Y TRIM	
Y ALIGN	N / A	+	0	0				HRS	GETI
		+	0	0	0			MIN	N33
		+	0					SEC	
ULLAGE		-						ΔV_X	N81
4 JET, 11 SEC		+	0	0	0	0	0	ΔV_Y	
		+	0	0	0	0	0	ΔV_Z	
		X	X	X	1	8	0	R	
		X	X	X				P	
		X	X	X	0	0	0	Y	
ΔVC		+			N	/	A	H _A	N44
					N	/	A	H _p	

P34 INPUT			
37	LM GETI-TPI	:	:
55	INTEG OPT	ELEVATION §	TRANSFER §
	+00000	+000.00	+130.00

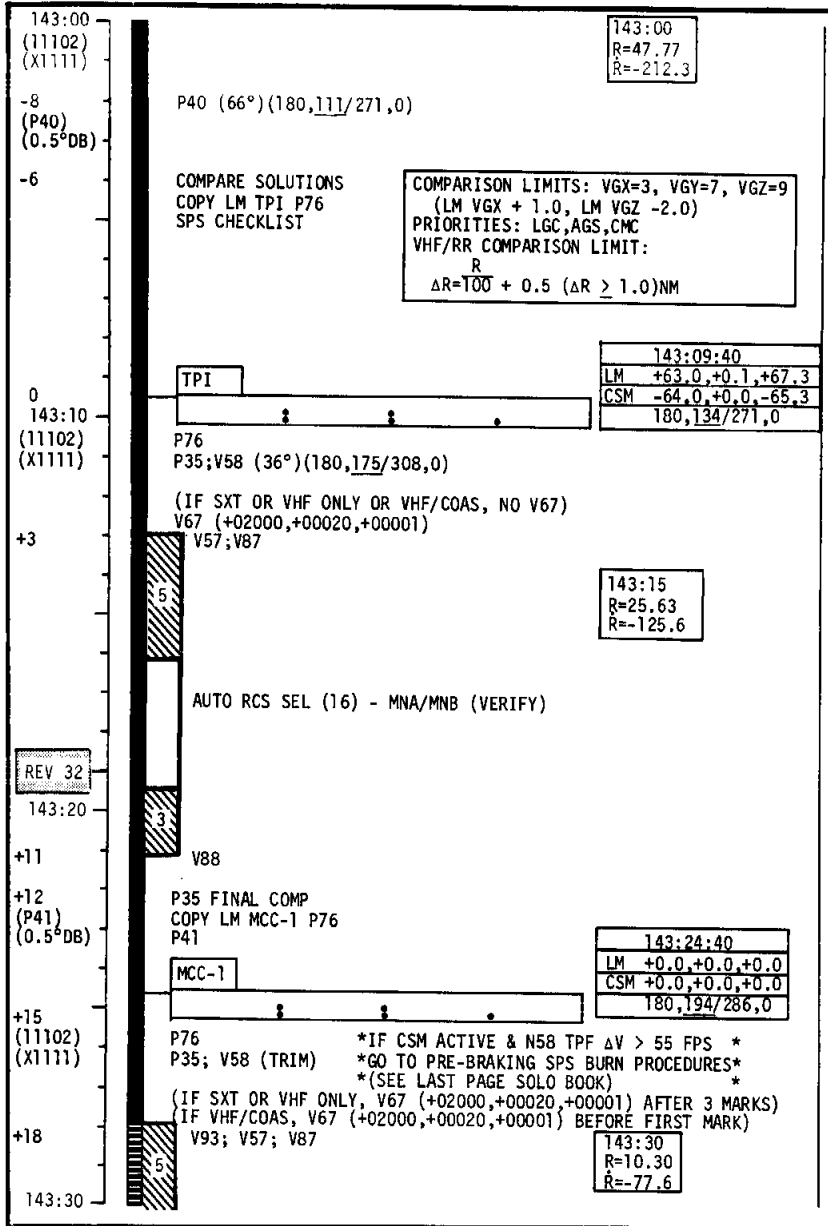
MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-208

LM FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	142:30 - 143:00	6/31	3-209

CSM FLIGHT PLAN



GROUND TPI FOR LM

					ΔV_x
					ΔV_y
					ΔV_z

P34 FINAL COMP			
55	INTEG OPT +00000	ELEVATION § .	TRANSFER § +130.00
58	PERILUNE ALT	TPI ΔV	TPF ΔV
81	TPI ΔV-LV		
59	TPI ΔV-LOS		

TPI P76			
ADD FOR LM RCS TPI			: 21.00
33	LM GETI-TPI	:	:
84	LM TPI ΔV-LV	.	.

P35 FINAL COMP			
81	MCC1 ΔV-LV	.	.
59	MCC1 ΔV-LOS	.	.

MCC1 P76			
33	LM GETI-MCC1	:	:
84	LM MCC1 ΔV-LV	.	.

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2; 1970	3-210

LM FLIGHT PLAN

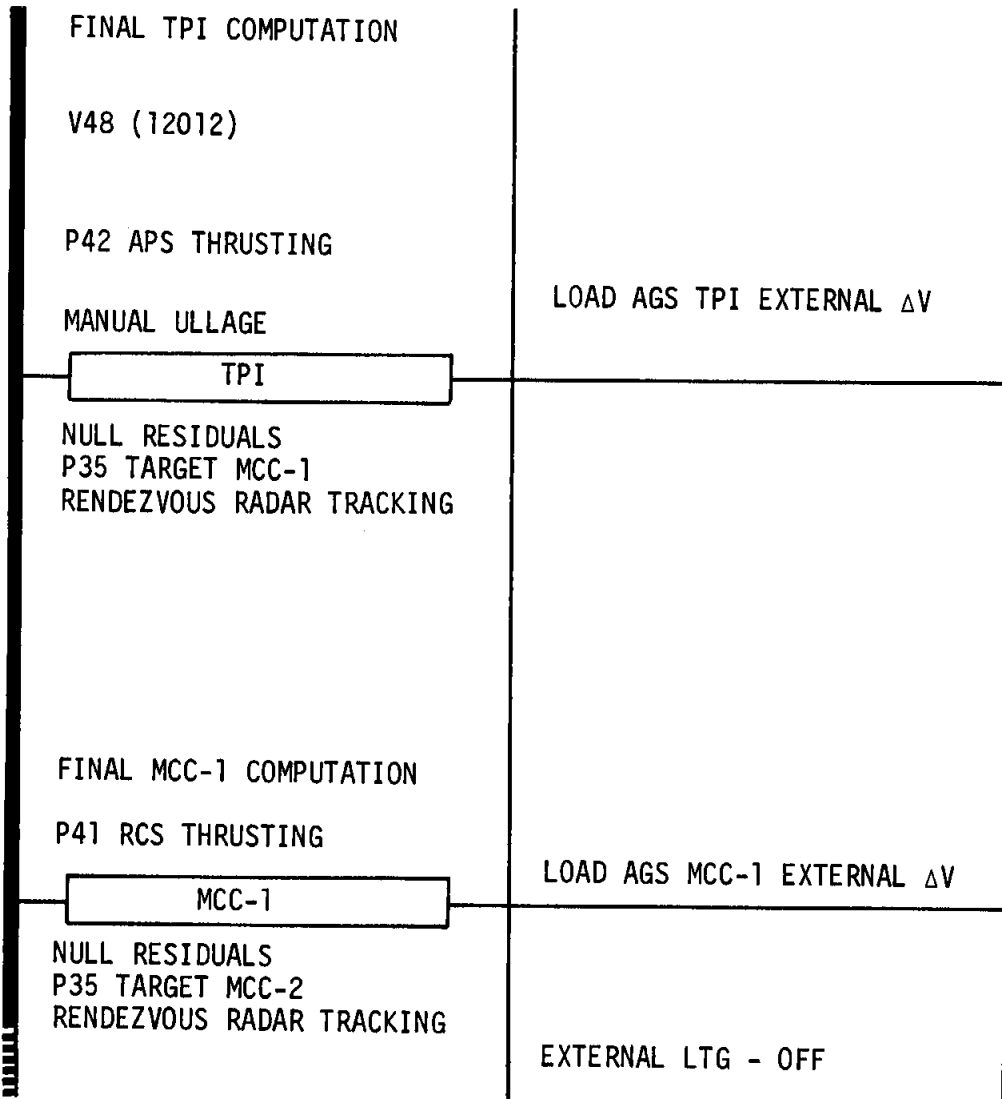
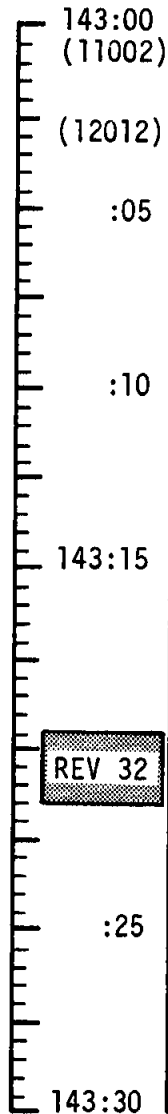
MCC-H

1323 CST

CDR

LMP

NOTES

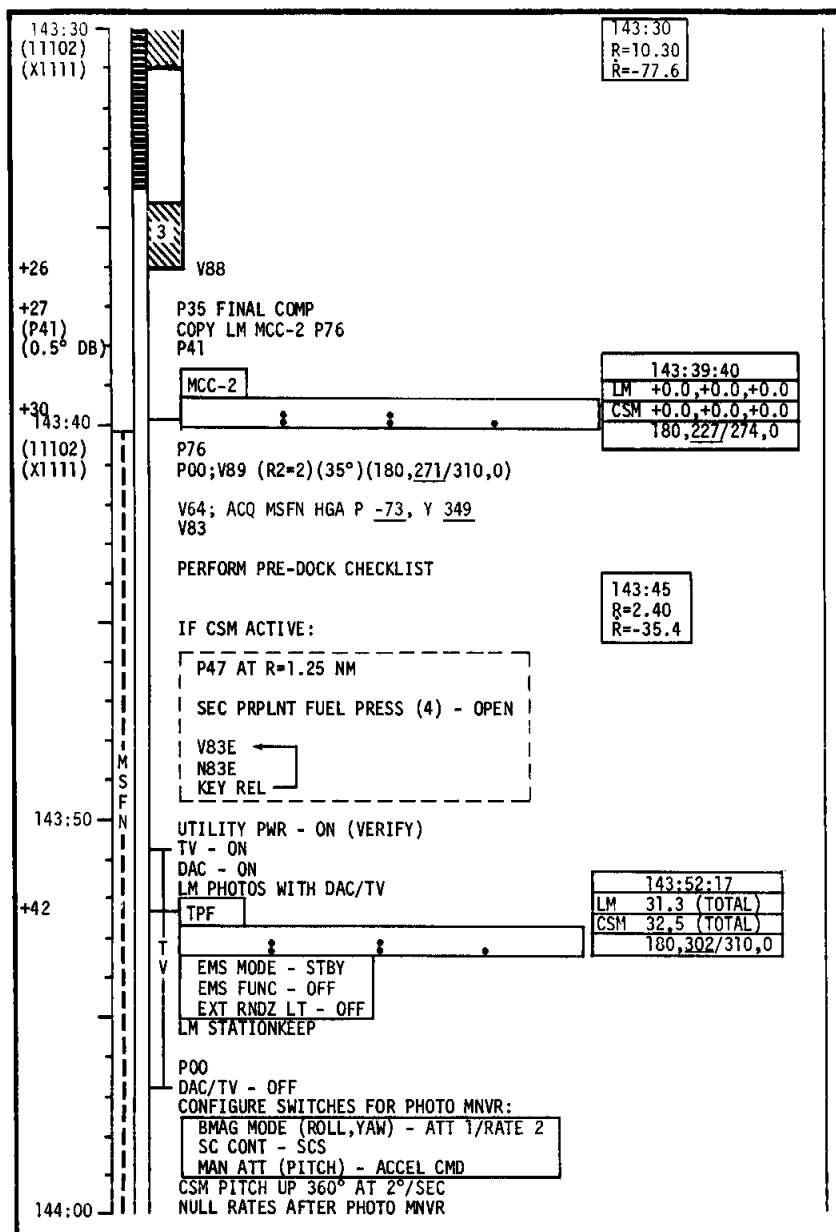


TIG: 143:09:40
 BT: 4.0 SEC
 ΔVT : 92.2 FPS
 ULLAGE: 4 JET, 10 SEC
 ORBIT: 61.0x44.6 NM

TIG: 143:24:40
 ΔVT : NOM ZERO

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	143:00 - 143:30	6/31-32	3-211

CSM FLIGHT PLAN



P35 FINAL COMP			
81	MCC2 ΔV-LV	.	.
59	MCC2 ΔV-LOS	.	.

MCC2 P76			
33	LM GET1-MCC2	.	.
84	LM MCC2 ΔV-LV	.	.

PRE-DOCK CHECKLIST

- | | |
|--|--|
| MAH ATT (3) - RATE CMD (VERIFY)
LIMIT CYCLE - OFF (VERIFY)
ATT DB - MIN
RATE - LOW (VERIFY)
TRANS CONTR PWR - ON (UP)
ROT CONTR PWR DIRECT (BOTH) - MNA/MNB
SC CONT - CMC (VERIFY)
CMC MODE - AUTO (VERIFY)
AUTO RCS SEL (16) - MNA/MNB (VERIFY) | CB DOCK PROBE (2) - CLOSED
PROBE RETR (2) - OFF (VERIFY)
PROBE EXT/REL - RETR
PROBE EXT/REL TB (2) - GRAY (VERIFY)
(IF TB NOT GRAY, GO TO PG 5/2-12, E)
CB SECS LOGIC (2) - CLOSED (VERIFY)
CB SECS ARM (2) - CLOSED
EXT LIGHTS RUN/EVA - ON (UP) (VERIFY)
COAS PWR - ON (UP) (VERIFY) |
|--|--|

BRAKING GATES			
R,NM	R,FPS	RETICLE ANG,DEG	R,FT
1.50	45	.08	9000
1.00	30	.13	6000
.50	20	.26	3000
.25	10	.54	1500
.08	5	1.60	500
.05	2.70	2.70	300
.03	4.00	4.00	200
.02	8.50	8.50	100

MISSION	EDITION	DATE	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	3-212

CSM FLIGHT PLAN

144:00
(11102)
(X1111)

SC CONT - CMC
 MAN ATT (PITCH) - RATE CMD
 BMAG MODE (3) - RATE 2
 CMC MODE - AUTO

DOCKING ATTITUDE
 VERIFY HGA P -73, Y 349

BMAG MODE (3) - ATT 1/RATE 2
 CUE MSFN FOR LOGIC ARM

SECS LOGIC (BOTH) - ON (UP)

MSFN GO FOR PYRO ARM

SECS PYRO ARM (2) - ON (UP)

P47
 DAC/TV - ON
 LM PITCH DOWN 90°

TRANSLATE TO CAPTURE LATCH
 PERFORM DOCKING CHECKLIST

V DOCKING

144:10:00

144:10
 DAC/TV - OFF
 POO
 V48 (61111)
 (11111)

CMC MODE - AUTO
 SC CONT - CMC
 BMAG MODE (3) - RATE 2

RNDZ XPNDR - OFF

~~REMOVE DECONTAMINATION BAGS (A8)~~ *Delete*
~~UNSTOW AND ASSEMBLE:~~
~~VACUUM CLEANER, PWR CABLE, HOSE, AND BAG (SIDE A12, SIDE A8)~~
~~CONNECT PWR CABLE (PWL 201)~~

144:20

PREPARE COUCH FOR HATCH

REMOVE PROBE STRAPS (A1)

CDR - VERIFY FWD DUMP VLV - AUTO
 CABIN FAN (2) - ON (UP)

EQUALIZE CSM/LM PRESSURE (LOD DECAL)

REMOVE HATCH AND STOW (DECAL)

VERIFY DOCKING LATCHES (AT LEAST 3)

REMOVE AND TEMP STOW PROBE AND DROGUE (DECAL)

144:30

DOCKING CHECKLIST

AT CAPTURE

PROBE EXT/REL TB (2) - BP
 (IF TB NOT BP, GO TO PG S/2-11, A)
 REPORT CAPTURE TO LM
 SC CONT - CMC
 CMC MODE - FREE
 ALLOW PROBE TO DAMP SC MOTION (10 SEC)
 WHEN WITHIN ± 3° OF DOCKING ATTITUDE
 PROBE RETRACT SEC - 1 (PRIM - 2 IF REQ'D)

AT DOCK LATCH

PROBE EXT/REL TB (2) - GRAY

AFTER HARD DOCK

SECS PYRO ARM (2) - SAFE	EXT RUN/EVA LIGHT - OFF
SECS LOGIC (BOTH) - OFF	EXT RNDZ LIGHT - OFF
CB SECS ARM (2) - OPEN	COAS PWR - OFF
CB DOCK PROBE (2) - OPEN	LIMIT CYCLE - ON
THC - LOCKED	ATT DB - MAX
RHC - LOCKED	SC CONT - SCS
BMAG MODE (3) - RATE 2	BMAG MODE (3) - ATT 1/RATE 2
PROBE EXT/REL - OFF	AUTO RCS SEL B/D ROLL (4) - OFF
PROBE RETRACT (2) - OFF	THC PWR - OFF
	RHC PWR DIR (2) - OFF

MISSION	EDITION	DATE	PAGE
APOLLO 14 <i>Chg B</i>	FINAL (JAN)	DECEMBER 2, 1970 <i>Jan 11, 1971</i>	3-214

LM FLIGHT PLAN

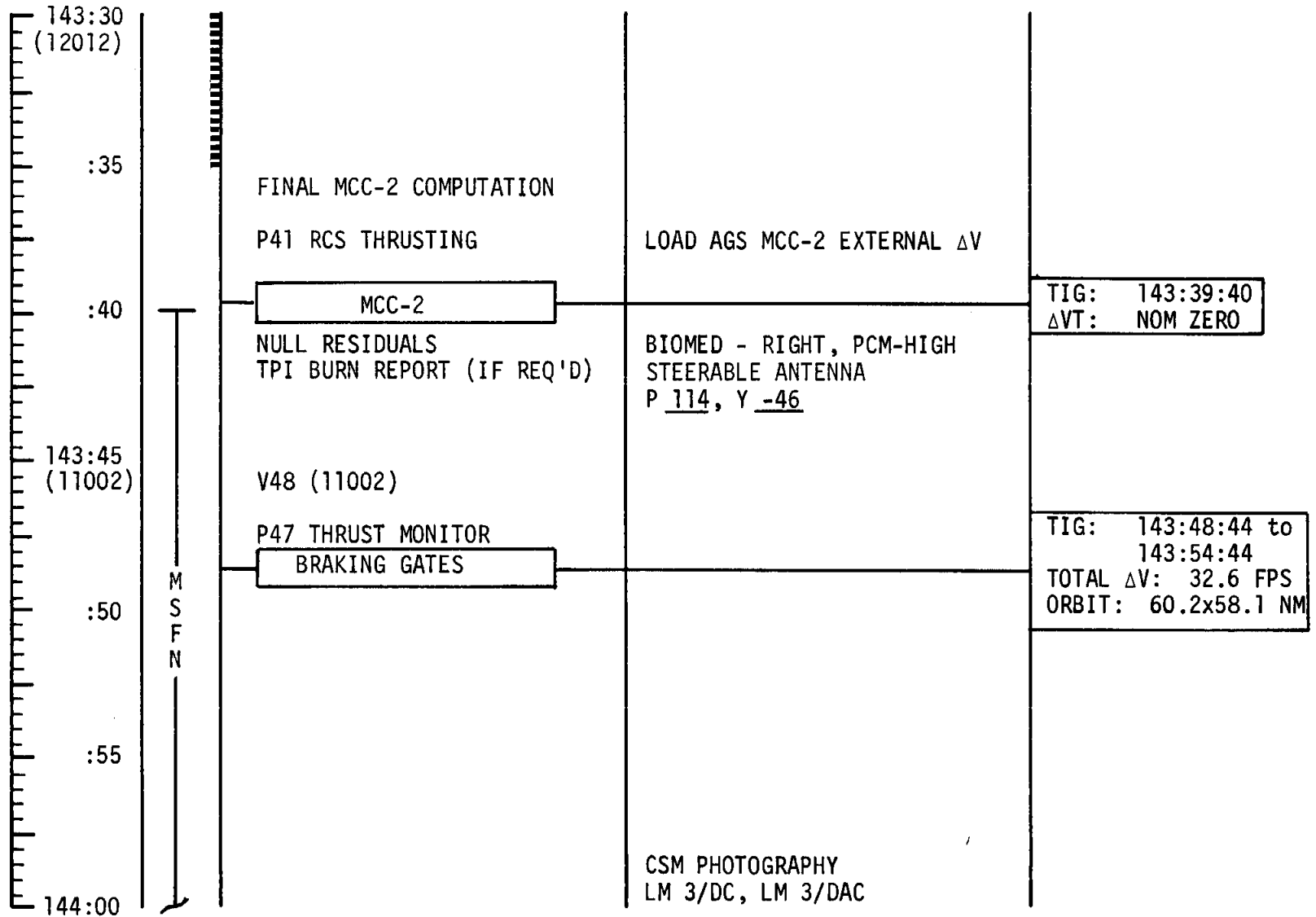
MCC-H

1353 CST

CDR

LMP

NOTES



DUMP DSE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	143:30 - 144:00	6/32	3-213

LM FLIGHT PLAN

MCC-H

1423 CST

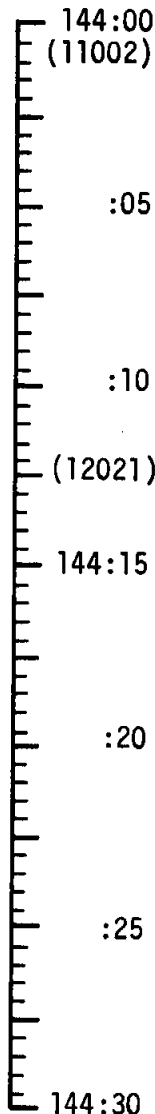
CDR

LMP

NOTES

GO/NO-GO FOR PYRO
ARM

UPLINK TO LM
LM S.V. (TIG-10)
P30 TARGET LOAD
P99 LM DEORBIT
UPDATE TO LM
DEORBIT BURN PAD
DAP LOAD (WEIGHTS)



COAS TO OVHD WINDOW

RR-OFF

PITCH 90°, YAW TO DOCK ATT

DOCKING

CONFIGURE PGNS
V48 (12021)
PREP FOR TRANSFER

VERIFY TUNNEL PRESSURIZED FROM CSM
OVHD DUMP VALVE-OPEN
DOFF HELMETS & GLOVES

WHEN TUNNEL/LM PRESSURES EQUAL, OVHD DUMP VALVE - AUTO
VERIFY PRESS REGS A&B - EGRESS
OPEN HATCH

144:10:00

LM S.V. IS TIME
TAGGED FOR DEORBIT
BURN MINUS 10 MIN

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	144:00 - 144:30	6/32	3-215

CSM FLIGHT PLAN

144:30
(61111)
(11111)

144:40
M
S
F
N

144:50

145:00

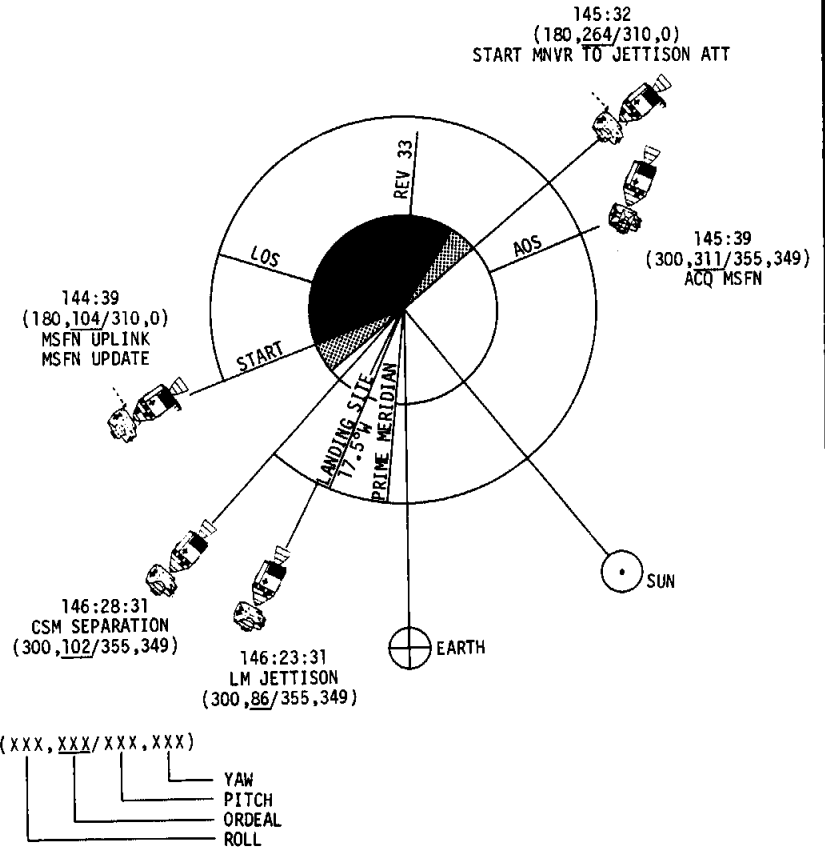
TRANSFER TO CDR AT HIS REQUEST:
 PROBE
 DROGUE
 VACUUM CLEANER (ASSEMBLED)
 DECONTAMINATION BAGS ~~(2) (R6)~~
 HELMET & ACCESSORY BAG (2) (R6)

MSFN UPLINK:
 CSM S.V. (CSM SEP-10)
 LM S.V. (TIG LM DEORBIT -10)

MSFN UPDATE:
 MAP UPDATE REV 33
 DAP LOAD - UPDATE WEIGHTS COPY AT 145:25
 CSM SEPARATION PAD COPY AT 145:35
 LM JETTISON PAD COPY AT 145:45

VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

MAP UPDATE REV <u>33</u>			
LOS :	:	:	
180° :	:	:	
AOS :	:	:	



MISSION	EDITION	DATE	PAGE
APOLLO 14 <i>Chg B</i>	CHANGE-A (JAN)	DECEMBER 23, 1970	3-216

Jan 11, 1971

LM FLIGHT PLAN

MCC-H

1453 CST

CDR

LMP

NOTES

RECEIVE PROBE FROM CMP AND STOW
 RECEIVE DROGUE FROM CMP AND STOW OVER PROBE
 RECEIVE DECONTAMINATION BAGS & VACUUM CLEANER FROM CSM

UNSTOW, VACUUM/WET-WIPE, BAG AND TRANSFER TO CSM:

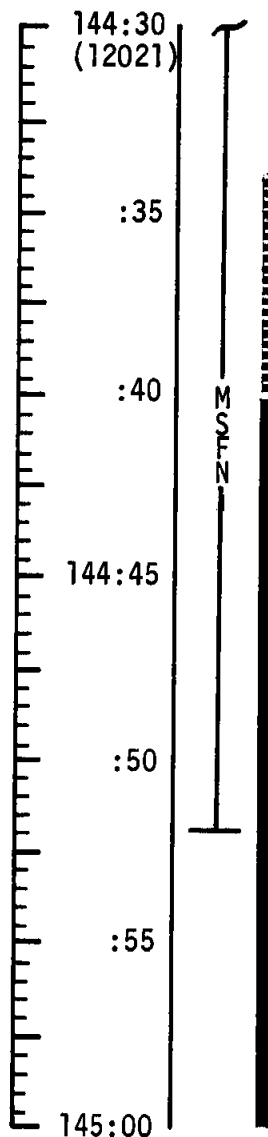
70 MM MAG BAG (3 MAGS)
 SURFACE 16 MM BAG (6 MAGS)
 2 SAMPLE ROCK BAGS
 HELMETS (WITH IV GLOVES)
 ISA

LM S.V. IS
 TIME TAGGED FOR
 DEORBIT BURN MINUS
 10 MIN

CSM S.V. IS
 TIME TAGGED FOR
 CSM SEP MINUS
 10 MIN

JPLINK TO CSM
 CSM S.V. (SEP-10)
 LM S.V. (TIG-10)

UPDATE TO CSM
 MAP UPDATE REV 33
 CSM SEP BURN PAD
 LM JETTISON PAD
 DAP LOAD (WEIGHTS)



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	144:30 - 145:00	6/32	3-217

CSM FLIGHT PLAN

145:00
(61111)
(11111)

RECEIVE ITEMS FROM LM & STOW

145:10

REV 33

145:20

TRANSFER B5 & B6 CONTAINERS TO LM

CSM WT	+								
LM WT	+								

(61102)
(11111)

CYCLE CMC MODE - FREE/AUTO
V48 (61102)
(11111)
LOAD CSM & LM WEIGHTS

145:30

LM TO CSM TRANSFER LIST

ITEM	CM STOWAGE LOCATION
16MM MAGS (6) w/DECOM BAG	R13
70MM MAGS (3) w/DECOM BAG	R13
B1 BAG	TEMP STOWAGE (ON A8)
PURSE	TEMP STOWAGE (ON A8)
ISA w/DECOM BAG	ON A1
ROCK BAGS w/DECOM BAG (2)	ON A10, ON A13
ROCK BOXES w/DECOM BAG (2)	B5, B6
VACUUM CLEANER	SIDE A12
VACUUM HOSE, BRUSH, CABLE	SIDE A8
PGA (2)	PGA BAG
UCTA (2)	PGA BAG
FCS (2)	PGA BAG
LCG (2)	U1
HELMET & ACCESSORY BAGS (2)	PGA BAG
GLOVES (2 PR.)	
HELMET (2)	
BIO INSTRUMENTATION EQUIP (2)	ON CREW
COMM. CARRIER (2)	ON CREW

MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE B (JAN)	JANUARY 11, 1971	3-218

LM FLIGHT PLAN

MCC-H

1523 CST

CDR

LMP

NOTES

145:00
(12021)

:05

:10

145:15

REV 33

:20

:25

145:30

UNSTOW SRC'S, VACUUM AND BAG, TRANSFER TO CSM

RECEIVE B5 & B6 FROM CMP AND STOW IN SRC RACK

VACUUM PGA'S

TRANSFER VACUUM CLEANER TO CSM

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	145:00 - 145:30	6/32-33	3-219

CSM FLIGHT PLAN

145:30
(61102)
(71111)

145:40

145:50

146:00

M
S
E
N

P30; LOAD CSM SEP PAD DATA

V49 MNVR TO LM JETTISON PAD ATT (145:38)
DOFF PGA
ZIP SUIT & INSTALL ELECTRICAL COVER PRIOR TO STOWING (PGA BAG)
STOW COMM CARRIERS & UCTA (PGA BAG)

ACQ MSFN OMNI D

CDR - TRANSFER CM JETTISON ITEMS TO LM

WARNING

NO URINE/FECES
ALL OPENED FOOD MUST
BE TREATED AND
STORED IN BETA BAG

GO/NO-GO FOR LM CLOSEOUT
LMP - CLOSE LM HATCH
DIRECT O₂ VLV - CLOSED (CW)

UNSTOW AND INSTALL FORWARD HATCH (DECAL)

PERFORM HATCH INTEGRITY CHECK (DECAL)

P30 MANEUVER

	C	S	M	S	E	P	PURPOSE
SET STARS	R	C	S	G	&	N	PROP/GUID
	+			N	/	A	WT N47
R ALIGN _____		0	0		.		P TRIM N48
P ALIGN _____		0	0				Y TRIM
Y ALIGN _____	+	0	0				HRS GETI
	+	0	0	0			MIN N33
	+	0			.		SEC
ULLAGE _____	-	0	0	0	1	0	ΔV _X N81
	+	0	0	0	0	0	ΔV _Y
	+	0	0	0	0	0	ΔV _Z
	X	X	X				R (300)
	X	X	X				P (355)
	X	X	X				Y (349)

LM JETTISON PAD

+	0	0			HRS	GETI
+	0	0	0		MIN	N33
+	0				SEC	
X	X	X			R (300)	N22
X	X	X			P	(355)
X	X	X			Y	(349)

MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-220

LM FLIGHT PLAN

MCC-H

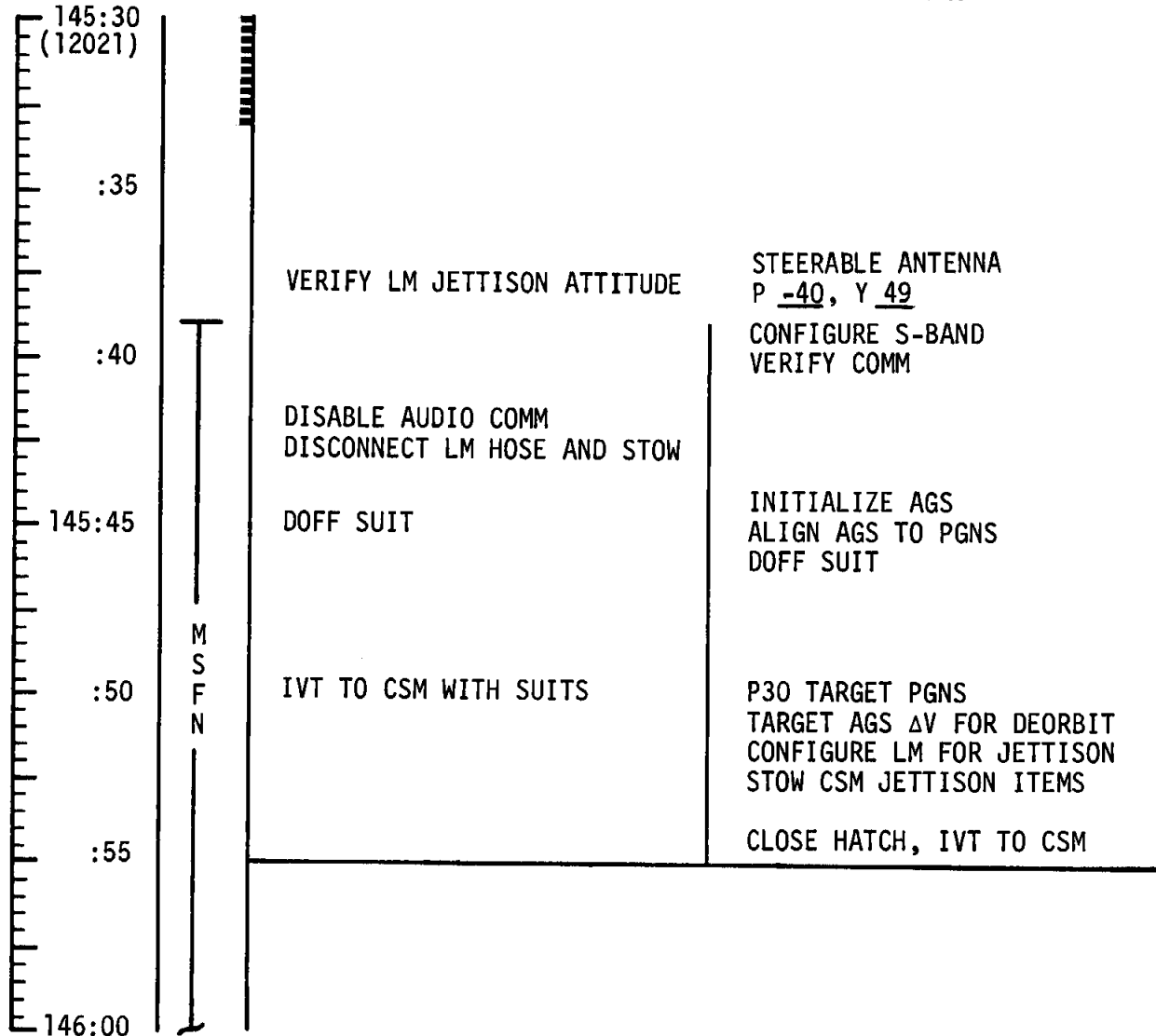
1553 CST

CDR

LMP

NOTES

GO/NO-GO FOR
LM CLOSEOUT



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	145:30 - 146:00	6/33	3-221

CSM FLIGHT PLAN

146:00
(61102)
(11111)

LM PWR - OFF (VERIFY)
CB SECS ARM (2) - CLOSED
CUE MSFN FOR LOGIC ARM

SECS LOGIC (BOTH) - ON (UP)

MSFN GO FOR PYRO ARM

146:10

CONFIGURE CAMERA FOR LM JETTISON PHOTOS
CM2/DAC/18/CEX-BRKT, MIR (f8,250,7) 12 fps (50% MAG)

MAG (E) _____, MAG % _____
UTILITY PWR - ON

LOAD ΔV IN EMS TO + 100.0
CHECK NULL BIAS
GDC ALIGN
VERIFY ORDEAL

PERFORM PRE-JETTISON CHECKLIST

(11102)
(11111)

V48 (11102)
(11111)

SECS PYRO ARM (2) - ARM

P47 (JETT - 1 MIN)
EMS MODE NORMAL (JETT - 30 SEC)
DAC - ON

146:20

CSM/LM FINAL SEP (BOTH) - ON (0.4 FPS SEP)

LM JETTISON

146:23:31
300,86/355,349

POO
DAC - OFF

PERFORM PRE-SEPARATION CHECKLIST
EMS MODE - NORMAL (SEP - 30 SEC)

GSM SEPARATION

146:28:31
-1.0,+0.0,+0.0
300,102/355,349

(P41)
(0.5°DB)

(11102)
(11111)
146:30

POO;V66;V49 MNVR TO P52 ATT (146:36)
(180,245,0) HGA -39, Y 185

PRE-JETTISON CHECKLIST

BMAG MODE (3) - ATT 1/RATE 2
ATT DB - MIN
RATE - LOW
SC CONT - SCS
EMS FUNC - ΔV
AUTO RCS SEL (16) - MNA/MNB
THC PWR - ON
RHC PWR DIR - MNA/MNB
THC - ARMED
RHC - ARMED

PRE-SEPARATION CHECKLIST

EMS MODE - STBY
SC CONT - CMC
BMAG MODE (3) - RATE 2

P41 (BYPASS MNVR)

SECS PYRO ARM (2) - SAFE
SECS LOGIC (BOTH) - OFF
CB SECS ARM (2) - OPEN

MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-222

CSM FLIGHT PLAN

146:30 (11102) (11111)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> EMS MODE - STBY EMS FUNC - OFF THC PWR - OFF AUTO RCS SEL B/D ROLL (4) - OFF RHC PWR DIR - OFF THC - LOCKED RHC - LOCKED </div> <p>SC CLEAN-UP MSFN: DUMP DSE</p> <p>MSFN UPLINK: DESIRED ORIENT (TEI)</p> <p>MSFN UPDATE: LTC PHOTO PAD (TGT 11) (COPY IN FLIGHT PLAN AT 147:00) MAP UPDATE REV 34</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> P52 IMU REALIGN N71: _____ N05: _____ ● _____ N93: _____ X _____ ● _____ Y _____ ● _____ Z _____ ● _____ GET _____ ● _____ </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> MAP UPDATE REV <u>34</u> LOS : _____ ● _____ 180°: _____ ● _____ AOS : _____ ● _____ </div>
146:40 M S F N	<p>P52 (OPTION 3) (LIFT-OFF ORIENT) REPORT: <u>GYRO TORQUING ANGLES</u></p>	
146:50	<p>P52 (OPTION 1) (TEI ORIENT)</p> <p>GDC ALIGN VERIFY ORDEAL</p> <p>VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)</p> <p>WIPE EXCESSIVE MOISTURE FROM TUNNEL HATCH AREA</p>	
147:00	<p>PERFORM CONTAMINATION CONTROL PROCEDURE</p>	<div style="border: 1px solid black; padding: 5px;"> <p>CONTAMINATION CONTROL NOTE: IF WATER IS TO BE COLLECTED, USE WATER COLLECTION PROCEDURE, UNSTOW VAC CLEANER & COMPONENTS AC UTIL PWR - OFF (VERIFY) ASSEMBLE COMPONENTS & CONNECT PWR CABLE AC UTIL PWR - ON (UP) VAC CLEANER PWR SW - ON VACUUM/BRUSH CM INTERIOR WITH SPECIAL ATTENTION TO THE FOLLOWING: TRANSFER TUNNEL WALL AND TOP HATCH SURFACES OPEN B5 AND B6 COVER AND CLEAN COMPARTMENT AND SRC BAGS SURFACES OPEN A5 AND CLEAN COMPARTMENT AND CSC BAG AND FILM CASSETTE BAGS SURFACES OPEN R13 AND CLEAN COMPARTMENT AND FILM MAGAZINE BAG SURFACE OPEN FOOD CONTAINERS AND CLEAN COMPARTMENT AND HELMET STOWAGE BAGS SURFACES PGA BAG SURFACES MOVE VACUUM CLEANER BRUSH INTO ALL POTENTIAL "DEAD AIR" POCKETS TO ENSURE THOROUGH MIXING OF CM ATMOSPHERE, VAC CLEANER PWR SW - OFF AC UTIL PWR - OFF DISCONNECT PWR CABLE & DISASSEMBLE COMPONENTS STOW VAC CLEANER & COMPONENTS</p> </div>

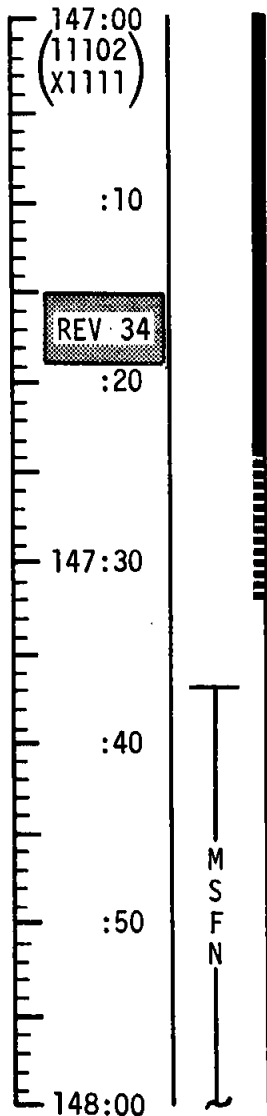
MISSION	EDITION	DATE	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	3-223

FLIGHT PLAN

MCC-H

1723 CST

NOTES



L10H CANISTER CHANGE
(12 INTO B, STOW 10 IN A3)

V49 MNVR TO LTC PHOTO PAD ATTITUDE (147:30)

EAT PERIOD

ACQ MSFN HGA P-31, Y178

CONFIGURE CAMERA: (S-IVB/LM IMPACT)
CM3/LTC/MBW/SEF (SHUT 1/50, RNG 90.5, INT 8.1)
(73 FR), MAG (V) _____, FR # _____
LTC INSTALLATION (DECAL)
LTC CHECKOUT (DECAL)

DUMP DSE
UPDATE TO CSM
TEI 34 MNVR PAD
TEI 35 MNVR PAD
MAP UPDATE REV 35

LTC PHOTO PAD	TARGET 11
T START: _____:_____:_____ APOLLO 12 LM (208.8,126.1,014.4)	
R _____, P _____, Y _____	
RNG (90.5) _____	

T START +2:33 APOLLO 13 S-IVB (213.1,120.6,010.3)	
R _____, P _____, Y _____	
RNG (90.6) _____	

T START +4:31 APOLLO 14 S-IVB (214.3,115.6,008.0)	
R _____, P _____, Y _____	
RNG (90.6)	
T STOP: _____:_____:_____	
MAP UPDATE REV 35	
LOS	: _____:_____:_____
180°	: _____:_____:_____
AOS W/TEI	: _____:_____:_____
AOS W/O TEI	: _____:_____:_____
LM DEORBIT BURN	
TIG:	147:52:58.9
BT:	77 SEC
ΔV:	183.7 FPS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	147:00 - 148:00	6/33-34	3-224

FLIGHT PLAN

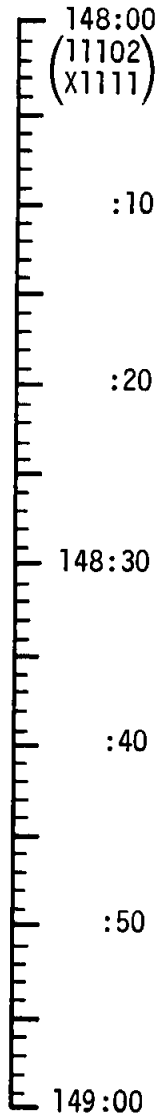
MCC-H

1823 CST

NOTES

UPLINK TO CSM
CSM S.V. & V66
TEI 34 TGT LOAD

RECORD VG_{IMU} DATA



CSM SYSTEMS CHECKLIST

C&WS OPERATIONAL CHECKS PAGE S 1-17
CM RCS MONITORING CHECK PAGE S 1-1
SM RCS MONITORING CHECK PAGE S 1-1
SPS MONITORING CHECK PAGE S 1-1

CABIN FAN (2) - OFF; REMOVE AND STOW
CABIN FAN LUNAR DUST FILTER WITH BAG (PGA BAG)

LTC MODE-STANDBY/POWER-ON
ZERO DET (T START -1 MIN)
LTC MODE - AUTO, DET - UP/START (T START)
PHOTO TGT 11 (APOLLO 12 LM, APOLLO 13 S-IVB, APOLLO 14 S-IVB)
MNVR BETWEEN TARGETS PER LTC PHOTO PAD

LTC MODE-STANDBY, RECORD FR # _____
LTC REMOVAL (DECAL), AND STOW

P30 EXTERNAL ΔV
V49 MNVR TO PAD BURN ATTITUDE (148:35)
(180,000,000) OMNI D

P40 SPS THRUSTING

VERIFY DSE TAPE MOTION (LBR/RCD/FWD/CMD RESET)

LM LUNAR IMPACT
GET: 148:20:58
LAT: 3.5°S
LONG: ~~19.29°W~~

19.27W
NOTE: IF APOLLO 14
ALSEP IS INOPERABLE,
THE LM WILL BE IM-
PACTED NEAR APOLLO
12 ALSEP AT:
LAT ~~3.32°S~~ 3.04°S
LONG ~~23.38°W~~ 24.64°W

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN) <i>Change B</i>	DECEMBER 23, 1970 <i>Jan 11, 1971</i>	148:00 - 149:00	6/34	3-225

FLIGHT PLAN

TEI BURN TABLE

P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME		RESIDUALS
		UNDERBURN	OVERBURN	
10°/SEC COMPLETE	+10° COMPLETE	FOR G&N C/O >3 SEC EARLY & ΔVC >+50 FPS SWITCH TO SCS AUTO & RESTART SPS	BT + 2 SEC & ΔVC = -40 FPS	TRIM X AND Z AXIS TO 0.2 FPS

TABLE 3-8
3-226

FLIGHT PLAN

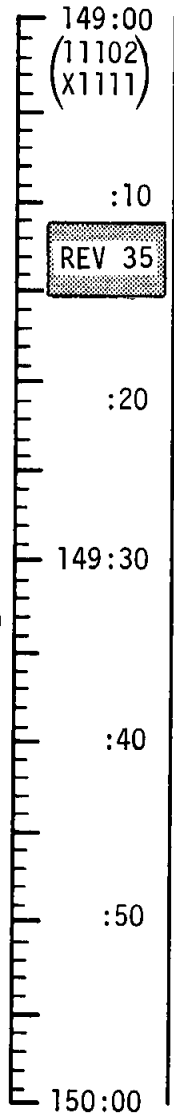
MCC-H

1923 CST

NOTES

*ITEMS TO BE REPORTED TO MSFN
 **REPORT IF OFF MORE THAN ONE SECOND
 ***REPORT IF >0.2 FPS

TIG: 149:14:50
 BT: 2 MIN 27.4 SEC
 ΔVT: 3449.55 FPS
 ULLAGE: 4 JET, 12 SEC
 ORBIT: N/A



SXT STAR CHECK
 P40 SPS THRUSTING

TEI

V66 SET CSM S.V. INTO LM S.V.

UNSTOW DC & EL CAMERAS AND PREPARE FOR LUNAR PHOTOS
 CM3/DC/80/MBW (f2.8,250,∞) (11 FR)

MAG (R) _____, FR # _____
 CM3/EL/250/MBW (f5.6,1/250,∞) (4 FR)

MAG (T) _____, FR # _____
 V49 MNVR TO PHOTOGRAPH LUNAR SURFACE (149:35)
 (127,226,330) HGA P -14, Y 303

TEI BURN STATUS REPORT

LUNAR SURFACE PHOTOGRAPHY, TEI +26 (149:41) (5 FR)
 HAND-HELD, OVERLAPPING, PAN OF VISIBLE DISC,
 RAPID SEQUENCE

V49 MNVR TO PHOTOGRAPH LUNAR SURFACE (149:47)
 (128,222,331) CHANGE APERTURE TO f4

LUNAR SURFACE PHOTOGRAPHY, TEI +32 (149:47) (4 FR)
 HAND-HELD, OVERLAPPING, PAN OF VISIBLE DISC,
 RAPID SEQUENCE

V49 MNVR TO PHOTOGRAPH LUNAR SURFACE (149:57)
 (131,215,332)

LUNAR SURFACE PHOTOGRAPHY, TEI +42 (149:57) (2 FR)
 HAND-HELD, COVER VISIBLE DISC

STOW DC CAMERA, RECORD FR # _____

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			UNBAL

DUMP DSE

UPLINK TO CSM
 DESIRED ORIENT (PTC)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	149:00 - 150:00	6/34-35/TEC	3-227

POST-TEI PHOTO SEQUENCE

TEI + 26 MIN

TEI + 32 MIN

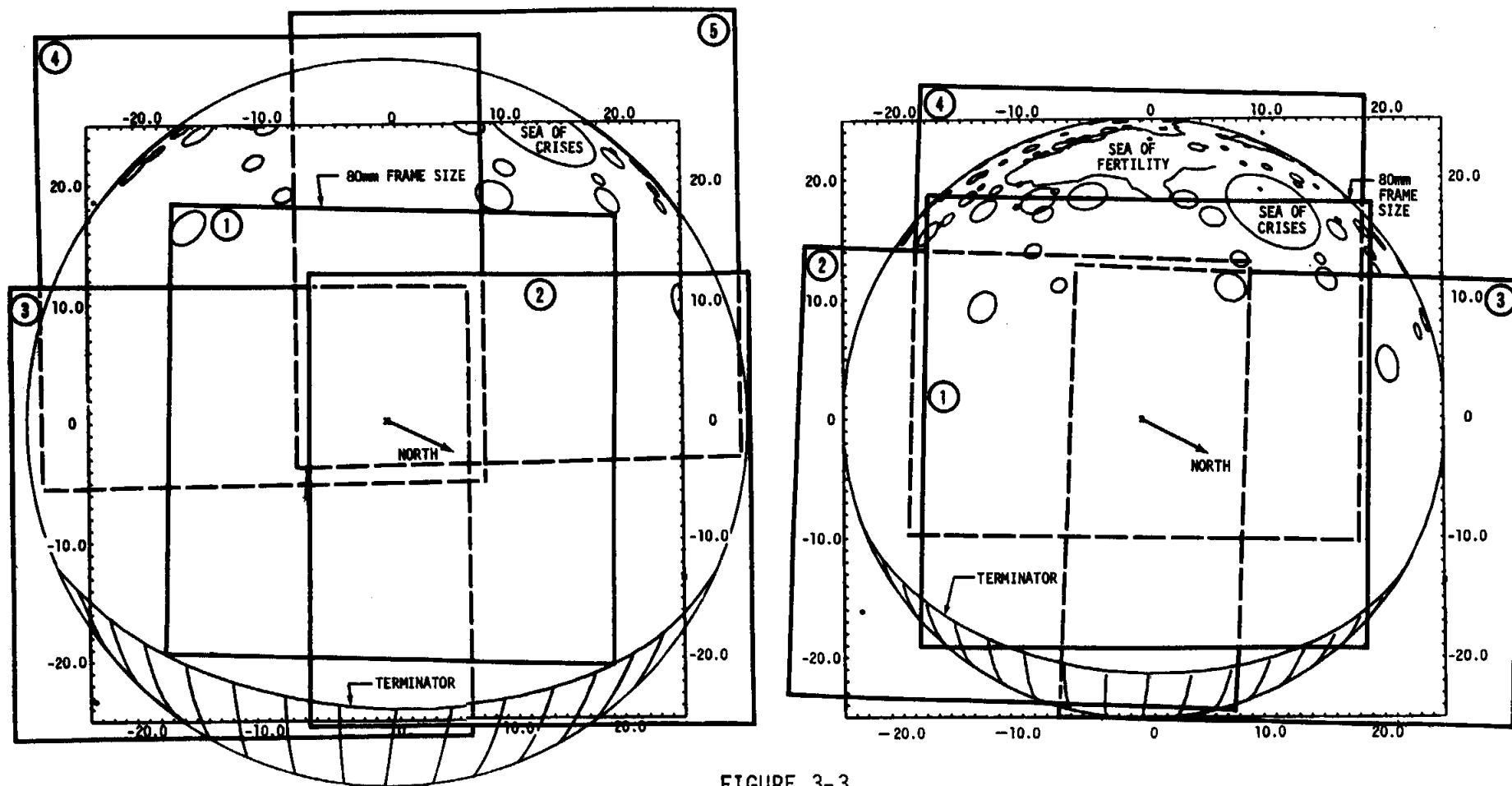
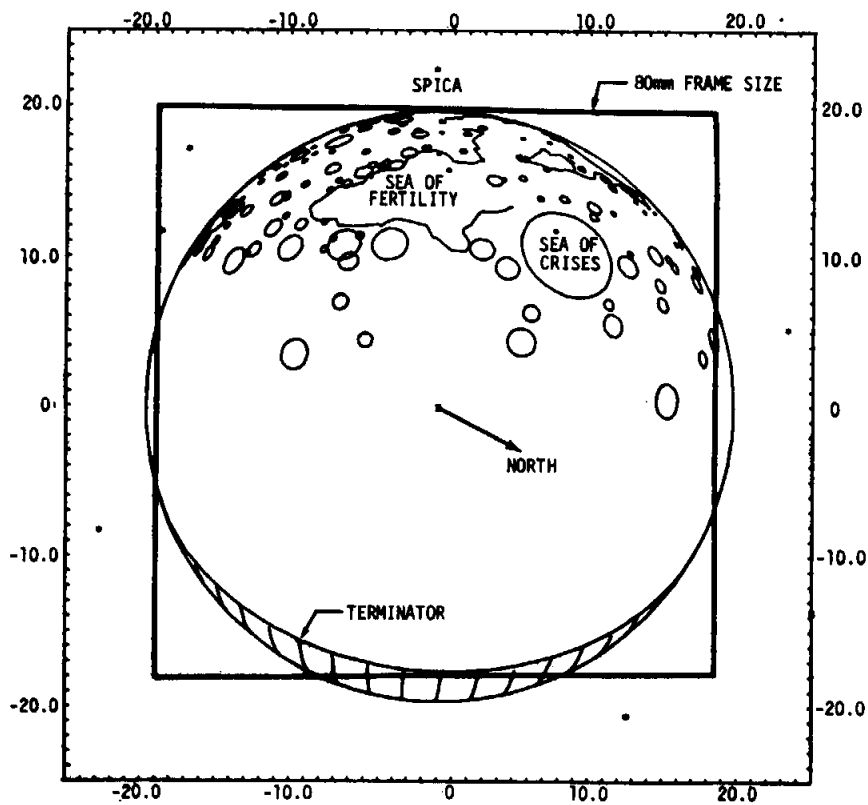


FIGURE 3-3
3-228

POST-TEI PHOTO SEQUENCE

TEI + 42 MIN

(TWO PHOTOS, CENTER LUNAR DISC IN FRAME)



TEI + 1 HR

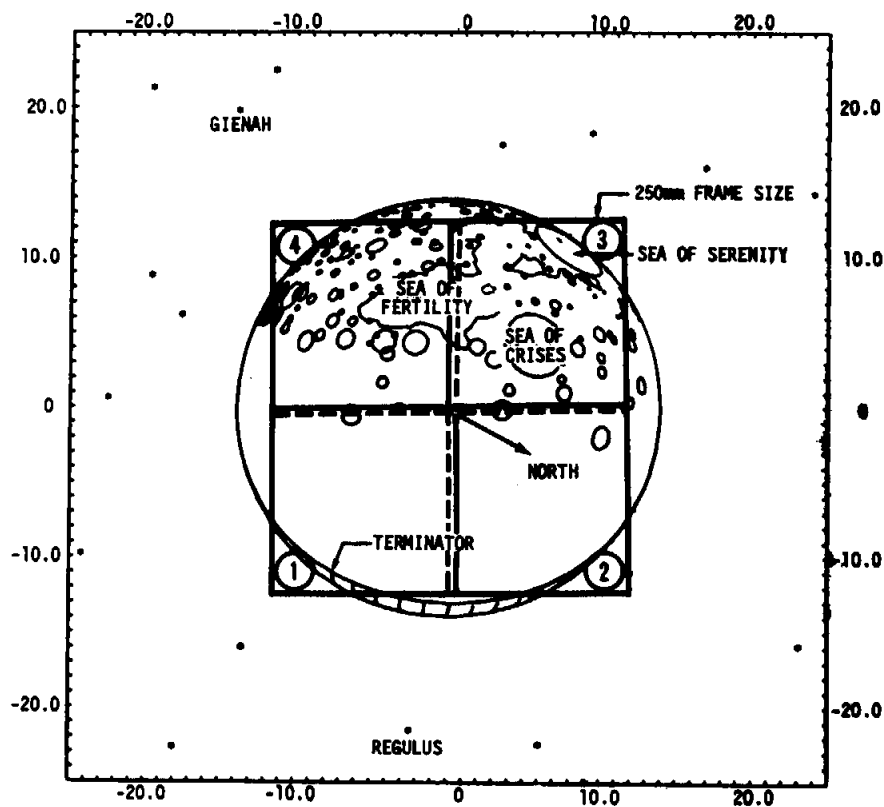
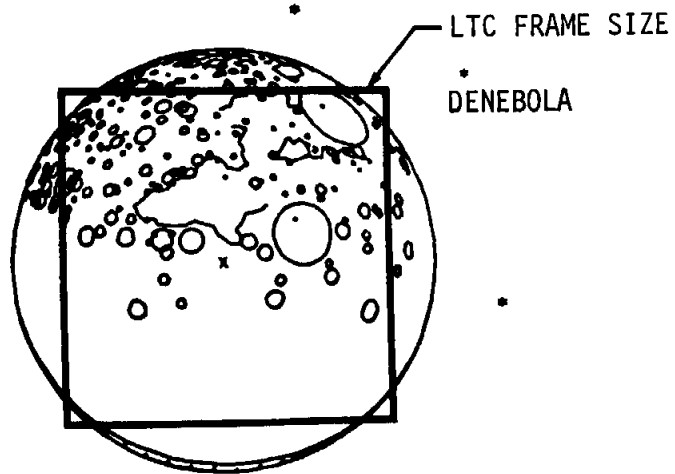


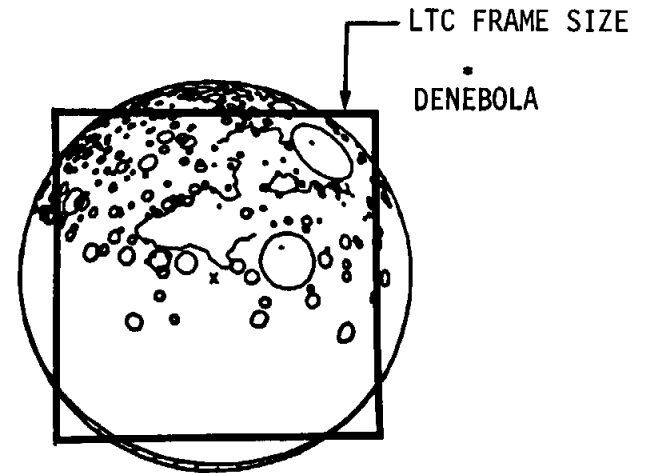
FIGURE 3-4
3-229

POST-TEI PHOTO SEQUENCE

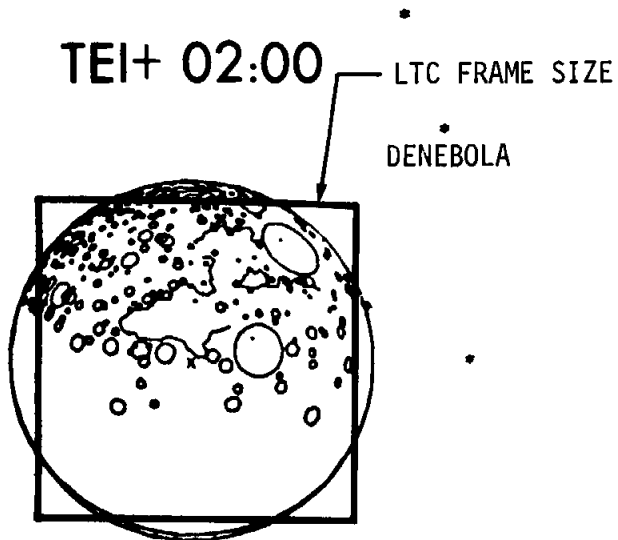
TEI+ 01:40



TEI+ 01:50



TEI+ 02:00



TEI+ 02:10

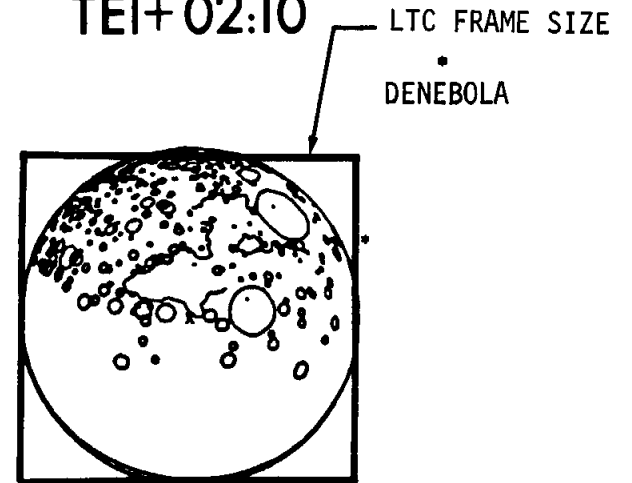


FIGURE 3-5
3-230

MCC-H

2023 CST

FLIGHT PLAN

NOTES

150:00
 (11102)
 (X1111)

:10

:20

150:30
 (11101)
 (X1111)

:40

:50

151:00

M
S
F
N

P52 IMU ALIGN
 OPTION 3 REFSMMAT STARS _____
 (TEI ORIENTATION) SA _____
 REPORT GYRO TORQUE ANGLES TA _____
 OPTION 1 PREFERRED
 (PTC ORIENTATION)

V49 MNVR TO PHOTOGRAPH LUNAR SURFACE (150:15)
 (040,314,352) HGA P -33, Y 291
 LUNAR PHOTOGRAPHY TEI + 1 HR (150:15)
 CM3/EL/250/MBW (f5.6,1/250,∞) (4 FR)
 HAND-HELD, COVER VISIBLE DISC
 STOW EL CAMERA, RECORD FR # _____

VISUAL ASSESSMENT OF VISUAL TARGETS 1 & 2

V48 (11101)(X1111)

V49 MNVR LTC PHOTO PAD ATTITUDE (150:50)
 (046.8,315.7,359.1)
 CONFIGURE CAMERA: (LUNAR SURFACE PHOTOS)
 CM3/LTC/MBW/SEF-(SHUT 1/200, RNG 99.9 CW, INT-SINGLE FRAME) (12 FR)
 MAG (V) _____, FR # _____
 LTC INSTALLATION (DECAL)
 LTC CHECKOUT (DECAL)
 VERIFY LTC MODE-STANDBY/POWER-ON (T START -1 MIN)
 LTC MODE-SINGLE
 TEI +1 HR 40 MIN (150:55) SINGLE FRAME
 GET OF EXPOSURE: _____:_____:_____
 V49 MNVR TO LTC PHOTO PAD ATTITUDE (151:00)
 (047.8,315.8,000.1)

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

LTC PHOTO PAD (TEI +01:40)
 R _____, P _____, Y _____

LTC PHOTO PAD (TEI +01:50)
 R _____, P _____, Y _____

UPDATE TO CSM
 LTC PHOTO ATT
 (IF REQ'D)

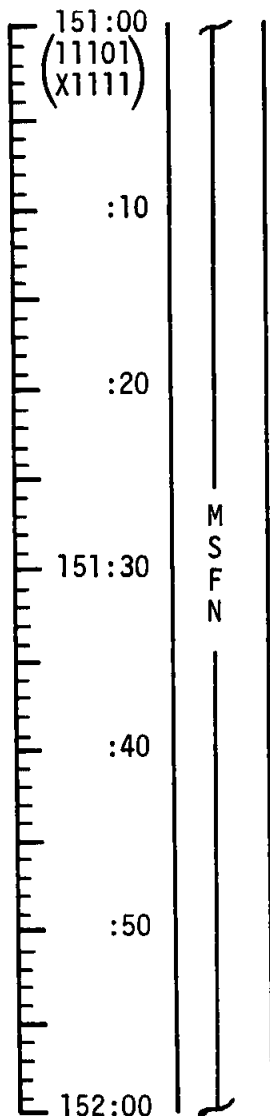
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	150:00 - 151:00	6/TEC	3-231

FLIGHT PLAN

MCC-H

2123 CST

NOTES



UPDATE TO CSM
QUADS TO ENABLE
FOR PTC SPINUP
CSM S.V.

UPLINK TO CSM
CSM S.V. (MSFN)
(NO V47)

TEI + 1 HR 50 MIN (151:05) SINGLE FRAME
GET OF EXPOSURE ___:___:___

V49 MNVR TO LTC PHOTO PAD ATTITUDE (151:10)
(048.6,315.9,001.0)
TEI + 2 HR (151:15) SINGLE FRAME
GET OF EXPOSURE ___:___:___

V49 MNVR TO LTC PHOTO PAD ATTITUDE (151:20)
(049.3,316.0,001.7)
TEI + 2 HR 10 MIN (151:25) SINGLE FRAME
GET OF EXPOSURE ___:___:___
LTC MODE-STANDBY, RECORD FR # _____
LTC REMOVAL (DECAL), AND STOW _____

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N) PAGE G 8-2
V49 MNVR TO PTC ATTITUDE
(N20,270,000)
V79 (-0.3750)
(+030.00)
(+00000)

CSM SYSTEMS CHECKLIST

PRE-SLEEP CHECKLIST PAGE S 1-26
COMM - OMNI'S

LTC PHOTO PAD (TEI + 02:00)
R_____, P_____, Y_____

LTC PHOTO PAD (TEI + 02:10)
R_____, P_____, Y_____

EARTH DISTANCE
≈ 206 148 NM
DAP LOAD STATUS
(11101)(X1111)

PTC

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 14	CHANGE A (JAN)	DECEMBER 23, 1970	151:00 - 152:00	6/TEC	3-232

MSC FOF

19B (APRIL 1970) OT

FLIGHT PL

ING BRANCH

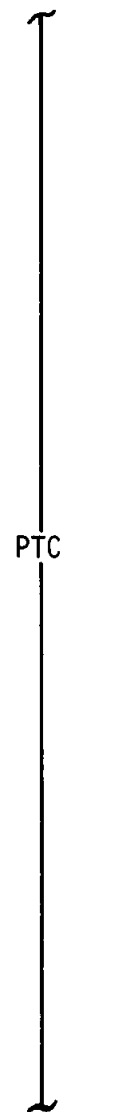
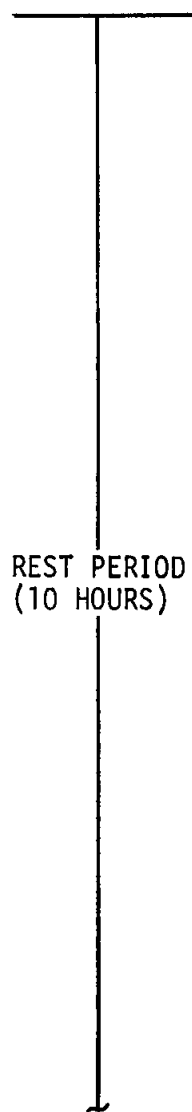
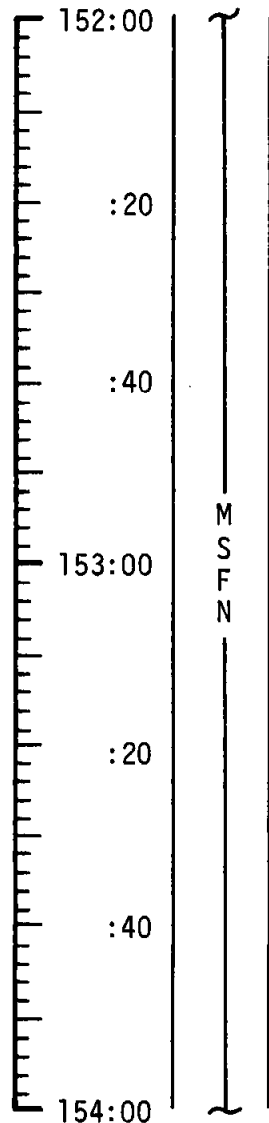
NA' MSC

MCC-H

2223 CST

FLIGHT PLAN

NOTES



DAP LOAD STATUS
(11101)(X1111)

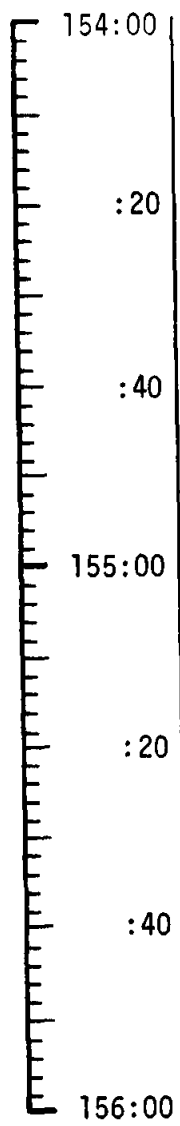
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	152:00 - 154:00	6/TEC	3-233

MCC-H

0023 CST

FLIGHT PLAN

NOTES



M
S
E
N

REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(11101)(X1111)

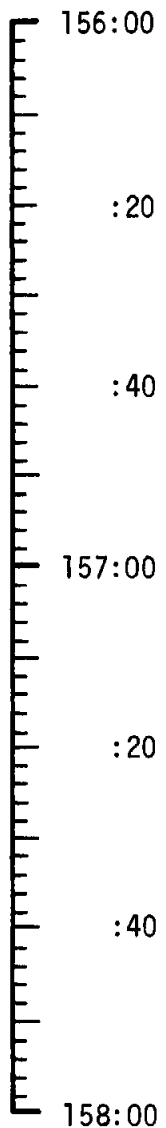
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	154:00 - 156:00	6/TEC	3-234

MCC-H

0223 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(11101)(X1111)

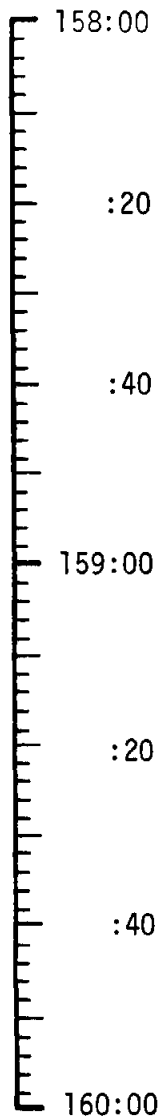
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	156:00 - 158:00	6/TEC	3-235

MCC-H

0423 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(11101)(X1111)

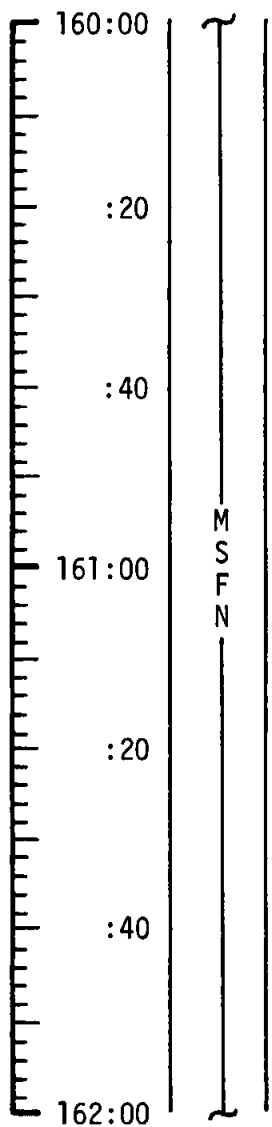
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	158:00 - 160:00	6/TEC	3-236

MCC-H

0623 CST

FLIGHT PLAN

NOTES



REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(11101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	160:00 - 162:00	6/TEC	3-237

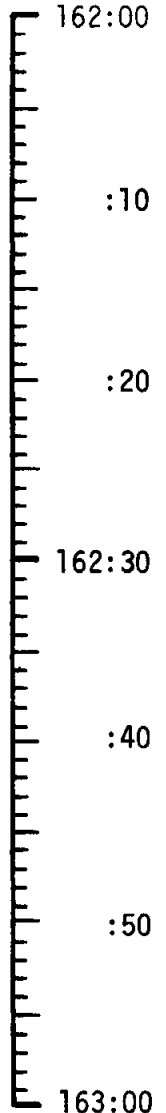
MCC-H

0823 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
CONSUMABLES
FLIGHT PLAN



M
S
F
N

CSM SYSTEMS CHECKLIST

POST-SLEEP CHECKLIST
 COMM - HGA REACQ MODE
 LiOH CANISTER CHANGE
 (13 INTO A, STOW 11 IN A3)
 O₂ HEATER 2 (1) - OFF

PAGE S 1-26

EAT PERIOD

PTC

DAP LOAD STATUS
(11101)(X1111)

CSM CONSUMABLES UPDATE

GET: _____:_____.

RCS TOTAL _____

QUAD A _____ B _____

C _____ D _____

H₂ TANK 1 _____ 2 _____

O₂ TANK 1 _____ 2 _____

3 _____

EARTH DISTANCE
≈ 184 381 NM

DURING PTC CREW
AWAKE PERIODS,
THE ANTENNA
CONFIGURATION
WILL BE HGA/OMNI
COMMANDED FROM
MCC-H

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	162:00 - 163:00	7/TEC	3-238

MCC-H

0923 CST

FLIGHT PLAN

NOTES

163:00

:10

:20

163:30

:40

:50

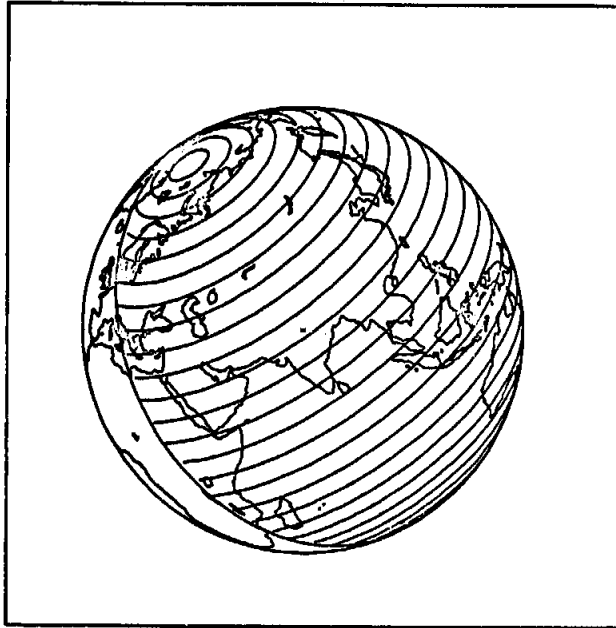
164:00

(11101)
(X1111)

M
S
L
N

GET: 164:00

F.O.V. 3°



P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES

EXIT G&N PTC

PAGE G 8-3

PTC

DAP LOAD STATUS
(11101) (X1111)

P52 IMU REALIGN

N71: ____ , ____

N05: ____ . ____

N93:

X ____ . ____

Y ____ . ____

Z ____ . ____

GET ____ : ____ : ____

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	163:00 - 164:00	7/TEC	3-239

MCC-H

1023 CST

FLIGHT PLAN

NOTES

164:00
(11101)
(X1111)

:10

:20

164:30

:40

:50

165:00

M
S
F
N

V49 MNVR TO OPTICS CALIBRATION ATTITUDE
(113,323,002) HGA P -68, Y 73

P23 CISELUNAR NAVIGATION
OPTICS CALIBRATION STAR N70 (00033)

P00
V49 MNVR TO SIGHTING ATTITUDE
(094,325,335) HGA P -55, Y 3
V67 (+99000) (+00020) (+00003)

P23 CISELUNAR NAVIGATION
3 MARKS ON EACH STAR
1. N70 (00040) (00000) (00110)

2. N70 (00000) (00000) (00120)
N88 (+07234) (-86438) (-49761)

3. N70 (00033) (00000) (00120)

*4. N70 (00035) (00000) (00120)

*5. N70 (00000) (00000) (00120)
N88 (-07804) (-99375) (+07982)

*6. N70 (00000) (00000) (00110)
N88 (+22712) (-83641) (-49884)

V49 MNVR TO THERMAL ATTITUDE (165:00)
(184,325,335) OMNI A

EARTH HORIZON
LOAD W MATRIX

40 ALTAIR (ENH)

212 DELTA
SAGITTARII (EFH)

33 ANTARES (EFH)

35 RASALHAGUE (EFH)

211 BETA
OPHIUCHI (EFH)

214 ZETA
SAGITTARII (ENH)

*OPTIONAL TEST
STARS, DO NOT
UPDATE S.V.

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	164:00 - 165:00	7/TEC	3-240

MCC-H

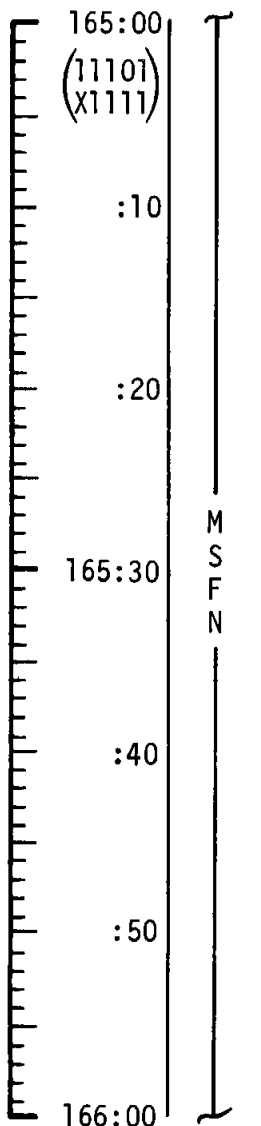
1123 CST

FLIGHT PLAN

NOTES

UPLINK TO CSM
CSM S.V. & V47E
MCC-5 TGT LOAD

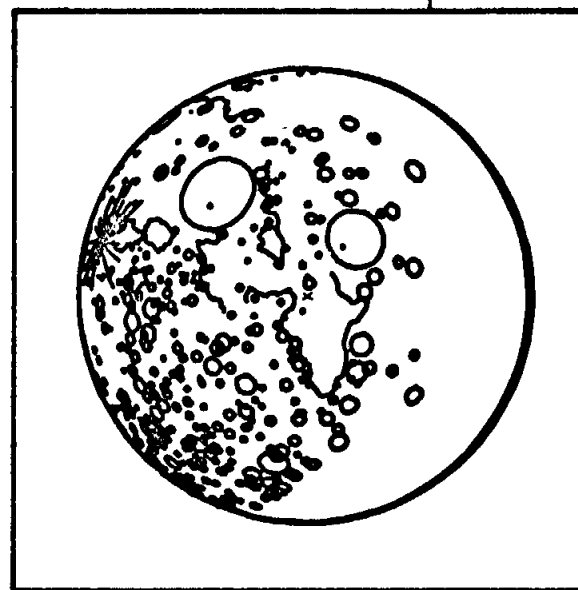
UPDATE TO CSM
MCC-5 MNVR PAD



THE TEI CMC S.V. WILL BE UPDATED BY ONBOARD NAVIGATION (P-23's) DURING TEC. MCC'S WILL BE PERFORMED WITH A MSFN CALCULATED S.V. REPLACING THE CMC CALCULATED S.V., WHICH WILL BE DOWN-LINKED PRIOR TO THE BURNS. AFTER THE MCC, THE PREVIOUS CMC S.V. (CORRECTED FOR THE BURN) WILL BE UPLINKED TO THE LM SLOT AND TRANSFERRED TO THE CSM SLOT, THUS PRESERVING THE ORIGINAL CMC S.V. AND THE W MATRIX. AFTER THE BURN, MCC-H WILL ALSO UPLINK A CURRENT MSFN S.V. TO THE LM SLOT FOR REFERENCE PURPOSES.

GET: 166:00

F.O.V. 3°



P30 EXTERNAL ΔV

V49 MNVR TO PAD ATT

SXT STAR CHECK
P40 SPS THRUSTING OR
P41 RCS THRUSTING

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	165:00 - 166:00	7/TEC	3-241

FLIGHT PLAN

MCC-5
BURN TABLE

MANEUVER	P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
CORRIDOR CONTROL	10°/SEC COMPLETE	+10° COMPLETE	BT + 1 SEC AND $\Delta V_c = 0$	TRIM X AXIS ONLY TO 0.2 FPS
IP CONTROL	10°/SEC TERMINATE	+10° TERMINATE	BT + 1 SEC AND $\Delta V_c = 0$	TRIM X & Z AXIS TO 0.2 FPS

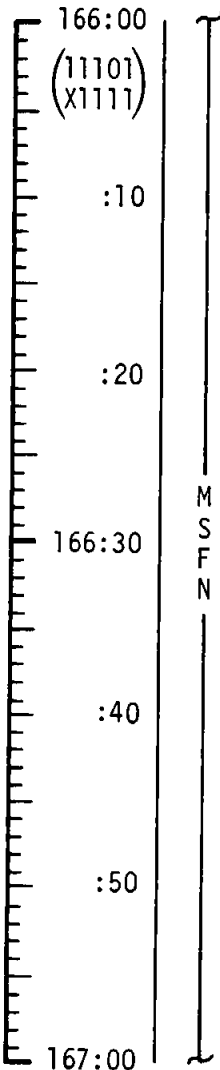
TABLE 3-9
3-242

MCC-H

1223 CST

FLIGHT PLAN

NOTES



O₂ FUEL CELL PURGE
WASTE WATER DUMP

TIG: 166:14:50
BT: NOM ZERO
ΔVR: NOM ZERO
ULLAGE: N/A
ORBIT: N/A

TEI +17 HR

UPLINK TO CSM
CSM S.V. (CMC) V47E
CSM S.V. (MSFN)
(NO V47)

MCC-5

BURN STATUS REPORT
CHARGE BATTERY B

V49 MNVR TO OPTICS CALIBRATION ATTITUDE
(290,019,034) OMNI C
P23 CISELUNAR NAVIGATION
OPTICS CALIBRATION STAR N70 (00016)
P00

V49 MNVR TO SIGHTING ATTITUDE LUNAR HORIZON
(287,032,000) OMNI C
P23 CISELUNAR NAVIGATION
3 MARKS ON EACH START
1. N70 (00016) (00000) (00220) 16 PROCYON (MFH)

2. N70 (00000) (00000) (00220) 50 POLLUX (MFH)
N88 (-38513) (+79364) (+47097)

3. N70 (00022) (00000) (00210) 22 REGULUS (MNH)

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			UNBAL

*ITEMS TO BE
REPORTED TO MSFN

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	166:00 - 167:00	7/TEC	3-243

MCC-H

1323 CST

FLIGHT PLAN

NOTES

167:00
 (11101)
 (X1111)

:10

:20

167:30

(11111)
 (X1111)

:40

:50

168:00

↑

M
S
F
N

↓

V49 MNVR TO OPTICS CALIBRATION ATTITUDE
 (057,098,359) HGA P -63, Y 261
 P23 CISLUNAR NAVIGATION
 OPTICS CALIBRATION STAR N70 (00035)
 P00

V49 MNVR TO SIGHTING ATTITUDE
 (081,094,325) HGA P -57, Y 0
 P23 CISLUNAR NAVIGATION
 3 MARKS ON EACH STAR
 1. N70 (00040) (00000) (00110)

2. N70 (00000) (00000) (00120)
 N88 (+07234)(-86438)(-49761)

3. N70 (00033) (00000) (00120)

V48 (11111)(X1111)
 V49 MNVR TO O₂ FLOW RATE TEST ATTITUDE (167:45)
 (345,130,344) HGA P 10, Y 279

DISABLE RCS QUADS A&B

UNSTOW ELECTRICAL CABLE FROM R10
 REMOVE PROTECTIVE PLUG FROM SIDE HATCH
 DUMP NOZZLE
 CONNECT CABLE TO HEATER CONNECTOR
 PANEL 15 UTILITY PWR - OFF (VERIFY)
 CONNECT CABLE TO UTILITY OUTLET
 UTILITY PWR - ON

↓

O₂ FLOW
 RATE TEST

↓

EARTH DISTANCE
 ≈175 091 NM

EARTH HORIZON

40 ALTAIR (ENH)

212 DELTA
 SAGITTARII (EFH)

33 ANTARES (EFH)

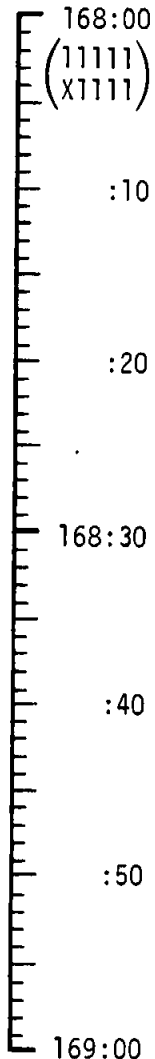
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE C (JAN)	JANUARY 18, 1971	167:00 - 168:00	7/TEC	3-244

MCC-H

1423 CST

FLIGHT PLAN

NOTES



M
S
F
N

CREW EXERCISE PERIOD

O₂ HEATER 3 (1) - AUTO
 REPRESS PKG VLV - OFF (VERIFY)
 CB O₂ ISOL/AUX BAT - CLOSE
 O₂ TANK 3 ISOL VLV - CLOSE (MOMENTARY)
 O₂ TANK 3 ISOL VLV TB-BP
 O₂ PRESS IND - SRG/3

UNSTOW SCREEN & ADAPTER FROM R6
 REMOVE PLUG FROM SIDE HATCH ORIFICE AND STOW
 INSTALL ADAPTER ON HATCH ORIFICE
 INSTALL SCREEN ON ADAPTER

WHEN SURGE TANK PRESSURE REACHES 750 PSIA,
 (CRYO O₂ PRESS 1/SRG IND \leq 750 PSIA)
 SURGE TANK O₂ VLV - OFF

O₂ FLOW
RATE
TEST

TEST WILL BE
 TERMINATED 2.5
 HOURS AFTER
 SURGE TANK
 REACHES 750 PSIA

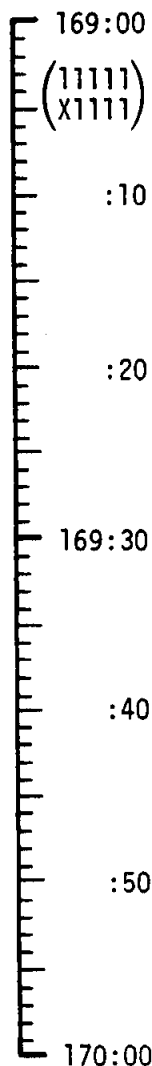
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE C (JAN)	JANUARY 18, 1971	168:00 - 169:00	7/TEC	3-245

MCC-H

1523 CST

FLIGHT PLAN

NOTES



M
S
F
N

EAT PERIOD

O₂ FLOW
RATE
TEST

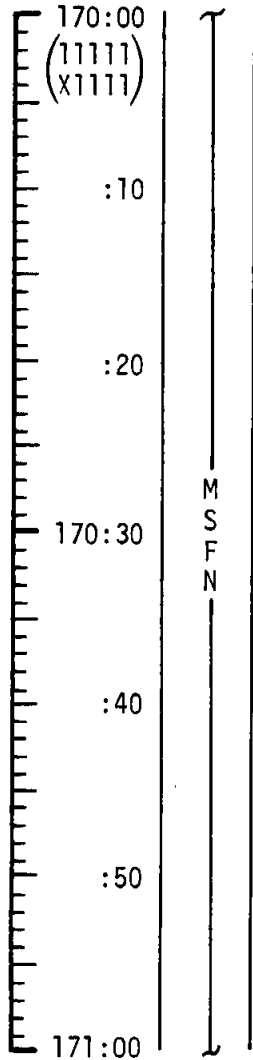
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	169:00 - 170:00	7/TEC	3-246

MCC-H

1623 CST

FLIGHT PLAN

NOTES



EARTH DISTANCE
≈ 168 662 NM

O₂ FLOW
RATE
TEST

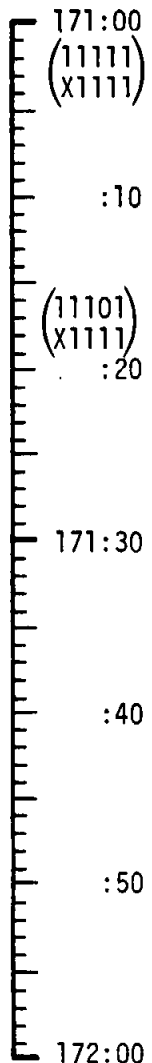
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	170:00 - 171:00	7/TEC	3-247

MCC-H

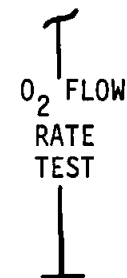
1723 CST

FLIGHT PLAN

NOTES



ON CUE FROM MCC-H, APPROXIMATELY 10 MINUTES
PRIOR TO TEST COMPLETION,
SURGE TANK O₂ VLV - ON
UTILITY PWR $\bar{=}$ OFF
DISCONNECT CABLE FROM HEATER AND UTILITY OUTLET
AND STOW IN R10
REMOVE AND STOW SCREEN & ADAPTER IN BAG IN R6
UNSTOW PLUG AND REPLACE IN SIDE HATCH ORIFICE
INSTALL PROTECTIVE PLUG ON HATCH NOZZLE
V48 (11101)(X1111)
ENABLE RCS QUADS A&B
V49 MNVR TO THERMAL ATTITUDE (171:30)
(144,002,027) HGA P -29, Y 116
O₂ TANK 3 ISOL VLV - OPEN
O₂ TANK 3 ISOL VLV TB - GRAY
CB O₂ ISOL/AUX BAT - OPEN



WHEN SURGE TANK PRESSURE REACHES 865 PSIA,
O₂ HEATER 1 - OFF

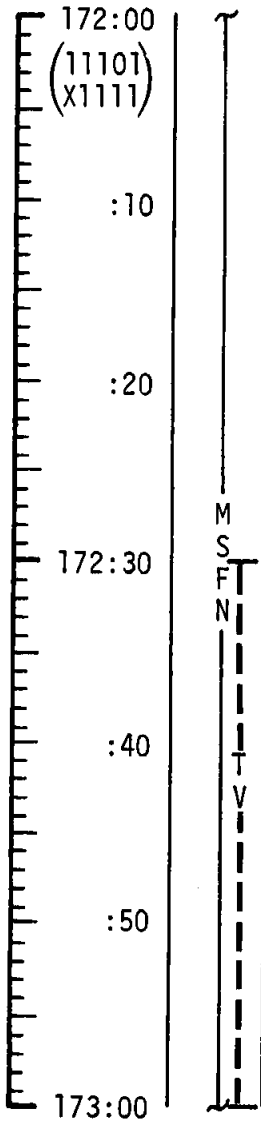
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE C (JAN)	JANUARY 18, 1971	171:00 - 172:00	7/TEC	3-248

MCC-H

1823 CST

FLIGHT PLAN

NOTES



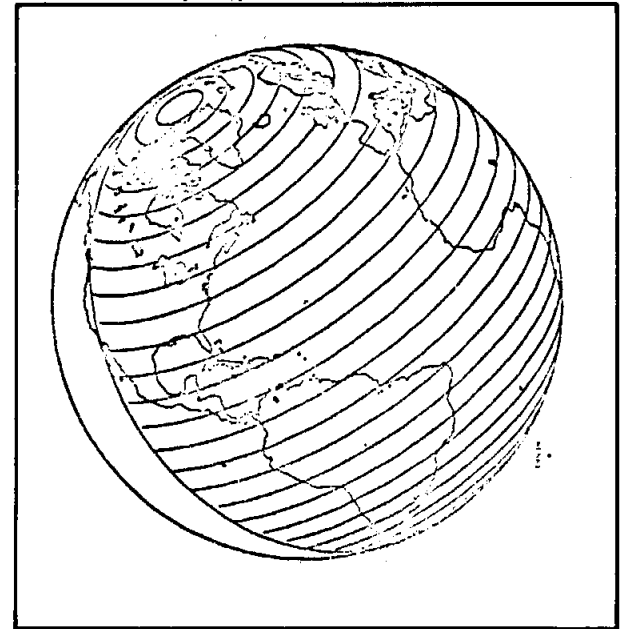
CSM SYSTEMS CHECKLIST

CONTAMINATION CONTROL PAGE S 1-16

TV(GDS) 172:30 TO 173:00
 CM/TV - AVG (f5.6)
 USE MONITOR TO ADJUST APERTURE
 FOR INFLIGHT DEMONSTRATION

GET: 173:00

F.O.V. = 3°



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	172:00 - 173:00	7/TEC	3-249

MCC-H

1920 CST

FLIGHT PLAN

NOTES

173:00
 (11101)
 (X1111)
 :10
 :20
 173:30
 :40
 :50
 174:00

M
S
F
N

V49 MNVR TO OPTICS CALIBRATION ATTITUDE
 (094,103,358) HGA P -79, Y 101
 P23 CISLUNAR NAVIGATION
 OPTICS CALIBRATION STAR N70 (00040)
 P00
 V49 MNVR TO SIGHTING ATTITUDE
 (082,098,325) HGA P -57, Y 0
 P23 CISLUNAR NAVIGATION
 3 MARKS ON EACH STAR
 1. N70 (00040) (00000) (00110)
 2. N70 (00000) (00000) (00120)
 N88 (+07234) (-86438) (-49761)
 3. N70 (00033) (00000) (00120)
 *4. N70 (00035) (00000) (00120)
 *5. N70 (00000) (00000) (00120)
 N88 (-07804) (-99375) (+07982)
 *6. N70 (00042) (00000) (00110)
 LIQH CANISTER CHANGE
 (14 INTO B, STOW 12 IN A3)

EARTH DISTANCE
 ≈ 162 018 NM
 EARTH HORIZON
 40 ALTAIR (ENH)
 212 DELTA
 SAGITTARII (EFH)
 33 ANTARES (EFH)
 35 RASALHAGUE (EFH)
 211 BETA
 OPHIUCHI (EFH)
 42 PEACOCK (ENH)
 *OPTIONAL TEST
 STARS, DO NOT
 UPDATE S.V.

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	173:00 - 174:00	7/TEC	3-250

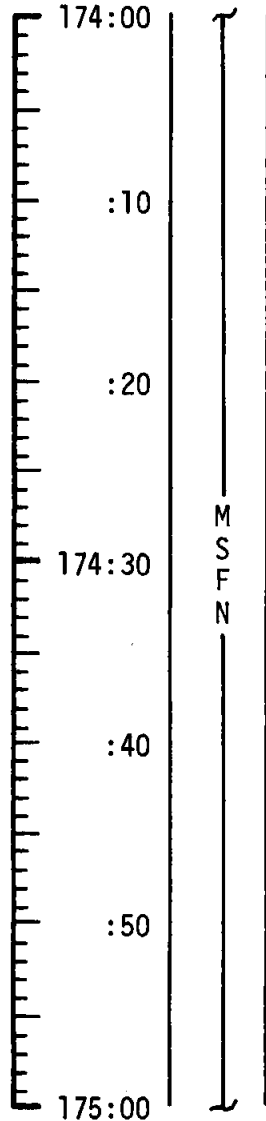
MCC-H

2023 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
QUADS TO ENABLE
FOR PTC SPINUP



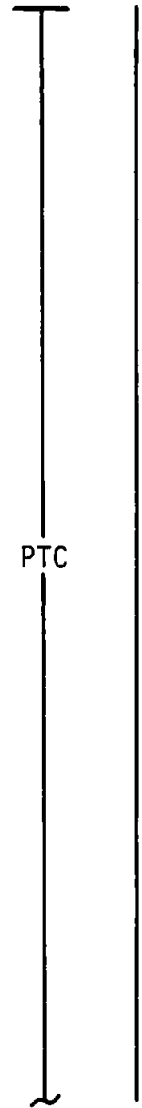
CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N)
 V49 MNVR TO PTC ATTITUDE
 (N20,270,000)
 V79 (-0.3750)
 (+030.00)
 (+00000)

PAGE G 8-2

REESTABLISH HGA REACQ MODE

DAP LOAD STATUS
(11101)(X1111)



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	174:00 - 175:00	7/TEC	3-251

MCC-H

2123 CST

FLIGHT PLAN

NOTES

175:00

:10

:20

175:30

:40

:50

176:00

M
S
F
N

EAT PERIOD

PTC

DAP LOAD STATUS
(11101)(X1111)

CSM SYSTEMS CHECKLIST

PRE-SLEEP CHECKLIST
COMM - OMNI'S

PAGE S 1-26

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

EARTH DISTANCE
≈ 155 133 NM

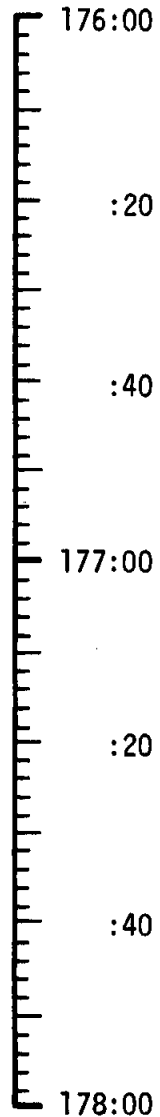
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	175:00 - 176:00	7/TEC	3-252

MCC-H

2223 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(11101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	176:00 - 178:00	7/TEC	3-253

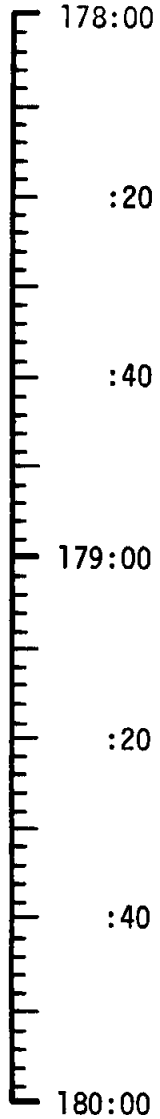
MCC-H

0023 CST

FLIGHT PLAN

NOTES

DAP LOAD STATUS
(11101)(X1111)



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

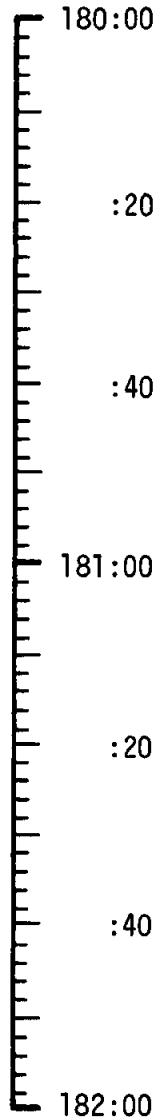
MISSION	EDITION	DATE	TIME	Y/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	178:00 - 180:00	7/TEC	3-254

MCC-H

0223 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(11101)(X1111)

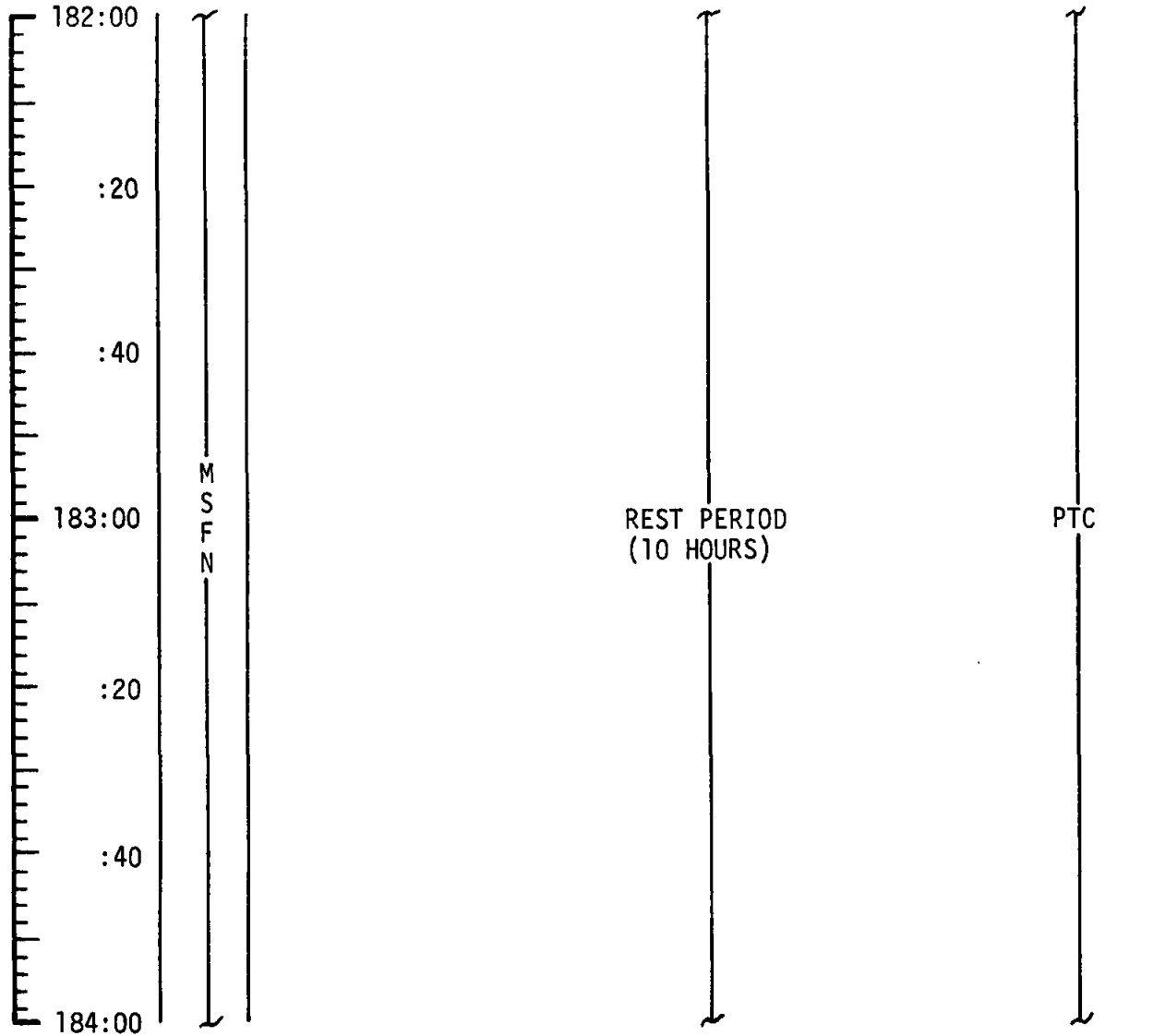
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	180:00 - 182:00	7/TEC	3-255

MCC-H

0423 CST

FLIGHT PLAN

NOTES



DAP LOAD STATUS
(11101)(X1111)

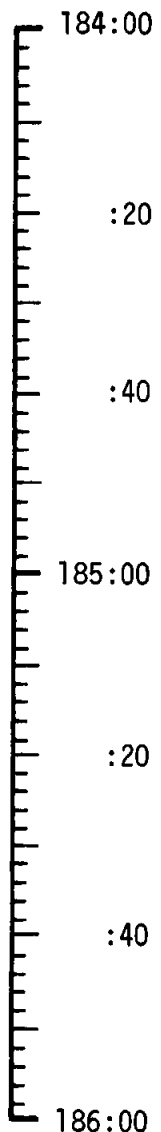
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	182:00 - 184:00	7/TEC	3-256

MCC-H

0623 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(10 HOURS)

PTC

DAP LOAD STATUS
(11101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	184:00 - 186:00	7/TEC	3-257

MCC-H

0823 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
CONSUMABLES
FLIGHT PLAN

186:00

:10

:20

186:30

:40

:50

187:00

M
S
F
N

CSM SYSTEMS CHECKLIST

POST-SLEEP CHECKLIST PAGE S 1-26
COMM - HGA REACQ MODE

CHARGE BATTERY A

EAT PERIOD

P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES

DAP LOAD STATUS
(11101)(X1111)

CSM CONSUMABLES UPDATE

GET: ____:____

RCS TOTAL _____

QUAD A _____ B _____

C _____ D _____

H₂ TANK 1 _____ 2 _____

O₂ TANK 1 _____ 2 _____

3 _____

PTC

EARTH DISTANCE
≈ 127 376 NM

P52 IMU REALIGN

N71: ____ , ____

N05: ____ . ____

N93:

X ____ . ____

Y ____ . ____

Z ____ . ____

GET ____ : ____ : ____

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	186:00 - 187:00	8/TEC	3-258

MCC-H

0923 CST

FLIGHT PLAN

NOTES

187:00
:10
:20
187:30
:40
:50
188:00

MSLN

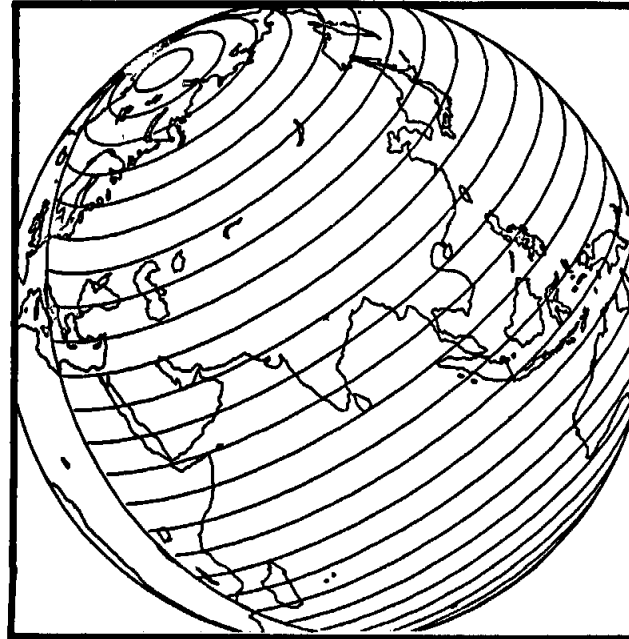
LiOH CANISTER CHANGE
(15 INTO A, STOW 13 IN A4)

CSM ENTRY CHECKLIST
EMS ENTRY CHECK

PAGE E 1-4

GET: 188:00

F.O.V. 3°



PTC

DAP LOAD STATUS
(11101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	187:00 - 188:00	8/TEC	3-259

FLIGHT PLAN

1023 CST

188:00
:10
:20
:30
:40
:50
189:00

(11101)
(X1111)

M
S
F
N

EXIT G&N PTC

PAGE G 8-3

V49 MNVR TO OPTICS CALIBRATION ATTITUDE
(073,138,354) HGA P -75, Y 278
P23 CISLUNAR NAVIGATION
OPTICS CALIBRATION STAR N70 (00040)
P00
V49 MNVR TO SIGHTING ATTITUDE
(087,137,325) HGA P -57, Y 0
P23 CISLUNAR NAVIGATION
3 MARKS ON EACH STAR
1. N70 (00037) (00000) (00120)

2. N70 (00033) (00000) (00120)

3. N70 (00000) (00000) (00110)
N88 (+59879) (-32372) (-73257)

PTC

NOTES

DAP LOAD STATUS
(11101)(X1111)

EARTH DISTANCE
≈121 814 MIN

EARTH HORIZON

37 NUNKI (EFH)

33 ANTARES (EFH)

120 AL NA'IR (ENH)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	188:00 - 189:00	8/TEC	3-260

MCC-H

1123 CST

FLIGHT PLAN

NOTES

189:00
(11101)
(X1111)

:10

:20

189:30

:40

:50

190:00

M
S
F
N

*4. N70 (00040) (00000) (00110)

*5. N70 (00035) (00000) (00120)

*6. N70 (00000) (00000) (00120)
N88 (-07804) (-99375) (+07982)

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N)
V49 MNVR TO PTC ATTITUDE
(N20, 270, 000)
V79 (-0.3750)
(+030.00)
(+00000)
REESTABLISH HGA REACQ MODE

PAGE G 8-2

PTC

40 ALTAIR (ENH)

35 RASALHAGUE (EFH)

211 BETA
OPHIUCHI (EFH)

*OPTIONAL TEST
STARS, DO NOT
UPDATE S.V.

DAP LOAD STATUS
(11101) (X1111)

UPDATE TO CSM
QUADS TO ENABLE
FOR PTC SPINUP

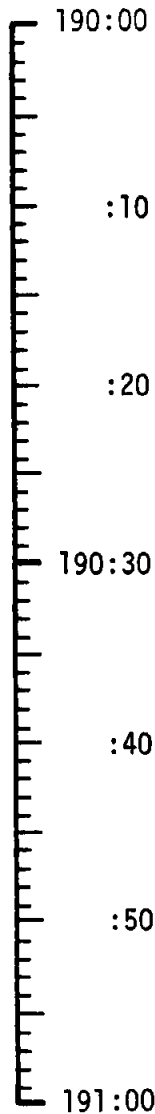
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	189:00 - 190:00	8/TEC	3-261

MCC-H

1223 CST

FLIGHT PLAN

NOTES



M
S
F
N

CREW EXERCISE PERIOD

PTC

DAP LOAD STATUS
(11101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	190:00 - 191:00	8/TEC	3-262

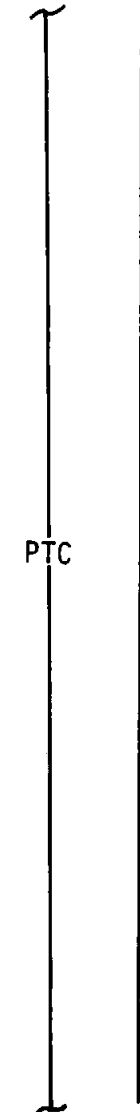
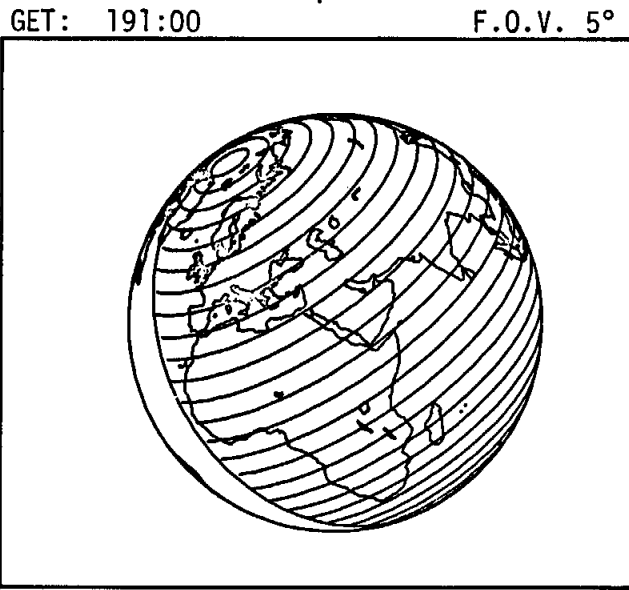
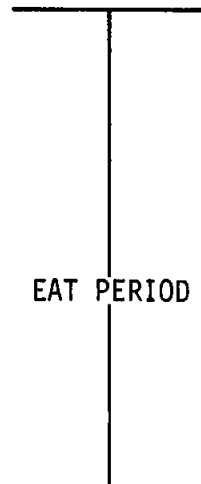
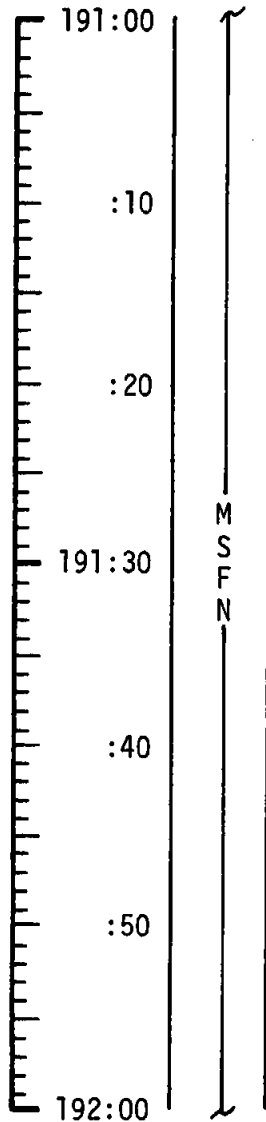
MCC-H

1323 CST

FLIGHT PLAN

NOTES

DAP LOAD STATUS
(11101)(X1111)



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	191:00 - 192:00	8/TEC	3-263

MCC-H

1423 CST

FLIGHT PLAN

NOTES

DAP LOAD STATUS
(11101)(X1111)

192:00
:10
:20
(11101)
(X1111)
192:30
:40
:50
193:00

M
S
F
N

P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES

EXIT G&N PTC
V49 MNVR TO OPTICS CALIBRATION ATTITUDE
(072,016,005) HGA P -73, Y 270
PAGE G 8-3
P23 CISELUNAR NAVIGATION
OPTICS CALIBRATION STAR N70 (00033)
P00
V49 MNVR TO SIGHTING ATTITUDE
(090,016,330) HGA P -55, Y 3
P23 CISELUNAR NAVIGATION
3 MARKS ON EACH STAR
1. N70 (00037) (00000) (00120)
2. N70 (00033) (00000) (00120)
3. N70 (00000) (00000) (00110)
N88 (+59879) (-32372) (-73257)

PTC

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

EARTH DISTANCE
≈ 113 101 NM

EARTH HORIZON

37 NUNKI (EFH)

33 ANTARES (EFH)

120 AL NA'IR (ENH)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	192:00 - 193:00	8/TEC	3-264

MSC Form 29 (May 69)

FLIGHT PLANNING BRANCH

MCC-H

1523 CST

FLIGHT PLAN

NOTES

193:00
 (11101)
 (X1111)
 :10
 :20
 193:30
 :40
 :50
 194:00

M
S
F
N

H₂ PURGE LINE HEATER-ON } IF MCC-6 NOT REQUIRED

H₂ & O₂ FUEL CELL PURGE
 WASTE WATER DUMP
 H₂ PURGE LINE HEATER - OFF } IF MCC-6 NOT REQUIRED

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N) PAGE G 8-2
 V49 MNVR TO PTC ATTITUDE
 (N20,270,000)
 V79 (-0.3750)
 (+030.00)
 (+00000)
 REESTABLISH HGA REACQ MODE
 P30 EXTERNAL ΔV
 V49 MNVR TO PAD BURN ATT
 H₂ PURGE LINE HEATERS - ON } IF NOT PERFORMED
 AT 193:00

PTC

RESTART PTC IF
 MCC-6 NOT REQ'D
 DAP LOAD STATUS
 (11101)(X1111)

UPDATE TO CSM
 MCC-6 MNVR PAD
 ENTRY PAD (ASSUMES
 MCC-6)
 CSM S.V.

UPLINK TO CSM
 CSM S.V. & V47E
 MCC-6 TGT LOAD

UPDATE TO CSM
 QUADS TO ENABLE
 FOR PTC SPINUP

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	193:00 - 194:00	8/TEC	3-265

FLIGHT PLAN

MCC-6
BURN TABLE

MANEUVER	P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
CORRIDOR CONTROL	10°/SEC COMPLETE	+10° COMPLETE	BT + 1 SEC AND $\Delta V_c = 0$	TRIM X AXIS ONLY TO 0.2 FPS
IP CONTROL	10°/SEC TERMINATE	+10° TERMINATE	BT + 1 SEC AND $\Delta V_c = 0$	TRIM X & Z AXIS TO 0.2 FPS

TABLE 3-10
3-266

MCC-H

1623 CST

FLIGHT PLAN

NOTES

194:00
 (11101)
 (X1111)

:10

:20

194:30

:40

:50

195:00

MSFN

SXT STAR CHECK
 P40 SPS THRUSTING OR
 P41 RCS THRUSTING

H₂ & O₂ FUEL CELL PURGE
 WASTE WATER DUMP
 H₂ PURGE LINE HEATERS-OFF

IF NOT PERFORMED
 AT 193:20

PTC

DAP LOAD STATUS
 (11101)(X1111)

EI - 22 HR

UPLINK TO CSM
 CSM S.V. (CMC) V47E
 CSM S.V. (MSFN)
 (NO V47)

BURN STATUS REPORT

MCC-6

TIG: 194:26:59
 BT: NOM ZERO
 ΔVT: NOM ZERO
 ULLAGE: N/A
 ORBIT: N/A

BURN STATUS REPORT				
X	X	<input type="checkbox"/>	●	ΔTIG
X	X	<input type="checkbox"/>	●	BT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	V _{gx}
TRIM				
X	X	X		R
X	X	X		P
X	X	X		Y
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	V _{gx}
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	V _{gy}
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	V _{gz}
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	●	ΔV _c *
X	X	X		FUEL *
X	X	X		OX *
X	X	X		UNBAL

*ITEMS TO BE
 REPORTED TO MSFN

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	194:00 - 195:00	8/TEC	3-267

MCC-H

1723 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
QUADS TO ENABLE
FOR PTC SPINUP

195:00

:10

:20

195:30

:40

:50

196:00

M
S
F
N

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N)
V49 MNVR TO PTC ATTITUDE
(N20,270,000)
V79 (-0.3750)
(+030.00)
(+00000)
REESTABLISH HGA REACQ MODE

PAGE G 8-2

CSM SYSTEMS CHECKLIST

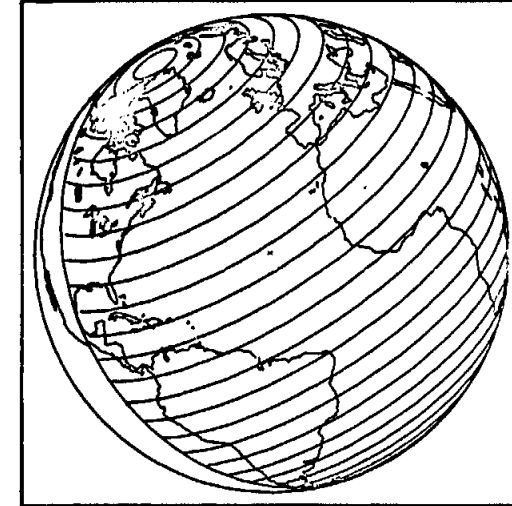
CONTAMINATION CONTROL

PAGE S 1-16

DAP LOAD STATUS
(11101) (X1111)

GET: 196:00

F.O.V. 5°



PTC

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	195:00 - 196:00	8/TEC	3-268

MCC-H

1823 CST

FLIGHT PLAN

NOTES

196:00
:10
:20
(11101)
(X1111)
196:30
:40
:50
197:00

M
S
F
N

P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES
REPORT: CM RCS INJECTOR VALVE TEMPS
(SYS TEST METER 5C, 5D, 6A, 6B, 6C, 6D)

EXIT G&N PTC PAGE G 8-3

V49 MNVR TO OPTICS CALIBRATION ATTITUDE
(086,062,012) HGA P -72, Y 191

P23 CISLUNAR NAVIGATION
OPTICS CALIBRATION STAR N70 (00035)
P00

V49 MNVR TO SIGHTING ATTITUDE
(090,062,329) HGA P -57, Y 3
P23 CISLUNAR NAVIGATION
3 MARKS ON EACH STAR

1. N70 (00037) (00000) (00120)
2. N70 (00033) (00000) (00120)
3. N70 (00000) (00000) (00110)
N88 (+59879) (-32372) (-73257)

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

PTC

DAP LOAD STATUS
(11101) (X1111)

CM RCS INJECTOR TEMP	
5C _____	5D _____
6A _____	6B _____
6C _____	6D _____

EARTH DISTANCE
≈ 97 415 NM

EARTH HORIZON

37 NUNKI (EFH)

33 ANTARES (EFH)

120 AL NA'IR (ENH)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	196:00 - 197:00	8/TEC	3-269

EARTH DARKSIDE DIM LIGHT PHOTOGRAPHY

CONFIGURE CAMERA
CM/DAC/SXT/VHBW, (EXP 1/500) 24 fps (2.5% MAG)
MAG (J) _____ MAG % _____

UTILITY POWER - ON

V49 MNVR TO EARTH DARKSIDE PHOTO ATTITUDE (197:20)
(122,270,000) HGA P -59, Y 90

DAMP VEHICLE RATES PER PTC PROCEDURE STEP 5
AFTER 20 MIN, DISABLE ALL JETS
P22 ORBIT NAVIGATION (NO MARKS)

LDMK: LAT + 10.000 SA +130.60
LONG/2 - 17.500 TA + 44.800
ALT +000.00

VERIFY THRU SXT THAT OPTICS BORESIGHTED ON EARTH DARKSIDE
MOUNT DAC ON SXT, DAC-ON AT 24 fps FOR 2 SEC
CHANGE DAC TO TIME & 1/60

1 FRAME, EXP TIME 60 SEC
1 FRAME, EXP TIME 20 SEC
1 FRAME, EXP TIME 5 SEC

CHANGE DAC TO 24 fps & 1/500; DAC ON AT 24 fps for 2 SEC
CYCLE CMC MODE - FREE/AUTO
ENABLE JETS
RECORD MAG % _____
REMOVE AND STOW DAC

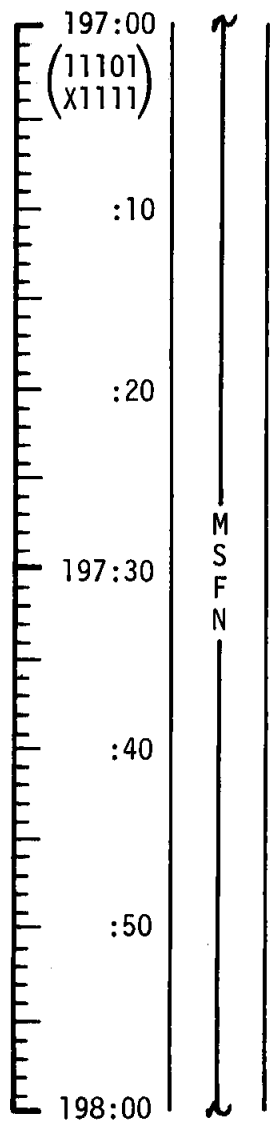
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	197:20 - 198:00	8/TEC	3-270

MCC-H

1923 CST

FLIGHT PLAN

NOTES



- *4. N70 (00040) (00000) (00110)
- *5. N70 (00000) (00000) (00120)
N88 (-07804) (-99375) (+07982)
- *6. N70 (00000) (00000) (00120)
N88 (+22712) (-83641) (-49884)



EARTH DARKSIDE
DIM LIGHT PHOTOGRAPHY

40 ALTAIR (ENH)

211 BETA
OPHIUCHI (EFH)

214 ZETA
SAGITTARII (EFH)

*OPTIONAL TEST
STARS, DO NOT
UPDATE S.V.

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	197:00 - 198:00	8/TEC	3-271

MCC-H

2023 CST

FLIGHT PLAN

NOTES

198:00
 (11101)
 (X1111)

:10

:20

198:30

:40

:50

199:00

M
S
F
N

CSM G&C CHECKLIST

BACKUP GDC AND/OR IMU ALIGNMENT
V06 N20 (DO NOT ENTER)

PAGE G 7-3

ONLY THE GDC
ALIGN WILL BE
PERFORMED

AT RELEASE OF GDC ALIGN PB, KEY ENTER,
RECORD ANGLES AND REPORT TO MCC-H

CRESCENT ALIGN
V06 N20 (DO NOT ENTER)

PAGE G 7-11

AT RELEASE OF GDC ALIGN PB, KEY ENTER,
RECORD ANGLES AND REPORT TO MCC-H

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N)
V49 MNVR TO PTC ATTITUDE
(N20, 270, 000)
V79 (-0.3750)
(+030.00)
(+00000)

PAGE G 8-2

PTC

DAP LOAD STATUS
(11101)(X1111)

UPDATE TO CSM
QUADS TO ENABLE
FOR PTC SPINUP

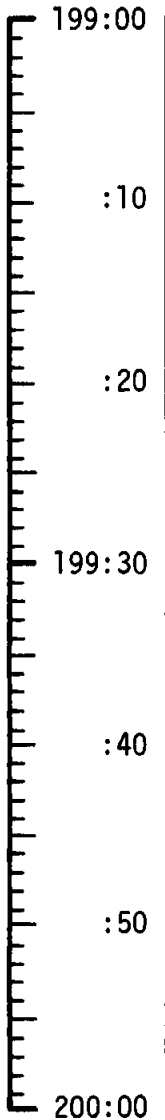
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	198:00 - 199:00	8/TEC	3-272

MCC-H

2123 CST

FLIGHT PLAN

NOTES



M
S
F
N

LiOH CANISTER CHANGE
(16 INTO B, STOW 14 IN A4)

EAT PERIOD

PTC

DAP LOAD STATUS
(11101)(X1111)

EARTH DISTANCE
≈ 87 143 NM

CSM SYSTEMS CHECKLIST

PRE-SLEEP CHECKLIST PAGE S 1-26
COMM - OMNI'S

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

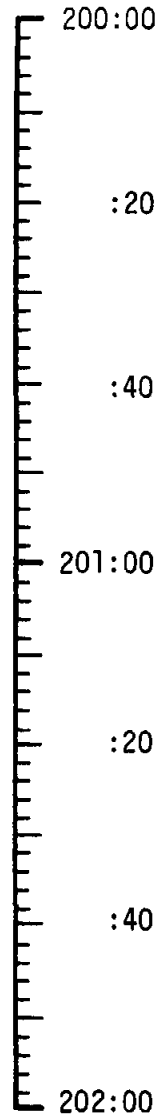
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	199:00 - 200:00	8/TEC	3-273

MCC-H

2223 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(8 HOURS)

PTC

DAP LOAD STATUS
(11101)(X1111)

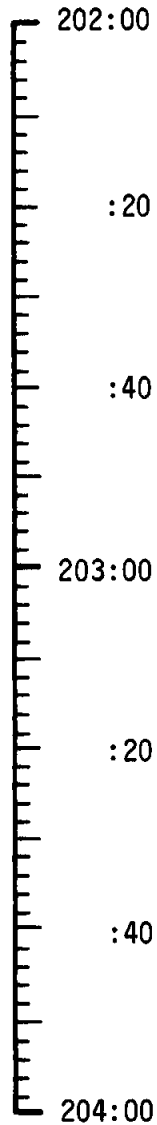
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	200:00 - 202:00	8/TEC	3-274

MCC-H

0023 CST

FLIGHT PLAN

NOTES



M
S
F
N

REST PERIOD
(8 HOURS)

PTC

DAP LOAD STATUS
(11101)(X1111)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	202:00 - 204:00	8/TEC	3-275

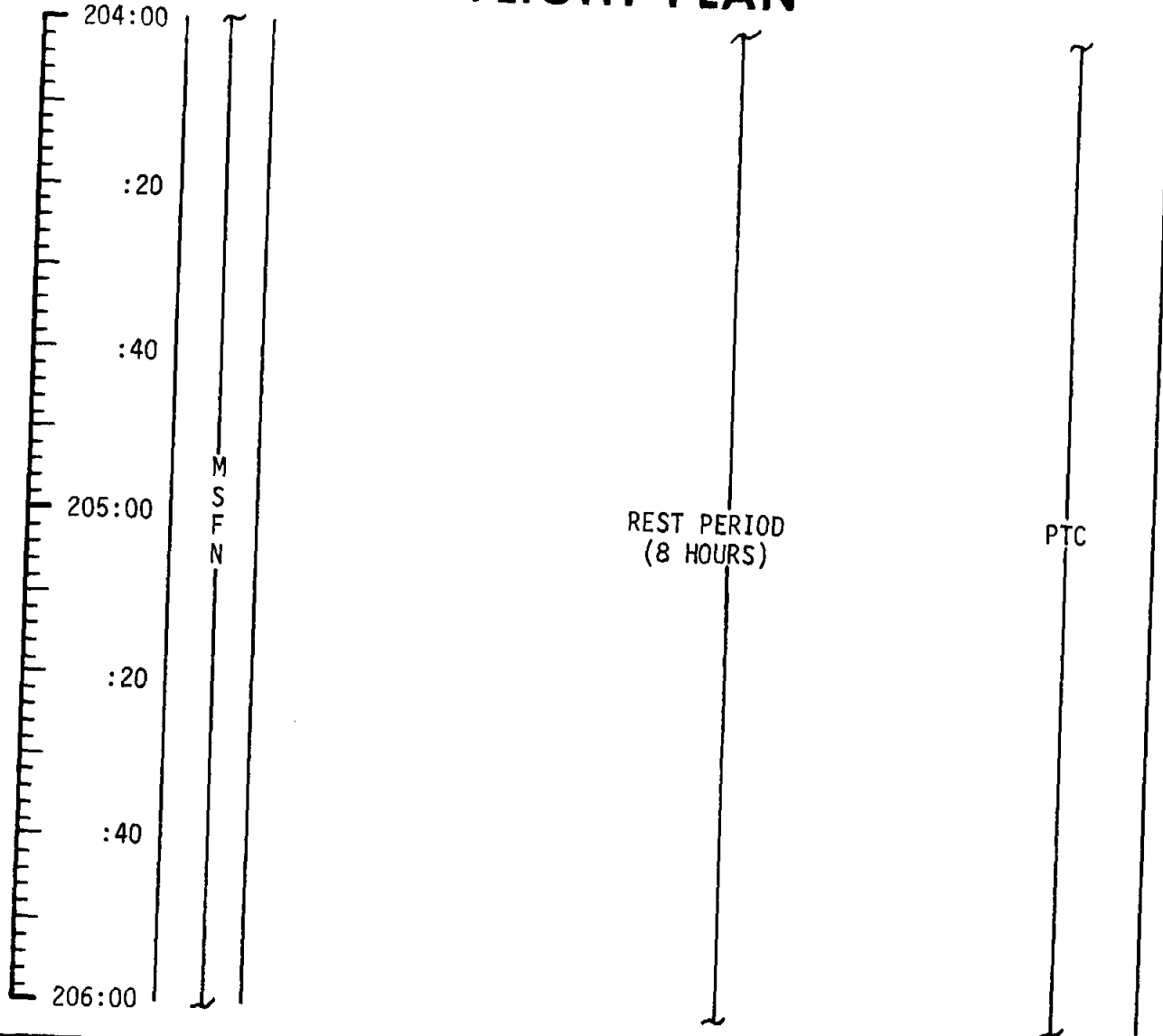
MCC-H

0223 CST

FLIGHT PLAN

NOTES

DAP LOAD STATUS
(11101)(X1111)



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	204:00 - 206:00	8/TEC	3-276

MSC Form 29 (May 69)

FLIGHT PLANNING BRANCH

NASA — MSC

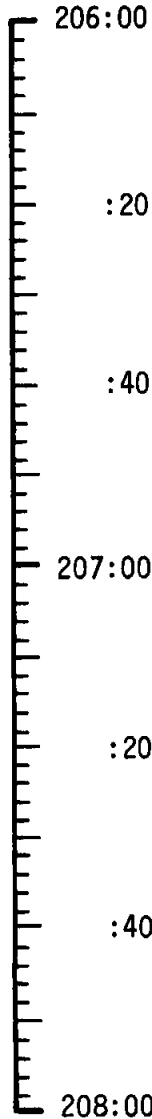
MCC-H

0423 CST

FLIGHT PLAN

NOTES

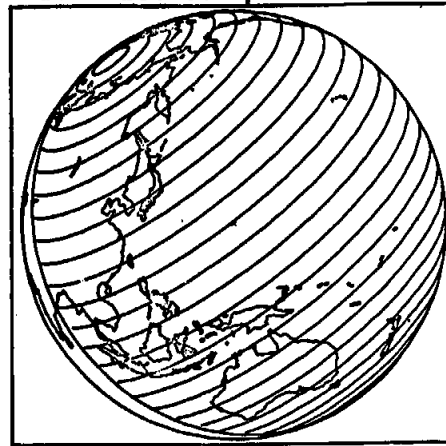
DAP LOAD STATUS
(11101)(X1111)



M
S
T
N

REST PERIOD
(8 HOURS)

GET: 208:00 | F.O.V. 10°



PTC

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	206:00 - 208:00	8/TEC	3-277

FLIGHT PLAN

NOTES

UPDATE TO CSM
FLIGHT PLAN
CONSUMABLES

208:00

:10

:20
(11101)
(X1111)

208:30

:40

:50

209:00

M
S
F
N

CSM SYSTEMS CHECKLIST

POST-SLEEP CHECKLIST PAGE S 1-26

P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES

EXIT G&N PTC PAGE G 8-3

V49 MNVR TO OPTICS CALIBRATION ATTITUDE
(099,252,003) HGA P -73, Y 10

P23 CISLUNAR NAVIGATION
OPTICS CALIBRATION STAR N70 (00042)
P00

EARTH HORIZON

V49 MNVR TO SIGHTING ATTITUDE
(078,245,325) HGA P -57, Y 354

P23 CISLUNAR NAVIGATION

3 MARKS ON EACH STAR

1. N70 (00044) (00000) (00110) 44 ENIF (ENH)
2. N70 (00000) (00000) (00120) 212 DELTA
N88 (+07234) (-86438) (-49761) SAGITTARII (EFH)
3. N70 (00000) (00000) (00120) 213 LAMBDA
N88 (+10293) (-89715) (-42956) SAGITTARII (EFH)
4. N70 (00045) (00000) (00110) 45 FOMALHAUT (ENH)

PTC

DAP LOAD STATUS
(11101) (X1111)

CSM CONSUMABLES UPDATE

GET: _____ : _____

RCS TOTAL _____

QUAD A _____ B _____

C _____ D _____

H₂ TANK 1 _____ 2 _____

O₂ TANK 1 _____ 2 _____

3 _____

P52 IMU REALIGN

N71: _____, _____

N05: _____ . _____

N93: _____

X _____ . _____

Y _____ . _____

Z _____ . _____

GET _____ : _____ : _____

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	208:00 - 209:00	9/TEC	3-278

MCC-H

0723 CST

FLIGHT PLAN

NOTES

UPDATE TO CSM
QUADS TO ENABLE
FOR PTC SPINUP

209:00

:10

:20

209:30

:40

:50

210:00

M
S
F
N

CSM G&C CHECKLIST

PASSIVE THERMAL CONTROL (G&N) PAGE G 8-2
 V49 MNVR TO PTC ATTITUDE
 (N20, 270, 000)
 V79 (-0.3750)
 (+030.00)
 (+00000)
 REESTABLISH HGA REACQ MODE

EAT PERIOD

PTC

DAP LOAD STATUS
(11101)(X1111)

EARTH DISTANCE
≈ 47 759 NM

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	209:00 - 210:00	9/TEC	3-279

MCC-H

0823 CST

FLIGHT PLAN

NOTES

210:00

:10

:20

210:30

:40

:50

211:00

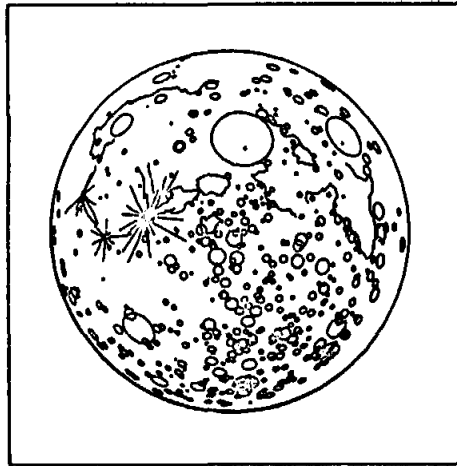
M
S
F
N

LiOH CANISTER CHANGE
(17 INTO A, STOW 15 IN A4)

ENTRY CHECKLIST

GO/NO-GO FOR MCC-7
REPORT: CM RCS INJECTOR VALVE TEMPS
(SYS TEST METER 5C, 5D, 6A, 6B, 6C, 6D)

GET: 211:00 F.O.V. 1°



PTC

DAP LOAD STATUS
(11101) (X1111)

CM RCS INJECTOR TEMP

5C _____	5D _____
6A _____	6B _____
6C _____	6D _____

GO/NO-GO FOR MCC-7
EI - 6 HR

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	210:00 - 211:00	9/TEC	3-280

MCC-H

1023 CST

FLIGHT PLAN

NOTES

212:00
(11101)
(X1111)

:10

:20

212:30

:40

:50

213:00

M
S
F
N

P52 IMU REALIGN
OPTION 3 REFSMMAT
(PTC ORIENT)

REPORT: GYRO TORQUING ANGLES

P52 IMU REALIGN
OPTION 1 PREFERRED
(ENTRY ORIENT)

SC CONT - CMC
BMAG (3) - RATE 2

STARS _____,
SA _____,
TA _____,

P52 IMU REALIGN

N71: _____,

N05: _____.

N93:

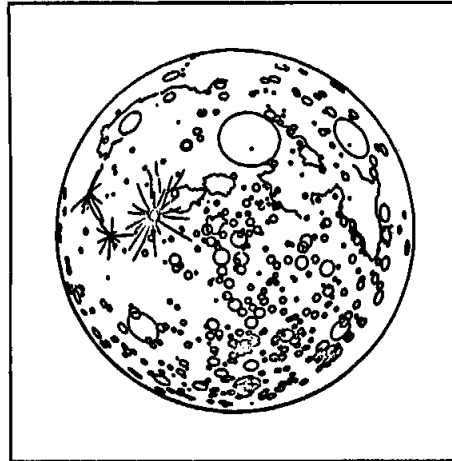
X _____.

Y _____.

Z _____.

GET _____:_____:

GET: 213:00 F.O.V. 1°



P30 EXTERNAL ΔV

EI - 4 HR

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	212:00 - 213:00	9/TEC	3-282

MCC-H

0923 CST

FLIGHT PLAN

NOTES

211:00
 (11101)
 X1111
 :10
 :20
 211:30
 :40
 :50
 212:00

M
S
F
N

VHF SIMPLEX A - ON
 EXIT G&N PTC PAGE G 8-3
 V49 MNVR TO OPTICS CALIBRATION ATTITUDE
 (299,041,337) OMNI C
 P23 CISELUNAR NAVIGATION
 OPTICS CALIBRATION STAR N70 (00023)
 P00
 V49 MNVR TO SIGHTING ATTITUDE
 (283,033,010) OMNI C
 P23 CISELUNAR NAVIGATION
 3 MARKS ON EACH STAR
 1. N70 (00022) (00000) (00220)
 2. N70 (00000) (00000) (00210)
 N88 (-15020) (+94736) (+28276)
 3. N70 (00023) (00000) (00220)
 4. N70 (00000) (00000) (00220)
 N88 (-84888) (+40318) (+34184)
 5. N70 (00016) (00000) (00210)

I

DAP LOAD STATUS
 (11101)(X1111)
 LUNAR HORIZON
 22 REGULUS (MFH)
 64 ALHENA (MNH)
 23 DENEbola (MFH)
 151 GAMMA PRIME
 LEONIS (MFH)
 16 PROCYON (MNH)

EI - 5 HR

UPDATE TO CSM
 MCC-7 MNVR PAD
 ENTRY PAD
 UPLINK TO CSM
 CSM S.V. & V47
 MCC-7 TGT LOAD
 DESIRED ORIENT (ENT)
 ENTRY LAT & LONG

ATT DEADBAND - MIN
 RATE - LOW
 BMAG (3) - ATT 1/RATE 2
 SC CONT - SCS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	CHANGE A (JAN)	DECEMBER 23, 1970	211:00 - 212:00	9/TEC	3-281

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FLIGHT PLAN

MCC-7
BURN TABLE

MANEUVER	P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
CORRIDOR CONTROL	10°/SEC COMPLETE	+10° COMPLETE	BT + 1 SEC AND $\Delta V_c = 0$	TRIM X AXIS ONLY TO 0.2 FPS

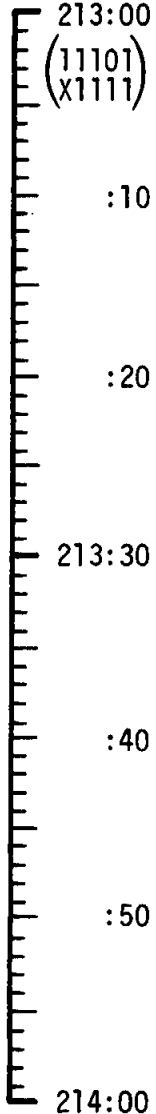
TABLE 3-11
3-284

MCC-H

1123 CST

FLIGHT PLAN

NOTES



MSFN

V49 MNVR TO PAD BURN ATT

SXT STAR CHECK
P40 SPS THRUSTING OR
P41 RCS THRUSTING

MCC-7

BURN STATUS REPORT

V49 MNVR TO OPTICS CALIBRATION ATTITUDE
(019,258,355) OMNI_C

EI - 3 HR

UPLINK TO CSM
CSM S.V. (CMC) V47E
CSM S.V. (MSFN)
(NO V47)

TIG: 213:26:59
BT: NOM ZERO
 Δ VT: NOM ZERO
ULLAGE: N/A
ORBIT: N/A

BURN STATUS REPORT				
X	X	<input type="checkbox"/>	<input type="checkbox"/>	Δ TIG
X	X	<input type="checkbox"/>	<input type="checkbox"/>	BT
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V gx
TRIM				
X	X	X	<input type="checkbox"/>	R
X	X	X	<input type="checkbox"/>	P
X	X	X	<input type="checkbox"/>	Y
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V gx
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V gy
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V gz
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Δ V _c *
X	X	X	<input type="checkbox"/>	FUEL *
X	X	X	<input type="checkbox"/>	OX *
X	X	X	<input type="checkbox"/>	UNBAL

*ITEMS TO BE REPORTED TO MSFN

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	213:00 - 214:00	9/TEC	3-285

MCC-H

1223 CST

FLIGHT PLAN

NOTES

214:00
(11101)
(X1111)

:10

:20

214:30

:40

:50

215:00

MSFN

P23 CISLUNAR NAVIGATION
OPTICS CALIBRATION STAR N70 (00022)
POO

V49 MNVR TO SIGHTING ATTITUDE
(017,270,000) OMNI C

P23 CISLUNAR NAVIGATION
3 MARKS ON EACH STAR

1. N70 (00022) (00000) (00220)

2. N70 (00023) (00000) (00220)

3. N70 (00016) (00000) (00210)

LOGIC SEQUENCE CHECK PAGE E 1-2
GO/NO-GO FOR PYRO ARM SEQUENCE (CUE MSFN)

LOGIC - ON

V49 MNVR TO ENTRY PAD ATTITUDE (214:45)

BORESIGHT AND SXT STAR CHECK

P52 IMU REALIGN
OPTION 3 REFSMMAT
(ENTRY ORIENT)

REPORT: GYRO TORQUING ANGLES

LUNAR HORIZON

22 REGULUS (MFH)

23 DENEbola (MFH)

16 PROCYON (MNH)

P52 IMU REALIGN

N71: _____

N05: _____

N93:

X _____

Y _____

Z _____

GET _____:_____:

EI - 2 HR
GO/NO-GO

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	214:00 - 215:00	9/TEC	3-286

MCC-H

1323 CST

FLIGHT PLAN

NOTES

215:00
 (11101)
 (X1111)
 :10
 :20
 215:30
 :40
 :50
 216:00

MSFN

GDC ALIGN PAGE E 1-3

EMS ENTRY CHECK PAGE E 1-4

PRIMARY WATER EVAP ACTIVATION PAGE E 1-4

CONFIGURATE CAMERA EQUIP FOR FIREBALL AND CHUTES PHOTOS PAGE E 1-4

SEC WATER EVAP ACTIVATION PAGE E 1-4

CM RCS PRE-HEAT (IF REQ'D)

FINAL STOWAGE PAGE E 1-5

EI - 1 HR

GO/NO-GO FOR PYRO
 ARM
UPDATE TO CSM
 ENTRY PAD
 RECOVERY PAD
UPLINK TO CSM
 CSM S.V. & V66

TERMINATE CM RCS PRE-HEAT PAGE E 1-5

CM RCS ACTIVATION PAGE E 1-6

GO/NO-GO FOR PYRO ARM (CUE MSFN)

LOGIC - ON

SET DET (UP, TO EI) PAGE E 2-1

EMS INITIALIZATION PAGE E 2-1

RSI ALIGNMENT PAGE E 2-1

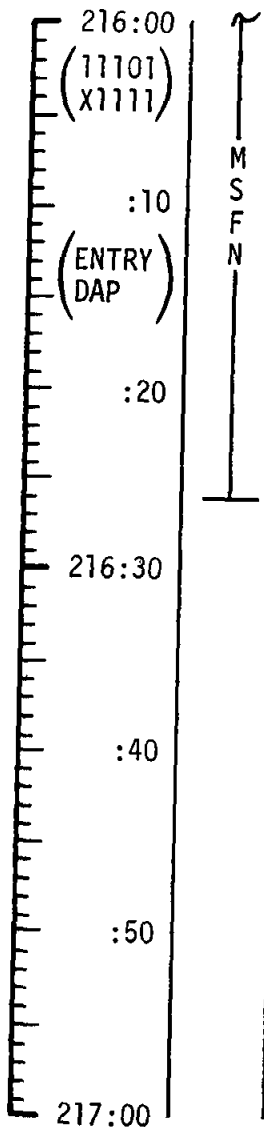
CM RCS CHECK PAGE E 2-1

EI - 30 MIN
 VHF A SIMPLEX
 COMM CHECK

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	215:00 - 216:00	9/TEC	3-287

FLIGHT PLAN

NOTES



SEPARATION CHECKLIST

PAGE E 2-2

MNVR TO HORIZON CHECK ATT

PAGE E 2-2

P61 ENTRY PREP

PAGE E 2-2

P62 CM/SM SEP & PRE-ENTRY MNVR
SECS PYRO ARM

PAGE E 2-3

CM/SM SEP 216:12

MNVR TO ENTRY ATT

P63 ENTRY INITIATE

EI 216:26:59

P64 ENTRY POST 0.05G

TRAJECTORY EVENTS

400 000 FT (GET 216:26:59)

ENTER S-BAND BLACKOUT

0.05G

KA - INITIATE CONSTANT DRAG

RDOT = -700 FPS

PEAK G (6.6)

SUBCIRCULAR VELOCITY

P64 TO P67

EXIT S-BAND BLACKOUT

GUIDANCE TERMINATION

DROGUE DEPLOYMENT

MAIN DEPLOYMENT

SPLASHDOWN

TIME FROM 400K FT,
MIN:SEC

00:00

00:18

00:30

00:52

01:18

01:20

02:06

02:10

03:32

07:16

08:17

09:04

13:54

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	216:00 - 217:00	9/TEC	3-288

SECTION 4 - CONSUMABLES

ASSUMPTIONS FOR THE APS ANALYSIS

Propellant loading data were obtained from the Apollo 14 preflight data and were optimized for the nominal mission. The LM-8 data were used for engine performance, and ΔV requirements were coordinated with the Landing Analysis Branch and the Orbital Mission Analysis Branch. The ΔV requirement for the lunar ascent differs from that in the Operational Trajectory and Flight Plan because of an increase in the inert vehicle weight.

The budget shown in table 4-1 accounts for an APS TPI, engine valve-pair malfunction, and balanced couples. A touchdown abort was not considered because the nominal lift-off weight is heavier than the abort weight. The following data were used.

- a. $I_{sp} = 309.97 \pm 3.77$ seconds
- b. Mixture ratio = $1.605 \pm .0258$
- c. Lift-off weight = $10\ 841.5 \pm 38.7$ pounds

TABLE 4-1

APS PROPELLANT SUMMARY

Item	Total propellant, lb
Loaded	5224.8
Trapped and unavailable	-51.8
Outage	-10.3
Available for ΔV	5162.7
Required for ascent (6057.7 fps)	-4931.1
Remaining	231.6
Required for APS TPI ^a (70.2 fps)	-41.4
Remaining	190.2
Dispersions (-3σ)	-66.2
Pad	124.0
Contingencies	
Engine valve-pair malfunction ($\Delta MR = +.01$ or $-.018$)	-24.5
Balanced couples	-56.9
Half-degree out of plane (18 fps)	-10.6
Margin	32.0

^aThe total TPI ΔV is 92.2 fps. It is assumed that 22 fps is obtained by 10-sec, 4-jet ullage.

ASSUMPTIONS FOR THE DPS ANALYSIS

Propellant loading data were obtained from the Apollo 14 preflight data and were optimized for the nominal mission. The LM-8 data were used for engine performance, and ΔV requirements were coordinated with the Landing Analysis Branch. The ΔV requirement for lunar descent differs from that in the Operational trajectory and Flight Plan because of an increase in the inert vehicle weight.

The 3σ dispersions represent total propellant cost based on 3σ uncertainties in propellant loading, trapped propellant, I_{sp} , ΔV , separation weight, non- ΔV consumables weight, mixture ratio, and physical location of the low-level sensor.

The following philosophy changes have been included in the budget.

a. A flying time of 2 minutes and 20 seconds below low gate will be called a nominal requirement.

b. A contingency of 5 seconds has been included for a possible early low-level light based on a Grumman Aircraft Corporation presentation to a September 17, 1970, meeting of the Configuration Control Board.

c. The separation weight is $34\ 101.0 \pm 36.9$ pounds.

d. Integrated average I_{sp} is 302.5 ± 4.65 seconds.

e. Mixture ratio is $1.598 \pm .0225$.

f. Non- ΔV consumables from separation to PDI are 83.2 pounds.

TABLE 4-2
DPS PROPELLANT SUMMARY

Item	Total propellant, lb	Hover time, sec
Loaded	18 414.7	--
Trapped and unavailable	-213.1	--
Outage	-33.4	--
Available for ΔV	18 168.2	--
Required for ΔV (140-sec flying time from low gate, $\Delta V = 6957.8$)	-17 332.5	--
Remaining	835.7	90
Dispersions (-3σ)	-318.6	--
Pad	517.1	56
Operational allowances		
Low-level (5 sec, 26.5 fps)	-44.7	--
Abort reserve (20 sec, 106 fps)	-179.5	--
Margin (hover time before abort decision point)	292.9	31

12/8/70 Final

Ground Rules and Assumptions for the LM EPS Analysis

1. Energy available from the descent batteries is 1600 A-h and from the ascent batteries is 592 A-h.
2. Energy unusables caused by lack of continuous MSFN coverage for the descent and ascent stages are 6 and 3 A-h, respectively.
3. Energy unusables caused by TM inaccuracies for the descent and ascent stages were 77 and 11 A-h, respectively.
4. Energy unusables caused by checklist deviations (dispersion) for the descent and ascent stages were 25 and 4 A-h, respectively. This dispersion is obtained by calculating 2 percent of the energy used.
5. In accordance with the flight plan, the PGNCs was in standby mode from 1.3 hours following surface powerdown until 9.75 hours before powerup.
6. The RCS heaters were assumed to have a 100 percent duty cycle for 15 minutes after initial activation and then to decrease to a 7 percent duty cycle until undocking. From undocking until lunar landing plus 2 hours, the heaters were assumed to cycle at 0 percent, but, from landing plus 2 hours until lunar lift-off, the duty cycle was assumed to be 4.5 percent.
7. At the beginning of the analysis, it was assumed that a total of 10 A-h had been used from the descent batteries between 30 minutes before launch and the conclusion of transposition and docking.
8. The CDR and LMP forward window heaters were assumed not to be needed.
9. All floodlights were turned off at the beginning of EVA-1 and on again at powerup.
10. No duty cycle was assigned to the portable utility lights.
11. The liquid cooled garment pump was cycled as dictated by the time line.
12. The short (M=1) rendezvous was considered nominal.
13. The TV camera was assumed to be on from the beginning of EVA-1 until surface powerup.

TABLE 4-3
ASCENT STAGE EPS SUMMARY

Item	A-h required	A-h remaining
Initial capacity	--	592
Total unusables	18	574
Available for mission planning	--	574
Total requirement through crew transfer	216	358
Total usable margin	--	358 (60%)

Ritchey/GPB/MPAD (for LM Systems)

Data source Flight Plan

Data confirmed USR

Mission profile dependent

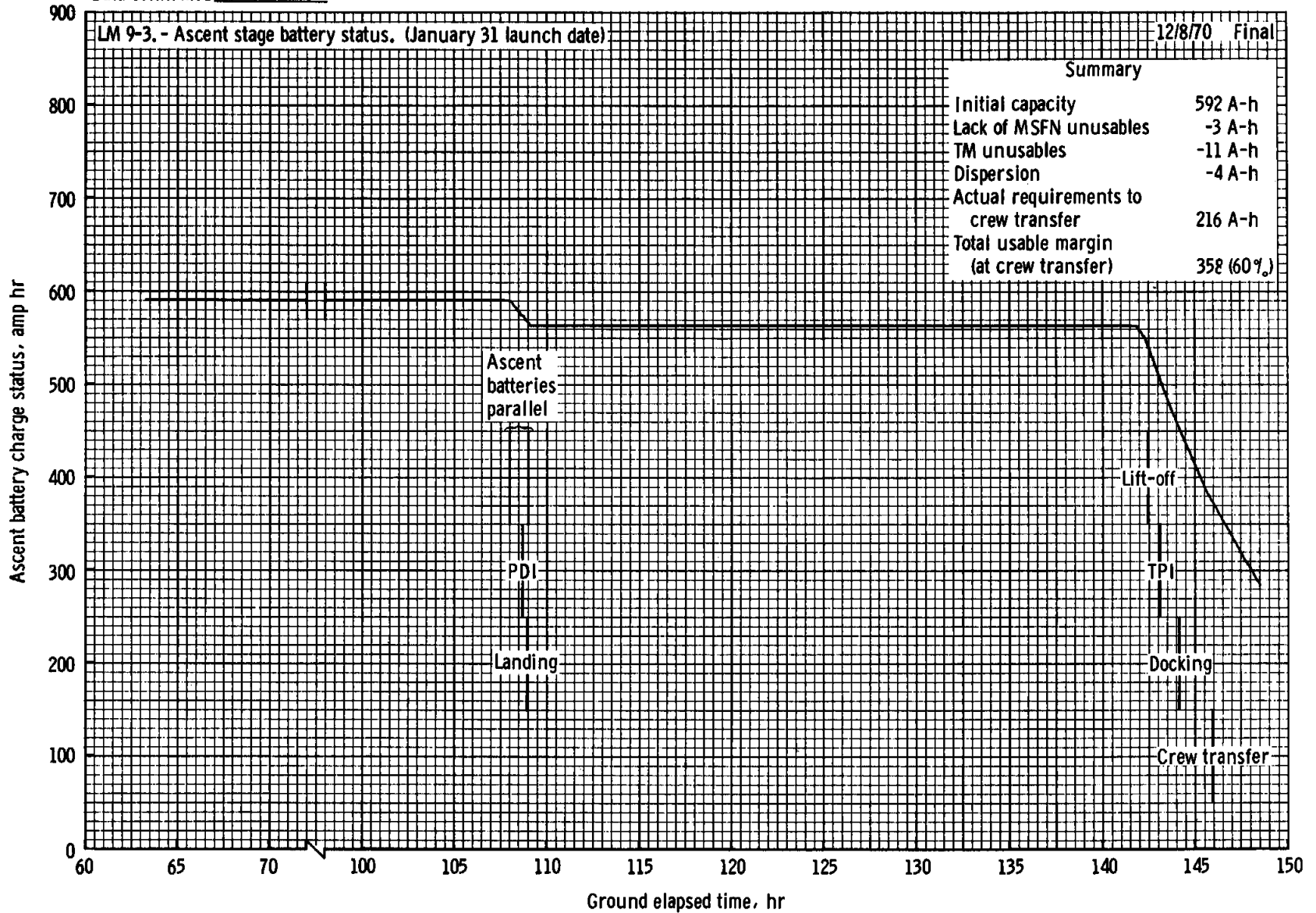


Figure 4-1.- LM-8 ascent stage amp hours remaining.

TABLE 4-4
DESCENT STAGE EPS SUMMARY

Item	A-h required	A-h remaining
Initial capacity	--	1600
Total unusables	108	1492
Available for mission planning	--	1492
Total mission requirement	1229	263
Total usable margin	--	263 (16%)

Data source Flight Plan

Data confirmed USR

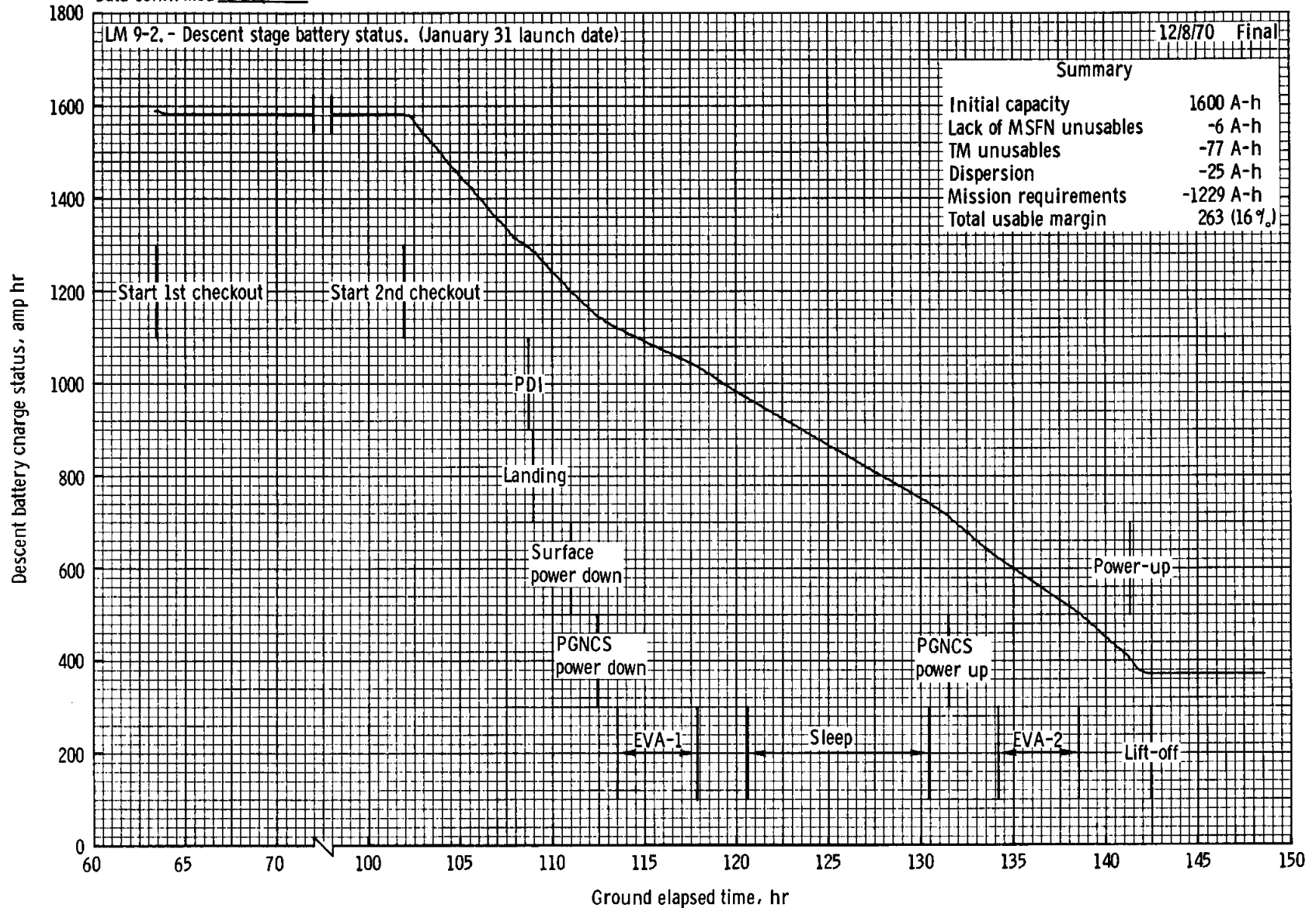


Figure 4-2.- LM-8 descent stage amp hours remaining.

ASSUMPTIONS AND GROUND RULES FOR THE LM RCS PROPELLANT ANALYSIS

1. Data for the LM RCS engine performance and propellant requirements were obtained from the SODB, Volume II, and from postflight analyses of Apollo 9-12 missions.
2. It is assumed that there will be an RCS burn (tweak burn) of 30 fps following LM insertion. The tweak burn is nominally zero.
3. It is assumed that there will be a 10 fps trim following the APS TPI maneuver.
4. The ullage for PDI was defined, subsequent to this analysis, to be an 8-second, four-jet ullage. The increase in RCS propellant usage is approximately 1.0% and is negligible in view of the nominal RCS propellant remaining.

TABLE 4-5

LM RCS PROPELLANT LOADING AND USAGE SUMMARY

Item	Propellant required, lb	Propellant remaining, lb
Loaded		633.0
Trapped	40.6	592.4
Gaging inaccuracy and loading tolerance	43.5	548.9
Mixture ratio uncertainty	17.0	531.9
Usable		531.9
Nominal usage through lunar landing	158.8	373.1
Nominal usage from landing through docking	121.0	252.1
Nominal usage from docking through impact	110.0	142.1
Usable propellant remaining		142.1

Data source SCDB Post FLIGHT

Data confirmed 18/70

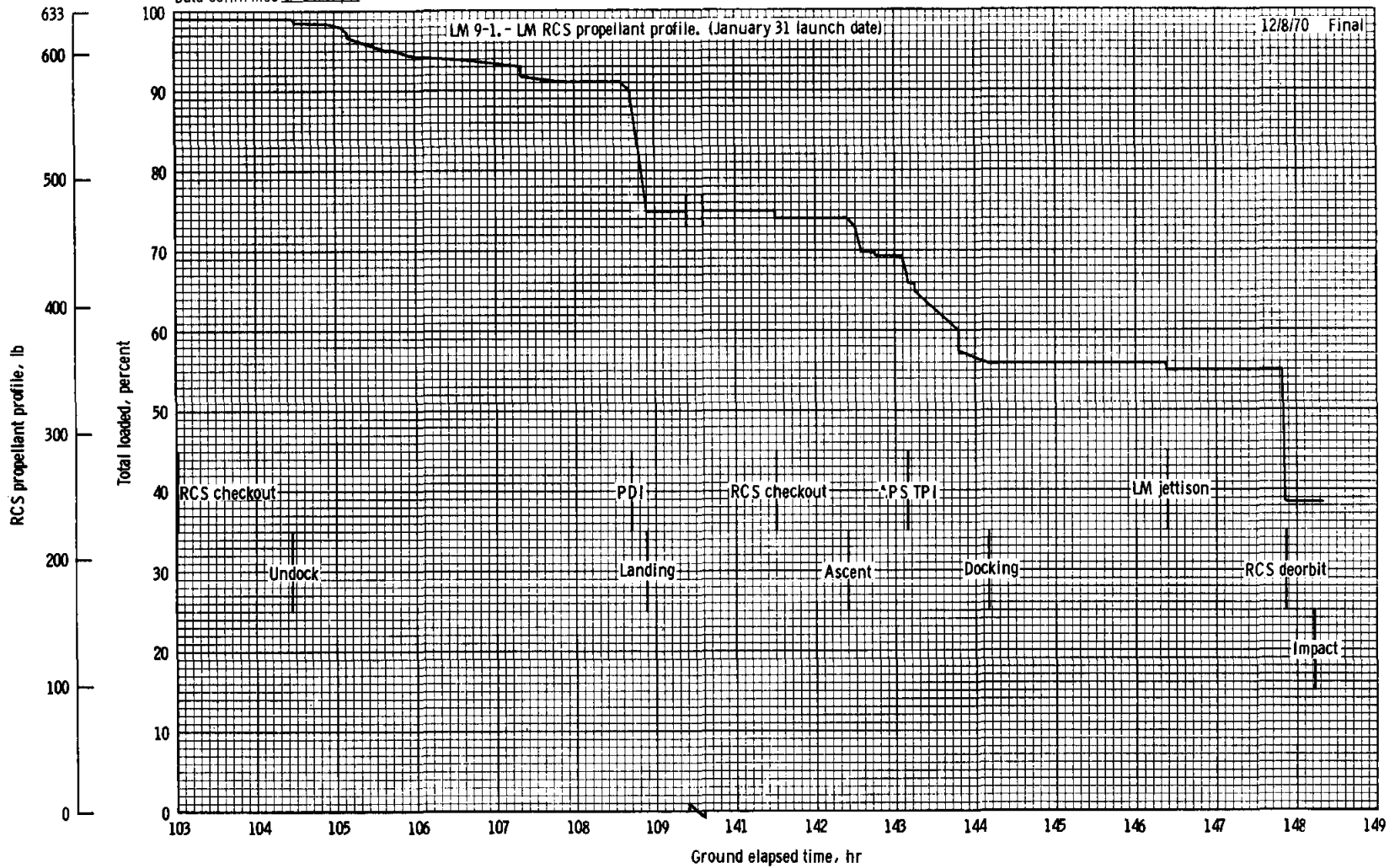


Figure 4-3.- LM RCS propellant profile.

LM ECS Assumptions

- a. The oxygen analyses were calculated using a cabin leak rate of 0.06 lb/hr based on previous Apollo postflight analyses.
- b. Metabolic rates were varied using the time line of reference 4 and table 4.3-II of reference 2.
- c. Metabolic oxygen consumed was calculated by $(1.643 \times 10^{-4} \text{ lb/Btu}) \times (\text{metabolic rate, Btu/hr})$.
- d. The cabin regulator check and the suit integrity check were assumed to require 0.5 pound of oxygen.
- e. The cabin was pressurized three times with 5.5 pounds required for each pressurization.
- f. The dispersion in the oxygen profile was calculated as 5 percent of the nominal oxygen requirement.
- g. The PLSS refill requires 15 pounds of water and 1.7 pounds of oxygen.
- h. Water lost through crew micturition was 0.11 lb/hr per man.
- i. Water required for thermal control was calculated by dividing the total spacecraft heat load by 1040 Btu/lb.
- j. The dispersion in the water profile was calculated as 10 percent of the nominal usage.
- k. The average glycol flow rate used in this analysis was 252 lb/hr.
- l. It was assumed that the liquid cooled garments were used throughout the LM-active periods.

TABLE 4-6
LM ECS SUMMARY

(a) Water

Description	Descent, lb	Ascent, lb
Loaded	266.0	85.0
Sampling	16.0	--
Residual	6.7	1.7
Loading uncertainty	7.7	2.5
Available for mission	235.6	80.8
Required to lunar landing	35.4	0.0
Required to lunar lift-off	108.1	0.0
Required to LM/CSM docking	0.0	8.7
Required to LM close-out	0.0	6.0
Remaining in tank(s)	92.1	66.1
Dispersion	14.3	1.5
Margin	77.8	64.6

(b) Oxygen

Description	Descent, lb	Ascent 1, lb	Ascent 2, lb
Loaded	41.3	2.4	2.4
Residual	0.8	0.1	0.1
Loading uncertainty	1.5	0.1	0.1
Available for mission	39.0	2.2	2.2
Required to lunar landing	2.2	0.0	0.0
Required to lunar lift-off	24.2	0.0	0.0
Required to LM/CSM docking	0.0	0.4	0.0
Required to LM close-out	0.0	0.5	0.0
Remaining in tank(s)	12.6	1.3	2.2
Dispersion	1.3	0.1	0.0
Margin	11.3	1.2	2.2

Swalin/GPB/MPAD (for LM Systems)

Mission profile dependent

Data source FISH PAN

Data confirmed Bob

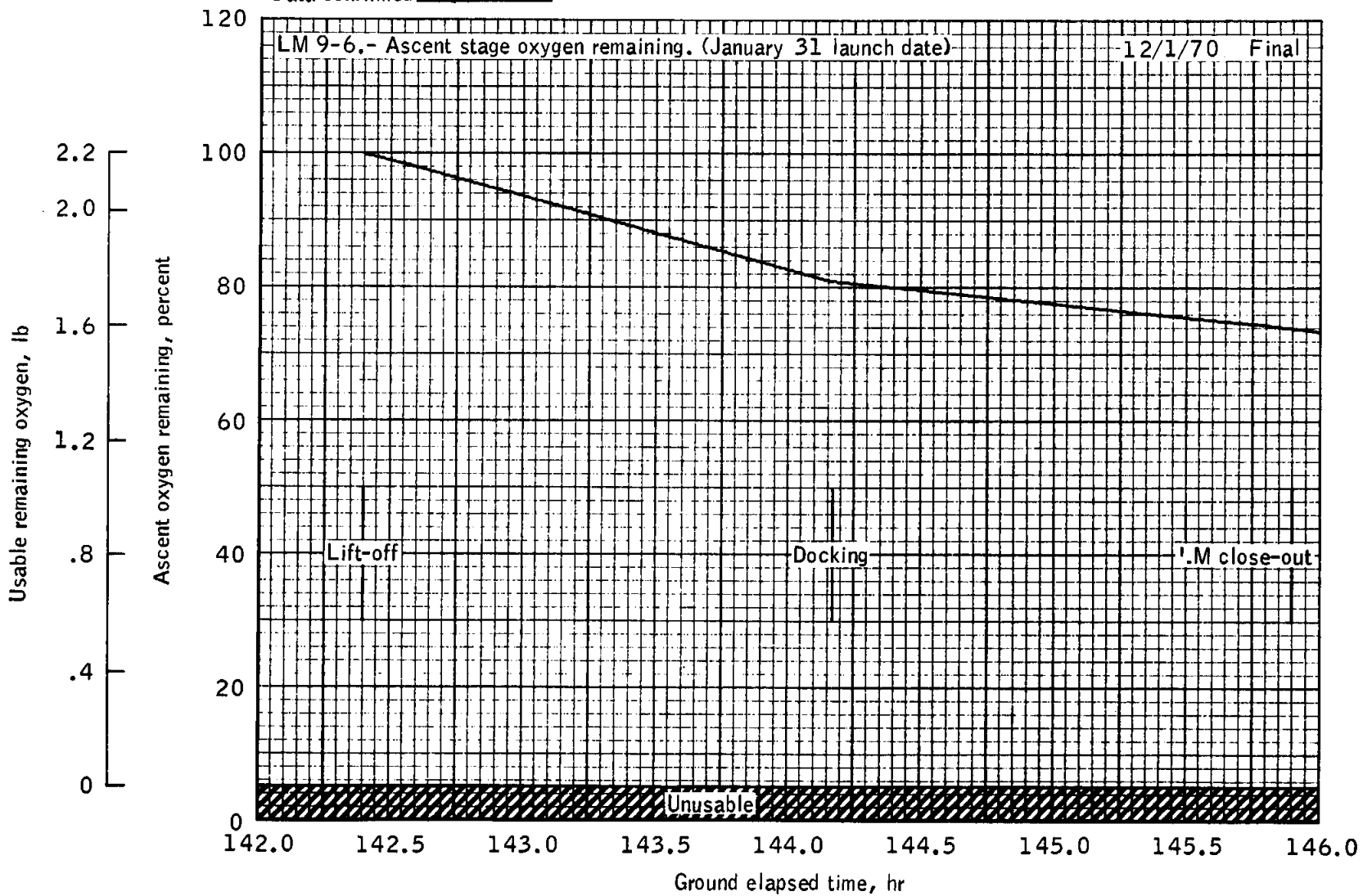


Figure 4-4.- Ascent tank 1 oxygen remaining.

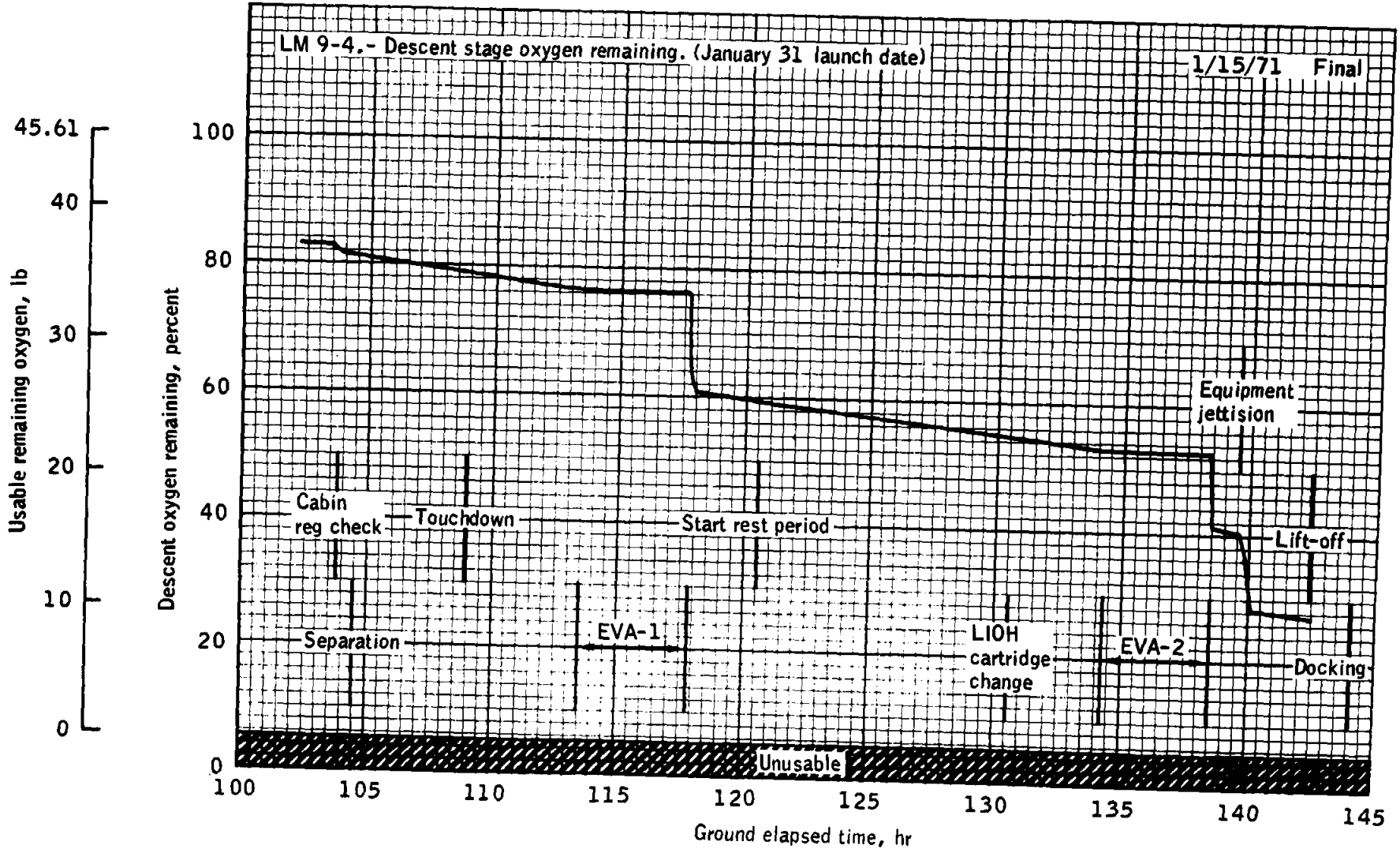


Figure 4.5- Descent oxygen remaining.

Swalin/GPB/MPAD (for LM Systems)

Mission profile dependent

Data source FLIGHT PLAN

Data confirmed BoD

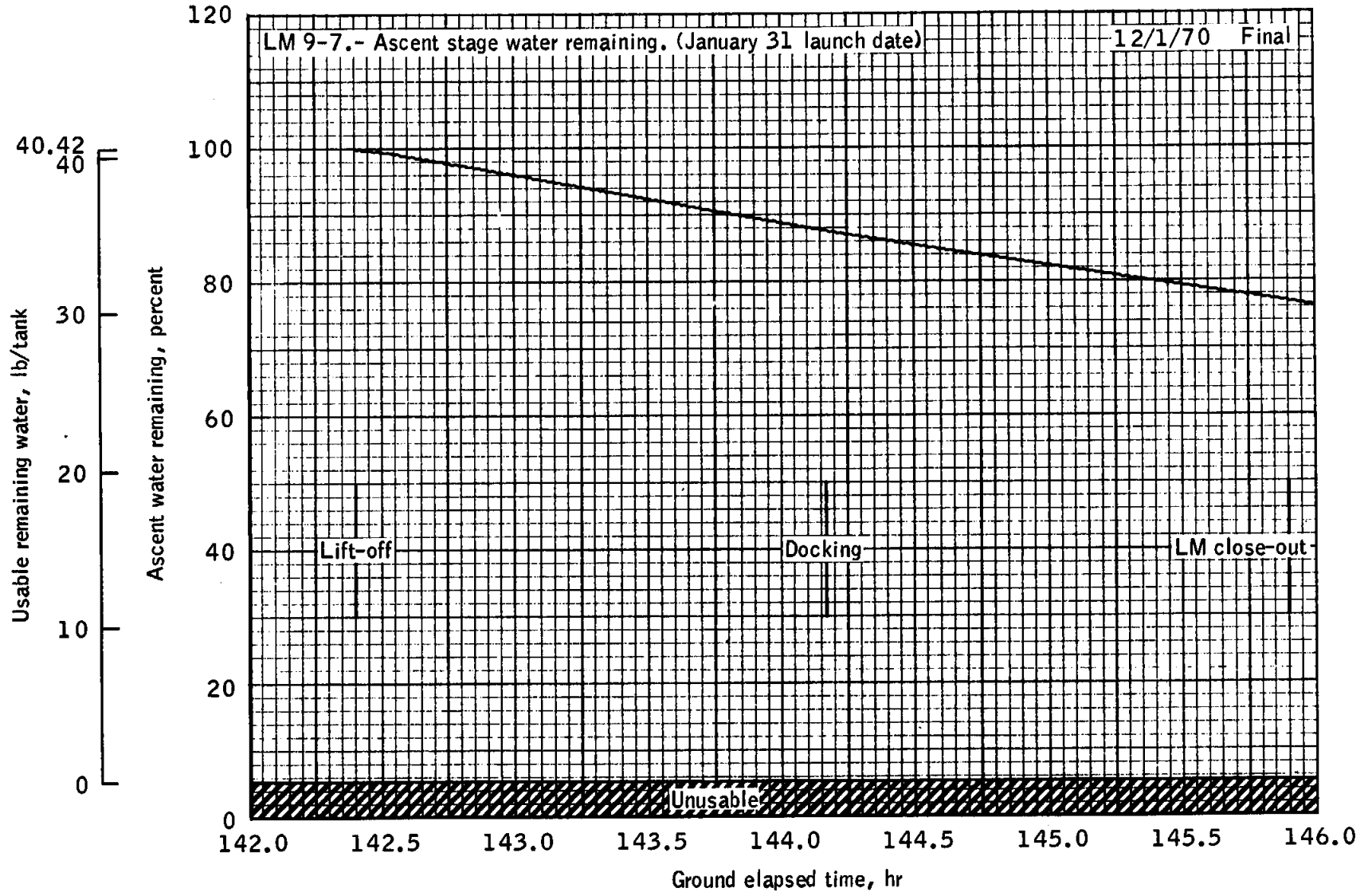


Figure 4-6.- Ascent water remaining.

Data source FLIGHT PLAN

Data confirmed 3rd

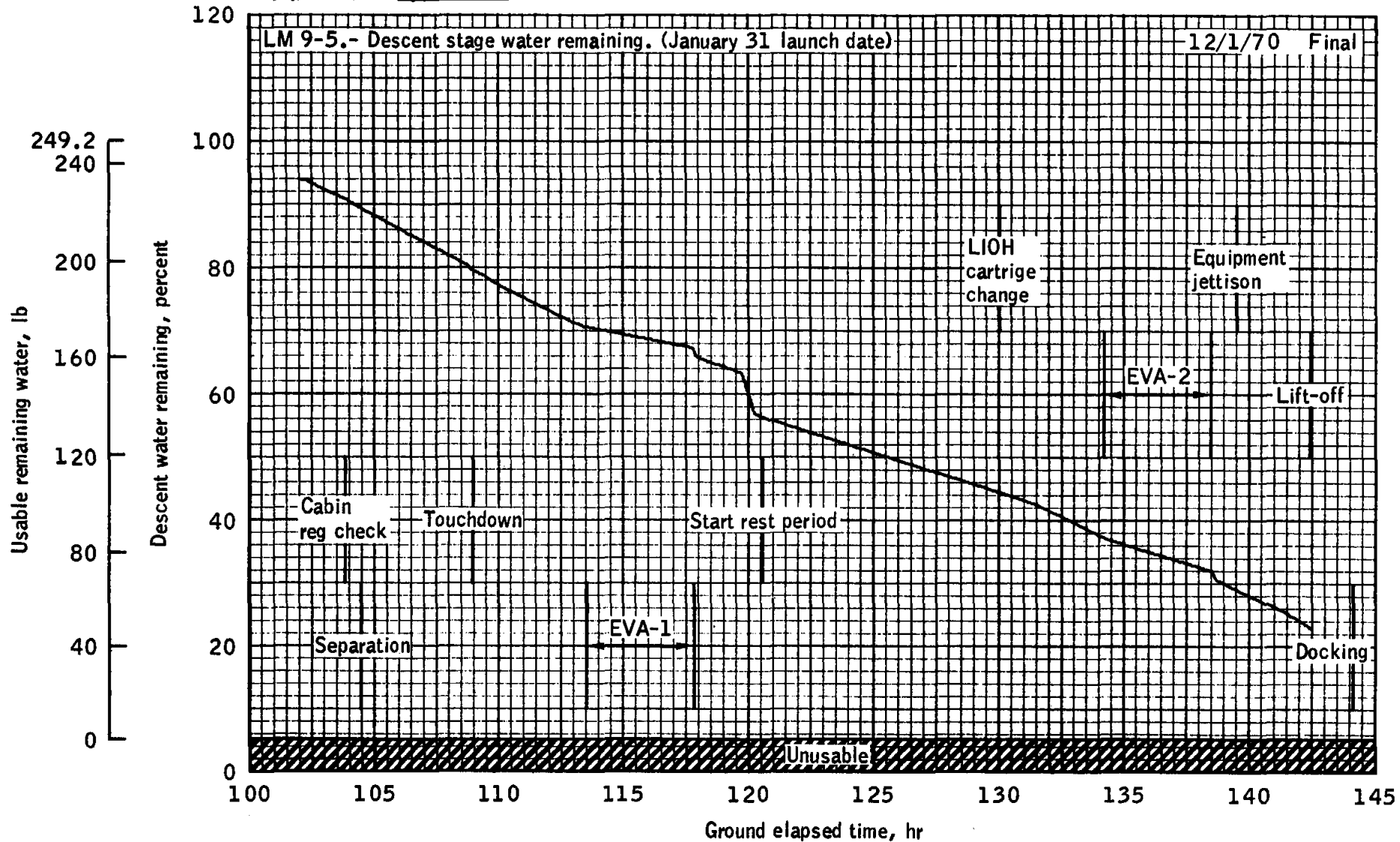


Figure 4-7.- Descent water remaining.

12/8/70 Final

GROUND RULES AND ASSUMPTIONS FOR THE CSM CRYOGENICS

1. Three O_2 tanks and two H_2 tanks are available.
2. Fuel cell purging is included in the EPS requirements.
3. Both H_2 tanks and two of the three O_2 tanks are assumed to be fully loaded. The third O_2 tank is to be off-loaded to approximately 62 percent at lift-off.
4. No cryogenic venting was assumed in flight.
5. The EPS hydrogen consumption rate (\dot{H}_2) (lb/hr) = $0.00257 \times I_{fc}$ when I_{fc} is the total fuel cell current.
6. The EPS oxygen consumption rate (\dot{O}_2) (lb/hr) = $7.936 \times \dot{H}_2$.
7. The launch redlines for O_2 are defined as points on the curve. These points are contingent upon accomplishing DTO 4.6 which is greater than a tank loss requirement. However, if lift-off were to occur at these points, a somewhat different tank management scheme would have to be employed, even if no tank failed. If a tank failure were to occur then a nominal 40 Amp return level plus ECS would be employed on the remaining two tanks.

TABLE 4-7
 APOLLO 14 CRYOGENIC SUMMARY
 [31 Jan, 1971 Launch]

	H ₂ (lbs)	O ₂ (lbs)
Planning allowance		
Total loaded	58.6	990.3
Less residual	2.3	19.8
Less instrumentation error	<u>1.5</u>	<u>21.8</u>
Available for mission planning	54.8	948.7
Prelaunch requirement	3.7	130.4*
Flight requirement		
EPS (incl. F/C purge)	39.2	310.5
ECS (including cabin purge + EVA)	--	87.5
LM pressurization	--	12.5
Nominal reserves		
EPS uncertainty (2.5%)	1.0	7.8
ECS uncertainty (.08 #/hr)	--	17.3
Total requirement	43.9	566.0
Margin T = 0 (fill/launch)	10.9	382.7

*Prelaunch requirement includes off-loading of tank 3.

Scott/GPB/MPAD (for Flight Plan)
 Data source: 514 5223/12/10/1970
 Data confirmed: CS

Launch day dependent
 Launch month dependent
 Mission profile dependent

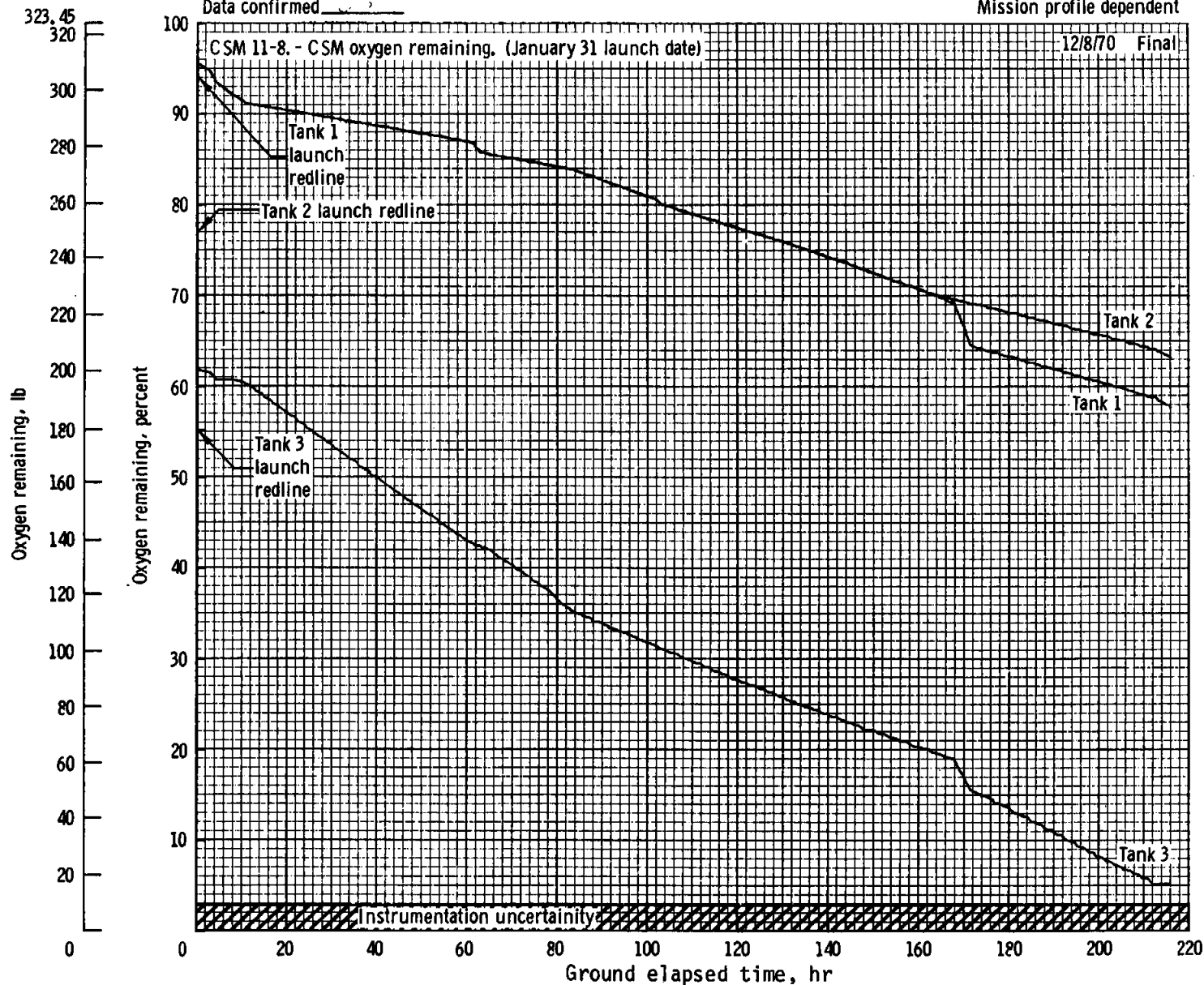


Figure 4-8.- CSM oxygen remaining.

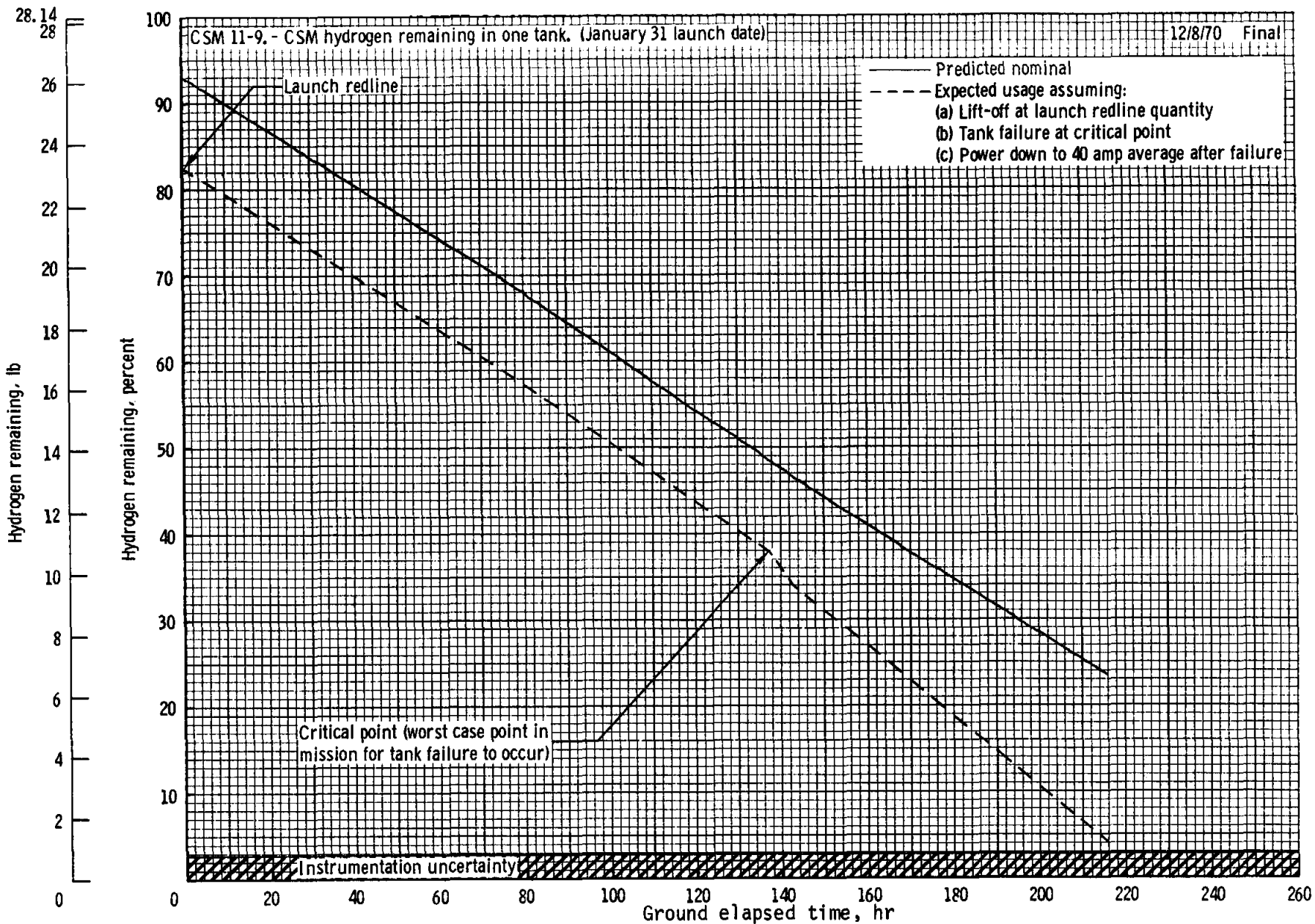


Figure 4-9.- CSM hydrogen remaining in one tank.

THE SPS ANALYSIS

Assumptions for the SPS Propellant Analysis

1. The 3σ dispersions are the RSS of the penalties imposed on the SPS margin by 3σ dispersions in propellant loading, mixture ratio, engine I_{sp} , maneuver ΔV , spacecraft weight, and consumable weight losses. The engine I_{sp} and dispersion utilized in this analysis were taken from Table 11 of the Apollo Mission H3/CSM-110/SPS Preflight Performance Report, NAS 9-8166, dated November 1970. All spacecraft weights and consumable losses are from Volume III, Amendment 88, of the Spacecraft Operational Data Book, dated October 5, 1970.

2. The allowance for the TLMC is now debited from the nominal remaining propellant along with the 3σ dispersions. It is only a format change, not a budgeting technique change.

3. The ground rule for a contingency allowance is to budget for either a LM rescue or a maneuver to avoid adverse weather conditions at entry, whichever produces the least SPS propellant margin. The ΔV for the LM rescue allowance is 600 fps. The ΔV for weather avoidance for previous missions has been 500 fps. However, for this mission, the ΔV requirement for weather avoidance has been reduced to 300 fps. The propellant margin when considering either contingency, LM rescue or the 300 fps for weather avoidance, is approximately the same.

TABLE 4-8

APOLLO 14 SPS PROPELLANT SUMMARY

[Jan. 31, 1971, launch; 72° launch azimuth]

Item	Propellant required, lb	Propellant remaining, lb
Total loaded		40 796.0
Trapped and unavailable	441.4	40 354.6
Outage	59.8	40 294.8
Unbalance meter	100.0	40 194.8
Available for ΔV		40 194.8
Requirement for ΔV		
Hybrid (73.4 fps)	724.2	39 470.6
LOI (2986 fps)	24 777.8	14 692.8
DOI (206.6 fps)	1 470.8	13 222.0
CIRC (72.5 fps)	272.8	12 949.2
LOPC (360.7 fps)	1 269.2	11 680.0
TEI (3449.5 fps)	10 059.4	1 620.6
Nominal remaining		1 620.6
Dispersions		
-3 σ performance	473.0	1 147.6
TLMC (33 fps)	346.2	801.4
Contingency (326 fps)*	301.4	0.0
Propellant margin		0.0

* Available for weather avoidance.

SM RCS BUDGET

Ground Rules and Assumptions

1. Following transposition and docking, the S-IVB performs the evasive maneuver.
2. Two midcourse corrections (translunar) are executed as SPS burns with one MCC followed by an RCS trim.
3. One midcourse correction (transearth) is executed as an RCS burn of 5 fps.
4. Quad management is to be determined during the mission.
5. Redlines have been defined by the Flight Control Division as an aid in assuring that mission rules are not violated during the mission. They are subject to review during the mission as mission phases are completed and systems capabilities are evaluated. In the event the rescue redline is violated prior to rendezvous, lunar orbit photography activities can be curtailed to conserve propellant. The lunar orbit redline includes a nominal transearth coast phase (with all navigational sightings) plus a 3 sigma G&N TEI cutoff error MCC. If a rescue is required and the lunar orbit redline is violated prior to the nominal TEI, TEI can be performed early and navigational sighting activity curtailed during the transearth phase. The rescue redline is based on the minimized activity during the transearth phase.

TABLE 4-9

SM RCS PROPELLANT LOADING AND USAGE SUMMARY

Item	Propellant required, lb	Propellant remaining, lb
Expected loading	--	1342.4
Initial outage caused by loading mixture ratio	15.6	--
Total trapped	26.4	--
Gaging inaccuracy	80.4	--
Deliverable	--	1220.0
Nominal usage		
Translunar coast	199	--
Lunar orbit	431	--
Transearch coast	220	--
Total	850	--
Nominal remaining usable propellant	--	370

Loyd/GPB/MPAD (for Flight Plan)
 Data source *Jan 31 Filt. Polson*
 Data confirmed *A. J. Jazd*

Launch day dependent
 Launch month dependent
 Mission profile dependent

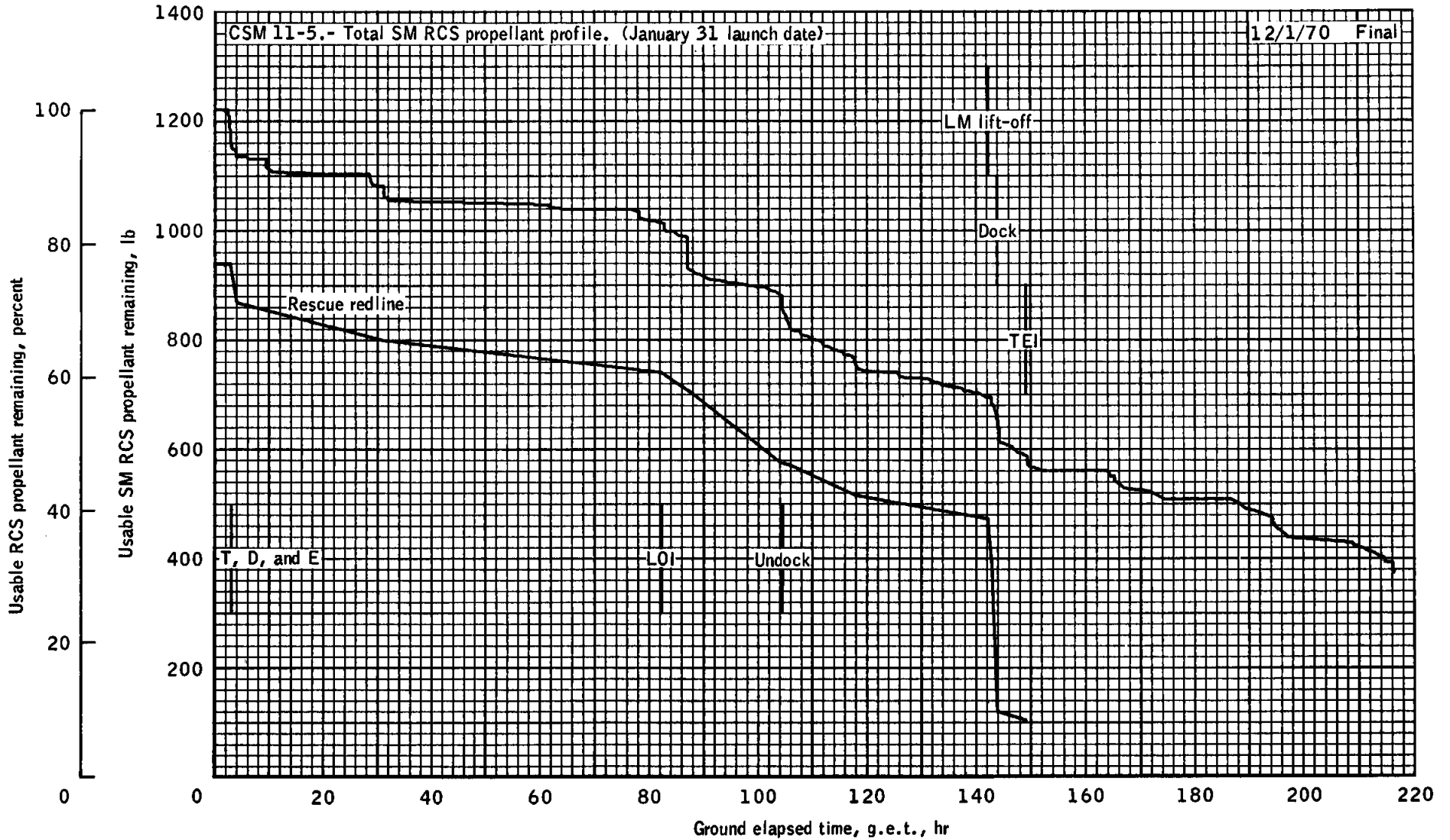


Figure 4-10.- Total SM RCS propellant usage profile.

Loyd/GPB/MPAD (for Flight Plan)

Data source Jan 31 Flight Plan

Data confirmed J. J. Joyce

Launch day dependent
Launch month dependent
Mission profile dependent

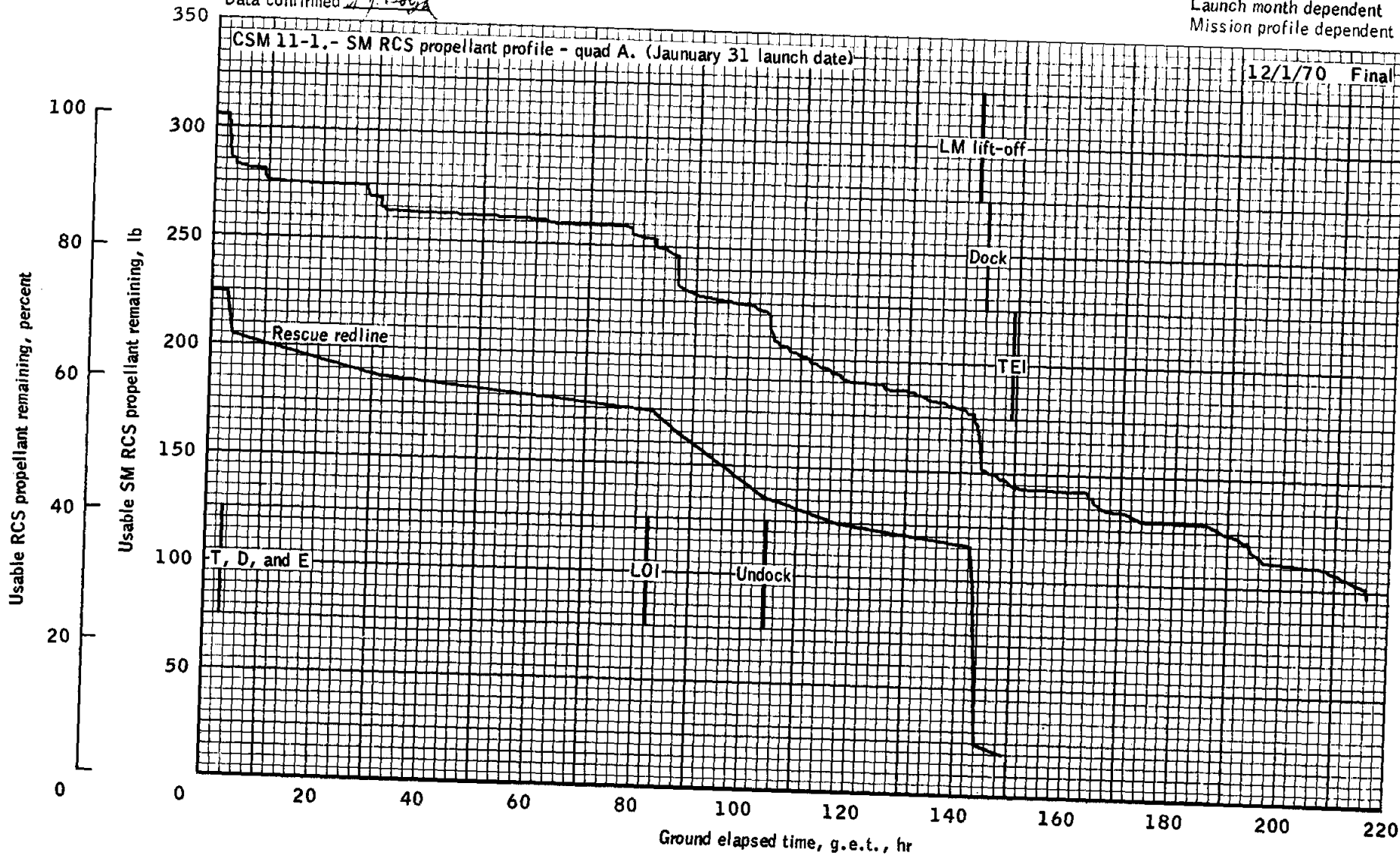


Figure 4-11.- SM RCS propellant profile - quad A.

Loyd/GPB/MPAD (for Flight Plan)
Data source *Jan 31 Flight Plan*
Data confirmed *A.J. Loyd*

Launch day dependent
Launch month dependent
Mission profile dependent

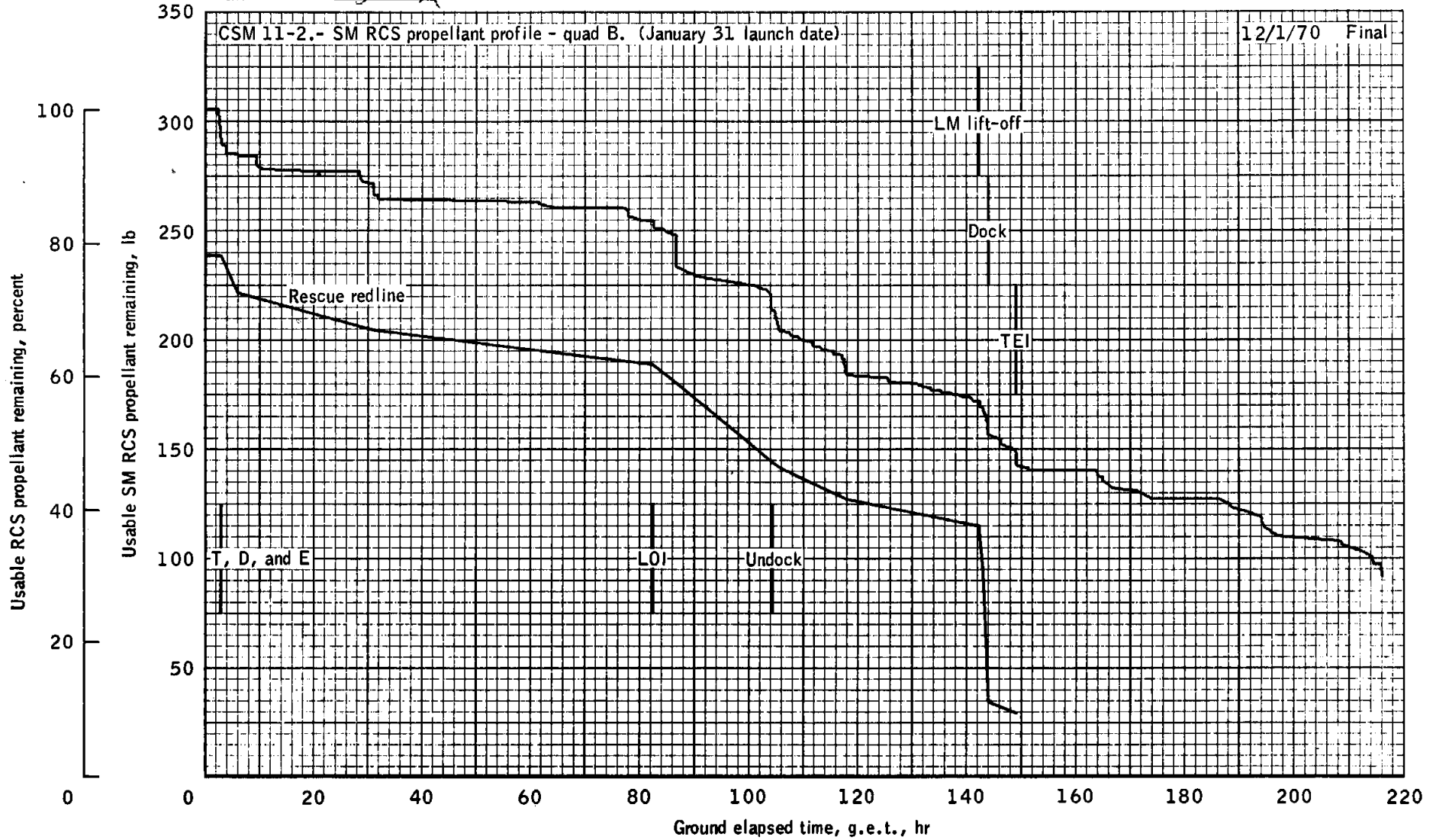


Figure 4-12.- SM RCS propellant profile - quad B.

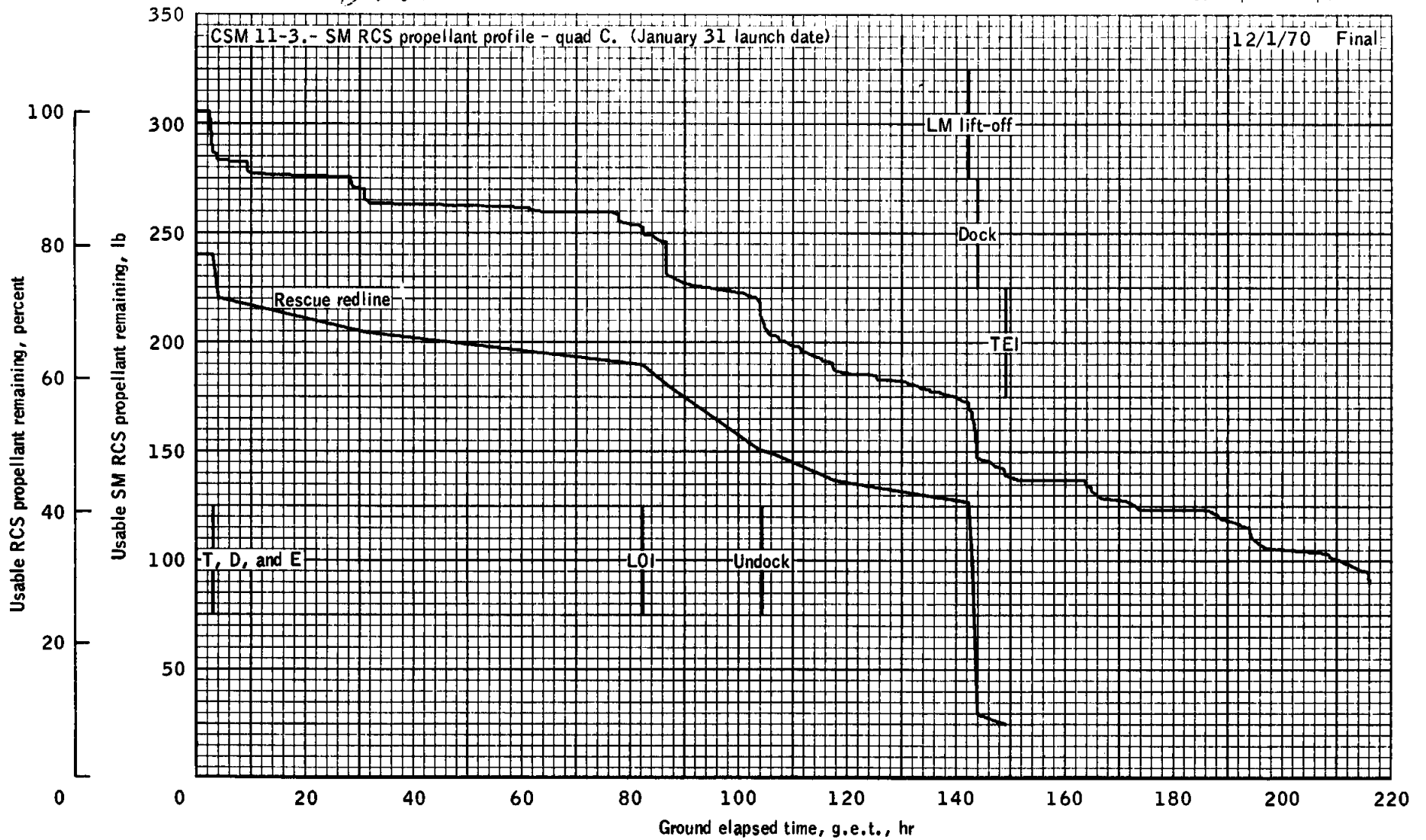


Figure 4-13.- SM RCS propellant profile - quad C.

Loyd/GPB/MPAD (for Flight Plan)

Data source *Jan 31 Flight Plan*

Data confirmed *AJ Loyd*

Launch day dependent

Launch month dependent

Mission profile dependent

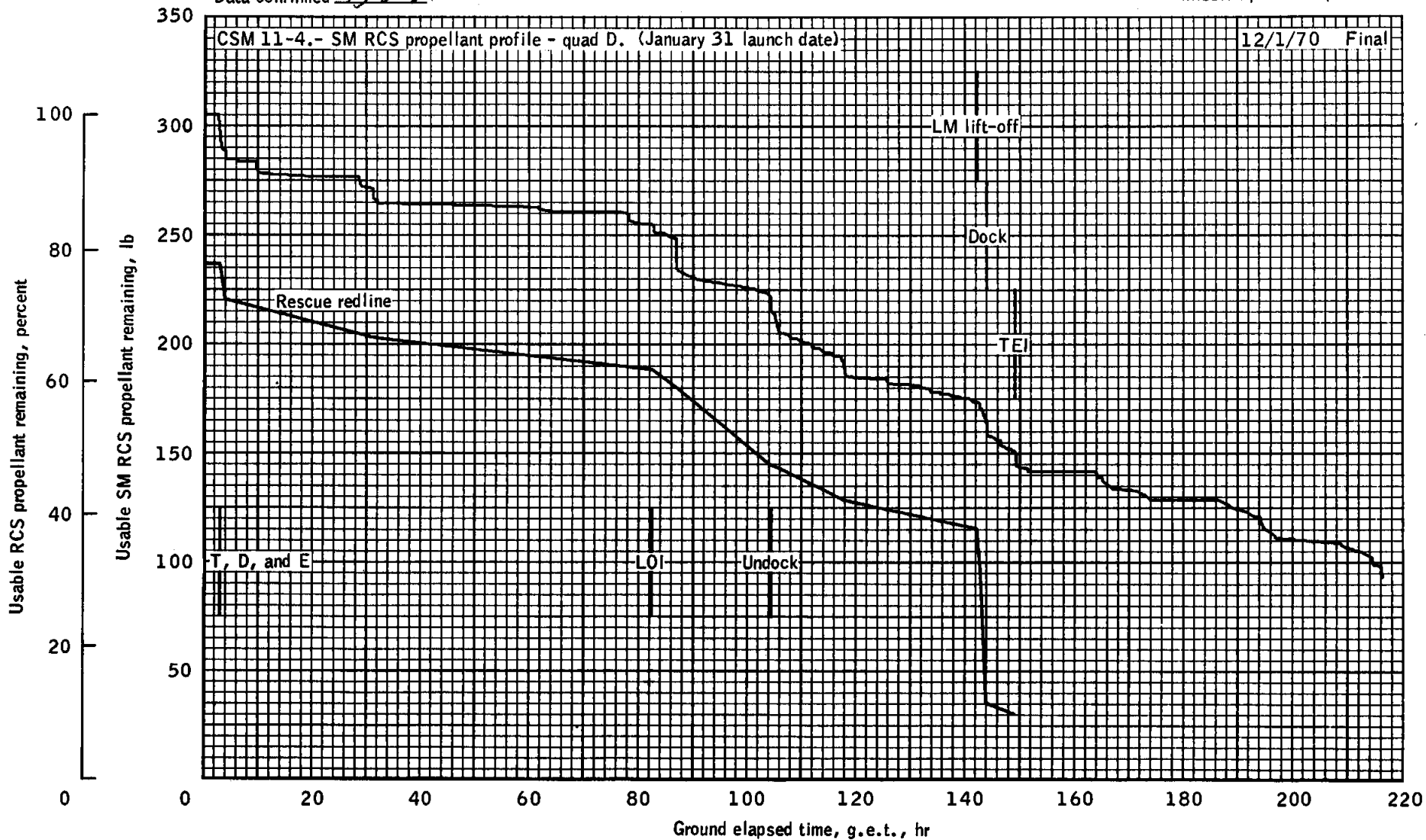


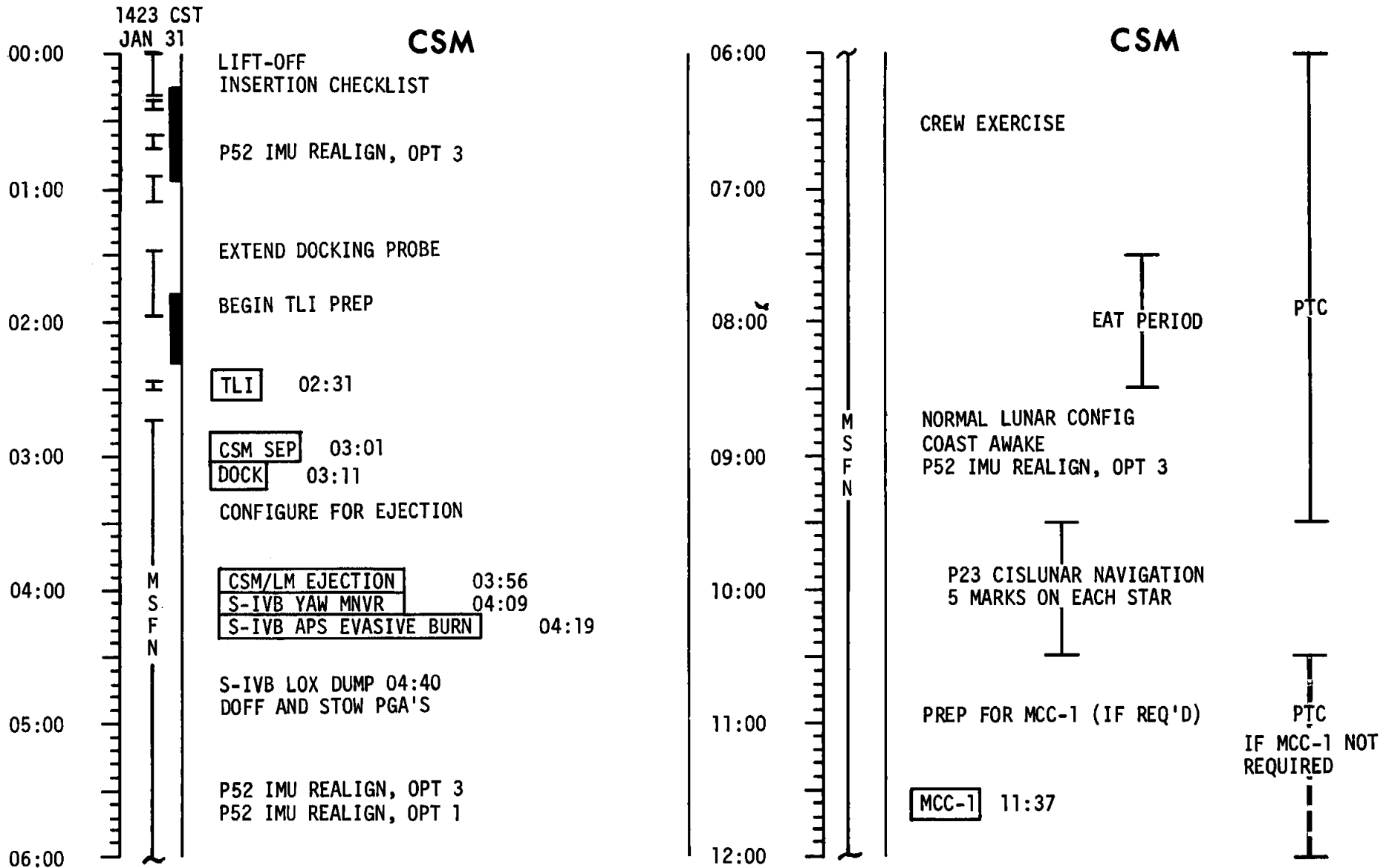
Figure 4-14.- SM RCS propellant profile - quad D.

TABLE 4-10
CM RCS PROPELLANT SUMMARY

Item	Propellant required, lb	Propellant remaining, lb
Loaded	--	245.0
Trapped	36.4	208.6
Available for mission planning . . .	--	208.6
Nominal usage	38.9	169.7
Nominal remaining	--	169.7

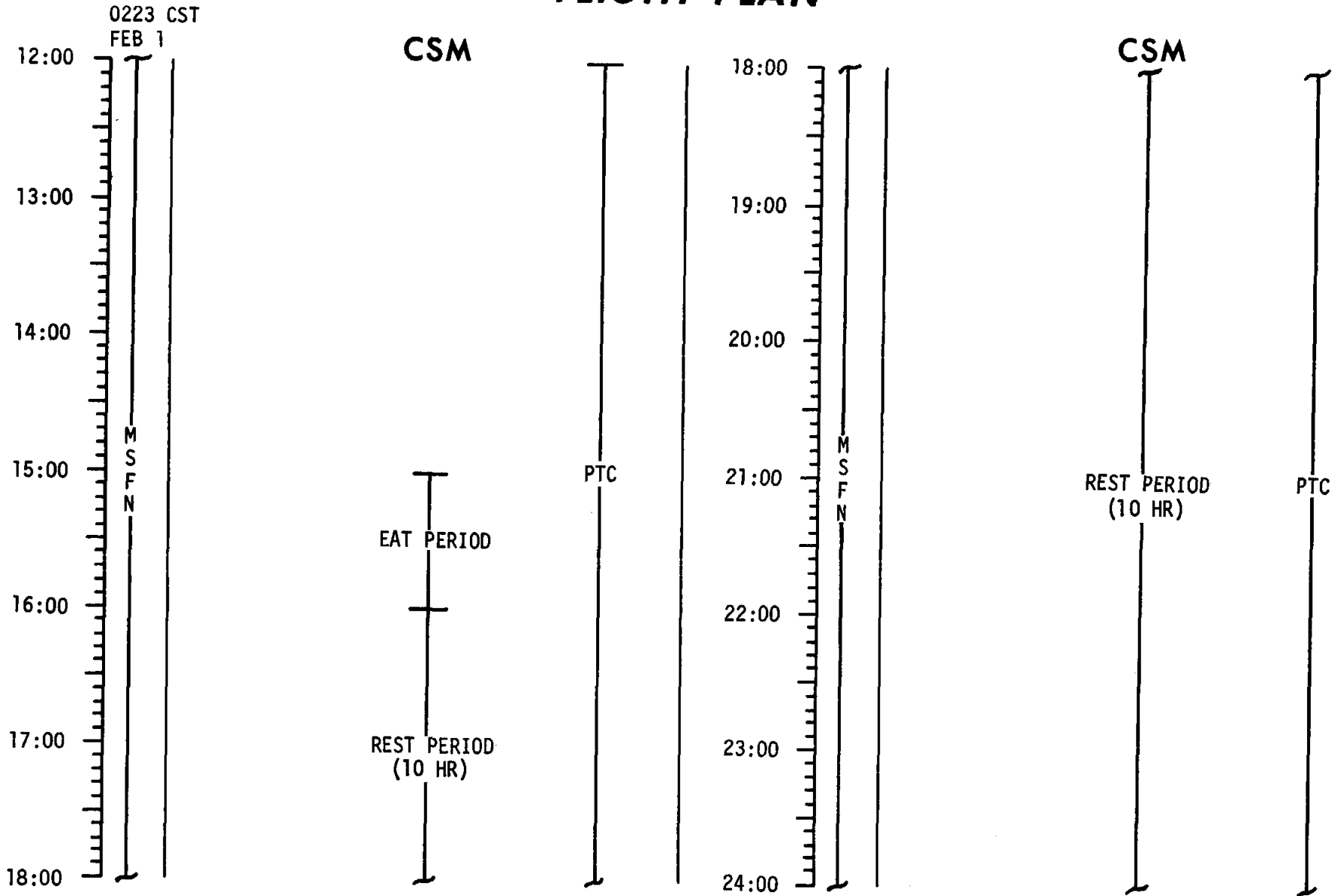
SECTION 5 - ABBREVIATED TIMELINE

FLIGHT PLAN



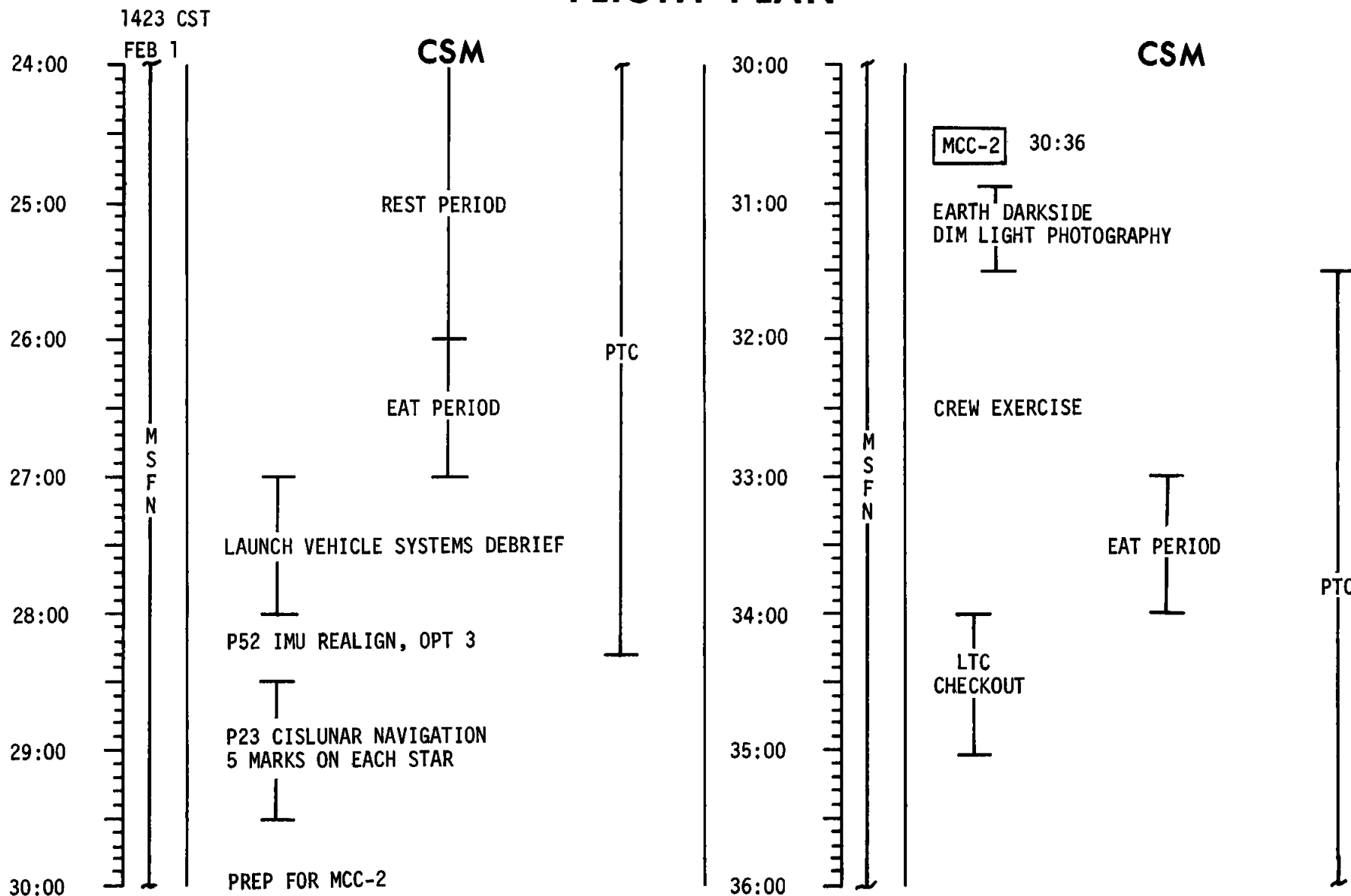
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	00:00 - 12:00	1/TLC	5-1

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	12:00 - 24:00	1/TLC	5-2

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	24:00 - 36:00	1-2/TLC	5-3

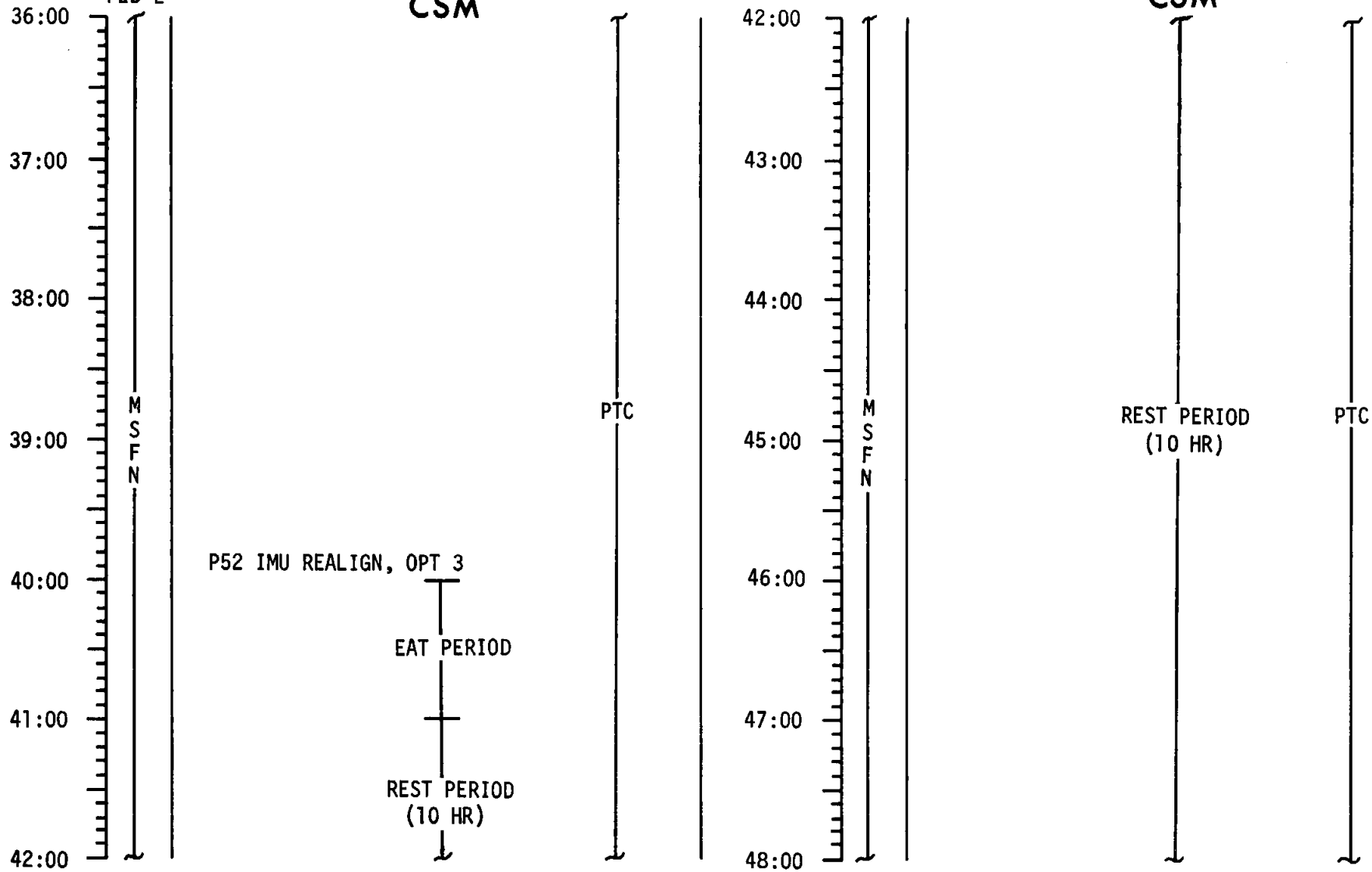
FLIGHT PLAN

0223 CST

FEB 2

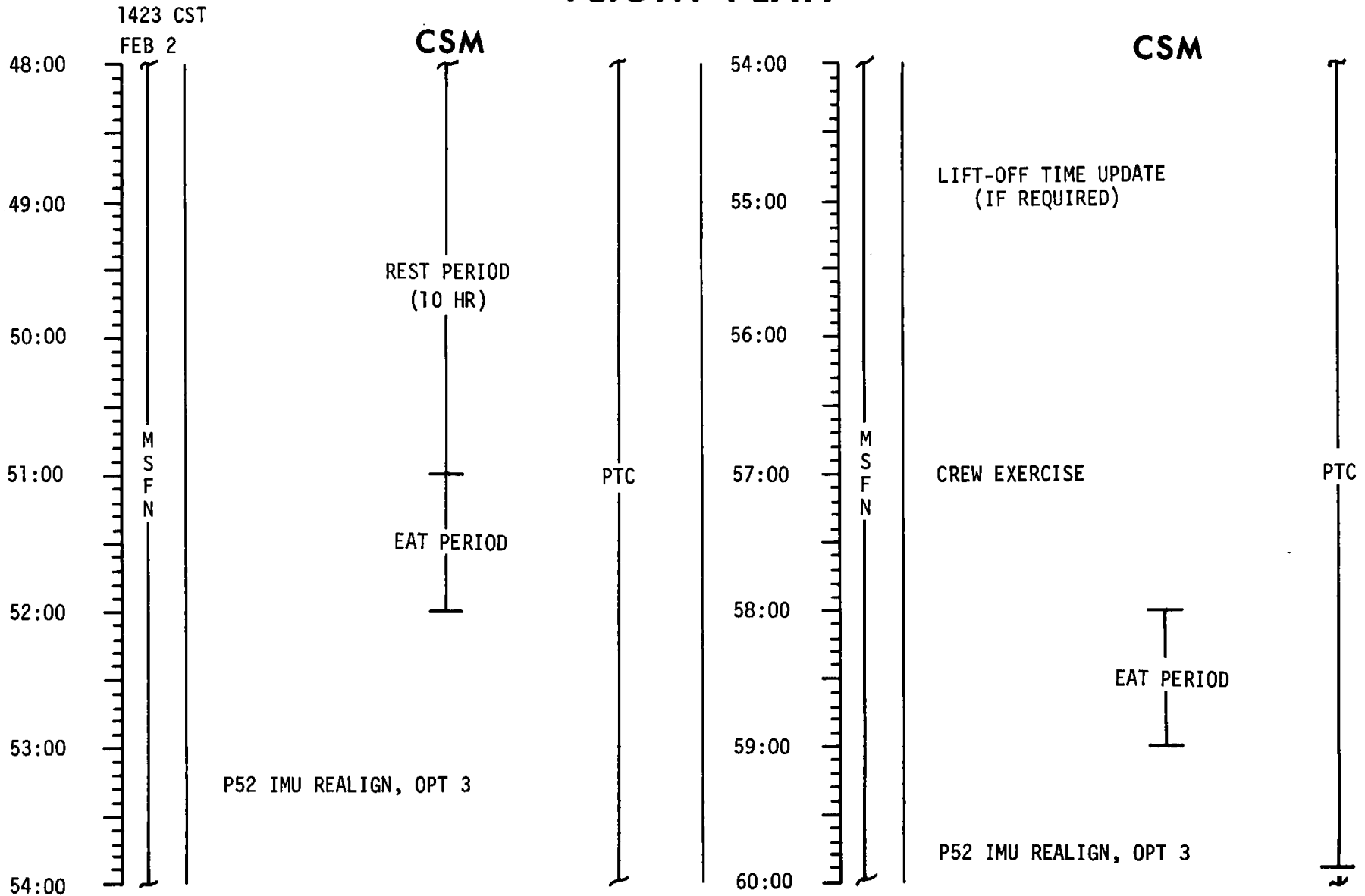
CSM

CSM



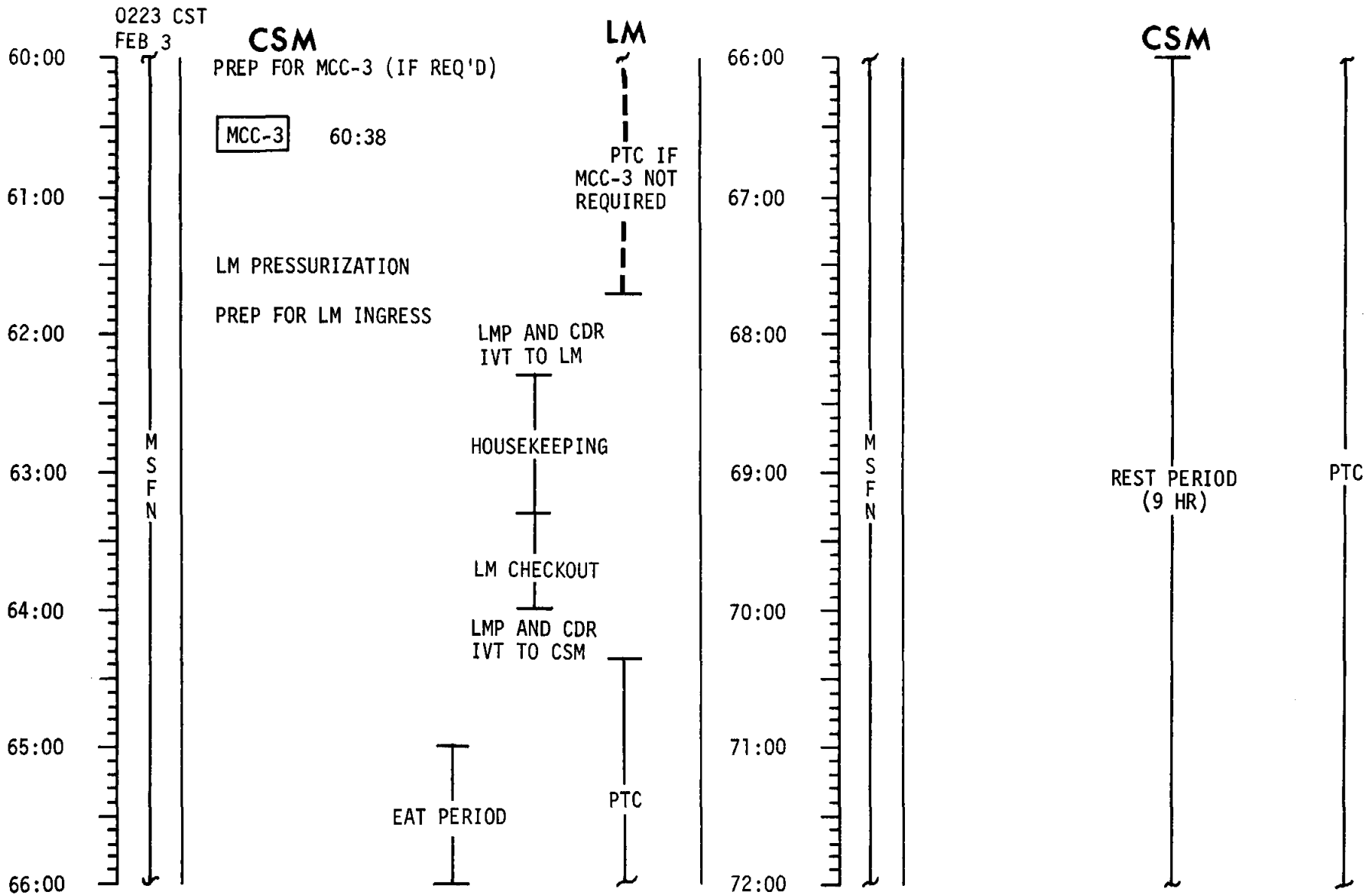
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	36:00 - 48:00	2/TLC	5-4

FLIGHT PLAN



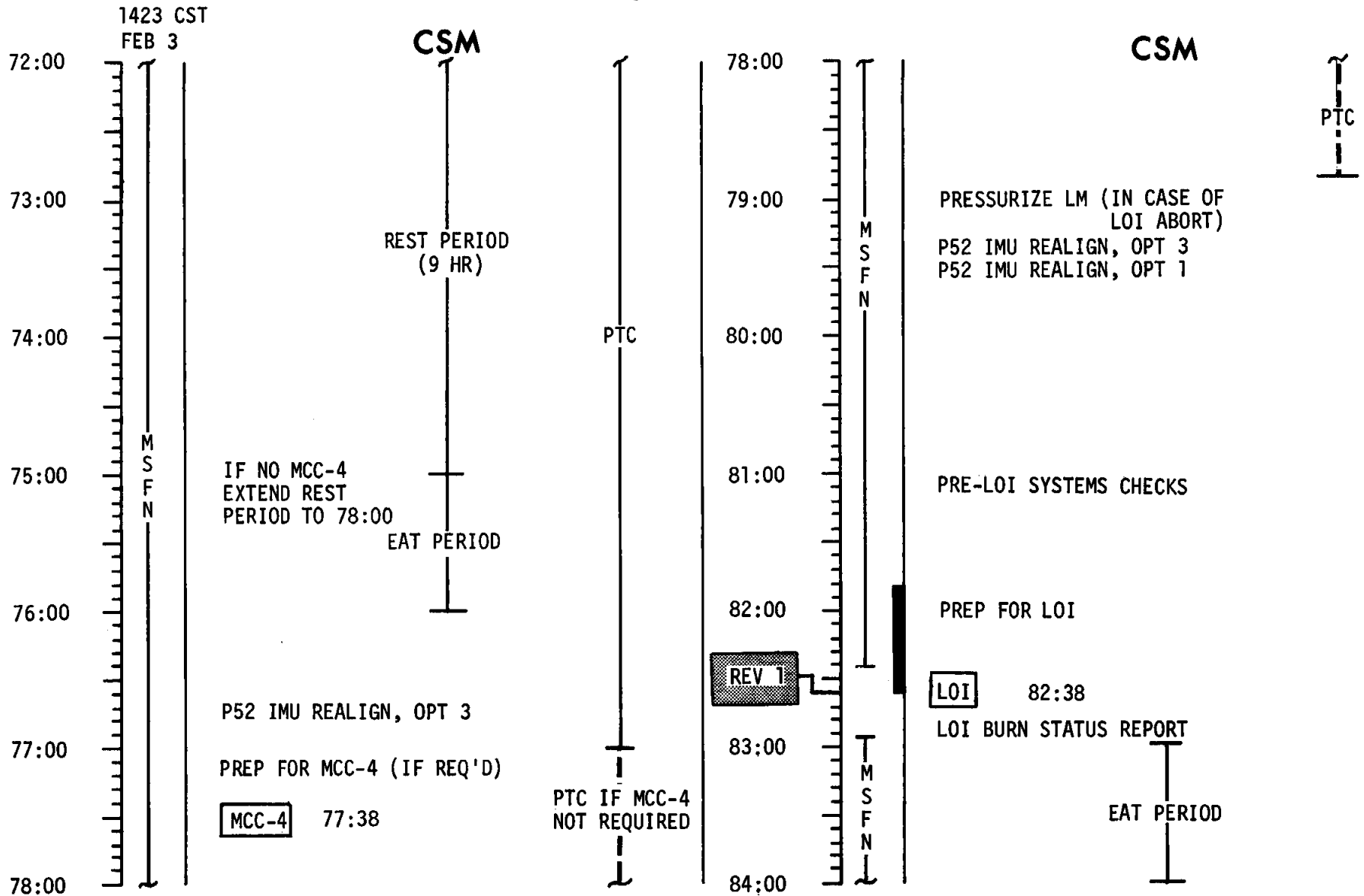
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	48:00 - 60:00	2-3/TLC	5-5

FLIGHT PLAN



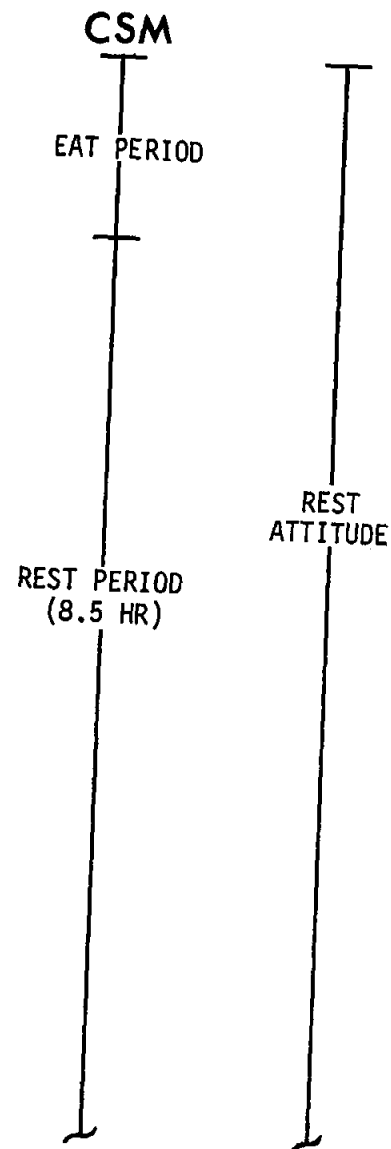
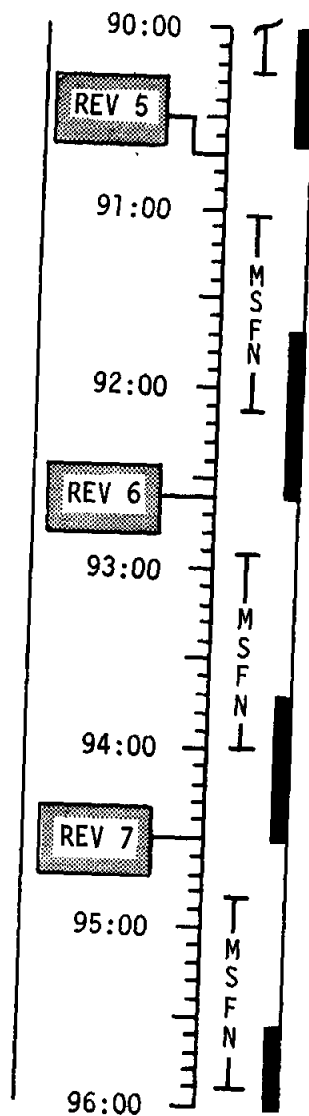
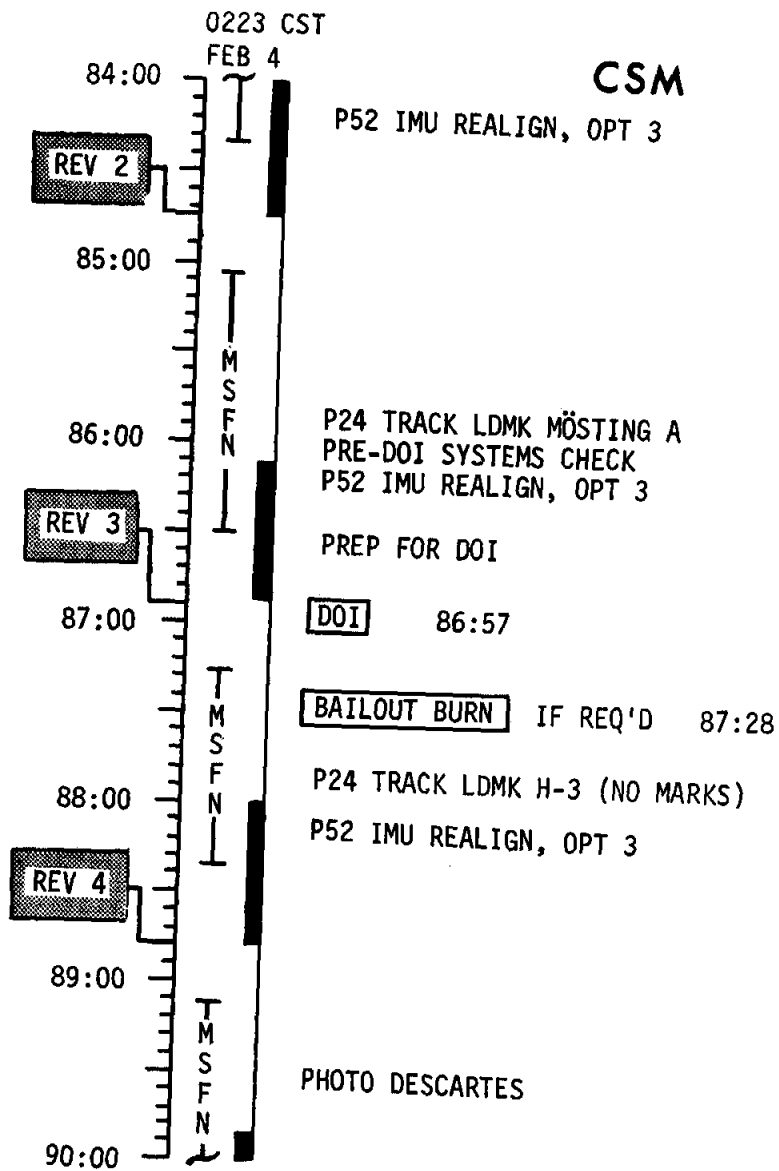
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	60:00 - 72:00	3/TLQ	5-6

FLIGHT PLAN



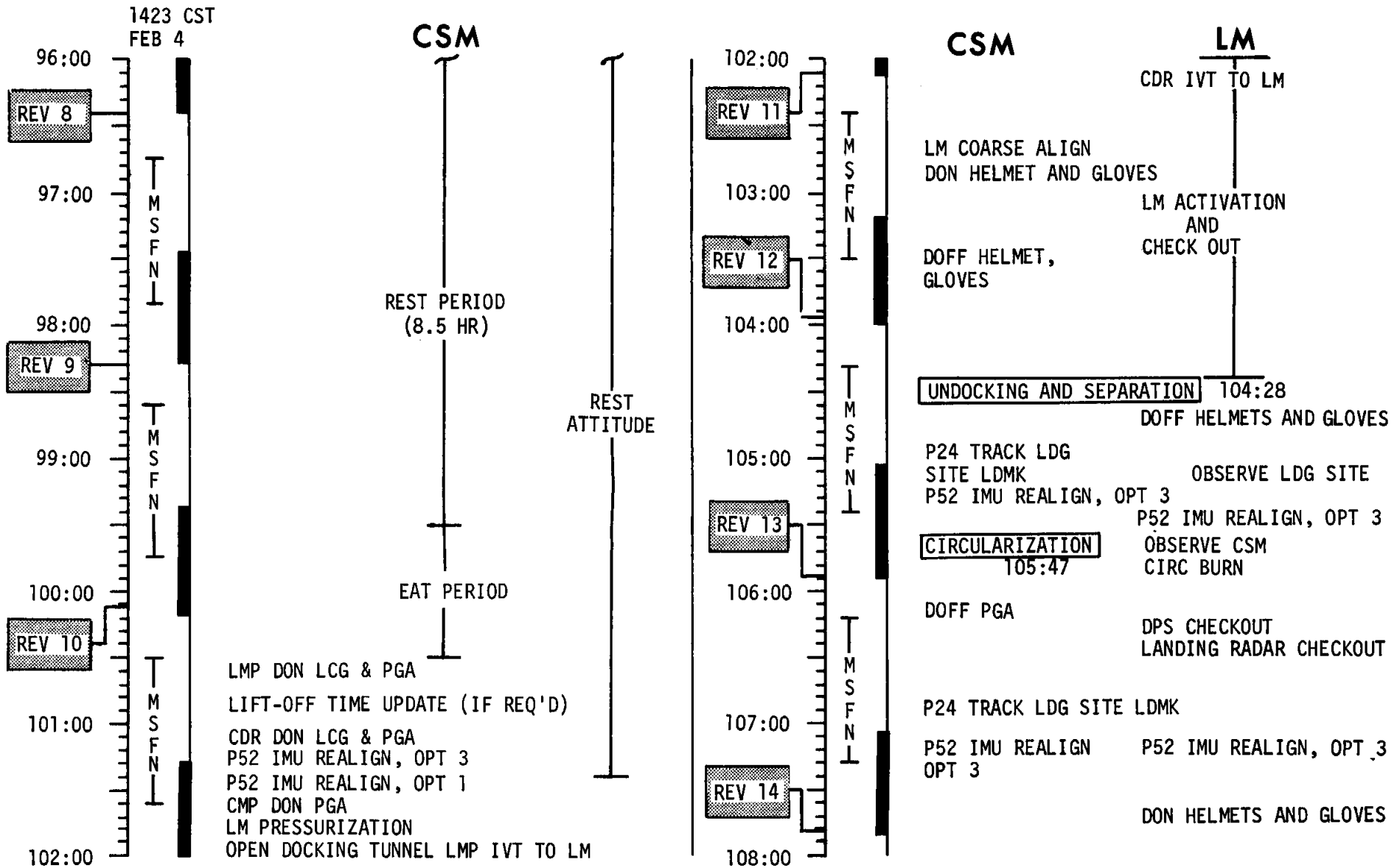
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	72:00 - 84:00	3-4/TLC-1	5-7

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	84:00 - 96:00	4/1-7	5-8

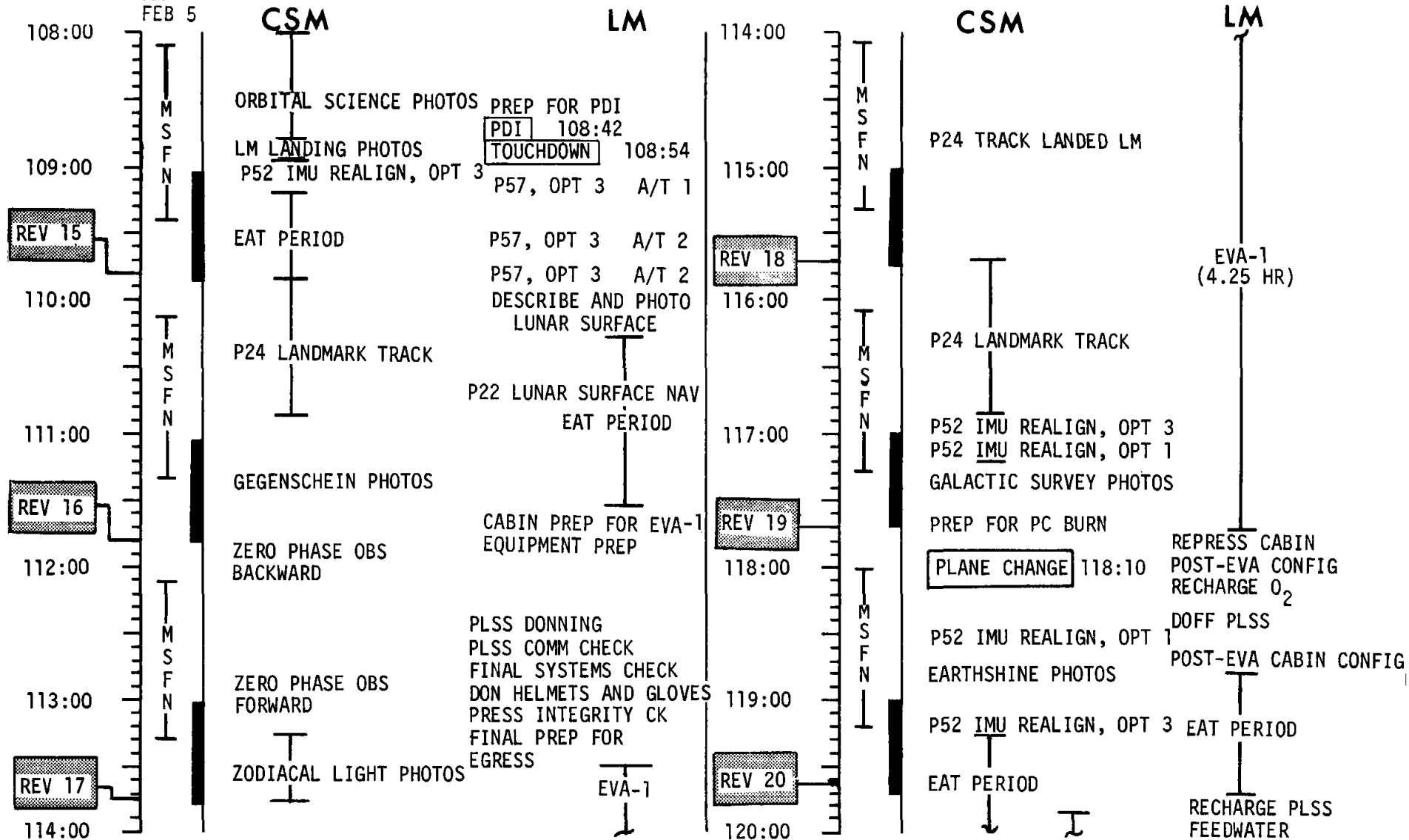
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	96:00 - 108:00	4-5/7-14	5-9

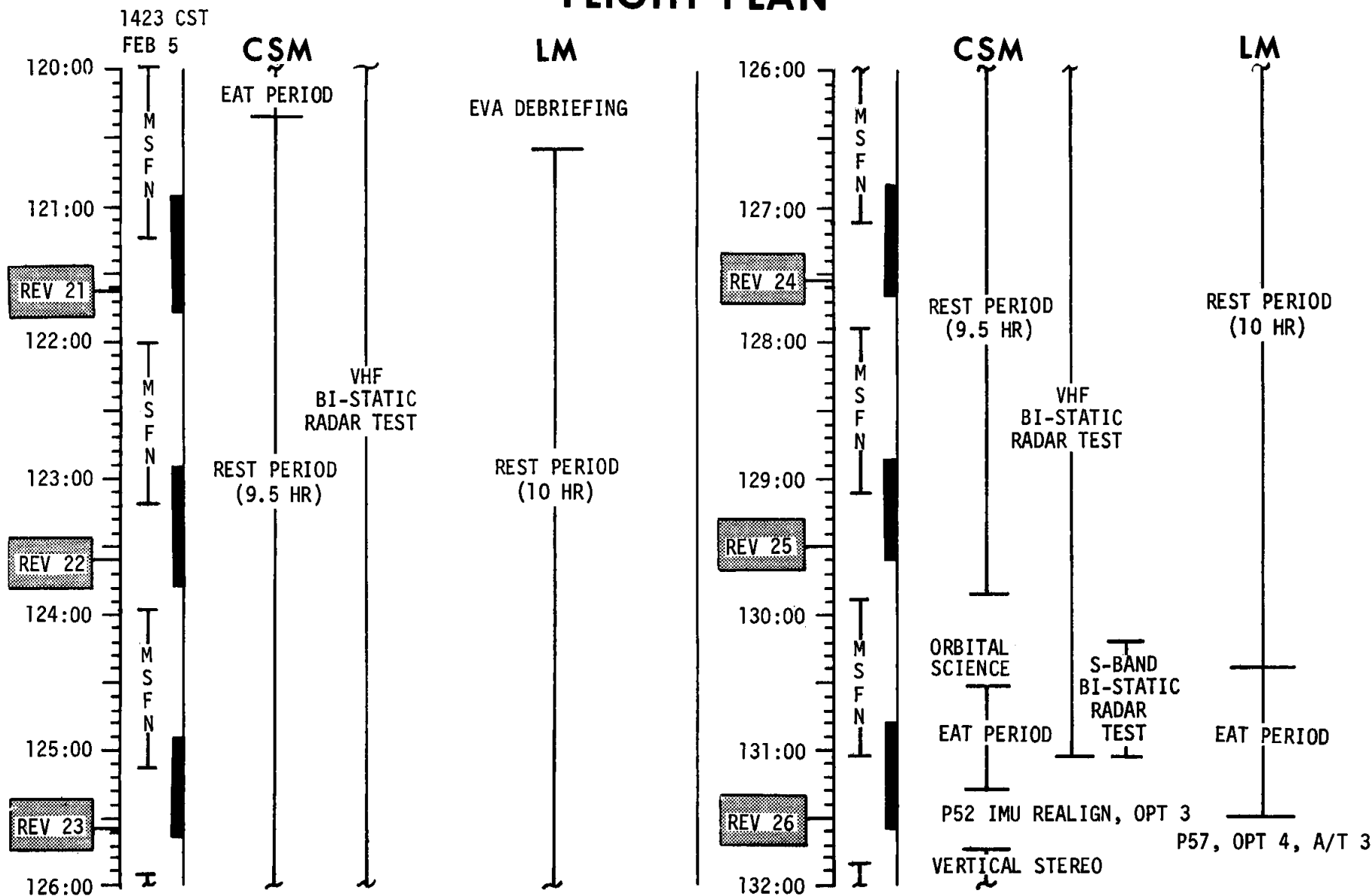
FLIGHT PLAN

0223 CST
FEB 5



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	108:00 - 120:00	5/14-20	5-10

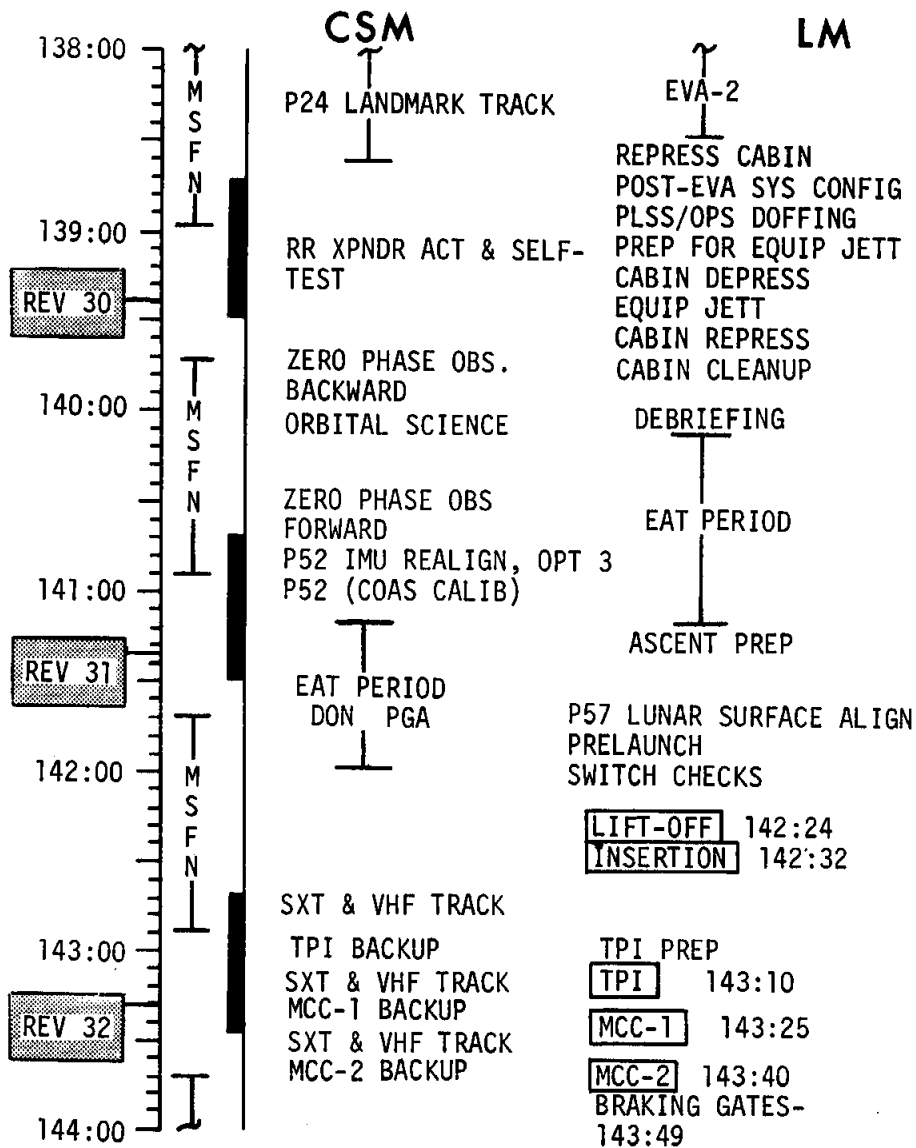
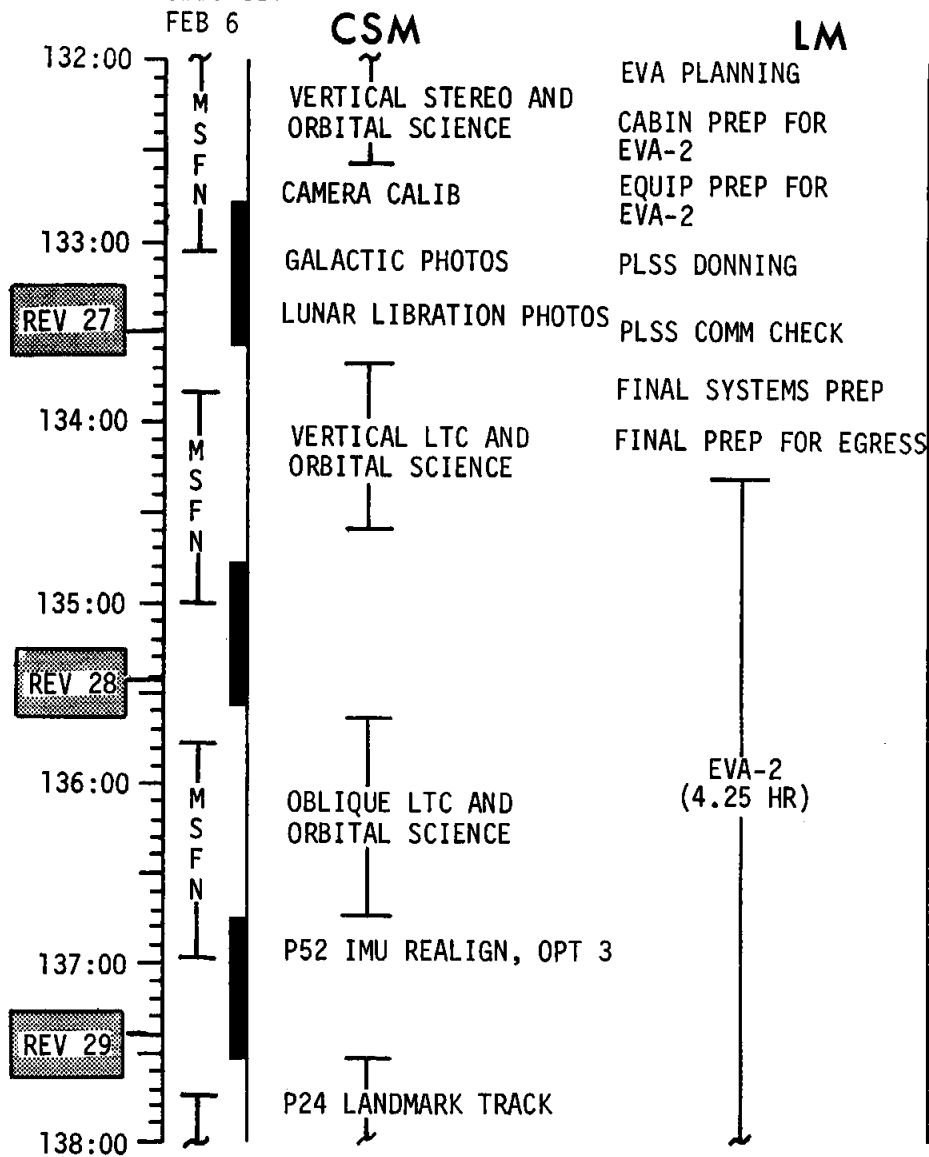
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	120:00 - 132:00	5-6/20-26	5-11

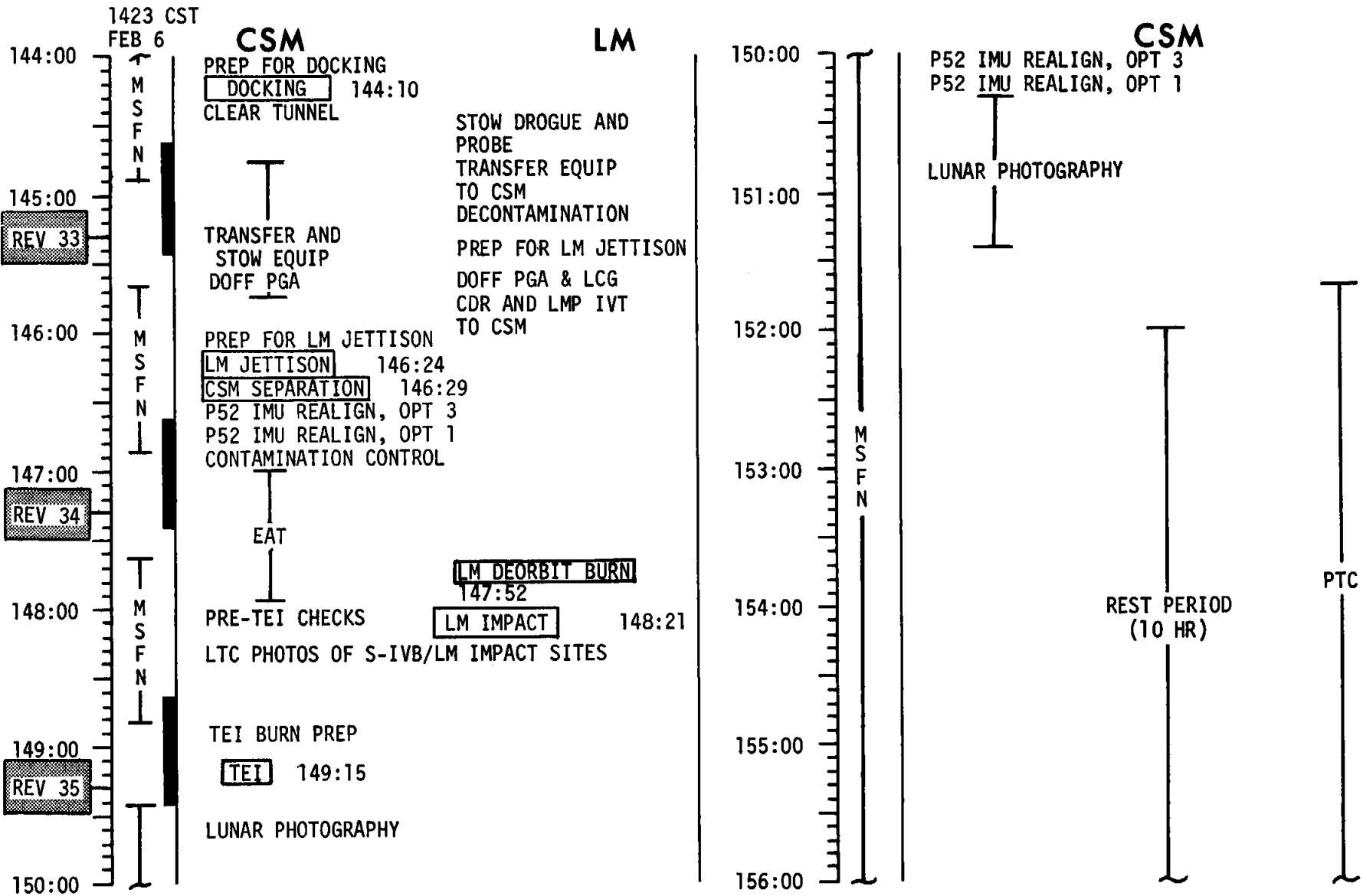
FLIGHT PLAN

0223 CST
FEB 6



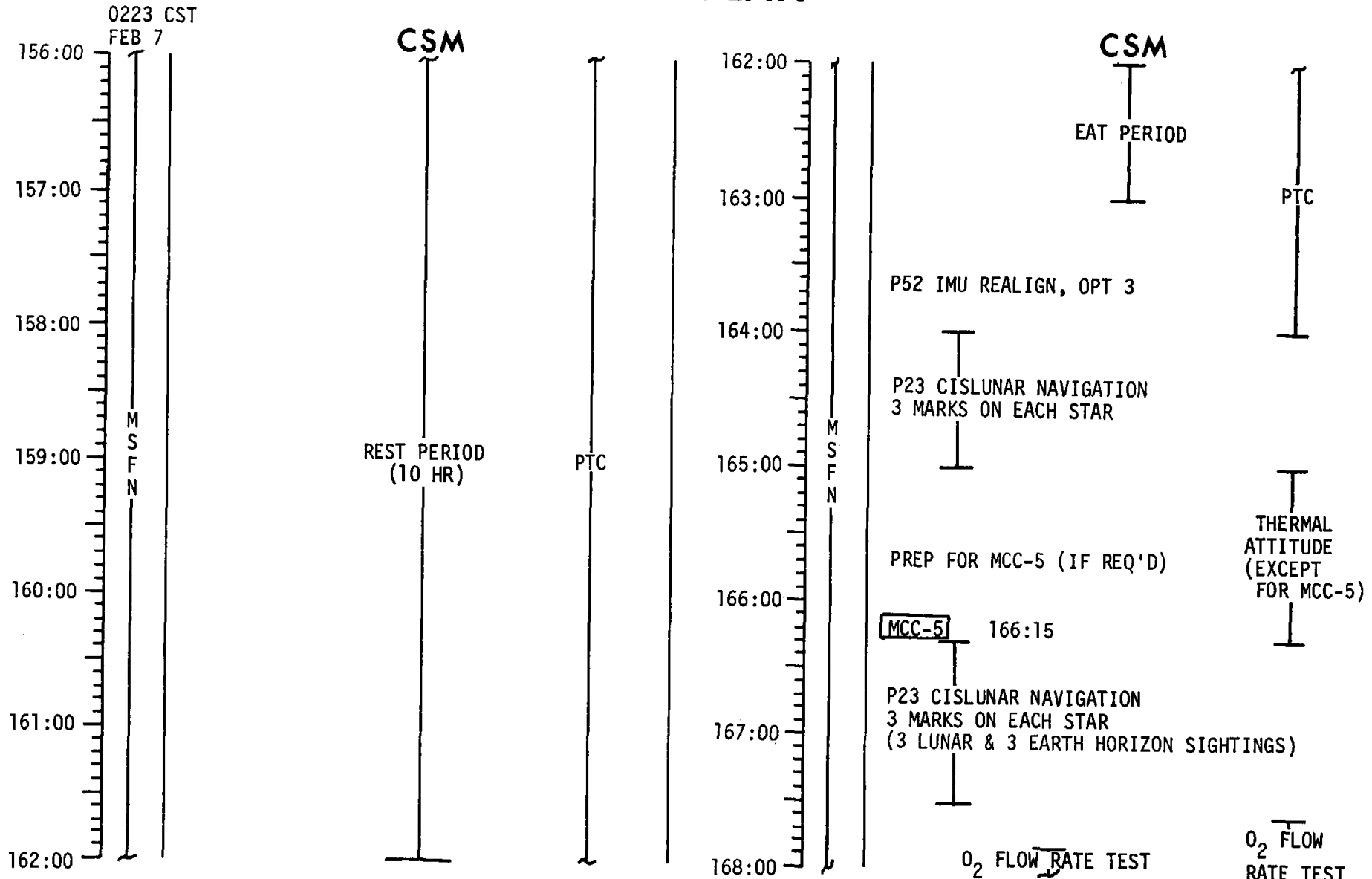
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	132:00 - 144:00	6/26-32	5-12

FLIGHT PLAN



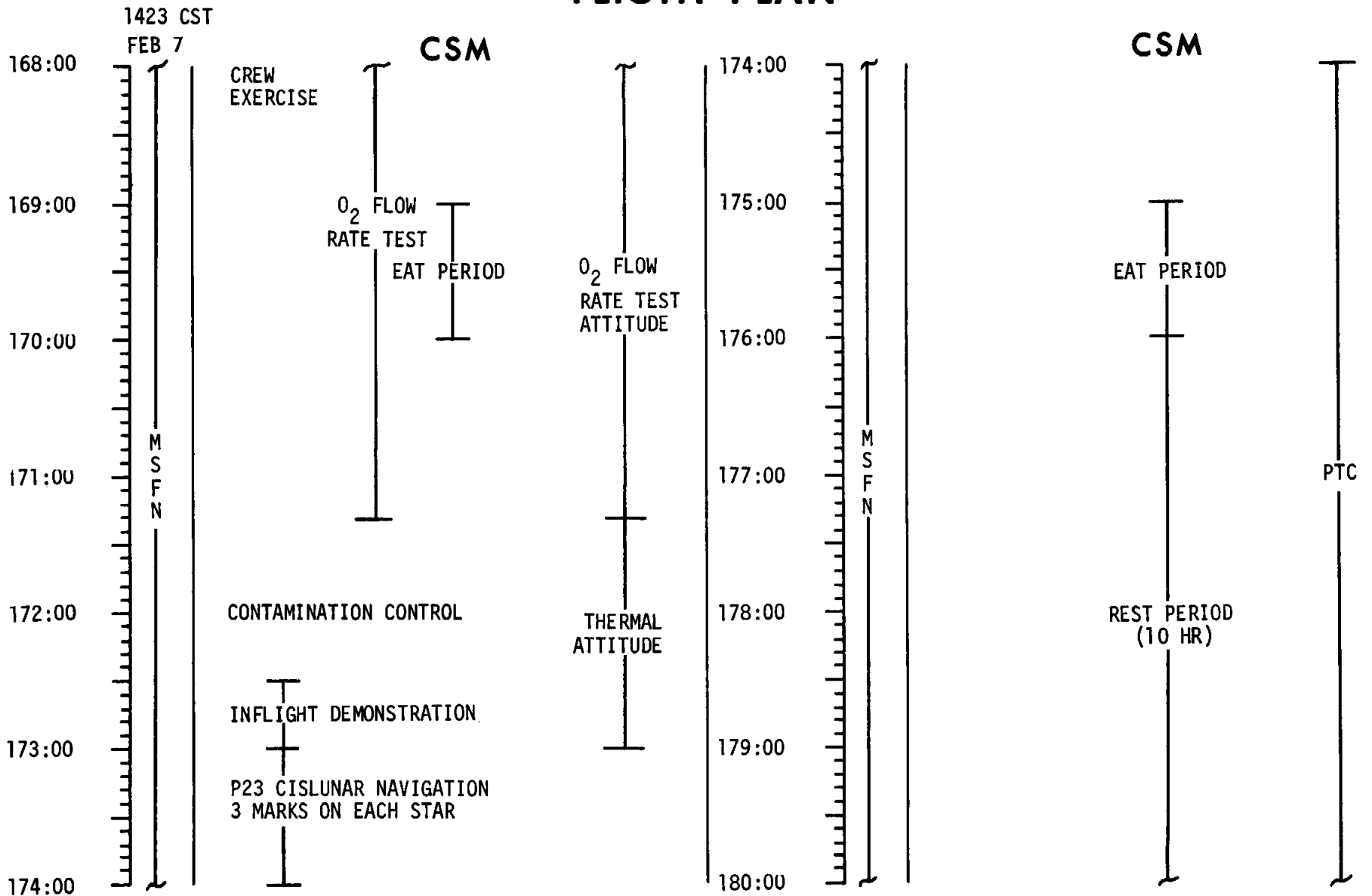
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	144:00 - 156:00	6 /32-TEC	5-13

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	156:00 - 168:00	6-7/TEC	5-14

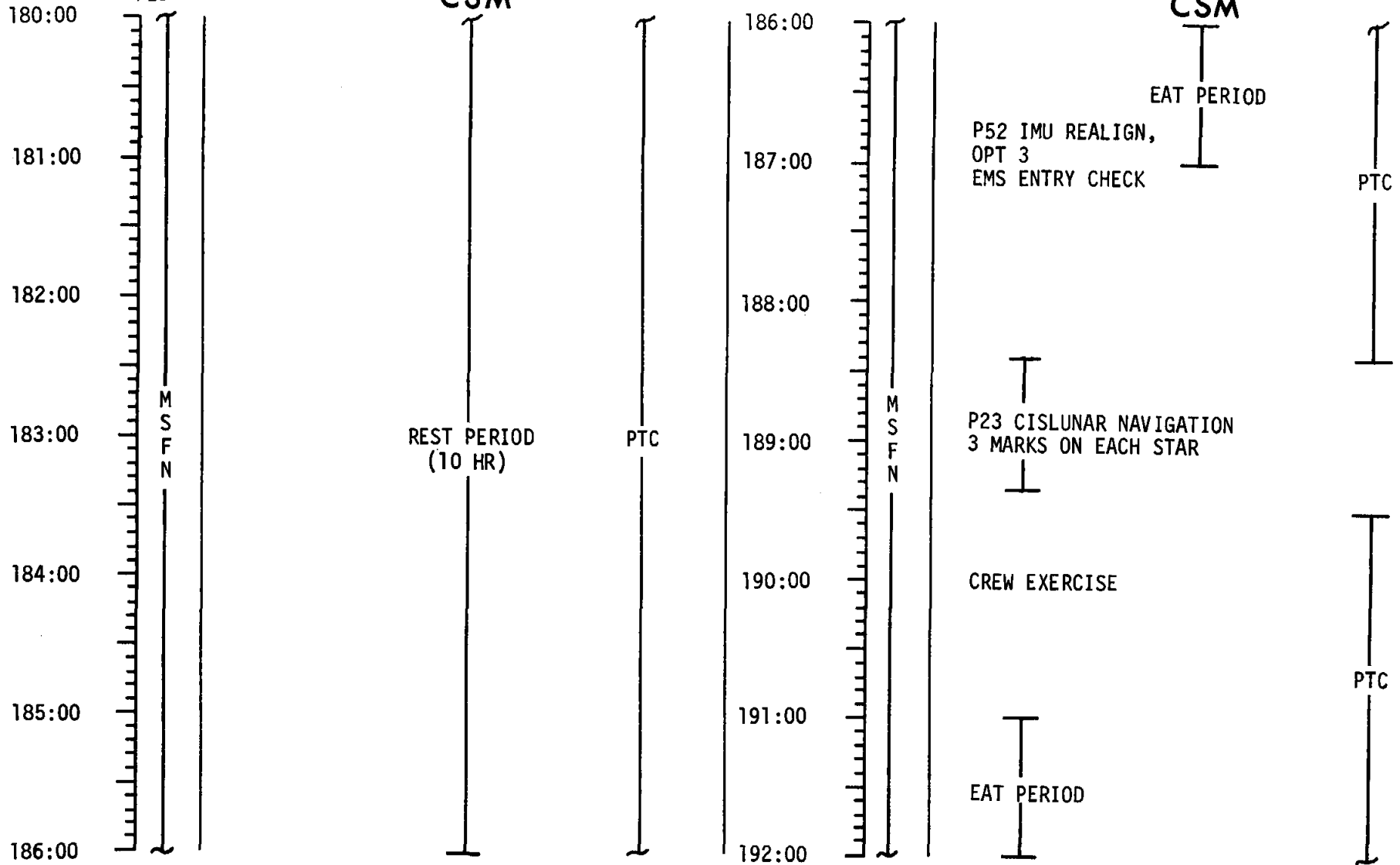
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	168:00 - 180:00	7/TEC	5-15

FLIGHT PLAN

0223 CST
FEB 8



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	180:00 - 192:00	7-8/TEC	5-16

1423 CST
FEB 8

CSM

FLIGHT PLAN

CSM

192:00

193:00

194:00

195:00

196:00

197:00

198:00

P52 IMU REALIGN, OPT 3

P23 CISLUNAR NAVIGATION
3 MARKS ON EACH STAR

PREP FOR MCC-6 (IF REQ'D)

MCC-6 194:27

CONTAMINATION CONTROL

P23 CISLUNAR NAVIGATION
3 MARKS ON EACH STAR

EARTH DARKSIDE
DIM LIGHT PHOTOS

PTC

PTC IF
NO MCC-6

PTC

198:00

199:00

200:00

201:00

202:00

203:00

204:00

BACKUP GDC ALIGNMENT
CRESCENT ALIGN

EAT PERIOD

REST PERIOD
(8 HR)

M
S
F
N

M
S
F
N

PTC

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	192:00 - 204:00	8/TEC	5-17

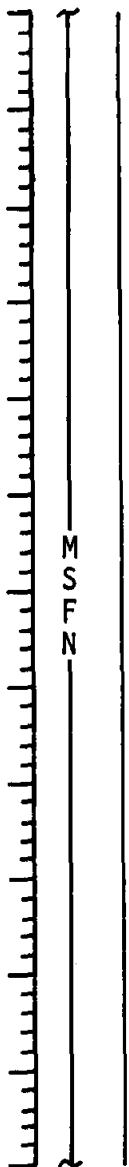
0223 CST
FEB 9

FLIGHT PLAN

CSM

CSM

204:00
205:00
206:00
207:00
208:00
209:00
210:00



P52 IMU REALIGN, OPT 3

P23 CISLUNAR NAVIGATION
3 MARKS ON EACH STAR

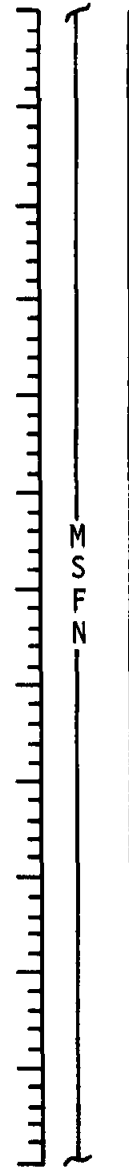
EAT PERIOD

REST PERIOD
(8 HR)

PTC

PTC

210:00
211:00
212:00
213:00
214:00
215:00
216:00



P23 CISLUNAR NAVIGATION
3 MARKS ON EACH STAR

P52 IMU REALIGN, OPT 3
P52 IMU REALIGN, OPT 1

PREP FOR MCC-7 (IF REQ'D)

MCC-7 213:27

P23 CISLUNAR NAVIGATION
3 MARKS ON EACH STAR

P52 IMU REALIGN, OPT 3
EMS ENTRY CHECK

CM/SM SEP 216:12
EI 216:27

PTC

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 14	FINAL (JAN)	DECEMBER 2, 1970	204:00 - 216:00	8-9/TEC	5-18

SECTION 6 - ALTERNATE MISSION TIMELINES

ALTERNATE MISSION 1 SUMMARY FLIGHT PLAN
 APOLLO 14
 (CSM/LM LOW EARTH ORBIT)

