

15 pull-out charts



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FINAL

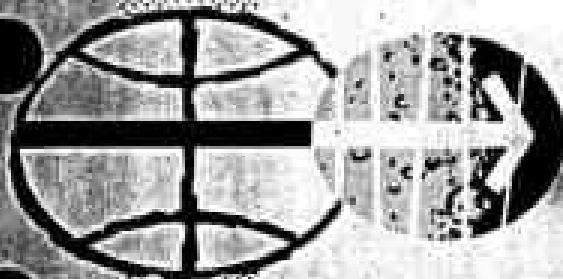
APOLLO 12 FLIGHT PLAN

AS-507/CSM-108/LM-6

OCTOBER 15, 1969

FLIGHT PLANNING BRANCH
FLIGHT CREW SUPPORT DIVISION

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS



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APOLLO 12
APOLLO AS-507/CSM-108/LM-6

FINAL FLIGHT PLAN

OCTOBER 15, 1969

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INTRODUCTION

This Flight Plan has been prepared by the Flight Planning Branch, Flight Crew Support Division, with technical support by TRW Systems.

This document schedules the AS-507/CSM-108/LM-6 operations and crew activities to fulfill, when possible, the test objectives defined in the Mission Requirements, H Type Mission Lunar Landing, Change B dated October 14, 1969.

The trajectory parameters used in this Flight Plan are for November 14, 1969 launch, with 72° launch azimuth and were supplied by Mission Planning and Analysis Division as defined by the Apollo Mission H-I Spacecraft Operational Trajectory to be published.

The Apollo 12 Flight Plan is under the configuration control of the Crew Procedures Control Board (CPCB). All proposed changes to this document that fall in the following categories should be submitted to the CPCB via a Crew Procedures Change Request:

1. Items that impose additional crew training or impact crew procedures.
2. Items that impact the accomplishment of Mission Objectives.
3. Items that result in a significant RCS or EPS budget change.
4. Items that result in moving major activities to a different activity day in the Flight Plan.
5. Items that require a change to the flight data file.

The Chief, Flight Planning Branch (FCSD) will determine what proposed changes fall in the above categories.

Mr. C. L. Stough will act as co-ordinator for all proposed changes to the Apollo 12 Flight Plan.

This Flight Plan is not to be reproduced without the written approval of the Chief, Flight Crew Support Division.

Any requests for additional copies or changes to the distribution lists of this document must be made in writing to Mr. W. J. North, Chief, Flight Crew Support Division, MSC, Houston, Texas.

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Views of the earth shown in the Flight Plan were taken from
the document, "Views from the CM and LM during the Flight of
Apollo 12 (Mission H-1)."

The CSM and LM attitude information was taken from the docu-
ment, "Operational Lunar Orbit Attitude Sequence for Apollo 12
(Mission H-1)" to be published.

ABBREVIATIONS

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
ALSEP	Apollo Lunar Surface Experiment Package
ALT	Altitude
AM	Amplitude Modulation
AMP or amp	Ampere
AMPL	Amplifier
ANG	Antigua
ANT	Antenna
AOH	Apollo Operations Handbook
AOS	Acquisition of Signal or Acquisition of Site
AOT	Alignment Optical Telescope
APS	Ascent Propulsion Subsystem
ARS	Atmosphere Revitalization System
ASC	Ascent
A/T	Alignment Technique
ATT	Attitude
AUX	Auxiliary
AZ	Azimuth
BAT	Battery
BD	Band
BDA	Bermuda
Bio	Bio-Medical Data on Voice Downlink
BP	Barber Pole
BRKT	Bracket
BT	Burn Time
BU	Backup
BW	Black & White (Film 3400)
BW1	Black & White (Film 3401)
CAP COM	Capsule Communicator
CAL {	Calibration Angle
CAM	Camera
CAN	CANISTER
CB	Circuit Breaker
CCIG	Cold Cathode Ion Gage
CDH	Constant Delta Altitude
CDR	Commander
CDU	Coupling Data Unit

CEX	Color External Photography
CIN	Color Internal Photography
CIRC	Circularization
CK	Check
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 and Contingency
CP	Control Point
CRO	Carnarvon, Australia
CRYO	Cryogenic
CSC	Contingency Sample Collection
CSC	Close-up Stereo Camera
CSI	Coelliptic Sequence Initiation
CSM	Command Service Module
C&WS	Caution and Warning System
CWEA	Caution and Warning Electronic Assembly
CYI	Grand Canary Island
DAC	Data Acquisition Camera
DAP	Digital Auto Pilot
DB	Deadband
DC	Direct Current
DCA	Digital Command Assembly
DEDA	Data Entry and Display Assembly
DEGS	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
DS	Documented Sample
DSE	Data Storage Equipment
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
EL	Electric Hasselblad Camera
ELEV	Elevation
EMER	Emergency
EMS	Entry Monitor System
EMU	Extravehicular Mobility Unit
ENH	Earth Near Horizon
EPO	Earth Parking Orbit
EPHEM	EPHEMERIS
EPS	Electrical Power Subsystem
EQUIP	Equipment
EST	Eastern Standard Time
ETB	Equipment Transfer Bag
EVA	Extravehicular Activity
EVAP	Evaporator
EVCS	Extravehicular Communications System
EVT	Extravehicular Transfer
EXT	External
f	F Stop
FC	Fuel Cell
FDAI	Flight Director Attitude Indicator
FLT	Flight
FM	Frequency Modulated
FOV	Field of View
FPS or fps	Feet per second
FT or ft	Feet
FTO	Flight Test Objective
FTP	Full Throttle Position
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
GLY	Glycol
GMT	Greenwich Mean Time
G&N	Guidance and Navigation
GNCS	Guidance Navigation Control System
GWM	Guam
GYM	Guaymas, Mexico

H2	Hydrogen
HA	Apogee Altitude
HAW	Hawaii
HBR	High Bit Rate (TLM)
HD	Highly Desirable
HGA	High Gain Antenna
HI	High
H2O	Water
HP	Perigee Altitude
HSK	Honeysuckle (Canberra, Australia)
HTC	Hand Tool Carrier
HTR	Heater
HTV	USMS Huntsville
ICDU	Inertial Coupling Data Unit
ID	Identification
IGA	Inner Gimbal Angle
IGN	Ignition
IMU	Inertial Measurement Unit
IND	Indicator
INIT	Initialization
INT	Intervalometer
IP	Initial Point
ISA	Interim Stowage Assembly
IU	Instrumentation Unit
IVC	Intervehicular Communications
IVT	Intravehicular Transfer
JETT	Jettison
KM	Kilometer
kwh	Kilowatt Hour
LA	Launch Azimuth
LAT	Latitude
LBLR	Low Bit Rate (TLM)
LBS or lbs	Pounds
LCG	Liquid Cooled Garment
L/D	Lift/Drag
LD	Lunar Day (TV Lens)
LDG	Landing
LMK	Landmark
LEB	Lower Equipment Bay
LEC	Lunar Equipment Conveyor
LEL	Lunar Surface Electric Hasselblad Camera
LFH	Lunar Far Horizon
LGC	LM Guidance Computer
LH	Left-hand
L/H	Local Horizontal
LHEB	Left-hand Equipment Bay

LHFEB	Left-hand Forward Equipment Bay
LHSSC	Left Hand Side Storage Container
L1OH	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
LPO	Lunar Parking Orbit
LR	Landing Radar
LRRR or LR3	Laser Ranging Retro-Reflector
LS	Landing Site or Lunar Surface
LSM	Lunar Surface Magnetometer
LT	Light
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
MCC	Midcourse Correction
MCC-H or MCC	Mission Control Center - Houston
MDC	Main Display Console
MEAS	Measurement
MER	USNS Mercury
MESA	Modular Experiment Stowage Assembly
MET	Mission Event Timer
MGA	Middle Gimbal Angle
M/I	Minimum Impulse
MIN	Minimum
MIR	Mirror
MLA	Merrit Island, Florida
mm	Millimeter
MNVR	Maneuver
MON	Monitor
MPL	Mid Pacific Landing
MPS	Main Propulsion System
MSFN	Manned Space Flight Network
MTVC	Manual Thrust Vector Control

N2	Nitrogen
NAV	Navigation
NM	Nautical Miles
NOM	Nominal
NX	Noun XX
O2	Oxygen
OBS	Observation
O/F	Oxidizer to Fuel Ratio
OGA	Outer Gimbal Angle
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	Pericynthian
PGA	Pressure Garment Assembly
PGNS	Primary Guidance Navigation Control Section
PHOTO	PHOTOGRAPH
PIPA	Pulse Integrating Pendulous Accelerometer
PKG	Package
PLSS	Portable Life Support Systems
PM	Phase Modulated
POL	Polarity or Polarizing
PRE	Pretoria, South Africa
PREF	Preferred
PREP	Preparation
PRESS	Pressure
PRIM	Primary
PRN	Pseudo Random Noise
PROP	Proportional
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 and Gaging System
PWR	Power
PXX	Program XX
PYRO	Pyrotechnic

Qty	Quantity
QUAD	Quadrant
R	Roll or Range
R&B	Red & Blue
RAD	Radiator, or Radial, or Radiation
RCDR	Recorder
RCS	Reaction Control System
RCU	Remote Control Unit
RCV	Receiver
REACQ	Reacquire
RED	USNS Redstone
REFSMMAT	Reference Stable Member Matrix
REG	Regulator
REQD	Required
REV	Revolution
RH	Right-hand
RING	Ringsite
RLS	Radius of Landing Site
RNDZ	Rendezvous
RNG	Range/Ranging
RR	Rendezvous Radar
RSI	Roll Stability Indicator
RT	Real Time
RTC	Real Time Command
RTG	Radioisotope Thermoelectric Generator
RXX	Routine XX
SA	Shaft Angle
S/C	Spacecraft
SCE	Signal Conditioning Equipment
SCS	Stabilization Control System
SCT	Scanning Telescope
SEC	Secondary
SECO	S-IVB Engine Cut-off
SEGS	Sequential Events Control System
SEL	Select
SEP	Separate
SEQ	Sequence
SIDE	Suprathermal Ion Detector Experiment
S-IVB	Saturn IV B(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
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
TCA	Time of Closest Approach
TD	Touchdown
TD&E	Transposition Docking & LM Ejection
TEC	Trans Earth Coast
TECH	Technique
TEI	Transearch Insertion
TEMP	Temperature
TERM	Terminate
TEX	Corpus Christi, Texas
TGT	Target
TIG	Time of Ignition
TLC	Trans Lunar Coast
TLI	Translunar Insertion
TLM or TM	Telemetry
TPF	Terminal Phase Final
TPI	Terminal Phase Initiation
TPM	Terminal Phase Midcourse
T/R	Transmitter/Receiver
TRANS	Translation
TRN	Trunion
TV	Television
TVC	Thrust Vector Control
TWR	Tower
ULL	Ullage
UMB	Umbilical
UNDK	Undock
US	United States
V	Velocity
VR	Resultant Velocity
VX	Velocity along the X-axis
YY	Velocity along the Y-axis
VZ	Velocity along the Z-axis

VAN	USNS Vanguard
VHF	Very High Frequency
VLV	Valve
VOX	Voice Keying
VXX	Verb XX
W/O	Without
WRT	With Respect to
WTN	USNS Watertown
X	Time of Closest Approach (Symbol)
X-DOT	Rate of Change along the X axis
XFER	Transfer
XMIT	Transmit or Transmitter
XPONDER	Transponder
Y	Yaw
YDOT	Rate of Change along the Y axis
ZDOT	Rate of Change along the Z axis
ΔAz	Azimuth Change (Difference)
ΔH	Altitude Change (Difference)
ΔP	Pressure Change (Difference)
ΔR	Position Change (Difference)
ΔV	Velocity Change (Difference)
ΔVC	Velocity Change at Engine Cutoff

Photographic Nomenclature

AAA/BBB/CCC/DDD - EEE, EEE, (GGG, HHH, III) JJJ

AAA - Location from which photography is to be accomplished

BBB - Camera

CCC - Lens

DDD - Film Type

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

GGG - Lens Aperture Setting

HHH - Shutter Speed

III - Focus distance in feet

JJJ - Number of frames for EL & LEL cameras

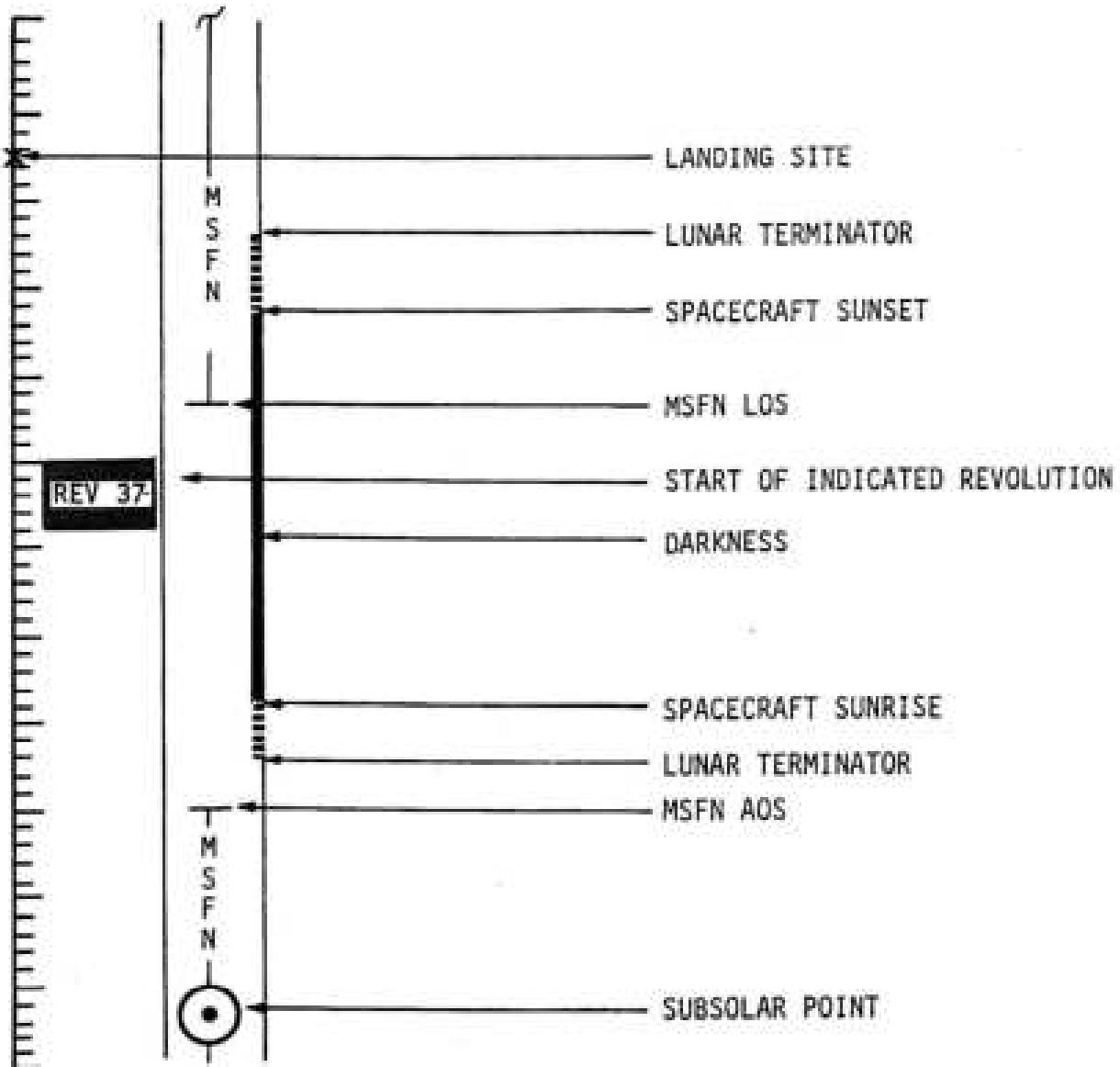
Frame Rate

Magazine percent

T Time (minutes)

Operating time (minutes) for TV

SYMBOL NOMENCLATURE



SECTION I - GENERAL

FLIGHT PLAN NOTES

A. Crew

1. Crew designations are as follows:

<u>Designation</u>	<u>Prime</u>	<u>Backup</u>
Commander (CDR)	Conrad	Scott
Command Module Pilot (CMP)	Gordon	Worden
Lunar Module Pilot (LMP)	Bean	Irwin

2. 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

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

<u>ACTIVITY</u>	<u>PRESSURIZED HARD SUIT</u>	<u>SUITED (SOFT SUIT)</u>	<u>PARTIAL SUIT W/O HELMET & GLOVES</u>	<u>SHIRT SLEEVES</u>
LAUNCH		ALL		
EARTH ORBIT			ALL	
TLI THROUGH SLINGSHOT MNVR			ALL	
TLC & TEC				ALL
LM ACTIVATION			ALL	
UNDOCKING		CDR & LMP	CMP	
SEPARATION			ALL	
PDI & TD		CDR & LMP	CMP	
LUNAR STAY EXCEPT EVA	VARIABLES ACCORDING TO CHECKLIST FOR CDR & LMP. CMP WILL BE PARTIALLY SUITED W/O HELMET & GLOVES			
SURFACE EVA	CDR & LMP		CMP	
LIFTOFF THRU DOCKING		CDR & LMP	CMP	
POST JETTISON THRU TEI				ALL
ENTRY				ALL

4. Crew status reports will be voiced to MCC-H before and after crew sleep periods. After waking the crew will report sleep obtained and radiation doses received during the last 24 hours and before going to sleep the crew will report medication used and any other pertinent information on activities performed.
5. Negative reporting will be used in reporting completion of each checklist.

All onboard gauge readings will be read directly from the gauges with no calibration bias applied.

B. CSM Systems

1. Communications

- (a) The preferred S-Band communication modes are:
 - (1) Uplink Mode 6 (Voice, PRN, and Updata)
 - (2) Downlink Mode 2 (Voice, PRN, TLM-HBR)
- (b) OMNI B and VHF LEFT will be selected for liftoff. OMNI D will be selected by the crew during boost if the launch azimuth is less than 96° or OMNI C if the launch azimuth is greater than 96°. OMNI D will probably be the best antenna for earth orbit.
- (c) VHF Duplex B will be used for launch, and Simplex A for earth orbit operations.
- (d) During TLC and TEC, OMNI antennas will nominally 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 for TV coverage.
- (e) The CSM communications with the LM while the LM is on the lunar surface is via MSFN relay.
- (f) Table 1-1 is a summary of the MSFN coverage available for the CSM.
- (g) Table 1-2 contains a summary of the scheduled CSM TV transmissions.
- (h) 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.
- (i) The CSM will be configured to relay LM communications prior to undocking.

2. DSE

- (a) 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.

- (b) 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.
 - (c) During 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.
 - (d) CSM LBR data will be recorded during all P22 landmark tracking and dumped at completion of tracking.
 - (e) CSM HBR and voice will be recorded during all CSM engine burns when MSFN coverage is not available.
 - (f) All Entry data will be recorded in HBR during the blackout.
3. Electrical Power
- (a) The CSM will normally remain powered up throughout the mission.
 - (b) Table 1-3 lists the Fuel Cell Purges and waste water dumps.
 - (c) Based on cryo purity and performance, fuel cell O2 purges will be stretched to a maximum of 24 hours to coincide with water dump times. The O2 purge at 11 hours will allow a judgment to be made on the defined purge schedule.
 - (d) The cryogenic heaters will be in AUTO during the mission and the fans will be operated manually. The O2 & H2 fans will be cycled for one minute before and after each sleep cycle and before each SPS burn. The O2 & H2 fans will also be cycled prior to CSM LM Ejection.
 - (e) Table 1-9 contains the battery charge schedule.

4. ECS and Water Management

- (a) Potable water will be chlorinated once a day after eat period prior to each sleep period.
- (b) Waste Water dumps and fuel cell purge criteria:
 1. During TLC and TEC water dumps and fuel cell purges will be scheduled after the sextant star check and prior to each midcourse maneuver.
 2. Waste water dumps and fuel cell purges will not be scheduled during the following periods:
 - a. Between MCC-3 and LOI-1 plus two hours.
 - b. Within three revolutions of pre-DOI undocking.
 - c. Between TEI and sextant star check prior to MCC-5.
 - d. Within one hour prior to optical navigation sightings.
 - e. Between MCC-6 and EI.
 3. During lunar orbit waste water dumps and fuel cell purges should be scheduled as close to the LOS midpoint as possible.
 4. All waste water dumps will be manual.
- (c) 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 onboard with 18 stowed at launch.
- (d) 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. Guidance and Navigation

- (a) During Lunar orbit, the CSM and LM will utilize the same landing site and lift-off REFSMMATS such that the gimbal angles would be 0,0,0 with the LM sitting face forward on the landing site and the CSM over the landing site pitched up 90° from local horizontal "heads up."

- (b) The CSM tracking light will be on continuously from the undocking to landing and from LM lift-off to docking.
- (c) After each landmark tracking period, the CSM will reacquire MSFN so that N49 ($\Delta R, \Delta V$) is displayed on TLM for data retrieval.
- (d) The time tags on maneuvers in Section 3 indicate the completion time of the maneuver unless otherwise stated. All maneuver angles are the FDAO angles after the completed maneuver.
- (e) CSM/LM and CSM attitude maneuvers will normally be at a rate of $0.2^\circ/\text{sec}$ or $0.5^\circ/\text{sec}$ unless other rates are required.
- (f) Undocking will be done radially 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.

6. Propulsion Systems

- (a) The SPS engine will be used to "back-up" all LM rendezvous burns except CDH to conserve SM RCS. The nominal CDH burn magnitude is small thus it is backed up by the SM RCS. The SPS gimbal motors will not be turned on during the back-up maneuver preparation.
- (b) 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. Bank A will be used for the first engine ignition.
- (c) Table 1-5 lists the CSM propulsion burns.

C. LM Systems

1. Communications

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

2. ECS

- (a) The LM will contain ambient air at lift-off. During launch the pressure will bleed to zero. 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. For each entry into the LM before undocking the CSM O2 will be used to equalize LM pressure. After each entry, the LM will be isolated and allowed to leak down. This procedure insures a pure oxygen environment in the LM at the first EVA.
- (b) There are a total of six LM repressurizations, three docked and three on the lunar surface.

3. Guidance Systems

- (a) The LGC and CMC will use the same landing site and lift-off REFSMMATS.
- (b) The AGS will be placed in standby after the "GO" is given for lunar stay.
- (c) The RR and IMU will be powered down and the LGC placed in standby after TD plus two hours until lift-off preparation.
- (d) The rendezvous radar will be pointed away from the sun and will be turned off when no functional use is required to prevent overheating of the antenna. The LM tracking light will be on continuously between separation and touchdown and between launch and docking.

4. Propulsion Systems

(a) The APS/RCS interconnect will be used during the lunar lift-off and ascent only.

(b) Table 1-6 lists the LM propulsion burns.

D. Procedures

1. CSM

Crew procedures called out in the flight plan may be found in the following documents:

- (a) Apollo Operations Handbook - CSM-108 (AOH), Volume 2
- (b) Crew Checklists
- (c) CSM Rendezvous Procedures
- (d) Launch Abort Procedure
- (e) Reentry Procedures
- (f) Photographic Operations Plan
- (g) Lunar Landmark Tracking Attitude Studies
- (h) Lunar Orbit Attitude Sequence for Mission H

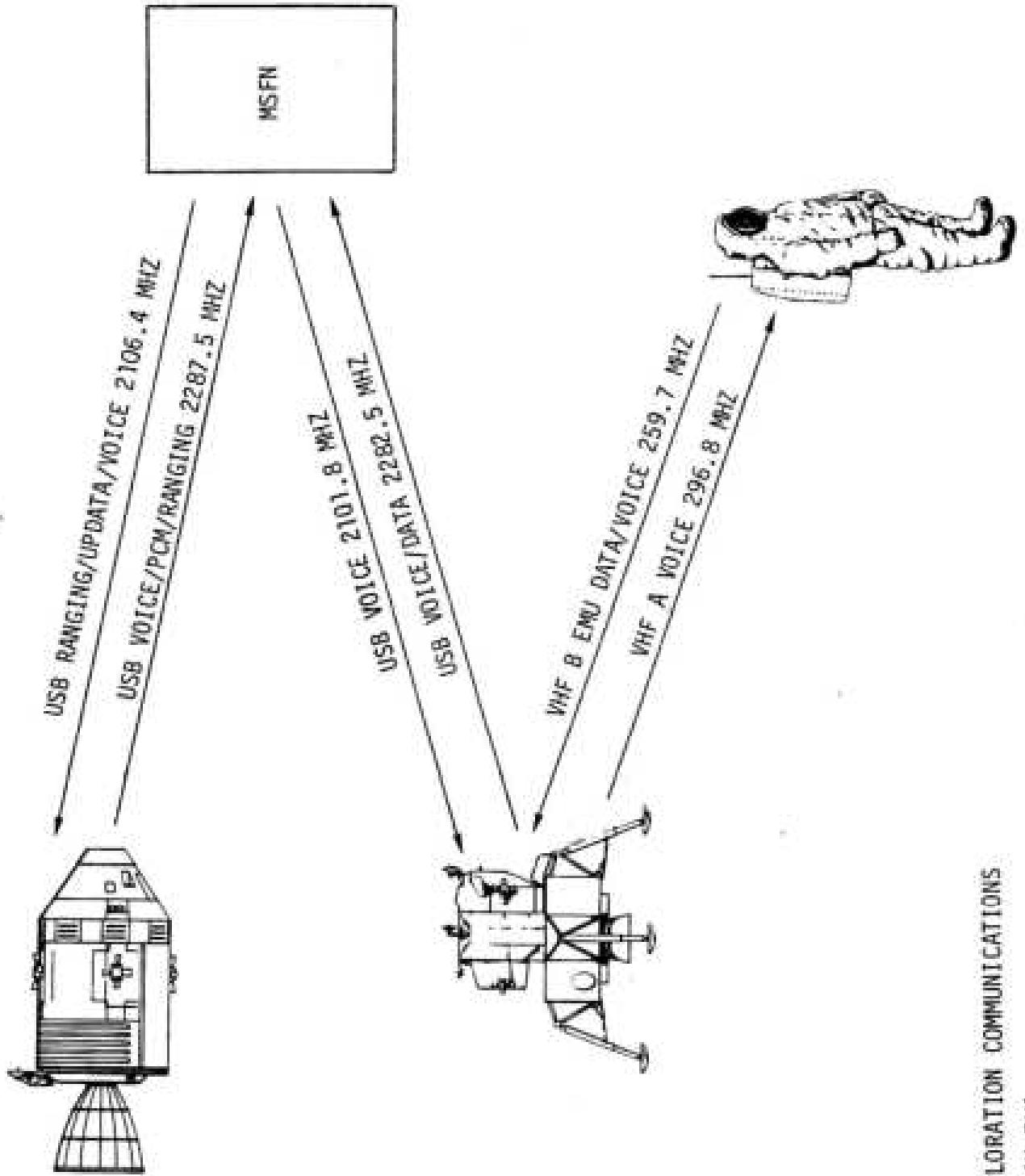
2. LM

Crew procedures called out in the flight plan may be found in the following documents:

- (a) Apollo Operations Handbook LM-6 Volume 2
- (b) Crew Checklists
- (c) LM Rendezvous Procedures
- (d) LM Descent/Ascent Procedures
- (e) Photographic Operations Plan
- (f) Orbital EVA Procedures
- (g) Lunar Surface Procedures

E. Summary

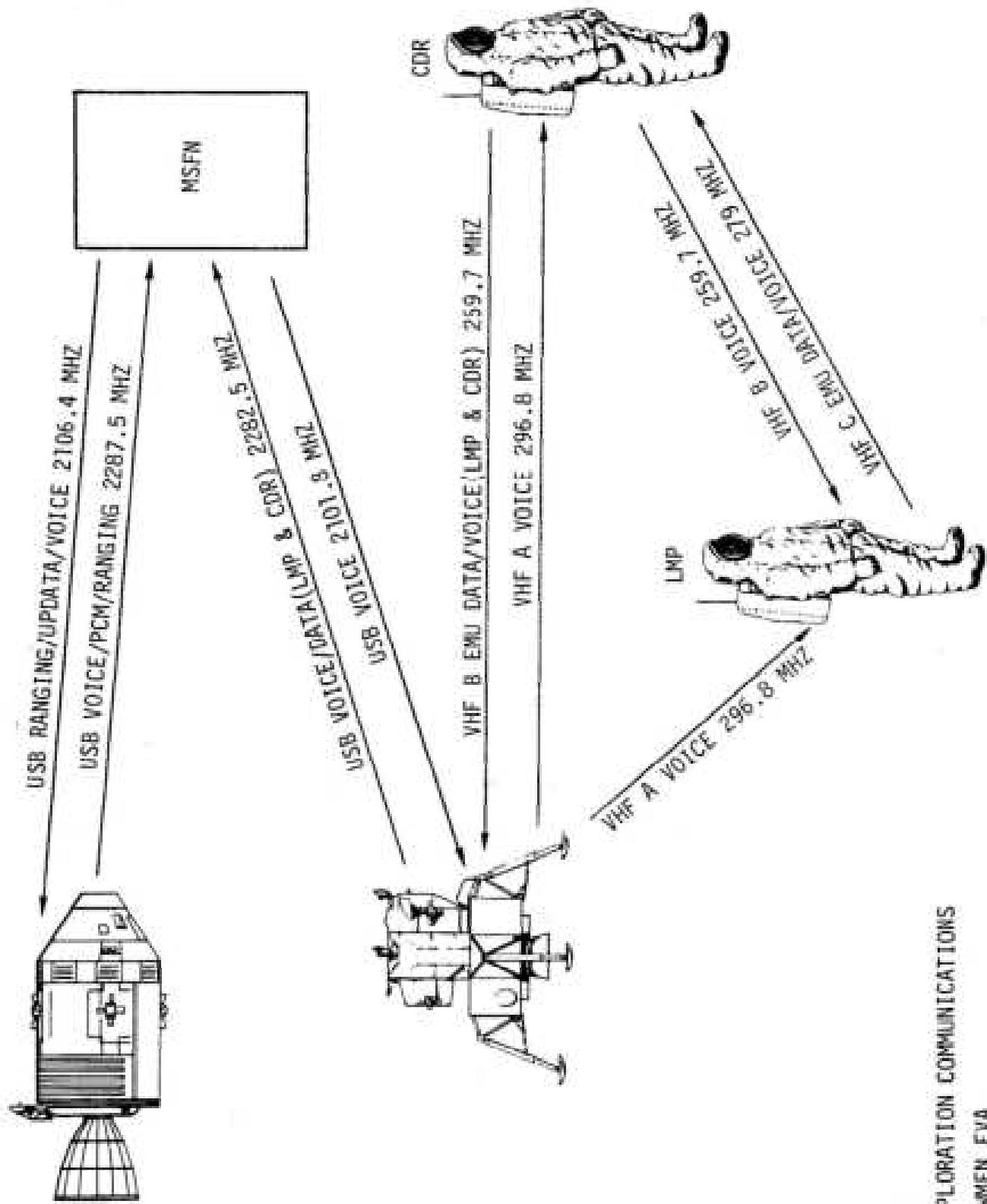
1. Table 1-7 contains a summary of the expected block data update times.
2. Table 1-10 the landmark tracking sites.
3. Table 1-11 is the mission activity summary.



LUNAR EXPLORATION COMMUNICATIONS
ONE CREWMAN EVA
PRIMARY MODE

Figure 1-1

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LUNAR EXPLORATION COMMUNICATIONS

BOTH CREWMEN EVA

EVCS DUAL MODE (RELAY)

Figure 1-2

TABLE 1-1
S/C COVERAGE BY MSFN STATIONS USING 85-FT/210-FT DIS-

EDITORIAL TEAM

TABLE I-1 (Cont'd.)

SUCCESSIVE BY WEN STATION 510-ET BISH/ANTENNA

REF.	• 600 (125) PINE		AUSTINIA		+ PARAS		HONEY SUGARLE		HONEY (HONEY)	
	NO.5	NO.5	NO.5	NO.5	NO.5	NO.5	NO.5	NO.5	NO.5	NO.5
1	83.44-40	85.09-07	87.17-18	89.52-27	87.16-05	85.25-50	87.16-05	83.44-12	85.08-41	85.08-41
2	83.44-40	85.09-07	87.17-18	89.52-27	87.16-05	85.25-50	87.16-05	83.44-12	85.08-41	85.08-41
3	88.01-53	88.02-43	88.01-27	89.01-03	89.01-26	89.01-13-02	89.01-11-31	88.01-37	89.01-37	89.01-37
4	89.01-53	88.02-43	88.01-27	89.01-03	89.01-26	89.01-13-02	89.01-11-31	88.01-37	89.01-37	89.01-37
5	91.59-10	93.00-95	93.00-95	93.00-95	93.00-95	93.00-95	93.00-95	91.59-10	91.59-10	91.59-10
6										
7										
8										
9										
10	101.49-19	103.00-58								
11	103.47-32	104.59-35								
12	105.46-01	106.57-41								
13	107.44-13	108.55-00								
14	109.42-10	110.54-01	110.54-01	110.54-01	110.54-01	110.54-01	110.54-01	109.42-10	110.54-01	110.54-01
15	111.44-04	112.52-13	111.44-04	111.44-04	111.44-04	111.44-04	111.44-04	111.44-04	111.44-04	111.44-04
16	111.38-53	114.50-51	114.50-51	114.50-51	114.50-51	114.50-51	114.50-51	111.38-53	114.50-51	114.50-51
17	111.37-21	116.48-58	115.37-20	116.48-58	115.37-20	116.48-58	115.37-20	111.37-21	116.48-58	115.37-20
18	111.34-02	115.50-32	119.33-46	118.47-26	118.47-26	118.47-26	118.47-26	111.34-02	115.50-32	119.33-46
19	111.34-02	115.50-32	119.33-46	118.47-26	118.47-26	118.47-26	118.47-26	111.34-02	115.50-32	119.33-46
20	111.34-02	115.50-32	119.33-46	118.47-26	118.47-26	118.47-26	118.47-26	111.34-02	115.50-32	119.33-46
21										
22	122.43-58	123.30-35	124.42-11	122.43-58	123.30-35	124.42-11	122.43-58	122.43-58	123.30-35	124.42-11
23	122.43-58	123.30-35	124.42-11	122.43-58	123.30-35	124.42-11	122.43-58	122.43-58	123.30-35	124.42-11
24	130.35-65	129.25-34	130.35-65	129.25-34	130.35-65	129.25-34	130.35-65	129.25-34	130.35-65	129.25-34

*227 - 105 MHz ANTENNA

REV	* GOLDSOME (105)	* PARKS AUSTRALIA	HONEYSMITH (HSK)	MARITO (MAD)
25	131:23:41	132:35:24	105	105
26	133:22:01	134:31:59	105	105
27	135:20:22	136:32:13	135:34:08	135:34:08
28	137:18:48	138:18:15	138:22:54	138:22:54
29	139:16:36	140:16:35	139:16:36	139:16:36
30			141:15:05	141:15:05
31				142:26:37
32				141:15:04
33				141:15:06
34	150:17:19	150:19:32	147:09:41	148:21:38
35			145:11:30	146:23:07
36			143:13:18	144:17:27
37	155:02:40	156:19:23	155:03:05	156:04:26
38	157:01:05	158:12:44	157:59:56	158:12:14
39	158:59:19	159:01:46	158:58:47	159:01:46
40	159:02:04	160:10:45	160:10:04	160:10:17
41	160:57:35	162:20:02	160:57:07	162:08:26
42	162:55:46	164:06:43	162:55:14	164:06:43
43	163:47:51	164:07:13	163:30:16	164:32:52
44	164:53:29	166:04:22	164:53:29	166:04:22
45			166:55:03	166:55:03
46			168:49:36	170:00:54
47			170:47:39	171:03:55

TABLE 1 - 2

APOLLO 12 TV SCHEDULE

DAY	DATE	CST	GET	DURATION	ACTIVITY/SUBJECT	VEH	STA
FRIDAY	NOV. 14	1:50 PM	03:28	1 HR 02 MIN	TRANSPPOSITION & DOCKING	CSM	GDS
SATURDAY	NOV. 15	4:47 PM	30:25	35 MIN	SPACECRAFT INTERIOR	CSM	GDS
MONDAY	NOV. 17	1:52 AM	63:30	50 MIN	INTERIOR & INT TRANSFER	CSM	GDS
TUESDAY	NOV. 18	10:12 PM	107:50	40 MIN	UNDOCKING & FORMATION FLYING	CSM	GDS
MONDAY	NOV. 17	10:22 PM	84:00	30 MIN	PRE LOI 2	CSM	GDS
WEDNESDAY	NOV. 19	5:02 AM	114:40	3 HR 25 MIN	LUNAR SURFACE ACTIVITIES	LM	PARKS/HSK
THURSDAY	NOV. 20	11:37 AM	145:15	30 MIN	DOCKING	CSM	GDS
FRIDAY	NOV. 21	3:17 PM	172:55	20 MIN	POST TEI - LUNAR SURFACE	CSM	MAD
SUNDAY	NOV. 23	5:37 PM	223:15	30 MIN	EARTH & INTERIOR	CSM	GDS

TABLE 1-3
FUEL CELL PURGE AND WATER DUMP SCHEDULE

<u>O₂ FUEL CELL PURGE AND WATER DUMP</u>			<u>H₂ FUEL CELL PURGE</u>		
<u>GET</u>	<u>NUMBER</u>	<u>ATIME</u>	<u>NUMBER</u>	<u>ATIME</u>	<u>REMARKS</u>
		11:30			
11:30	1			41:10	MCC 1
		19:00			
30:30	2				MCC 2
		10:10			
41:10	3	—————1			Presleep
		19:50			
61:00	4			44:20	MCC 3
		24:30			
85:30	5	—————2			LOI, + 2 hrs
		16:00			
101:30	6				LOS Midpoint/ Post Sleep
		19:22			
120:52	7			55:30	LOS Midpoint/ Presleep
		20:08			
141:00	8	—————3			LOS Midpoint
		23:15			
164:15	9			46:00	LOS Midpoint
		22:45			
187:00	10	—————4			MCC 5
		21:00		35:00	
208:00	11				Post Sleep
		14:00			
222:00	12	—————5			MCC 6

L10H CANISTER CHANGE SCHEDULE

TABLE 1-4

CHG. NO.	APPROX. GET HRS	APPROX. AT HRS	INSTALL		REMOVE & STOW	
			CAN NO.	POSITION	CAN NO.	STOWAGE LOCATION
1	9:00		3	A	1	B5
2	18:00	9	4	B	2	B5
3	30:00	12	5	A	3	B5
4	41:00	11	6	B	4	B5
5	55:00	14	7	A	5	B6
6	66:00	11	8	B	6	B6
7	77:00	11	9	A	7	B6
8	88:00	11	10	B	8	B6
9	102:00	14	11	A	9	A3
10	121:00	19	12	B	10	A3
11	146:00	25	13	A	11	A3
12	159:00	13	14	B	12	A3
13	173:00	14	15	A	13	A4
14	185:00	12	16	B	14	A4
15	196:00	11	17	A	15	A4
16	208:00	12	18	B	16	A4
17	221:00	13	19	A	17	A6
18	235:00	14	20	B	18	A6

TABLE 1-5 CSM BURN SCHEDULE

BURN/ MNVR	GETI/ BURN TIME	AVR (FPS)	ULLAGE/ ΔV(FPS)	REFSMMAT	REFSMMAT HA & HP(NM)	REMARKS
TLI	2:47:19.8 5Min.45.0Sec	--	--	--	--	S-IVB BURN
CM/LM EJECTION	4:07:19.8 3 Sec	0.4	NOT REQUIRED	PAD	--	RCS BURN
MCC-1	11:47:19.8	--	--	PTC	--	NOM. ZERO
MCC-2	30:52:43.7 10.0 Sec	68.8	NOT REQUIRED	PTC		SPS BURN
MCC-3	61:25:18.2	--	--	PTC	--	NOM. ZERO
MCC-4	78:25:18.2	--	--	LDG SITE		NOM. ZERO
LOI-1	83:25:18.2 5 Min.55.4 Sec	2889.9	NOT REQUIRED	LDG SITE	HA 168.9 HP 58.7	SPS BURN
LOI-2	87:44:10.0 17.6 Sec	169.6	2 JET 19.0 Sec	LDG SITE	HA 64.8 HP 53.0	SPS BURN
CSM/LM SEP	108:24:21.9 15.5 Sec	2.5	--	LDG SITE	HA 63.0 HP 54.5	RCS BURN
CSM P.C. #1	119:47:02.0 19.4 Sec	372.4	2JET 15.0 Sec	PLANE CHANGE	HA 61.5 HP 55.6	SPS BURN
CSM SEP MNVR	147:58:00.7 2.7 Sec	1.0	--	LIFT OFF	HA 59.7 HP 58.6	RCS BURN
CSM P.C. #2	159:01:46.0 18.0 Sec	360.0	4 JET 11 Sec	PLANE CHANGE	HA 58.6 HP 56.5	SPS BURN
TEI	172:21:14.7 2 Min 08.9 Sec	3035.9	4 JET 12 Sec	TEI	-- --	SPS BURN
MCC-5	187:21:14.7	--	--	PTC	--	NOM. ZERO
MCC-6	222:21:48	--	--	PTC	--	NOM. ZERO
MCC-7	241:21:48	--	--	ENTRY	--	NOM. ZERO

NOTE: HA & HP ARE CALCULATED FROM THE LANDING SITE ELEVATION

TABLE 1-6 LM BURN TABLE

BURN/ MANVR	GETT/ BURN TIME	AVR (FPS)	ULLAGE/ ΔV(FPS)	REFSWAT	REFMMAT	HA & HP(NM)	REMARKS
DOI	109:23:00 BT- 28.2 sec	72.1	2 JET 7.5 Sec	LDG SITE	HA 59.3 HP 8.3	DPS	
PDI	110:20:00 BT-11Min18.5 SEC	6612.6	2 JET 7.5 Sec	LOG SITE	--	DPS	
ASCENT	142:01:17.9 BT-7Min10.0 Sec	6046.2	None	LIFT OFF	HA 44.7 HP 8.3	APS	
CSI	142:58:05.2 BT - 45.3 Sec	50.3	--	LIFT OFF	HA 45.6 HP 44.6	RCS BURN	
PLANE CHANGE	143:26:27.5	0.0	--	LIFT OFF	HA 45.6 HP 44.6	RCS	
CDH	143:56:27.5	0.0	--	LIFT OFF	HA 45.6 HP 44.6	BURN NOM. ZERO	
TPI	144:36:25.7 BT 22.1 Sec	24.6	--	LIFT OFF	HA 61.9 HP 44.2	RCS BURN	
MCC-1	144:51:25.7	--	--	LIFT OFF	HA 61.9 HP 44.2	BURN NOM. ZERO	
MCC-2	145:06:25.7	--	--	LIFT OFF	HA 61.9 HP 44.2	RCS BURN NOM. ZERO	
LM DEORBIT	149:24:41.2 1 MIN 23.83 SEC	189.7	--	ASCENT	--	RCS BURN	

NOTE: HA & HP ARE CALCULATED FROM THE LANDING SITE

TABLE 1-7

BLOCK DATA UPDATES

<u>TYPE DATA</u>		<u>GET</u>	<u>REV</u>
TLI + 90 Min	(P30)	01:30	
L/O + 8 Hrs	(P37)	01:30	
L/O + 15 Hrs	(P37) ¹	05:55	
L/O + 25 Hrs	(P37)	14:00	
L/O + 35 Hrs	(P37) ²	14:00	
L/O + 45 Hrs	(P37) ²	14:00	
L/O + 60 Hrs	(P37) ²	14:00	
LOI - 5 Abort Pad	(P30)	35:00	
PC + 2	(P30)	77:30	
TEI 1	(P30) ^{3,4}	81:15	
TEI 4	(P30) ^{4,5}	81:15	
TEI 5	(P30) ^{3,6}	86:15	2
TEI 11	(P30) ⁵	91:00	4
TEI 34	(P30) ⁵	102:30	10
TEI 39	(P30) ^{5,7}	149:15	34
TEI 41	(P30) ³	158:00	38
TEI 43	(P30) ⁵	161:30	40
TEI 45	(P30) ⁵	165:00	42
TEI 45(Prelim.)	(P30)	169:00	44
TEI 45 (Nominal)	(P30 & TGT LOAD)	171:20	45
TEI 46	(P30)	171:20	45

- (1) Assumes No MCC-1
- (2) Assumes MCC-2
- (3) Abbreviated P30 Pad: Includes - Purpose, Propulsion, Weight, Pitch & Yaw Trim, Time, ΔV_x , ΔV_y , ΔV_z , and Pitch
- (4) Assumes No LOI-2
- (5) Abbreviated P30 Pad: Includes - Purpose, Propulsion, Time, ΔV_x , ΔV_y , ΔV_z , and Pitch
- (6) Assumes LOI-2 Accomplished
- (7) Assumes No Plane Change

APOLLO 12/LM-6

DSEA SCHEDULE

TABLE 1-8

GET	DSEA MODE	Tape Time		Activity
		Activity	Total	
90:40	ICS/PTT	*100%	00:15	S-Band/VHF Simplex Voice & TM Test
90:55	OFF	00:15		
107:51	ICS/PTT	*100%	3:00	Prep for Undocking
110:36	OFF	2:45		Post Lunar Touchdown
113:52	VOX	*33%	4:26	PLSS Comm Act. (Pre-EVA1)
118:11	OFF	1:26		Post EVA-1 Comm
132:28	VOX	*33%	5:53	PLSS Comm Act. (Pre-EVA 2)
136:50	OFF	1:27		Post EVA-2 Comm
141:45	ICS/PTT	*100%	9:53	Liftoff Comm
145:45	OFF	4:00		Post Docking

*Estimated duty cycle in mode indicated

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TABLE 1-9
BATTERY CHARGE SCHEDULE

GET HR:MIN	BATTERY
04:30	B
11:30	A
62:00	B
76:30	A
88:10	B
131:30	A
137:25	B
186:00	B
193:15	A

LANDMARK TRACKING TABLE

TABLE 1-10

<u>LANDMARKS</u>	<u>LATITUDE</u>	<u>LONGITUDES</u>	<u>ELEVATIONS (N.M.)</u>
H1*	1.517° S	15.250° W	-1.9438 n.m.
SITE 7*	2°58'56" S (2.9822°)	23°23'31" W (23.39194°)	-1.28164 n.m.
190	2.957° S	23.024° W	-1.23 n.m.
191	3.437° S	23.202° W	-1.36 n.m.
193*	3.437° S	23.229° W	-1.37 n.m.
194	3.009° S	23.573° W	-1.38 n.m.
195	3.377° S	24.008° W	-1.53 n.m.
Lalande Site **	4.783° S	8.667° W	-0.3239 n.m.
CP 1*	5.667° S	112.000° E	0.00 n.m.
CP 2*	10.250° S	56.183° E	-0.81 n.m.
Descartes Site **	8.858° S	15.517° E	-1.7 n.m.
DE 1*	8.883° S	15.550° E	-1.7 n.m.
DE 2	9.333° S	15.067° E	-1.7 n.m.
DE 3	8.767° S	14.983° E	-1.7 n.m.
Fra Mauro Site **	3.617° S	17.550° W	-1.8628 n.m.
FM 1*	3.228° S	17.3305° W	-1.5631 n.m.
FM 2	4.117° S	16.908° W	-1.8088 n.m.
FM 3	4.567° S	17.517° W	-1.7818 n.m.
Lansberg A *	0.150° N	31.150° W	-0.54 n.m.

*Used in the nominal mission

**Future Landing Site

Note: Data was provided by the Mapping Sciences Laboratory.
 Elevations are based on a mean lunar radius of
 938.4449184 n.m (1738.09 K.M)

APOLLO 12
TABLE 1 - 11

WED NOV 19		THUR NOV 20										FRI NOV 21										SAT NOV 22										SUN NOV 23										MON NOV 24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		A/EVA DAY					7.18 DAY					8.18 DAY					9.18 DAY					10.18 DAY					11.18 DAY					12.18 DAY					13.18 DAY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	9

SECTION 2 - MISSION OBJECTIVES

SECTION 2

MISSION OBJECTIVES

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

All of the test requirements have been implemented into the timeline. Details of the implemented test requirements are adequately covered in the Lunar Surface Operation Plan and the Photographic and TV Operations Plan.

TABLE 2-1
MISSION OBJECTIVE/ACTIVITY
REFERENCE

NUMBER	OBJECTIVE	ACTIVITY	PAGE NO.
A-1	Contingency Sample Collection Provide a contingency sample for postflight scientific investigations	EVA-1	3-93
B-1	Lunar Surface EVA Operations	EVA-1, EVA2 EVA 1 {	3-93 3-94
B-2	Evaluate walking pace on typical terrain	EVA-1	3-109
B-3	Evaluate the capability of the crew to lift and maneuver large packages	EVA-1	3-94
B-4	Evaluate the capability of the crew to unstow and deploy the erectable S-band antenna	EVA-1, EVA-2	3-93
	Evaluate the adequacy of the preflight estimates of time required to perform specific EVA activities	EVA-1, EVA-2	3-109
C-1	PLSS Recharge Demonstrate the capability to recharge the PLSS while in the LM on the lunar surface	POST EVA-1	3-97 3-100
F-1	Selected Sample Collection Collect rock samples and fine-grained fragmental material	EVA-1	3-96
F-2	Collect one large rock	EVA-1	3-96
F-3	Collect a core tube sample	EVA-1	3-96

TABLE 2-1 (CONT'D)
MISSION OBJECTIVE/ACTIVITY
REFERENCE

NUMBER	OBJECTIVE	ACTIVITY	PAGE NO.
G-1	Photographs of Candidate Exploration Sites Obtain stereoscopic photographs of selected lunar sites	POST LM JETTISON	3-137
G-2	Obtain high resolution photographs of selected lunar sites	POST LM JETTISON	3-139
H	Lunar Surface Characteristics		
H-1	Obtain data on the mechanical behavior and terrain characteristics of the lunar surface	EVA-1, EVA-2	3-93
H-2	Determine the LM landing gear stroking, footpad/lunar surface interaction, LM attitude and ground clearance after landing	TOUCHDOWN, EVA-1	3-109
H-3	Determine the extent of lunar surface erosion and the effects of surface ejecta on the LM resulting from DPS exhaust impingement during landing	EVA-1	3-87
I	Lunar Environment Visibility		
I-1	Deleted		3-94
I-2	Obtain data on the ability to perform visual tasks while on the lunar surface	EVA-1	3-93
I-3	Obtain data on the ability to observe contrast in the lunar shadow and on the lunar terrain	EVA-2	3-109
J	Landed LM Location		
J-1	Determine the position of the landed LM in real time	DOI THROUGH TOUCHDOWN }	3-88
J-2	Obtain data to permit a postflight determination of the landed LM location	DOI THROUGH TOUCHDOWN }	3-90

TABLE 2-1 (CONT'D)
MISSION OBJECTIVE/ACTIVITY
REFERENCE

NUMBER	OBJECTIVE	ACTIVITY	PAGE NO
L-1	Photographic Coverage Obtain photographs of the lunar surface during LM descent	PDI THROUGH TOUCHDOWN	3-87
L-2	Obtain photographs of the lunar surface after touch- down and prior to cabin depressurization	POST TOUCHDOWN	3-88
L-3	Obtain photographs of the landed LM, of various EVA evaluation tasks and of operations related to geologic inspection and sampling	EVA-1, EVA-2	3-93 3-94 3-93 3-109
M-1	Television Coverage Provide TV camera coverage of an astronaut descending to the lunar surface	EVA-1, EVA 2	3-93
M-2	Provide TV camera coverage of an external view of the landed LM	EVA-1	3-94
M-3	Provide TV camera coverage of the lunar surface in the general vicinity of the LM	EVA-1	3-94
M-4	Provide TV camera panoramic coverage of distant terrain features	EVA-1	3-94
M-5	Provide TV camera coverage of an astronaut during lunar surface activities	EVA-1, EVA 2	3-93 3-109
N	Surveyor III Investigation Obtain photographs of lunar material in vicinity of Surveyor III	EVA-2	3-113
N-1	Obtain samples of lunar material in the crater containing the Surveyor III	EVA-2	3-113
N-2	Obtain photographs of Surveyor III	EVA-2	3-113
N-3	Obtain parts of the Surveyor III	EVA-2	3-113
N-4	Obtain data on the extent of mirror debonding on Surveyor III	EVA-2	3-113
N-5			

TABLE 2-1 (CONT'D)
MISSION OBJECTIVE/ACTIVITY
REFERENCE

NUMBER	OBJECTIVE	ACTIVITY	PAGE NO.
0-1	Selenodetic Reference Point Update Obtain lunar landmark tracking data to permit an update of the selenodetic coordinates of a selected lunar reference point	CSM SOLO-REV 26	3-111
ALSEP	Apollo Lunar Surface Experiments Package		
ALSEP-1	Deploy the Lunar Passive Seismic Experiment (S-031)	EVA-1	3-95
ALSEP-2	Deploy the Lunar Surface Magnetometer Experiment (S-034)	EVA-1	3-95
ALSEP-3	Deploy the Solar Wind Spectrometer Experiment (S-035)	EVA-1	3-95
ALSEP-4	Deploy the Suprathermal Ion Detector Experiment (S-036) and the Cold Cathode Ion Gauge Experiment (S-058)	EVA-1	3-95
S-059	Lunar Field Geology		
S-059-1	Deleted		
S-059-2	Examine, describe, photograph and collect lunar geologic samples for return to earth	EVA-2	3-109
S-159-3	Collect a lunar environment sample of lunar surface material	EVA-2	3-109
S-059-4	Collect a gas analysis sample of lunar surface material	EVA-2	3-109
S-059-5	Obtain core samples of lunar material	EVA-2	3-109
S-059-6	Study and describe field relationships (such as shape, size, range, patterns of alignment or distribution) of all accessible types of lunar topographic features	EVA-2	3-109

TABLE 2-1 (CONT'D)

MISSION OBJECTIVE/ACTIVITY
REFERENCE

NUMBER	OBJECTIVE	ACTIVITY	PAGE NO.
S-080 S-080-1	Solar Wind Composition Conduct the Solar Wind Composition Experiment (S-080)	EVA-1, EVA-2	3-94 3-113
S-158	Multispectral photography	CSM SOLO	3-113
T-029	Pilot Describing Function Experiment (No crew activity required)	Post Mission Debriefing & Analysis	3-116 -----
H-515	Lunar Dust Detector Experiment (no crew activity required)	EVA-1	3-95

FLIGHT PLAN

TIME	EVENT	REMARKS
-00:09	LCC: <u>REPORT IGNITION</u>	CREW POSITIONS @ L/O CDR - LH COUCH CMP - CENTER COUCH LMP - RH COUCH
00:00	CDR: <u>REPORT LIFT-OFF</u>	LIFTOFF 1022 CST NOVEMBER 14, 1969, 72.1° L.A. TARGETED FOR LANDING SITE 7.
00:02	CDR: <u>REPORT YAW MNVR</u>	PROP DUMP TO RCS CMD
00:11	CDR: <u>REPORT ROLL AND PITCH PROGRAM</u>	ALTITUDE 14,000 ft
00:30	CDR: <u>REPORT ROLL COMPLETE</u>	
00:42	MCC: <u>REPORT MARK MODE 1B</u>	
00:50	LMP: <u>REPORT CABIN PRESS DECREASING</u>	
01:24	MAX Q	ALTITUDE 100,000 ft
01:57	MCC: <u>REPORT MARK MODE IC</u>	
02:00	CDR: <u>REPORT GO/NO-GO FOR STAGING</u>	
02:16	CDR: <u>REPORT INBOARD ENGINES CUTOFF</u>	
02:42	CDR: <u>REPORT OUTBOARD ENGINES CUTOFF</u>	
02:43	CDR: <u>REPORT STAGING</u>	
02:44	CDR: <u>REPORT S-II IGNITION</u>	
03:13	CDR: <u>REPORT S-II SEP LT OUT</u>	
03:18	CMP: <u>REPORT TOWER JETT</u>	
	MCC: <u>REPORT MODE 1I</u>	
	CDR: <u>REPORT S/C GO/NO-GO</u>	
MISSION	APOLLO 12	EDITION FINAL (NOV 14)
		DATE OCTOBER 15, 1969
		PAGE 3-1

FLIGHT PLAN

TIME	EVENT	REMARKS
03:23	CDR: <u>REPORT GUIDANCE INITIATE</u>	
03:53	MCC: <u>REPORT TRAJECTORY GO/NO-GO</u>	
04:00	CMP: <u>REPORT S/C GO/NO-GO</u>	
05:00	LMP: <u>REPORT S/C GO/NO-GO</u>	
05:25	MCC: <u>REPORT S-IVB TO COI CAPABILITY</u>	
06:00	CDR: <u>REPORT S/C GO/NO-GO</u>	
06:25	MCC: <u>REPORT S/C GO/NO-GO</u>	
	MCC: <u>REPORT TIME OF LEVEL SENSE ARM AND S-II CUTOFF</u>	
07:00	CDR: <u>REPORT S/C GO/NO-GO</u>	
08:00	CDR: <u>REPORT S/C GO/NO-GO</u>	
08:30	MCC & CDR: <u>REPORT S/C GO/NO-GO FOR STAGING</u>	
09:00	MCC: <u>REPORT MARK MODE IV</u>	
09:11	CDR: <u>REPORT S-II CUTOFF</u>	
09:14	CDR: <u>REPORT S-II S-IVB STAGING</u>	
09:17	CDR: <u>REPORT S-IVB IGNITION</u>	
10:00	MCC & CDR: <u>REPORT GO/NO-GO FOR ORBIT</u>	
	MCC: <u>REPORT PREDICTED SECO</u>	
MISSION	APOLLO 12	EDITION FINAL (NDW 14)
		DATE OCTOBER 15, 1969
		PAGE 3-11

FLIGHT PLAN

TIME	EVENT	REMARKS
11:00	CDR: REPORT S/C GO/NO-GO	
11:29	CDR: REPORT SEC0 S-IVB MAINTAINS COMMANDED CUTOFF INERTIAL ATTITUDE	TB _S = 0
SEC0 +10 SEC	MCC: REPORT ORBITAL GO/NO-GO	INSERTION
SEC0 +20 SEC		S-IVB MANEUVERS TO LH AND INITIATES ORB RATE (HEADS DOWN)
SEC0 +59 SEC		S-IVB INITIATES CONTINUOUS LH ₂ VENTING (TERMINATES AT TB _S + 42.2 SEC GET = 2:38:24)
		V66-TRANSFER CSM STATE VECTOR TO LM SLOT
		V45-RESET LUNAR SURFACE FLAG
12:50	BDA LOS	INSERTION CHECKLIST
16:04	WAM LOS	
16:37	CYL AOS	MCC UPDATE: Z TORQUING ANGLE
23:44		CYL LOS SYSTEM MONITORING & CHECKING POST INSERTION ECS CONFIGURATION
MISSION APOLLO 12	EDITION FINAL (NOV 14)	DATE OCTOBER 15, 1969
		PAGE 3-111

FLIGHT PLAN

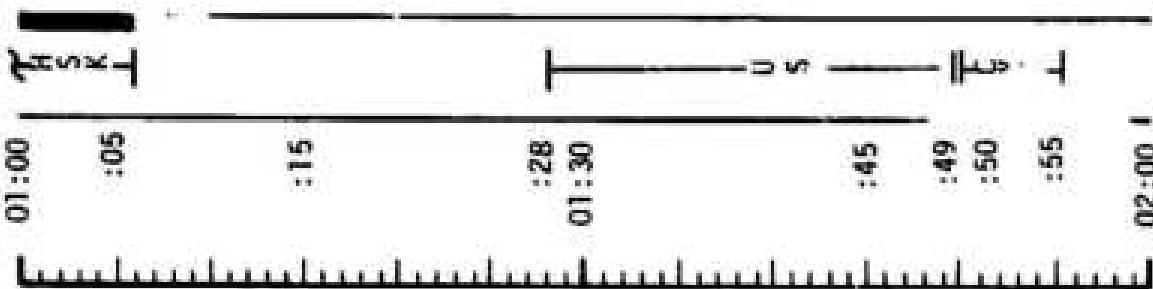
TIME	EVENT	REMARKS
31:31	CONFIGURE CAMERA FOR TLD AND S-IVB PHOTO $\left[\text{CM2/DAC/18/CEX-BRKT, MIR } (f8,250,7) \text{ 6fps, 0.3} \atop \text{WAG (5 MIN)} \right]$ $\left[\text{CM2/EL/80/CEX } (f8,250,30) \text{ 10} \right]$ UNSTOW TV CAMERA	LMP HOLDS CAMERA
	PRE-TLI SYSTEM VERIFICATION AND MONITORING	REALIGNS TO PAD ORIENTATION
	CDR INSTALL COAS	IMU REALIGN PS2
	CMP JETTISON OPTICS COVERS	H71: _____ H05: _____ H93: _____ X: _____ Y: _____ Z: _____ GET: _____; _____; _____;
	PS2 IMU REALIGN	REPORT GYRO TORQUING ANGLES
	OPTION 3-REFRESHMAT	REPORT GYRO TORQUING ANGLES
52:20	CDR AOS	DUMP DSE
		GDC ALIGN TO IMU
58:11	CDR LOS	
MISSION	APOLLO 12	EDITION FINAL (NOV 14)
		DATE OCTOBER 15, 1969
		PAGE 3-iv

1122 CST

FLIGHT PLAN

ACC-N

NOTES



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	01:00 - 02:00	1/1-2	3-2

ECC F101-20 (Rev 46)

URGENT PRELIMINARY LAUNCHER

FLIGHT PLAN

TABLE
3-3

TLI

P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC SHUTDOWN	+45° SHUTDOWN	BT + 6 SEC + $V_1 = \text{PAD VALUE}$	NO TRIM

TABLE 3-1

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1222 CST

FLIGHT PLAN

MCC-N

02:00 PYRO ARM

GDC ALIGN TO IMU

SET ORDEAL

:15

GO/NOD GO

:25

T

:30

L

:31

N

:33

J

:45

T

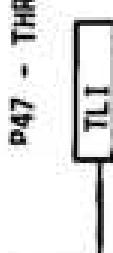
:52

L

03:00

TB-6 (02:37:41.8)

P47 - THRUST MONITOR



TIG: 02:47:19.8
 BT: 5:45.0
 AV: 10,510 FPS

AT SEC0: SIVB INERTIAL
 AT SEC0+20 SECs: SIVB
 TO LOCAL HORIZONTAL
 ORB RATE, HEADS DOWN

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	02:00 - 03:00	1/TLC	3-4

FLIGHT PLANNING BRANCH

MSC Form 29 (Rev 66)

NOTES

FLIGHT PLAN

卷之三

TEST

BEGIN CSM/LM CABIN PRESSURE EQUALIZATION

CDR : **CONFIGURE FOR LM EJECTION**

TUNNEL PRESSURE INTEGRITY CHECK

WASTE STOWAGE VENT VALVE - VENT

REMOVE AND TEMPORARILY STOW TUNNEL HATCH

CHECK DOCKING LATCHES

VENT DOCKING PROBE

LM UMBILICAL CONNECTION

REINSTALL TUNNEL HATCH

LM TUNNEL VENT VALVE - LM/CM J/P

LEAVE TUNNEL EQUALIZATION VALVE CLOSED

CYCLE O₂ & H₂ FANS

CH 4/EL/80/ CEX-	(f8,250,30) 5
CH 2/DCC/18/CEX -	MR (f8,250,7) 12 p
0,7 MHC (6MIN)	0,7 MHC (6MIN)
LH EDITION:	LH EDITIONS FOR

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	03:00 - 04:00	1/TLC	3-5

REVISION A

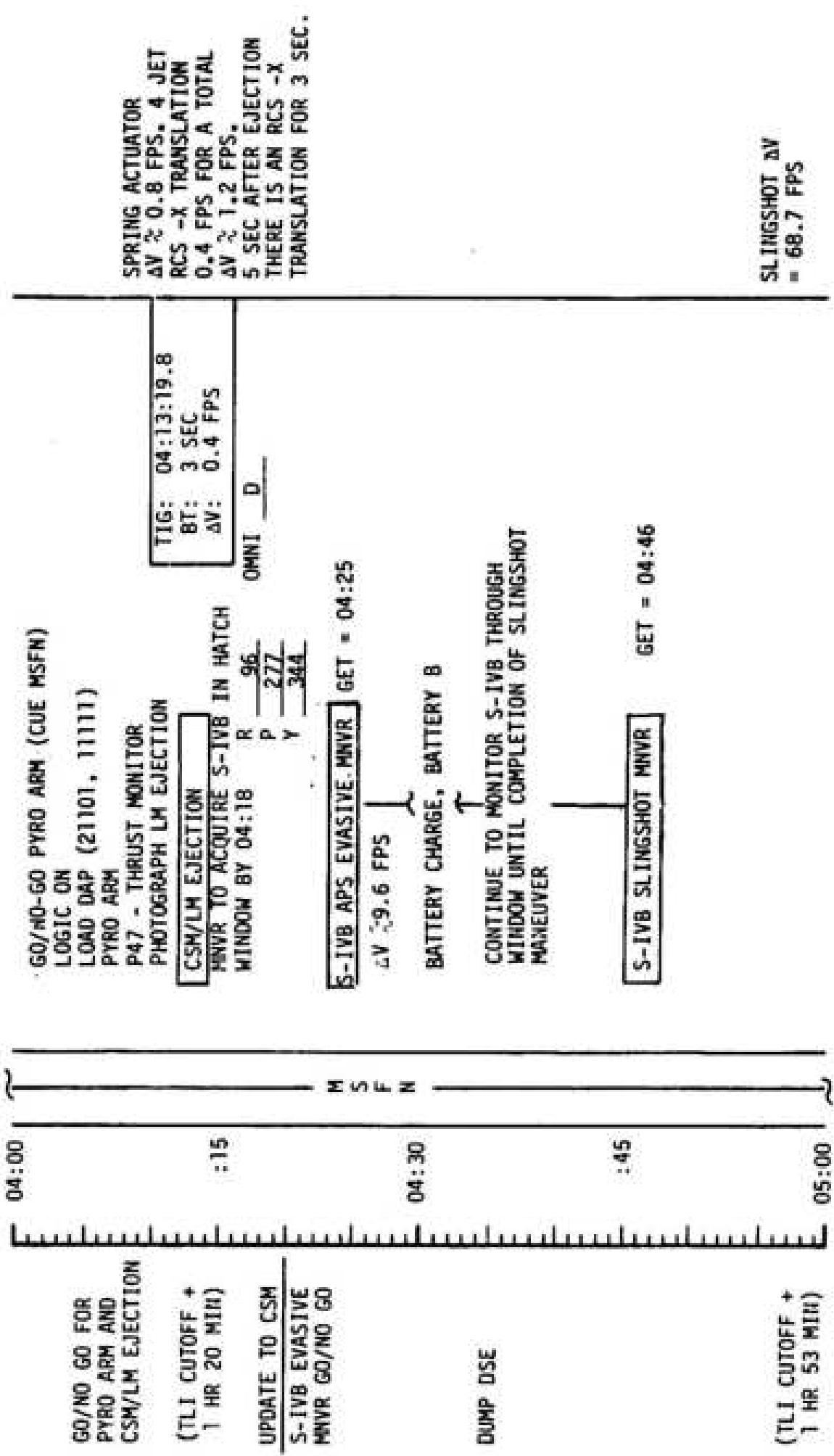
FLIGHT PLANNING SUMMARY

MSFC Form 29 (Rev 69)

1422 CST

FLIGHT PLAN

MCC-M



MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	- 04:00 - 05:00	1/TLC	3-6

MCC-N

FLIGHT PLAN

1522 CST

05:00

:15

DOFF & STOW
PGA'sTRANSFER ITEMS OUT
OF PGA POCKETS

LINK TO CSM
DESIRED ORIENTATION
(PTC)
ZERO TRUNION BIAS

H S F H

05:30

P52 - IAU REALIGN
OPTION 1 - PREFERRED

REPORT GYRO TORQUING ANGLES

GDC ALIGN TO IAU

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

VHF A SIMPLEX - OFF

06:00

P52 (PTC ORIENT)			
N71:	—, —	—, —	—, —
N05:	—, —	—, —	—, —
N93:	X	—, —	—, —
	Y	—, —	—, —
	Z	—, —	—, —
GET	—, —	—, —	—, —

P 37 PAD ASSUMES
NO MCC-1

MISSION	EDITION	DATE	TIME	DAY/REVIEW	PAGE
Apollo 12	FINAL (NOV 14)	OCTOBER 15, 1969	05:00 - 06:00	1/TLC	3-7

MSC Form 29 (Rev 9-64)

FLIGHT PLANNER'S SIGNATURE

1622 CST

FLIGHT PLAN

MCC-N

HHR TO OPTICS CALIBRATION ATT
P23 - CISTUMAR NAVIGATION

OPTICS CALIBRATION
POO
STAR 1 - 5

R 204
P 262
Y 0

POO

V49 - HHR TO SIGHTING ATT
STAR/EARTH HORIZON

P23 - CISTUMAR NAVIGATION

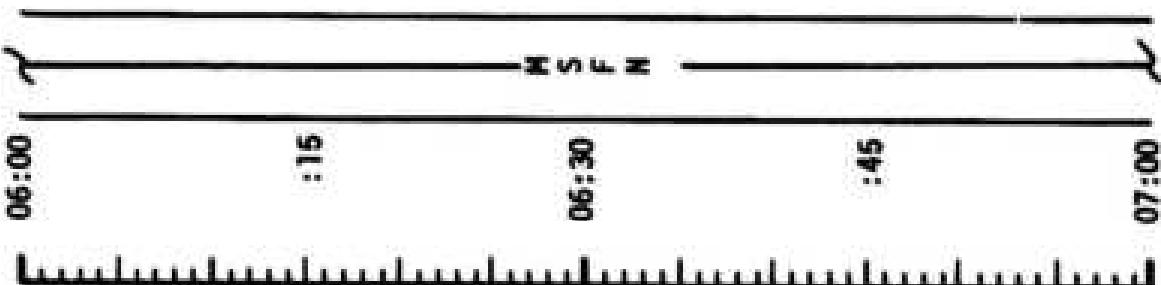
L00D W MATRIX (R1 + 8 0 0 0 0) (R2 + 0 0 0 2 0)
1. STAR 2 2 E N H (R3 - 0 0 1 1 0)

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



1. STAR 2 4 E N H (R3 - 0 0 1 1 0)
2. STAR 1 5 E F H (R3 - 0 0 1 2 0)
3. STAR 2 4 E N H (R3 - 0 0 1 1 0)
4. STAR 2 4 E N H (R3 - 0 0 1 1 0)
5. STAR 1 6 E F H (R3 - 0 0 1 2 0)

06:00 07:00 06:30 07:30 :45 :15



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	06:00 - 07:00		3-8

MISSION PLANNING SECTION

See page 29 (Rev. 14)

1722 CST

FLIGHT PLAN

QUADS TO DISABLE
FOR PTC (LOWEST
QUANTITY PRPLNT)

UPDATE TO CSM
07:00

HHR TO PTC ATTITUDE

ESTABLISH PTC

:30

DEACTIVATE PRIMARY EVAPORATOR
GLY EVAP H₂O FLOW - OFF ~~4800~~⁴⁰⁰⁰ (CTR)
GLY EVAP STM PRESS AUTO - MAN
GLY EVAP STM PRESS INCR - INCR FOR 1 MIN

H S F N

08:00 :30

SELECT NORMAL LUNAR COMM EXCEPT:
S-BD AUX TAPE - OFF
TAPE RCDR FWD - OFF

PTC

P 90 Y 0

MANEUVER TO PTC
ATTITUDE - DISABLE TWO
ADJACENT QUADS - NULL
RATES IN +, 5°/DB FOR
20 MINUTES - WIDEN DEAD
BAND TO +30°, ENABLE
ALL JETS AND ROLL VE-
HICLE AT 0.3°/SEC.
DISABLE JETS

LION CANISTER CHANGE ND. 1
(3 INTO A, STOW 1 IN B5)

09:00

MOTORS

P 90
Y 0

MOTORS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	07:00 - 09:00	1/TLC	3-9

EST. REV 20 NOV 80

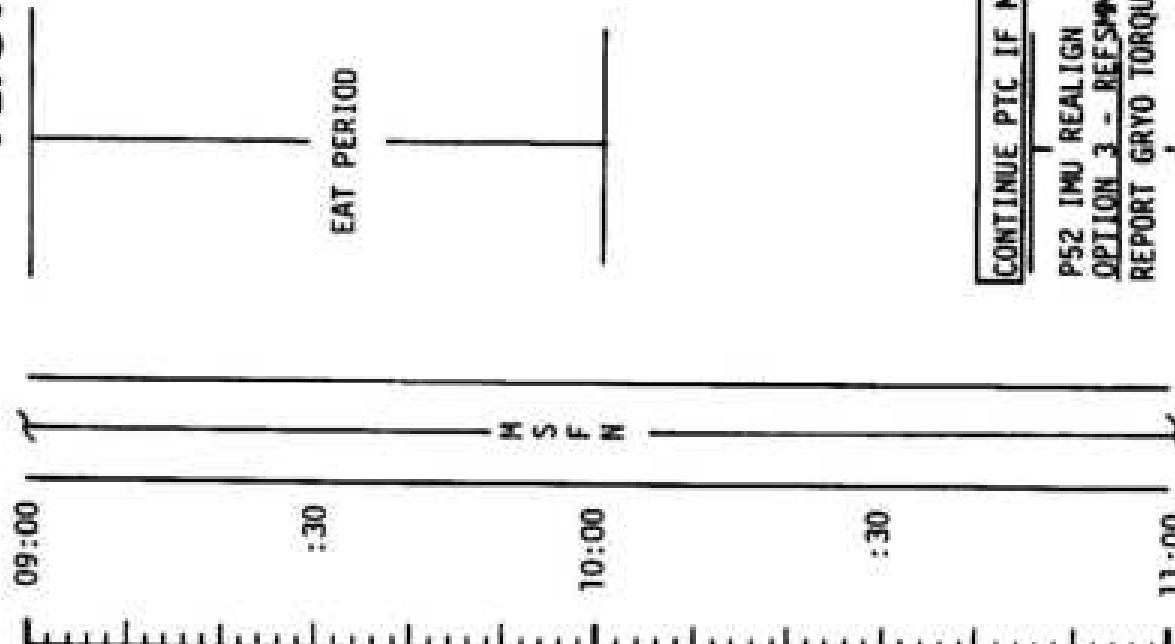
FLIGHT PLANNING SOURCE

1922 CST

APOLLO

FLIGHT PLAN

NOTES



UPLINK TO CSM
STATE VECTOR MCC-1 TGT LOAD
MCC-1 MMU PWD

APOLLO 12 FINAL (NOV 14) OCTOBER 15, 1969
MCC-1 MMU PWD

:30

:30

:30

EAT PERIOD

PTC
P 90 Y 0

P52 (PTC ORIENT)	
W71:	-----
NOS:	-----
M93:	-----
X	-----
Y	-----
Z	-----
GET	-----

CONTINUE PTC IF MCC-1 IS NOT PERFORMED

P52 IMU REALIGN
OPTION 3 - REFSMMAT
REPORT GYRO TORQUING ANGLES

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	09:00 - 11:00	1/TLC	3-10

FLIGHT PLAN

MCC-1
BURN TABLE

P OR V RATES	ATT DEVIATION	SHUT DOWN TIME	RESIDUALS
10°/SEC TAKEOVER	+10° TAKEOVER	BT + 1 SEC	IF<2FPS , TRIM X AXIS TO 0.2FPS IF>2FPS , NO TRIM

TABLE 3-2
3-11

FLIGHT PLAN

57

118

A

1

卷之三

BURN STATUS REPORT

P30 - EXTERNAL 6V

W49 - HAWK TO BAND IT

SXT STAR CHECK
BATTERY CHARGE, BATTERY A
O₂ FUEL CELL PURGE
WASTE WATER DUMP
P40/P41 - SPS/RCS THRUST

GDC ALIGN TO IMU

* ITEMS TO BE
REPORTED IN MSFN

MCC-1 WILL BE DELAYED TO MCC-2 IF PROPELLANT COST IS NOT PROHIBITIVE
T1 + 9 HRS

TIG: 11:47:19.8
AV: NOMINALLY ZERO

W66 - TRANSFER CSM SV TO LM SLOT
MCC-1 BURNN STATUS REPORT

10

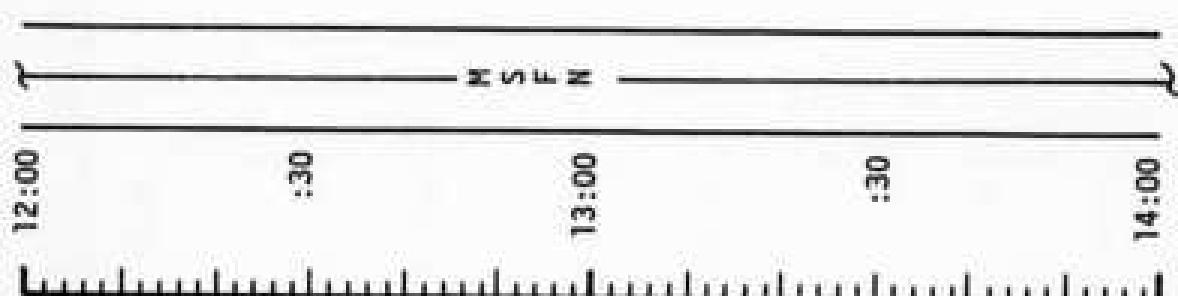
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	11:00 - 12:00	1/TLC	3-12

THE PINE GROVE

2222 CST

FLIGHT PLAN

HOUSERS



REPORT: LM/CM & P
WASTE STOWAGE VENT VLV - CLOSE
VENT BATTERIES UNTIL SYSTEM TEST METER (4A) = 0

MVR TO PTC ATT P 90
Y 0

DECISION TO
DE-CABIN FOR REINITIATE
CALL BE MADE
WHEN TIME AT
REF HRS GET APPROVAL

PTC
P 90 Y 0

UPDATE TO CSM
P37 PAADS (L/D +
25, 35, 45 & 60)
EVA TIME 25 (8:17 65)

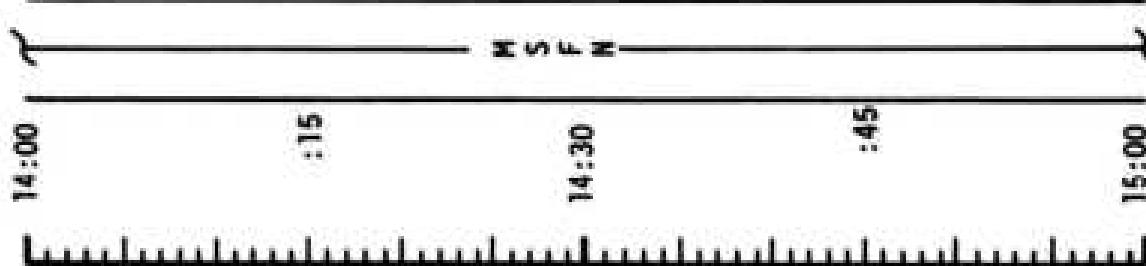
MISSION	EDITION	DATE	TIME	DAY/R	EV	GE	-13
APOLLO 12	FINAL (NOW 14)	OCTOBER 15, 1969	12:00 - 14:00	1/T/L			

FLIGHT PLANNING BRANCH

MCC-N

FLIGHT PLAN

0022 CST



WOMEN

:15

14:30

:45

15:00

PTC
P 90 Y 0

P52 (PTC ORIENT)

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

P52 TMI RELOAD
OPTION 3 REFRESH
(OPTIONAL)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	14:00 - 15:00	1/TLC	3-14

FLIGHT PLANS FOR LAUNCH

MSFC Form 28 (Rev. 60)

0122 CST

FLIGHT PLAN

T REPORT GYRO TORQUING ANGLES
GDC ALIGN TO IMU



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MDV 14)	OCTOBER 15, 1969	15:00 - 16:00	1/TLC	3-15

MISSION PLANNERS BUREAU

MPC-100 Rev 20 (Rev 10)

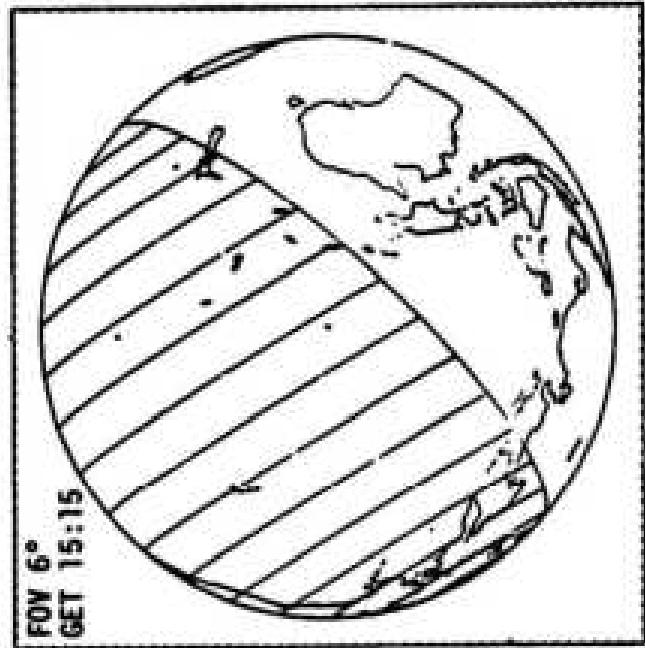
NOTES

0222 CST

FLIGHT PLAN

MECH-H

HOME



- 4. STAR 2 L E E H (R3 - Q0 L1 E0)
- 5. STAR 2 EEM H (R3 - Q0 L1 E0)

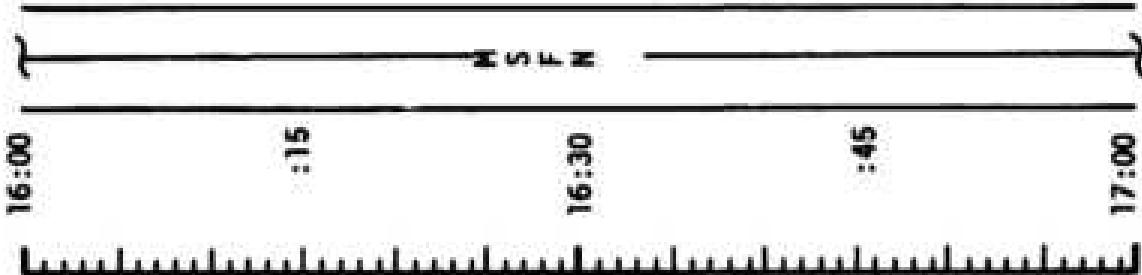
UPDATE TO CSM
QUADS TO DISABLE
FOR PTC (L0NEST
QUANTITY PRPLNT)

MMVR TO PTC ATTITUDE P 90
START PTC V 0

EAT PERIOD

P 90 V 0

PTC



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	16:00 - 17:00	1/TLC	3-16

see form 2007-00

FLIGHT PLAN

RECON

0322 CST

17:00

:15

H S F N

17:30

:45

18:00

ENT PERIOD

PRESLEEP CHECKLIST:
CREW STATUS REPORT (MED)
ONBOARD READOUTS
CYCLE O2 & H2 FANS
CHLORINATE POTABLE WATER
VERIFY:
WASTE MNGT OVBD DRAIN - OFF
WASTE STOW IN VENT LVL - CLOSED
EMER CABIN PRESS LVL - BOTH
SURGE TK 02 LVL - ON
REPRESS 02 LVL - OFF
LM TUNNEL VENT - LM/CH AP
"E" MEMORY DUMP
NORMAL LUNAR COMM EXCEPT:
S-8D NORMAL MODE VOICE - OFF
S-8D SQUELCH - ENABLE
S-8D AUX TAPE - OFF
S-8D ANT - OMNI
S-8D ANT OMNI - B
TUBE RCDR FWD - OFF

LION CANISTER CHANGE NO. 2
(4 INTO B, STOW 2 IN B5)

ONBOARD READOUT

BAT C
PYRO BAT A
PYRO BAT B
RCS A
B
C
D

DC IND SEL - MMA OR B

PTC

P 90 Y 0

NOTES

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	17:00 - 18:00	1/TLC	3-17

REVIEW PLANNING SESSION

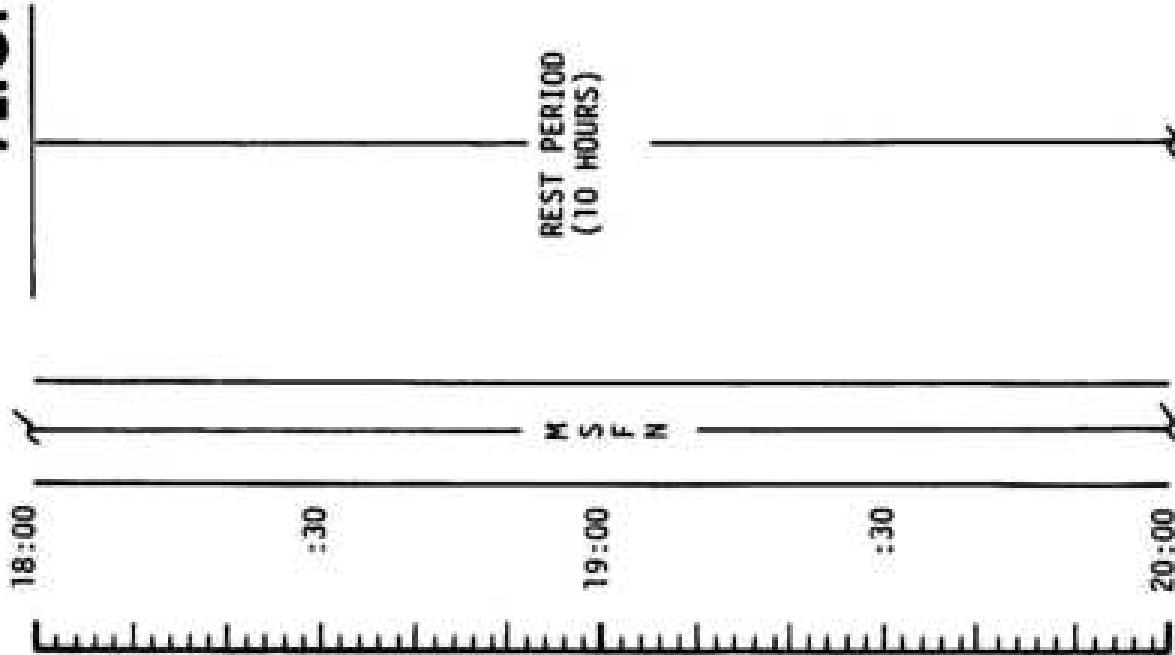
REC REC 19 (REV 66)

0422 CST

MCC-N

FLIGHT PLAN

NOTES
DURING REST PERIOD
TWO CREWMEN IN
COUCHES AND ONE
IN REST STATION



PTC
P 90 Y 0

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	18:00 - 20:00	1/TLC	3-18

FLIGHT PLANNING BRIEFING

MSC Form 25 (Rev. 69)

FLIGHT PLAN

0622 CST

EEC-A



20:00

:30

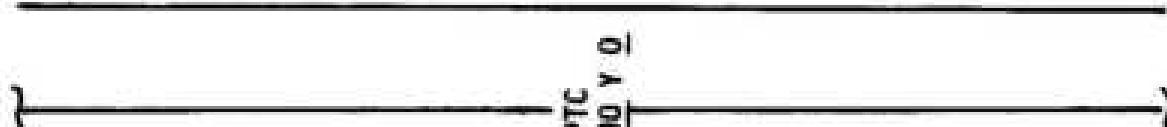
21:00

:30

22:00

REST PERIOD
(10 HOURS)

P 90 Y 0
PTC



MISSION	EDITION	DATE	TIME	DAY/REVIEW	PAGE
APOLLO 12	FINAL (MAY 14)	OCTOBER 15, 1969	20:00 - 22:00	1/11C	3-19

MOTHS

0822 CST

22:00

:30

23:00

:30

24:00

H S F N

REST PERIOD
(10 HOURS)

PTC
P 90 Y 0

FLIGHT PLAN

MOTUS

MISSION	EDITION	DATE	TIME	DAY/REVIEW	PAGE
Apollo 12	FINAL (REV 14)	OCTOBER 15, 1969	22:00 - 24:00	1/TLC	3-20

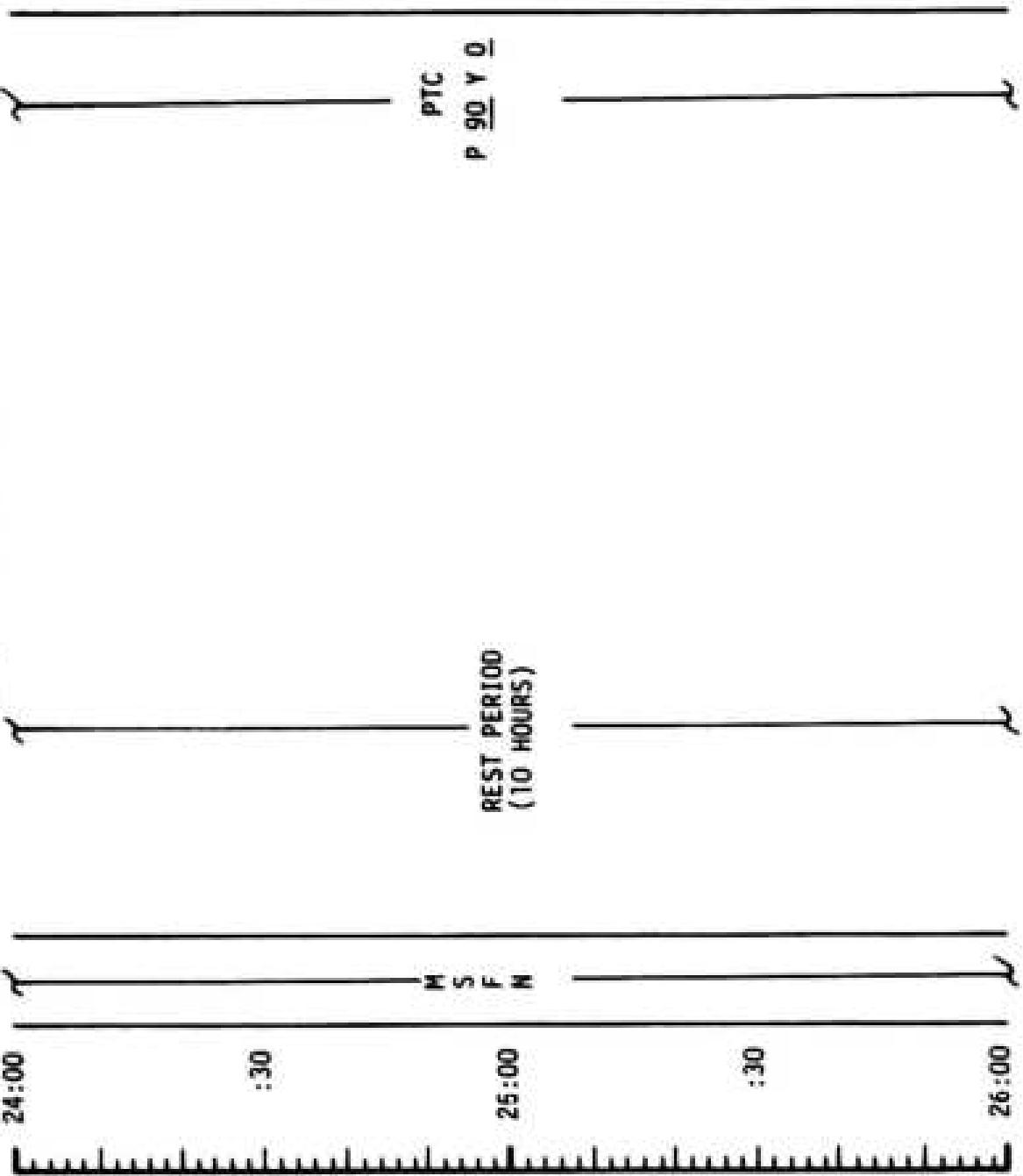
REV 14 10 OCT 69

UNIVERSITY OF MARYLAND LIBRARIES

1022 CST

FLIGHT PLAN

MON



SEC-H

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	24:00 - 26:00	1/TLC	3-21

FLIGHT PLANNING REVIEW

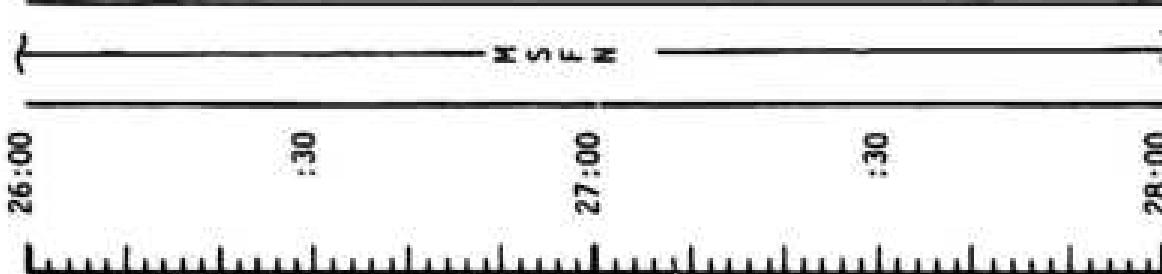
MSF 1022 (REV 69)

1222 CST

APOLLO 12

FLIGHT PLAN

NOTES



PTC
P 90 Y 0

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	26:00 - 28:00	1/TLC	3-22

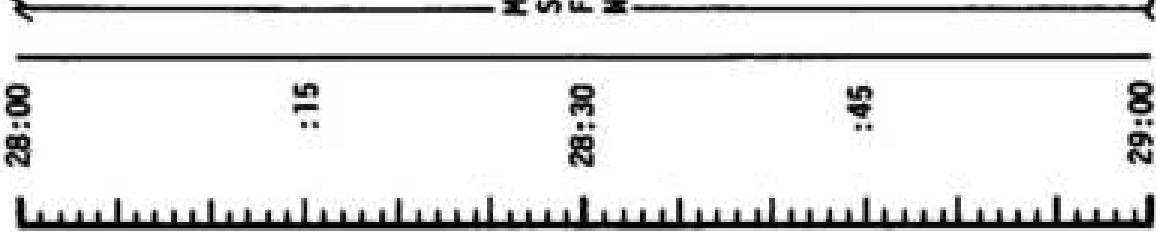
MSFC Rev 20 (Rev 6B)

FLIGHT PLANNING SOURCE

1422 CST

FLIGHT PLAN

MOSC-N



UPDTE TO CSM
CONSUMMABLES
FLIGHT PLAN

EAT PER 100

GET:

CSM CONSUMMABLES UPDATE

PTC
P 90 Y 0

RCS TOTAL	X
H ₂ TOTAL	X
O ₂ TOTAL	X
QUAD A	X
QUAD B	X

CREW STATUS REPORT	COR	COP	LIP
SLEEP	—	—	—
PRO	—	—	—

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MON 14)	OCTOBER 15, 1969	28:00 - 29:00	2/TLC	3-23

EST TIME 29 (EST 29)

NOTES

**LOG SHEET
FOR
LIGHT FLASHES & RADIO SIGNALS BEHIND MOON**

G.E.T.**REMARKS**

FLIGHT PLAN

DATE 10/5/69

LIGHT FLASH
LOG SHEET

**LOG SHEET
FOR
LIGHT FLASHES & RADIO SIGNALS BEHIND MOON**

G.E.T.**REMARKS**

1522 CST

FLIGHT PLAN

MCC-4

MOTRS



29:00 ~

:15

EAT PERIOD

UPLINK TO CSM

STATE VECTOR & V66
MCC-2 TGT LOAD
GO/NO-GO MCC-2

29:30

REPORT LUNCH &

UPDATE TO CSM

MCC-2 MMWR PWD
GO/NO-GO MCC-2

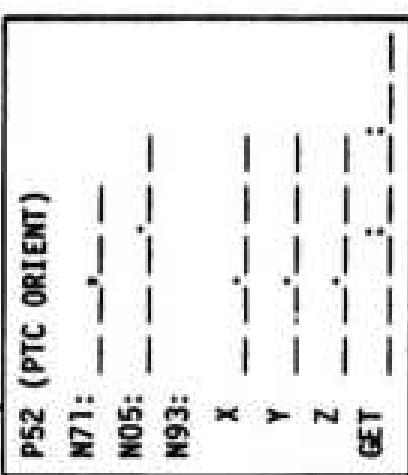
:45

REPORT GYRO TORQUING ANGLES

30:00 ~

P 90 Y 0
PTC

N S F N



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
Apollo 12	FINAL (NOV 14)	OCTOBER 15, 1969	29:00 - 30:00	2/TLC	3-24

SEE FIGURE 29 (PAGE 30)

PRINTED PURSUANT TO E.O. 13526

FLIGHT PLAN

MCC-2
BURN TABLE

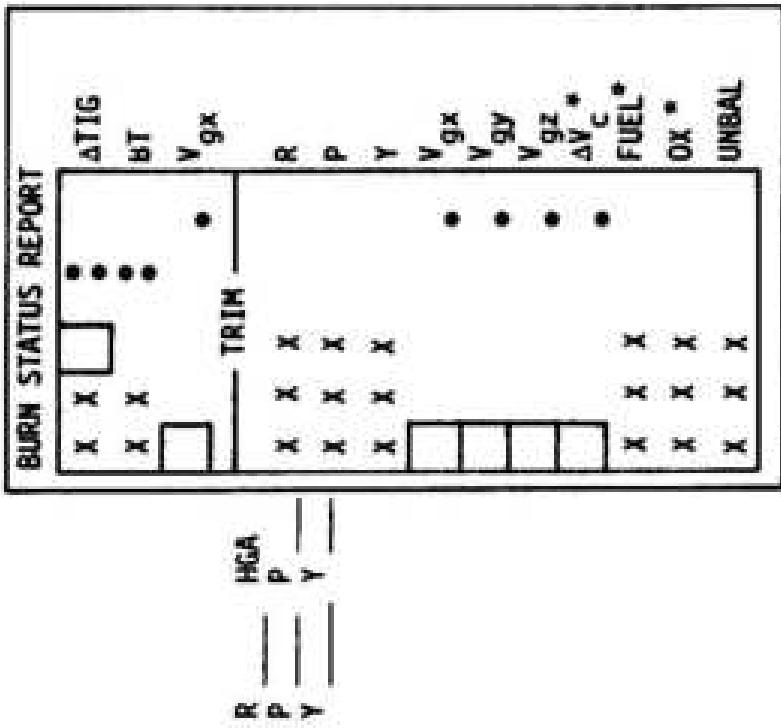
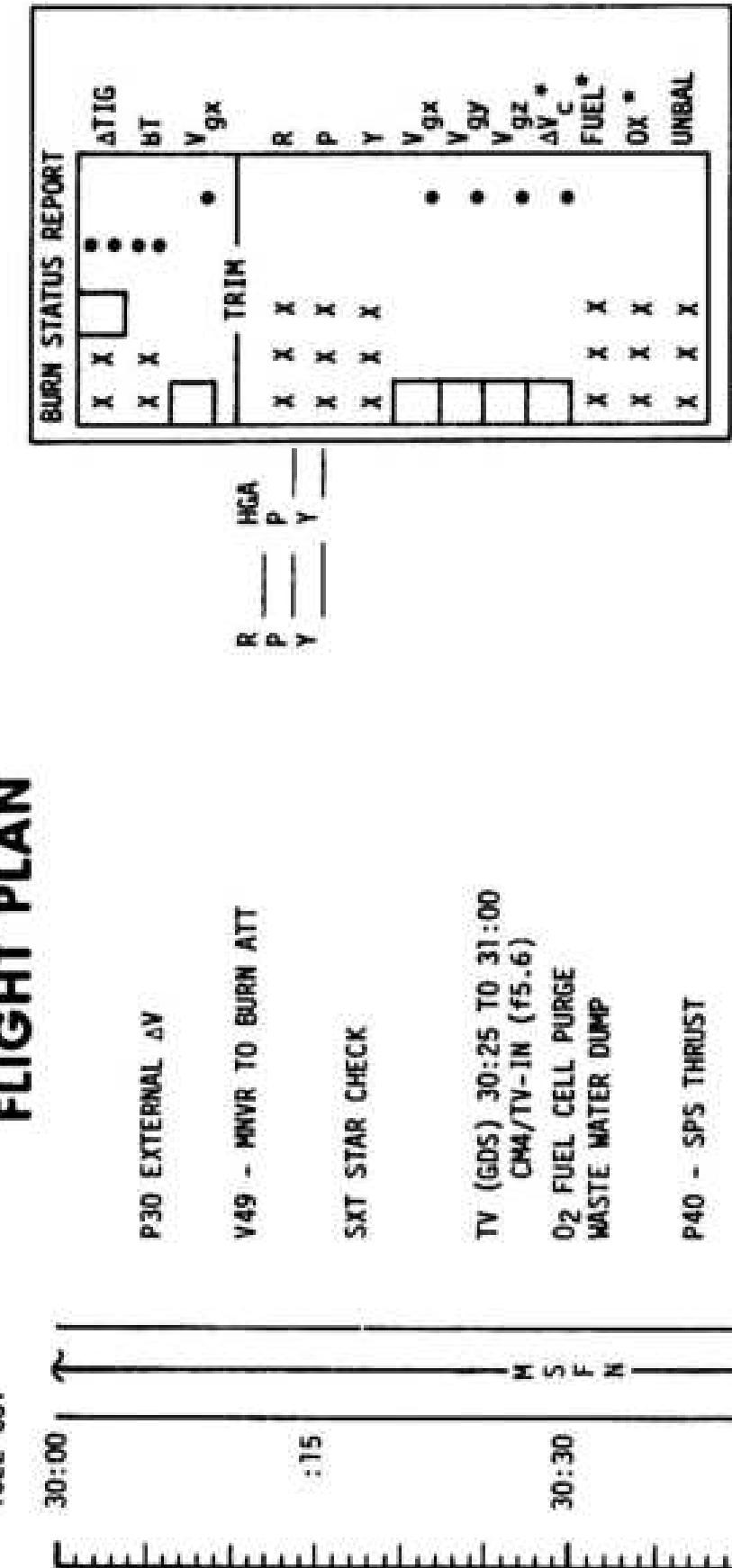
P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TAKEOVER	+10° TAKEOVER	BT + 1 SEC	IF<2FPS, TRIM X AXIS TO 0.2FPS IF>2FPS, NO TRIM

TABLE 3-3
3-25

1622 CST

FLIGHT PLAN

MCC-2



*ITEMS TO BE REPORTED TO MSFN

ATTITUDE FOR MCC-2 BURN IS CONSTRAINED IN ROLL FOR HGA ACQUISITION FOR TV AND BY SXT STAR CHECK

MCC-2

MCC-2 TRANSFER CSM 3V TO LM SLOT
MCC-2 BURN STATUS REPORT

TIC: 30:52:43.7
BT: 10.0 SEC
AV: 68.8 FPS
ULAGE - NONE

BURN IS CONSTRAINED IN ROLL FOR HGA ACQUISITION FOR TV AND BY SXT STAR CHECK

1722 CST

FLIGHT PLAN

~~APOLLO 12~~
UPDATE TO CSM
QUADS TO DISABLE
FOR PTC (LOWEST
QUANTITY PREPLNT)

MANEUVER TO PTC ATTITUDE P 90
Y 0
START PTC

S-BAND ANT - CHINT

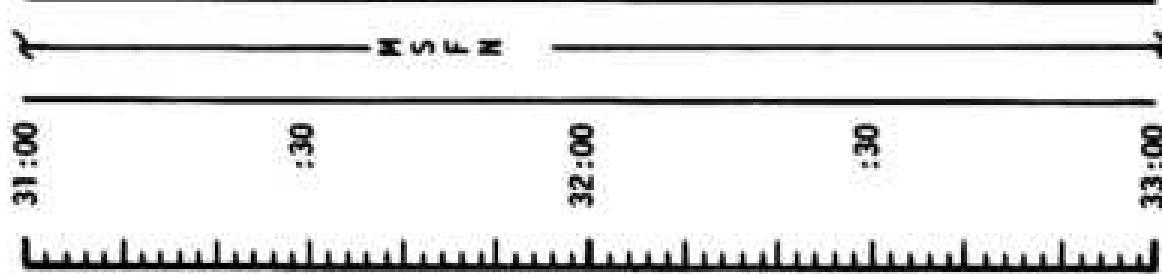
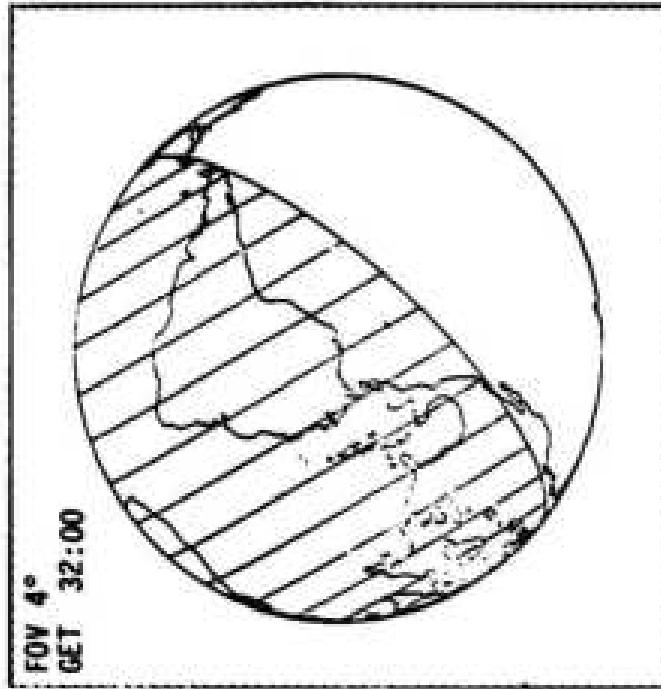
SECURE HGA

HGA TRACK - HAN

HGA PITCH - 52°

HGA YAW 270°

CHECK BAT VENT (TEST METER 4A)



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	31:00 - 33:00	2/TLC	3-27

ISSUE DATE (Year/Month/Day)

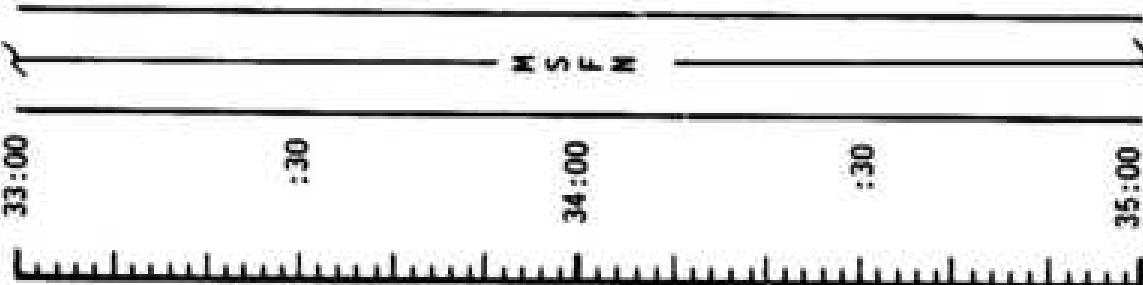
MOSC-W

1922 CST

33:00

NOTES

FLIGHT PLAN



UPDATE TO CSM
LOT-1 MINUS 5 HR
ABORT PAD

PTC
P 90 Y 0

LOT-1 MINUS 5 HR
ABORT IS
CIRCUMLUNAR
TRAJECTORY TO THE
PRI MPL AND
WITH A PERILUNE
BETWEEN 60 AND
1500 NM.

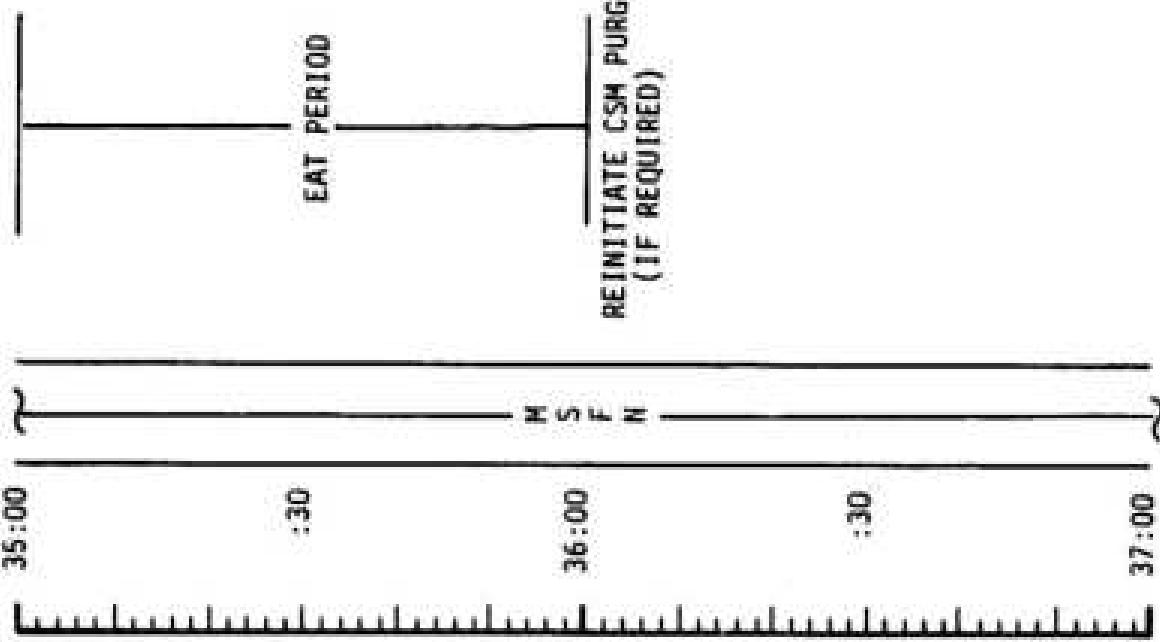
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	33:00 - 35:00	2/TLC	3-28

MSFC Rev 29 (Rev 68)

21st CST

FLIGHT PLAN

NOTES



H
S
N
REINITIATE CSM PURGE
(IF REQUIRED)

PTC
P 90 Y 0

THE LENGTH OF THE
SECOND CSM CABIN
PURGE WILL BE
DETERMINED REAL TIME
BASED ON THE LM LEAK
RATE INSURING LM O₂
PURITY REQUIREMENTS
ON THE LUNAR SURFACE

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	35:00 - 37:00	2/TLC	3-29

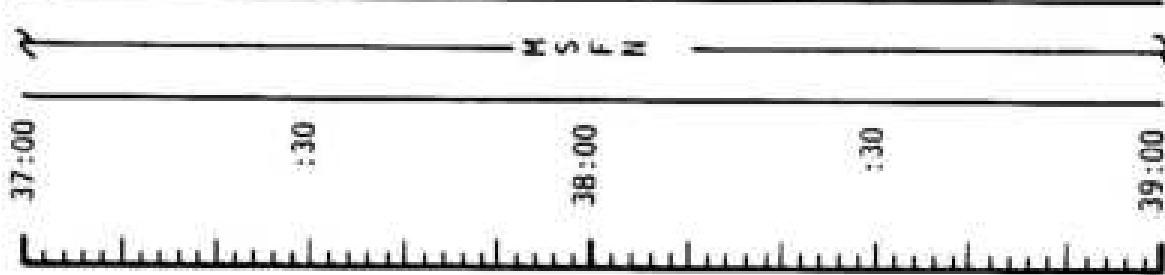
MSL Firing 20 (Rev. 6B)

Present markings removed

ASCC-H

FLIGHT PLAN

2322 CST



MOTUS

PTC
P 90 Y 0

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	37:00 - 39:00	2/TLC	3-30

FLIGHT PLANNING BRANCH

MSC FORM 7B (Rev. 69)

0122 CST

FLIGHT PLAN

MOON

39:00

:30

40:00

:30

41:00

REPORT LM/CM AP

PTC
P 90 Y 0

H₂ PURGE LINE HTRS - ON

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	39:00 - 41:00	2/TLC	3-31

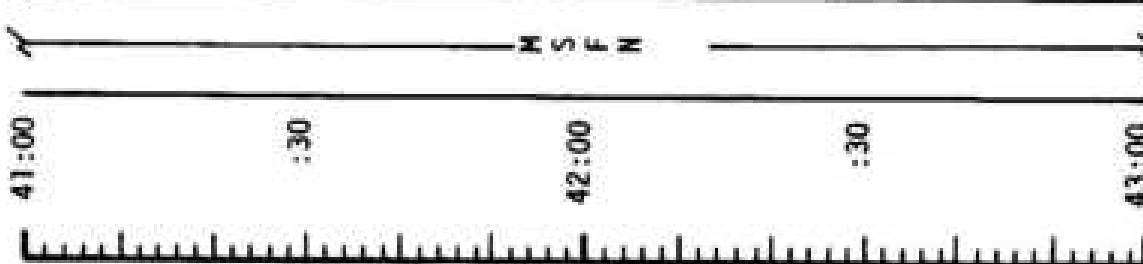
PLANT PLACEMENT SWITCH

ONE HOUR IN (ONE 60)

MOC-4

FLIGHT PLAN

0322 CST



MASTE WATER DUMP
 H_2 & O_2 FUEL CELL PURGE
 LiOH CANISTER CHANGE NO. 4
 (6 INTO 8, STOW 4 IN B5)

ONBOARD READOUT	
BAT C	PYR, BAT A
PYR0 BAT B	RCS A
B	C
C	D
D	DC IND SEL - MMA OR B

PTC
 P 90 Y 0

PRESLEEP CHECKLIST:
CREW STATUS REPORT (MED)
ONBOARD READOUTS
CYCLE 02 & H2 FANS
CHLORINATE POTABLE WATER
VERIFY:
WASTE MNGT OVBD DRAIN - OFF
WASTE STOW VENT VLV - CLOSED
EMER CABIN PRESS VLV - BOTH
SURGE TK 02 VLV - ON
REPRESS 02 VLV - OFF
LM TUNNEL VENT - LM/CM UP
"E" MEMORY DUMP
NORMAL LUNAR COMM EXCEPT:
S-BD NORMAL MODE VOICE - OFF
S-BD SCHELCH - ENABLE
S-BD AUX TAPE - OFF
S-BD ANT - OMNI
S-BD ANT OMNI - B
TAPE ACOR PWD - OFF

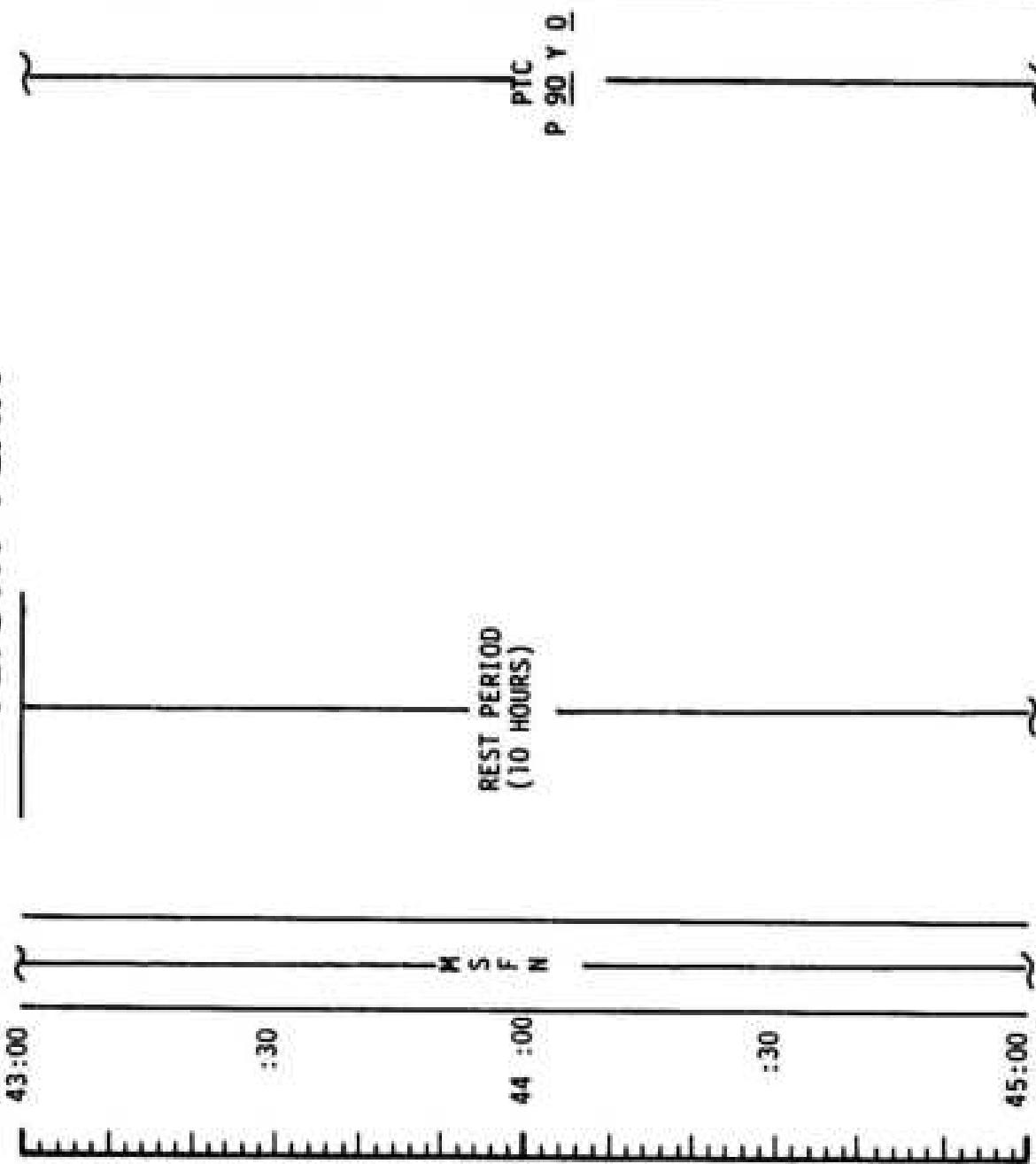
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	41:00 - 43:00	2/TLC	3-32

0522 CST

FLIGHT PLAN

MCC-N

NOTES
DURING REST PERIOD
TWO COUCHES IN
COUCHES AND ONE
IN REST STATION



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	43:00 - 45:00	2/TLC	3-33

MSIC Ref ID: A619199

APOLLO 12 FLIGHT PLAN

0722 CST

45:00

:30

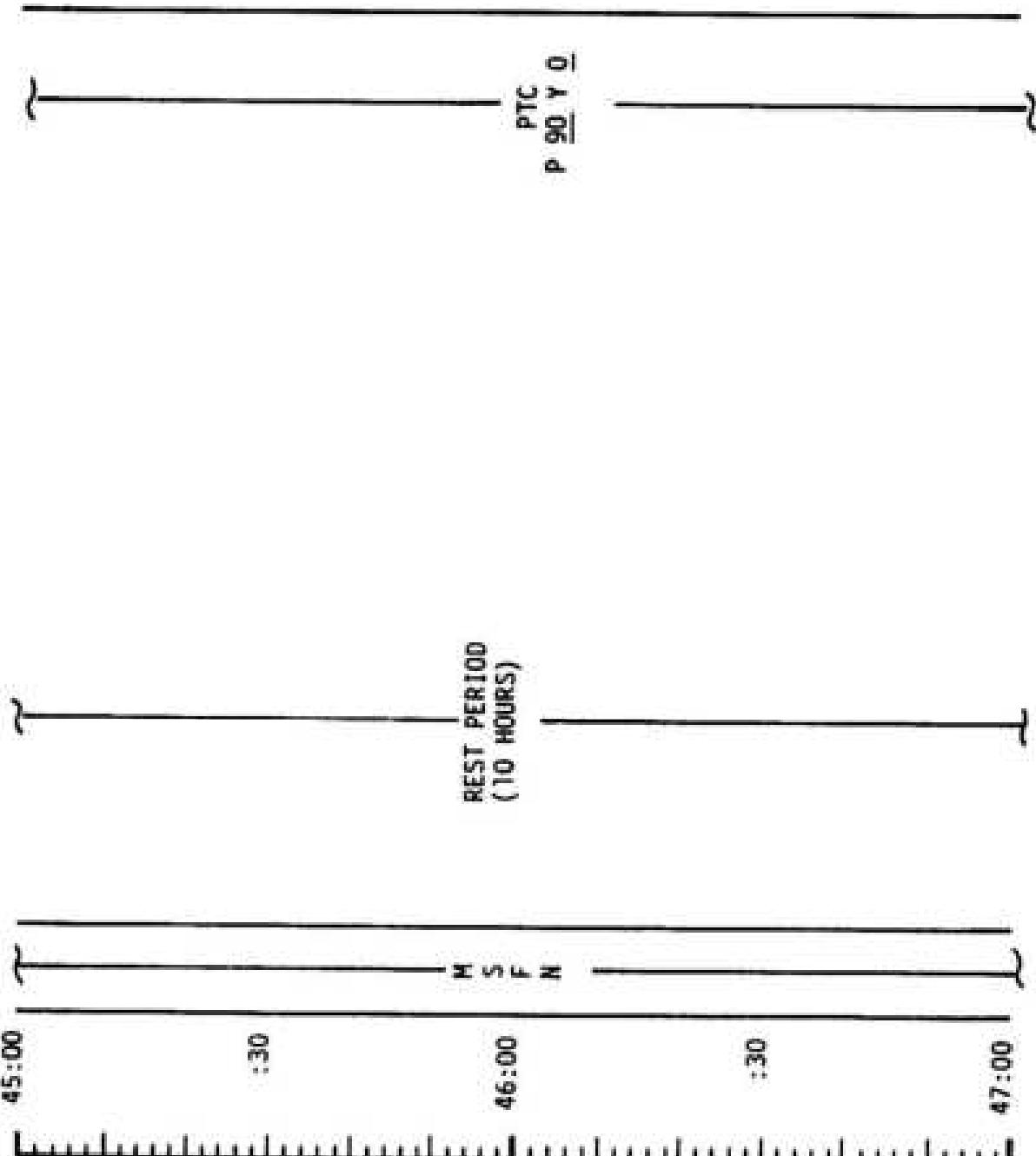
46:00

:30

47:00

FLIGHT PLAN

NOTES



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	45:00 - 47:00	2/TLC	3-34

FLIGHT PLAN

0922 CST

MOMA

47:00

:30

48:00

:30

49:00

REST PERIOD
(10 HOURS)

E S F N

PTC
P 90 Y 0

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	47:00 - 49:00	2/TLC	3-35

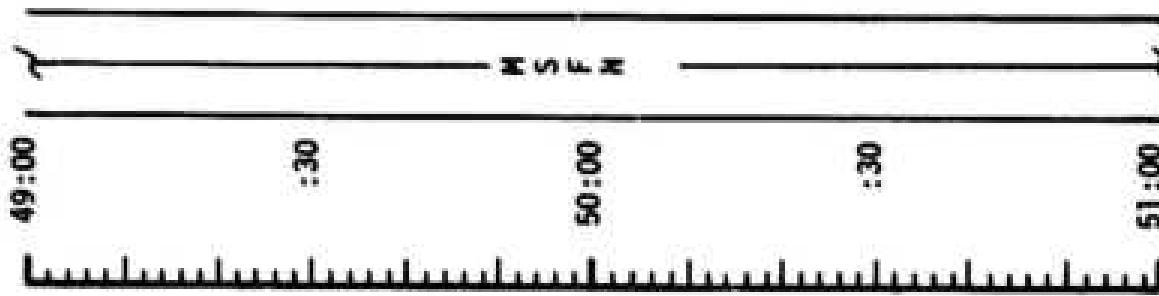
FLIGHT PLANNING SUMMARY

EBC Form 2B (Rev 10)

1122 CST

FLIGHT PLAN

MONS



REST PERIOD
(10 HOURS)

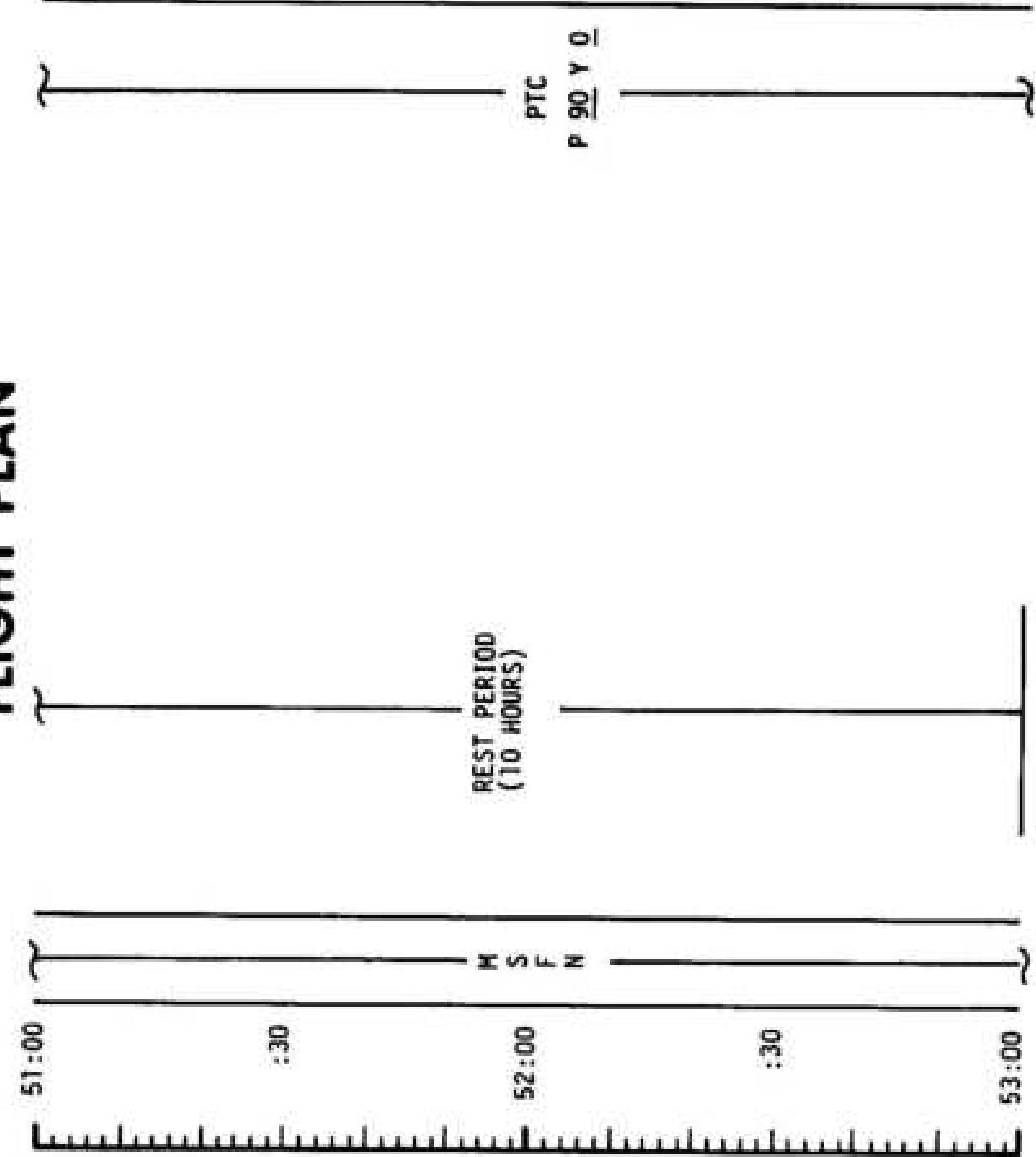
P 90 Y 0
PTC

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	49:00 - 51:00	2/TLC	3-36

APOLLO 12 FINAL (NOV 14) OCTOBER 15, 1969 49:00 - 51:00 2/TLC 3-36

1322 CST

FLIGHT PLAN



NOTES

ACC-N

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (MDV 14)	OCTOBER 15, 1969	51:00 - 53:00	2/TLC	3-37

NBC Form 29 (Rev 50)

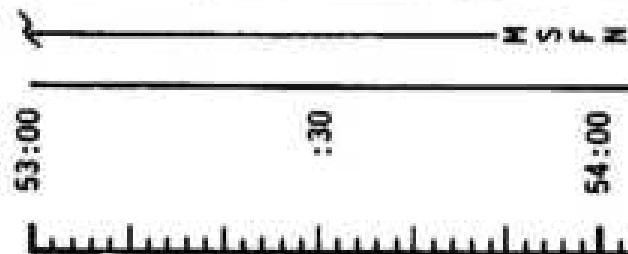
FLIGHT PLANNING GUIDE

SEC-N

FLIGHT PLAN

1522 CST

53:00



UPDATE TO CSM
CONSUMABLES
FLIGHT PLAN

:30

54:00

:30

55:00

POSTSLEEP CHECKLIST:
CREW STATUS REPORT
CONSUMABLES UPDATE
CYCLE H2 & O2 FANS
FLIGHT PLAN UPDATE
NORMAL LUNAR COMM EXCEPT:
S-BD AUX TAPE - OFF
TAPE RCDR FAD - OFF
S-BD ANT - OMNI
S-BD ANT OMNI - B

PTC
P 90 Y 0

CSM CONSUMABLES UPDATE
GET: _____ : _____
RCS TOTAL _____ X
QUAD A _____ X B _____ X
C _____ X D _____ X
H₂ TOTAL _____ X
O₂ TOTAL _____ X

L10H CANISTER CHANGE
NO. 5 (7 INTO A, STOW
5 IN B6)
REPORT LUNCH AP

CREW STATUS REPORT
CDR CHP LMP
SLEEP _____
PRD _____

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	53:00 - 55:00	3/TLC	3-38

1722 CST

FLIGHT PLAN

APOLLO 12

P52 IMU REALIGN
OPTION 3 REFRESHMENT
(OPTIONAL)

REPORT GYRO TORQUING ANGLES

:30

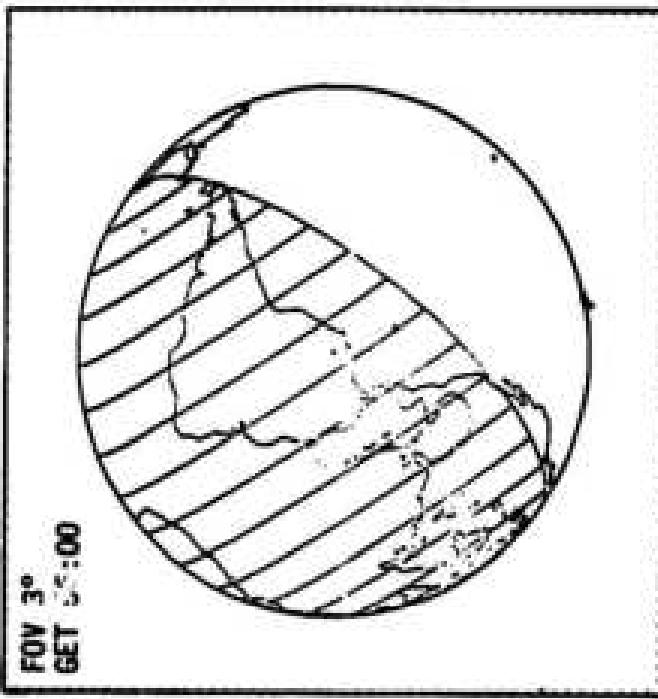
S F N

55:00

:30

57:00

UPLINK TO CSM
AH (IF REQUIRED)



P52 (PTC ORIENT)

N71: —, —

N05: —, —

N93: —, —

X —, —

Y —, —

Z —, —

GET —, —

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

PTC

P 90 Y 0

NOTES

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	55:00 - 57:00	3/TLC	3-39

Flight Plan Revision

Rev 14 (Rev 10)

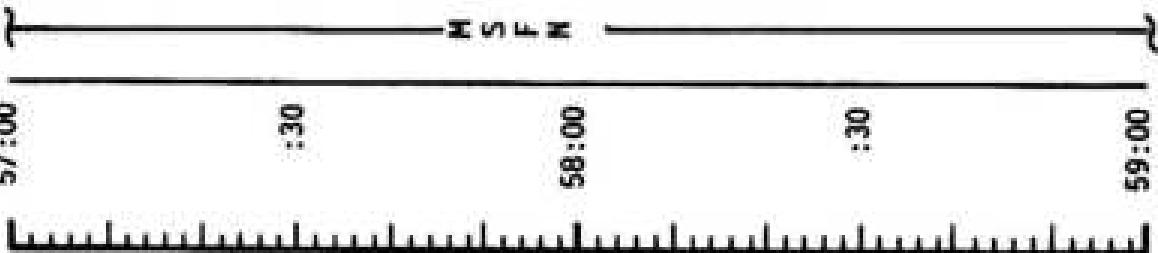
4000-N

FLIGHT PLAN

1922 CST

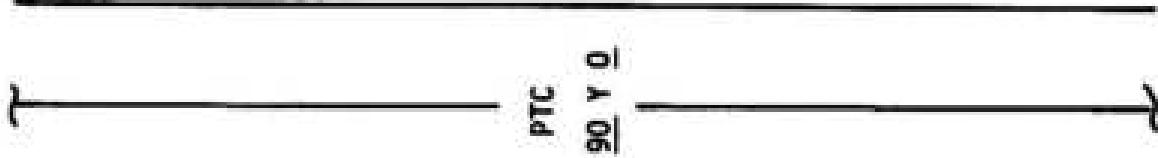
57:00

T



NOTES

PTC
P 90 Y 0



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	57:00 - 59:00	3/TLC	3-40

PLANE PLATEAUED POSITION

see page 29 (Rev 88)

FLIGHT PLAN

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59-00

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EAT PERIOD

PTC
P 90 Y 0

PTC
P 90 Y 0

P52 (PTC ORIENT)

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2

10

10

10

CONTINUE PTC IF MCC-3 IS NOT PERFORMED

OPTIM 3 - REFSHEET

REPORT GYRO TORQUING ANGLES

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	59:00 - 61:00		3-41

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FLIGHT PLAN

MCC-3
BURN TABLE

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

TABLE 3-4
3-42

FLIGHT PLAN

57

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61-88

P30 - EXTERNAL AV

V49 - HMR TO BURN ATT
SKT STAR CHECK
02 FUEL CELL PURGE
WASTE WATER DUMP
P40/P41 - SPS/RCS THRUS

2

61 · 30

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8
8
8

THE FRENCH REVOLUTION

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

* ITEMS TO BE
REPORTED TO HSFH

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOW 14)	OCTOBER 15, 1969	61:00 - 62:00	3/TLC	3-43

FLIGHT PLAN

APOLLO 12

0022 CST

BATTERY CHARGE, BATTERY B

:30

M S F N
63:00

PRESSURIZE CSM TO 5.7 PSIA THEN:
PRESSURIZE LH

STOP PTC AT TV ATTITUDE

HGA: R _____ Y _____

TV(GDS) 63:30 to 64:20
CH4/TV - IN(f5.6)

:20

64:00

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	62:00 - 64:00	3/TLC	3-44

NASA — MSC

MISSION PLANNING MANUAL

REVISION A NASA — MSC

NOTES

FLIGHT PLAN

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**CLEAR TUNNEL OF
CM HATCH
INSPECT TUNNEL &
DOCKING LATCHES
REMOVE PROBE & PROBE**

0222 CST

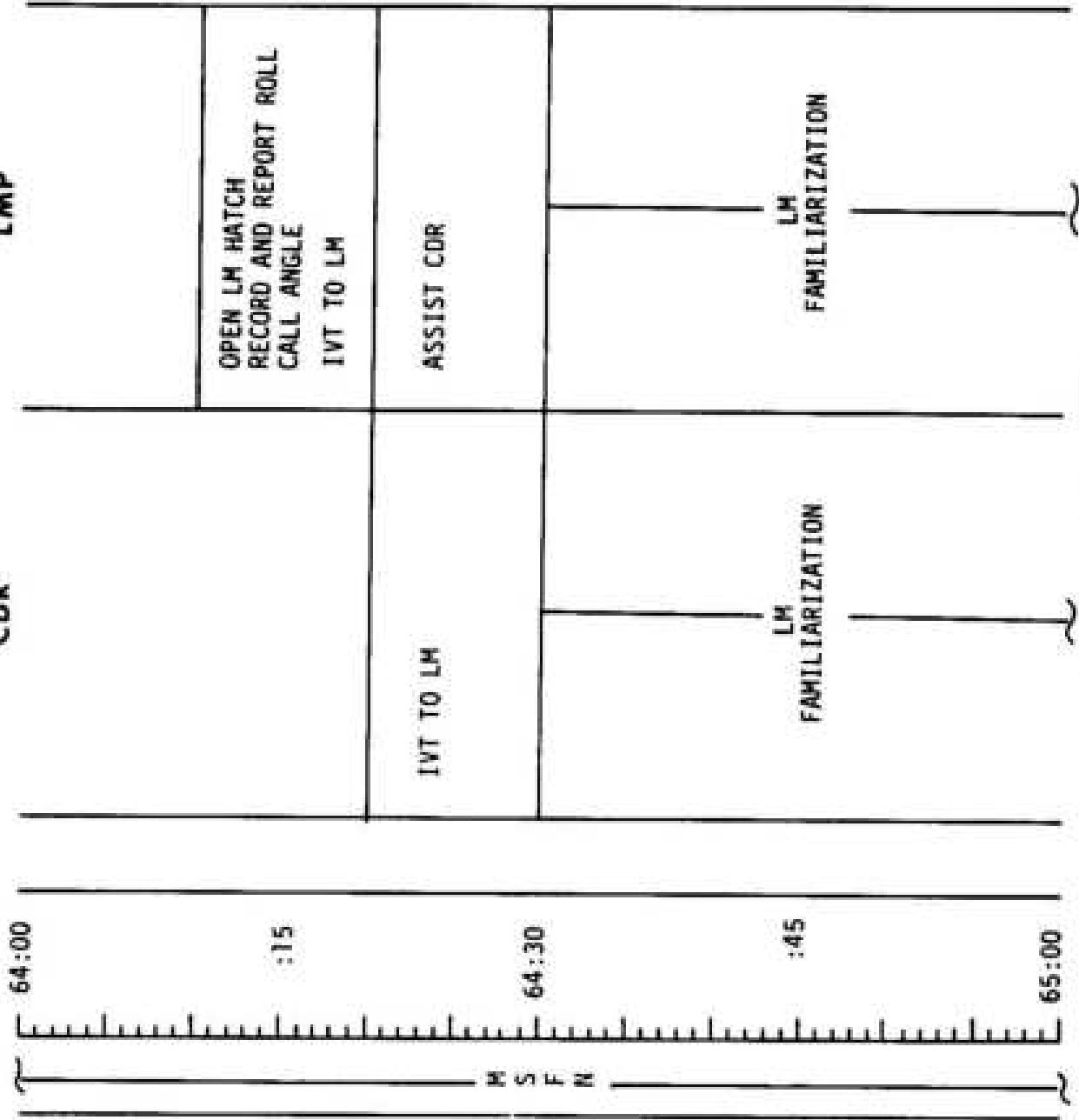
648

2

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MISSION	FINAL (NOV 14)	APOLLO 12	OCTOBER 15, 1969	64:00 - 65:00	DAY/REVIEW	PAGE
EDITION	DATE	TIME	3/TLC	3-45		

MCC-H

LM

CSM

CMP

START PTC

0322 CST

65:00

:15

PTC
P 90 Y 9
S F N

65:30

:45

66:00

CDR

T

LM
FAMILIARIZATION

LM
FAMILIARIZATION

IWT TO CSM
CLOSE LM HATCH

IWT TO CSM

UPDATE TO CSM
QUADS TO DISSELE
FOR PTC (LOWEST
QUANTITY PPLNT)

LMP

T

LM
FAMILIARIZATION

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	65:00 - 66:00	3/TLC	3-46

FLIGHT PLANNING BRANCH

0422 CST

FLIGHT PLAN

66:00 CAP: INSTALL PROBE AND DROGUE

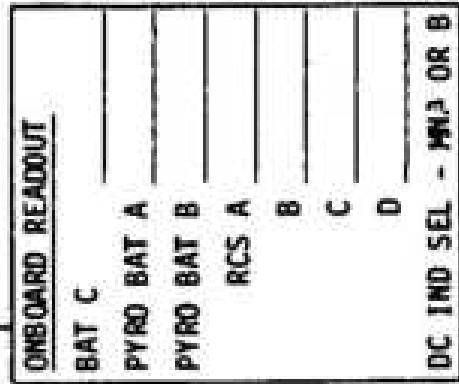
LH TUNNEL VENT VALVE - LM/CH AP
NO. 6 (B) INTO B, STOP
6 IN B6)

:30

67:00

:30

68:00

NOTES**PRESLEEP CHECKLIST:**

CREW STATUS REPORT (MED)
ONBOARD READOUTS
CYCLE O2 & H2 FANS
CHLORINATE POTABLE WATER

VERIFY:

WASTE MNGT ONBD DRAIN - OFF
WASTE STOW VENT VLV - CLOSED
EMERG CABIN PRESS VLV - BOTH
SURGE TK 02 VLV - ON

REPRESS 02 VLV - OFF

LH TUNNEL VENT - LM/CH AP
"E" MEMORY DUMP

EAT PERIOD

NORMAL LUNAR COMM EXCEPT:
S-BD NORMAL MODE VOICE - OFF

S-BD SQUELCH - ENABLE

S-BD AUX TAPE - OFF

S-BD AMT - OMNI

S-BD AMT OMNI - B

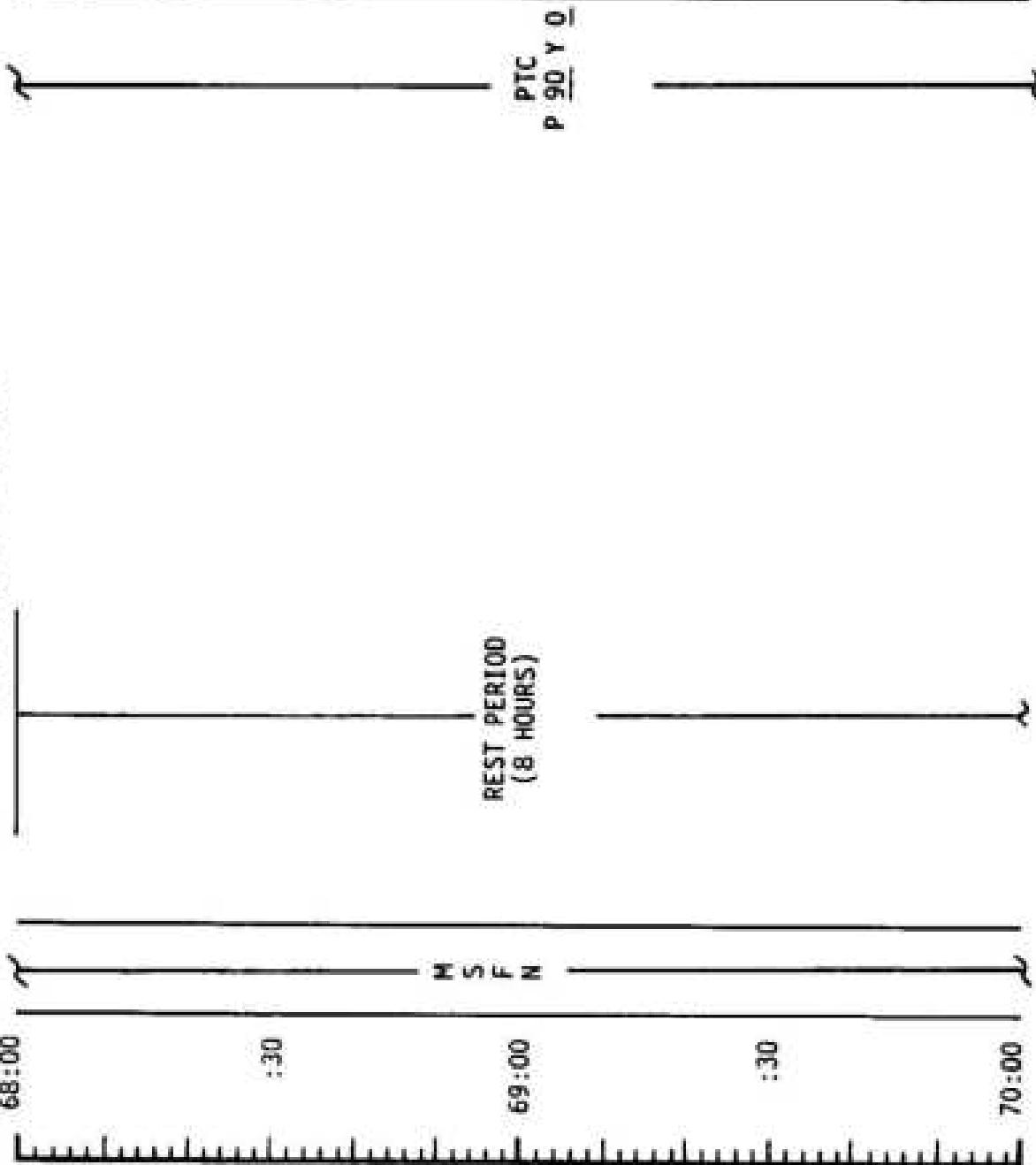
TAPE RCDR FWD - OFF

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOW 14)	OCTOBER 15, 1969	66:00 - 68:00	3/TLC	3-47

0622 CST

FLIGHT PLAN

NOTES
DURING REST PERIOD
TWO CREWMEM IN
COUCHES AND ONE
IN REST STATION



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	68:00 - 70:00	3/TLC	3-48

MSC Form 25 (Rev. 10)

Flight Planning Review

MCC-N

FLIGHT PLAN

0822 CST

70:00 T

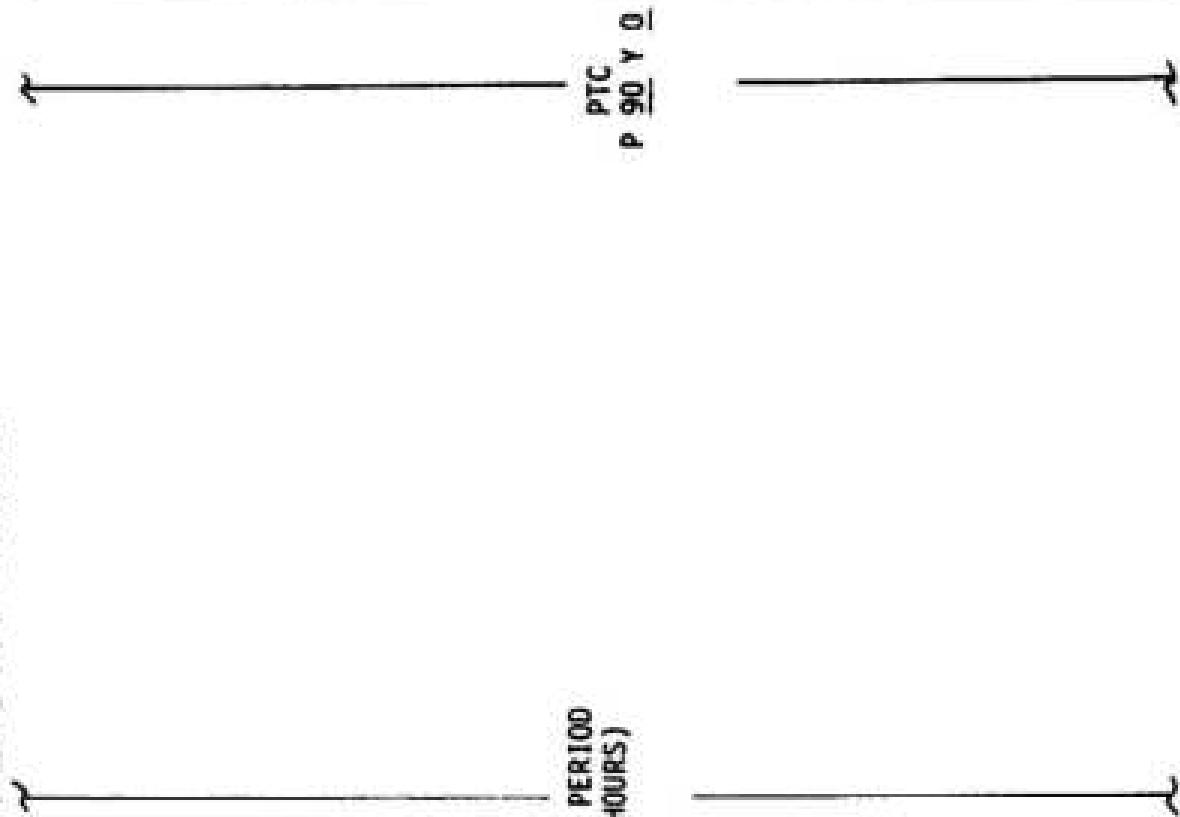
:30

71:00

H F N

:30

72:00

REST PERIOD
(8 HOURS)PTC
P 90 Y 0

MCC Form 29 (Rev. 59)

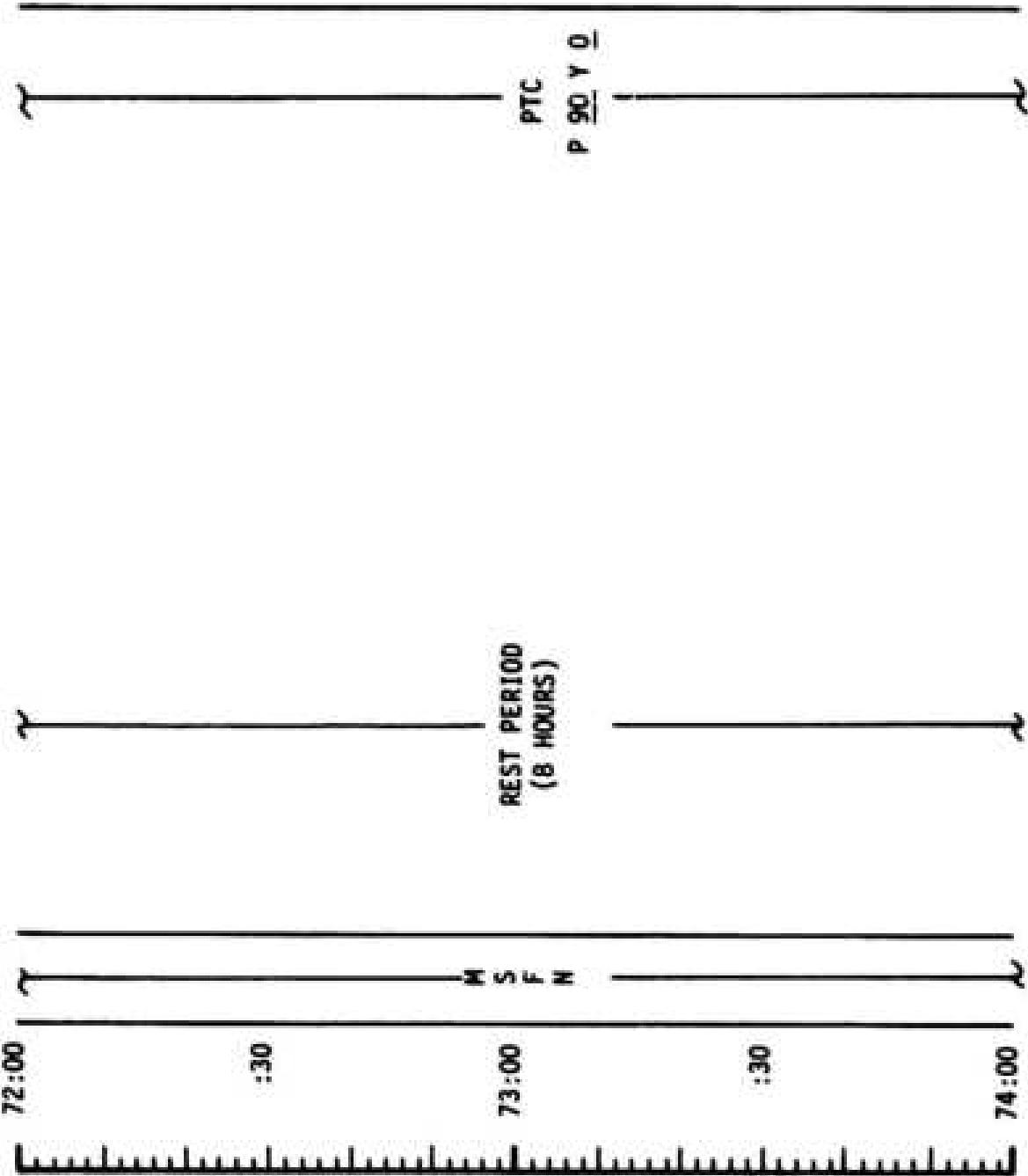
APOLLO 12 PLANNING SHEET

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	70:00 - 72:00	3/TLC	3-49

1022 CST

FLIGHT PLAN

NOTES



MSCC-M

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	72:00 - 74:00	3/TLC	3-50

MSCC-M (cont'd)

1222 CST

FLIGHT PLAN

MOTUS

EEC-N

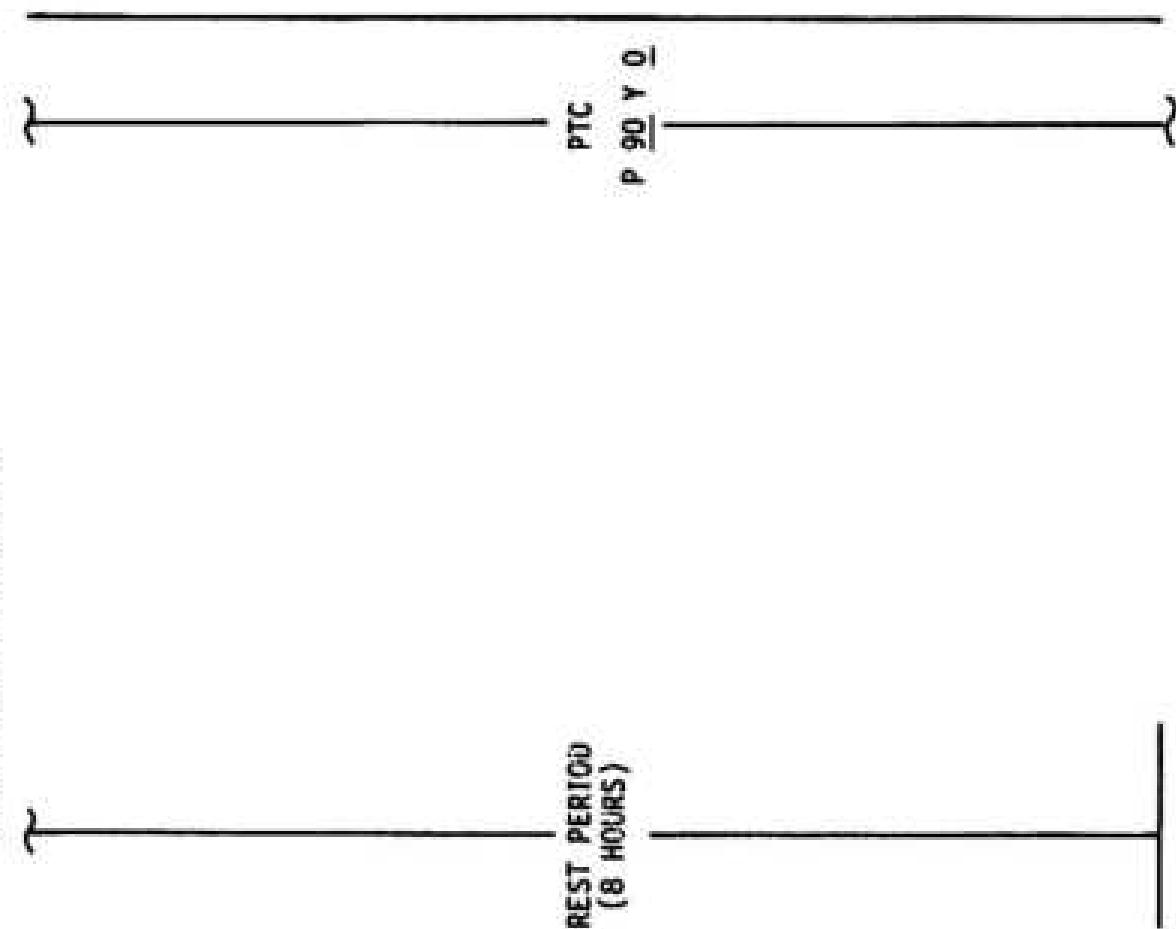
74:00 | T |

:30

75:00

:30

76:00



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	74:00 - 76:00	3/TLC	3-51

FLIGHT PLANNING SHEET

EEC Rev 2B (Rev 00)

1422 CST

FLIGHT PLAN

MCC-4

NOTES

POSTSLEEP CHECKLIST:
CREW STATUS REPORT
CONSUMABLES UPDATE
CYCLE H₂ & O₂ FANS
FLIGHT PLAN UPDATE
NORMAL LUNAR COIN EXCEPT:
S-8D A/D TAPE - OFF
TAPE ACOR FWD - OFF
S-8D ANT - OMNI
S-8D ANT OMNI - B

BATTERY CHARGE,
BATTERY A

EAT PERIOD

CSM CONSUMABLES UPDATE
PTC P 90 Y 0
GET: _____ : _____
RCS TOTAL _____ %
QUAD A _____ %
C _____ %
H₂ TOTAL _____ %
O₂ TOTAL _____ %

LION CHAISTER CHANGE
NO. 7 (9 INTO A, STOW
7 IN B6)
P52 IMU REALIGN
OPTION 1 - PREFERRED
REPORT GYRO TORQUING ANGLES

P30 - EXTERNAL W
SLEEP _____
PRO _____

PERICYNTHION + 2
ABORT PAD
TARGETED FOR A
FAST RETURN TO MPL
PS2 (LDG SITE ORIENT)
OPTION 1 - PREFERRED
N71: _____
N05: _____
N93: X _____
Y _____
Z _____
GET _____

CREW STATUS REPORT
CDR CDR LMP
SLEEP _____
PRO _____

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOW 14)	OCTOBER 15, 1969	76:00 - 78:00	A/TLC	3-52

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FLIGHT PLAN

MCC-4
BURN TABLE

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

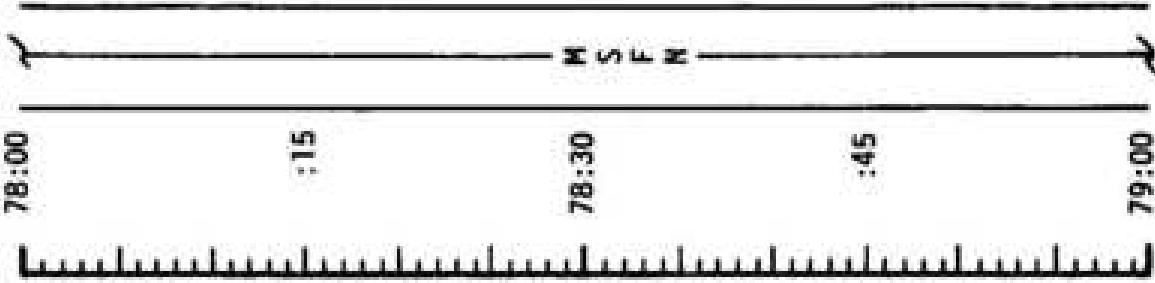
TABLE 3-5
3-53

MCC-N

FLIGHT PLAN

1622 CST

NOTES



MCC-4 WILL BE
EXECUTED WITH
THE SPS IF THE
BURN TIME >3 SEC

BURN STATUS REPORT	
X X	ATIG
X X	BT
	V gx
	R
X X	P
X X	Y
X X	*
X X	V gy
X X	*
X X	V gz
X X	*
X X	AV c
X X	FUEL
X X	OX
X X	*
X X	UNBL

TIG: 78:25:18.2
dV: NOMINALLY ZERO

MCC-4

V66 - TRANSFER CSM SV TO LM SLOT
MCC-4 BURN STATUS REPORT
REPORT LM/CM AP

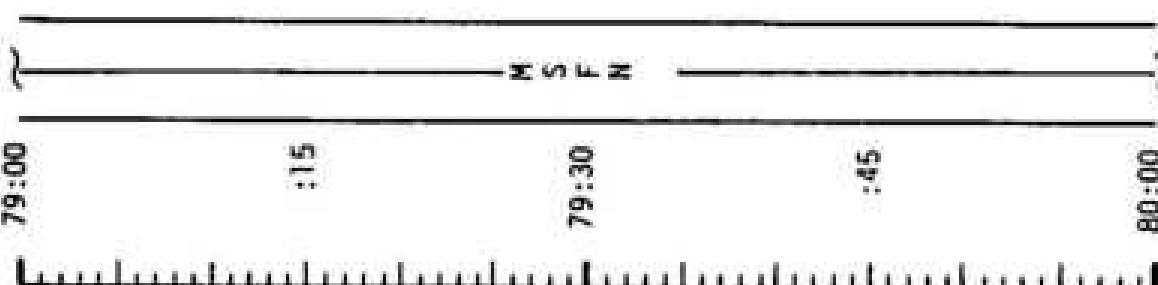
* ITEMS TO BE
REPORTED TO HSFN

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	78:00 - 79:00	4/TLC	3-54

FLIGHT PLAN

NOTES

1722 CST



PRE LOI SEC LOOP CHECK
 ECS IND SW - SEC
 SEC GLY TO RAD VLV - NORM
 SEC COOL LOOP PUMP - AC 1
 GLY DISCHARGE SEC PRESS-39-51 PSIA
 ACCUM SEC QTY IND-30-55%
 SEC EVAP TEMP OUT - DECREASE
 (VERIFY FLOW)
 SEC COOL LOOP PUMP - OFF (CTR)
 SEC GLY TO RAD VLV - BYPASS
 ECS IND SW - PRIMARY

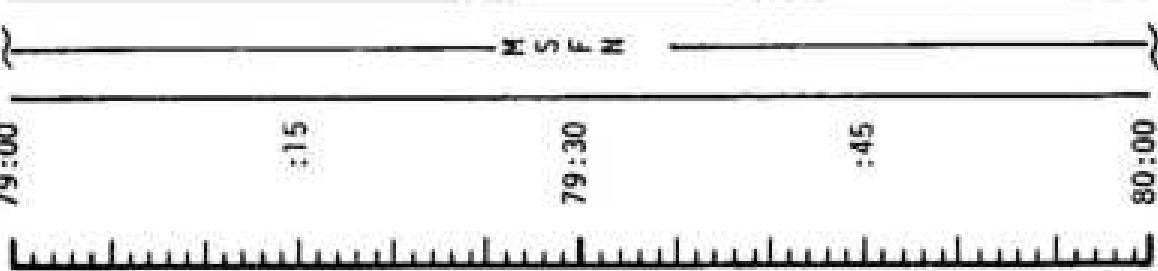
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	79:00 - 80:00	4/TLC	3-55

FLIGHT PLAN

1722 CST

MCC-N

MOMS



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	79:00 - 80:00	4/TLC	3-55

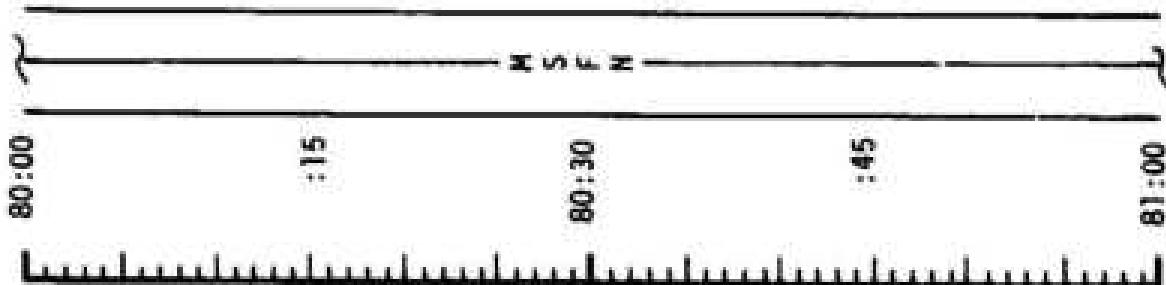
MSC Form 74 (Rev. 68)

FLIGHT PLANNING BRANCH

MCC-N

FLIGHT PLAN

1822 CST



NOTES

PRESSURIZE CSK TO 5.4 PSIA THEN:
(IN CASE OF LOI ABORT)

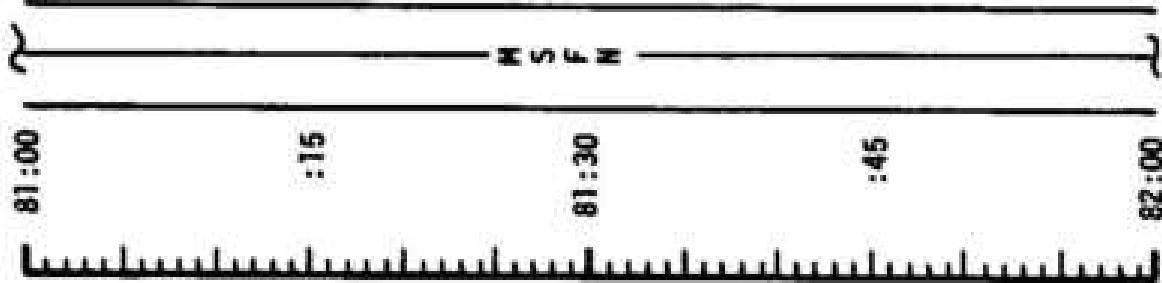
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE	REVISION A
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	00:00 - 81:00	4/TLC	3-56	PLANT PLACEMENT WORKS

80:00 - 81:00 (00:00-00)

1922 CST

FLIGHT PLAN

REF ID: A



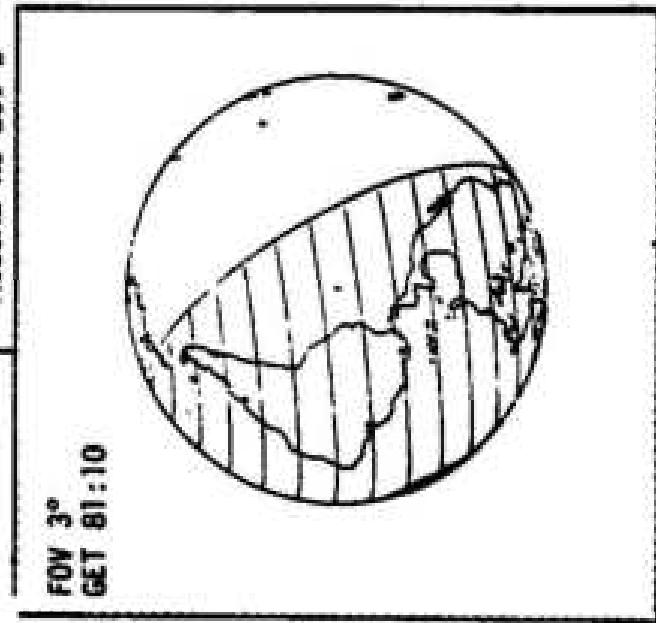
MWVR TO MOON VIEW ATT BY 81:10
AND GO INERTIAL R 187 HGA
P 186 P 4
Y 20 Y 202

REPORT GYRO TORQUELESS ANGLES
OPTION 3 - REFSWATH
PS2 - IMU REALIGN

TV (005) 81:30 TO 81:50
CM4/TV-IN (f22)

MWVR TO GURN ATT BY 81:55
EXCEPT FOR ROLL R 124 HGA
P 26T Y 19 P -18 Y 251

P52 (LOG SITE ORIENT)	ASSUME MD LOI-2
N71:	---
N05:	---
N93:	---
X:	---
Y:	---
Z:	---
GET	---



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	81:00 - 82:00	4/TLC	3-57
					REVISION A

THIS PAGE IS DRAFT

NO MCC-4 ALTERNATE TIMELINE

The guidelines used for developing a "No MCC-4" alternate timeline are as follows:

- The crew rest period is extended two more hours making a total of ten hours for rest.
- A PS2 IMU Realign to REFSMMAT to the PTC orientation is performed just after wake up for a drift check.
- A second PS2 IMU Realign is performed to the landing site orientation and is used for the LOI₁ burn.

1422 CST

FLIGHT PLAN

MCC-N



76:00

:30

77:00

:30

78:00

REST PERIOD
(10 HOURS)

PFC
P 90, Y 0

MSC Form 10 (Rev. 10-65)

Flight Planning Manual

HAWAII - HAWAII

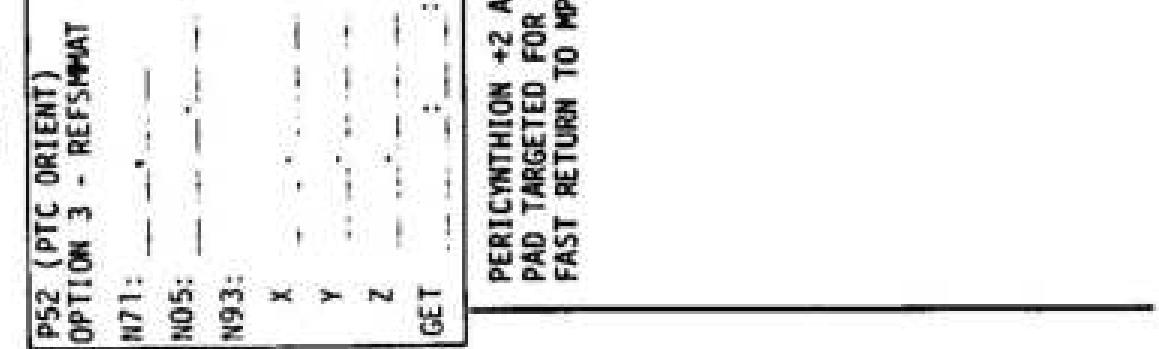
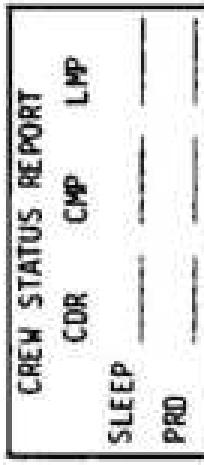
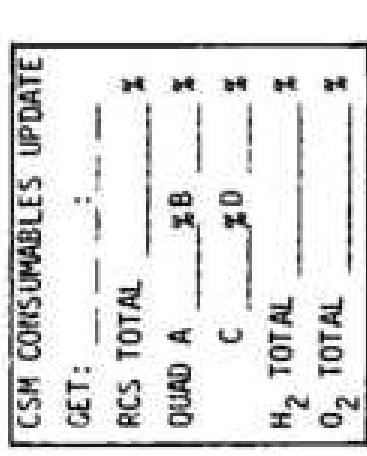
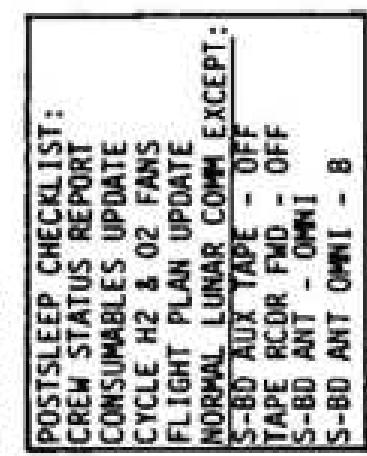
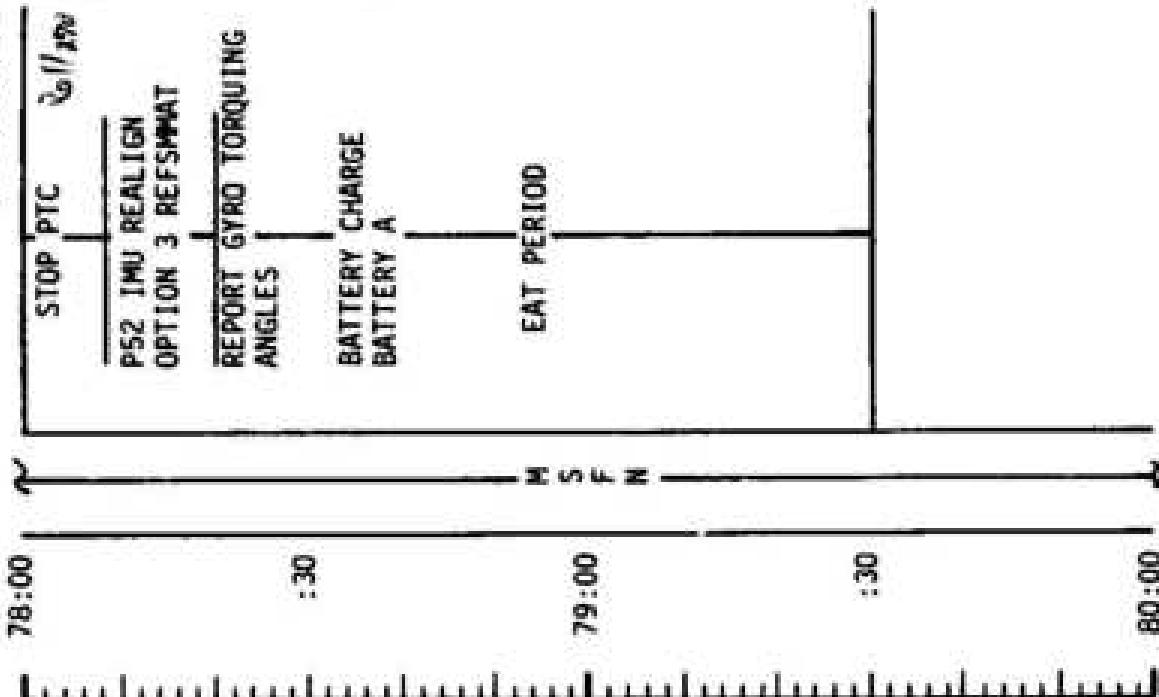
(NO MCC-4)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	76:00 - 78:00	4/TLC	6-6

MCC-4

FLIGHT PLAN

1622 CST



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	78:00 - 80:00	4/STLC	6-7

MSC Form 29 (Rev 69)

FLIGHT PLANNING MARCH

(NO MCC-4)

NASA — MSC

FLIGHT PLAN

1823

A horizontal ruler scale from 0 to 100 cm, with major markings every 10 cm and minor markings every 1 cm.

L10H CHMISCTER CHANGE MO.7 (9 INTO A.
STLW 7 INTO BB)

2

PRESSURIZE CSM TO 5.4 PSIA
PRESSURIZE LM
(IN CASE OF LOI ABORT)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NW 14)	OCTOBER 15, 1969	00:00 - 01:00	4/TLC	6-8

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FLIGHT PLANNING SHEET

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
Apollo 12	FINAL (Rev 14)	OCTOBER 15, 1969	01:00 - 02:00		6-9

MSC — NASA
44-844-12

HOME TO BURN ATT BY 01:55
EXCEPT FOR ROLL R 12A HGA
P 261 P -18
Y 19 Y 251

:45

01:30 81:00 S F

02:00 H

REFUGIUM REQUIREMENTS

P52 - IMU REALIGN
OPTION 1 - PREFERRED

Y 20 Y 207

HOME TO MOON VIEW ATT BY 01:10
AND GO IMERIAL R 300 P 4
P 154 P 4

UNLINK TO CSM
STATE METERS 8
PRELIMINARY
LOAD 15T LOAD
UNPALE TO CSM
DESERED ORIENT
(PRELIMINARY)
LOD 1 4 PMD
PRELIMINARY
DO 1 WMR PRO

MOTHS

FLIGHT PLAN

1922 CST

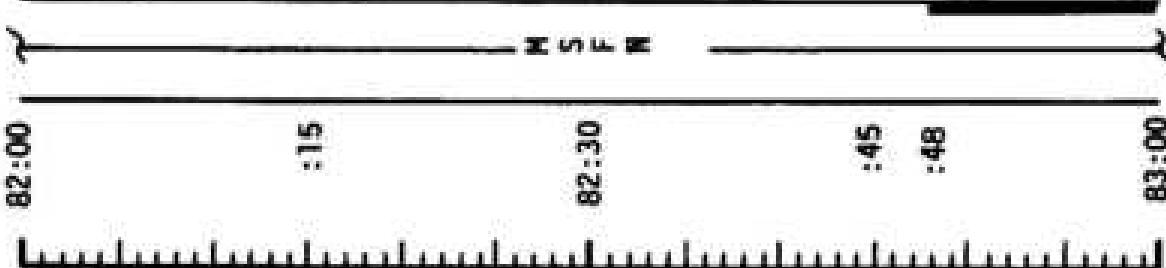
P52 (LOG SITE ORIENT)	GET	—	—	—	—
N71:	Y	—	—	—	—
NOS5:	—	—	—	—	—
N93:	—	—	—	—	—
M93:	—	—	—	—	—
N71:	—	—	—	—	—
NOS5:	—	—	—	—	—
M93:	—	—	—	—	—

Y 20 Y 207

2022 CST

FLIGHT PLAN

NOTES



MAP UPDATE REV 1	
LOS	—
180°	—
AOS WITH LOI	—
AOS WITHOUT LOI	—

PRE LOI-1 SYSTEMS CHECKS:

- CMN CHECK
- ON RCS CHECK
- SWS RCS CHECK
- SPS PERIODIC MONITOR
- ECS PERIODIC MONITOR

P30 - EXTERNAL AV

P40 - SPS THRUST

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	02:00 - 03:00	4/TLC	3-58

FLIGHT PLAN

L0I-1
BURN TABLE
TABLE 3-6

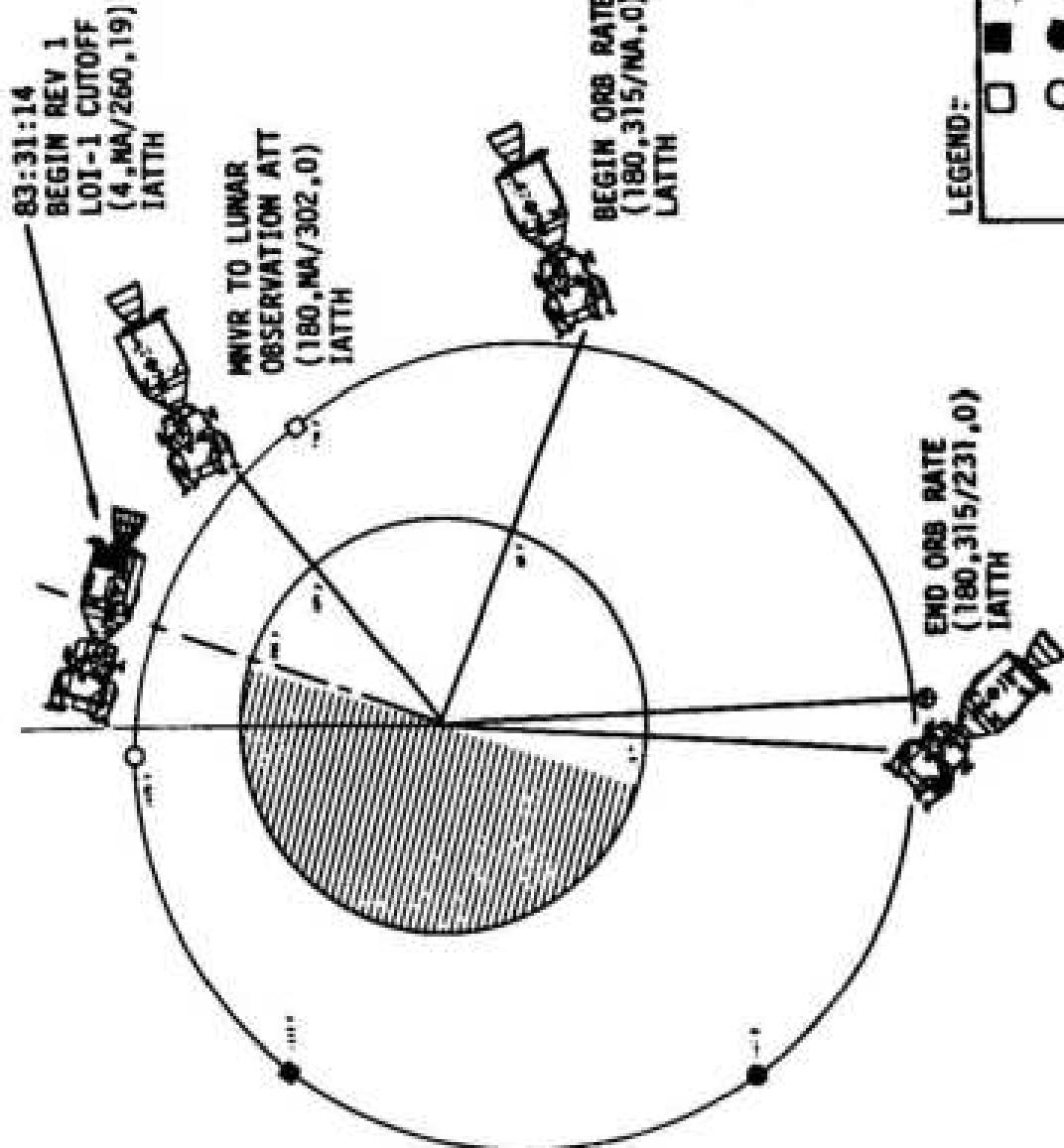
P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TAKEOVER	+10° TAKEOVER	BT + 10 SEC	DO NOT TRIM

L0I-1 ABORT TABLE
TABLE 3-7

MODE 1 (DPS ONLY)	MODE 1A (DPS+APS)	MODE 1A (DPS+APS)	MODE 11 (DPS ONLY)	MODE 111 (DPS ONLY)
0-20 SEC. BT L0I + 0.5HR.	20-40 SEC. BT L0I + 2HR.	40SEC-1MIN 30SEC-2MIN L0I + 2 1/2 HR.	2MIN 24SEC - END OF BURN L0I + 3HR.	2MIN 50SEC - END OF BURN L0I + 4HR.
0-20 SEC. BT L0I + 2HR. MCC-H TGT.	20-40 SEC. BT L0I + 0.5HR. CREW CHART TGT MCC-H TGT.	40SEC-1MIN 30SEC-2MIN L0I + 2 1/2 HR. CREW CHART TGT MCC-H TGT.	DPS 1 # L0I + 2HR DPS 2 # L0I + 1REV MCC-H TGT.	DPS 1 # L0I + 2HR DPS 2 # L0I + 1REV MCC-H TGT.
			*APS # L0I + 2 1/2 HR. MCC-H TGT CREW CHART TGT MCC-H TGT.	*APS ASAP AFTER DPS 2 (CONT. OF DPS 2)

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REV 1



REVISION B

3-59A

FLIGHT PLAN

2122 CST

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E&I/MO-FG 101-1

- 83 : 0

T H S F H T

ROLL TO BURN ATT R 4
P 261
SXT STAR CHECK Y 19
VERIFY DSE MOTION AT LOS

GDC ALIGHI TO THU

三

R-3

REV

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58
00
00
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100

MISSION

THE THREE 33 (1973)

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- * ITEMS TO BE REPORTED TO MSFM
 - ** REPORT IF OFF MORE THAN ONE SECOND
 - *** REPORT IF >0.2 FPS
- * LOI-1 WILL BE STARTED WITH THE SPS PU VALVE IN INCREASE

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	03:00 - 04:00	4/1	3-60

REVISION A

FLIGHT PLAN

22222 CST

100

CH 4/TY - IN(122)

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CH 4/TW - IH(F22)

UE 30

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85

MSC Form 29 or (Mar. 69)

LIGHT PLUMES 1101

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
App 19 12	FINAL (NOV 14)	OCTOBER 15, 1969	84:00 - 85:00	4/1	3-61

WHP UPDATE REV	2
LOS :	-----
180° :	-----
ADS :	-----

UPDATE TO CSM

STOP DRILL RATE PITCH AT 231 MDG 60 INERTIAL R 180 HED AY 84:7 Y-28

ENT EBBING

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REV 2

85:31:20
BEGIN REV 2
(180,NA/231,0)
LATTH

MMVR TO L01-2
BURN ATT
(0,NA/231,0)
LATTH

BEGIN THRU REALIGN
(180,NA/231,0)

3-61A

REVISION B

LEGEND:

- □ S/C SUNRISE, SUNSET
- ⊕ SUBEARTH POINT

(R,LHP/IMP,Y)

LATTI - INERTIAL ATTITUDE UNIT
LATTH - LOCAL ATTITUDE UNIT

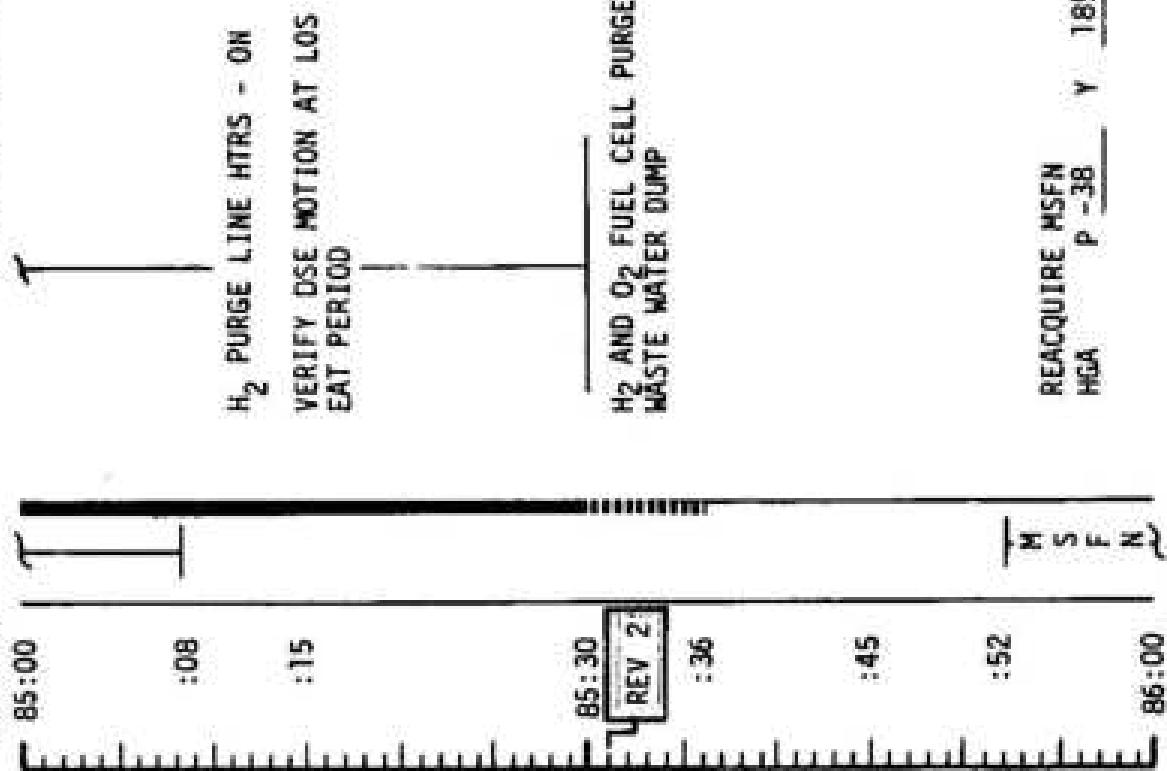
CDS

MCC-N

FLIGHT PLAN

2322 CST

NOTES



MSC Form 70 (Rev. 69)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE	REVISION
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	85:00 - 86:00	4/1	3-62	A

Dose Motion

FLIGHT PLAN

0022 C5T

三

C5M STIMULUS VECTOR

LOT-2 TARGET LOAD

UPONITE TO CSM

REF ID: A1120000000000000000000000000000

4

四

10

88

卷之三

הנתקה מכם

Page 142 of 165

OP - PRE LOI - 2 SYSTEMS CHECKS

CIN CHECK	SIS PERIODIC MONITOR CHECK
CH RCS CHECK	ECS PERIODIC MONITOR CHECK

MISSION	EDITION	DATE	TIME	DAY/REVIEW	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	06:00 - 07:00	4/2	3-63

MAP UPDATE REV	<u>3</u>
LOS :	— : —
180° :	— : —
AOS :	— : —

TEI 5 DOCUMENTATION
ASSUMES LOI-1 IS MCGRULES

100

FLIGHT PLAN

L01-2
BURN TABLE

P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TAKEOFF	+10° TAKEOFF	BT + 1 SEC	TRIM X AXIS TO 1 FPS

TABLE 3-B
3-64

REV 3

87:44:10
L01-2 BURN 16N
(0,NA/231,0)
LATTH

87:39:31
BEGIN REV 3
(0,NA,231,0)
LATTH

PWVR FOR COMM
(180,NA/269,0)
LATTH

BEGIN IMU REALIGN
(180,NA/269,0)

LEGEND:

- | | |
|--------------------------------|---------------------------------|
| □ | XSFN AOS, LOS |
| ○ | S/C SUNRISE, SUNSET |
| ⊖ | SUBEARTH POINT
(R,LHP/LNP,Y) |
| LATTH - INERTIAL ATTITUDE HOLD | |
| LATTH - LOCAL ATTITUDE HOLD | |

REVISION B

3-64A

0122 CST

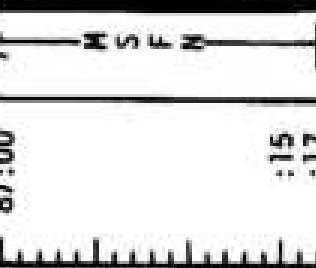
FLIGHT PLAN

MCC-M

PIPE BINS CHECK

DRIFT CHECK

REPORT GYRO TORQUING ANGLES
 PRO EXTERNAL AV
 LOAD DAP FOR 2 JET ULLAGE (20101) (11111)
 Y49 MMWR TO LOI-2 BURN ATT BY 87:15
 SXT STAR CHECK
 P4D - SPS THRUST
 VERIFY DSE MOTION AT LOS

00/MO GO FOR
LOI-2

P52 (LDG SITE ORIENT)

N71:
 N05:
 N93:
 X
 Y
 Z
 GET

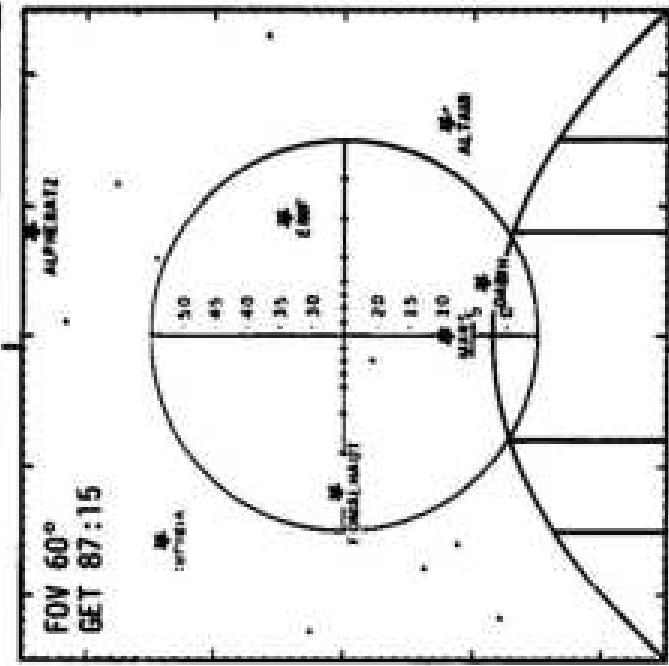
FON 60°
 GET 87:15

TIG: 87:44:10.0
 BT: 17.6 SEC
 AVR: 169.6 FPS
 ULLAGE: 2 JET 19.0 SEC
 RETROGRADE
 ORBIT: 64.9X53.0
 TRIM X AXIS TO 1 FPS

GDC ALIGN TO IMU

LOI-2

REV 3



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1966	87:00 - 88:00	4/2-3	3-65

EST TIME TO REACH 80

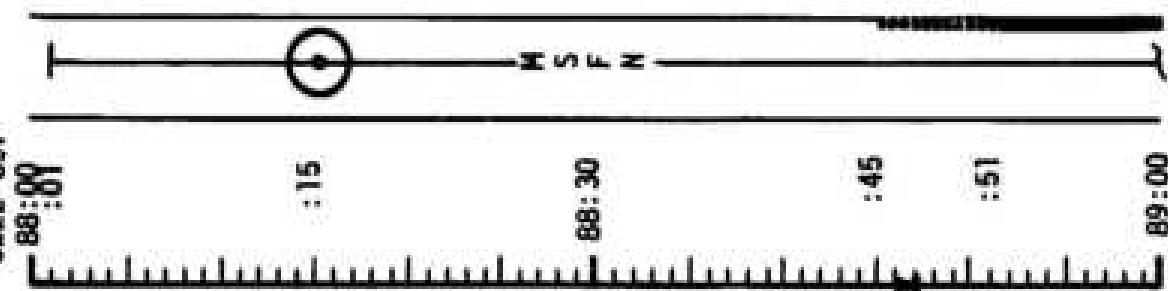
MISSION PLANNING MEETING

HABPA — MCC

ACC-N

FLIGHT PLAN

0222 CST



HWVR TO COMM ATTITUDE AND
GD INERTIAL R 180 HGA
BY 08:00 P 269 P -71
Y 0 Y 206

BATTERY CHARGE, BATTERY B

LOI -2 BURN STATUS REPORT

EQUALIZE CH/LN PRESSURE
TUNNEL VENT VALVE - LN PRESS

UPDATE TO CSM
LDMK TRACK PAD
HWP UPDATE REV 4

LIOH CANISTER CHANGE NO. 8
10 INTO 8, STOW 8 IN BE

BURN STATUS REPORT		
X X	□	ATIG**
X X	□	BT**
X X	□	V gx
	●	TRIM
X X	X	R
X X	X	P
X X	X	Y
	●	V ***
	●	V gx
	●	V ***
	●	V gy
	●	V ***
	●	AV *
	●	C
	●	FUEL*
	●	OX*
	●	UNBAL

MAP UPDATE REV 4		
LOS :	—	:
180° :	—	:
AOS :	—	:

*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 12	FINAL (NOV 14)	OCTOBER 15, 1969	08:00 - 09:00	4/3	3-66

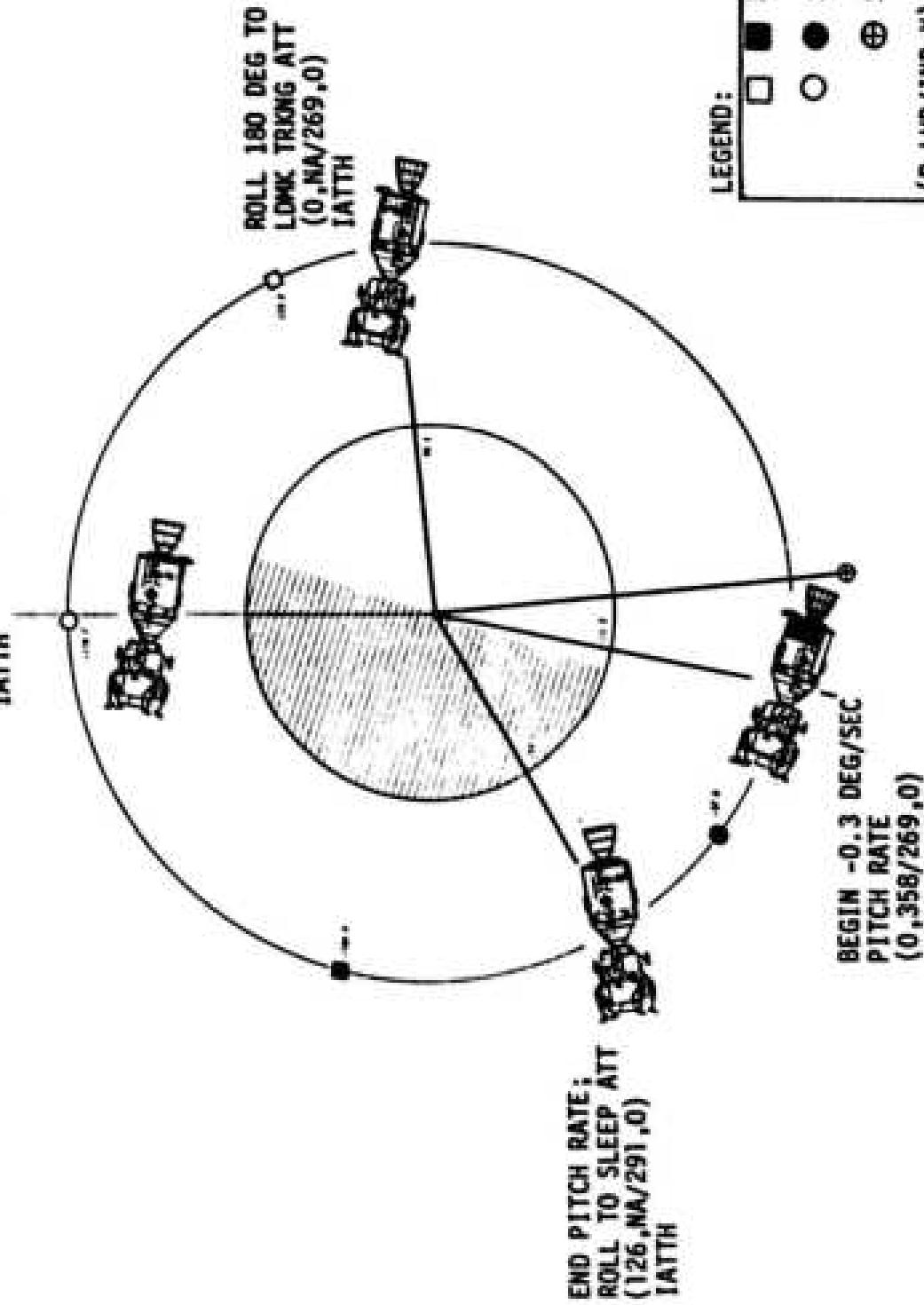
USE PAGE 38 (REV 30)

PUSHIN FORWARD RETURN

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REV 4

09:37:41
BEGIN REV 4
(180, NAV/269, 0)
IATT



REVISION B

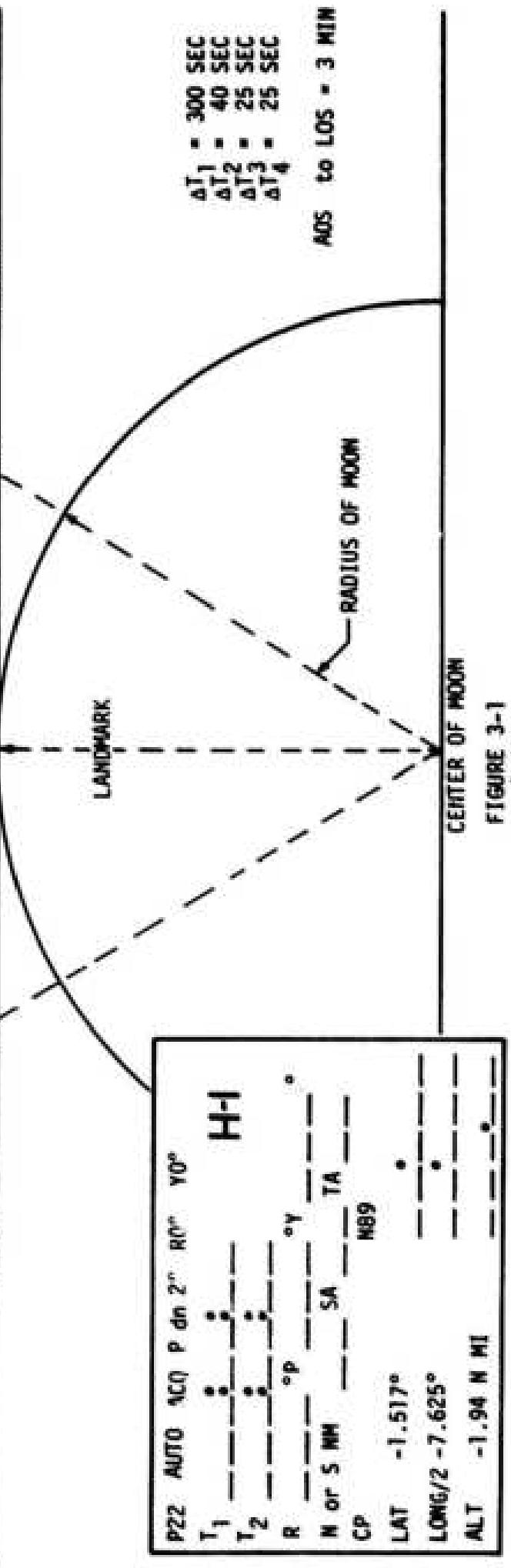
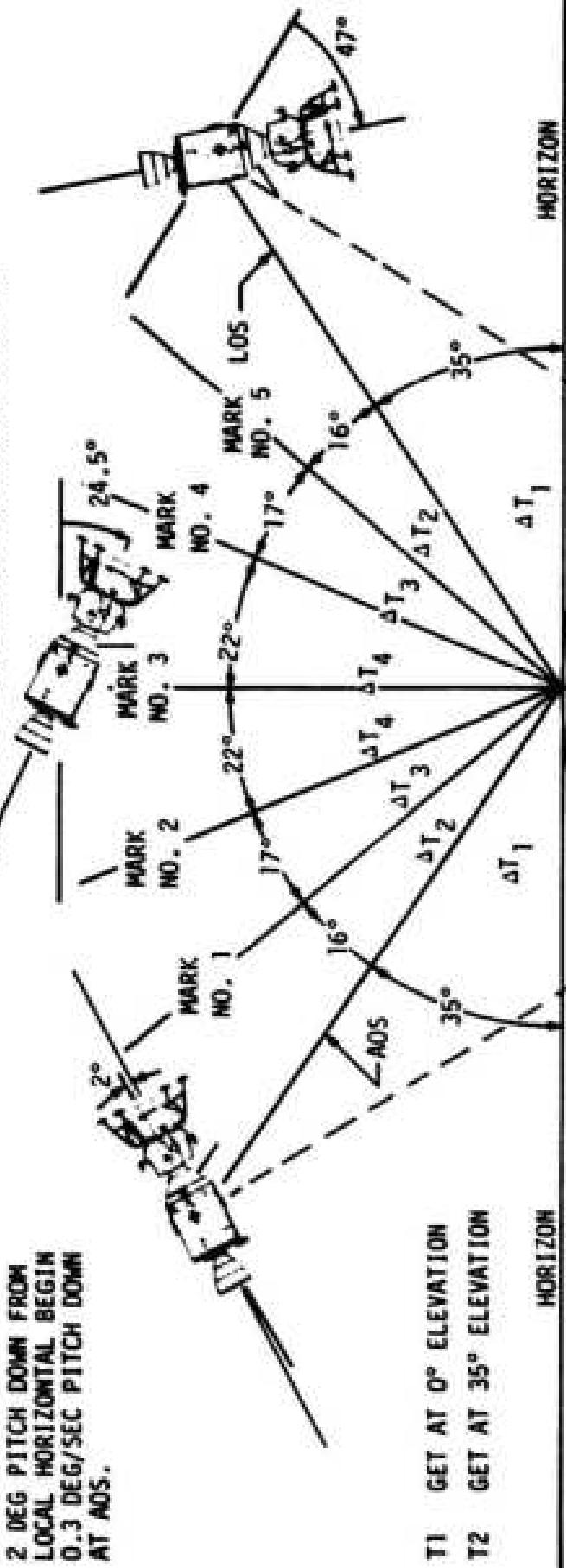
3-66A

FLIGHT PLAN

H-CH

REACQUIRE MSFN
HGA P -71 Y 20

DOCKED LANDMARK TRACKING PROFILE



PZ2	AUTO	1C0	P dn 2°	R0°	Y0°	H-H
T ₁	—	•	•	•	•	•
T ₂	—	•	•	•	•	•
R	—	•	•	•	•	•
N or S MM	—	SA	—	TA	—	—
CP	—	—	—	HB9	—	•
LAT	-1.517°	—	—	—	—	•
LONG/2	-7.625°	—	—	—	—	•
ALT	-1.94 N MI	—	—	—	—	•

FIGURE 3-1
3-68

FLIGHT PLAN

CSM
CNP

0422 CST

ROLL 180 DEG TO
ATTITUDE BY 90:06
P22 ORBITAL MY
ESTABLISH 0.3 SEC
GO IMERTIAL
Y 269

90:00

COR

LMP

MCC-H

PITCH DOWN 0.12
ESTABLISH 0.3 SEC
DO NOT PRO ON
TRACK LDMK H-1

AID LMP AS REQUIRED

TRANSFER TO LINE POWER

C/N ACTIVATION

VOICE IN TM TEST

REPORT OPS SOURCE

REISSUE
MISSION

MISSION	EDITION	DATE	TIME	DAV/REV	PAGE
FLIGHT PLANNING BRANCH MSC Proc 2189 (or) (Rev 69)	APOLLO 12	FINAL (Nov 14)	90:00 - 91:00	4/4	3-69

FLIGHT PLANNING BRANCH

MSC Proc 2189 (or) (Rev 69)

FLIGHT PLAN

CSM

CMP

0522 CST

LOAD DAP R1(2110)R2(1111)
Y21 N01
3255E
1616E
CSM POWER TO LM-ON
(AT LMP REQUEST)

91:00
H S F N
T
VERFY DSE MOTION
AT LOS
INSTALL DROGUE & PROBE

INSTAL CSM HATCH

91:30

:36

REV 5

:42

EAT PER100

:45

92:00
T
:58

MCC-H

LM

CDR

AID LM AS REQUIRED

IWT TO CSM

COM DEACTIVATION

TRANSFER TO CSM POWER

LMP IWT TO CSM
CLOSE LM HATCH

UPDATE TO CSM

TEJ T1 PAD
MAP UPDATE REV 5

UPLINK TO CSM
STATE VECTOR & V66

MAP UPDATE REV 5

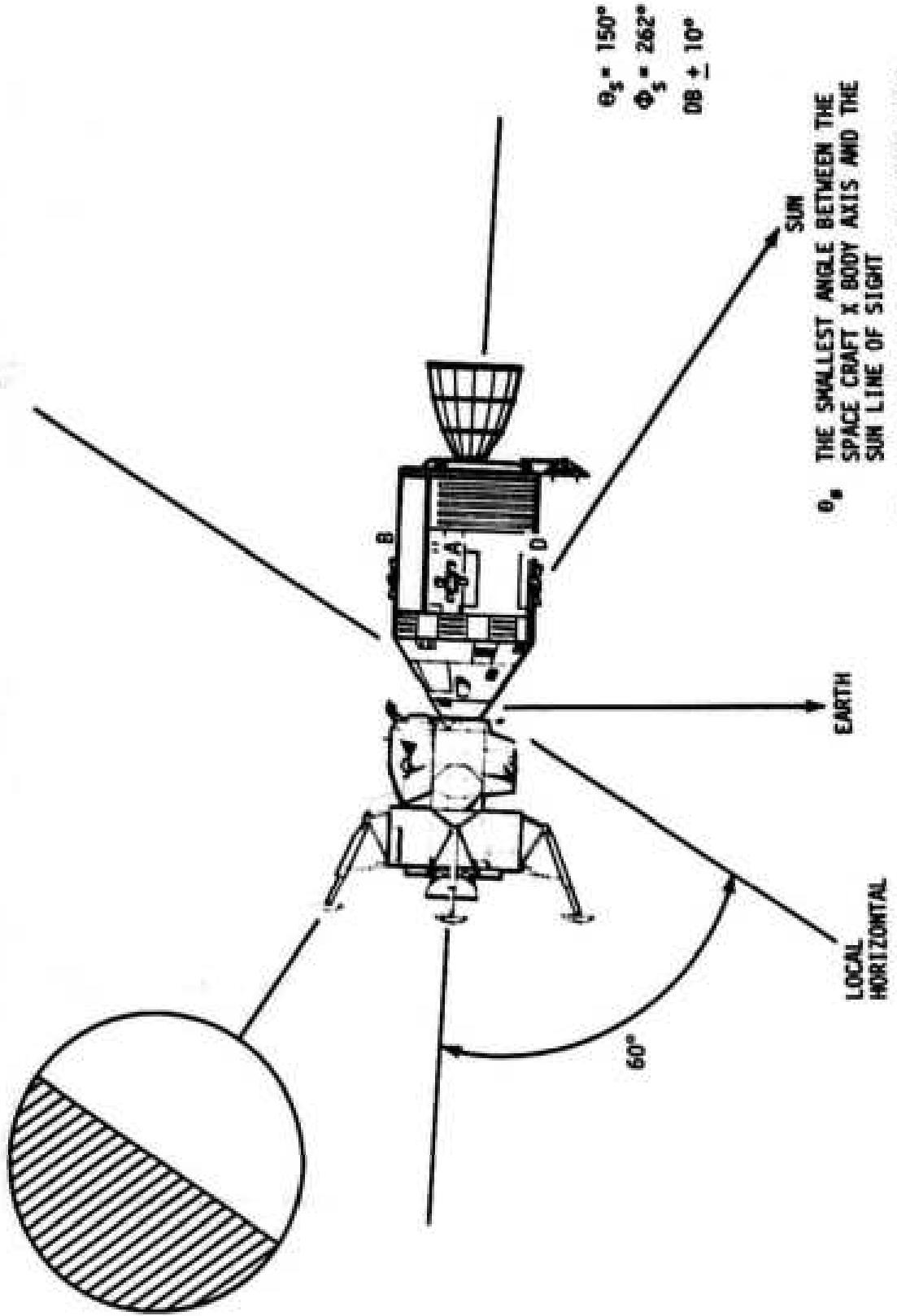
LOS : _____
180° : _____
ADS : _____

PRESLEEP CHECKLIST
E-PERIOD DUMP

CREW STATUS REPORT (medication)
ONBOARD READOUTS TO MSFN
CYCLE H2, 02 FANS
CHLORINATE WATER
VERIFY
WASTE MNGT OVBD DRAIN v1v - OFF
WASTE STOW VENT v1v - CLOSED
EMER CABIN PRESS v1v - BOTH
SURGE TK 02 v1v - ON
REPRESS 02 v1v - OFF
LM TUNNEL VENT v1v - LM PRESS
NORMAL LUNAR CDM EXCEPT
S BD SQUELCH - ENABLE
HI GAIN ANTENNA TRACK - REACQ
HI GAIN ANTENNA BEAM - NARROW
S BD ANT - HI GAIN

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	91:00-92:00	4/4-5	1-70

LUNAR ORBIT REST PERIOD ATTITUDE



- THE SMALLEST ANGLE BETWEEN THE SPACE CRAFT X BODY AXIS AND THE SUN LINE OF SIGHT
- THE ANGLE WHICH IS MEASURED FROM THE HINUS Z SPACECRAFT BODY AXIS POSITIVELY ABOUT THE X BODY AXIS TO THE SUN LINE OF SIGHT VECTOR PROJECTION IN THE Y - Z AXIS PLANE

FIGURE 3-2
3-71

0622 CST

FLIGHT PLAN

MCC-N

DUMP DSE

92:00

1

EAT PERIOD

:15

92:30

:42

:45

93:00

REST PERIOD
(9.5 HOURS)

ONBOARD READOUT	
BAT C	
PYRO BAT A	
PYRO BAT B	
RCS A	
B	
C	
D	
DC IMD SEL - MMH OR B	

REST
ATT

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	92:00 - 93:00	4/5	3-72

FLIGHT PLANNING SEARCH

NBC Form 21 (Rev. 69)

MCC-14

FLIGHT PLAN

0722 CST

93:00

:10

:30 :34

:41

DUMP DSE

:56 :56:00

REV 6

:30

:41

:47

95:00

REST PERIOD
(8.5 HOURS)

REST ATT

EST TIME TO (EST 00)

Flight Plan Status: DRAFT

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
Apollo 12	FINAL (NOV 14)	OCTOBER 15, 1969	93:00-95:00	4/5-6	3-73

FLIGHT PLAN

0922 CST
95:00

MEC-H

REV 7

:33 :40

:54 96:00

DUMP DSE

:39 :45

97:00

REST PERIOD
(8.5 HOURS)

REST
ATT

NOTES

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	95:00 - 97:00	4/6-7	3-74

MSC Form 29 (Rev. 66)

FLIGHT PLANNING LAUNCH

FLIGHT PLAN

NOTES

1122 CST

97:00

:10

T

REV 8

:32

:38

:52

98:00

DUMP DSE

:38

:38

99:00

REST PERIOD
(8.5 HOURS)

REST
ATT

REST PERIOD
(8.5 HOURS)

REST
ATT

T

H

S

F

H

N

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	97:00 - 99:00	4/7-8	3-75

NET TIME TO (000, 00)

FLIGHT PLANS AND SCHEDULE

MCC-N

FLIGHT PLAN

1322 CST

99:00 :05

T

REV 9

:30

:37

:51

100:00

T

H

S

F

H

:30

:36

:43

101:00

T

DUMP DSE

REST PERIOD
(8.5 HOURS)

REST ATT

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	99:00 - 101:00	4/B-3	3-76

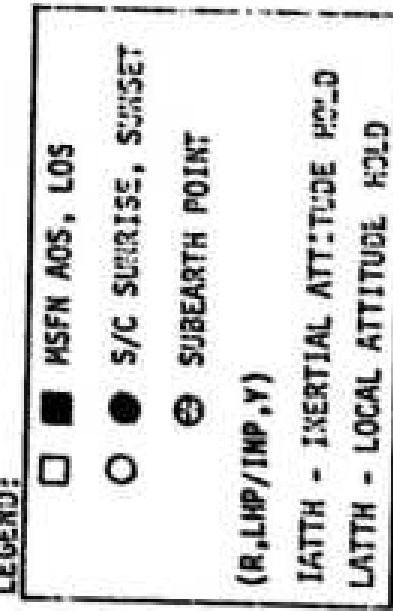
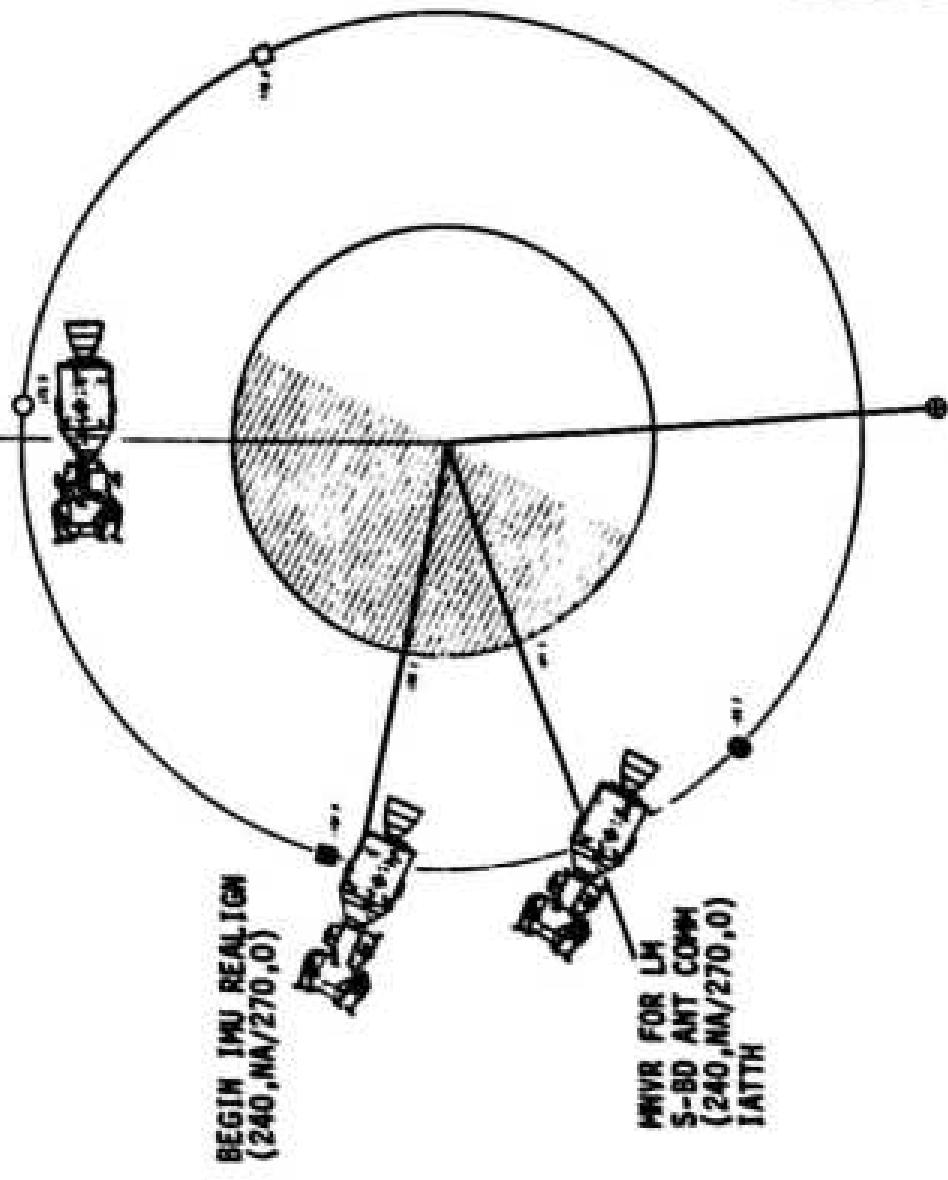
EIC Rev 10 (ver 40)

FLIGHT PLANNING MANUAL

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REV 10

101:27:19
BEGIN REV 10
(126,NA/291,0)
LATTH



REVISION B

3-76A

MCC-H

FLIGHT PLAN

1522 CST
101:00

:03

T
VERIFY DSE MOTION AT LOS

:15

REV 10

101:38

WASTE WATER DUMP
02 FUEL CELL PURGE
EAT PERIOD

:35

:45

:49

102:00

T
S
F
H
T

DUMP DSE

CSM CONSUMABLES UPDATE		
GET:	—	—
RCS TOTAL	—	—
QUAD A	—	—
C	—	—
H ₂ TOTAL	—	—
O ₂ TOTAL	—	—

CREW STATUS REPORT		
COR	CNP	LMP
SLEEP	—	—
PRO	—	—

POSTSLEEP CHECKLIST		
CREW STATUS REPORT	—	—
CONSUMABLES UPDATE	—	—
FLIGHT PLAN UPDATE	—	—
CYCLE H ₂ • 02 FANS	—	—
PORT H ₂ O HTR 8H	—	—
NORMAL LUNAR COMM EXCEPT:	—	—
S BD ANT - HI GAIN	—	—
CREW MANAGES ANT OPS	—	—

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	101:00 - 102:00	5/9-10	3-77

FLIGHT PLAN

1622 EST

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	102:00 - 103:00	5/10	3-78

160 11 59 01 35

1722 CS1

103:00 - 104:00

CMM

CDR

FLIGHT PLAN

VERIFY DSE MOTION AT LOS
LMP

MCC-H

OPTION 1 - (PREFERRED)

PSL - IMU REALIGN

:15

DON PSL

W/O HELMET & GLOVES



:27

103:30

EQUALIZE CM/LM PRESSURE

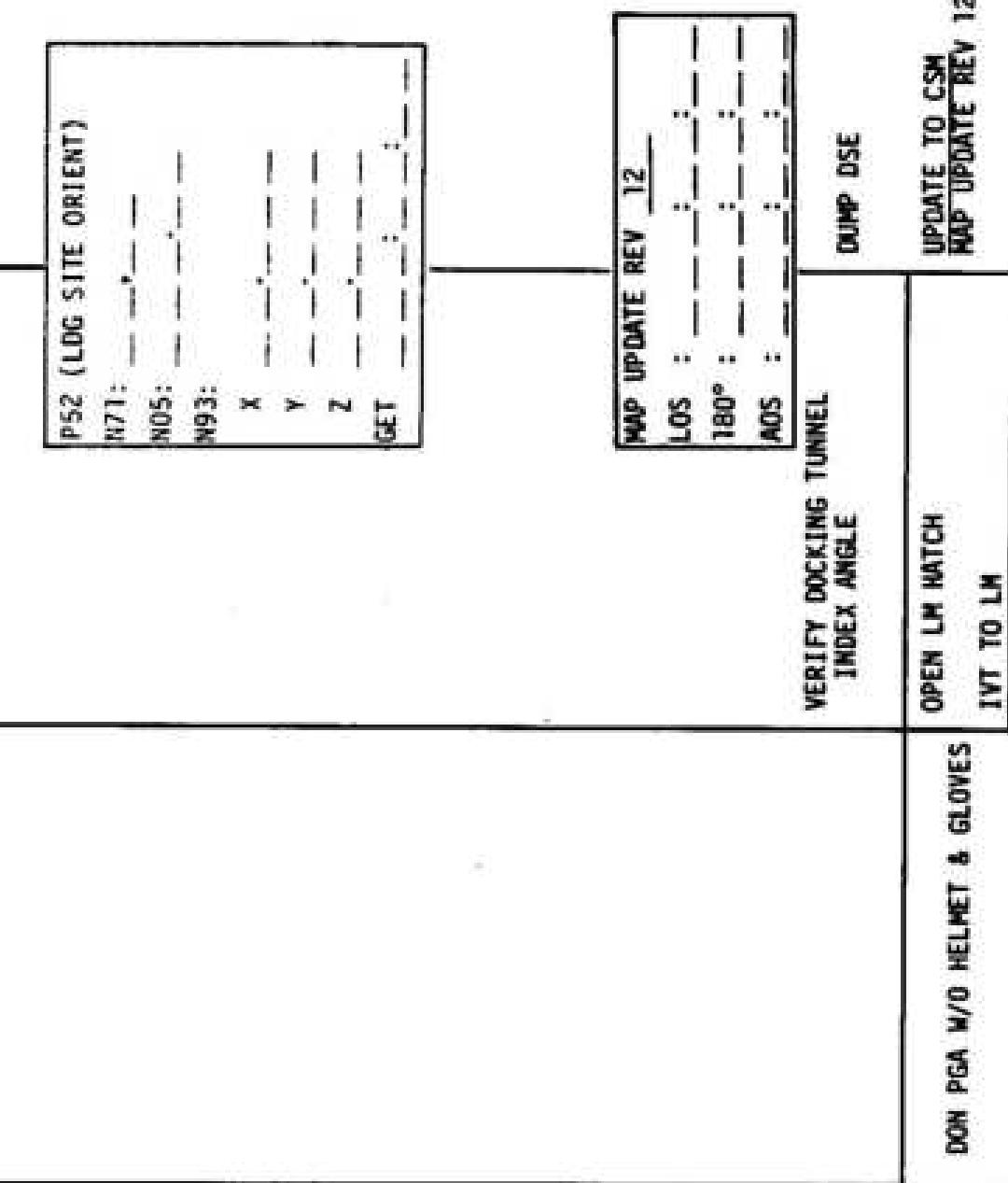
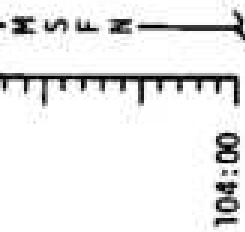
:34

OPEN & STOW CM HATCH
REMOVE & STORE PROBE & DROGUE
CHECK LATCHES
REQUIRE MSFN
HGA: P-35, Y117

REPORT DOCKING TUNNEL
INDEX ANGLE
T
S
F
N

:45

104:00



MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	103:00 - 104:00	5/10-11	3-79

Rev 11 - 0458 (Rev 69)

FLIGHT PLANNING BRANCH

FLIGHT PLAN

18222 CST

CMP

CDR

LMP

MCC-C

OFF AT LMP'S REQUEST

CSM POWER TO LM

DON PGA

W/O HELMET & GLOVES

LM FAMILIARIZATION &
HOUSEKEEPING
(IF NECESSARY)

CONFIGURE CAMERAS FOR
UNDOCKING
CM2/DAC/18/CEX-BRKT-MIR
(f8,250,7) 6fps, 16 MIN
CM4/TV-IN BRKT (f22)

CONFIGURE BASE-CEM-THRUSTERS

CM2/EI/BD/CEX
(f8,250,50) 10
+THREHT-BASE-CEM-THRUSTERS

:15
H S F N
LW CLOCK SYNC: V06NNS
T EPHEM: V05SHDE 1706E
LM VHF CHECKOUT:
VHF AM(B)-SIMPLEX
VHF RCV ONLY-B DATA
VHF AM(B)-OFF
VHF AM(A)-SIMPLEX
V06M20E
(ON CDR'S MARK)

MIN DB FOR LM ALIGN

VERIFY DSE MOTION AT LOS

RECORD LM PCM DATA

:40
H S F N
LW CLOCK SYNC: V06NNS
T EPHEM: V05SHDE 1706E
LM VHF CHECKOUT:
VHF AM(B)-SIMPLEX
VHF RCV ONLY-B DATA
VHF AM(B)-OFF
VHF AM(A)-SIMPLEX
V06M20E
(ON CDR'S MARK)

MIN DB FOR LM ALIGN

VERIFY DSE MOTION AT LOS

RECORD LM PCM DATA

:45
H S F N
DOCKED IMU COARSE ALIGN
REPORT GIMBAL ANGLES
& TIME TO MSFN
FMD OMNI - LBR
SLEW STEERABLE ANT:
P 68, Y 19

DON PGA

:59
H S F N
IWT TO CSM

UPDATE TO LM
STEERABLE ANT Y's
(104:30)
(IF REQ'D)

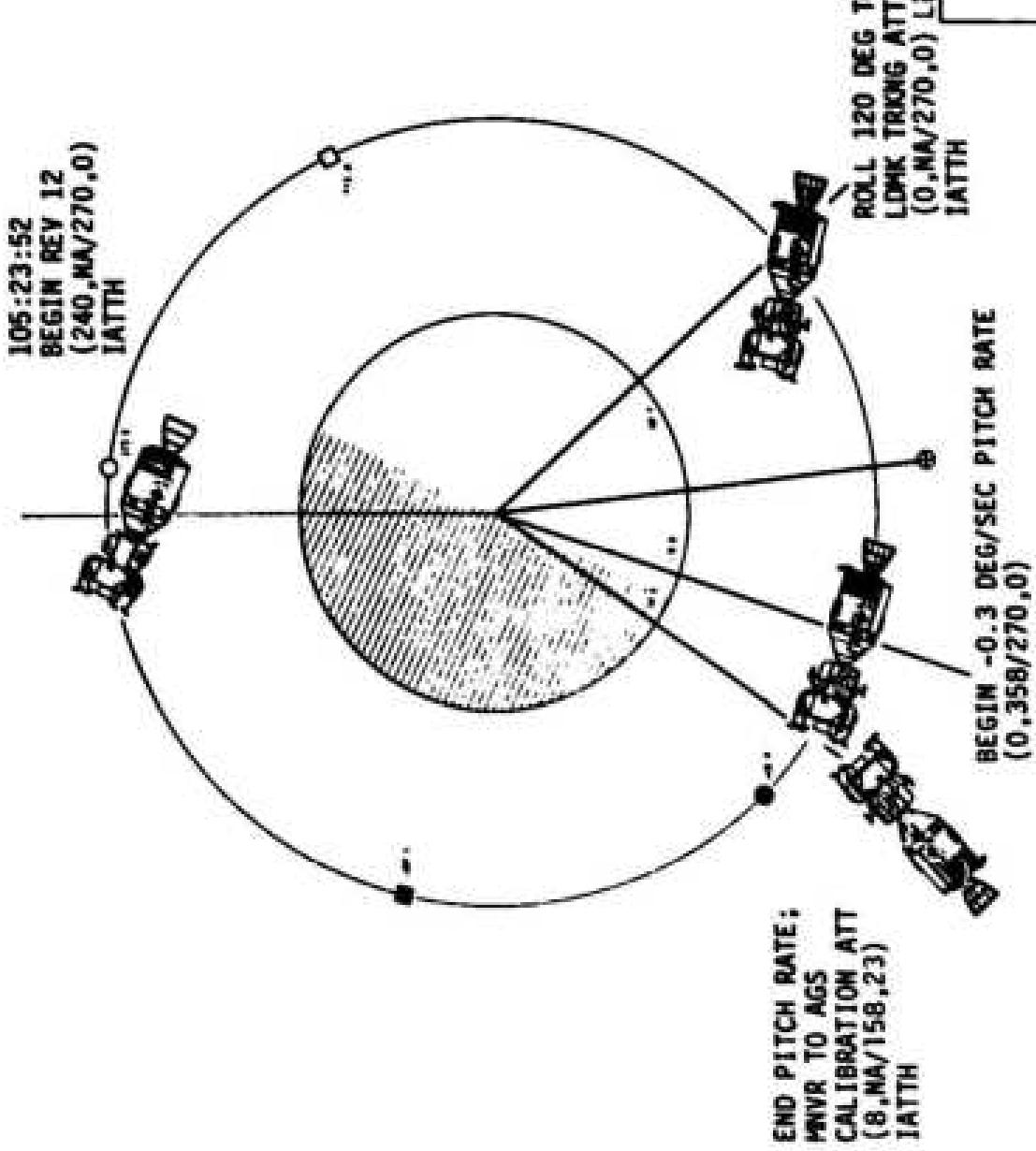
DON PGA

				TRANSFER TO LM POWER
				DON PGA
				W/O HELMET & GLOVES
				LM FAMILIARIZATION & HOUSEKEEPING (IF NECESSARY)
				EPS ACTIVATION S-BAND ACTIVATION MISSION TIMER ACTIVATION PRIMARY GLYCOL LOOP ACT
				CAUTION/WARNING C/O
				CB ACTIVATION
				TB VERIFICATION
				SEC S-BAND T/R & POWER AMPL CHECK
				S-BAND STEERABLE ANTENNA ACT: P 68, Y 19
				SUIT FAW/H2O SEP CHECK
				STEERABLE ANT Y's (105:49) (IF REQ'D)
				VHF CHECKOUT
				IWT TO CSM
				UPDATE TO LM STEERABLE ANT Y's (105:49) (IF REQ'D)
				DON PGA

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	104:00 - 105:00	5/11	3-80

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REV 12



3-80A

LATTH - LOCAL ATTITUDE HCD	(R,LHP/HIP,N)
LATTH - LOCAL ATTITUDE HCD	(S/C SURPRISE, SUNSET)
LATTH - LOCAL ATTITUDE HCD	SUBEARTH POINT
LATTH - LOCAL ATTITUDE HCD	MSFN AOS, LOS

REVISION B

FLIGHT PLAN

1922 CST

CSM

CMP

COR

LM

LMP

105:00

DON HELMET & GLOVES
PGA PRESSURE INTEGRITY
CHECK

:15

REV 12

:26

INHIBIT ROLL COMMANDS
UNTIL LM/CM P>3.5 PSID
INSTALL DROGUE & PROBE
PRELOAD PROBE
CLOCK LATCHES (12)
INSTALL HATCH
VENT TUNNEL
HATCH INTEGRITY
CONFIGURE PANEL 10
FOR CSM RELAY
CHECK

105:30 :32

CLOSE AND SECURE
HATCH

:45

T
DEPLOY LAUNCHING GEAR
W
POD & DATA FOR UPLINK
F
DOCKED IMU FINE ALIGN
W
VOG MODE ON MARK

106:00

MCC-H

DON PEA
IN CSM

IWT TO LM
TRANSFER HELMET & GLOVES

CONNECT TO LM ECS
& COMM

ASCENT BATTERY
ACTIVATION
AND C/O

RECORDED BMAT
VOLTS

AGS ACT & SELF TEST

STEERABLE ANTENNA:
P 68. Y 19

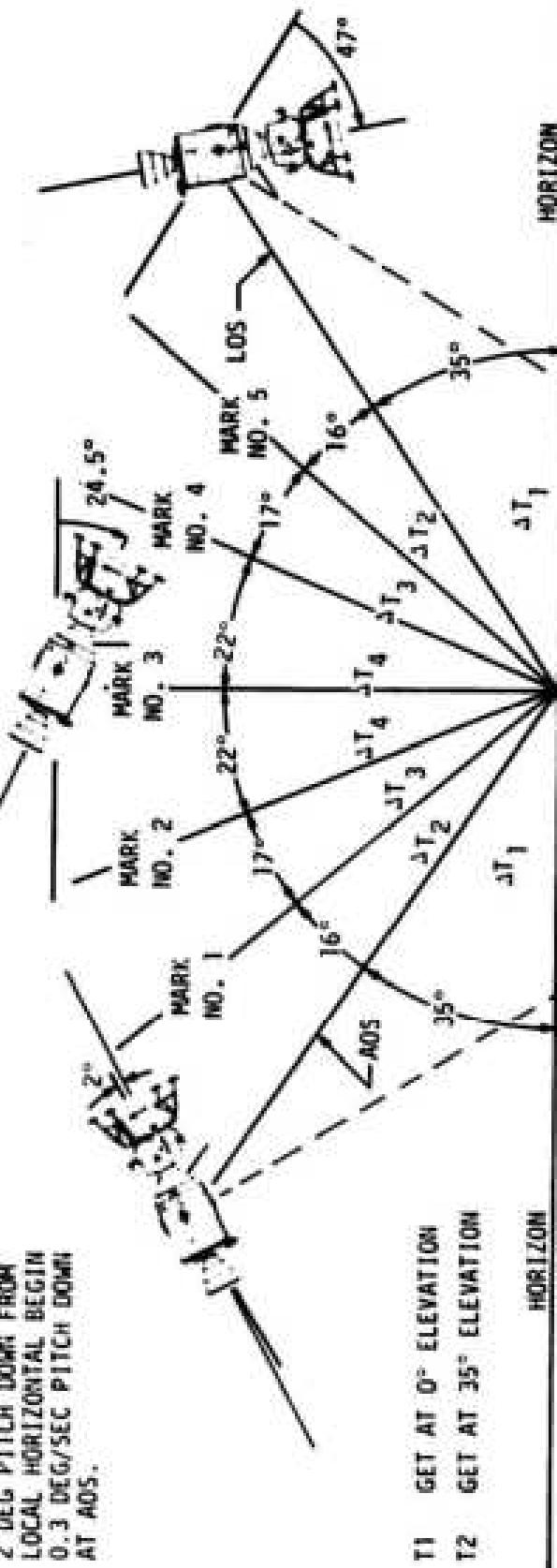
DUMP OSE
UPLINK TO CSM
CSM STATE VECTOR & VBS
UPDATE TO LM
DAP DATA
GYRO TORQUING #'S

AGS INITIALIZATION

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	105:00 - 106:00	5/11-12	3-81

DOCKED LANDMARK TRACKING PROFILE

2 UEG PITCH DOWN FROM
LOCAL HORIZONTAL BEGIN
0.3 DEG/SEC PITCH DOWN
AT AOS.



P22	4400	1C0 P dn 2° 40° 10°	193
T ₁	—	—	—
T ₂	—	—	—
R	—	—	—
N or S NM	—	SA	TA
			N89
LAT	-3.437°	—	—
LONG/2	-11.614°	—	—
ALT	-1.37 NM	—	—

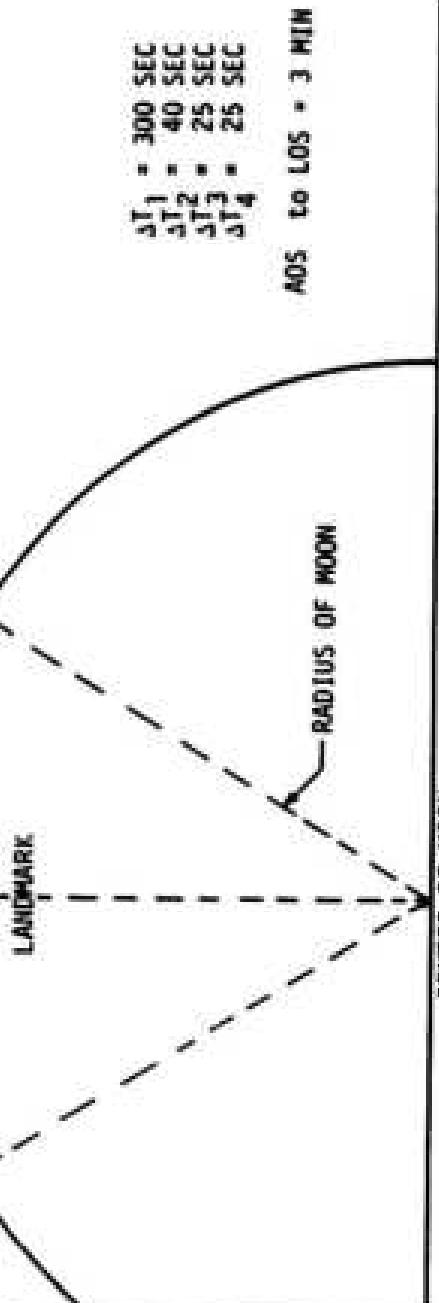


FIGURE 3-1

3-82

FLIGHT PLAN

MCCC-H

2022 CST

CSM

CMP

LM

CDR

UPLINK TO LM

LS REFRESHAT
LM SV & V66
LGC/CMC CLOCK SWIC
PIPA BIASS
LGC ABORT CONSTANT
E-MEMORY UPDATE
(IF REQ'D)
UPDATE TO CSM

SEP TIME 6
UNDOCK TIME

UPDATE TO LM
AGS K FACTOR
AGS ABORT
CONSTANTS
STEERABLE ANT #1'S
(IF REQ'D)
UPDATE TO CSM

HAP UPDATE REV 13

106:00	DAP SET - GIMBAL & THROTTLE TEST LOAD DAP - 32022	LOAD AGS PAD
		SELECT OMNI-FWD
:15	RATE GYRO TEST VO6N20 ON MARK	SLEW STEERABLE ANT : P 104, Y 01 FOR AGS CAL PITCH ATT RCS PRESSURIZATION

RCS PRESSURIZATION

H S F N

S F N :32

H S F N

S F N :38

H S F N

S F N :45

H S F N

S F N :57

H S F N

S F N :107:00

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	106:00 - 107:00	5/12	3-83

FLIGHT PLANNING BRANCH

REVISION A

MCC-C

LM

2122 CST

CSM

CMP

RATE <0.1°/SEC
DISABLE THRUSTERS FOR
32 SEC (AT LMP'S REQUEST)
ENABLE THRUSTERS &
MAINTAIN RATE <0.1°/SEC
FOR 6 MIN
RE-ENABLE 83
VERIFY TUNNEL VENT
VALVE - OFF

107:00 :15

RR TRANSPONDER ACT
& SELF TEST

P30/P41 TO MANEUVER
TO UNDOCKING ATT
BY 107:40

R 180°, P 285°, Y 0°
HGA: P -75°, Y 216°
GDC ALIGN TO IMU
START CAMERAS
S/C CONTROL -
TV(GDS) 107:30 - 108:30
GO/NO-GO
LOAD DAP-CSM ONLY
R1=1102, R2=1111

~~RE-ENABLE-ENABLE-ENABLE~~
S/C CONTROL - CMC
STATION KEEP @ 40°
SOFT UNDOCK

COR

RR ACT & SELF TEST	107:00	AGS ACCELEROMETER & GYRO CALIBRATION
DON HELMET & GLOVES		AGS/PGM PRESSURE INTEGRITY CHECK

CABIN REGULATOR CHECK	107:30	CABIN REGULATOR CHECK
DPS PRESS & C/O	107:31	V47-AGS UPDATE & ALIGN CHECK
		STEERABLE ANT: P 132, Y 24° REACQUIRE MSFM PCM-HI
		PREPARE FOR UNDOCKING
		SOFT UNDOCK 107:54:22

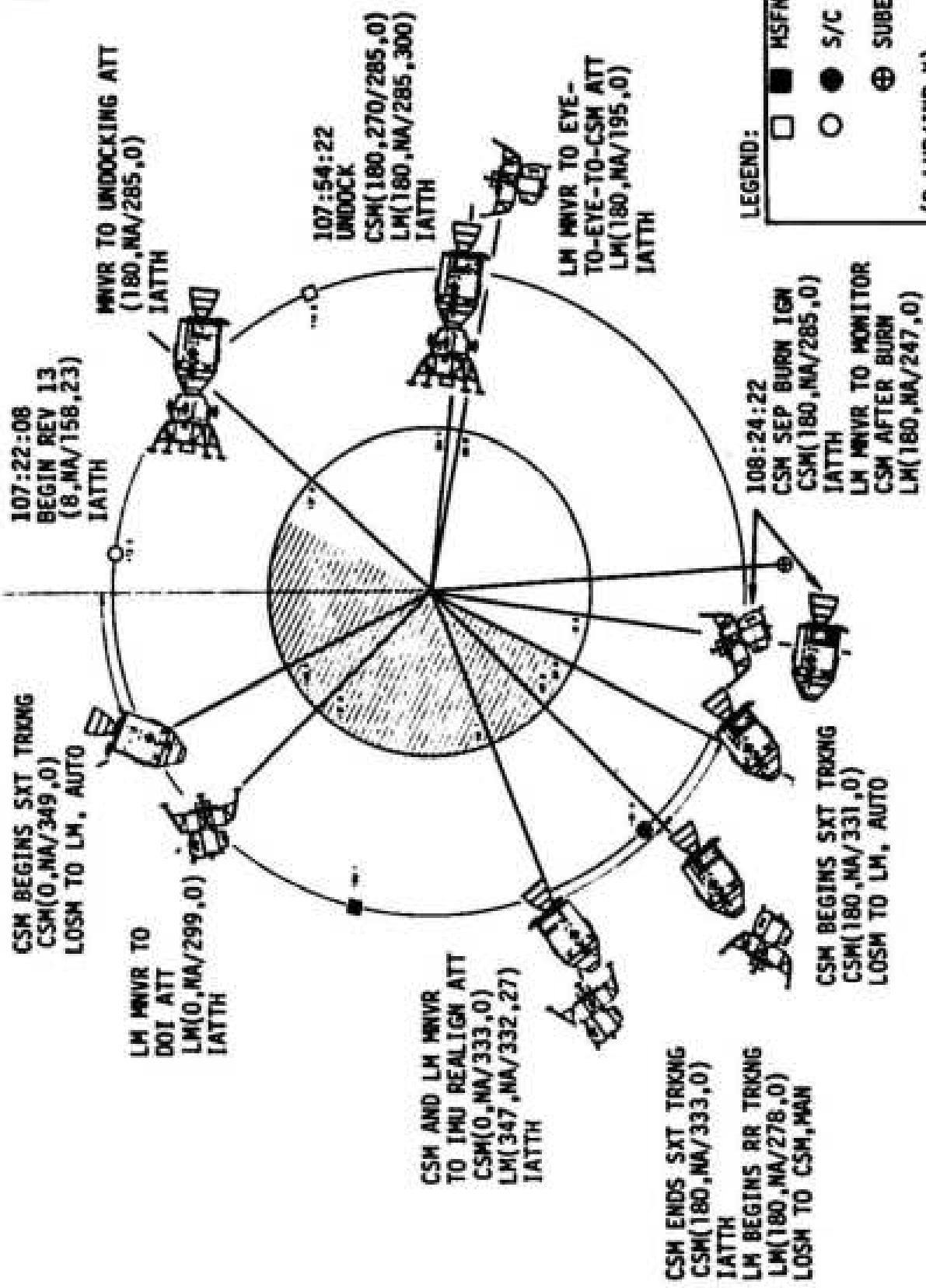
SOFT UNDOCK 107:54:22	108:00	YAW LEFT 60° PITCH UP 90° R 180°, P 195°, Y 0°
		STEERABLE ANT: P 71°, Y -52°
		GO/NO-GO FOR UNDOCKING

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	107:00 - 108:00	5/12-13	3-84

FLIGHT PLANNING BRANCH

REVISION A

REV 13

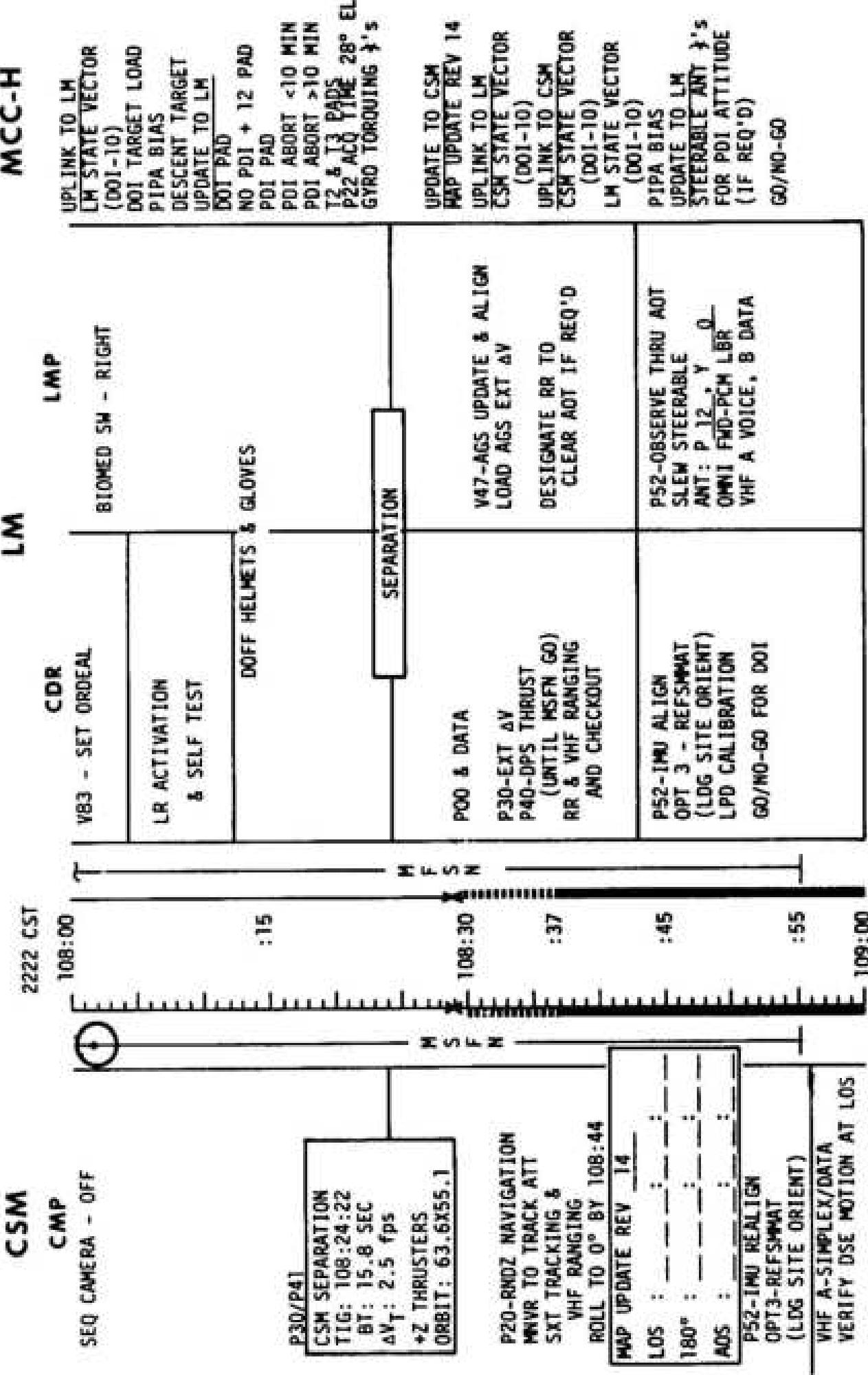


REVISION 8

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FLIGHT PLAN

MCC-H



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
Apollo 12 FINAL (Nov 14)	OCTOBER 15, 1969	108:00 - 109:00	5/13	3-85	FLIGHT PLANNING BRANCH

FLIGHT PLAN

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28

169:00
2322 C5T

GDC ALIGN TO INDIVIDUAL

P20-AUTO MMVR TO
SXT TRACK ATT

**CONFIRM DOI
P76-LOAD TARGET AW'S
P20-AUTO MNVR
SXT & VHF
TRACKING OF LM**

W64-ACQUIRE MSFN

APOLLO 12 MISSION EDITION FINAL (MAY 14)

DATE : NOVEMBER 15, 1960 FLIGHT P/N : 109-0001
TIME : 109:00 LINING BRANCH

SYSTEMS CHECKS		SYSTEMS CHECKS	
P40-DPS THRUST MMVR TO BURN ATT R 0 , P 299 , Y 0	V47-AGS UPDATE & ALIGN	DOI	
RR-ON	P20-MODE II LOCK-ON	RR-OFF	P20-MODE II LOCK-ON
P20-LATX AV LOAD PD1+12 ABORT	MMVR TO PD1 ATT BY 109:38 W63-COMMARE RR & CSW VHF RANGE	RR-ON	P20-MODE II LOCK-ON
RR-ON	MMVR TO PD1 ATT BY 109:38 R 0 , P109 , Y 0 WEIGHT CSW	P20-LATX AV LOAD PD1+12 ABORT	RR-ON DON HELMETS & GLOVES BATTERY 586 - ON SYSTEMS CHECK: DPS. APS. BCS, LPS, CMEA S-BD RANGING-OFF/RESET
	WHF A - VOICE/RNG WHF B - OFF	SET CAMERA LW/LWC/HLDX1,4,500,11HF)6PPS	
	S-BD STEERABLE ANT P 12 , Y 0 S-BD RANGING-RANGE B1030 SW-LEFT	WHF A - VOICE/RNG WHF B - OFF	
	D01 POST BURN REPORT C03 TO QVHD WINDOW P63-CHECK T1G	WHF A - VOICE/RNG WHF B - OFF	
	RR-ON	RR-ON	

PAGE
3-86

- 110:00

FLIGHT PLAN

CSM

CMP

2422 CST

1

CDR

T

110:00
UPLINK TO LM
LM STATE VECTOR
RLS

SEXTANT TRACKING

P63-AUTO MMVR TO PDI ATT

CONFIGURE EGRESS MODE
CHECK SYS CONFIGURATION

:15

LR-ON

GO/NO-GO FOR PDI
FINAL TRIM

ULL : 2 JFT , 7.5 SEC

PDI 110:20:00

POD, TRACK MANUALLY
60/NO-GO

T

P63 (FOR UPLINK)

UPLINK TO LM

LM STATE VECTOR

RLS

LM

P63 VENT

T

CONFIGURE EGRESS MODE
CHECK SYS CONFIGURATION

Y47-INITIALIZE AGS
TARGET AGS FOR ABORT

LM

P66

H S F N

EVALUATE MANUAL CONTROL

PITCH OVER AT P64

HR-OFF

START 16mm CAMERA

SYSTEMS MONITOR

UPDATE AGS ALT @ 6000'

LM

P68, P12

H S F N

TOUCHDOWN !10:31:19

PERFORM LUNAR CONTACT CHECKLIST

STAY/NO-STAY

LM

P58 VENT

H S F N

STAY/NO-STAY AT PDI +19

STAY/NO-STAY

STOP 16mm CAMERA

ASCENT BATTERIES OFF

REPORT DEDA 047.053

AGS LUNAR SURFACE

GYRO CALIBRATION

LOAD AGS ASCENT TARGET

LM

P57-IMU ALIGN

H S F N

OPT 3 - REFRESH

A/T 1 - GRAVITY

CONFIRM STAY/NO-STAY

CONFIRM STAY/NO-STAY

STOP PITCH: R 0, P79, Y 0

HGA : P₅₄, Y₁₃

IMU RANGING-OFF

WGS SITE ORIENT

VERIFY USE MOTION AT LOS

GDC ALIGN TO IMU

LM

P62

H S F N

REALIGN

OPT 3 - REFRESH

WGS SITE ORIENT

DOFF HELMETS & GLOVES

LM

P63

H S F N

REFRESH

WGS SITE ORIENT

DOFF HELMETS & GLOVES

LM

P64

H S F N

REFRESH

WGS SITE ORIENT

DOFF HELMETS & GLOVES

LM

P65

H S F N

REFRESH

WGS SITE ORIENT

DOFF HELMETS & GLOVES

LM

P66

H S F N

REFRESH

WGS SITE ORIENT

DOFF HELMETS & GLOVES

LM

P67

H S F N

REFRESH

WGS SITE ORIENT

DOFF HELMETS & GLOVES

LM

P68

H S F N

REFRESH

WGS SITE ORIENT

DOFF HELMETS & GLOVES

LM

P69

H S F N

REFRESH

WGS SITE ORIENT

DOFF HELMETS & GLOVES

LM

P70

H S F N

REFRESH

WGS SITE ORIENT

DOFF HELMETS & GLOVES

MISSION EDITION DATE TIME DAY / REV PAGE

APOLLO 12 FINAL (NOV 14) OCTOBER 15, 1969 110:00 - 111:00 5/14

3-87

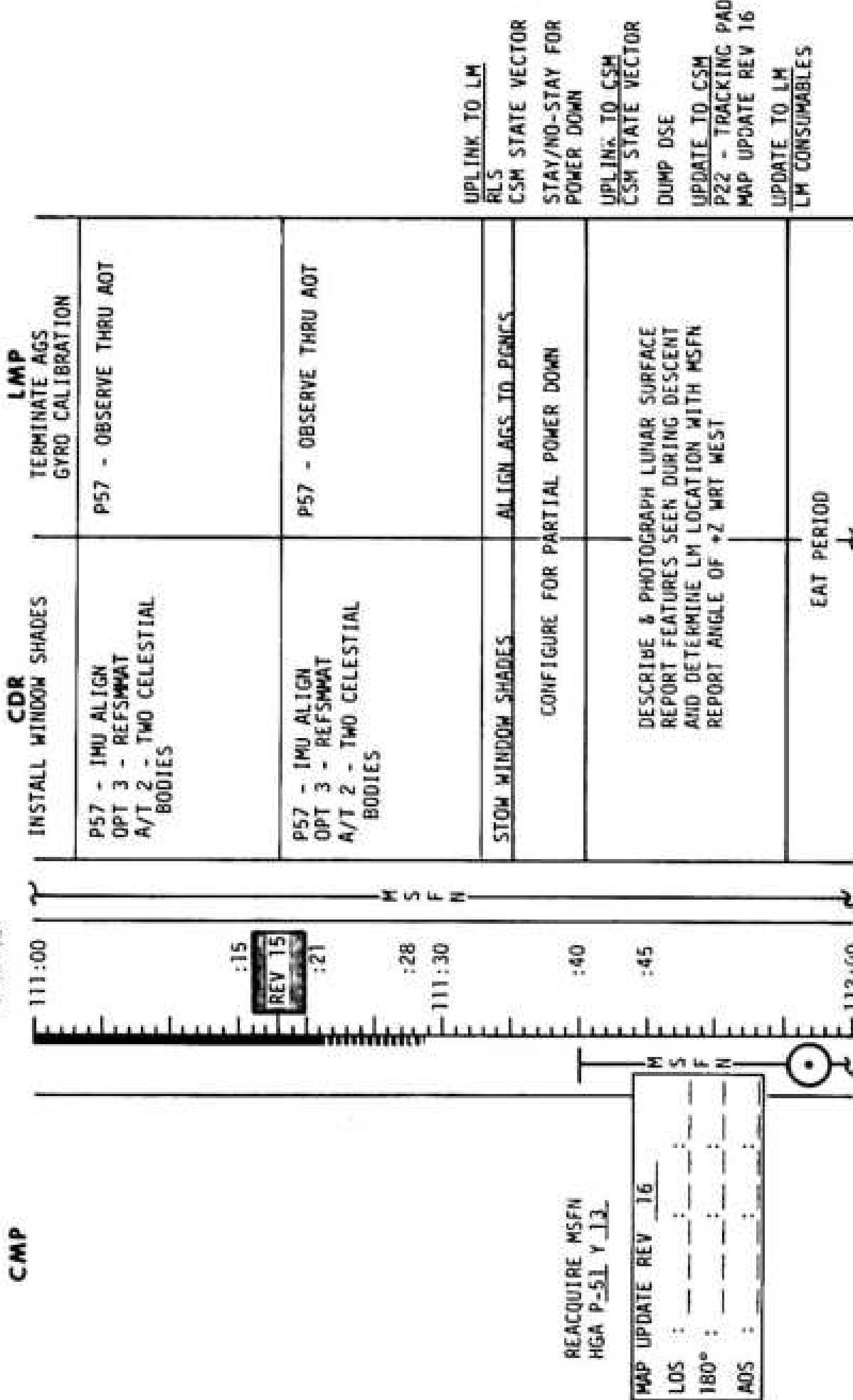
FLIGHT PLANNING BRANCH

REVISION A

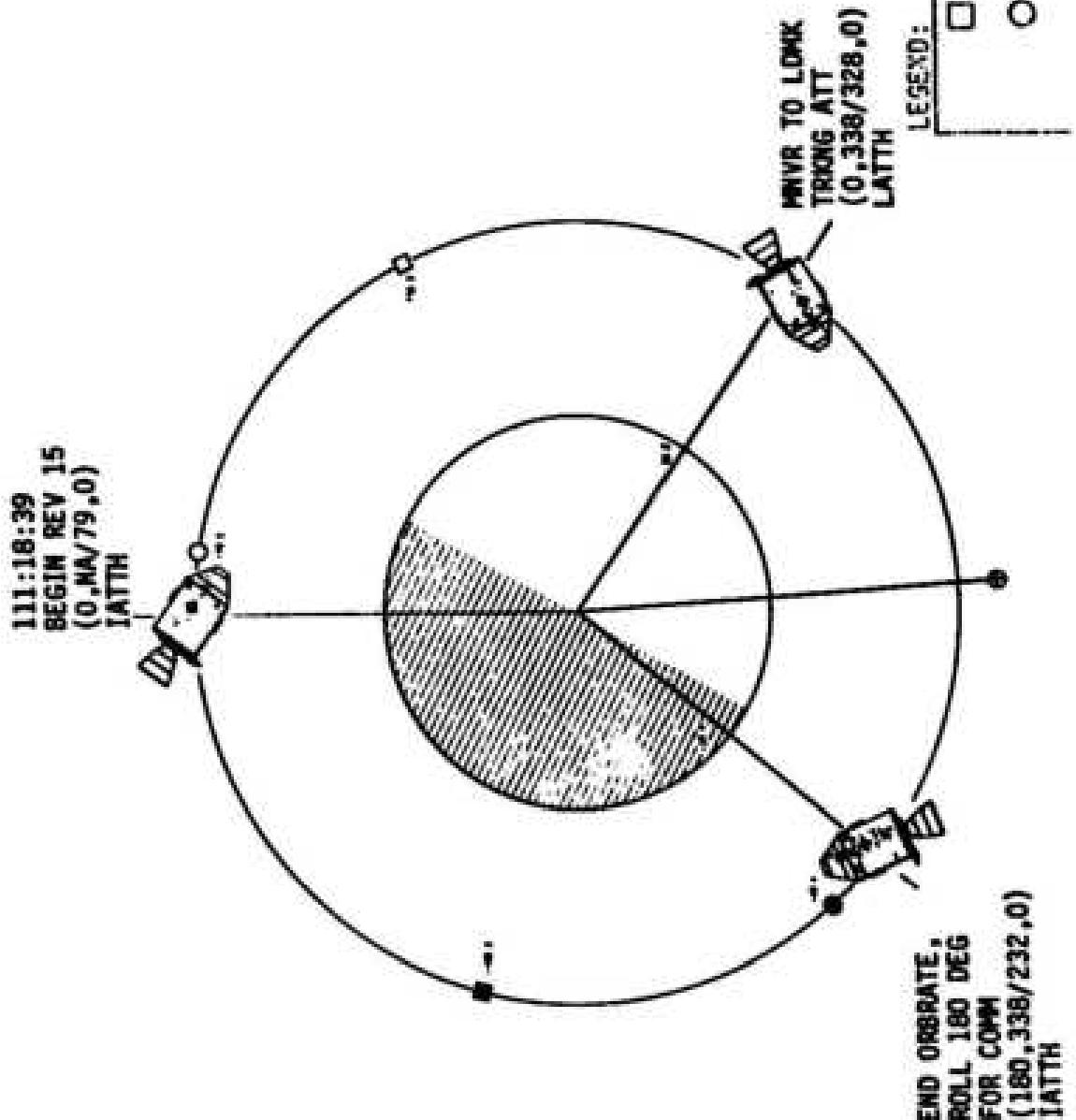
MCCC-H

LM

0122 CST



REV 15



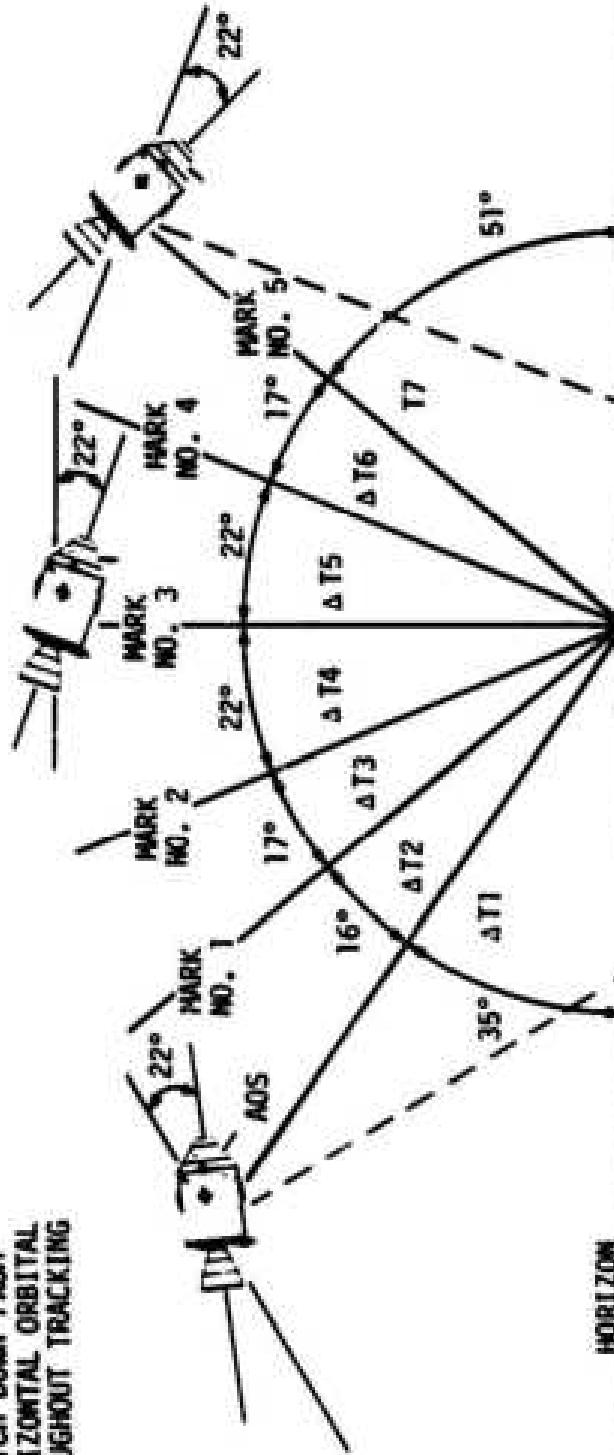
1-88A

REVISION B

LATTH - INERTIAL ATTITUDE HOLD
LATTH - LOCAL ATTITUDE HOLD

CSM LANDMARK TRACKING PROFILE

22 DEG PITCH DOWN FROM
LOCAL HORIZONTAL ORBITAL
RATE THROUGHOUT TRACKING



T1 GET AT 0° ELEVATION
T2 GET AT 35° ELEVATION

P22	AUTO	ACQ	P dn	22°	R0°	16°	
T ₁	-	-	-	-	-	-	193
T ₂	-	-	-	-	-	-	-
R	-	-	-	-	-	-	-
H or S NM	-	-	-	-	-	-	-
CP	-	-	-	-	-	-	-
LAT	-	3.437°	-	-	-	-	-
LONG/2	-	11.614°	-	-	-	-	-
ALT	-	1.37 NM	-	-	-	-	-

ΔT₁ = 300 SEC
ΔT₂ = 40 SEC
ΔT₃ = 25 SEC
ΔT₄ = 25 SEC
ΔT₅ = 25 SEC
ΔT₆ = 25 SEC
ΔT₇ = 340 SEC

AOS TO LOS - 146 SEC
AOS TO FINAL MARK -
140 SEC

CENTER OF MOON
FIGURE 3-3
3-8C

FLIGHT PLAN

CSM

CMP

0222 CST

CDR

LM

MMVR TO TRACKING
ATTITUDE BY 112:00

R 0° P 338/MN/A, Y 0°

GO ORB RATE

SELECT OMNI 0

P22 ORBITAL NAVIGATION
VERIFY DSE MOTION

AR-ON

P22 - LUNAR SURFACE NAVIGATION

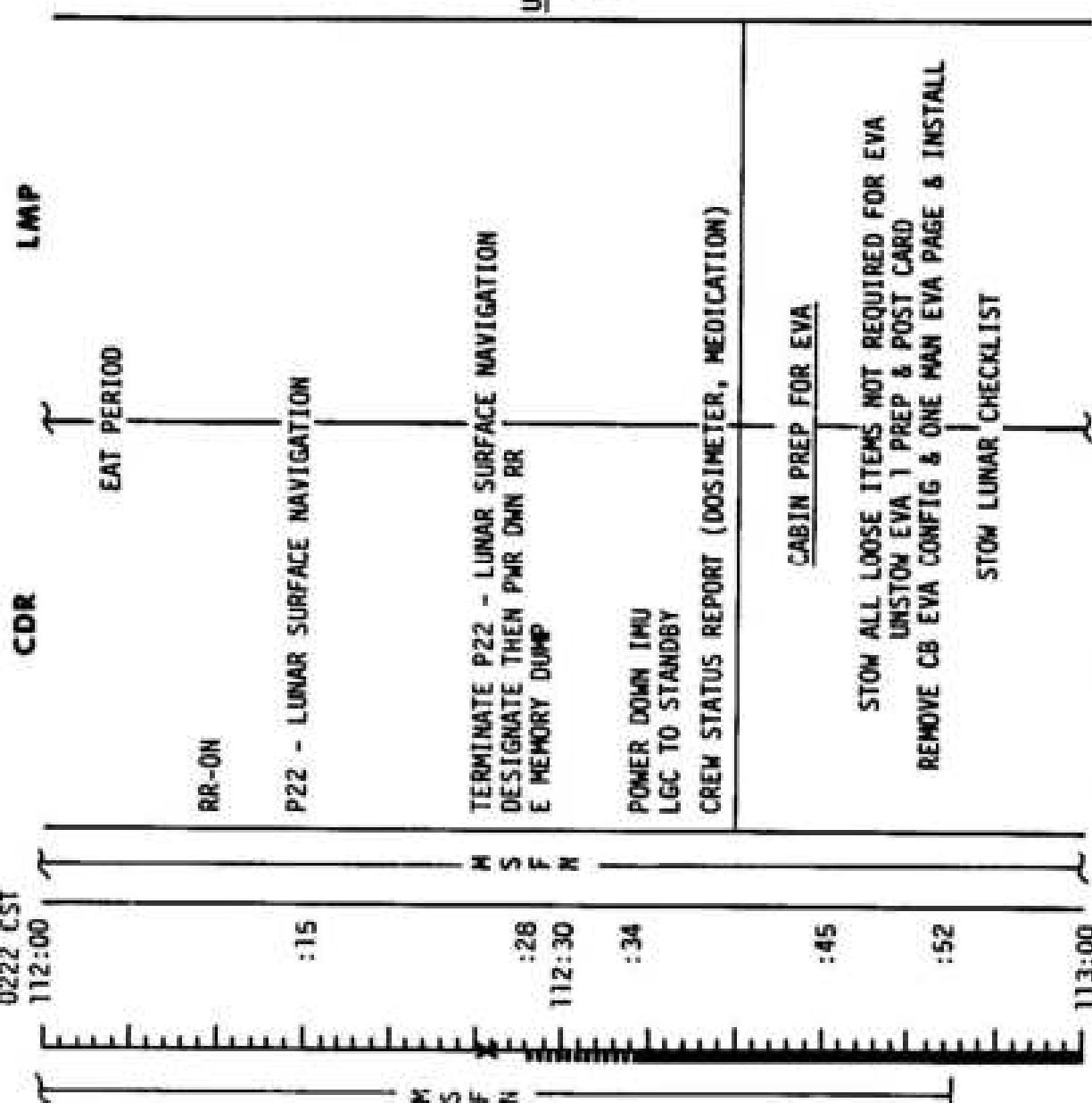
TRACK LGN SITE LMK 193
DO NOT PRO ON FINAL 100°
25 SEC BETWEEN MARKS
5 MARKS

RR TRANSPONDER - OFF
STOP ORB RATE P22, MMVR
TO ACQ HSEN, GO INERTIAL
R 180, P22, Y 0°
HGA P-22, Y 160°

EAT PERIOD

VERIFY DSE MOTION & LOS

MCC-H



UPDATE TO LM
DAP LOAD
LIFT OFF TIME FOR
REV 16 THRU 19

CABIN PREP FOR EVA

STOW ALL LOOSE ITEMS NOT REQUIRED FOR EVA
UNSTOW EVA 1 PREP & POST CARD
REMOVE CB EVA CONFIG & ONE HAN EVA PAGE & INSTALL

STOW LUNAR CHECKLIST

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	112:00 - 113:00	5/15	1-90
MSC Form 1674 (CT) (June 69)		FLIGHT PLANNING BRANCH			

FLIGHT PLAN

MCC-H

CSM

CMP

0322 CST
113:00

CDR

LM

LMP

CABIN PREP FOR EVA (CONT)

-1:20

EQUIPMENT PREP

SET DET FOR CABIN DEPRESS
UNSTOW LMP'S PLSS FROM LM FLOOR
PREPARE SEQ CAMERA
DEPLOY LVA ANTENNA
UNSTOW & DON LUNAR BOOTS (BOTH)
UNSTOW & CHECK BOTH OPS'S

-1:10

REACQUIRE HGFN
HGA P -23, Y 189

PLSS DOWMING

SET DET FOR CABIN DEPRESS
UNSTOW LMP'S PLSS FROM LM FLOOR
PREPARE SEQ CAMERA
DEPLOY LVA ANTENNA
UNSTOW & DON LUNAR BOOTS (BOTH)
UNSTOW & CHECK BOTH OPS'S

-1:00

UNSTRAP USE
-1:00
UPDATE TO CSM
PLSS - TRACKING PAU
MAP UPDATE REV 17

-1:00

PLSS COMM CHECK
AUDIO SWITCHES CK, ACTIVATE PLSS COMM SYSTEMS/C/U
(TV CB - CLOSE THEN OPEN)

-1:00

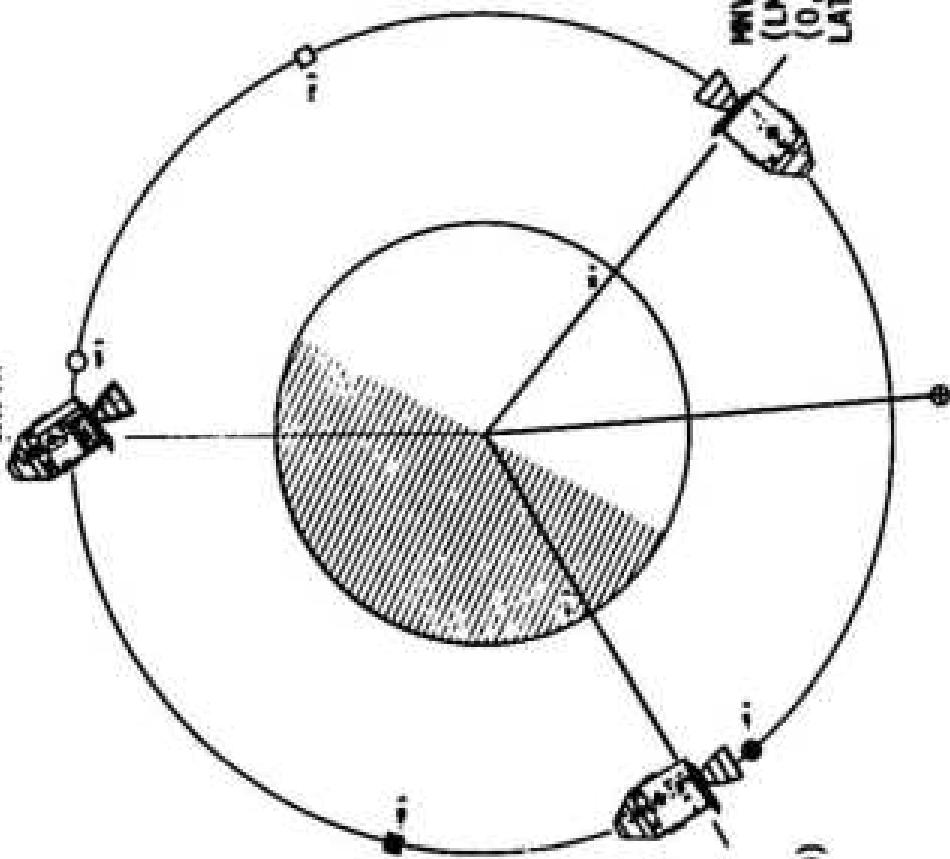
FINAL SYSTEMS PREP

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	113:00 - 114:00	5/15-16	3-91

MSC Fore 1674 (OT) (June 69) FLIGHT P INING BRANCH

REV 16

113:16:56
BEGIN REV 16
(180,NA/232,0)
LATTH



END ORBRATE,
ROLL 180 DEG
FOR COMM
(180,NA/233,0)
LATTH

MOVE TO LDMK
(LM) TRNG ATT
(0,0/NA,0)
LATTH

LEGEND:

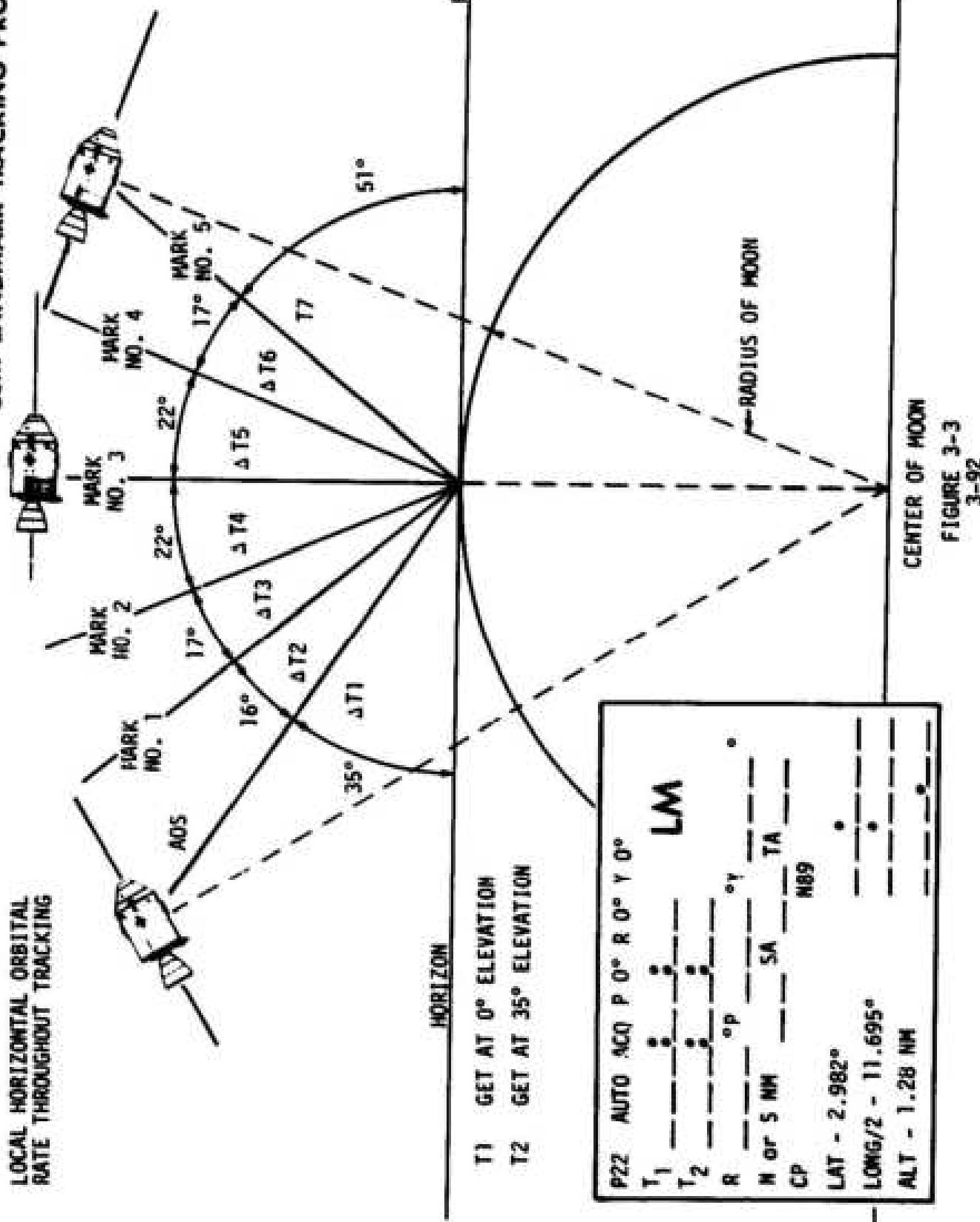
<input type="checkbox"/>	XSFIX ADS, LOS
<input type="circle"/>	S/C SUNRISE, SUNSET
<input checked="" type="checkbox"/>	SUBEARTH POINT (R,LHP/IMP,Y)
	IATTH - INERTIAL ATTITUDE HOLD
	LATTH - LOCAL ATTITUDE HOLD

REVISION B

3-91A

**LOCAL HORIZONTAL ORBITAL
RATE THROUGHOUT TRACKING**

CSM LANDMARK TRACKING PROFILE



FLIGHT PLAN

CSM

CMP
MAN TO TRACKING
ATTITUDE BY 114:00
R 0, P 0 /N/A, Y 0
GO ORB RATE
SELECT OMNI D
P22 ORBITAL NAVIGATION

0422 CST

T

:30

CDR

LMP

LMP

LM

MCC-H

VERIFY DSE MOTION
TRACK LM
DO NOT PRO ON FINAL NBR
25 SEC BETWEEN MARKS
5 MARKS

114:00

H

T

S

F

N

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CSM

CMP

CDR

LM

LMP

EVA GO
0:30

EVAB

0:40

ETB

0:50

ETB

1:00

ETB

1:10

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FLIGHT PLAN

CSM

CMP

LM

MCC-H

TIME	ACTIVITY	LOCATION	NOTES
0622 CST	CLOSE SEQ BAY DOORS CARRY HIC TO MESA PICK UP TONGS	CDR	
116:00	ALSEP TRAVERSE CARRY SUBPALLETT TO TV ORIENT TV FOR ALSEP CARRY SUBPALLETT TO DEPLOYMENT SITE	LM	
:15	ALSEP SYSTEM INTERCONNECT UNSTOW SIDE FROM SUBPALLETT CONNECT TO CENTRAL STATION UNSTOW & POSITION PSE STOOL	LM	
:25	DEPLOY SMC, ALIGN/PHOTOGRAPH LSM OFFLOAD	LM	N S N F
116:30	SUNSHIELD DEPLOYMENT RELEASE PERIMETER, ANT. CABLE, & INNER BOLTS, RISE SUNSHIELD, & CX. CURTAINS LEVEL & POSITION PSE STOOL	LM	N S N F
:45	ANTENNA INSTALLATION INSTALL ANT POST SET ALIGNTH & ELEVATION OFFSETS	LM	N S N F
117:00	ACTIVATE ALSEP ALSEP ATTIVATION EXPERIMENTS DEPLOYED VERIFY EXPERIMENTS DEPLOYED VERIFY USE MOTION & LOS VERIFY USE MOTION & LOS	LM	N S N F

MAP UPDATE REV 1B	LOS :	---
180° :	---	---
ADS :	---	---

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	116:00 - 117:00	5/17	3-95
FLIGHT PLANNING BRANCH					REVISION A

REVISION A

MSC Form 1674 (OT) (June 69)

CSM
CMP

3

LMP

5

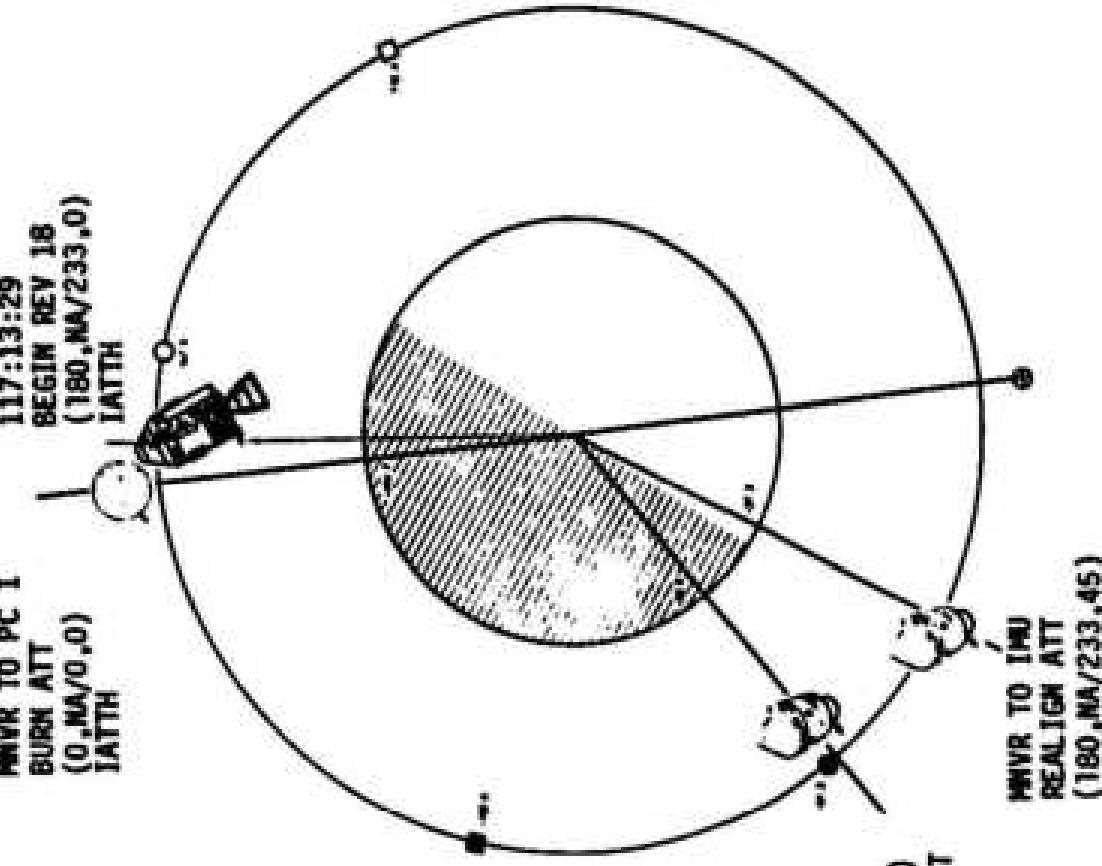
LMP		CDR	
0722 CST 117:00			
RETURN TRAVERSE TRAVERSE TO LM COLLECTING SAMPLES REST ENROUTE	TRAVERSE TO LM COLLECT- ING SAMPLES REST ENROUTE		
		60/MO GO FOR EVA EXTENSION 2:40	
		2:50	
	REV 18		
EAT PERIOD	:15		
	:17		
	:24		
	117:30		
REACQUIRE MSFN HGA P -23, Y 190			
MAP UPDATE REV 19 -			
LOS : -----			
180°W: -----			
ADS : -----			
RETURN TRAVERSE -			
TRAVERSE TO LM COLLECT- ING SAMPLES REST ENROUTE			
RETURN TV TO LM AREA & POSITION TO VIEW MESA/ LADDER			
PHOTOGRAPH ALSEP SITE			
		2:50	
		CORE TUBE SAMPLE COLLECTION	
		COLLECT CORE & STOW IN SRC	
		REMOVE CDR SADDLE BAG	
		EVA TERMINATION	
		STOW 70MM CAM IN ETB	
		CLEAN EMU & CHECK CDR	
		INGRESS	
		CHECK EMU & LM SYSTEMS	
		S-BD ANT-LUNAR STAY	
		ASSIST CDR	
		REMOVE ETB FROM LEC & STOW	
		ASSIST CDR	
		REMOVE SRC FROM LEC	
		STOW SRC ON ENG COVER	
		PASS LEC TO CDR	
		UPDATE TO CSM MAP UPDATE REV 1	
		3:10	
		3:20	
		JETTISON EQUIPMENT & CLOSE HATCH REPRESS CABIN	

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MON 14)	OCTOBER 15, 1969	117:00 - 118:00	5/17-18	3-96

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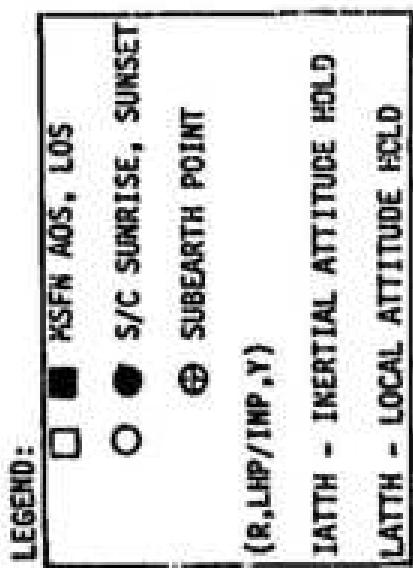
REV 18

MMVR TO PC 1
BURN ATT
(0,MA/0,0)
LATTH



AFTER IMU
REALIGN
LOPC #1 ORIENT
(49,MA/331,29)

MMVR TO IMU
REALIGN ATT
(180,MA/233,45)
LATTH



REVISION B

FLIGHT PLAN

CSM

CMP

LM

MCC - H

0822 CST

EAT

PERIOD

LMP

3:30

T

118:00

CDR

POST EVA SYSTEMS CONFIGURATION

CONFIGURE VALVES AND CIRCUIT BREAKERS
TV-OFF

T

118:22

DISCONNECT OPS 02 & PLSS H₂O HOSES & CONNECT LM 02 &
H₂O HOSES, LCG PUMP CB-CLOSE

N

:15

CONNECT LMP'S PLSS TO LH 02 SUPPLY & FILL (2 MIN)
CONNECT CDR'S PLSS TO LH 02 SUPPLY & FILL (2 MIN)

F

:24

R 180, P 233, Y 234
HGA P -22, V 234

N

118:30

P52 - IMU REALIGN
OPTION 1 - PREFERRED
(PLANE CHANGE ORIENT)

F

:47

GDC ALIGN TO IMU
VERIFY DSE MOTION & LOS

N

119:00

UPDATE TO CSM
CSM STATE VECTOR
PLANE CHANGE TGT
LOAD
DESIRED ORIENT
(PLANE CHANGE)

S

119:00

PLSS/OPS DOFFING
REMOVE RCU'S, DOFF PLSS/OPS

F

119:00

REPLACE CDR'S PLSS BATT & LIOH CARTRIDGE
REMOVE OPS & STOW ON ENG COVER
STOW PLSS (RECHARGE STATION)

N

119:00

REPLACE LMP'S PLSS BATT & LIOH CARTRIDGE
REMOVE OPS & STOW PLSS (FLOOR)
STOW LMP OPS ON FLOOR

EAT PERIOD

119:00

POST EVA CABIN CONFIGURATION
UNSTOW LUNAR SURFACE CHECKLIST
STOW EVA1 PREP & POSTCARD

EAT PERIOD

119:00

VERIFY CB CONFIGURATION
LCG PUMP CB - OPEN
VERIFY CB CONFIGURATION
EAT PERIOD

EAT PERIOD

119:00

UNSTOW LUNAR SURFACE CHECKLIST
STOW EVA1 PREP & POSTCARD

EAT PERIOD

119:00

POST EVA CABIN CONFIGURATION
UNSTOW LUNAR SURFACE CHECKLIST
STOW EVA1 PREP & POSTCARD

EAT PERIOD

119:00

POST EVA CABIN CONFIGURATION
UNSTOW LUNAR SURFACE CHECKLIST
STOW EVA1 PREP & POSTCARD

EAT PERIOD

119:00

POST EVA CABIN CONFIGURATION
UNSTOW LUNAR SURFACE CHECKLIST
STOW EVA1 PREP & POSTCARD

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	118:00 - 119:00	5/18	3-97

FLIGHT PLAN

CSM PLANE CHANGE #1
BURN TABLE

P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TAKEOVER	+10° TAKEOVER	BT + 1 SEC	NO TRIM

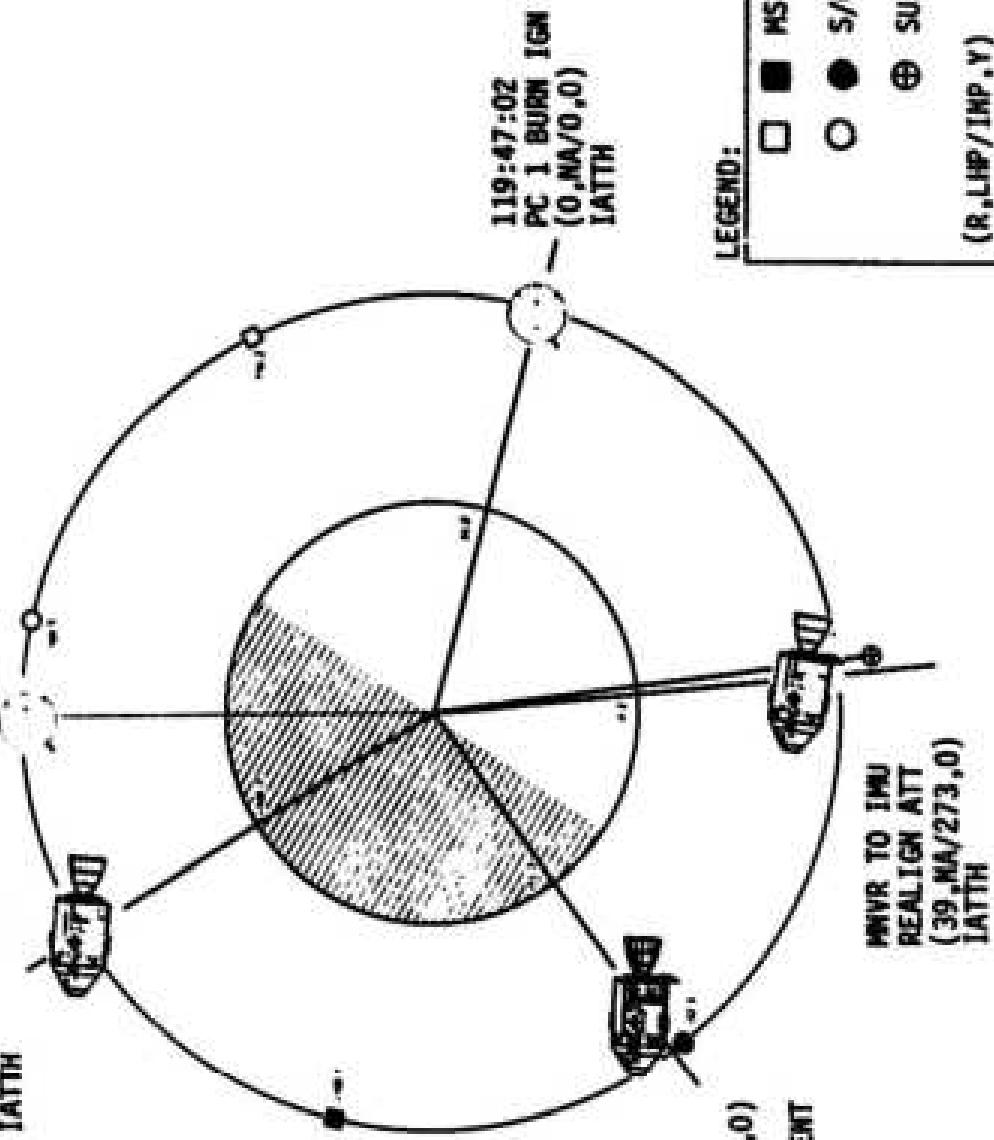
TABLE 3-9
1-98

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REV 19

119:11:45
BEGIN REV 19
(0,NA/0,0)
IATTTH

MMVR TO BEST ATT
(121,NA/278,0)
IATTTH



LEGEND:

- ■ HSFN AOS, LOS**
- ● S/C SUNRISE, SUNSET**
- ⊕ SUBEARTH POINT (R,LIP/IMP,Y)**

IATTTH - INERTIAL ATTITUDE HOLD
LATTTH - LOCAL ATTITUDE HOLD

REVISION 8

3-984

FLIGHT PLAN

CSM

CMP

1122 EST

CDR

LM

MCC-H

MOVE TO REST ATT BY 121:00
R 121, P 278, Y 0
HGT P-25, A 261
GO INTERNAL
LOAD DMP (11110) (11111)
Y21 NOTE, 32553, 1663

ONBOARD READOUT
BAT C
PRO BAT A
PRO BAT B
PRO RCS A
PRO RCS B
DC IND SEL - HWA OR B

REV 20

121:00

:15

:22

121:30 :32

:45

122:00

REST PERIOD
9 HOURS

CSM PRESEEP CHECK 1ST
EMERGENCY DUMP
CREW STATUS REPORT
(medication)
ONBOARD READOUTS to NSFM
CYCLE H2, O2, FANS
CHORINATE WATER
VERIFY:
WASTE MNGT OVERDRAIN -
OFF
WASTE STOW VENT v1v -
CLOSED
EMER CABIN PRESS v1v -
BOTH
SURGE TX 02 v1v - ON
REPRESS 02 v1v - OFF
LM TUNNEL VENT v1v -
OFF
9 HOURS
NORMAL LUMR COMM EXCEPT:
S 80 SQUELCH - ENABLE
HI GAIN ANTENNA TRACK -
REACQ
HI GAIN ANTENNA BEAM -
NARROW
S 80 ANT - HI GAIN
WHF AM B - DUPLEX
DSE DUMP

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
Apollo 12	FINAL (REV 69)	OCTOBER 15, 1969.	121:00 - 122:00	S/19-20	3-101

NBC Photo 1671, (cm)(June 69)

FLIGHT PLANNING BRANCH

FLIGHT PLAN

MCC-H

CSM
CMBP

1222 CST

CPR

LM

LMP

:21

:28

:30

:44

REST PERIOD
9 1/2 HOURS

REST PERIOD
9 HOURS

REV 21

:14

:20

:30

124:00

T

H

F

N

T

H

F

N

MISSION

EDITION

DATE

TIME

DAY/REV

PAGE

APOLLO 12 FINAL (REV 14)

OCTOBER 15, 1969

122:00 - 124:00

5/20-21

3-102

FLIGHT PLAN

MCC-H

LM

CSM

CDR

1422 CST

CMP

CMP

:20

S

F

N

:26

S

F

N

:30

S

F

N

:42

S

F

N

REST PERIOD
9 1/2 HOURS

REST PERIOD
9 HOURS

125:00
REV 22

:12

S

F

N

:19

S

F

N

:28

S

F

N

:30

S

F

N

126:00

S

F

N

126:00

S

F

N

DUMP DSE

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	124:00 - 126:00	5/21-22	3-103

FLIGHT PLAN

CSM
CMB

CQR

1622 CST

:18 :25 :30 :40

REST PERIOD
9 1/2 HOURS

127:00 REV 23

REST PERIOD
9 HOURS

127:00 S F N

11 :17

:26 :30

128:00

T H S F N

128:00

LMP

LM

DUMP DSE

MCC-H

REST PERIOD
9 HOURS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	126:00 - 128:00	5/22-23	3-104

FLIGHT PLAN

CSM

CMP

CDR

LM

LMP

1822 CST
128:00

:17 :23 :30 :38

9 1/2 HOURS
REST PERIOD

REV 24
129:00

:59 :16 :25 :30



9 HOURS
REST PERIOD

9 HOURS
REST PERIOD

DUMP DSE

CONFIGURE HAMMOCKS FOR JETTISON, LCG PUMP CB-CLOSE

FLIGHT PLANNING BRANCH

MCC-H

REVISION 6

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	128:00 - 130:00	5/23-24	3-105

CSM

LW

LMP

MCC-H

2022 CST

CDR

LW

LW

130:00

LW

LW

LW

:15

S

:22

F

130:30

H

:37

F

:45

H

131:00

L

UPDATE LN
LN CONSUMABLES
LIFT OFF TIME FOR
REV 25 THRU 28
STAY/NO STAY

S-80 PWR AMPL - PRIM, VOICE - VOICE
CHARGE LN L10H CARTRIDGE, LGC TO OPERATE TO
UPDATE LGC CLOCK THEN BACK TO STANDARD
STAY/NO STAY FOR EVA, PREP
CREW STATUS REPORT (SLEEP, DOSEIMETER)

EAT PERIOD

EAT PERIOD

REST PERIOD
9 1/2 HOURS

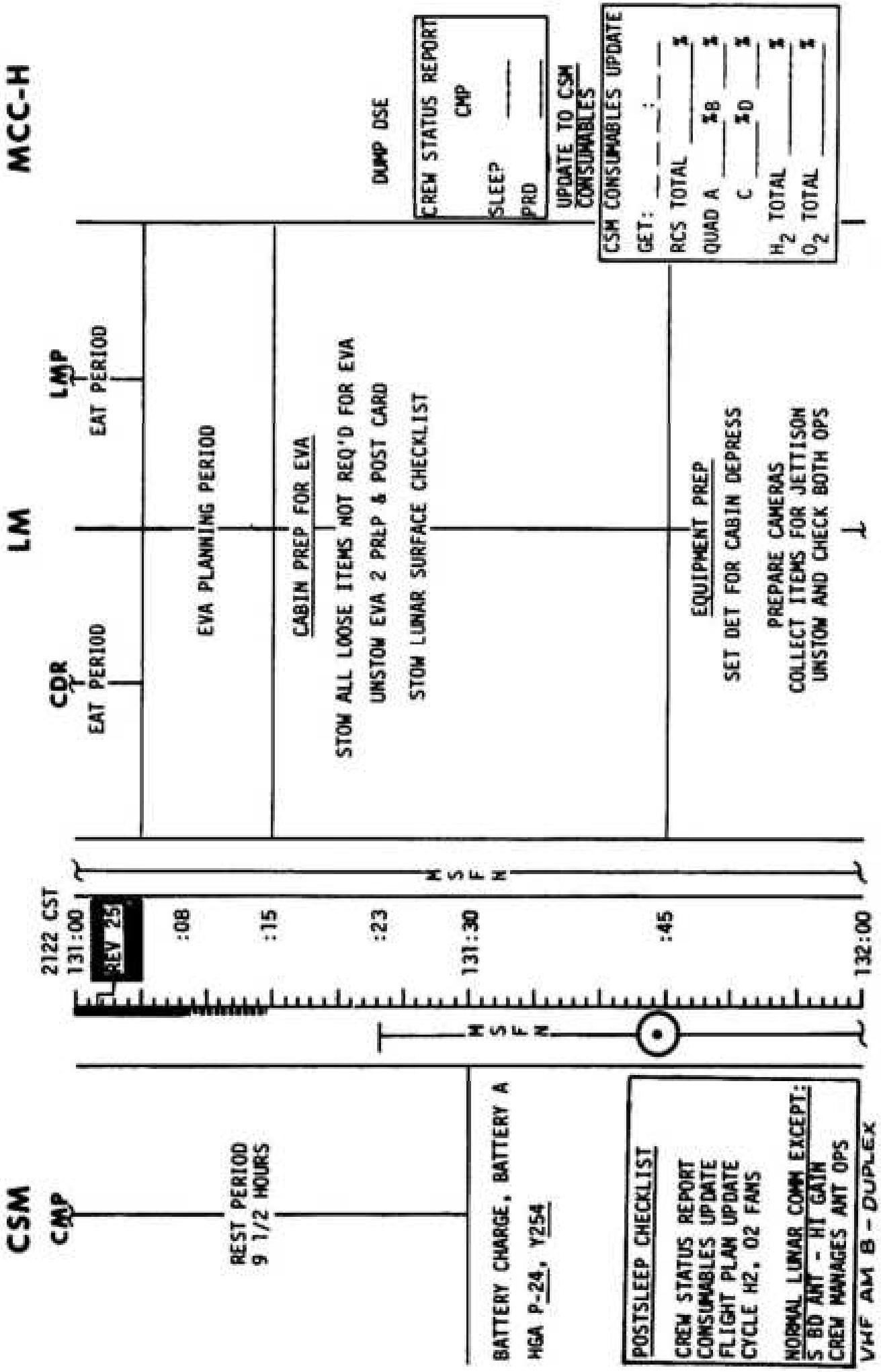
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	130:00 - 131:00	6/24	3-106

MSC Form 167-L (OT) (June 69)

FLIGHT PLANNING BRANCH

REVISION B

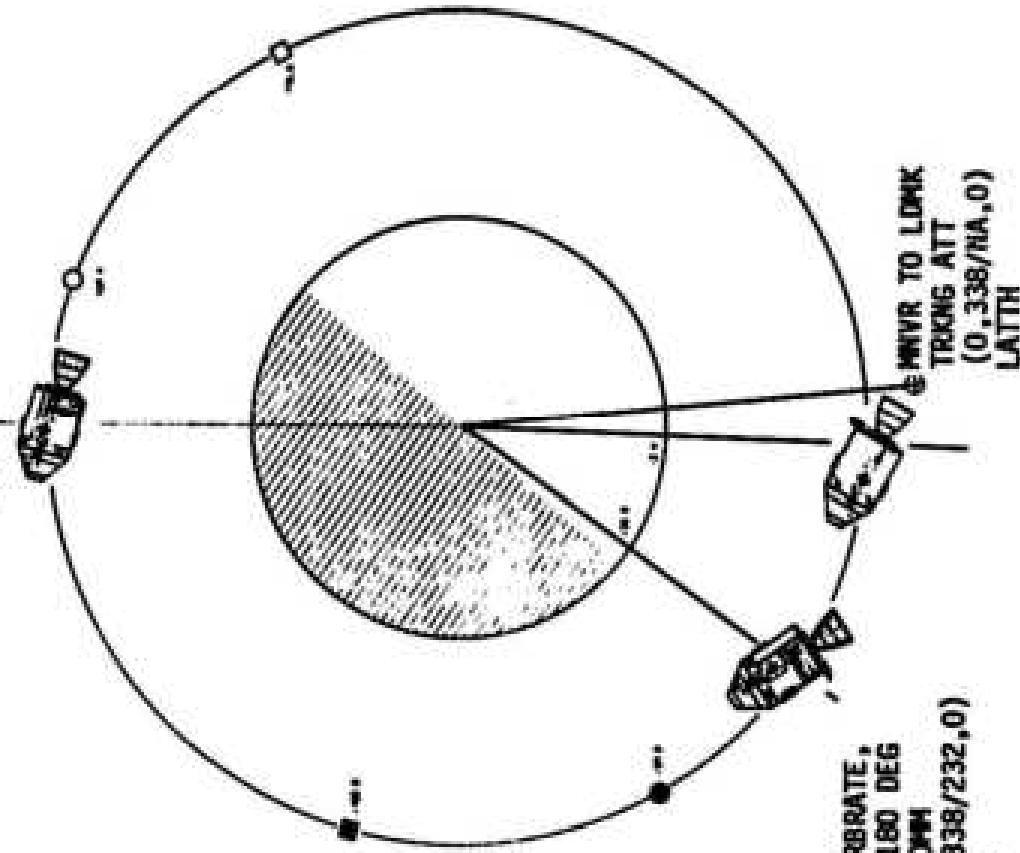
FLIGH. PLAN



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REV 26

132:59:56
BEGIN REV 26
(121, MAY/278,0)
LATTH



LEGEND:

- ■ NSFW AOS, LOS
- ● S/C SUNRISE, SUNSET
- ⊕ SUBEARTH POINT

(R,LHP / IMP,Y)

IATTH - INERTIAL ATTITUDE HOLD

LATTH - LOCAL ATTITUDE HOLD

REVISION B

3-108A

FLIGHT - PLAN

CSM

CMP

2322 C5T

COR

LMP

MCCH

P52 - LMU REVISION (CONT)

REV 26

133:00

WINSTON S-158

:07

START EVA
0:00

FWD DUMP VALVE - OPEN

SET #ET-4 CHRONOMETER

FWD DUMP VALVE - OPEN

OPEN FWD HATCH

FTRAL PREP FOR EGRESS

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

STOW TOOLS & EQUIP ON HTC

RETRIEVE & OPEN SRC #2

ATTACH SODDLE BAG TO LMP

UNSTOW SRC #2

SEAL ORGANIC CONT SAMPLE

POSITION TV FOR GEOLOGY

TRAVERSE

CONTRAST CHART PHOTOS

TRENCH SITES SAMPLING

COLLECT DOCUMENTED SAMPLES

COLLECT GASES AND SIS SAMPLES

MKE GENERAL OBSERVATIONS

COLLECT CORNEAL SAMPLES

NOTE: IS ST DOCUMENTED SAMPLE POLARIZED

UPDATE TO CSM

P22 TRACKING PDG

0:40

0:50

0:30

DUMP USE

UPDATE REV 27

0:10

0:20

DESCEND TO SURFACE

ATTACH PARTS BAG TO COR

HGT-GHECH-HAG-HH-SHBBF-BAG

LMP EGRESS

ASSIST COR

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

STOW TOOLS & EQUIP ON HTC

PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON

ETB TRANSFER

TRANSFER ETB TO SURFACE

COR EGRESS

GEOLOGY TRAVERSE

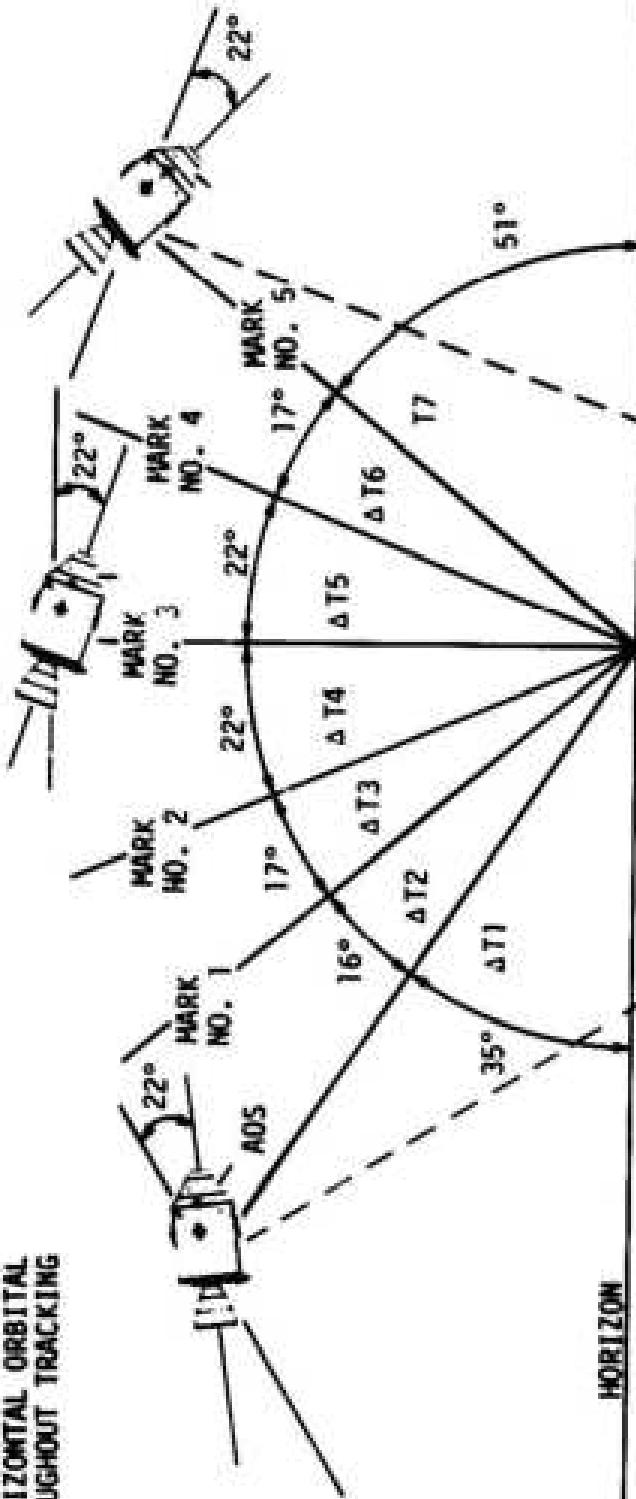
UNSTOW SRC #2

ATTACH SODDLE BAG TO LMP

RETRIEVE & OPEN SRC #2

22 DEG PITCH DOWN FROM
LOCAL HORIZONTAL ORBITAL
RATE THROUGHOUT TRACKING

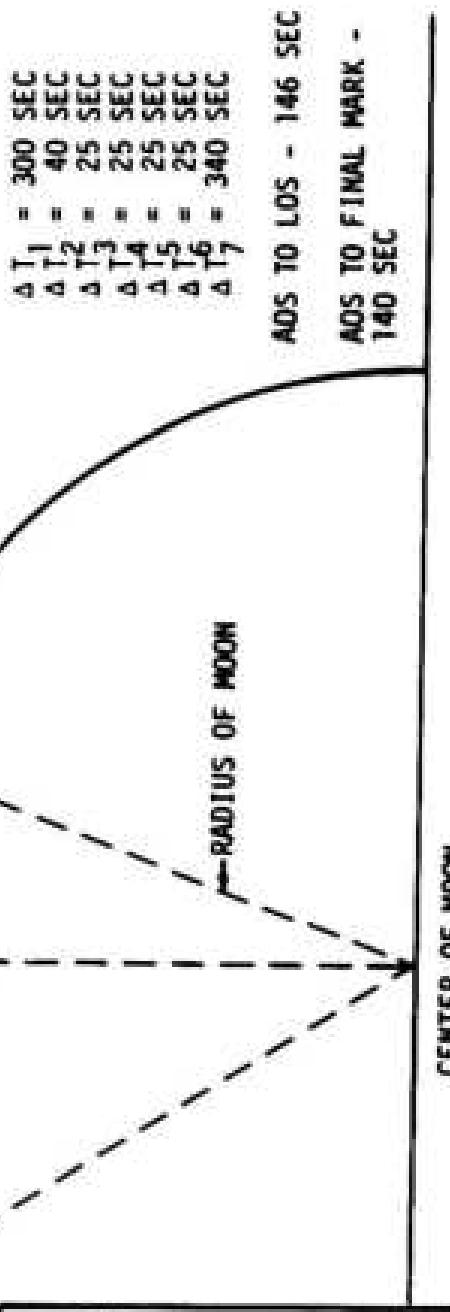
CSM LANDMARK TRACKING PROFILE



T1 GET AT 0° ELEVATION
T2 GET AT 35° ELEVATION

P22 AUTO ACQ P up 22° R0 10° (60)	LUNARGA
T1	•
T2	•
R	• p •
N or S MM	SA TA
CP	M89
LAT + 0.150°	•
LONG/2 - 15.575°	•
ALT - 0.54 MM	•

FIGURE 3-3
3-110

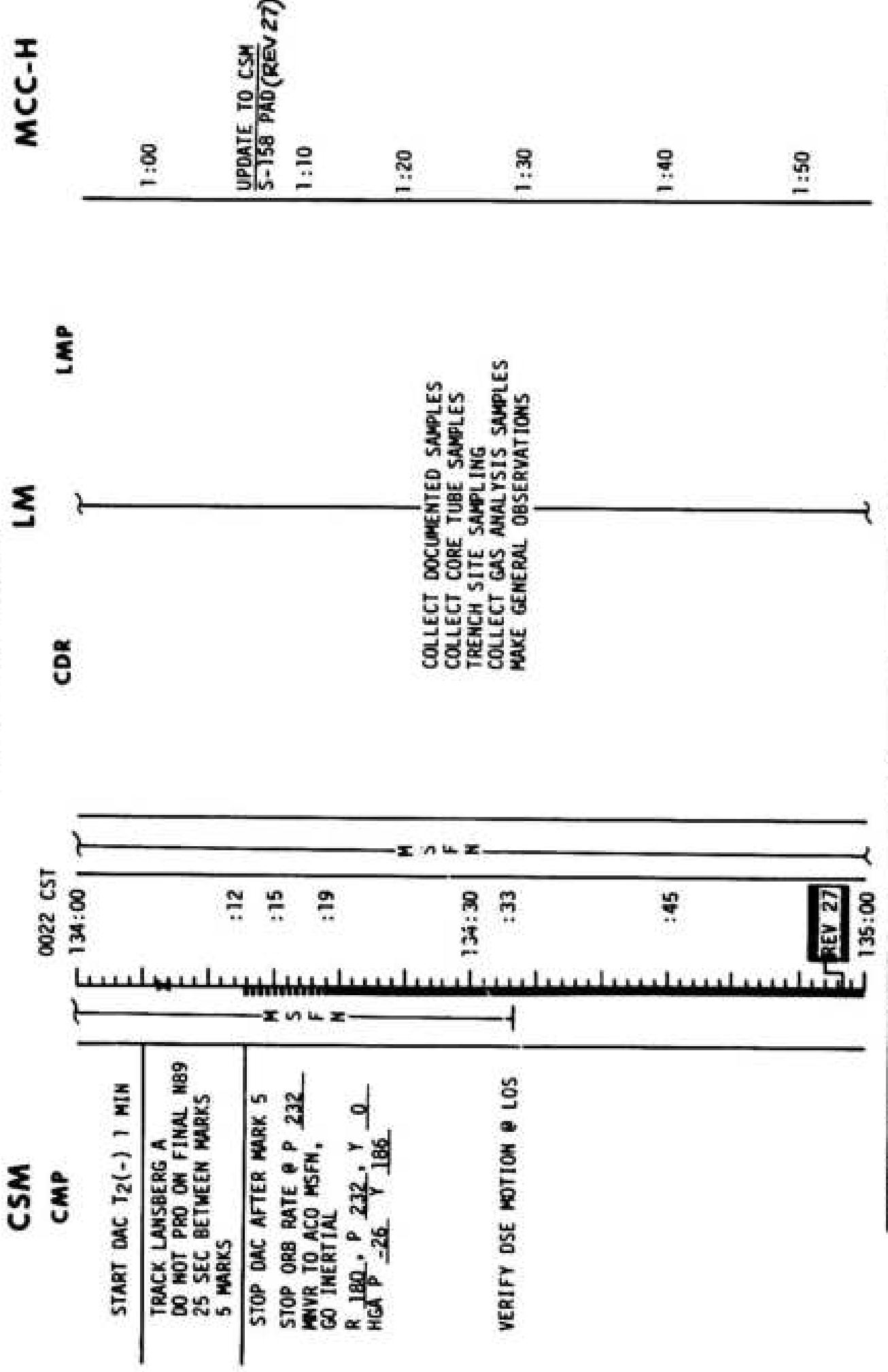


AOS TO LOS - 146 SEC

AOS TO FINAL MARK -
140 SEC

FLICKIT PLAN

MUCH



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	134:00 - 135:00	6/26-27	3-11

S-158 REV 27

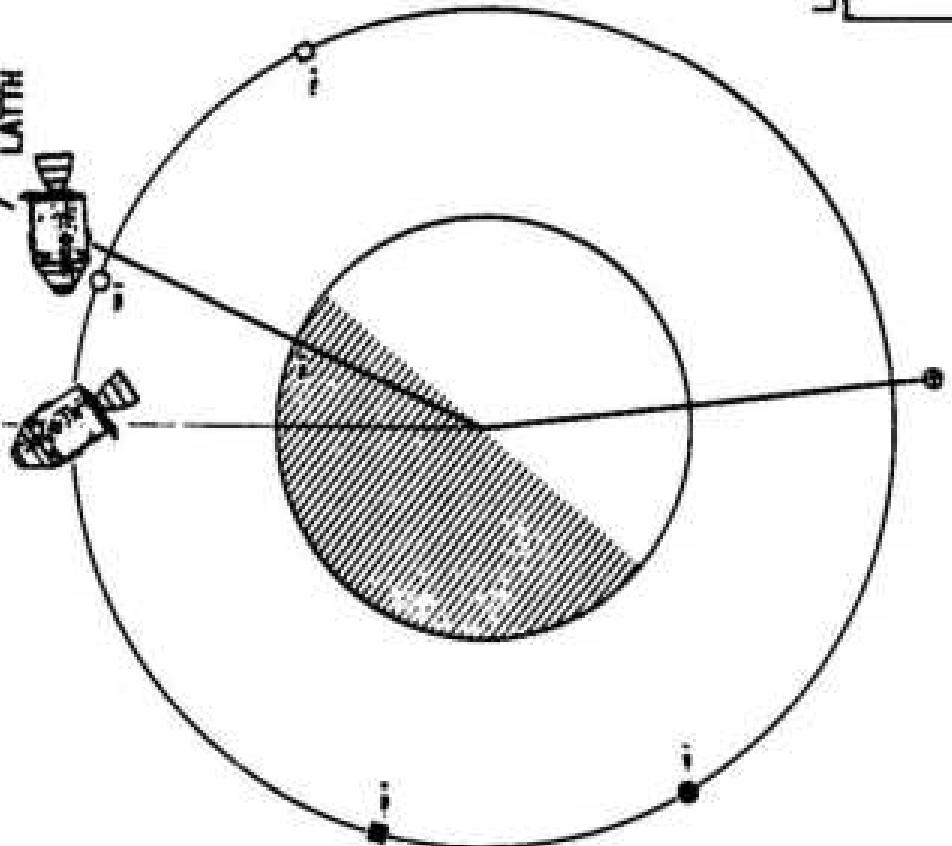
- BLUE, GREEN, BLACK - (f5.6) ___, RED (f4.0) ___
- T₁ START BLUE, GREEN & RED CAMERAS @ 135:19:00 (____:____:____)
- START BLACK CAMERA @ T₁ + 5 MIN
- T₂ STOP ALL CAMERAS @ 135:30:00 (____:____:____)
- T₃ START BLUE, GREEN & RED CAMERAS @ 135:40:00 (____:____:____)
- START BLACK CAMERA @ T₃ + 7 MIN
- T₄ STOP ALL 4 CAMERAS @ 136:02:00 (____:____:____)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	135:00 - 136:00	6/27	3-112
MSC FORM 1674 (OT) (June 69) FLIGHT PLANNING BRANCH					

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REV 27

134:58:13
BEGIN REV 27
(180, 0, 0)
LATTH
PHOTO ATT
(0, 213/0, 0)



LEGEND:	HSEFH AOS, LOS		
□	■	●	S/C SUNRISE, SUNSET
○	⊕	⊕	SUBEARTH POINT
(R,LINE/IMP,Y)			TATTI - INERTIAL ATTITUDE HOLD
LATTH - LOCAL ATTITUDE HOLD			

3-112A

REVISION B

FLIG'T PLAN

CSM

CMP

0122
0922 CST

135:00

MVR TO S156 ATT
BY 135:06
R 0, P 213/N/A, Y 0
OMNI D
GO ONE RATE

START BLU, GRAYED CAMERAS
S-158 PHOTOGRAPHY

START BLK CAMERAS
S-158 PHOTOGRAPHY

STOP ALL CAMERAS
SW TO OMNI A
@ 135:36

START BLU, GRAYED CAMERAS
ACQUIRE MSFN @ 135:42
HGA P -13, Y 174

START BLK CAMERAS
S-158 PHOTOGRAPHY

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	135:00 - 136:00	6/27	3-113

NBC Form 1674 (07) (June 69)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	135:00 - 136:00	6/27	3-113

FLIGHT PLANNING BRANCH

MCCC-H

LM

LMP

CDR

2:00

SURVEYOR SITE ACTIVITIES

PHOTOGRAPH SURVEYOR
COLLECT GLASS SAMPLES

COLLECT WITH LMP ASSISTANCE:

STERILE CABLE SAMPLE
ALUMINUM TUBE SAMPLE
TV CAMERA

2:10

2:30

DUMP DSE

POSITION TV TO VIEW LM
SRB 2 DUMPING
PLACE SURVEYOR PARTS
IN + 2 PRO
RETRIEVE ALSSCATEK PHOTOS
OF SUBSURFACE LM IN FIB
PUT ALSSCATEK PHOTOS IN FIB

2:50

2:40

GEOLOGY RETURN TRAVERSE

GEOLOGY RETURN TRAVERSE

DUMP DSE

POSITION TV TO VIEW LM
ETB
PLACE SURVEYOR PARTS
IN + 2 PRO
RETRIEVE ALSSCATEK PHOTOS
OF SUBSURFACE LM IN FIB

2:50

2:40

2:30

2:20

2:10

2:00

FLIGHT PLAN

CSM

CMP

LM

MCC-H

0222 CST

STOP ALL CAMERAS
CONTINUOUS OBSE RATE

CHECK & CLEAN LMP EMU
CLOSE & SEAL SRC

LEL TRANSFERS
CHECK 70MM(2) IN ETB
CLOSE & TRANSFER ETB
REST/CHECK EMU
ATTACH LEC TO SRC
TRANSFER SRC INTO LM
REST/CHECK EMU

MAP UPDATE REV 28
UPDATE TO CSM
MAP UPDATE REV 28

ASCEND TO PLATFORM, INGRESS
CLEAN EMU & LM SYSTEMS

3:00

ASSIST CDR WITH TRANSFERS
5-158 PAD (REV 28)

3:10

TRANSFER SURVEYOR PARTS BAG

EVA TERMINATION
CLEAN EVA, ASCEND TO
PLATFORM

3:20

DISCARGO LEC

DISCONNECT OPS 02 HOSES & CONNECT LM 02 HOSES
CONFIDENTIAL VALVES AND CIRCUIT BREAKERS

VERIFY DSE MOTION & LOS

135:30

CLOSE HATCH & REPRESS CABIN

3:30

POST EVA SYSTEMS CONFIGURATION
REMOVE RCU, SIS DISCONNECT PLSS 02 HOSES

3:40

DOFF GLOVES

DISCONNECT PLSS H20 HOSES & CONNECT LM H20 HOSES
LGS PUMP CR-B CLOSE
SWITCH TO LM COMM SYSTEM

3:50

PLSS/OPS DOFFING
REMOVE RCU, SIS DISCONNECT PLSS 02 HOSES

4:00

DOFF PLSS/OPS
REMOVE OPS & CHECKOUT

4:10

MISSION EDITION DATE

APOGEE 12 FINAL (NOV 14)

TIME

DAY/REV

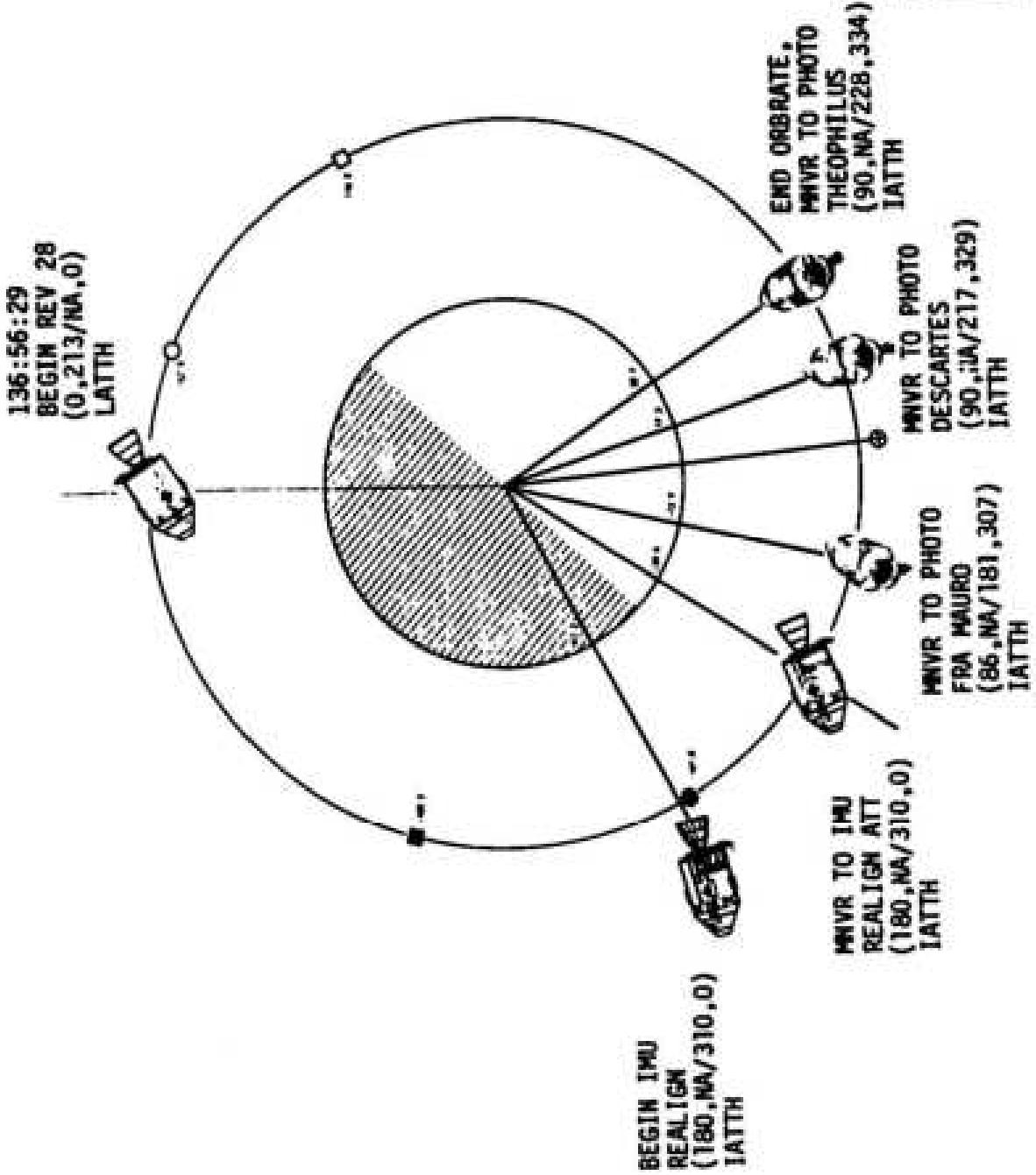
PAGE

136:00 - 137:00

6/27-28

3-114

REV 28



S-15B REV 2B

BLUE, GREEN, BLACK (f8.0) _____, RED (f5.6)
T1 START ALL CAMERAS @ 137:27:00 (____;____;
T2 STOP ALL CAMERAS @ 137:40:00 (____;____;
____)

SELECTED TARGETS

NORTH WALL OF THEOPHILUS

R _____, P _____, Y _____

BLUE, GREEN, BLACK (f5.6) _____, RED(f4.0) _____
T1 START ALL CAMERAS @ 137:47:00 (____;____;
T2 STOP ALL CAMERAS AFTER 2 PHOTOS (20 SEC)

DESCARTES

R _____, P _____, Y _____

NO CHANGE IN f STOPS

T1 START ALL CAMERAS @ 137:51:00 (____;____;
T2 STOP ALL CAMERAS AFTER 2 PHOTOS (20 SEC)

FRA MAURO

R _____, P _____, Y _____

ALL CAMERAS (f2.8) _____
T1 START ALL CAMERAS @ 138:01:00 (____;____;
T2 STOP ALL CAMERAS AFTER 2 PHOTOS (20 SEC)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MOM 14)	OCTOBER 15, 1969	137:00 - 138:00	6/26	1-15 REVISION A

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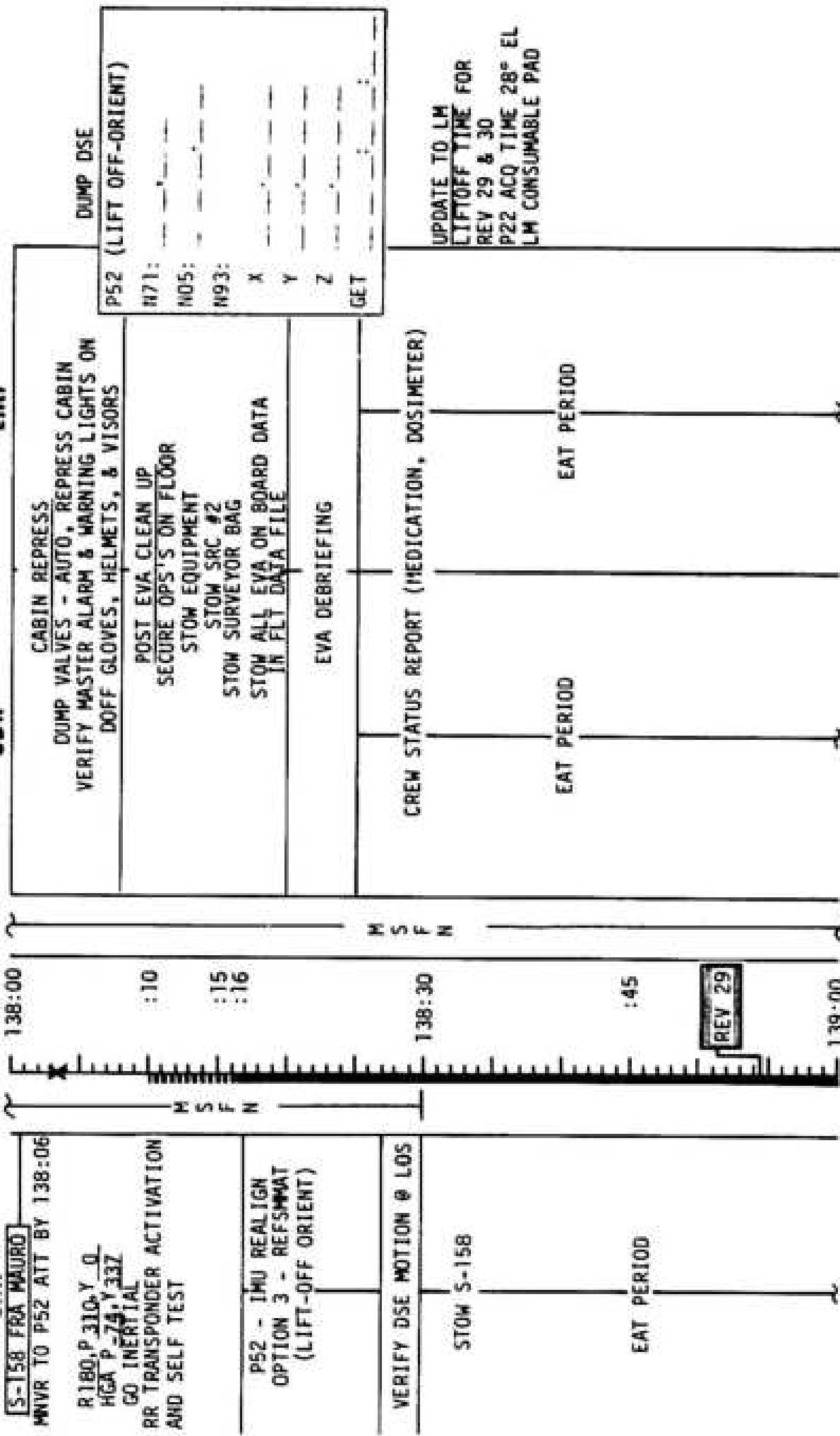
238

0422 CST

28

三

22

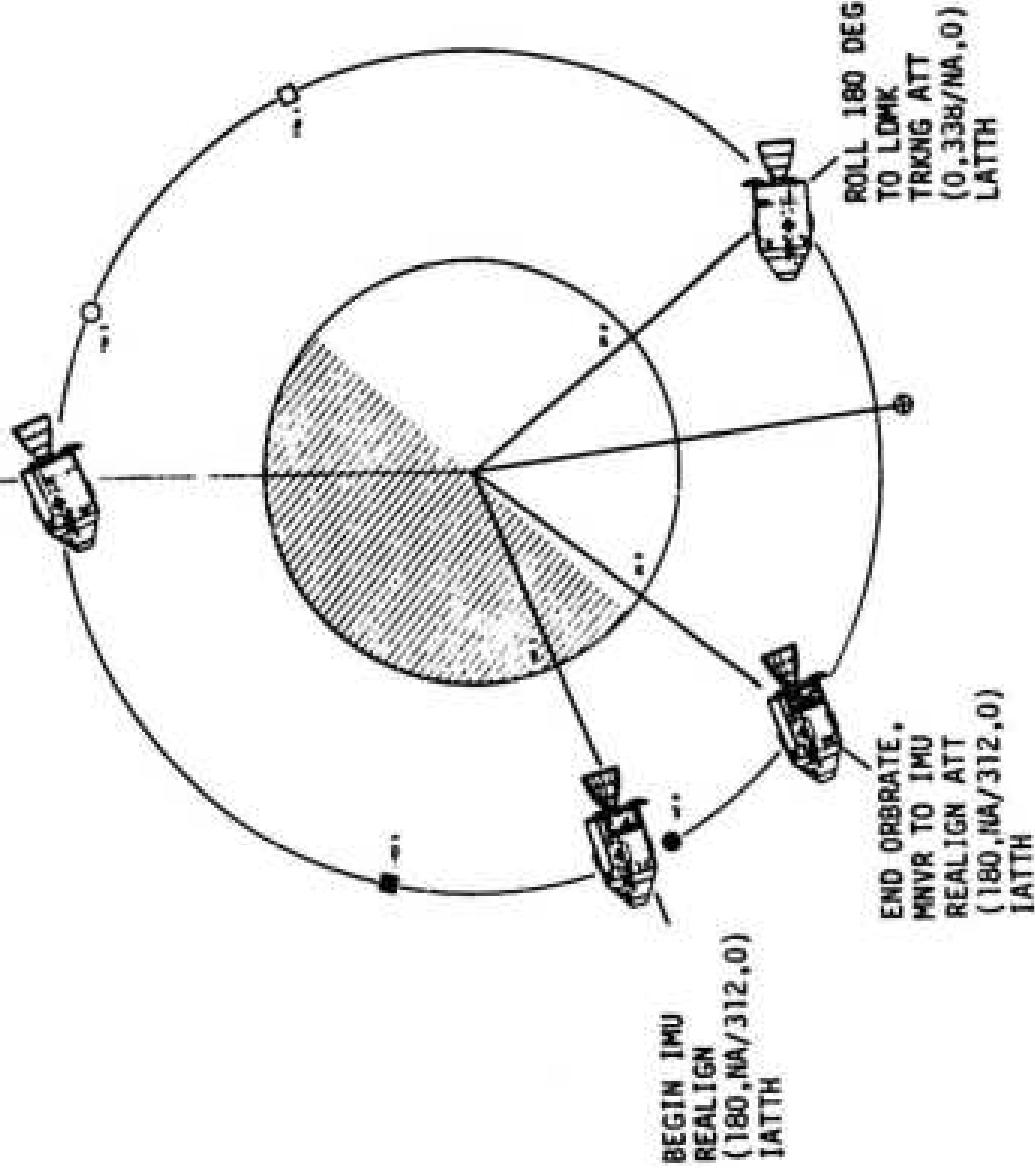


MISSION	EDITION	DATE	TIME	DAY / REV	PAGE	REVISION
Apollo 12	FINAL (May 14)	October 15, 1969	13:00 - 139:00	6/28-29	3-117	PRINTED 11/14/94 REF ID: A7521 (Page 69)
Apollo 13	FINAL (May 14)	October 15, 1969	13:00 - 139:00	6/28-29	3-117	PRINTED 11/14/94 REF ID: A7521 (Page 69)

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138:54:46
BEGIN REV 29
(180,NA/310,0)
IATTH

REV 29



REVISION B

3-117A

FLIGHT PLAN

CSM

CMP

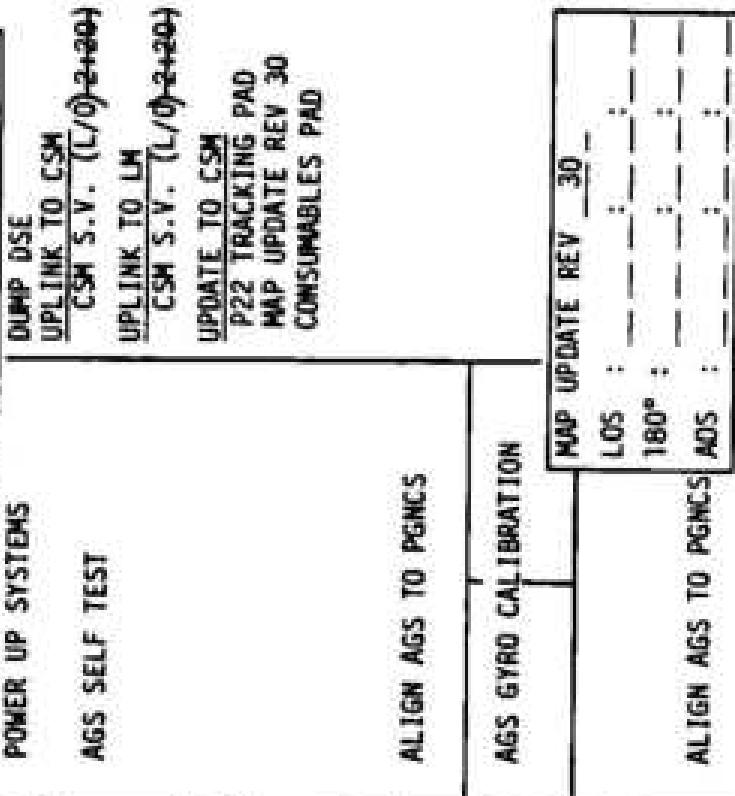
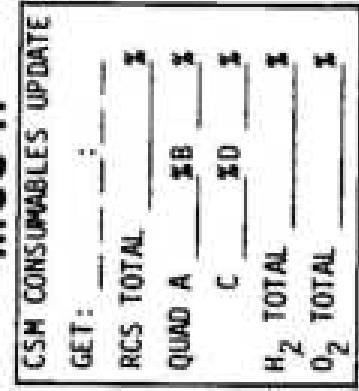
0522 CST

CDR

LMP

LM

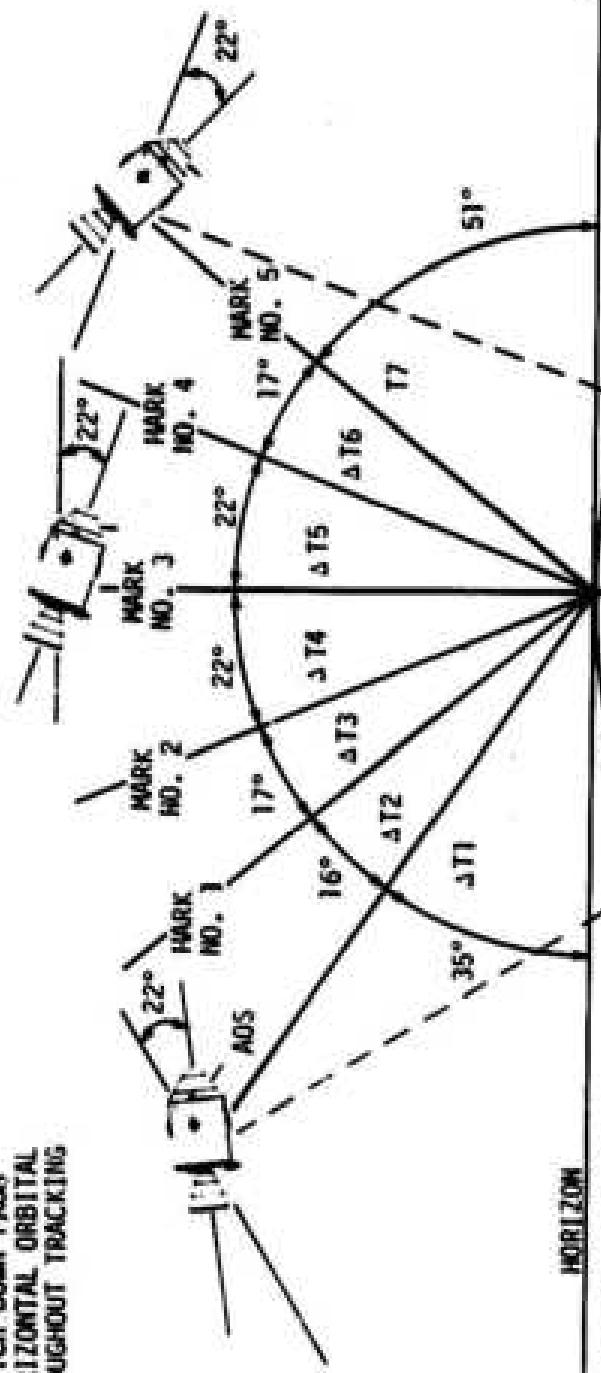
MCC-H



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (Nov 14)	OCTOBER 15, 1969	139:00 - 140:00	6/29	3-118

CSM LANDMARK TRACKING PROFILE

22 DEG PITCH DOWN FROM
LOCAL HORIZONTAL ORBITAL
RATE THROUGHOUT TRACKING



HORIZON

T1 GET AT 0° ELEVATION
T2 GET AT 35° ELEVATION

P22	40000	40000	P dn 22° RD 10°	193
T1	•	•	•	•
T2	•	•	•	•
R	•	•	•	•
N or S MM	—	—	SA	TA
CP	—	—	MB9	—
LAT	-3.437	—	—	—
LONG/2	-11.615	—	—	—
ALT	-1.37	—	—	—

A T1 = 300 SEC
A T2 = 400 SEC
A T3 = 255 SEC
A T4 = 25 SEC
A T5 = 25 SEC
A T6 = 25 SEC
A T7 = 340 SEC
AOS TO FINAL MARK -
140 SEC

CENTER OF MOON

FIGURE 3-3

3-118a

FLIGHT LAN

CSM

CMP

CDR

LMP

0622 CST

1400:00

T

TRACK CSM WITH RR

RATE GYRO CHECK

UPLINK TO CSM
RESET SURFACE FLAG
LM S/W. (INSTR + 18)

V47-MGS INITIALIZATION

UPLINK TO CSM
RESET SURFACE FLAG
LM S/W. (INSTR + 18)

:09

H

S

F

:15

H

S

F

:28

H

S

F

:30

H

S

F

:45



141:00

TRACK LANDMARK 193
DO NOT PRO ON FINAL W89
25 SEC BETWEEN MARKS
5 MARKS

STOP PITCH AND MANEUVER
TO P52 ATTITUDE RR
140:06

R180 P 312 Y 0
HGX P -73 Y 338

P52 - IMU REALIGN
OPTION 3 - REFSHMT
(LIFTOFF ORIENTATION)

REPORT GYRO TORQUE ANGLES
GDC ALIGN TO IMU
VERIFY DSE MOTION
AT LOS

H2 PURGE LINE HTR-ON

H

S

F

H

S

F

O2 & H2 FUEL CELL PURGE
MASTIC WATER DUMP

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (INSTR 14)	OCTOBER 15, 1969	140:00 - 141:00	6/29-30	3-119

CSM LANDMARK TRACKING PROFILE

22 DEG PITCH DOWN FROM
LOCAL HORIZONTAL ORBITAL
RATE THROUGHTOUT TRACKING

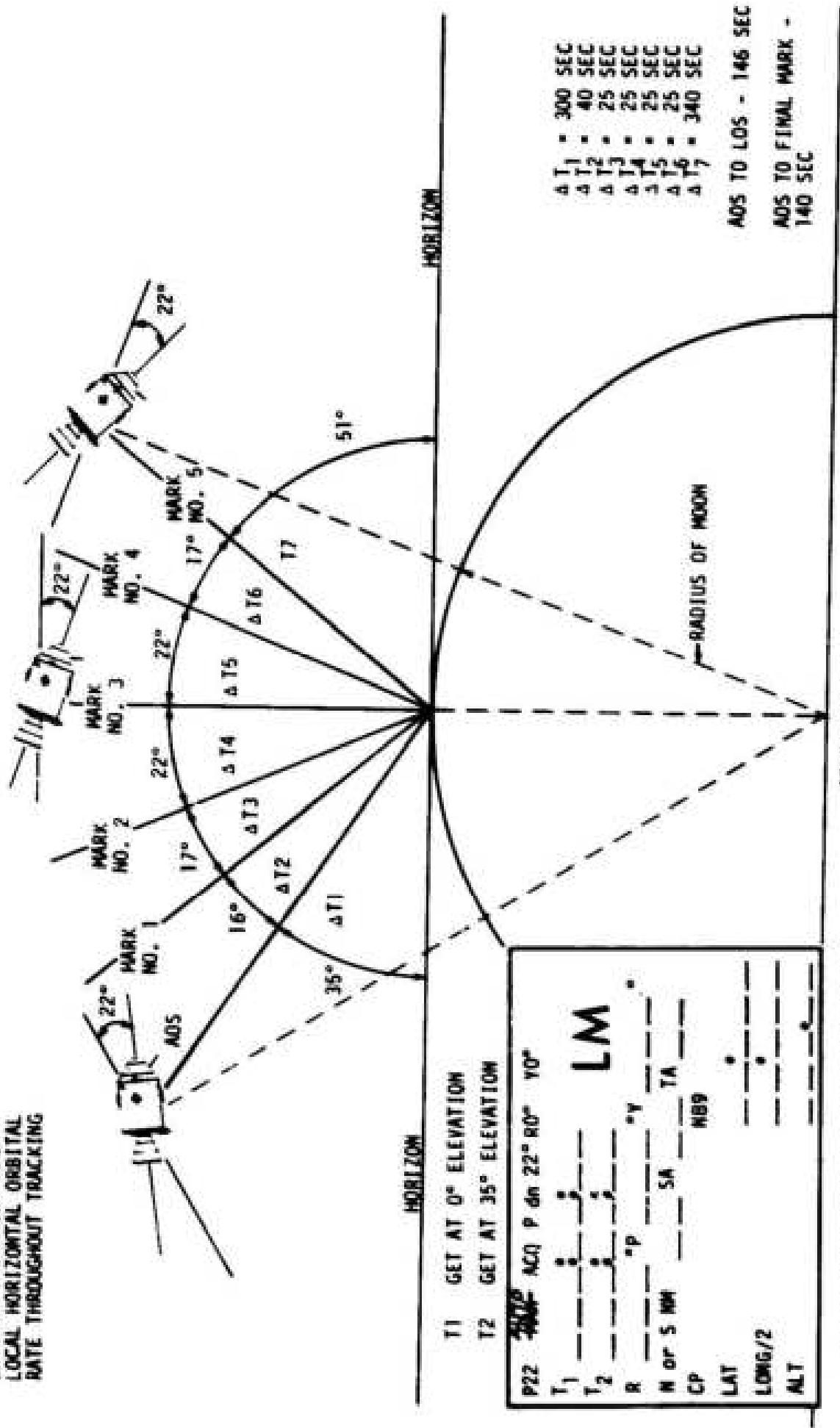


FIGURE 3-3

NOTE: Coordinates of LM to be updated

210

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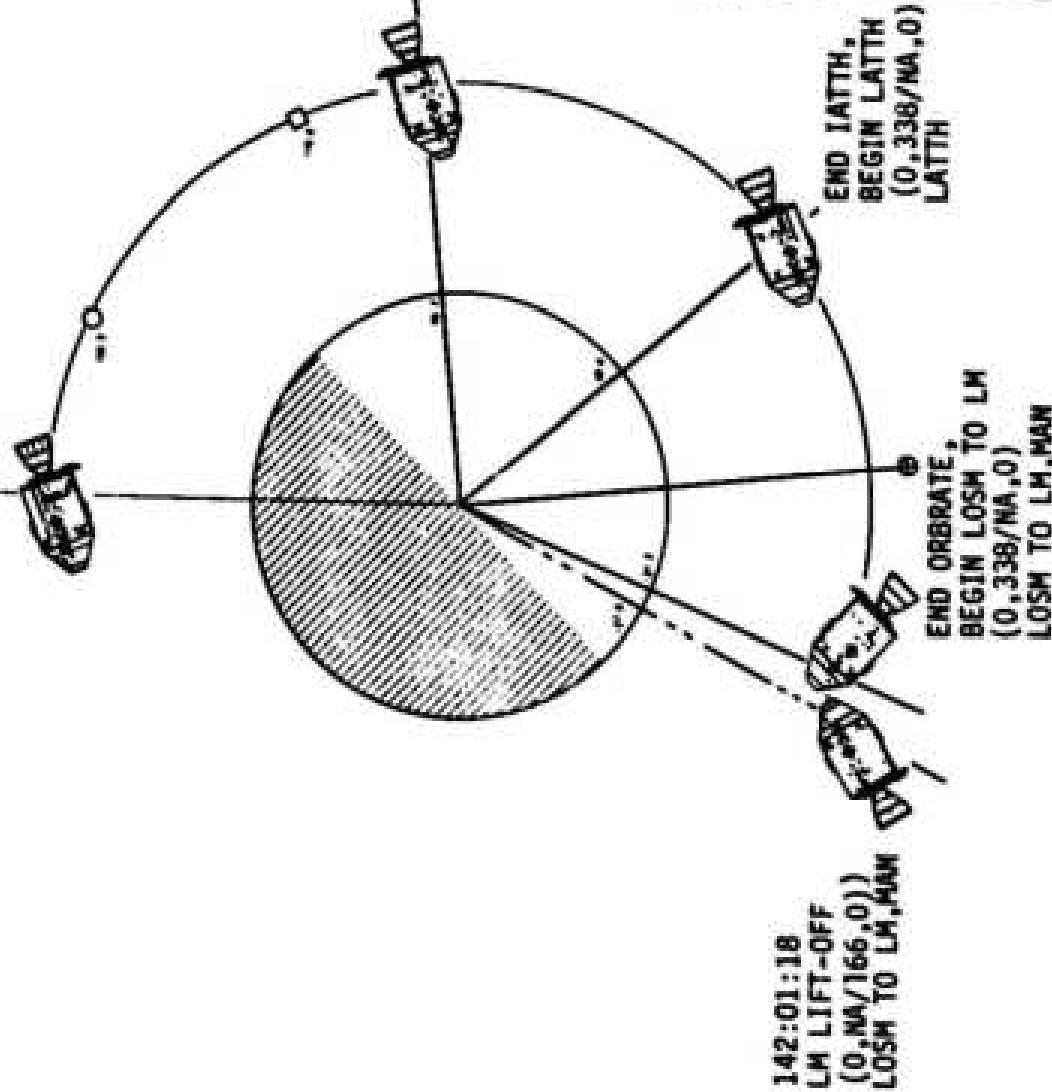
REV 30

140:53:02
BEGIN REV 30
(180,NA/312,0)
LATTH

ROLL 180 DEG TO
LN TRNG ATT
(0,NA/312,0)
LATTH

LEGEND:

- MSFN ADS, LOS
 - S/C SUNRISE, SUNSET
 - ⊕ SUBEARTH POINT
- (R,LHP/IMP,Y)
- LATTH - INERTIAL ATTITUDE HOLD
- LATH - LOCAL ATTITUDE HOLD



3-120A

REVISION B

FLIGHT PLAN

C-M

CMP

0722 CST
141:00

SET UP CAMERAS FOR DOCKING
CMC2/DAC/18/CEX.
BRKT, MIR(18,250,7)
6 FPS, 1 MAG, 16 MIN
CMC2/EL/80/CEX
(18,250,FOCUS), 10
CMC/TV-IN, BRKT (f22)

REACQUIRE MSFN
HGA: P -73, Y 338

V49-MINIR TO LM TRACK
ATT BY 141:21
R 0 P 312 Y 0
DMMI 0

P22-ORBITAL NAVIGATION
GO ORB RATE @ 141:39
R 0 P 338/YA Y 0

LM

CDR

LMP

0722 CST
141:00

SET UP CAMERAS FOR DOCKING
CMC2/DAC/18/CEX.
BRKT, MIR(18,250,7)
6 FPS, 1 MAG, 16 MIN

CMC2/EL/80/CEX
(18,250,FOCUS), 10
CMC/TV-IN, BRKT (f22)

REACQUIRE MSFN
HGA: P -73, Y 338

V49-MINIR TO LM TRACK
ATT BY 141:21
R 0 P 312 Y 0
DMMI 0

P22-ORBITAL NAVIGATION
GO ORB RATE @ 141:39
R 0 P 338/YA Y 0

	MAP UPDATE REV 311
L05 :	-----;
180° :	-----;
AOS :	-----;

UPDATE TO CSM
LN TRACKING PAD
MAP UPDATE REV 311
UPLINK TO CSM(IF REQ)
LN S.V. (INS + 18)
CSM S.V. (INS + 18)
UPLINK TO LM (IF REQ)
ALIGN AGS TO PGNC'S
DON HELMET & GLOVES
SET CAMERA FOR ASCENT:
LN3/DAC/10/CEX (#2,8,500,30)
12 FPS, 1 MAG, 8 MIN
ASCENT BAT'S -ON, DES 143-OFF
ENTER AES LUNAR ALIGN
PRELAUNCH SWITCH CHECKS
PRELAUNCH SWITCH CHECKS
VENT OPS & SHE

V47-AGS INITIALIZATION
LIFTOFF COMM
DES BATS 244 - OFF
DEADFACE DES BATS
VERIFY CB STATUS
CHECK APS BURN CARD
CHECK APS BURN CARD
CHECK APS, RCS, EPS, ECS
CHECK APS, RCS, EPS, ECS
SEQ CAMERA - ON
L/O - 6 MINUTES:
DISABLE MSFN RELAY

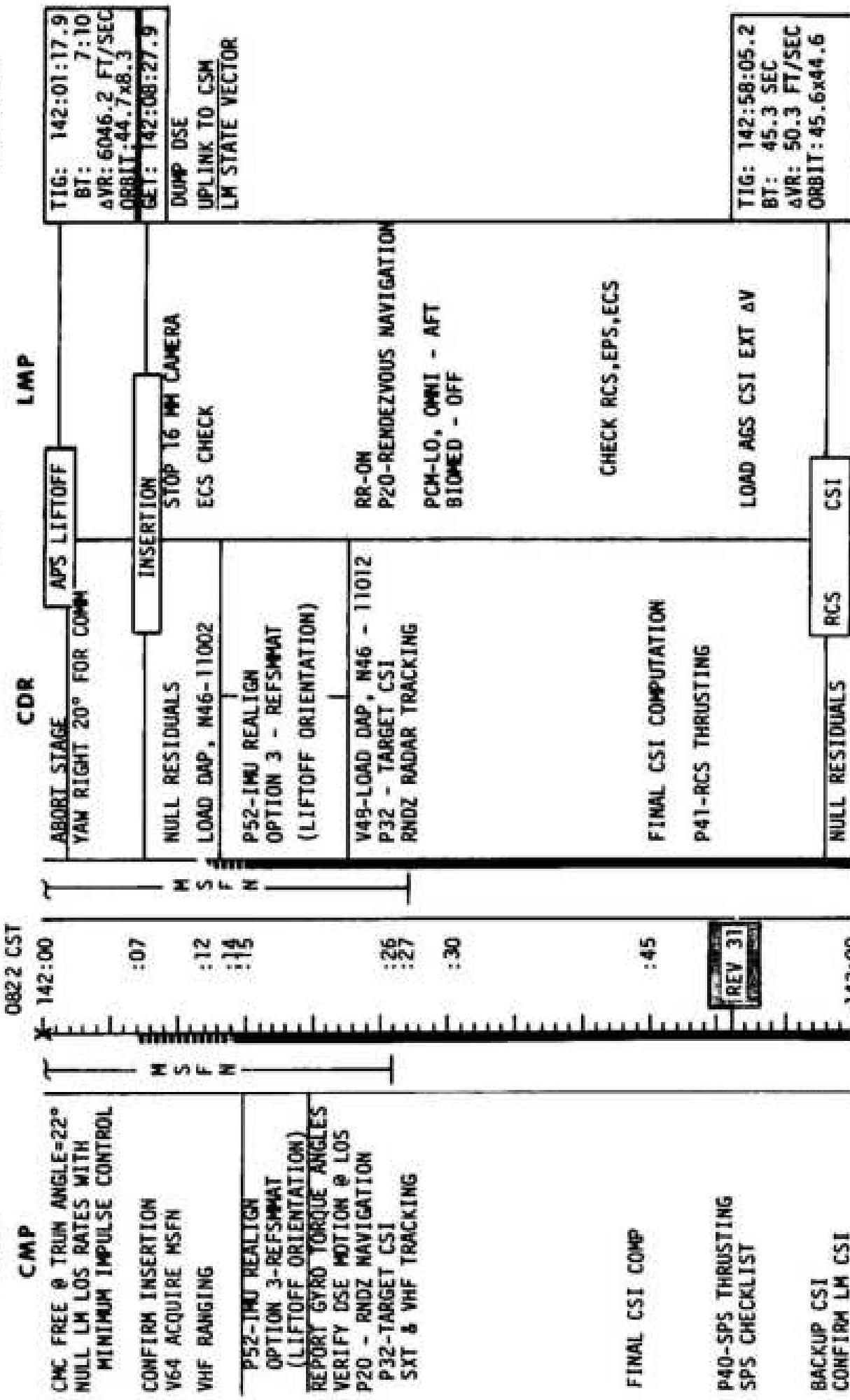
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	141:00 - 142:00	6/30	3-121

FLIGHT PLANNING BRANCH

REVISION A

MCC-C

LM



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	142:00 - 143:00	6/30-31	3-122

REVISION B

FLIGHT PLAN

CSM

CMP

0922 CST

P20 AUTO MMU TO
TRACK ATTITUDE
SXT 1 MMU TRACKING
OMNI 0

143:00

P33-TARGET COM
MMU RADAR TRACKING

:03

143:03

CONFIRM LM PC
P33 - TARGET COM
SXT 1 MMU TRACKING
OMNI 0

:06

143:06

P30-TARGET PLANE CHANGE

(IF PLANE CHANGE NOT REQUIRED, CONTINUE TRACKING FOR COM)

:13

143:13

CONFIRM PLANE CHANGE
PC EXIT AN

:15

143:15

OMNI-FWD, BIOME-D-RIGHT
PCM-HI

LOAD AGS PC EXIT AN

CSI BURN STATUS
REPORT

P41-RCS THRUSTING

RCM PLANE CHANGE

:30

143:30

CONFIRM LM PC
P33 - TARGET COM
SXT 1 MMU TRACKING
OMNI 0

:30

143:30

GET: 143:26:27.5

ANR: MM ZERO

FINAL COM COMPUTATION
(IF COM NOT REQUIRED, TERMINATE TRACKING AND P33)
P41-RCS THRUSTING
RCM PLANE CHANGE

:45:

143:45

CONFIRM LM PC
P33 - TARGET COM
SXT 1 MMU TRACKING
OMNI 0

:45:

143:45

P34-TARGET TPI
NULL RESIDUALS

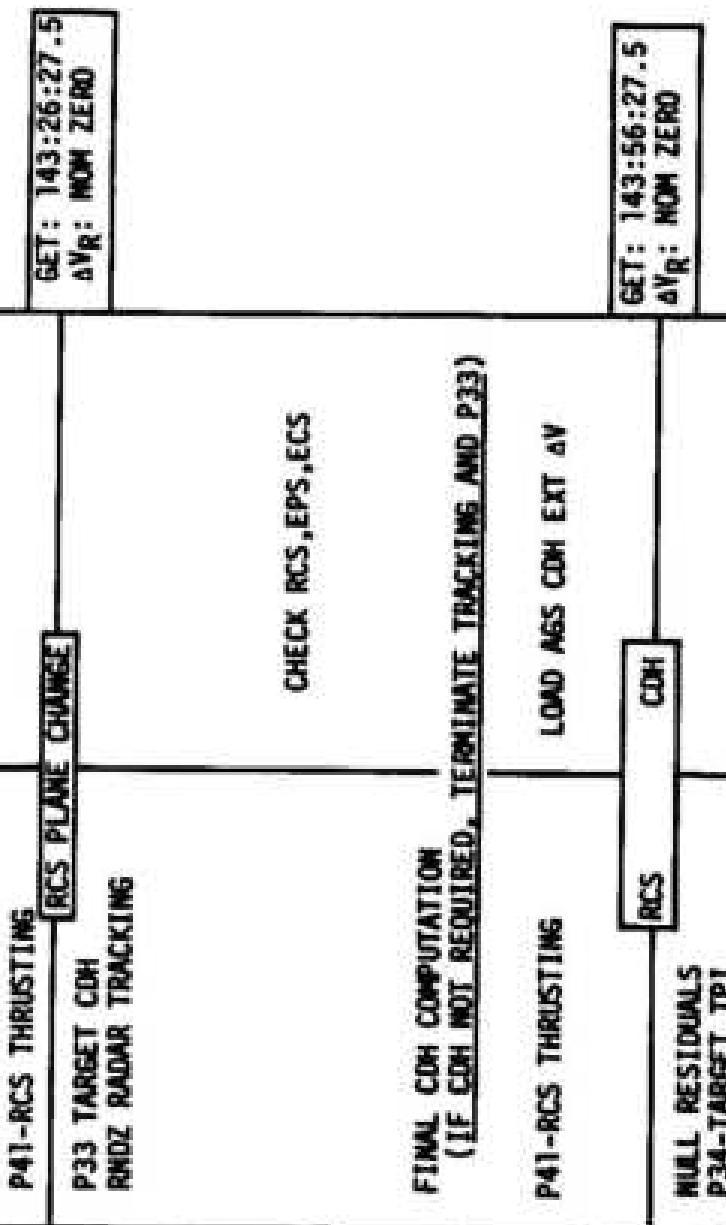
:50:

143:50

MCC-H

LM

LMF



MISSION	EDITION (MON 14)	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MON 14)	OCTOBER 15, 1969	143:00 - 144:00	6/31	3-123

REVISION A

MCC-H

LM

1022 CST

CSM

CMP
P34-TARGET TPI
SXT & VHF TRACKING

CDR

LMP

RNDZ RADAR TRACKING

LM

LMP

FINAL TPI COMP
VERIFY USE MOTION @ LOS
P40-SPS THRUSTING
SPS CHECKLIST

TPI BACKUP
CONFIRM LM TPI
P35-TARGET MCC-1
SXT & VHF TRACKING

FINAL MCC-1 COMP
P41-RCS THRUSTING
MCC-1 BACKUP
CONFIRM LM MCC-1

P35-TARGET MCC-2
SXT & VHF TRACKING

FINAL TPI COMPUTATION

OMNI-AFT, BIOMED-OFF
PCM-L0

P41-RCS THRUSTING

LOAD AGS TPI EXIT AV

TIG: 144:36:25.7
BT: 22.1 SEC
AVR: 24.6 FT/SEC
ORBIT: 61.9x44.2

LOAD AGS MCC-1 EXT AV

TIG: 144:51:25.7
BT: 22.1 SEC
AVR: 24.6 FT/SEC
ORBIT: 61.9x44.2

NULL RESIDUALS
P35-TPM TARGETTING(MCC-1)
RNDZ RADAR TRACKING

REV 32
145:00
145:00

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	144:00 - 145:00	6/31 - 32	3-124

MSC Form 2180 (Rev 62)

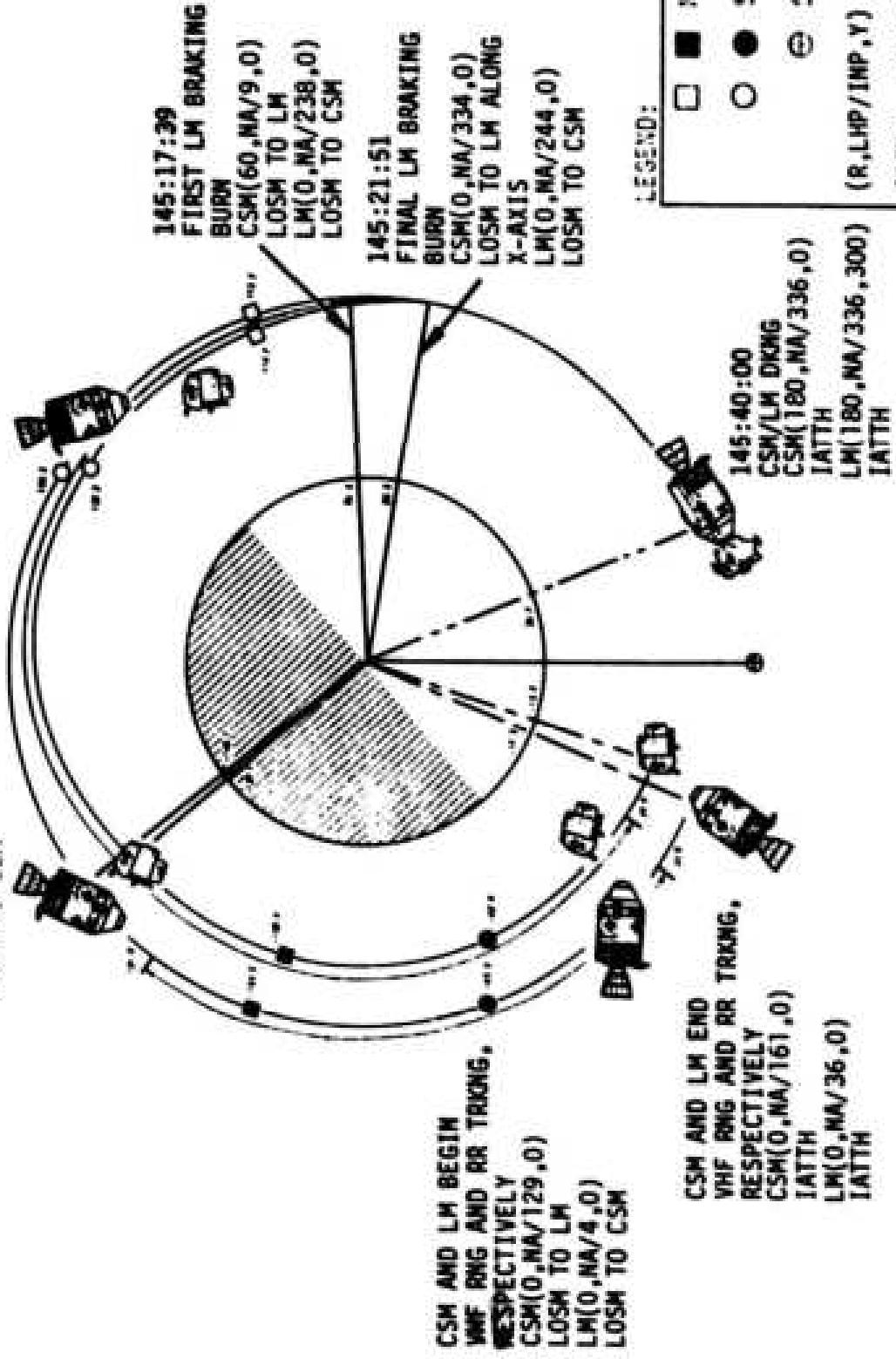
FLIGHT PLANNING BRANCH

REVISION A

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REV 32

144:36:50
TP1 BURN IGM
CSM(0, MA/4, 0)
LATTH
LHM(0, MA/273, 0)
LOSM TO CSM



REVISION B

3-124A

FLIGHT PLAN

MCC-H

CSM
CMB

1122 CST

FINAL MCC-1 COMP

P41 - RCS THRUSTING
CONFIRM LM MCC-2
POO (TERMINATE P20)

M64 - ACQUIRE MSFN
TV (MAD) 145:15 TO 145:45

CONFIGURE FOR DOCKING

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

LOGIC-ON

START 16MM CAMERA
(16 MINUTES)

DOCKING ATTITUDE

R 180 P 336 Y 0
HGA 4 -51 X 350

PYRO ARM

CSM ACTIVE DOCKING

POST DOCKING CHECKLIST
M68-L000 DMP, RA(6102)

PRESSURIZE CM TO 5.5PSIA
ADJUST O₂ FLOW TO 0.6#/HR

FOR LEAK CHECK, THEN
EQUALIZE CM/LM AP

REMOVE AND STOW HATCH
COLLAPSE PROBE AND

PASS TO CDR
VERIFY LATCHES

P41

RCS THRUSTING

CONFIRM LM MCC-2

POO (TERMINATE P20)

HULL RESIDUALS

POO (TERMINATE P20)

PCM-HI

PCM-HI

SET UP CAMERA FOR DOCKING

LH/DL/60/HCEX

(111,250,FOCUS) 5

LOAD MCC-2 EXT AN

OMNI-AFT, BIOMECH-EFF

PCM-HI

PCM-HI

SET UP CAMERA FOR DOCKING

LH/DL/60/HCEX

(111,250,FOCUS) 5

DOCKING ATTITUDE

A 180 P 336 Y 300

STEERABLE ANGLES

P 181

Y 61

CONFIGURE PENS & AGS

Y48 LOAD DMP, RA(6102)

PREP FOR TRANSFER

DUMP DSE

DUFF HELMET & GLOVES

OPEN Hatch

RECEIVE & STOW DROGUE
PROBE

DOFF HELMET & GLOVES

ASSIST CDR

MISSION EDITION

APOLLO 12 FINAL (NOV 14)

OCTOBER 15, 1969

145:00 - 146:00

6/32

3-125

REVISION A

FLIGHT PLANNING BRANCH

REVISION A

LMP

COR

P41 - RCS THRUSTING

CONFIRM LM MCC-2

POO (TERMINATE P20)

HULL RESIDUALS

POO (TERMINATE P20)

PCM-HI

PCM-HI

SET UP CAMERA FOR DOCKING

LH/DL/60/HCEX

(111,250,FOCUS) 5

DOCKING ATTITUDE

A 180 P 336 Y 300

STEERABLE ANGLES

P 181

Y 61

DOCKING

Y 61

P 181

A 180

Y 61

P 181

Y 61

P 181

A 180

Y 61

P 181

Y 61

P 181

A 180

Y 61

P 181

Y 61

P 181

A 180

Y 61

MCC-H

LM

1222 CST

CSM

CDR

TRANSFER BAGS, VACUUM
BRUSH, AND HOSE TO LML10H CANNISTER CHANGE
NO 11 - 13 INTO A,
STOW 11 IN A3

STOW LM EQUIPMENT

VERIFY DSE MOTION @ LOS

:04 CONFIGURE SUIT LOOP
FOR VACUUMING:11 UNSTOW SRC'S, VACUUM &
BAG, AND PASS TO CSM:15 VACUUM, BAG, & TRANSFER
TO THE CSM:
CSRC
CSC CASSETTE
70MM MAGS(2):23 GLOVES (4)
HELMETS(2)
LUNAR BOOTS
SURVEYOR TOOLS AND
HARDWARE

:30

:45

REV 33

STOW VACUUM BRUSH AND
HOSERECEIVE BS & BG FROM
CHP AND STOW
LM JETTISON ATTITUDE
R 63 P 240 Y 290
STEERABLE ANGLES

MISSION	EDITION	DATE	TIME	FLIGHT PL.	WINGS BRANCH
APOLLO 12	FINAL (WV 14)	OCTOBER 15, 1969	146:00 - 147:00	6/32-33	3-126

LMP

UPDATE TO CSM
MAP UPDATE REV 33
SEP BURN PAD
LM JETT ATT
LM JETT TIME
UPLINK TO CSM
CSM S.V. (TIG-10)*
LM S.V. (TIG-10)*
UPLINK TO LM
DEORBIT BURN PAD
P30 TARGET LOAD
UPDATE TO LM
ASSIST CDR
(DECONTAMINATION)

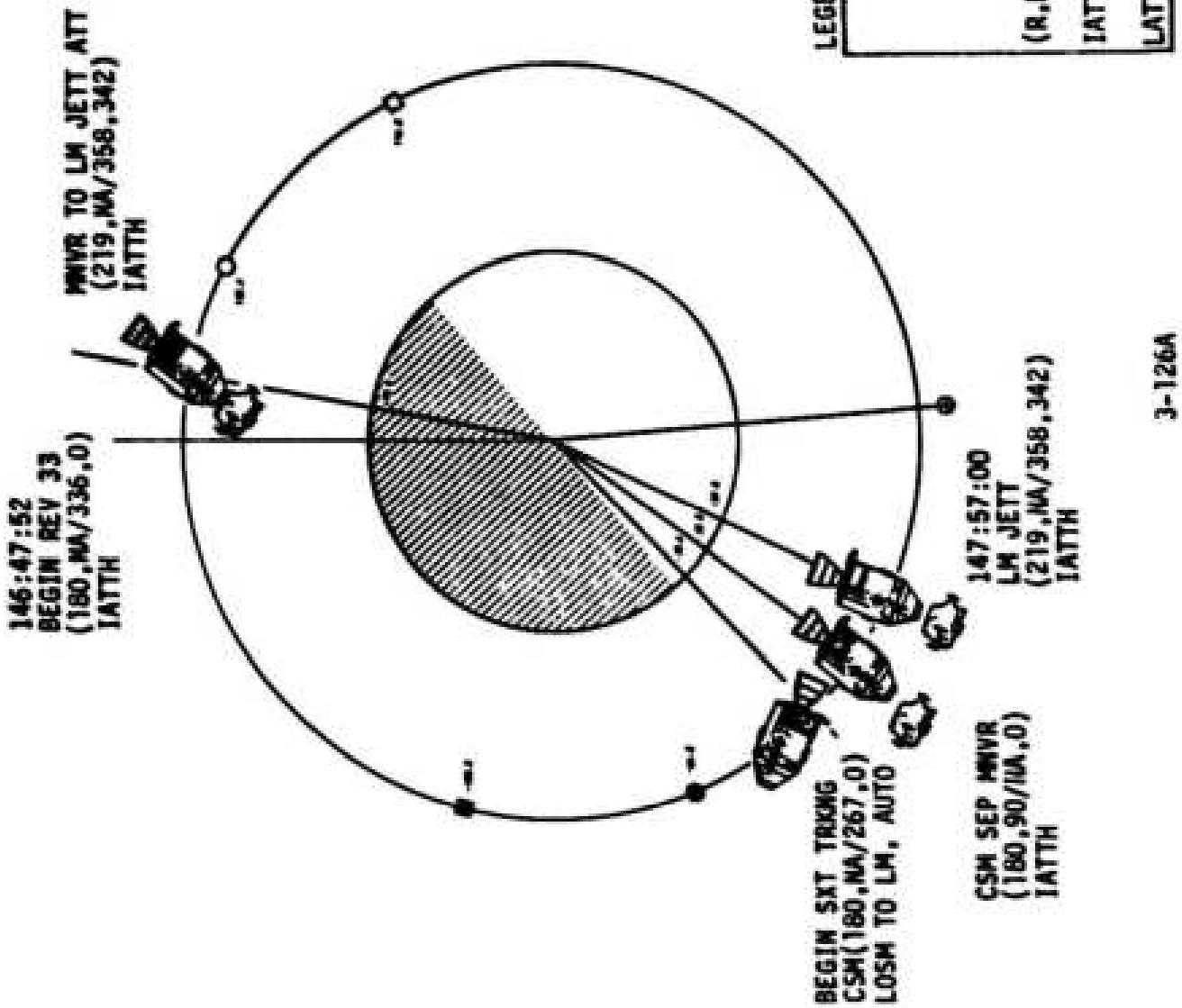
*TIG OF LH
DEORBIT BURN

MAP UPDATE REV 33
LOS :
180°H :
AOS :

DAY / REV	PAGE
6/32-33	3-126

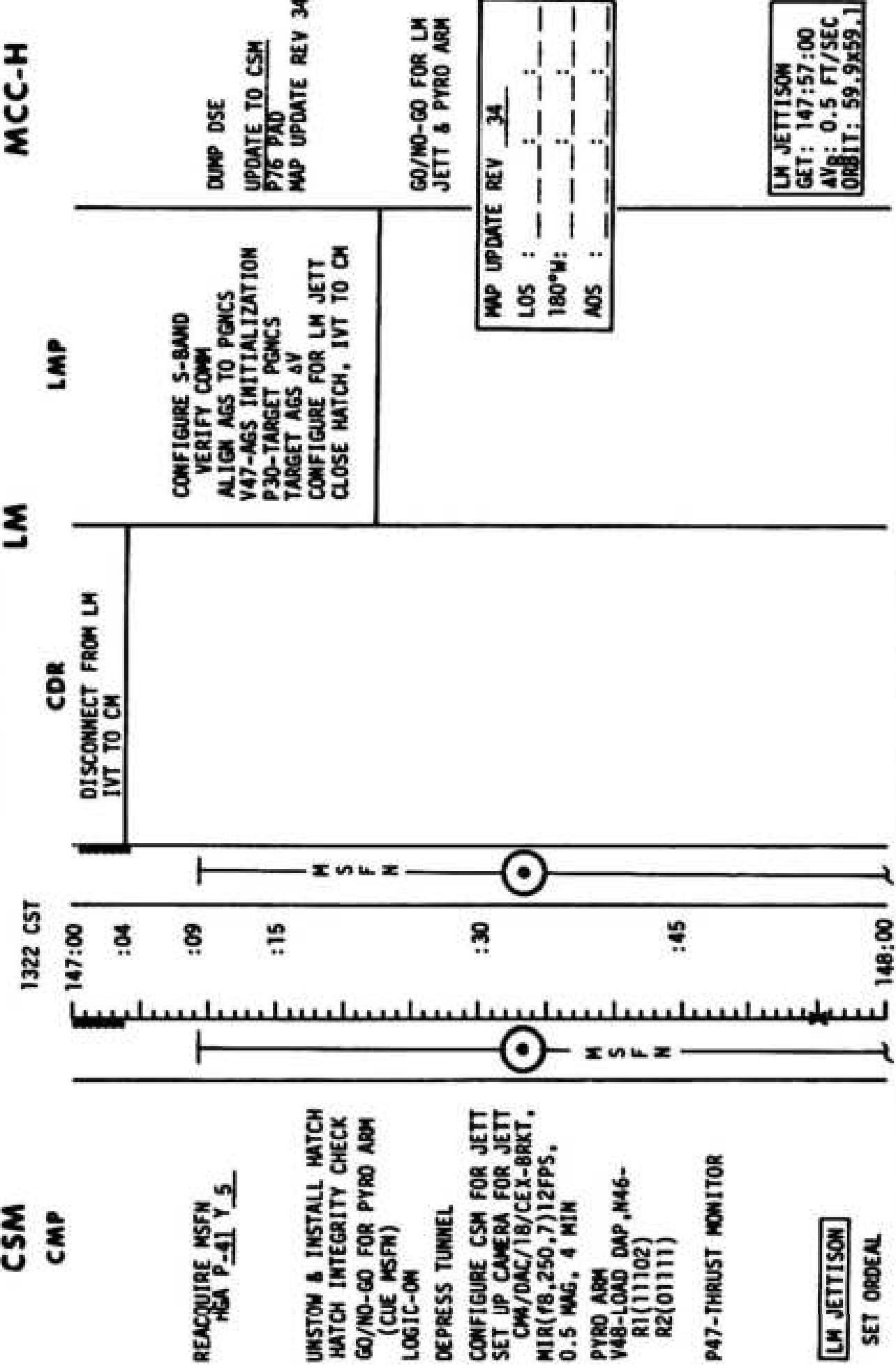
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REV 33



REVISION B

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REVIEW	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	147:00 - 148:00		6/33
APOLLO 12	SET 147:57:00	147:57:00			3-127

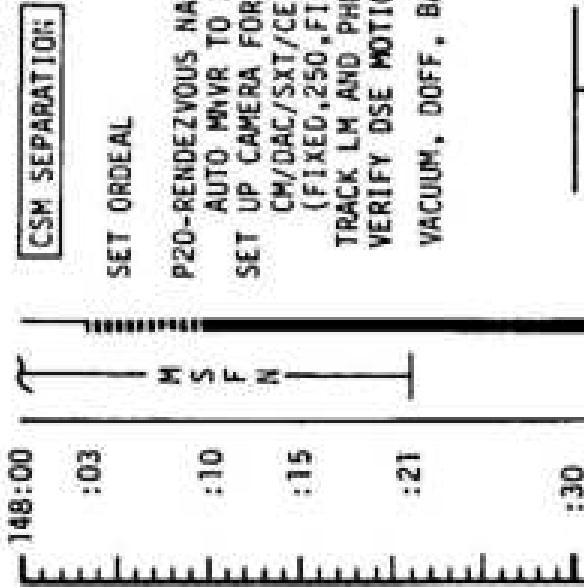
REVISION A

FLIGHT PLANNING BRANCH

1422 CST

FLIGHT PLAN

MCC-N



CSM SEP ATTITUDE
R180 PROVNA Y 0
HOA P-36 Y352

NOTES

CSM SEPARATION
BT: 2.7-5.5 SEC
AVR: 1.0 FT/SEC
ORBIT: 59.7x58.6
SH RCS Z-AXIS BURN

PRE-SLEEP CHECKLIST	
E-MEMORY DUMP	CREW STATUS REPORT (medication)
ONBOARD READOUTS to MSFN	CYCLE H2, O2 FANS
CHLORINATE WATER	VERIFY
WASTE MNGT OVBD DRAIN VIV - OFF	WASTE STOW VENT VIV - CLOSED
EMER CABIN PRESS VIV - BOTH	SURGE TX 02 VIV - ON
REPRESS 02 VIV - OFF	LH TUNNEL VENT VIV - OFF
NORMAL LUNAR COMM EXCEPT	S BD SQUELCH - ENABLE
S BD GAIN ANTEENA TRACK - REACO	HI GAIN ANTENNA BEAM - WARMUP
S BD ANT - HI GAIN	

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	148:00 - 149:00	6/33-34	3-128

REV 34 (REV 69)
FLIGHT PLANNING BRIEFING

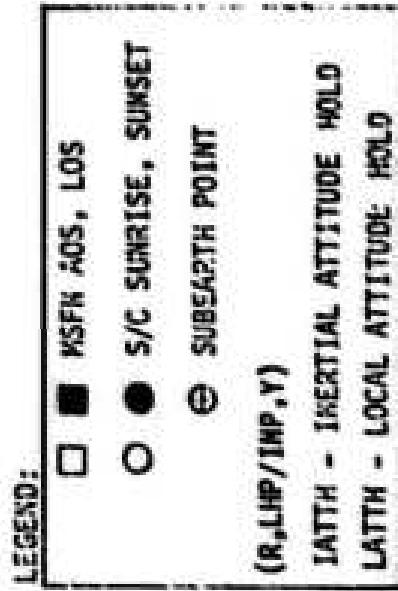
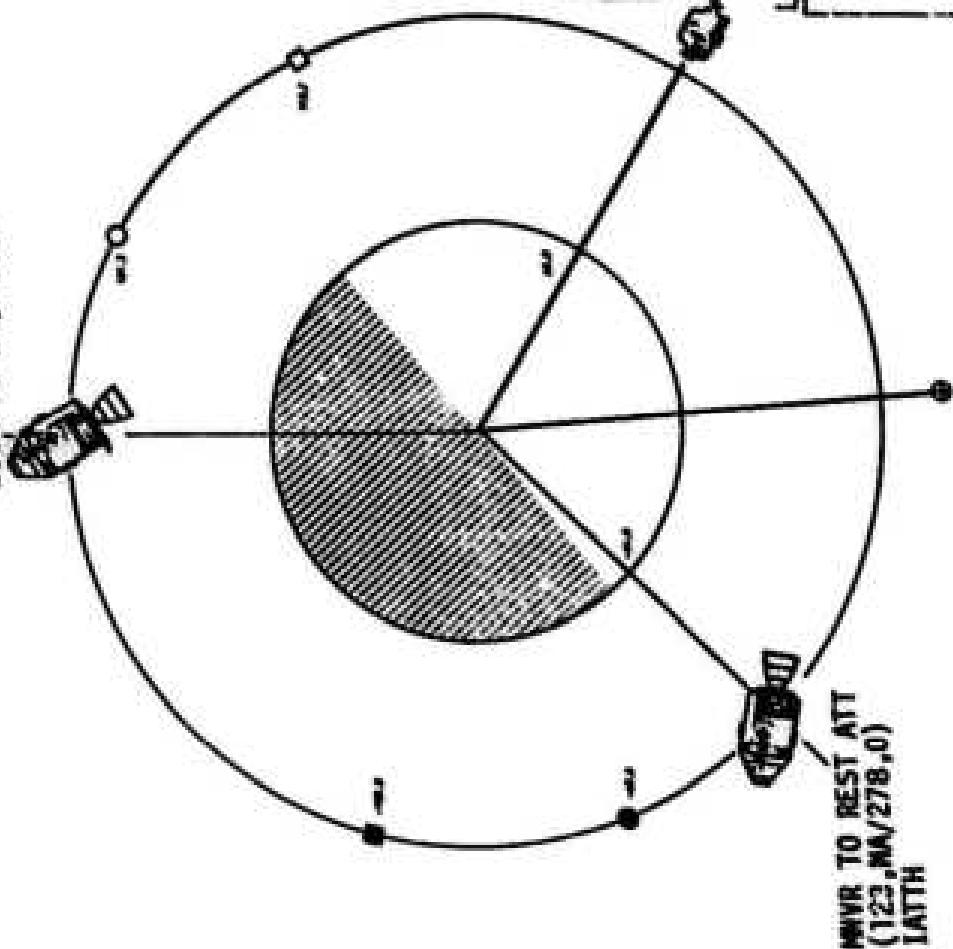
MCC-N 148:00

REVISION A

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REV 34

148:46:07
BEGIN REV 34
(180,NA/234,0)
LSSH TO LH, AUTO



3-1284

REVISION B

FLIGHT PLAN

1522 CT

卷之三

P76 -
PHOTOGRA
THROUGH
PERIOD
EAT
NUMBER TO REST
V21 NOV 16163
HEA P-24 V24
L050 049, RI
R123, P-285
3255E, 16163

A digital timer at the bottom of the frame shows "149:00" on the left and "00:051" on the right. Above the timer is a horizontal scale with markings for "H", "F", "S", and "M". A vertical line extends from the top of the scale down to the "00:051" position on the timer.

TEL 39 PRO
UPDATIE TO C5H

Dump size
UpLink to Up
Common usage off

LH IS TARGETED FOR AP9
IMPULSE BURN. THRUST
IS RCS ULLAGE ONLY.

TEI 39 PAD ASSUMES
NO PLANE CHANGE 2

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	149:00 - 150:00	6/34	3-129
FLIGHT OR LUNAR SURVEYOR					

FLIGHT PLAN

1622 CST

:00
:01
:20
:30

T
H
S
F
M
H
S
F
M

REV 35

151:00 :54
152:00 :30

DUMP DSE

REST PERIOD
(7.5 HOURS)

REST
ATT

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
Apollo 12	FINAL (Nov 14)	OCTOBER 15, 1969	150:00 - 152:00	6/34-35	3-130

ALL INFORMATION CONTAINED

HEREIN IS UNCLASSIFIED

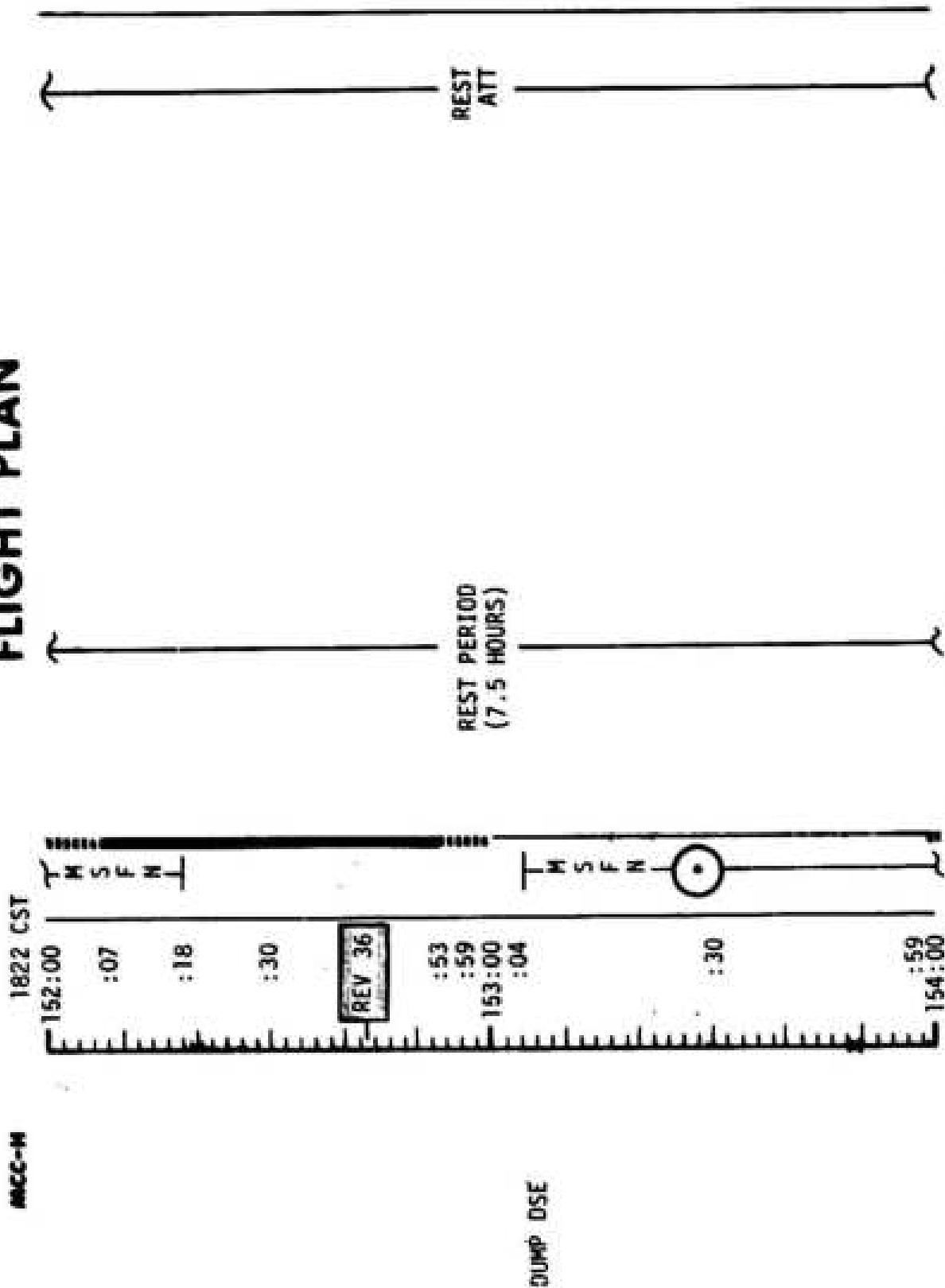
DATE 10/16/01 BY SPAC

HOME

MCC-N

FLIGHT PLAN

NOTES



MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	152:00 - 154:00	6/35-36	3-131

DATA — MCC

DATA PLANNING BUREAU

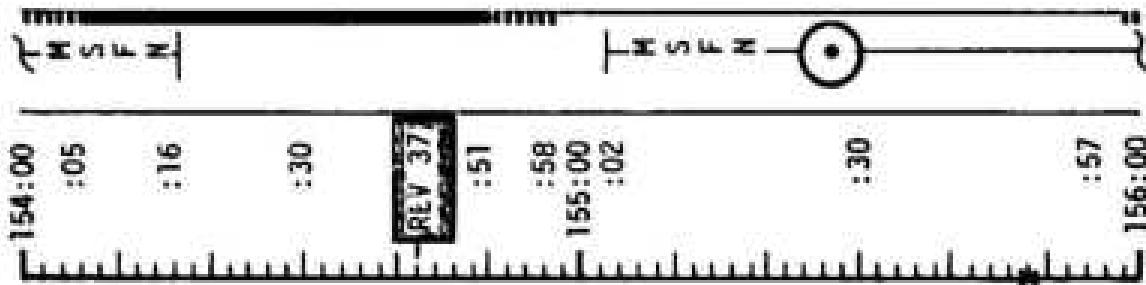
NASA — MSC

Rev 28 (ver 69)

MCC-N

FLIGHT PLAN

2022 CST



NOTES

REST
ATTREST PERIOD
(7.5 HOURS)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	154:00 - 156:00	6/36-37	3-132

MTC FORM 79 (MAY 69) FLIGHT PLANNING SHEET

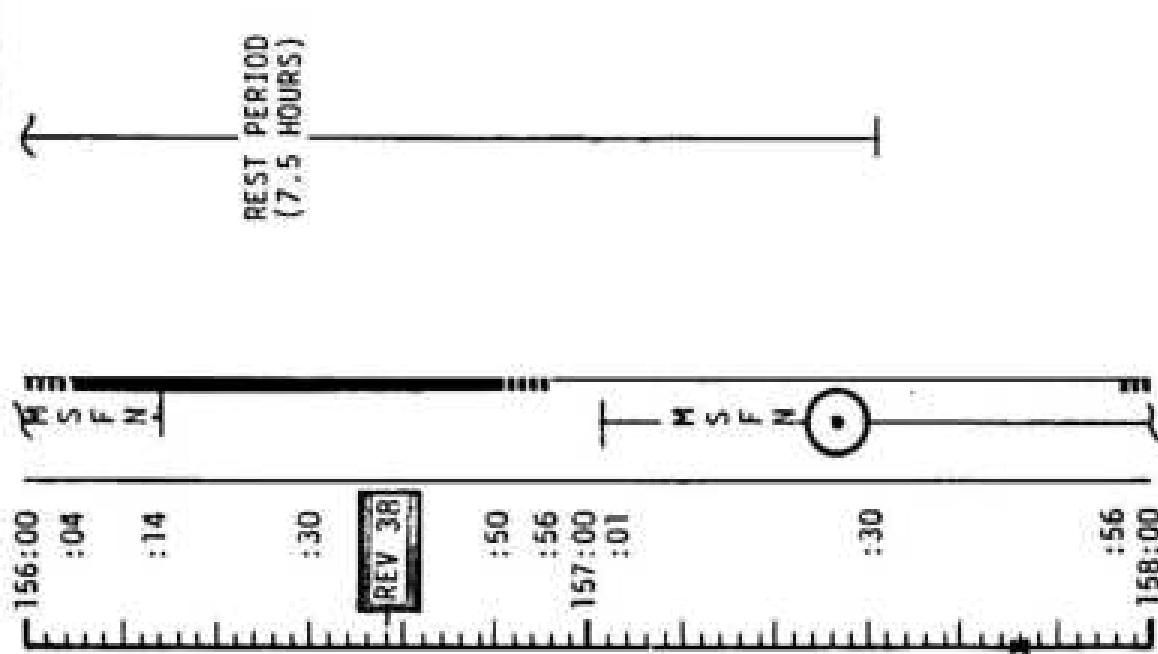
NASA — MSC

MCC-H

FLIGHT PLAN

2222 CST

NOTES



UPDATE TO CSM
PLANE CHANGE HWVR
CONSUMABLES
FLIGHT PLANN
MAP UPDATE REV 39
TEI 41 PWD
DESIGNED ORIENT (PC) :56
STATE VECTOR # W66
PC TARGET LOAD :56
UPLINK TO CSM :56

MCC-Fire 11 (Rev 38)

MCC — MCC 3-133

MISSION	EDITION	DATE	TIME	MISSION	EDITION	DATE	TIME	PAGE
APOLLO 12	FINAL	(NOV 14)	OCTOBER 15, 1969	APOLLO 12	FINAL	(NOV 14)	OCTOBER 15, 1969	6/37-38

FLIGHT PLAN

MCC-N 0022 CST 158:00

H	S	T
F	N	
158:00	:02	

POSTSLEEF CHECKLIST

HWTR TO PS2 ATT BY 158:06
R 180 P 278 A 45 Y 239 HGA

CREW STATUS REPORT
S BU ANI - HI GMIN
+88-H20 HHR CONN EXCEPT:
COSIMILABLES UPDATE
FLIGHT PLMN UPDATE
CYCLE H2, 02 FANS
+88-H20 HHR CONN
NO NORMAL LUMBR CONN

VERIFY USE MOTION AT LOS

OPTION 1 PREFERRED
PS2 INI REALIGN

158:30
BEY 39

P30 - EXTERNAL ZY

V49 - HWTR TO BURN
ATT BY 158:35 R 0 P 10 HGA
P 40 - SPS THRUST

SXT STAR CHECK
SETUP DMC IN LH RNDZ MINON
(OPT1 Use PHOTOCAMERA)
CM2/DAC/18/BM-BRKT, 6 MM, 8 MIN)

PSM CONSISTENCIES UPDATE

GET:

N93:

NOS:

N71:

CREW STATUS REPORT

COH CHP LWP

SEEP

PRO

GDC T0 IHW ALJEN

(18,125,-), 28,40

CM4/E/L/500/BW-BRKT, COM1,

MINON

CM2/DAC/18/BM-BRKT, 6 MM, 8 MIN)

PLANE CHANGE 2

LOS :

180° :

AOS :

MAP UPDATE REV	39
----------------	----

TEI 41 ISSUES	---
---------------	-----

P52 (PLANE CHANGE ORIENT)	
---------------------------	--

CREW STATUS REPORT	
--------------------	--

DATE	TIME	DAY/REV	PAGE
------	------	---------	------

new - new

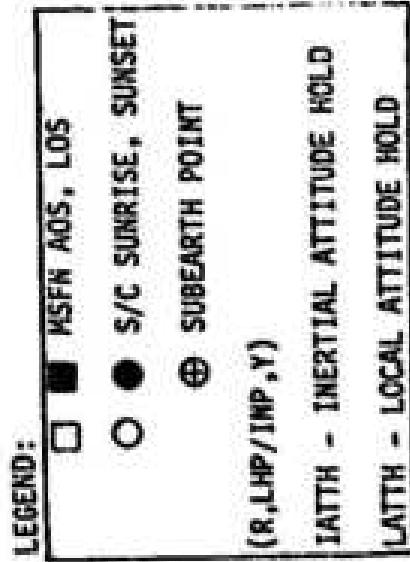
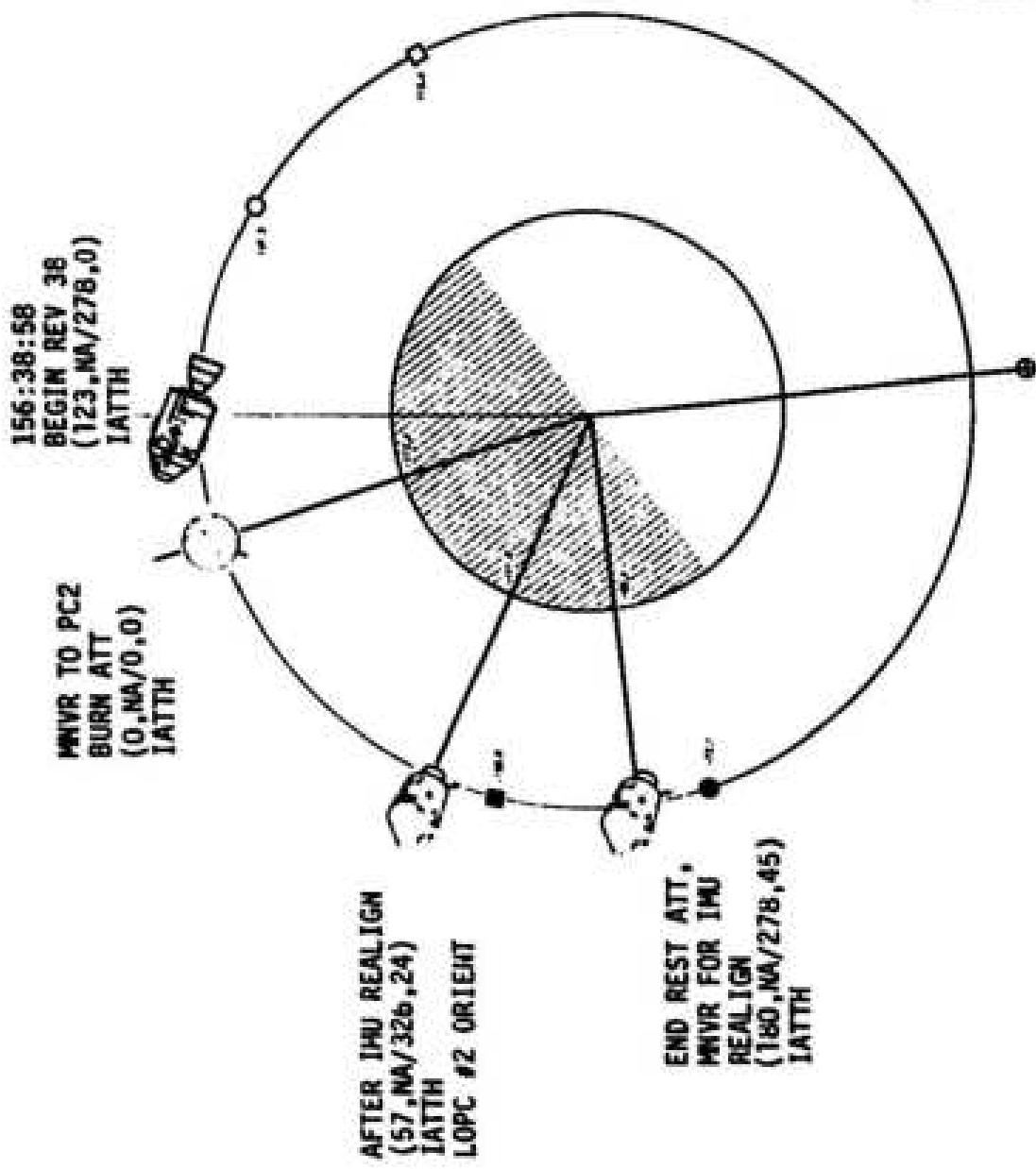
new - new

use from 18 (part 60)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AP0110 12	FINAL (Nov 14)	OCTOBER 15, 1989	158:00 - 159:00	7/38-39	3-134
159:00	159:00	AP0110 12	158:00	158:30	3-134

new - new - new

REV 38



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HIGH RESOLUTION PHOTOGRAPHY
REV 39

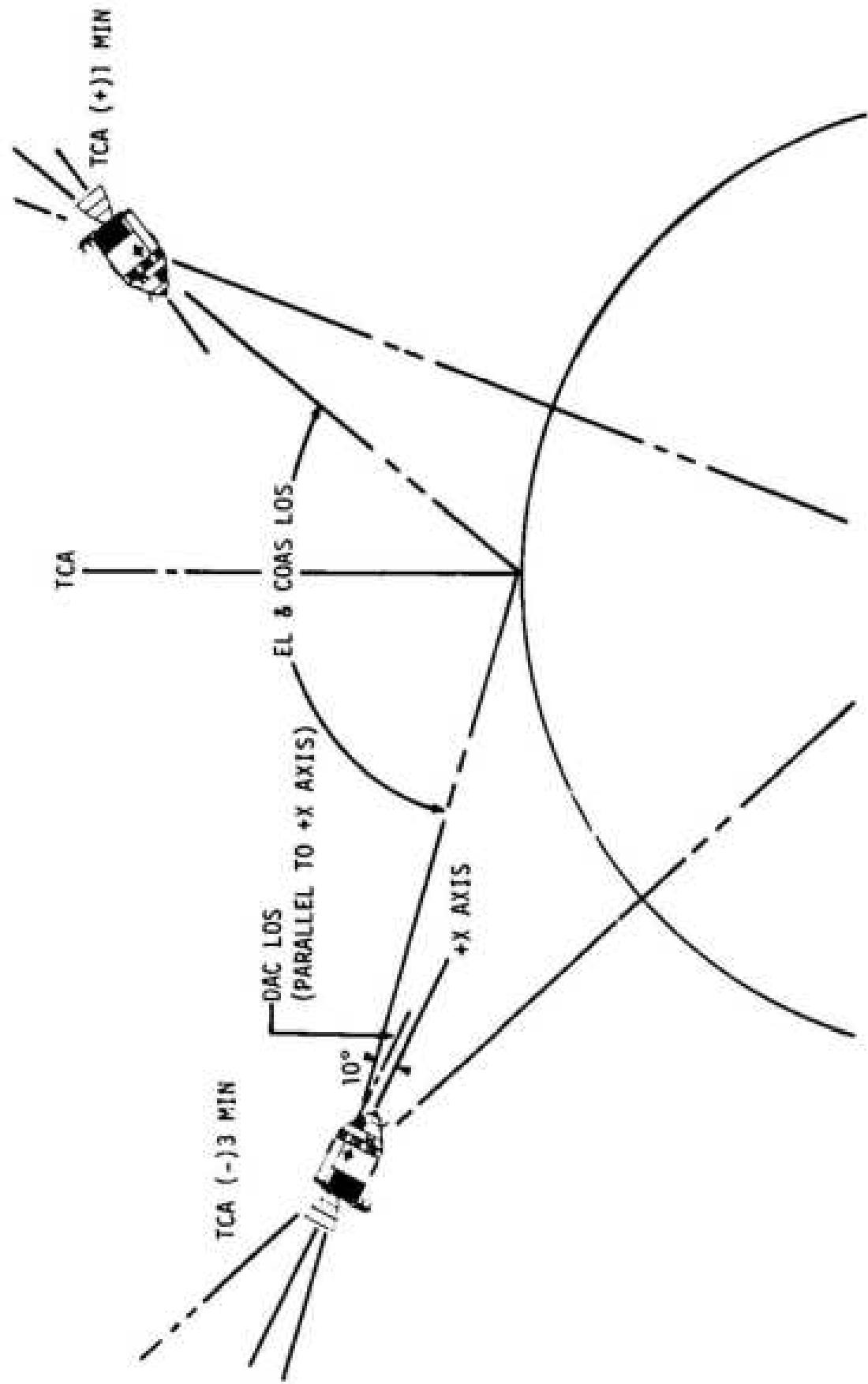


FIGURE 3-4
3-135

FLIGHT PLAN

CSM PLANE CHANGE #2
BURN TABLE

P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TAKEOVER	+10° TAKEOVER	8T + 1 SEC	NO TRIM

TABLE 3-10
3-136

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REV 39

158:37:11
BEGIN REV 39
(0,0,0)

BEGIN IMU REALIGN
(180,0,0)
IATTH

IATTH
(0,0,0)

159:01:46
PC2 BURN 1GM
(0,0,0)

IATTH

IMVR FOR IMU
REALIGN

(0,NA/307,0)

IATTH

AFTER IMU REALIGN
LATTH
(89,NA/307,0)

PHOTOGRAPHY ORIENT

IMVR FOR IMU
REALIGN
(180,NA/263,0)

IATTH
(0,NA/140,0)

END HR PHOTO
(0,NA/257,0)
OF LAIRGE
BEGIN HR PHOTO
(0,NA/257,0)

LOSIN TO LDXK

IMVR TO HR
PHOTO ATT
(0,NA/257,0)

LEGEND:

END, LOS

O ● S/C SURPRISE, SENSE;
⊕ S/C EARTH POINT

(R,LHP/LNP,Y)

IATTH - INERTIAL ATTITUDE HOLD
LATTH - LOCAL ATTITUDE HOLD

REVISION 8

J-136A

五
三
〇

FLIGHT PLAN

四

UPLINK TO CSM
DESIRED ORIGIN
(PHOTOGRAPHY)
DUMP DSE
UPDATE TO CSM
TIME-HI RESOLUTI
PHOTO

CSH PLANE CHANGE #2

卷之三

CROSS PLANE CHANGE #2		TIG: 159:01:46.0	T1 IS 3 MINUTES
BT :	18.0 SEC	PRIOR TO TCA	
ZY :	160.0 FPS	T2 IS 1 MINUTE	
		AFTER TCA	EL CAM TO BE MANUALLY ACTUATED AT APPROX.
			20 SECOND INTERVALS
		ULLAGE : 4 JET 11 SEC	HI RESOLUTION PHOTO
		ORBIT: 58.6 x 56.5 NM	LAUNCH
		HQA P 3 , V 281	
<u>POWER TO P52 ATT BY 159:07</u>		P 0	
P52 TWO REALIGN		P 273	
OPTION 1 PREFERRED		Y 0	
GYRO TORQUE			
BURN STATUS REPORT			
REPORT GYRO TORQUING ANGLES (P52 @158:15)			

WOOD TRANSPER LSP TO LA SLOU
 SET COASS FOR (+) 10 DEG LOS
 LIOH CANISTER CHANGE NO 12
 14 INTO B, STOW 12 IN A3
 START EAT PERIOD
 MMVR TO ATT FOR LALANDE PHOTOGRAPHY
 BY 159:26 (FOR T1) R 0 OMNI D
 P257
 Y 0

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	159:00 - 160:00	7/39	3-137

STEREO STRIP PHOTOGRAPHY
REV 40

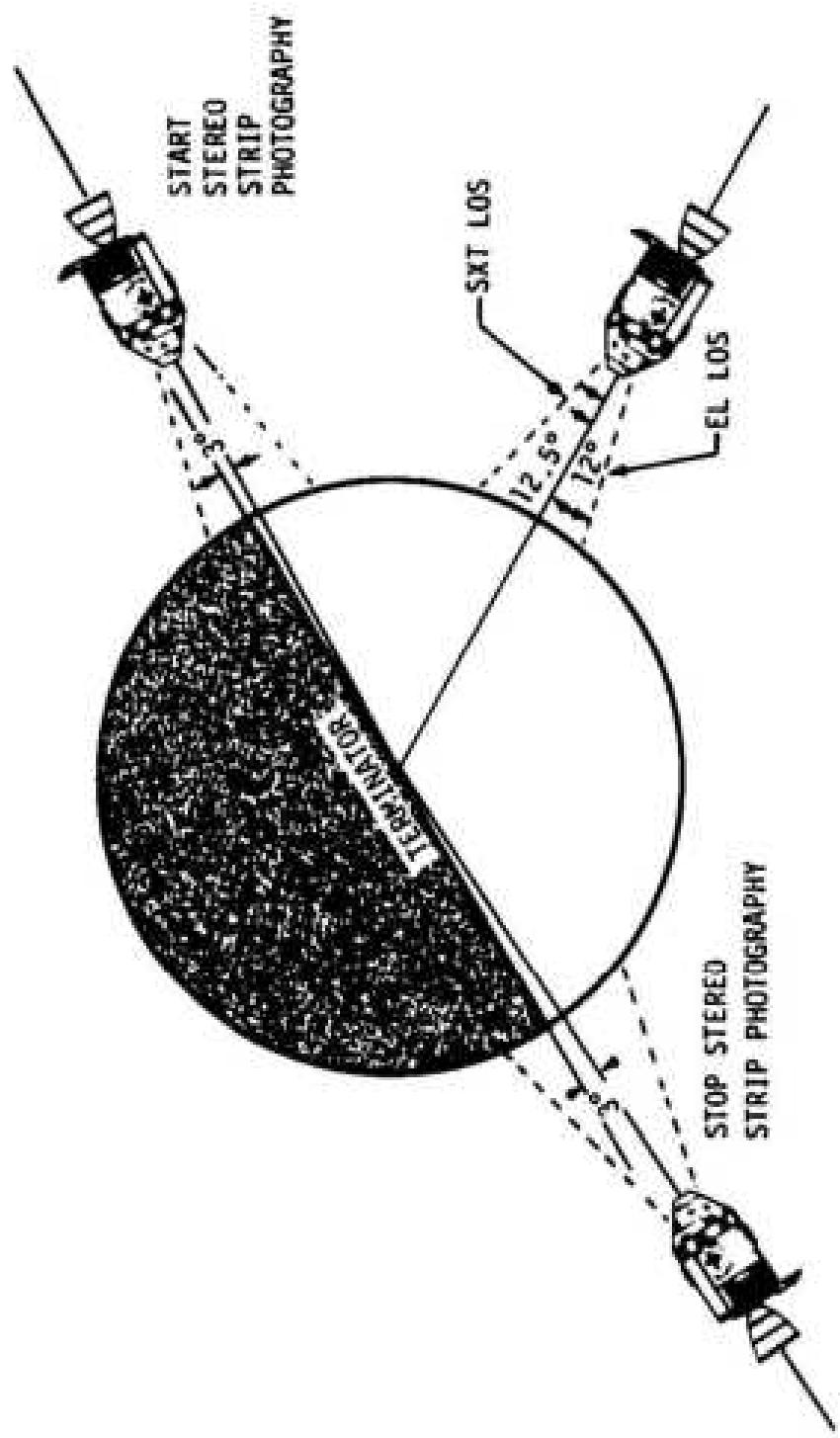


FIGURE 3-5
3-138

FLIGHT PLAN

卷之三

卷之三

UPDATE TO CSN

160

— 2 —

12

160

REV 40

SETUP EL CAMERA FOR STEREOSCOPIC STRIP
PHOTOGRAPHY (BH RNDZ WINDOW)
CWA/EL/80/BW-BRKT. INTR. (f4, 250, =), 180
VERIFIED BY ESE AT LOS

SET UP DAC FOR SXT/DAC PHOTOGRAPHY CM/DAC/SXT/CEx. (FIXED, 60, FIXED) - 1F

180e 105

OPTION 3 REFSHMT

GDG ALIGH TO THU

ZERO OPTICS & NUMALY SET $S\Delta=0^\circ$, TR=45°

```

V83E ALIGN F0A1 #1
ORDEAL R 0 : P2730/ NA. Y Q
V79E R1 = -0.0507
R2 = +000.50
R3 = +11111

```

SELECT DRN! 0
VO6965 AT GROUND TERMINATOR
BEGIN PHOTOGRAPHY AT GROUND TERMINATOR (+)1 MIN(T1)
RECORD START TIME : :
V16N91 AT GROUND TERMINATOR (-)2 MINUTES —
GET

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (MOW 14)	OCTOBER 15, 1969	160:00 - 161:00	7/39-40	3-139

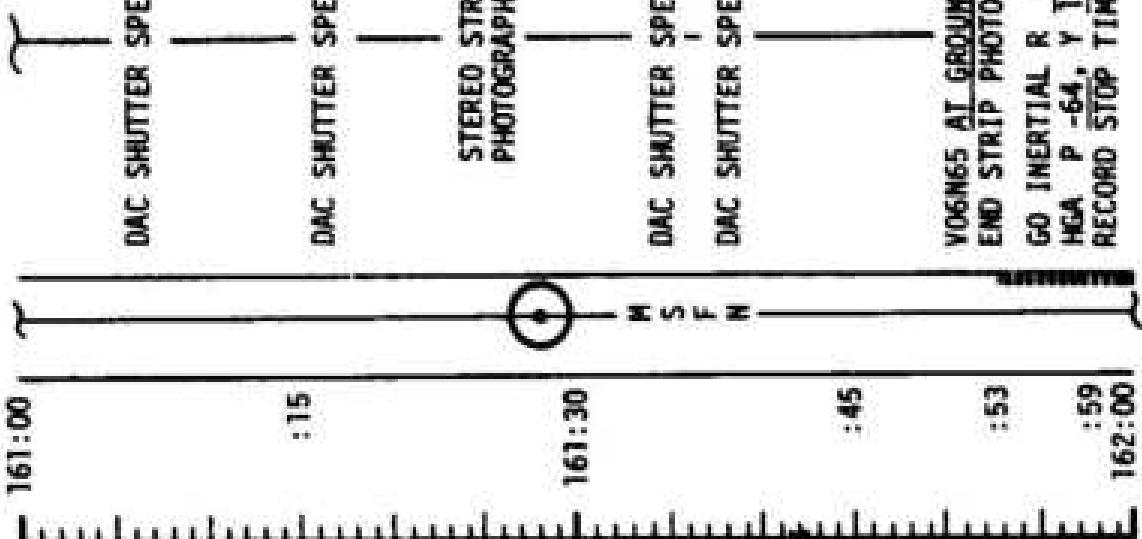
FLIGHT PLAN

0322 CST

WEA-H

MOT11

MAP UPDATE REV 41	
LOS :	
180° :	
ADS :	



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	161:00 - 162:00	7/40	3-140

WEA-H PAGE 3-140

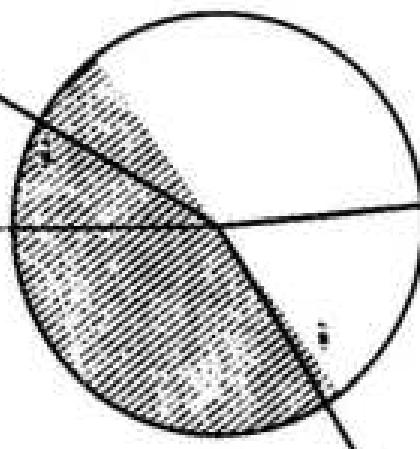
WEA-H PAGE 3-140

WEA-H PAGE 3-140

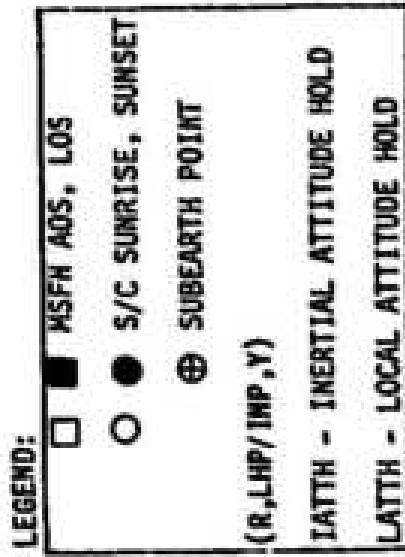
REV 40

160:35:29
BEGIN REV 40
(180, MM/263, 0)
LATTH

MVR TO STRIP
PHOTO ATT
(0,270/MM,0)
LATTH



END STRIP PHOTO
(0,270/143,0)
LATTH



3-140K

REVISION B

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MOSC-IN

FLIGHT PLAN

0422 CST

UPDATE TO CSM
TIME - HIGH
RESOLUTION PHOTOS

T :00 | H S F N | REPORT GYRO TORQUING ANGLES
VERIFY DSE MOTION AT LOS

:15

162:30

:45

163:00

ISSUE TIME (MM:SS)

PLANE PLACEMENT POSITION

MOTUS

HI RESOLUTION PHOTO			
DESCARTES			
T1	—	—	—
T2	—	—	—
R	P	Y	—

HI RESOLUTION PHOTO			
FRA MAURIC			
T1	—	—	—
T2	—	—	—
R	P	Y	—

SETUP DSC IN LH RNDZ WINDOW (OBlique PHOTOGRAPHY)
CM2/DAC/18/8M-BRKT,MIR,(f8, 125, ~),6FPS
(1.5 MAG-2x MIN.)

SETUP COAS (LH RNDZ WINDOW) FOR (+) 10 DEGREES

SETUP EL CAMERA IN RH RNDZ WINDOW
(HIGH RESOLUTION PHOTOGRAPHY)
CM4/EL/500/8M-BRKT,CONT,(f8, 125, ~),100,120

REV 41

:45

:52 | REACQUIRE MSFN
HGA P -64, Y 173

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	162:00 - 163:00	7/40-41	3-141

DATA - REV

HIGH RESOLUTION PHOTOGRAPHY
REV 41

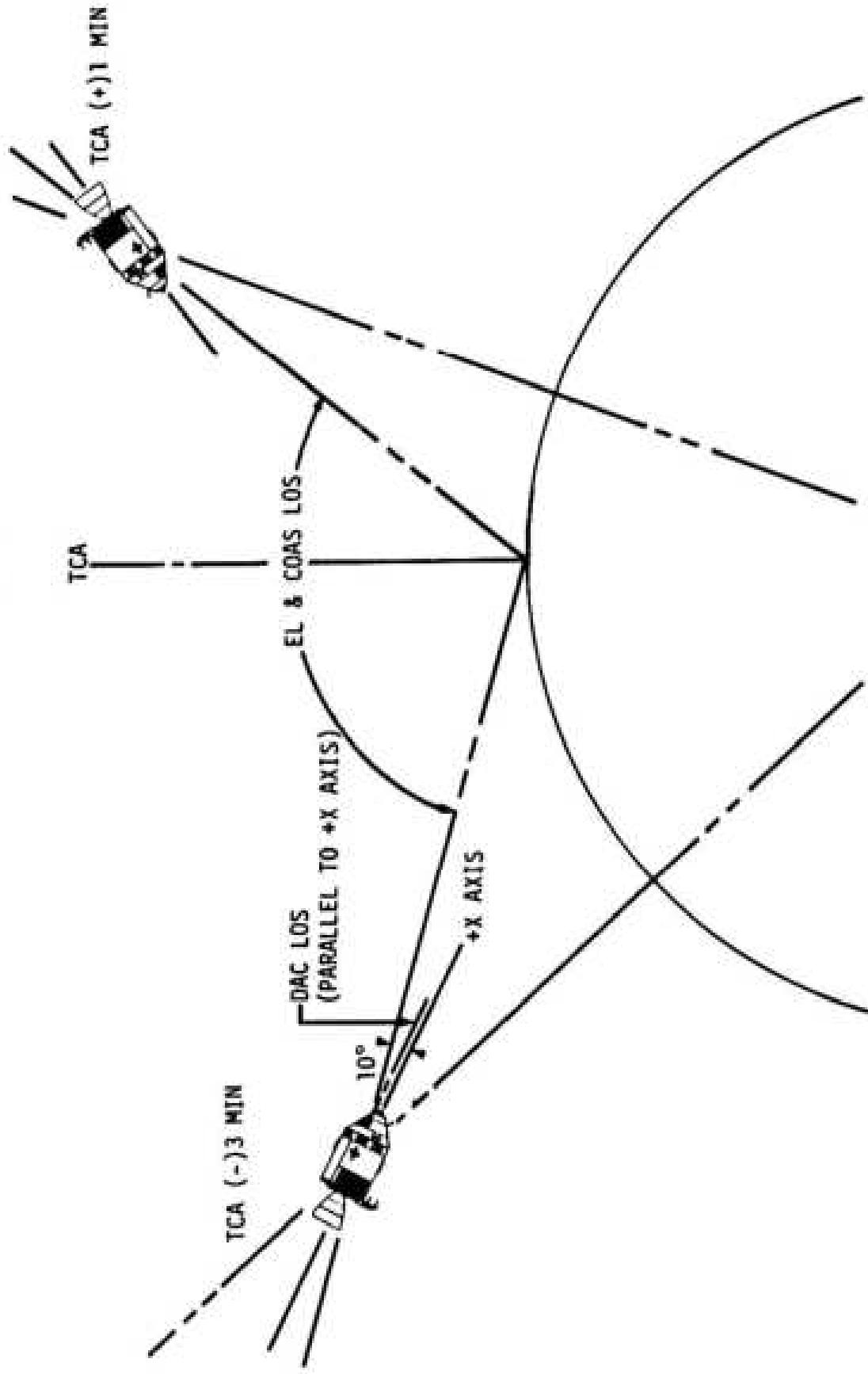
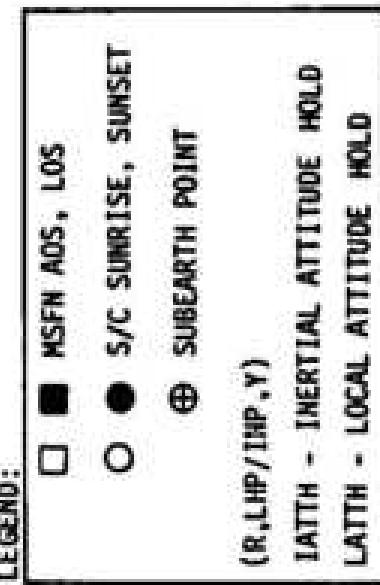
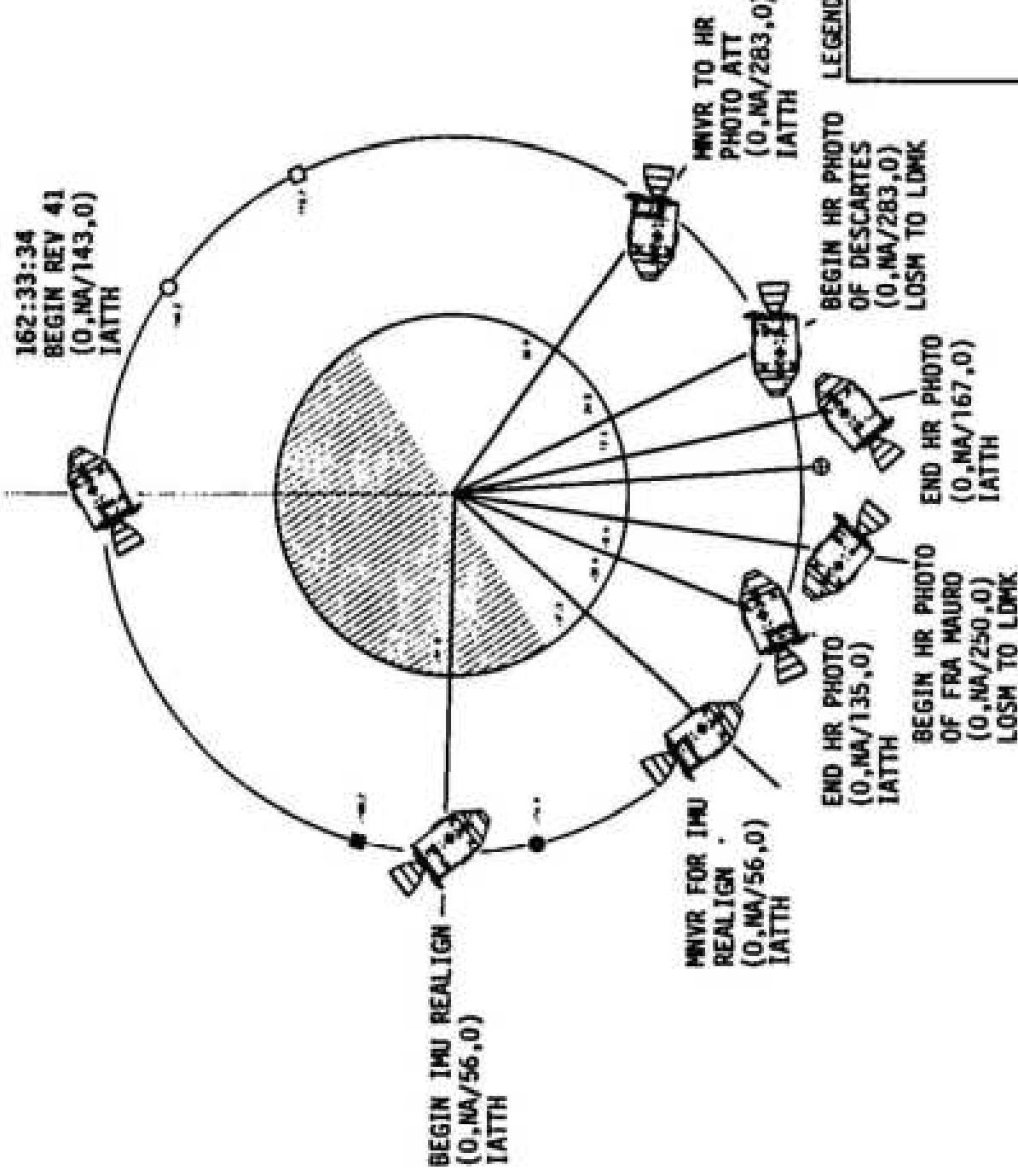


FIGURE 3-4
3-142

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REV 41



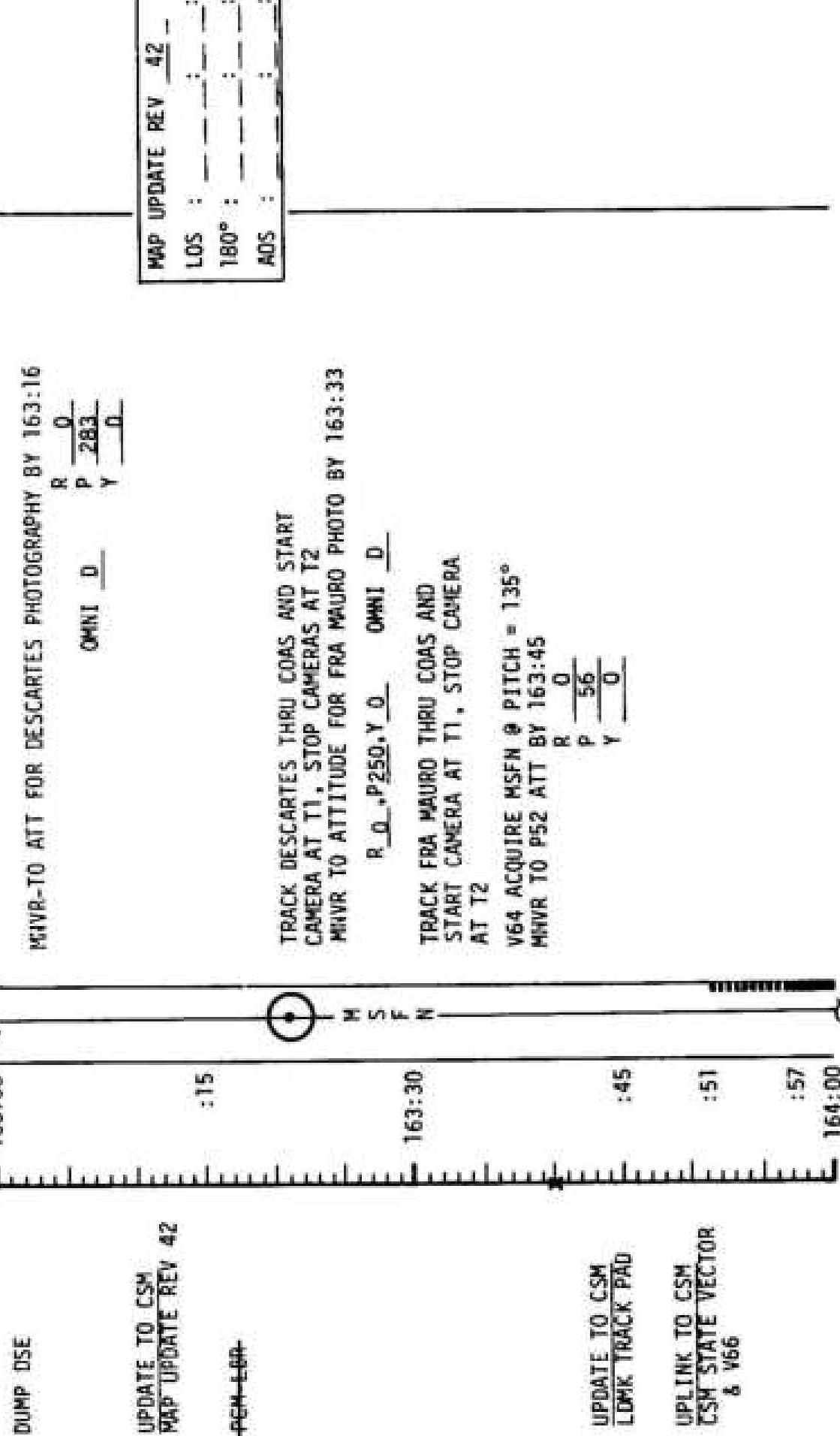
REVISION B

3-142A

FLIGHT PLAN

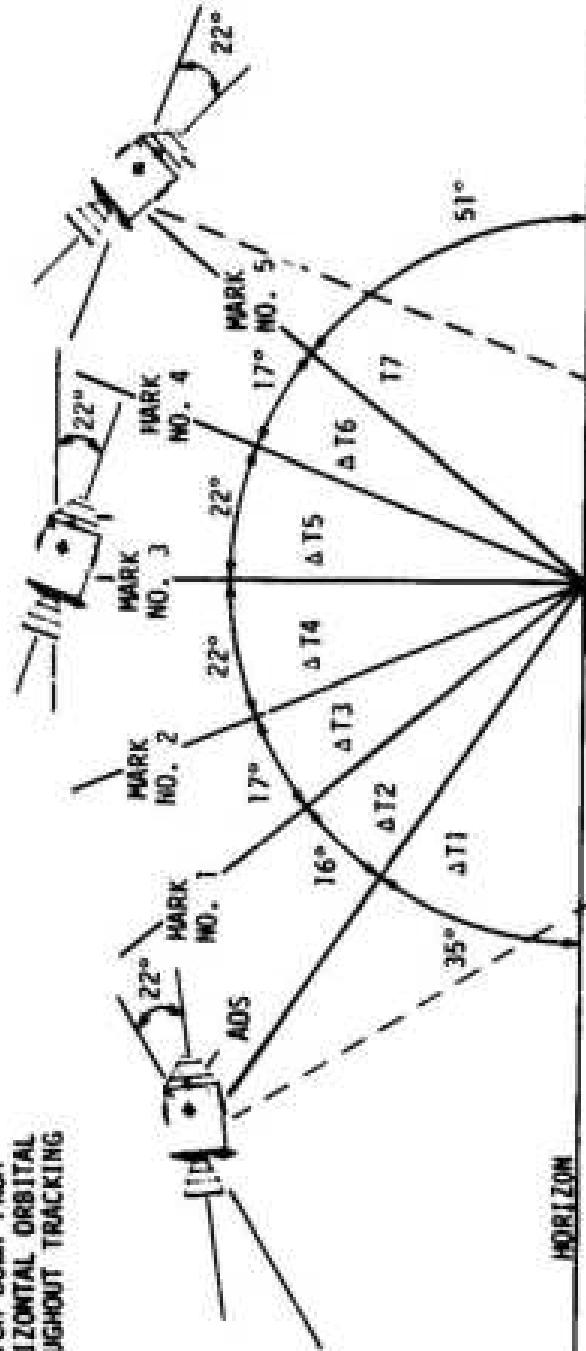
0522 CST

MORIS



CSM LANDMARK TRACKING PROFILE

22 DEG PITCH DOWN FROM
LOCAL HORIZONTAL ORBITAL
RATE THROUGHOUT TRACKING



T1 GET AT 0° ELEVATION
T2 GET AT 35° ELEVATION

HORIZON

HORIZON

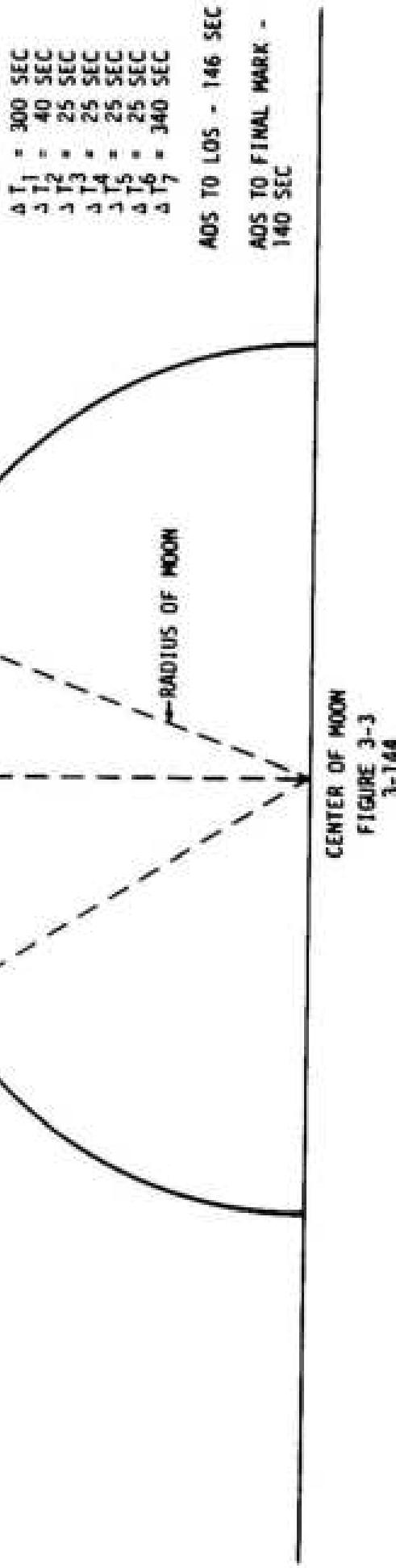


FIGURE 3-3
3-144

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P22	ACU	P dn 220 R0r	Y0r	(125)
T ₁	:	:	:	CP-1
T ₂	:	:	:	
R	:	:	:	
N or S NH	—	SA	TA	
CP	—	—	—	
LAT	-5.667°			
LONG/2	+56.000°			
ALT	+0.00 NM			
MB9	—	—	—	

P22	ACU	P dn 220 R0r	Y0r	(125)
T ₁	:	:	:	CP-2
T ₂	:	:	:	
R	:	:	:	
N or S NH	—	SA	TA	
CP	—	—	—	
LAT	-10.250°			
LONG/2	+28.091°			
ALT	+0.81NM			
MB9	—	—	—	

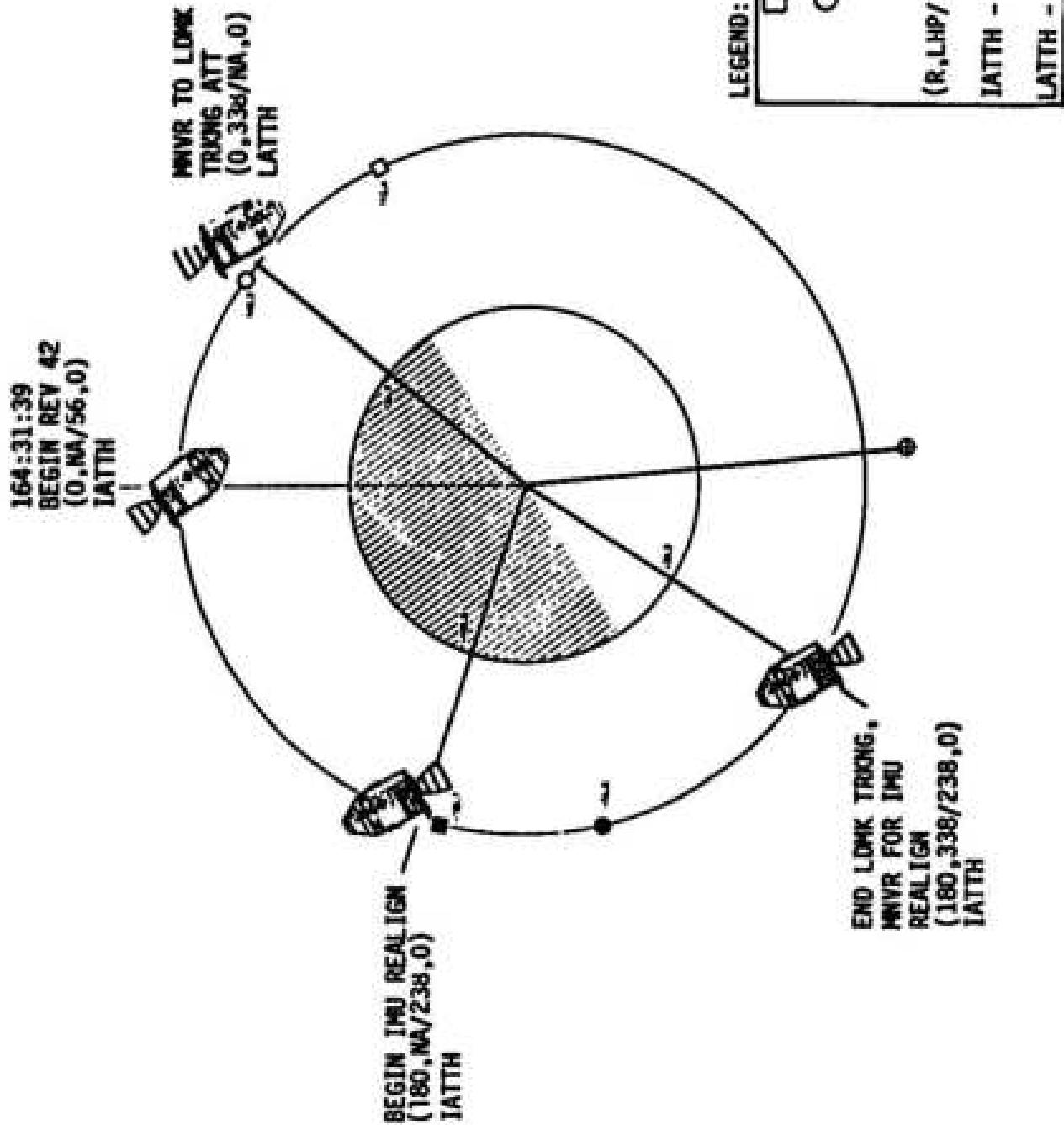
P22	ACU	P dn 220 R0r	Y0r	(252)
T ₁	:	:	:	DE-1
T ₂	:	:	:	
R	:	:	:	
N or S NH	—	SA	TA	
CP	—	—	—	
LAT	-8.083°			
LONG/2	+7.775°			
ALT	+1.70NM			
MB9	—	—	—	

P22	ACU	P dn 220 R0r	Y0r	(252)
T ₁	:	:	:	FM-1
T ₂	:	:	:	
R	:	:	:	
N or S NH	—	SA	TA	
CP	—	—	—	
LAT	-3.228°			
LONG/2	-8.665°			
ALT	-1.55NM			
MB9	—	—	—	

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	164:00 - 165:00	7/41-42	3-145

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REV 42



3-1454

REVISION B

MCC-N

FLIGHT PLAN

0622 CST

164:00

:07

:15

164:30

REV 42

165:00

MISSION
APOLLO 12EDITION
FINAL (NOV 14)DATE
OCTOBER 15, 1969TIME
164:00 - 165:00DAY/BREV
7/41-42PAGE
3-146

MCC Rev 29 (Rev 6)

FLIGHT PLANNING SEARCH

NASA — MSC

NOTES

PS2 IMU REALIGN
OPTION 3 REFSYMNT

GOC ALIGN TO IMU

02 FUEL CELL PURGE

VERIFY DSE MOTION AT LOS

WASTE WATER DUMP

SET UP DMC FOR LDMK TRACKING PHOTOS THRU SMT

C/DAC/SXT/CEX, (SEE LDMK TRACK PAD) 1 FPS(1MMG-8801IN)

PS2 (PHOTOGRAPHY ORIENT)

N71:

N05:

N93:

Y

Z

GET

START DAC & T2 (-) 1 MIN
Y 0
P 338/MINLDMK IS AT ~14.5°
SUN ANGLE

STOP DAC AFTER MARK 5

TRACK LDMK CP-1
DO NOT PRO ON FINAL
N39
25 SECONDS BETWEEN MARKS
5 MARKS

SELECT OMNI D

GO OBS RATE -

60 OBS RATE -



FLIGHT PLAN

0722 CST

UPDATE TO CSM
MAP UPDATE REV 43
TEI AS PAO

MAP UPDATE REV 43	
LOS :	
180° :	
ADS :	

NOTES

TRACK LDWK CP-2
DO NOT PRO ON FINAL
N89,
25 SEC BETWEEN MARKS
5 MARKS

START DAC @ T2(-)1 MIN
CP-2 LDWK IS
AT ~66° SUN ANGLE
STOP DAC AFTER MARK 5

TRACK LDWK DE-1
DO NOT PRO ON FINAL
N89,
25 SEC BETWEEN MARKS
5 MARKS

START DAC @ T2(-)1 MIN
DESCARTES LDWK IS
AT ~71.5° SUN ANGLE
STOP DAC AFTER MARK 5

TRACK LDWK FM-1
DO NOT PRO ON FINAL
N89,
25 SEC BETWEEN MARKS
5 MARKS

START DAC @ T2(-)1 MIN
FRA MAUBO LDWK
IS AT ~39.5 SUN ANGLE
STOP DAC AFTER MARK 5

STOP PITCH
MINR TO P52 ATT RV 165:42
P 180
Y 0
P -27
Y 183

:49
166:00

DUMP OSE
UPDATE TO CSM
CREW DEBRIEFING-
LDWK TRACKING
TECHNIQUES
LDWK TRACK PMD

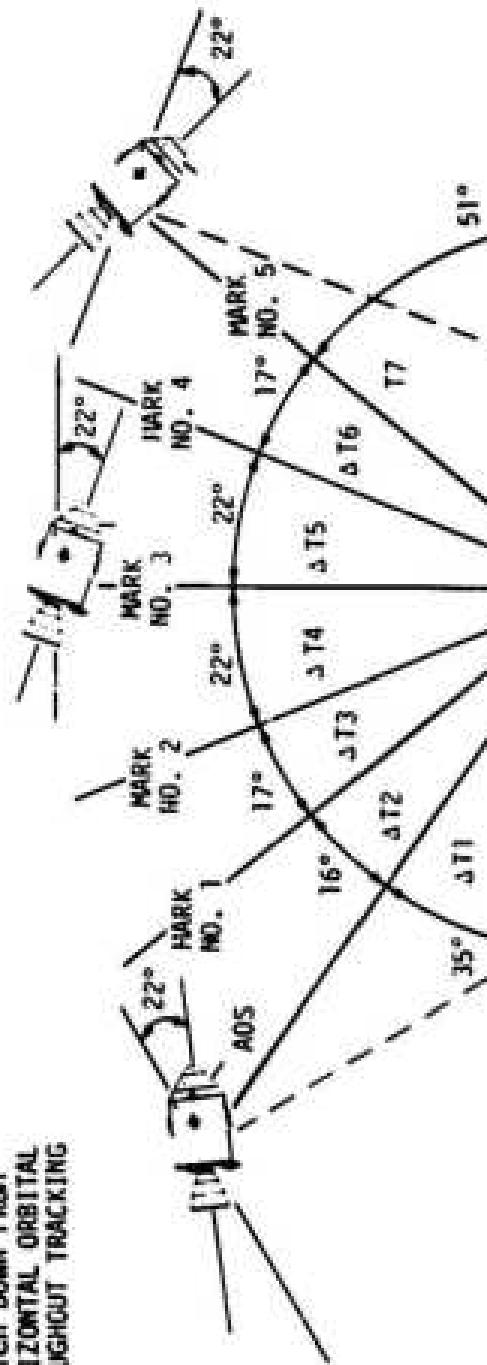
MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	165:00 - 166:00	7/42	3-147

END PAGE 28 (OF 80)

MAPS — SEC

CSM LANDMARK TRACKING PROFILE

22 DEG PITCH DOWN FROM
LOCAL HORIZONTAL ORBITAL
RATE THROUGHOUT TRACKING



- T₁ GET AT 0° ELEVATION
T₂ GET AT 35° ELEVATION

HORIZON

HORIZON

ΔT_1	= 300 SEC
ΔT_2	= 40 SEC
ΔT_3	= 25 SEC
ΔT_4	= 25 SEC
ΔT_5	= 25 SEC
ΔT_6	= 25 SEC
ΔT_7	= 340 SEC

AOS TO LOS - 146 SEC
AOS TO FINAL MARK -
140 SEC

CENTER OF MOON
FIGURE J-3
3-148

MISSION	EDITION	DATE	TIME	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	166:00 - 167:00	7/42-43

P22	DE-1	ACN p dn 22.00 R0. 160. (25)	T ₁	Cp
R ₂	SA	TA	T ₂	SA
R ₁	TA	TA	R ₁	TA
H or S NM	SA	TA	H or S NM	SA
LAT	-5.667°		LAT	+0.00 NM
CP	M89		CP	M89
R	TA	TA	R	TA
H or S NM	SA	TA	H or S NM	SA
L0M6/2 +56.000°			L0M6/2 +56.000°	
ALAT			ALAT	

P22	FM-1	ACN p dn 22.00 R0. 160. (25)	T ₁	Cp
R ₂	SA	TA	T ₂	SA
R ₁	TA	TA	R ₁	TA
H or S NM	SA	TA	H or S NM	SA
LAT	-8.883°		LAT	-3.228°
CP	M89		CP	M89
R	TA	TA	R	TA
H or S NM	SA	TA	H or S NM	SA
L0M6/2 +7.75°			L0M6/2 +7.75°	
ALAT			ALAT	

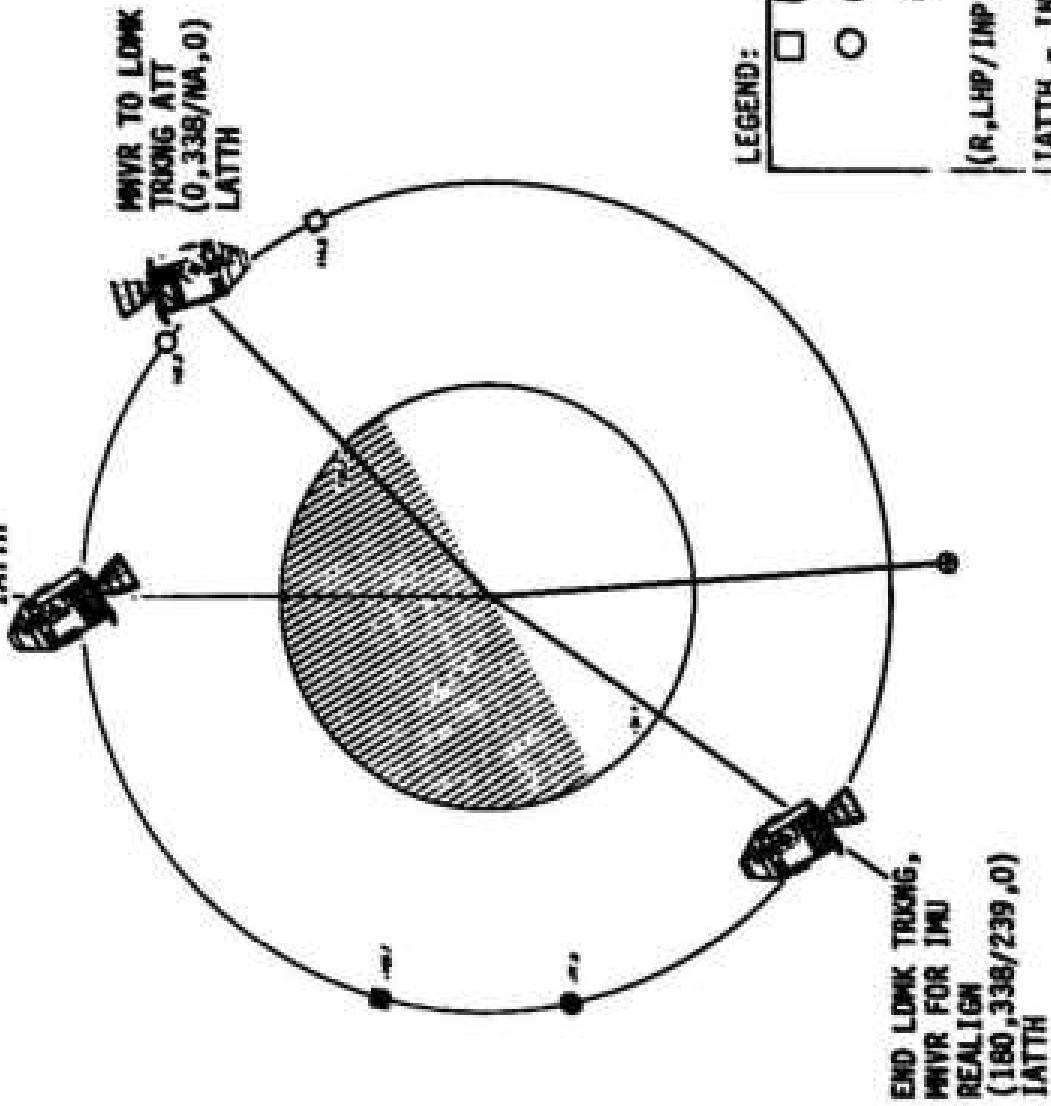
P22	CP-1	ACN p dn 22.00 R0. 160. (25)	T ₁	Cp
R ₂	SA	TA	T ₂	SA
R ₁	TA	TA	R ₁	TA
H or S NM	SA	TA	H or S NM	SA
L0M6/2 +28.091°			L0M6/2 +28.091°	
ALAT			ALAT	-40.81NM
CP	M89		CP	M89
R	TA	TA	R	TA
H or S NM	SA	TA	H or S NM	SA
LAT	-10.255°		LAT	-10.255°

P22	CP-2	ACN p dn 22.00 R0. 160. (25)	T ₁	Cp
R ₂	SA	TA	T ₂	SA
R ₁	TA	TA	R ₁	TA
H or S NM	SA	TA	H or S NM	SA
LAT	-10.255°		LAT	-10.255°
CP	M89		CP	M89
R	TA	TA	R	TA
H or S NM	SA	TA	H or S NM	SA
L0M6/2 +28.091°			L0M6/2 +28.091°	
ALAT			ALAT	-40.81NM

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REV 43

166:29:44
BEGIN REV 43
(180, 338/238, 0)
LATTH



3-149A

REVISION B

NOTES

FLIGHT PLAN

0822 CST

UPLINK CSM
STATE VECTOR
& V66

166:00 T

VERIFY DSE MOTION AT LOS

:15

EAT PERIOD

166:30 REV 43

:42 :45 :48 :51

SET UP DAC FOR LDMK TRACKING PHOTO'S THRU SXT
CH/DNC/SXT/CFS (SEE LDMK TRACK PAD) 1FPS

SELECT OMNI 0

MMVR TO LDMK TRACK ATT BY 166:45
GO OBS RATE
TRACK LDMK CP-T
DO NOT PRO ON FINAL

START DAC @ T2 (-) 1 MIN
P 338/NA
CP1 LDMK IS
AT ~15.5° SUN ANGLE
STOP DAC AFTER HARK 5

167:00 J

167:00 K

167:00 L

167:00 M

167:00 N

167:00 O

167:00 P

167:00 Q

167:00 R

167:00 S

167:00 T

167:00 U

167:00 V

167:00 W

167:00 X

167:00 Y

167:00 Z

P52 (LOS SITE ORIENT)
H71: - - - - -
H05: - - - - -
H93: X - - - - -
Y - - - - -
Z - - - - -
GFT - - - - -

MARIA — ERIC

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	166:00 - 167:00	7/42-43	3-150

MSC Form 28 (Rev. 60)

FLIGHT PLANNING SOURCE

FLIGHT PLAN

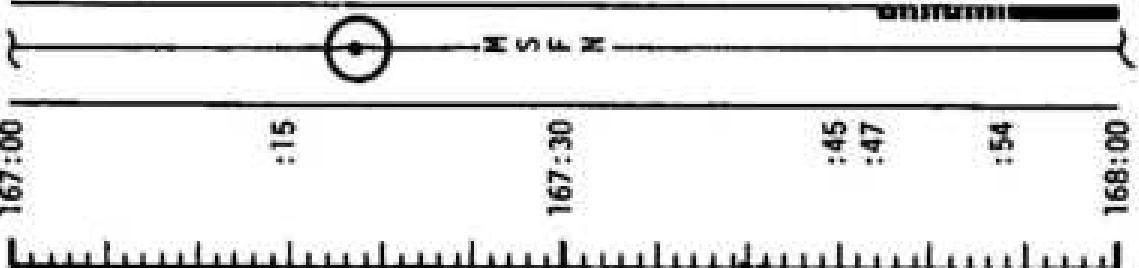
- 3 -

三

UPDATE TO CSM
LAW UPDATE RE: 44

EFFECTS OF MEDICAL AIDS

MAP UPDATE REV 44



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	167:00 - 168:00	7/43	3-151

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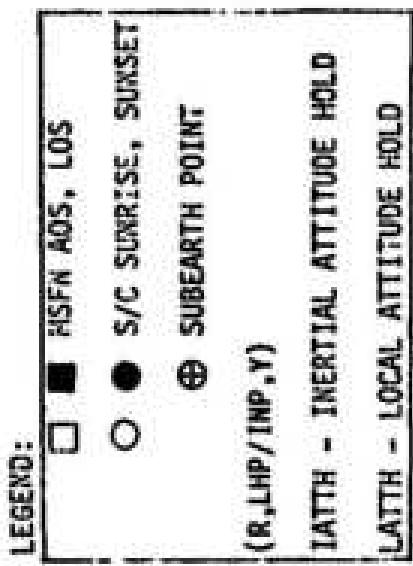
REV 44

MVR TO STRIP
PHOTO ATT
(0.258/NA, 0)
LATTH

168:27:49
BEGIN REV 44
(180, NA/239, 0)
LATTH

AFTER IMU REALIGN
(183, NA/145, 4)
LATTH
TEI ORIENT

END STRIP PHOTO,
MVR FOR IMU
REALIGN
(180, NA/268, 0)
LATTH



STEREO STRIP PHOTOGRAPHY
REV 44

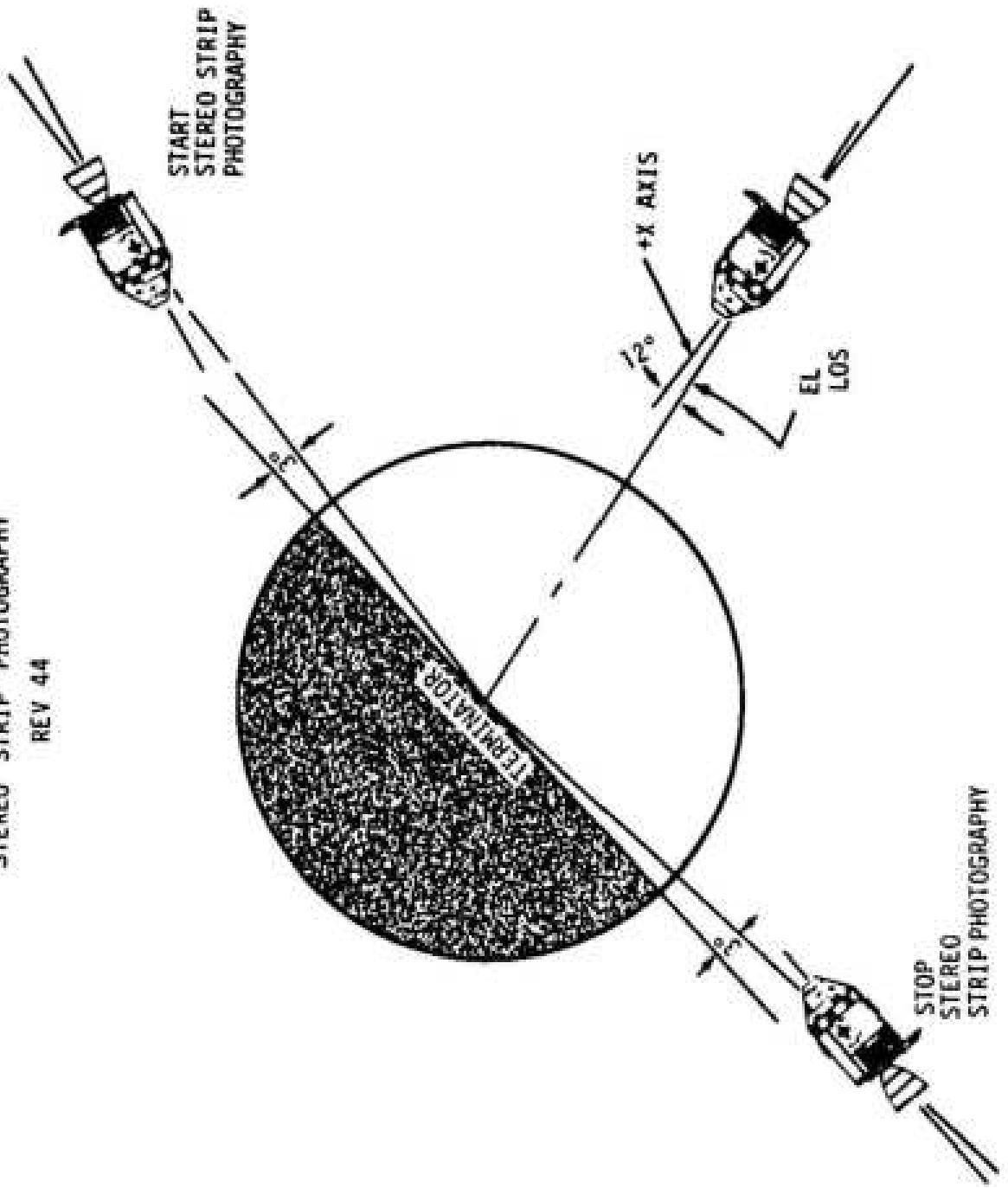


FIGURE 3-5
3-152

MCC-N

1022 CST

UPDATE TO CSM
STEREO PHOTO TIME
PENLTDR168:00 :03 T
VERIFY DSE MOTION AT LOS

FLIGHT PLAN

NOTES

STEREO PHOTO

T1: ____ :____ :____ :____ :____ :____ GET
T2: ____ :____ :____ :____ :____ :____ GET

SETUP EL CAMERA FOR STEREO STRIP
PHOTOGRAPHY (RH RNDZ WINDOW)
CMH/EL/80/BW-BRKT, INTR(f4,250,=),180

:15

REV 44

168:30

MMVR TO PHOTOGRAPHIC ATTITUDE BY 168:36

8 0
P 258/NA
Y 0

W83E
ALIGN FDM #1
ESTABLISH ORB RATE
V79E RI = -0.0507
R2 = +000.50
R3 = +11111
VOGEN65 AT GROUND TERMINATOR (+) 1 MIN T1
BEGIN PHOTOGRAPHY AT GROUND TERMINATOR (+) 1 MIN T1
RECORD START TIME ____ :____ :____ :____ :____ :____ GET

:41
:45
:47
:49

H
S
F
N

169:00

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	168:00 - 169:00	7/43-44	3-153

MCC FORM 28 (Rev 69)

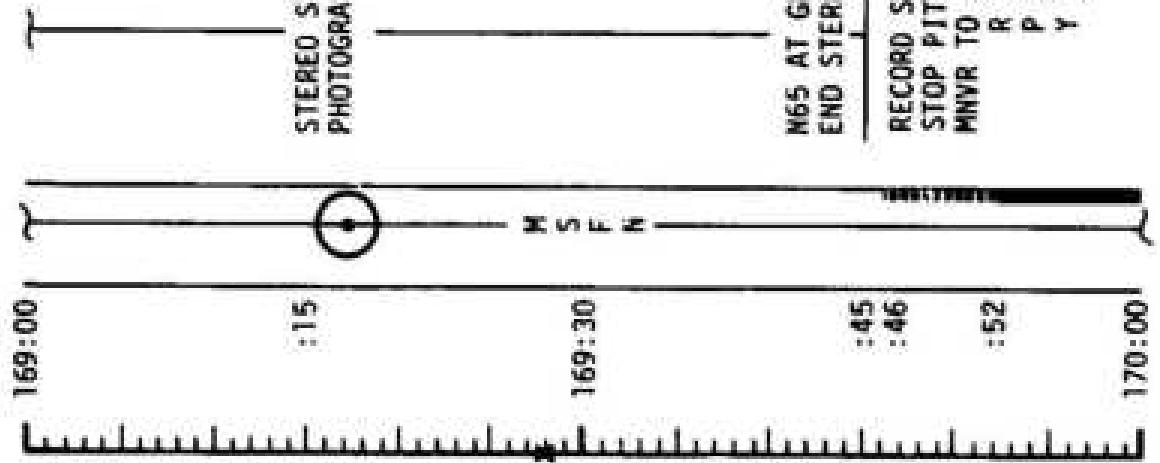
FLIGHT PLANNING SHEET

NASA — MSC

MCC-N

FLIGHT PLAN

1122 CST



HEP UPDATE REV 45
(PRELIMINARY)
TEI 45 PAD

HEP UPDATE REV 45	
LOS :	-----
180° :	-----
AOS :	-----

N65 AT GROUND TERMINATOR (-)90 SEC
END STEREO STRIP PHOTOGRAPHY AT GROUND TERMINATOR
(-)1 MINUTE-T2
RECORD STOP TIME ----- : ----- : ----- GET
STOP PITCH ----- : ----- : -----
MWVR TO PS2 ATT BY 169:47
R 180 HGA
P 266 P -55
Y 0 Y 188

UPLINK TO CSM
TEI DESIRED
ORIENT

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	169:00 - 170:00	7/44	3-154

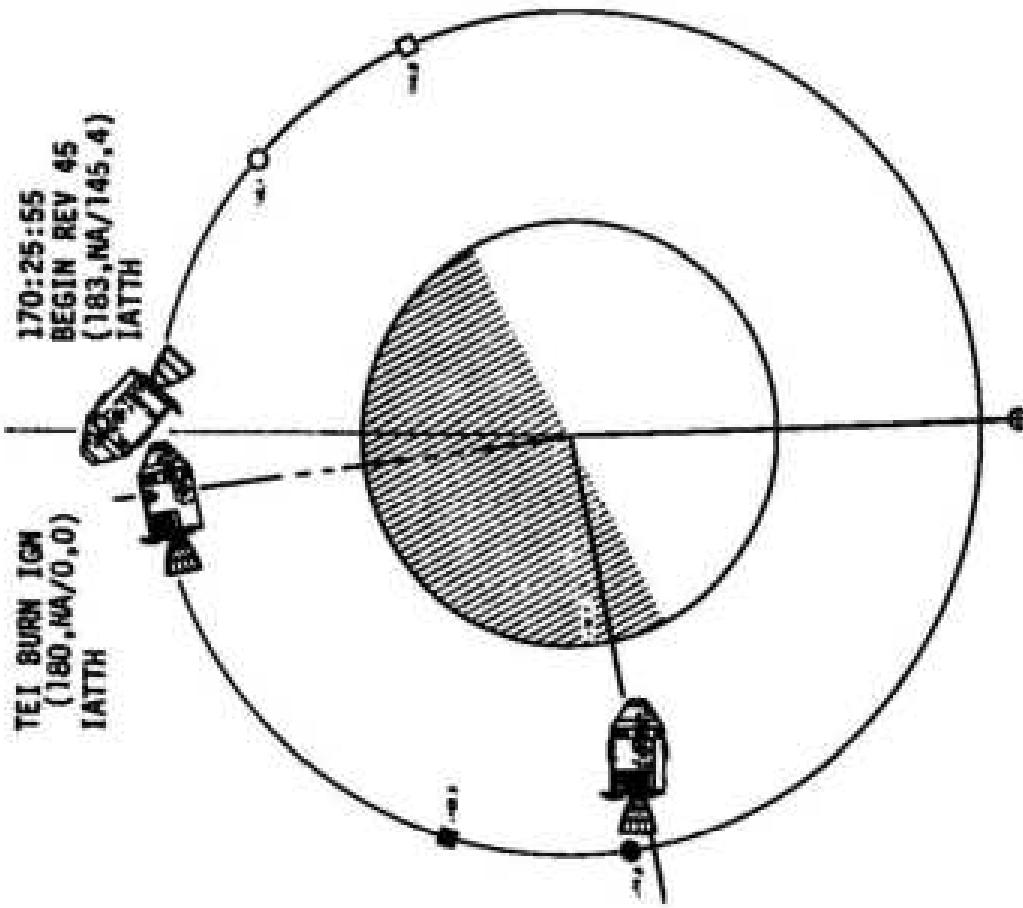
MCC-N — MCC

FLIGHT PLANNING MEETING

MCC-N — MCC

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REV 4.5



LEGEND:	(R,LHP/IMP,Y)	IATTI - INERTIAL ATTITUDE HOLD	LATTI - LOCAL ATTITUDE HOLD
<input type="checkbox"/>	HSFN AOS, LOS		
<input checked="" type="radio"/>	S/C SUNRISE, SUNSET		
<input type="triangle"/>	SUBEARTH POINT		

REVISION B

3-154A

MCC-M

FLIGHT PLAN

1222 CST

170:00 :01 T VERIFY DSE MOTION AT LOS

P52 IMU REALIGN
OPTION 1 PREFERRED

GDC ALIGN TO IMU

REV 45

170:30

:39

:45

:46

T REACQUIRE MSFN
HGA: P -55 Y 185
REPORT GYRO TORQUING ANGLES

H

S

F

N

L

171:00

NOTES

P52 (TEI ORIENT)

N71:	—	,	—	—
N051:	—	,	—	—
N931:	X	—	,	—
	Y	—	,	—
	Z	—	,	—
GET	—	,	—	;

MCC FORM 28 (Rev. 88)

FLIGHT PLANNED MARCH

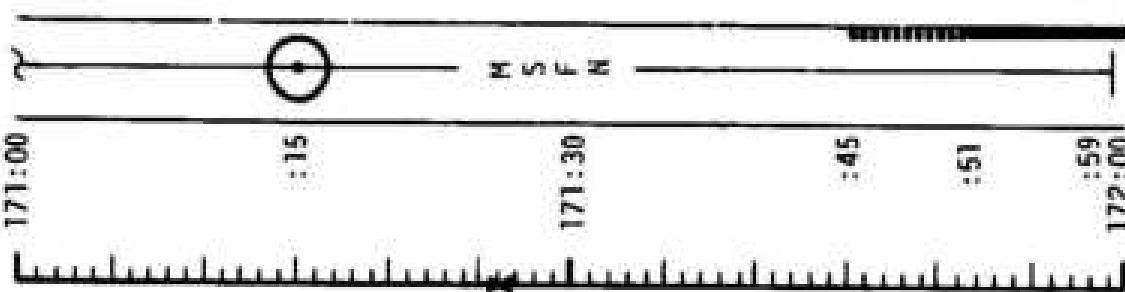
MAGA — WEC

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOW 14)	OCTOBER 15, 1969	170:00 - 171:00	7/44-45	3-155

MEC-H

FLIGHT PLAN

NOTES



MAP UPDATE REV	<u>46</u>
LOS	—
180°	—
AOS WITH TEI	—
AOS WITHOUT TEI	—

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MDV 14)	OCTOBER 15, 1969	171:00 - 172:00	7/45	3-156

MSC Form 28 (Rev. 69)

Flight Planning Manual

NASA - MSC

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FLIGHT PLAN

TEI
BURN TABLE

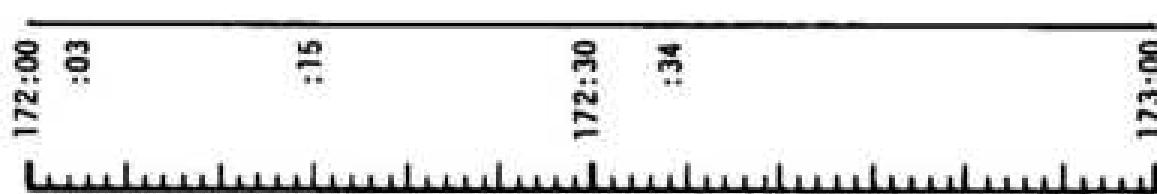
P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME		RESIDUALS
		UNDERBURN	OVERBURN	
10°/SEC TAKEOVER	+10° TAKEOVER	FOR GAN C/O >3 SEC EARLY & AVC >+50 FPS SWITCH TO SCS AUTO & RESTART SPS	BT + 2 SEC ⁶ AVC = -40 FPS	TRIM X AND Z AXIS TO 0.2 FPS

TABLE 3-11
3-157

sec--

FLIGHT PLAN

NOTE:



BURN STATUS REPORT			
X	X	*	ATTIG**
X	X	*	BT **
			V gx
			R
			P
			Y ***
			V ***
			V gy
			V gy
			V g2
			ΔV c
			FUEL *
			OX *
			UNBAL.

- * ITEMS TO BE REPORTED
- TO MSFN
- ** REPORT IF OFF MORE THAN ONE SECOND
- *** REPORT IF > 0.2 FPS

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOW 14)	OCTOBER 15, 1969	172:00 - 173:00	7/45-TEC	3-158

1522 RST

FLIGHT PLAN

notes

WIPE EXCESSIVE MOISTURE FROM
TUNNEL HATCH AREA
CONTAMINATION CONTROL

:15

DUMP DSE

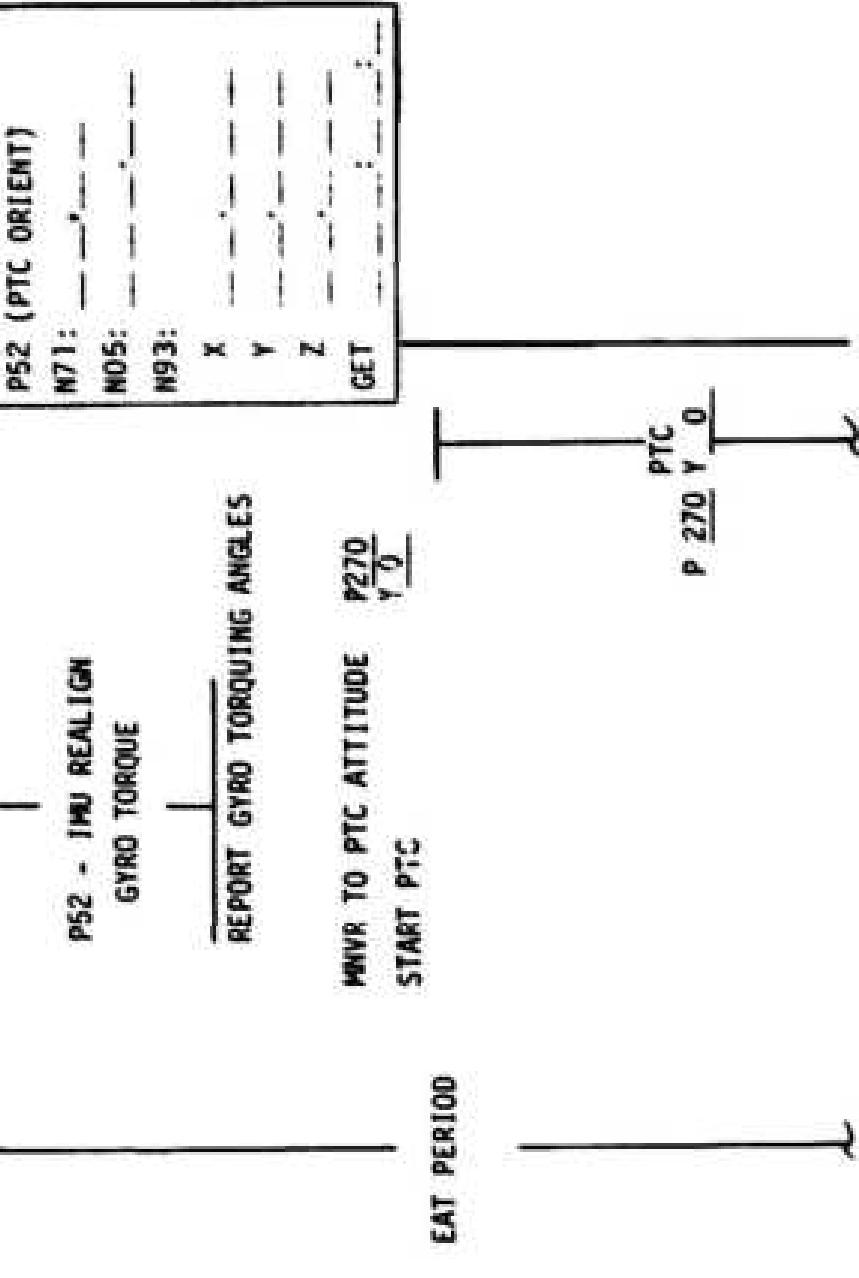
UPDATE TO CSM
QUADS TO DISABLE
FOR PTC (LOWEST
QUANTITY PRPLNT)

173:30

H S F B

:45

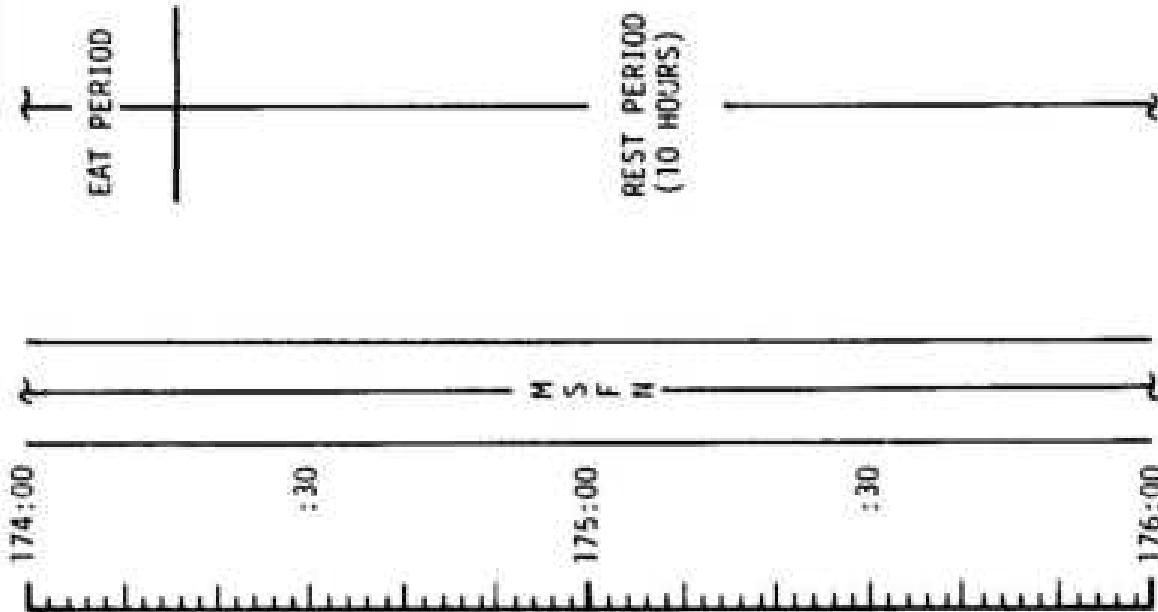
174:00



1622 CST

FLIGHT PLAN

MCC-W



NOTES

PRESLEEP CHECKLIST:

- CREW STATUS REPORT
- ONBOARD READOUTS
- CYCLE O2 & H2 FANS
- CHLORINATE POTABLE WATER
- VERIFY:
- WASTE MNGT OVBD DRAIN - OFF
- WASTE STOW VENT VLV - CLOSED
- EMERG CABIN PRESS VLV - BOTH
- SURGE TK 02 VLV - ON
- REPRESS O2 VLV - OFF
- LH TUNNEL VENT - OFF
- "E" MEMORY DUMP

NORMAL LUNAR COMM EXCEPT:

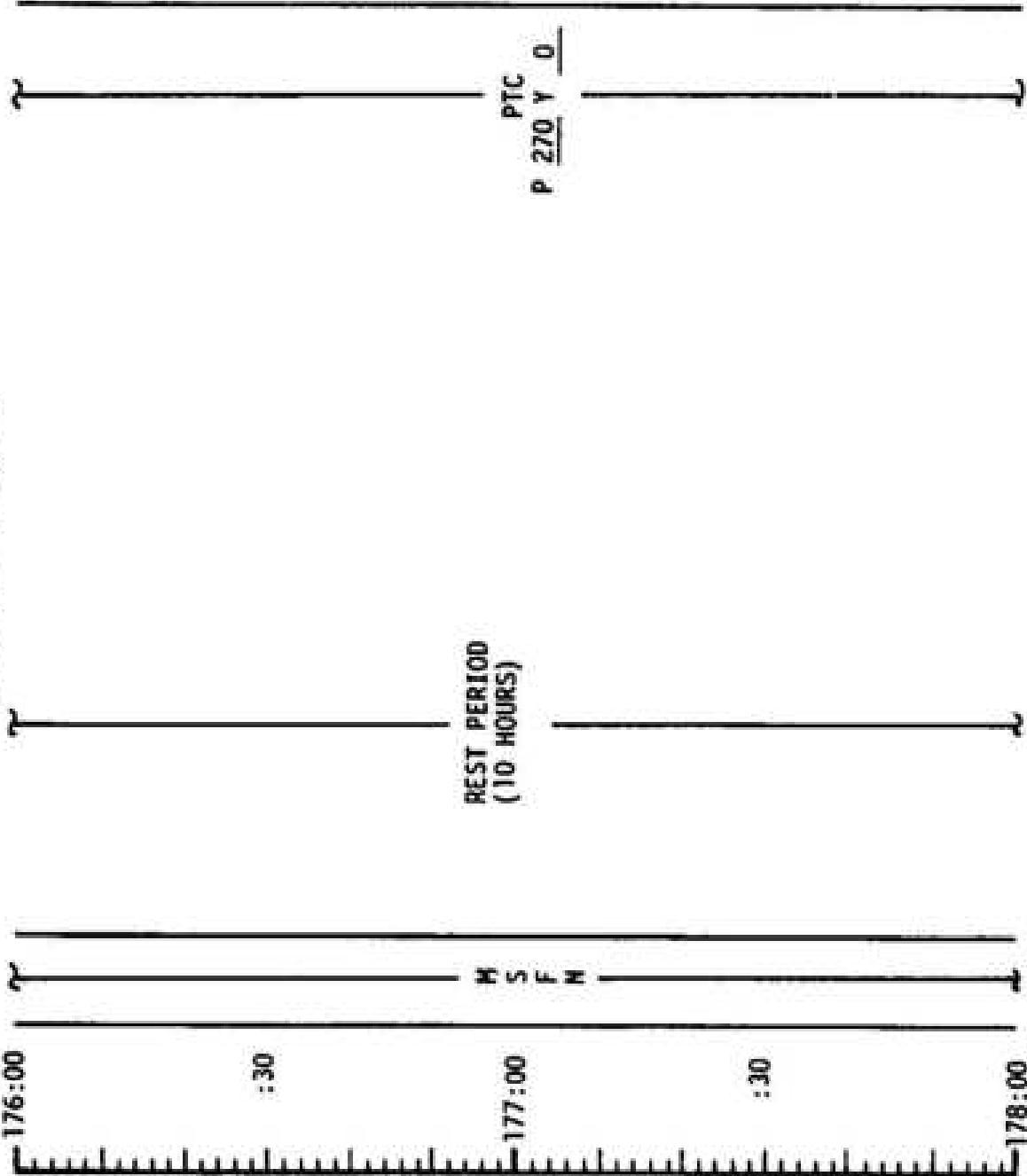
- S-8D NORMAL MODE VOICE - OFF
- S-8D SQUELCH - ENABLE
- S-8D AUX TAPE - OFF
- S-8D ANT - OMNI
- S-8D ANT OMNI - B
- TAPE RCDR FWD - OFF

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	174:00 - 176:00	7/TEC	3-160

1022 CST

NOCC-N

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	176:00 - 178:00	7/TEC	3-161

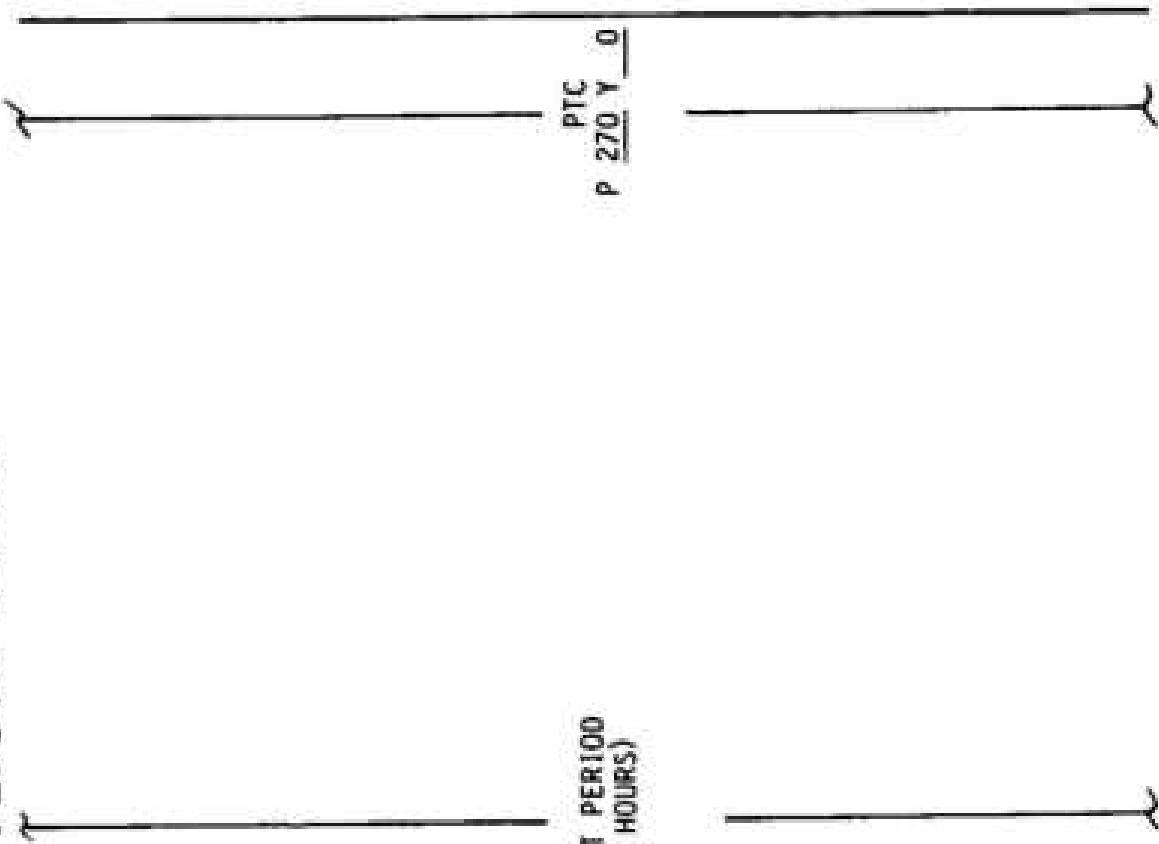
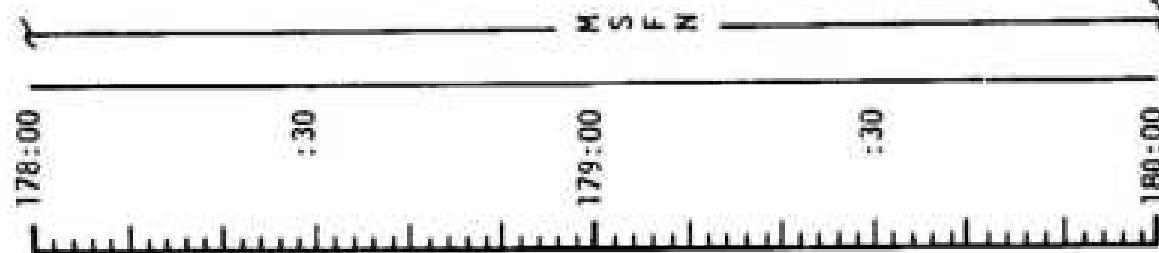
NASA Form 30 (Rev 10)

FLIGHT PLANNING SOURCE

2022 CST

FLIGHT PLAN

MCC-N



NOTES

PTC
P 270 Y 0

REST PERIOD
(10 HOURS)

NASA FORM 26 (Rev. 65)

FLIGHT PLANNING BRANCH

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (Rev. 14)	OCTOBER 15, 1969	178:00 - 180:00	7/TEC	3-162

FLIGHT PLAN

2222 CST

180:00

:30

181:00

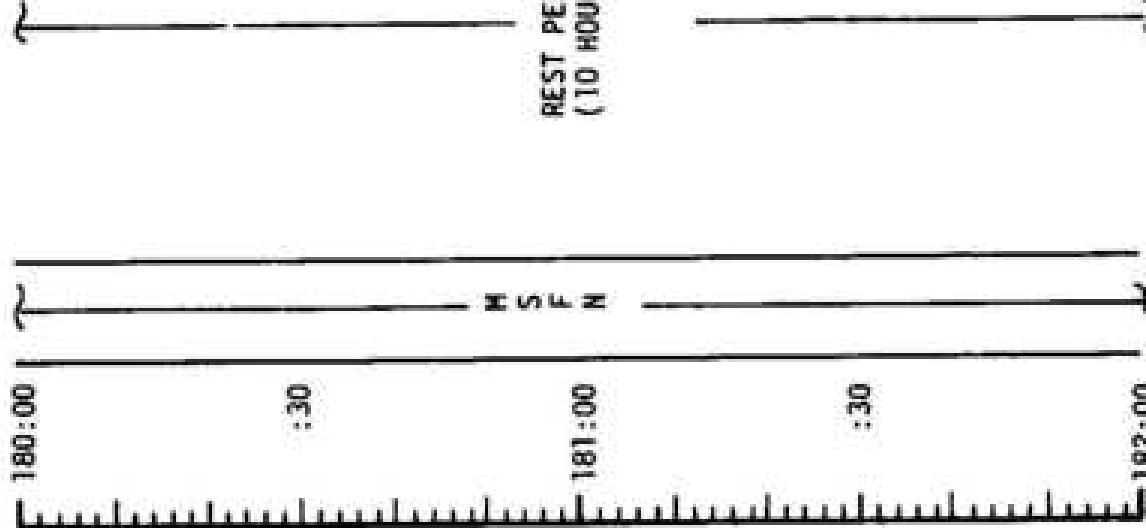
:30

182:00

H S F N

REST PERIOD
(10 HOURS)PTC
P 270. N 0

MCC-N



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOW 14)	OCTOBER 15, 1969	180:00 - 182:00	7/TEC	3-163

MCC Form 29 (Rev. 69)

FLIGHT PLANNING SHEET

NOTES

0022 CST

MCC-N

FLIGHT PLAN



REST PERIOD
(10 HOURS)

PTC
P 270, Y 0



MOTUS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	182:00 - 184:00	7/TEC	3-164

FLIGHT PLANNING BRANCH

NASA Form 29 (Rev 66)

FLIGHT PLAN

0222 CST

sec-14

184:00

UPDATE TO CSM
CONSUMABLES
MCC-5 MMU PWD
FLIGHT PLAN
UPLINK TO CSM
STATE VECTOR & WVE
MCC-5 TGT LOAD

:30

:30

NOTES

CREW STATUS REPORT		
CDR	CMP	LWP
SLEEP	_____	_____
PRO	_____	_____

CSM CONSUMABLES UPDATE		
GET:	_____	_____
RCS TOTAL	_____	_____
QUAD A	_____ X	_____
C	_____ X	_____
PTC	_____ Y	_____
270,	_____	_____
P	_____ H ₂	_____
TOTAL	_____	_____
O ₂	_____ Z	_____

POST SLEEP CHECKLIST:

CREW STATUS REPORT
CONSUMABLES UPDATE
CYCLE H2 & O2 FANS
FLIGHT PLAN UPDATE
NORMAL LUNAR COMM EXCEPT:
S-BD AUX TYPE - OFF
TAPE RCDR FWD - OFF
OMNI OPS
S-BD ANT - OMNI
S-BD ANT OMNI - B
BNGA OPS
S-BD ANT-HI GAIN
CREW MANAGES ANT
OPS

EAT PERIOD

WIPE EXCESSIVE MOISTURE FROM
TUNNEL HATCH AREA

:30

L10H CANISTER CHANGE NO. 14
(16 INTO B, STOW 14 IN A4)

[CONTINUE PTC IF MCC-5 IS NOT PERFORMED]

PTC - IMU REALIGN
OPTION 3 - REFRESHMAT
REPORT GYRO TORQUING ANGLES

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	08-OCTOBER 15, 1969	184:00 - 185:00	8/TEC	3-165

BTC Rev 20 (Rev 20)

Flight Planning Revision

Fraud had not live ticks

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FLIGHT PLAN

MCC-5
Buoy Table

P: 0° Y R: 7.1°	ATT INITIALS	SPLITTING THRU	WT'S INITIALS
T: 10° T: 10°	TAKEOFF INITIALS	B1 + 1 SEC	TRIM X AXIS ONLY TO 0.2 FPS

PP: 1 2 12
3, 111

MCC-N

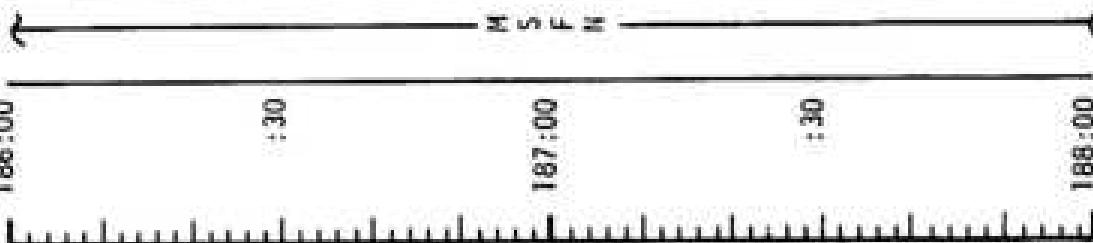
FLIGHT PLAN

BATTERY CHARGE, BATTERY B

NOTES

0422 CST

186:00



BURN STATUS REPORT

	X	X	*	*	ATIG
	X	X	*	*	BT
					Vgx
					TRIM
	X	X	*	*	R
	X	X	*	*	P
	X	X	*	*	Y
					Vgx
					Vgy
					Vgz
					SV _C
					FUEL
					OX
					UNBAL

* ITEMS TO BE
REPORTED TO MSFN

PTC
P 270, Y 0

TIG: 187:21:14.7
EV: NOMINALLY ZERO

186:00 - 188:00

187:00 - 188:00

:30

(TEI + 15 HRS)

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	186:00 - 188:00	8/TEC	3-167

NIC Form 28 (Rev 49)

NASA — MSC

FLIGHT PLANNING MARCH

REVISION A

FLIGHT PLAN

0622 CST

188:00

MCC-N

:15

188:30

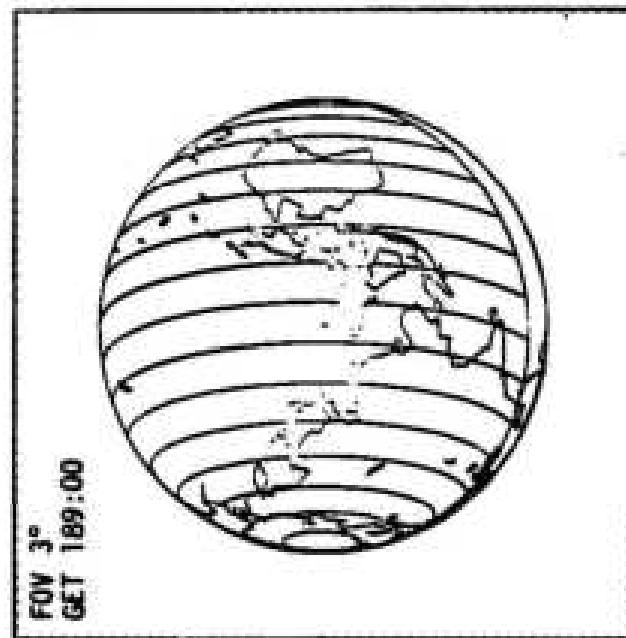
:45

189:00

N S F N

FOW 3°
OFF 189:00

P 270, Y 0
PTC



STOP PTC AT ROLL 235°

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MOS 14)	OCTOBER 16, 1969	188:00 - 189:00,	B/TEC	3-169

RE 1100 38 (000000)

MCC-N

FLIGHT PLAN

0822 CST

START PTC

190:00

UPDATE TO CSM
FOR PTC (LOWEST)
QDRS TO DISBLE
QUARTERLY PPLMT)

:30

191:00

F

S

H

:30

EAT PERIOD

192:00

MISSION EDITION

DATE

TIME

DAY/REV

B/TEC

8/TEC

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6/TEC

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Flight Plan

1500

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E F S K

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BATTLER CHARGE, BATTERY A

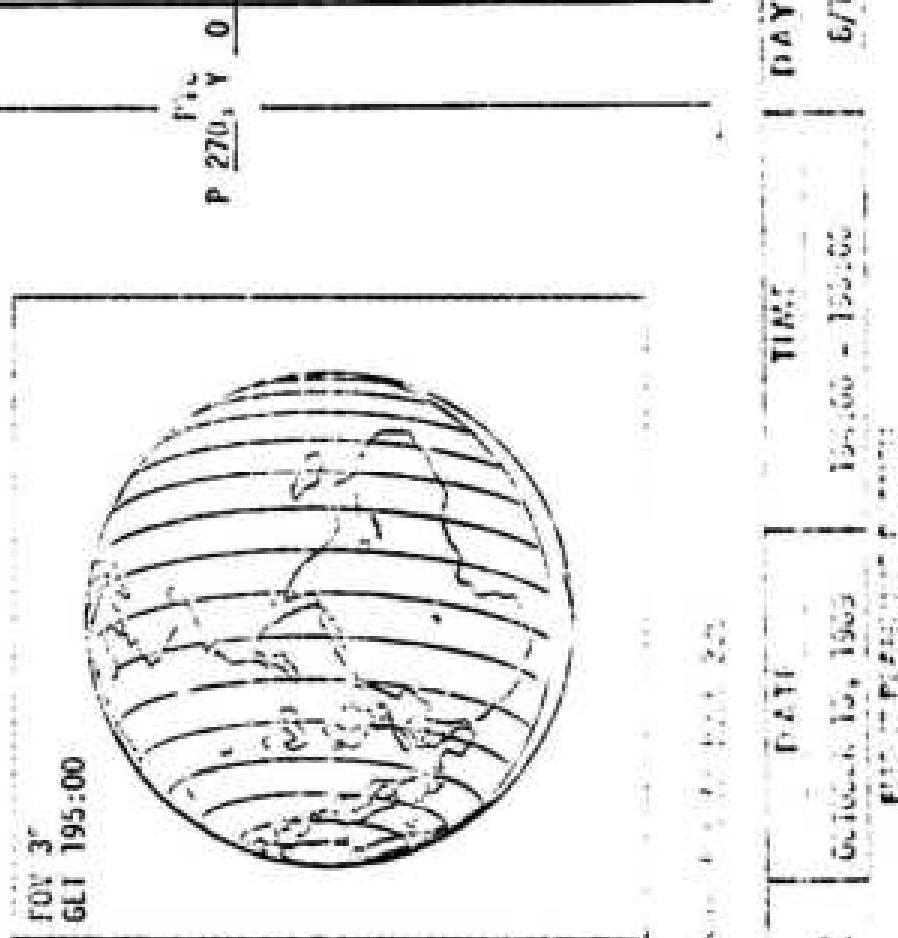
P C10, I
PRC

SECTION	EDITION	DATE	TIME	DAY / CYCLE	PAGE
1119 12	F1M (59) :4	06/02/15, 1939	192:00 - 193:00	1119 12	1

5

FLIGHT PLAN

NOTES



Flight	Flight Level	Time	Flight	Flight Level	Time
01	10,000	120:00 - 150:00	02	10,000	150:00 - 180:00

1422 CST

FLIGHT PLAN

NO. 8

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

START PTC

WIPE EXCESSIVE MOISTURE FROM
TUNNEL HATCH AREA
CONTAMINATION CONTROL
L10H CANISTER CHANGE NO. 15
(17 INTO A, STOW 15 IN A4)

PTC
P 270, Y 0

:30

H S F H

197:00

:30

198:00

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

PRESLEEP CHECKLIST:	
CREW STATUS REPORT (MED)	
ONBOARD READOUTS	
CYCLE 02 & H2 FANS	
CHLORINATE POTABLE WATER	
VERIFY:	
WASTE HNGT QVBD DRAIN - OFF	
VASTE STOW VENT VLV - CLOSED	
EMERG CABIN PRESS VLV - BOTH	
SURGE TK 02 VLV - ON	
REPRESS 02 VLV - OFF	
LW TUNNEL VENT - OFF	
"E" MEMORY DUMP	
NORMAL LUNAR COMM EXCEPT:	
5-BD NORMAL MODE VOICE - OFF	
5-BD SQUELCH - ENABLE	
5-BD AUX TAPE - OFF	
5-BD ANT - OMNI	
5-BD ANT OMNI - B	
TAPE RCDR FWD - OFF	

EAT PERIOD

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	196:00 - 198:00	8/TEC	3-174

BUK 7110 29 (REV 14)

FLIGHT PLANNING SOURCE

LIGHT PLATE

1000

1000

00

H S H F
122.00

:30

-200.00

PICTURE
(10 pages)

P 770, A 0

RIGHT PLATE

Edition	Date	Time	CART/REV	Page
110 12	October 15, 1969	198:00 - 200:00		1-15
110 12	October 14, 1969	198:00 - 200:00		1-15

1000

FLIGHT PLAN

NOTE:

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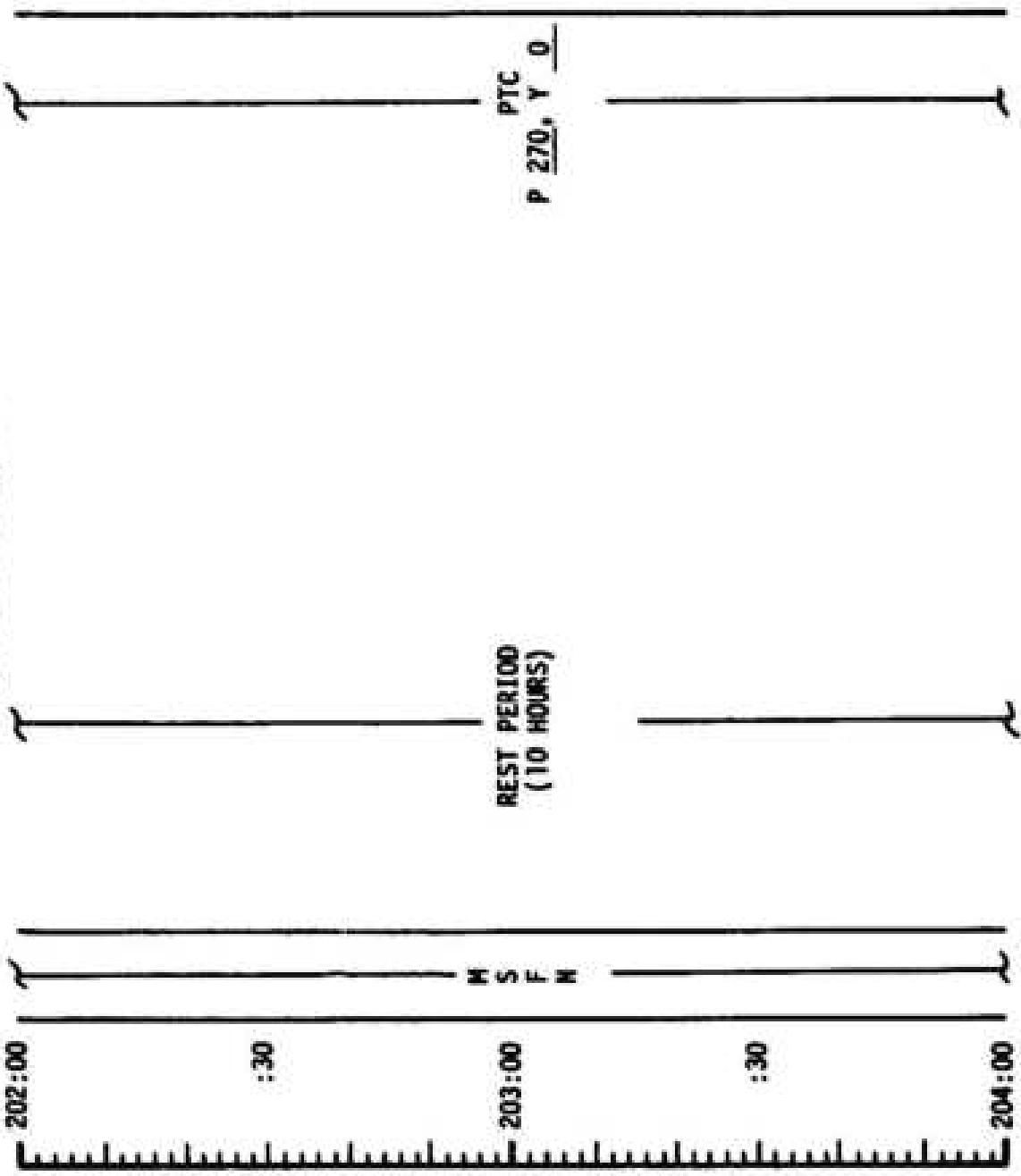
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157. - 1.

2022 CST

FLIGHT PLAN

NOTES



MISSION	EDITION	DATE	TIME	DAY/REVIEW	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	202:00 - 204:00	8/TEC	3-177

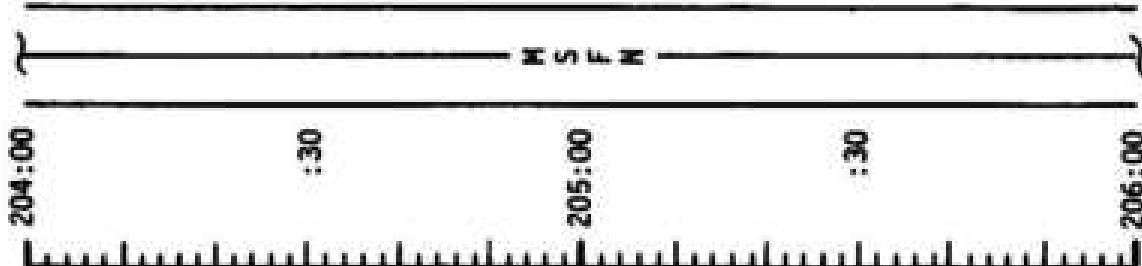
Flight plan diagram

See page 29 (page 38)

MSO-N

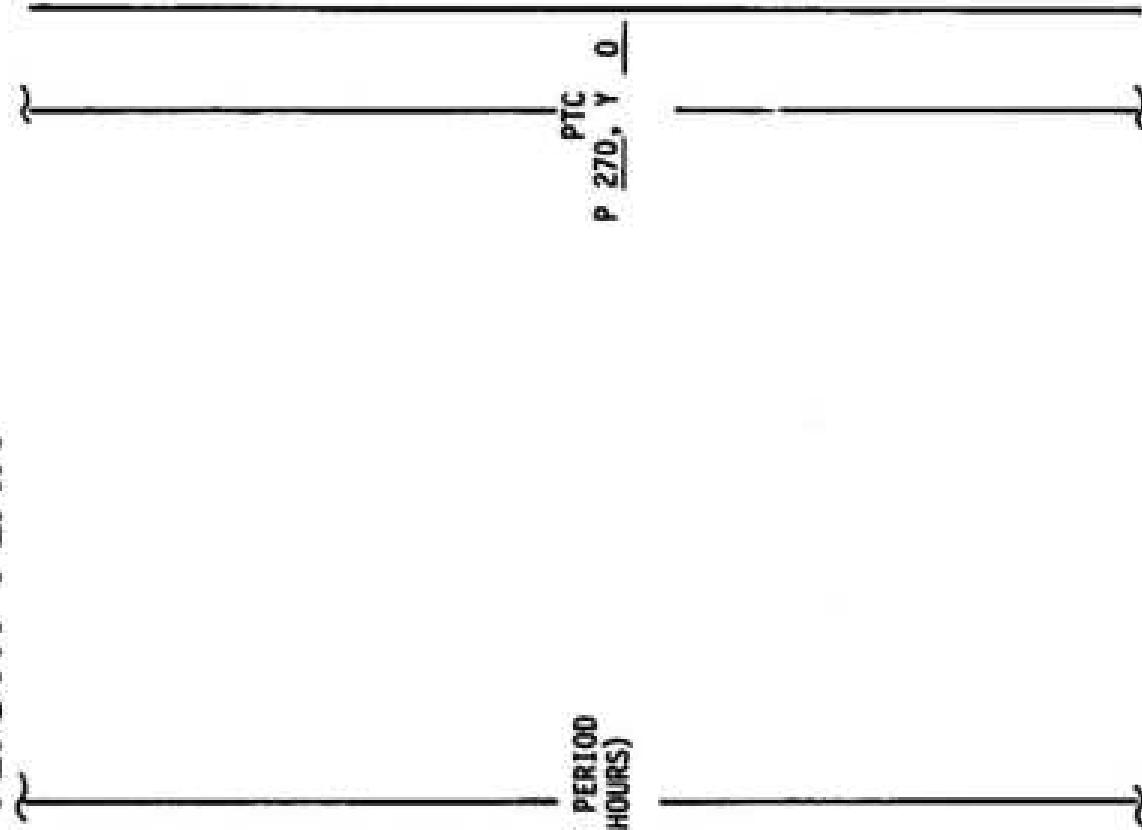
FLIGHT PLAN

2222 CST



REST PERIOD
(10 HOURS)

P 270, Y 0
PTC



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	204:00 - 206:00	B/TEC	3-178

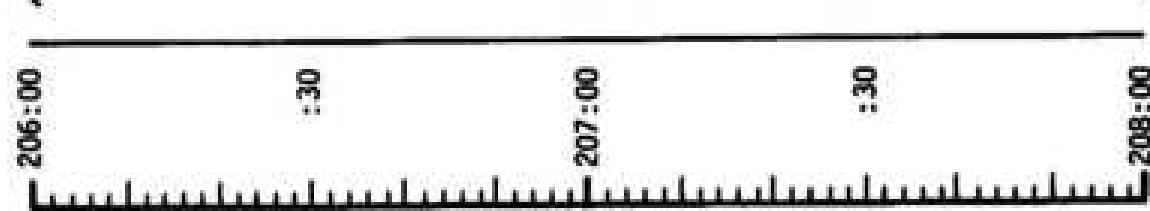
Flight Plan Revision

Rev 100-29 (087-00)

ASCC-N

FLIGHT PLAN

0022 CST



H S F N

P 270, Y 0
PTC

NOTES

FLIGHT PLANNING SUMMARY

use form in (very end)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	2006:00 - 2008:00	8/TEC	3-179

**LOG SHEET
FOR
LIGHT FLASHES & RADIO SIGNALS BEHIND MOON**

RIGHT PLUM

DATE 10/15/69

卷之三

**LOG SHEET
FOR
LIGHT FLASHES & RADIO SIGNALS BEHIND MOON**

0422 CST

FLIGHT PLAN

P52-IMU REWIND

(OPTIONAL)
(OPTIONAL)

REPORT GYRO TORQUE AND EES

:30

211:00

N S F N

:30

212:00

MOC-N

P52 (PTC ORIENT)	
W71:	---
W05:	---
W93:	---
X	---
Y	---
Z	---
GET	---

P 270, Y 0
PTC

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (WV 14)	OCTOBER 15, 1969	210:00 - 212:00	9/TEC	3-181

FLIGHT PLAN SHEET NUMBER

USE PAGE 29 (REV 61)

ASCC-N

FLIGHT PLAN

0622 CST

212:00

:15

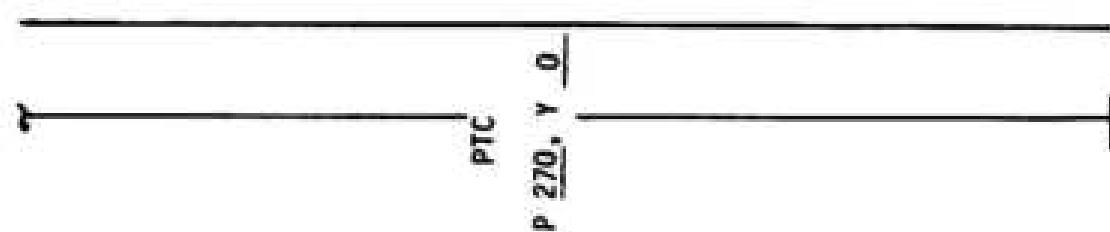
212:30

:45

213:00



MORSE



STOP PTC AT ROLL 235°

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	212:00 - 213:00	9/TEC	3-182

FLIGHT PLANNING SECTION

MSN 101-28 (Rev 88)

HANNA — HANCO

MCC-N

FLIGHT PLAN

NOTES

MISSION		EDITION	DATE	TIME	DAY/REVIEW	PAGE
APULLO 12	FINAL (MAY 14)	OCTOBER 15, 1990	213:00 - 214:00	8/TEC	3-183	MASA — MEC
PLANEVIEW PLANNING SUMMARY						
POO	P23 - STAR 1	H	213:00	214:00		
POO	P23 - STAR 1	F	213:30	:15		
1. VECTORS ENH (R1 = -6.9 2.0 2) (R2 = -6.7 0.1 8) (R3 = -2.6 0.3 2)	N88: (R1 = -9.4 7.0 3) (R2 = -2.5 6.7 8) (R3 = +1.9 2.8 6)	5.	STAR 1 6.5 ENH (R1 = 0.0 1 1 0)	6.	STAR 3 1 EEH (R1 = 0.0 1 2 0)	
LOAD A MATRIX (R1 = 4.5 0.0 0) (R2 = 0.0 0.0 0.6)	N88: (R1 = -9.4 7.0 3) (R2 = -2.5 6.7 8) (R3 = +1.9 2.8 6)	4.	STAR 1 6.0 EEH (R1 = 0.0 1 2 0)	5.	STAR 3 1 EEH (R1 = 0.0 1 2 0)	
STAR/HORIZONTAL HORIZON	P06 69	3.	STAR 2 6 EEH (R1 = 0.0 1 2 0)	4.	STAR 3 1 EEH (R1 = 0.0 1 2 0)	
STAR - CISLunar NAVIGATION	P06 69	2.	STAR 2 0.4 ENH (R1 = 0.0 1 1 0)	3.	STAR 2 6 EEH (R1 = 0.0 1 2 0)	
DO NOT PROCEDED ON	N88: (R1 = -6.9 2.0 2) (R2 = -6.7 0.1 8) (R3 = -2.6 0.3 2)	1.	VECTORS ENH (R1 = -6.9 2.0 2) (R2 = -6.7 0.1 8) (R3 = -2.6 0.3 2)	2.	STAR 2 0.4 ENH (R1 = 0.0 1 1 0)	
P00	P23 - STAR 1	H	213:00			
Y49 - MOVE TO SIGHTING ATT	P 99					
MMR 10 OPTICS CALIBRATION ATT	R 235					
P23 - CISLunar NAVIGATION	P 235					
OPTICS CALIBRATION	A 0					
STAR 1	Y 227					
3 MARKS ON EACH STAR						
STATE VECTORS						
MARK DATA AND						
UPDATE OMBODAO						
INTEGRATE P23						

~~SECRET~~

0822 CST

FLIGHT PLAN

ROUTE TO CSM
FOR PTC (LOWEST
QUANTITY PRIORITY)

START PTC

214:00

:30

215:00

:30

216:00

P 270, Y 0
PTC

END PERIOD

WORMS

MISSION	EDITION	DATE	TIME	DAY/REVIEW	PAGE
APOLLO 12	FINAL (REV. 14)	OCTOBER 15, 1969	214:00 - 216:00	9/TEC	3-184

FLIGHT PLAN FOR APOLLO 12

REV. NO. 14 (REV. 09)

FLIGHT PLAN

1022 CST

216:00

M 5 F

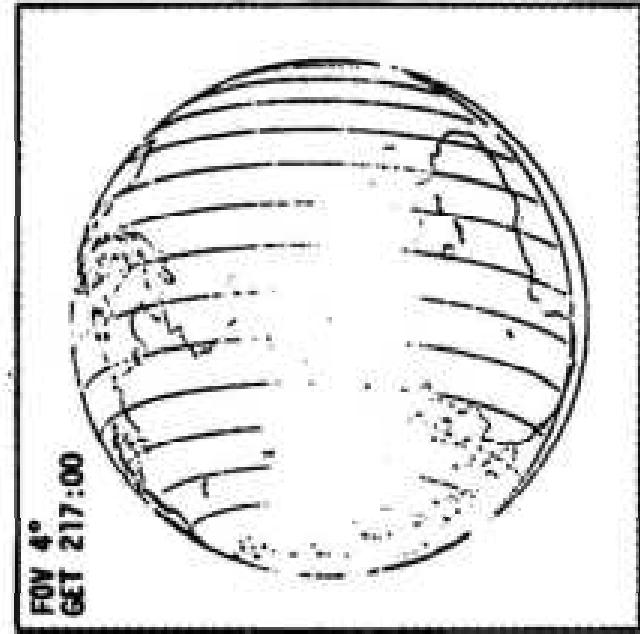
:15

216:30

:45

E 217:00 STOP PTC AT ROLL 235°

T _____ T
P 270. V₀
PTC



FNU 4°
GCT 217:00

NOTES

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
Apollo 12	FINAL (REV 14)	OCTOBER 15, 1969	216:00 - 217:00	5/TEC	3-185

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12 FINAL (MOW 14)	OCTOBER 15, 1969	217:00 - 218:00	9/TEC	3-186	

FLIGHT PLAN

1122 CST

217:00

MOVE TO OPTICS CALIBRATION ATT

R 255
P 272
Y 0

P23 - CLOUDS/WEATHER HORIZON

POO
STAB/EMERG HORIZON
OPTICS ALIGNMENT
SITE # 1 2

WAS - MOVE TO SIGHTING ATT

R 90
P 100
Y 328

15

1. STAR 1 7 2 EHH (R3 = 0 0 1 1 0)
 NBB: (R1 = -6 4 5 7)(R2 = -7 7 1 0)
 INCORPORATE P23
 MAX DATA AND
 UPDATE OBSOLETE STATE VECTOR

2. STAR 2 4 EHH (R3 = 0 0 1 2 0)

NBB: (R1 = -2 1 3 8 9)(R2 = -9 3 8 6 8)(R3 = -2 7 0 4 2)

15

217:30

F

N

S

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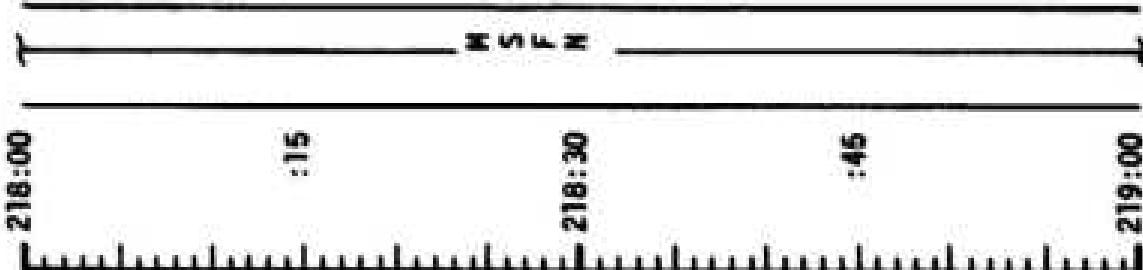
F

N

F

FLIGHT PLAN

1222 CST
218:00



NOTES

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MDV 14)	OCTOBER 15, 1969	218:00 - 219:00	9/TEC	3-186A

FLIGHT PLANNING SECTION

SEC 1000 20 (1000 10)

NASA — MSC

FLIGHT PLAN

NOTES



1202 CST

219:00 T

:15

219:30 N S F

:45

220:00 T

MISSION	EDITION	DATE	TIME	DAY/EV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	219:00 - 220:00	9/TEC	3-187

see first page for chart info

FLIGHT PLAN SHEET 11

卷之三

卷之三

卷之三

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	220:00 - 221:00	9/TEC	3-188

NB88: (R1 = -2.5472)(R2 = -7.9647)(R3 = -5.6266)

6. STAR 125 ENH (A3 - 09110)

20

5. JITTER EEN (R3 = 0.0 1.2 0) PROCEED ON E Q6 09
M88: (R1 = -8.9 9.7 6) (R2 = -1.0 7.0 2) (R3 = -1.5 5.3 0)

卷之三

$$WBS: (R1 = -9.8446) (R2 = -1.747)$$

STAB 1 5 9 1 0 0 1 2 0

三

E. STMB 2 6 EEN (88) = 0 0 1 2 0

2. STAR 174 EME (83 = 0.0110)

STATE VECTORS
UPDATING AND
MARK DRAFT AND
2 STAR 1 2 4 6 8 10
HESS: (R1 = -7.6 6 1.5)(R2 = -2.7 1.3)(R3 = -5.9 5 5.9)

四

10

3 WINGS ON EACH STAR
R 90 STARS - CIVILIAN HORIZON
P 1177 7 SEES 329
R 90 STARS - CIVILIAN NAVIGATION

STAR 1 2

OPTICS CALIBRATION ATT
P23 - COLDWATER MAGNETRON
Y 0
P 272
R 235

8

67

FLIGHT PLAN

1522 CST

FLIGHT PLAN

NOTES

L10W CANISTER CHANGE NO. 17
(19 INTO A, STOW 17 IN A5)

UPDATE TO CSM
MCC-6 PRO DATA
ENTRY PAD (ASSUME
MCC-6)

HIRE EXCESSIVE DISTURE FROM
TUNNEL HATCH AREA
COMMUNICATON CONTROL

UPLINK TO CSM
STATE VECTOR 1 166
MCC-6 TGT LOAD

P52 (PTC ORIENT)	
N71:	—
N05:	—
N93:	—
X:	—
Y:	—
Z:	—
GET	—

221:30 :15

H S F N

P52 - IMM REALIGN
OPTION 3 - REFSWAP

REPORT GYRO TORQUING ANGLES

P30 EXTERNAL AV

H₂ PURGE LINE HTR'S - ON

:45

222:00

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	221:00 - 222:00	9/TEC	3-189

MAGA — MPC

MSC Form 29 (Rev 10)

FLIGHT PLANNING BRANCH

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FLIGHT PLAN

MOC-6
BURN TABLE

P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TAKEOVER	+10° TAKEOVER	6T + 1 SEC	TRIM X AXIS ONLY TO 0.2

TABLE 3-13
3-190

MISSION 1622 CST

FLIGHT PLAN

V49 - MMVR TO BURN ATT	
SAT STAR CHECK	
H2 & O2 FUEL CELL PURGE	
P40/41 - SES/REBS THRUST	
EXEC ALIGN TO IMU	
MCC-6	
V56 - TRANSFER CSM SV TO LM SLOT	
MCC-6 BURN STATUS REPORT	
MMVR TO TV ATTITUDE BY 223:15	R
	P
	T
	HED
UPDATE TO CSM	
QUADS TO DISABLE FOR PTC (LOWEST QUANTITY PRPLNT)	

:30

MCC-6

H S F N

223:00

:30

TV (EDS) 223:15-223:45
CH 4/TV-IN (f5.6/f22)

EAT PERIOD

MMVR TO PTC ATTITUDE
W/PTC EXCESSIVE MOISTURE FROM
TUNNEL HATCH AREA

P 270
Y 0

MOTORS

BURN STATUS REPORT	
X X	ATTG
X X	BT
X X	V gx
	TRIM
X X	R
X X	P
X X	Y
X X	FUEL
X X	OX
X X	V gx
X X	V gy
X X	AV
X X	C
X X	UNBAL

*ITEMS TO BE
REPORTED TO MSFN

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	222:00 - 224:00	9/TEC	3-191

1822 CST

FLIGHT PLAN

QUANTITY (LARGEST)
FOR PTC (LARGEST)
QUANTITY (LARGEST)
FOR PTC (LARGEST)

REPORT ON RCS INJECTOR
VALVE TEMPS (SYS TEST METER)
SCD, 6A, 8.C.D.)

ON RCS INJECTOR TEMP	
SC	50
6A	68
6C	60

ONBOARD READOUT	
BAT C	
PYRO BAT A	
PYRO BAT B	
RCS A	
B	
C	
D	

DC IND SEL - MMA OR B

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (REV 14)	OCTOBER 15, 1969	224:00 - 226:00	9/TEC	3-192

APOLLO PLANNING BUREAU

Rev. 70 (Rev. 88)

PRESLEEP CHECKLIST:	
CREW STATUS REPORT (HED)	
CHARGED READING	
CYCLE 02 1 H2 FINS	
CHARGE LINE PORTABLE WATER	
WASTE MGT ONBOARD DRAIN - OFF	
WASTE STREAM VENT VALV - CLOSED	
EMER CHARGE PRESS VLV - BOTH	
SURE TX 02 VALV - ON	
REFRESH 02 VALV - OFF	
LM TUNNEL VENT - OFF	
ELECTRIC OUTPWR - OFF	
5-BD SQUELCH - ENABLE	
5-BD AMT - OMNI	
5-BD AMT OMNI - B	
TAPE RCDN FWD - OFF	
MOBILIN LUMINAR MODE VOICE - OFF	
E. WORKER OMEG	

REST PERIOD
(10 HOURS)

225:00

:30

M S F

226:00

M

:30

INCC-H

FLIGHT PLAN

2022 CST

226:00



:30

H S F N

227:00

:30

228:00



REST PERIOD
(10 HOURS)

P 270 Y 0
PTC

NOTES

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MOS 14)	OCTOBER 15, 1969	226:00 - 228:00	9/TEC	3-193

etc from 28 (MOS 14)

FLIGHT PLANNING SEARCH

FLIGHT PLAN

2222 CST
228:00

MON

:30

229:00

:30

230:00

REST PERIOD
(10 HOURS)

PIC
P 270 Y 0



N S F M

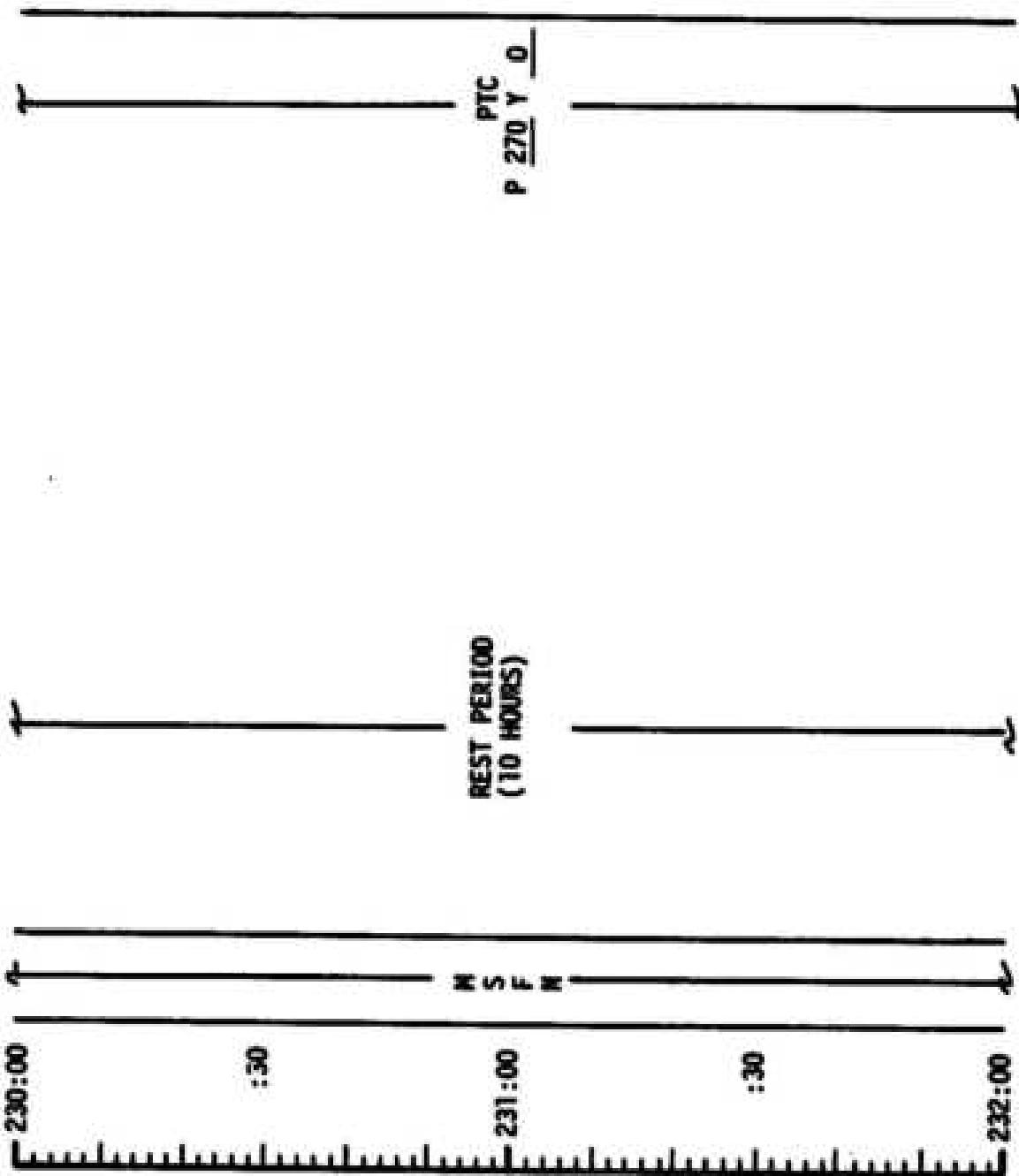
MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	228:00 - 230:00	9/TEC	3-194

END PAGE 3 OF 10

0022 CST

FLIGHT PLAN

MOMA



MOON

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MSN 14)	OCTOBER 15, 1969	230:00 - 232:00	9/TEC	3-195

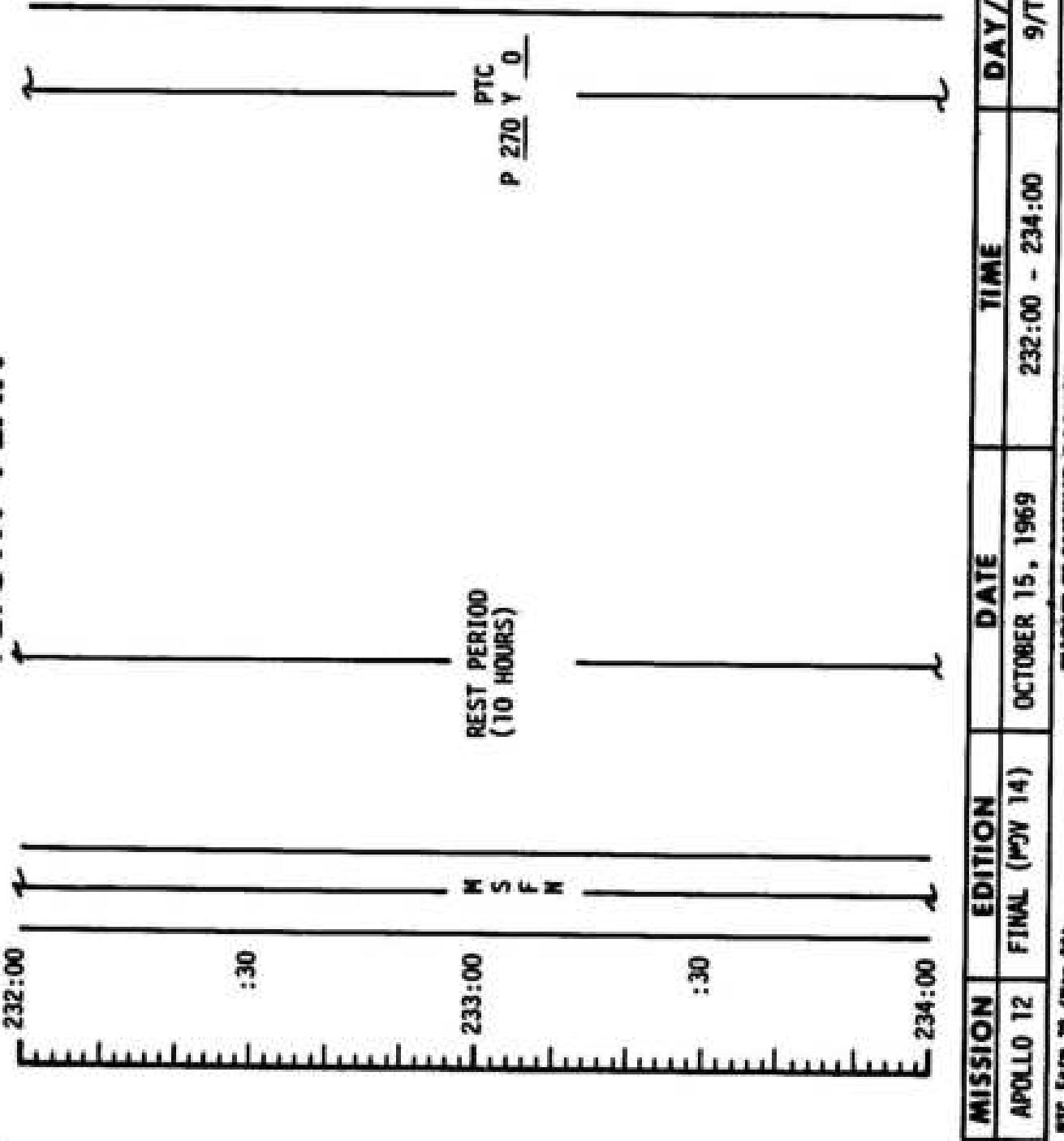
ISS Form 88 (Rev 88)

FLIGHT PLANNING SHEET

0222 CST

FLIGHT PLAN

MONS



0422 CST

MCC-B

FLIGHT PLAN

CREW STATUS REPORT			
CDR	CMP	LMP	
SLEEP			
PRD			

CSM CONSUMABLES UPDATE			
GET:	:	:	:
RCS TOTAL	—	—	—
QUAD A	FB	—	—
C	TD	—	—
H ₂ TOTAL	—	—	—
O ₂ TOTAL	—	—	—

POST SLEEP CHECKLIST:
 CREW STATUS REPORT
 CONSUMABLES UPDATE
 CYCLE H₂ & O₂ FANS
 FLIGHT PLAN UPDATE
 NORMAL LUNAR COMM EXCEPT:
 S-BO AUX TAPE - OFF
 TAPE RCDR FWD - OFF
 OMNI OPS
 S-BD ANT - OMNI
 S-BD ANT OMNI - B
 HGA OPS
 S-BD ANT - HI GAIN
 CREW HANHES ANT
 OPS

EAT PERIOD

235:00

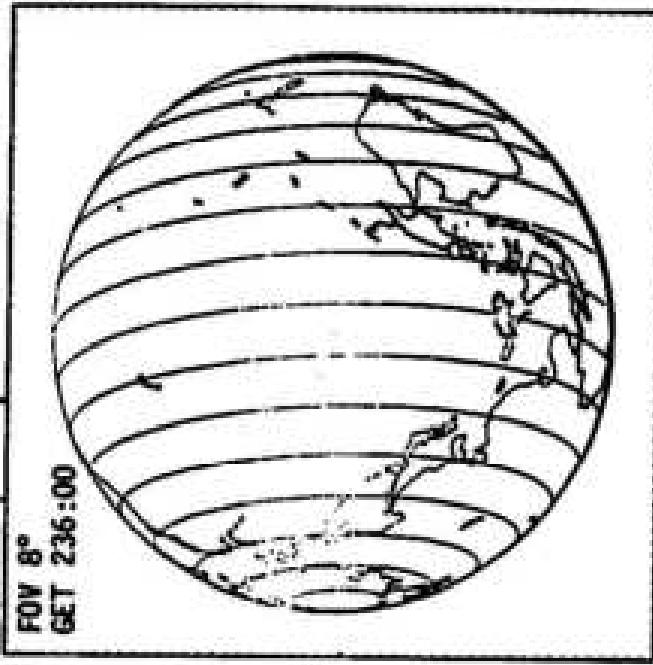
H S F H

:30

L10H CANISTER CHANGE NO. 18
 (20 INTO B, STOW 18 IN A6)

STOP PTC AT ROLL 235°

P 270 Y 0

FOV 8°
GET 236:00

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (MOV 14)	OCTOBER 15, 1969	234:00 - 236:00	10/TEC	3-197

ECC 1000 (Rev 00)

FLIGHT PLANNING BRIEFING

PAGE — 194

NAME OF PILOT (or copilot)

NAME OF COPILOT (or copilot)

MISSION	EDITION	DATE	TIME	DAY/BEY	PAGE	3-198
NAME	EDITION	DATE	TIME	DAY/BEY	PAGE	3-198
MADDO 12	EWL (MAY 14)	OCTOBER 15, 1969	235:00 - 237:00	10/TUE	10/TUE	

FLIGHT PLAN

235:00

WNR TO OPTICS CALIBRATION AT

PZ3 - C152WRE MNGERATION

POD STAGE 1 2

WNR - WNR TO SIGHTING ANT
PZ3 - C152WRE MNGERATION

:15

1. LOAD A WEAR (R3 = 5 0 0 0 1 2 0)
PZ3 - C152WRE MNGERATION
POD STAGE 1 2
PZ3 - C152WRE MNGERATION
WNR - WNR TO SIGHTING ANT
PZ3 - C152WRE MNGERATION

235:30

2. JETTISON EH (R3 = 0 0 1 2 0)
WNR: (R1 = -9 9 8 5 4) (R2 = -0 0 1 2 0)
3. STAGE 7 5 EH (R3 = 0 0 1 1 0)
WNR: (R1 = -9 9 8 7 1) (R2 = -0 0 1 1 0)
4. STAGE 1 6 3 EH (R3 = 0 0 1 2 0)
WNR: (R1 = -9 9 8 7 1) (R2 = -0 0 1 1 0)
5. STAGE 2 0 5 EH (R3 = 0 0 1 1 0)
WNR: (R1 = -9 9 8 7 1) (R2 = -0 0 1 2 0)
6. STAGE 3 1 EH (R3 = 0 0 1 2 0)
WNR: (R1 = -9 9 8 7 1) (R2 = -0 0 1 2 0)

:45

STAGE RELEASE
WEAR DIA 1000
WEAR DIA 1000

WEAR DIA 1000

237:00

WEAR DIA 1000

WNR

000-#
ROUTE TO DEST
ROUTE TO DEST
ROUTE TO DEST
ROUTE TO DEST

0722 CST
237:00 | START PTC

FLIGHT PLAN

NOTES

:15

237:30

:45

238:00

N S F N

PTC
P 270, Y 0

MISSION	EDITION	DATE	TIME	DAY/REVIEW	PAGE
MADLO 12	FINAL (REV 14)	OCTOBER 15, 1969	237:00 - 238:00	10/TEC	3-199

FLIGHT PLANNING SHEET

See page 10 for notes

0802 CST

FLIGHT PLAN

HOME

EI-6 HRS)
GD/HO-GO

60/HO-GO FOR MCC-7

REPORT ON RCS INJECTOR
VALVE TEMPS (SYS TEST METER 5C, 0, 6A, B, C, D)

CH RCS INJECTOR TEMP

5C
6A
6B
6C
6D
6E
6F
6G
6H
50

P 270 Y 0
PTC

VHF SIMPLEX A-BW
(COMM CHECK)

239:00

UPDATE TO CSM
MCC-7 NAV PRO
ENTRY PMD

(EI-5 HRS)

DESIRABLE ORIENT(ENT)
STATE VECTOR T V65
UPLINK TO CSM
MCC-7 TGT LOAD

HOME — HSC

DON MAE WEST & FOOT RESTRAINTS

:30

STOP PTC

240:00

HOME — HSC

SEE PAGE 26 (Part II)

FLIGHT PLANNERS MEETING

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	238:00 - 240:00	10/TEC	1-200

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FLIGHT PLAN

MCC-7
BURN TABLE

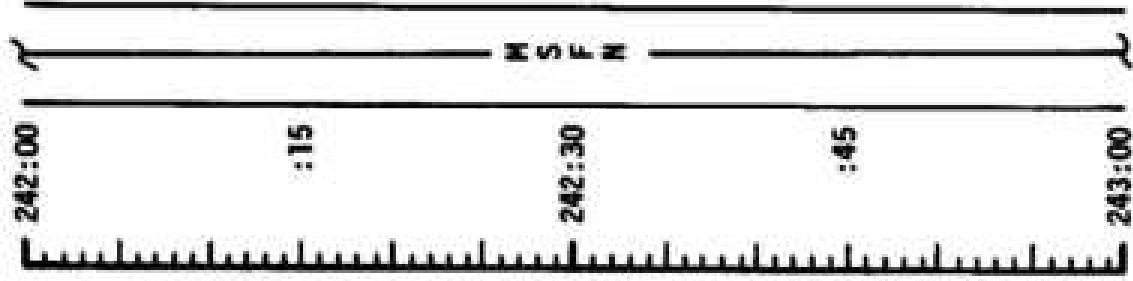
P OR Y RATES	ATT DEVIATION	SHUTDOWN TIME	RESIDUALS
10°/SEC TAKEOVER	+10° TAKEOVER	BT + 1 SEC	TRIM X AXIS ONLY TO 0.2 FPS

TABLE 3-14
3-201

1222 CST

FLIGHT PLAN

NOTES

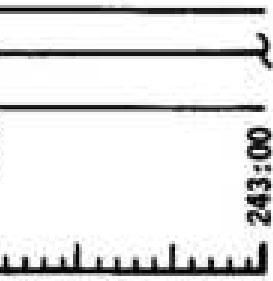


(EI - 2 hrs)

LOGIC SEQUENCE CHECK
GO/NO GO FOR PYRO NM (CUE MSFM)

MMR TO ENTRY ATTITUDE R —
P —
Y —

:45



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	242:00 - 243:00	10/TEC	3-203

EE Rev 28 (Rev 88)

1322 CST

FLIGHT PLAN

MCC-N

243:00

P52 - IMU REALIGN
OPTION 3 - REFSMMAT

REPORT GYRO TORQUING ANGLES
GDC ALIGN TO IMU
EMS ENTRY CHECK

:15

(E1 - 1 HR)

PRIM & SEC WATER EMERG ACTIVATION
CH RCS PRE-HEAT (IF REQ'D)
FINAL STOWAGE

CONFIGURE CAMERA EQUIP FOR FIREBALL AND CHUTES PHOTOS
CH/DNC/19/ESB-{F11,125,7} 12 FPS, SWAG (4 MIN) FIREBALL
CH/DNC/19/ESB-{F11,125,7} 12 FPS, SWAG (4 MIN) CHUTES

243:30

UPDATE TO CSM
ENTRY PAD
RECOVERY PAD
GO/HO GO FOR PYRO
ABN
UPLINK TO CSM
STATE VECTOR 1, W66
(E1 - 30 MIN)

TERMINATE CM RCS PREHEAT
SYS TEST PANEL CONFIGURATION
PYRO BATT CHECK
FINAL GDC DRIFT CK
CH RCS ACTIVATION
GO/HO GO FOR PYRO ABN (CUE NSPN)
LOGIC-ON
SET DET (UP, TO E1)
EMS INITIALIZATION
RSI ALIGN TO GDC

CM RCS CK

SEPARATION CHECKLIST

244:00

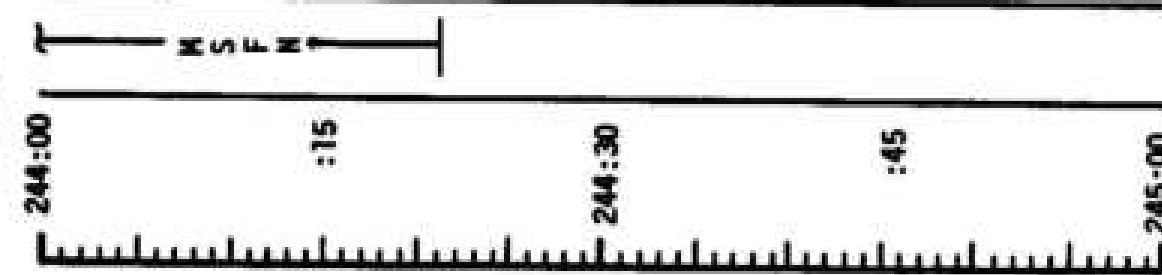
NOTES

P52 (REENTRY ORIENT)	
N71:	—, —, —
N05:	—, —, —
N93:	X Y Z GET

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	243:00 - 244:00	10/TEC	3-204

1422 CST

FLIGHT PLAN



PYRD ARM
P61 - ENTRY PREP
P62 - CM/SW SEP ATT
P63 - ENTRY INIT
P64 - ENTRY POST 0.056

CM/SW SEP

EET = 244:21:48

TRAJECTORY EVENTS

- 400,000 FEET (GET 244:21:48)
- ENTER S BAND BLACKOUT
- 0.056
- EA - INITIATE CONSTANT DRAG
- RDOT = -700 FPS
- PEAK 6
- SUBCIRCULAR VELOCITY
- P64 TO P67
- EXIT S BAND BLACKOUT
- GUIDANCE TERMINATION
- DROGUE DEPLOYMENT
- MAIN DEPLOYMENT
- SPLASHDOWN

TIME FROM EET	MIN : SEC
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SECTION 5 - ABBREVIATED TIMELINE

ABBREViated TIMELINE

1222 CST
Nov 14
00:00 00:20

DEGEN TL
INSESTITO
LIFTOFF
PS2 - TM
CSH

LIFTOFF 00:00
INSERTION CHECK
P52 - INI REAL!

BEGIN TLI PREP

P23 - Cisplatin Indication
P24 - IMA REFL. 100%
P25 - IMA REFL. 100%
P26 - IMA REFL. 100%

PTC
06:30 10:00

Time (min)	PTC (mM)	P23 - 1M5 (mM)
12:00	~0.1	~0.1
13:00	~0.1	~0.1
14:00	~0.1	~0.1
14:30	~0.2	~0.2
15:00	~0.5	~0.5
15:30	~1.0	~1.0
16:00	~1.5	~1.5
16:30	~1.0	~1.0
17:00	~0.5	~0.5
17:30	~0.1	~0.1
18:00	~0.1	~0.1

MCC-1 11:47 (HOUR ZERO)
PS2 - IMU REALIGN, OPT 3
PIC (IF MCC-1 NOT PERFORMED)

MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	ABSTRACTED TIMELINE (NOV 14)	OCTOBER 15, 1969	00:30 - 24:00	1/TLC	5-1

ABBREVIATED TIMELINE

1022 CST

100

PÉSIT
PERIOD
(10 HRS)

1

P52 - INU REV 15N; OPT 3

WCC-2 30:53

PTC

36:00

34:00

32:00

30:00

28:00

26:00

24:00

PTC

PTC

EAT

EAT

EAT

EAT

MCC-2 - 1WU REW/16s, OPT 3

TV

REST PERIOD (10 HR)

NEST

N S F

N S F

N S F

N S F

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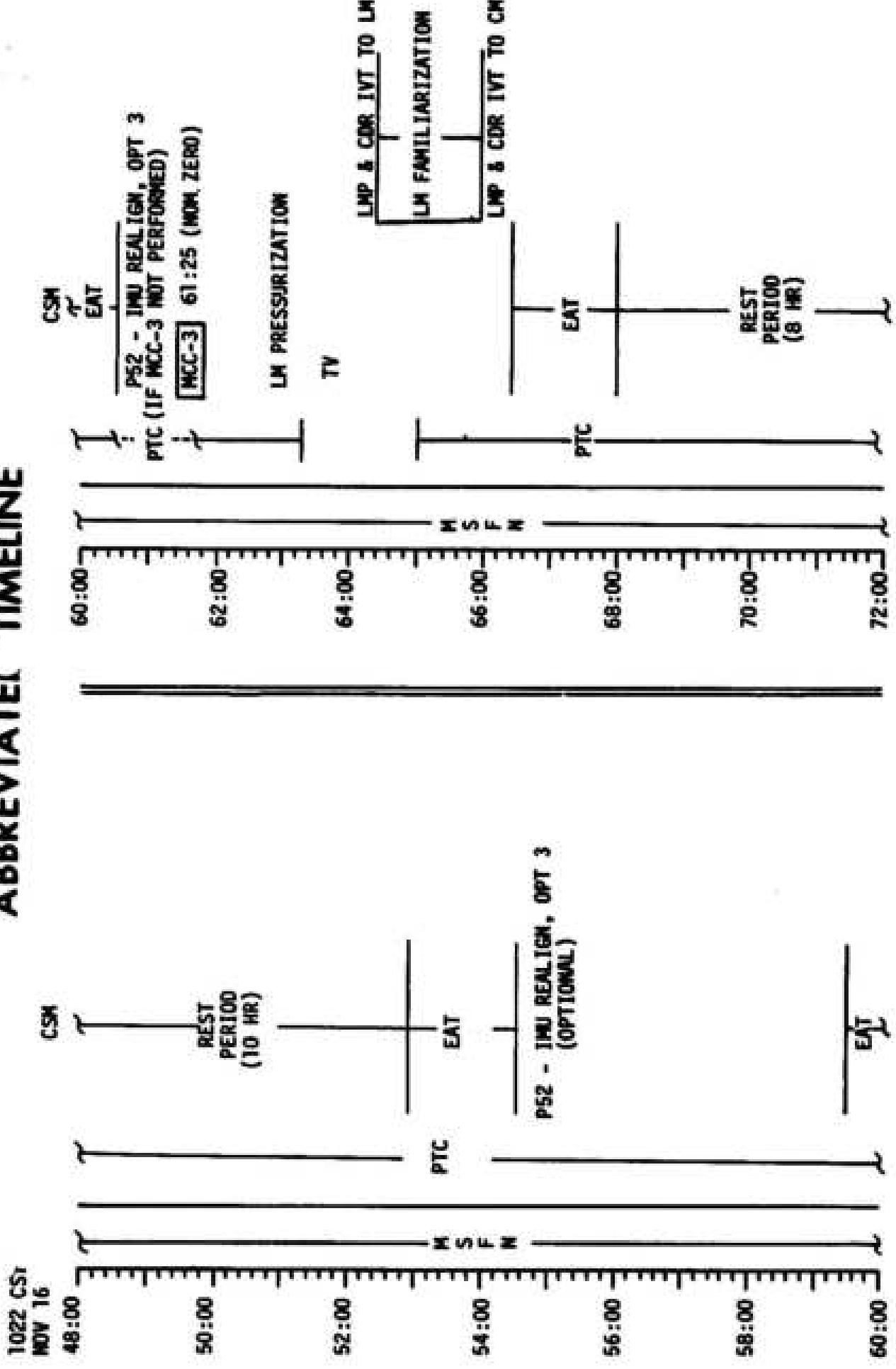
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202

PER 100
HR)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AMALO 12	REPRINTED TIMELINE (Nov 14)	OCTOBER 15, 1969	24:00 - 48:00	2/TLC	5-2

ABBREVIATED TIMELINE

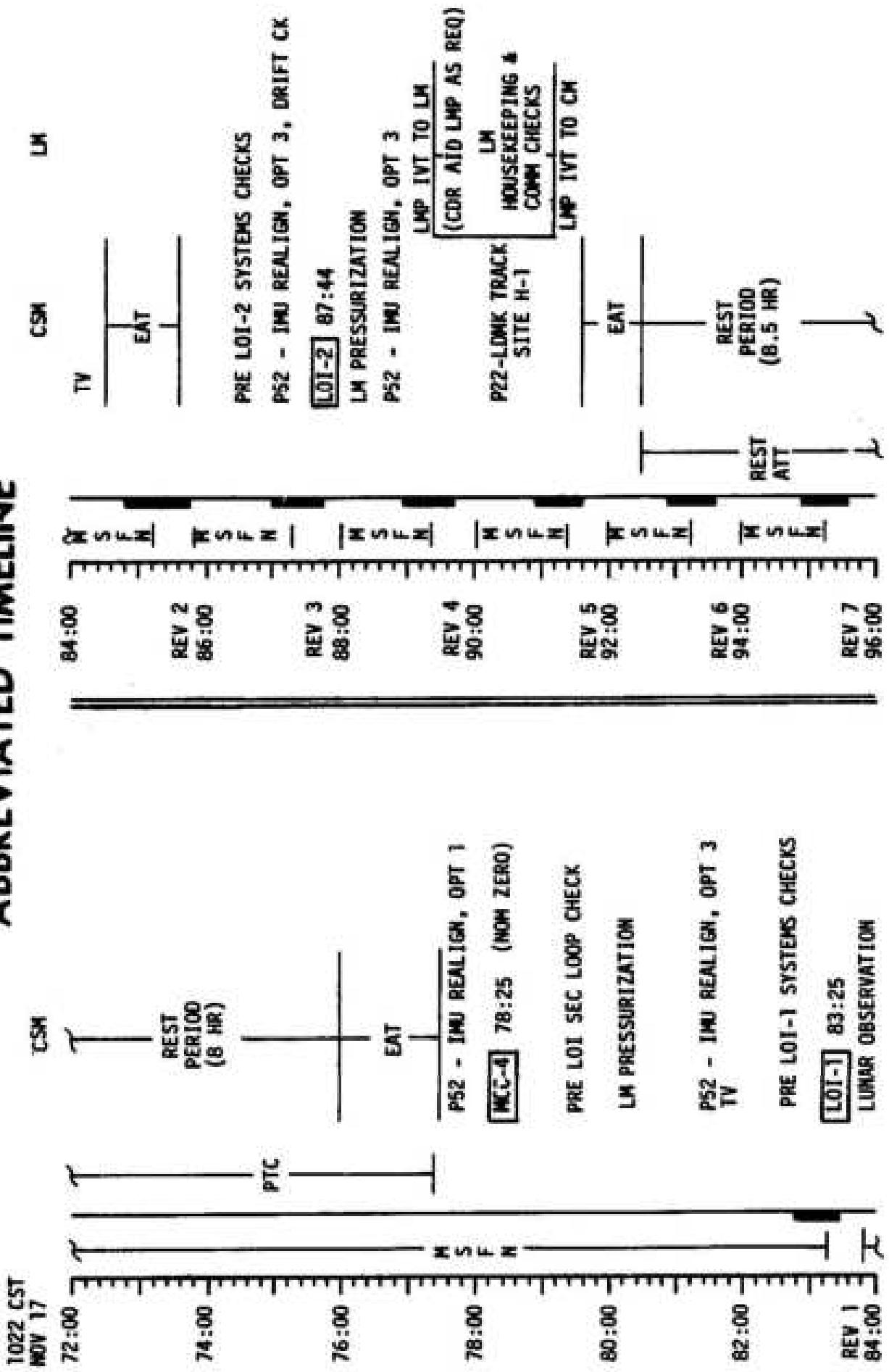


MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	ABBREVIATED TIMELINE (NOV 14)	OCTOBER 15, 1969	48:00 - 72:00	3/TLC	5-3

NASA Form 1077-07 (Rev 69)

FLIGHT PLANNING BRANCH

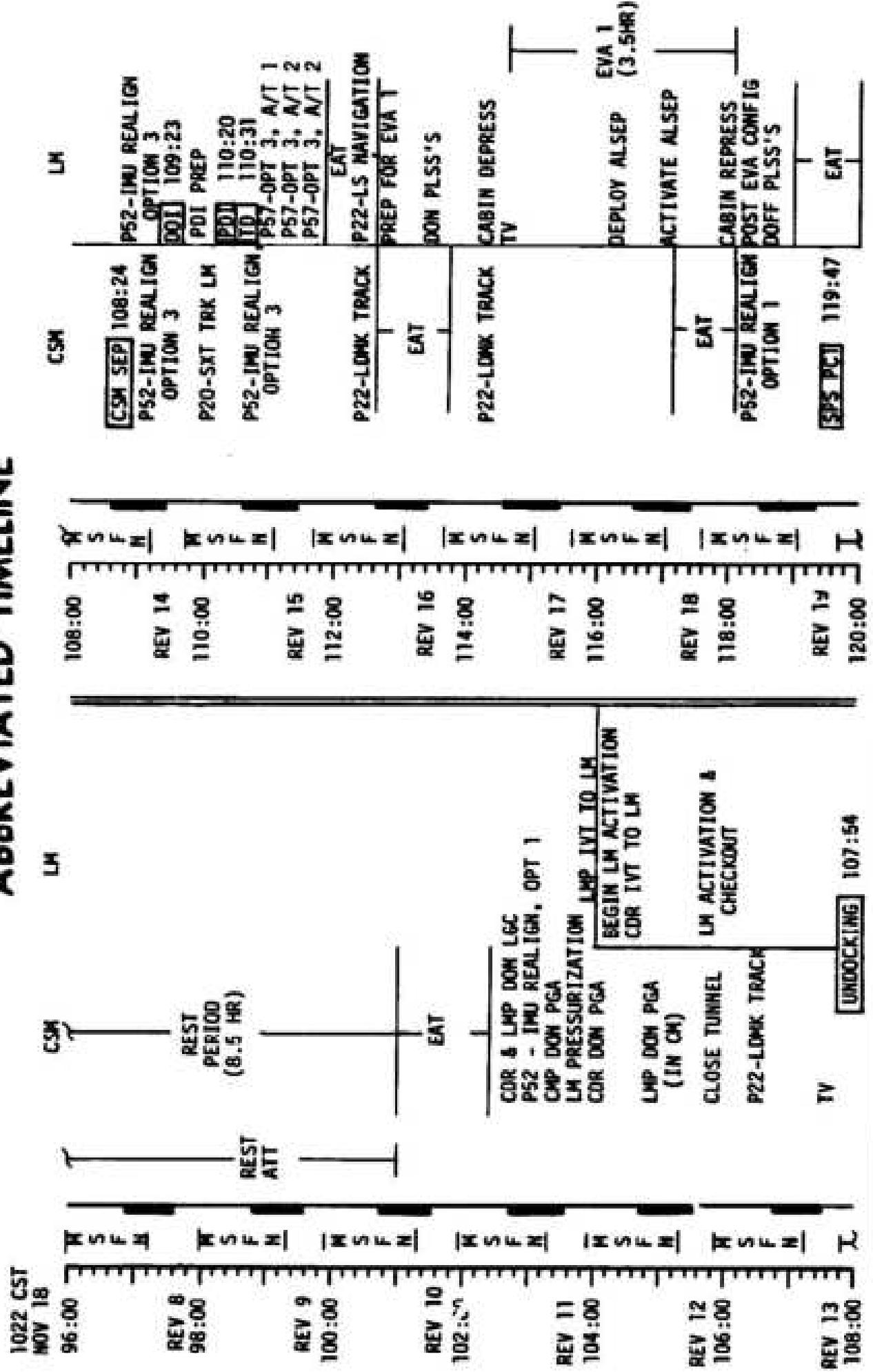
ABBREVIATED TIMELINE



MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	ABBREVIATED TIMELINE (NOV 14)	OCTOBER 15, 1969	72:00 - 96:00	4/TIC, 1-7	5-4

REV 1 --- CT (Var 6)

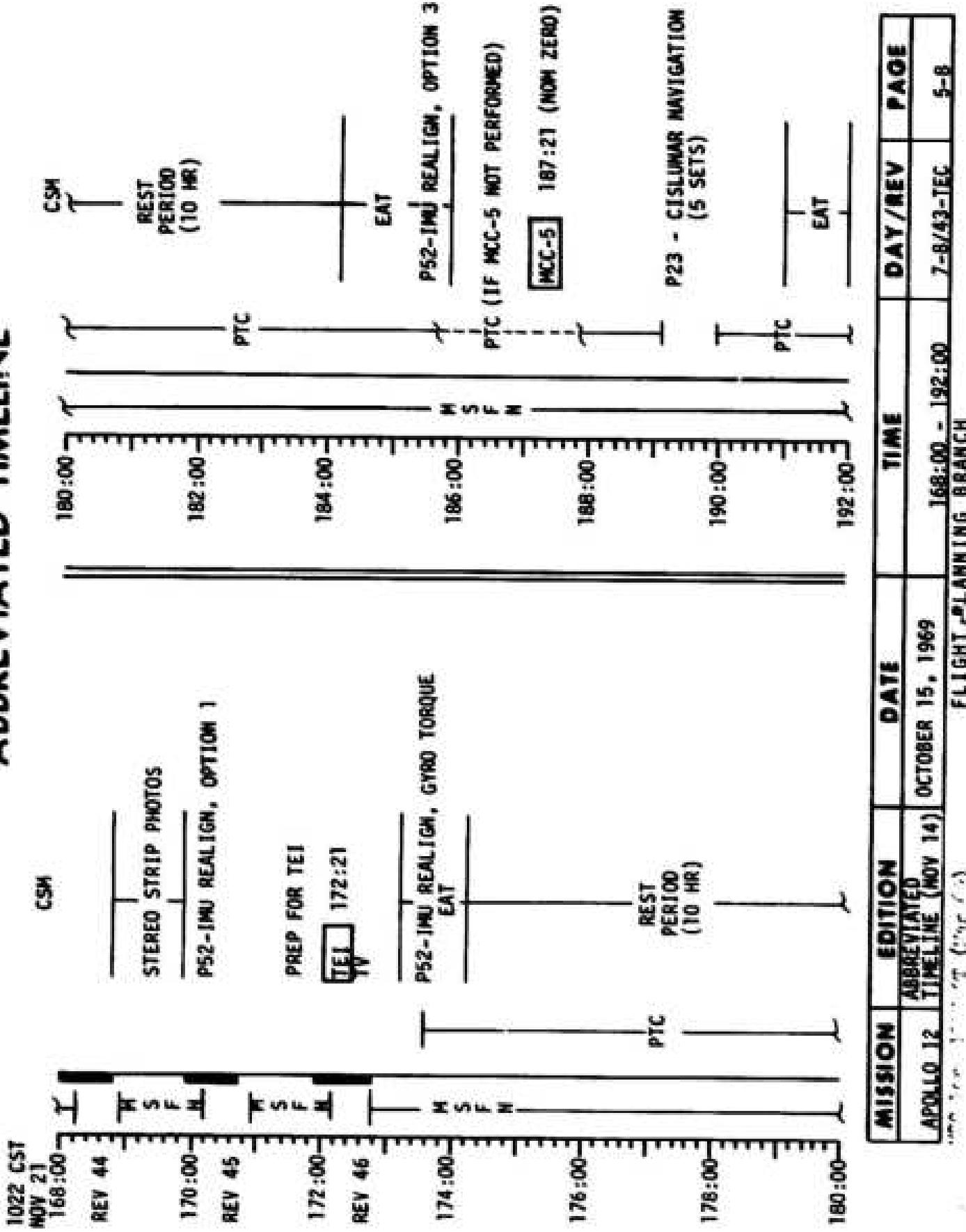
ABREVIATED TIMELINE



MISSION	EDITION	DATE	TIME	DAY / REV	PAGE
APOLLO 12	ABBREVIATED TIMELINE (NOV 14)	OCTOBER 15, 1969	96:00 - 120:00	5/7-19	5-5

ABBRREVICATED TIMELINE

ABBREVIATED TIMELINE



ABBREVIA TED TIMELINE

The figure consists of two vertically aligned graphs sharing a common x-axis representing time. The top graph is labeled "P23 - C1S1UW MIGRATION" and the bottom graph is labeled "P22 - C1S1UW MIGRATION".

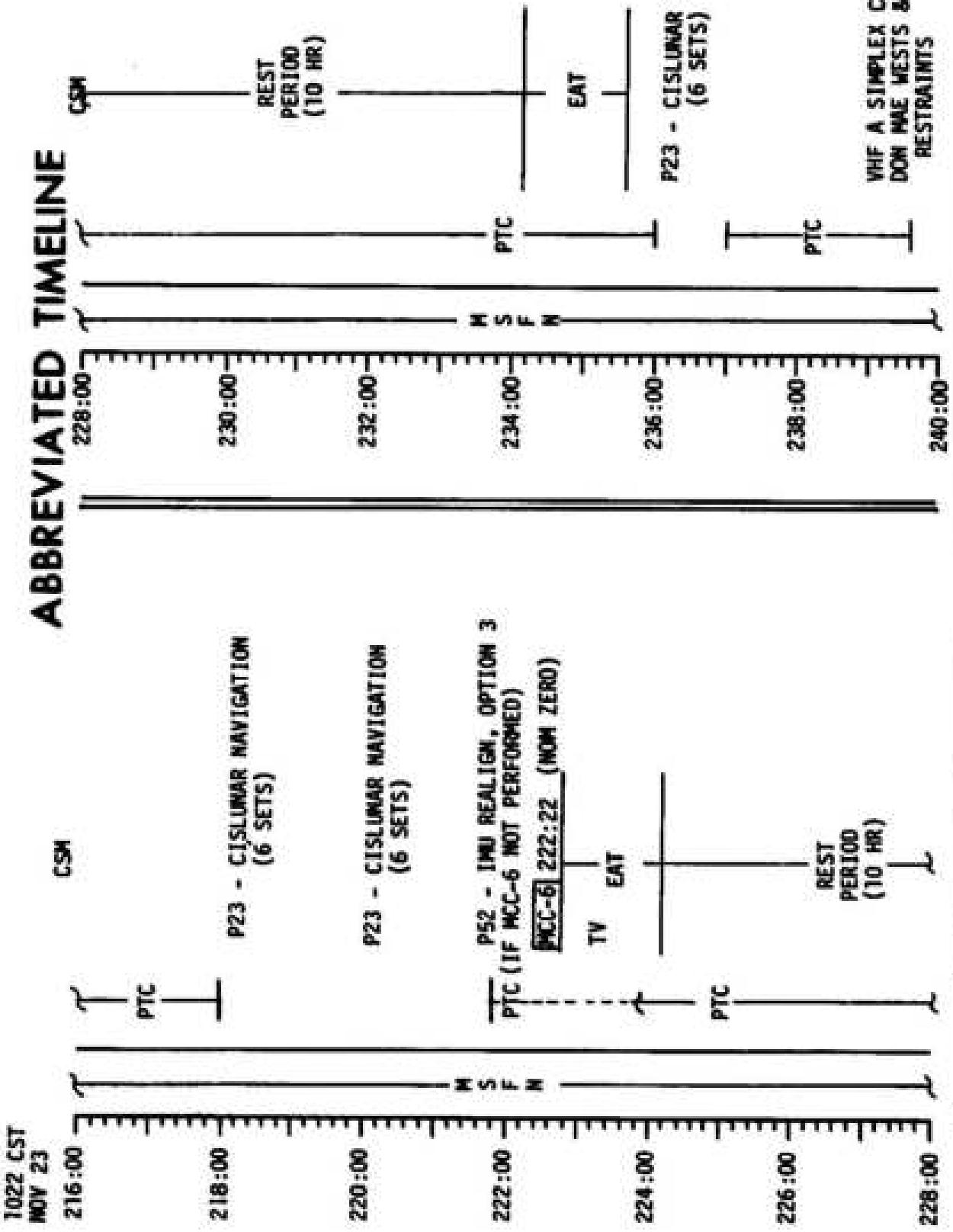
Common X-axis: TIME (HH:MM)

- P23 (Top Graph):**
 - Y-axis labels: 214:00, 216:00, 218:00, 220:00.
 - Series: PTC (solid line), EAT (dashed line).
 - Annotations: "BEST" at 214:00, "PERIOD (10 hr)" at 216:00, "EAS ENTRY CHECK" at 218:00.
- P22 (Bottom Graph):**
 - Y-axis labels: 192:00, 194:00, 196:00, 198:00, 200:00, 202:00, 204:00.
 - Series: PTC (solid line), EAT (dashed line).
 - Annotations: "BEST" at 192:00, "PERIOD (10 hr)" at 194:00, "EAT" at 196:00.

FLIGHT PLANNING BRANCH

NSC F007 - 1 Rev 7 Oct (Ver 6.0)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
AWOLLO 12	ABREVIATED AERONAVLINE (NOV 14)	OCTOBER 15, 1969	216:00 - 240:00	9-10/TEC	5-10



1022 CST
NOV 24
240:00 T

ABBRVIA: ED TIMELINE

P52 - TMI REENTRY, OPTION 1
CSH

[HCC-7] 241:22 (WDM ZERO)

BEGIN ENTRY PREP

P52 - TMI REENTRY, OPTION 3
INITIALIZE EMS
SEPARATION CHECKLIST
CSH/SIM SEP
ENTRY INTERFACE
SPLASHDOWN] 244:22
244:35

H S F H T
242:00 244:00 246:00

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	ABBRVIATED TIMELINE (WDM 14)	OCTOBER 15, 1969	240:00 - 246:00	10/TEC	5-11

*SC Part 1*** OT (Var 69)

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PHOTO PLAN

TIME	ACTIVITY or TARGET	CAMERA CONFIGURATION CODE	MAGAZINE
3:20	Transposition/Docking	CM2/DAC/18/CEX-BRKT,MIR ((8,250,7) 6 fps, .3 mag (5 MIN) CM2/EL/80/CEX - (f8,250,30) 10 CM4/TV - IN, BRKT (f22) 1 HR 05 MIN	A
4:15	LM Ejection	CM2/DAC/18/CEX-BRKT,MIR ((8,250,7) 12 fps, .7 mag (6 MIN) CM4/EL/80/CEX- (f8,250,30) 5	G
TLC	Earth Photography Distant Moon	CM_/_EL/80 or 250/CEX-RING (f11,250,=) 30 CM_/_EL/250 or 80/CEX or BW-RING (f3.6,250,=) 5/5	G G S
30:25	Hybrid Burn (MCC2) Crew Activities	CM/TV - IN (f3.6) 35 MIN	
63:30	IYT Transfer	CM/TV - IN (f3.6) 50 MIN	
61:30	Pre-Doff Lunar Surface	CM/TV - IN (f22) 20 MIN	
64:00	Lunar Surface	CM/TV - IN (f22) 30 MIN	
107:35	Undocking	CM2/DAC/18/CEX-BRKT,MIR ((8,250,7) 6 fps, 1 mag (16 MIN) CM2/EL/80/CEX- (f8,250,50) 10 LM1/DC/60/CEEX-(f11,250,50) 10 LM2/DAC/10/CEX-(f11,250,7) 6 fps .25 mag (4 MIN) CM4/TV - IN BRKT (f22) 20 MIN	B C D E F
Lunar Orbit	Targets of Opportunity Fra Mauro	CM/EL/80 or 250/CEX-(CC,250,=) 175 CM/EL/a0/BW-(f2.8,250,) 10	G H S
110:26	PDT + 6 MIN/Descent	LM3/DAC/10/CEX- (f2.8,500,30) 12 fps, .75 mag (6 MIN)	V
114:40	EVA 1	See Surface Photo and TV Timelines	V V V V V
133:17	EVA 2		V V V V V
134:10	Sextant Photography- Lansberg Rev 26	CM/DAC/SEXT/CEX-(fixed,60,fixed) 1 fps (5 MIN)	F
135:19	Lunar Multispectral	Blu- CM3/LMC/80/MBW-IVL,47B FIL (*,fixed) 150	▲
137:25	North Wall of Theophilus	Red-CM3/LMC/80/MBW-IVL,29+ FIL (*,fixed) 150	▲
137:47	Descartes	Grn-CM3/LMC/80/BW-IVL,58 FIL (*,fixed) 150	▲
138:01	Fra Mauro	Blk-CM3/LMC/80/IRBW-IVL,87C FIL (*,fixed) 120	▲

142:00	LM Ascent	LNO/DAC/10/CEX-(f2.8,500,30) 12 fps, 1 mag (8 MIN)	V
145:30	Rendezvous/Docking	CM2/DAC/18/CEX-BRKT,MIR (f8,250,7) 6 fps, 1 mag (16 MIN)	C
		CM2/EL/80/CEX- (f8,250,30) 10	P
		LM/DC/60/HCEX-(f11,250,FOCUS) 5	W
		CM4/TV-IN BRKT (f22) 30 MIN	
148:00	LM Jettison	CM2/DAC/18/CEX-BRKT,MIR (f8,250,7) 12 fps, .5 mag (4 MIN)	D
	Crew Option	CM/DAC/SEXT/CEX-(fixed,250,fixed) 1 fps .5 mag (46 MIN)	
150:40	High Resolution/Oblique Photography - LaLande	CM4/EL/500/BM-BRKT,CONT (f8,125,-) 20 CM2/DAC/18/BM - BRKT, MIR (f8,125,-) 6 fps .5 mag (8 MIN)	S I
160:54	Vertical Stereo Strip	CM4/EL/80/BM - BRKT, IVL (f4,250,-) 180 CM/DAC/SEXT/CEX - (fixed,CC,fixed) 1 fps, 1 mag (93 MIN)	T E
163:20	High Resolution/Oblique Photography - Descartes Fra Mauro	CM4/EL/500/BM-BRKT,CONT (f8,125,-) 150	S
		CM2/DAC/18/BM-BRKT,MIR (f8,125,-) 6 fps, 1.5 mag (24 MIN)	I J
164:50	Landmark Tracking Sextant Photography	CM4/DAC/SEXT/CEX - (fixed,CC,fixed) 1 fps, ~1 mag (88 MIN)	F
168:31	Vertical Stereo Strip	CM4/EL/80/BM-BRKT,IVL (f4,250,-) 180	G
172:55	Lunar Surface	CM/TV - IN (f22) 20 MIN	
TEC	Distant Moon	CM/EL/80 or 250/BM or CEX-RING (f5.6,250,-) 5/5	S E
	Earth Photography	CM/EL/80 or 250/CEX-RING (f11,250,-) 10	R
223:15	Earth, Interior	CM/TV - IN (f5.6/f22) 30 MIN	
244:30	Reentry	CM/DAC/18/BRKT-(f11,250,7)12fps, .5 mag(4 MIN) Fireball - (f11,125,7)12fps, .5 mag(4 MIN) Chutes	G
Crew Option	Crew/Spacecraft Compatibility	CM/DAC/5/CTH- (f2.8,60,-)SPOT 6 fps, 1 mag (16 MIN)	H
	Stowing/Unstowing Equipment (Aft bulkhead)	CM/TV - IN (f5.6)	
	LM to CSM Crew Transfer		
	Donning/Doffing Spacesuit		
Crew Option	Crew Observations	CM/EL/80 or 250/CEX - (Decal)	S

DATE NUMBER 3, 1959

FILM MUSIC INSTRUCTION AND STUDY

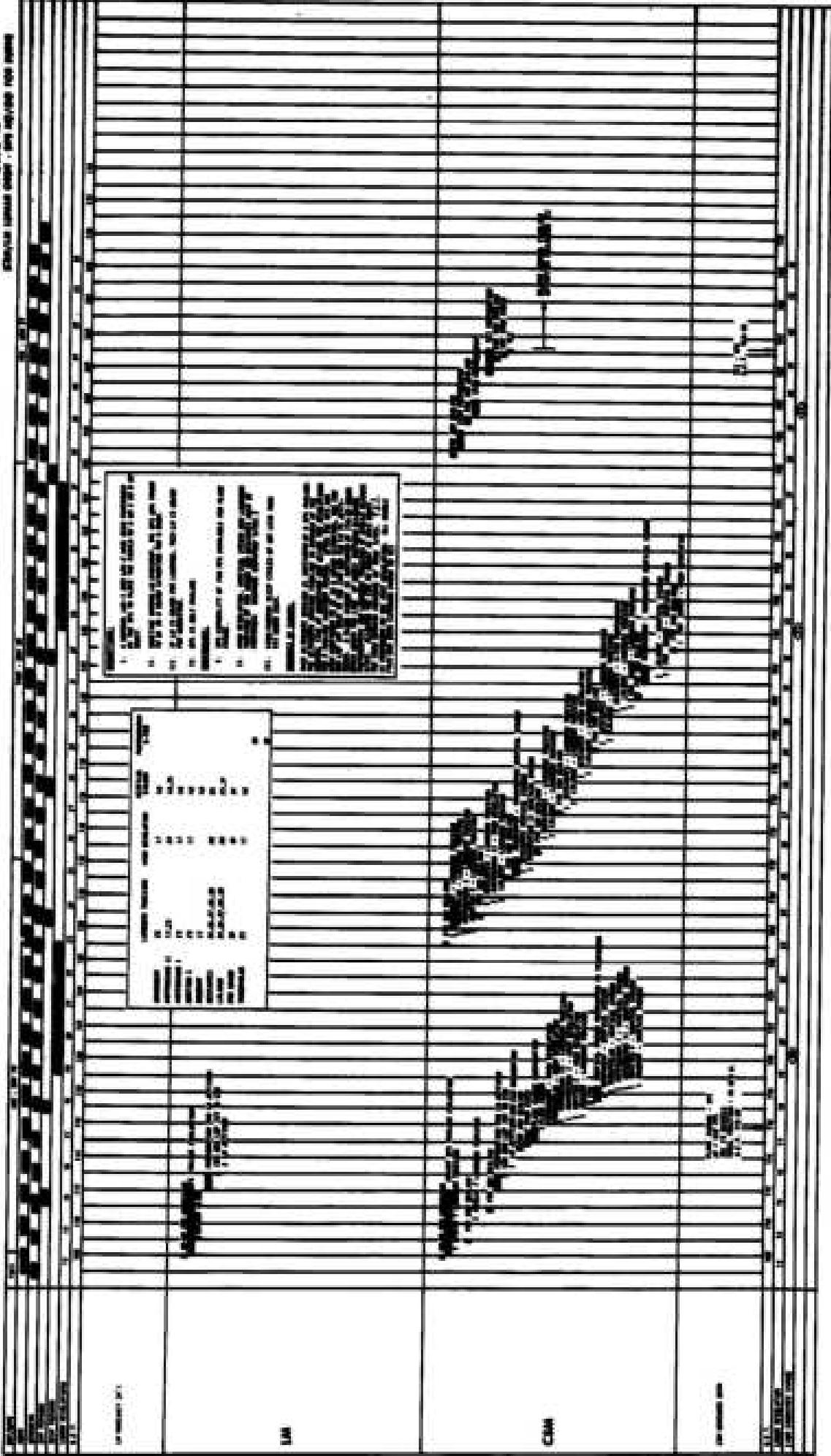
SECTION 6 - ALTERNATE MISSIONS

ALTEATELLA IN CUSTODIA I SUMMERTIME PIZZETTI PIZZETTI
L'ORIGINALE DELLA PIZZA

2

ESTATE PLANNING FOR THE RETIREMENT YEARS

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**DISREGARD PREVIOUS
2 IMAGES**

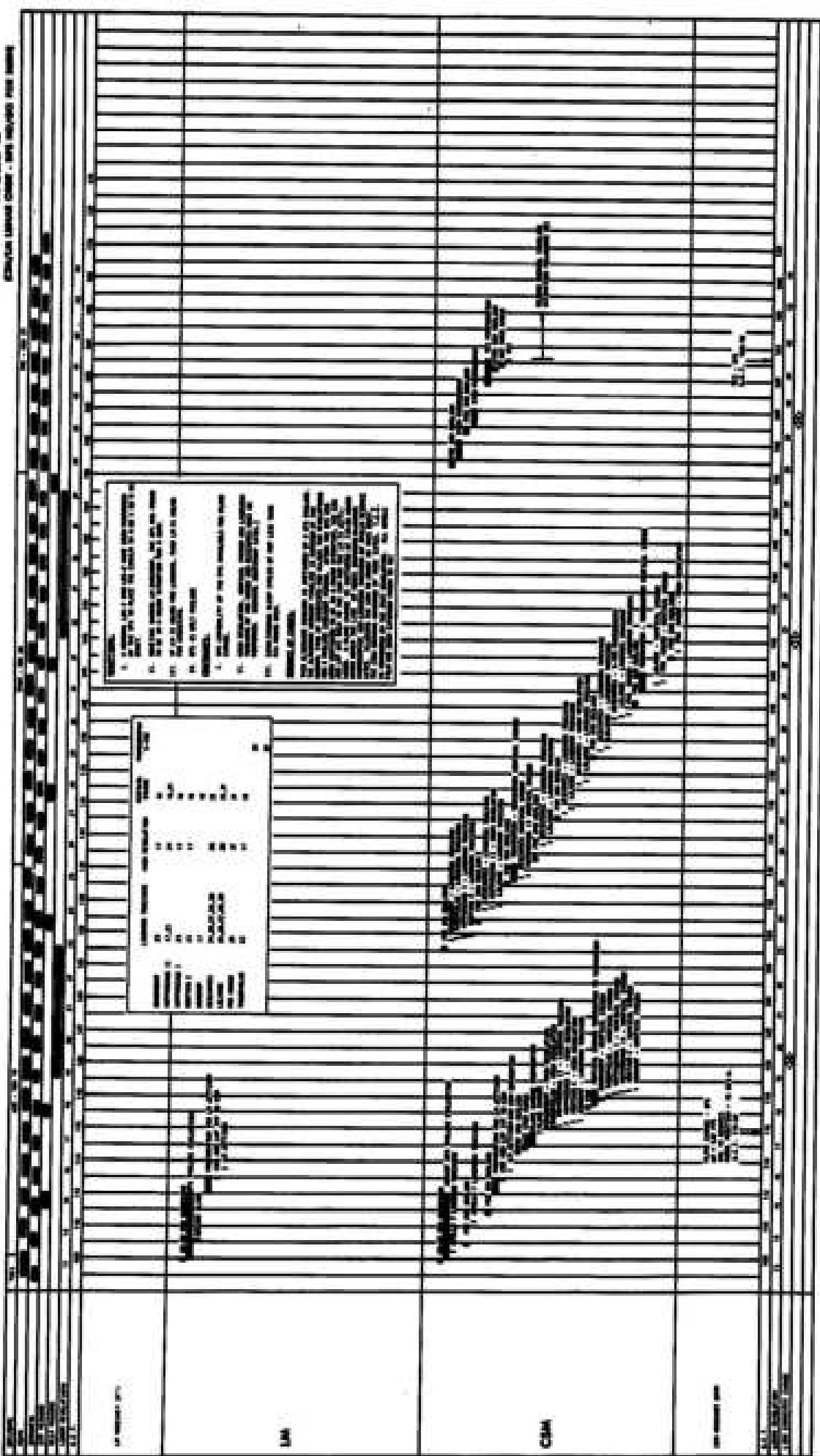
AT THE END OF THE DAY I SAW THAT I HAD TO GET OUT OF THERE.

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94

21

200



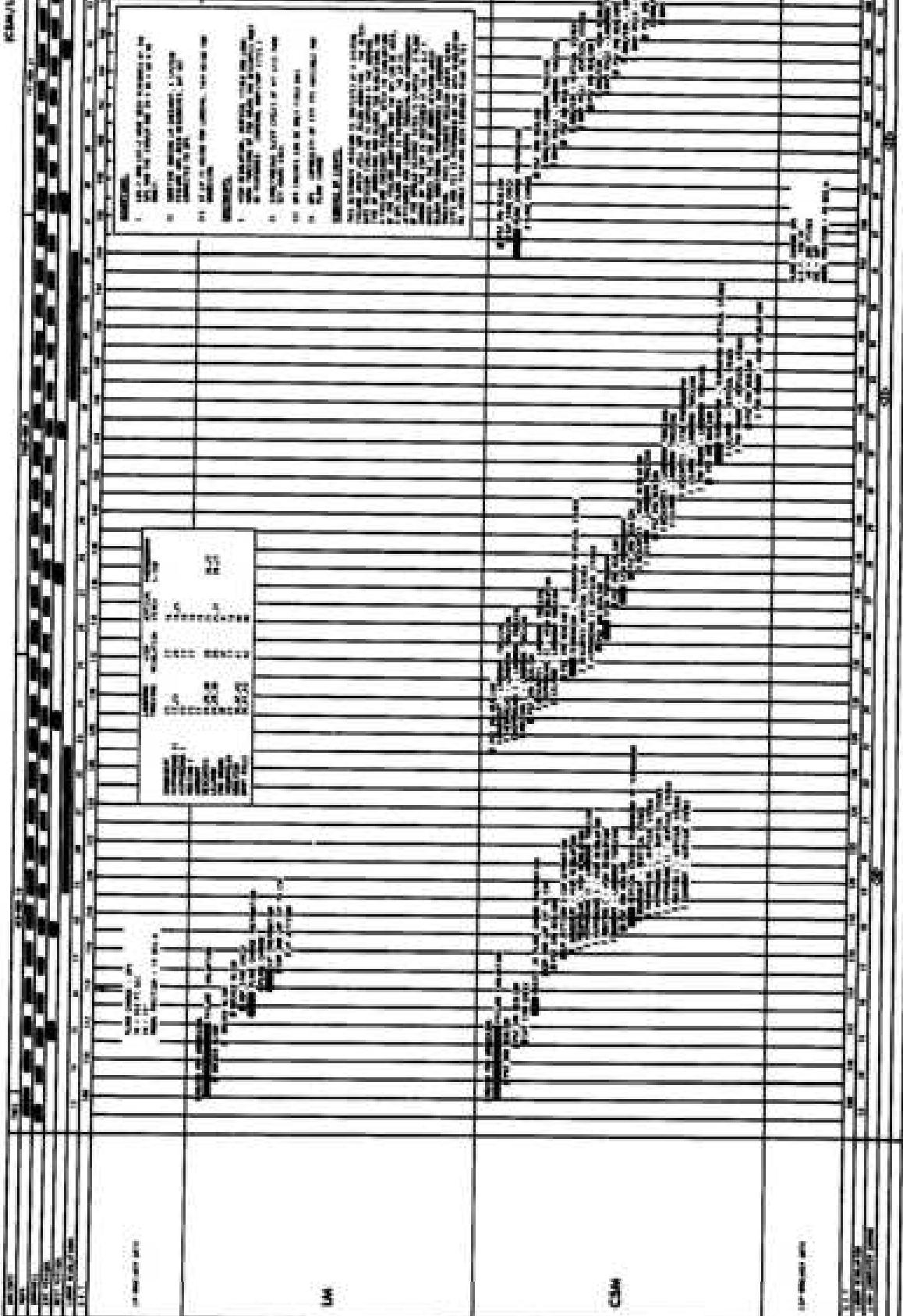
ALTERNATE MISSION 3 SUMMARY NIGHT PLAN
APOLLO 12 REVISION A

CHART 1A

CHART 1B SUMMER CHART - NOT USED FOR THIS DOCUMENTATION

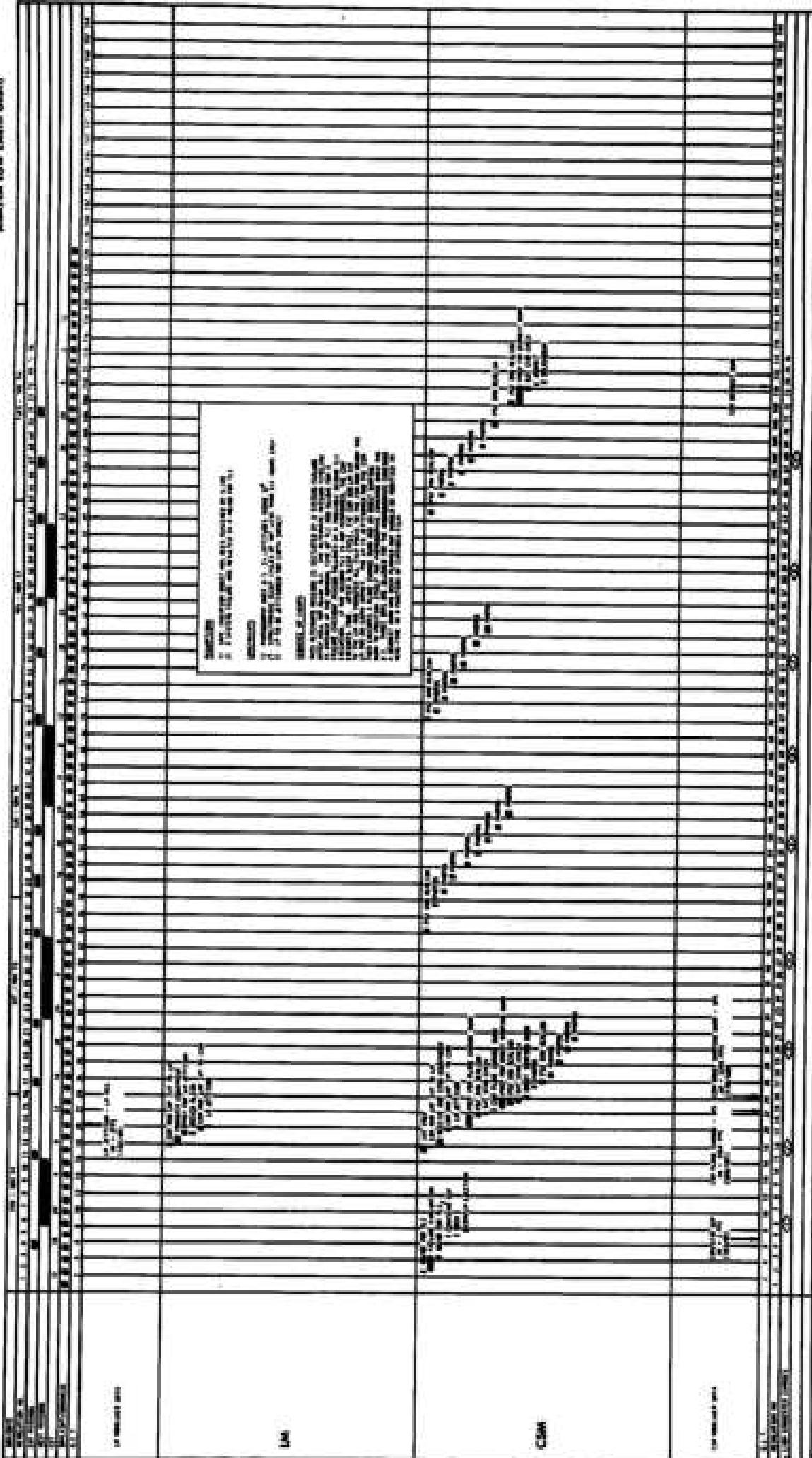
CHART

6-3
REVISION A



ALTERNATE MISSION 4 SUMMARY NIGHT PLAN
APRIL 19 APR 2010
COLUMBIA 100% team driven

Review A 4-4



APOLLO XIII (CONT'D - RED VELVET)

		Check Items eaten				
MEAL	Day 1 & 5, 9	Day 2, 6, 10	Day 3, 7, 11	Day 4, 6	Day 4, 6	
A Peaches	1 5 9					
Corn Flakes						
Bacon Squares (8)						
Orange Drink						
Coffee w/Sugar						
B Tuna Salad						
Beef & Gravy WP						
Jellied Candy						
Grape Punch						
C Cream of Chicken Soup						
Chicken & Rice						
Sugar Cookies (4)						
Butterscotch Pudding						
P.A.-G.F. Drink						
D Turkey & Gravy WP						
Cheese Crackers (4)						
Chocolate Pudding						
Orange-G.F. Drink						
E Pork & Scalloped Potatoes						
Bread Slice Sandwich Spread						
Jellied Candy						
Cocoa						
Orange Drink						
F Spaghetti w/Meat						
Beef Stew						
Banana Pudding						
Cocoa						
Grape Drink						
G Salmon Salad						
Chicken Stew						
Butterscotch Pudding						
Peaches						
Grapefruit Drink						

* Day 1 consists of Meal B and C only

Day 5 consists of Meal A only

WP = Wet Pack

ALBUTO III (cittadini - tutti i cittadini)

NAME	Check #	Items eaten	Day 1, 5, 9	Day 2, 6, 10	Day 3, 7, 11	Day 4, 8
A. Peaches	1 5 9		Apricots Scrambled Eggs Sausage Patties Grapefruit Drink Coffee (black)	Pears Corn Flakes Bacon Squares (8) Grape Drink Coffee (black)	Fruitfitters up Applesauce Chocolate Bar P.A.-G.F. Drink	Sterling Cocktails Ham & Potatoes Apricots Chocolate Pudding Orange Brisk
B Tuna Salad	2 6 10		Turkey & Gravy up Cheese Crackers (4) Chocolate Pudding Orange-G.F. Drink	Fruitfitters up Applesauce Chocolate Bar P.A.-G.F. Drink	Fruitfitters up Applesauce Chocolate Bar P.A.-G.F. Drink	Sterling Cocktails Ham & Potatoes Apricots Chocolate Pudding Orange Brisk
(Day 5)	3		Beef & Potatoes up			
C Pea Soup	4 8		Beef & Potatoes up			
Chicken & Rice						
Sugar Cookies (4)						
Butterscotch Pudding						
P.A.-G.F. Drink						
Cocos						
Grape Drink						

*Day 1 consists of Mail B and C only

卷二十一

APOLLO XII (MAN - MOON - BLUE VENUS)

		Check items eaten			
MEAL	Day 1*, See, 9	1 5 9	Day 2, 6, 10	2 6 10	Day 3, 7, 11
A	Peaches	Fruit Cocktail Corn Flakes Jellied Candy Grapefruit Drink P.A.-G.F. Drink Orange Drink	Peaches Corn Flakes Canadian Bacon & Applesauce Cocos Orange Drink	Peaches Corn Flakes Canadian Bacon & Applesauce Cocos Orange Drink	Fruit Cocktail Corn Flakes Jellied Candy Cocos Orange-G.F. Drink
B	Beef & Gravy WP	Cream of Chicken Soup Turkey & Gravy WP Peaches	Potato Soup Beef and Gravy Jellied Candy P.A.-G.F. Drink	Potato Soup Beef and Gravy Jellied Candy P.A.-G.F. Drink	Cream of Chicken Soup Chicken Stew Peaches Chocolate Pudding Orange Drink
C	Potato Soup	Chicken & Rice Fruit Cocktail Jellied Candy Grapefruit Drink	Pork & Scalloped Potatoes Bread and Slice Sandwich Spread Chocolate Pudding Cocos Orange Drink	Pork & Scalloped Potatoes Bread and Slice Sandwich Spread Chocolate Pudding Cocos Orange Drink	Spaghetti w/Meat Banana Pudding Cocos P.A.-G.F. Drink

* Day 1 consists of Meal B and C only

WP = Wet Pack

Front

Color _____

APOLLO XIII/LM-6 MENU

CDR - Red Velcro

Check Items Eaten

Day 1 Meal C

LMP - Blue Velcro

Day 1 Meal C

Cream of Chicken Soup
Ham Salad - Bread MP
Jellied Candy
Apricots
Grapefruit Drink
Pineapple-Grapefruit
Drink

Cream of Chicken Soup
Ham Salad - Bread MP
Jellied Candy
Chocolate Pudding
Grapefruit Drink
Pineapple-Grapefruit
Drink

Day 2 Meal A

Day 2 Meal A

Peaches
Scrambled Eggs
Bacon Squares (8)
Cocoa
Orange Drink

Peaches
Corn Flakes
Canadian Bacon &
Applesauce
Cocoa
Orange Drink

Day 2 Meal B

Day 2 Meal B

Beef and Gravy MP
Pears
Butterscotch Pudding
Pineapple-Grapefruit
Drink
Grape Drink

Beef and Gravy MP
Butterscotch Pudding
Pineapple-Grapefruit
Drink
Grapefruit Drink

Day 2 Meal C

Day 2 Meal C

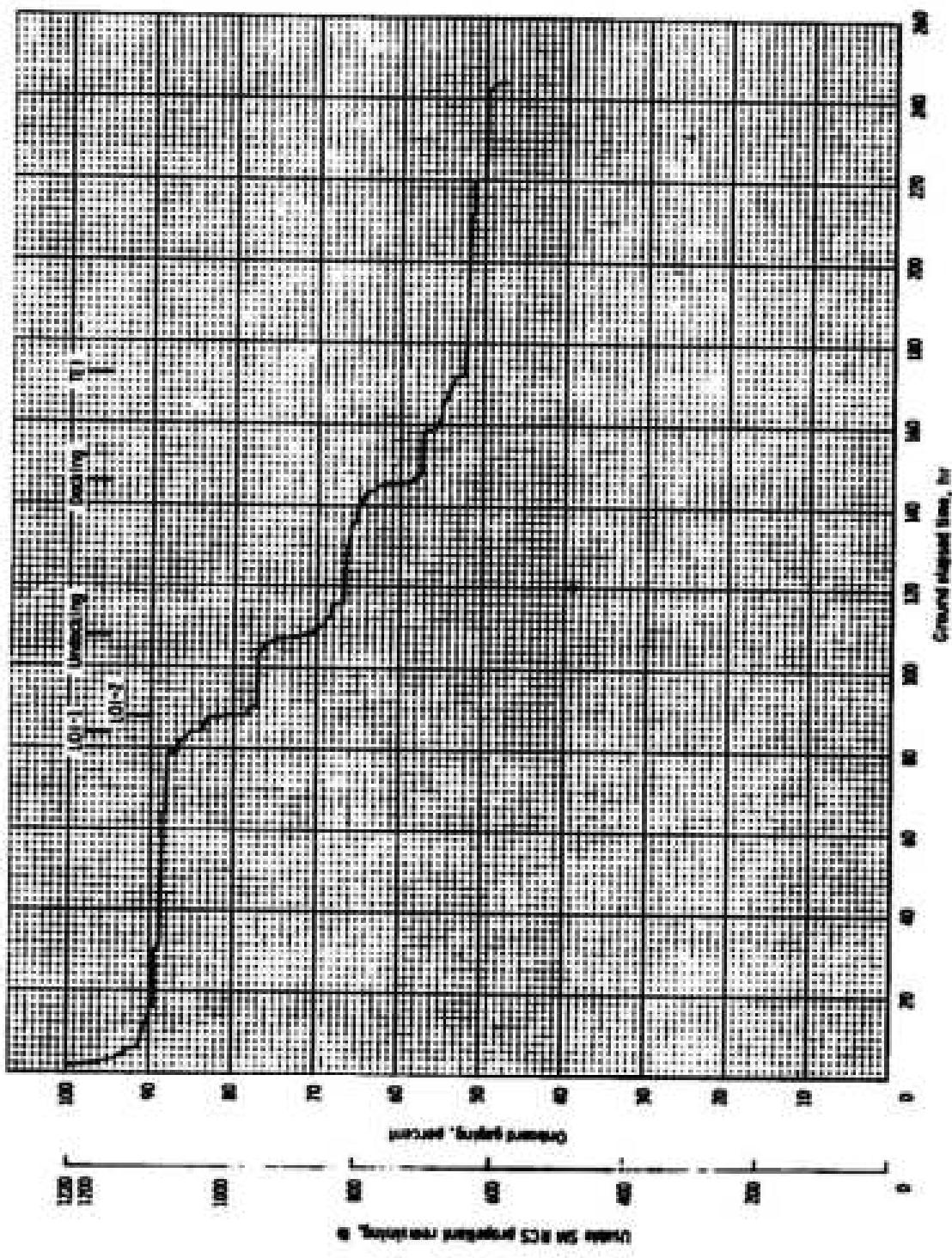
Turkey and Gravy
Chicken Stew
Apricots
Jellied Candy
Orange-Grapefruit
Drink

Turkey and Gravy MP
Chicken Stew
Fruit Cocktail
Jellied Candy
Orange-Grapefruit
Drink

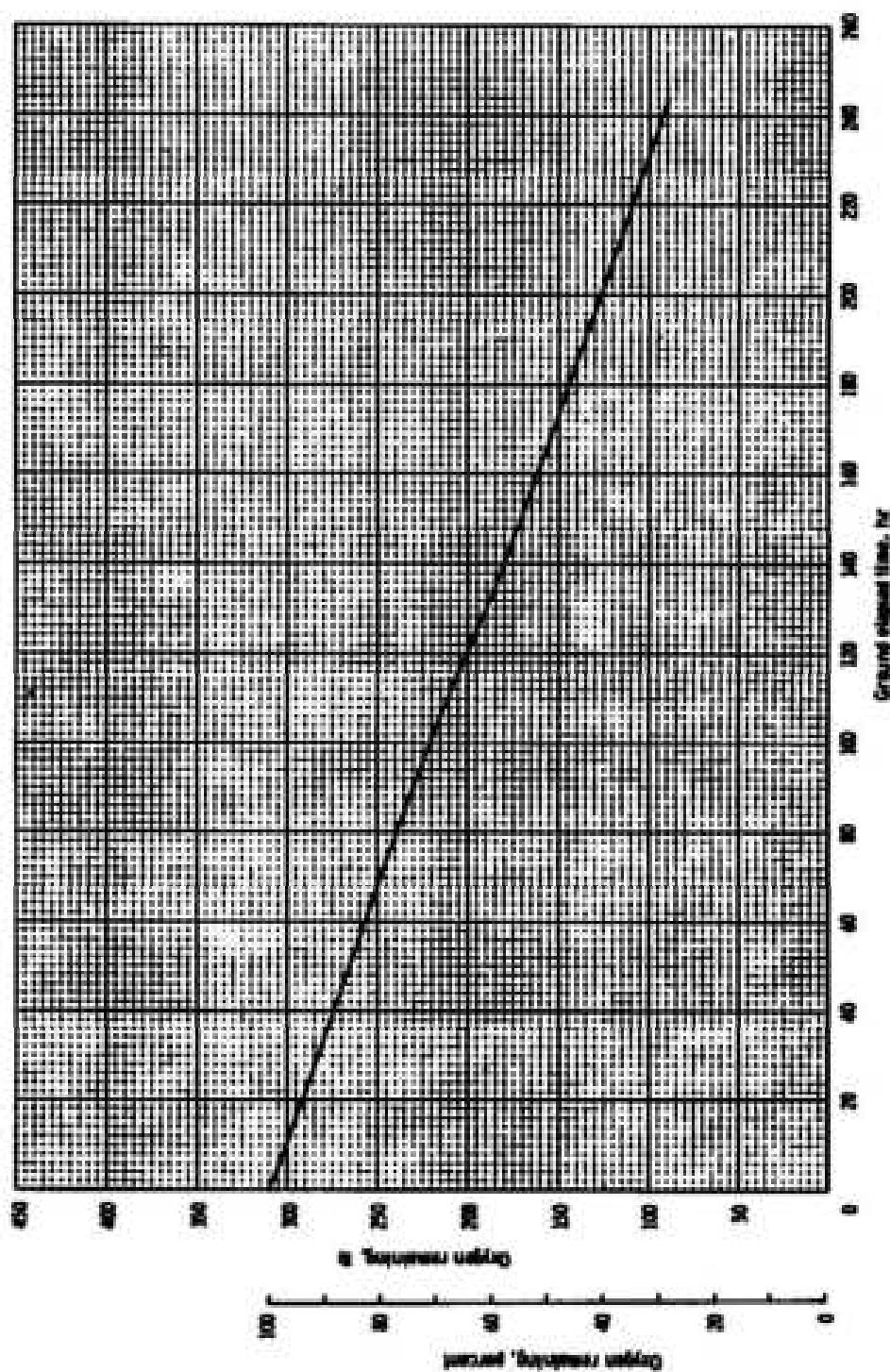
2 Spoons

MP = Wet Pack

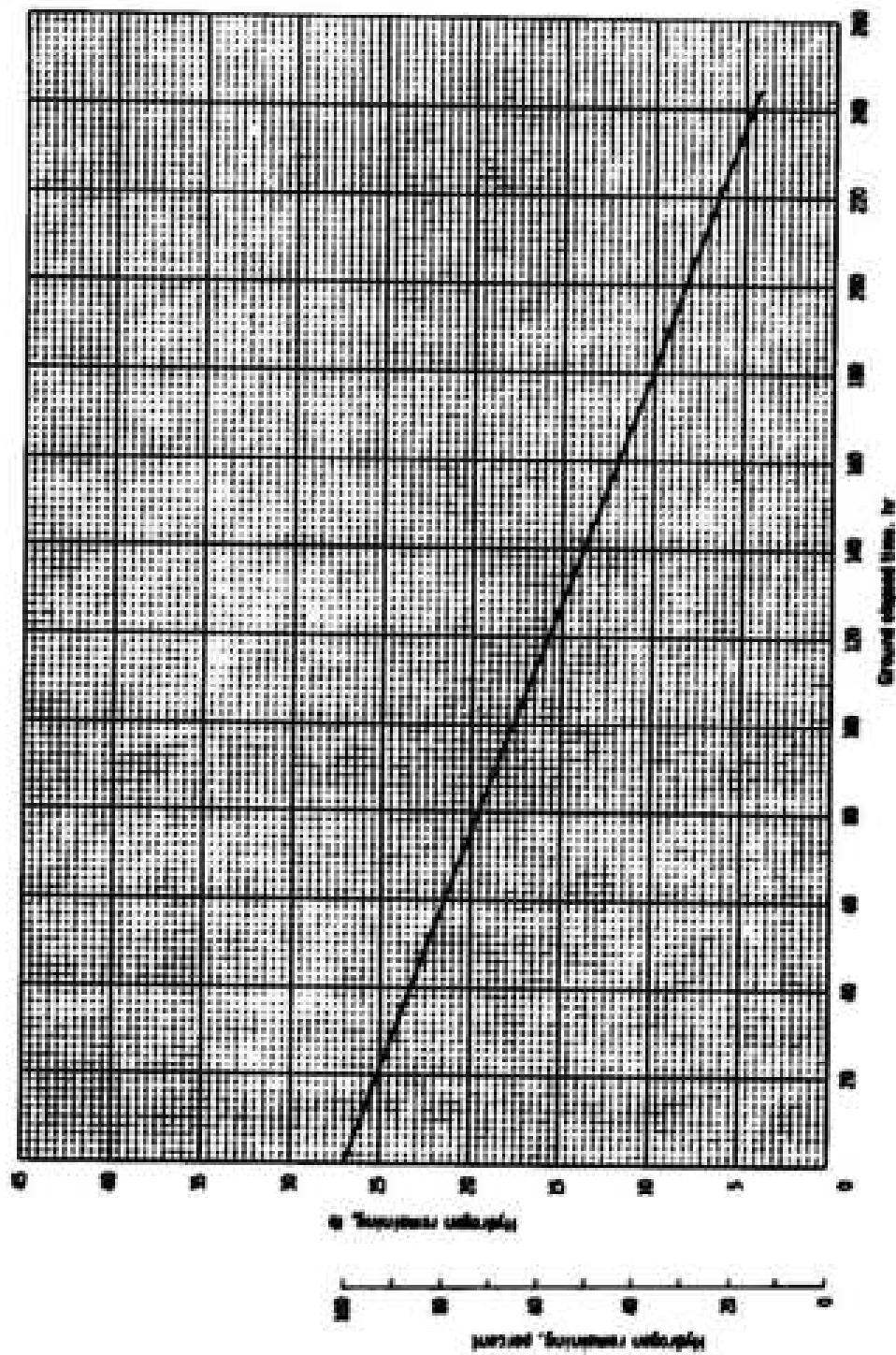
DATE NOVEMBER 3, 1969

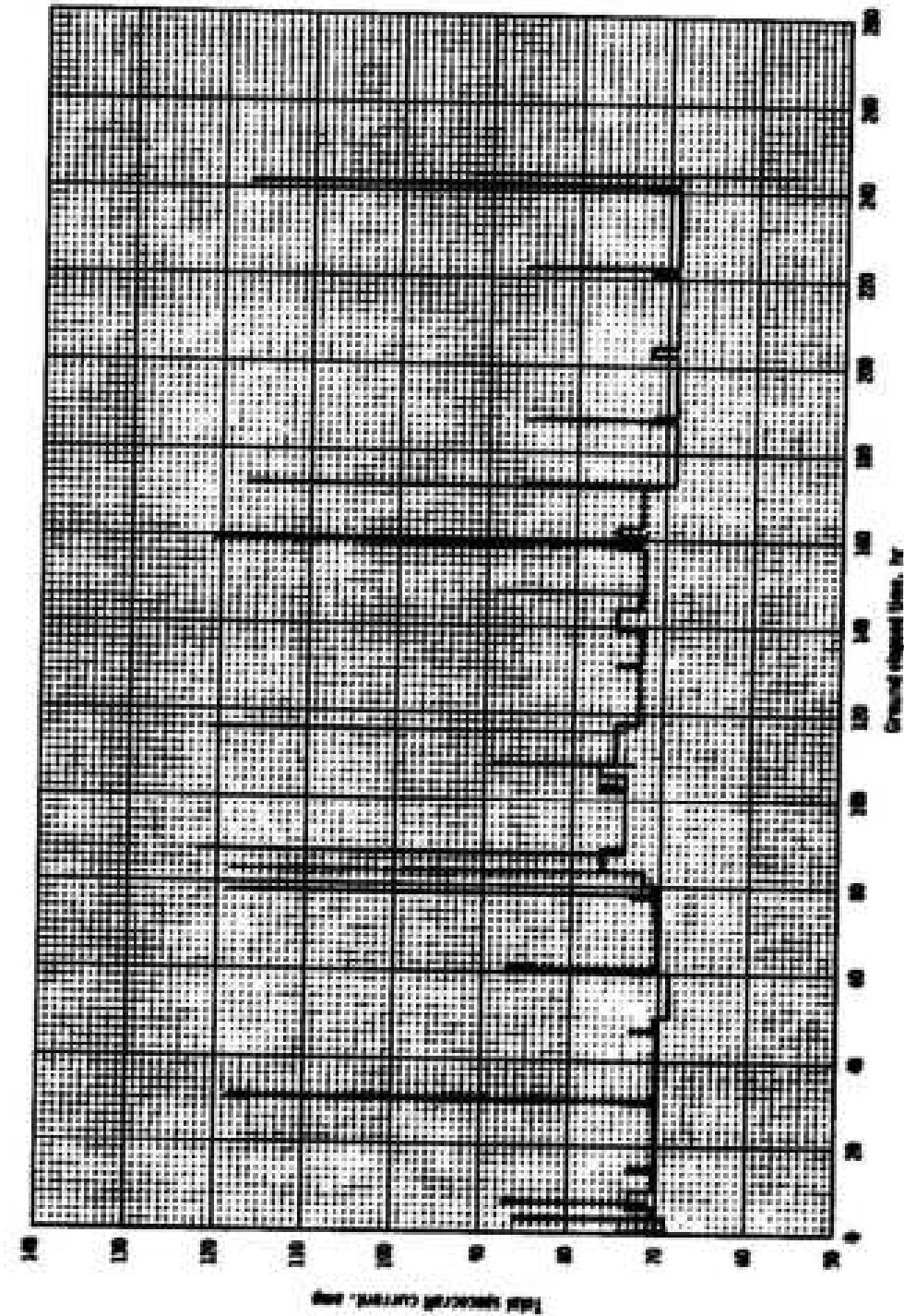


TOTAL SM RCS



DATE NOVEMBER 3, 1969



TOTAL CSP
CURRENT

DATE NOVEMBER 3, 1969