

CSM

LM

MCC-H

CMP

2022 CST

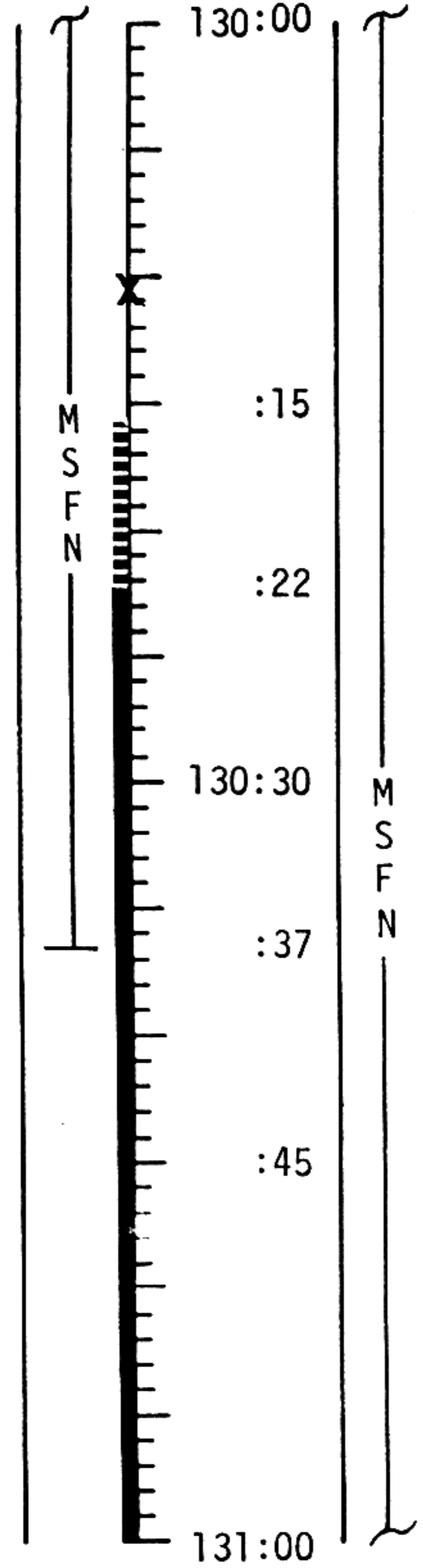
CDR

?

LMP

S-BD PWR AMPL - PRIM; VOICE - VOICE
CHANGE LM LiOH CARTRIDGE, LGC TO OPERATE TO
UPDATE LGC CLOCK THEN BACK TO STANDBY

REST PERIOD
9 1/2 HOURS



STAY/NO STAY FOR EVA PREP
CREW STATUS REPORT (SLEEP, DOSIMETER)

EAT PERIOD

EAT PERIOD

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

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

FLIGHT PLAN

CSM

CMP

REST PERIOD
9 1/2 HOURS

BATTERY CHARGE, BATTERY A
HGA P-24, Y254

POSTSLEEP CHECKLIST

CREW STATUS REPORT
CONSUMABLES UPDATE
FLIGHT PLAN UPDATE
CYCLE H2, O2 FANS

NORMAL LUNAR COMM EXCEPT:
S BD ANT - HI GAIN
CREW MANAGES ANT OPS

2122 CST
131:00

REV 25

:08

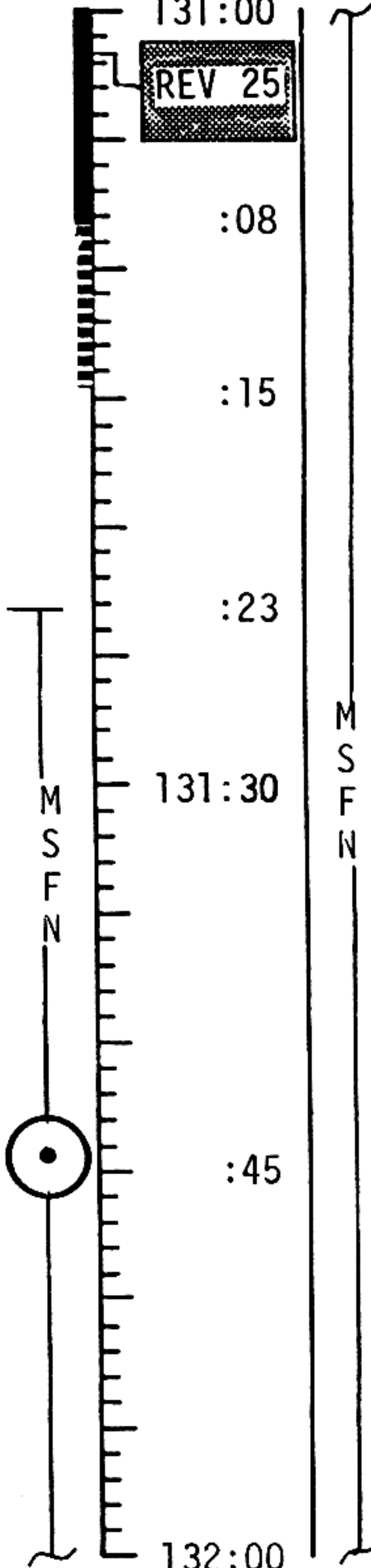
:15

:23

131:30

:45

132:00



LM

CDR

EAT PERIOD

LMP

EAT PERIOD

EVA PLANNING PERIOD

CABIN PREP FOR EVA

STOW ALL LOOSE ITEMS NOT REQ'D FOR EVA
UNSTOW EVA 2 PREP & POST CARD
STOW LUNAR SURFACE CHECKLIST

EQUIPMENT PREP

SET DET FOR CABIN DEPRESS

PREPARE CAMERAS
COLLECT ITEMS FOR JETTISON
UNSTOW AND CHECK BOTH OPS

MCC-H

DUMP DSE

CREW STATUS REPORT
CMP

SLEEP _____
PRD _____

UPDATE TO CSM
CONSUMABLES

CSM CONSUMABLES UPDA
GET: _____ : _____
RCS TOTAL _____ %
QUAD A _____ % B _____ %
C _____ % D _____ %
H₂ TOTAL _____ %
O₂ TOTAL _____ %

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	131:00 - 132:00	6/24-25	3-107

CSM

CMP

2222 CST

132:00

M
S
F
N

132:30

M
S
F
N

133:00

MAP UPDATE REV 26
 LOS : _____ : _____ : _____
 180° : _____ : _____ : _____
 AOS : _____ : _____ : _____

EAT PERIOD

VERIFY DSE MOTION @ LOS

P52 - IMU REALIGN
 OPTION 3 - REFSMMAT
 (LIFT OFF ORIENTATION)

LM

CDR

LMP

EQUIPMENT PREP (CONT)

PLSS DONNING
 CONFIGURE LMP'S PLSS/OPS FOR DONNING
 UNSTOW RCU'S
 LMP DON PLSS/OPS
 UNSTOW CDRS PLSS/OPS FOR DONNING
 CDR DON PLSS/OPS
 VERIFY RCU CONTROLS AND CONNECT
 TO PLSS/PGA

PLSS COMM CHECK
 AUDIO SWITCHES CHECK, ACTIVATE PLSS COMM SYSTEMS
 S-BD PWR AMPL-PRIM (TV CB - CLOSE THEN OPEN)

FINAL SYSTEMS PREP
 CONNECT OPS O₂ HOSES
 DON HELMETS
 CONNECT PLSS H₂O HOSES
 LCG PUMP CB-OPEN
 DON GLOVES
 VERIFY ITEMS PREPARED FOR JETTISON
 VERIFY EVA CB CONFIGURATION

PRESSURE INTEGRITY CHECK
PLSS O₂ ON
CABIN DEPRESS
 CONFIRM "GO" FOR EVA
 DEPRESS CABIN TO 3.5 PSIA

MCC-H

UPLINK TO CSM
CSM STATE VECTOR

-1:00

UPDATE TO CSM
MAP UPDATE REV 26

:-50

:-40

P52 (LIFT-OFF ORIENT)

N71: _____, _____

N05: _____, _____

N93: _____, _____

X _____, _____

Y _____, _____

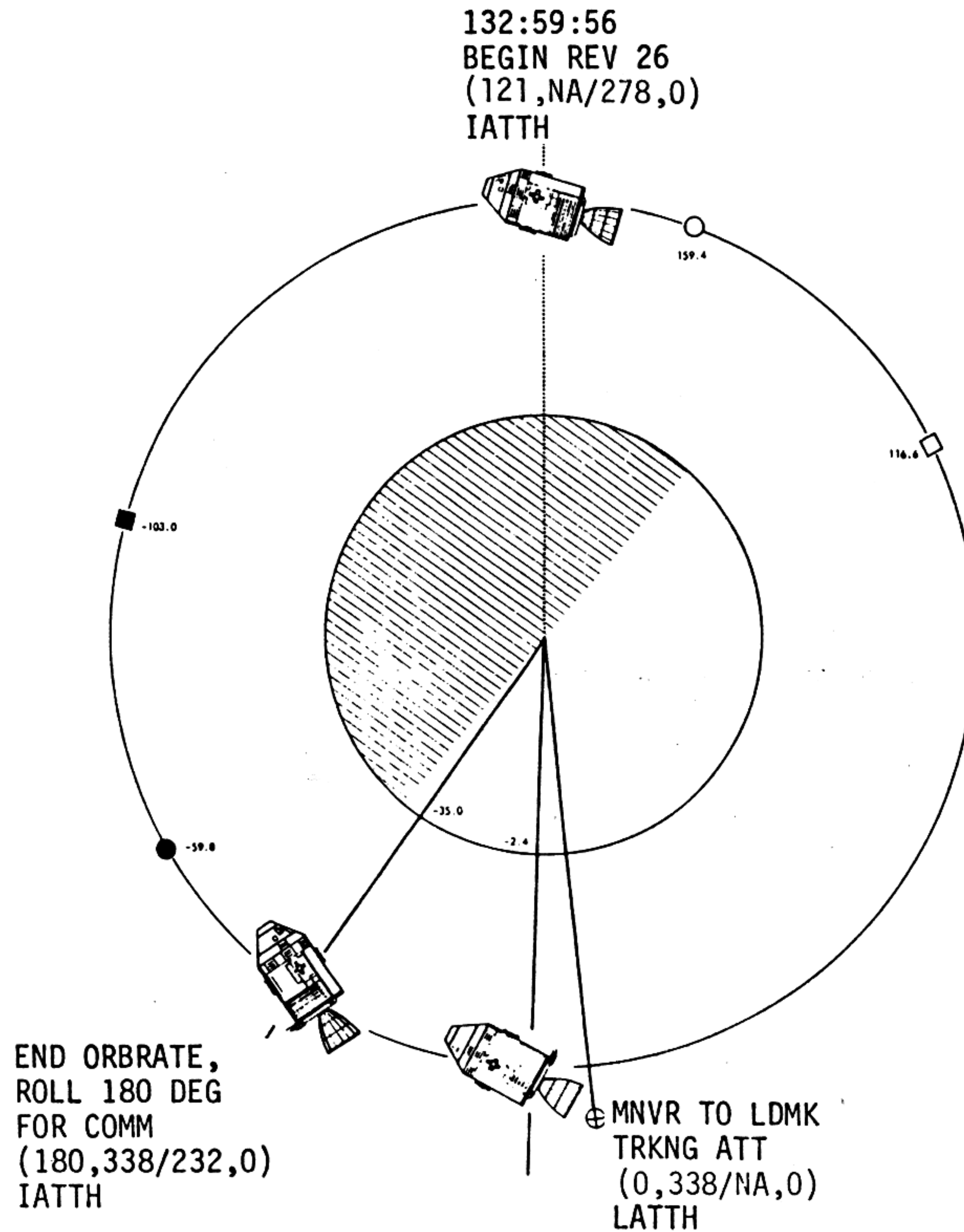
Z _____, _____

GET _____ : _____ : _____

:-10

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	132:00 - 133:00	6/25	3-108

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LEGEND:

□	MSFN AOS, LOS
○	S/C SUNRISE, SUNSET
⊕	SUBEARTH POINT
(R,LHP/INP,Y)	
IATTH - INERTIAL ATTITUDE HOLD	
LATTH - LOCAL ATTITUDE HOLD	

3-108A

REVISION B

FLIGHT PLAN

CSM

CMP

P52 - IMU REALIGN (CONT)

UNSTOW S-158

REACQUIRE MSFN

HGA P -24, Y 254

SET UP DAC FOR LDMK
TRACKING PHOTOS THRU SXT

CM/DAC/SXT/CEX, (SEE LDMK
TRACK PAD) 1FPS (5MIN)

MAP UPDATE REV 27

LOS : _____ : _____ : _____

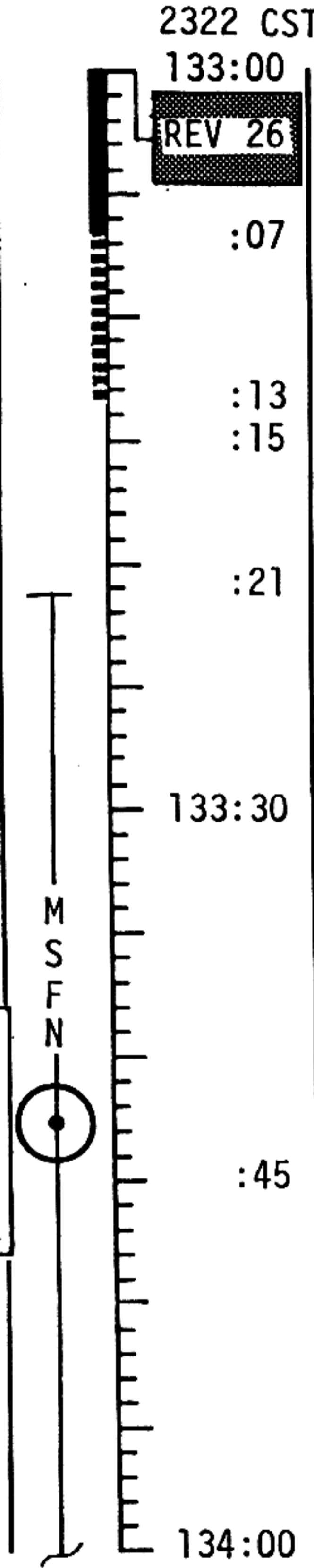
180° : _____ : _____ : _____

AOS : _____ : _____ : _____

VERIFY DSE MOTION
MNVR TO TRACK ATT
BY 134:00

R 0, P 338N/A, Y 0

OMNI D
GO ORB RATE



M
S
F
N

LM

CDR

LMP

SET DET & CHRONOMETER
FWD DUMP VALVE - OPEN

OPEN FWD HATCH

FINAL PREP FOR EGRESS
PLSS H₂O ON, FINAL SYSTEMS CHECK, TURN TV ON
VERIFY CB CONFIGURATION, JETTISON BAG & LHSSC

CDR EGRESS

ETB TRANSFER
TRANSFER ETB TO SURFACE

ASSIST CDR

GEOLOGY TRAVERSE PREP
STOW TOOLS & EQUIP ON HTC
RETRIEVE & OPEN SRC #2
ATTACH SADDLE BAG TO LMP
UNSTOW SRC #2
SEAL ORGANIC CONT SAMPLE

LMP EGRESS
DESCEND TO SURFACE
ATTACH PARTS BAG TO CDR
PUT COLOR MAG IN SADDLE BAG
CONTRAST CHART PHOTOS
POSITION TV FOR GEOLOGY
TRAVERSE

GEOLOGY TRAVERSE

COLLECT DOCUMENTED SAMPLES
NOTE: 1ST DOCUMENTED SAMPLE POLARIZED
COLLECT CORE TUBE SAMPLES
TRENCH SITE SAMPLING
COLLECT GAS ANALYSIS SAMPLES
MAKE GENERAL OBSERVATIONS

START EVA
0:00

0:10

DUMP DSE
0:20

0:30

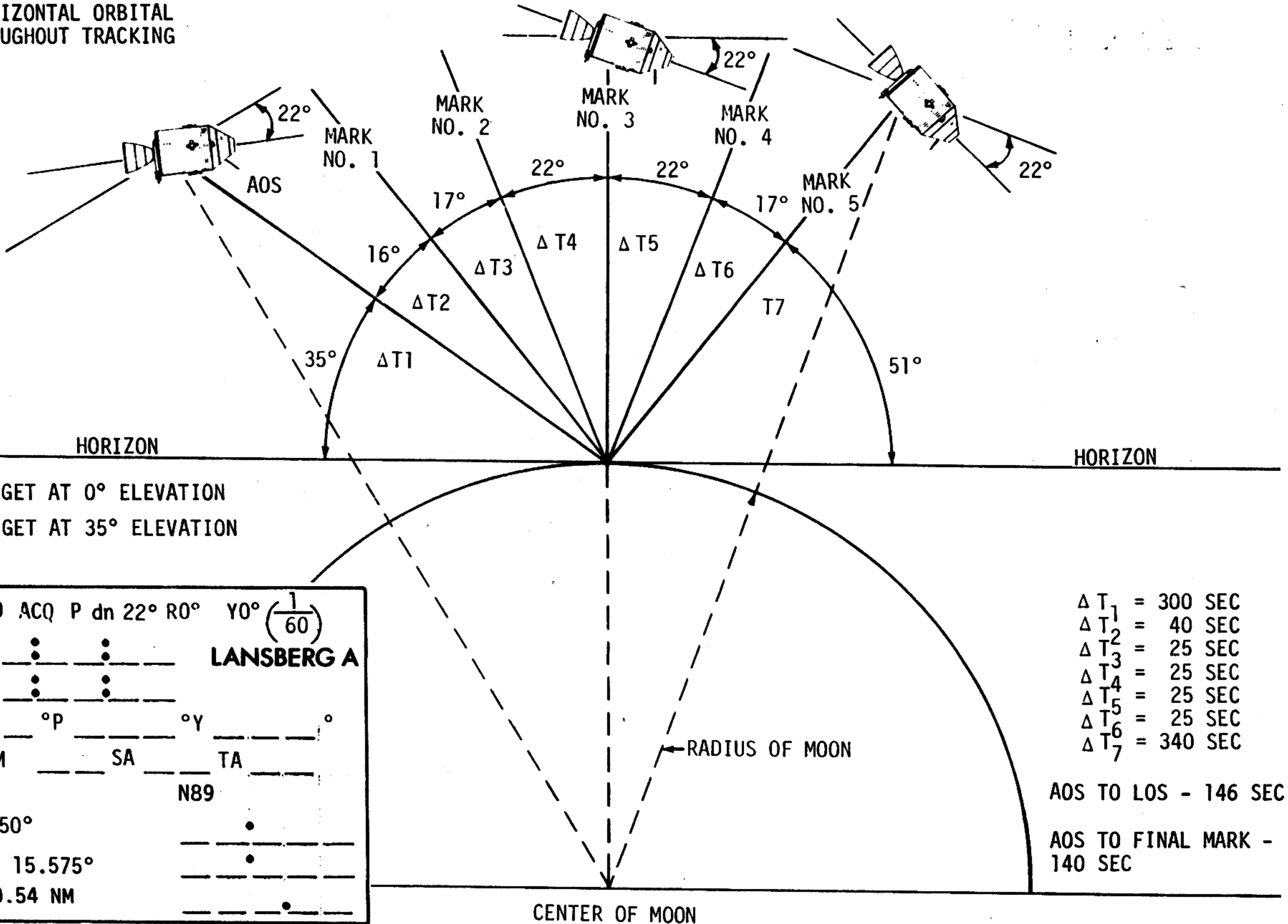
UPDATE TO CSM
MAP UPDATE REV 27
P22 TRACKING PAD
0:40

0:50

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV.14)	OCTOBER 15, 1969	133:00 - 134:00	6/26	3-109

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 dn	22°	R0°	Y0°	($\frac{1}{60}$)
T ₁	---	•	---	•	---	LANSBERG A	
T ₂	---	•	---	•	---		
R	---	°p	---	°y	---		
N or S	NM	---	SA	---	TA		
CP	---	N89		---			
LAT	+ 0.150°		---	•			
LONG/2	- 15.575°		---	•			
ALT	- 0.54 NM		---	•			

- $\Delta T_1 = 300$ SEC
- $\Delta T_2 = 40$ SEC
- $\Delta T_3 = 25$ SEC
- $\Delta T_4 = 25$ SEC
- $\Delta T_5 = 25$ SEC
- $\Delta T_6 = 25$ SEC
- $\Delta T_7 = 340$ SEC

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

CENTER OF MOON
FIGURE 3-3
3-110

FLIGHT PLAN

CSM
CMP

LM

MCC-H

0022 CST

CDR

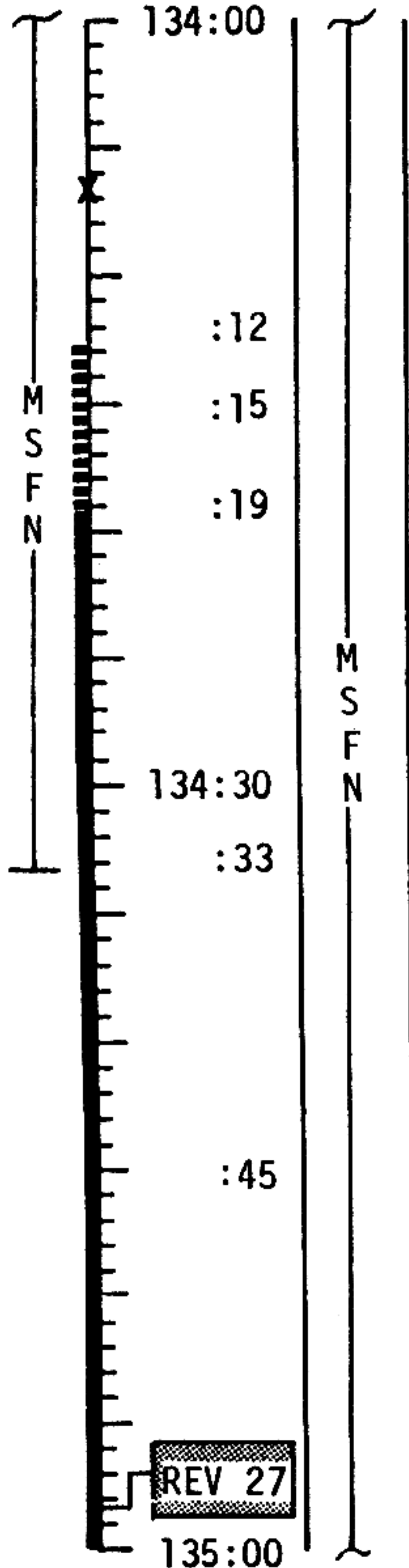
LMP

START DAC T₂(-) 1 MIN

TRACK LANSBERG A
DO NOT PRO ON FINAL N89
25 SEC BETWEEN MARKS
5 MARKS

STOP DAC AFTER MARK 5
STOP ORB RATE @ P 232
MNVR TO ACO MSFN,
GO INERTIAL
R 180, P 232, Y 0
HGA P -26 Y 186

VERIFY DSE MOTION @ LOS



COLLECT DOCUMENTED SAMPLES
COLLECT CORE TUBE SAMPLES
TRENCH SITE SAMPLING
COLLECT GAS ANALYSIS SAMPLES
MAKE GENERAL OBSERVATIONS

1:00

UPDATE TO CSM
S-158 PAD

1:10

1:20

1:30

1:40

1:50

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	134:00 - 135:00	6/26-27	3-111

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

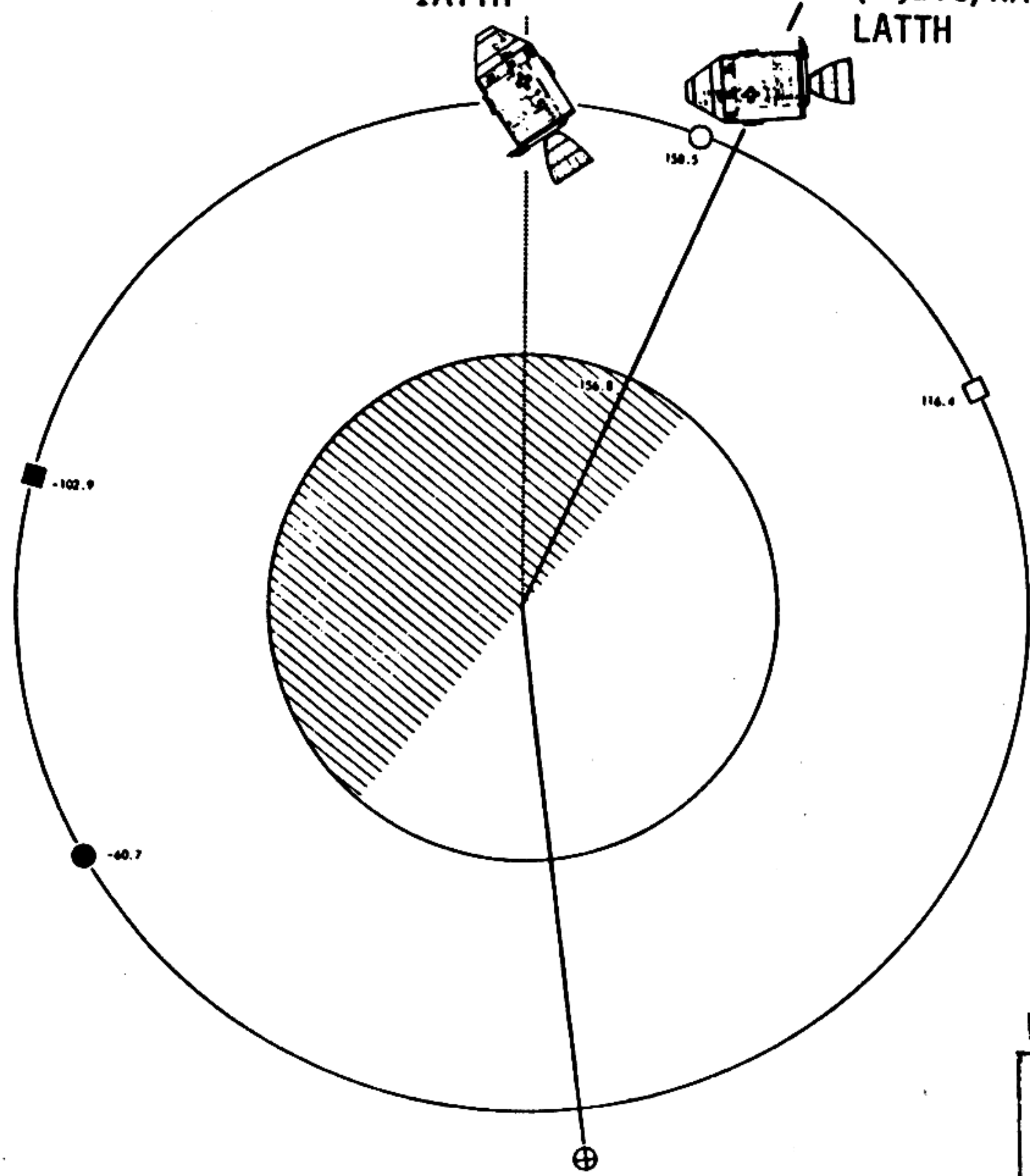
T₄ STOP ALL 4 CAMERAS @ 136:02:00 (_____:_____:_____)

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	135:00 - 136:00	6/27	3-112

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134:58:13
 BEGIN REV 27
 (180,NA/232,0)
 IATTH

MNVR TO S158
 PHOTO ATT
 (0,213/NA ,0)
 LATTH



LEGEND:

- □ MSFN AOS, LOS
 - ○ S/C SUNRISE, SUNSET
 - ⊕ SUBEARTH POINT
- (R,LHP/INP,Y)
- IATTH - INERTIAL ATTITUDE HOLD
- LATTH - LOCAL ATTITUDE HOLD

3-112A

FLIGHT PLAN

CSM
CMP

MNVR TO S158 ATT
BY 135:06
R 0, P 213/N/A, Y 0
OMNI D
GO ORB RATE

START BLU, GRN&RED CAMERAS

S-158 PHOTOGRAPHY

START BLK CAMERA

STOP ALL CAMERAS

SW TO OMNI A
@ 135:36

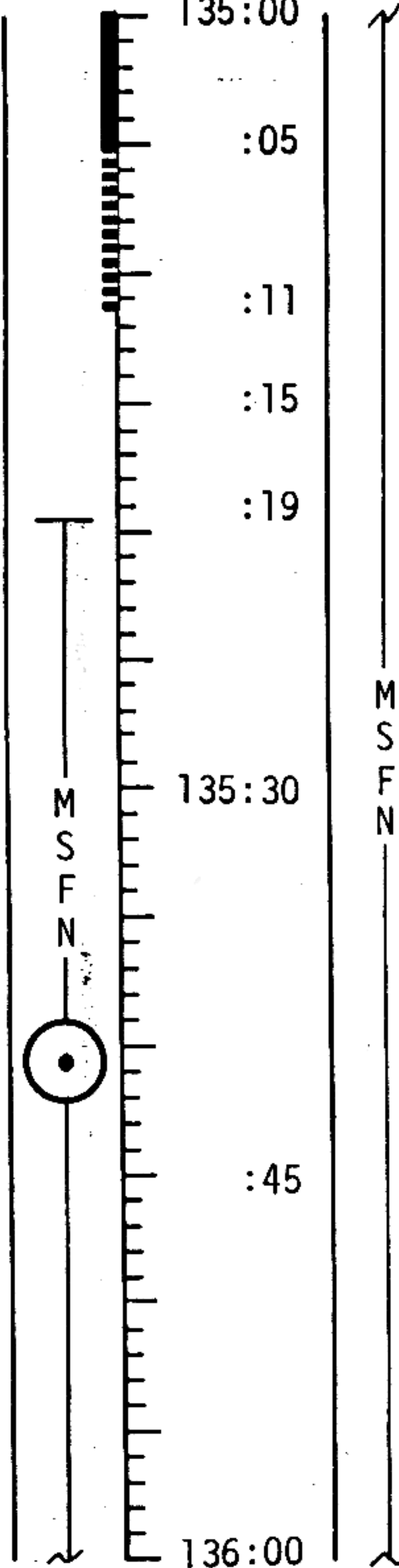
START BLU, GRN&RED CAMERAS

ACQUIRE MSFN @ 135:42
HGA P -13, Y 174

START BLK CAMERA

S-158 PHOTOGRAPHY

0222 CST
135:00



CDR

LM

LMP

MCC-H

SURVEYOR SITE ACTIVITIES		2:00
PHOTOGRAPH AND COLLECT SAMPLES PHOTOGRAPH SURVEYOR COLLECT GLASS SAMPLES		2:10
COLLECT WITH LMP ASSISTANCE: STERILE CABLE SAMPLE ALUMINUM TUBE SAMPLE TV CAMERA		2:20
GEOLOGY RETURN TRAVERSE	GEOLOGY RETURN TRAVERSE	2:30
SRC 2 PACKING PLACE 70MM CAM IN ETB RETRIEVE SWC FOIL PACK SAMPLES IN SRC	POSITION TV TO VIEW LM PLACE SURVEYOR PARTS IN +Z PAD RETRIEVE ALSSC&TAKE PHOTOS OF SURFACE PUT ALSSC FILM IN ETB	2:50

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

FLIGHT PLAN

CSM

LM

MCC-H

CMP

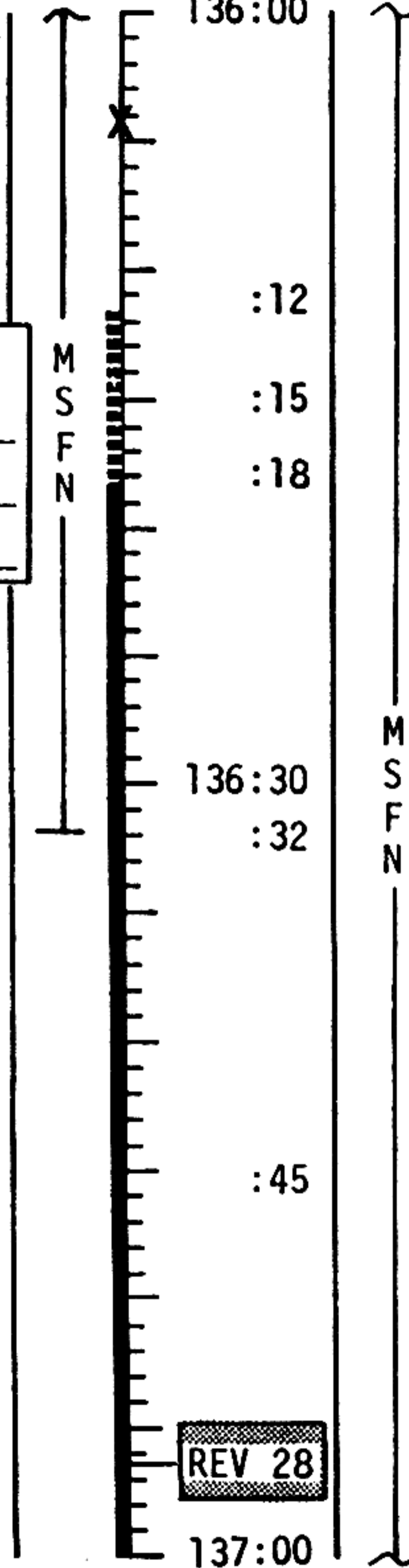
STOP ALL CAMERAS
CONTINUE ORB RATE

0222 CST

CDR

LMP

MAP UPDATE REV <u>28</u>		
LOS	:	---
180°	:	---
AOS	:	---



<p>CHECK & CLEAN LMP EMU CLOSE & SEAL SRC</p> <hr/> <p><u>LEC TRANSFERS</u> CHECK 70MM(2) IN ETB CLOSE & TRANSFER ETB REST/CHECK EMU ATTACH LEC TO SRC TRANSFER SRC INTO LM REST/CHECK EMU</p> <hr/> <p>TRANSFER SURVEYOR PARTS BAG</p> <hr/> <p><u>EVA TERMINATION</u> CLEAN EMU, ASCEND TO PLATFORM INGRESS</p>	<p><u>EVA TERMINATION</u> STOW 70MM CAMERA IN ETB CLEAN EMU ASCEND TO PLATFORM, INGRESS CHECK EMU & LM SYSTEMS</p> <hr/> <p>ASSIST CDR WITH TRANSFERS</p> <hr/> <p>DISCARD LEC</p> <hr/> <p>CLOSE HATCH & REPRESS CABIN</p> <hr/> <p><u>POST EVA SYSTEMS CONFIGURATION</u> CONFIGURE VALVES AND CIRCUIT BREAKERS</p> <hr/> <p>DOFF GLOVES DISCONNECT OPS O2 HOSES & CONNECT LM O2 HOSES DISCONNECT PLSS H2O HOSES & CONNECT LM H2O HOSES LCG PUMP CB-CLOSE SWITCH TO LM COMM SYSTEM</p> <hr/> <p><u>PLSS/OPS DOFFING</u> REMOVE RCU'S DISCONNECT PLSS O2 HOSES</p> <hr/> <p>DOFF PLSS/OPS REMOVE OPS & CHECKOUT</p>
---	---

3:00
UPDATE TO CSM
MAP UPDATE REV 28
S-158 PAD

3:10

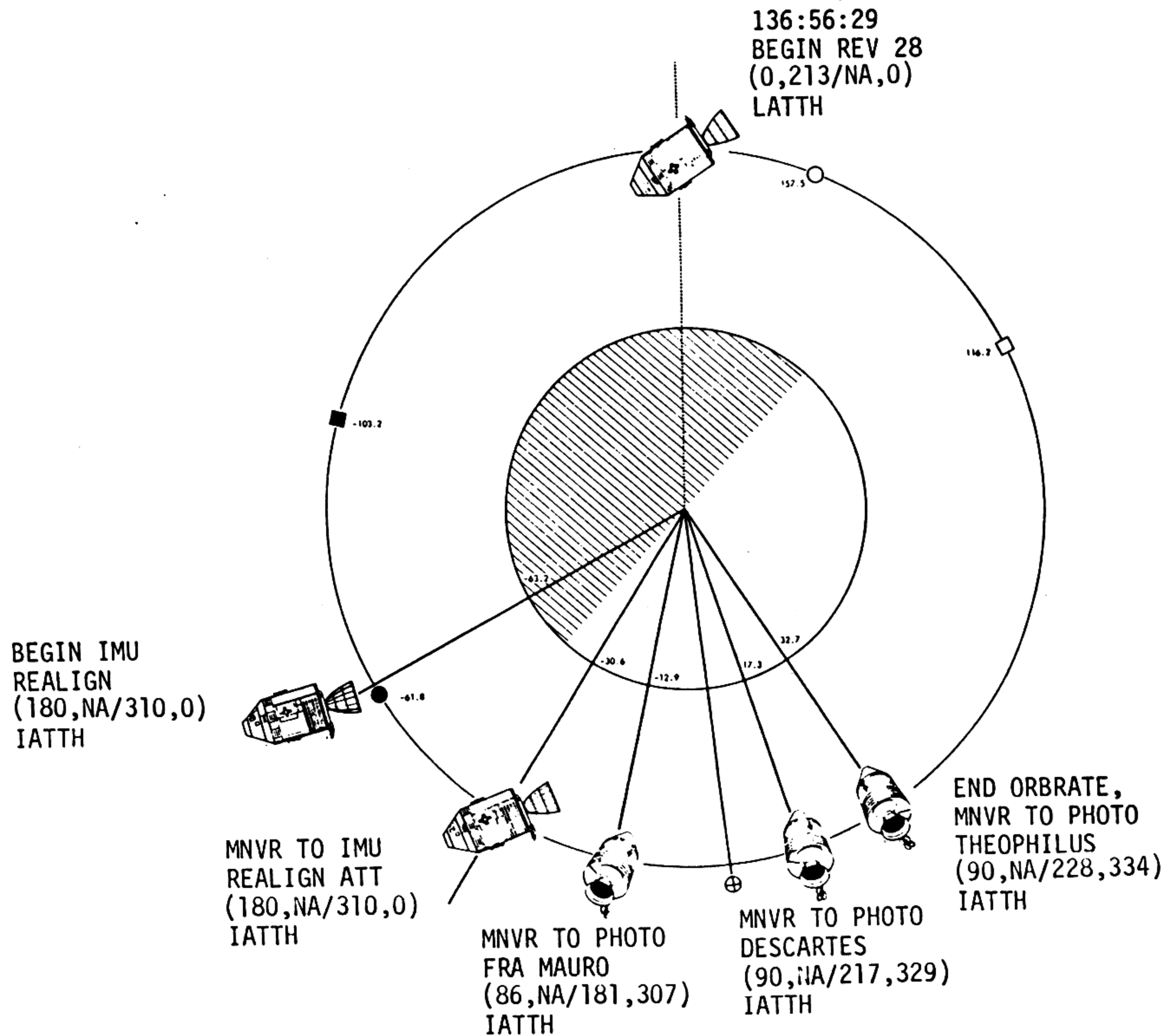
3:20

3:30

VERIFY DSE MOTION @ LOS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	136:00 - 137:00	6/27-28	3-114

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LEGEND:

- □ MSFN AOS, LOS
- ○ S/C SUNRISE, SUNSET
- ⊕ SUBEARTH POINT

(R,LHP/INP,Y)

IATTH - INERTIAL ATTITUDE HOLD

LATTH - LOCAL ATTITUDE HOLD

S-158 REV 28

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 (NOV 14)	OCTOBER 15, 1969	137:00 - 138:00	6/28	3-115

FLIGHT PLAN

CSM

LM

MCC-H

CMP

CDR

LMP

VERIFY ORB RATE
R 0, P 213/N/A, Y 0
OMNI D

0322 CST

137:00

:04

:10

:15

:18

BATTERY CHARGE, BATTERY B

START ALL CAMERAS

S-158 PHOTOGRAPHY

STOP ALL CAMERAS
STOP ORB RATE, V49-MNVR
BY 137:45

R 90, P 228, Y 334

S-158 THEOPHILUS

V49-MNVR BY 137:50

R 90, P 217, Y 329

S-158 DESCARTES

V49-MNVR BY 138:00

R 86, P 181, Y 307

M
S
F
N

137:30

M
S
F
N

:45

138:00

STOW OPS ON ENGINE COVER
STOW BOTH PLSS ON FLOOR
VERIFY CB CONFIGURATION
RR OPR HTR - ON
DOFF LUNAR BOOTS

PREP FOR EQUIPMENT JETTISON
UNSTOW 70MM CAM FROM ETB
PHOTO LUNAR SURFACE
CONFIGURE 16MM SEQ CAMERA
STOW EQUIPMENT IN LHSCC
PLSS FEEDWATER COLLECTION (BOTH)
REPORT PLSS FEEDWATER QUANTITIES
POSITION LHSSC, JETT BAG, AND PLSS'S FOR JETTISON
DON EV GLOVES

UPDATE TO CSM
MAP UPDATE REV 29

MAP UPDATE REV 29
LOS : _____ : _____ : _____
180° : _____ : _____ : _____
AOS : _____ : _____ : _____

PRESSURE INTEGRITY CHECK
CHECK VALVE POSITIONS
VERIFY GAGE READINGS

CABIN DEPRESS
OPEN DUMP VALVE

HATCH OPENING
OPEN HATCH
JETTISON EQUIPMENT

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	137:00 - 138:00	6/28	3-116

CSM

LM

MCC-H

CMP

0422 CST

CDR

LMP

S-158 FRA MAURO

138:00

MNVR TO P52 ATT BY 138:06

R180,P 310,Y 0

HGA P -74,Y 337

GO INERTIAL

RR TRANSPONDER ACTIVATION AND SELF TEST

M
S
F
N

:10

:15

:16

P52 - IMU REALIGN
OPTION 3 - REFSMMAT
(LIFT-OFF ORIENT)

CABIN REPRESS
DUMP VALVES - AUTO, REPRESS CABIN
VERIFY MASTER ALARM & WARNING LIGHTS ON
DOFF GLOVES, HELMETS, & VISORS

DUMP DSE

P52 (LIFT OFF-ORIENT)

N71: _____

N05: _____

N93: _____

X _____

Y _____

Z _____

GET _____:_____:_____

VERIFY DSE MOTION @ LOS

138:30

M
S
F
N

CREW STATUS REPORT (MEDICATION, DOSIMETER)

STOW S-158

UPDATE TO LM
LIFTOFF TIME FOR
REV 29 & 30
P22 ACQ TIME 28° EL
LM CONSUMABLE PAD

EAT PERIOD

:45

EAT PERIOD

EAT PERIOD

REV 29

139:00

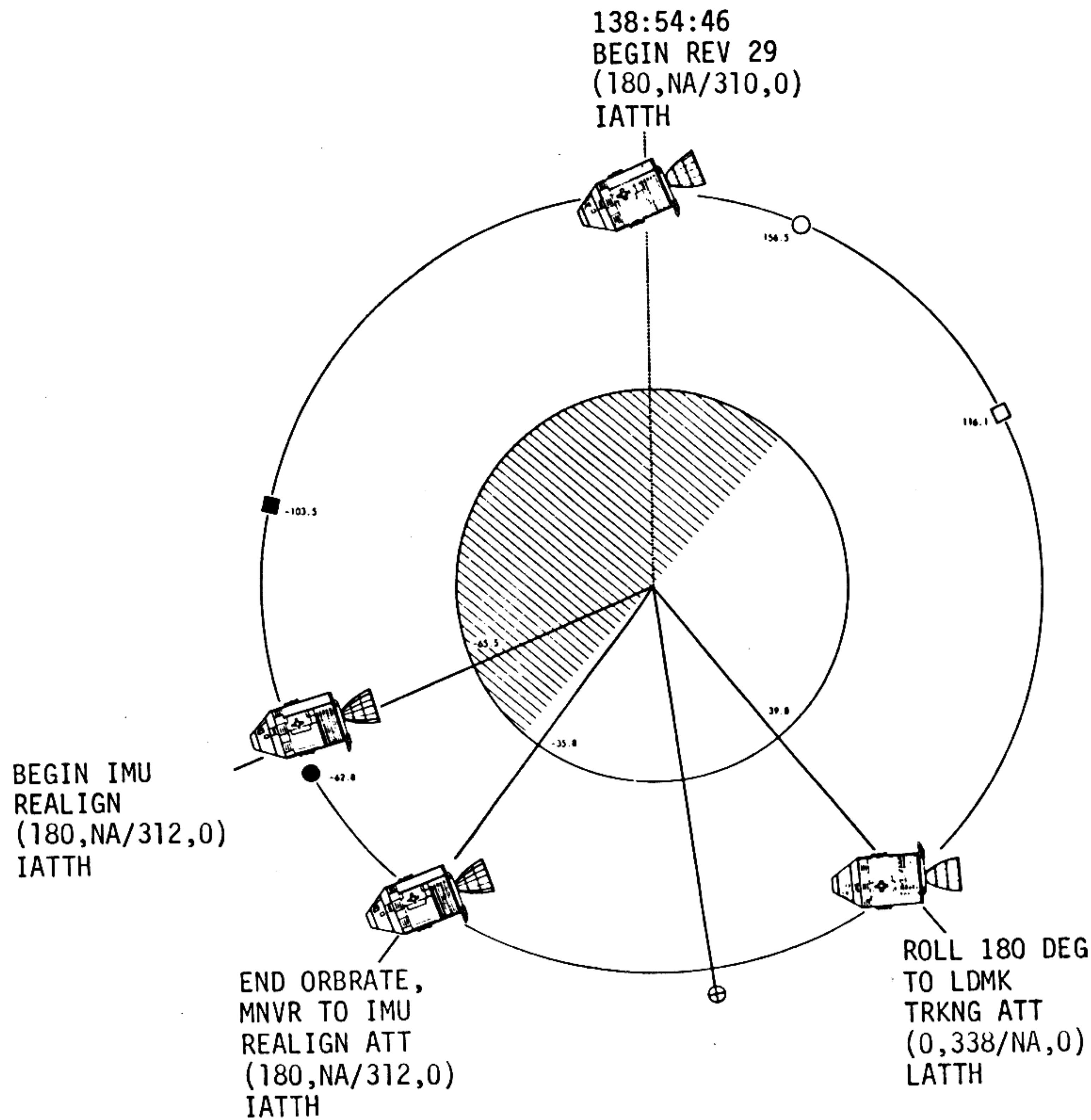
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	138:00 - 139:00	6/28-29	3-117

MSC Form 1674 (OT) (June 69)

FLIGHT PLANNING BRANCH

REVISION A

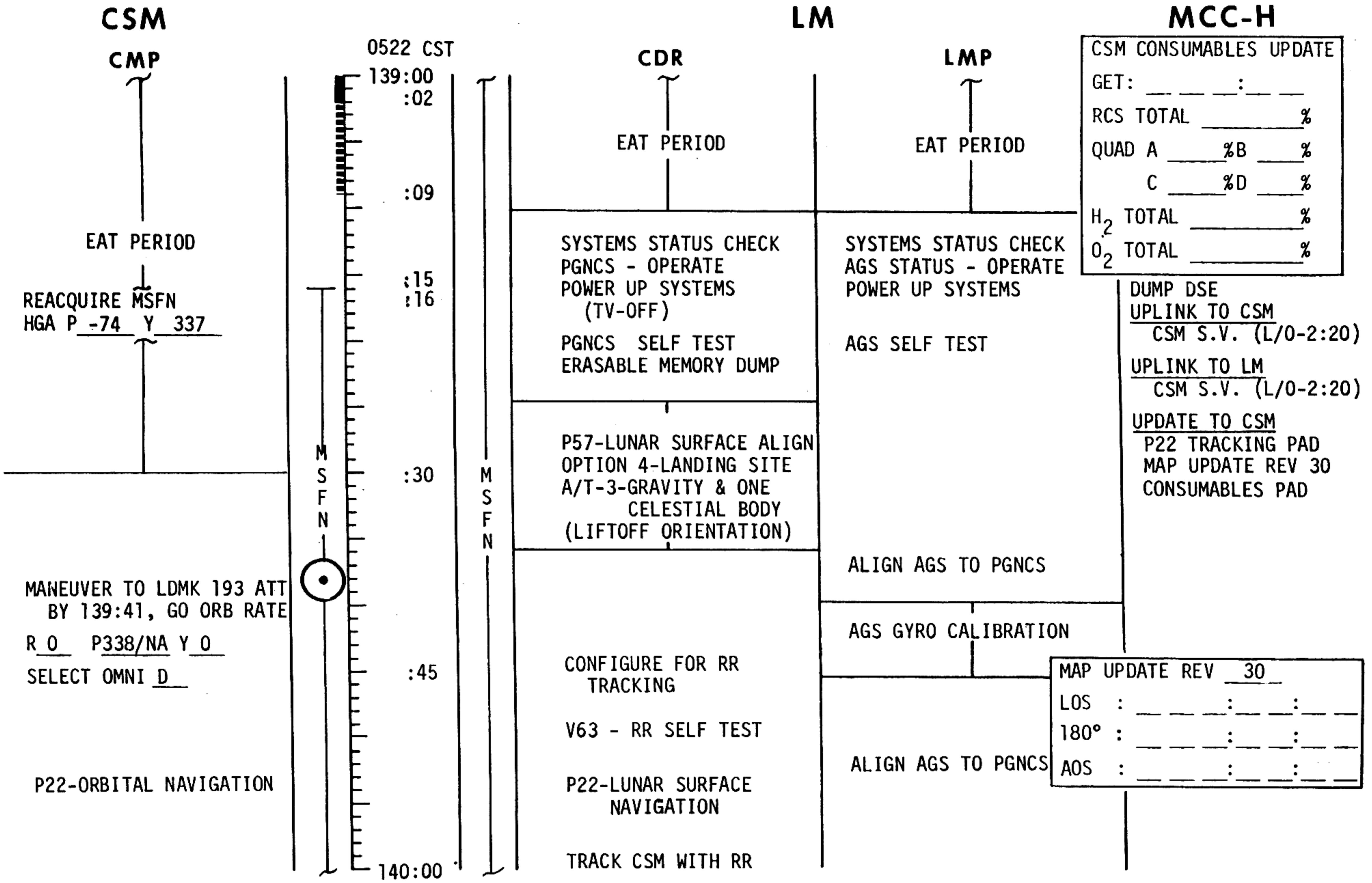
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3-117A

REVISION B

FLIGHT PLAN



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

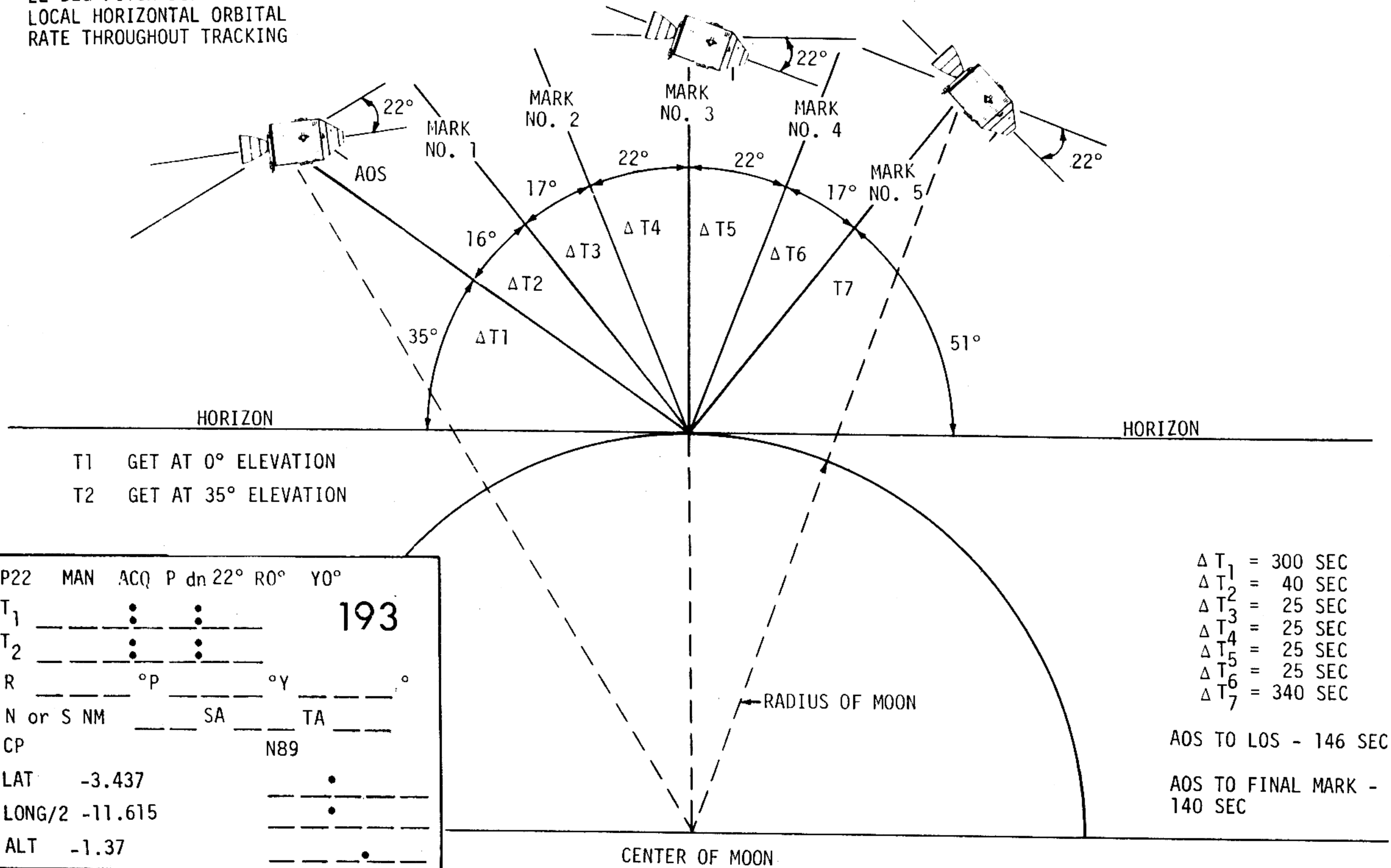


FIGURE 3-3

3-118a

FLIGHT PLAN

CSM

LM

MCC-H

CMP

0622 CST

TRACK LANDMARK 193
DO NOT PRO ON FINAL N89
25 SEC BETWEEN MARKS
5 MARKS

STOP PITCH AND MANEUVER
TO P52 ATTITUDE BY
140:06

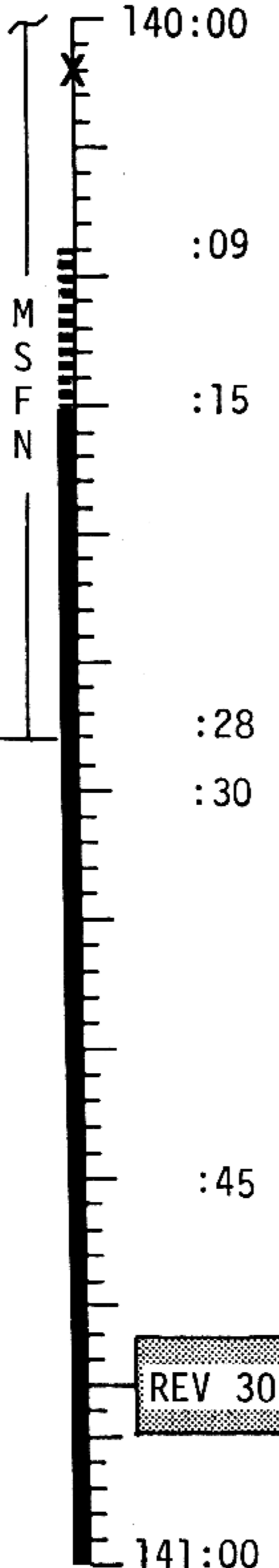
R 180 P 312 Y 0
HGA P -73 Y 338

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

REPORT GYRO TORQUE ANGLES
GDC ALIGN TO IMU

H₂ PURGE LINE HTR-ON

O₂ & H₂ FUEL CELL PURGE
WASTE WATER DUMP



M
S
F
N

CDR

LMP

TRACK CSM WITH RR

RATE GYRO CHECK

RCS CHECKOUT

V47-AGS INITIALIZATION

LOAD AGS ASCENT TGT:
H = 60,000 FT
H DOT = 9 FT/SEC

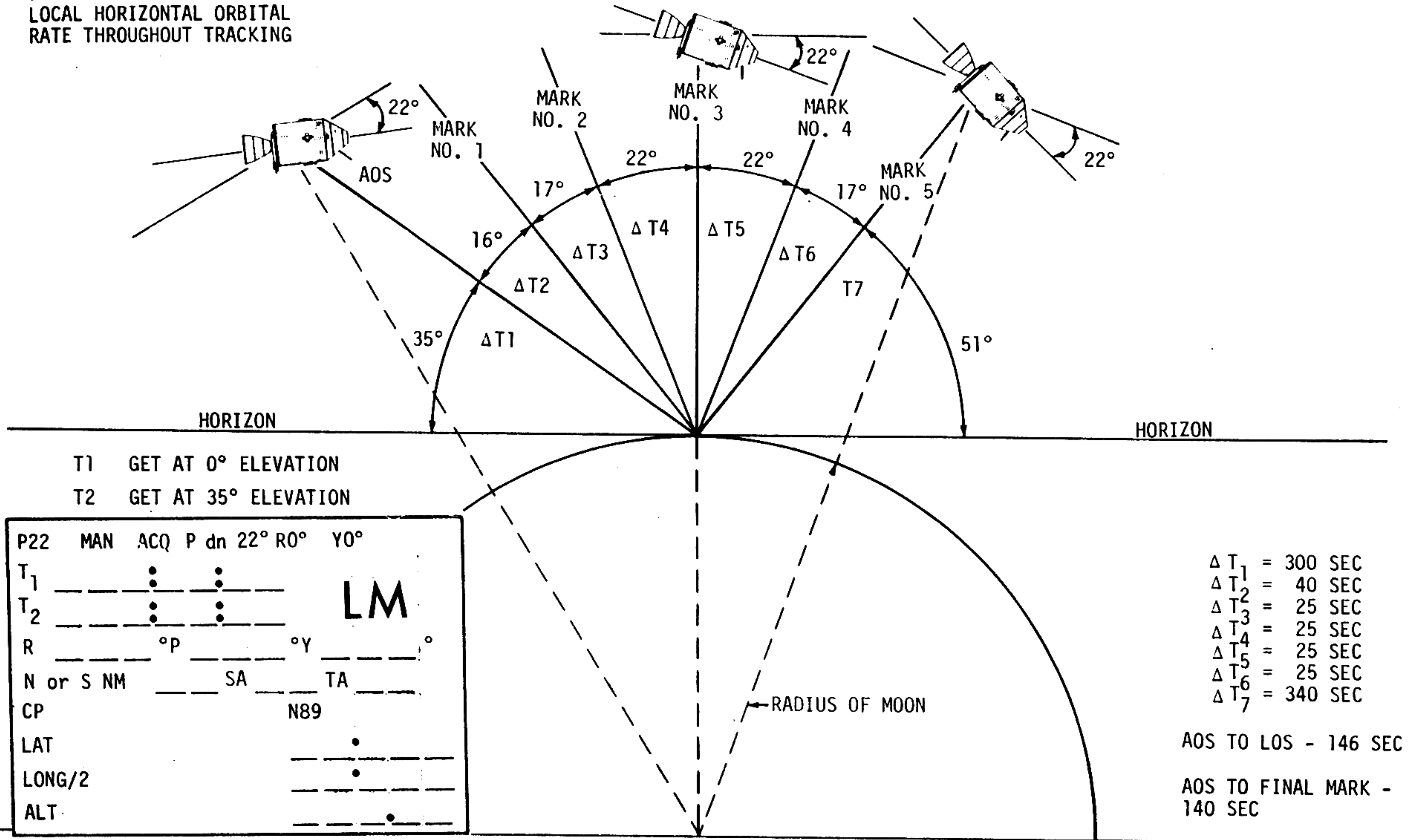
UPLINK TO CSM
RESET SURFACE FLAG
LM S.V. (INS + 18)

UPLINK TO LM
LGC GYRO COMPENSATION
UPDATE TO LM
ASCENT PAD
CSI PAD
AGS K FACTOR
LM & CSM DAP WEIGHTS

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 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 THROUGHOUT TRACKING



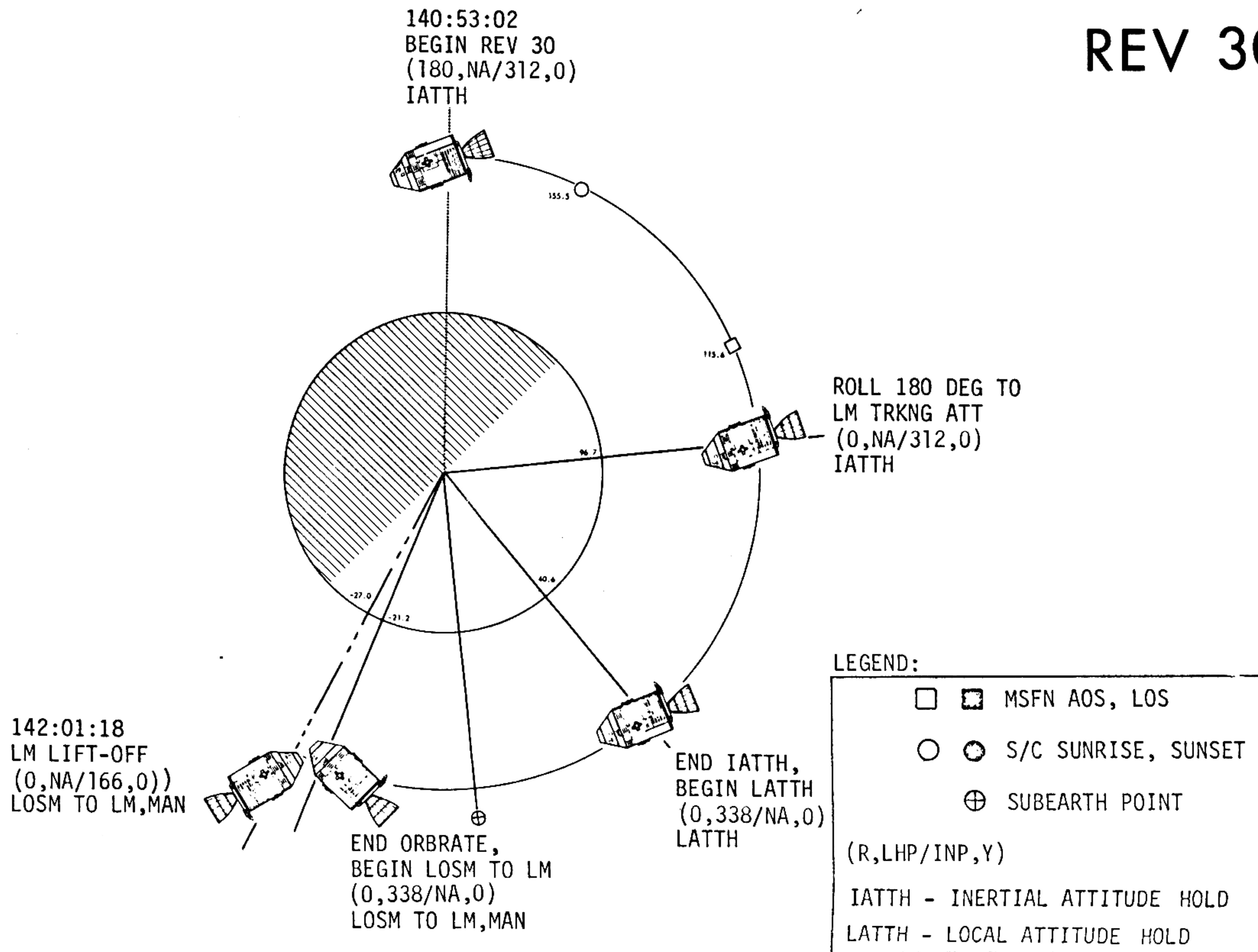
P22	MAN	ACQ	P dn	22°	RO°	Y0°	
T ₁		•	•				LM
T ₂		•	•				
R		°p		°y			
N or S	NM		SA		TA		
CP				N89			
LAT							
LONG/2							
ALT							

NOTE: Coordinates of LM to be updated Real time

CENTER OF MOON

FIGURE 3-3

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3-120A

REVISION B

FLIGHT PLAN

CSM

LM

MCC-H

CMP

SET UP CAMERAS FOR DOCKING
CM2/DAC/18/CEX-
BRKT, MIR(f8,250,7)
6 FPS, 1 MAG, 16 MIN
CM2/EL/80/CEX
(f8,250,FOCUS), 10
CM4/TV-IN BRKT (f22)

0722 CST

CDR

LMP

141:00
:01

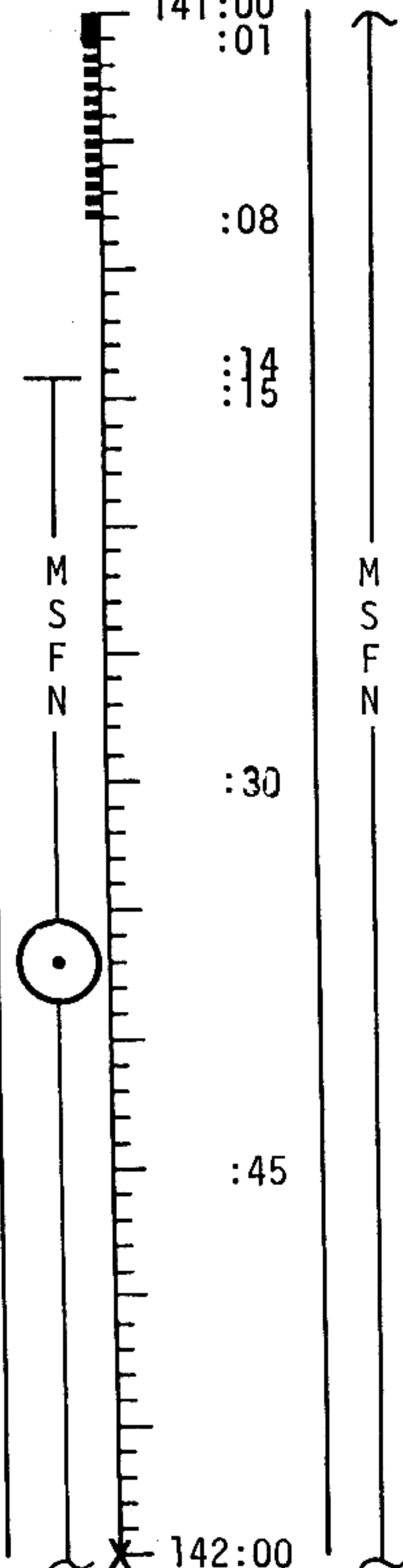
MAP UPDATE REV	31
LOS	: : : - - -
180°	: : : - - -
AOS	: : : - - -

REACQUIRE MSFN
HGA: P -73, Y 338

V49-MNVR TO LM TRACK
ATT BY 141:21
R 0 P 312 Y 0
OMNI D

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

TRACK LM @ AOS



↑

P57-LUNAR SURFACE ALIGN
OPTION 4-LANDING SITE
A/T-3-GRAVITY & ONE
CELESTIAL BODY
(LIFTOFF ORIENTATION)

DON HELMET & GLOVES
LOAD DAP N46-12002
PI2-POWERED ASCENT
GO/NO-GO FOR LIFTOFF

PRELAUNCH SWITCH CHECKS
VENT DPS & SHe

VERIFY CB STATUS
CHECK APS BURN CARD

CHECK APS,RCS,EPS,ECS

ALIGN AGS TO PGNCS
DON HELMET & GLOVES
SET CAMERA FOR ASCENT:
LM3/DAC/10/CEX(f2.8,500,30)
12 FPS, 1 MAG, 8 MIN
ASCENT BATS-ON,DES 1&3-OFF
ENTER AGS LUNAR ALIGN
PRELAUNCH SWITCH CHECKS

V47-AGS INITIALIZATION
LIFTOFF COMM
DES BATS 2&4 - OFF
DEADFACE DES BATS
VERIFY CB STATUS
CHECK APS BURN CARD

CHECK APS, RCS, EPS, ECS
SEQ CAMERA - ON

UPDATE TO CSM
LM TRACKING PAD
MAP UPDATE REV 31
UPLINK TO CSM(IF REQ)
LM S.V. (INS + 18)
CSM S.V. (INS + 18)

UPLINK TO LM (IF REQ)
CSM S.V. (INS + 18)
RLS
GO/NO-GO FOR LIFTOFF
FOR REV 30

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

CSM

CMP

CMC FREE @ TRUN ANGLE=22°
NULL LM LOS RATES WITH
MINIMUM IMPULSE CONTROL

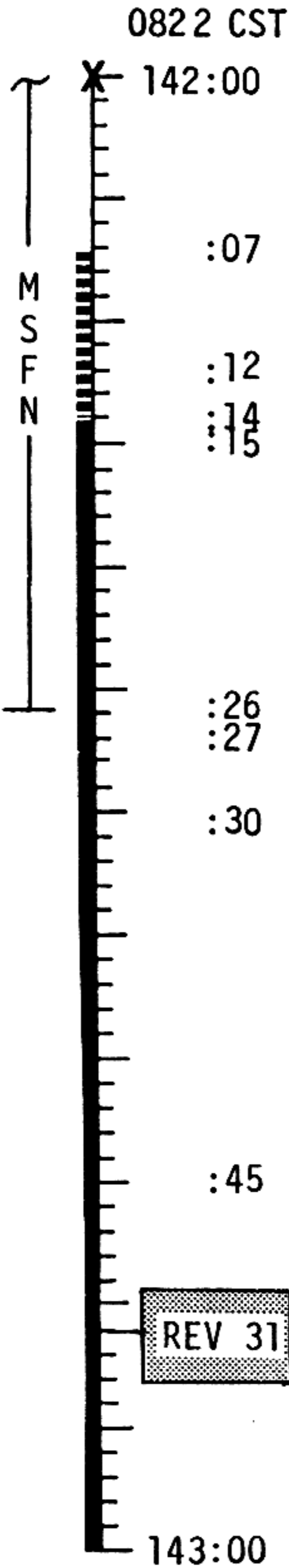
CONFIRM INSERTION
V64 ACQUIRE MSFN
VHF RANGING

P52-IMU REALIGN
OPTION 3-REFSMMAT
(LIFTOFF ORIENTATION)
REPORT GYRO TORQUE ANGLES
VERIFY DSE MOTION @ LOS
P20 - RNDZ NAVIGATION
P32-TARGET CSI
SXT & VHF TRACKING

FINAL CSI COMP

P40-SPS THRUSTING
SPS CHECKLIST

BACKUP CSI
CONFIRM LM CSI



0822 CST

142:00

:07

:12

:14

:15

:26

:27

:30

:45

143:00

LM

CDR

LMP

ABORT STAGE
YAW RIGHT 20° FOR COMM

APS LIFTOFF

INSERTION

NULL RESIDUALS
LOAD DAP, N46-11002

STOP 16 MM CAMERA
ECS CHECK

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

V48-LOAD DAP, N46 - 11012
P32 - TARGET CSI
RNDZ RADAR TRACKING

RR-ON
P20-RENDEZVOUS NAVIGATION

PCM-LO, OMNI - AFT
BIOMED - OFF

CHECK RCS, EPS, ECS

FINAL CSI COMPUTATION
P41-RCS THRUSTING

LOAD AGS CSI EXT ΔV

NULL RESIDUALS

RCS

CSI

TIG: 142:01:17.9
BT: 7:10
ΔVR: 6046.2 FT/SEC
ORBIT: 44.7x8.3

GET: 142:08:27.9

DUMP DSE
UPLINK TO CSM
LM STATE VECTOR

TIG: 142:58:05.2
BT: 45.3 SEC
ΔVR: 50.3 FT/SEC
ORBIT: 45.6x44.6

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

FLIGHT PLANNING BRANCH

REVISION B

FLIGHT PLAN

CSM

LM

MCC-H

CMP

CDR

LMP

P20 AUTO MNVR TO
TRACK ATTITUDE
SXT & VHF TRACKING

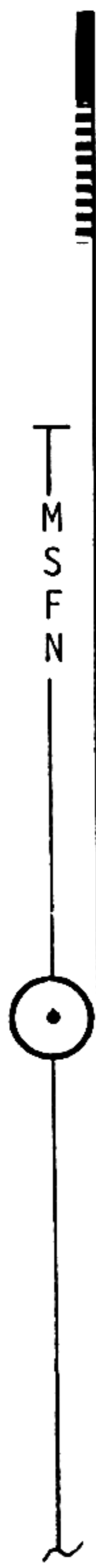
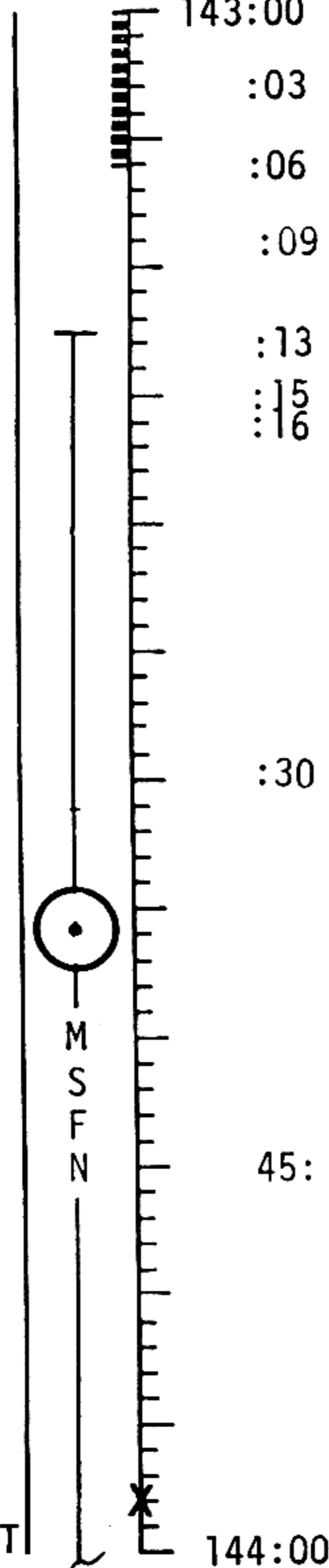
OMNI D

CONFIRM LM PC
P33 - TARGET CDH
SXT & VHF TRACKING

FINAL CDH COMP
P41 - RCS THRUSTING
RCS CHECKLIST

CDH BACKUP
CONFIRM LM CDH
P20-AUTO MNVR TO TRACK ATT

0922 CST
143:00



P33-TARGET CDH
RNDZ RADAR TRACKING

P30-TARGET PLANE CHANGE
(IF PLANE CHANGE NOT REQUIRED, CONTINUE TRACKING FOR CDH)

P41-RCS THRUSTING

P33 TARGET CDH
RNDZ RADAR TRACKING

FINAL CDH COMPUTATION
(IF CDH NOT REQUIRED, TERMINATE TRACKING AND P33)

P41-RCS THRUSTING

NULL RESIDUALS
P34-TARGET TPI

OMNI-FWD, BIOMED-RIGHT
PCM-H1

LOAD AGS PC EXT ΔV
CSI BURN STATUS
REPORT

CHECK RCS, EPS, ECS

LOAD AGS CDH EXT ΔV

RCS PLANE CHANGE

RCS CDH

GET: 143:26:27.5
ΔV_R: NOM ZERO

GET: 143:56:27.5
ΔV_R: NOM ZERO

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

CSM

1022 CST

LM

MCC-H

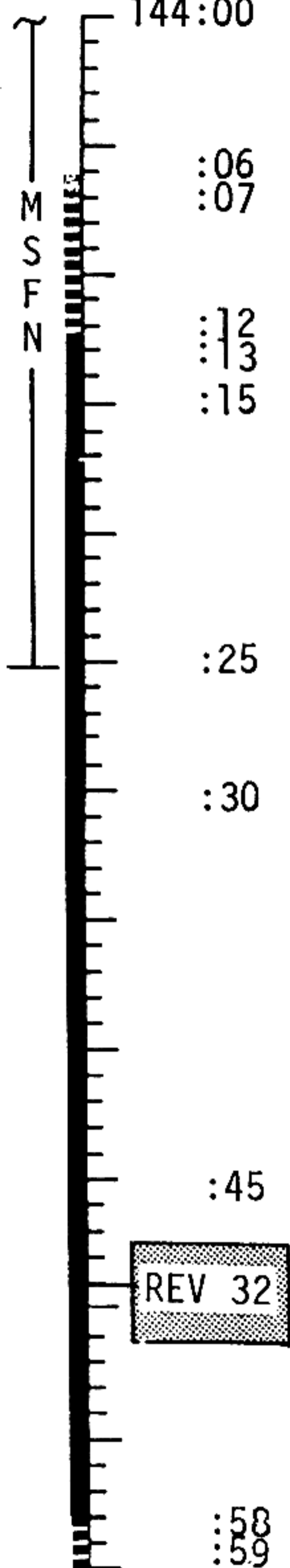
CMP

P34-TARGET TPI
SXT & VHF TRACKING

144:00

CDR

LMP



RNDZ RADAR TRACKING

CHECK RCS, EPS, ECS

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

FINAL TPI COMPUTATION

OMNI-AFT, BIOMED-OFF
PCM-LO

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

P41-RCS THRUSTING

LOAD AGS TPI EXT ΔV

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

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

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

RCS TPI

P41-RCS THRUSTING

LOAD AGS MCC-1 EXT ΔV

GET: 144:51:25.7

P35-TARGET MCC-2
SXT & VHF TRACKING

NULL RESIDUALS
P35-TPM TARGETING(MCC-2)
RNDZ RADAR TRACKING

RCS MCC-1

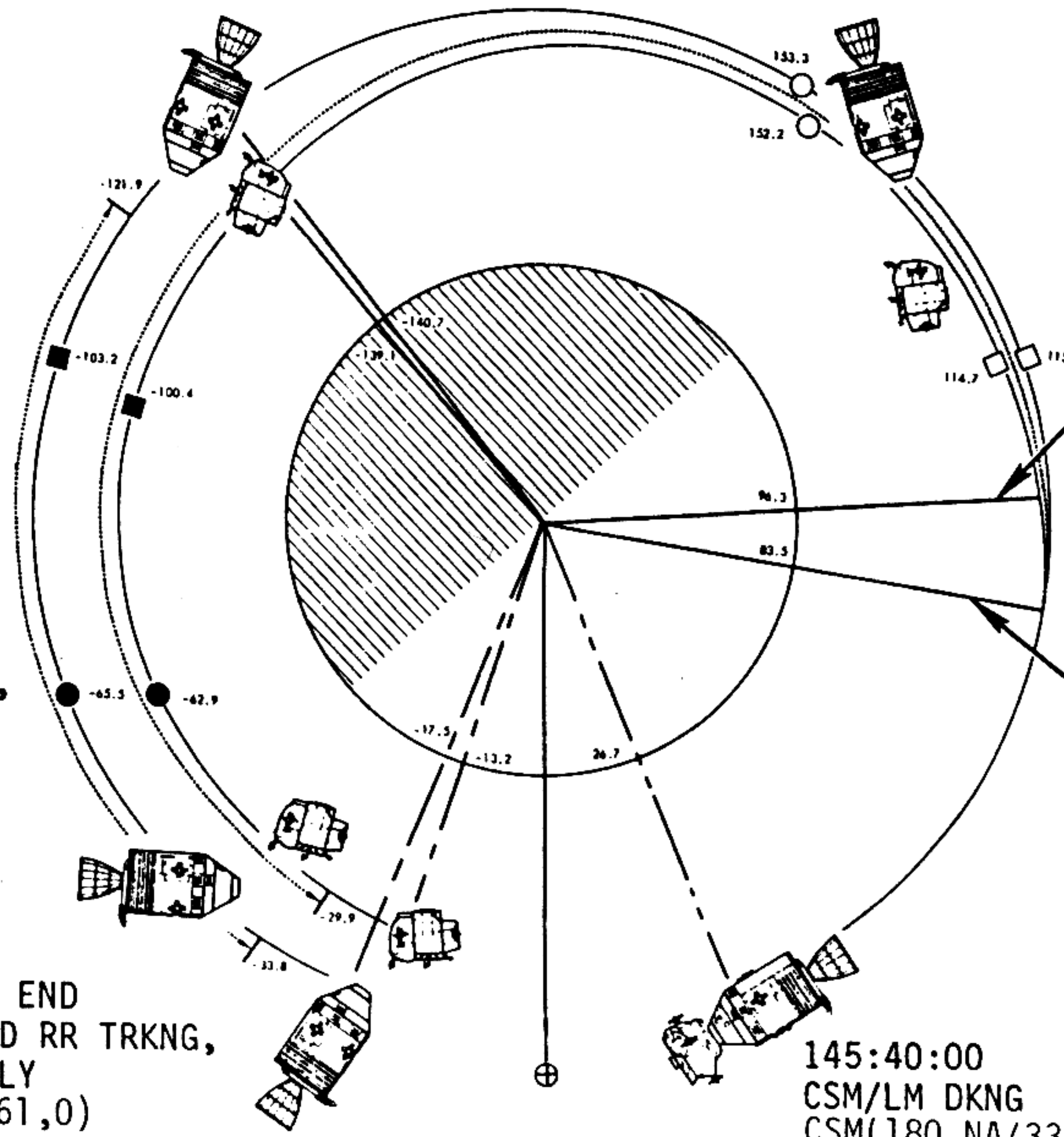
REV 32

:58
:59
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

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144:36:50
 TPI BURN IGN
 CSM(0,NA/4,0)
 IATTH
 LM(0,NA/273,0)
 LOSM TO CSM



CSM AND LM BEGIN
 VHF RNG AND RR TRKNG,
 RESPECTIVELY
 CSM(0,NA/129,0)
 LOSM TO LM
 LM(0,NA/4,0)
 LOSM TO CSM

CSM AND LM END
 VHF RNG AND RR TRKNG,
 RESPECTIVELY
 CSM(0,NA/161,0)
 IATTH
 LM(0,NA/36,0)
 IATTH

145:17:39
 FIRST LM BRAKING
 BURN
 CSM(60,NA/9,0)
 LOSM TO LM
 LM(0,NA/238,0)
 LOSM TO CSM

145:21:51
 FINAL LM BRAKING
 BURN
 CSM(0,NA/334,0)
 LOSM TO LM ALONG
 X-AXIS
 LM(0,NA/244,0)
 LOSM TO CSM

145:40:00
 CSM/LM DKN
 CSM(180,NA/336,0)
 IATTH
 LM(180,NA/336,300)
 IATTH

LEGEND:

□	■	MSFN ACS, LOS
○	●	S/C SUNRISE, SUNSET
⊕		SUBEARTH POINT
(R,LHP/INP,Y)		
IATTH - INERTIAL ATTITUDE HOLD		
LATTH - LOCAL ATTITUDE HOLD		

FLIGHT PLAN

CSM

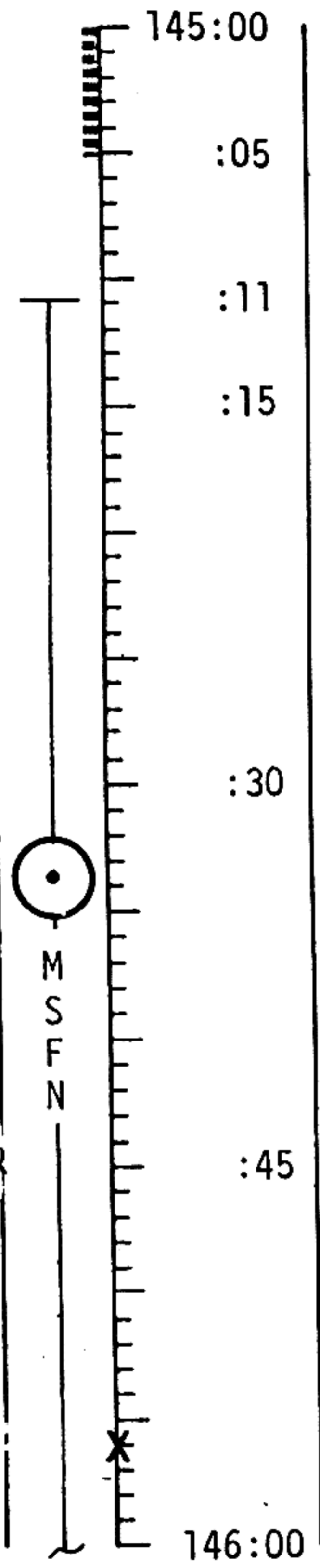
LM

MCC-H

CMP

FINAL MCC-1 COMP
 P41 - RCS THRUSTING
 CONFIRM LM MCC-2
 POO (TERMINATE P20)
 V64 - 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 P -51 Y 350
 PYRO ARM
CSM ACTIVE DOCKING
 POST DOCKING CHECKLIST
 V48-LOAD DAP, R1(61102)
 R2(11111)
 PRESSURIZE CM TO 5.5PSIA
 ADJUST O₂ FLOW TO 0.6#/HR
 PRESS TUNNEL TO 3 PSID
 FOR LEAK CHECK, THEN
 EQUALIZE CM/LM ΔP
 REMOVE AND STOW HATCH
 VERIFY LATCHES
 COLLAPSE PROBE AND
 PASS TO CDR

1122 CST



CDR

LMP

P41 - RCS THRUSTING

LOAD AGS MCC-2 EXT ΔV

RCS MCC-2

TIG: 145:06:25.7

NULL RESIDUALS
 POO (TERMINATE P20)
 V48 - LOAD DAP, N46-11002
 V63 - RR SELF TEST

OMNI-AFT, BIOMED-LEFT
 PCM-HI
 V64-ACQUIRE MSFN
 SET UP CAMERA FOR DOCKING
 LM/DC/60/HCEX
 (f11,250, FOCUS) 5

RR-OFF

DOCKING ATTITUDE
 R 180 P 336 Y 300

STEERABLE ANGLES
 P 181
 Y 61

GO/NO GO FOR PYRO
 ARM

DOCKING

GET: 145:40

CONFIGURE PGNCs & AGS
 V48 LOAD DAP, N46-12021

PREP FOR TRANSFER

DUMP DSE

DOFF HELMET & GLOVES

DOFF HELMET & GLOVES

OPEN HATCH
 REMOVE & STOW DROGUE
 RECEIVE & STOW PROBE

ASSIST CDR

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	145:00 - 146:00	6/32	3-125

CSM

1222 CST

LM

MCC-H

CMP

TRANSFER BAGS, VACUUM BRUSH, AND HOSE TO LM

LiOH CANNISTER CHANGE NO 11 - 13 INTO A, STOW 11 IN A3

STOW LM EQUIPMENT

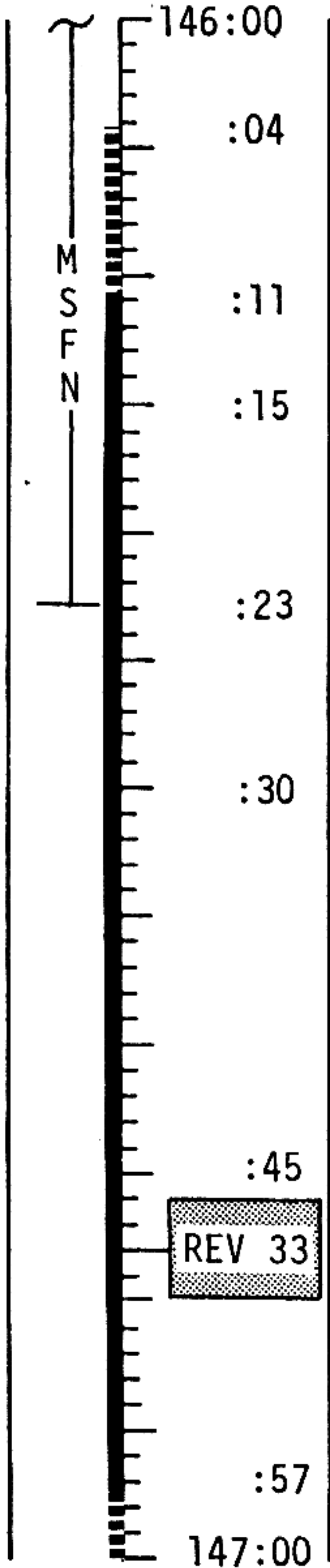
VERIFY DSE MOTION @ LOS

TRANSFER B5 AND B6 CONTAINERS TO LM

MANEUVER TO LM JETTISON ATTITUDE BY 146:51

R 219 P 358 Y 342

HGA P -41 Y +5



CDR

CONFIGURE SUIT LOOP FOR VACUUMING

UNSTOW SRC'S, VACUUM & BAG, AND PASS TO CSM

VACUUM, BAG, & TRANSFER TO THE CSM:
 CSRC
 CSC CASSETTE
 70MM MAGS(2)
 GLOVES (4)
 HELMETS(2)
 LUNAR BOOTS
 SURVEYOR TOOLS AND HARDWARE

VACUUM PGA'S

STOW VACUUM BRUSH AND HOSE

RECEIVE B5 & B6 FROM CMP AND STOW
 LM JETTISON ATTITUDE
 R 63 P 240 Y 290
 STEERABLE ANGLES
 P 201 Y 73

LMP

ASSIST CDR (DECONTAMINATION)

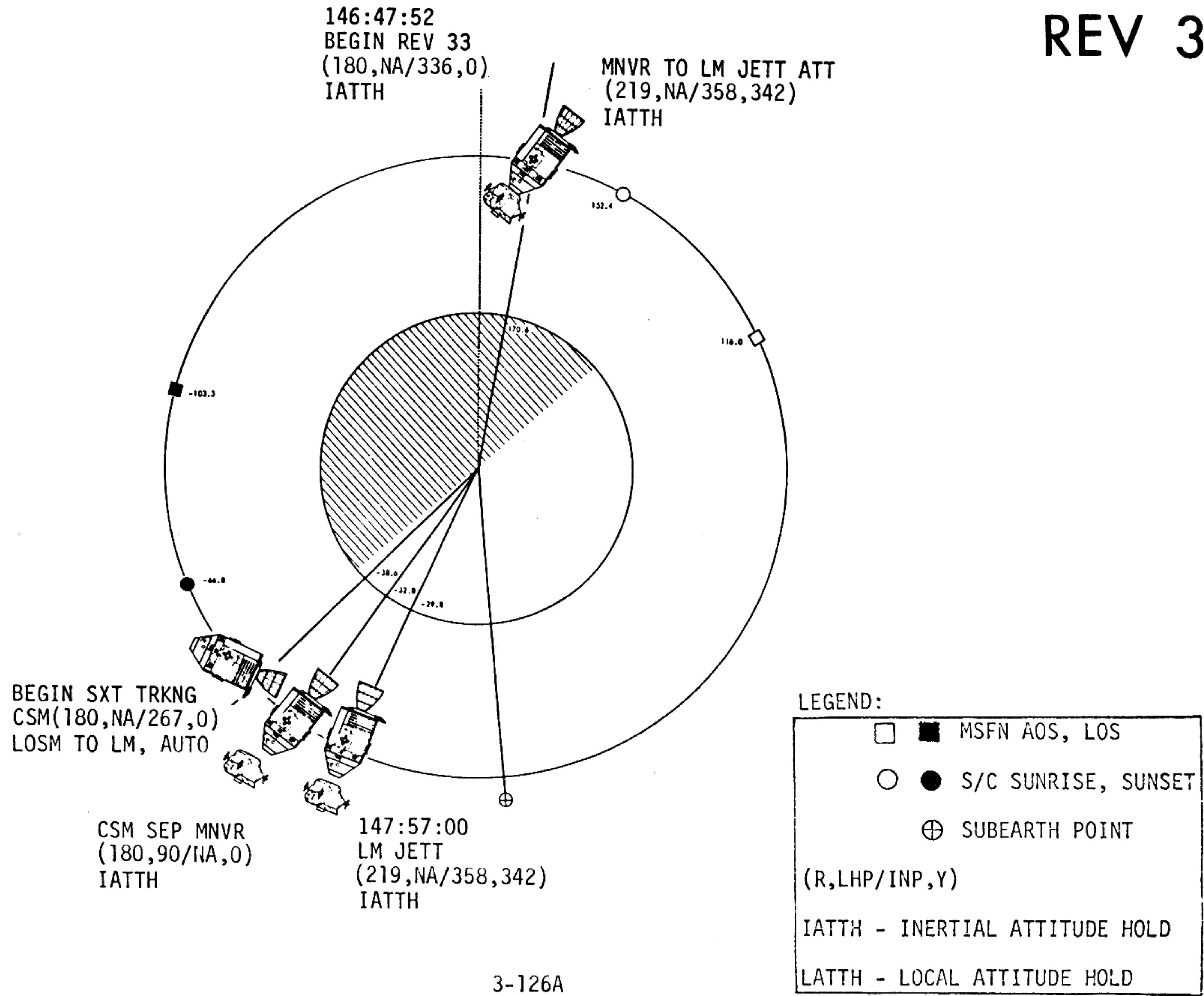
UPDATE TO CSM
 MAP UPDATE REV33
 SEP BURN PAD
 LM JETT ATT
 LM JETT TIME
 UPLINK TO CSM
 CSM S.V. (TIG-10)*
 LM S.V. (TIG-10)*
 UPLINK TO LM
 LM S.V. (TIG-10)*
 P30 TARGET LOAD
 UPDATE TO LM
 DEORBIT BURN PAD

*TIG OF LM DEORBIT BURN

MAP UPDATE REV 33			
LOS	:	---	:
180°W:	:	---	:
AOS	:	---	:

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	146:00 - 147:00	6/32-33	3-126

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3-126A

FLIGHT PLAN

CSM
CMP

1322 CST

LM

MCC-H

CDR

LMP

REACQUIRE MSFN
HGA P-41 Y 5

UNSTOW & INSTALL HATCH
HATCH INTEGRITY CHECK
GO/NO-GO FOR PYRO ARM
(CUE MSFN)
LOGIC-ON
DEPRESS TUNNEL

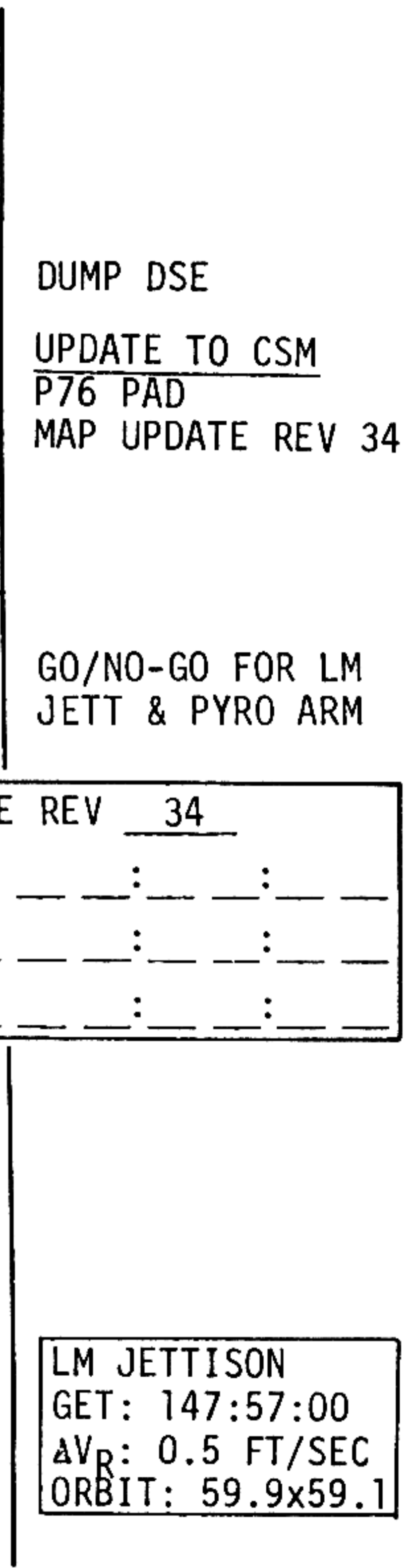
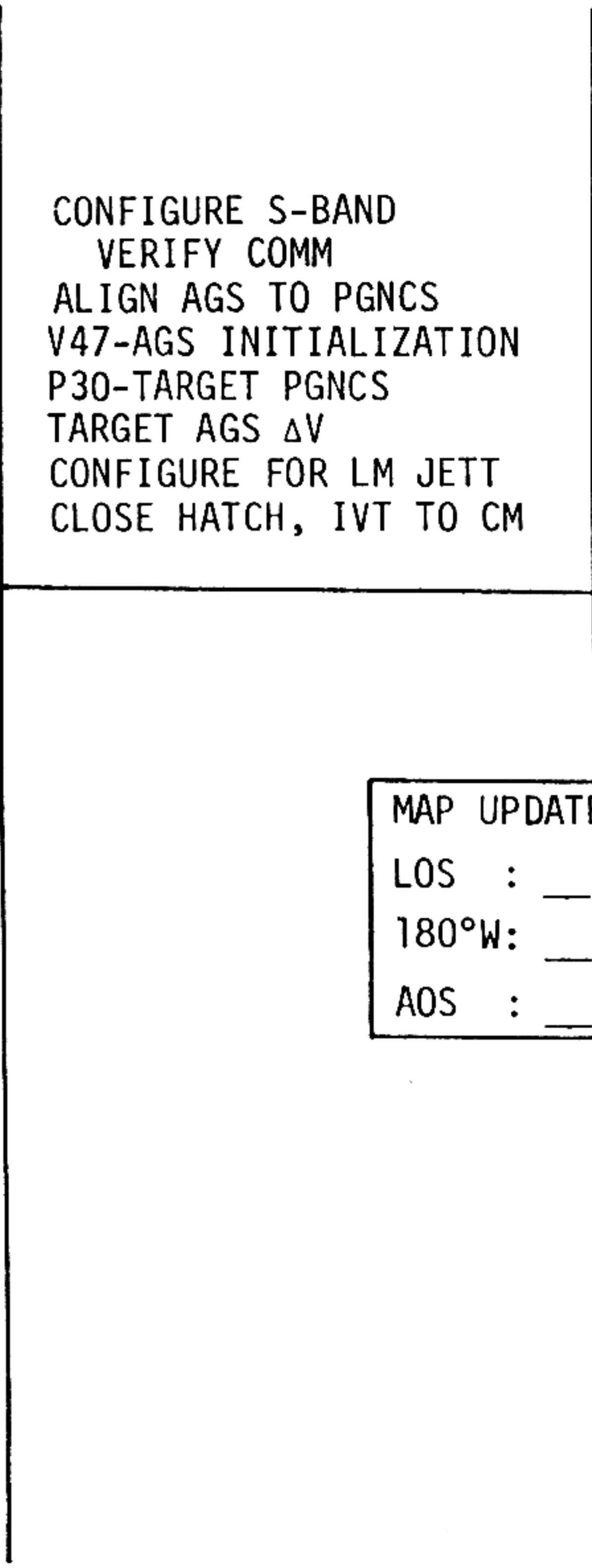
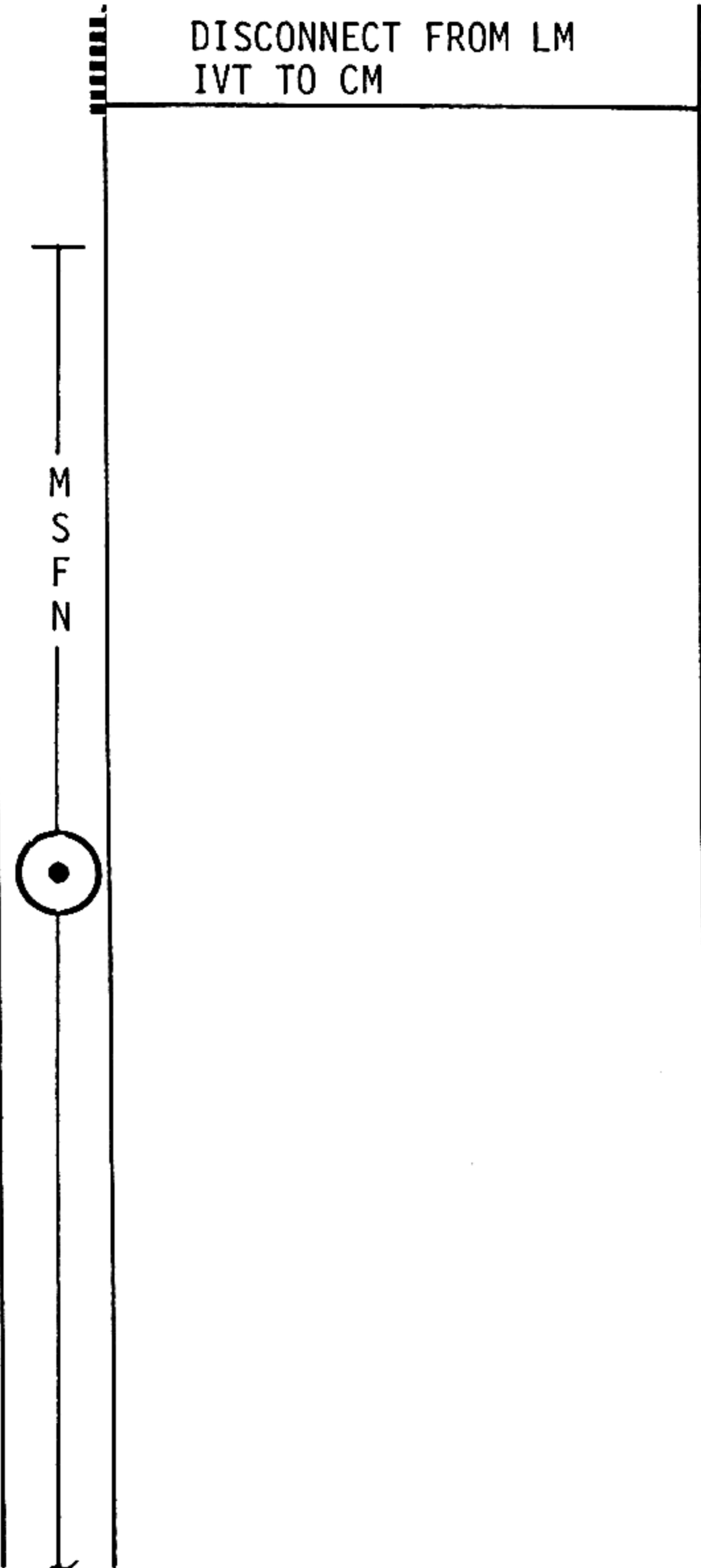
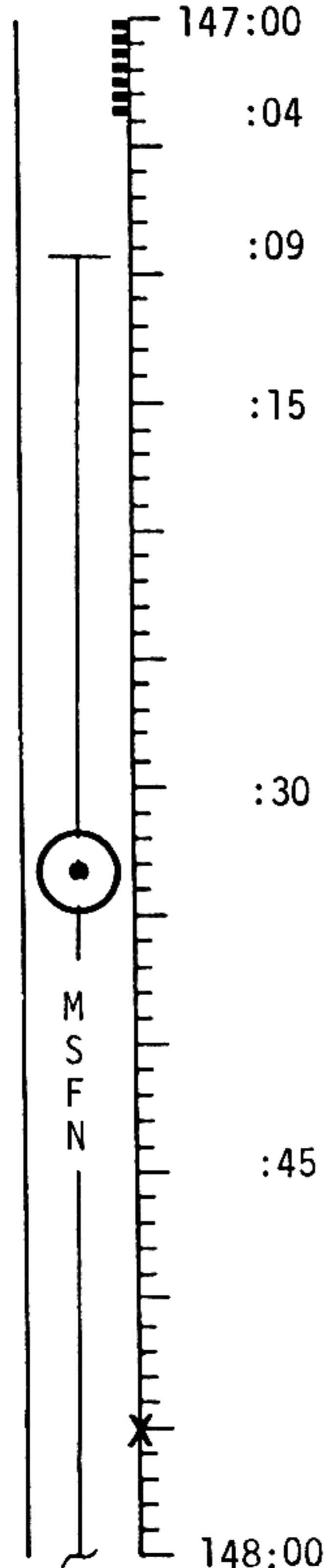
CONFIGURE CSM FOR JETT
SET UP CAMERA FOR JETT
CM4/DAC/18/CEX-BRKT,
MIR(f8,250,7)12FPS,
0.5 MAG, 4 MIN

PYRO ARM
V48-LOAD DAP,N46-
R1(11102)
R2(01111)

P47-THRUST MONITOR

LM JETTISON

SET ORDEAL



MAP UPDATE REV <u>34</u>		
LOS	:	---
180°W:	:	---
AOS	:	---

LM JETTISON
GET: 147:57:00
ΔV_R : 0.5 FT/SEC
ORBIT: 59.9x59.1

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

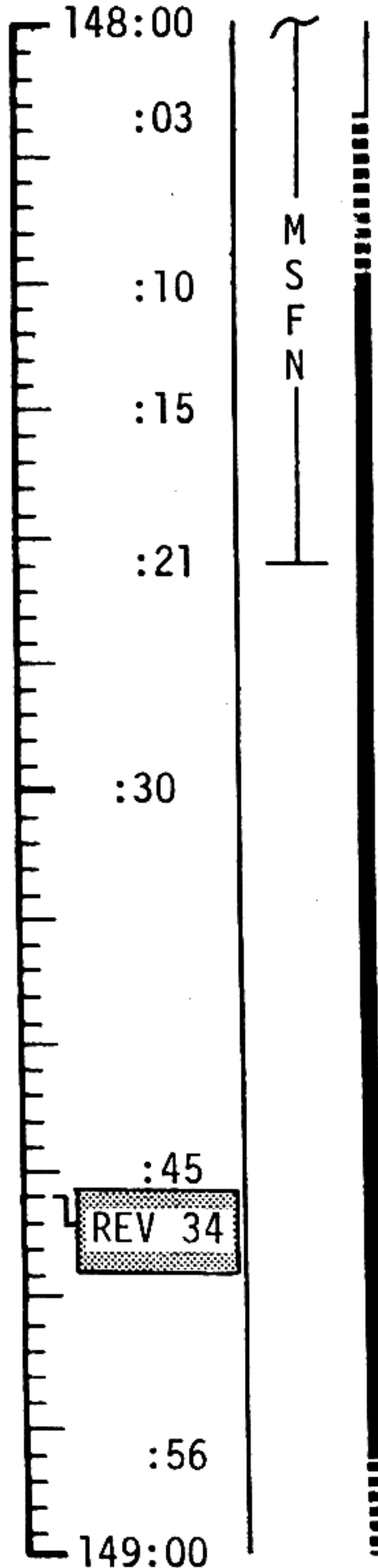
MCC-H

1422 CST

FLIGHT PLAN

NOTES

UPLINK TO LM
P42-APS THRUSTING



CSM SEPARATION

CSM SEP ATTITUDE
R180 P90/NA Y 0
HGA P-36 Y352

SET ORDEAL

P20-RENDEZVOUS NAVIGATION
AUTO MNVR TO LM TRACK ATT
SET UP CAMERA FOR LM IMPACT
CM/DAC/SXT/CEX
(FIXED,250,FIXED) 1 FPS,0.5MAG,46 MIN
TRACK LM AND PHOTOGRAPH THROUGH SEXTANT
VERIFY DSE MOTION @ LOS
VACUUM, DOFF, BAG, AND STOW PGA'S

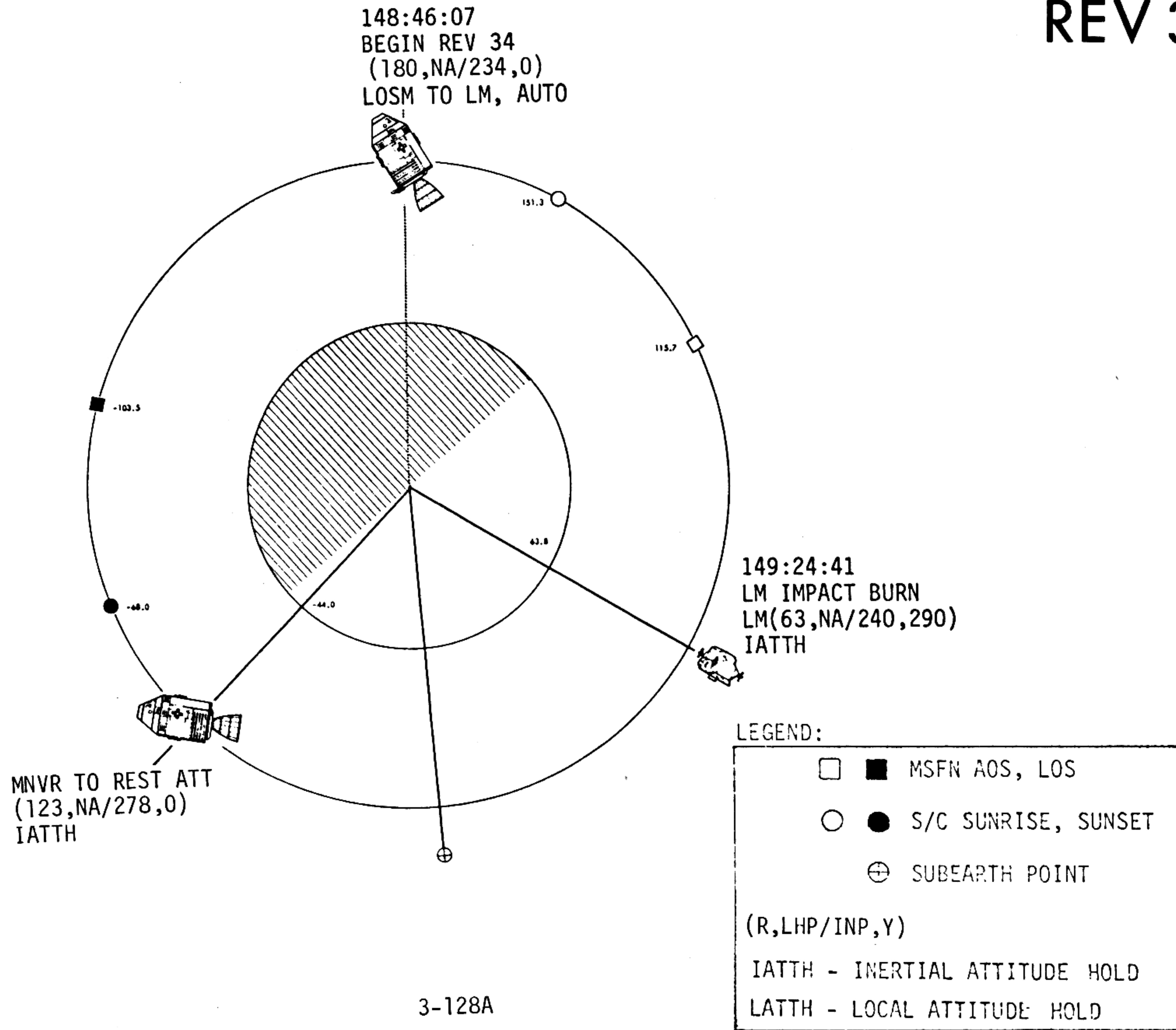
EAT PERIOD

PRESLEEP CHECKLIST
 E-MEMORY DUMP
 CREW STATUS REPORT (medication)
 ONBOARD READOUTS to MSFN
 CYCLE H2, O2 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 O2 v1v - OFF
 LM TUNNEL VENT v1v - OFF
 NORMAL LUNAR COMM EXCEPT
 S BD SQUELCH - ENABLE
 HI GAIN ANTENNA TRACK - REACQ
 HI GAIN ANTENNA BEAM - NARROW
 S BD ANT - HI GAIN

CSM SEPARATION
 BT: 2.7 SEC
 ΔV_R : 1.0 FT/SEC
 ORBIT: 59.7x58.6
 SM RCS Z-AXIS BURN

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

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3-128A

REVISION B

MCC-H

FLIGHT PLAN

NOTES

1522 CST

149:00

:02

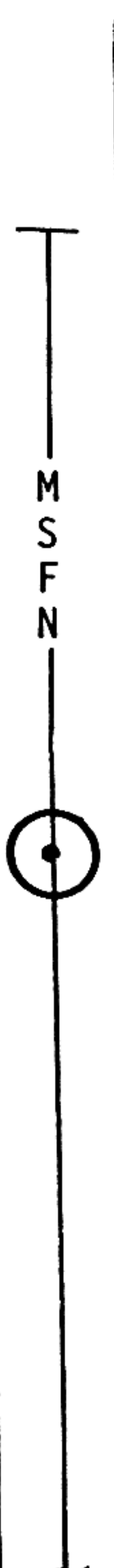
:08

:15

:30

:45

150:00



OMNI D

EAT PERIOD

PHOTOGRAPH LM THROUGH SEXTANT

MNVR TO REST ATT BY 150:00
 R123, P278, Y 0, GO INERTIAL
 HGA P-24 Y243
 LOAD DAP, RT(11112)R2(X1111)
 V21 N01
 3255E, 1616E

LM IS TARGETED FOR APS IMPULSE BURN. THRUST IS RCS ULLAGE ONLY.

TEI 39 PAD ASSUMES NO PLANE CHANGE 2

LM DEORBIT BURN
 TIG: 149:24:41.2
 BT: 83.8 SEC
 ΔV_R : 189.7 FT/SEC

ONBOARD READOUT

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

DC IND SEL - MNA OR B

LM LUNAR IMPACT
 GET: 149:52:50.5
 LAT: 3°17'S
 LONG: 23°23'W

DUMP DSE
UPLINK TO LM
P42-APS THRUSTING

UPDATE TO CSM
TEI 39 PAD

UPLINK TO LM
COMMAND ULLAGE OFF

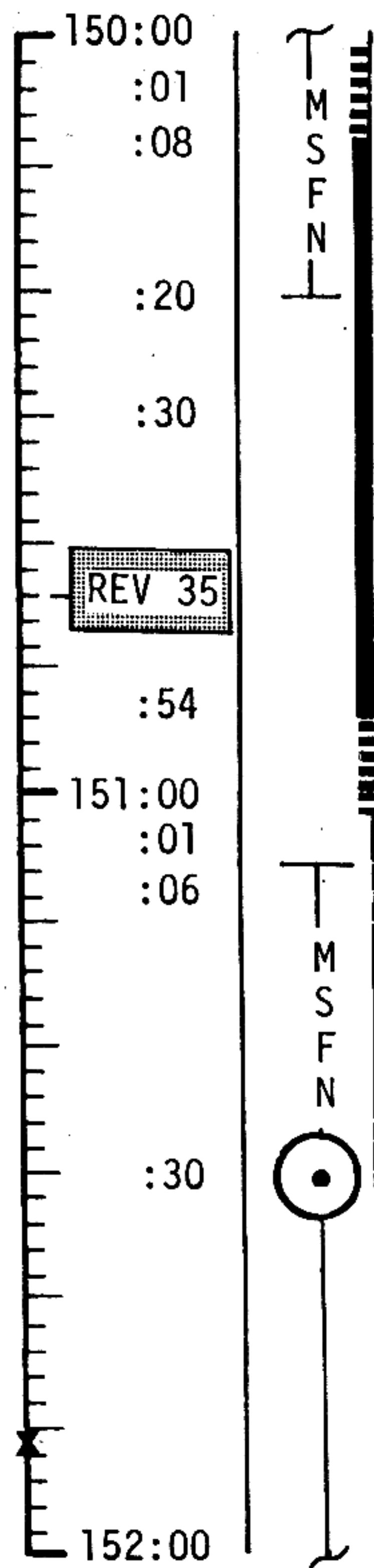
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	149:00 - 150:00	6/34	3-129

MCC-H

1622 CST

FLIGHT PLAN

NOTES



REST PERIOD
(7.5 HOURS)

REST
ATT

DUMP DSE

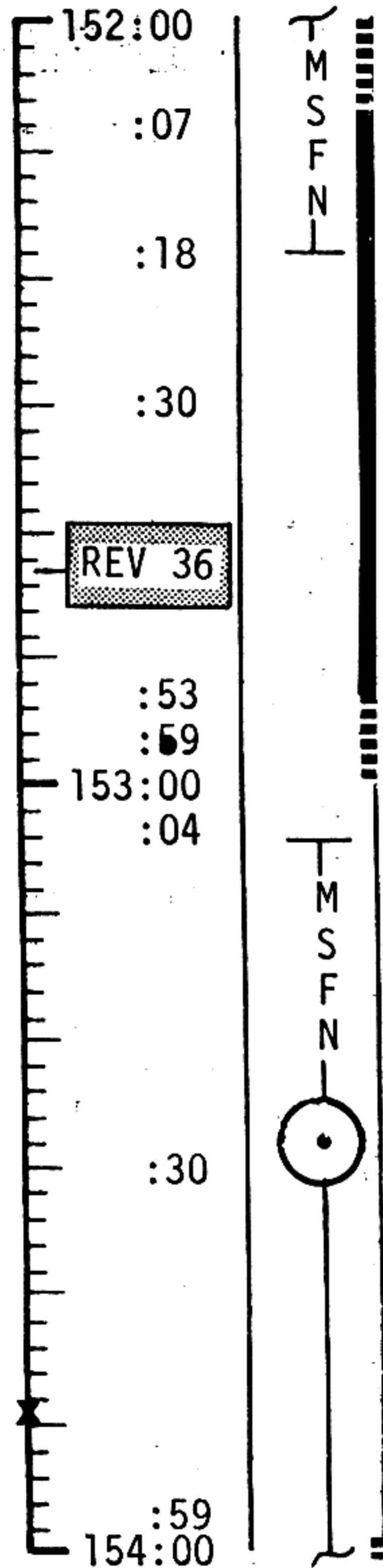
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	150:00 - 152:00	6/34-35	3-130

MCC-H

1822 CST

FLIGHT PLAN

NOTES



DUMP DSE

REST PERIOD
(7.5 HOURS)

REST
ATT

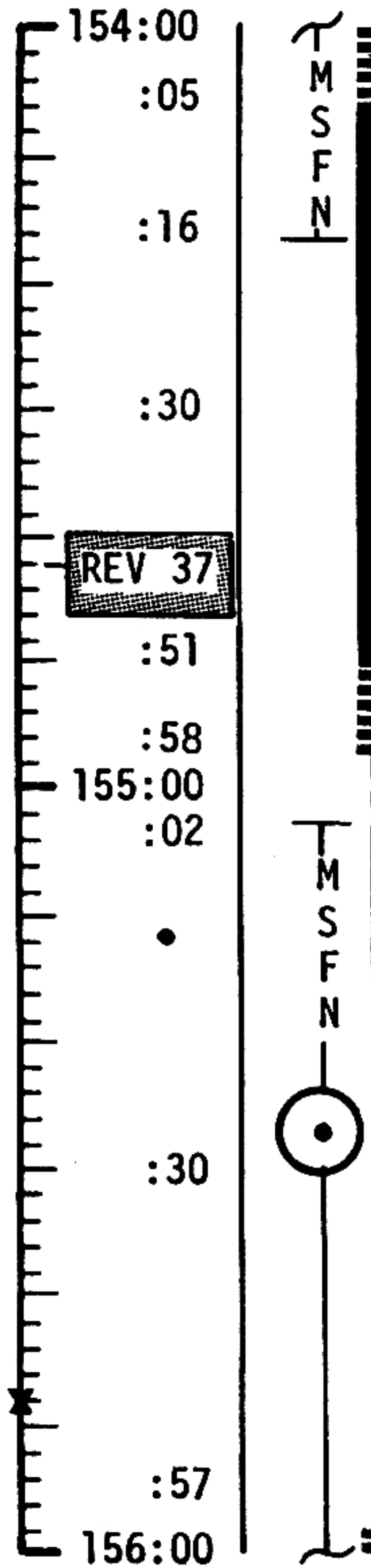
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	152:00 - 154:00	6/35-36	3-131

MCC-N

2022 CST

FLIGHT PLAN

NOTES



DUMP DSE

REST PERIOD
(7.5 HOURS)

REST
ATT

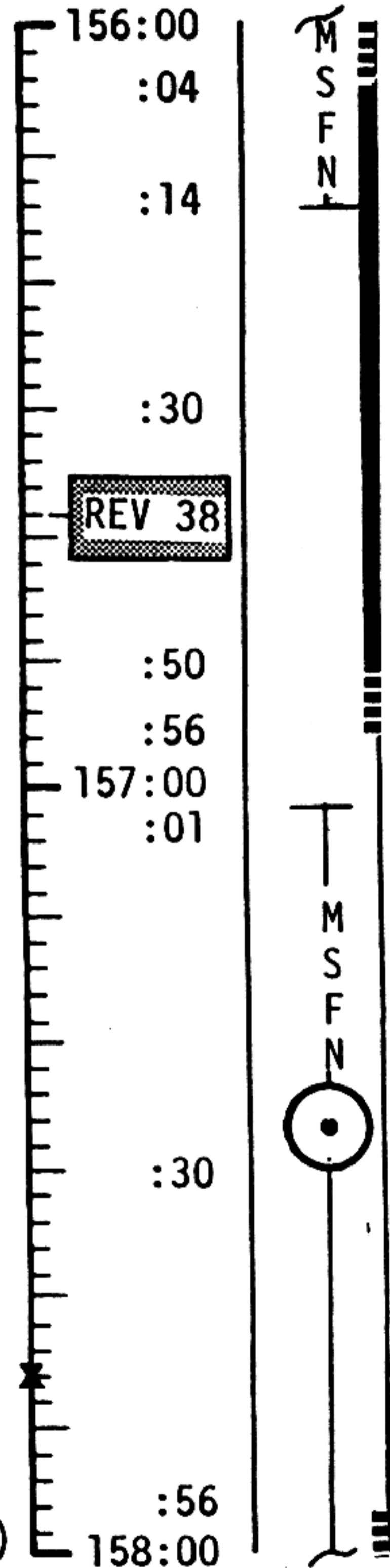
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	154:00 - 156:00	6/36-37	3-132

MCC-H

2222 CST

FLIGHT PLAN

NOTES



REST PERIOD
(7.5 HOURS)

REST
ATT

DUMP DSE

UPDATE TO CSM
 PLANE CHANGE MNVR
 CONSUMABLES
 FLIGHT PLAN
 MAP UPDATE REV 39
 TE1 41 PAD
 UPLINK TO CSM
 STATE VECTOR & V66
 PC TARGET LOAD
 DESIRED ORIENT (PC)

HGA P-22 Y239

MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 12	FINAL (NOV 14)	OCTOBER 15, 1969	156:00 - 158:00	6/37-38	3-133