

EARTH ORBIT ALTERNATE MISSION

Assumptions

- 1) A SAFE insertion orbit has been achieved by the S-IVB.
- 2) A systems failure has resulted in a NO/GO for TLI.

Constraints

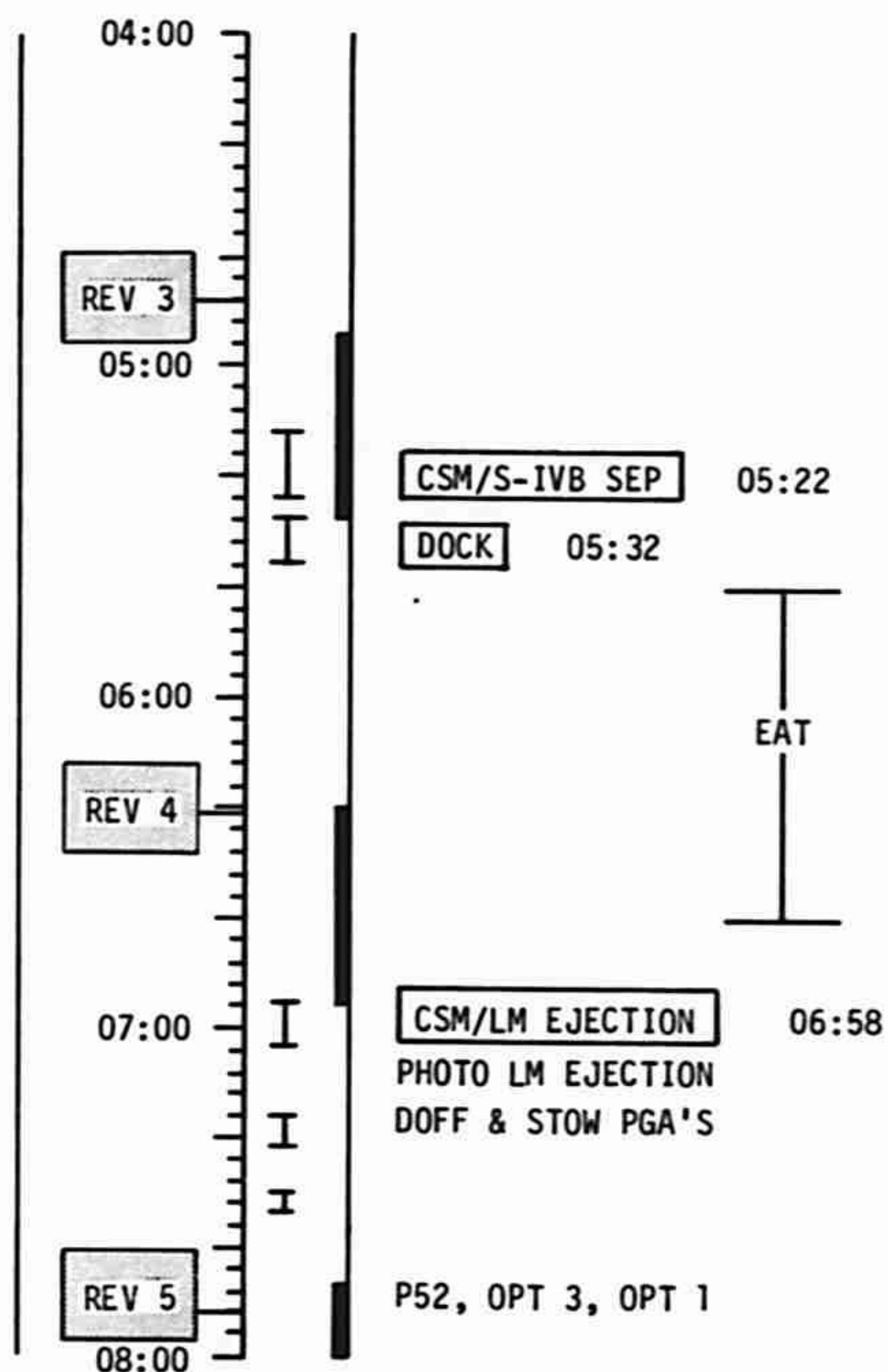
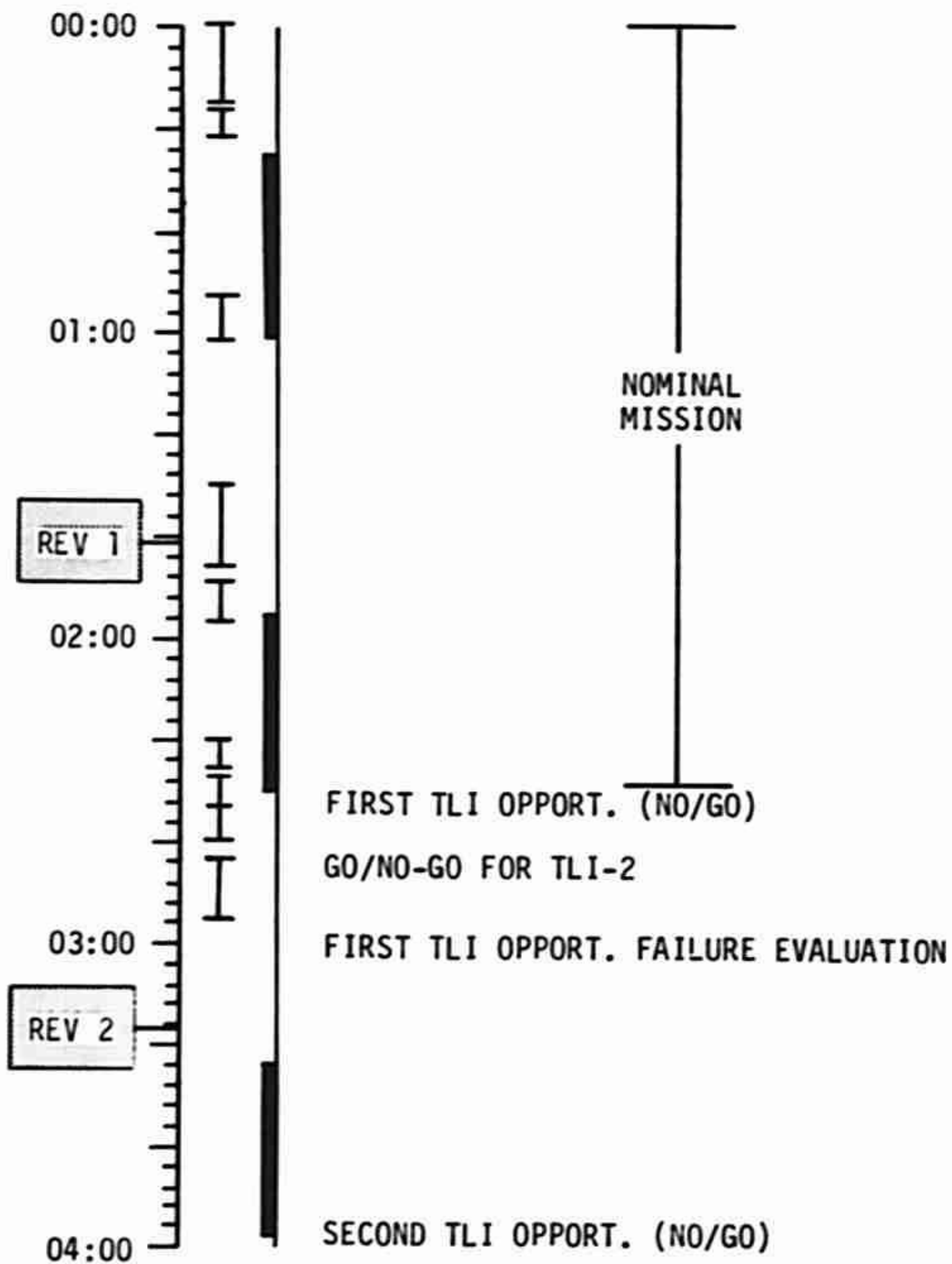
- 1) Maintain SM-RCS deorbit capability.
- 2) Photography over U.S.
- 3) LM to be jettisoned for water impact.

Sequence of Events

This alternate mission is initiated by a systems failure which will not allow TLI. The alternate mission timeline is entered at the nominal time of TLI and allows for a failure checkout period followed by a possible second TLI opportunity. If the second TLI is not performed, the CSM executes T.D.&E and prepares the LM for an ocean impact. The CSM executes five SPS burns to position itself for photographic coverage over the U.S. with an inclination of forty-five degrees. All the sim bay experiments are activated, the sub-satellite is jettisoned, and an EVA is planned to retrieve the film canisters. The mission is open-ended but for flight planning purposes, a six and one-half day mission is planned.

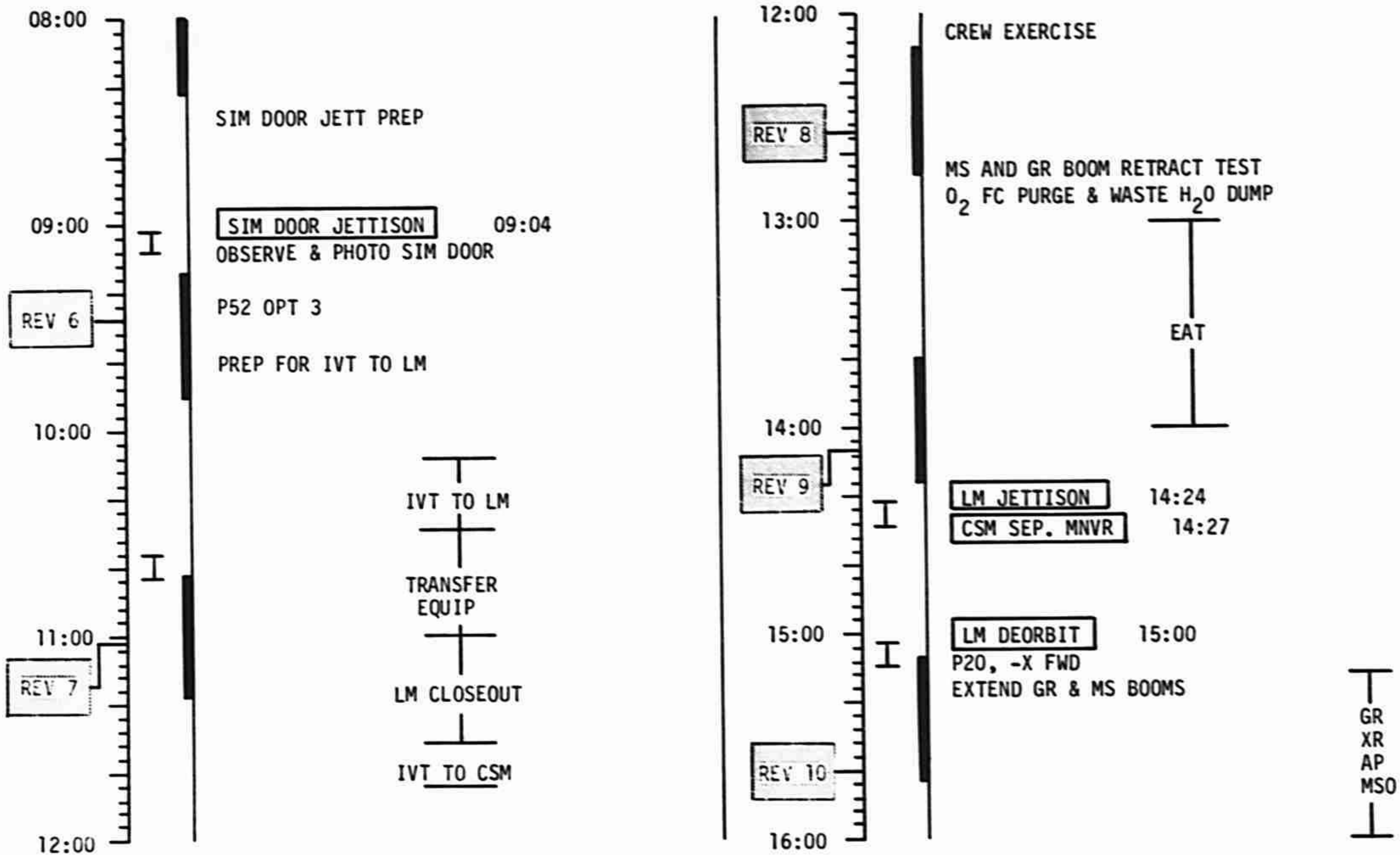
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FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	00:00 - 08:00	1/1-5	6-3

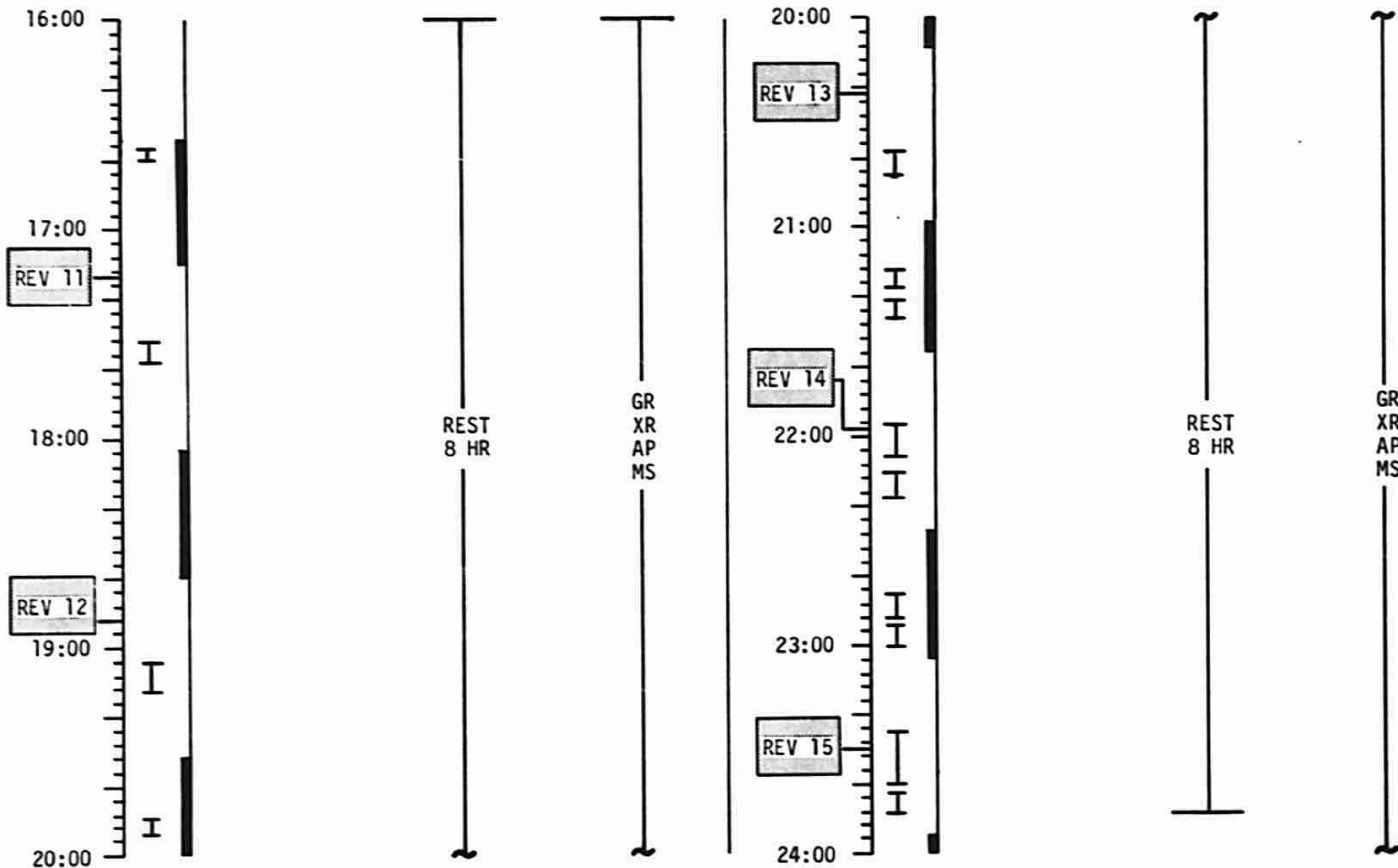
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	08:00 - 16:00	1/5-10	6-4

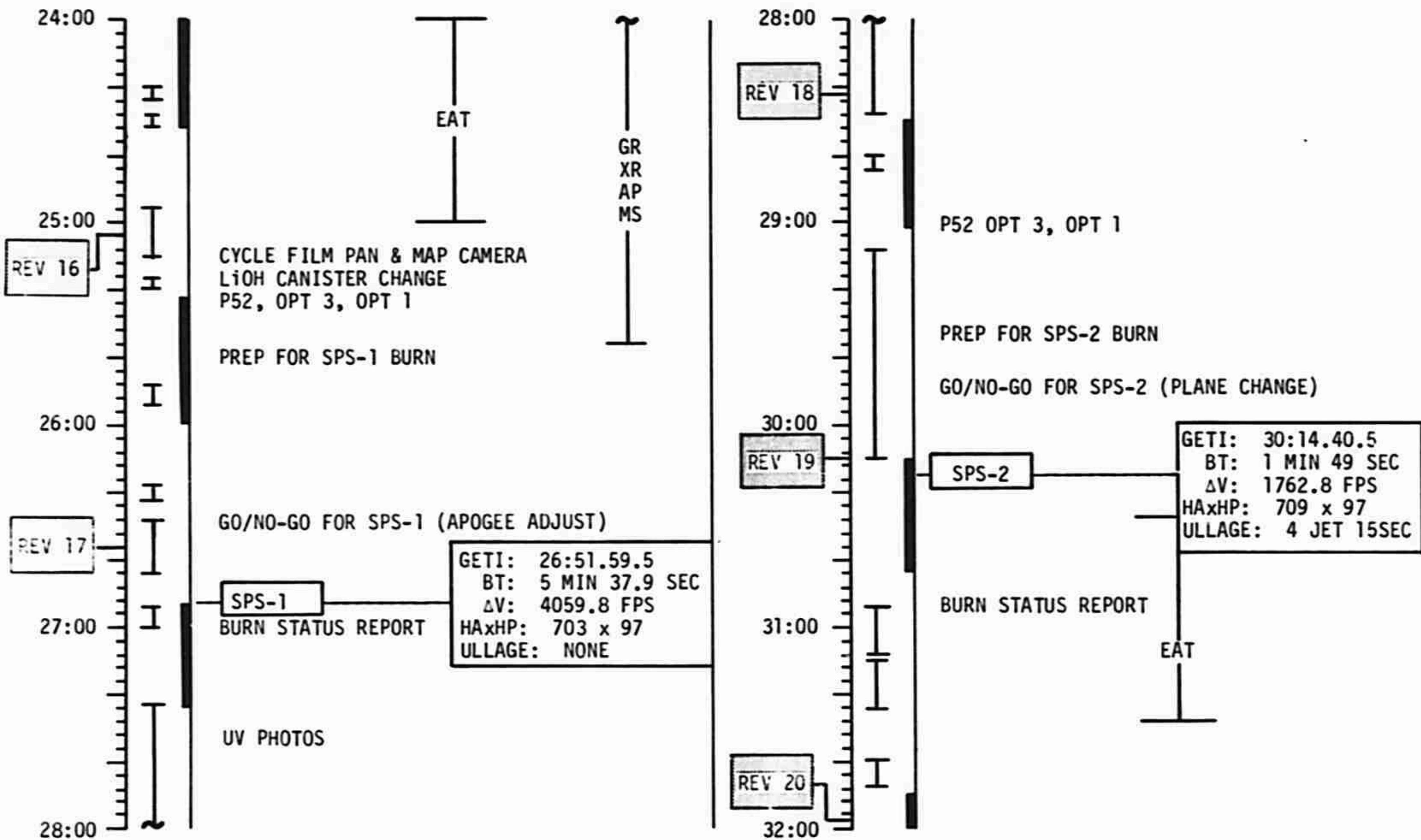
EARTH ALTERNATE

FLIGHT PLAN



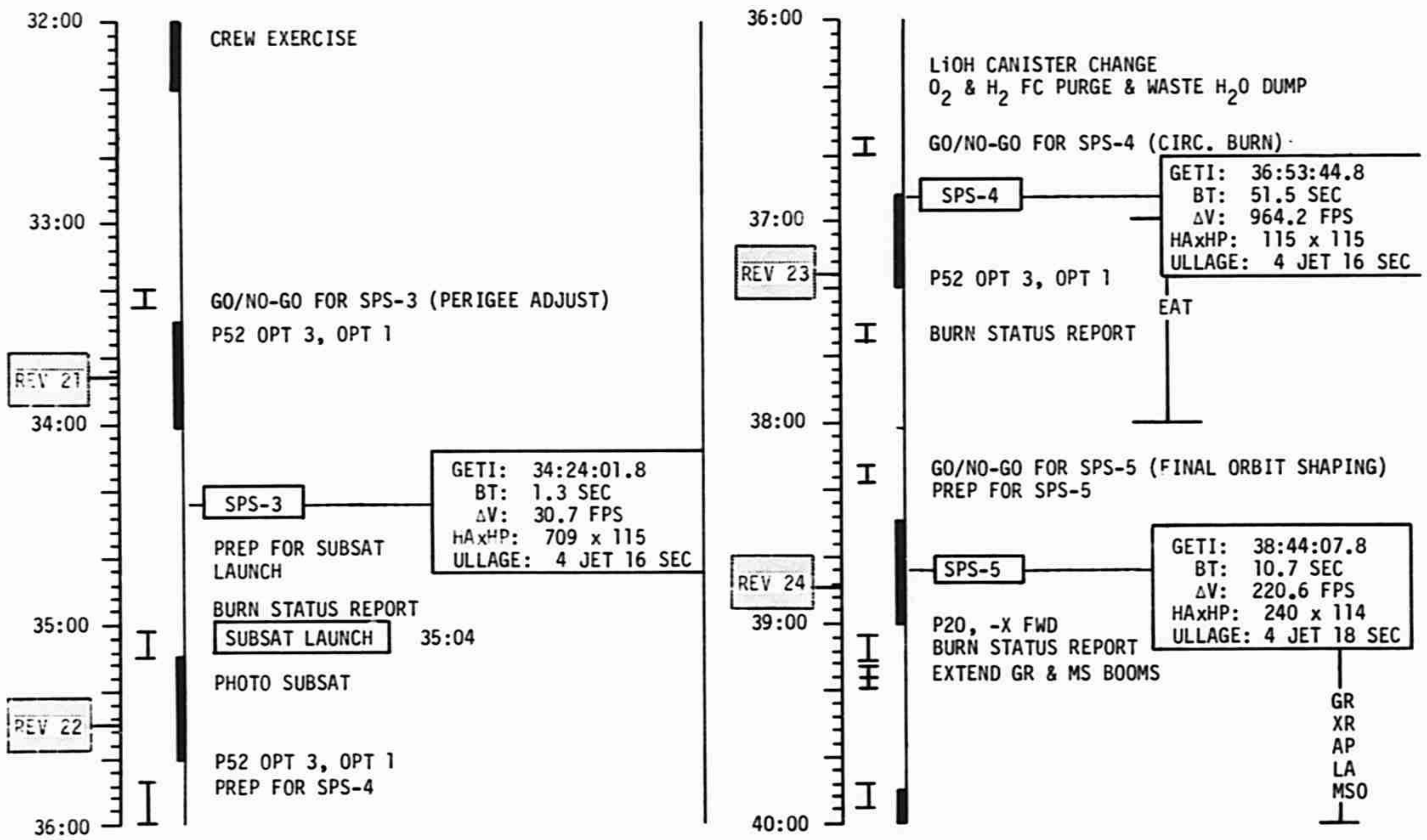
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	16:00 - 24:00	1/10-15	6-5

FLIGHT PLAN



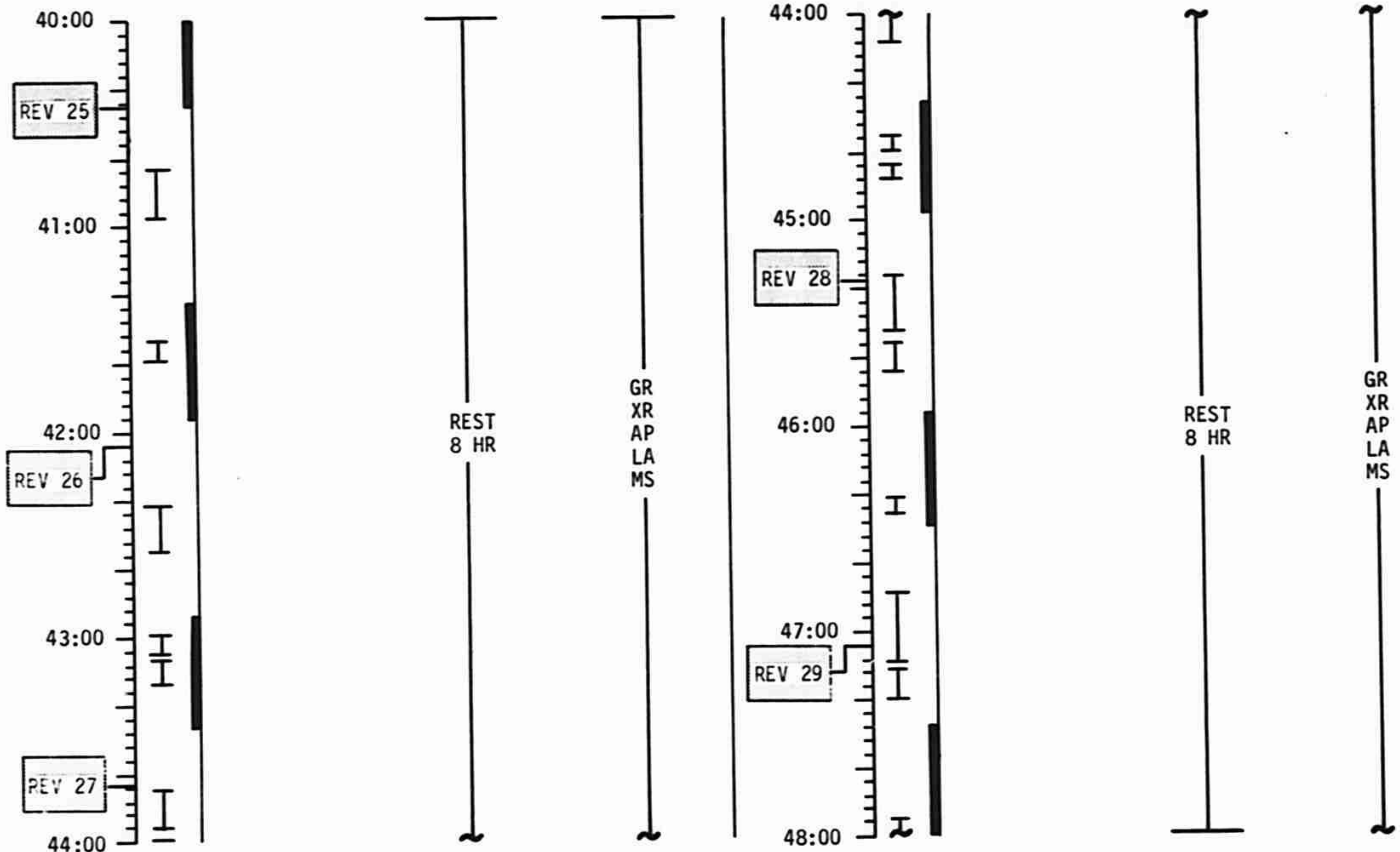
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	24:00 - 32:00	2/15-20	6-6

FLIGHT PLAN



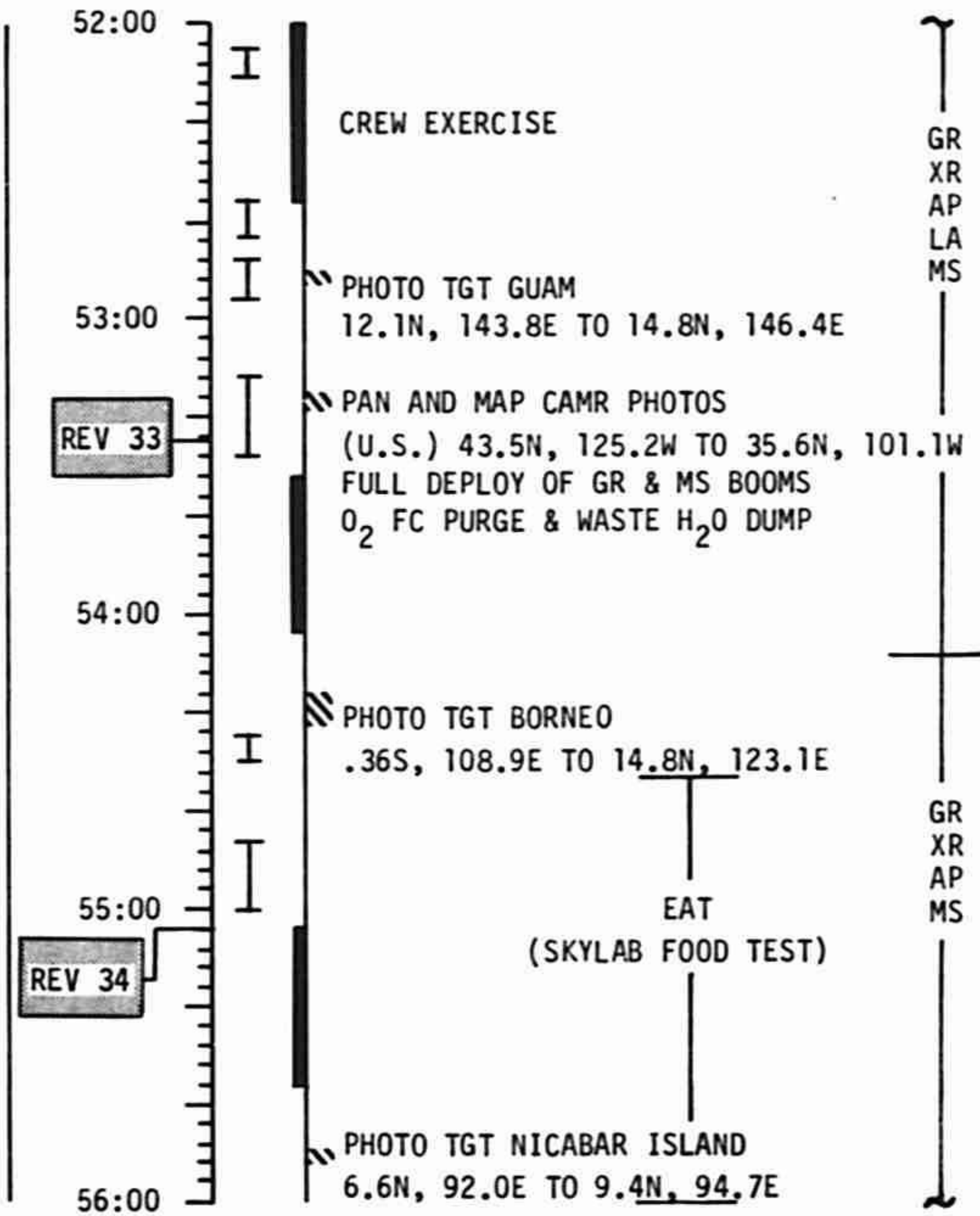
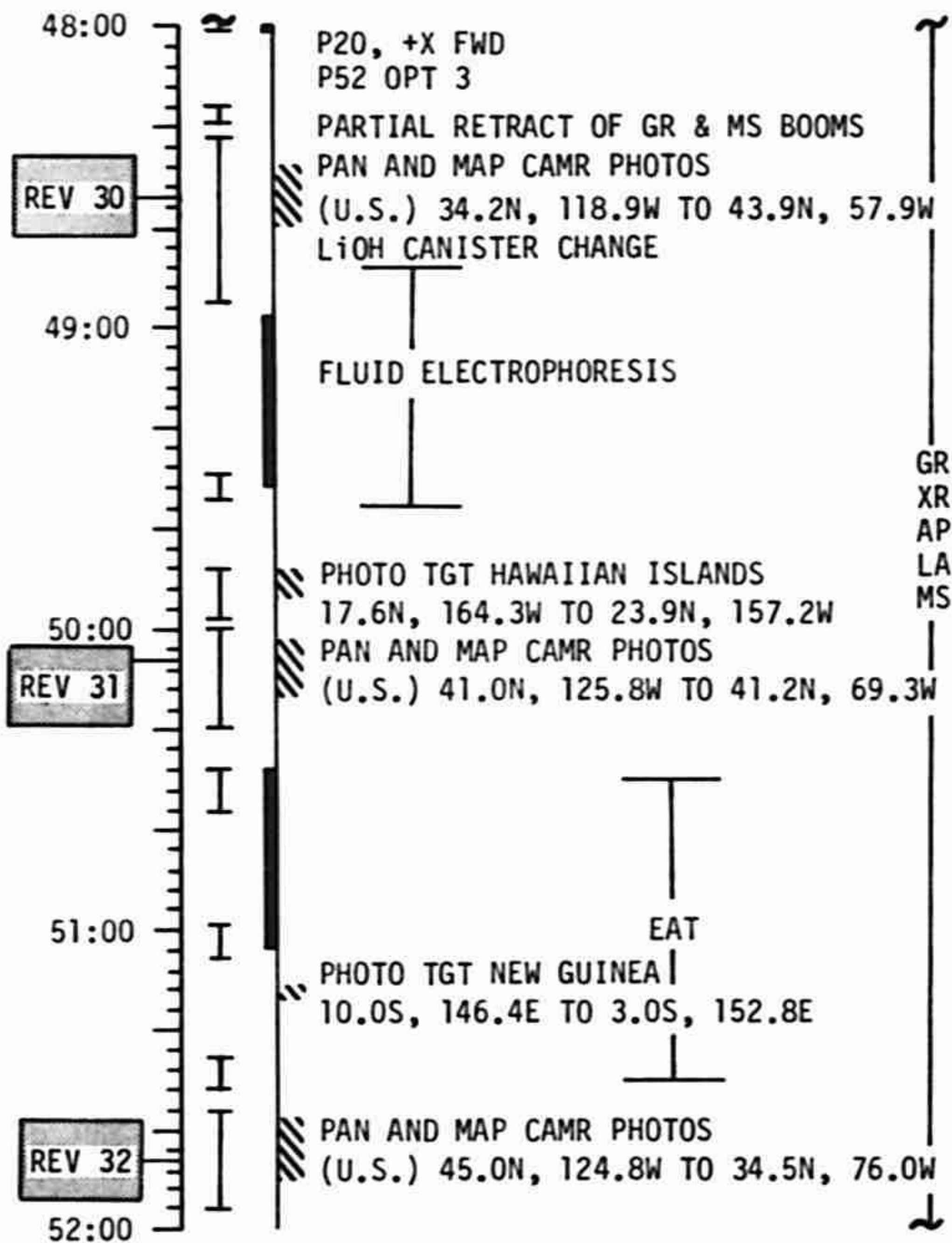
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	32:00 - 40:00	2/20-24	6-7

FLIGHT PLAN



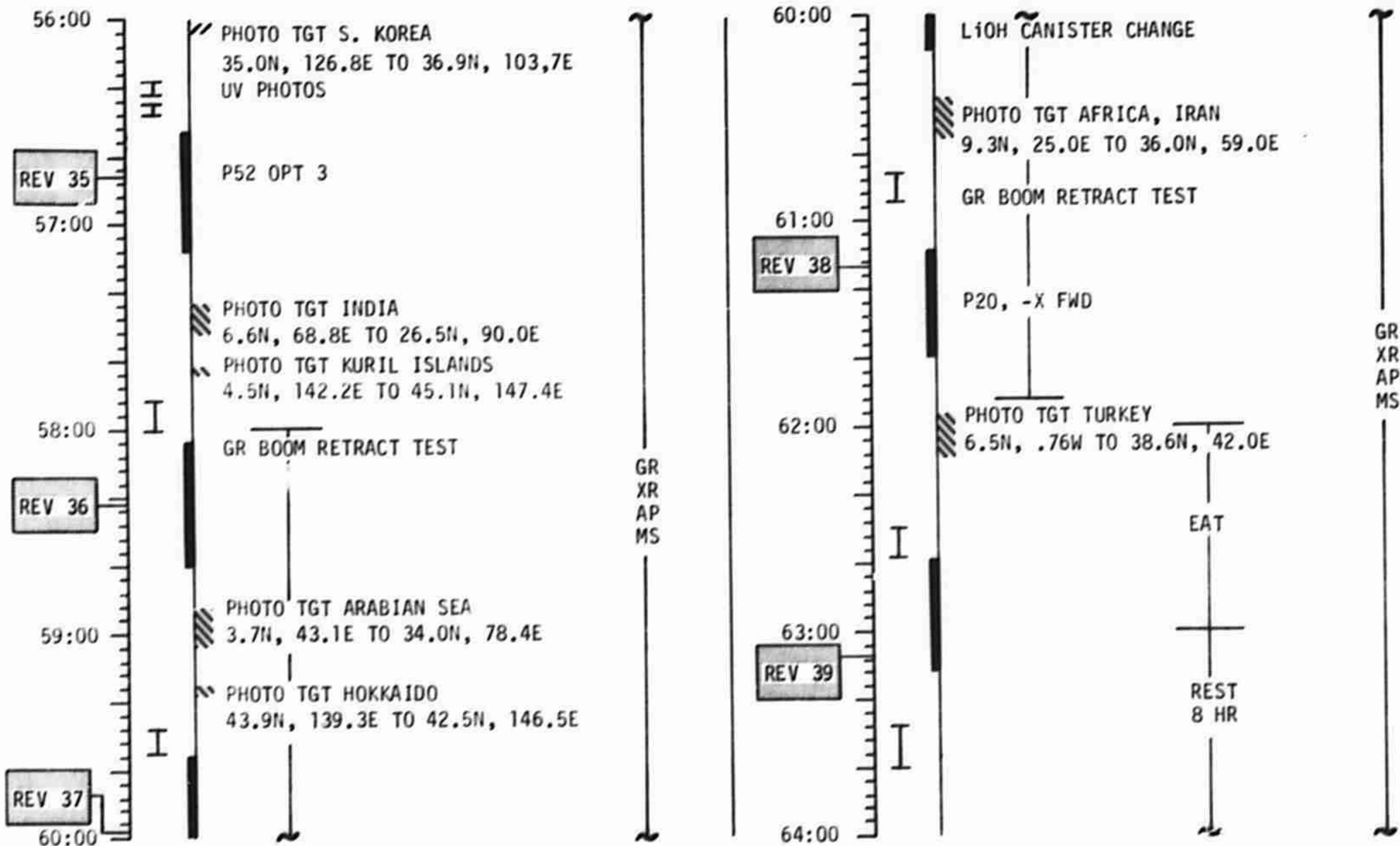
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	40:00 - 48:00	2/24-29	6-8

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	48:00 - 56:00	2/29-34	6-9

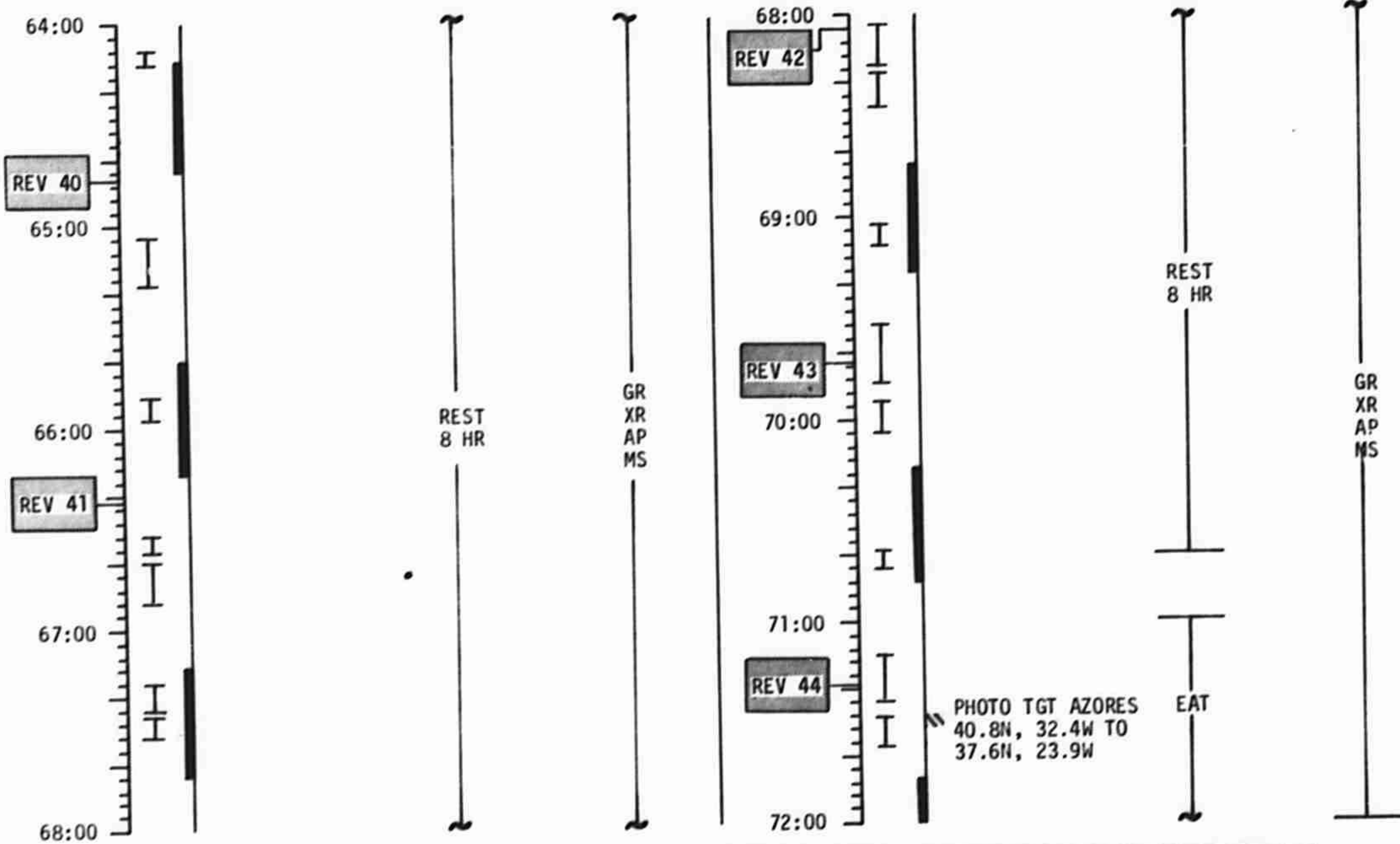
FLIGHT PLAN



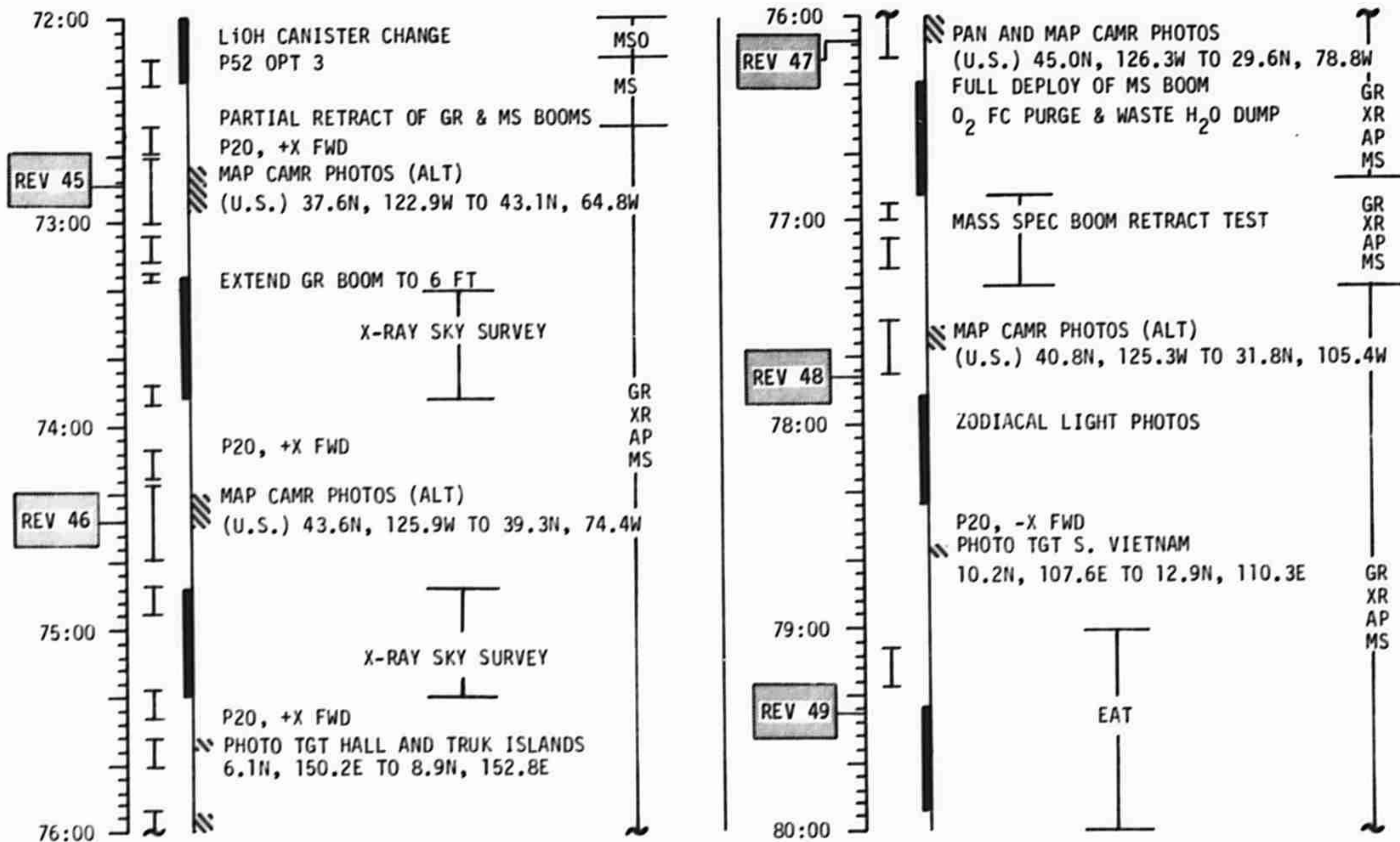
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	56:00 - 64:00	2/34-39	6-10

EARTH ALTERNATE

FLIGHT PLAN

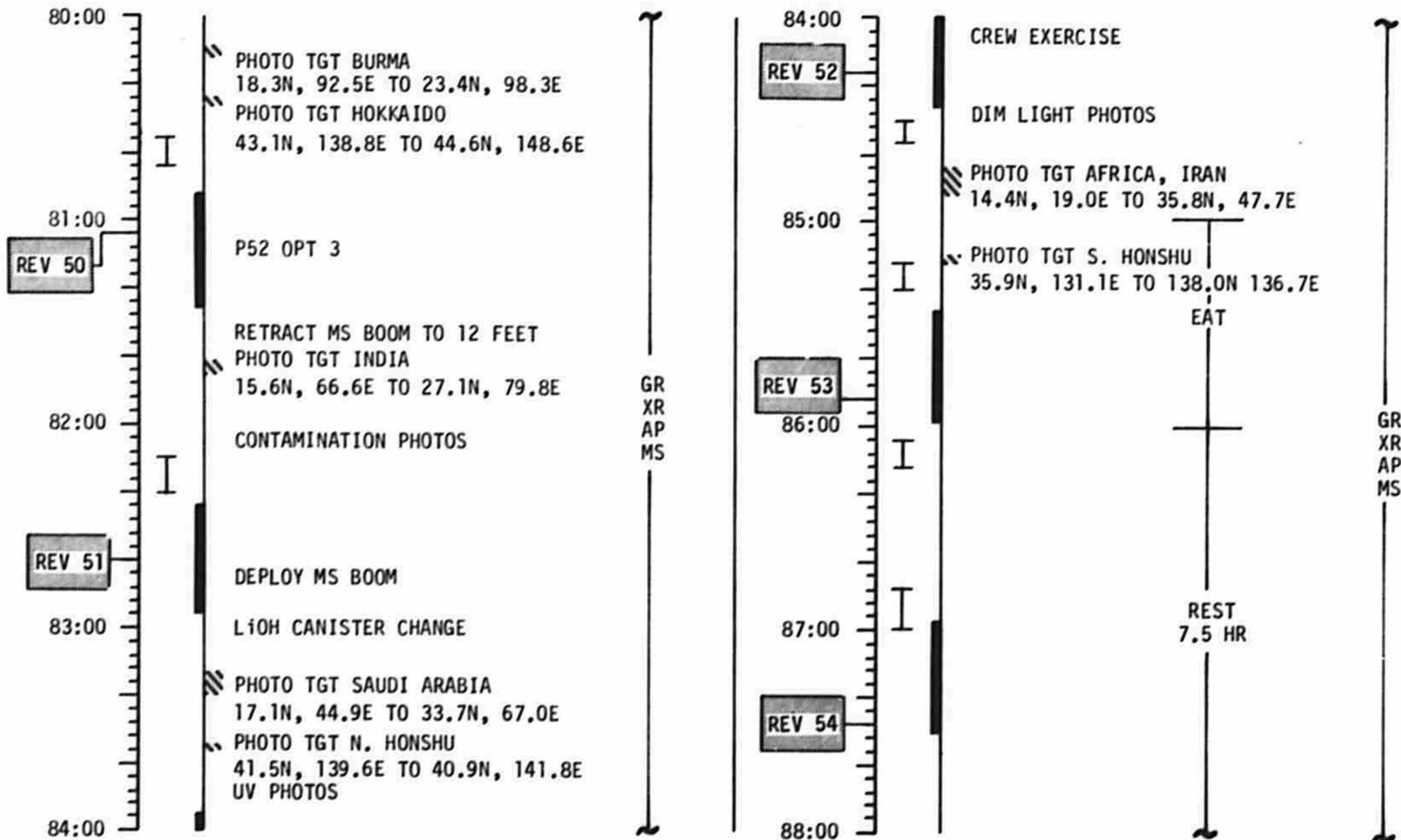


MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	64:00 - 72:00	2/39-44	6-11



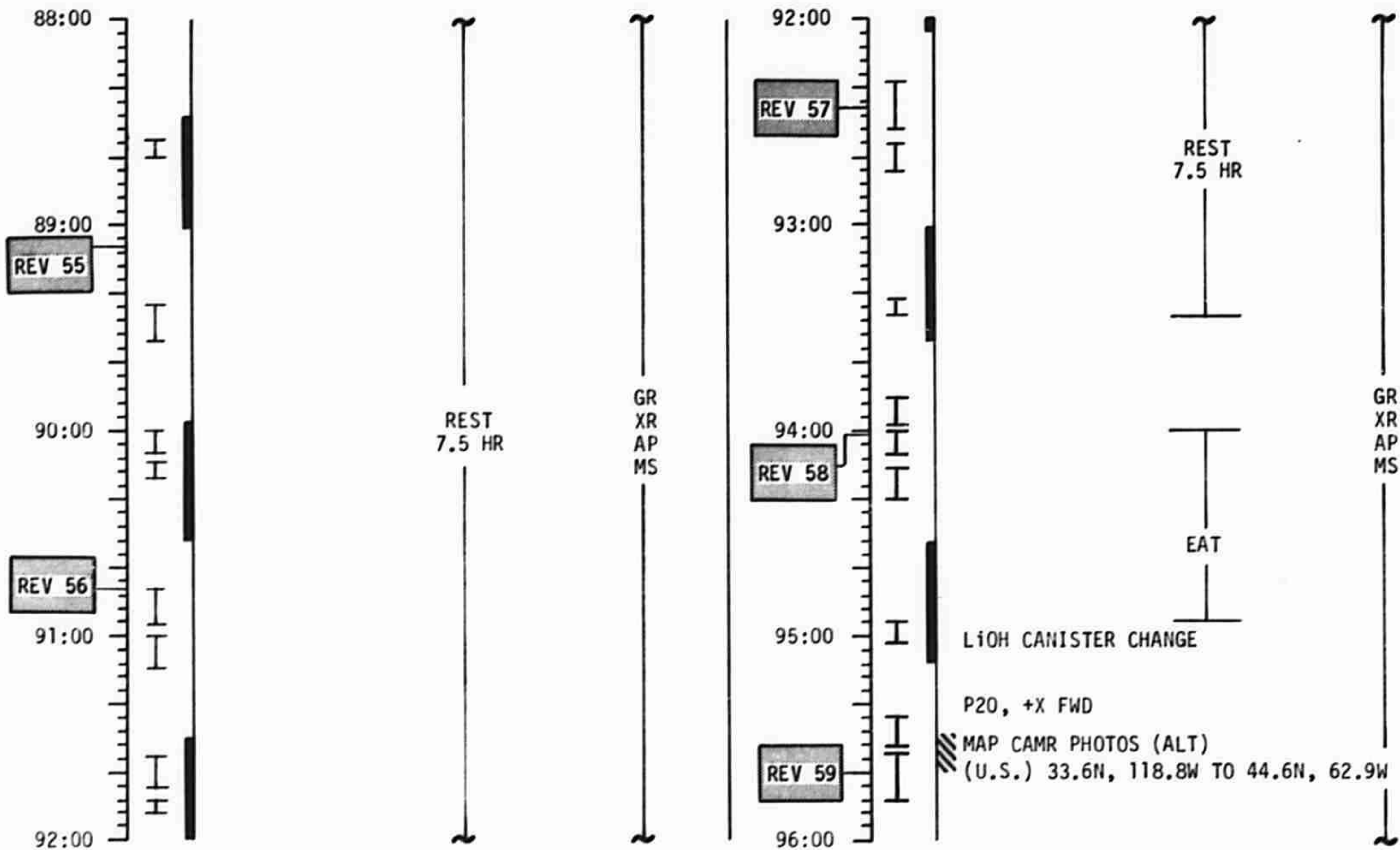
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	72:00 - 80:00	3/44-49	6-12

FLIGHT PLAN



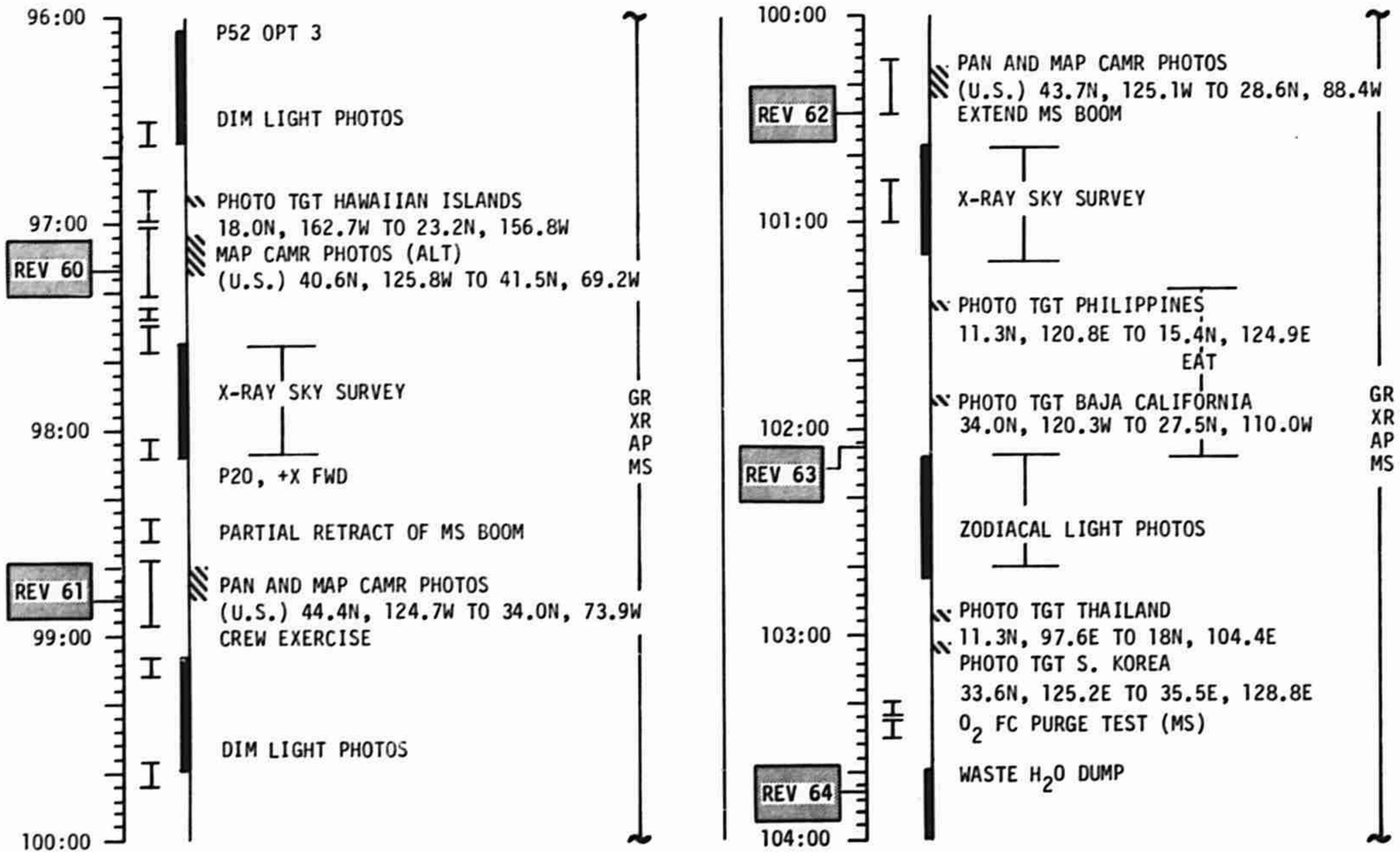
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	80:00 - 88:00	3/49-54	6-13

FLIGHT PLAN



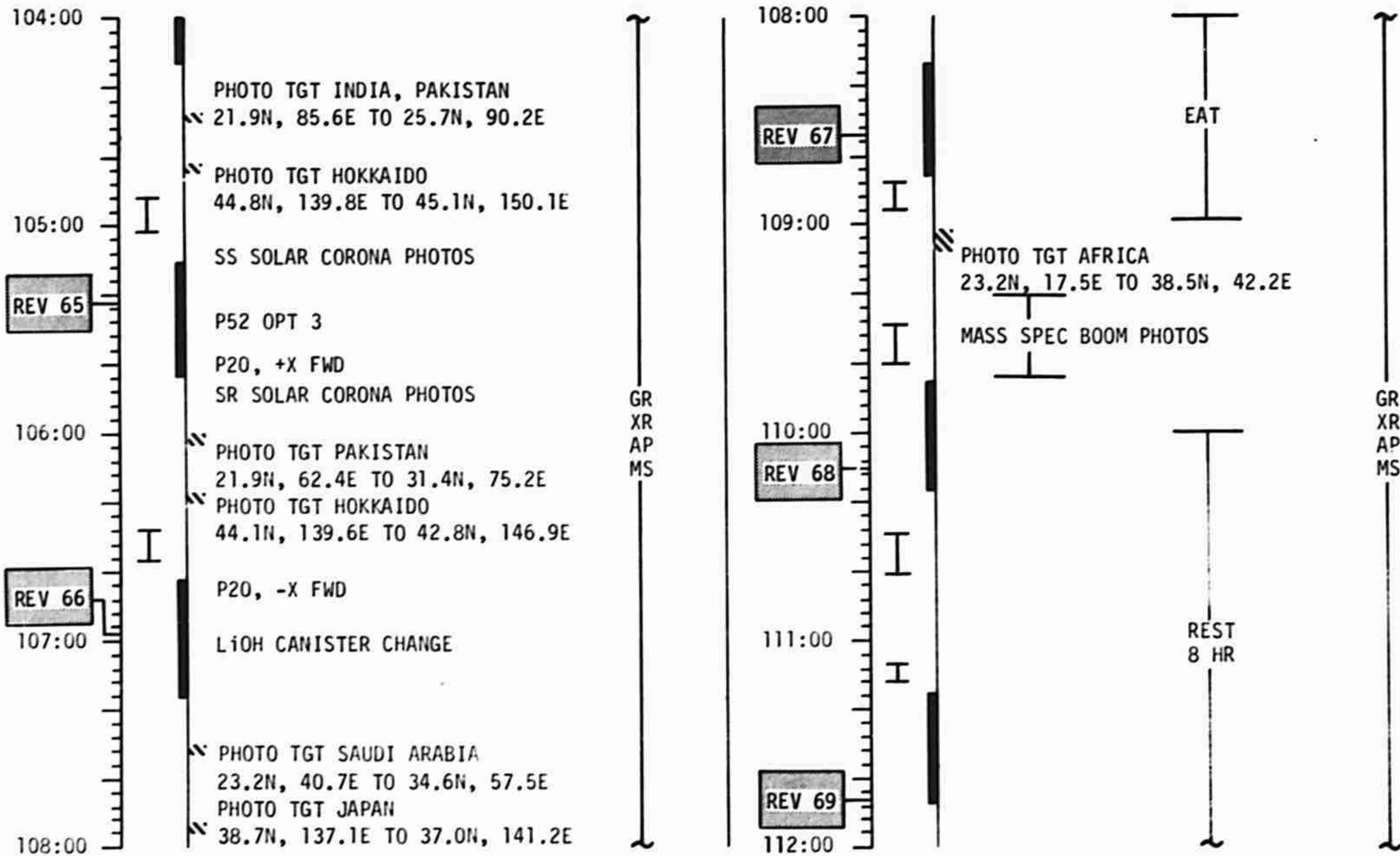
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	88:00 - 96:00	3-4/54-59	6-14

FLIGHT PLAN



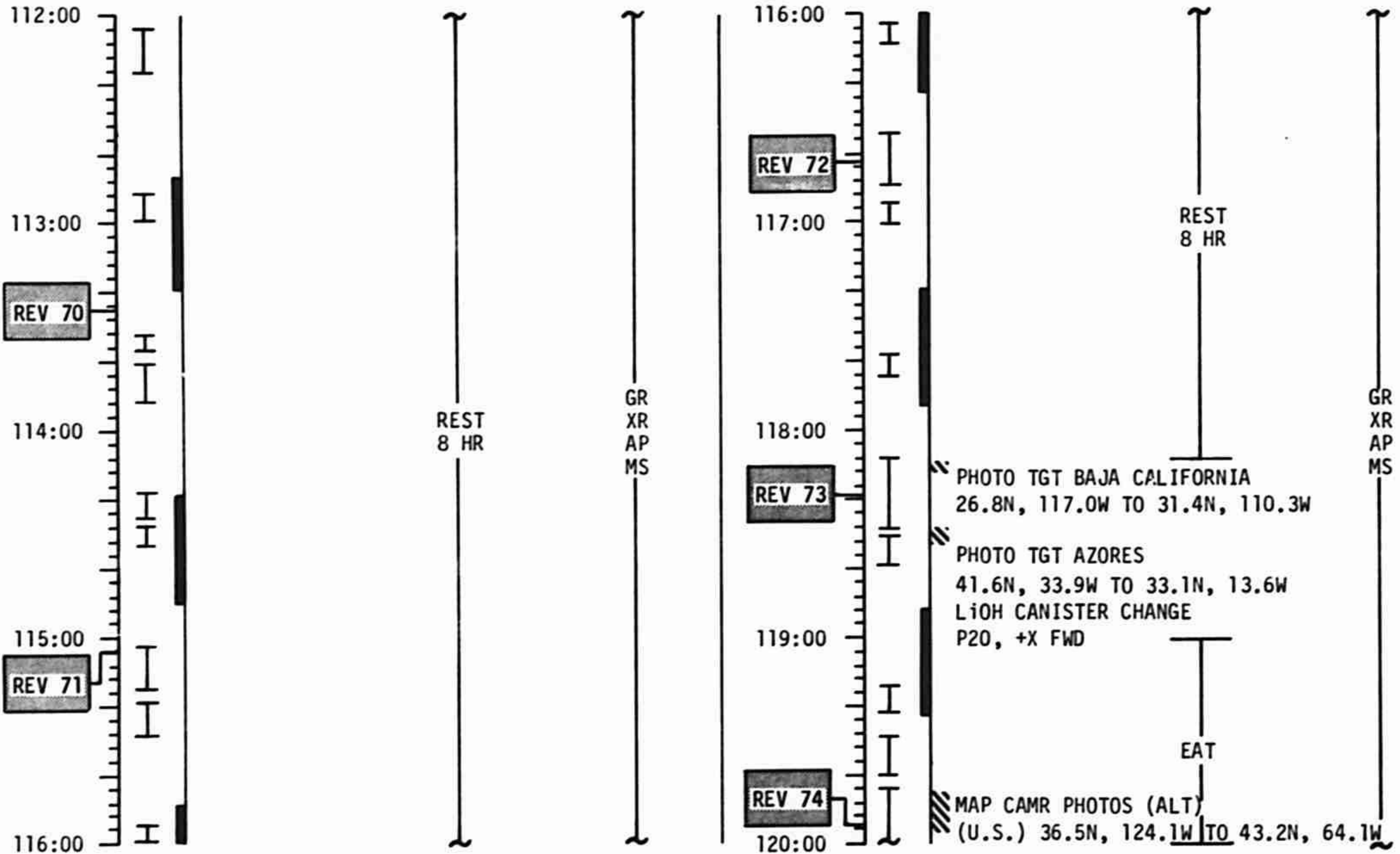
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	96:00 - 104:00	4/59-64	6-15

FLIGHT PLAN



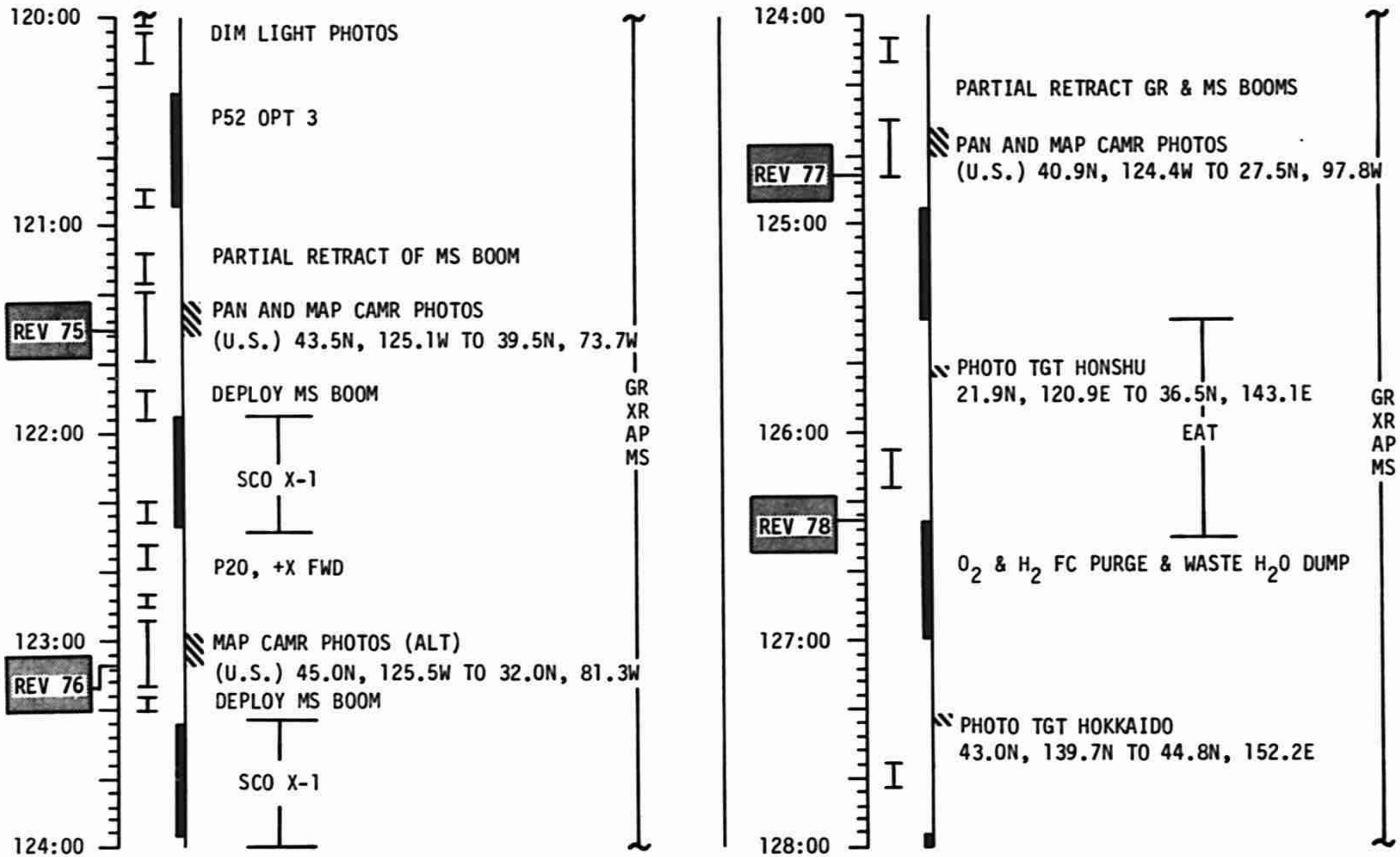
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	104:00 - 112:00	4/64-69	6-16

FLIGHT PLAN



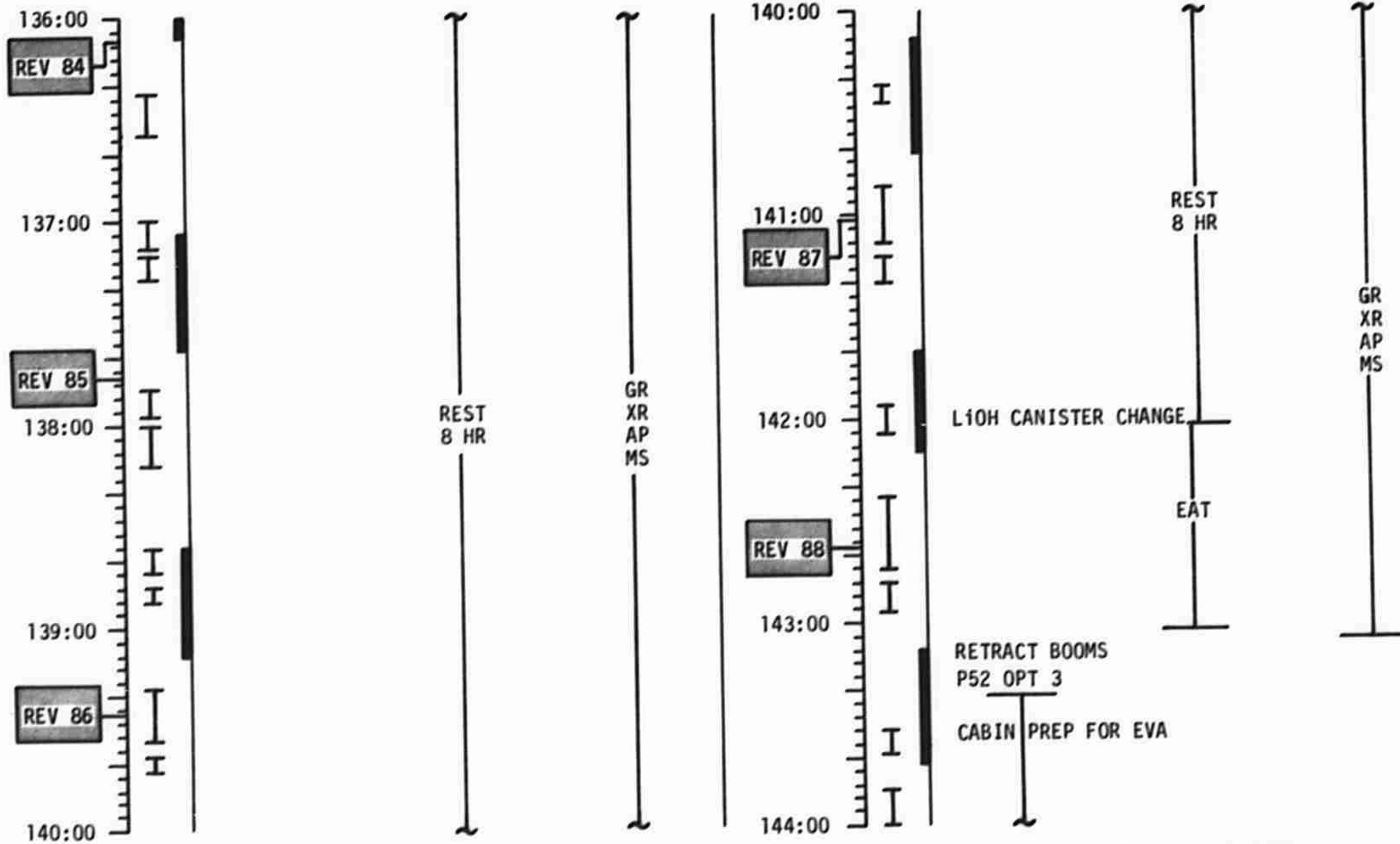
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	112:00 - 120:00	4-5/69-74	6-17

FLIGHT PLAN



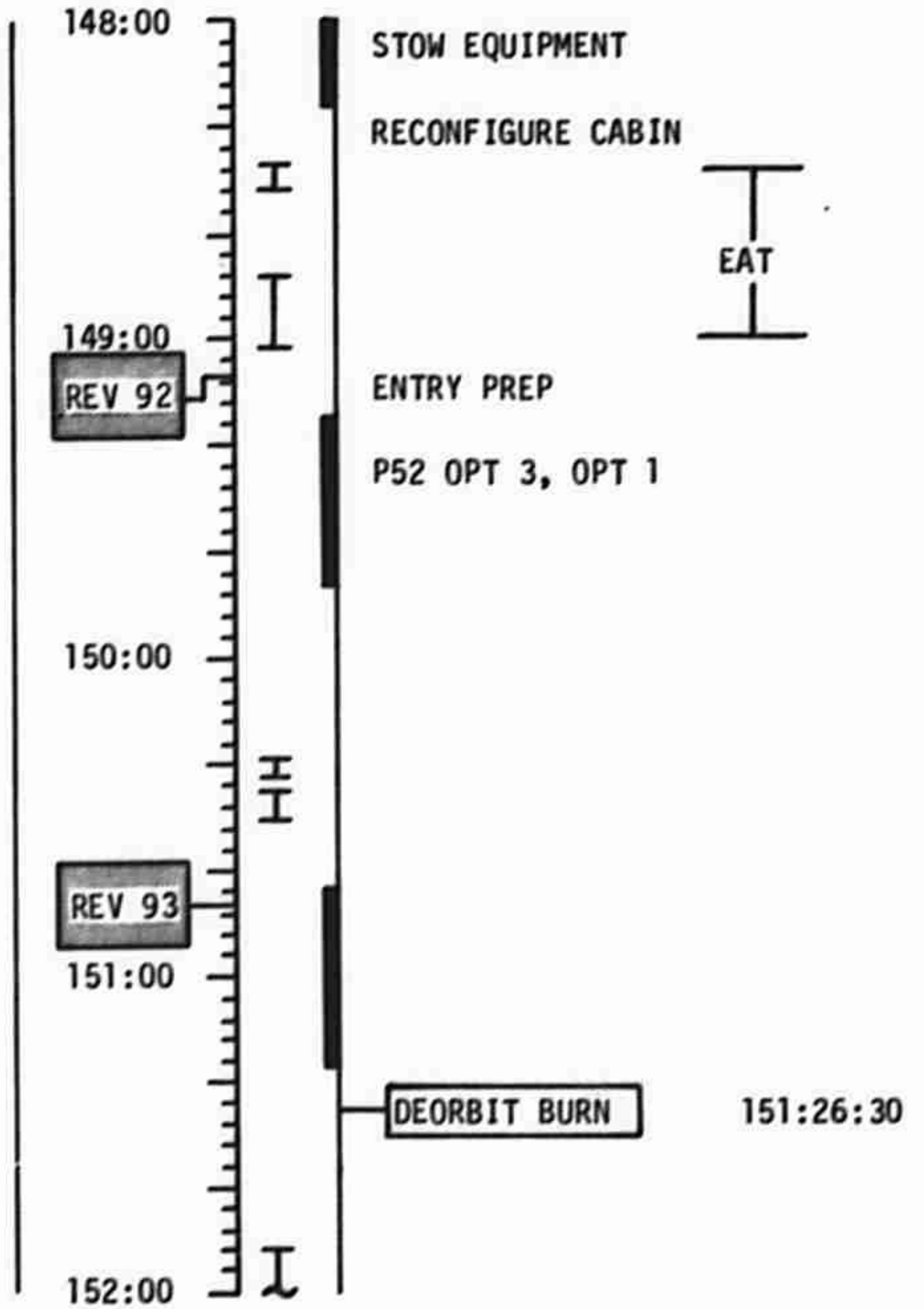
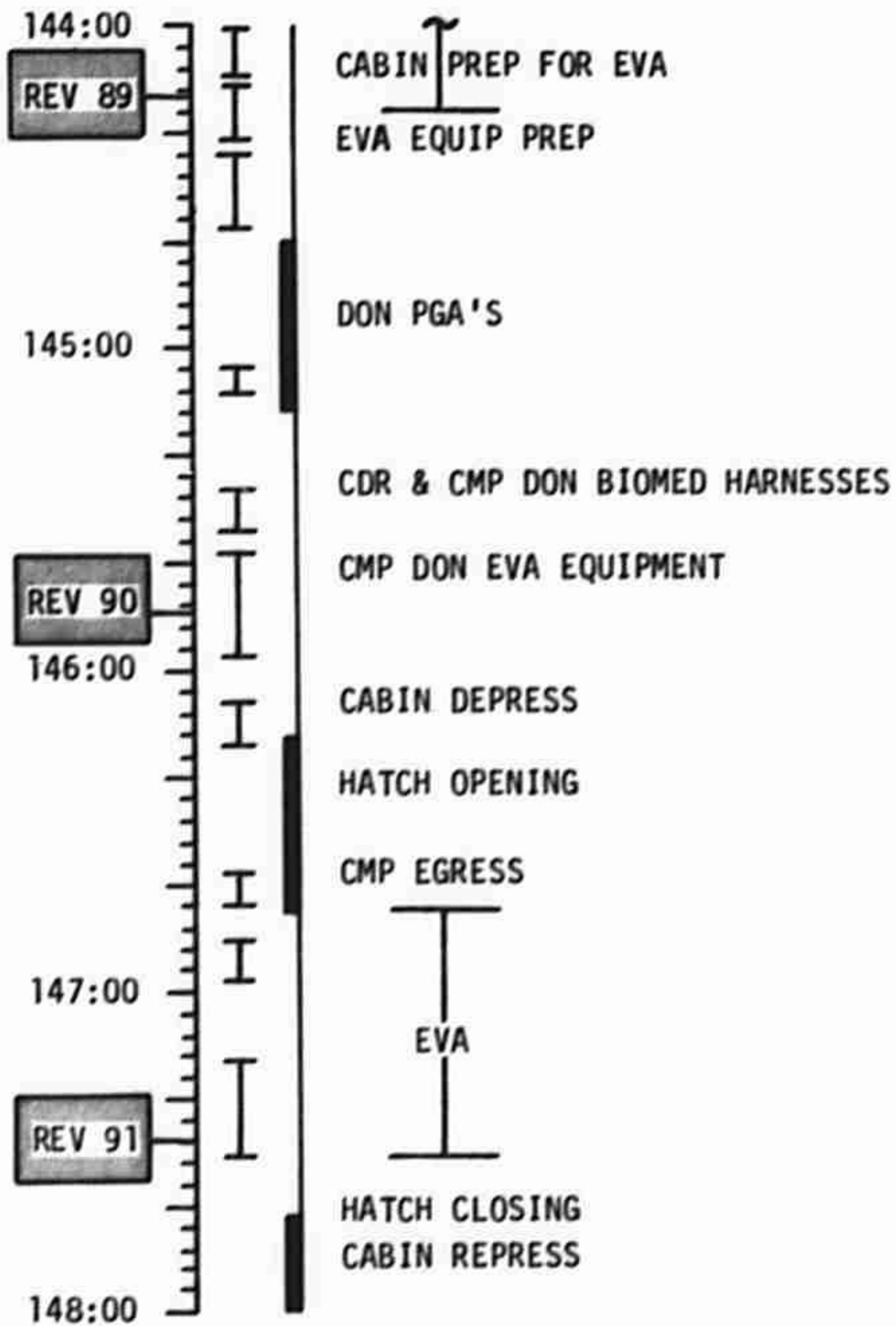
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	120:00 - 128:00	5/74-78	6-18

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	136:00 - 144:00	5-6/83-88	6-20

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	144:00 - 152:00	6/88-93	6-21

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CSM ONLY ALTERNATE MISSION

Assumptions

- 1) A nominal TLI Burn has been achieved by the S-IVB.
- 2) A systems failure during T.D.&E or a LM Jettison during TLC has resulted in a CSM-Only Alternate Mission.

Constraints

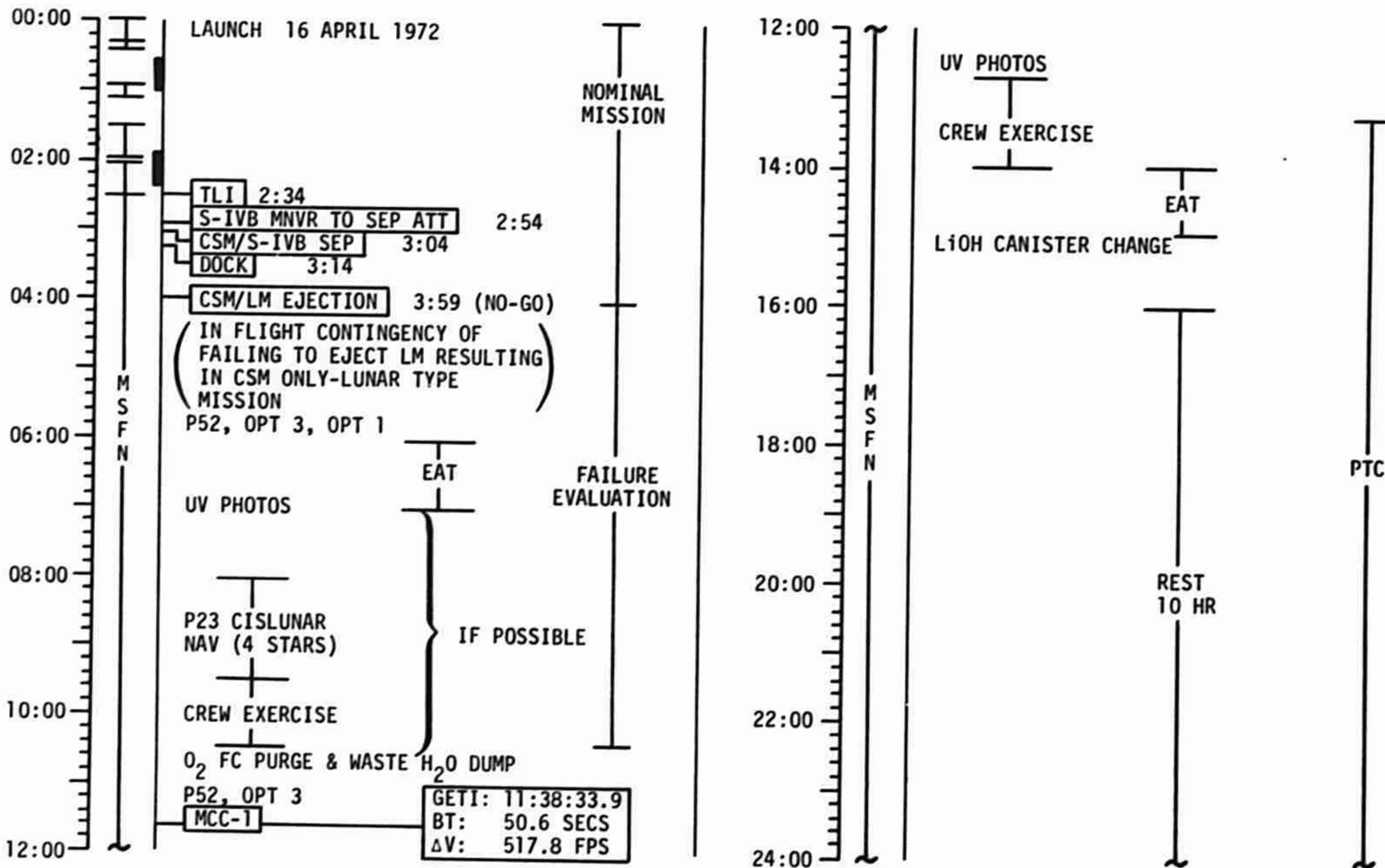
- 1) SPS midcourse burn to return to a free return trajectory.
- 2) Adherence to the nominal flight plan as much as possible.
- 3) Maximize inclination in lunar orbit within SPS limits.
- 4) Maintain any rev TEI Capability.
- 5) Obtain sim bay experiments data.

Sequence of Events

This alternate mission is initiated by a failure to eject the LM at T.D.&E or a LM Jettison during TLC. An SPS midcourse will be performed to return to a free return trajectory. The CSM will perform an LOI and Circularization Burn sequence with an inclination of approximately twenty degrees. Six days are planned in lunar orbit operating all the sim bay equipment and expending all the pan and mapping camera film. The shaping burn, sub-satellite jettison, and the TEI burn will follow a sequence similar to the nominal mission.

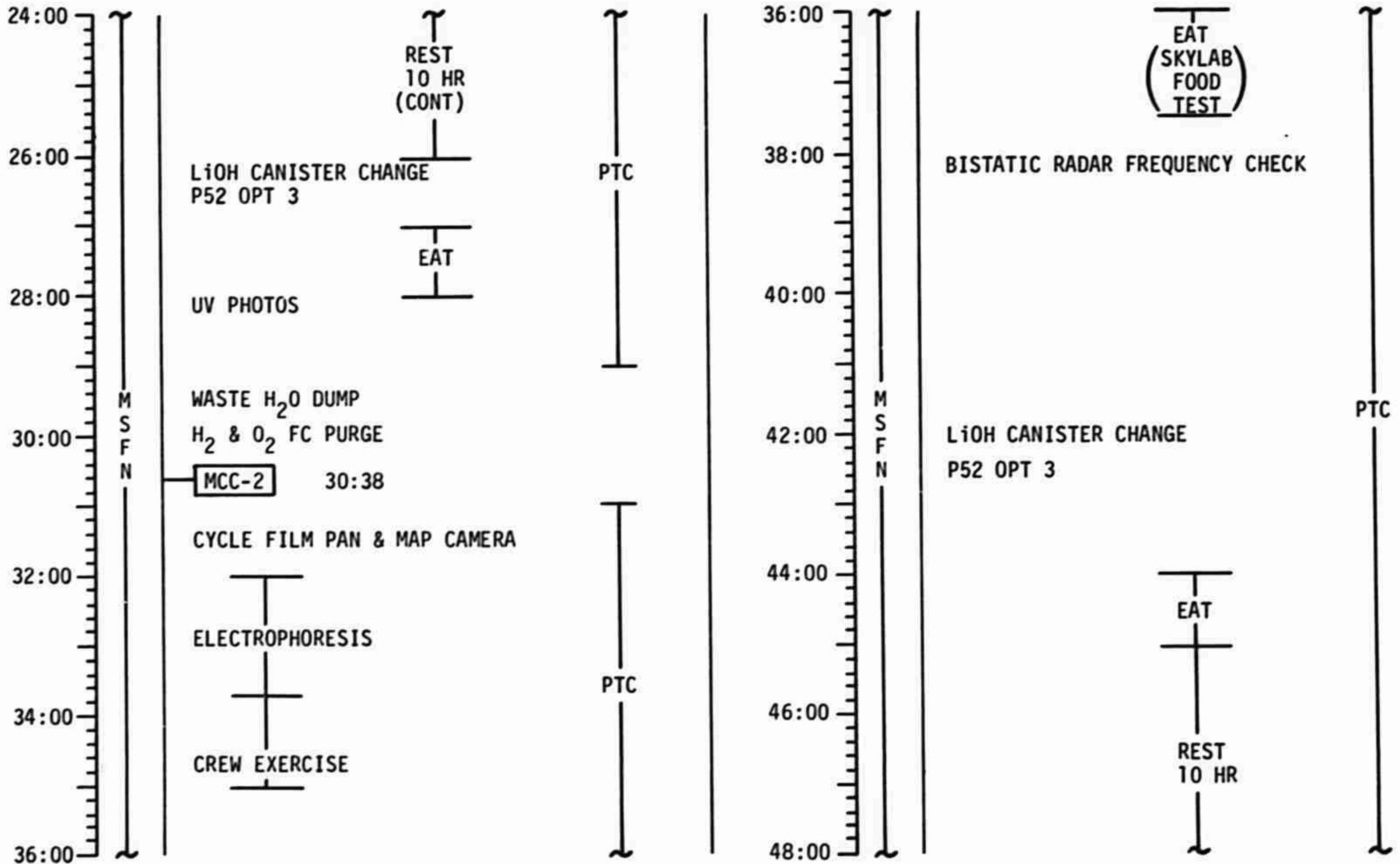
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FLIGHT PLAN



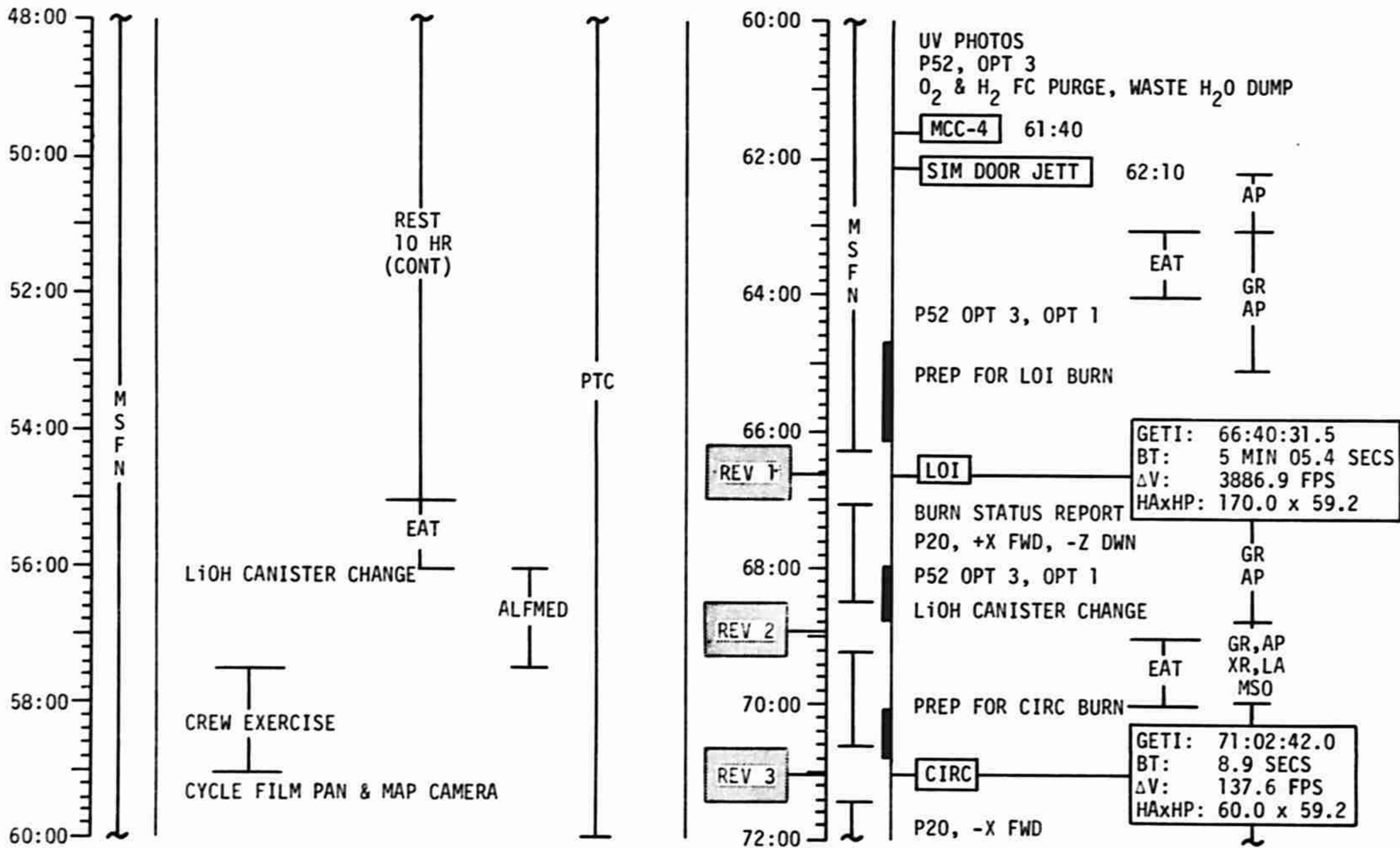
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	00:00 - 24:00	1/TLC	6-25

FLIGHT PLAN



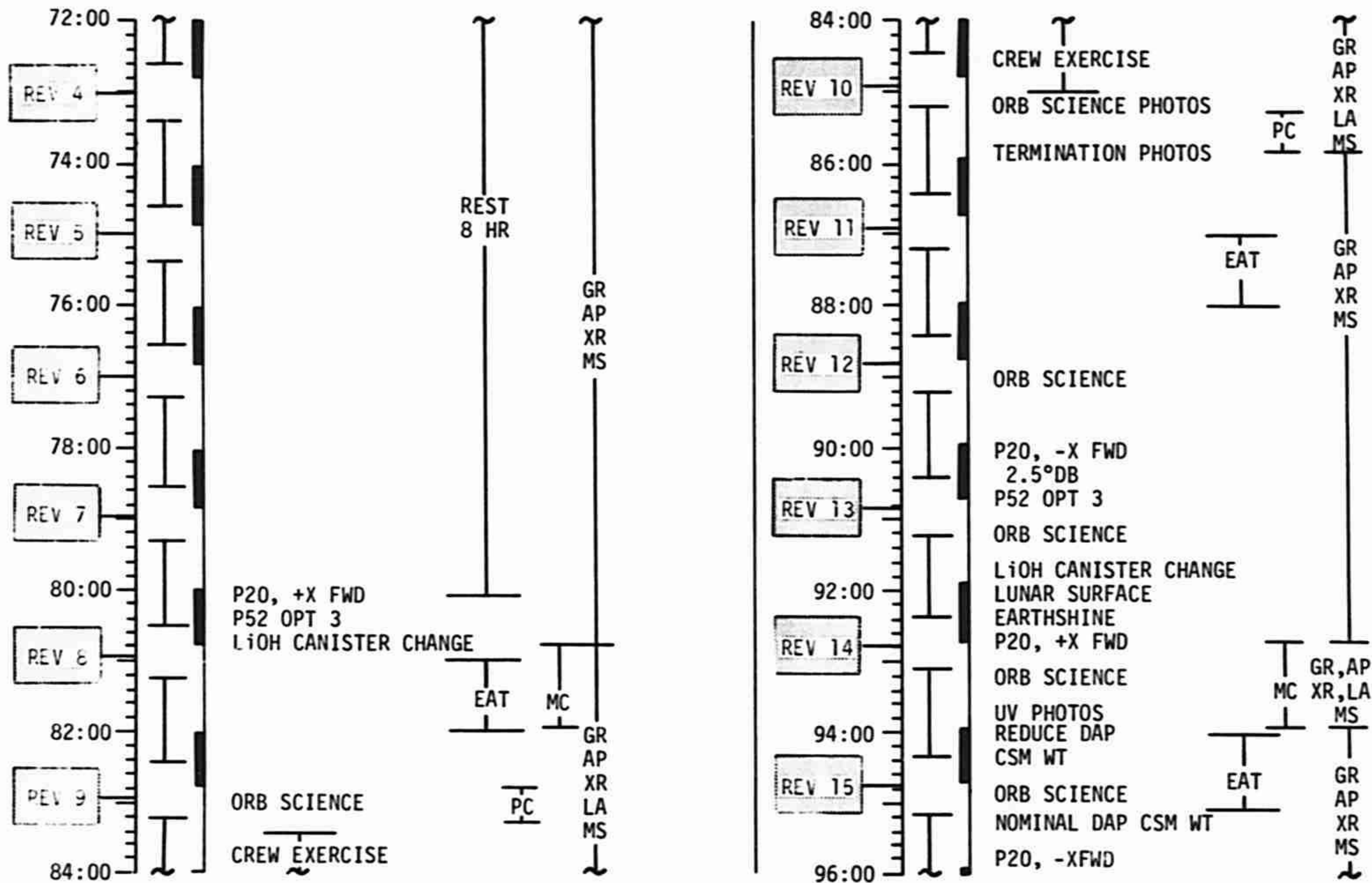
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	24:00 - 48:00	2/TLC	6-26

FLIGHT PLAN



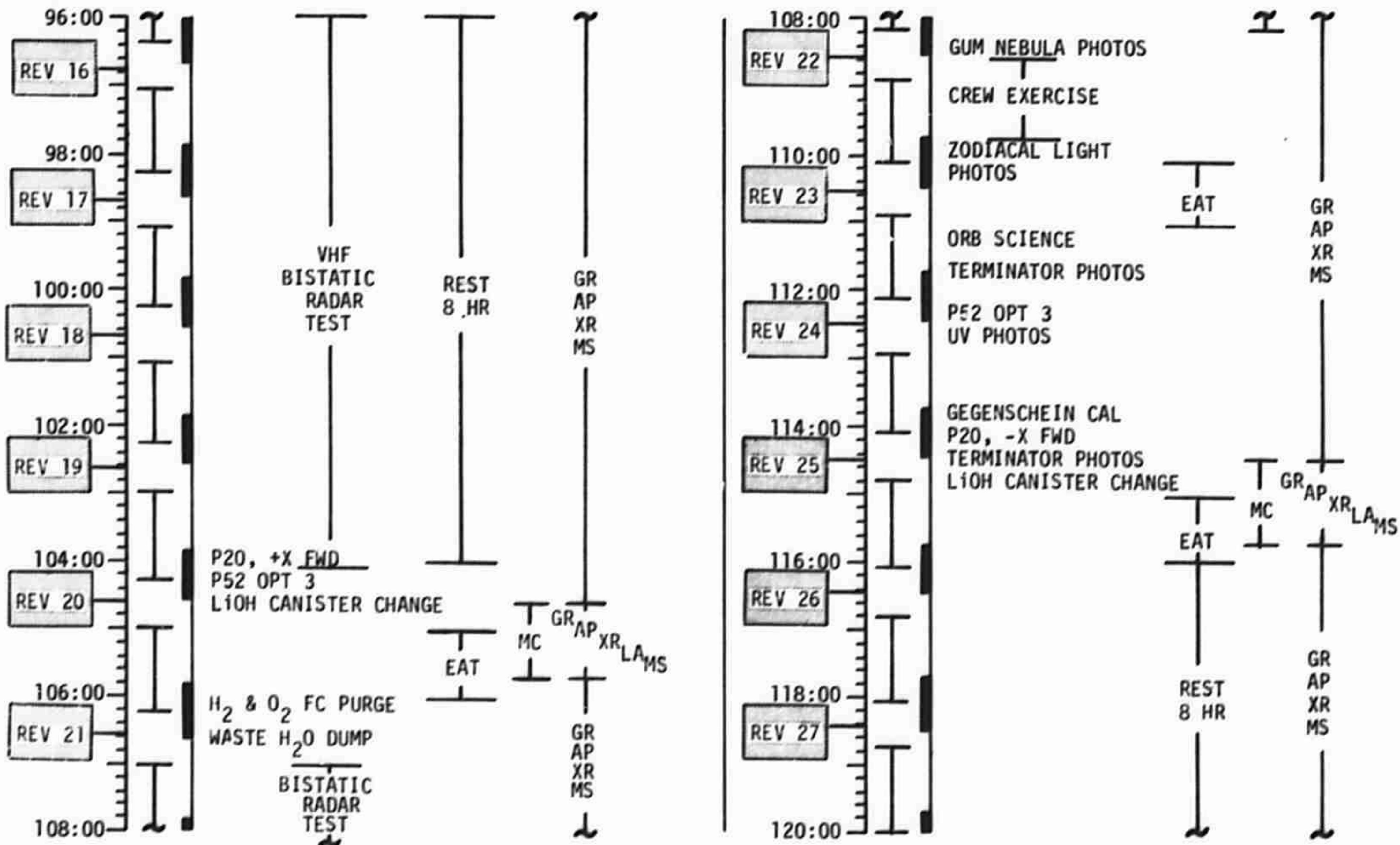
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	48:00 - 72:00	3/1-3	6-27

FLIGHT PLAN



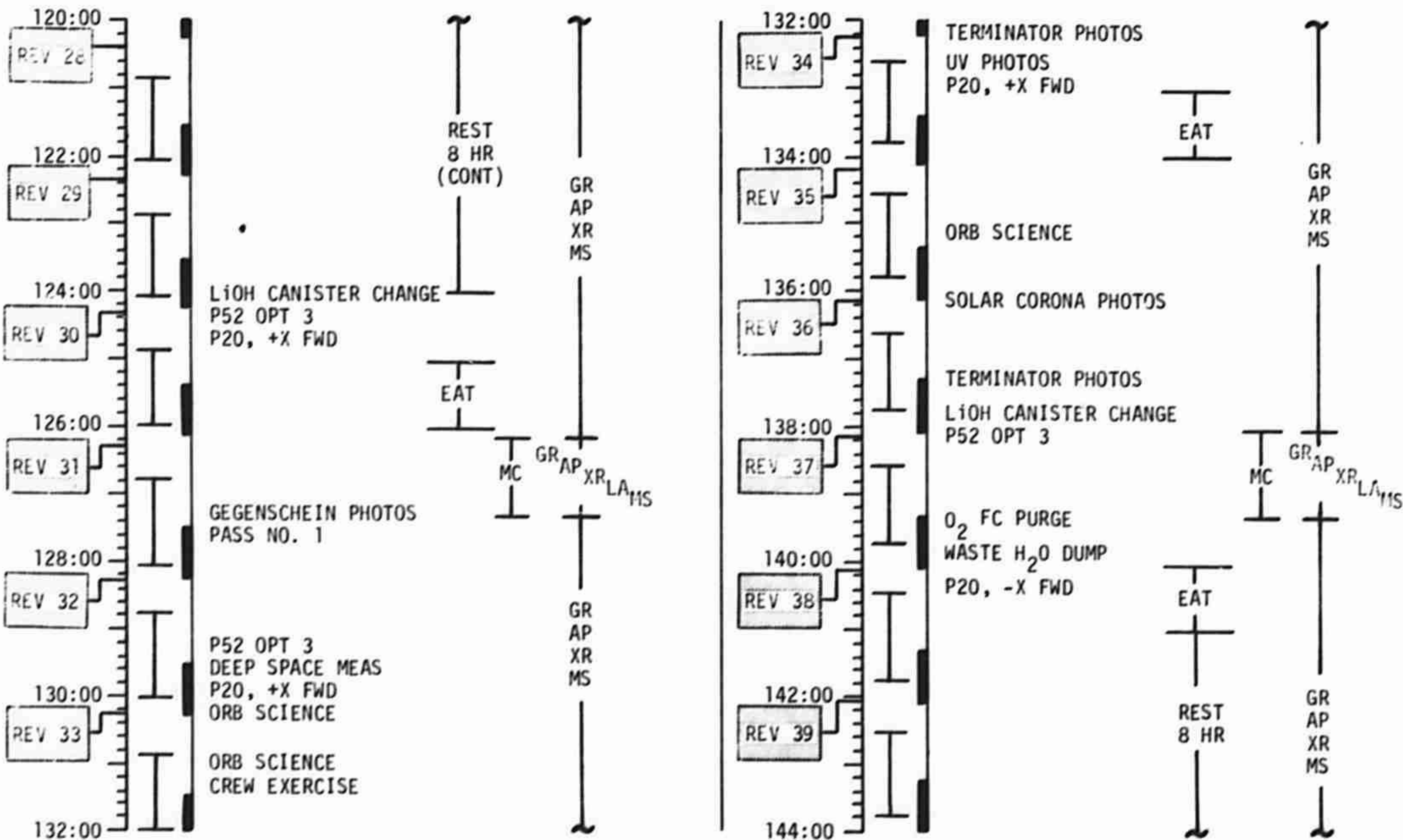
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	72:00 - 96:00	4/3-15	6-28

FLIGHT PLAN



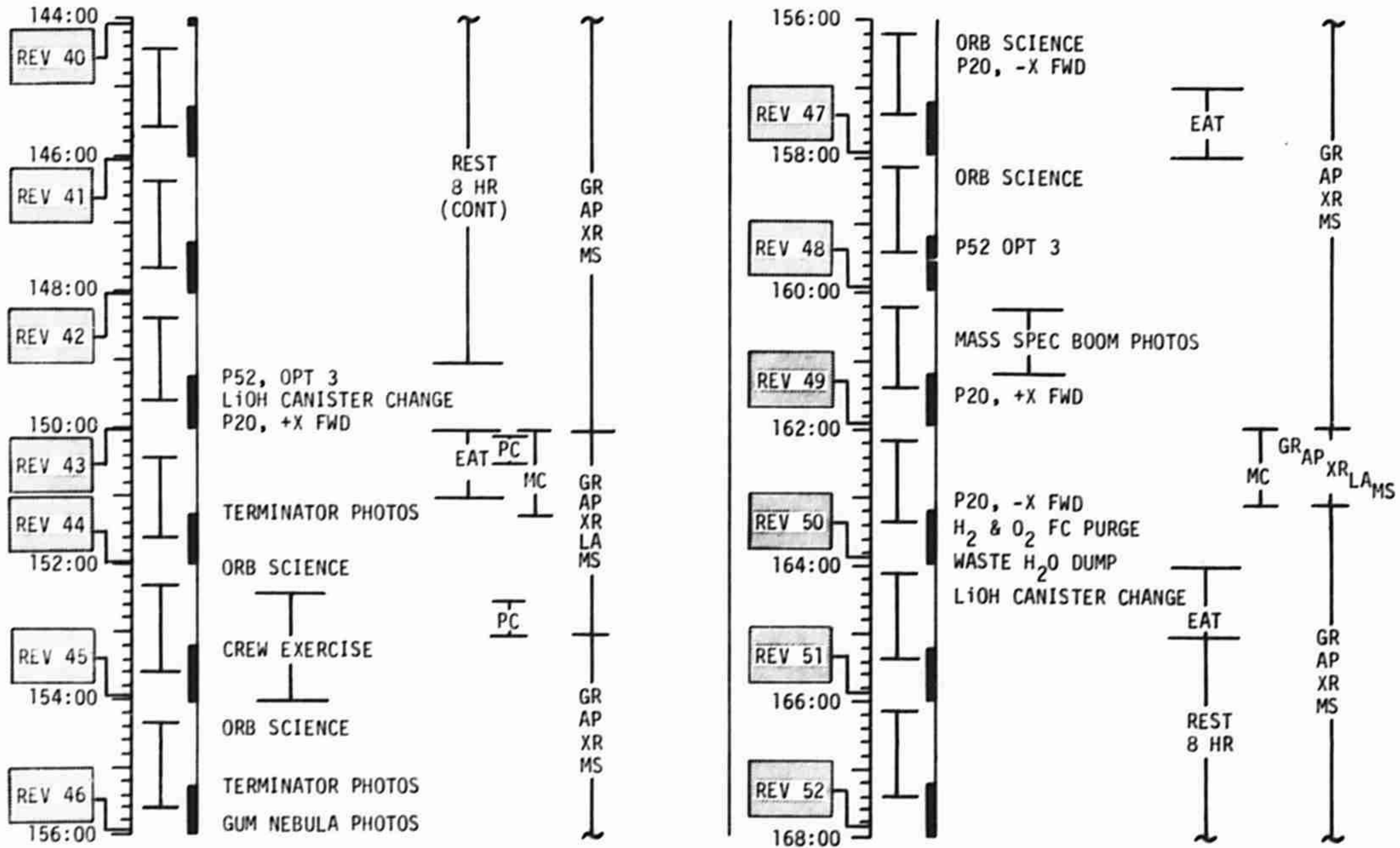
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	96:00 - 120:00	5/15-27	6-29

FLIGHT PLAN



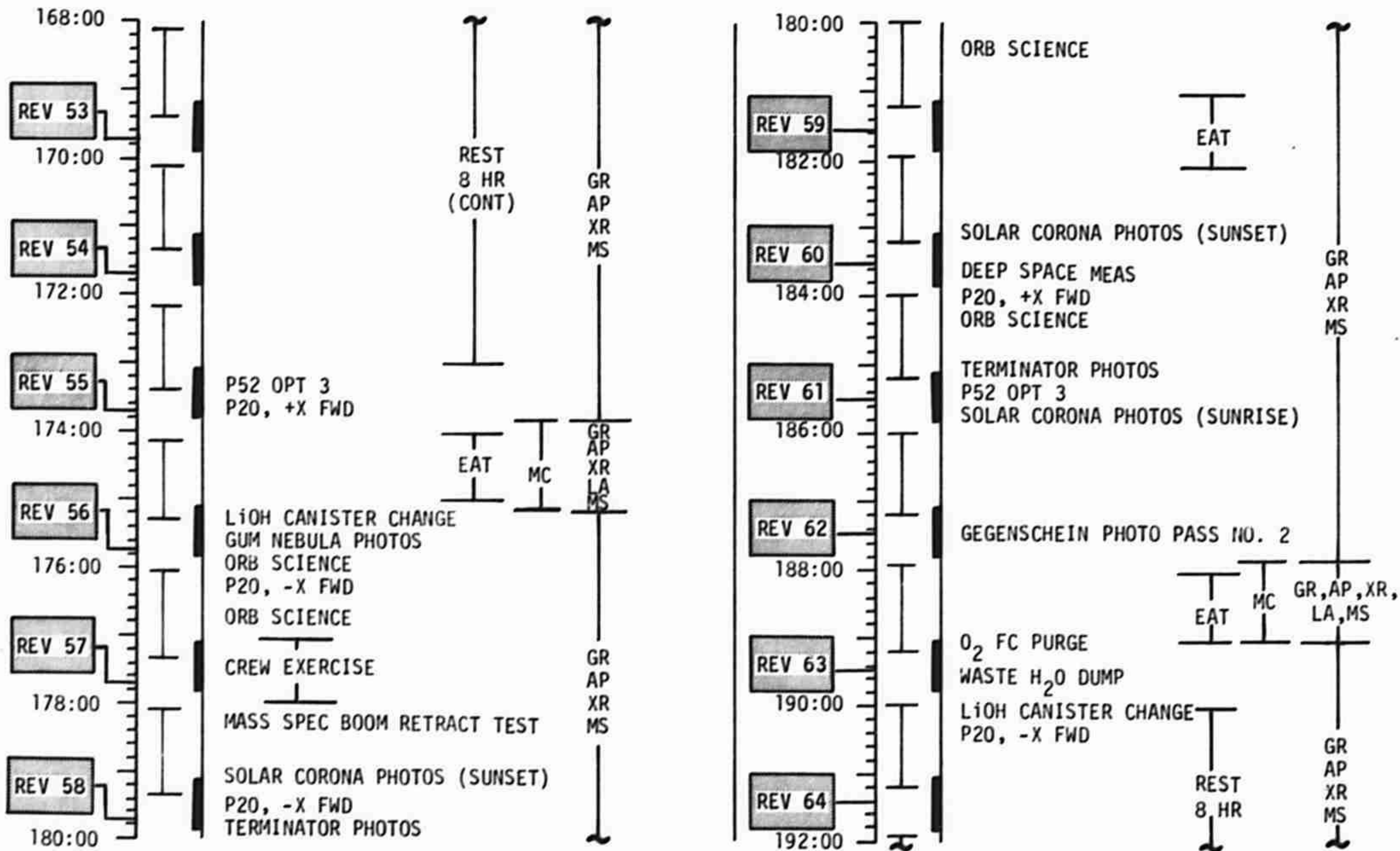
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	120:00 - 144:00	6/27-39	6-30

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	144:00 - 168:00	7/40-52	6-31

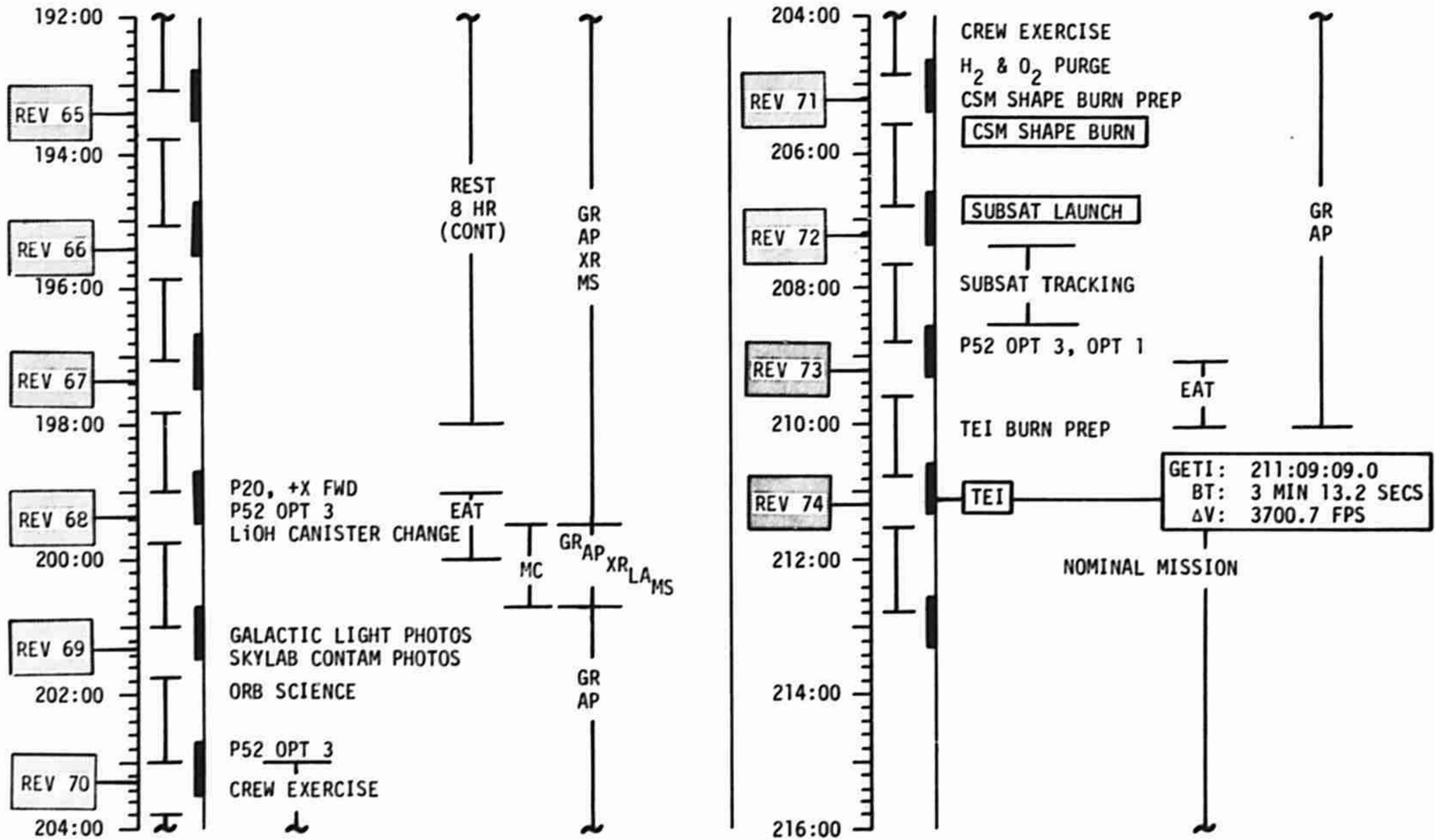
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	168:00 - 192:00	8/52-64	6-32

CSM ONLY ALTERNATE

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	192:00 - 216:00	9/64-TEC	6-33

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CSM/LM ALTERNATE MISSION POST LOI (GOOD DPS)

Assumptions

- 1) Nominal LOI and DOI Burns have been achieved by the SPS.
- 2) A systems failure while in lunar orbit has resulted in a NO/GO for landing.

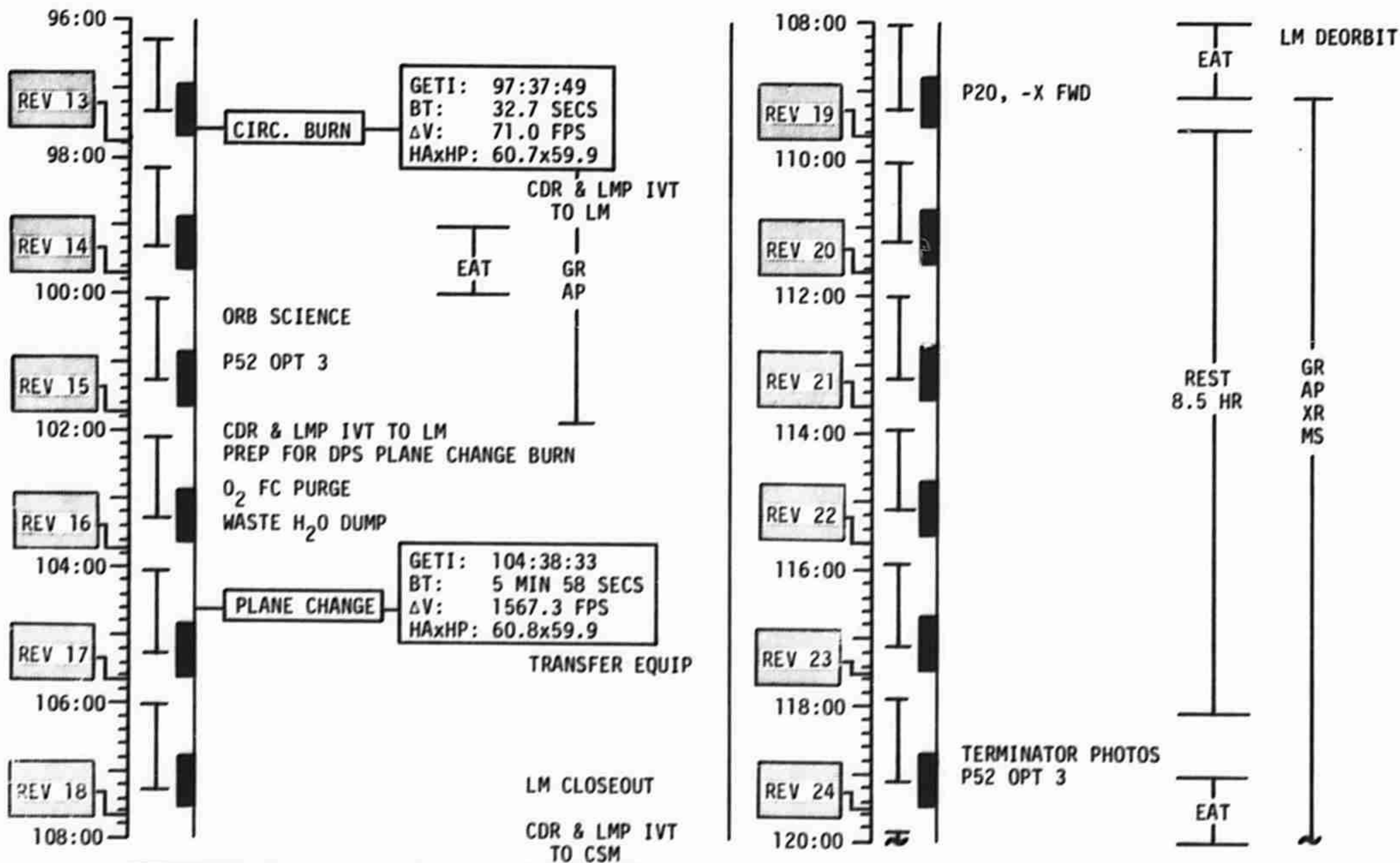
Constraints

- 1) DPS Circularization Burn at approximately nominal Circularization burn time.
- 2) DPS Plane Change Burn to match LPO ground track with CSM only alternate Mission (20° inclination).
- 3) LM Jettison to Lunar impact.
- 4) Adhere to nominal flight plan as much as possible.
- 5) Obtain sim bay experiments data.
- 6) SPS TEI

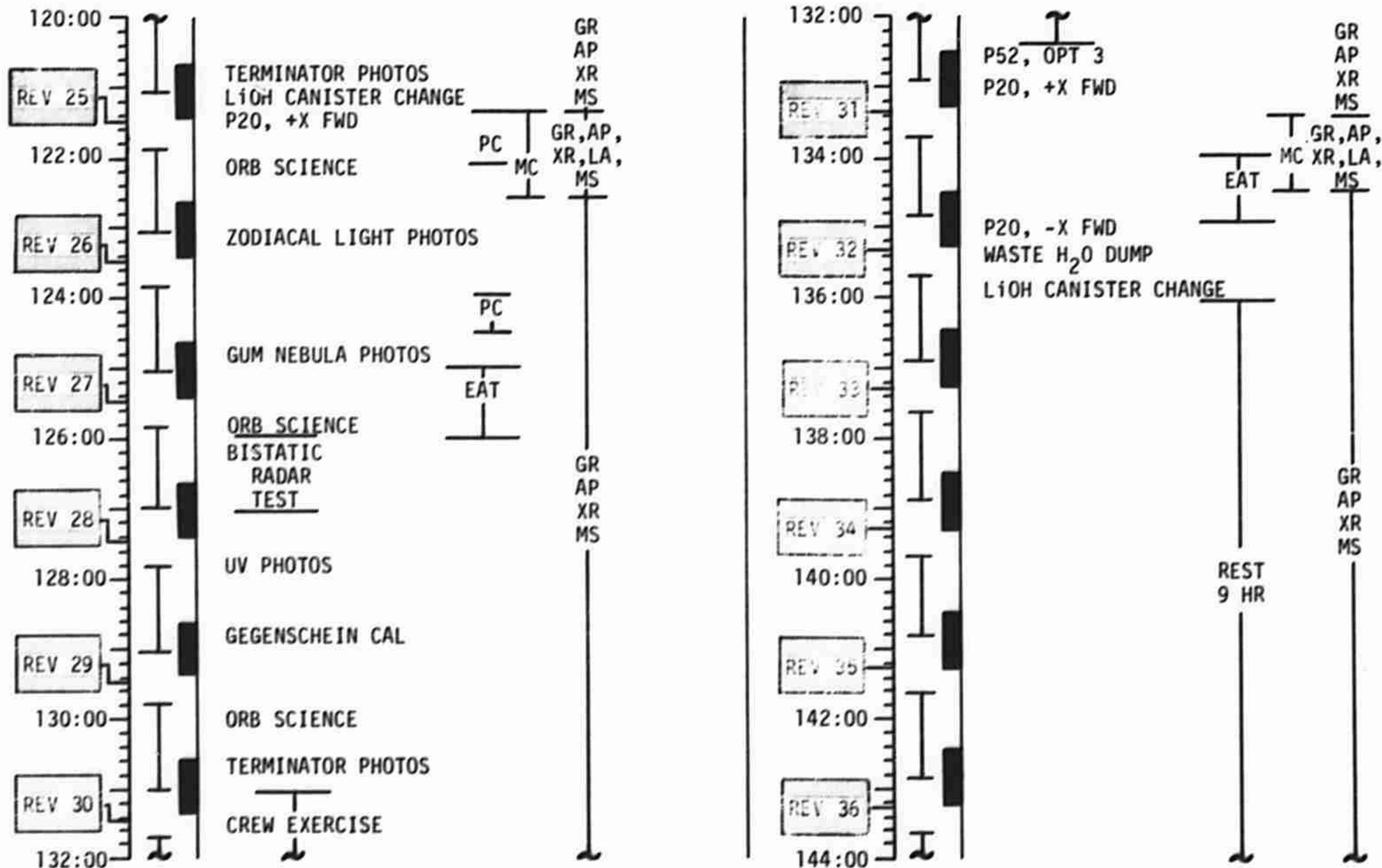
Sequence of Events

This alternate Mission is initiated by a systems failure other than the DPS which will not allow a landing mission. The nominal mission is followed through DOI with a Circularization burn performed by the DPS at approximately the same time as the nominal Circularization burn. A DPS plane change burn is performed to make the LPO ground track approximately the same as the CSM only alternate mission with an inclination of twenty degrees. Six days are planned in lunar orbit operating all the sim bay experiments, with the shaping burn, sub-satellite jettison and the TEI burn following a sequence similar to the nominal mission.

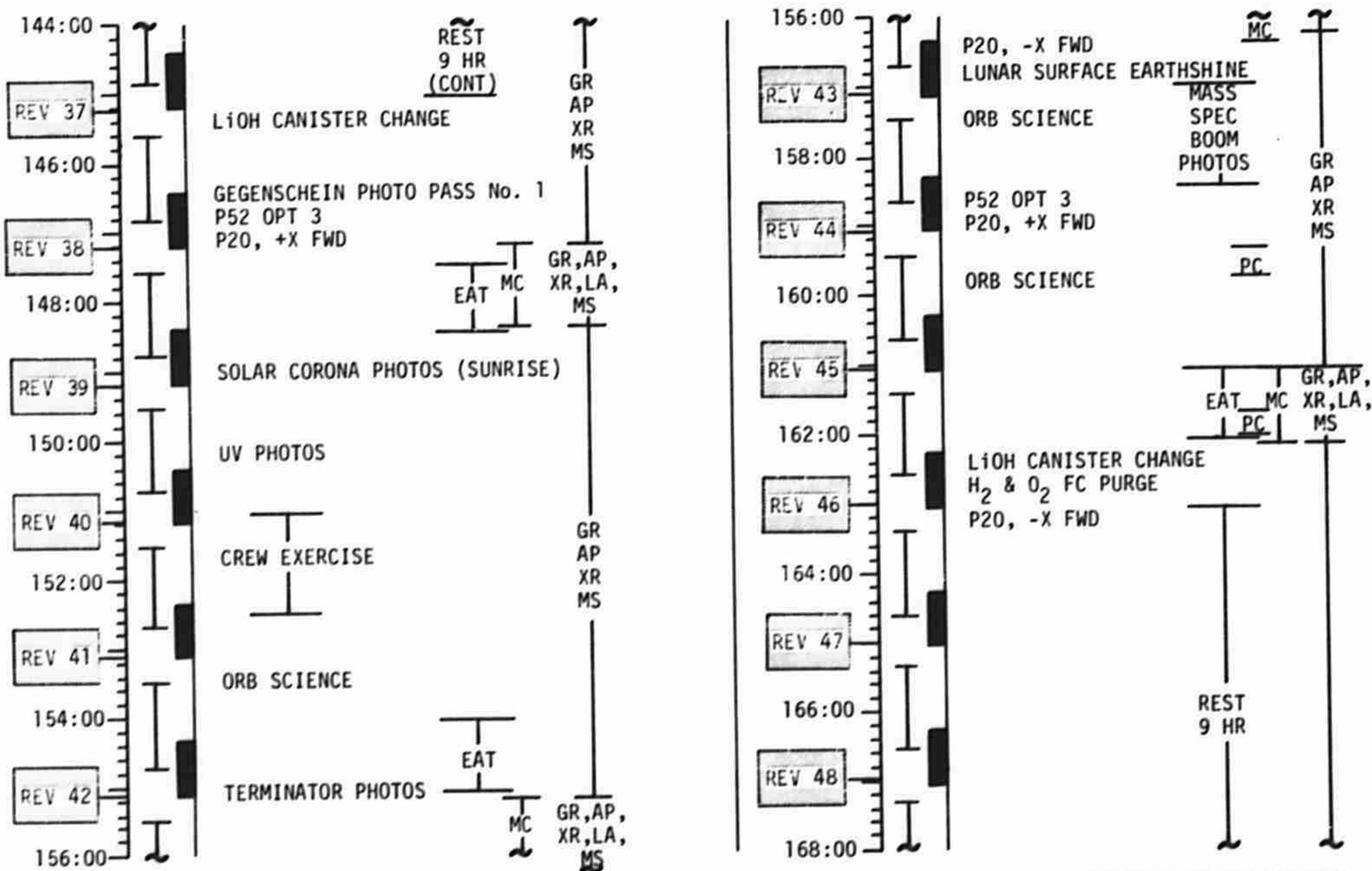
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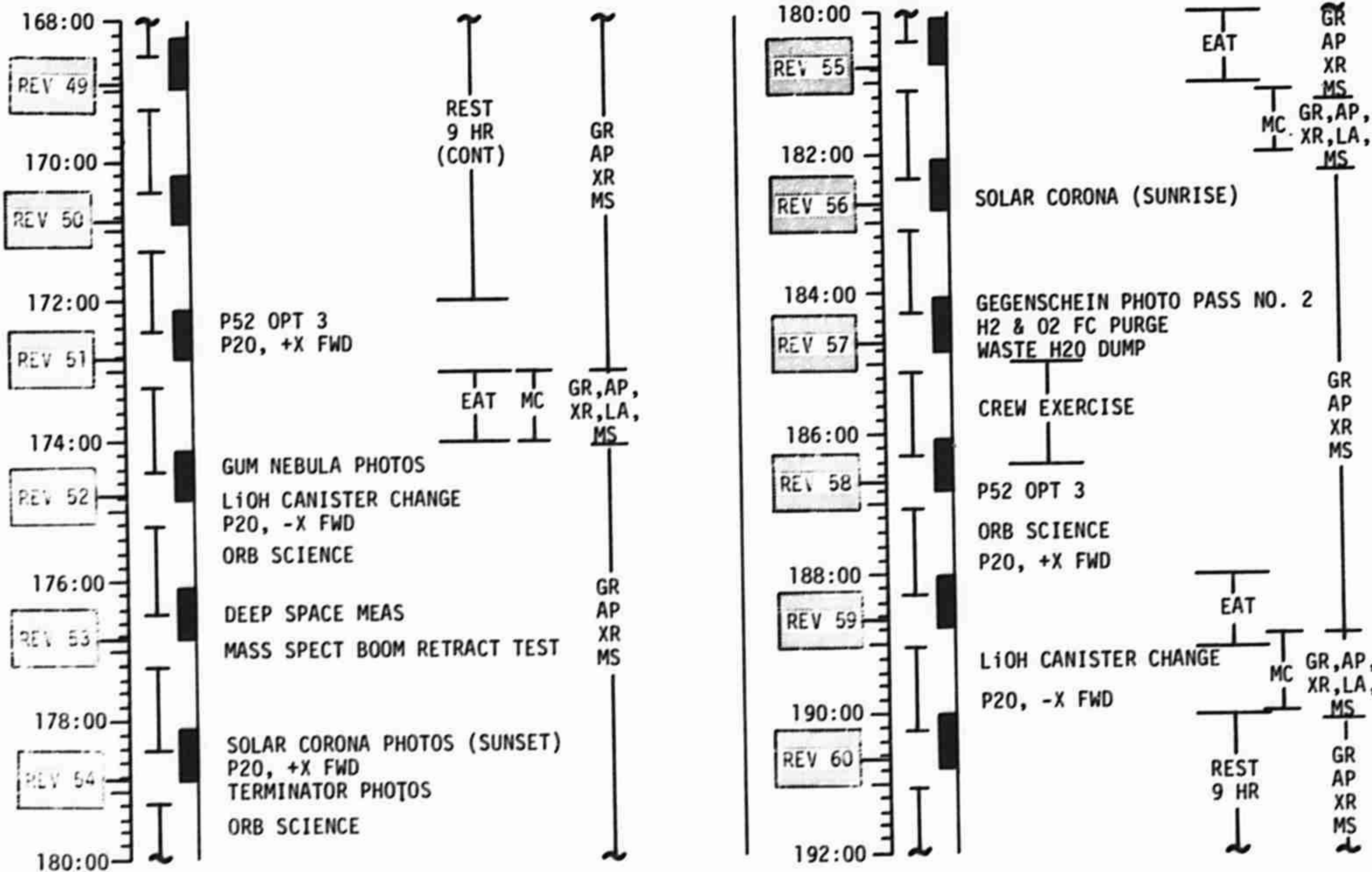
MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	96:00 - 120:00	5/12-24	6-37



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	120:00 - 144:00	6/24-36	6-38

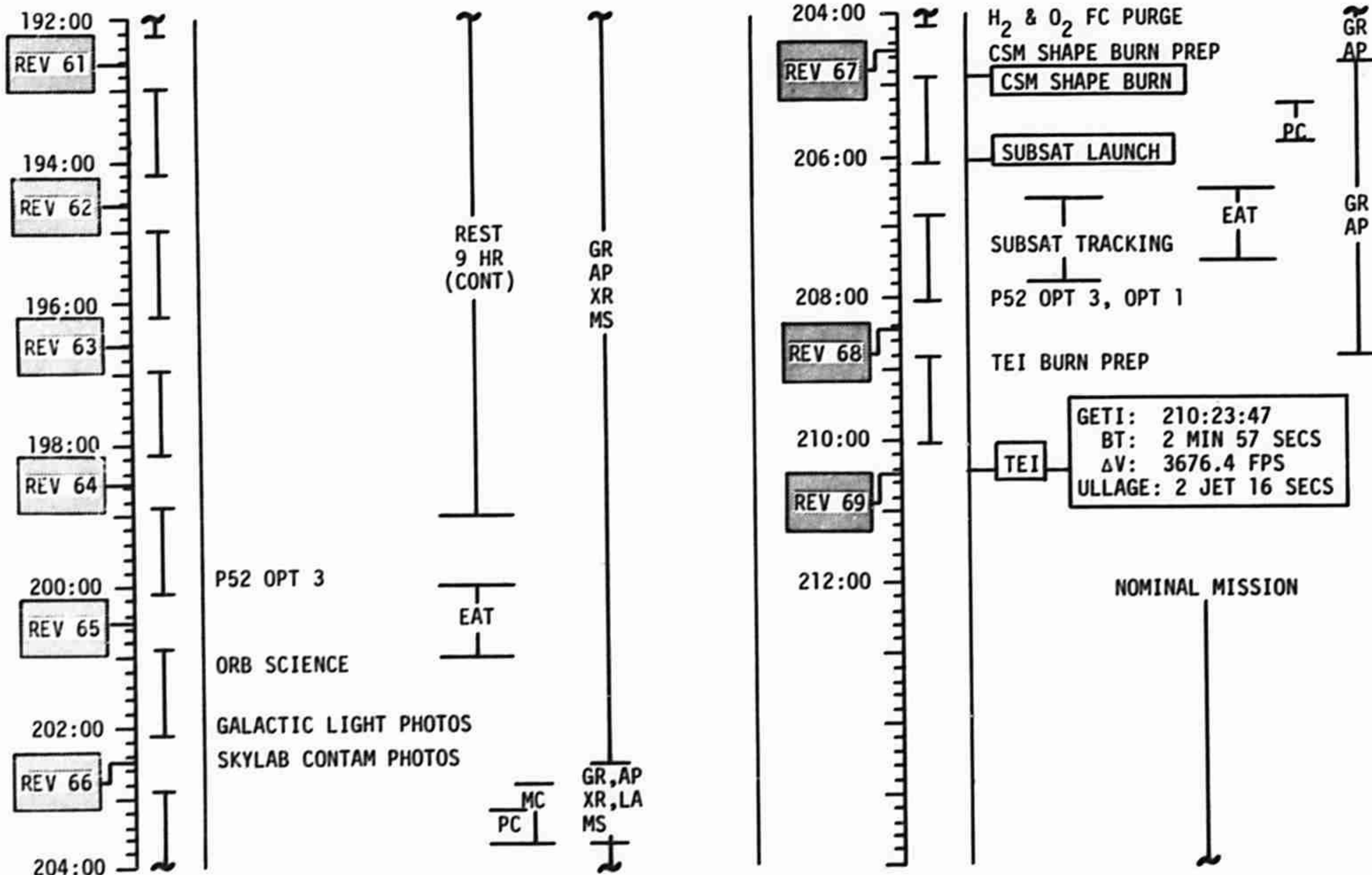


MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	144:00 - 168:00	7/36-48	6-39



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	168:00 - 192:00	8/48-60	6-40

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	DAY/REV	PAGE
APOLLO 16	CHANGE A (4/16)	3/27/72	192:00 -	9/69-TEC	6-41

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CSM/LM ALTERNATE MISSION - BAD DPS

Assumptions

- 1) Nominal LOI and DOI Burns have been achieved by the SPS.
- 2) A systems failure while in lunar orbit has resulted in a NO/GO for landing.

Constraints

- 1) Jettison LM to a lunar impact.
- 2) Circularize to a 60 nm orbit.
- 3) Adhere to the nominal flight plan as much as possible.
- 4) Obtain sim bay experiments data.

Sequence of Events

This alternate mission is initiated by a systems failure with the DPS which will not allow a landing mission. The LM is jettisoned and the CSM Circularizes at approximately the nominal time; at which time the nominal flight plan will be followed.

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