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FINAL

GEMINI X
FLIGHT PLAN

PREPARED BY
FLIGHT CREW SUPPORT DIVISION
MISSION OPERATIONS BRANCH
NASA, MSC, HOUSTON

JUNE 22, 1966

FINAL

Gemini X Flight Plan, Final, June 22, 1966

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I N T R O D U C T I O N

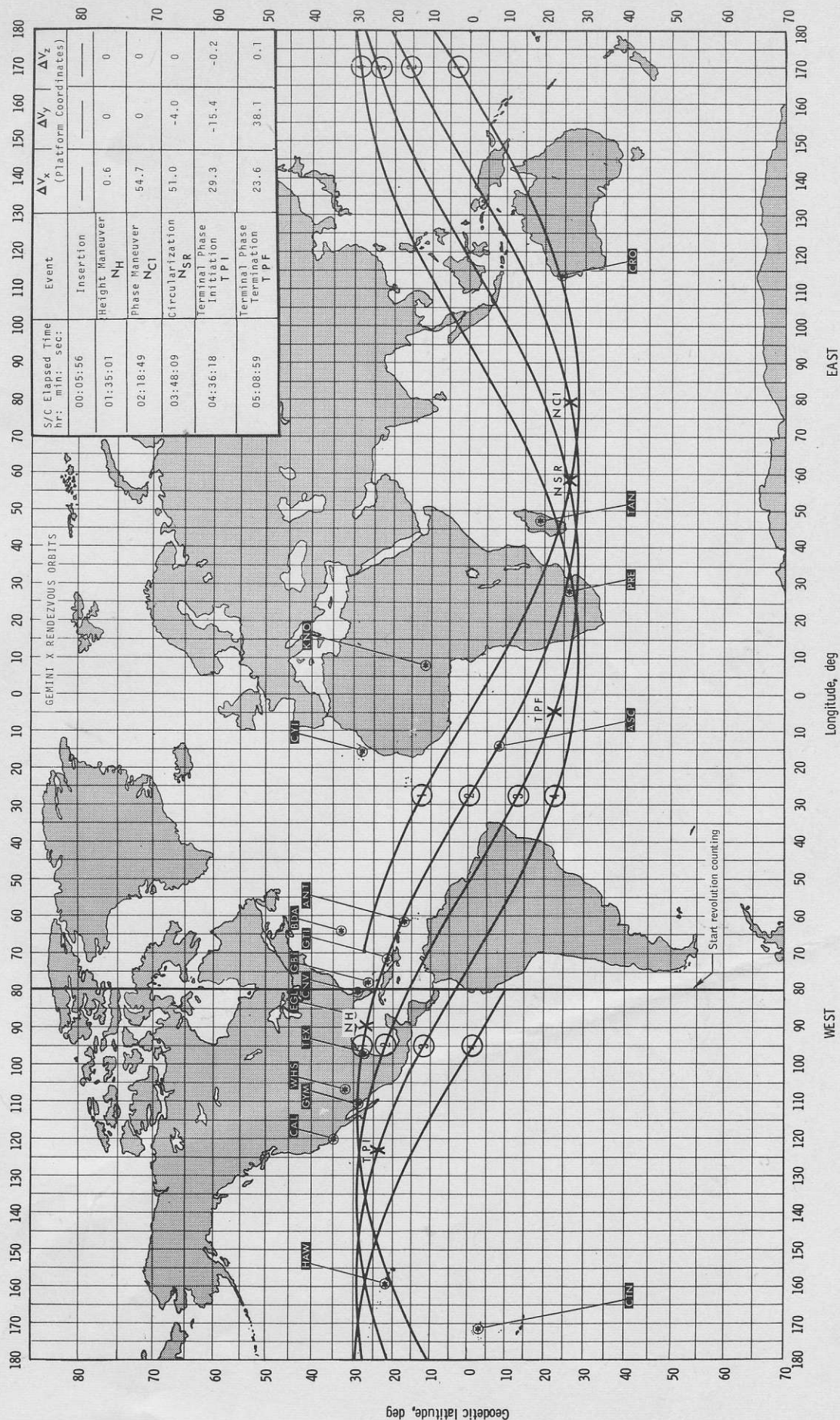
The sequence of activities outlined herein represents one of several alternatives by which the flight objectives can be achieved. Real-time considerations of Agena/spacecraft dispersions, onboard systems monitoring activity, and global weather conditions may cause changes in flight plan procedures. In keeping with the desire to permit real-time flexibility, many activities are planned, some of which may be omitted at the discretion of the flight crew and/or the Flight Director.

Reference Orbital and Rendezvous Report for Gemini X, Report IX, TRW Note No. 66 FMT-419, Project Gemini, Task MSC/TRW G-11 for the nominal Gemini X Trajectory.

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All comments and/or questions should be forwarded to T. W. Holloway, Flight Planning Section, Flight Crew Support Division, extension 4271.

GEMINI TRACKING NETWORK



SECTION I

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		
				COMMAND	PILOT	PILOT
0:01:00	ASC	FREE				A - REPORT CABIN PRESSURE HOLDING AT _____ PSID.
0:01:40	ASC	FREE		MCC - GIVE TIME HACK AT 01:40 NOTE - 70K FEET A - CONFIRM TIME HACK		
0:01:45	ASC	FREE				DCS UPDATE RECEIVED
0:02:15	ASC	FREE		A - REPORT STAGE II GO		A - RESET DCS LIGHT REPORT DCS UPDATE RECEIVED
0:02:25	ASC	FREE				DCS UPDATE RECEIVED
0:02:36	ASC	FREE				A - REPORT DCS UPDATE RECEIVED
						STAGING
						NOTE
						ENGINE I LIGHTS - MOMENTARILY ON ENGINE II LIGHT - OUT
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						PAGE 2

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND PILOT	PILOT
0:05:36	ASC	FREE	DIR	A - REPORT SECO MANEUVER CONTROLLER - UNSTOW MANEUVER CONTROLLER - ON FDI SCALE RANGE - LO FDR - COMP FDM - ATT	SECO A - ATTITUDE CONTROL - DIRECT READ OUT ADDRESS 72. OAMS CNTL POWER - ON ATTITUDE DRIVERS - SEC/PRI RECORD 72 & READOUT & RECORD ADDRESS 94
0:06:06				SECO + 30 SEC A - INITIATE FWD THRUST APPLY A 3 SEC FWD SEPARATION	A - SEP SPCFT - PUSH JETT FAIRING - PUSH REPORT JETT FAIRING READOUT ADDRESS 95
<u>NOTES</u> A. INITIATE THRUST AND SEPARATE SIMULTANEOUSLY B. DO NOT CONTROL S/C ATTITUDES DURING FIRST 2 SECONDS AFTER S/C SEPARATION MCC - REPORT GO/NO GO FOR IVAR A - ATTITUDE CONTROL - RATE CMD NULL PITCH FDI & HOLD ZERO YAW ON THE 8 BALL					
MISSION	EDITION	DATE	STATION	AOS	LOS
GEMINI X	FINAL	JUNE 22, 1966			
				TOTAL	PAGE
					4

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
	ASC	FREE	RATE CMD	A - THRUST TO NULL FWD/AFT IVI'S. MARK START & COMPLETION OF THRUST, THEN: ATTITUDE CONTROL - PULSE COMPUTER - PRE LN	A - AT IVAR ATTITUDES RECORD IVIS			
	PRE		PUL		A - AFTER IVAR READ & RECORD RECORD ADDRESSES 72, 94, 80, 81 & 82			
0:08:30		CAGE (SEF) SEF	PLAT	<u>NOTES</u> A. OUT-OF-PLANE IVAR CORRECTIONS WILL NOT BE APPLIED B. 8 FT/SEC OR LESS OVER- SPEED IVAR CORRECTIONS WILL NOT BE APPLIED.	A - LOAD MODULE VIA FROM THE ATM AS FOLLOWS: VERIFY MDU PWR - ON VERIFY ATM MODE - STDBY VERIFY ATM PWR - OFF VERIFY AUX TAPE C/B - CLOSED AUX TAPE PWR - ON RESET			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						5

FLIGHT PLAN

TIME HR:MIN		COMP	PLAT	CNTL MODE	ACTION					
					COMMAND	PILOT				
		PRE LN	SEF	PLAT		'A - VERIFY COMP LT - ON ENTER 62:09001 INTO THE COMP VIA THE MDU ATM MODE - AUTO VERIFY COMP LT - OFF VERIFY F/A & L/R IVI'S ZERO VERIFY ATM LT - ON VERIFY R/L IVI DISPLAYING CORRECT TPW'S VERIFY COMP LT - ON VERIFY F/A IVI DISPLAYS 006 & L/R IVI DISPLAYS 090 MONITOR COMP LT VERIFY ATM RUN LT - OFF VERIFY COMP LT ON 16 SEC AFTER GOING OUT. VERIFY L/R IVI DISPLAYS 120 AUX TAPE MODE - STBY AUX TAPE PWR - OFF				
MISSION		EDITION	DATE		STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X		FINAL	JUNE 22, 1966							6

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
	PRE LN	SEF	PLAT	<u>INSERTION CHECKLIST</u> A - UNSTOW NAV CHECKLIST STOW "D" RING & SAFETY BOOSTER-INSERT - SAFE RETROCKET SQUIBS (4) - SAFE MANEUVER CONTROLLER - OFF MANEUVER CONTROLLER - STOW SEQ LIGHTS TEST - RED & GREEN/AMBER LEFT SEC O₂ BOTTLE SHUTOFF - CLOSED ARM RESTRAINTS - STOW RETICLE - UNSTOW, INSTALL & CONNECT LEFT LT - DIM CENTER LT - DIM WINDOW COVER - JETT				
				A - STOW "D" RING & SAFETY ARM RESTRAINTS - STOW OAMS HTRS C/B - CLOSED H₂O HTRS C/B'S - CLOSED ANT SEL - ADPT CRY QTY - OFF CABIN VENT PLUG - INSTALL RECORD - OFF VOLTMETER - BT INDIVIDUALLY PLACE EACH MAIN BATTERY TO TEST CHECK EACH AMP AND VOLT READING.				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						7

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND	PILOT
	PRE LN	SEF	PLAT		PLACE BATTERIES TO "OFF" COMPLETE ELECTRICAL CHECK VOLTMETER - C X-RAY - ON BETA - W MAG WINDOW COVER - JETT HARNESS & BELT - UNFASTEN DROGUE PINS (R & L) - INSTALL REMOVE & STOW HELMET & GLOVES UNSTOW & INSTALL LIGHT WT HEAD SET UNSTOW & CALIBRATE SEXTANT UNSTOW & HAND FLIGHT PLAN BOOK TO CMD PILOT MCC - UPDATE ADD 39 IF REQ, UPDATE 1A TIME AND APGEE/ PERIGEE ALTITUDE UPDATE 1-4 REENTRY INFOR- MATION AS FOLLOWS, IF REQUIRED. 1. GETRC 2. RET 400K 3. RETRB A - COPY UPDATE INFORMATION
A - <u>REPORT CHECKLIST COMPLETE.</u> ETR LOS - 00:11:16 SUNSET - 00:12:53					
MISSION	EDITION	DATE	STATION	AOS	
GEMINI X	FINAL	JUNE 22, 1966			
			LOS	TOTAL	REV
					PAGE
					8

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			
				COMMAND	PILOT		
	PRE LN	SEF	PLAT	ASC AOS - 00:19:58			
HORIZON CALIBRATION							
00:20:00	ORB DET	ORB RATE	PUL	A - ATTITUDE CONTROL - PULSE PLATFORM - ORB RATE YAW TO ACQUIRE HORIZON CALIBRATION STAR. STAR: _____ AZ _____ EL _____	A - COMPUTER - ORB DET ENTER - 99:90004 (ASC VECTOR) INTO THE COMPUTER START COMP - PUSH (BRINGS ASC VECTOR UP TO PRESENT TIME) INPUT THE FOLLOWING STAR DATA INTO THE COMPUTER: RT ASC 92: _____ DEC 93: _____ ENTER NOMINAL HORIZON ALTITUDE INTO THE COMPUTER: 90:00200 (100 YDS)		
24:00				A - ON MARK, START COMP - PUSH (COMP LT ON) MAINTAIN S/C ATTITUDES ON STAR/HORIZON	A - USING SEXTANT SUPERIMPOSE STAR ON THE HORIZON. WHEN A GOOD SIGHTING IS OBTAINED GIVE CMD PILOT A MARK. ENTER SEXTANT ANGLE INTO COMPUTER: 83:0 ____ DEG		
MISSION	EDITION	DATE	STATION	AOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966					9

FLIGHT PLAN

TIME HR:MIN	COMP ORB DET	PLAT ORB RATE	CNTL MODE	COMMAND	PILOT	ACTION		
00:26:00			PUL			A - RECORD & PLOT RESIDUAL V.S. GET AT MEASUREMENT ASC LOS - 00:25:08 A - ON MARK START COMP - PUSH (COMP LT ON) MAINTAIN S/C ATTITUDES ON STAR/HORIZON RECORD & PLOT RESIDUAL V.S. GET. ASC LOS - 00:25:08 A - ON MARK START COMP - PUSH (COMP LT ON) RECORD GET MAINTAIN S/C ATTITUDES ON STAR HORIZON.		
00:29:00						A - START COMP - PUSH (COMP LT OFF) READ RESIDUAL (ADDRESS 83) FROM THE COMPUTER ENTER 88:99999 TO REJECT MEASUREMENT A - USING SEXTANT SUPERIMPOSE STAR ON THE HORIZON. WHEN A GOOD SIGHTING IS OBTAINED GIVE CMD.PILOT A MARK. ENTER SEXTANT ANGLE INTO THE COMPUTER: 83:0 _ _ _ _ START COMP - PUSH (COMP LT OUT) READ RESIDUAL (ADDRESS 83) ENTER 88:99999 TO REJECT MEASUREMENT A - USING SEXTANT SUPERIMPOSE STAR ON THE HORIZON. WHEN A GOOD SIGHTING IS OBTAINED GIVE CMD PILOT A MARK. INPUT SEXTANT ANGLE INTO THE COMPUTER: 83:0 _ _ _ _ START COMP - PUSH (COMP LT OUT)		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						10

FLIGHT PLAN

TIME HR:MIN		COMP	PLAT	CNTL MODE	ACTION			
					COMMAND PILOT	PILOT		
00:32:00		ORB DET PRATE	ORB	PUL	A - RECORD & PLOT RESIDUAL V.S. GET. ASC LOS - 00:25:08	A - READ RESIDUAL (ADDRESS 83) ENTER 88:99999 TO REJECT MEASUREMENT A - USING SEXTANT SUPERIMPOSE STAR ON THE HORIZON. WHEN A GOOD SIGHTING IS OBTAINED GIVE CMD PILOT A MARK.		
					A - ON MARK, START COMP - PUSH (COMP LT ON) RECORD GET A - RECORD & PLOT RESIDUAL V.S. GET.	ENTER SEXTANT ANGLE INTO THE COMPUTER: 83:0 - - - - START COMP - PUSH (COMP LT OUT) READ RESIDUAL (ADDRESS 83) ENTER 88:99999 TO REJECT MEASUREMENT		
0:32:30					<u>FIRST ORBIT DETERMINATION PHASE</u>			
0:33:00					A - DETERMINE HORIZON ALTITUDE (NEW ALTITUDE SELECTED FROM CHARTS)	A - ENTER NEW HORIZON ALTITUDE INTO THE COMPUTER: 90:00XXO		
					A - CONTROL S/C ATTITUDES TO SEF STAR. SEF STAR _____ AZ _____ ET: _____ TAN AOS - 0:34:06	A - ENTER THE FOLLOWING INTO THE COMPUTER: RT ASC 92: - - - - - DEC 93: - - - - - OF SEF STAR		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						11

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			PILOT	
				COMMAND	PILOT			
0:35:00	ORB DET	ORB RATE	PUL	A - EXTINGUISH L/H CABIN AS REQUIRED		A - R/H CABIN LTS - OUT		
0:35:30				A - ON MARK, START COMP - PUSH (COMP LT ON)		A - USING SEXTANT SUPERIMPOSE STAR ON HORIZON. WHEN A GOOD SIGHTING IS OBTAINED GIVE CMD PILOT A MARK. NOTE: +1 MIN ALLOWABLE IN TIME A - ENTER SEXTANT ANGLE INTO THE COMPUTER: 83:0 - - - - START COMP - PUSH COMP LT OFF READOUT & REPORT ANGLE RESIDUAL FROM COMPUTER: 83: - - - - - INSERT 88:11111 INTO COMPUTER TO ACCEPT MEASUREMENT IF RESIDUAL IS LESS THAN 0.3°.		
				A - RECORD SIGHTING ANGLE				
				A - RECORD ANGLE RESIDUAL				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						12

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT	PILOT		
0:39:30	ORB DET	ORB RATE	PUL	A - CONTROL S/C ATTITUDES TO ACQUIRE BEF STAR: BEF STAR _____ AZ _____ EL _____	A - ENTER DUMMY STAR INTO THE COMPUTER: RT ASC 92: _ _ _ _ _ DEC 93: _ _ _ _ _ 99:00006 (STAR/LOCAL VERTICAL MEASUREMENT)			
					A - START COMP - PUSH (@ 0:39:30) (COMP LT ON) START COMP - PUSH (COMP LT OFF) INSERT 83:00000 INTO THE COMPUTER INSERT 88:11111 INTO THE COMPUTER TO ACCEPT MEASUREMENT			
						A - C - RNTY - CMD C - ADAPT - CONT RAD - BY PASS EVAP - FLOW A - INSERT 99:10006 INTO THE COMPUTER (STAR-HORIZON MEASUREMENT).		
0:40:00								
0:45:30				A - CONTROL S/C ATTITUDES ON BEF STAR/HORIZON TAN LOS - 00:44:41				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						13

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION						
				COMMAND	PILOT					
	ORB DET	ORB RATE	PUL		ENTER THE FOLLOWING INTO THE COMPUTER RT ASC 92:----- DEC 93:----- A - USING SEXTANT SUPERIMPOSE STAR ON HORIZON. WHEN A GOOD SIGHTING IS OBTAINED GIVE CMD PILOT A MARK. NOTE: ± 1 MIN ALLOWABLE IN TIME					
				A - ON MARK, START COMP - PUSH (COMP LT ON) RECORD GET						
				A - RECORD SEXTANT ANGLE	A - INPUT SEXTANT ANGLE INTO THE COMPUTER: 83:----- START COMP - PUSH COMP LT OFF READOUT & REPORT ANGLE RESIDUAL FROM COMPUTER: 83:----- INSERT 88:11111 INTO COMPUTER TO ACCEPT MEASUREMENT IF RESIDUAL IS LESS THAN 0.3° UNSTOW RNDZ BOOK					
	PRE LN			A - RECORD RESIDUAL						
				A - COMPUTER - PRE LN						
MISSION		EDITION		DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X		FINAL		JUNE 22, 1966						14

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT			
				COMMAND	PILOT				
00:50				NOTE: DO NOT FIRE THRUSTERS AFTER SWITCHING TO PRELN UNTIL THE ACC BIAS CHECK IS COMPLETED OVER CRO. CRO AOS - 00:49:38					
	PRE LN	ORB RATE	PUL	CRO - GO/NO GO FOR 16-1 A - GO/NO GO FOR 16-1 SUNRISE - 00:50:14 <u>NOTE</u> DURING THE CRO PASS, MCC-H SHOULD DETERMINE THE ACCELEROMETER BIAS AND BE PREPARED TO UPDATE IT VIA DCS AT HAW OR OVER THE STATES					
				CRO - GIVE S/C A GET TIME HACK. NOTIFY CREW WHEN ACC BIAS CHECK IS COMPLETED A - CHECK GET CLOCK. UPDATE, IF REQ.					
				CRO - UPDATE AGENA VECTOR IF REQ. 1. GET OF VALID UPDATE (MIN: SEC)					
MISSION	EDITION		DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL		JUNE 22, 1966						15

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
	PRE LN	ORB RATE	PUL		2. ADDRESSES 13 OR 73, 14 OR 74, 15 OR 75, 16 OR 76, 17 OR 77, 18 OR 78. A - COPY UPDATE			
00:59		SEF	PLAT	CRO LOS - 00:58:11 A - CONTROL S/C ATTITUDES TO SEF. PLATFORM - SEF ATTITUDE CONTROL - PLAT	A - ENTER 99:90005 INTO THE COMPUTER ENTER AGENA VECTOR INTO THE COMPUTER AS FOLLOWS: ADDRESSES 13 OR 73, 14 OR 74, 15 OR 75, 16 OR 76, 17 OR 77, 18 OR 78. CALCULATE A T _F FOR VALID AGENA STATE VECTOR AT SOME CONVENIENT FUTURE GET INSERT T _F (12:--:--:--) AT THE GET. <u>NOTE</u> GET OF VALID AGENA VECTOR WILL NORMALLY BE AT NOMINAL N _{C1} TIME.			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						16

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION						
				COMMAND	PILOT					
	PRE NAV	SEF	PLAT	A - COMPUTER - PRED NAV	ASCENT VECTOR TRANSLATION DETERMINATION A - INSERT THE FOLLOWING INTO THE COMPUTER: 99:90004 (ASC VECTOR) 99:00005 (RELATIVE PREDICTION) CALCULATE & INSERT INTO THE COMPUTER TIME FROM A CONVENIENT FUTURE GET TO NOMINAL PHASE ADJUST TRANSLATION (20: - - - - -					
01:04:00				A - START COMP - PUSH (AT THE GET) (START PREDICTION)	A - READ ADDRESS 95 (S/C ALTITUDE) TO FOLLOW THE PREDICTION. (COMP LT OFF - PREDICTION COMPLETED) A - READ ADDRESS 94 (S/C RADIAL VELOCITY) ITERATE UNTIL $\dot{r} \leq 0.5$ FT/SEC READOUT THE FOLLOWING FROM THE COMPUTER: 13: - - - - - (REL X) 14: - - - - - (REL Y)					
MISSION		EDITION		DATE	AOS	STATION	LOS	TOTAL	REV	PAGE
GEMINI X		FINAL		JUNE 22, 1966						17

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	COMMAND	PILOT	ACTION
01:10:00	PRE NAV	SEF	PLAT			A - ENTER CHART & CALCULATE PHASE ADJUST TRANSLATION CALCULATE GET OF PHASE ADJUST READOUT ALTITUDE (95:-- FROM THE COMPUTER AND CALCULATE N_{SR} ΔV.
						A - RECORD PHASE ADJUST ΔV. RECORD GET OF PHASE ADJUST AND CALCULATE GET TO INITIATE PHASE ADJUST. RECORD N_{SR} ΔV AND CALCULATE GET TO INITIATE N_{SR}.
						A - READOUT THE FOLLOWING FROM THE COMPUTER 15:-- (REL Z) 18:-- (REL Z)
						A - ENTER CHART & CALCULATE THE TIME FROM COMPLETION OF PHASE ADJUST PREDICTION TO PLANE CHANGE. CALCULATE T_{TRE} ENTER T_{TRE} INTO COMPUTER 20:-- CONTINUE ITERATIONS UNTIL RELATIVE Z (ADD 15) < 0.1 NA. MI.)
MISSION	EDITION	DATE		STATION	AOS	LOS
GEMINI X	FINAL	JUNE 22, 1966				
						TOTAL
						REV
						PAGE
						18

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
HAW AOS (01:16)	PRE NAV	SEF	PLAT	A - RECORD PLANE CHANGE V AND GET OF PLANE CHANGE CALCULATE GET OF PLANE CHANGE INITIATE HAW AOS - 01:15:26 A - REPORT GET INITIATE & V (ASCENT VECTOR) OF PHASE ADJUST, PLANE CHANGE AND N SR.	A - CALCULATE PLANE CHANGE AND GET OF PLANE CHANGE			
				HAW - UPDATE ACCELEROMETER BIAS, IF POSSIBLE A - UNSTOW CAMERA BOX. REMOVE THE FOLLOWING: HASSELBLAD (FILM PACK INSTALLED) MAURER (FILM PACK INSTALLED) 16 MM R.H. CAMERA REPLACE CAMERA BOX UNSTOW & INSTALL R/H BRACKET & 16 MM CAMERA				
				U.S. AOS - 01:25:18				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						19

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
01:28 TO 01:33	PRE NAV	ORB RATE PUL	PLAT PUL	A - PLATFORM - ORB RATE ATTITUDE CONTROL - PULSE CONTROL S/C ATTITUDES TO ACQUIRE U.S. TAKE MAURER S-5 PHOTOS REMOVE & STOW HELMET & GLOVES	A - TAKE HASSELBLAD S-5 PHOTOS RUN 16 MM CAMERA AT 1 FRAME/ SEC DURING PASS ACROSS THE U.S.	
01:35				MCC - UPDATE ACCELEROMETER BIAS, IF REQ. UPDATE SUMMARY MANEUVER PLAN AS FOLLOWS: 1. CATCH UP TRANSLATION A. GET : : B. 25: : C. T : (MIN:SEC) D. ΔH (AT N_C 1) 2. PLANE CHANGE TRANSLATION A. GET : : B. 27: : C. T : (MIN:SEC) D. NORTH/SOUTH		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						PAGE
						20

FLIGHT PLAN

TIME HR:MIN		COMP	PLAT	CNTL MODE	ACTION						
		COMP	PLAT	CNTL MODE	COMMAND	PILOT					
01:44:00		ORB DET	ORB RATE	PUL		A - START COMP - PUSH (COMP LT ON) START COMP - PUSH (COMP LT OFF) ENTER 83:0000 INTO THE COMPUTER ENTER 88:11111 INTO THE COMPUTER TO ACCEPT THE MEASUREMENT A - ENTER 99:10006 (STAR/HORIZON MEASUREMENT) INTO THE COMPUTER ENTER THE FOLLOWING INTO THE COMPUTER: RT ASC 92:----- DEC 93:----- OF SEP STAR A - USING SEXTANT SUPERIMPOSE STAR ON HORIZON. WHEN A GOOD SIGHTING IS OBTAINED GIVE CMD PILOT A MARK NOTE: <u>±1 MIN</u> ALLOWABLE IN TIME					
01:47:00					ETR LOS - 01:45:45						
					A - ON MARK, START COMP - PUSH (COMP LT ON) RECORD GET		AOS	LOS	TOTAL	REV	PAGE
MISSION		EDITION		DATE	STATION						
GEMINI V		FINAL		JUNE 22, 1966							22

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION						
				COMMAND	PILOT					
ASC AOS (01:53)	ORB DET	ORB RATE	PUL	A - RECORD SIGHTING ANGLE	A - INSERT SEXTANT ANGLE INTO THE COMPUTER: 83:----- START COMP - PUSH (COMP LT OFF) READOUT AND REPORT ANGLE RESIDUAL FROM THE COMPUTER 83:----- ENTER 88:1111 INTO COMPUTER TO ACCEPT MEASUREMENT IF RESIDUAL IS LESS THAN 0.3°.					
				A - RECORD ANGLE RESIDUAL						
				ASC AOS - 01:52:27						
				MCC - UPDATE CATCH UP TRANSLATION AS FOLLOWS; IF REQUIRED 1. GET : : : 2. 25: : : 3. T : : : (MIN:SEC) 4. H : : : (@N C 1) A - COPY UPDATE						
				A - CONTROL S/C ATTITUDES TO ACQUIRE BEF STAR BEF STAR _____ AZ _____ EL _____	A - ENTER THE FOLLOWING INTO THE COMPUTER: RT ASC 92:----- DEC 93:----- OF BEF STAR					
MISSION GEMINI X		EDITION FINAL		DATE JUNE 22, 1966	AOS	STATION	LOS	TOTAL	REV	PAGE 23

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
01:55:45	ORB DET	ORB RATE	PUL		A - USING SEXTANT SUPERIMPOSE STAR ON HORIZON. WHEN A GOOD SIGHTING IS OBTAINED GIVE CMD PILOT A MARK. NOTE: <u>+1</u> MIN ALLOWABLE IN TIME.			
				A - ON MARK, START COMP - PUSH (COMP LT ON) RECORD GET	A - ENTER SEXTANT ANGLE INTO THE COMPUTER: 83: START COMP - PUSH (COMP LT OFF) READOUT AND REPORT ANGLE RESIDUAL FROM THE COMPUTER 83: <u>---</u> <u>---</u> <u>---</u> <u>---</u> ENTER 88: <u>11111</u> INTO COMPUTER TO ACCEPT MEASUREMENT IF RESIDUAL IS LESS THAN 0.3°.			
				A - RECORD SIGHTING ANGLE	NOTE WHEN THE 6TH STAR MEASUREMENT IS ACCEPTED THE COMP LT COMES ON FOR 65 SEC.			
				A - RECORD ANGLE RESIDUAL	A - ENTER 88: <u>11111</u> TO ACCEPT ORB DET VECTOR			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						24

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION						
				COMMAND PILOT	PILOT					
02:00	PRE NAV	SEF	PLAT	A - CONTROL S/C ATTS TO SEF PLATFORM - SEF ATTITUDE CONTROL - PLAT ALIGN PLATFORM ORB DET TRANSLATION DETERMINATION	A - COMPUTER - PRED NAV ENTER THE FOLLOWING INTO THE COMPUTER: 99:90004 (ORB DET VECTOR) 99:00005 (RELATIVE PREDICTION) CALCULATE THE TIME (T_{TRE}) FROM A CONVENIENT GET TO THE GET OF THE PHASE ADJUST TRANSLATION. ENTER T_{TRE} in the computer 20: - - - -					
				A - AT THE GET, START COMP - PUSH (COMP LT ON - BEGIN PREDICTION)	A - READ ADDRESS 95 (S/C ALTITUDE) TO FOLLOW THE PREDICTION. (COMP LT OFF - PREDICTION COMPLETED) READOUT ADDRESS 94 (S/C RADIAL VELOCITY) ITERATE UNTIL S/C $R \leq 0.5$ FT/SEC.					
MISSION GEMINI X	EDITION	FINAL	DATE	JUNE 22, 1966	STATION	AOS	LOS	TOTAL	REV	PAGE
										25

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION						
				COMMAND PILOT	PILOT					
	PRE NAV	SELF	PLAT		A - READOUT THE FOLLOWING FROM THE COMPUTER: 13:----- (REL X) 14:----- (REL Y) ENTER CHART & CALCULATE PHASE ADJUST TRANSLATION. CALCULATE GET OF PHASE ADJUST. READOUT S/C ALTITUDE (95:-----) FROM THE COMPUTER & CALCULATE N SR ΔV .					
02:12:00				A - RECORD PHASE ADJUST ΔV . RECORD GET OF PHASE ADJUST AND AND CALCULATE GET TO INITIATE PHASE ADJUST. RECORD N SR ΔV AND CALCULATE GET TO INITIATE N SR.						
TRANS MINUS 5 MIN (2:13:49)	NAV	ORB RATE	RATE CMD	NOTE - ALL ORB DET/PRED PROCEDURES ARE COMPLETED OR TERMINATED AT THIS TIME. A - ATTITUDE CONTROL - RATE CMD PLATFORM - ORB RATE PDR - COMP FDM - ATTP	A - COMPUTER - NAV - INSERT PHASE ADJUST ΔV INTO THE COMPUTER AS FOLLOWS: 99:90004 25: PHASE ADJUST ΔV					
MISSION GEMINI X	EDITION FINAL			DATE JUNE 22, 1966	STATION	AOS	LOS	TOTAL	REV	PAGE 26

FLIGHT PLAN

MSC FORM 1008 (REV AUG 64)

NASA MANNED SPACECRAFT CENTER

TIME HR:MM	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND PILOT	PILOT
	NAV	ORB RATE	RATE CMD	A - MANEUVER CONTROLLER - UNSTOW MANEUVER CONTROLLER - ON START COMP - PUSH (COMP LT ON - NAVIGATES TO PRESENT) COMP LT - OFF	26:00000 27:00000 TAN LOS - 02:15:33
TRANS MINUS 1 MIN (2:17:49)				A - START COMP - PUSH (COMP LT ON) SUNRISE - 02:18:55	
TRANS MINUS 0 MIN (2:18:49)				PHASE ADJUST TRANSLATION A - TRANSLATE FWD TO ZERO IVI'S <u>NOTE</u> A. AFT FIRING THRUSTERS 9 AND 10 USED. B. NOMINAL ΔV IS 54.7 FT/ SEC C. APPROXIMATELY 72 SECONDS OF THRUST REQUIRED	A - TIME BURN
MISSION GEMINI X	EDITION FINAL			A - APPLY ANY NECESSARY CORREC- TIONS TO NULL ADDRESS 80 DATE JUNE 22, 1966 STATION AOS LOS TOTAL REV PAGE 27	A - READOUT ADDRESSES 81, 82, AND 80 FROM MDU

FLIGHT PLAN

TIME HR:MM	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND PILOT	PILOT
	NAV	ORB RATE	RATE CMD	WITHIN +0.2 FT/SEC AND ADDRESS 81 & 82 WITHIN +0.5 FT/SEC.	
				NOTE THE ABOVE CORRECTIONS INCREASE THE ACCURACY OF THE V APPLICATION.	
				A - NULL FDI'S	A - READOUT AND COPY ADDRESSES 80, 81, AND 82 ZERO ADDRESSES 25, 26, & 27.
				A - ATTITUDE CONTROL - HOR SCAN MANEUVER CONTROLLER - OFF START COMP - PUSH (COMP LT OFF) CRO AOS - 02:24:08	IF TIME PERMITS PRIOR TO THE PLANE CHANGE, LOAD MODULE IIIA FROM THE ATM AS FOLLOWS: COMPUTER - PRE LN VERIFY MDU PWR - ON VERIFY ATM MODE - STBY VERIFY ATM PWR - OFF VERIFY AUX TAPE C/B - CLOSED AUX TAPE PWR - ON RESET VERIFY COMP LT - ON INSERT 62:04701 INTO THE COMP VIA THE MDU ATM MODE - AUTO VERIFY COMP LT - OFF VERIFY F/A & L/R IVI'S ZERO
MISSION GEMINI X		EDITION FINAL		DATE JUNE 22, 1966	STATION
				AOS	LOS
				TOTAL	REV
					PAGE 28

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND PILOT	PILOT			
	PRE LN	ORB RATE	HOR SCAN		VERIFY ATM LT - ON VERIFY R/L IVI DISPLAYING CORRECT TPW'S VERIFY COMP LT - ON VERIFY F/A IVI DISPLAYS 003 & L/R IVI DISPLAYS 047 MONITOR COMP LT VERIFY ATM RUN LT - OFF VERIFY COMP LT ON 16 SEC AFTER GOING OUT. VERIFY L/R IVI DISPLAYS 076 AUX TAPE MODE - STBY AUX TAPE PWR - OFF			
02:25				GRO - IF REQUIRED, UPDATE PLANE ADJUST TRANSLATION AS FOLLOWS: 1. GET : : 2. 27: : : 3. T : : (MIN:SEC)				
				A - COPY UPDATE A - REPORT GET INITIATE & AV (ORB DET VECTOR) OF NSR REPORT SOLUTION USED FOR PHASE ADJUST (GND, ASC, OR ORB DET). IF ORB DET USED FOR N _C 1 RE- PORT GET INITIATE & AV USED.				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						29

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
TRANS MINUS 5 MIN (2:40:30)	PRE LN	ORB RATE CMD		CRO LOS - 02:30:46		A - INSERT PLANE CHANGE ΔV INTO THE COMPUTER AS FOLLOWS: 25:00000 26:00000 27: NPC ΔV
	CTCH UP			A - ATTITUDE CONTROL - RATE CMD PLATFORM - ORB RATE FDR - COMP FDM - ATT COMPUTER - NAV (CTCH-UP) CONTROL S/C ATTITUDE TO 0°, 90°, 0° or 0°, 270°, 0° MANEUVER CONTROLLER - UNSTOW MANEUVER CONTROLLER - ON		
TRANS MINUS 1 MIN (2:44:30)	CTCH UP	ORB RATE CMD		A - START COMP - PUSH		NOTE IF MODULE III HAS NOT RELOADED INTO THE COMPUTER. THE ORBIT NAV MODE WILL BE USED TO NAVIGATE THEN THE BURN. PLANE ADJUST TRANSLATION
TRANS MINUS 0 MIN (2:45:30)	CTCH UP	ORB RATE CMD		A - TRANSLATE FWD TO DRIVE IVI'S TO ZERO		NOTE NOMINAL ΔV IS ZERO
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						REV
						PAGE
						30

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
	CTCH UP	ORB RATE	RATE CMD			A - READOUT ADDRESSES 81, 82, AND 80.
				A - APPLY ANY NECESSARY CORREC- TIONS TO NULL ADDRESS 81 WITHIN +0.2 FT/SEC AND ADDRESS 80 & 82 WITHIN +0.5 FT/SEC.		
				NOTE THE ABOVE CORRECTIONS INCREASE THE ACCURACY OF THE ΔV APPLICATION.		
	PRE LN		HOR SCAN	A - NULL FDI'S CONTROL S/C ATTITUDES TO SET ATTITUDE CONTROL - HOR SCAN COMPUTER - PRE LN MANEUVER CONTROLLER - OFF MANEUVER CONTROLLER - STOW		A - READOUT AND COPY ADDRESSES 80, 81, AND 82 ZERO ADDRESSES 25, 26, & 27.
HAW AOS (02:50)				HAW AOS - 02:49:18 A - REPORT SOLUTION USED FOR PLANE CHANGE (ASC VECTOR OR GND)		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						REV
						PAGE
						31

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND PILOT	PILOT
02:50	PRE LN	ORB RATE SEF	HOR SCAN PLAT	A - FDR - PLAT FDM - ATT ATTITUDE CONTROL - PLAT PLATFORM - SEF ALLOW PLAT MODE TO ALIGN PLATFORM HAW LOS - 02:56:40 U.S. AOS - 02:58:34 <	

FLIGHT PLAN

MSC FORM 1008 (REV AUG 64)

NASA MANNED SPACECRAFT CENTER

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND	PILOT
03:07	PRE LN	ORB RATE	PUL	A - ATTITUDE CONTROL - PULSE PLATFORM - ORB RATE RADAR - ON CONTROL S/C ATTITUDES TO AGENA ACQ ANGLES AFTER LOCK- ON: FDR - RDR FDM - ATT NULL FDI'S COMPUTER - NAV (CATCH UP)	A - AFTER RADAR LOCKON, SEND AGENA CMD 260 (1 BAND ANT SEL DIPOLE) NOTE THIS PROCEDURE SHOULD BE REPEATED AFTER EACH LOCKON UNTIL A SOLID LOCKON IS OBTAINED. A - READOUT RANGE (ADDRESS 36) CONTINUOUSLY. ENCDR - OFF (5 MINUTES AFTER LOCKON)
RKV AOS (03:23)				SUNSET - 03:11:07 ETR LOS - 03:19:04 RKV AOS - 03:22:53 RKV-IF REQUIRED UPDATE CIRCULAR- IZATION TRANSLATION (NSR) AS FOLLOWS: 1. GET :--:-- 2. 25:--:-- 3. 26:--:-- 4. ΔT:--:-- (MIN:SEC) A - COPY UPDATE	
MISSION	EDITION	DATE	STATION	AOS	
GEMINI X	FINAL	JUNE 22, 1966			
				TOTAL	REV
				LOS	PAGE
					34

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
N SR MINUS 23 MIN (3:25:09)	CTCH UP	ORB RATE	PUL	A - CONTINUE TO TRACK TARGET USING FDI'S.	RADAR N SR DETERMINATION (00:00)	A - START GET CLOCK COUNTING UP		
3:26:14				ASC AOS - 03:27:50 RKV AOS - 03:29:37 ASC LOS - 03:33:23	(01:05) A - READOUT RANGE (ADDRESS 36) FROM THE COMPUTER @ THE FOLLOWING TIMES (01:05) (01:15) (02:45) (02:55) CALCULATE ΔR1			
TRANS MINUS 15 MIN (3:32:09)	SEF	PLAT		A - CONTROL S/C ATTITUDES TO 0°, 0°, 0° PLATFORM - SEF ATTITUDE CONTROL - PLAT ALIGN PLATFORM				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						35

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
3:33:39						(08:30) A - READOUT RANGE (ADDRESS 36) FROM THE COMPUTER @ THE INDICATED TIMES (08:30) (08:40) (08:50) (10:10) (10:20) (10:30) CALCULATE $\Delta R2$
3:41:14	CTCH UP	SEF	PLAT			(16:05) A - READOUT RANGE (ADDRESS 36) FROM THE COMPUTER @ THE INDICATED TIMES (16:05) (16:15) (17:45)
TRANS MINUS 5 MIN (3:43:09)		ORB RATE CMD				(18:00) A - ATTITUDE CONTROL - RATE CMD PLATFORM - ORB RATE MANEUVER CONTROLLER - UNSTOW MANEUVER CONTROLLER - ON FDR - COMP
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						REV
						PAGE
						36

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
3:43:04					(17:55) A - READOUT RANGE (ADDRESS 36) FROM THE COMPUTER CALCULATE ΔR_3 & $(4R_1 + 4R_3)$ ENTER CHARTS AND CALCULATE NSR X & Y ENTER NSR V'S INTO THE COMPUTER AS FOLLOWS: 25: -- X -- 26: -- Y -- 27: 00000 A - START COMP - PUSH			
NSR TRANS MINUS 1 MIN (3:47:09)					SUNRISE - 03:48:11 NSR TRANSLATION A - TRANSLATE FWD TO DRIVE IVI'S TO ZERO NOTE A. AFT FIRING THRUSTERS USED B. NOMINAL ΔV IS 51.2 FT/SEC C. APPROXIMATELY 70 SECONDS OF THRUST REQUIRED			
NSR TRANS MINUS 0 MIN (3:48:09)	CTCH ORB UP RATE				A - 00:00 START GET CLOCK AT THRUST INITIATION MONITOR DURATION OF TRANSLATION			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						36 A

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			PILOT	
				COMMAND	PILOT			
	CTCH UP	ORB RATE	RATE CMD	A - APPLY ANY NECESSARY CORRECTIONS TO NULL ADDRESS 80 WITHIN ± 0.2 FT/SEC AND ADDRESS 81 & 82 WITHIN ± 0.5 FT/SEC. NOTE THE ABOVE CORRECTIONS INCREASE THE ACCURACY OF THE TRANSLATIONS. A - NULL FDI'S MANEUVER CONTROLLER - OFF FDR - RDR FDM - ATT ATTITUDE CONTROL - PULSE TAN LOS - 03:50:46 NOTE ALL TIMES IN PARENTHESIS IN BOTH THE CMD PILOT AND PILOT COLUMNS ARE ELAPSED TIMES FROM THE LATEST RESET POINT ON EITHER THE EVENT TIMER OR THE GET STOPWATCH.			A - READOUT ADDRESSES 81, 82 AND 80 FROM MDU	
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						37

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
	CTCH UP	ORB RATE	PUL	A - IMMEDIATELY AFTER COMPLETION OF CIRCULARIZATION TRANS- LATION: EVENT TIMER - STBY SET EVENT TIMER TO 03:00		
3:51:09	CTCH UP	ORB RATE	PUL	(03:00) A - START EVENT TIMER COUNTING UP	(03:00) A - GIVE THE CMD PILOT A TIME HACK	
GEMRZM (3:52:09)	RNDZ	ORB RATE	PUL	A - NULL FDI'S VERIFY RADAR LOCK-ON REMAIN BORE-SIGHTED ON THE AGENA USING EITHER THE FDI'S OR RETICLE (USE RETICLE WHEN AGENA BECOMES VISABLE)	(04:00) A - COMPUTER - RNDZ INSERT THE FOLLOWING INTO THE COMPUTER: 83:13000 (130° wt) 93:04820 (48.2° 4 wt)	
				A - LOAD 16MM CAMERA (WITH 75MM LENS) SET CAMERA TO 1/200, F 16 AND INFINITY		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						REV
						PAGE

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
						A - VERIFY COMPUTER ADDRESSES AS FOLLOWS: 83:13000 93:04820 54:72900 24:13130 53:53776 92:00000 READOUT PITCH ANGLE (ADDRESS 96) AND RANGE (ADDRESS 69) AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER AT 100-SEC INTERVALS. (05:40) DATA READOUT (07:20) DATA READOUT (09:00) DATA READOUT (10:40) DATA READOUT ETC.		
						A - CONTINUE READING OUT PITCH ANGLE (ADDRESS 96) AND RANGE (ADDRESS 69) AND RANGE RATE (ADDRESS 35) FROM THE COM- PUTTER VIA MDU.		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						39

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			
				COMMAND	PILOT	PILOT	
3:58:49	RNDZ	ORB RATE SEF	PUL	(10:40 - NOMINALLY) A - WHEN PITCH ANGLE IS 9° AND AFTER DATA POINT IS RECEIVED: PITCH DOWN TO 0°, 0°, 0° PLATFORM - SEF ATTITUDE CONTROL - PLAT FDR - PLAT ALIGN PLATFORM FOR 10 MIN.	(10:40 - NOMINALLY) A - READ OUT SIN OF RADAR ELEVA- TION ANGLE (ADDRESS 84) EVERY 100 SECONDS. UNTIL ADDRESS 84 ≅ 0.19 GIVE CMD PILOT MARK		
4:03:49	RNDZ	SEF	PLAT	A - ON PILOTS MARK: ATTITUDE CONTROL - PULSE ALIGN PLATFORM WITH PRECISION (15:40) FIRST TOTAL ΔV DISPLAYED CSQ AOS - 04:07:09 A - REPORT SOLUTION USED FOR NSR (ASC, ORB DET, GND, OR RADAR) CSQ LOS - 04:13:10	A - WHEN ADDRESS 84 ≅ 0.20 READ EVERY 10 SEC. WHEN ADDRESS 84 ≅ 0.21 GIVE CMD PILOT MARK TO STOP ALIGN CSQ - UPDATE TERMINAL PHASE BACKUP QUANTITIES A - COPY UPDATE CONTINUE READING OUT PITCH, RANGE, AND RANGE RATE.		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	PAGE
GEMINI X	FINAL	JUNE 22, 1966					40

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		
				COMMAND	PILOT	PILOT
4:08:49	RNDZ	SEF	PLAT	(20:40 NOMINALLY) AFTER PLATFORM ALIGNMENT:		(20:40 - NOMINALLY) A - INSERT 99:10001 INTO THE COM- PUTER IF ORBIT RATE COMPEN- SATION IS USED
		ORB RATE	PUL	A - ATTITUDE CONTROL - PULSE PLATFORM - ORB RATE FDR - RDR BORESIGHT ON THE AGENA USING THE RETICLE WHEN THE AGENA BECOMES VISABLE.		A - READOUT PITCH ANGLE, RANGE, AND RANGE RATE EVERY 100 SECONDS.
HAW AOS (04:24)				HAW AOS - 04:24:00 HAW - GEMINI TAPE PLYBK		
04:25	RNDZ	ORB RATE	PUL	A - CONTINUE BORESIGHTED ON THE AGENA UNTIL SELECTED INITIATION POINT.		A - NOTE PITCH ANGLE (ADDRESS 96) WHICH EXCEEDS 21.4°. IF VALUE IS LESS THAN 22.2°, LABEL IT POINT B. IF NOT, LABEL IT POINT C AND THE PREVIOUS ONE POINT B. ADD 01:40 TO POINT B TIME TO OBTAIN TIME OF POINT C. ADD 01:40 TO POINT C TO OBTAIN TIME OF POINT D. ADD 02:00 TO POINT D TO OBTAIN TPI TIME. ADD 00:40 TO TPI TIME TO OBTAIN GET CLOCK RESET TIME
				HAW LOS - 04:31:52		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						PAGE 41

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		
				COMMAND	PILOT	PILOT
4:32:09	RNDZ	ORB RATE	PUL	(44:00 - NOMINALLY)		
				DATA POINT "C" RECEIVED ($\theta = 22.9$)		
				A - START COMP - PUSH		
04:33:49				(45:40 - NOMINALLY)		
				A - READ PITCH ANGLE (ADDRESS 96) AND RANGE (ADDRESS 69) AND RANGE RATE (ADDRESS 35).		
				DATA POINT "D" RECEIVED ($\theta = 24.5$)		
				A - READ PITCH ANGLE (ADDRESS 96) RANGE (ADDRESS 36) AND RANGE RATE (ADDRESS 35). CALCULATE BACKUP ΔV .		
				A - NULL FDI'S TO BORESIGHT ON AGENA ATTITUDE CONTROL - RATE CMD MANEUVER CONTROLLER - ON GYM AOS - 04:35:19		
				RATE CMD		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						PAGE 42

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
	RNDZ	ORB RATE	RATE CMD			NOTE THE AGENA WILL HAVE BEEN CON- FIGURED FOR RENDEZVOUS AND DOCKING BY THE GROUND AS FOL- LOWS: A. AT -90° (TDA NORTH) B. ACQUISITION LIGHTS - ON C. APPROACH LIGHTS - ON D. STATUS DISPLAY PANEL - BRIGHT E. TDA UNRIGIDIZED F. DIPOLE ANT - EXTEND G. L-BAND BEACON - ON H. FLIGHT CONTROL MODE I		
4:35:49	RNDZ	ORB RATE	RATE CMD		$\omega^T = 130^\circ$ TRANSFER TRANSLATION (47:40 - NOMINALLY) A - WHEN START COMP LIGHT COMES ON, TRANSLATE TO NULL IVI'S NOTE A. NOMINALLY AFT FIRING THRUSTERS USED. B. NOMINALLY 41 SECONDS OF THRUST REQUIRED.	(47:40 - NOMINALLY) A - TIME DURATION OF TRANSLATION		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						43

FLIGHT PLAN

TIME		COMP	PLAT	CNTL MODE	ACTION		PILOT	
HR:MIN					COMMAND	PILOT		
4:36:29	RNDZ	ORB RATE	RATE CMD	A - IMMEDIATELY AFTER TRANSLATION MANEUVER CONTROLLER - OFF BORESIGHT S/C ON AGENA WITH RETICLE ATTITUDE CONTROL - PULSE RESET EVENT TIMER TO 03:00 AND PLACE IN STBY		(48:20 - NOMINALLY) (00:00) A - AT 00:40 AFTER TPI TIME, ZERO THE GET CLOCK AND START IT COUNTING UP.		
4:37:29	RNDZ	ORB RATE	PUL			(01:00) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36), AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER.		
				US AOS - 04:39:32		(02:25) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36) AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER.		
4:39:29	RNDZ	ORB RATE	PUL	(03:00) A - ON MARK, START EVENT TIMER COUNTING UP.		(03:00) A - AT 03:00, GIVE MARK TO CMD PILOT.		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						44

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
	RNDZ	ORB RATE	PUL			(04:00) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36) AND RANGE RATE (ADDRESS 35) FROM COM- PUTER AND COPY. CONFIRM RANGE IS LESS THAN PREVIOUS POINT. CALCULATE BACKUP Δ V.
04:41:29				SUNSET - 04:41:10		(05:00) A - ENCDR - ON SEND CMD 270 (L-BAND ANT SEL- SPIRAL)* TO THE AGENA ENCDR - OFF
				(05:04) - COMP LT OFF		(07:00) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36) AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER.
				TEX LOS - 04:44:04		(08:25) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36), AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER.
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						REV
						PAGE
						45

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
4:47:09	RNDZ	ORB RATE	PUL			(10:00) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36), AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER. CALCULATE BACKUP ΔV .		
				(10:40) A - WHEN START COMP LIGHT COMES ON: ATTITUDE CONTROL - RATE CMD MANEUVER CONTROLLER - ON BORESIGHT ON AGENA $\omega_T = 82^\circ$ CORRECTION TRANSLATION				
4:48:09			RATE CMD	(11:40) IVI'S COUNT UP TO REQ ΔV		(11:40) A - WHEN IVI'S STOP COUNTING UP, READ RANGE (ADDRESS 69) VERIFY RANGE LESS THAN PREVIOUS DATA POINT.		
				A - TRANSLATE TO NULL IVI'S <u>NOTE</u> NULL LATERAL ERRORS FIRST AND FWD/AFT ERRORS LAST.				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						46

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
	RNDZ	ORB RATE		A - IMMEDIATELY AFTER CORRECTION: MANEUVER CONTROLLER - OFF ATTITUDE CONTROL - PULSE CONTINUE BOREIGHTED ON THE AGFNA WITH RETICLER				
					(13:00) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36), AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER.			
					(14:30) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36), AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER.			
					(16:00) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36), AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER AND COPY. VERIFY RANGE LESS THAN PRE- VIOUS DATA POINT. CALCULATE BACKUP Δ V.			
				RKV AOS - 04:56:34 (17:40) - COMP LT OFF				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						47

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT			
				COMMAND	PILOT				
	RNDZ	ORB RATE	PVL			(19:00) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36) AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER. (20:30) A - READ PITCH ANGLE (ADDRESS 94), RANGE (ADDRESS 36), AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER. (22:00) A - READ PITCH ANGLE (ADDRESS 96), RANGE (ADDRESS 36) AND RANGE RATE (ADDRESS 35) FROM THE COMPUTER. CALCULATE BACKUP ΔV.			
MISSION		EDITION		DATE	AOS	LOS	TOTAL	REV	PAGE
GEMINI X		FINAL		JUNE 22, 1966					48

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			
				COMMAND	PILOT	PILOT	
5:02:59	CTCH UP	ORB RATE	RATE CMD	(26:30 - NOMINALLY) A - AT 15,000 FT, TRANSLATE AFT ALONG LINE-OF-SIGHT TO RE- DUCE RANGE RATE TO 440 FT/SEC			
5:07:59				RKV LOS - 05:05:32 (31:30 - NOMINALLY) A - AT 3,000 FT RANGE, TRANSLATE AFT ALONG LINE-OF-SIGHT TO REDUCE RANGE RATE TO 37 FPS.			
5:13:59					(37:30 - NOMINALLY) A - AT 500 FT RANGE: EXT LTS - DOCK SEND THE FOLLOWING AGENA CMDS: 250 ACQ LTS - OFF 240 - SPC DISABLE		
5:15:29				(39:00 - NOMINALLY) A - AT 100 FT RANGE, TRANSLATE AFT TO REDUCE RANGE RATE TO 1/2 FT/SEC. SUNRISE - 05:17:55			
5:18				A - IF POSSIBLE, START 16 MM CAMERA AT 1 FRAME/SEC @ SUNRISE.			
				TAN AOS - 05:18:00			
MISSION		EDITION		DATE	STATION	AOS	LOS
GEWINI X		FINAL		JUNE 22, 1966			
							TOTAL
							REV
							PAGE
							50

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		
				COMMAND	PILOT	PILOT
05:20 TO 05:40	CTCH UP	ORB RATE	PUL	A - ATTITUDE CONTROL - PULSE FORMATION FLYING CHANGE 16MM CAMERA TO 18MM LENS, INFINITY 1/200 AND F16. TAN LOS - 05:26:59	A - AT 50 FT RANGE AGENA BUS ARM - DOCK INDEX - EXTEND INDEX - OFF AGENA BUS ARM - SAFE A - AGENA STATUS DISPLAY CHECK: 1. MAIN RED - OFF 2. MAIN GREEN - ON 3. ARMED - OFF 4. SEC HI - ON 5. SEC LO - ON 6. ATT - ON 7. DOCK - ON 8. RIGID - OFF 9. PWR - ON	
05:40 TO 05:50	CTCH UP	BEF ORB RATE CMD	PLAT	A - PLATFORM - BEF ATTITUDE CONTROL - PLAT ALIGN PLATFORM PLATFORM - ORB RATE ATTITUDE CONTROL - RATE CMD CSQ AOS - 05:40:42 CSQ LOS - 05:49:44	A - SEND THE FOLLOWING CMDS TO THE AGENA: (F.C. MODE 6) 471 - ACS GAIN HI DK 371 - ACS PRESS HI *451 - ACS D/B WIDE 271 - PWR RELAY RESET ELECTRIC CHARGE MONITOR TEST A - SEND THE FOLLOWING AGENA CMDS 041 - RECORD DATA 151 - BOOM EXTEND WAIT 30 SECONDS 271 - PWR RELAY RESET 220 - UNRIGIDIZE 220 - UNRIGIDIZE	
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						PAGE
						51

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND PILOT	PILOT			
05:50 TO 06:00	CTCH UP	ORB RATE	RATE CMD	(S/C - 0°, 90°, 0°) (AGENA - 0°, -90°, 0°) TDA NORTH) A - RUN 16MM CAMERA AT 6 FRAMES/ SEC FOR DOCKING MARK START AND STOP TIMES. DOCK STOP 16MM CAMERA A - RIGID/STOP SWITCH - STOP (AFTER RIGID LITE - ON) OAMS CNTL POWER - OFF POST-DOCKED AGENA STATUS DISPLAY PANEL CHECKLIST DOCK - OFF RIGID - ON PWR - ON MAIN RED - OFF MAIN GREEN - ON A - POST-DOCKED AGENA STATUS DISPLAY PANEL CHECKLIST MAIN RED - OFF MAIN GREEN - ON SEC HI - ON SEC LO - ON ATT - ON CYCLE ENGINE STOP/ARM SWITCH TO VERIFY HARDLINE CONNECTION. (ARM LT ON & OFF)	1ST DOCKING A - RDR STBY			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						52

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
HAW AOS (06:00)	CTCH UP	ORB RATE	PUL	A - SCANNER - OFF ATTITUDE CONTROL - RATE CMD RETICLE - OFF EVENT TIMER - STOP MANEUVER CONTROLLER - OFF MANEUVER CONTROLLER - STOW	POST-DOCKED CHECKLIST A - EXT LTS - OFF C-ADPT - CMD R/T T/M - CMD RDR-OFF COMPUTER - PRE LN			
	PRE LN				A - SEND THE FOLLOWING CMDS TO THE AGENA: 030 - T/M & RECORDER OFF 021 - T/M - ON 250 - ACQ LTS - OFF (IF REQ) 140 - APPROACH LTS - OFF 211 - STATUS DISPLAY - DIM 070 - L-BAND BEACON - OFF			
					BENDING MODE CHECK A - ATTITUDE CONTROL - DIRECT OAMS CNTL POWER - ON			
					A - COMPUTER - CTCH-UP SEND THE FOLLOWING AGENA CMDS: 041 - RECORD DATA 300 - H/S OFF 350 - GEO RATE OFF 400 - ACS OFF			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						53

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
	PRE LN	ORB RATE	DIR	A - APPLY A 3 SEC PITCH DOWN THRUST IMMEDIATELY FOLLOWED BY A 3 SEC PITCH UP THRUST, ALLOW THE S/C-AGENA TO STABILIZE FOR 2 MIN. APPLY A 3 SEC YAW LEFT THRUST IMMEDIATELY FOLLOWED BY A 3 SEC YAW RIGHT THRUST ALLOW THE S/C-AGENA TO STABILIZE FOR 10 SEC				
				A - CNTL S/C ATTITUDES TO 0°, 180°, 0° - (AGENA 0°, 0°, 0° - TDA FWD) HAW LOS - 06:08:17		A - SEND THE FOLLOWING AGENA CMDS: 030 - T/M & RECORDER OFF 021 - T/M ON		
				A - SEND THE FOLLOWING AGENA CMDS: 361 - GEO RATE NORMAL 310 - ROLL H/S YAW *321 - H/S PHASE IN 401 - ACS ON 301 - H/S ON 351 - GEO RATE ON 341 - GYRO COMPASSING ON		A - SEND THE FOLLOWING AGENA CMDS: 030 - T/M & RECORDER OFF 021 - T/M ON		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						54

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT	
				COMMAND	PILOT		
	PRE LN	ORB RATE	PUL			A - SEND THE FOLLOWING AGENA CMDS: (F.C. MODE 2) 460 - ACS GAIN LOW 310 - ROLL H/S YAW 370 - ACS PRESS LOW 450 - ACS D/B NARROW 271 - PWR RELAY RESET A - COMPUTER - NAV (CTCH UP) LOAD THE COMPUTER AS FOLLOWS: 25:91000 26:00000 27:00000 55:11111 (FWD FIRING THRUSTER LOGIC) START COMP - PUSH	
SUNSET - 06:11:36							
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	
GEMINI X	FINAL	JUNE 22, 1966					
						REV	PAGE
							55

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION					
				COMMAND	PILOT				
RKV AOS (06:33)	CTCH UP	ORB RATE	OFF	RKV AOS - 06:32:42 A - CREW STATUS REPORT RKV - LOAD THE AGENA V/M FOR DUAL RNDZ HEIGHT ADJUST AGENA TAPE PLYBK SUNRISE - 06:48:16 RKV LOS - 06:40:56 A - PLATFORM - CAGE (BEF) CSQ AOS - 07:16:35 CSQ - SEND V/M INTERROGATE TO THE AGENA VERIFY AGENA V/M IS LOADED CORRECTLY & V/M MODE IS DIRECT.	A - CREW STATUS REPORT RKV - UPDATE DUAL RNDZ HEIGHT ADJUST TRANSLATION A - COPY UPDATE TAN AOS - 06:53:47 TAN LOS - 07:02:13 A - READOUT & REPORT THE FOLLOWING SDP METER READINGS: MAIN TIME _____ MIN _____ SEC SEC TIME _____ MIN _____ SEC ATT GAS _____ %				
07:10		CAGE (BEF)							
CSQ AOS (07:18)									
07:20		ORB RATE		A - PLATFORM - ORB RATE A - SET EVENT TIMER TO 58:00 AND STBY FASTEN LAP BELT CSQ LOS - 07:25:13	A - SEND THE FOLLOWING AGENA CMDS (F.C. MODE 6) 471 - ACS GAIN HI DK 371 - ACS PRESS HI 451 - ACS D/B WIDE 271 - PWR RELAY RESET				
MISSION	EDITION	DATE		STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966							56

FLIGHT PLAN

TIME HR:MIN		COMP	PLAT	CNTL MODE	ACTION		PILOT			
					COMMAND	PILOT				
		CTCH UP	ORB RATE	OFF			A - UPDATE DUAL RNDZ HEIGHT ADJUST TRANSLATION VIA MDU.			
							NOTE NOMINAL VALUES ARE: 99:90003 (10-1 IVI SCALE) 25:00103 26:00000 27:00000 55:11111 (FWD FIRING THRUSTER LOGIC) FASTEN LAP BELT DUAL RNDZ GENERAL PURPOSE TRANSLATION			
07:38:00							HAW AOS - 07:34:50 (58:00) A - EVENT TIMER - UP (59:00) A - START COMP - PUSH (F/A IVI SHOWS ΔV) A - SEND THE FOLLOWING AGENA CMDS AT THE INDICATED TIMES: (58:00) 201-SDP BRIGHT (59:00) 041 - RECORD DATA 571 - HYD GAIN DK 450 - D/B NARROW 521 - V/M ENABLE			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE		
GEMINI X	FINAL	JUNE 22, 1966						57		

FLIGHT PLAN

TIME HR:MIN	COMP UP	PLAT ORB RATE	CNTL MODE	ACTION						
				COMMAND	PILOT					
			OFF		A - ENGINE - ARM READOUT PITCH & YAW ERRORS (ADD 58 & 59) SEND THE FOLLOWING AGENA CMD @ THE INDICATED TIME: (00:00) 501 - PPS ON THE FOLLOWING EVENT WILL OCCUR AT THE INDICATED TIME: 00:16 - SPS 16# INITIATE A - (00:50) READOUT PITCH & YAW ERRORS (ADD 58 & 59) & AFT 4 V (ADD.80) VERIFY SPS OPERATION THE FOLLOWING EVENTS OCCUR AT THE INDICATED TIMES: 01:20 - PPS RDY 01:24 - PPS INITIATE 01:25 - PPS DISPLAY ON 01:26 - SPS THRUST C. O. 01:27 - V/M C.O. A - ON MARK, ENGINE STOP					
				A - WHEN FWD/AFT IVI LT CHANGES, GIVE MARK						
MISSION	EDITION			DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL			JUNE 22, 1966						58

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			
				COMMAND	PILOT		
	CTCH UP	ORB RATE	OFF		A - SEND THE FOLLOWING AGENA CMDS AT THE INDICATED TIME: (V/M C.O. + 2 SEC) 500 - PPS OFF 451 - D/B WIDE HAW - LOAD THE AGENA V/M FOR DUAL A - READOUT AND COPY ADDRESSES RNDZ PHASE ADJUST 80, 81, & 82. SEND THE FOLLOWING AGENA CMDS AT THE INDICATED TIME: (V/M C.O. + 60 SEC) 520 - VM DISABLE 341 - GYRO ON 030 - T/M & RECORDER OFF 021 - T/M ON ZERO ADDRESSES 25, 26 & 27 IN THE COMPUTER COMPUTER - PRE LN SUNSET - 07:41:59 HAW LOS - 07:43:52 RKV AOS - 08:08:42 08:09 RKV - SEND V/M INTERROGATE TO THE AGENA VERIFY AGENA V/M IS LOADED CORRECTLY & V/M MODE IS DIRECT. RKV - UPDATE DUAL RNDZ PHASE ADJUST A - COPY UPDATE READOUT & REPORT THE FOLLOW- ING SDP METER READINGS MAIN TIME _____ MIN _____ SEC SEC TIME _____ MIN _____ SEC ATT GAS _____ %		
MISSION	EDITION	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL						59

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			
				COMMAND	PILOT		
08:25:00	CTCH UP	ORB RATE	OFF	A - SET EVENT TIMER TO 58:00 AND STBY VERIFY LAP BELT-FASTENED	A - COMPUTER-NAV (CTCH UP) UPDATE DUAL RNDZ PHASE AD- JUST TRANSLATION VIA MDU NOTE: NOMINAL VALUES ARE: 99:90003 (10-1 IVI SCALE) 25:00053 26:00000 27:00000 55:11111 (FWD FIRING THRUSTER LOGIC) VERIFY LAP BELT-FASTENED		
				RKV LOS - 08:18:07 SUNRISE - 08:18:26			
				DUAL RNDZ PHASE ADJUST TRANSLATIONS			
				A - SEND THE FOLLOWING AGENA CMDS AT THE INDICATED TIMES: (58:00) *201 - SDP BRIGHT (59:00) 041-RECORD DATA *571-HYD GAIN DK 450-D/B NARROW 521-V/M ENABLE			
				A - ENGINE - ARM READOUT PITCH & YAW ERRORS (ADD 58 & 59)			
MISSION	EDITION	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL						60

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
	CTCH UP	ORB RATE	OFF		SEND THE FOLLOWING AGENA CMD AT THE INDICATED TIME: (00:00) 501 - PPS ON THE FOLLOWING AGENA EVENT OCCURS @ THE INDICATED TIME: 00:16 - PPS 16# INITIATE (00:50) A - READOUT PITCH & YAW ERRORS (ADD 58 & 59) & FWD 4V(ADD 80) VERIFY SPS OPERATION THE FOLLOWING EVENTS OCCUR @ THE INDICATED TIMES: 01:20 - PPS RDY 01:24 - PPS INITIATE 01:25 - PPS DISPLAY ON 01:26 - SPS THRUST C.O. 01:28 - V/M C.O. A - ON MARK, ENGINE - STOP A - SEND FOLLOWING AGENA CMD @ THE INDICATED TIMES: (V/M C.O. + 2 SEC) 500 - PPS OFF 451 - D/B WIDE A - READOUT AND COPY ADDRESSES 80, 81 & 82 FROM THE COMPUTER			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1968						61

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND	PILOT
	CTCH UP	ORB RATE	OFF		A - SEND FOLLOWING AGENA CMDS @ THE INDICATED TIMES: (V/M C.O. + 60 SEC) 520-V/M DISABLE 341-GYRO COMPASSING ON 030-T/M & RECORDER OFF 021-T/M ON PURGE FUEL CELLS (SECT 2 THEN 1) PWR DOWN S/C
CSQ AOS (8:54)	OFF	OFF	OFF	A - PWR DOWN S/C CSQ AOS - 08:53:49 CSQ - AGENA TAPE PLYBK SEND RESET TIMER RESET TO THE AGENA A - FLIGHT PLAN REPORT CSQ - FLIGHT PLAN UPDATE	CSQ - BLOCK 2 PLA UPDATE A - COPY UPDATE QTY READ - O ₂ (FOR 10 SEC) QTY READ - H ₂ (FOR 10 SEC) QTY READ - OFF A - READOUT & REPORT THE FOLLOW- ING SDP METER READINGS: MAIN TIME _____ MIN _____ SEC SEC TIME _____ MIN _____ SEC ATT GAS _____ % CSQ LOS - 09:02:44
MISSION	EDITION	DATE	STATION	AOS	
GEMINI X	FINAL	JUNE 22, 1966			
				LOS	TOTAL
					REV
					PAGE
					62

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
				COMMAND	PILOT									
9:03	OFF	OFF	OFF		A - AFTER CSQ LOS: PRE-SLEEP CHECKLIST A - ENGINE - ARM CHECK SDP ARM LT ILLUMINATED ENGINE - STOP CHECK SDP ARM LT EXTINGUISHED RCS HTRS - ON AGENA ATTITUDE GAS 4.5% OR GREATER CHECK SDP VERIFY ENCDR - ON SEND CMD 240 (SPC DISABLE) TO THE AGENA SEND THE FOLLOWING AGENA CMDS (F.C. MODE 1) 460 - ACS GAIN LOW 370 - ACS PRESS LOW *451 - ACS D/B WIDE 271 - PWR RELAY RESET A - SLEEP PERIOD SUNSET 09:14:10 SUNSET 16:54:18									63
09:03 TO 17:00	OFF	OFF	OFF											

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT	PILOT		
17:00	OFF	OFF	OFF	A - SLEEP PERIOD ENDS		A - SLEEP PERIOD ENDS COLLECTOR DOOR - CLOSED		
17:00 TO 18:00				A - EAT PERIOD		A - EAT PERIOD		
CRO AOS (17:06)				CRO AOS - 17:05:15 CRO - SEND RESET TIMER RESET TO THE AGENA FLIGHT PLAN UPDATE A - COPY UPDATE				
ETR AOS (17:52)				CRO LOS - 17:13:20 SUNRISE - 17:30:37 ETR AOS - 17:51:34 A - CREW STATUS REPORT		A - CREW STATUS REPORT - PURGE FUEL CELLS (SECT 1 THEN 2)		
CYI AOS (18:05)				ETR LOS - 18:03:14 CYI AOS - 18:04:54 CYI - UPDATE AGENA V/M FOR DUAL RNDZ PLANE CHANGE		A - QTY READ - O ₂ (FOR 10 SEC) QTY READ - H ₂ (FOR 10 SEC) QTY READ - OFF		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	June 22, 1966						64

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
18:10	OFF	OFF	OFF	A - PLATFORM - CAGE (BEF) ATT IND - WITH FDI'S CYI LOS - 18:14:58 SUNSET - 18:26:20	A - PRIMARY PUMP A-ON SECONDARY PUMP A-ON AC POWER - IGS ACME BIAS PWR - PRI ATT IND LT C/B - CLOSED ATT IND - WITH FDI'S			
18:35	OFF	CAGE OFF (BEF)	OFF	CRO AOS - 18:41:12 A - GO/NO GO FOR 31-1 CRO - GO/NO GO FOR 31-1	A - SEND THE FOLLOWING AGENA CMDS: (F.C. MODE 2) 460-ACS GAIN LO 310-ROLL H/S YAW 370-ACS PRESS LOW 450-ACS D/B NARROW 271-PWR RELAY RESET			
CRO AOS (18:42)					CRO - UPDATE DUAL RNDZ PLANE CHANGE			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						65

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
	OFF	CAGE (BEF)	OFF	CRO - SEND V/M INTERROGATE TO THE AGENA VERIFY V/M LOAD IS CORRECT & V/M MODE IS DIRECT	CRO - UPDATE L/R IVI READING CUT- OFF LIMIT FOR PPS PLANE CHANGE L _____ R _____ A - COPY UPDATE READOUT & REPORT THE FOLLOW- ING SDP READINGS MAIN TIME _____ MIN _____ SEC SEC TIM _____ MIN _____ SEC ATT GAS _____ % A - SEND THE FOLLOWING AGENA CMDS: (F.C. MODE 6) 471-ACS HI DK 371-ACS PRESS HI 451-ACS D/B WIDE 271-PWR RELAY RESET			
18:45		ORB RATE		A - WHEN PLATFORM CAGES: PLAT - ORB RATE RATE CYROS (3) - PRI SET EVENT TIMER TO 58:00 AND STBY				
18:50					A - SEND THE FOLLOWING AGENA CMDS TO GYRO COMPASS THE S/C TO 0°, 90°, 0° (AGENA 0°, -90°, 0° - TDA NORTH) 360-GEO RATE REVERSE 311-PITCH H/S YAW *321-H/S PHASE IN			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						66

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				LOS	TOTAL	REV	PAGE
				COMMAND	PILOT	PILOT					
	CTCH UP	ORB RATE	OFF	(59:00) A - START COMP-PUSH (F/A IVI READS ΔV)	(59:00) 041-RECORD DATA 450-D/B NARROW 561-SPS RDY 521-VM ENABLE A - ENGINE - ARM A - SEND THE FOLLOWING AGENA CMD @ THE INDICATED TIME: (00:00) 560-200# ON V/M C.O. A - ON MARK FROM CMD PILOT ENGINE - STOP A - SEND THE FOLLOWING AGENA CMDS @ THE INDICATED TIMES: (C.O. + 2 SEC) 550-SPS C.O. 451-D/B WIDE						
19:12:15											
MISSION	EDITION	DATE	STATION	AOS							
GEMINI X	FINAL	JUNE 22, 1966									68

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
	CTCH UP	ORB RATE	OFF			(C.O. + 10 SEC) 520-VM DISABLE 341-GYRO ON 030-T/M & RECORDER OFF 021-T/M ON
				A - EVENT TIMER - STOP		A - READOUT AND COPY ADDRESSES 80, 81 AND 82 FROM THE COM- PUTER
	PRE LN			A - COMPUTER - PRE LN		
				A - READOUT COPY, & REPORT @ NEXT STATION SDP READINGS MAIN TIME _____ MIN _____ SEC SEC TIME _____ MIN _____ SEC ATT GAS _____ %		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						REV
						PAGE
						69

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			PILOT	
				COMMAND	PILOT			
19:30 TO 19:45	CTCH UP	ORB RATE	OFF				ZERO ADDRESSES 25, 26 & 27 START COMP - PUSH RDR - STBY SEND THE FOLLOWING CMDS TO THE AGENA: 141 - APPROACH LTS ON 201 - SDP BRIGHT 071 - L BAND BEACON ON 041 - RECORD DATA 220 - UNRIGIDIZE START 16 MM CAMERA @ 6 FRAME /SEC MARK TIME	
			RATE CMD	A - OAMS CNTL POWER - ON ATTITUDE CONTROL - RATE CMD UNDOCK AND TRANSLATE TO 3 FT AT 1/2 FT/SEC				
			PUL	ATTITUDE CONTROL - PULSE				A - CHANGE 16 MM CAMERA SPEED TO 1 FRAME/SEC MARK CHANGE TIME.
				A - S-26 EXPERIMENT - MODE B (SEE SECTION II FOR DETAILS) ETR LOS - 19:40:20				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						71

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	COMMAND	PILOT	ACTION		
19:45 TO 19:55	CTCH UP	ORB RATE	PUL	CYI AOS - 19:42:26 CYI - AGENA TAPE PLYBK, IF POSSIBLE A - TRANSLATE TO 60 FT FROM THE AGENA	A - STOP 16MM CAMERA SEND THE FOLLOWING CMDS TO THE AGENA: 030 - T/M & RECORDER OFF 021 - T/M ON			
19:55 TO 20:05				KNO AOS - 19:50:00 CYI LOS - 19:52:58		2ND DOCKING		
			DIR	A - TRANSLATE TOWARD AGENA @ $\frac{1}{2}$ FT/SEC A - ATTITUDE CONTROL - DIRECT DOCK	A - RDR - STBY START 16 MM CAMERA @ 1 FRAME/ SEC IF AGENA RECORDER TIME IS AVAILABLE SEND CMD 041 (RECORD DATA) TO THE AGENA A - AT A RANGE OF 25 FEET CHANGE 16MM CAMERA SPEED TO 6 FRAMES/SEC			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						72

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
				COMMAND	PILOT									
20:05 TO 20:10	CTCH UP	ORB RATE	DIR OFF	SUNSET - 19:58:21 KNO LOS - 19:59:04	A - WHEN THE RIGID LT COMES ON: RIGID STOP - STOP OAMS CNTL POWER - OFF ATTITUDE CONTROL - RATE CMD STOP 16 MM CAMERA CYCLE ARM/STOP SWITCH TO VERIFY HARDLINE CONNECTION RDR - OFF	GEMINI X		JUNE 22, 1966						73
			A - MANEUVER CONTROLLER - OFF	SEND THE FOLLOWING CMDS TO THE AGENA: 030 - T/M & RECORDER OFF 021 - T/M OFF										
			<u>2ND UNDOCKING</u>											
				A - START 16 MM CAMERA @ 6 FRAMES/SEC	A - ZERO ADDRESSES 25, 26 & 27 START COMP - PUSH RDR - STBY SEND CMD 041 (RECORD DATA) TO THE AGENA TDA CONTROL - UNDOCK									
			RATE CMD		A - MANEUVER CONTROLLER - ON - OAMS CNTL POWER - ON ATTITUDE CONTROL - RATE CMD									

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT	PILOT		
20:10 TO 20:25	CTCH UP	ORB RATE	DIR		A - UNDOCK AND TRANSLATE TO 3 FT AT 1/2 FT/SEC ATTITUDE CONTROL - PULSE			
			PUL	A - CHANGE 16 MM CAMERA SPEED TO 1 FRAME/SEC MARK CHANGE TIME				
				<u>S-26 EXPERIMENT</u>				
				A - S-26 EXPERIMENT - MODE B SEQ 1 (SEE SECTION II FOR DETAILS)				
20:14				CRO AOS - 20:18:35				
				CRO - LOAD THE AGENA V/M FOR DUAL RNDZ HEIGHT ADJUST UPDATE DUAL RNDZ HEIGHT ADJUST				
20:25 TO 20:35				A - COPY UPDATE				
				A - STOP 16 MM CAMERA SCANNER - PRI	A - AFTER COMPLETION OF S-26 EXPERIMENT:			
				CRO LOS - 20:29:16	SEND THE FOLLOWING CMDS TO THE AGENA: 030 - T/M & RECORDER OFF 021 - T/M ON			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						74

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
20:35 TO 20:45	CTCH UP	ORB RATE	PUL	SUNRISE - 20:34:40	A -	TRANSLATE TO 60 FT FROM THE AGENA.		
		BEF	PLAT		A -	PLATFORM - BEF ATTITUDE CONTROL - PLAT ALIGN PLATFORM WHILE FLYING FORMATION. THEN: ATTITUDE CONTROL - PULSE PLATFORM - ORB RATE		
		ORB RATE	PUL					
20:45 TO 20:55				<u>3RD DOCKING</u>				
				A - START 16 MM CAMERA AT 1 FRAME/SEC A - AT A RANGE OF 25 FEET CHANGE 16 MM CAMERA SPEED TO 6 FRAMES/SEC	A -	IF AGENA RECORDER TIME IS AVAILABLE SEND CMD 041 (RECORD DATA) TO THE AGENA. RDR - STBY		
					A -	TRANSLATE TOWARD THE AGENA @ 1/2 FT/SEC.		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						75

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
20:55 TO 21:05	CTCH UP	ORB RATE	RATE CMD		A - ATTITUDE CONTROL - RATE CMD DOCK WHEN THE RIGID LT COMES ON: RIGID STOP - STOP OAMS CNTL POWER - OFF ATTITUDE CONTROL - PULSE CYCLE ARM/STOP SWITCH TO VERIFY HARDLINE CONNECTIONS RDR - OFF			
			OFF	A - STOP 16 MM CAMERA SCANNER - OFF	SEND THE FOLLOWING CMDS TO THE AGENA: 030 - T/M & RECORDER - OFF 021 - T/M ON 140 - APPROACH LTS OFF 070 - L BAND BEACON OFF MANEUVER CONTROLLER - OFF A - SEND THE FOLLOWING AGENA CMDS (F.C. MODE 6) 471 - ACS GAIN HI DK 371 - ACS PRESS HI *451 - ACS D/B WIDE 271 - PWR RELAY RESET			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						76

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
				COMMAND	PILOT									
	CTCH UP	ORB RATE	OFF		A - SEND THE FOLLOWING CMDS TO GYROCOMPASS THE S/C TO 0°, 0°, 0° (AGENA 0°, 180°, 0° - TDA AFT) 360 - GEO RATE REVERSE 310 - ROLL H/S YAW *320 - H/S PHASE OUT ALLOW THE AGENA TO GYRO- COMPASS AT CARDINAL HEADING FOR @ LEAST 6 MINUTES.									
21:10					U.S. AOS - 21:00:39 MCC - SEND V/M INTERROGATE TO THE AGENA VERIFY AGENA V/M IS LOADED CORRECTLY & V/M MODE IS DIRECT AGENA TAPE PLYBK MCC - UPDATE DUAL RNDZ HEIGHT ADJUST TRANSLATION A - COPY UPDATE									
								JUNE 22, 1966						77

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	COMMAND	PILOT	ACTION		
21:10	CTCH UP	ORB RATE	OFF	A - SET EVENT TIMER TO 58:00 EVENT TIMER - STBY		A - UPDATE DUAL RNDZ HEIGHT ADJUST TRANSLATION WITH GROUND UPDATED VALUES VIA MDU.		
						<u>NOTE</u> NOMINAL VALUES ARE: 25:90194 26:00000 27:00000 55:11111 (FWD FIRING THRUSTER LOGIC)		
				ETR LOS - 21:17:50 CYI AOS - 21:20:01				
						DUAL RENDEZVOUS HEIGHT ADJUST TRANSLATION		
21:22:34				(58:00) A - EVENT TIMER-UP		A - SEND THE FOLLOWING AGENA CMDS @ THE INDICATED TIMES: (58:00) 201 - SDP BRIGHT		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						78

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION						
				COMMAND	PILOT					
21:30 TO 21:35	CTCH UP	ORB RATE	OFF	A - EVENT TIMER - STOP	A - READOUT AND COPY ADDRESSES 80, 81 AND 82 FROM THE COMPUTER					
				CYI - LOAD AGENA V/M FOR DUAL RNDZ PHASE ADJUST						
				CYI LOS - 21:29:28	READOUT & COPY THE FOLLOWING SDP METER READINGS: MAIN TIME _____ MIN _____ SEC SEC TIME _____ MIN _____ SEC ATT GAS _____ %					
				A - COMP - PRE LN						
		PRE LN		SUNSET - 21:30:23	A - SEND THE FOLLOWING AGENA CMDS TO YAW TO 0°, 180°, 0° (AGENA - 0°, 0°, 0° - TDA FWD) *411 - P/Y PLUS *420 - P/Y RATE LOW 350 - GEO RATE OFF 441 - YAW ON (FOR 120 SEC) 440 - YAW OFF					
					A - SEND THE FOLLOWING AGENA CMS CMDS: 361 - GEO RATE NORMAL *310 - ROLL H/S YAW 321 - H/S PHASE IN					
MISSION		EDITION		DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X		FINAL		JUNE 22, 1966						80

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	COMMAND	PILOT	ACTION		
22:08:34	CTCH UP	ORB RATE	OFF	DUAL RNDZ N _{SR}		TRANSLATION A - SEND THE FOLLOWING AGENA CMDS AT THE INDICATED TIMES: (58:00) 201 - SDP BRIGHT (59:00) 041-RECORD DATA 450-D/B NARROW 561-SPS RDY 521-V/M ENABLE A - ENGINE ARM		
22:10:34				(58:00) A - EVENT TIMER UP (59:00) A - START COMP - PUSH (F/A IVI SHOWS V)		SEND THE FOLLOWING AGENA CMD TO THE AGENA @ THE INDICATED TIME: (00:00) 560-200# ON (00:34 - NOMINALLY) A - WHEN CMD PILOT GIVES <u>MARK</u> , ENGINE - STOP		
				(00:49 - NOMINALLY) A - WHEN F/A IVI ZEROES, GIVE MARK TO PILOT READOUT & COPY THE FOLLOWING SDP READINGS MAIN TIME <u> </u> MIN <u> </u> SEC SEC TIME <u> </u> MIN <u> </u> SEC ATT GAS <u> </u> %		SEND THE FOLLOWING AGENA CMDS @ THE INDICATED TIMES: (C.O. + 2 SEC) 550-SPS CO 451-D/B WIDE		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						82

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT	PILOT		
	CTCH UP	ORB RATE	DIR			A - RDR - ON SEND CMD 221 (RIGIDIZE) TO THE AGENA WAIT 30 SEC SEND AGENA CMD 271 - PWR RELAY RESET CHANGE 16 MM CAMERA TO 1 FRAME/SEC START COMP - PUSH		
22:11 TO 22:21				<u>S-26 EXPERIMENT</u> A - S-26 EXPERIMENT - MODE A TRANSLATE APT TO NULL IVI'S NOTE 1. 2 FT/SEC POSIGRADE TRANSLATION 2. FWD FIRING THRUSTERS USED FDR - RDR ATTITUDE CONTROL - PULSE BORESIGHT ON THE AGENA SCANNER - PRI MANEUVER CONTROLLER - OFF MANEUVER CONTROLLER - STOW				
			PUL					
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						84

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
22:22	CTCH UP	ORB RATE	PUL PLAT	A - CNTL S/C TO 0°, 180°, 0° PLATFORM - BEF ATTITUDE CONTROL - PLAT ALIGN PLATFORM UNTIL START OF EVA	A - SEND THE FOLLOWING CMDS TO THE AGENA: (F.C. MODE 1) 460 - ACS GAINS LOW 370 - ACS PRESS LOW *451 - ACS D/B WIDE 271 - PWR RELAY RESET 140 - APPROACH LTS OFF 200 - SDP OFF 030 - T/M AND RECORDER OFF 021 - T/M ON 231 - UHF ENABLE 070 - L BAND BEACON OFF COMPUTER - PRELN COMP PWR - OFF ENCDR - OFF RDR - OFF			
22:25 TO 22:55	OFF			A - FINAL PREPARATION FOR STANDUP EVA (SEE SECTION II FOR DETAILS) HAW AOS - 22:24:54 HAW LOS - 22:31:2 TEX AOS - 22:37:39 MGC - AGENA TAPE PLYBK	A - FINAL PREPARATION FOR STANDUP EVA (SEE SECTION II FOR DETAILS)			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						85

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			PILOT	
				COMMAND	PILOT			
22:55	OFF	ORB RATE	PLAT A	ETR LOS - 22:56:34 CYI AOS - 22:53:33 A - DEPRESSURIZE S/C (SEE SECTION II FOR DETAILS)		A - OPEN HATCH STAND IN SEAT JETTISON DRY WASTE BAG INSTALL SUN SHADE ON CMD PILOT'S WINDOW MOUNT S-13 CAMERA		
23:02:39			PUL	SUNSET (23:02:39) (00:00) A - EVENT TIMER - UP ATTITUDE CONTROL - PULSE PLATFORM - ORB RATE TRACK DESIGNATED STAR		SEQUENCE 1 (00:00 - 35:00)		
23:12:39				ASC AOS - 23:03:28 CYI LOS - 23:05:00 KNO LOS - 23:13:08 TAN AOS - 17:30		A - PERFORM S-13 EXP. a. 00:00 - 10:00 SPICA - BEF, 120° YAW, 60° PITCH b. 10:00 - 20:00 BETA CRUX - BEF, 100° YAW, 20° PITCH		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						86

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		
				COMMAND	PILOT	PILOT
23:22:39	OFF	ORB RATE	PUL	TAN LOS - 23:27:51		c. 20:00 - 30:00 SHAULA - BEF, 130° YAW, 60° PITCH
23:32:39				CRO AOS - 23:34:04		d. 30:00 - 35:00 GAMMA VELA - 90° YAW, 10° PITCH NOTE: THE LAST STAR FIELD MAY NOT BE COMPLETED PRIOR TO
23:37:39				SUNRISE - 23:38:53		SEQUENCE 2 (35:00 - 40:00) A - PILOT DISMOUNT S-10 MAURER & BRACKET AND HAND TO CMD PILOT AND RECEIVE MSC - 8 MAURER ASSEMBLY SET UP MSC - 8 MAURER ASSEMBLY
23:42:39						SEQUENCE 3 40:00 - 45:00
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEWINI X	FINAL	JUNE 22, 1966				
						PAGE 87

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND PILOT	PILOT			
	OFF	ORB RATE	PUL	A - MAINTAIN PROPER SUN ANGEL	A - TAKE MSC - 8 PHOTOGRAPHS HAND MSC - 8 ASSEMBLY BACK TO CMD PILOT.			
23:47:39	OFF	ORB RATE	PUL	CRO LOS - 23:44:37	SEQUENCE 4 (45:00 - 55:00) A - TAKE S-5 AND S-6 PHOTOGRAPHS TERMINATE "STANDUP EVA"			
				CTN AOS - 23:55:16 HAW AOS - 24:00:20 CTN LOS - 24:03:41 HAW LOS - 24:10:31 U.S. AOS - 24:10:17	INGRESS (SEE SECTION II FOR DETAILS)			
24:20				A - REPRESS S/C (SEE SECTION II FOR DETAILS)	A - PURGE FUEL CELLS (SECTION 2 AND THEN SECTION I) PWR DWN S/C			
24:20 TO 25:35		OFF	OFF	A - PWR DWN S/C A - STOW EVA GEAR (SEE SECTION II FOR DETAILS) SUNSET - 24:34:47	A - STOW EVA GEAR (SEE SECTION II FOR DETAILS)			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						88

FLIGHT PLAN

				ACTION					
TIME HR:MIN		COMP	PLAT	CNTL MODE	COMMAND	PILOT	PILOT		
24:35 TO 25:35		OFF	OFF	OFF	A - EAT PERIOD ETR LOS - 24:35:07 ASC AOS - 24:39:11 ASC LOS - 24:49:31 SUNRISE - 25:11:02	A	EAT PERIOD TAN AOS - 24:55:54 TAN LOS - 25:05:20		
CRO AOS (25:12)					CRO - FLIGHT PLAN UPDATE A - COPY UPDATE	CRO AOS - 25:11:50 A - CYRO QTY - 0 ₂ (FOR 10 SEC) CYRO QTY - H ₂ (FOR 10 SEC) CYRO QTY - OFF CRO LOS - 25:21:26			
25:35 TO 25:45				PUL	A - MSC - 12 EXP - HAW (SEE SECTION II FOR DETAILS) HAW AOS - 25:37:46	A	MSC - 12 EXP - HAW (SEE SECTION II FOR DETAILS)		
25:45 TO 25:55				PUL	A - MSC - 12 EXP - BAJA (SEE SECTION II FOR DETAILS) U.S.AOS - 25:47:31 HAW LOS - 25:48:11	A	MSC - 12 EXP - BAJA (SEE SECTION II FOR DETAILS)		
MISSION	EDITION		DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL		JUNE 22, 1966						89

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT				
				COMMAND	PILOT					
28:25 TO 28:35	OFF	OFF	PUL	WITH THE S/C BORESIGHTED ON THE HORIZON EITHER SEF OR BEF SUNRISE - 28:15:18 TAN LOS - 28:21:56 A - S - 6 EXP - (SEE SECTION II FOR DETAILS)		A - S - 6 EXP - (SEE SECTION II FOR DETAILS)				
28:35				A - CONTROL S/C TO BORESIGHT ON ON HORIZON EITHER SEF OR BEF MANEUVER CONTROLLER - UNSTOW MANEUVER CONTROLLER - ON CSQ AOS - 28:35:06						
28:45			DIR	A - ATTITUDE CONTROL - DIRECT TRANSLATE UP/DWN, AFT FOR REQUIRED TIME. <u>NOTES</u> 1. NOMINALLY 0 FT/SEC TRANSLATION.		DUAL RNDZ CATCH UP <u>ADJUST TRANSLATION</u>				
MISSION		EDITION		DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X		FINAL		JUNE 22, 1966						92

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				PILOT		
				COMMAND	PILOT					
	OFF	OFF	DIR	2. FWD FIRING THRUSTER USED						
			PUL	A - MANEUVER CONTROLLER - OFF MANEUVER CONTROLLER - STOW ATTITUDE CONTROL - PULSE CSQ LOS - 28:45:16						
28:50 TO 29:00				A - S - 6 EXP - (SEE SECTION II FOR DETAILS) HAW AOS - 28:53:50 HAW LOS - 29:03:56 SUNSET - 29:11:12				A - S - 6 EXP - (SEE SECTION II FOR DETAILS)		
29:12 TO 29:48				A - D - 5 EXP - (SEE SECTION II FOR DETAILS) RKV AOS - 29:27:38 RKV LOS - 29:37:43 TAN AOS - 29:49:17 TAN LOS - 29:59:41				A - D - 5 EXP - (SEE SECTION II FOR DETAILS)		
30:00 TO 31:00				A - EAT PERIOD				A - EAT PERIOD		
MISSION	EDITION			DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL			JUNE 22, 1966						93

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			PILOT		
				COMMAND	PILOT				
39:00	OFF	OFF	OFF	A - SLEEP PERIOD ENDS SUNRISE - 39:00:17 ETR AOS - 39:14:58	A - SLEEP PERIOD ENDS COLLECTOR DOOR-CLOSED DOOR LOCK - LOCK				
39:00 TO 40:00				A - EAT PERIOD	A - EAT PERIOD				
ETR AOS (39:15)				MCC - FLIGHT PLAN UPDATE UPDATE DUAL RNDZ HEIGHT ADJUST & PHASE ADJUST A - COPY UPDATE	A - FUEL CELL PURGE (SECT 2 THN SECT 1)				
CYI AOS (39:26)				ETR LOS - 39:22:57 CYI AOS - 39:25:27 A - CREW STATUS REPORT CYI - BLOCK 5 PLA UPDATE A - COPY UPDATE	A - CREW STATUS REPORT CYRO QTY - 0 (FOR 10 SEC) CYRO QTY - H ₂ (FOR 10 SEC) CYRO QTY - OFF				
39:30					A - PRIMARY PUMP A - ON PRIMARY PUMP B - OFF SECONDARY PUMP A - ON SECONDARY PUMP B - OFF				
MISSION	EDITION		DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL		JUNE 22, 1966						95

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
TRANS MINUS 15 MIN (40:00)	OFF	OFF	PUL			A - AC POWER - IGS ACME BIAS PWR - PRI ATT IND LT C/B - CLOSED ATT IND - WITH FDI'S SCANNER - SEC RATE GYROS (3) - PRI		
		CAGE (SEF)		A - PLATFORM - CAGE (SEF) ATT IND - WITH FDI'S CONTROL S/C TO SEF CYI LOS - 39:35:48 SUNSET - 39:56:11				
		SEF	PLAT	A - PLATFORM - SEF ATTITUDE CONTROL - PLAT ALIGN PLAT FOR 10 MIN CRO AOS - 40:04:37				
TRANS MINUS 5 MIN (40:10)	CTCH UP	ORB RATE	RATE CMD	A - ATTITUDE CONTROL - RATE CMD PLATFORM - ORB RATE MANEUVER CONTROLLER - UNSTOW MANEUVER CONTROLLER - ON CRO LOS - 40:10:46		A - COMPUTER PWR - ON COMPUTER - NAV (CTCH-UP) ENTER DUAL RNDZ HEIGHT ADJUST INTO THE COMPUTER:		
MISSION	EDITION		DATE	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL		JUNE 22, 1966					96

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND	PILOT
TRANS MINUS 1 MIN (40:14)	CTCH UP	ORB RATE	RATE CMD		NOTE NOMINAL VALUES ARE. 25:00000 26:00000 27:00000 55:11111 (FWD FIRING THRUSTER LOGIC
				A - START COMP - PUSH	
				DUAL RNDZ HEIGHT ADJUST	
40:15				A - TRANSLATE APT TO NULL IVI'S NOTES 1. NOMINALLY 0 FT/SEC 2. FWD FIRING THRUSTER USED A - APPLY ANY NECESSARY CORRECTIONS TO NULL ADDRESS 80 WITHIN + 0.2 FT/SEC & ADDRESSES 81 & 82 WITHIN + 0.5 FT/SEC NULL FDI'S	A - TIME TRANSLATION A - READOUT ADDRESSES 80, 81 & 82 FROM THE COMPUTER A - READOUT & COPY ADDRESSES 80, 81 & 82 ZERO ADDRESSES 25, 26 & 27 COMPUTER - PRE IN
	PRE LN				
MISSION		EDITION		DATE	
GEMINI X		FINAL		JUNE 22, 1966	
				STATION	
				AOS	
				LOS	
				TOTAL	
				REV	
				PAGE	97

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		
				COMMAND	PILOT	PILOT
TRANS MINUS 15 MIN (40:45)	PRE LN	ORB RATE	PUL	A - ATTITUDE CONTROL - PUL MANEUVER CONTROLLER - OFF SUNRISE - 40:32:25		
		SEF	PLAT	A - CONTROL S/C ATTITUDES TO SEF PLATFORM - SEF ATTITUDE CONTROL - PLAT ALIGN PLATFORM FOR 10 MIN ETR AOS - 40:50:10		
	CTCH UP	ORB rate	RATE CMD	A - ATTITUDE CONTROL - RATE CMD PLATFORM - ORB RATE MANEUVER CONTROLLER - ON		A - COMPUTER - NAV (CATCH-UP) ENTER DUAL RNDZ CATCH UP ADJUST V INTO THE COMPUTER <u>NOTE</u> NOMINAL VALUES ARE 25:00000 26:00000 27:00000 55:11111 (FWD FIRING THRUSTER LOGIC
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						REV
						PAGE
						98

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
TRANS MINUS 1 MIN (40:59)	CTCH UP	ORB RATE	RATE CMD	A - START COMP - PUSH		
TRANS MINUS 0 MIN (41:00)				<u>DUAL RNDZ PHASE ADJUST</u> A - TRANSLATE AFT TO NULL IVI'S NOTES 1. NOMINALLY 0 FT/SEC 2. FWD FIRING THRUSTERS USED A - APPLY ANY NECESSARY CORRECTIONS TO NULL ADDRESS 80 WITHIN ± 0.2 FT/SEC & ADDRESSES 81 & 82 WITHIN ± 0.5 FT/SEC. NULL FDI'S A - TIME TRANSLATION A - READOUT ADDRESSES 80, 81 & 82 FROM THE COMPUTER A - READOUT & COPY ADDRESSES 80, 81 & 82 ZERO ADDRESSES 25, 26 & 27 COMPUTER - PRE LN PWR DWN S/C EXCEPT: AC POWER - ACME ACME BIAS PWR - PRI		
	OFF	OFF	PUL	A - POWER DOWN S/C EXCEPT ATTITUDE CONTROL SYSTEM. ETR LOS - 41:01:34 CYI AOS - 41:02:54		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						PAGE 99

FLIGHT PLAN

ACTION								
TIME HR:MIN	COMP	PLAT	CNTL MODE					
COMMAND		PILOT						
41:05 TO 41:15	OFF	OFF	PUL					
A - MSC - 12 EXP - AFRICA (SEE SECTION II FOR DETAILS)		A - MSC - 12 EXP - AFRICA (SEE SECTION II FOR DETAILS)						
CYI LOS - 41:13:26 SUNSET - 41:28:19								
41:29 TO 42:05								
A - D - 5 EXP (SEE SECTION II FOR DETAILS)		A - D - 5 EXP (SEE SECTION II FOR DETAILS)						
CRO AOS - 41:39:53 CRO LOS - 41:49:54								
SUNRISE - 42:04:34								
U.S.AOS - 42:26:00								
42:28								
A - GO/NO GO FOR 44-1 MCC - GO/NO GO FOR 44-1		A - PURGE FUEL CELLS (SECT 1 THEN SECT 2)						
		CRYO QTY - O ₂ (FOR 10 SEC) CRYO QTY - H ₂ (FOR 10 SEC) CRYO QTY - OFF						
42:35 TO 44:30								
A - PRELIMINARY UMBILICAL EVA PREPARATION (SEE SECTION II FOR DETAILS)		A - PRELIMINARY UMBILICAL EVA PREPARATION (SEE SECTION II FOR DETAILS)						
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						100

FLIGHT PLAN

ACTION				COMMAND		PILOT		PILOT		
TIME HR:MIN	COMP	PLAT	CNTL MODE	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
44:30 TO 45:30 TRANS MINUS 15 MIN (44:45)	OFF	CAGE (SEP)	PUL	A - COPY UPDATE						
				ETR LOS - 44:16:27 CYI AOS - 44:18:13 KNO AOS - 44:25:25 CYI LOS - 44:28:30 SUNSET - 44:32:36 KNO LOS - 44:35:53 TAN AOS - 44:39:13						
				A - EAT PERIOD						
		SEP	PLAT	A - PLATFORM - SEP ATTITUDE CONTROL - PLAT ALIGN PLATFORM FOR 10 MINUTES TAN LOS - 44:48:33 CRO AOS - 44:54:59						
TRANS MINUS 5 MIN (44:55)	CTCH UP		RATE CMD	A - ATTITUDE CONTROL - RATE CMD						
		ORB RATE		PLATFORM - ORB RATE MANEUVER CONTROLLER - UNSTOW MANEUVER CONTROLLER - ON						
				A - COMPUTER PWR - ON COMPUTER - NAV (CTCH-UP) ENTER DUAL RENDZ CTCH-UP ADJUST V INTO THE COMPUTER						
MISSION	EDITION		DATE		STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL		JUNE 22, 1966							102

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
	CTCH UP	ORB RATE	RATE CMD		NOTE NOMINAL VALUES ARE: 25:00000 26:00000 27:00000 55:11111 (FWD FIRING THRUSTER LOGIC)			
TRANS MINUS 1 MIN (44:59)				A - START COMP - PUSH				
				DUAL RNDZ CORRECTIVE COMBINATION ADJUST				
TRANS MINUS 0 MIN (45:00)				A - TRANSLATE APT TO NULL IVI'S	A - TIME TRANSLATION			
				NOTES 1. NOMINALLY 0 FT/SEC 2. FWD FIRING THRUSTERS USED				
				A - APPLY ANY NECESSARY CORRECTIONS TO NULL ADDRESS 80 WITHIN ± 0.2 FT/SEC & ADDRESSES 81 & 82 WITHIN $\pm$ 0.5 FT/SEC NULL FDI'S				
					A - READOUT ADDRESSES 80, 81 & 82 FROM THE COMPUTER			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEWINT X	FINAL	JUNE 22, 1966						103

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
TRANS MINUS 15 MIN (45:15)	CTCH UP	ORB RATE	RATE CMD		A - READOUT & COPY ADDRESSES 80, 81 & 82 ZERO ADDRESSES 25, 26 & 27 IN THE COMPUTER COMPUTER - PRE LN			
	PRE LN		PUL	A - ATTITUDE CONTROL - PUL MANEUVER CONTROLLER - OFF CRO LOS - 45:05:19 SUNRISE - 45:08:51				
		SEF	PLAT	A - PLATFORM - SEF ATTITUDE CONTROL - PLAT ALIGN PLATFORM FOR 10 MINUTES				
TRANS MINUS 5 MIN (45:25)	CTCH UP	ORB RATE	RATE CMD	A - ATTITUDE CONTROL - RATE CMD PLATFORM - ORB RATE MANEUVER CONTROLLER - ON	A - COMPUTER - NAV (CTCH UP) ENTER DUAL RNDZ CORRECTIVE COMBINATION ADJUST V INTO THE COMPUTER			
					NOTE NOMINAL VALUES ARE: 25:00000 26:00000 27:00000 55:11111 (FWD FIRING THRUSTER LOGIC)			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						104

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
TRANS MINUS 1 MIN (45:29)	CTCH UP	ORB RATE	RATE CMD	A - START COMP - PUSH		
TRANS MINUS 0 MIN (45:30)				DUAL RNZ N _{SR} ADJUST A - TRANSLATE AFT TO NULL IVI'S NOTES 1. NOMINALLY 0 FT/SEC 2. FWD FIRING THRUSTERS USED A - APPLY ANY NECESSARY CORRECTIONS TO NULL ADDRESS 80 WITHIN ± 0.2 FT/SEC & ADDRESSES 81 & 82 WITHIN ± 0.5 FT/SEC NULL FDI'S A - READOUT ADDRESSES 80, 81 & 82 FROM THE COMPUTER A - READOUT & COPY ADDRESSES		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						PAGE
						105

FLIGHT PLAN

MSC FORM 1008 (REV AUG 64)

NASA MANNED SPACECRAFT CENTER

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
45:35 TO 46:05	CTCH UP	ORB RATE	RATE CMD		80, 81 & 82 ZERO ADDRESSES 25, 26 & 27 IN THE COMPUTER COMPUTER - PRE LN			
	PRE LN		PUL	A - ATTITUDE CONTROL - PULSE MANEUVER CONTROLLER - OFF MANEUVER CONTROLLER - STOW				
	CTCH UP			A - ROLL SHEADS DWN & PITCH UP 7° TO ATTEMPT TARGET ACQUISITION WHEN TARGET IS ACQUIRE BORESIGHT ON IT USING THE RETICLE U.S.AOS - 45:36:18 ETR LOS - 45:54:51 CYI AOS - 45:56:30 CYI LOS - 46:04:40 SUNSET - 46:04:45	A - AFTER ACQ: COMPUTER - NAV (CTCH-UP) READOUT PITCH (ADDRESS 96) EVERY 60 SECONDS			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
46:17	OFF	ORB RATE	PUL		TAN AOS - 46:16:04 MCC - UPDATE DUAL RNDZ PARAMETERS AS FOLLOWS: 1. GET SUNRISE : : AGENA SUNRISE PRIOR TO TPI 2. TPI NOMINAL A. E.T. (ELAPSE TIME FROM SUNRISE) B. θ (AT NOMINAL TPI TIME ON HORIZON (SEF) C. ΔV FWD FWD UP UP D. ΔV DWN DWN 3. TPI LATEST A. E. T. (ELAPSE TIME FROM SUNRISE) B. θ C. ΔV FWD D. ΔV UP DWN 4. ACTUAL ΔH			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME		ACTION		COMMAND		PILOT		
HR:MIN		COMP	PLAT	CNTL MODE				
							5. ONBOARD PROPELLANT GAGE READING CUTOFF POINT FOR RNDZ & FORMATION FLYING _____%.	
46:25		OFF	ORB RATE	PUL	A - SET EVENT TIMER TO 00:00 & STDBY TAN LOS - 46:26:33 CRO AOS - 46:32:44 CRO - BACKUP MCC'S DUAL RNDZ PARAMETER UPDATE, IF REQ. A - COPY UPDATE SUNRISE - 46:40:59 (00:00) A - EVENT TIMER - UP CONTROL S/S ATTITUDES TO 0°, 0°, 0° PLATFORM - SEF ATTITUDE CONTROL - PLAT ALIGN PLATFORM FOR 15 MIN UNSTOW MANEUVER CONTROLLER CRO LOS - 46:43:12	6. EVA PASS SUNRISE TIME A - COPY UPDATE CALCULATE NOMINAL PITCH PROGRAM A - PURGE FUEL CELLS (SECTION II THEN SECTION I) CYRO QTY - O ₂ (FOR 10 SEC) CYRO QTY - H ₂ (FOR 10 SEC) CYRO QTY - OFF (00:00) A - START GET CLOCK COMPUTER POWER - ON ZERO ADDRESSES 25, 26 & 27 IN THE COMPUTER COMPUTER - NAV (CTCH UP) ENTER 99:00004 (MDU/DCS DATA) INTO THE COMPUTER INSTALL 20X EYEPIECE IN SEX- TANT		
46:33		OFF	ORB RATE	PUL				
SUNRISE (46:40:59) LN	PRE							
	CTCH UP		SEF	PLAT				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN		COMP	PLAT	CNTL MODE	ACTION			
					COMMAND	PILOT		
T ACQUIRE (46:56:59)	CTCH UP	ORB RATE	DIR	PUL	(16:00) A - PLATFORM - ORB RATE ATTITUDE CONTROL - DIRECT ROLL HEADS DOWN & PITCH TO θ_1 PITCH ANGLE (NOMINAL PITCH @ T_1) ATTITUDE CONTROL - PULSE AT TARGET ACQUISITION BORESIGHT WITH RETICLE	(16:00) A - ENTER 99:10001 (ORBIT RATE COMPENSATION) INTO THE COMPUTER		
					HAW AOS - 46:59:21 (24:00) A - REMAIN BORESIGHTED ON THE TARGET	A - AT TARGET ACQUISITION; READ θ (ADDRESS 59 FROM THE COMPUTER. (24:00) A - BEGIN TPI SEQUENCE READ θ (ADDRESS 59) FROM THE COMPUTER & READ T_1 . CALCULATE T_2 & TPI TIME (27:00) A - READ θ_2 (ADDRESS 59) FROM THE COMPUTER CALCULATE UP/DWN & FWD ΔV		
47:04:59					A - COUNT UP IVI'S MANUALLY ATTITUDE CONTROL - RATE CMD MANEUVER CONTROLLER - ON START COMP - PUSH HAW LOS - 47:08:59 U.S. AOS - 47:09:09			
47:07:59				RATE CMD				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						109

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND PILOT	PILOT
47:09:59	CTCH ORB UP RATE	RATE	CMD	(29:00) A - INITIATE THRUST @ TPI TIME AFTER TPI:	DUAL RNDZ TERMINAL PHASE INITIATION (29:00)
				A - MANEUVER CONTROLLER - OFF ATTITUDE CONTROL - PULSE SET EVENT TIMER TO 04:00 & STBY	A - START GET CLOCK @ THRUST INITIATION AFTER TPI A - ENTER CHARTS & CALCULATE T _{BR} (TIME OF BREAKING), R _{BR} (RANGE RATE @ BREAKING) θ _F (FINAL θ)
				BORESIGHT ON TARGET USING RETICLE COMPUTER - RNDZ COMPUTER - NAV (CTCH UP)	
47:12:59 47:13:59 47:15:59				NOTE IF TARGET HAS NOT BEEN ACQUIRED BY TPI NOM APPLY GROUND BACKUP VALUES	
				A - ON MARK, EVENT TIMER - UP	(03:00) A - READ θ ₃ (ADDRESS 59) FROM THE COMPUTER (04:00) A - GIVE CMD PILOT A MARK (06:00)
					A - READ θ ₆ (ADDRESS 59) FROM THE COMPUTER ENTER CHARTS & CALCULATE UP/DWN ΔV.
MISSION GEMINI X	EDITION FINAL			DATE JUNE 22, 1966	
				AOS	LOS
				STATION	TOTAL
				REV	PAGE
					110

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND	PILOT
	CTCH UP	ORB RATE	PUL	1ST MIDCOURSE CORRECTION	
47:18:59			PUL	A - COUNT UP IVI MANUALLY ATTITUDE CONTROL - RATE CMD MANEUVER CONTROLLER - ON START COMP - PUSH THRUST ASAP TO DRIVE IVI TO ZERO NULL AFT IVI FOR UP Δ V ONLY THEN: MANEUVER CONTROLLER - OFF ATTITUDE CONTROL - PULSE COMPUTER - RNDZ COMPUTER - CTCH UP BORESIGHT ON TARGET (09:00) A - READ θ_9 (ADDRESS 96) FROM THE COMPUTER	
47:21:59				(12:00) A - READ θ_{12} (ADDRESS 96) FROM THE COMPUTER ENTER CHARTS & CALCULATE UP/DWN ΔV	
MISSION	EDITION	DATE	STATION	AOS	LOS
GEMINI X	FINAL	JUNE 22, 1966			
				TOTAL	REV
					111

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
48:18:14	OFF	ORB RATE	AS REQ			D. INSERT HHMU PROPELLANT LINE FITTING INTO FITTING ON ADAPTER E. OPEN N2 SHUT-OFF VALVE F. MOVE TO CABIN AREA		
				SEQUENCE 2				
				A - RECEIVE S-12 FROM PILOT AND STOW TEMPORARILY		(05:00 TO 10:00) A - A. COLLECT S-12 AND HAND TO PILOT. B. PICK UP EVA CAMERA FROM CABIN AND INSTALL ON ADAPTER. C. TURN EVA CAMERA ON @ 1 FRAME/SEC D. FIRE HHMU TO CHECK FLOW		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
48:23:14	OFF	ORB AS RATE REQ		SEQUENCE 3 (10:00 TO 30:00) A - TRANSLATE TO AGENA A. ACTIVATE T-17 EXP B. REMOVE S-10 C. TRANSLATE TO S/C AND HAND S-10 TO CMD PILOT A - RECEIVE S-10 FROM PILOT AND STOW TEMPORARILY. SEQUENCE 4 - HHMU EVALUATION (30:00 TO 40:00) A - A. TRANSLATE WITH HHMU TO 30 FEET FROM THE S/C AND NULL RATES AND REMAIN STABILIZED. B. TRANSLATE ALONG THE LINE OF SIGHT OF THE TARGET.				
48:43:14								
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		
				COMMAND	PILOT	PILOT
48:53:14	OFF	ORB RATE	AS REQ	SEQUENCE 5 - EVA PILOT PICKUP: (40:00 TO 45:00) A - MAINTAIN POSITION		
				A - TRANSLATE TO PILOT.		
48:58:14				SEQUENCE 6 - UMBILICAL EVALUATION (45:00 TO 55:00) A - EVALUATE UMBILICAL DYNAMICS BY USING THE UMBILICAL TO PULL TO THE SPACECRAFT.		
49:08:14				SEQUENCE 7 (55:00) REMOVE SUNSHADE A - TERMINATE UMBILICAL EVA		
				SUNSET - 49:09:14 U.S. AOS - 49:11:44 A - REPRESS S/C (SEE SECTION II FOR DETAILS) SEP FROM PASSIVE AGENA NOTE-4 SEC RETROGRADE TRANSLATION RKV AOS - 49:13:49 ACS AOS - 49:15:45 RKV LOS - 49:19:43		

FLIGHT PLAN

TIME	COMP	PLAT	CNTL	ACTION		PAGE
HR:MIN			MODE	COMMAND	PILOT	
49:20 TO 50:10	OFF	ORB RATE	AS REQ		A - EVA PREPARATION FOR JETTISON OF USED EQUIPMENT (SEE SECTION II FOR DETAILS)	117
50:10				TAN AOS - 49:33:01 TAN LOS - 49:42:23 CRO AOS - 49:49:17 SUNRISE - 49:45:29 CRO LOS - 49:57:11 A - DEPRESS S/C (SEE SECTION II FOR DETAILS)		
50:15				HAW AOS - 50:14:50 U.S. AOS - 49:24:10 HAW LOS - 50:25:04 A - REPRESS S/C	A - OPEN HATCH JETTISON EQUIPMENT CLOSE HATCH	
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						REV
						PAGE

FLIGHT PLAN

TIME		COMP	PLAT	CNTL MODE	ACTION			
HR:MIN					COMMAND	PILOT		
50:30 TO 51:15	OFF	ORB RATE	AS REQ	A - POST EVA CLEANUP SCANNER - PRI ATTITUDE CONTROL - PULSE CNTL S/C TO BEF PLATFORM - BEF ATTITUDE CONTROL - PLAT ALIGN PLATFORM SUNSET - 50:41:29	A - POST EVA CLEANUP SCANNER - PRI			
50:45			PLAT					
				ETR LOS - 50:47:42 RKV AOS - 50:49:13 RKV LOS - 50:59:31	MCC - UPDATE HEIGHT ADJUST TRANSLATION A - COPY UPDATE			
TRANS MINUS 5 MIN (51:03.0)		ORB RATE	RATE CMD	A - ATTITUDE CONTROL - RATE CMD PLATFORM - ORB RATE MANEUVER CONTROLLER - UNSTOW MANEUVER CONTROLLER - ON FDR - COMP FDR - ATT	A - COMPUTER - NAV (CTCH-UP) UPDATE HEIGHT ADJUST TRANS- LATION VIA MDU WITH GROUND UPDATE VALUES: NOTE NOMINAL VALUES ARE: 25:91250 26:00000 27:00000			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME	COMP	PLAT	CNTL	ACTION	
HR:MIN			MODE	COMMAND	PILOT
TRANS MINUS 1 MIN (51:07:10)	CTCH UP	ORB RATE	RATE CMD	A - START COMP - PUSH	
TRANS MINUS 0 MIN (51:08:10)				HEIGHT ADJUST TRANSLATION	
				A - TRANSLATE FWD TO ZERO IVI'S	
				NOTE	
				1. FWD FIRING THRUSTERS USED	
				2. NOMINAL ΔV IS 125 FT/SEC	
	PRE LN			A - COMPUTER - PRELN	
		PUL		A - D-10 EXPERIMENT - MODE A	
				BUS ARM - EXP	
				ION SENSOR SEQ - SEQ 1	
				WAIT 2 MINUTES	
				ION SENSOR MODE - ON	
				(REMAINS ON OR FDI UNTIL	
				PRE-RETRO CHECK LIST)	
				ION SMEAR SEQ - SEQ 2	
				BUS ARM - SAFE	
51:15 TO 52:05				TAN AOS - 51:11:05	
				A - EAT PERIOD	
				A - EAT PERIOD	
MISSION	EDITION	DATE	STATION	AOS	TOTAL
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				LOS	REV
					PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
	PRE LN	ORB RATE	PLAT	NOTE DURING THE EAT PERIOD THE S/C WILL REMAIN IN THE PLAT ATTITUDE CONTROL MODE THEREBY SATISFYING THE REQUIREMENTS OF MODE B OF THE D-10 EXP & COMPLETES ONE MODE F OF THE D-10 EXPERIMENT.				
52:05 TO 52:50			PUL	SUNRISE - 51:17:44 TAN LOS - 51:21:09 CSQ - FLIGHT PLAN UPDATE A - COPY UPDATE	CSQ AOS - 51:35:19 A - PURGE FUEL CELLS (SECTION I THEN SECTION II) QTY READ - O₂ (FOR 10 SEC) QTY READ - H₂ (FOR 10 SEC) QTY READ - OFF CSQ LOS - 51:43:19 A - S-1 EXP (SEE SECTION II FOR DETAILS)			
52:50	SEF	PLAT		A - ATTITUDE CONTROL - PULSE S - 1 EXP (SEE SECTION II FOR DETAILS) RKV AOS - 52:25:38 RKV LOS - 52:36:00 TAN AOS - 52:47:29 SUNRISE - 52:49:12 A - CONTROL S/C to 0°, 0°, 0° PLATFORM-SEF ATTITUDE CONTROL - PLAT				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		
				COMMAND	PILOT	PILOT
52:55 TO 53:05	PRE LN	ORB RATE	PUL	A - ATTITUDE CONTROL - PULSE PLATFORM - ORB RATE D-10 EXP - MODE C (SEE SECTION II FOR DETAILS) TAN LOS - 52:57:47	A - D-10 EXP - MODE C (SEE SECTION II FOR DETAILS)	
53:05 TO 53:45				A - D-10 EXP-MODE D (SEE SECTION II FOR DETAILS) CSQ AOS - 53:11:08 CSQ LOS - 53:19:53 HAW AOS - 53:29:41	A - D-10 EXP - MODE D (SEE SECTION II FOR DETAILS)	
HAW AOS (53:30)				A - CREW STATUS REPORT FLIGHT PLAN REPORT HAW - BLOCK 6 PLA UPDATE A - COPY UPDATE	A - CREW STATUS REPORT	
53:45	OFF	OFF	OFF	HAW LOS - 53:38:21 A - POWER DOWN S/C SUNSET - 53:43:23	A - PURGE FUEL CELLS POWER DOWN S/C	
54:00 TO 62:00				A - SLEEP PERIOD SUNRISE - 54:20:16 SUNRISE - 61:55:30	A - SLEEP PERIOD	
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
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FLIGHT PLAN

MSC FORM 1008 (REV AUG 64)

NASA MANNED SPACECRAFT CENTER

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		
				COMMAND	PILOT	PILOT
62:00	OFF	OFF	PUL	A - SLEEP PERIOD ENDS		A - SLEEP PERIOD ENDS PRIMARY PUMP B - OFF PRIMARY PUMP A - ON SECONDARY PUMP B - OFF SECONDARY PUMP A - ON AC POWER - IGS ACME BIAS PWR - PRI SCANNER - PRI ATT IND LT C/B - CLOSED ATT IND - WITH FDI PURGE FUEL CELLS (SECTION 1 THEN SECTION 2)
		CAGE		A - PLATFORM - CAGE (SEF) CNTL S/C TO SEF OAMS CNTL PWR - ON ATTITUDE CONTROL - HOR SCAN ATT IND - WITH FDI RATE GYROS (3) - PRI		
			HOR SCAN			
62:00 TO 63:00				A - EAT PERIOD CYI AOS - 62:17:27		A - EAT PERIOD
CYI AOS (62:18)				A - CREW STATUS REPORT CYI - FLIGHT PLAN UPDATE A - COPY UPDATE CYI LOS - 62:25:39		A - CREW STATUS REPORT PURGE FUEL CELLS (SECT 1 & THEN SECT 2) QTY READ - O ₂ (FOR 10 SEC) QTY READ - H ₂ (FOR 10 SEC) QTY READ-OFF
MISSION	EDITION	DATE	STATION	AOS	LOS	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT	PILOT		
62:45 TO 63:00	PRE LN	SEF	PLAT	A - PLATFORM - SEF ATTITUDE CONTROL - PLAT ALIGN PLATFORM FOR 15 MINUTES THEN: ATTITUDE CONTROL - PULSE PLATFORM - ORB RATE SUNSET - 62:49:38	A	COMPUTER PWR - ON COMPUTER - PRE LN		
63:00 TO 63:40			PUL	A - D-10 EXP - MODE D (SEE SEC- TION II FOR DETAILS) SUNRISE - 63:26:31	A	D-10 EXP - MODE D (SEE SEC- TION II FOR DETAILS)		
63:40 TO 64:20		ORB RATE		A - D-10 EXP - MODE D (SEE SEC- TION II FOR DETAILS) ETR AOS - 63:41:51 ETR LOS - 63:50:30 CYI AOS - 63:53:24 CYI LOS - 64:02:02	A	D-10 EXP - MODE D (SEE SEC- TION II FOR DETAILS)		
64:20 TO 64:52				A - D-10 EXP - MODE D (SEE SEC- TION II FOR DETAILS) CRO AOS - 64:29:30 CRO LOS - 64:38:24	A	D-10 EXP MODE D (SEE SECTION II FOR DETAILS)		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME		ACTION						
HR:MIN		COMMAND	PILOT	PILOT				
		A - TRANSLATE APT TO NULL ADDRESS 80						
		NOTE: COMPLETE TRANSLATION PRIOR TO CRO AOS						
		A - ATTITUDE CONTROL - HOR SCAN		A - COMPUTER - PRE LN CRO AOS - 66:04:52				
CRO AOS (66:05)				A - PURGE FUEL CELLS (SECT 2 THEN SECT 1) QTY READ - O ₂ (FOR 10 SEC) QTY READ - H ₂ (FOR 10 SEC) QTY READ - OFF				
66:10 TO 67:00		A - STOW EQUIPMENT ACCORDING TO REENTRY STOWAGE CHART CRO AOS - 66:15:21 SUNRISE - 66:28:35		A - STOW EQUIPMENT ACCORDING TO REENTRY STOWAGE CHART LOAD MODULE IVA INTO THE COMPUTER AS FOLLOWS: VERIFY MDU PWR - ON VERIFY ATM MODE - STDBY VERIFY ATM PWR - OFF VERIFY AUX TAPE C/B - CLOSED AUX TAPE PWR - ON RESET VERIFY COMP LT - ON INSERT 62:13301 INTO THE COMP VIA THE MDU ATM MODE - AUTO VERIFY COMP LT - OFF				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			PILOT	
				COMMAND	PILOT			
	PRE LN	ORB RATE	HOR SCAN				A - VERIFY F/A & L/R IVI'S ZERO VERIFY ATM LT - ON VERIFY R/L IVI DISPLAYING CORRECT TPW'S VERIFY COMP LT - ON VERIFY F/A IVI DISPLAYS 004 & L/R IVI DISPLAYS 133 MONITOR COMP LT VERIFY ATM RUN LT - OFF VERIFY COMP LT ON 16 SEC AFTER GOING OUT. VERIFY L/R IVI DISPLAYS 158 ATM MODE - STDBY ATM POWER - OFF <u>REENTRY SELF MODE CHECK</u> A - COMPUTER - RNTY ENTER THE FOLLOWING INTO THE COMPUTER: 90:17000 91:99999 START COMP - PUSH (UNTIL COMP LT COMES ON) (COMP LT OFF AFTER 9 MIN 01 SEC ± 10 SEC)	
	RNTY							
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT				
				COMMAND	PILOT					
66:50	RNTY	ORB RATE	HOR SCAN			A - IF TEST SOLUTION IS CORRECT IVI'S DISPLAY THE FOLLOWING: AFT - 328±1 RT - 007±1 DN - 094±1 IF THE TEST SOLUTION IS IN- CORRECT IVI'S DISPLAY THE FOLLOWING: AFT - VARIABLE RT - 505 DN - VARIABLE COMPUTER - PRE LN				
	PRE LN			SUNRISE - 66:28:35						
	PRE LN	ORB RATE	HOR SCAN			TEX AOS - 66:48:09 MCC - UPDATE THE FOLLOWING RNTY PARAMETERS 1. NOMINAL IVI'S A. FWD _____ B. DWN _____ 2. NOMINAL DOWN RANGE NEEDLE DEFLECTION A. 0° _____ B. 55° _____ C. 90° _____ 3. WEATHER A. CLOUD COVER _____ B. VISIBILITY _____ C. WAVE HT _____				
MISSION		EDITION		DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
67:00 TO 67:45	PRE LN	ORB RATE	HOR SCAN	A - EAT PERIOD ETR LOS - 67:02:33 CYI AOS - 67:06:07 KNO AOS - 67:13:15 CYI LOS - 67:14:43 KNO LOS - 67:21:41 SUNSET - 67:22:52 CRO AOS - 67:41:19		4. ALT SETTING 5. RECOVERY CALL SIGNS A. _____ B. _____ C. _____ A - EAT PERIOD		
67:45		SEF	PUL	A - ATTITUDE CONTROL - PULSE CONTROL S/C TO 0°, 0°, 0°; PLATFORM - SEF ATTITUDE CONTROL - PLAT				
68:30	PRE LN	SEF PLAT	PLAT	CRO LOS - 67:51:52 SUNRISE - 67:59:41		TEX AOS - 68:23:26 MCC - TRANSMIT THE FOLLOWING: 1. 44-1 T _R UPDATE 2. 44-1 PRERETRO CMD LOAD 3. ACC BIAS UPDATE		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
						MCC - REPORT THE FOLLOWING REENTRY PARAMETERS: 1. RETRO UPDATE A. AREA _____ B. GETRC _____ C. RET 400K _____ D. RET RB _____ E. BL _____ BR _____ 2. PITCH @ 400K _____ 3. LIGHTED HORIZON _____ A. RETRO _____ B. 400K _____ 4. RENTY UPDATE _____ A. RET BBO _____ B. RET EBO _____ C. RET D _____ D. RET M _____ 5. MDU QTY UPDATE _____ A. 03 _____ B. 04 _____ C. 05 _____ D. 06 _____ E. 07 _____ F. 08 _____ G. 09 _____ H. 10 _____ I. 11 _____ A - COPY UPDATE CHECK AMDU QUANTITIES
				ETR LOS - 68:39:04		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
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						REV
						PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
68:40	PRE LN	BEF	PLAT	A - VERIFY ALL EQUIPMENT STOWED ACCORDING TO REENTRY STOWAGE CHART. DROGUE PINS - OUT & STOW INSERT NEW VOICE TAPE. SURVIVAL LANYARD - INSTALL CONNECT SHOULDER HARDNESS & LAP BELT SEQ LIGHTS - BRIGHT SEQ LIGHTS TEST - AMBER/RED & GREEN. VERIFY LEFT C/B'S - CLOSED T_R-256 C/B'S - CLOSED VERIFY ATT IND - WITH FDI'S RETRO PWR - ARM CHECK RCS PRESSURE RCS - PUSH CHECK RCS PRESSURE RETRO PWR - SAFE OAMS CNTL POWER - OFF ATTITUDE CONTROL - RATE CMD PLATFORM - ORB RATE RCS A CNTL PWR - ACME CHECK OPERATION	PRERETRO CHECKLIST A - VERIFY ALL EQUIPMENT STOWED ACCORDING TO REENTRY STOWAGE CHART. DROGUE PINS - OUT & STOW SURVIVAL LANYARD - INSTALL CONNECT SHOULDER HARDNESS & LAP BELT. A - MONITOR RCS PRESSURE MOUNT 16 MM CAMERA			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN			COMP	PLAT	CNTL MODE	COMMAND	PILOT	ACTION
	PRE LN	ORB RATE		RATE CMD DIR	A - RCS A CNTL POWER - DIRECT CHECK OPERATION RCS A CNTL POWER - OFF RCS B CNTL POWER - ACME CHECK OPERATION RCS B CNTL POWER - DIRECT CHECK OPERATION RCS B CNTL POWER - OFF OAMS CNTL POWER - ON CHECK RCS PRESSURE PLATFORM - BEF ATTITUDE CONTROL - PLAT EVENT TIMER - STBY SET EVENT TIMER TO 22:00 FACEPLATE - CLOSED LEFT SEC O ₂ BOTTLE - OPEN			
			BEF					CYT AOS - 68:42:40
								NOTE: DO NOT SWITCH FROM BEF TO ORB RATE WHILE IN PLATFORM CONTROL MODE.
								A - VERIFY OVERHEAD C/B'S (ALL) - CLOSED, EXCEPT: ELSS PWR C/B - OPEN OAMS HTR C/B - OPEN H ₂ O HTR C/B - OPEN CTR LIGHT - BRIGHT SUIT FAN - NO. 1 & NO. 2
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			PILOT
				COMMAND	PILOT		
	PRE LN	BEF	PLAT				A - KEYING - CONT INTER - PTT C - RNTY - CONT T/M - R/T AND ACQ. ANT SEL - RNTY ELECTRICAL CHECK VOLTMETER - BT MAIN BATTERIES (4) - TEST/OFF VOLTMETER - C X - RAY - OFF BETA - OFF ION SENSOR MODE - SAFE VERIFY ATT IND - WITH FDI VERIFY RIGHT C/B'S (ALL) - CLOSED EXCEPT: CALIB C/B - OPEN AGENA FWR C/B - OPEN AGENA CNTL C/B - OPEN VERIFY AUX TAPE - OFF AUX TAPE C/B - OPEN EXT LTS - OFF ENGINE - STOP VERIFY RT SEC O ₂ BOTTLE - OHN FACEPLATE - CLOSED
				KNO AOS - 68:49:20 CYI LOS - 68:50:19 SUNSET - 68:53:49 KNO LOS - 68:58:12			
				TAN AOS - 69:01:44 TAN LOS - 69:11:48			
				CRO AOS - 69:17:58 A - REPORT PRERETRO CHECKLIST COMPLETE			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
69:24:05	PRE LN	BEF	PLAT	CRO - BACKUP MCC REENTRY UPDATES GIVE S/C A GET TIME HACK		A - CHECK ACCURACY OF THE DIGITAL CLOCK		
				CRO - AT T _R - 22 MIN, GIVE MARK TO START EVENT TIMER COUNTING DOWN				
	RNTY			A - AT CRO MARK, EVENT TIMER - DOWN CONTINUE ALIGNING PLATFORM		A - CHECK T _R (ADDRESS 02) COMPUTER - RNTY		
				CRO LOS - 69:28:32		SUNRISE (69:30:00)		
				CNT AOS - 69:38:35				
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
T _R - 4:16 (69:39:49)	RNTY	BEF	PLAT	T _R - 256 (SEC)		<u>CHECKLIST</u> SEQUENCE LIGHTS - AMBER EVENT TIMER READS 4:16 MIN A - WHEN SEQUENCE LIGHTS GO AMBER VERIFY COMPUTER - RNTY VERIFY SQUIB BATTERIES (3) - ON MAIN BATTERIES - ON VERIFY RCS PROP MOTOR VALVES A AND B - OPEN PROP GAGE - RCS A RECORD - CONT VERIFY CYRO QTY - OFF VERIFY ANT SELECT - RNTY
		ORB RATE	PUL	A - ATTITUDE CONTROL - PULSE PLATFORM - ORB RATE FDR - PLAT FDM - RATE FDI SCALE RANGE - HI ATTITUDE CONTROL - RATE CMD VERIFY RATE GRYS (3) - PRI		
		RATE CMD				
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
	RNTY	ORB RATE	RATE CMD	OAMS CNTL POWER - OFF OAMS PROP MOTOR VALVES - CLOSED RCS A & B CNTL POWER - ACME CONTROL S/C ATTITUDE TO & HOLD RETROATTITUDE (20° PITCH DOWN) (CHECK CONTROL MODE OPERATION IN ALL AXES) RETRO PWR - ARM				
				A - IND RETRO ATT - PUSH FDR - PLAT FDM - ATT FDI SCALE RANGE - HI VERIFY HF T/R - OFF				
				A - REPORT T _R - 256 SEC CHECK- LIST COMPLETE				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			PILOT
				COMMAND	PILOT		
T _R -1 (69:43:05)	RNTY	ORB RATE	RATE CMD	T _R -1 (MIN) CHECKLIST (EVENT TIMER READS 1:00)			
				A - HOLD RETROATTITUDE (20° PITCH DOWN)			
				A - SEP OAMS LINE - PUSH SEP ELECT - PUSH SEP ADAPT - PUSH			
				A - AT T _R -30 SEC: RETRO ROCKET SQUIBS (4) - ARM			
				A - AT T _R -5 SEC: ARM AUTO RETRO - PUSH			
T _R -0 (69:44:05)				CTN - COUNTDOWN TO T _R RETROFIRE (EVENT TIMER READS 00:00)			
				A - CHECK START COMP LITE START GET CLOCK			
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69:48:65
28:23
69:15:42

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
T _R +30	RNTY	ORB RATE FREE	RATE CMD	A - REPORT TO CTN 1. NO. OF RETROS FIRED 2. IVI READINGS 3. ESTIMATED ATTITUDE DURING RETROFIRE 4. AUTO OR MANUAL RETROFIRE	A - T _R + 1 SEC START COMP - PUSH MAN FIRE RETRO - PUSH	A - PLATFORM - FREE		
T _R +45				<u>RETRO JETT LIGHT - AMBER</u>				
				A - RETRO JETT - ARM JETT RETRO - PUSH REPORT RETRO JETT HAW AOS - 69:47:20 CTN LOS - 68:48:50				
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
	RNTY	FREE	RATE CMD	POSTRETRO JETT CHECKLIST A - RETRO PWR - SAFE RETRO JETT - SAFE RETRO ROCKET SQUIBS (4) - SAFE FDR - COMP FDM - RATE FDI SCALE RANGE - LO RCS CNTL PWR B - OFF ATTITUDE CONTROL - PULSE BOOST INSERT CNTL 1 AND 2 C/B - OPEN RETRO SEQ CNTL 1 AND 2 C/B - OPEN SCANNER - OFF TIGHTEN AND LOCK RESTRAINT HARNES CHECK HATCH PAWLS - NEUTRAL HAW LOS - 69:53:20 A - CRYO O2 & H2 HTR C/B - OPEN OAMS CNTL PROP C/B - OPEN FUEL CELL CNTL 1 & 2 C/B - OPEN TAPE RCDR CNTL C/B - OPEN CRYO O2 & H2 HTRS - OFF SECT NG1 1 & 2 PWR - OFF 1A, 1B, 1C, 2A, 2B, 2C - OFF CABIN AIR RECIRC VALVE - 45° FDR - COMP FDM - RATE				
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
	RNTY	FREE	PUL	A - CONTROL S/C ATTITUDES TO: 180° YAW 170° ROLL HORIZON AT TOP OF WINDOW	A - COPY THE ABOVE RE-ENTRY PARAMETERS			
T _R +18:59				<u>400K FEET</u> A - AFTER ROLL NEEDLE DEFLECTION CONTROL S/C ATT TO BACKUP BANK ANGLE AND DAMP PITCH AND YAW RATES ATTITUDE CONTROL - RATE CMD (RE-ENT)	A - 16 MM CAMERA - ON (1 frame/sec)			
T _R +21:07			RATE CMD RNTY	<u>BEGIN BLACKOUT</u>				
T _R +21:14				<u>GUIDANCE INITIATE</u>				
				A - MAINTAIN BACKUP BANK ANGLE UNTIL IT IS ESTABLISHED THAT INITIAL DOWN RANGE NEEDLE DEFLECTION FALLS WITHIN ACCEPTABLE RANGE (± 50 NAUTICAL MILES FROM PREDICTED INITIAL DEFLECTION). THEN NULL ROLL ERROR FDI NEEDLE THROUGHOUT REMAINDER OF GUIDANCE PHASE TO NULL CROSS RANGE AND DOWN RANGE ERRORS.				
T _R +26:01				<u>END BLACKOUT</u>				
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		
				COMMAND	PILOT	PILOT
	RNTY	FREE	DATE CMD RNTY	35K CHECKLIST		
				A - "D" RING - UNCOVER & UNSAFETY ARM RESTRAINTS - UNSTOW HARNESS - LOCKED RCS A & B PROP MOTOR VALVES - CLOSED BLIP THRUSTER TO RELIEVE PRESSURE MONITOR CABIN PRESSURE	A - "D" RING - UNCOVER & UNSAFETY ARM RESTRAINTS - UNSTOW HARNESS - LOCKED MONITOR CABIN PRESSURE O ₂ HIGH RATE - ON (27K)	
					10.6K FEET	
T _R +29:18	RNTY	FREE		MCC - MARK 10.6K		
				A - PARA - PUSH LDG ATT - PUSH (DO NOT PUSH LDG ATT UNTIL MAIN CHUTE HAS DEREEFED.)	A - MARK POINT OF MAIN CHUTE DEPLOY, MAIN CHUTE DEREEF AND SINGLE POINT RELEASE ON VOICE TAPE RECORDER.	
				A - REPORT MAIN CHUTE DEPLOY - MENT.		
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						PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			
				COMMAND	PILOT		
	RNTY	FREE		POSTMAIN CHECKLIST A - ATT IND CNTL C/B'S - OPEN CALL RECOVERY FORCES SET BAROMETRIC PRESSURE A - RESC BEACON - W/O LT ACME BIAS PWR - OFF RCS HTRS - OFF SCAN HTR C/B - OPEN COMPUTER - PRE LN COMPUTER PWR - OFF PLATFORM - OFF RATE GYROS (3) - OFF AC POWER - OFF RCS C/B'S - OPEN RCS CNTL PWR - OFF ACME CNTL NO. 1 C/B - OPEN ACME CNTL NO. 2 C/B - OPEN			
	OFF	OFF		2K CHECKLIST A - "D" RING COVER & SAFETY			
				A - "D" RING COVER & SAFETY			
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
T _R +33:18				POSTLANDING CHECKLIST A - PARA JETT - PUSH LANDING - SAFE HELMET - OFF & STOW ARM RESTRAINTS - STOW LAP BELT - RELEASE & STOW SHOULDER FITTINGS - STOW DROGUE MORTAR PINS (2) - INSTALL HATCH PAWLS - UNLOCK REPORT LANDING COORDINATES ON UHF	LANDING A - HF ANT - EXT/OFF (30 SEC) NOTE: MUST BE DONE WITH LANDING SWITCH ARMED. A - - HELMET - OFF & STOW ARM RESTRAINTS - STOW LAP BELT - RELEASE & STOW SHOULDER FITTINGS - STOW DROGUE MORTAR PINS (2) - INSTALL			
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	COMMAND	PILOT	ACTION	PILOT	
						A - ALL SWITCHES OFF EXCEPT: UHF - NO. 1 NO. 1 AUDIO MODE SWITCH - UHF LEFT C/B PANEL CONFIGURED AS FOLLOWS: TOP ROW - ALL C/B'S OPEN EXCEPT: AUDIO AND UHF T/R C/B - CLOSED UHF RELAY C/B - CLOSED TONE VOX C/B - CLOSED HF T/R C/B - CLOSED HF WHIP ANT C/B - CLOSED SECOND ROW - ALL C/B'S OPEN EXCEPT: ELECT TIMER C/B - CLOSED IND LT TEST C/B - CLOSED SEQ LIGHTS CNTL C/B - CLOSED THIRD ROW ALL C/B'S OPEN	A - HATCH PAWLS - UNLOCK HF T/R - RNTY CALL RECOVERY REPORT LANDING COORDINATES ON HF NO. 2 AUDIO - HF-DF (AS REQ)	
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
					A - ALL SWITCHES OFF EXCEPT: RIGHT SWITCH PANEL - BIO-MED RCDS 1 AND 2 - CONT MAIN BATTERIES (4) - ON SQUIB BATTERY NO. 3 - ON OVERHEAD SWITCH PANEL - DC - DC CONVERTER - PRI CENTER PANEL - SUIT FAN - NO. 1 OR NO. 1 AND NO. 2 RESC BEACON CONTROL - W/O LT HF T/R SWITCH - RNTY CONFIGURE C/B'S AS FOLLOWS: OVERHEAD PANEL 1ST ROW: RCS A & RCS B D/B'S - OPEN 2ND ROW: ATTITUDE THRUSTER C/B'S OPEN 3RD ROW: MANEUVER THRUSTER C/B'S - OPEN 4TH ROW: ACME, OAMS CNTL, RCS SQUIB C/B'S - OPEN 5TH ROW: ALL C/B'S OPEN EXCEPT CABIN LTS C/B - CLOSED			
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND PILOT	PILOT			
					6TH ROW: ALL C/B'S OPEN EXCEPT: SUIT FANS 1 & 2 C/B - CLOSED 7TH ROW: ALL C/B'S OPEN EXCEPT: RESC BEACONS C/B, AND DC-DC CONV C/B - CLOSED <u>RIGHT HAND PANEL</u> TOP ROW: ALL C/B'S OPEN EXCEPT: BIO MED INST C/B - CLOSED 2ND ROW: ALL C/B'S OPEN EXCEPT: TAPE RCDR PWR C/B - CLOSED WHEN RCS FUMES AND/OR OTHER ARE NO LONGER PRESENT: CABIN VENT - DWN (OPEN) WATER SEAL - DWN (CLOSED) INLET SNORKEL - DWN (OPEN)			
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
				A - IND LT TEST C/B - OPEN SEQ LT CNTL C/B - OPEN <u>NORMAL EGRESS TO HELICOPTER CHECKLIST</u> A - VERIFY HF WHIP ANT C/B - CLOSED ALL SWITCHES AND C/B'S - OFF HATCH PAWLS - NEUTRAL EGRESS CLOSE AND LOCK HATCH IF TIME PERMITS	A - 10 MINUTES AFTER LANDING: DC-DC CONVERTER - OFF DC-DC CONVERTER C/B - OPEN			
				A - MAIN BATTERIES (4) - ON HF ANT RET (1 MIN) ALL SWITCHES AND C/B'S - OFF EXCEPT: RESCUE BEACON C/B - CLOSED RESC BEACON - CONTROL -W/O LT HATCH PAWLS - NEUTRAL EGRESS CLOSE AND LOCK HATCH IF TIME PERMITS				
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FLIGHT PLAN

SECTION II

LIFT-OFF SWITCH POSITIONS

Remarks

- B - 1. Drogue Pins - STOWED
2. Stowage Boxes - SECURE
3. Stowage Vents - OPEN
4. Splash Curtains - SECURE
5. Ditch Handle - LOCKED
6. Hatch Handle - SECURED
7. "D" Ring - UNSTOW
8. Arm Restraints - UP
9. Shoulder Restraints - LOCKED
- C - 10. Left SECONDARY O₂ BOTTLE
SHUTOFF Handle - OPEN
11. ABORT Handle - NORMAL
12. GUIDANCE Switch - OFF
13. AUX RECP Switch - OFF
14. Left Utility Light - STOWED
15. All left C/B's - CLOSED
15. Except T_R-256 C/B - OPEN
16. BOOST-INSERT Switch - ARM
17. RETRO PWR Switch - SAFE
18. RETRO JETT Switch - SAFE
19. LANDING Switch - SAFE
20. RETRO ROCKET SQUIBS Switches (4) - ARM
21. SEQ LIGHTS TEST Switch - OFF
22. SEQ LIGHTS Switch - BRIGHT
23. ATT IND Switch - WITH FDI
24. Maneuver Controller - OFF
25. Maneuver Controller - STOWED
26. EMERG PRE MAIN Switch - GUARDED
27. Altimeter - SET
28. IVI - ZERO
29. Flight Director REF Switch - COMP
30. Flight Director MODE Switch - RATE
31. FDI SCALE RANGE Switch - LO
32. EVENT TIMER - STBY and ZEROED
33. Left Mirror - STOWED
- P - 34. All Overhead C/B's - CLOSED
35. T/M AC Switch - ON
36. DC-DC CONV Switch - PRI
37. Center Light - BRIGHT
38. ACME BIAS PWR - PRI
39. ROLL JETTS Switch - YAW
39a. OAMS RESV - SAFE
40. ATTITUDE DRIVERS Switch - PRI
41. ACME LOGIC Switches (3) - PRI
42. Twizzle Stick - STOWED
- C - 43. CABIN AIR RECIRC Handle - UP (Open)
34. Except OAMS HTRS &
H₂O HTRSC/B'S - OPEN
ELSS PWR C/B - OPEN

Remarks

- P - 44. INLET SNORKEL Handle - UP (Closed)
45. CABIN VENT Handle - UP (Closed)
46. WATER SEAL Handle - UP (Open)
47. O₂ HIGH RATE RECOCK Handle - UP
48. SUIT FAN Switch - NO. 1 & NO. 2
49. PRIMARY PUMP A Switch - ON
50. PRIMARY PUMP B Switch - OFF
51. RAD Switch - BY-PASS
52. EVAP Heat Switch - OFF
53. EVAP Switch - MAX FLOW
54. SECONDARY PUMP A Switch - ON
55. SECONDARY PUMP B Switch - OFF
56. O₂ HI RATE Switch - OFF
- B - 57. ALL Light Dimmers - Open as required
- P - 58. Sequential Telelights - LOCKED
59. H₂ TANK VAC - SAFE
60. CLK LT Dimmer - Full Bright
61. Digital Timer - START
62. TDA RIGID CONTROL Switch - OFF
63. TDA UNDOCK CONTROL Switch - OFF
64. CRY QTY Switch - O₂
65. O₂ HEATER Switch - Auto
66. H₂ HEATER Switch - Auto
67. OAMS REG Switch - GUARDED
68. PROP Indicator Switch - O
69. UHF T/R Switch - NO. 1
70. HF T/R Switch - OFF
71. SILENCE Switch - OFF
72. KEYING Switch - CONT INT/PTT
73. NO. 2 AUDIO Switch - UHF
74. RECORD - CONT
75. RESC BEACON CONTROL Switch - OFF
76. C-ADAPT BEACON CONTROL Switch - CMD
77. C-RNTY BEACON CONTROL Switch - CONT
78. T/M CALIB Switch - OFF
79. T/M Control STBY T/M Switch - OFF
80. T/M CONTROL T/M Switch - R/T & ACQ
81. TAPE PLYEK Switch - CMD
82. ANT SEL Switch - RNTY
83. HF ANT Switch - OFF (Center)
- C - 84. NO. 1 AUDIO Switch - UHF
85. RADAR Switch - OFF
86. PLATFORM Mode Switch - FREE
87. SCANNER Switch - PRI
88. RATE BYROS Switches (3) - PRI
89. COMPUTER Power Switch - ON
90. COMPUTER Mode Switch - ASC

- 91. ATTITUDE CONTROL Mode Switch - RATE CMD
- 92. OAMS PROP MOTOR VALVE Switch - OPEN
- 93. RCS A & B PROP MOTOR VALVE Switches - OPEN
- 94. OAMS CNTL POWER Switch - OFF
- 95. RCS A & B CNTL POWER Switches - OFF
- 96. REPRESS Knob - CLOSED
- 97. MANUAL O₂ HIGH RATE Handle - Down (Closed)
- P - 98. Right Mirror - STOWED
- 99. AUX TAPE PWR - OFF
- 100. AUX TAPE SELECTOR Switch - STBY
- 101. X-RAY - OFF
- 102. BETA - W MAG
- 103. COLLECTOR DOOR - CLOSED
- 104. DOOR LOCK - GUARDED
- 105. ION SENSOR SEQ Switch - Center
- 106. ION SENSOR MODE - SAFE
- 107. X-OVER - OFF
- 108. SECTION 1 PURGE - OFF
- 109. SECTION 1 POWER - ON
- 110. SECTION 2 POWER - ON
- 111. SECTION 2 PURGE - OFF
- 112. 1A, 1B, 1C, 2A, 2B, & 2C Switches - ON
- 113. FCΔP SELECTOR Switch - OFF
- 114. Voltmeter Selector Switch - C
- 115. MDU PWR Switch - ON
- 116. MDU - 72: _ _ _ _ _
- 117. FDI SCALE RANGE Switch - LO
- 118. Flight Director REF Switch - COMP
- 119. Flight Director MODE Switch - ATT
- 120. ALL Right C/B's - CLOSED
- 121. Maneuver Controller - OFF
- 122. ATT IND Switch - WITH FDI
- 123. AC POWER Switch - IGS
- 124. BIO-MED RCDR 1 Switch - CONT
- 125. BIO-MED RCDR 2 Switch - CONT
- 126. RCS HTRS Switch - OFF
- 127. BUS TIE Switches 1 & 2 - OFF
- 128. MAIN BATTERIES Switches (4) - ON
- 129. SQUIB BATTERIES Switches (3) - ON
- 130. ENCDR - OFF
- 131. EXT LTS - OFF
- 132. INDEX - OFF
- 133. ENGINE - STOP
- 134. Agena BUS ARM - SAFE
- 135. AUX RECP Switch - OFF
- 136. Right Utility Light - STOWED
- 137. Right SECONDARY O₂ BOTTLE SHUTOFF Handle - OPEN
- 138. Drinking Nozzle -²STOWED
- 139. CNDSATE VALVE Switch - NORM
- 140. H₂O TANK VALVE Switch - NORM
- 141. URINE Valve - OFF
- 142. Urine HTR Switch - OFF

Remarks

- B -143. Hatches - LOCKED
144. Hatch Pawls (2) - Neutral
145. Clip PTT Buttons (2) to "D" Rings
146. SUIT TEMP CONTROL - As Required
147. CABIN VENT PLUG - Removed
148. SUIT FLOW - As Required
149. Harness Secure and Locked

TIME HR:MIN	COMP LN	PLAT SET	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
				UNSTOW NAV CHECKLIST STOW "D" RING & SAFETY BOOSTER-INSERT - SAFE RETROCKET SQUIBS (4) - SAFE MANEUVER CONTROLLER - OFF MANEUVER CONTROLLER - STOW SEQ LIGHTS TEST - RED & GREEN/AMBER LEFT SEC O₂ BOTTLE SHUTOFF - CLOSED ARM RESTRAINTS - STOW RETICLE - UNSTOW, INSTALL & CONNECT LEFT LT - DIM CENTER LT - DIM WINDOW COVER - JETT				
				A - STOW "D" RING & SAFETY ARM RESTRAINTS - STOW OAMS HTRS C/B - CLOSED H2O HTRS C/B'S - CLOSED ANT SEL - ADPT CRY QTY - OFF CABIN VENT PLUG - INSTALL RECORD - OFF				
				VOLTMETER - BT INDIVIDUALLY PLACE EACH MAIN BATTERY TO TEST CHECK EACH AMP AND VOLT READING.				
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FLIGHT PLAN

TIME HR:MM	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND PILOT	PILOT
	PRE LN	SEF	PLAT		PLACE BATTERIES TO "OFF" COMPLETE ELECTRICAL CHECK VOLTMETER - C X-RAY - ON BETA - W MAG WINDOW COVER - JETT HARNESS & BELT - UNFASTEN DROGUE PINS (R & L) - INSTALL REMOVE & STOW HELMET & GLOVES UNSTOW & INSTALL LIGHT WT HEAD SET UNSTOW & CALIBRATE SEXTANT UNSTOW & HAND FLIGHT PLAN BOOK TO CMD PILOT MCC - UPDATE 1/4 TIME AND APOGEE/ PERIGEE ALTITUDE UPDATE 1-4 REENTRY INFOR- MATION AS FOLLOWS, IF REQUIRED. 1. GETRC 2. RET 400K 3. RETRB A - COPY UPDATE INFORMATION
A - <u>REPORT CHECKLIST COMPLETE.</u> RETR LOS - 00:11:16 SUNSET - 00:12:53					
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				TOTAL	REV
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FLIGHT PLAN

TIME HR:MIN	COMP PLAT	CNTL MODE	ACTION		PILOT			
			COMMAND	PILOT				
68:40	PRE LN	PLAT	PRERETRO CHECKLIST A - VERIFY ALL EQUIPMENT-STOWED ACCORDING TO REENTRY STOWAGE CHART. DROGUE PINS - OUT & STOW INSERT NEW VOICE TAPE. SURVIVAL LANYARD - INSTALL CONNECT SHOULDER HARDNESS & LAP BELT SEQ LIGHTS - BRIGHT SEQ LIGHTS TEST - AMBER/RED & GREEN. VERIFY LEFT C/B'S - CLOSED T-256 C/B'S - CLOSED VERIFY ATT IND - WITH FDI'S RETRO PWR - ARM CHECK RCS PRESSURE RCS - PUSH CHECK RCS PRESSURE RETRO PWR - SAFE OAMS CNTL POWER - OFF ATTITUDE CONTROL - RATE CMD PLATFORM - ORB RATE RCS A CNTL PWR - ACME CHECK OPERATION A - VERIFY ALL EQUIPMENT STOWED ACCORDING TO REENTRY STOWAGE CHART. DROGUE PINS - OUT & STOW SURVIVAL LANYARD - INSTALL CONNECT SHOULDER HARNESS & LAP BELT. A - MONITOR RCS PRESSURE MOUNT 16 MM CAMERA					
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION	
				COMMAND	PILOT
	PRE LN	ORB RATE	RATE CMD DIR OFF RATE CMD DIR OFF RATE CMD PLAT	A - RCS A CNTL POWER - DIRECT CHECK OPERATION RCS A CNTL POWER - OFF RCS B CNTL POWER - ACME CHECK OPERATION RCS B CNTL POWER - DIRECT CHECK OPERATION RCS B CNTL POWER - OFF OAMS CNTL POWER - ON CHECK RCS PRESSURE PLATFORM - BEF ATTITUDE CONTROL - PLAT EVENT TIMER - STBY SET EVENT TIMER TO 22:00 FACEPLATE - CLOSED LEFT SEC O₂ BOTTLE - OPEN	CYI AOS - 68:42:40 NOTE: DO NOT SWITCH FROM BEF TO ORB RATE WHILE IN PLATFORM CONTROL MODE. A - VERIFY OVERHEAD C/B'S (ALL) - CLOSED, ACCEIT: ELSS PWR C/B - OPEN OAMS HTR C/B - OPEN H₂O HTR C/B - OPEN CTR LIGHT - BRIGHT SUIT FAN - NO. 1 & NO. 2
MISSION	EDITION	DATE	AOS	TOTAL	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION						
				COMMAND	PILOT					
	PRE LN	BEF	PLAT		A - KEYING - CONT INTER - PTT C - RNTY - CONT T/M - R/T AND ACQ. ANT SEL - RNTY ELECTRICAL CHECK VOLTMETER - BT MAIN BATTERIES (4) - TEST/OFF VOLTMETER - C X - RAY - OFF BETA - OFF ION SENSOR MODE - SAFE VERIFY ATT IND - WITH FDI VERIFY RIGHT C/B'S (ALL) - CLOSED EXCEPT: CALIB C/B - OPEN AGENA PWR C/B - OPEN AGENA CNTL C/B - OPEN VERIFY AUX TAPE - OFF AUX TAPE C/B - OPEN EXT LTS - OFF ENGINE - STOP VERIFY RT SEC O ₂ BOTTLE - OPEN FACEPLATE - CLOSED					
				KNO AOS - 68:49:20 CYI LOS - 68:50:19 SUNSET - 68:53:49 KNO LOS - 68:58:12 TAN AOS - 69:01:44 TAN LOS - 69:11:48 CRO AOS - 69:17:58 A - REPORT PRERETRO CHECKLIST COMPLETE						
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE		
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT				
				COMMAND	PILOT					
69:24:05	PRE LN	BEF	PLAT	CRO - BACKUP X-10 REENTRY UPDATES GIVE S/C A GET TIME HACK		A - CHECK ACCURACY OF THE DIGITAL CLOCK				
				CRO - AT T _R - 22 MIN, GIVE MARK TO START EVENT TIMER COUNTING DOWN						
	RNTY			A - AT CRO MARK, EVENT TIMER - DOWN CONTINUE ALIGNING PLATFORM		A - CHECK T _R (ADDRESS 0.) COMPUTER - RNTY				
				CRO LOS - 69:28:32						
				CNT AOS - 69:38:55		SUNRISE (69:30:00)				
MISSION		EDITION		DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

MSC FORM 1008 (REV AUG 64)

NASA MANNED SPACECRAFT CENTER

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT
				COMMAND	PILOT	
T _R - 4:16 (69:39:49)	RNTY	BEF	PLAT	T _R - 256 (SEC)	CHECKLIST	SEQUENCE LIGHTS - AMBER EVENT TIMER READS 4:16 MIN A - WHEN SEQUENCE LIGHTS GO AMBER VERIFY COMPUTER - RNTY VERIFY SQUIB BATTERIES (3) - ON MAIN BATTERIES - ON VERIFY RCS PROP MOTOR VALVES A AND B - OPEN PROP GAGE - RCS A RECORD - CONT VERIFY CYRO QTY - OFF VERIFY ANT SELECT - RNTY
				A - ATTITUDE CONTROL - PULSE PLATFORM - ORB RATE FDR - PLAT FDM - RATE FDI SCALE RANGE - HI ATTITUDE CONTROL - RATE CMD VERIFY RATE GYROS (3) - PRI		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL
GEMINI X	FINAL	JUNE 22, 1966				
						REV
						PAGE
						11

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND PILOT	PILOT			
	RNTY	ORB RATE		OAMS CNTL POWER - OFF OAMS PROP MOTOR VALVES - CLOSED RCS A & B CNTL POWER - ACME CONTROL S/C ATTITUDE TO & HOLD RETROATTITUDE (20° PITCH DOWN) (CHECK CONTROL MODE OPERATION IN ALL AXES) RETRO PWR - ARM	A - IND RETRO ATT - PUSH FDR - PLAT FDM - ATT FDI SCALE RANGE - HI VERIFY HF T/R - OFF			
				A - REPORT T _R - 256 SEC CHECK- LIST COMPLETE				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
T _R -1 (69:43:05)	RNTY	ORB RATE	RATE CMD	T _R -1 (MIN) (EVENT TIMER READS 1:00)	CHECKLIST			
				A - HOLD RETROATTITUDE (20° PITCH DOWN)		A - SEP OAMS LINE - PUSH SEP ELECT - PUSH SEP ADAPT - PUSH		
				A - AT T _R -30 SEC: RETRO ROCKET SQUIBS (4) - ARM		A - AT T _R -5 SEC: ARM AUTO RETRO - PUSH		
T _R -0 (69:44:05)				CTN - COUNTDOWN TO T _R RETROFIRE (EVENT TIMER READS 00:00)		A - CHECK START COMP LITE START GET CLOCK		
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND PILOT	PILOT			
	RNTY	ORB RATE FREE	RATE CMD		A - T _R + 1 SEC START COMP - PUSH MAN FIRE RETRO - PUSH			
T _R +30				A - REPORT TO CTN 1. NO. OF RETROS FIRED 2. IVI READINGS 3. ESTIMATED ATTITUDE DURING RETROFIRE 4. AUTO OR MANUAL RETROFIRE	A - PLATFORM - FREE			
T _R +45				RETRO JETT LIGHT - AMBER A - RETRO JETT - ARM JETT RETRO - PUSH REPORT RETRO JETT HAW AOS - 59:47:20 CTN LOS - 68:48:50				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
	RNTY	FREE	RATE CMD	POSTRETRO JETT CHECKLIST				
			PUL	A - RETRO PWR - SAFE RETRO JETT - SAFE RETRO ROCKET SQUIBS (4) - SAFE FDR - COMP FDM - RATE FDI SCALE RANGE - LO RCS CNTL PWR B - OFF ATTITUDE CONTROL - PULSE BOOST INSERT CNTL 1 AND 2 C/B - OPEN RETRO SEQ CNTL 1 AND 2 C/B - OPEN SCANNER - OFF TIGHTEN AND LOCK RESTRAINT HARNES CHECK HATCH PAWLS - NEUTRAL				
				A - CRYO O₂ & H₂ HTR C/B - OPEN OAMS CNTL PROP C/B - OPEN FUEL CELL CNTL 1 & 2 C/B - OPEN TAPE RCDR CNTL C/B - OPEN CRYO O₂ & H₂ HTRS - OFF SECT NGU 1 & 2 PWR - OFF 1A, 1B, 1C, 2A, 2B, 2C - OFF CABIN AIR RECIRC VALVE - 45° FDR - COMP FDM - RATE				
				HAW LOS - 69:53:20				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
GEMINI X	FINAL	JUNE 22, 1966						15

FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
T _R +14:30	RNTY	FREE	PUL	A - REPORT CHECKLIST COMPLETE A - SYNC EVENT TIME TO PLUS TIME GYM AOS - 69:58:20		A - TIGHTEN AND LOCK RESTRAINT HARNES CHECK HATCH PAWLS - NEUTRAL		
				GYM-REPORT THE FOLLOWING REENTRY PARAMETERS: 1. RET 400K 2. RET 400K 3. ROLL ANGLES (L AND R) 4. RET 400K 5. RET 400K 6. RET DROGUE 7. RET MAIN 8. (R_N - R_P) I				
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	COMMAND	PILOT	ACTION	PILOT
	RNTY	FREE	PUL	A - CONTROL S/C ATTITUDES TO: 180° YAW 170° ROLL HORIZON AT TOP OF WINDOW	A	A - COPY THE ABOVE RE-ENTRY PARAMETERS	
T _R +18:59						<u>400K FEET</u> A - AFTER ROLL NEEDLE DEFLECTION CONTROL S/C ATT TO BACKUP BANK ANGLE AND DAMP PITCH AND YAW RATES ATTITUDE CONTROL - RATE CMD (RE-ENT.)	A - 16 MM CAMERA - ON (1 frame/sec)
T _R +21:07						<u>BEGIN BLACKOUT</u>	
T _R +21:14						<u>GUIDANCE INITIATE</u>	
						A - MAINTAIN BACKUP BANK ANGLE UNTIL IT IS ESTABLISHED THAT INITIAL DOWN RANGE NEEDLE DEFLECTION FALLS WITHIN ACCEPTABLE RANGE (± 50 NAUTICAL MILES FROM PREDICTED INITIAL DEFLECTION). THEN NULL ROLL ERROR FDI NEEDLE THROUGHOUT REMAINDER OF GUIDANCE PHASE TO NULL CROSS RANGE AND DOWN RANGE ERRORS.	
T _R +26:01						<u>END BLACKOUT</u>	
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV
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							PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION			PILOT
				COMMAND	PILOT		
	RNTY	FREE	DATE CMD RNTY	35K CHECKLIST			
				A - "D" RING - UNCOVER & UNSAFETY ARM RESTRAINTS - UNSTOW HARNESS - LOCKED RCS A & B PROP MOTOR VALVES - CLOSED BLIP THRUSTER TO RELIEVE PRESSURE MONITOR CABIN PRESSURE			A - "D" RING - UNCOVER & UNSAFETY ARM RESTRAINTS - UNSTOW HARNESS - LOCKED MONITOR CABIN PRESSURE O ₂ HIGH RATE - ON (27K)
T _R +29:18	RNTY	FREE		10.6K FEET			
				MCC - MARK 10.6K A - PARA - PUSH LDG ATT - PUSH (DO NOT PUSH LDG ATT UNTIL MAIN CHUTE HAS DEREEFED.) A - <u>REPORT</u> MAIN CHUTE DEPLOY - MENT.			A - MARK POINT OF MAIN CHUTE DEPLOY, MAIN CHUTE DEREEF AND SINGLE POINT RELEASE ON VOICE TAPE RECORDER.
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	PAGE
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FLIGHT PLAN

TIME		COMP	PLAT	CNTL MODE	ACTION				
HR:MIN	COMMAND				PILOT				
		RNTY	FREE		<u>POSTMAIN CHECKLIST</u> A - ATT IND CNTL C/B'S - OPEN CALL RECOVERY FORCES SET BAROMETRIC PRESSURE A - RESC BEACON - W/O LT ACME BIAS PWR - OFF RCS HTRS - OFF SCAN HTR C/B - OPER COMPUTER - PRE LN COMPUTER PWR - OFF PLATFORM - OFF RATE GYROS (3) - OFF AC POWER - OFF RCS C/B'S - OPEN RCS CNTL PWR - OFF ACME CNTL NO. 1 C/B - OPEN ACME CNTL NO. 2 C/B - OPEN				
		OFF	OFF		<u>2K CHECKLIST</u> A - "D" RING COVER & SAFETY A - "D" RING COVER & SAFETY				
MISSION		EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MM	COMP	PLAT	CNTL MODE	ACTION		PILOT		
				COMMAND	PILOT			
T _R +33:18				LANDING POSTLANDING CHECKLIST A - PARA JETT - PUSH LANDING - SAFE HELMET - OFF & STOW ARM RESTRAINTS - STOW LAP BELT - RELEASE & STOW SHOULDER FITTINGS - STOW DROGUE MORTAR PINS (2) - INSTALL HATCH PAWLS - UNLOCK REPORT LANDING COORDINATES ON UHF	A - HF ANT - EXT/OFF (30 SEC) NOTE: MUST BE DONE WITH LANDING SWITCH ARMED. A - HELMET - OFF & STOW ARM RESTRAINTS - STOW LAP BELT - RELEASE & STOW SHOULDER FITTINGS - STOW DROGUE MORTAR PINS (2) - INSTALL			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP PLAT	CNTL MODE	ACTION		PILOT			
			COMMAND	PILOT				
			A - ALL SWITCHES OFF EXCEPT: UHF - NO. 1 NO. 1 AUDIO MODE SWITCH - UHF LEFT C/B PANEL CONFIGURED AS FOLLOWS: TOP ROW - ALL C/B'S OPEN EXCEPT: AUDIO AND UHF T/R C/B - CLOSED UHF RELAY C/B - CLOSED TONE VOX C/B - CLOSED HF T/R C/B - CLOSED HF WHIP ANT C/B - CLOSED SECOND ROW - ALL C/B'S OPEN EXCEPT: ELECT TIMER C/B - CLOSED IND LT TEST C/B - CLOSED SEQ LIGHTS CNTL C/B - CLOSED THIRD ROW ALL C/B'S OPEN		A - HATCH PAWLS - UNLOCK HF T/R - RNTY CALL RECOVERY REPORT LANDING COORDINATES ON HF NO. 2 AUDIO - HF-DF (AS REQ.)			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION				
				COMMAND	PILOT			
					A - ALL SWITCHES OFF EXCEPT: RIGHT SWITCH PANEL - BIO-MED RCDS 1 AND 2 - CONT MAIN BATTERIES (4) - ON SQUIB BATTERY NO. 2 - ON OVERHEAD SWITCH PANEL - DC - DC CONVERTER - PK1 CENTER PANEL - SUIT FAN - NO. 1 OR NO. 1 AND NO. 2 RESC BEACON CONTROL - W/O LT HF T/R SWITCH - RNTY CONFIGURE C/B'S AS FOLLOWS: <u>OVERHEAD PANEL</u> 1ST ROW: RCS A & RCS B L B'S - OPEN 2ND ROW: ATTITUDE THRUSTER C/B'S OPEN 3RD ROW: MANEUVER THRUSTER C/B'S - OPEN 4TH ROW: ACME, OAMS CNTL, RCS SQUIB C/B'S - OPEN 5TH ROW: ALL C/B'S OPEN EXCEPT CAPIN LTS C/B - CLOSED			
MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		PILOT				
				COMMAND	PILOT					
						6TH ROW: ALL C/B'S OPEN EXCEPT: SUIT FANS 1 & 2 C/B - CLOSED 7TH ROW: ALL C/B'S OPEN EXCEPT: RESC BEACONS C/B, AND DC-DC CONV C/B - CLOSED <u>RIGHT HAND PANEL</u> TOP ROW: ALL C/B'S OPEN EXCEPT: BIO MED INST C/B - CLOSED 2ND ROW: ALL C/B'S OPEN EXCEPT: TAPE RCDR FWR C/B - CLOSED WHEN RCS FUMES AND/OR OTHER ARE NO LONGER PRESENT: CABIN VENT - DWN (OPEN) WATER SEAL - DWN (CLOSED) INLET SNORKEL - DWN (OPEN)				
MISSION		EDITION		DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
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FLIGHT PLAN

TIME HR:MIN	COMP	PLAT	CNTL MODE	ACTION		MISSION	EDITION	DATE	STATION	AOS	LOS	TOTAL	REV	PAGE
				COMMAND	PILOT									
				A - 10 MINUTES AFTER LANDING: DC-DC CONVERTER - OFF DC-DC CONVERTER C/B - OPEN	A - 10 MINUTES AFTER LANDING: DC-DC CONVERTER - OFF DC-DC CONVERTER C/B - OPEN									25
				A - IND LT TEST C/B - OPEN SEQ LT CNTL C/B - OPEN	NORMAL EGRESS TO HELICOPTER CHECKLIST									
				A - VERIFY HF WHIP ANT C/B - CLOSED ALL SWITCHES AND C/B'S - OFF HATCH PAWLS - NEUTRAL EGRESS CLOSE AND LOCK HATCH IF TIME PERMITS	A - MAIN BATTERIES (4) - ON HF ANT RET (1 MIN) ALL SWITCHES AND C/B'S - OFF EXCEPT: RESCUE BEACON C/B - CLOSED RESC BEACON - CONTROL -W/O LT HATCH PAWLS - NEUTRAL EGRESS CLOSE AND LOCK HATCH IF TIME PERMITS									

FLIGHT PLAN

POWER DOWN CHECKLIST

CMD PILOT

1. LF AUX RECP - OFF
2. ATT IND - OFF
3. Event Timer - STOP
4. RADAR - OFF
5. PLATFORM - OFF
6. COMPUTER PWR - OFF (PRE LN)
7. SCANNER - OFF
8. OAMS CNTL POWER - OFF
9. RATE GYROS (3) - OFF
10. ATTITUDE CONTROL - RATE CMD
11. Left Cabin LT - OFF

PILOT

1. ACME BIAS POWER - OFF
2. PRI & SEC PUMP A - OFF
3. PRI & SEC PUMP B - ON
4. ATT IND LT C/B - OPEN
5. NO. 1 & NO. 2 AUDIO - INT
6. HF T/R - OFF
7. C-ADAPT - CMD
8. C-RNTY - CMD
9. T/M - CMD
10. ATT IND - OFF
11. AC POWER - OFF
12. RT AUX RECP - OFF
13. RCS HTRS - ON (During Sleep Period)
14. SUIT FAN - NO. 1
15. CENTER LT - OFF
16. RT CABIN LT - OFF

COMMUNICATIONS PROCEDURES

1. Negative reporting will be used in most air-ground transmissions to eliminate unnecessary contacts. UHF will be the normal mode for station communications.
2. Unless initially contacted by the crew, the ground stations will not attempt voice contact until after T/M lock-on and inspection of the data.
3. The general voice communications procedure for station passes will consist of the following:
 - a. Ground Station - Report T/M lock-on and status of T/M readouts.
 - b. Ground Station request pilot's report on:
 - (1) T/M values not reliably received on the ground.
 - (2) T/M values near unacceptable limits or changing at excessive rates.
 - (3) Other values or conditions specifically requested by MCC.
 - c. Crew gives status report (GO/NO GO).

NOTE: A GO report will be given if all S/C readouts are nominal and there are no known problem areas affecting the continuation of the mission.
 - d. Ground Station - Advise crew of current or impending problems, of known errors in cockpit gage readings, of other information specifically requested by the pilot such as T/M values monitored only on the ground.
4. If ground stations do not establish contact at first attempts, the Cap Com will transmit in the blind within two minutes of T/M contact or at point of closest approach and report appropriate information under a, and d of item 3 before again attempting to establish voice contact.
5. Each station should insure their air/ground transmissions do not interfere with the onboard activities of the crew except where required by an emergency condition of the S/C.
6. T/M, Tape Playback and C-Band Beacon Procedures

In general, all control of the T/M, Tape Dump and C-Band Beacons will be by Real-Time Commands (RTC). The onboard switches will be in the Cmd position for the entire flight except for launch thru rndz when the TM will be in "R/T & ACQ" and one C-band Switch in "CONT" and, after the Pre-Retro Checklist when the T/M will be in "R/T & ACQ" and the C-Rnty Beacon will be in "CONT." During EVA the T/M will be in "R/T-& ACQ" position.

Tape Dump: The D/T Tape will be played back by DCS approximately once per revolution at the best ground station available for that purpose. The appropriate stations will be selected real time.

7. T/M Calibrations

T/M Calibration Commands will be command on once per day. Additional calibrations will be scheduled as required. The S/C will be notified prior to a calibration command being sent.

8. The flight crew will report completion of each checklist to the appropriate ground station. The checklist will not be read by the flight crew or the ground station over air/ground during the conduct of the checklist.

10. During communications the spacecraft will be referred to by name: (i.e., Gemini X and the ground will be referred to by station name (i.e., Hawaii). The individual crew members will be referred to as follows:

- a. Left Seat - Command Pilot (CMD)
- b. Right Seat - Pilot (Pilot)

11. Onboard Gage Readouts

All onboard gage readings reported to the network will be read directly from the S/C gages and not corrected by the appropriate factors.

12. Flight Plan Reports

Once per day following the activities over the United States, the flight crew will make a report to the ground containing the following flight plan information:

- a. Particular flight plan items accomplished, including the revolution (or approximate time) of accomplishment.
- b. Changes from nominal operational or experimental procedures due to S/C anomalies or experiment equipment malfunctions.
- c. Quantity and type of photographic film used.

Negative reporting will be used in all other cases.

13. GO/NO GO Procedures

A GO/NO GO check will be conducted once per day by both the ground and the flight crew to verify the ability of the S/C to proceed with the mission to the next GO/NO GO area. The following sequence of events will be followed:

- a. No more than one revolution prior to the GO/NO GO station, the flight crew will accomplish the following:
 - (1) Battery Test each (4) Main Battery
Report anomalies (voltage 22.5 volts)
 - (2) Verify systems required for GO/NO GO are operational
- b. Over GO/NO GO site, the flight crew will report stack currents and GO/NO GO and the ground reports the GO/NO GO.
- c. The 45-1 Preretro Cmd Load and T_R will be loaded prelaunch and updated as required.

The following is the nominal schedule for the GO/NO GO areas:

GO/NO GO STATIONS

<u>Area</u>	<u>Station</u>	<u>Rev</u>
*16-1	CRO	1
30-1	CRO	12
45-1	MCC	26

*NOTE - Under certain liftoff times (later than nominal) & weather conditions this will be changed realtime to 15-1.

14. PLA Updates

The flight crew will be updated by voice with the retro-sequence information for the Planned Landing Area (PLA) in each revolution. This updating will be accomplished by blocks with one ground station relaying the information for a block. Each block will contain approximately 7 PLA's. The PLA update is as follows:

- a. Area _____
 - b. GET RC _____
 - c. RET 400K _____
 - d. RET RB _____
- } If the same update only one

PLA UPDATE STATIONS

<u>Block</u>	<u>Station</u>	<u>Rev</u>
1	Prelaunch	

<u>Block</u>	<u>Station</u>	<u>Rev</u>	<u>Time</u>
2	CSQ	6	08:54
3	CYI	12	18:05
4	CSQ	19	30:13
5	CYI	25	39:25
6	HAW	33	53:30
7	CYI	40	63:54

15. As required, the flight crew will be updated for forthcoming translations. The following format will be observed:

A. UNDOCKED S/C TRANSLATION

- a. Purpose of translation
- b. GET of translation initiation (hr:min:sec)
- c. Duration of burn (min:sec)
- d. Computer load
 - 25:XXXXX
 - 26:XXXXX
 - 27:XXXXX
 Do not update cores that are zeros
- e. NORTH/SOUTH (If out-of-plane burn)
- f. THRUSTERS (If other than aft)

B. DOCKED AGENA TRANSLATIONS

- a. Purpose
- b. GET of translation initiation (Time START cmd is transmitted)
- c. DURATION of BURN (Actual burn time of the SPS or PPS)
- d. Computer load
 - 25:XXXXX
 - 26:XXXXX
 - 27:XXXXX
 Do not update cores that are zeros
- e. THRUSTERS (SPS or PPS)
- f. Direction (Posigrade, NORTH, etc)

16. During the EVA's the crew will report the following information after each EVA sequence:

a. Pilot

Status

b. Cmd Pilot

Status

Next sequence to accomplish.

17. Agena operation

a. The SPC's will normally be disabled during docked operations unless required for operational use.

b. The encoder will remain on continuously during the docked phase of the mission unless the crew is requested to turn it off to allow the ground to transmit commands to the Agena. Once these commands have been transmitted, the ground will notify the crew so they can turn the encoder back on.

18. In the event of unscheduled undocking the crew will send the following cmds to the Agena prior to undocking, if possible

030 - RECORDER & T/M OFF	}	IF RECORDER IS ON
021 - T/M ON		
071 - L BAND BEACON ON		
231 - UHF ENABLE		

CREW STATUS REPORT

Purpose

To provide the necessary medical monitoring of the flight crews during the mission to insure crew safety.

Procedure

Two crew status reports per 24 hours will be scheduled for both crewmen over designated ground stations. Each crew status report will consist of:

- a. Food report (if other than Normal)
- b. Water report (if other than Normal)

NOTES:

1. Each crewmember will report if he did not eat the normal amount of food during the previous day.
2. The water report will be made if the gun counter reading is less than 400 counts over the previous day's counter reading.

GEMINI X ESTIMATED OAMS PROPELLANT USAGE

The following is Spacecraft No. 10 usable OAMS propellant:

Fuel	450.5 lbs.
Oxidizer	*490.1
Total	940.6 lbs.

Notes: The usable propellant can vary depending upon how much attitude control versus translation is done in the actual mission. The above usable propellant is based on a mission mixture ratio of 1.088.

*Includes 23.6 lbs. usable in the auxiliary tank.

The following estimated propellant usage represents the nominal propellant usage and does not reflect any dispersions.

NOMINAL PROPELLANT REQUIREMENTS

	<u>Fuel</u>	<u>Prop</u>
1. Rendezvous	132.5	277.0
2. Dual Rendezvous	112.6	240.6
3. Operational requirements	43.4	84.3
4. Experiments	44.8	77.9
5. Retrofire preparation	3.5	6.0
Total	336.8	685.8

DISPERSED PROPELLANT REQUIREMENTS

	<u>Fuel</u>	<u>Prop</u>
1. Rendezvous	161.5	337.7
2. Dual Rendezvous	188.9	406.6
3. Operational requirements	43.4	84.3
4. Experiments	44.8	77.9
5. Retrofire Preparation	3.5	6.0
6. Gage inaccuracy contingency	12.8	27.0
Total	454.9	940.5

NOMINAL RENDEZVOUS PROPELLANT REQUIREMENTS

<u>Purpose</u>	<u>ΔV</u>	<u>Fuel</u>	<u>Prop</u>
1. Insertion	10.0 Fwd	4.8	10.2
2. Phase Adjust	54.7 Fwd	26.3	56.3
3. Circularization	51.2 Fwd	24.6	52.7
4. Terminal Phase Initiation	33.0 Fwd	15.8	33.7
5. 82° Correction	1.0 Fwd	0.8	1.0
	4.0 Up	2.2	4.8
6. 34° Correction	3.0 Up	1.4	3.1
7. Velocity Match	23.0 Up	11.4	24.6
	35.2 Aft	24.5	53.5
	1.9 Right	1.9	2.1
8. LOS Control	----	7.0	15.0
9. Attitude Control	----	11.8	20.0
Total		131.5	277.0

DISPERSED RENDEZVOUS PROPELLANT REQUIREMENTS

	<u>ΔV</u>	<u>Fuel</u>	<u>Prop</u>
1. Nominal requirements	---	133.2	277.0
2. Inplane insertion	10.0	4.8	10.2
3. Out-of-plane dispersion	25.0	11.9	25.5
4. Terminal phase dispersions	---	11.6	25.0
Total		161.5	337.7

NOMINAL DUAL RENDEZVOUS PROPELLANT REQUIREMENTS

<u>Purpose</u>	<u>ΔV</u>	<u>Fuel</u>	<u>Prop</u>
1. Platform Alignments (4)	---	1.2	2.0
*2. Catch-up Adjust	0	0	0
*3. Height Adjust (40:15)	0	0	0
*4. Catch-up Adjust (41:00)	0	0	0
*5. Corrective Combination (45:00)	0	0	0
*6. N _{SR} (45:30)	0	0	0
7. Tracking of passive Agena	---	3.5	6.0
8. Terminal Phase Initiation	23.1 Fwd	8.6	18.5
	10.3 Down	5.1	11.0
9. 1st Midcourse Correction	0	0	0
10. 2nd Midcourse Correction	0	0	0
11. Velocity Match	46.3 Aft	24.8	54.1
	1.9 Up	0.9	2.0
12. LOS Control	---	23.2	50.0
13. Height Adjust (to 161 x 215)	95.0	45.3	97.0
Total		112.6	240.6

DISPERSED DUAL RENDEZVOUS PROPELLANT REQUIREMENTS

	<u>ΔV</u>	<u>Fuel</u>	<u>Prop</u>
1. Nominal requirements	---	112.0	240.6
*2. Tweak translations	50.0	25.7	56.0
3. Terminal phase dispersions	---	51.2	110.0
Total		188.9	406.6

NOMINAL OPERATIONAL CHECKS PROPELLANT REQUIREMENTS

<u>Purpose</u>	<u>Fuel</u>	<u>Prop</u>
1. Formation Flying (05:20 to 06:00)	6.2	12.0
*2. Dockings and Undockings (3)	18.5	36.0
3. Bending Check	1.8	3.0
4. Umbilical EVA		
**a. Formation Flying (47:30 to 49:30)	15.4	30.0
b. Separate from passive Agena	1.5	3.3
Subtotal	43.4	84.3

NOMINAL EXPERIMENTS PROPELLANT REQUIREMENTS

<u>Purpose</u>	<u>Fuel</u>	<u>Prop</u>
1. D-5 Experiment	5.3	9.0
2. D-10 Experiment	10.6	16.0
3. S-1 Experiment	2.1	3.5
4. S-5 Experiment	2.9	5.0
5. S-6 Experiment	2.9	5.0
*6. S-13 Experiment	2.6	4.5
7. S-26 Experiment	14.9	29.0
8. MSC-8 Experiment	0.3	0.5
9. MSC-12 Experiment	3.2	5.4
Total	44.8	77.9



GEMINI X ELECTRICAL LOAD ANALYSIS

<u>Continuous Power Down Load</u>	<u>Amps</u>	<u>Intermittent Loads</u>	<u>Amps</u>	<u>Hrs.</u>	<u>Amp Hrs.</u>
	<u>27V</u>				
DC-DC Converter	1.72	Clock Light	.14	69.73	9.76
Electronic Timer	.23	Lighting	.42	48.00	20.16
Elapsed Time Digital		H ₂ Heater	.60	5.46	3.28
Clocks and Light	.27	O ₂ Heater Auto	.40	46.50	18.60
Suit Compressor (1)	3.30	O ₂ Heater - Manual	11.60	2.61	30.25
Cooland Pumps-B (2)	3.44	H ₂ O Evap. Heater	3.32	0.25	.83
ACQ. Aid Beacon	.20	UHF T/R (Xmtr $\frac{1}{2}$ time,			
Bio-med systems	.34	RCVR $\frac{1}{2}$ time)	1.00	20.00	20.00
Bio-med recorder (2)	.10	R/T - T/M Xmtr			
Digital Cmd. System	.40	(25 min. / orbit)	.75	18.35	13.75
RCS Heaters	.42	D/T - T/M Xmtr			
Time Correlation Buffer	.09	(6 min. / orbit)	.75	4.40	3.30
Voice Control Center-W/O		Urine Dump Heaters			
Tone Generator & Audio		(3 min. / orbit)	2.24	2.20	4.94
Inputs	.11	C-Adapt Beacon			
UHF T/R - INT & REC	.10	(10 min. / orbit)	1.00	7.33	7.33
OAMS Line & Valve Heaters	2.06	Cry Qty Gage			
H ₂ O Tank & Line Heaters	1.22	(5 mins. / day)	.43	.25	.11
Total @ 27V	14.00	Voice Tape Recorder			
		(14 spools)	.08	14.00	1.12
		Exp MSC -3, 6, 7	.40	69.73	27.89
		Exp D-10	.50	5.334	2.67
		Oxidizer Tank Htr.			
		(V/W tank)	.75	53.00	39.70
		Total @ 27V			203.69

MISSION SUMMARY

	<u>Purpose</u>	<u>Amps</u>	<u>Hours</u>	<u>Amp-Hours</u>
	Power down	14.00	69.73	976.22
	Intermittent Load	---	---	203.69
	Prelaunch	---	---	160.00
	Lift-off - 00:40:00	35.80	.667	23.89
	00:40:00 - 03:00:00	32.79	2.334	76.43
	3:00 - 6:00	36.30	3.00	108.92
	6:00 - 8:30	30.81	2.50	77.05
Power	18:10 - 19:00	22.00	.834	18.32
Up	19:00 - 19:30	27.49	.50	13.74
Periods	19:30 - 20:55	31.10	1.417	44.05
	20:55 - 22:20	27.65	1.417	39.14
	22:20 - 24:20	20.30	2.00	40.60
	25:35 - 31:00	.48	5.417	2.6
	39:30 - 41:00	26.75	1.50	40.13
	41:00 - 44:00	.48	3.00	1.44
	44:00 - 44:45	24:22	.75	18.20
	44:45 - 53:40	29.25	8.917	260.75
	62:00 - 62:45	24.22	.75	18.20
	62:45 - 69:44	28.30	6.984	197.58
	Total			2,320.95

H₂ Fuel Cell Loading (assuming no venting)

Total assumes 136% H ₂	7.9000 #
Purge allowance, 12 purges	.084
	7.816
Residual	.24
	7.576 #
Usable for power production	

O₂ Loading (assuming no venting)

Total assumes 100% O ₂	-	106.0 #
Purge allowance, 12 purges		1.41 #
		104.59 #
Residual		8.67 #
Usable		95.92 #
F.C. Usage (2,320.95 amp hours)	-	54.70 #
Crew Usage	-	34.53 #
Remaining		6.69 #

Cryogenic Flow Rates:

H₂ Rate = 0.002972 #/amp-hr

O₂ Rate = 0.02357 #/amp-hr

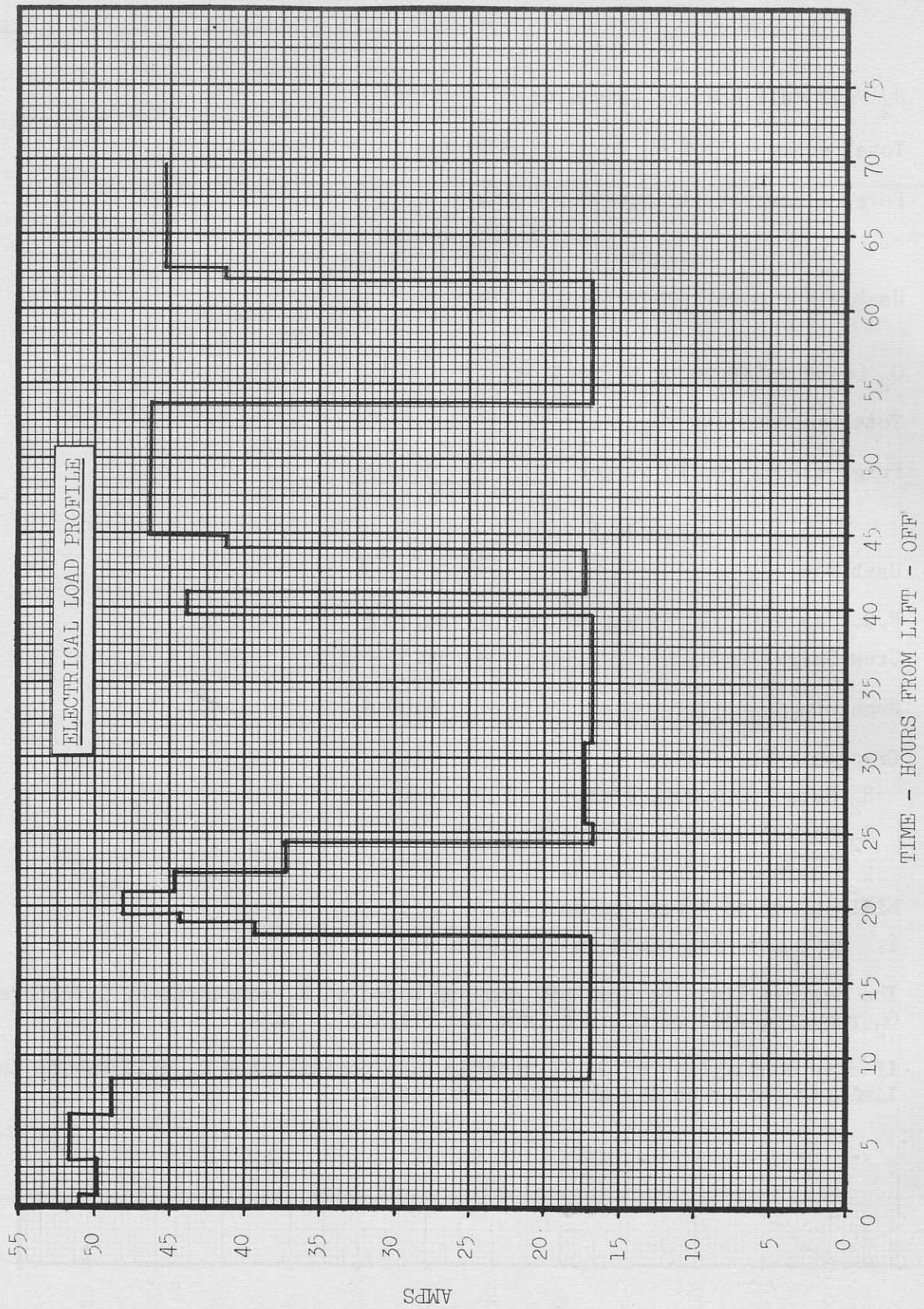
H₂O Rate = 0.02384 #/amp-hr

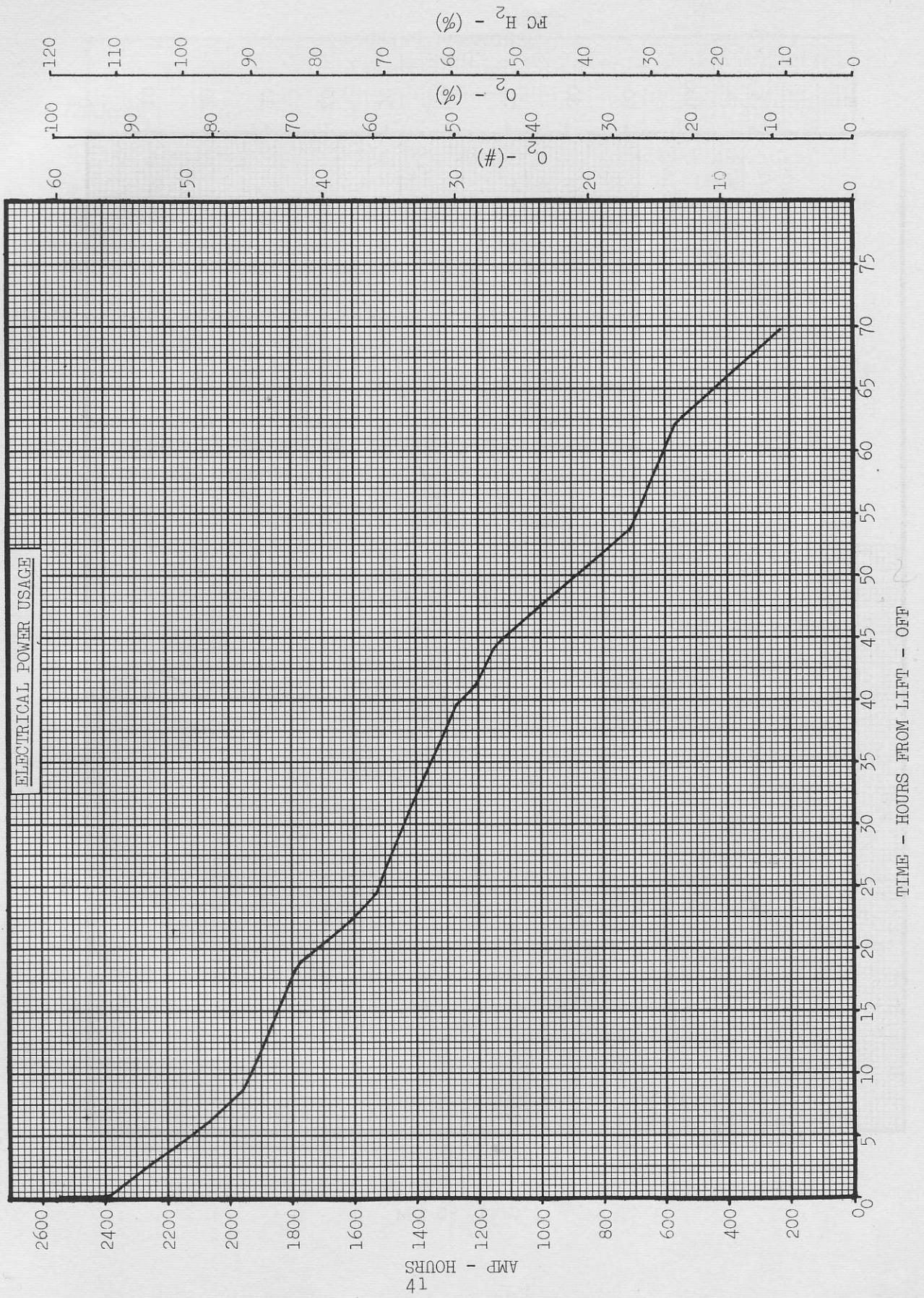
Limitations on Power Production:

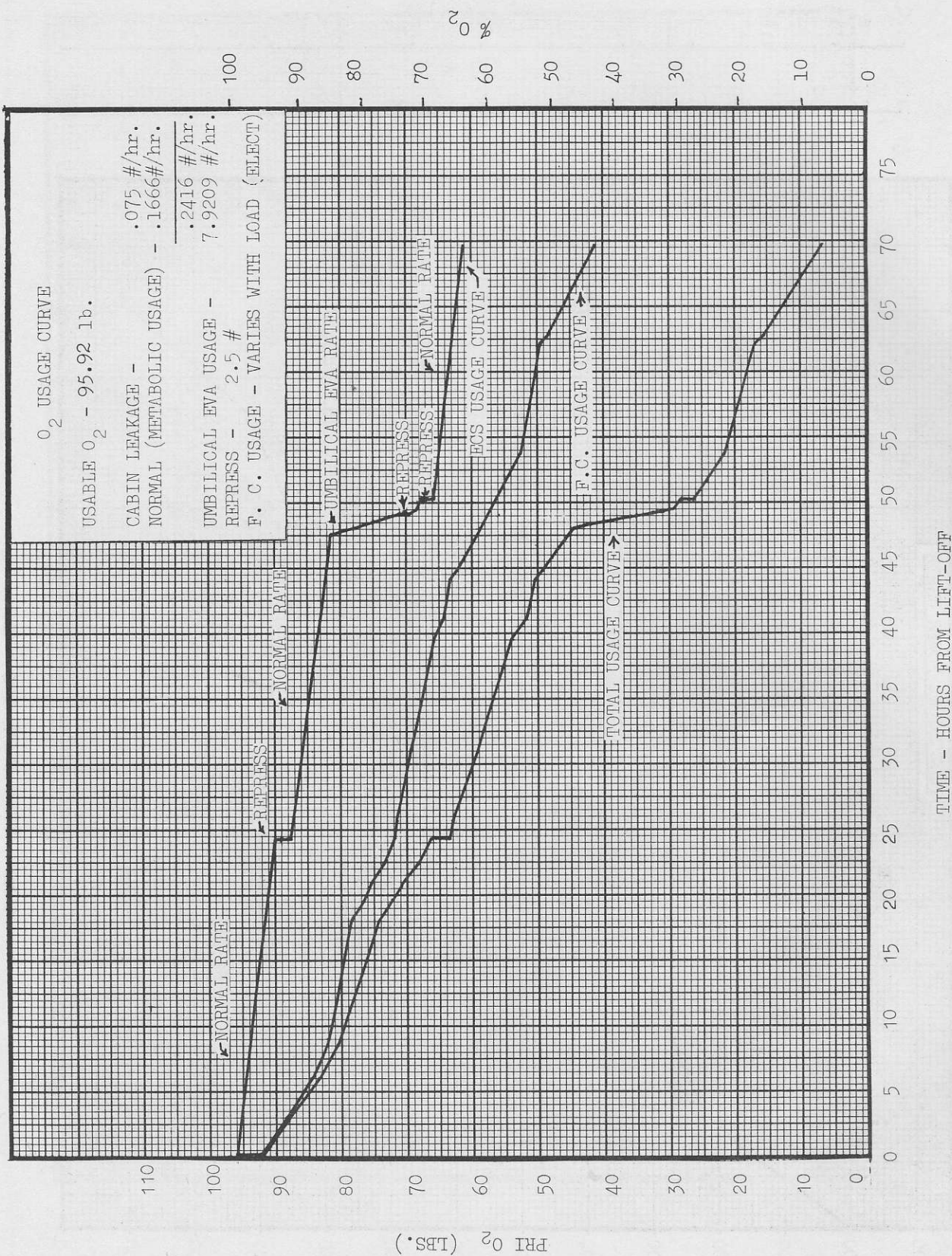
1. 2550 amp-hrs. based on available H₂.

The desired limit is the 2550 amp-hrs based on H₂ consumption, therefore, O₂ required will be 60.10 # from the Primary O₂ tank.

If crew consumption of O₂ is greater than nominal, the O₂ will become the limiting factor on the amp-hours available.







DOCKING PRACTICES

Purpose

1. To provide crew training for both crewmen in actual dockings.
2. To evaluate docking techniques under various configurations of the spacecraft and Agena.

NOTE: A total of three dockings will be accomplished.

Spacecraft Systems Configuration

1. PLATFORM - ORB RATE
2. RATE GYROS (3) - PRI
3. COMPUTER - As required

Time of Dockings

1. First - 06:30
2. Second - 07:50
3. Third - 19:50
4. Fourth - 20:40

First Docking Configuration

1. Agena at 0° , -90° , 0° yaw (TDA North) (S/C - 0° , 90° , 0°)
2. Agena Flight Control Mode 6
3. Performed by Command Pilot

Second Docking Configuration

1. Agena at 0° , 0° , 0° (TDA Fwd) (S/C - 0° , 180° , 0°)
2. Agena Flight Control Mode 1
3. Performed by Command Pilot

Third Docking Configuration

1. Agena at 0° , 0° , 0° (TDA Fwd) (S/C - 0° , 180° , 0°)
2. Agena Flight Control Mode 1
3. Performed by Pilot *

Procedures

1. Prior to undocking, perform the following:
 - a. COMPUTER - NAV (CTCH-UP)
Load the computer as follows:

25:00000
26:00000
27:00000
START COMP - PUSH
 - b. RDR - STBY
 - c. MANEUVER CONTROLLER - UNSTOW
MANEUVER CONTROLLER - ON
 - d. Send the following commands to the Agena:

141 - APPROACH LIGHTS ON
201 - SDP BRIGHT
071 - L BAND BEACON ON
041 - RECORD DATA
220 - UNRIGIDIZE (or TDA CONTROL - UNDOCK)
2. Start 16mm camera at 6 frames/second.
3. OAMS ATTITUDE CONTROL POWER - ON
4. ATTITUDE CONTROL - RATE CMD or DIRECT
5. Undock and translate to 3 feet at $\frac{1}{2}$ foot/second.
6. ATTITUDE CONTROL - PULSE
7. RDR - ON

8. Change 16mm camera speed to one frame/second.
9. Proceed with S-26 Experiment (See S-26 Experiment).
10. Translate to 60 feet from the Agena.
11. If Agena recording time is available,
Send Cmd 041 (RECORD DATA) to the Agena.
12. RDR - STBY
13. Start 16mm camera at one frame/second.
14. Translate toward the Agena at $\frac{1}{2}$ foot/second.
15. At a range of 25 feet, start the 16mm camera at 6 frames/second.
16. ATTITUDE CONTROL - RATE CMD or DIRECT
17. DOCK
18. When the RIGID LT comes on:
 - a. RIGID STOP - STOP
 - b. OAMS CNTL POWER - OFF
 - c. ATTITUDE CONTROL - PULSE
 - d. ENGINE - ARM
 - e. Check SDP ARMED LT illuminated.
 - f. ENGINE - STOP
 - g. Check SDP ARMED LT extinguished.
 - h. RDR - OFF
 - i. COMPUTER - PRE LN
19. Stop 16mm camera.
20. Send the following commands to the Agena:
 - 030 - T/M OFF
 - 021 - T/M ON
 - 040 - APPROACH LTS OFF
 - 070 - L BAND BEACON OFF
21. MANEUVER CONTROLLER - OFF
22. Configure Agena SDP as desired.

Propellant Requirements

Docking 6.0

Undocking 6.0

Dockings (3) 18.0

Undockings (3) 18.0

36.0 lbs.

GEMINI-AGENA BENDING MODE CHECK

Purpose

To obtain damping, frequency, and elastic coupling data of the Gemini-Agena 1st Bending Mode.

Flight Systems Configuration

1. S/C PLATFORM - ORB RATE
2. S/C RATE GYROS (3) - PRI
- 3 S/C COMPUTER - CTCH-UP

NOTE - This test must be conducted over a T/M site, since the data desired is only on R/T T/M.

Procedures

1. ATTITUDE CONTROL - DIRECT
OAMS ATT CNTL POWER - ON
2. Send the following Cmds to the Agena:

041 - RECORD DATA
300 - H/S - OFF
350 - GEO RATE - OFF
400 - ACS - OFF
3. Apply a 3-second pitch down thrust immediately followed by a 3-second pitch up.
4. Allow the Gemini-Agena to stabilize for 2 minutes.
5. Apply a 3-second yaw left thrust immediately followed by a 3-second yaw right thrust.
6. Allow the Gemini-Agena to stabilize for 10 seconds.
7. Send the following Agena Cmds:

030 - T/M & RECORDER - OFF
021 - T/M - ON
8. Maneuver S/C to next heading and set up for gyrocompass.

Propellant Requirements - 3.0#/check = 3.0#

ELECTRIC CHARGE MONITOR TEST

Purpose

To study the amount of charge that is exchanged between the Gemini and Agena as the TDA probe contacts the Agena.

Spacecraft Systems Configuration

1. S/C undocked from Agena.
2. S/C flying formation with Agena at 60 ft.

Time

Prior to first docking.

Procedures

1. Send the following Agena Cnds:
 - a. 041 - RECORD DATA
 - b. 151 - BOOM ANTENNA EXTEND (Calibrates the monitoring device)
Wait 30 seconds.
 - c. 271 - PWR RELAY RESET (Removes the calibration voltage)
 - d. 220 - TDA UNRIGIDIZE
 - e. 220 - TDA UNRIGIDIZE

} INITIALIZES MONITOR
2. RDR - STBY
3. DOCK (See docking procedures)
4. Send the following Agena Cnds:
 - 030 - T/M & RECORDER OFF
 - 021 - T/M ON
 - 040 - APPROACH LTS OFF
 - 070 - L BAND BEACON OFF

NOTE - See docking procedures for other post docking procedures.

STANDUP EXTRAVEHICULAR ACTIVITY

Purpose

To perform the experiments MSC-5, S-13, MSC-8, S-5, and S-6.

NOTE: Experiment MSC-5 will be performed only if the moon is greater than quarter full.

Systems Configuration

1. S/C - Agena Docked
2. Agena at 0°, 0°, 0° (S/C - 0°, 180°, 0°)
3. Agena in Flight Control Mode 6
4. S/C powered up.

Procedures

PRELIMINARY STANDUP EVA PREPARATION (21:35)

1. Configure the cockpit as follows:

a. ECS System

PRI PUMP A - ON
SEC PUMP A - ON
BOTH SUIT FLOW - PILOTS OPTION
CRY QTY GAGE - O₂
O₂ HTR - AUTO
H₂ HTR - AUTO
SUIT FAN - No. 1
CABIN AIR RECIRC - UP (OPEN)
INLET SNORKEL - UP (CLOSED)
CABIN VENT - UP (CLOSED)
WATER SEAL - UP (OPEN)
O₂ HIGH RATE RECOCK - UP
LT SEC O₂ BOTTLE - CLOSED
RT SEC O₂ BOTTLE - OPEN
CONDENSATE - NORMAL
H₂O TANK VALVE - NORMAL
WASTE - OFF

b. GNC System

AC POWER - IGS
ACME BIAS PWR - PRI
Both FDR - PLAT
Both FDM - RATE
Both ATT IND - WITH FDI'S
OAMS CNTL PWR - ON
OAMS PROP MOTOR VALVE - OPEN
PROP GAGE - 0
RCS HTRS - ON
ATTITUDE CONTROL - AS REQ
RATE GYROS (3) - PRI
RDR - OFF
COMPUTER - ON/NAV. (CTCH UP)
PLATFORM - ORB RATE

c. Electrical System

VOLT METER - M
ALL CABIN LTS - Red or Off
ATT IND LT C/B - CLOSED
CLOCK LIGHT - BRIGHT
ALL AGENA CONTROL C/B's - CLOSED
ELSS PWR C/B - OPEN

d. Communications

No. 1 and No. 2 AUDIO - UHF
UHF - No. 1
HF - OFF
KEYING - CONT INTER/PTT
ANT SEL - ADAPT
T/M - CMD
C-BAND Beacons - CMD

e. Agena

Flight Control MODE 6

2. Both Pilots verify or perform the following:
 - a. Life Vests stowed.
 - b. Lap restraint harness stowed
 - c. Optical sight installed
 - d. Shoulder and leg restraints - Stowed
3. Pilot remove from Right hand Food Box and install as follows:

- a. 18 inch & 24 inch EVA hoses with attached interconnects
 - 1) Disconnect the inlet ECS hose and insert the 18 inch inlet extension hose and interconnect.
 - 2) Disconnect the outlet ECS hose and insert the 24 inch outlet extension hose and interconnect.
- b. Urine sample bags and defecation devices - place in Footwell pouch.
- c.
 - 1) Standup tether - attach between suit and spacecraft.
 - 2) Standup electrical extension - Install as follows:

BIOMED INSTRU C/B - OPEN
INSTALL ELECTRICAL EXTENSION

NOTE - Communications will be lost with pilot while the standup electrical extension is disconnected.

BIOMED INSTRU C/B - CLOSED
Verify normal communications regained.

- d. 70 mm Maurer Camera with UV film magazine (S-13 and MSC-5) and temporarily stow in a convenient place.
- e. Pressure thermal gloves - stow temporarily.
- f. S-10 pouch - stow in convenient place

4. Pilot unstow remaining S-13 and MSC-5 equipment and assemble:
 - a. UV Lens and grating
 - b. Extended timer
 - c. S-13 bracket (orbital pouch)
5. Cmd Pilot unstow camera box and remove:
 - a. 70 mm Maurer with MSC-8 designated magazine
6. Restow Camera box
7. Cmd Pilot unstow color patch plate (MSC-8) and Pilot unstow MSC-8 Rod and give to Cmd pilot.
8. Cmd Pilot assemble MSC-8 experiment.
9. Pilot remove and attach hatch closing device.
10. Insert voice tape (Record - off)
11. Prepare dry waste Jettison package
12. Move food packages from hatch pouches and stow in Rt. hand AFT food box and close vent.
13. Continue with Flt Plan Activities.

FINAL STANDUP EVA PREPARATION

(22:25:00)

1. S/C systems will be reconfigured as follows:

a. ECS Systems

SEC Pump A - OFF
SEC Pump B - ON
O₂ Pressure - Maximum (800 psi)
CABIN AIR RECIRCU - DWN (CLOSED)

b. GNC Systems

Maneuver Thruster C/B's - OPEN
ATTITUDE CONTROL - PULSE
COMPUTER - PRE LN/OFF
SCANNER - PRI

c. Electrical System

EVENT TIMER TO 00:00 and Standby

d. Agena

S/C undocked from Agena and separated from it.

2. Platform BEF and aligning.

3. Both pilots transfer T-17 experiment package to command pilots footwell and stow or secure any loose items.

4. Cmd pilot perform the following:

- a. Don pressure gloves and helmet.
- b. Check all fittings. Position helmet tiedown.
- c. Zippers closed and checked.

5. Cmd pilot perform suit integrity check as follows:

- a. Close visor
- b. Position mirror to see suit outlet fitting
- c. LEFT HAND SUIT FLOW - OFF

- d. Disconnect suit outlet hose
 - e. Actuate Electrical O₂ HI Rate
 - f. Monitor suit pressure
 - g. Recock O₂ high rate when suit pressure reads 3.7 psi above cabin press.
 - h. Verify that suit pressure is stable and read.
 - i. Allow 30 seconds pressure decay and read suit pressure. (.5 psi/30 sec max.; .15-.35 psi is nominal)
 - j. Reinstall suit outlet hose
 - k. Suit flow - Full increase
6. Pilot perform the following:
- a. Don helmet and pressure thermal gloves
 - b. Check security and operation of EVA visor on helmet.
 - c. Check helmet restraint.
 - d. Zippers closed and checked.
7. Pilot perform suit integrity check as follows:
- a. Close visor
 - b. Position mirror to see suit outlet fitting
 - c. RIGHT HAND SUIT FLOW - OFF
 - d. Disconnect suit outlet hose
 - e. Actuate Electrical O₂ HI Rate
 - f. Monitor suit pressure
 - g. Recock O₂ high rate when suit pressure reads 3.7 psia above cabin press.
 - h. Verify that suit pressure is stable and read.
 - i. Allow 30 seconds pressure decay and read suit pressure. (.5 psi/30 sec max.; .15-.35 psi is nominal)

- j. Reinstall suit outlet hose
- k. Suit flow - full increase
- 8. Both pilots make final check of all fittings.
- 9. Both pilots verify:
 - a. Visors locked
 - b. EVA VISOR in place
 - c. Helmets locked
 - d. Gloves locked
 - e. All gas connectors locked.
 - f. MSC-8 rigged and accessible.
 - g. S-13 Camera Bracket ready and accessible.
 - h. Zippers closed
 - i. C/B'S & Switches in correct positions
 - j. All Cabin Lights - Dimmed
- 10. Pilot position hatch gain and drive selector to the "U" (Unlock) position.

SPACECRAFT DEPRESSURIZATION AND EGRESS
(22:55)

1. Cmd pilot perform or verify the following:
 - a. VOICE TAPE - RECORD - CONT
 - b. CABIN AIR RECIRC DOWN (CLOSED)
 - c. Cabin vent check valve - OPEN
 - d. Slowly open cabin vent to depressurize cabin to 3.0 psia.
Verify systems integrity while holding cabin at 3.0 psia.
 - e. CABIN VENT - OPEN (Complete depressurization of cabin)
 - f. Hold hatch closing device to prevent hatch inadvertent opening
2. Pilot perform the following:
 - a. Open S/C hatch (in sunlight)
 - b. Position hatch gain and drive to "L" (lock) position,
open sawtooth
 - c. Ensure hatch STRIKER PLATE LEVER is fully outboard.
 - d. Jettison Dry Waste Bag
 - e. Install Sun Shade on Command Pilot's window
3. Cmd pilot hand S-13 Camera/Bracket to pilot
4. Pilot set up 70 mm Maurer for S-13
5. Command Pilot perform the following:

Attitude Control - pulse
Platform - ORB RATE

EVA ACTIVITIES (00:00)

Cmd pilot at sunset start event timer counting up.

Pilot at sunset start watch counting up.

Sequence 1 00:00 - 36:14

Pilot perform experiment S-13 (Cmd pilot track designated star fields) (See S-13 exp for details)

	S/C - BEF	YAW	PITCH
a.	00:00 SPICA	120° S	60° U
b.	10:00 BETA CRUX	100° S	20° U
c.	20:00 SHAULA	130° S	60° U
d.	30:00 GAMMA VELORUM	90° S	10° U

NOTE - Unless it takes less time for each star field, the last star field will not be completed. Sunrise (36:14)

Sequence 2 36:14 - 40:00

Pilot dismount Maurer and bracket and hand to Cmd pilot and receive MSC-8 Maurer assembly.

Set up MSC-8 Maurer assembly. (different camera from S-13 camera)

(Cmd pilot orient S/C so that sun is within 30° of perpendicular to color patch plate.)

Sequence 3 40:00 - 45:00

Pilot take MSC-8 photographs

NOTE - Cmd pilot maintain proper sun angle. Hand MSC-8 color plate back to Cmd pilot, jettison MSC-8 rod

Sequence 4 45:00 - 55:00

Pilot take S-5 and S-6 photographs with remainder of Maurer Film.

Hand Maurer to Cmd pilot

TERMINATE "STANDUP EVA"

PROCEDURES FOR INGRESS (01:00)

1. Pilot check hatch holding device (sawtooth) - open
2. Pilot check hatch pawls to lock.
3. Pilot check hatch seal for proper seating and debris.
4. Both pilots close hatch tight by pulling on hatch closing device.
5. Pilot raise EV Visor.
6. Pilot complete hatch locking.
7. Both pilots perform the following:
 - a. CABIN VENT - CLOSED
 - b. CABIN VENT CHECK VALVE - CLOSED
 - c. VERIFY SEC O₂ (LT AND RT BOTTLES) - CLOSED
 - d. RAD - BYPASS
 - e. CABIN REPRESS - OPEN
8. Both pilots monitor cabin pressure and when it reaches 4.5 psia, gradually open visors to depressurize suit.
9. Cmd pilot perform the following:
 - a. CABIN REPRESS - SHUT
 - b. RAD - FLOW
10. Pilot perform the following:
 - a. SEC O₂ (RT. HD. BOTTLE) - OPEN
 - b. Position hatch gain and drive select to "N" (Neutral)
11. Pilot stow hatch closing device.
12. Cmd pilot CABIN AIR RECIRC - UP (OPEN)

13. Both pilots power down spacecraft as follows:

- a. RADAR - OFF
- b. PLATFORM - OFF
- c. RATE GYRO (3) - OFF
- d. EVENT TIMER - STOP
- e. CRYO QTY GAGE - OFF
- f. AC POWER - OFF
- g. ACME BIAS PWR - OFF
- h. COOLANT PUMPS - As desired
- i. T/M - CMD
- j. MANEUVER THRUSTER C/B's - CLOSED

14. Pilot performs the following:

- a. BIOMED INSTRU C/B - OPEN
- b. Remove electrical extension and reconnect spacecraft connector to suit.

NOTE - Communications will be lost with pilot while the standup electrical extension is disconnected.

- c. BIOMED INSTRU C/B - CLOSED
- d. Verify normal communications regained

15. Stow all EV Gear except what is needed during the umbilical EVA in permanent stowage. The following EVA gear needed later is stowed in accessible places with Velcro, et cetera.

- a. Standup electrical extension
- b. 18 in EV standup hose with interconnect
- c. 24 in EV standup hose with interconnect
- d. Pressure thermal gloves
- e. Standup tether
- f. 70 mm Maurer Magazines
- g. S-10 Pouch

UMBILICAL EXTRAVEHICULAR ACTIVITY

Purpose

1. To evaluate the operation of the Extravehicular Life Support System (ELSS).
2. To evaluate the Handheld Maneuvering Unit (HHMU) for maneuvering in space with 75 ft/sec ΔV .
3. To perform the S-12, T-17 and S-10 experiments.

Systems Configuration

1. S/C - (S/C10 Agena) - Undocked
2. S/C powered-up

Procedures

Preliminary Egress Preparation (42:30)

1. Configure the cockpit as follows:

a. ECS System

PRI PUMP B - ON
SEC PUMP B - ON
Both SUIT FLOW - Full Increase
CRY QTY Gage - OFF
 O_2 HTR - AUTO
 H_2 HTR - AUTO
SUIT FAN - No. 1 or No. 1 and No. 2

CABIN AIR RECIRCU - UP (OPEN)
INLET SNORKEL - UP (CLOSED)
CABIN VENT - UP (CLOSED)
WATER SEAL - UP (OPEN)
 O_2 HIGH RATE RECOCK - UP (cycle to recock)

LT SEC O₂ BOTTLE - CLOSED
RT SEC O₂ BOTTLE - OPEN
CONDENSATE - NORMAL
H₂O TANK VALVE - NORMAL
WASTE - OFF

b. GNC System

AC POWER - OFF
ACME BIAS PWR - OFF
Both FDR - PLAT
Both FDM - RATE
Both ATT IND - WITH FDI's
OAMS CNTL PWR - ON
OAMS PROP MOTOR VALVE - OPEN
Prop gage - 0
RCS HTRS - ON
ATTITUDE CONTROL - PULSE
RATE GYROS (3) - OFF
RDR - OFF
COMPUTER - OFF
PLATFORM - OFF

c. Electrical System

VOLT METER - M
ALL CABIN LTS - Pilot's option
ATT IND LT C/B - CLOSED
CLOCK LIGHT - BRIGHT
All Agena CONTROL C/B's - CLOSED
ELSS PWR C/B - OPEN

d. Communications

HF ANT - RET/OFF (1 min)
No. 1 and No. 2 AUDIO - UHF
UHF - No. 1
HF - OFF
Keying - CONT INTER/PTT
ANT SEL - ADAPT
T/M - R/T and ACQ
C-Bands - Cmd

2. Verify the following items are unstowed and in accessible places:
 - a. Standup electrical extension
 - b. 18 in EVA hose with interconnect
 - c. 24 in EVA hose with interconnect
 - d. Pressure thermal gloves

3. Verify the following items:
 - a. Gloves doffed
 - b. Helmets doffed
 - c. Life vests stowed
 - d. Shoulder and leg restraints stowed
 - e. Zippers closed and checked
 - f. Restraint harness released and stowed

4. Cmd pilot unstow EVA Gear from left food box:
 - a. Dual "Y" connectors (2)
ELSS restraint assembly (2)
 - b. (1) adapter assembly (EVA Movie Camera)
 - c. Handheld maneuvering unit.
 - d. Stowage Duffle Bag

5. Pilot attach ELSS restraints

6. Cmd Pilot check that both connector ports of "Y" connectors are in the open position. Hand to the pilot on his request.

7. Pilot perform the following:
 - a. Disconnect the outlet ECS hose from the suit and connect to the bottom of "Y" connector.
 - b. Connect "Y" connector to suit outlet fitting.

- c. Disconnect S/C inlet hose from suit and connect to bottom of second "Y" connector.
 - d. Connect "Y" connector to suit inlet fitting.
8. Cmd Pilot unstow C/B and light assembly (if not already done)
9. Cmd Pilot remove camera box and unstow:
- a. (2) 16mm cameras with magazines - check footage of film in magazines.
 - b. (1) Extra 16mm magazine stow in lt. hd. v/w pouch
 - c. 70mm Hasselblad with SO-217 film pack
 - d. 16mm camera lenses:
 - 5mm lens for EVA camera
 - 18mm lens for Cmd Pilot's camera
 - e. 16mm camera mirror
10. Cmd Pilot restow camera box.
11. Cmd Pilot verify that two voice tape cartridges are accessible (place in v/w pouch)
12. Cmd Pilot perform the following:
- a. Install 16mm camera bracket
 - b. Install 16mm camera and connect C/B and light assembly. Check operation.
13. Pilot assemble EVA camera and C/B and light assembly and check operation. Stow on rt. hd. sidewall.
14. Pilot remove and attach closing device.
15. Place umbilical bag in Pilot's footwell and T-17 in Cmd Pilot's footwell.

16. Prepare both ends of umbilical for connection to pilot and S/C
17. Pilot connect S/C end of umbilical as follows:

- a. Biomed Instru C/B - OPEN
- b. Disconnect S/C electrical connector from suit.

NOTE: Communications will be lost with pilot while the electrical connectors are disconnected.

- c. Pilot connects S/C electrical connector to S/C end of umbilical electrical cable.
 - d. Cabin repress - OPEN (for 10 seconds - purges filter in valves).
 - e. Pilot connect O₂ Quick Disconnect to Quick Disconnect on S/C repress valve.
 - f. Pilot attach umbilical S/C tether hook to ingress bar.
18. Cmd pilot and pilot connect suit end of 50 ft umbilical as follows:
 - a. Connect electrical connector to suit
 - b. Biomed Instru. C/B - Closed
 - c. Verify normal communications are regained.
 - d. Attach HHMU to umbilical
 - e. Cmd Pilot attach umbilical man tether hook to pilot's harness.
 19. Cmd Pilot perform the following:
 - a. Install optical sight (if not already done)
 20. Continue with dual rendezvous

21. S/C systems will be configured as follows @ end of dual rendez.

a. ECS Systems

PRI PUMP A - ON
SEC PUMP A - ON
BOTH SUIT FLOW - FULL INCREASE (PILOT'S OPTION)
CRY QTY GAGE - OFF
O₂ HTR - AUTO
H₂ HTR - AUTO
SUIT FAN - NO. 1 or NO. 1 and NO. 2.
CABIN AIR RECIRCU - UP (OPEN)
INLET SNORKEL - UP (CLOSED)
CABIN VENT - UP (CLOSED)
WATER SEAL - UP (OPEN)
O₂ HIGH RATE RECOCK - UP
LT SEC O₂ BOTTLE - CLOSED
RT SEC O₂ BOTTLE - OPEN
CONDENSATE - NORMAL
H₂O TANK VALVE - NORMAL
WASTE - OFF

b. GNC System

AC POWER - IGS
ACME BIAS PWR - PRI
Both FDR - PLAT } PILOT'S OPTION
Both FDM - RATE }
Both ATT IND - with FDI's
OAMS ATT CNTL PWR - ON
OAMS PROP MOTOR VALVE - OPEN
PROP GAGE - 0
RCS HTRS - OFF
ATTITUDE CONTROL - PULSE
RATE GYROS (3) - PRI
SCANNER - PRI
RDR - OFF
PLATFORM - ON
COMPUTER - ON/NAV (CATCH UP)

c. Electrical System

VOLTMETER - M
ALL CABIN LTS - Pilot's option
ATT IND LT C/B - Closed
Clock Light - Bright

All Agena Control C/B's - Closed
EVENT TIMER - Counting up
ELSS PWR C/B - OPEN

d. Communications

HF ANT - RET/OFF (1 MIN)
No. 1 and No. 2 AUDIO - UHF
UHF - No. 1
HF - OFF
KEYING - CONT INTER/PTT
ANT SEL - ADAPT
T/M - CMD
C - ADAPT - CMD

FINAL EVA PREPARATION

(After Dual Rendezvous)

(47:35)

1. a. Cmd Pilot fly formation on passive Agena
b. Both pilots perform post rendezvous checklist

SEC Pump A - OFF
SEC Pump B - ON
CRYO QTY GAGE - O₂
O₂ HTR - AUTO VERIFY
H₂ HTR - AUTO
Cabin Air Recircu - DWN (Closed)
RCS HTRS - ON

EXT LTS - Dock
EVENT TIMER TO 00:00 and Standby
O₂ Pressure - MAXIMUM (800 psi)
ELSS C/B - OPEN
2. Pilot put helmet on and verify zipper is closed.
3. Both pilots perform the following:
 - a. Cmd Pilot unstow camera box.
 - b. Pilot unstow the ELSS
 - c. Cmd Pilot stow camera box
4. Pilot verify the following:
 - a. ELSS O₂ Selector - off
 - b. ELSS BYPASS - NORMAL
5. Pilot connect ELSS end of 50 ft. umbilical electrical connector to ELSS.
6. Pilot connect O₂ umbilical to top plug of ELSS.
7. Pilot remove inlet and outlet plugs of ELSS and stow temporarily.
8. Pilot purge ELSS lines by opening repress valve for 10 sec.
9. Pilot connect inlet (18") and outlet (24") standup hoses to ELSS.

10. Cmd Pilot perform the following:
 - a. Don pressure gloves
 - b. Check all fittings and position helmet tiedown
 - c. Stow all loose items
11. Cmd Pilot perform suit integrity check as follows:
 - a. Close visor
 - b. Position left cabin mirror to see suit outlet hose and fitting.
 - c. LH Suit Flow - OFF
 - d. Disconnect suit outlet hose
 - e. Actuate electrical O₂ Hi Rate
 - f. Monitor suit pressure
 - g. Recock O₂ high rate when suit pressure reads 3.7 psi above cabin press.
 - h. Verify that suit pressure is stable and read.
 - i. Allow 30 seconds pressure decay and read suit pressure. (.5 psi/30 sec max., .15-.35 psi is nominal)
 - j. Reinstall suit outlet hose.
 - k. Suit flow - full increase
12. Cmd Pilot open cabin repress valve.

NOTE: Flow through ELSS is required to prevent line heater over-temp during subsequent ELSS checkout.

13. Pilot perform the following:
 - a. ELSS O₂ flow select - HI
 - b. ELSS Battery - ON
 - c. Verify ELSS suit pressure light and audio tone is "ON".
Reset Audio Tone
 - d. ELSS TEST/DIM/BRIGHT SWITCH - DIM/BRIGHT (Verify operation)

- e. ELSS TEST/DIM/BRIGHT SWITCH - TEST (VERIFY "SUIT PRESS" AND "EMERG O₂" LTS ON).
- f. When Test/Dim/Bright Switch is back to DIM, Verify Audio Tone-OFF, Emergency O₂ Light - OFF, Suit pressure light - ON
- g. ELSS BATTERY - OFF
- h. ELSS O₂ FLOW SELECT - OFF
- i. ELSS C/B - ON (Verify Peanut light - ON)
- j. Connect inlet standup hose to top of inlet "Y" connector.
- k. Connect outlet standup hose to top of outlet "Y" connector.
- l. R. H. suit flow valve-off
- 14. Both pilots disconnect pilot's ECS inlet and outlet hoses from "Y" connectors.
- 15. Cmd pilot connect pilot's hoses with an interconnect.
- 16. Pilot insert ELSS plugs into open "Y" connector ports
- 17. Pilot connect Hasselblad to ELSS bracket.
- 18. Pilot performs the following:
 - a. Don thermal pressure gloves
 - b. Check security and operation of EV visor on helmet.
- 19. Both pilots make final check of all fittings
- 20. Pilot check helmet restraint. Check in mirror for proper locking. Stow mirror.
- 21. Pilot position hatch gain and drive selector to the "U" (unlock) position.
- 22. Pilot perform the following:
 - a. Don ELSS by attaching restraint straps.
 - b. Attach Hasselblad lanyard to top of ELSS
 - c. Attach HHMU to front of ELSS with Velcro.
- 23. Cmd pilot check all gear

24. Pilot perform suit integrity check as follows:
- Slowly close visor to pressurize suit.
 - When suit pressure reaches $3.3 \pm .1$ psi above cabin, ELSS O_2 Selector - MED
- NOTE: This will increase suit press. to $3.7 \pm .2$ psi.
- Monitor suit pressure.
 - Cmd Pilot check cabin repress - closed
 - Ten seconds after cabin repress - closed, read suit pressure (3.5 psi above cabin pressure)
 - Monitor suit pressure for 30 seconds. (.5 decay; max. allowable is 1.0)
 - Cmd Pilot check cabin repress - open
 - ELSS O_2 Flow select - HI
 - Activate ELSS EMERGENCY O_2 Supply (1 $\frac{3}{4}$ turns C.C.W.)
 - Turn battery back on
 - Verify suit pressure, Emergency O_2 Light and Audio Tone - OFF.
 - Monitor suit pressure to approximately 3.7 psia above cabin press.
25. Cmd Pilot cabin repress - closed
26. Pilot verify Emergency O_2 Light and Audio Tone - ON
27. Cmd Pilot cabin repress - open, pilot press audio reset.
28. Pilot verify Emergency O_2 Light and Audio Tone - Off
29. Pilot turn ELSS Evaporator - ON (90° C.C.W.)
30. Both pilots verify:
- Visors locked
 - Helmets locked
 - Gloves locked
 - All gas connectors locked.

- e. Hasselblad ready
 - f. EVA camera ready
 - g. Record - cont
 - h. Loose items stowed or secured.
 - i. C/B's & Switches in correct position
31. Both Pilots perform the following.
- a. COMPUTER - PRE LN/NAV (CATCH UP)
 - b. INSERT ALL ZERO'S IN ADDRESSES 25, 26, & 27
 - c. START COMP - PUSH

SPACECRAFT DEPRESSURIZATION AND EGRESS

(48:08)

1. Cmd Pilot perform the following:
 - a. Start event timer - Up (At sunrise)
 - b. Verify cabin air recircu - closed (down)
 - c. Cabin vent - check valve - open
 - d. Slowly open cabin vent to depressurize cabin to 3.0 psia. Verify systems integrity while holding cabin at 3.0 psia. (Pilot's suit 3.7 psi above cabin, Cmd Pilot 4 psi above cabin)
 - e. Cabin vent - open (complete depressurization of cabin)
 - f. Hold hatch closing device to preclude hatch inadvertently opening
2. Pilot perform the following:
 - a. Unlatch spacecraft hatch
 - b. Rotate EV Visor into position
 - c. Open the hatch
 - d. Position hatch gain and drive select to "L" (Lock) Position, Sawtooth - OPEN
 - e. Stow hatch handle
 - f. Ensure hatch striker plate lever is fully outboard
3. Both pilots make final check of all fittings
4. Pilot stand in seat
5. Both pilots feed umbilical and out of hatch.

EVA ACTIVITY ON UMBILICAL

Note: Station keeping thruster firing will be coordinated between Cmd Pilot and Pilot to prevent firing vertical thruster No. 16 while Pilot is working in the nozzle area.

Sequence 1 00:00 - 05:00

Pilot:

- a. Activate handrail raising mechanism.
- b. Move to N₂ fitting
- c. Position nitrogen line back to nitrogen fitting in adapter.
- d. Insert HHMU nitrogen line fitting into fitting on adapter.
- e. Open N₂ shut-off valve.
- f. Move to cabin area

Sequence 2 05:00 - 10:00

Pilot:

- a. Collect S-12 and hand to Cmd Pilot.
- b. Pick up EVA camera from cabin and install on adapter.
- c. Turn EVA camera on 1 frame/sec.
- d. Fire HHMU to check flow

Sequence 3 10:00 - 30:00

Pilot perform the following:

- a. Translate to Agena
- b. Activate T-17
- c. Remove S-10
- d. Translate to S/C and hand S-10 to Command Pilot.

Sequence 4 30:00 - 40:00

Pilot perform HHMU EVALUATION:

- a. Pilot translate with HHMU to 30 feet from the S/C and null rates and remain stabilized.
- b. Translate along line of sight of the Agena.

Sequence 5 40:00 - 45:00

EVA Pilot pickup:

- a. Command pilot translate to pilot.

Sequence 6 45:00 - 55:00

Pilot perform umbilical evaluation

Pilot evaluates the umbilical's dynamics by using the umbilical to pull himself to the spacecraft.

Sequence 7 55:00

- a. Remove sunshade
- b. Terminate extravehicular activity.

INGRESS PREPARATION

1. Pilot move to adapter and perform the following:
 - a. Turn off " N_2 " shut-off valve
 - b. Bleed off propellant in HHMU with short thrusts while holding on to the adapter handrails
 - c. Unplug the HHMU propellant fitting
2. Pilot move to spacecraft hatch and stand in seat.
3. Pilot retrieve EV camera
Turn off 16 mm EVA camera
4. Both pilots pull in umbilical and stow temporarily in the left footwell.

INGRESS

1. Pilot open hatch holding device (sawtooth).
2. Pilot check hatch pawls to lock.
3. Pilot check hatch seal for proper seating and debris.
4. Pilot partially ingress cabin.
5. Pilot rotate EV VISOR open.
6. Pilot release ELSS restraints and hand ELSS to Cmd Pilot.
7. Pilot complete ingress
8. Both pilots close hatch tight by pulling on hatch closing device.
9. Pilot complete hatch locking
10. Cmd Pilot perform the following:
 - a. CABIN Vent-Closed
 - b. CABIN Vent Checkvalve-Closed
 - c. ELSS BYPASS - NORMAL
 - d. ELSS O₂ Flow Selector-HI
 - e. ELSS EVAPORATE-OFF
11. Both pilots monitor cabin pressure, when cabin pressure reaches 2.0 psia, go to bypass on ELSS & close Repress Valve. If cabin cannot be repressurized, use emergency procedures.

Note: ELSS Battery-OFF @ 1000 psi emergency O₂ Supply. Turn off EMERGENCY O₂ Supply @ 100 psi remaining and turn repress valve - ON if pilot still connected to ELSS.

12. Pilot open visor to depress suit at 3.7 psia.
13. Pilot position hatch gain and drive select to "N" (neutral)
14. Pilot stow sawtooth
15. Cmd Pilot translate aft (4 sec retrograde) to separate from Agena.
16. Cmd Pilot remove umbilical tether bracket from Pilot's suit.
17. Pilot remove interconnect from ECS hoses, and place in umbilical bag.
18. Pilot perform the following:
 - a. Disconnect inlet "Y" connector from suit and connect inlet ECS hose
 - b. Suit Flow - Full open
 - c. Disconnect outlet "Y" connector from suit and connect outlet ECS hose
19. Cmd Pilot perform the following:
 - a. ELSS Battery - off
 - b. Deactivate ELSS emergency O₂ supply. If done earlier due to shortage of EMER O₂ turn off repress valve.
20. Pilot perform the following:
 - a. Biomed Instru. C/B - open
 - b. ELSS PWR C/B - open
 - c. Disconnect umbilical electrical cable and connect long length jumper cable.

Note: Communications will be lost with pilot while the electrical connectors are disconnected.

- d. Biomed instru. C/B - closed
 - e. Verify normal communications regained
21. Pilot perform suit integrity check as follows:
- a. Close visor
 - b. Position mirror to see outlet hose.
 - c. Right hand suit flow - off
 - d. Disconnect suit outlet hose
 - e. Actuate electrical O₂ HI Rate
 - f. Monitor suit pressure
 - g. Recock O₂ high rate when suit pressure reads 3.7 psi above cabin press.
 - h. Verify that suit pressure is stable and read.
 - i. Allow 30 seconds pressure decay and read suit pressure.
(.5 psi /30 sec max.; .15 - .35 psi is nominal)
 - j. Reinstall suit outlet hose
 - k. Suit Flow - Full increase.
22. Both pilots make up a bundle of items to jettison and put in bag.
The following items will be jettisoned:
- a. Umbilical bag
 - b. 50-foot umbilical
 - c. HHMU
 - d. ELSS
 - e. ELSS restraint straps (2)
 - f. Standup hoses (18" and 24")
 - g. (2) "Y" connectors and (1)
interconnector
 - h. EVA VISOR

- i. EVA CAMERA BRACKET
 - j. EVA Camera C/B and light assembly (long)
 - k. Dry waste container.
23. Pilot position hatch pawls to "U" (Unlock)
24. Cmd Pilot perform the following:
- a. AIR RECIRC VALVE - CLOSED (down)
 - b. Cabin vent check valve - open
 - c. Slowly open cabin vent to depressurize cabin to 3.0 psia. Verify systems integrity while holding cabin at 3.0
 - d. Cabin vent open (complete cabin depress).
 - e. Hold hatch closing device to prevent hatch inadvertently opening.
25. Pilot perform the following:
- a. Open spacecraft hatch
 - b. Position hatch Gain and Drive to "L" (Lock) position.
 - c. Open sawtooth
 - d. Ensure hatch striker plate lever is fully outboard.
 - e. Jettison bundle
26. Both pilots perform the following:
- a. Close hatch by pulling on the hatch closing device.
 - b. Complete hatch locking
27. Both pilots perform the following:
- a. Cabin vent - close
 - b. Vent check valve - Closed
 - c. Rad - Bypass

- d. Sec O₂ (Lt and Rt Bottles) - Closed
- e. Cabin repress - open
- 28. Both pilots monitor cabin pressure and at 4.5 psia open visors to depress suit.
- 29. Both pilots perform the following:
 - a. Cabin repress - closed
 - b. Rad - Flow
 - c. Sec O₂ (Rt Bottle) - open
- 30. Cmd Pilot perform the following:
 - a. Unstow camera box and stow gear
 - b. Stow camera box
- 31. Pilot remove and stow hatch closing device; close sawtooth
- 32. CMD Pilot stow miscellaneous EVA gear. S-10 and S-12 stow in permanent stowage.
- 33. Pilot report any items not on previously established jettison list.
- 34. Pilot perform the following:
 - a. Biomed instrument C/B - open
 - b. Remove electrical jumper cable and connect spacecraft electrical connector to suit.
- Note: Communications with the pilot will be lost while electrical connectors or disconnected.
- c. Biomed instrument C/B - closed
- d. Verify normal communications are regained.
- 35. Both pilots complete stowage of unneeded gear.
- 36. Proceed with next event.

EXPERIMENT D-5

STAR OCCULTATION NAVIGATION

PURPOSE

Evaluate photoelectric occultation telescope and pilot procedures to develop a simple, accurate, self-contained orbital navigation system.

SPACECRAFT SYSTEMS CONFIGURATION

1. Undocked
2. AUX RECP - OFF
3. Photometer unstowed and connected to Aux Recp and TM jack.

NOTE: Keep sensor covered before sunset.

4. Filter - stowed position
5. Gain wheel - left (down)
6. Spacecraft reticle - installed
7. Day-night switch - NIGHT
8. Attitude control - PULSE
9. Cabin lights - Dim

PROCEDURES

MODE A

1. Align spacecraft BEF
2. Acquire bright star about to be occulted.
3. AUX RECP - ON.
4. Point photometer at star, align star with instrument reticle circle.
5. Depress calibrate button.
6. Turn gain wheel up until reticle light color changes (red to green fluctuating).
7. Release calibration button.

8. Continue to track star until it disappears from sight.
9. Acquire next star to be occulted and repeat steps 4 thru 8.
10. Voice record or enter in log the time of the experiment, variations from suggested sequence, and comments.

MODE B

Same as Mode A, except: After calibration on star, point photometer so that the star is outside the instrument reticle circle to the side. Continue to track star until it is occulted. Note: recticle light will remain red.

MODE C

Same as Mode A, except: Depress calibration button briefly when the star is at the top and bottom of the airglow and as the star vanishes from view.

SEQUENCES - Suggested stars and acquisition order.

SEQ 01 Stars	Time before next star sets	Acquisition pointing directions
Alphard	4 min.	BEF, left of track
Regulus	6 min.	BEF, left of track
Denebola	4 min.	BEF, left of track
Alkaid	4 min.	BEF, right of track
Arcturus	3 min.	BEF, on track
Alphecca	6 min.	BEF, right of track
Unuk	---	BEF, on track

PROPELLANT REQUIREMENTS

4 night passes at 2.25 lb per run - 9.0 lb

EXPERIMENT D-10

ION SENSING ATTITUDE CONTROL

PURPOSE

To determine the feasibility of orbital pitch and yaw determination by ion sensing.

SPACECRAFT SYSTEMS CONFIGURATION

1. Undocked
2. Agena power C/B - Closed
3. Other systems are dependent on particular sequences.

NOTE: The experiment must be completed during a continuous period of time involving no firing of the vertical and lateral thrusters. Firing of these thrusters will severely degrade the sensors once their covers are released. Firing of any other thrusters should not affect the sensors.

PROCEDURES

MODE A - Equipment extension and activation

1. Bus Arm Switch - EXP
2. Ion sensor seq. switch - SEQ. 1
3. Wait 1 to 2 minutes for booms to fully extend.

NOTE: Opening of the sensor covers prior to full boom extension may cause the booms to jam inside the retro adapter section.

4. Ion Sensor mode switch - ON. (Must remain ON or FDI until completion of exp)
5. Ion sensor seq. switch - SEQ. 2.
6. Bus Arm switch - SAFE.

MODE B - Ambient data accumulation

1. Platform - ORB Rate and aligned.
2. Computer - PRE LN
3. Attitude Control - PLAT
4. ION Sensor mode switch - FDI.
5. FDI Scales - HI.
6. Hold spacecraft attitude at zero in all axes for 10 minutes.

NOTE: Mode B should be done three times, once for each at the northern and most orbital latitude, the southernmost orbital latitude, and at an equatorial crossing.

MODE C - Roll attitude study

1. Platform - ORB RATE and aligned.
2. COMPUTER - PRE LN.
3. Attitude control - PULSE.
4. Ion Sensor mode switch - FDI
5. FDI Scales - HI.

6. Roll 720 degrees at about 3 deg. per second, holding pitch and yaw to zero.
7. Voice record crew commentary about FDI needle movements.

NOTE: Mode C should be done twice; once in daylight, once in darkness.

MODE D - Pitch attitude study

1. Platform - ORB RATE and aligned.
2. Computer - PRE LN.
3. Attitude control - PULSE.
4. Ion Sensor mode switch - FDI.
5. FDI scales - HI.
6. Holding both yaw and roll to zero degrees, pitch from 20 deg. down to 40 deg. up at ≈ 0.1 deg. per second.
7. Holding yaw at 5 deg. left and roll to zero, pitch from 40 deg. up to 20 deg. down at ≈ 0.1 deg. per second.
8. Holding yaw at 5 deg. right and roll to zero, pitch from 20 deg. down to 20 deg. up at ≈ 0.1 deg. per second.
9. Voice record crew commentary about FDI needle movements.

NOTE: Mode D should be done three times.

MODE E - Yaw attitude study

1. Platform - ORB RATE and aligned.
2. Computer - PRE LN.
3. Attitude control - PULSE
4. Ion Sensor mode switch - FDI.
5. FDI scales - HI.
6. Holding both pitch and roll to zero degrees, yaw from 20 deg. right to 40 deg left at ≈ 0.1 deg. per second.
7. Holding pitch at 5 deg. down and roll to zero, yaw from 40 deg. left to 20 deg. right at ≈ 0.1 deg. per second.
8. Holding pitch at 5 deg. up and roll to zero, yaw from 20 deg. left to 20 deg. right at ≈ 0.1 deg. per second.

9. Voice record crew commentary about FDI needle movements.

NOTE: Mode E should be done three times.

MODE F - Photo emission effects

1. Platform - ORB RATE and aligned.
2. Computer - PRE LN.
3. Attitude control - PLAT.
4. Ion Sensor mode switch - FDI.
5. FDI Scales - HI.
6. Hold spacecraft attitude at zero about all three axes from 5 min. before Sunrise to 15 min. after Sunrise.
7. Voice record crew commentary on FDI needle movements.

NOTE: Mode F should be done twice.

MODE G - Random data accumulation

1. Ion Sensor mode switch - ON.
2. At least 6 hours of data acquisition is requested. Drifting flight is preferred.

MODE H - Translation thruster effects

1. Platform - ORB RATE and aligned.
2. Computer - NAV (CTCH-UP)
3. Enter the following into the computer:
25:00000
26:00000
27:00000
4. Attitude control - PULSE
5. Ion sensor mode switch - FDI.
6. FDI scales - HI.
7. Control S/C attitudes to 0°, 0°, 0°
8. START COMP - PUSH
9. Holding 0°, 0°, 0°, Fire the UP/DWN and LEFT/RIGHT translation thrusters briefly.
10. Read address 80 from the computer
11. Translate aft to null address 80
12. Voice record crew commentary on FDI needle movements.

NOTE: The thruster firings in this sequence will probably destroy the sensing system. Hence, this mode will be the last performed.

PROPELLANT REQUIREMENTS

Mode B (3)	-	1.5
Mode C (2)	-	1.5
Mode D (3)	-	4.0
Mode E (2)	-	3.0
Mode F (2)	-	1.5
Mode H (1)	-	3.5
Plat Align(2)		<u>1.0</u>

Total 16.0 #

EXPERIMENT MSC-3

TRI-AXIS MAGNETOMETER

PURPOSE

To monitor the direction and amplitude of the earth's magnetic field.

SPACECRAFT SYSTEMS CONFIGURATION

1. BETA - With Mag. in insertion checklist.
2. BETA - OFF in preretro checklist.

FUEL REQUIREMENTS

None

EXPERIMENT MSC-5

LUNAR UV SPECTRAL REFLECTANCE

PURPOSE

To determine the ultraviolet spectral reflectance of the lunar surface in a range of wave lengths from 2000 to 3200 Angstroms.

SPACECRAFT SYSTEMS CONFIGURATION

1. Pilot EVA
2. Right hatch - open
3. Unstowed - Maurer 70 mm camera
 - UV lens
 - UV film magazine
 - UV diffraction grating
 - Extended timer
 - Bracket
4. Attitude control - PULSE
5. S/C reticle in left window.=

PROCEDURES

1. Assemble camera, lens, bracket, etc.
2. Mount on spacecraft prior to darkness.
3. Acquire moon in spacecraft reticle at 5 deg. up and zero yaw, and damp rates.
4. Take spectrograms, cycling up then down through the settings on the extended timer. (1, 2, 5, 10, 20, 40, 75, 150, 75 -- , 2, 1 sec.)

NOTE: No thruster firing during exposures of 10 sec. or less, minimum firing on other exposures.

PROPELLANT REQUIREMENT

1 run at 2.0 lbs. per run - 2.0 lbs.

NOTE: MSC-5 experiment requires greater than a quarter moon to conduct. Therefore, with the present launch date it will not be conducted.

EXPERIMENT MSC-6

BETA SPECTROMETER

PURPOSE

To experimentally verify the ability to predict the radiation hazards in the space environment, and to determine the gross interaction of the spacecraft with the environment.

SPACECRAFT SYSTEMS CONFIGURATION

1. BETA - With Mag. in insertion checklist.
2. Platform - ORB RATE and aligned if in Modes A or B.
3. BETA - OFF in preretro checklist.

PROCEDURES

MODE A: Controlled Attitude

1. Attitude control - PULSE
2. Hold yaw at zero degrees, pitch at zero degrees, and roll at 42 ° left plus or minus 2°. Attitude to be held through the South Atlantic anomaly region.

MODE B: Controlled Roll Rate

1. Attitude control - PULSE
2. During a pass through the South Atlantic anomaly hold pitch and yaw at zero degrees, and roll at about 6 degrees per second.

NOTE: - In the nominal Flight Plan no Mode A's or Mode B's are scheduled.

PROPELLANT REQUIREMENTS

2 controlled passes at 1.0 lb per pass 2.0 #

EXPERIMENT MSC-7

BREMSSTRAHLUNG SPECTROMETER

PURPOSE

To determine the gamma flux and energy spectra induced inside the spacecraft by exterior electron flow patterns.

SPACECRAFT SYSTEMS CONFIGURATION

1. X-RAY - ON in insertion checklist.
2. X-RAY - OFF in preretro checklist.

FUEL REQUIREMENTS

None

EXPERIMENT MSC-8

COLOR PATCH PHOTOGRAPHY

PURPOSE

To determine the color correction filters required during film processing to produce a good color fidelity in cislunar and lunar photography.

SPACECRAFT SYSTEMS CONFIGURATION

1. Pilot EVA
2. Right hatch open
3. Attitude control - PULSE
4. Unstowed - MSC-8 Maurer 70 mm Camera
 - f2.8 Lens
 - Color slate
 - Extension rod
 - MSC-8 film magazine

PROCEDURES

1. Assemble rod
2. Attach camera and slate to rod.
3. Maneuver to get sun normal to color slate (within 20 degrees of normal required).
4. Take 3 exposures at f.8.0, 1/250 second.
5. Take 3 exposures at f.11, 1/250 second.
6. Take 3 exposures at f.16, 1/250 second.
7. Dismantle rod and slate.
8. Dispose of rod.
9. Stow slate for postflight evaluation.

PROPELLANT REQUIREMENTS

1 sequence at 1.0 lb per sequence 1.0 lb.

EXPERIMENT MSC-12

LANDMARK CONTRAST

PURPOSE

To acquire reference data for the Apollo guidance and navigation system by measuring the contrast of selected land-sea boundaries.

SPACECRAFT SYSTEMS CONFIGURATION

1. Undocked.
2. Photometer unstowed and connected to AUX RECP and TM jack.
3. Photometer day-night switch - DAY.
4. Filter - in place.
5. Gain wheel - left (down).
6. Spacecraft reticle - installed.
7. Attitude control - PULSE.
8. Sequence camera with 75 mm lens in right window bracket.

CONDITIONS REQUIRED

1. Sun angle at least 30 degrees above horizon.
2. Area scanned directly on spacecraft ground track.
3. Spacecraft right window shaded from sun glare.

NOTE: Do not expose photomultiplier to direct sunlight.

PROCEDURES

MODE A:- Boundary observations.

1. Roll to heads down position.
2. Align spacecraft on land-sea interface on ground track.
3. Actuate 16mm camera at 1 frame per second.
4. Calibration:
 - A. Align photometer on land.
 - B. Depress calibration button.

- C. Rotate gain wheel until reticle color changes (red to green fluctuating).
- D. Release calibration button.
- 5. Brightness measurement:
Align photometer on land side of interface for 4 seconds, then on water side for 2 seconds.
- 6. Polarization check:
 - A. Depress calibration button for 1 second.
 - B. Rotate photometer 90 degrees about optical axis.
 - C. Align photometer on land for 4 seconds, then on water for 2 seconds.
- 7. Continue with as many brightness measurements as possible.
- 8. After task:
 - A. 16mm Camera - OFF
 - B. Cover objective for 10 sec. to get "dark" reading with settings unchanged.
Voice record time, area, and comments on visual contrast, landmark coloration, prominent landmark features, cloud cover, window glare, etc.

MODE B:- Daylight Lunar Calibration

- 1. Photometer settings left same as on preceding ground observation.
- 2. Align spacecraft and photometer on moon for about 30 seconds of measurements.

MODE C:- Night Lunar Calibration

Same procedure as for Mode B.

MODE D:- Planetary Calibration

Same procedure as for Mode B, except: Stow day filter and calibrate on a planet such as Venus.

MODE E:- Cloud Deck Calibration

Same as Mode B, but use a cloud deck as the calibration source.

NOTE: A maximum of two calibrations are required.

SEQUENCES - to be used for ground updates.

01. Baja California coast
02. Texas coast
03. West coast of Florida
04. East coast of Florida
05. West coast of South America
06. Northeast coast of South America
07. West coast of Africa
08. Mediterranean coast of Africa
09. Red Sea coast of Africa
10. Persian Gulf Arabian coast
11. South coast of Hawaii Island.

PROPELLANT REQUIREMENTS

4 ground observations at 0.9 lb per pass
2 calibrations @ 0.9 lb per cal

3.6 #

1.8 #

5.4

EXPERIMENT S-1

ZODIACAL LIGHT PHOTOGRAPHY

PURPOSE

To obtain infra-red photographs of the zodiacal light near the sun at sunset, and to obtain infra-red photographs of the airglow, covering the entire horizon during the night.

SPACECRAFT SYSTEMS CONFIGURATION

1. Undocked.
2. S/C Reticle mounted in left window
3. 35 mm zodiacal light camera mounted in right window.
4. Rate gyros - PRI or SEC
5. FDI scale range - LO
6. Attitude control - PULSE
7. All cabin lighting - OFF

NOTE: If lighting is required, momentary actuation of fingertip lights should be used when the camera shutter is closed - indicated by the red camera light being on.

PROCEDURES

Zodiacal Light Exposures:

1. Maneuver to BEF, yaw 15 deg. right, pitch up 58 deg. roll counter clockwise. (Center reticle on Alpha Canes Venatici)
2. Take 7 exposures, starting at sunset plus 1 min.

NOTE: Make attitude and rate corrections only when camera light is on, or camera is shut off.

3. Camera - OFF, acquire attitude for airglow photography.

AIRGLOW EXPOSURES:

1. Maneuver BEF to yaw zero, pitch up 25 deg, and roll 140 deg, clockwise.
2. Damp rates.
3. Take 11 airglow exposures holding this attitude. Start at about 10 min. after sunset.

NOTE: Make attitude and rate corrections only when camera light is on, or camera is shut off.

PROPELLANT REQUIREMENTS

1 sequence at 3.5 lbs. per sequence-3.5#

EXPERIMENT S-5

SYNOPTIC TERRAIN PHOTOGRAPHY

PURPOSE

To improve and extend the techniques of synoptic geologic and topographic aerial photography.

SPACECRAFT SYSTEMS CONFIGURATION

1. Attitude control - PULSE
2. Unstow - 70 mm Maurer Camera
Ring sight
Film magazine
80 mm lens

PROCEDURES

1. Assemble and prepare camera and accessories for photography.
2. Record time, sequence or subject, mode, magazine number and frame number on the onboard voice recorder and/or log book.
3. Pitch spacecraft straight down, if possible, to obtain photographs of selected terrain.
4. Control roll as required to keep sun glare from spacecraft window.

MODE A - Strip photos - one frame every 5 sec.

<u>SEQ</u>	<u>LOCATION</u>
01	Red Sea-Arabian Peninsula
02	Mexico
03	West Pakistan
04	Sahara
05	Northern So. America

MODE B - 2 or 3 frames	
06	Mississippi Delta
07	Ganges Delta
08	Bahamas-Tongue of the ocean
09	Philippines
10	Mekong alluvium

EXPERIMENT S-6

SYNOPTIC WEATHER PHOTOGRAPHY

PURPOSE

To obtain selective, high quality, color cloud photographs to study the fine structure of the earth's weather system.

CONDITIONS

Between 9:00 AM and 3:00 PM local solar time.

SPACECRAFT SYSTEMS CONFIGURATION

1. Attitude control - PULSE
2. Unstow - 70 mm Maurer camera
Ring sight
UV filter
Film magazine
80 mm lens

PROCEDURES

1. Assemble and prepare camera and accessories for photography.
2. Control spacecraft attitudes as required to obtain photographs of selected cloud formations.
3. Voice record comments on each photograph - time, location, and significant observations.

- NOTE:
- A. Control roll as required to keep sun glare off window through which photographs are taken.
 - B. Photograph the same formation on successive passes, if possible.
 - C. Clouds over land are desirable in order to provide identification of cloud location.

SEQUENCES - to be used for ground updates.

01. Cloud eddies near islands and costal prominences
02. Diurnal cloud variation in costal and island areas.
03. Cumulus cloud "streets".
04. Sunlint in Gulf of Mex., Bahamas, Bermuda area.

05. Severe thunderstorms
06. Thunderstorms with strong wind shear
07. Tropical and extratropical cyclones.
08. Cirrus bands emanating from tropical convergence zone.
09. Areas of interest to oceanographers.
10. Pictures near meteorological sounding stations.

A. Guam	H. Eniwetok
B. Midway	I. Kwajalein
C. Wake	J. Key West
D. Marcus Is.	K. Swan Island
E. Johnston Is.	L. Ascension
F. Kauai	M. West Indies
G. Hawaii	

EXPERIMENT S-10

MICROMETEORITE CRATER COLLECTION

PURPOSE

To collect craters of micrometeorite impacts on specially prepared and polished surfaces that can be recovered for study and analysis.

SPACECRAFT SYSTEMS CONFIGURATION

1. Spacecraft station-keeping with passive Agena.
2. Pilot EVA.

PROCEDURES

Recovery of collector.

1. With handle, slide unit forward until the cover is free to close.
2. Close cover.
3. Remove unit from passive Agena.
4. Attach unit to Velcro on chest pack until return to spacecraft.
5. After return to spacecraft, lock handle and insert unit in its stowage bag.

EXPERIMENT S-12

MICROMETEORITE COLLECTION

PURPOSE

To study particle environment at orbital altitude, and to study the effects of space environment on certain biological materials.

SPACECRAFT SYSTEMS CONFIGURATION

1. Pilot EVA to retrieve collector.
2. Collector surface should not be exposed if "snowflake" particles are present; or during thruster firings, fuel cell purges or overboard dumps of liquids.

PROCEDURES

OPENING:

1. COLLECTOR DOOR - OPEN
2. Mark time of opening in log.

CLOSING:

1. COLLECTOR DOOR - CLOSED
2. Mark time not open or time of final closure in log.

NOTE: Close and open as required. Do not re-open for 2 minutes following thruster fire, etc.

RETRIEVAL

1. COLLECTOR DOOR - CLOSED prior to EVA.
2. Wait 2 minutes for door to close.
3. COLLECTOR DOOR - DOOR LOCKED prior to EVA.
4. Pilot EVA.
5. Remove lead fairing, retrieve experiment unit.
6. Stow unit on latch structure of EVA chest pack after pack is stowed.

TIME REQUIREMENTS

A minimum exposure time of 8 hours is required.

EXPERIMENT S-13

UV ASTRONOMICAL CAMERA

PURPOSE

To test the techniques of ultraviolet photography and spectrometry under vacuum conditions, and to obtain spectrograms of selected star fields.

SPACECRAFT SYSTEMS CONFIGURATION

1. Pilot EVA
2. Right hatch - open
3. Unstowed - S-13 Maurer 70 mm camera
 - UV lens
 - UV film magazine
 - UV diffraction grating
 - 10 degree prism
 - Extended timer
 - Bracket
4. Attitude Control - PULSE

PROCEDURES

MODE A - Diffraction grating exposures

1. 5 exposures at 10 seconds.
2. 1 exposure at 10 seconds with a 0.10/sec yaw rate incorporated.
3. 2 exposures at 75 seconds.

MODE B - Prism exposures

1. 5 exposures at 5 seconds.
2. 1 exposure at 5 seconds with a 0.10/sec yaw rate incorporated.
3. 2 exposures at 75 seconds.

SEQUENCE OF OPERATIONS

1. Assemble camera and attachments as required by mode number.
2. Mount camera and bracket on spacecraft.
3. Enter darkness BEF.
4. Acquire star field, damp rates.
5. Take spectrograms as per mode designated.
6. Acquire next star field, repeat steps 4 and 5.

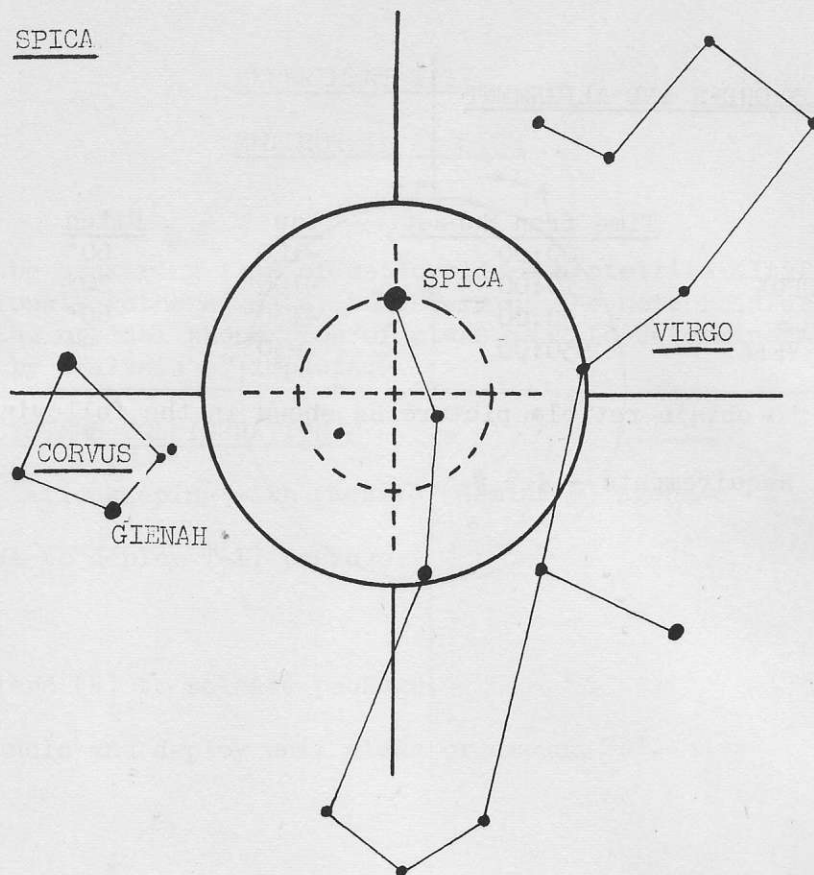
ACQUISITION ORDER AND ALIGNMENT

<u>Star</u>	<u>Time from Sunset</u>	<u>Yaw</u>	<u>Pitch</u>
1. SPICA	00:00	-120°	60°
2. BETA CRUX	10:00	-100°	20°
3. SHUALA	20:00	-130°	60°
4. GAMMA VELA	30:00	-30°	5°

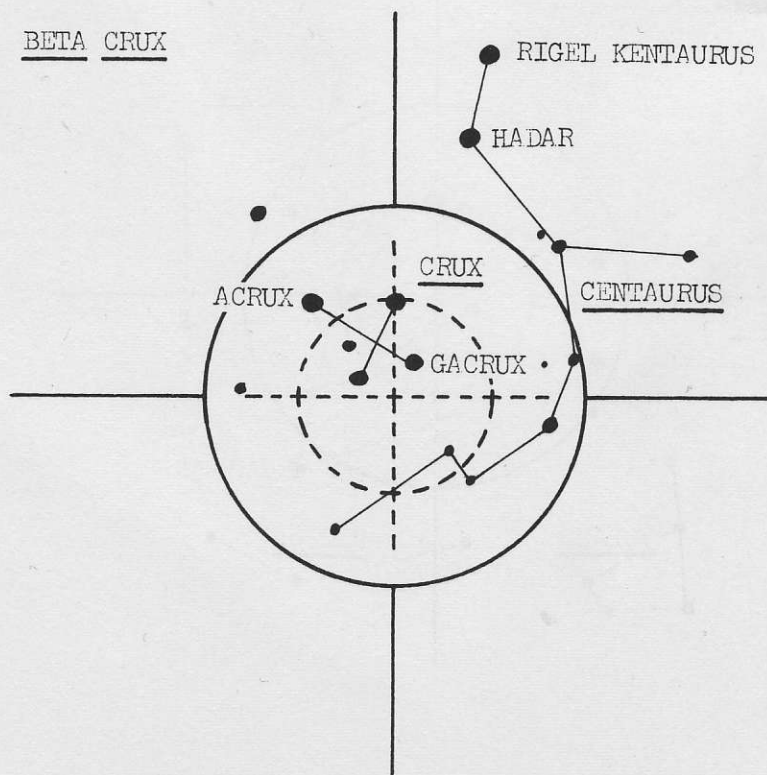
Align S/C to obtain reticle picture as shown in the following figures.

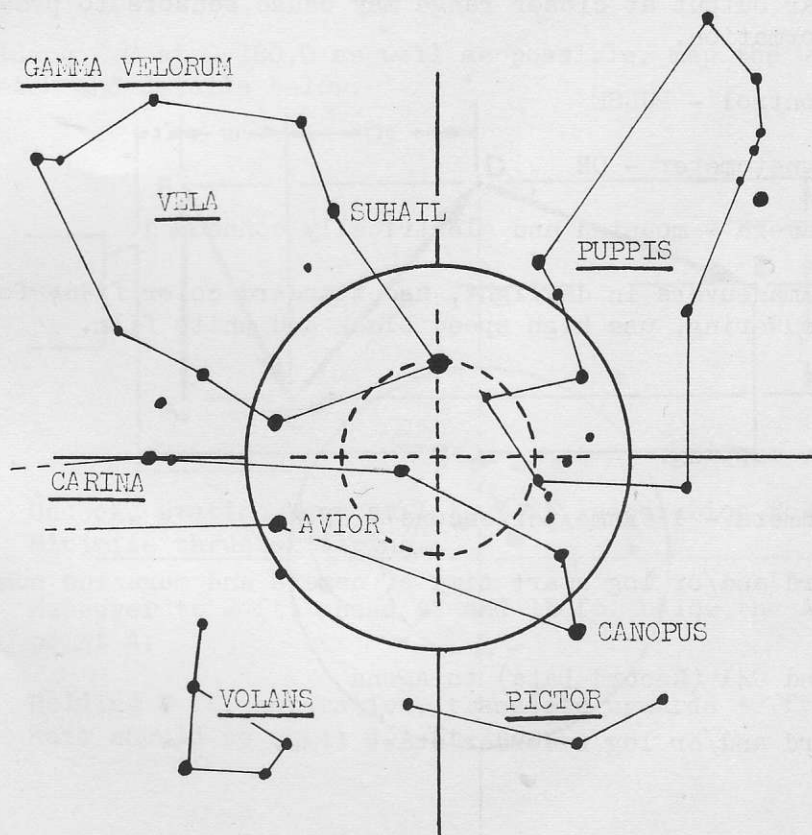
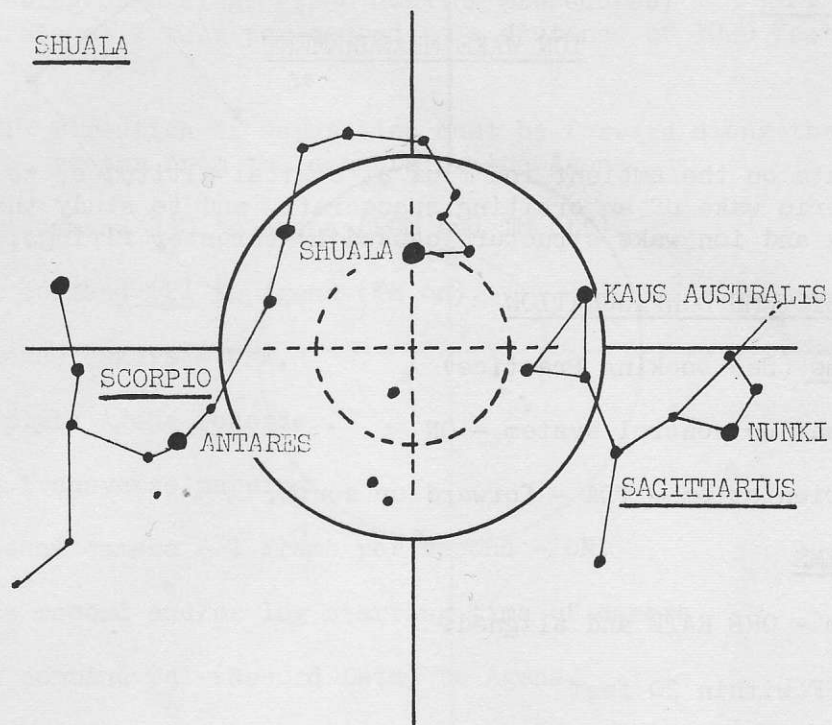
Propellant Requirements - 4.5 #

SPICA



BETA CRUX





EXPERIMENT S-26

ION WAKE MEASUREMENT

PURPOSE

To obtain data on the ambient ion flux at orbital altitudes, to investigate the ionospheric wake of an orbiting spacecraft, and to study the changes in the ion flux and ion wake structure caused by thruster firings.

SPACECRAFT SYSTEMS CONFIGURATION

Agena Systems (See Docking Practice)

1. Stabilization control system - ON
2. Agena orientation - TDA - forward or south.

GEMINI SYSTEMS

1. Platform - ORB RATE and aligned.
2. RDR - OFF within 20 feet

NOTE: Radar output at closer range may cause sensors to present false information.

3. Attitude control - PULSE
4. Triaxis magnetometer - ON
5. Sequence camera - mounted and electrically connected.

NOTE: For maneuvers in daylight, use standard color film; for darkness maneuvering, use high speed black and white film.

PROCEDURES

MODE A - Linear mapping.

1. Sequence camera - 1 frame per second - ON.
2. Voice record and/or log start time of camera and magazine number
3. Send command 041 (Record Data) to Agena
4. Voice record and/or log recorder start time.

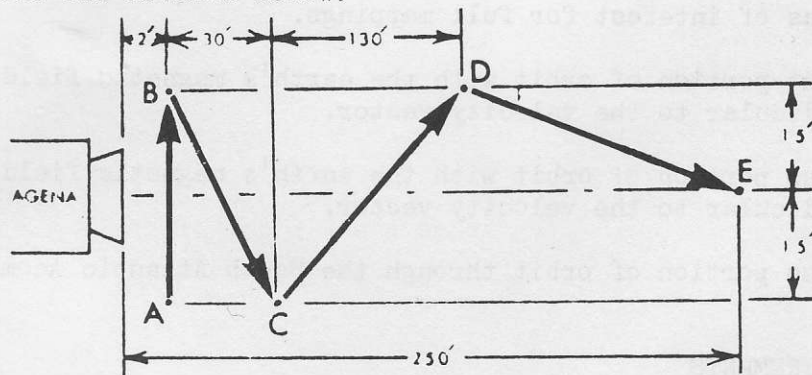
- Following undocking: (See docking procedures)
Separate at 2 feet per second to a distance of 1000 feet, holding Agena in view.

NOTE: Direction of separation must be forward along the velocity vector from the sensors on the Agena.

- Send command 030 to Agena (PCM and TM off).
- Send command 021 to Agena (TM on).
- Sequence camera - OFF.
- Gnd plybk Agena recorder.

MODE B - Transverse mapping

- Sequence camera - 1 frame per second - ON.
- Voice record and/or log starting time of camera
- Send command 041 (Record Data) to Agena.
- Voice record and/or log Agena recorder start time.
- Holding S/C at 0,180,0 as well as possible, map the wake as per sketch and details below.



- Undock, station keep at 1 to 3 ft. separation for 15 to 20 sec. Minimize thruster firing.
- Maneuver to 2 ft. ahead of and 15 ft. below the Agena, to point A.
- Holding 2 ft. separation, translate upwards 30 ft. to point B. Rate should be about 0.1 ft./sec.

- D. Translate aft 30 ft. and down 30 ft. to point C. Rate should be about 0.2 ft./sec.
- E. At an estimated 20 to 25 ft. separation turn Radar ON. Voice record and/or log radar on time.
- F. Translate aft 130 ft. and up 30 ft. to point D. Rate should be about 0.5 ft./sec.
- G. Translate down and aft to 250 ft. separation. Rate should be about 1.0 ft./sec.
- 6. Send command 030 (Recorder & T/M) to Agena. Voice record and/or log OFF time of PCM.
- 7. Send command 021 (T/M - ON) to Agena.
- 8. Sequence camera - OFF. Voice record and/or log OFF time of camera.
- 9. Continue with docking practice.
- 10. Ground plybk Agena recorder over station.

NOTE: Agena recorder is limited to 20 min. record time. It must be shut off at 20 min. for subsequent dump.

SEQUENCES - Areas of interest for full mappings.

SEQ 01 - Daylight portion of orbit with the earth's magnetic field lines perpendicular to the velocity vector.

SEQ 02 - Darkness portion of orbit with the earth's magnetic field lines perpendicular to the velocity vector.

SEQ 03 - Darkness portion of orbit through the South Atlantic Anomaly area.

PROPELLANT REQUIREMENTS

1. Linear mapping	3.0
2. Transverse mappings (3)	26.0
Total	29.0 lb.

EXPERIMENT M-5

BIOASSAYS OF BODY FLUIDS

PURPOSE

To analyze body fluids to determine the physiological stress resulting from space flight.

SPACECRAFT SYSTEMS CONFIGURATION

Urine receiver connected.
Sample bag unstowed.

PROCEDURES

Mark sample bag C or P and GET.
Collect sample.
Stow sample bag.

NOTE: Log if tracer pump is passed more than once per sample.
Never turn selector valve counterclockwise except to get
UCD sample.

EXPERIMENT T-17

METEOROID EROSION

PURPOSE

To measure the cratering flux of meteoroids at satellite altitudes, to verify previously gathered data, to determine the meteoroid erosion effects on the optical properties of glass, and to determine meteoroid composition by analysis of impacts.

SPACECRAFT SYSTEMS CONFIGURATION

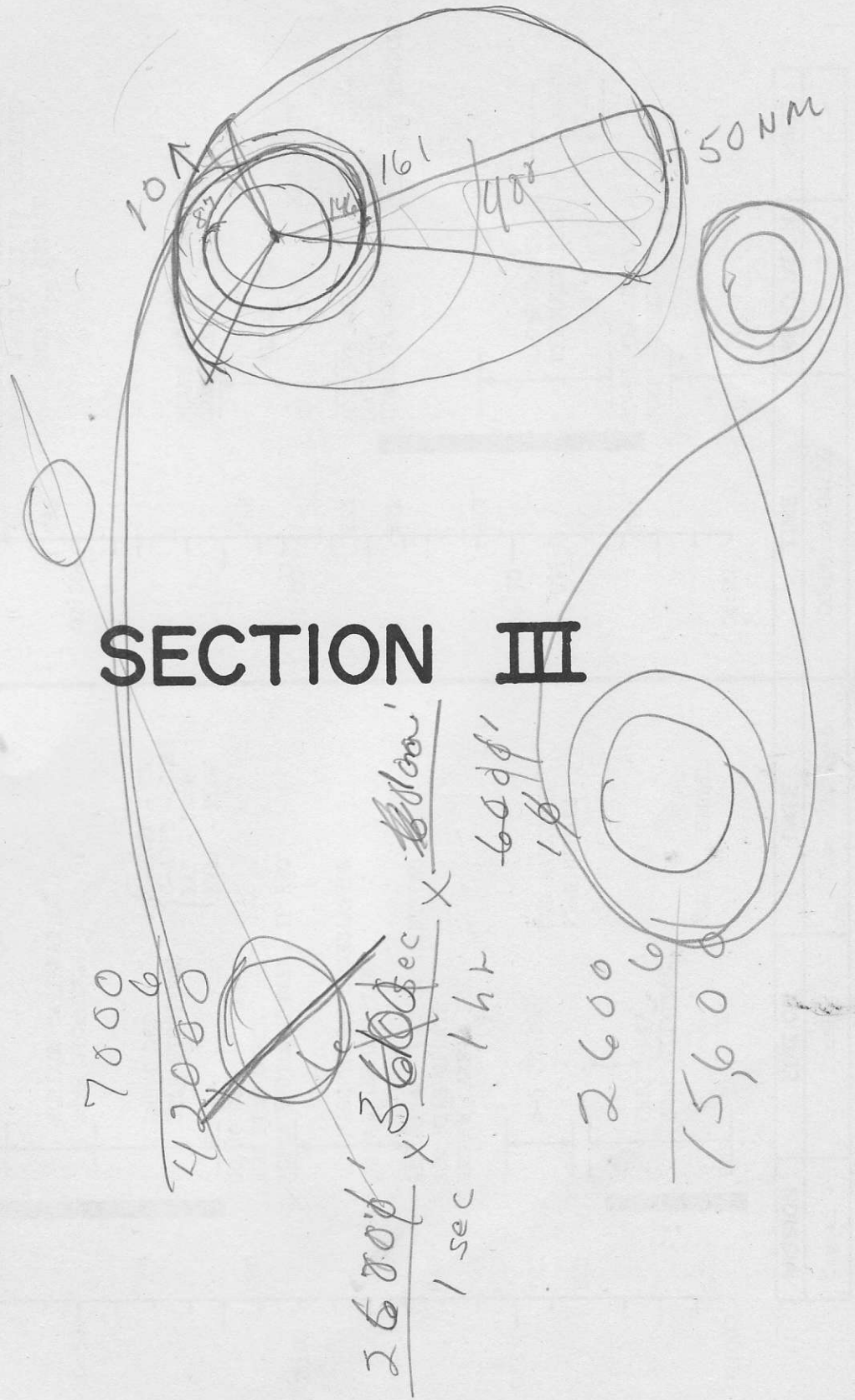
1. Gemini stationkeeping with Passive (Gemini 8) Agena
2. Pilot EVA to deploy T-17 package.

PROCEDURES

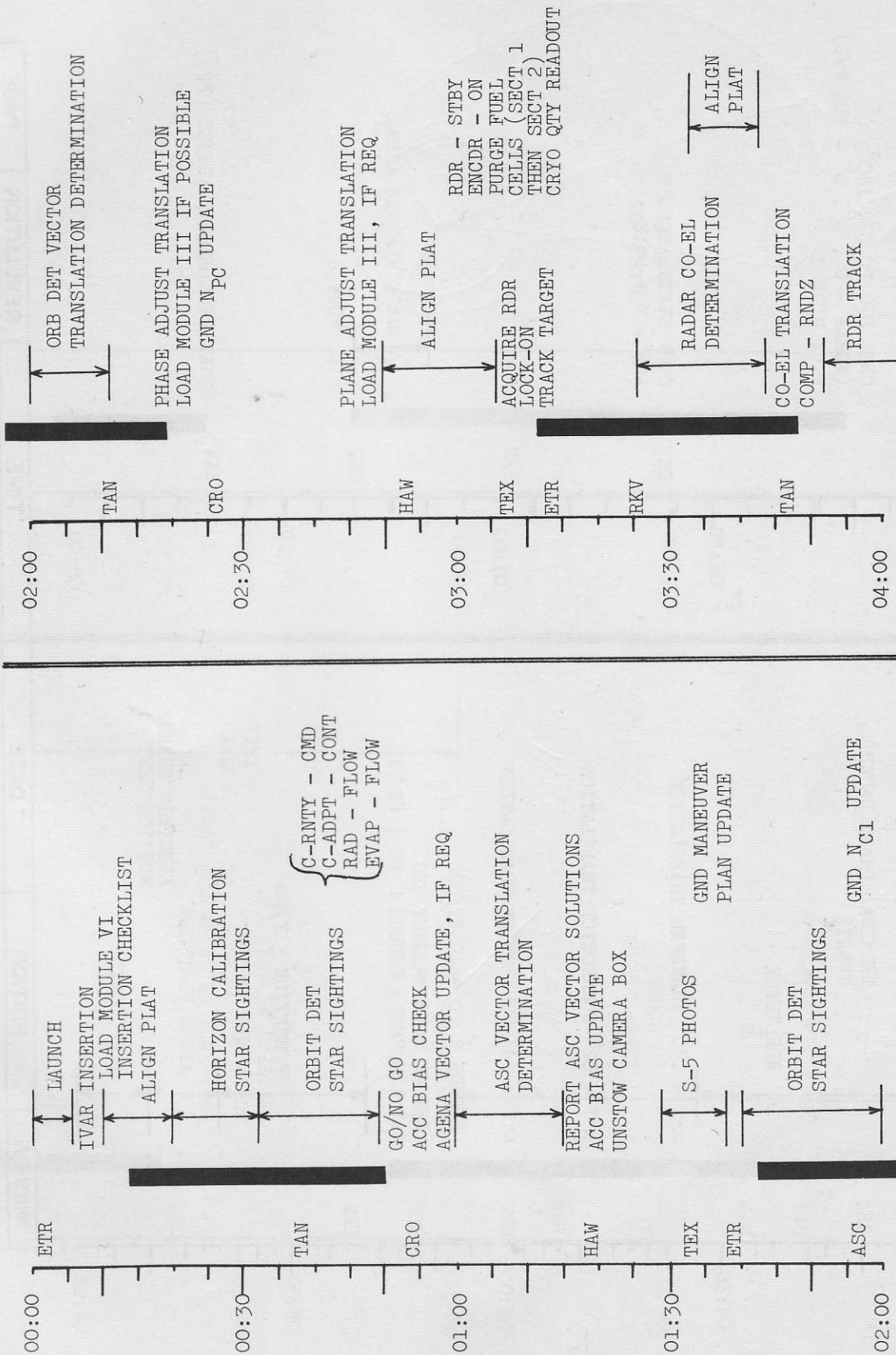
1. Pull Velcro (R) to release package.
2. Grasp handle and deploy unit along or around TDA.

SECTION III

SECTION III

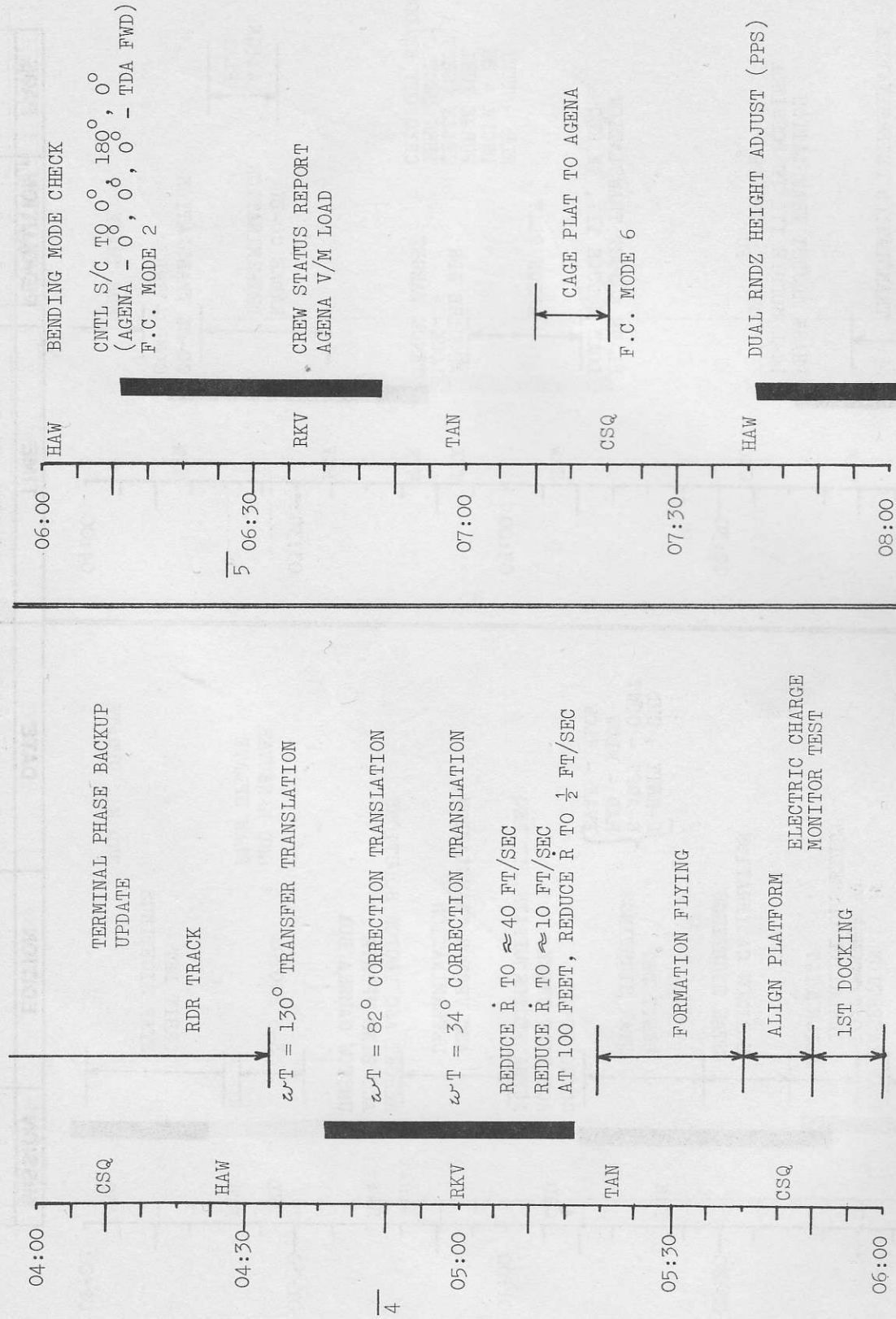


FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	00:00 to 04:00	1 - 2	1

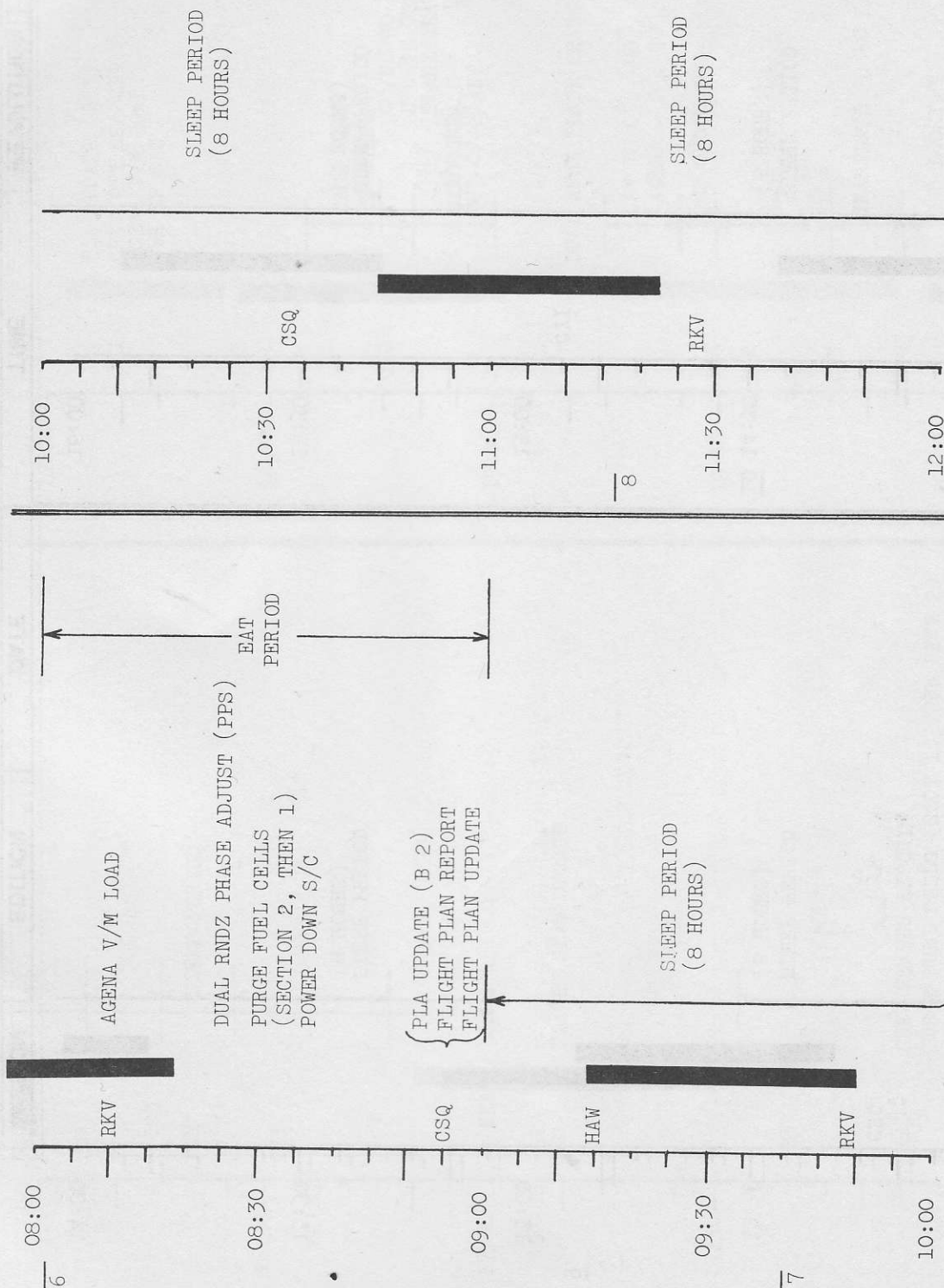
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	04:00 to 08:00	4 - 5	2A

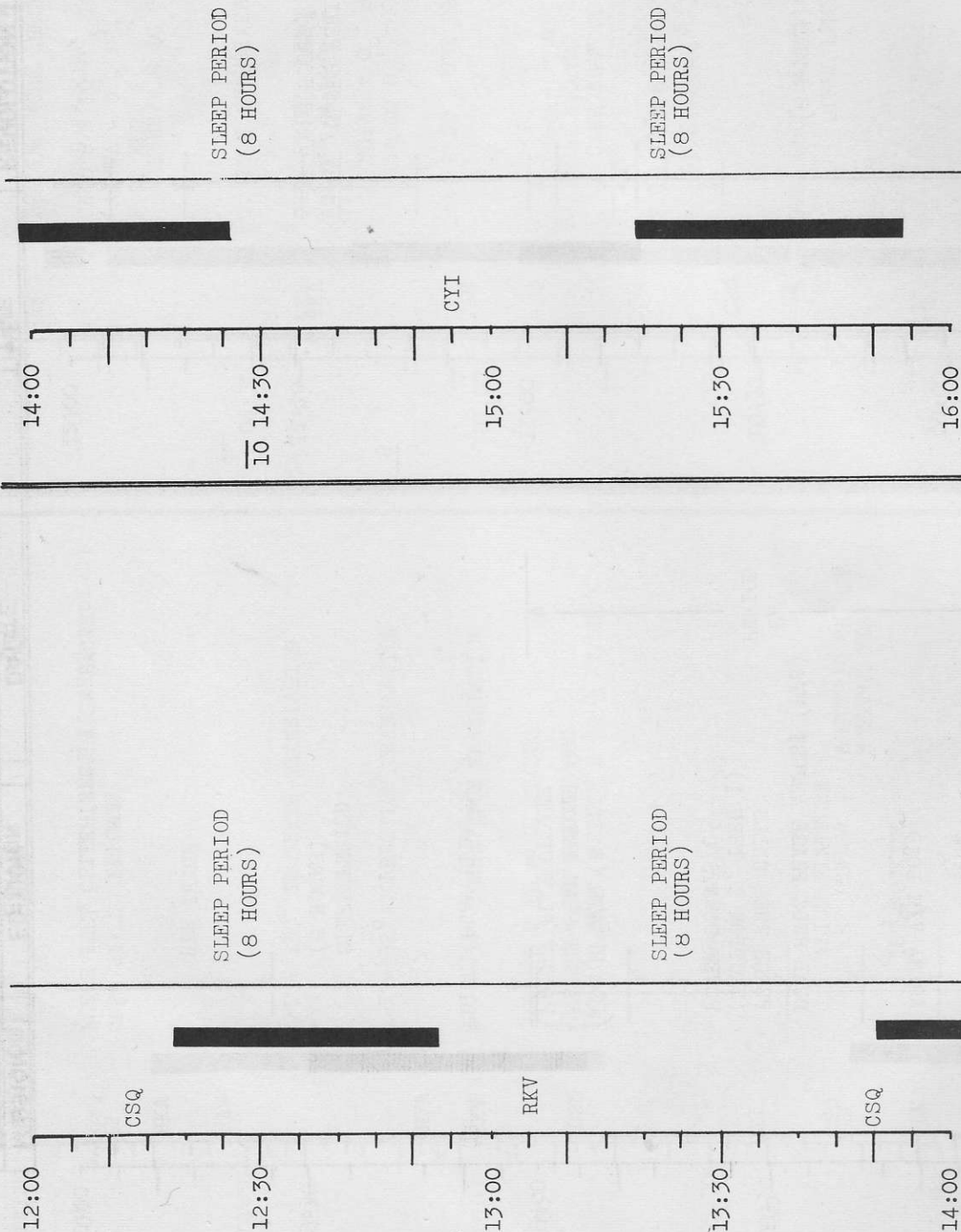
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CONTINGENCY A
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	08:00 to 12:00	6 - 8	3A

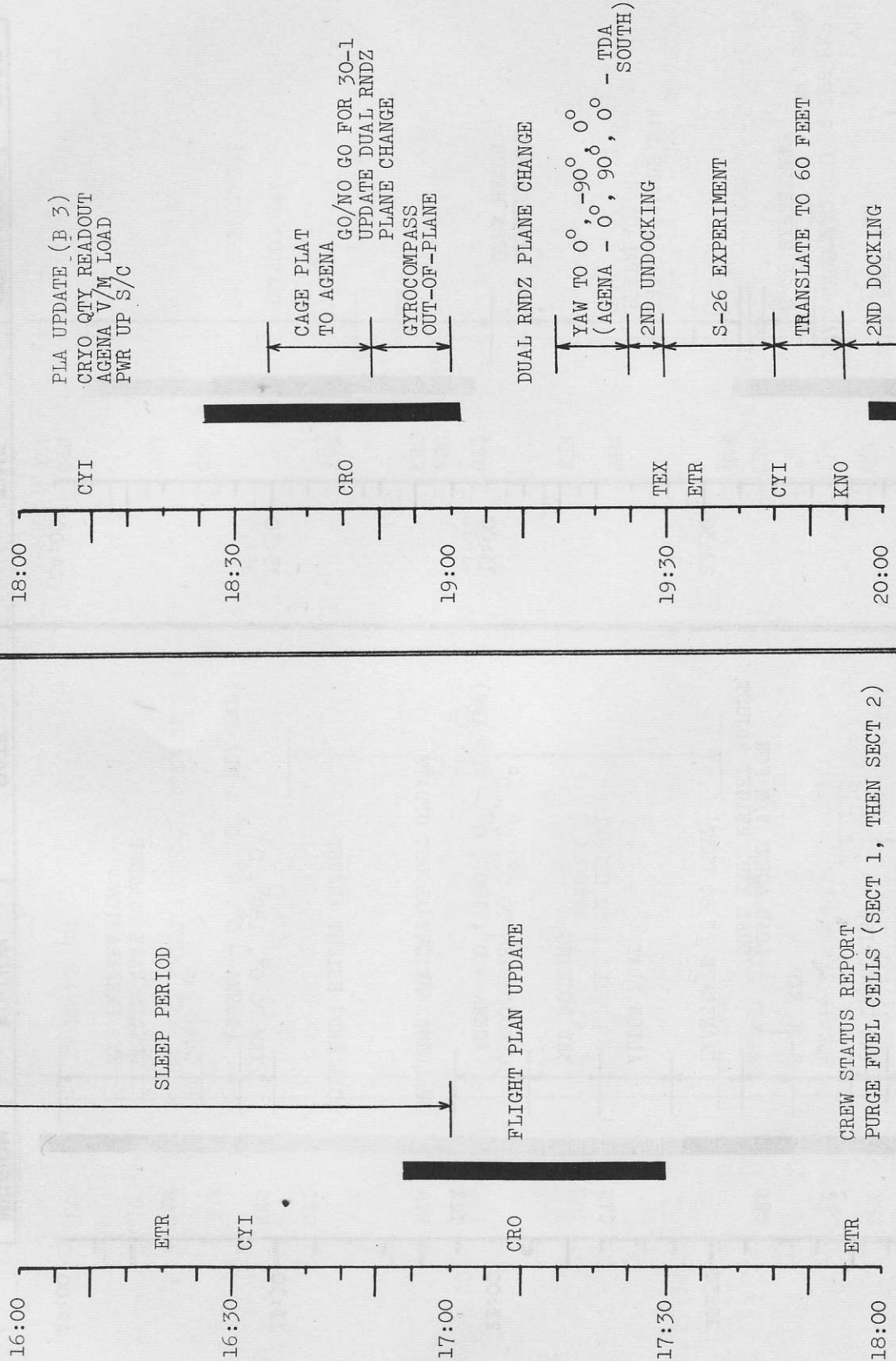
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	12:00 to 16:00	9 - 10	4

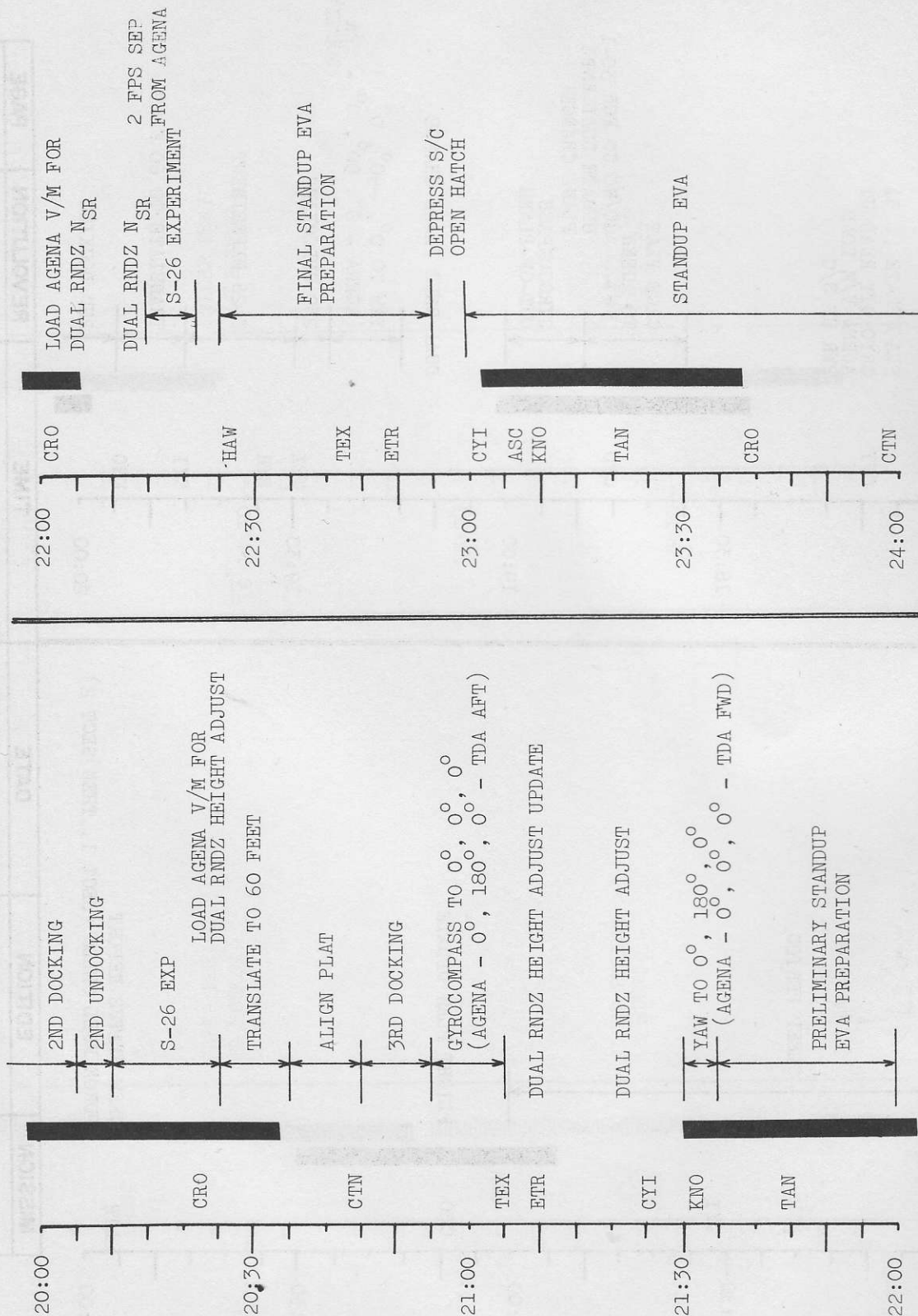
MSC Form 1489 (June 65)

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	16:00 to 20:00		5

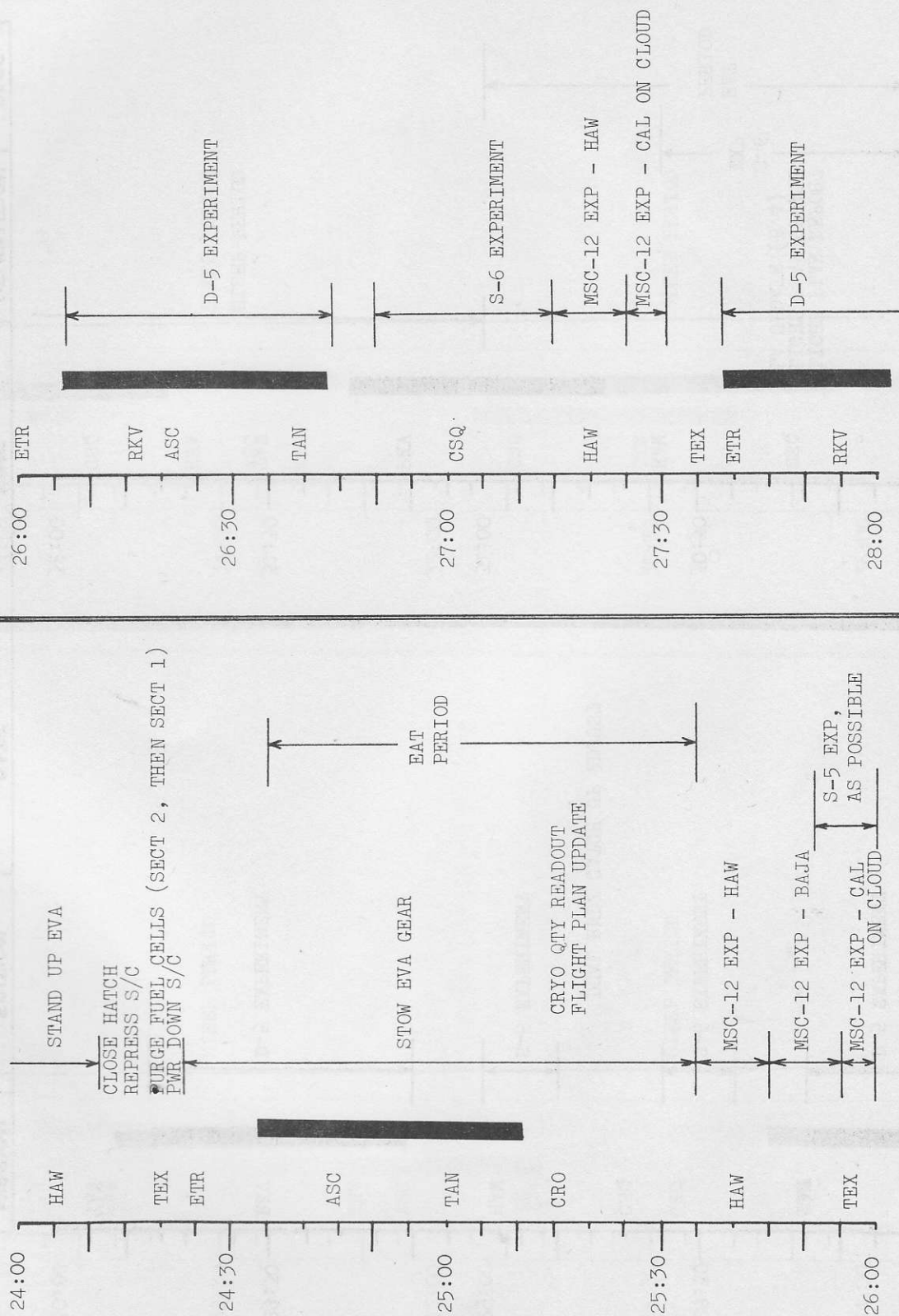
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	20:00 to 24:00		6

MSC Form 1489 (June 65)

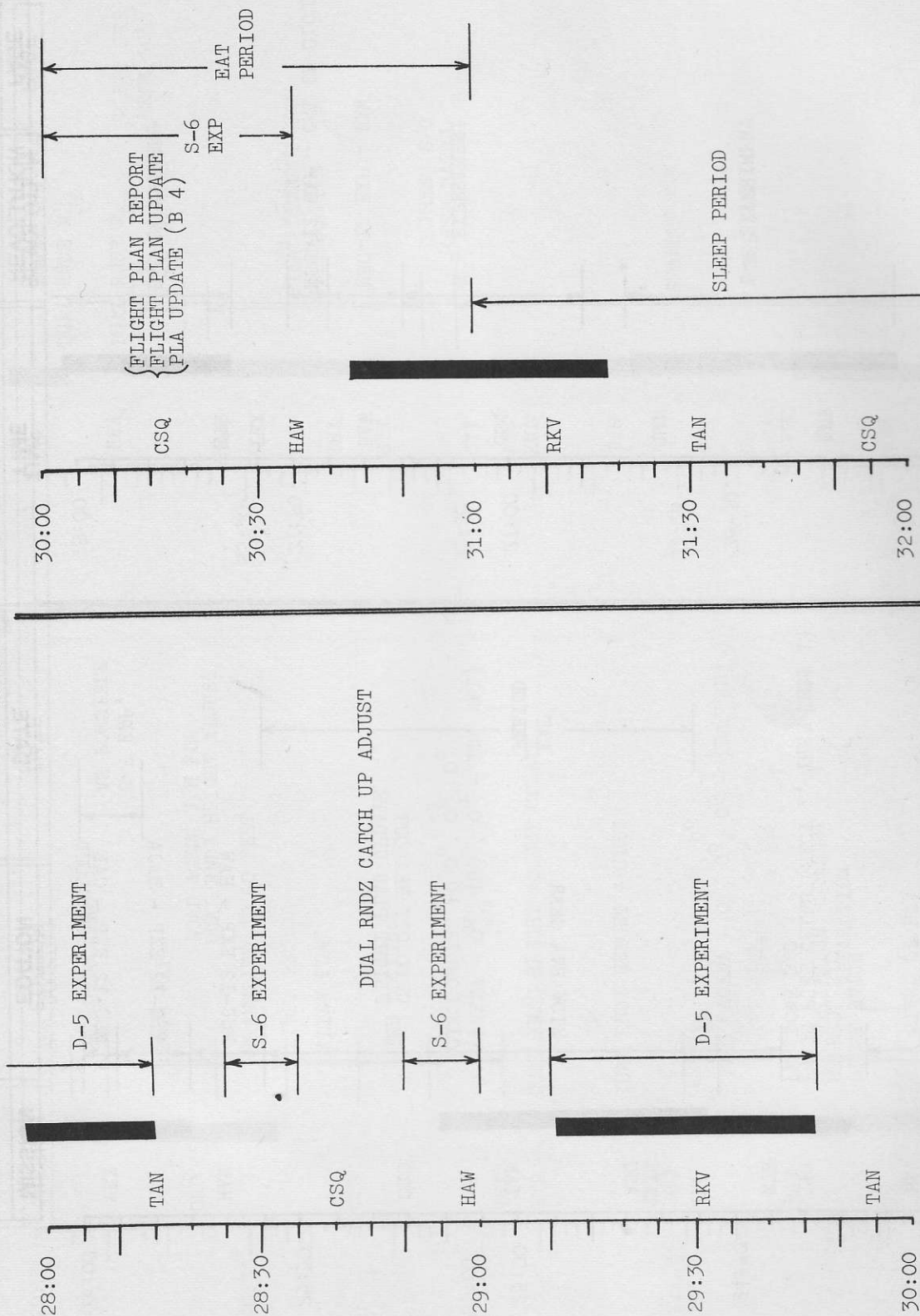
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	24:00 to 28:00		7

MSC Form 1489 (June 65)

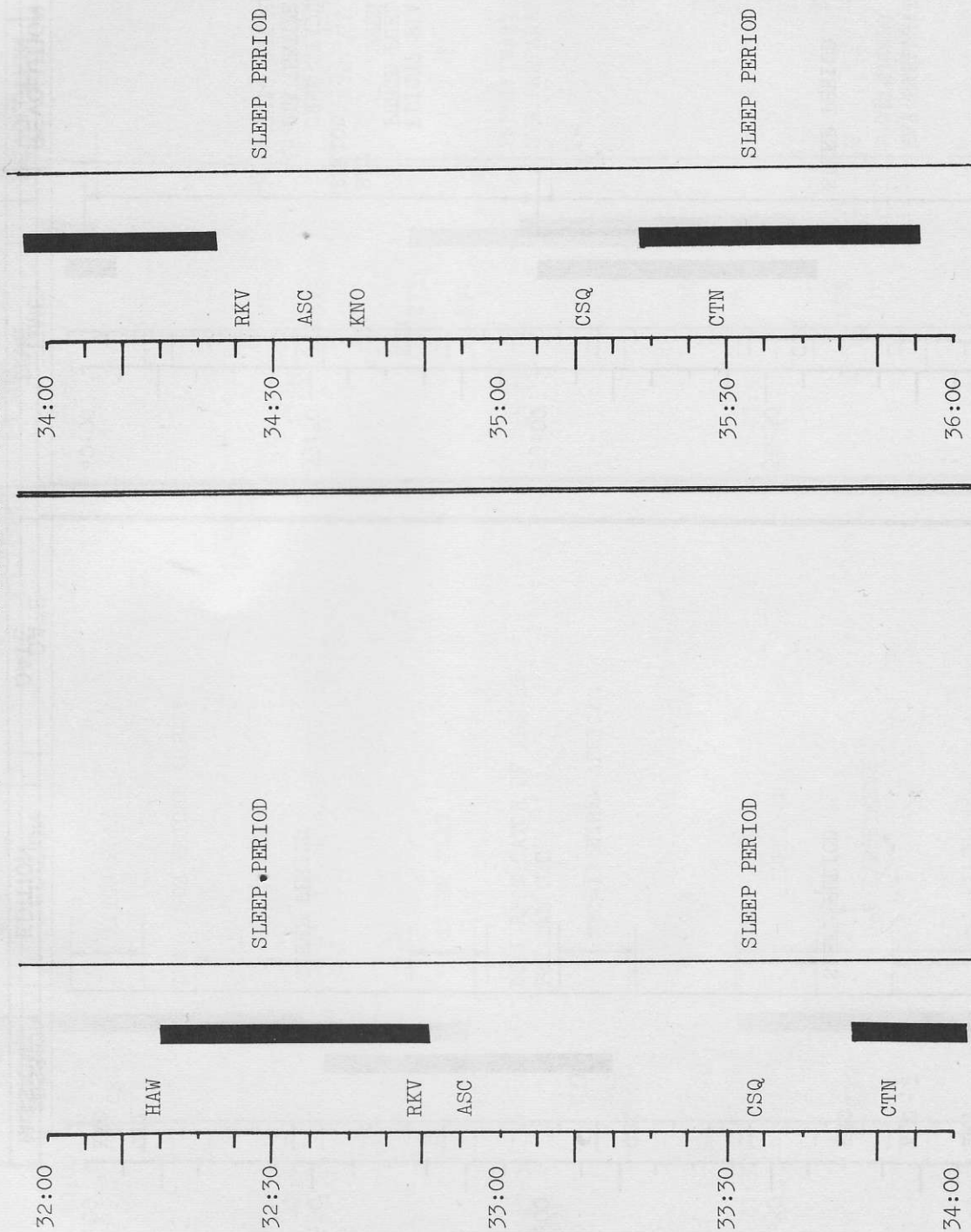
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	28:00 to 32:00		8

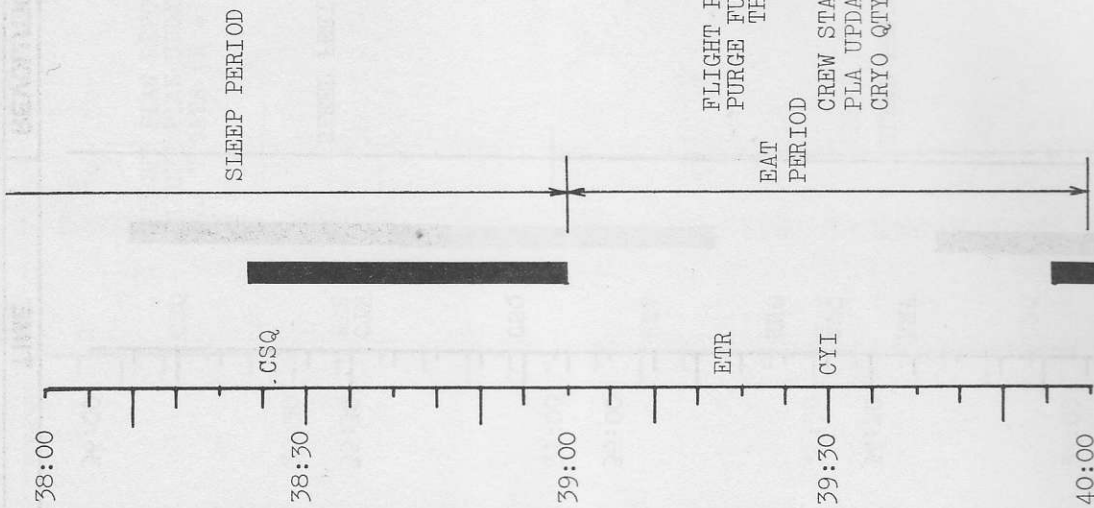
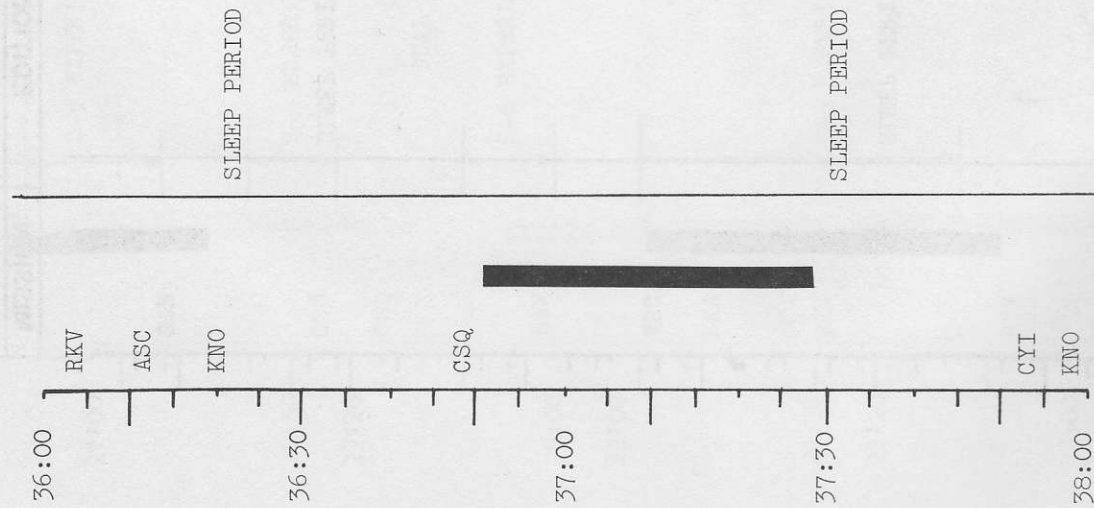
MSC Form 1489 (June 65)

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	32:00 to 36:00		9

FLIGHT PLAN

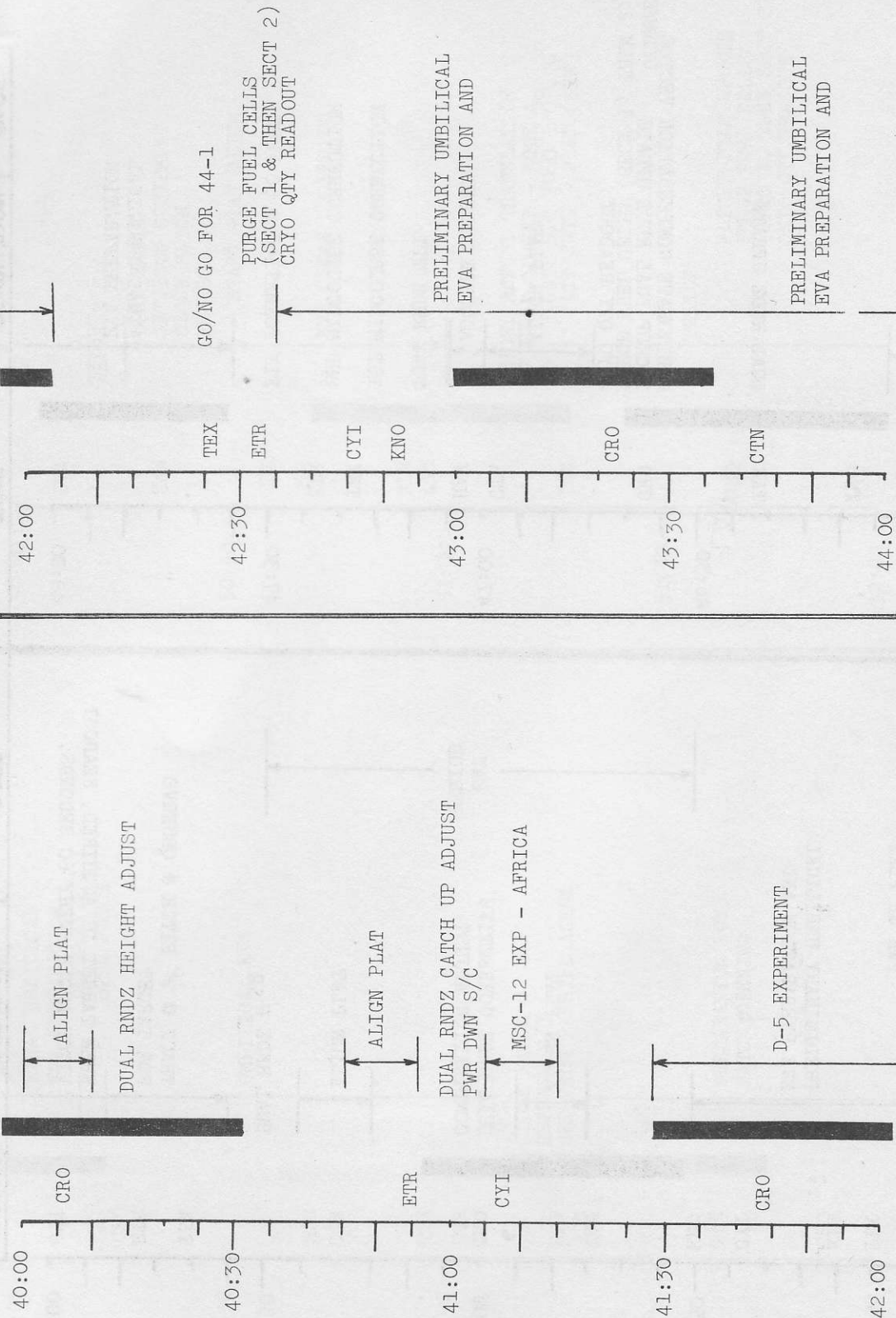


FLIGHT PLAN UPDATE
PURGE FUEL CELLS (SECT 2,
THEN 1)
EAT PERIOD
CREW STATUS REPORT
UP
PLA UPDATE (B 5)
PLAT
CRYO QTY READOUT

MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	36:00 to 40:00		10

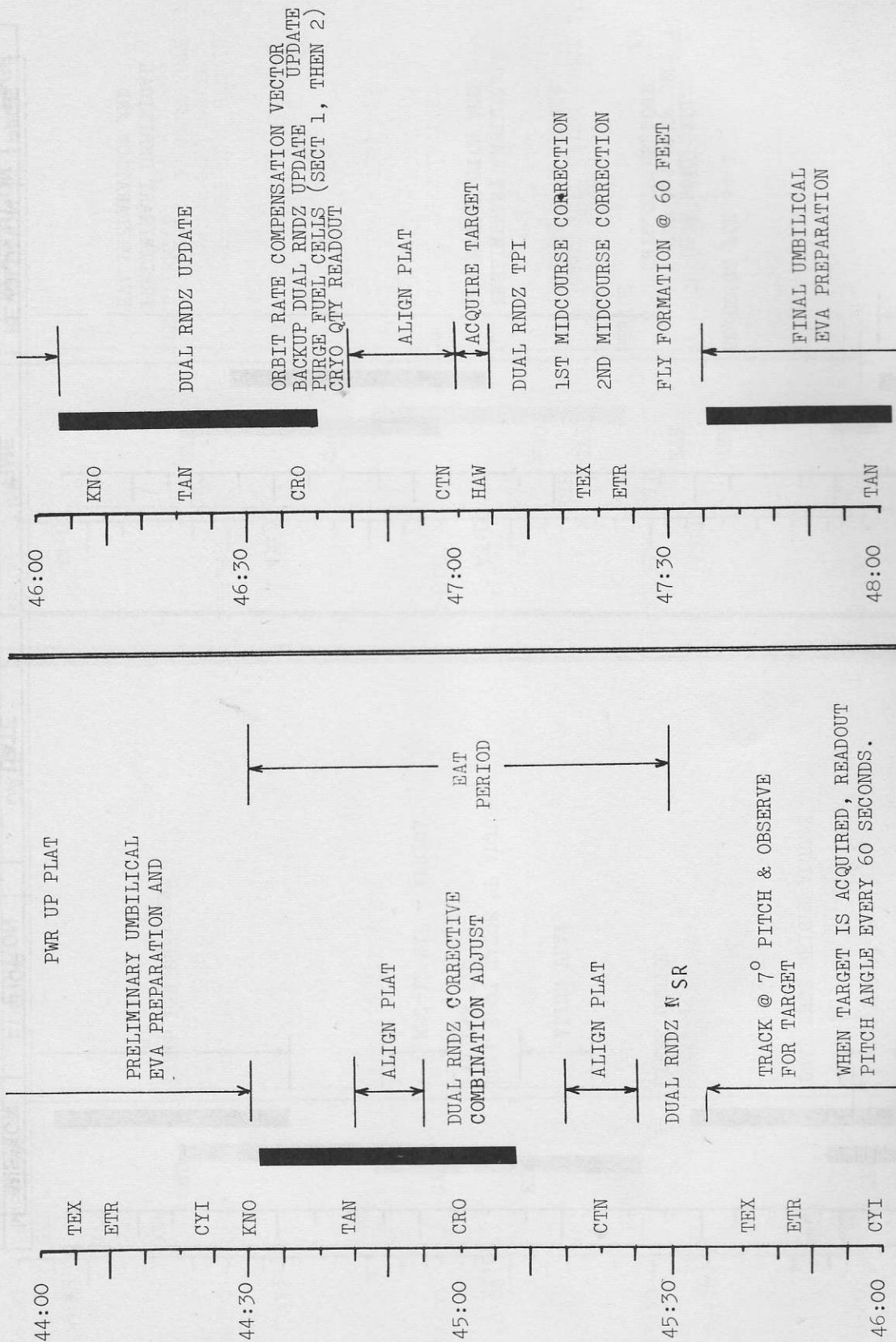
MSC Form 1489 (June 65)

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	40:00 to 44:00		11

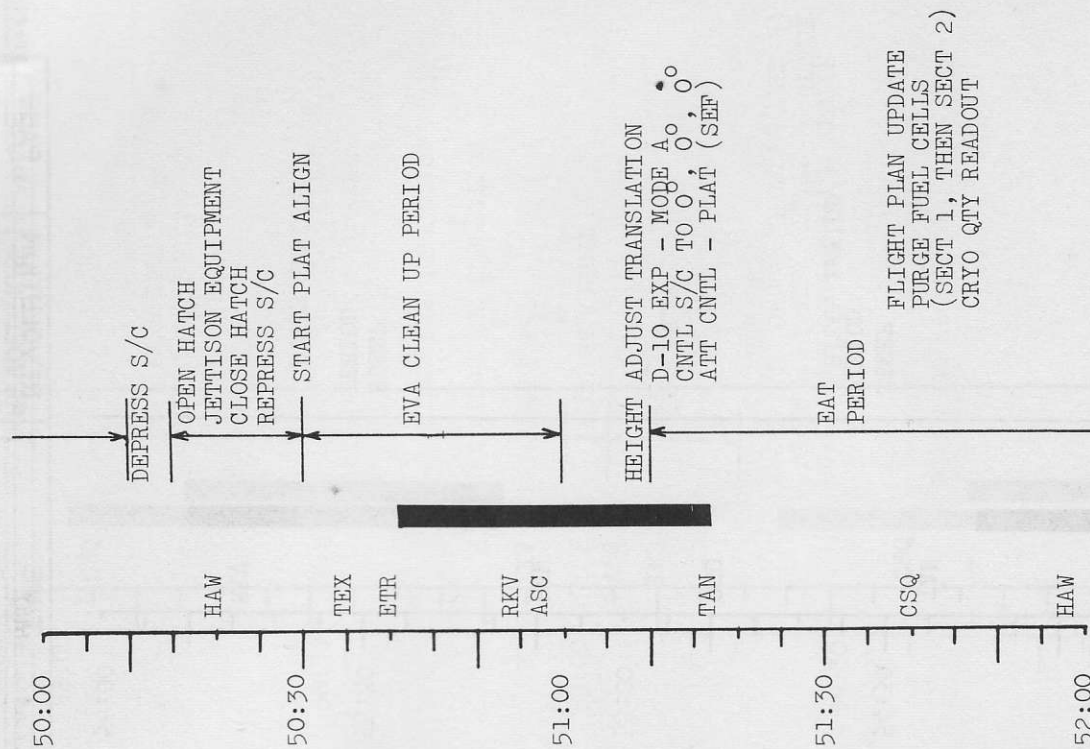
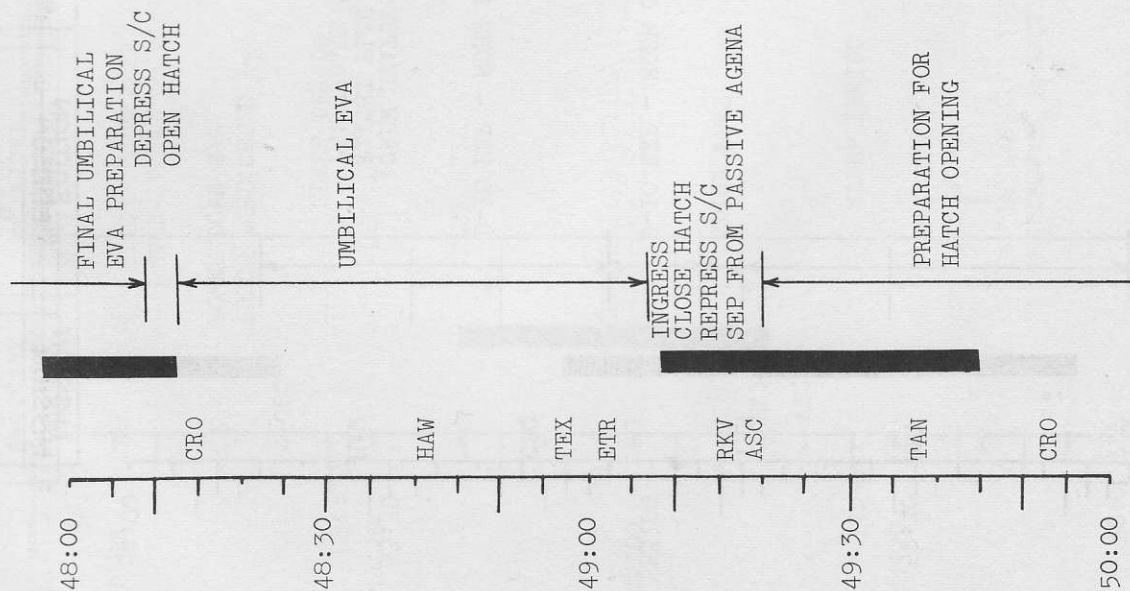
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	44:00 to 48:00		12

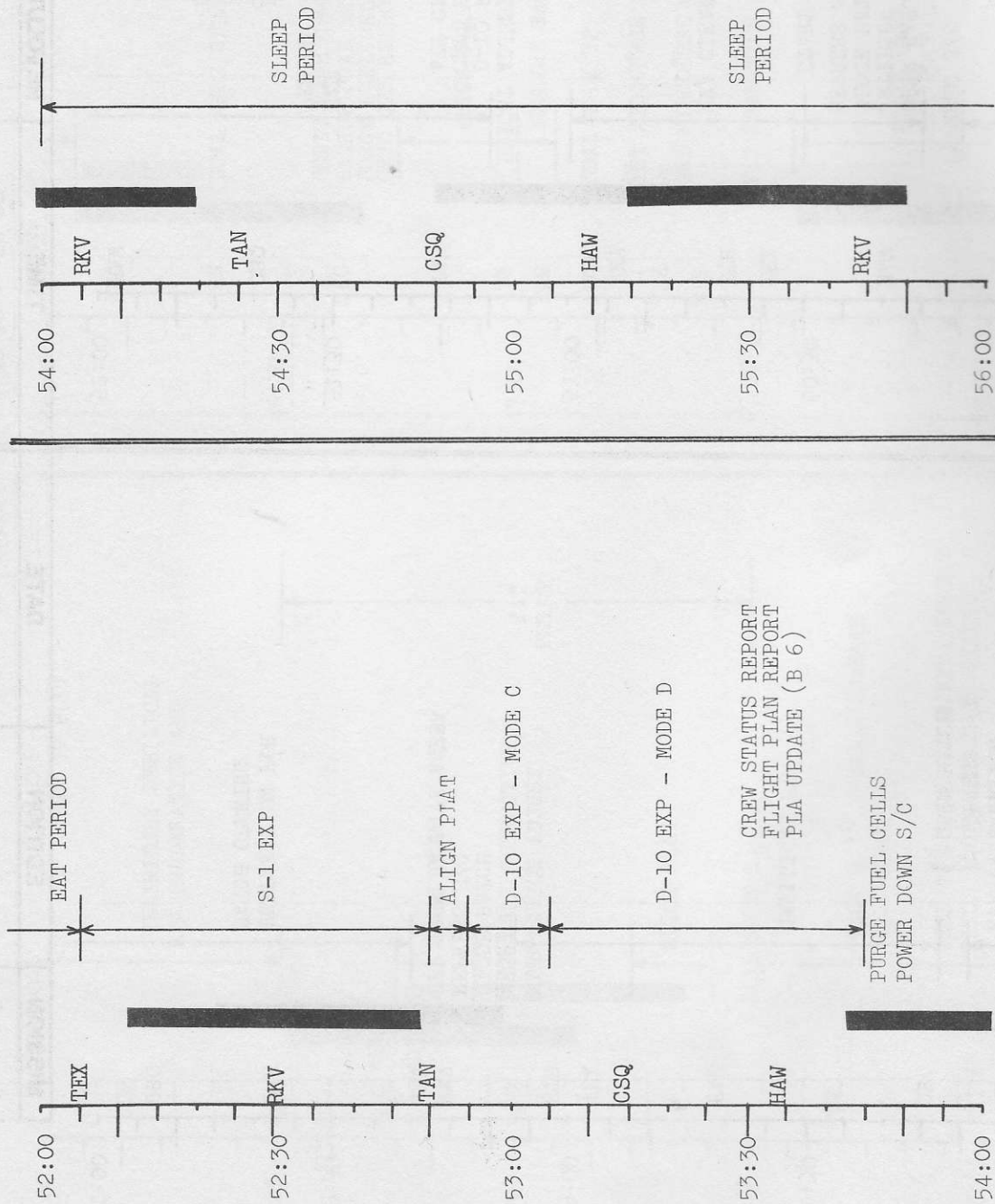
MSC Form 1489 (June 65)

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	48:00 to 52:00		13

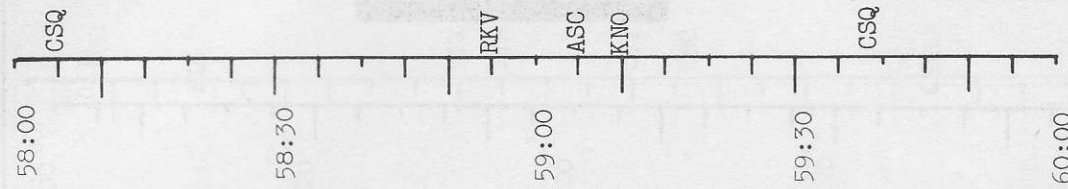
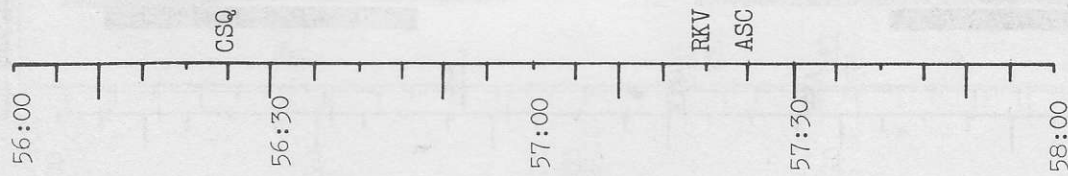
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	52:00 to 56:00		14

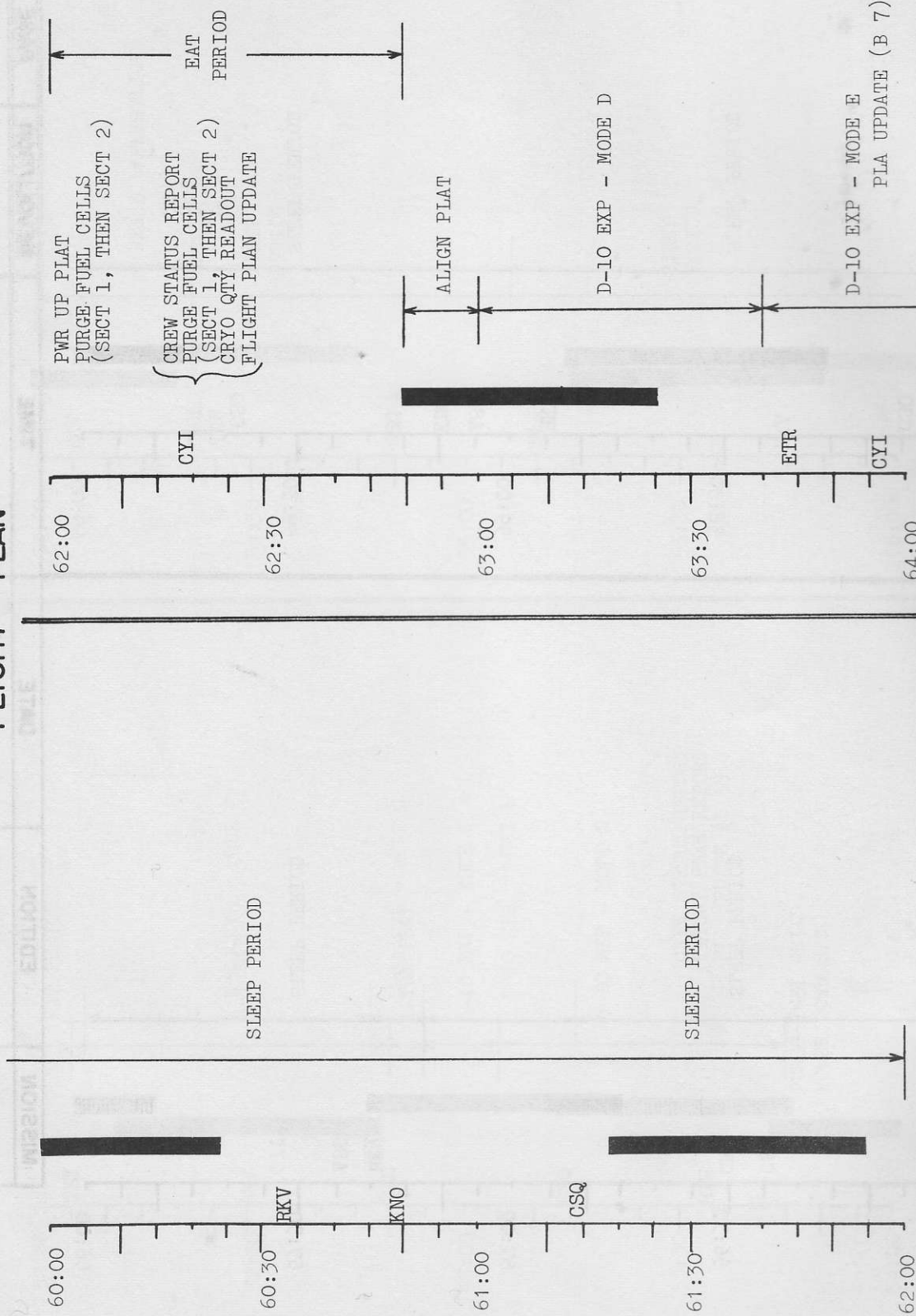
MSC Form 1489 (June 65)

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	56:00 to 60:00		15

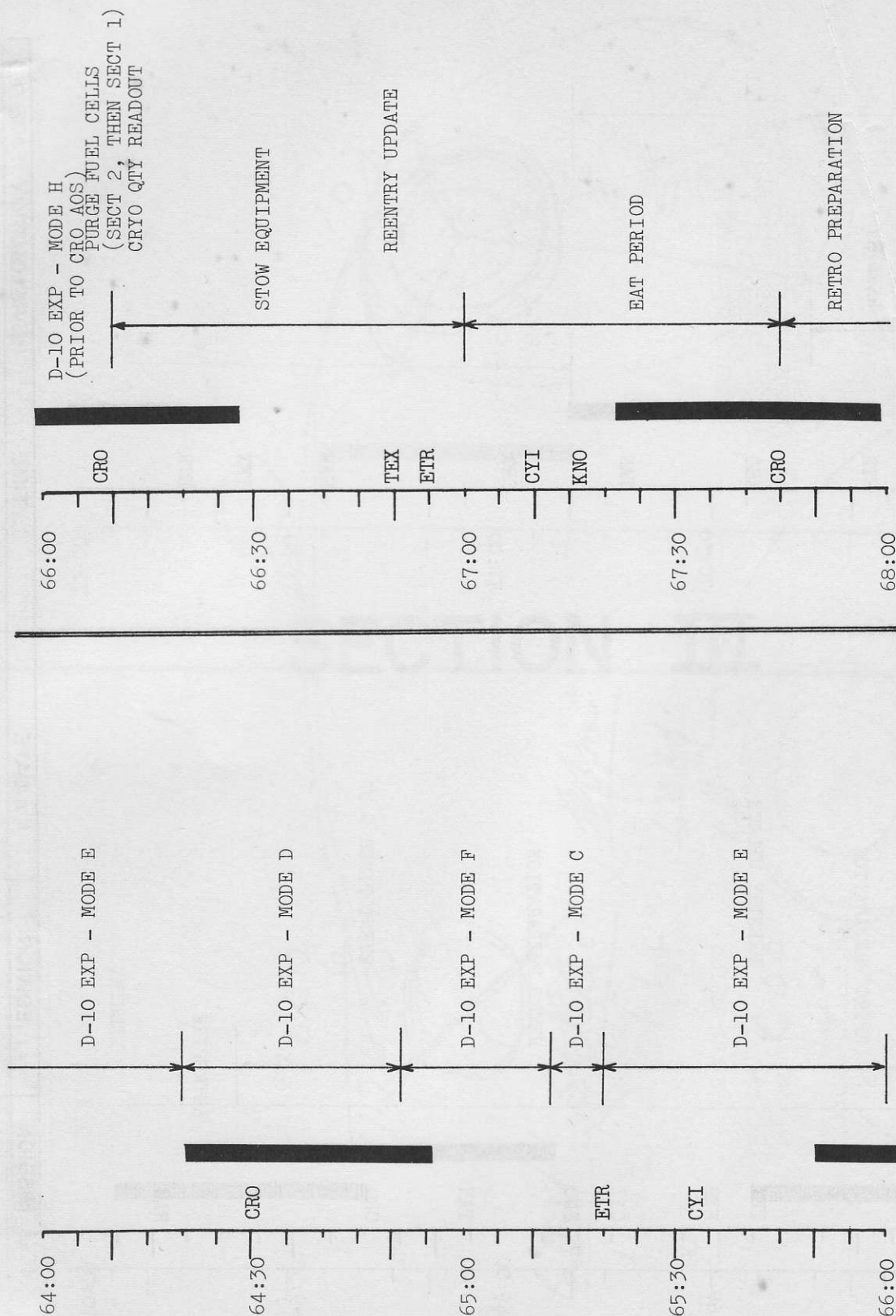
FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	60:00 to 64:00		16

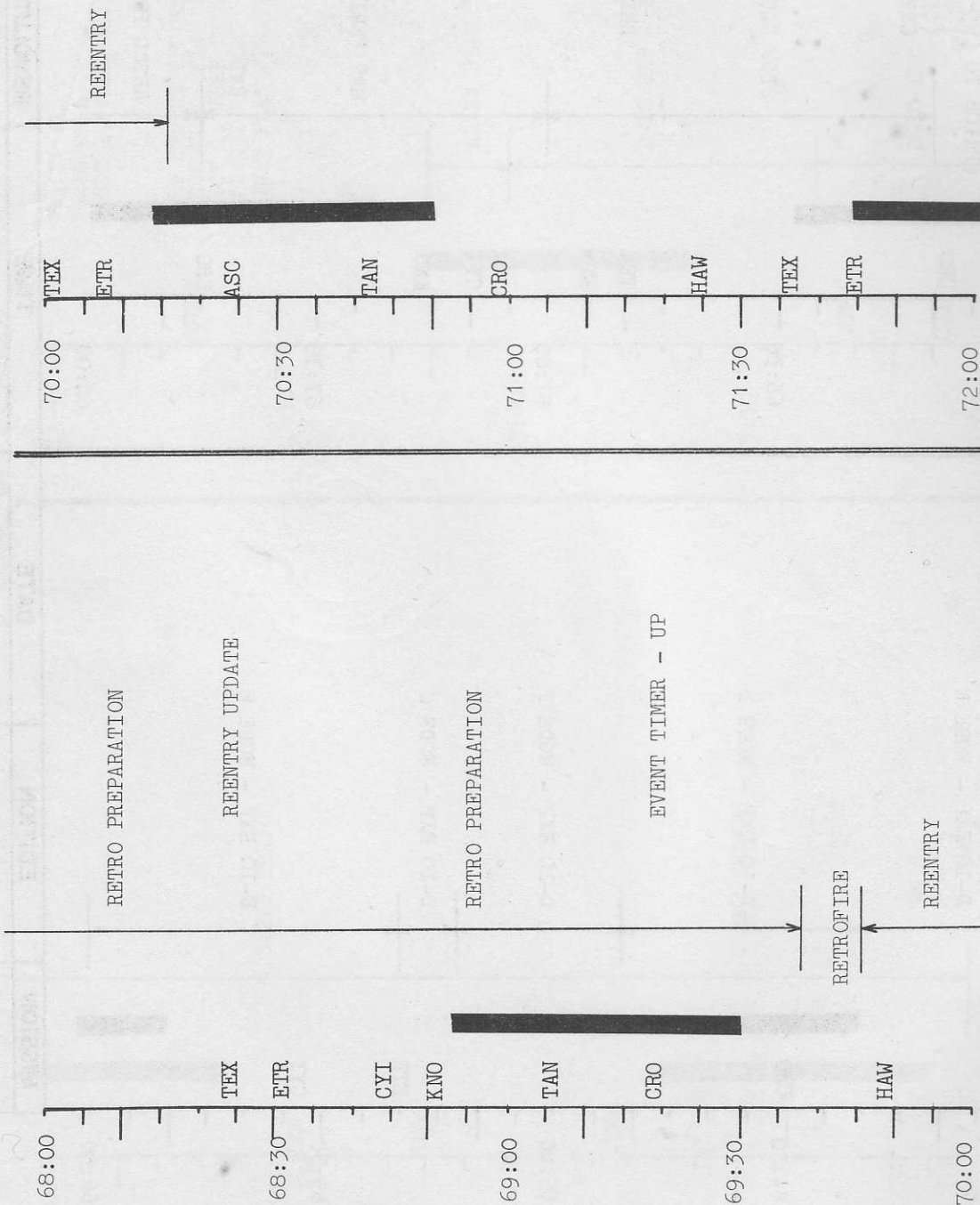
MSC Form 1489 (June 65)

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	64:00 to 68:00		17

FLIGHT PLAN



MISSION	EDITION	DATE	TIME	REVOLUTION	PAGE
Gemini X	Final	June 22, 1966	68:00 to 72:00		18