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COMOR-M-391

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COMMITTEE ON OVERHEAD RECONNAISSANCE

COMOR-M-391
23 November 1966

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Paragraph	21	GLASS LAMP Coverage of Cuba
Paragraph	22	Need for 1038J Launch in December
Paragraph	23	Launch Schedules for KH-7 and KH-8

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Minutes of Meeting Held in Room 5B2830
Central Intelligence Agency, Langley
1000-1215, 23 November 1966

PRESIDING

William A. Tidwell
Chairman

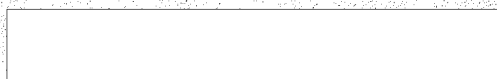
MEMBERS PRESENT



Mr. J. E. Libbert, NSA



CONSULTANTS PRESENT



Mr. J. J. Schadeegg, NRO
Maj. Gen. J. T. Stewart, NRO*



Mr. R. M. Gaynor, CIA*



*Present for part of the meeting

Chairman's Report on 21 November Memorandum to Dr. Flax

(T-KH)

1. The Chairman, COMOR circulated to members a copy of a memorandum written by him to Dr. Flax pertinent to NRO scheduling of KH-4, KH-7, and KH-8 missions. Mr. Tidwell made it clear that the memorandum in question was:

a. Neither an end run to short circuit further COMOR discussions as to scheduling, nor

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b. A formal statement of requirements.

The Chairman explained that the DCI had wished to put himself on record as to what level of photo reconnaissance activity appears to be necessary. This is a refinement of the general guidance previously given by him to the Chairman, COMOR. The memorandum is tentative, for NRO planning guidance, and does not pre-empt the COMOR studies he knows to be under way.

2. The DIA member reminded COMOR that the studies under way would record that not all of the requirements of the CCCR had been overfulfilled and that other factors, such as the need for a data base, must be added to judgments based on the surveillance picture.

[] concluded by emphasizing the need to establish realistic and firm criteria for the "frequency" requirement as an essential base for an objective revision of the CCCR. The Chairman re-emphasized that the letter to Dr. Flax is tentative in nature. Interim advice of this nature is not intended to interfere with the COMOR responsibility to conduct more definitive studies and to provide NRO with more precise and long range guidance.

3. The Chairman pointed out that the Director, NRO Staff, felt that the letter to Dr. Flax does not have full utility for NRO planning purposes. General Stewart has requested that in December the NRO be provided with firm guidance on needs for future high resolution launches. The Chairman agreed to provide this while observing that if either the 4035G or 4303G are successful in December, it is doubtful that a high resolution launch will be needed in January.

NRO Briefing on Scheduling and Costs of KH-7 and KH-8 (BYE, C/H)

4. General Stewart introduced his briefing by advising members that any suggestion that the cancellation of launches or the early termination of a program would not save dollars is wrong. Cancellations of missions and early termination of programs will always save some money. The amount to be saved now, however, in the case of the KH-7 is more on the order of \$1 million rather than \$10 or \$12 million per launch. General Stewart followed this caveat with the observation that the relationship of scheduling and costs is far from simple. He explained that

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he had not come to COMOR with a set briefing supported by boards but wished to emphasize three points based on some rather detailed analyses accomplished in his office:

- a. A general description of possible savings in the KH-7/8 programs after considering some options.
- b. An explanation of the role of the contractor in over-all cost figuring.
- c. An historical examination of the confidence factor as it affects the KH-7 program.

5. General Stewart showed that the NRO schedule as outlined in July and August had called for the launches shown below together with the dollar requirements for each fiscal year. He continued on to explain that the decision to cut KH-7 from 16 to between eight and 11 launches had prompted NRO to divert five ATLAS/AGENAs to the synchronous satellite program. This will result in some \$15 million future savings in these programs.

The NRO evaluation had resulted in determining that one of the earlier proposed schedules considered in COMOR, and believed to represent a savings of \$45 million, proved to be totally unreal. General Stewart then demonstrated that NRO had considered options A, B, and C as shown below and had come to the conclusion that option A would actually cost \$10 million more than the original plan, while option B might be \$10-\$20 million more, when the cost of constructing the HEXAGON pad at a different location and the savings from diverting the launches to the synchronous programs were considered.

Option C did appear to represent a more economical program. The three to four KH-7s to be launched in fiscal year 69 would be expended in the first six months. However, in this instance, the HEXAGON launch pad relocation represents an additional expense, and even this program would cost \$15 million more than the present program. General Stewart emphasized that based on a study of these options, early termination of the KH-7 program emerged as the only real additional saving possible.

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<u>Present Program</u>		<u>FY 68</u>	<u>68</u>	<u>69</u>	<u>70</u>
	KH-7	8-11	0	0	0
	KH-8	8	12	10	9
\$million		232	190	160	123
Option A:	KH-7	8	8		
	KH-8	8	5	9-10 etc.	
		225	198	etc.	
Option B:	KH-7	8	4	4	
	KH-8	8	5	5	9
		225	185	169	123
Option C:	KH-7	7-8	3-4 (1st 6 mos.)		
	KH-8	8	10	10	9
		225	190-195		

6. General Stewart next proceeded to outline that the major and most significant costs in the KH-7 and KH-8 programs are the contractor manpower costs:

a. In the case of the KH-7 (EK, GE, GD, and LMSC are involved), the contractor force at the plants and launch site totals approximately 2200 people today. 600 personnel are involved at the launch site.

b. The KH-8 program involves EK, Martin, LMSC (spacecraft and AGENA), and GE. 3200 persons are now involved and it is expected that this will reduce to 2700 to 2800 after the R&D phase. Only 400 are involved at the launch site because more work is done at the factory prior to shipment to the launch facility.

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To put these figures in a different perspective, General Stewart observed that the minimum cost for contractual personnel must be figured at \$25,000 to \$40,000 per annum per man with the price of engineers rising to \$50,000 per annum per man (this figure includes individual salaries, and a pro-rated share of overhead, profits, etc.). An additional figure of significance is the fact that to support either program, even though nothing were actually being manufactured, some 1500 to 1600 contractor persons must be retained to carry out assembly, quality control tests, and other work accomplished in factory facilities and at Vandenberg and Sunnyvale.

7. General Stewart pointed out that the foregoing clearly demonstrates that two programs are much more expensive than one. He noted that the expense is of such magnitude that NRO recommends either using the remainder of the KH-7s by end FY 67 or else dispose of them. Prior to explaining how NRO has analyzed the reliability factor for the KH-8, General Stewart concluded his comments on the contractor force by describing two lessons learned by NRO in the past few years. First of all, apart from the expense of conducting two programs, any program conducted on a fluctuating basis; i.e., eight launches one year, five the next, eight the next, etc.; raises hob with the efficiency of the effort of the contractors involved and does not result in a real savings in money. Further emphasis was placed on this when General Stewart cited the "sick" period of the KH-7 program. He observed that the KH-7 began to falter when "cost conscious" factors became of paramount importance. Realization of the effects of this penurious policy had prompted NRO to shift and become more "performance conscious" in its contracting. This resulted in a new contract with GE based primarily on the performance incentive. This same type of contract has been made with all contractors for the G-3. In essence, NRO considers that money will be saved by relying on the performance incentive clauses.

8. To illustrate how NRO had arrived at the confidence factor or an estimate as to how long it takes to iron out the bugs in a new program, General Stewart outlined the curve of experience with KH-4 and KH-7 and the projected curves for KH-8 and KH-9. Starting with the first KH-4 launches, he illustrated that with something close to 89 of these launches under our belt, it took around 52 launches before the performance began

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to mount steadily to the present 85 per cent reliability. KH-7 started in 1963 and 23 launches were required before the program began to achieve a similar level of reliability. As of the time General Stewart compiled his figures, the over-all KH-7 performance figure stood at around 75 per cent, but 90 per cent had been achieved in the past year. Despite the good results of the first two KH-8 launches, the NRO still believes that KH-8 may require eight missions before there is a sufficient experience to justify a reliability confidence of 75-80 per cent. The faster the confidence factor is established, the sooner KH-7 may be phased out. General Stewart then observed that although the intelligence community was relatively pleased with 4302G³, it was far from satisfactory from the NRO standpoint. Problems with the mirror mount were apparently the reason for deterioration of resolution to three to five feet. General Stewart concluded his explanation of the confidence factor by pointing out that, in the case of the KH-9, it is hoped this can be established after four or five launches.

9. The DIA representative addressed two questions to General Stewart. First of all, what kind of hold or quick reaction capability is being developed for the KH-8; second, can the KH-8 use the KH-9 pad. General Stewart stated that although NRO is aiming at a hold capability at R-1 by the spring of 1967, neither this nor a QRC is regarded as priority. With regard to the KH-9 pad, General Stewart confirmed that this will be a backup for the KH-8. Use of the KH-9 pad by KH-8 has been approached in terms of a backup against disaster and conversion would take about 30 days. NRO has not been asked to think in terms of the KH-9 pad affording a dual capability with the KH-8. It would be very expensive to develop such a capability. General Stewart reminded COMOR that the MOL pad will be a backup for KH-9.

Report from NPIC - Mission Highlights

(S)

10. [] reported that, as [] is using the 1037-1 boards, he had no briefing material.

Approval of Minutes

(S)

11. COMOR-M-389 and M-390 were approved with the following changes:

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a. COMOR-M-389, paragraph 4, add sentence at end: "At the request of the Director of Security, CIA, [] was present at the latter half of the meeting to discuss physical facilities with []."

b. COMOR-M-390, change paragraph 8 to read as follows:

"Report that Canton SAM May Be Conventional S-Band (TS Z)

"8. The Chairman mentioned a recent report that the SAM site at Canton is apparently a Chinese modified version of Soviet S-Band [] radar rather than a completely new Chinese Designed Radar as previously suspected and asked what this would do to the [] project. [] observed that there have been a number of delays involved in this project and noted that if the new information turns out to be definitive enough it might not be necessary to fly it at all. However, on the surface it does not appear that the question about "no-scan" feature has been completely answered."

Report from SIGINT Working Group

(S)

12. [] reported that the SWG had not met during the week.

Wrap-up Report on SETTER 7228

(T-KH)

13. [] reported that NSA has now published a first-class wrap-up report on SETTER. In reply to a question from the Chairman, Mr. Libbert stated that the report is a final summary of all emitters intercepted by Mission 7228 and results from further fine grain processing of intercepted data. This summary report is not at variance with previous day-by-day reporting but provides additional supplementary results. It was agreed that the introductory portion of the report would be disseminated to COMOR for information (COMOR-D-69/63).

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Appointment of Chairman, SIGINT Working Group (S)

14. Members agreed to the nomination of [] as Chairman, SIGINT Working Group. Mr. Tidwell thanked the DIA member for contributing []'s time to the SWG.

NRO Progress on Feasibility Study of Revised EOB Requirement for
COMOR-D-69/32 (COMOR-D-69/60) (T-KH)

15. Mr. Schadeegg reported that the feasibility study of the revised EOB requirement should be ready within a week.

Report from Photo Working Group (T-KH)

16. [] reported PWG activities as follows:

a. South China

(1) A draft of the report to USIB on photographic reconnaissance of South China/North Vietnam and the Sino-Indian border areas during 15-21 November was prepared and approved for transmittal to the Board (USIB-D-41.18/116, COMOR-D-25/177-70 of 22 November 1966).

(2) The South China and North Vietnam priorities list was reviewed. No changes were made to the priorities list, which remains at 168 targets.

b. Cuba. A table showing cumulative coverage of Cuba obtained by GLASS LAMP missions is attached at Tab A.

c. Camera Priorities for 4035G. Camera priorities for Mission 4035G, scheduled for 29 November 1966, were compiled and transmitted to the NRO. These camera priorities were basically an update of priorities for Mission 4034G, which malfunctioned.

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d. Update COMOR Target File. The COMOR target file was updated. As a result, eight targets were added, two targets were reactivated, 13 targets were inactivated, and three targets were deleted. The file now contains 4663 targets, of which 1908 are listed as bonus only to be collected at no expense to other coverage.

e. Review Far East Long Range Requirements. Coverage obtained against high resolution requirements in the Far East was reviewed. It was noted that there has been no U-2 coverage since August 1966. Despite the lack of U-2 coverage and underfulfillment of area requirements, no missions other than those to cover South China were recommended. The status of coverage against Far East requirements is attached at Tab B.

Requirement for High Resolution Coverage of Lop Nor (BYE, G)

17. The Chairman referred members to coverage of Lop Nor by the second bucket of 1037J and reported that he had asked the Chairman, JAEIC for guidance on requirements. The Chairman, JAEIC advised Mr. Tidwell that a ready date for Chic 5 of about 1 December might now be estimated. Dr. Chamberlain said that the preference of JAEIC would be for high resolution coverage of the area after the shot. The Chairman, COMOR observed that the timing of the launch of 4035G for 29 November would appear to be good and requested Mr. Schadegg to determine if the present program would permit coverage. After checking NRO, Mr. Schadegg reported that 4035G would cover Lop Nor at nadir on the third day while the present program for 4303G³ would permit coverage on the second and third days at 26° and 35° obliquity, respectively.

Operational Briefing -- Satellite (BYE, C/G/EP)

18. Mr. Schadegg submitted a summary of SIGINT satellite operations for the period 14-20 November (Tab C) and reported missions in operation and the launch schedule as follows:

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GAMBIT

4035 - 29 November 1966

4036 - 10 January 1967

GAMBIT-Cubed

4303 - NET 8 December 1966

4304 - 24 January 1967

CORONA

1037 - Launched 8 November 66 1953Z
Recovered First Bucket 12/2244Z
Second Bucket Recovered 20/2234Z

1038 - 6 December 66

1039 - 17 January 67

ELINT

7161/7229 - 19 December 66. MULTIGROUP I/SETTER 1A.

Operational Briefing--Aircraft

(S)

19. [] reported that the GRC has approved a mission. Weather at the present time is Category IV and V but when favorable conditions permit, a mission will be alerted. The first mission to be alerted probably will be a Taiwan Strait mission.

Operational Briefing--Drone

(TS)

20. [] reported BLUE SPRINGS activity in the period 18-23 November as follows:

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<u>Date</u>	<u>Mission No.</u>	<u>Targets/Areas</u>	<u>Remarks</u>
18 Nov	None scheduled		
19 Nov	Q521 (low)	Hanoi POL Storage and Geyen Jhe POL Storage	CNX
20 Nov	Q521 (low)	(same as 19 Nov)	Delayed 24 hours
	Q703 (med) (Photo/Decoy)	2 Drones in ARC LIGHT Area Dong Hoi/Ba Binh Area	CNX WX
21 Nov	Q521 (low)	(same as 19-20 Nov)	Did not return. Fighter reactions, but apparently down by AAA fire.
22 Nov	None scheduled		
23 Nov	Q157 (high)	Viet-Tri POL; Hanoi/Lao Cai RR and Hanoi-Haiphong areas	Rescheduled for 24 Nov
	Q701 (med)	Haiphong Port Complex Gia Lam Complex & Afla	Delayed 24 hours

[] advised members that the decoys are now equipped with the P2 six-inch focal length camera.

GLASS LAMP Coverage of Cuba

(S)

21. [] reported that he expected to have his draft of the revised coverage schedule ready by the end of the week. He estimated that it will take at least a week after that before the DIA paper could be sent to COMOR.

Need for 1038J Launch in December

(T-KH)

22. The Chairman reported that the Mapping, Charting, and Geodesy Working Group had agreed that a case could not be made for a

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KH-4 mission in December with mapping and charting as the primary requirement. COMOR then agreed that it would recommend to NRO that there be no KH-4 launch in December. Mr. Schadegg said that NRO would carry 1038J over to January. Mr. Tidwell observed that a later decision must be made on the need for a KH-4 mission in January. With regard to 1038J he advised COMOR that he would address a memorandum to the Board requesting vote sheet approval of the COMOR recommendation not to launch a KH-4 in December.

Launch Schedules for KH-7 and KH-8

(T-KH)

23. Referring to General Stewart's briefing and the uncertainty concerning the date for the launch of 4303G³, the Chairman observed that the launch of 4035G on 29 November and 4303G³, when it is ready to go, would appear to be the preferred course of action. 4035G represents the need for one more high resolution this year and 4303G³ is consistent with the NRO desire to prove out KH-8 as soon as possible. The CIA member advised that his Agency would reserve judgment, for the time being, as it appears to him that the 4303G³ would be ready to launch in December and, in the opinion of CIA, this would be all the high resolution coverage needed for the remainder of the year. In reply to [redacted] question as to how early 4036G might be fired should neither 4035G nor 4303G³ be successful, Mr. Schadegg speculated that it might be accelerated from 10 January to about 8 January. The DIA member again endorsed the launch schedule as it stands. [redacted] observed that as 4034G had failed, 4035G should be regarded as the high resolution November mission previously recommended. The DIA member, supported by [redacted], also noted that the original launch schedule would have called for COMOR to consider the need for two high resolution launches in December and he doubted that the consensus would have been to cancel both, no matter how successful 4034G had been. /Subsequent to the meeting [redacted] informed the Chairman that CIA had withdrawn its reservation./

Executive Secretary
Committee on Overhead Reconnaissance

Attachments: Tabs A, B, and C

Copies 5, 6	State TCO	14	BYE-56650-66
7	DIA [redacted]		
8	DIA [redacted]		
9, 10, 11, 12	DIA TCO		
13, 14	OACSI TCO		
15, 16	ONI TCO		
17, 18, 19, 20	AFNIN TCO		
21, 22	NSA TCO		
23, 24, 25	NRO TCO		

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Tab A

23 November 1966

MEMORANDUM FOR: Chairman, COMOR

SUBJECT: Status Report on Cumulative Area Coverage
of Cuba

The following tabulation presents the status of GLASS LAMP coverage of Cuba, current as of Mission G-926, 15 November 1966:

<u>Date</u>	<u>Number of Missions</u>	<u>Percent Coverage</u>
24 August - 15 November	22	99
26 August - 15 November	21	98
30 August - 15 November	20	98
2 September - 15 November	19	98
7 September - 15 November	18	98
10 September - 15 November	17	98
13 September - 15 November	16	97
17 September - 15 November	15	96
20 September - 15 November	14	93
23 September - 15 November	13	93
29 September - 15 November	12	90
11 October - 15 November	11	89
13 October - 15 November	10	89
17 October - 15 November	9	87
24 October - 15 November	8	86
25 October - 15 November	7	81
30 October - 15 November	6	79
5 November - 15 November	5	79
7 November - 15 November	4	75
10 November - 15 November	3	52
12 November - 15 November	2	42
15 November	1	11

Total coverage of Cuba (100%) was obtained by 26 missions flown between 13 August - 15 November. Mission G-927 was flown on 22 November, the results of this mission are not yet available.



Chairman
COMOR Photo Working Group

Group I
Excluded from automatic down-
grading and declassification

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Primary Targets	Frequency Requirement	Last Coverage		Requirement Satisfied	Remarks
		Mission	Date		
Lan Chou Gaseous Diffusion Plant	Semiannual	4302	4 Oct 1966	Yes	Mono on 4302
Pao Tou AE Complex	Semiannual	4032 4302	18 Sep 1966 30 Sep 1966	Yes	
Chih Chin Hsia Nuclear Complex	Semiannual	4032	22 Sep 1966	Yes	
Lop Nor Nuclear Test Site	Near Test Time	4033	15 Oct 1966	Continuing Requirement	Programmed for 4035
Hsing Lung Chuang Nuc Wpns Complex	Semiannual	4030	16 Jul 1966	Yes	
Heng Yang Ore Concentration Plant	Semiannual	4033	15 Oct 1966	Yes	
Pei Ping Missile Development Center	Quarterly	4022	3 Oct 1965	No	Programmed for 4035
Pei Ping/Nan Yuan Airframe Plant	Semiannual	4032 4302	21 Sep 1966 2 Oct 1966	Yes	
Sing Cheng Tzu Missile Test Range	Quarterly	4033	17 Oct 1966	Yes	
Chin Hsi Cruise Missile Site	Annual	4033	17 Oct 1966	Yes	
Tai Yuan Propellant Test Facility	Annual	4302	1 Oct 1966	Yes	
Shen Yang Airframe Plant	Quarterly	4302	3 Oct 1966	Yes	
Cheng Tu Airframe Plant	Quarterly	4031	17 Aug 1966	No	Programmed for 4035
SUBMARINE BASES					
Lu Shun Naval Base	Twice Monthly	4302	3 Oct 1966	No	Programmed for 4035
Ching Tao Naval Complex	" "	4302	3 Oct 1966	No	4032 covered partial
Shanghai/Kiangnan Shipyards	" "	4033	17 Oct 1966	No	Programmed for 4035
Shanghai/Wu Sung Naval Base	" "	4033	17 Oct 1966	No	Programmed for 4035
Hou So Cheng Naval Base	" "	4033	17 Oct 1966	No	Programmed for 4035
Lu Ta Shipyards	" "	4028	18 May 1966	No	Programmed for 4035

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Tab B

AREA	Required Frequency *	1 May - 31 July	1 Aug - 16 Nov	TOTAL 1 May 66 - 16 Nov 66	TOTAL Targets in Area	Percent Covered	Requirement Satisfied
South China	Monthly	60	79	110	173	64%	No
Manchuria	50% Semiannual 100% Annual	38	46	70	135	52%	Semiannual-Yes Annual - No
Central China	50% Semiannual 100% Annual	119	156	192	350	55%	Semiannual-Yes Annual - No
Formosa Strait	Monthly Sampling (China requirement)	25	29	31	40	78%	
S.I.B.	Annual	23	18	33	59	56%	No
North Korea	50% Quarterly 100% Semiannual	11	19	70	50	52%	No
North Vietnam	Near Daily	41% of area covered during 15 September - 15 October					
Laos	Near Daily	73% of area covered during 15 September - 15 October					

*Ref. USIB-D-41.14/216 (COMOR-D-25/201), 19 January 1966

Handle via TALENT/KEYHOLE
Control System Only~~TOP SECRET~~

HANDLE VIA EYEMAN
CONTROL CHANNELS ONLYCOMOR-M-391
Tab C~~TOP SECRET~~
~~EARPOP~~SIGINT SATELLITE OPERATIONS
SUMMARY - PERIOD 14 Nov 66 ~~to~~ thru 20 Nov 66

Mission # and Launch	Name	Purpose	Payload Status	No. of Revs Tasked	Special Operation	Remarks
7103C 19Jan64	POPPY	General Search (105-125mcs) (1060-1360mcs) (1580-2020mcs) (4650-5150mcs)	Nominal	21		
7104 9Mar65	POPPY	General Search (155-202mcs) (230-455mcs) (550-1860mcs) (2650-3090mcs) (3180-5900mcs)	Nominal	56		The number of collection orbits by satellite are: A-56 C-39
7312 3Aug65	MAGNUM	Directed cover- age (BVOL) and General Search (100-250mcs)	Nominal	50		
7307/08 25Jun65	FANION/ TRIPOS	EOB (4900- 5150mcs) Gen- eral Search (4000-8000mcs)	Nominal	31T		Tape recorder #1 malfunctioned 27 October 1966

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~~TOP SECRET~~ ~~EARPOP~~
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HANDLE VIA BYEMAN
CONTROL CHANNELS ONLY~~TOP SECRET~~~~EARPOP~~COMOR-M-391
Tab CSIGINT SATELLITE OPERATIONS
SUMMARY - PERIOD 14 Nov 66 ~~xx~~ thru 20 Nov 66

Mission # and Launch	Name	Purpose	Payload Status	No. of Revs Tasked	Special Operation	Remarks
7314/15 16Aug66	SAMPAN/ SOUSEA	General Search EOB (2-4GCS) (8-12GCS)	Nominal	46		Horizon sensors inoperative
7316 28Apr65	PUNDIT	Directed cover- age (Soviet Missile Tele- metry (60-80 mcs)	Mode C Data Links Noisy Modes A & B Inoperative	0		Tasking temporarily suspended on 20 July 66 per SWG guidance
7317/18 16Sep66	FANION II/ TRIPOS II	EOB (4900- 5150mcs) General Search (4-8GCS)	Nominal	29F 14T		Tape recorder #1 malfunctioned 8 Nov 66
7072 8Nov66	BIT	Directed cover- age (BVOL) and General Search	Nominal	96		
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~~TOP SECRET~~ ~~EARPOP~~