



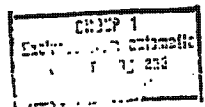
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29 JUL 1969

**MEMORANDUM FOR THE RECORD**

**SUBJECT: CORONA Program Planning**

1. For some time now I have been concerned about the phase-out aspects of the CORONA Program, in particular, the problems of personnel, quality assurance, and availability of critical spares which are inherent in a phase-out operation, and the minimum overlap and spare defects philosophy being followed for HEXAGON and CORONA in the 1971 time period. My concerns were reinforced last week by the failure of the Mission 1107 forward looking camera on the first "operate" after injection into orbit. Upon learning of the failure, I immediately contacted General King, Mr. Reg Kearton of Lockheed and Mr. Tom Hoban of Itek and asked their assistance in setting up a thorough review of the CORONA Program. I notified my CORONA Program Manager of my urgent desire for this review and a conference was held on Friday, 25 July 1969, at the CORONA A/P Facility in Palo Alto. Minutes of the meeting are attached.

2. Following the meeting, I held consultations with my staff on the problem areas outlined by the contractors. Detailed discussions were held on the actions necessary to insure that proper attention is directed toward maintaining the continued success of the CORONA Program. I had previously prepared plans for an integration of my HEXAGON and CORONA staffs in order to make most efficient use of the experienced personnel available. As a first step, I have directed that this reorganization plan, which establishes one Photographic Systems Division, be implemented as of 1 August 1969. Under this reorganization, Mr. Donald Patterson will become Program Director for both the HEXAGON and CORONA Programs and thus responsible to



CORONA HEXAGON ORBIT  
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HEXAGON GAMBIT  
IDEALIST

**SUBJECT: CORONA Program Planning**

me for assuring proper interprogram planning so that a continuity of search and surveillance coverage is insured. I plan to have Mr. Patterson meet with General King in the near future to investigate further, potential CORONA Program alternatives discussed by General King and myself which could be implemented at minimum cost to assure availability of coverage in the critical 1971-72 phase-over period.

3. As part of this reorganization, I will transfer immediately to the West Coast CORONA Program three experienced technical personnel from within the Photographic Systems Division.

[redacted] U. S. Navy (Retired), will assume duty as Manager of the Integrated West Coast Photo Systems Office.

[redacted] was Director of the CORONA Program from 1965 through 1968. Mr. Roy Burke will become Chief of the West Coast Technical Staff. Mr. Burke was Technical Director of the CORONA Program from 1965 through 1967. (During the period 1965-1967, the CORONA J-3 System was designed and developed.) [redacted]

will serve on Mr. Burks' Technical Staff. [redacted] is an electrical engineer with considerable field test experience on the OXCART and other Agency Programs. In addition, [redacted] who has had extensive experience in CORONA operations since 1964 and as Program Director in 1968-1969, will assume additional operations responsibilities for HEXAGON. An organization chart for the CIA Photo Systems Division is attached.

4. With regard to the discussion of the Mission 1107 failure, it is too early to identify a positive cause. Since the failure occurred immediately after injection, the effect of the ascent environment, the most hazardous phase of the mission, is somewhat suspect. Analysis is continuing, data has been ordered from the remote tracking stations, and a full report will be made available as soon as possible.

5. As a result of the review, I found no evidence of a quality assurance problem to date in the CORONA Program. I asked General King for a quality assurance expert from his office to work with my staff in reviewing the Q.A. procedures to see if any

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**SUBJECT: CORONA Program Planning**

improvements are possible. Quality Assurance on CORONA is extremely critical. Because of the booster weight limitations imposed by the Thor, CORONA does not enjoy the redundancy that is available in both GAMBII and HEXAGON. This was brought home most clearly in recent months when an almost identical failure on the Agena control vehicle occurred on both a CORONA and GAMBII launch. The result was catastrophic for CORONA but had little effect on the GAMBII mission.

6. I find that a very real problem exists in the area of maintaining qualified personnel on the CORONA Program in the phase-out period. This is particularly true in the case of the technicians at A/P who are Hiller Aircraft employees. To provide cover and security, a decision was made in 1958 to place the payload portion of the CORONA Program under cover at Hiller Aircraft in Palo Alto, rather than include it in the Lockheed complex in Sunnyvale. In the intervening years, the Hiller Aircraft plant has been closed, and the only remaining Hiller employees in the Palo Alto area are those working on the CORONA Program. Because of Union regulations, it is impossible to place Lockheed technicians in the Hiller facility. The Hiller technicians are rightly concerned about their future, and many of the better ones have already left to seek employment elsewhere. In an environment where there is no job security for the future, it is difficult to hire new men. The problem is made worse by the time requirements associated with obtaining the security clearance required on a classified program. I consider that the preferred solution to this problem would be a physical transfer of the CORONA operation to Sunnyvale and the supply of Lockheed technicians for the tasks now accomplished by Hiller. I have discussed with [redacted] who is investigating the cost and the optimum time phasing for such a move. The experienced and cleared Hiller personnel will be offered employment at Lockheed and/or Perkin-Elmer (West Coast Field Office), thus rewarding them for their service, giving them a future job security, and keeping their talent available.

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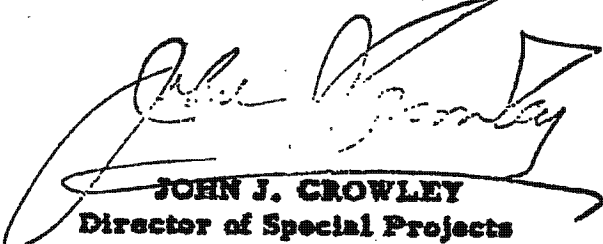
CORONA HEXAGON GAMBII

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**SUBJECT: CORONA Program Planning**

7. A problem also exists in the area of shelf life on CORONA hardware as a result of the reduced launch rate and program stretchout. I have requested a complete review of all Limited Calendar Life and/or Limited Operating Life (LCL/LOL) components in the system, and a plan for system refurbishment which includes cost and reliability considerations. I feel it may be necessary that we conduct a planned refurbishment of several systems. Procurement of spares is a critical item in the program and must be dealt with immediately. I will forward recommendations regarding spares upon completion of our review.

8. In summary, I am deeply concerned about insuring a continued high level of success in the CORONA Program. I have taken action to marshal my personnel resources in a way to make available additional technical talent to the Program in the months ahead. I have initiated a review of Quality Assurance procedures and methods of retaining the quality of personnel necessary to the Program. I am also investigating the shelf life problems created by the Program stretchout. I will forward to you in the several months a plan for procurement of critical spares and possibly for movement of the checkout facility. In the preparation of these plans, I will coordinate closely with General King to see that the overall systems problems and not simply the payload problems are considered.

  
**JOHN J. CROWLEY**  
Director of Special Projects

cc: General King

**Attachments:**

- a. Photo Systems Organization.
- b. Minutes of 25 July 1969 CORONA Meeting.

**Distribution:**

- Cy 1 - DNRO
- 2 - DDNRO
- 3 - General King
- 4 - DD/S&T
- 5 & 6 - D/OSP

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**CORONA** **HEXAGON GAMBIT**  
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Photo Recon Systems  
Dir D. W. Patterson  
D/Dir [ ]  
Secy (1)

Attachment to:  
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Facilities [ ] Management Officer [ ]

West Coast Project Office  
Mgr [ ]  
Secy (2)

Northeast Project Office  
Mgr [ ]

Operations Analysts  
Chief R. J. Kohler  
Secy (1)

Design, Development Production  
APD [ ]  
Secy (2)

Security  
D.H. Cochran

Security  
[ ]

Operations Chief [ ]

Assembly & Test Chief A. R. Burks

Mfg., QA & Test Chief [ ]

Design and Development Chief [ ]

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ATTACHMENT NO. 2

TO: Distribution

SUBJECT: Minutes of Meeting Regarding CORONA Mission 1107

1. On Friday, 25 July 1969, a meeting was convened and chaired by Mr. J. Crowley to discuss CORONA Mission 1107. In attendance were principal representatives of the following organizations:

CIA Headquarters  
CIA CORONA Project Field Office  
Air Force Special Project Office  
Lockheed Missiles & Space Company  
Itek Corporation  
General Electric Corporation

2. The meeting revealed the following facts:

A. CORONA Mission 1107 was launched on Wednesday, 23 July. All pre-launch and launch activities were normal; however, during the initial Kodi Tracking Station pass, telemetry indicated a problem in No. 2 camera, the forward looking camera. It appears that no film was successfully transported through the system after this "operate." Review of currently limited T/M data concluded the failure was probably mechanical. A report concerning this failure will be released upon completion of the evaluation.

B. Mission 1107 currently is operating in "mono" mode. From a standpoint of the photoreconnaissance mission, the failure will result in:

- (1) Monoscopic coverage only.
- (2) About seven frames in each camera operation in mono will be smeared because of vehicle instability.
- (3) DISIC film take will be reduced about 10% in order to increase reentry vehicle stability and insure reentry vehicle recovery.

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C. The test history and modifications of CR-7 were presented and discussed. There is no indication in the test documentation of any pre-flight problem that can be specifically identified as a contributor to the "on orbit" failure.

D. Other CORONA flight mission failures during the past year which adversely affected the photoreconnaissance mission were:

- (1) Mission 1048 - September 1968  
The forward looking camera failed after two thirds of the mission had been completed. The most probable cause was a failure in the main drive assembly.
- (2) Mission 1049 - December 1968  
Mission degraded due to high temperature. Mission was rated fair to poor; however, program coverage requirements were met.
- (3) Mission 1106 - February 1969  
The aft looking camera failed during the "B" portion of the mission at or near a film splice in the last 1000 feet of film.
- (4) Mission 1050 - March 1969  
The camera system operated normally; however, the mission duration was curtailed by an Agena guidance system failure.
- (5) Mission 1051 - May 1969  
Imagery had an out-of-focus appearance and was rated only poor to fair. Mission, however, met program coverage requirements.

Commanding problems, including Digital Shift Register and image motion compensation programmers comprised the remaining "on orbit" problems. Although troublesome to the operational personnel, the problems were adequately handled by real time commands. Mission 1107 was the first camera system failure which precluded attainment of mission objectives, i.e., useable stereoscopic photographs.

E. The CORONA Quality Assurance program, its philosophy, daily modus operandi, personnel (numbers and quality) and potential problems, was discussed. Since Lockheed provides the quality control for the CORONA A/P facility, its particular organization was reviewed in detail. The following items were presented by LMSC:

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## Page Three

(1) With the recent contract change and negotiations during June and effective 1 July, increased emphasis was applied to the CORONA Quality Assurance (Q.A.) and Reliability Programs. A major problem was the fact that personnel aware of the end of the CORONA Program are endeavoring to obtain other employment. A point was made by Lockheed that the better personnel are usually the first group to leave.

(2) It was pointed out that the problem of personnel abandoning the CORONA Program affects not only the Q.A. function but also the engineering and test phases. Lockheed management stated that they recognized the need to retain experienced, trained and capable people on the program but emphasized the practical nature of the problem. Personnel problems are complicated with respect to technicians by the fact that they are operating in a Hiller facility. They stressed that the Union plays a very important role in the daily work situation and that there are no other Hiller projects in the area. The Hiller technicians are experienced, Program trained and knowledgeable, but upon resignation of any Hiller man, a replacement is almost impossible to obtain because of the lack of future job security, the time required to obtain security clearance, and lack of an "open" area in which a man can work while his clearance is being processed.

F. Other very important problem areas covered in the contractor presentations were spares and Limited Operating Life/Limited Calendar Life (LOL/LCL) of components and subsystems. Lockheed personnel emphasized that as CORONA progresses, ability to provide a "next in line" replacement for any failed item diminishes since manufacture and procurement will shortly be terminated. A Lockheed spares program <sup>must</sup> be established almost immediately. Lockheed also noted that as schedule changes necessitate "stretchouts", the required tests place additional "life" on units and some components are approaching the wearout point before actual orbital use.

3. Action was assigned by Mr. Crowley to the applicable contractor and Government personnel to:

A. Review the entire CORONA Reliability and Quality Assurance Programs and provide recommendations for strengthening current efforts.

B. Conduct an evaluation of the technician attrition problem and provide a plan to minimize its affects. Included in this evaluation was to be an investigation of the feasibility and possibility of moving the A/P facility functions to the Lockheed Sunnyvale area.

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**CORONA**

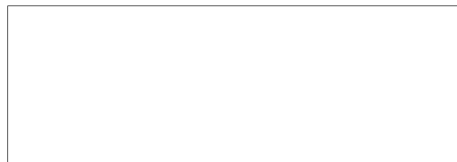
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C. Prepare a recommended Lockheed spares list for the Program and review and update current G.E. and Itek spares lists.

D. Review the status of all LOL/LGL Programs and conduct trade offs on system test and refurbishment and submit recommendations for courses of action to achieve maximum assurance of system success.

E. Provide a plan to increase available tested reserve payloads.



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CORONA

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## CORONA PROGRAM MEETING

25 July 1969

## Attendees

1.	Mr. John J. Crowley	GIA	Director of Special Projects
2.	[REDACTED]	SAFSP	Director, Corona Vehicle SPO
3.	Mr. Reginald Kearton	LMSC	President, SSD
4.	Mr. Thomas Hoban	Itek	Vice President, Optical Systems Div.
5.	Dr. John P. Nash	LMSC	Executive VP, SSD
6.	Dr. Fritz Oder	LMSC	Vice President, SSD
7.	Dr. Gene Growther	LMSC	Manager, Satellite Programs
8.	Mr. Charles Goodell	LMSC	Manager, Corona Vehicle Program
9.	Mr. Donald Kelliher	Itek	Manager, Corona Program
10.	[REDACTED]	GIA	Assistant Project Director, Hexagon
11.	[REDACTED]	GIA	Project Director, Corona
12.	Mr. A. R. Burks	GIA	Deputy Assistant Project Director, Hexagon
13.	[REDACTED]	GIA	Technical Director, Corona
14.	Mr. Maurice Burnett	Itek	Manager, Field Service
15.	Mr. Charles McDowell	G.E.	West Coast Corona Manager
16.	Mr. Quentin A. Riepe	LMSC	Manager, A/P
17.	Mr. Kirk Waddell	LMSC	Test Director, A/P
18.	Mr. James Cretcher	LMSC	Engineering Director, A/P
19.	Mr. Robert Lansing	G.E.	West Coast Corona Liaison
20.	[REDACTED]	SAFSP	Corona Disc Manager
21.	Mr. Richard Melberger	Itek	West Coast Liaison
22.	[REDACTED]	USAF	Quality Assurance Office
23.	Mr. R. Rouch	LMSC	A/P Quality Assurance Manager
24.	Mr. Don Lange	LMSC	A/P P. I. Manager
25.	Mr. Ray Tuggle	LMSC	A/P T.M.

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## AGENDA - 7-25-69

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|-----|------------------------------------|--------------------------|
| 1.  | INTRODUCTION                       | <input type="checkbox"/> |
| 2.  | CR-7 ANOMALY                       | <input type="checkbox"/> |
| 3.  | CR-7 MOD AND TEST HISTORY          | K. WADDELL               |
| 4.  | CR-7 MOD AND TEST HISTORY          | <input type="checkbox"/> |
| 5.  | J SYSTEM PERFORMANCE<br>(PROBLEMS) | <input type="checkbox"/> |
| 6.  | A/P QUALITY ASSURANCE              | <input type="checkbox"/> |
| 7.  | BOSTON Q. A. SYSTEM                | <input type="checkbox"/> |
| 8.  | BOSTON Q. A. PERSONNEL             | <input type="checkbox"/> |
| 9.  | A/P PERSONNEL                      | Q. RIEPE                 |
| 10. | CONCLUSIONS/RECOMMENDATIONS        | Q. RIEPE                 |
| 11. | DISCUSSION                         | <input type="checkbox"/> |
| 12. | CONCLUSIONS                        | J. CROWLEY               |

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