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MEMORANDUM FOR THE RECORD

SUBJECT: Fact Sheet Relative to Major Payload Item Failure on CORONA Mission 1017

1. On Mission 1017 there were two incidents involving malfunction of payload equipment. These incidents involved the cycle count variation and the yaw programmer.

A. Cycle Count Variation

1. On Rev. 88 of Mission 1017 a one-cycle count deviation of the camera was noted on telemetry by the TM evaluator at the CIA facility. The TM evaluator notified [redacted] of the deviation at approximately 0630 hours (Pacific Standard Time). [redacted] instructed the TM analyst to monitor the augie telemetry data (this data describes the health of the vehicle.) very closely until the engineering data from the [redacted] pass on Rev. 95 (at 1213 PST). At that time a complete analysis of the vehicle health could be obtained.

2. At approximately 0730 hours, [redacted] notified [redacted] technical representative at the CIA facility of the anomalie and requested [redacted] to investigate any possible failure modes which could be associated. [redacted] was also advised of the failure of the Stellar Index Camera which had occurred. It should be noted that the Stellar Index Camera is a secondary auxiliary payload and, hence, its failure does not impinge upon the primary mission and is not a cause for abort. At 0930 hours [redacted] coordinated with [redacted] other representative assigned

[redacted]

to the CIA facility. [redacted] advised [redacted] to call [redacted] of [redacted] staff on the failure of the Stellar Index Camera, but not to mention the cycle count deviation until further details could be obtained and a determination made whether or not an anomalie existed. Historically, one-cycle deviations had occurred on previous missions. They are not unusual and, hence, no concern for alarm. However, all deviations are studied in detail to ensure that no failure modes are overlooked and are thoroughly investigated.

3. At 1130 hours the CIA technical investigating staff, which is composed of Lockheed, Itek and GE personnel, as well as [redacted] and [redacted] went to the STC to observe the engineering pass on Rev. 95. The STC Field Test Force Director, [redacted] was then briefed on both the S/I cycle function and the cycle deviation. On Rev. 95 one additional cycle was noted. This indicated that there was a ~~slipped~~ anomalie, but nothing drastic such as a run-away camera.

4. At approximately 1230 hours [redacted] who obviously had been notified of the cycle count deviation by [redacted] called [redacted] concerning the deviation. [redacted] briefed [redacted] in detail on the status and reported to [redacted] that the Air Force representative at the CIA facility had been participating all along in the analysis. [redacted] informed [redacted] that if any problem developed regarding the slipping camera, he would transfer the system into a mono-photography mode. [redacted] stated that his primary interest was in being kept informed of any potential recovery problem and asked that [redacted] of LMSC be included in the analysis. [redacted] said he would contact [redacted]

5. During the course of the analysis, CIA conducted an experiment with one of the cameras in the facility to determine what effects a run-away

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camera would have. Upon examining the results of that local experimental data, as well as coordinating with the Itek Boston Facility, the investigating team reported to [redacted] at 1400 hours that no danger existed. They assured him that even if the camera lapsed into a run-away condition, recovery would not be adversely affected because the film take-up casset in the recovery vehicle would be stopped by electronical disconnection before the recovery sequences were implemented and, hence, no dispersion in the re-entry area would be experienced. [redacted] was notified immediately of these findings by the Air Force representative, [redacted].

6. To keep the Satellite Operations Center in the NRO and others in the Community advised of the details of the mission, [redacted] sent a cable at 1421 hours indicating that the extra cycles had been experienced and that an evaluation was underway to determine if a possible run-away condition might occur. He further advised the Community that should such occur, it would be necessary to revert to mono-camera coverage. He also advised that the S/I camera was experiencing intermittent operations. [redacted] then instructed his TM analysts to continually monitor all telemetry data prior to the planned camera loading which would occur at [redacted] on Rev. 97. Since no other anomalies were noted, [redacted] decided to continue the system with stereo coverage. He continued to notify the Community of the camera's activities through the normal reporting procedures in the operating manual. He indicated that on Rev. 127 two additional cycles were experienced and also that the yaw programmer appeared to have failed on Rev. 120 and was turned off on Rev. 121.

7. In summary, it is noteworthy to mention that the 1017 mission was extremely successful, that all film was exhausted on Rev. 137, the entire payload was expended and recovered, there was over 75% coverage obtained, and the mission was extremely successful from its intelligence accomplishments.

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In hindsight, when the cycle count deviation occurred, proper action was executed by the CIA resident manager, a competent and most experienced team of technical personnel at the CIA facility moved into action to conduct an objective analysis which proved correct and successful.

B. Yaw Programmer Malfunction

1. Shortly after launch [redacted] and [redacted] discussed the activation of the Yaw Programmer and they mutually agreed to activate it on Rev. 9. Its operation was continuously monitored and it worked normally until Rev. 120, at which time the CIA TM monitor in the STC advised [redacted] that the system appeared to have failed. [redacted] immediately advised the Air Force Field Test Force Director representative at the STC of the Yaw Programmer failure and requested the activation on Rev. 121 by way of the [redacted] Tracking Station at 0240 hours PST. At 0830 hours [redacted] advised the technical personnel at the CIA facility, as well as the Air Force technical representative [redacted]. It should be noted that the failure of the Yaw Programmer simply means that one is forced to revert to a normal condition. By turning the system off, one is assured that nothing will happen to the vehicle. During the end of the mission a segment of the Lockheed Corporation, i.e., Sunnyvale Guidance, requested that extra tests be run on the programmer. [redacted] discussed these tests with Col. Murphy, who questioned the need for them; however, they agreed to run them. They were not conducted, however, since at that time the TM personnel from the CIA/Lockheed facility were not available at the STC Ground Station. The tests were conducted, however, after the recovery of the last bucket and all desired information obtained.

2. In summary, when the malfunction of the Yaw Programmer occurred, the Air Force technical representatives were notified immediately by the CIA resident manager and the action to turn off the Yaw Programmer and revert to normal operating conditions was proper. Results from this mission indicated that failure of the Yaw Programmer caused no noticeable

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degradation in the intelligence "take."

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Chief, Special Projects Staff

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