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SETD MEETING #13

CORONA "M" PROGRAM

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6 SEPTEMBER 1962

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AGENDA

"M" SETD MEETING - 6 SEPT. 1962

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B. STATUS REPORT ON REMAINDER OF CAMERA SYSTEMS.

C. STATUS REPORT ON QUALIFICATION AND ACCEPTANCE TESTS ON STELLAR-INDEX CAMERA.

D. REPORT ON SPECIAL TESTS RELATING TO:

1. FILM MARKING - ITEK.

2. PRESSURE - ITEK AND LMSC.

3. VENTING - LMSC.

4. RADIATION - LMSC.

E. STATUS REPORT ON REMAINDER OF STRUCTURES, RECOVERY SYSTEM AND SYSTEM TESTING.

F. REVIEW OF 15 COMMAND SYSTEM.

G. REVIEW OF TECHNICAL DIRECTIVES.

[redacted]

INTRODUCTION

The 13th SETD Meeting of the Corona "M" System commenced at 9:00 A.M. on 6 September 1962. Attendees were:

SETD Chairman: J. Partanen

Headquarters

L/Col. C. Murphy
L/Col. V. Webb
[redacted]
Capt. A. W. Johnson (AFSSD)

Itek

[redacted]

LMSC

J. Plummer
[redacted]

SETD

[redacted]

E.K. CO.

E. Green

[redacted]

TECHNICAL PRESENTATIONS

1. [redacted] REPORT ON M-11 FLIGHT RESULTS.

   a. [redacted] presented a description of the photographic quality of M-11 flight which is summarized as follows:

      A preliminary inspection of Mission 9044 (M-11) original negatives indicated considerable improvement in film quality over Missions 9038 (M-7), 9040 (M-8), and 9041 (M-10). As Mission #9044 progressed, the frequency and intensity of the corona type marks increased, repeating intermittently every 6.3 inches on the payload. The payload marking was similar on both forward and aft cameras.

   b. Image quality in areas not affected by fogging was good and is comparable to Mission #9032.

   c. The frame camera take consisted of 24 frames, giving full coverage of passes A-01, A-02, A-03 and one frame on A-04. Some fog marks were observed.

   d. The starboard horizon camera on the forward camera appeared out of focus and showed multiple cloud images in the format.

   e. Excessive roll was noted on passes from A-50 to end of mission. The port horizon camera format was almost completely filled with earth imagery; the starboard contained none.

2. E.K. ANTI STATIC BLACK LACQUER.

   Discussion resulted when E. Green of E.K. produced samples of anti-static black lacquer for test and checkout. LMSC and Itek received liquid samples of black lacquer for test use in reducing corona discharge marks observed on the M payload. Anti-static black lacquer is expected to be tested on certain rollers of the M film transport system. E.K. black lacquer is a conductive coating that does not depend on the presence of moisture to be effective as an anti-static compound. It is reported that the lacquer coating can be dissolved (after hardening) by use of a mild alkaline solution.

3. LOW RESISTANCE METERING ROLLERS AND ANTI STAT #6.

   A/P HATS test payload exhibits were presented by [redacted] which showed the reduction of corona marking in M-11 and M-12 systems (relative to M-7 HATS payload). The reduced corona marking was attributed to substituting conductive metering rollers for non-conductive metering rollers. The value of using Anti Stat #6* as a corona discharge inhibitor was illustrated by M-11 HATS test film exhibits which were free and clear of corona marks. Further LMSC and Itek corona discharge tests are planned. See sections 11 and 12 for details.

*Applied to the high resistance metering rollers of the main M-11 camera [redacted]

4. USE OF FILM TYPE SO-206 IN INDEX CAMERA IN PLACE OF SO-130.

Discussions were held concerning the possibility of using film type SO-206 to replace SO-130 in the Index Camera. E. Green was requested to report on the availability of SO-206 for future use in the terrain frame camera. SO-206 was reported to have the following photographic properties:

a. Intermediate between SO-130 and SO-132.

b. A.S.A. Speed (approximate):

Normal Processing	5.5
Forced Processing	7.5

c. Resolution:

High T.O.C.	400 li/mm
Low T.O.C.	150 li/mm

5. RADIATION - INDEX CAMERA SHIELDING.

Radiation shielding was discussed. LMSC was requested by SSD to recommend frame camera shielding including type of material and thickness.

6. CORONA PRIME-PRESSURE DATA IN ORBIT.

[redacted] (LMSC) presented corona prime pressure data that indicated the pressure inside the corona prime camera ranged from 15 to 30 microns during operation in orbit (115 n.m nominal height). Calibration of the gauge did not permit direct read-out within this range.

7. STELLAR CAMERA PAYLOAD, SO-130 TYPE.

[redacted] recommended that the Stellar exposure should be at least 4 sec. in order to generate a star track on the payload, having a length adequate for positive identification. Four seconds exposure will generate a star track subtending 0.28 degrees of arc.

The present Stellar camera will generate exposures up to 1/2 second. Stellar camera modifications are required to increase camera exposures to 4 seconds.

8. TRANSPORT SYSTEM GEOMETRY (MAIN AND INDEX CAMERAS).

E. Green requested SETD to supply Main Camera and Index Camera transport system geometry for use beginning with M-12 flight data.

9. PROCESSING LEADER MATERIAL REQUEST.

SETD requested E. Green to supply LMSC with Black Aero Triacetate processing leader. LMSC agreed to accept 1000 feet rolls of leader consisting of 250 feet sections spliced together for use in the Dayton 70 MM Processor.

[redacted]

10. FILM REQUIREMENTS FOR LMSC-TEST AND FLIGHT.

[redacted] requested SETD to supply an estimate of payload consumption for use by LMSC for test and flight for the balance of 1962.

11. BOSTON REPORT - SPECIAL TESTS RELATING TO 2 PI CORONA. (AGENDA ITEM D)

Boston representatives presented the following test outline which documents Boston test plans to be completed in the near future:

a. Altitude test instrument #104 with conductive supply metering and frame metering rollers to establish base line payload data.

b. Install phenolic pressure rollers treated with TAMOL-N. Altitude test and examine for 2 pi corona marks (Instr. #104). If this test is satisfactory, run similar test at LMSC in the HATS chamber.

c. Repeat test b. at Boston using Instr. #105.

d. As part of a special test (separate from a-c incl.), Boston agreed to evaluate the suitability of E. Green's anti-static black lacquer as a corona discharge inhibitor.

12. LMSC - SPECIAL TESTS RELATING TO 2 PI CORONA MARKS. (AGENDA ITEM D)

LMSC special test plan (depends upon the outcome of Boston test results) is as follows:

a. HATS test using conductive supply and frame metering rollers. Examine for 2 pi corona marks.

b. HATS test (1 day-Master Instrument) using phenolic rollers coated with TAMOL-N.

c. HATS test (1 day-Slave Instrument), E. Green black lacquer on all rollers.

d. Repeat tests "b" and "c" for 4 days at HATS altitude. Note: Use either or both fixes from tests "b" and "c".

13. SETD REPORT - SPECIAL RADIATION STUDY - FLIGHT 1153. (AGENDA ITEM D)

[redacted] presented a special radiation report which is summarized as follows:

Samples of SO-102, SO-130, SO-206 and SO-132 were flown in the recovery capsule of M-11, Flight #1153, to check the effect of Van Allen belt radiation on the fog level of the subject film. The perigee altitude was 97 nautical miles and occurred at 10 degrees south latitude. The apogee altitude was 210 nautical miles.

Test results are as follows (expressed as maximum optical density recorded, intermediate processing):

[redacted]

[redacted] [redacted]

13. Continued----

Film Type #	102	130	206	132
Film base fog level (control-not radiated)	0.08	0.06	0.08	0.07
Maximum density recorded in film samples	0.84	0.24	0.11	0.08

14. LMSC STATUS REPORT ON REMAINDER OF STRUCTURES, RECOVERY SYSTEM AND SYSTEM TESTING. (AGENDA ITEM E)

[redacted] presented charts that show the status of:

a. Recovery systems.
b. Fairing and barrels.
c. Systems tests.

[redacted]
S.E.

[redacted]

Approved:

[redacted]
S.E. Manager

Distribution:

[redacted]

[redacted]