OUT57554

T O P S E C R E T 150022Z multi 1966 JAN 15 01 25Z

[redacted] 25X1

1. NUMERICAL SUMMARY

MSN NO AND DATES: 1028-1 24-29 DEC 65;

1028-2 29 DEC 65 - 2 JAN 66

LAUNCH DATE: 24 DEC 65

VEHICLE NO: 1610

CAMERA SYSTEM: J-26

PAN CAMERA NOS: FORWARD LOOKING (MASTER) 176;

AFT LOOKING (SLAVE) 177

MSN 1028-1 S/I NO: D77/91/97

MSN 1028-2 S/I NO: D74/76/95

RECOVERY REVS: D81 AND D144

2. CAMERA SETTINGS

FORWARD-LOOKING: 0.250 INCH SLIT,

WRATTEN 25 FILTER

AFT-LOOKING: 0.175 INCH SLIT,

WRATTEN 21 FILTER

DISTRIBUTION

Cy No.	Office	Action
2	File	
	CO	
	ADMIN	
	SEC	
	P & DS	
	CSD	
	IPD	
	FD	
	PSD	
3,4,5	PSD-ICS	

[redacted] 25X1

TOP SECRET

3. PERFORMANCE SUMMARY

THE IMAGE QUALITY OF THE PHOTOGRAPHY PRODUCED ON THIS MISSION IS VERY GOOD. IT IS CONSIDERED BY BOTH THE PEIR TEAM AND PI GROUPS TO BE THE BEST OBTAINED IN RECENT MONTHS. THE PI'S DESCRIBE THE COVERAGE AS HAVING A CRISPNESS NOT OBTAINED SINCE LAST WINTER. THE BEST GROUND RESOLUTION OBTAINED FROM A HIGH CONTRAST TARGET DISPLAY WAS 7.5 FEET IN THE ALONG TRACK (IMC) DIRECTION AND 11.5 FEET IN THE CROSS TRACK (SCAN) DIRECTION. SINCE THERE WAS ONLY ONE TARGET COMPLEX IMAGED UNDER GOOD WEATHER CONDITIONS THROUGH THE ENTIRE MISSION, THERE IS NO INDICATION THAT THE BIAS BETWEEN ALONG TRACK AND CROSS TRACK VALUES IS SYSTEMATIC IN NATURE. THE AFT CAMERA IMAGERY IS SLIGHTLY BETTER THAN THAT OF THE FORWARD CAMERA. THIS VARIATION BETWEEN THE TWO PAN CAMERAS HAS BEEN NOTED CONSISTENTLY FOR MANY MISSIONS.

4. ANOMALIES

ANOMALIES INCLUDING THOSE REPORTED IN THE REBIND-42 MESSAGES (REFS A AND B) WERE REVIEWED.

A. INTERMITTENT OPERATION OF 200 CYCLE TIMING LIGHT, VARIATION OF SMEAR PULSE LINGTH, AND IN ONE INSTANCE, LOSS OF SMEAR PULSE OCCURRED ON THE FORWARD CAMERA.

CAUSE: NEON BULB OR DRIVE TRANSISTOR Q109 WERE MARGINAL IN OPERATION.

ACTION: REVIEW OPERATIONAL PROCEDURES AND COMPONENT SPECIFICATION REQUIREMENTS. [redacted] 25X1

B. HORIZON IMAGERY ON STARBOARD (SUPPLY SIDE) OF AFT CAMERA

WAS VEILED FROM THE BEGINNING OF THE MISSION THROUGH PASS D68. THIS VEILING CONDITION ONLY APPEARS ON 1028-1. IT SHOULD BE NOTED THAT VEILING DOES NOT DEGRADE DATA REDUCTION.

CAUSE: UNKNOWN. THE CONDITION IS POSSIBLY ASSOCIATED WITH FUEL VENTING.

ACTION: UNDER INVESTIGATION. SEE COMMENTS (PARA 5D).

1

[redacted] 25X1

C. LIGHT LEAKS

CAUSE: ALL BUT ONE OF THE LIGHT LEAKS ARE TRACED TO TWO SOURCES: (1) FELT SEALS AT THE INSTRUMENT DRUMS, AND (2) LAMINATED STRIPS AT THE REAR OF THE INSTRUMENT DRUMS. A THIRD FOG SOURCE IS LOCATED IN THE REGION BETWEEN THE TWO PAN INSTRUMENTS BUT THE EXACT SOURCE IS NOT KNOWN.

ACTION: (1) SUPPLEMENTARY SEALS FOR THE PAN INSTRUMENT DRUMS ARE UNDER INVESTIGATION. [redacted] 25X1

(2) A CORRECTIVE SEAL TO THE LAMINATED STRIPS HAS ALREADY BEEN EXTABLISHED. NO ACTION NECESSARY.

(3) THE UNKNOWN THIRD FOG REGION WILL BE INVESTIGATED TO DETERMINE MOST PROBABLE SOURCE. [redacted] 25X1

D. DENDRITIC STATIC FOG IS PRESENT INTERMITTENTLY ALONG THE EDGES OF THE FILM FROM BOTH PAN CAMERAS THROUGHOUT THE MISSION. THE INCREASED FREQUENCY OF OCCURRENCE RELATIVE TO PREVIOUS EXPERIENCE PROMPTED THIS REPORTING.

CAUSE: MORE STATIC DISCHARGES WERE NOTED DURING THE PRE-SPLICE OPERATION THAN ARE NORMALLY EXPERIENCED, INDICATING THE FILM WAS UNUSUALLY DRY. HOWEVER, THE NUMBER OF DISCHARGES

1

DURING PRE-SPLICING WAS NOT SIGNIFICIENT IN EXPLAINING THE INCREASED FREQUENCY OF DENDRITIC STATIC FOG.

ACTION: NO NEW ACTION IS REQUIRED, BUT THE TEAM WANTS TO EMPHASIZE THE NEED TO CONTINUE TO TAKE ALL POSSIBLE PRECAUTIONARY MEASURES TO MINIMIZE CONDITIONS WHICH CONTRIBUTE TO DENTRITIC STATIC FOG.

E. A MINOR REGION OF SOFT IMAGERY APPEARS THROUGHOUT MATERIAL FROM THE AFT CAMERA IN A REGION UP TO ONE-HALF INCH WIDE AT THE TIME TRACK EDGE OF THE FORMAT.

CAUSE: UNKNOWN. THE CONDITION IS POSSIBLY DUE TO IRREGULARITY IN TRACKING TENSION.

ACTION: CHECK "DOCTOR A" TEST HISTORY FOR POSSIBLE INDICATION OF CAUSE. [redacted] 25X1

F. AN EMULSION SCRATCH APPEARED INTERMITTENTLY IN FORMATS OF BOTH CAMERAS THROUGHOUT THE MISSION.

CAUSE: UNDOUBTEDLY THE FILM WAS RUBBING WITHIN THE SYSTEM TRACKING PATH.

ACTION: INCREASE INSPECTION OF PREFLIGHT TEST MATERIAL TO AVOID REOCCURRENCE. [redacted] 25X1

G. THE SHRINKAGE MARKERS AND DATA BLOCK EDGE OF FORMATS FROM BOTH CAMERAS SHOW RAGGED EDGES.

CAUSE: EMULSION BUILD-UP ON FILM RAIL AT THE DATA BLOCK SIDE WAS NOT ADEQUATELY CLEANED IN PREFLIGHT PROCEDURES.

ACTION: (1) REVIEW PREFLIGHT SAMPLES AND CURRENT EQUIPMENT CLEANING PROCEDURES TO DETERMINE ADEQUACY. [redacted] 25X1

(2) REVIEW FLIGHT LOADING AND CERTIFICATION PRECEDURES FOR ADEQUACY. [redacted] 25X1

H. MINUS DENSITY STREAKS APPEARED INTERMITTENTLY ON BOTH MISSIONS.

CAUSE: UNDETERMINED PARTICLES WERE IN THE AREA OF THE FIELD FLATTENER.

ACTION: NO ACTION REQUIRED. THE CONDITION EMPHASIZES THE IMPORTANCE OF CLEANLINESS AND CLEANING PROCEDURES.

I. A MALFUNCTION OF THE INDEX CAMERA SHUTTER IN THE 1028-2 MISSION CAUSED EXTREME FOGGING.

CAUSE: A REVIEW OF TELEMETRY DATA AND FLIGHT MATERIAL REVEALS THE SHUTTER OPENED WITH THE SHUTTER FIRE COMMAND AND REMAINED OPEN UNTIL THE SHUTTER WIND COMMAND. CORRELATION OF INDEX FRAMES VERIFIED THAT PROPER METERING OCCURRED. THE UNFOGGED AREAS DESCRIBED IN REF B WERE MADE DURING TWO NIGHT ENGINEERING PASSES. THE SPECIFIC CAUSE OF SHUTTER FAILURE IS NOT KNOWN.

ACTION: (1) INCREASED QUALITY CONTROL AND AN ENGINEERING SURVEY OF THE MANUFACTURERS PROCEDURES SHOULD BE UNDERTAKEN.

[redacted] 25X1

(2) THE SHUTTER TELEMETRY SHOULD BE MODIFIED TO BE MORE USEFUL FOR IN-FLIGHT DIAGNOSTIC PURPOSES.
SUCH A CHANGE WOULD PERMIT MORE EFFICIENT MISSION PROGRAMMING IN THE EVENT OF INSTRUMENT ANOMALIES. [redacted] 25X1

(3) INVESTIGATE POSSIBLE MODIFICATION TO PREFLIGHT PROCEDURES TO PROVIDE GREATER CONFIDENCE ON INDEX SHUTTER OPERATION.

25X1

J. AN OUT-OF-FOCUS CONDITION OCCURRED ON THE FORWARD CAMERA DURING PASSES D130 AND D131.

CAUSE: A TENSION OR BIAS CONDITION WAS CAUSED BY A MANUFACTURERS SPLICE.

ACTION: NONE REQUIRED.

K. A SERIES OF COMET-LIKE MINUS DENSITY SPOTS WERE FOUND TO REPEAT AT 9 3/4 INTERVALS ON PASS D53, FRAMES 48 TO 80, OF THE AFT CAMERA. FREQUENTLY THE MINUS DENSITY SPOTS WERE FOUND TO HAVE A SMALL DARK PARTICLE AT THE CENTER.

CAUSE: UNKNOWN. THIS IS PROBABLY A FILM MANUFACTURING DEFECT.

ACTION: NONE INDICATED.

L. A CREASE APPEARS IN FORWARD INSTRUMENT MATERIAL THREE FRAMES AFTER A SPLICE IN PASS D22. IN THE SAME AREA SMALL CRIMPS, PRESSURE MARKS, AND MECHANICAL DAMAGE APPEAR ALONG ONE EDGE OF THE FILM AT APPROXIMATELY 10 3/4 INCH INTERVALS.

CAUSE: UNKNOWN: FROM ANALYSIS, IT APPEARS MOST UNLIKELY THAT THE DEFECT ORIGINATED IN THE CAMERA SYSTEM. THE PROBABLY CAUSE APPEARS TO BE IN FILM MANUFACTURING.

ACTION: ATTEMPT TO CORRELATE DEFECT WITH FILM MANUFACTURING AND DETERMINE WHETHER QUALITY ASSURANCE CHANGES ARE INDICATED.

25X1

5. COMMENTS

A. AS WAS THE CASE WITH MISSION 1026, THE MEASURED DENSITY

VALUES (D-MIN AND D-MAX) WERE LOWER THAN THE AVERAGE VALUES FOR PAST MISSIONS. THE PEIR TEAM IS CONCERNED BUT UNCERTAIN AS TO THE SIGNIFICIENCE OF THIS FACT. SINCE THE PI'S INTERPRET FROM DUPE POSITIVES THEY ARE RELUCTANT TO MAKE SPECIFIC STATEMENTS ABOUT EXPOSURE AND DENSITY. IMAGE INTERPRETABILITY, THEREFORE, IS DESCRIBED IN GENERAL TERMS THAT CANNOT BE RELATED TO ORIGINAL NEGATIVE DENSITY OR EXPOSURE. THOSE RESPONSIBLY FOR SELECTING CAMERA EXPOSURE SETTINGS ARE ALWAYS FACED WITH WEIGHING PREDICTED DENSITY VERSUS IMAGE DEGRADATIONS RESULTING FROM IMAGE MOTION. CURRENTLY, EXPOSURE TIMES ARE BEING USED WHICH, IN COMBINATION WITH SOLAR ALTITUDE, ETC., ARE PRODUCING LOW MEASURED DENSITY VALUES (EVEN WITH FULL DEVELOPMENT IN PROCESSING). THE PEIR TEAM FEELS THAT ADDITIONAL DATA DESCRIBING OPERATIONAL TARGET BRIGHTNESS ALONG WITH INCREASED FREQUENCY OF RECORDING THOSE BRIGHTNESSES, WOULD BE HELPFUL IN VIEWING THE TRADE-OFF DESCRIBED ABOVE. THEREFORE, THE TEAM RECOMMENDS THAT A STUDY WHICH WOULD PROVIDE THESE DATA BE UNDERTAKEN. TO UNDERTAKE SUCH A STUDY WILL REQUIRE ACTION FROM THE PROGRAM MANAGEMENT. ALSO THE PEIR TEAM REQUESTS THAT [redacted] PROVIDE A DENSITY DATA SUMMARY FOR THE MISSION BEING REVIEWED AT THE PEIR MEETING. 25X1

B. THE PEIR TEAM REAFFIRMS ITS INTEREST IN THE YARDLEIGH VERSUS TRENTON TEST PROGRAM AS OUTLINED IN THE 1026 PEIR. THIS TEST PROGRAM SHOULD BE EXECUTED AS SOON AS IS FEASIBLE.

C. EVALUATION OF THE INDEX PHOTOGRAPHY FROM MISSION 1028-1 SUGGESTED BETTER THAN AVERAGE ATMOSPHERIC CONDITIONS. THE CORN

TARGET DISPLAYS WERE ADVERSLY EFFECTED BY POOR WEATHER CONDITIONS.

D. THE FOLLOWING AREAS WILL BE INVESTIGATED IN AN EFFORT TO EITHER CORRELATE OR DISASSOCIATE THE VEHICLE FUEL VENTING WITH THE H. O. VEILING AND STELLAR PARTICLE PROBLEMS:

(1) FUEL VENTING SEQUENCE TIME.

(2) DURATION OF VENTING.

(3) POSITION OF VENT.

(4) PREDICTED PATTERN

(5) EARLIEST POSSIBLE "CAMERA ON" TIME.

THE ABOVE ITEMS WILL BE PRESENTED AT THE PEIR TEAM MEETING SCHEDULED FOR THE NEXT MISSION.

E. ACTION ITEMS RESULTING FROM PEIR TEAM ACTIVITIES ARE, AS A MATTER OF PROCEDURE, FOLLOWED TO COMPLETION OR RESOLUTION BY THE PEIR TEAM AND THE RESULTS OF THE ACTIONS ARE ROUTINELY RECORDED IN ONE OR MORE OF THE VARIOUS DOCUMENTS ASSOCIATED WITH MISSION READINESS, OPERATIONS, AND EXPLOITATION FUNCTIONS. FOR RECORDING AND MANAGEMENT PURPOSES, EFFECTIVE WITH MISSION 1029 THE PEIR WILL INCLUDE A REPORT ON ACTION ITEMS ASSIGNED BY THE PEIR TEAMS OF PRECEDING MISSIONS. EFFECTIVE WITH PEIR TEAM ACTIVITIES OF MISSION 1028, EACH ACTION ITEM WILL HAVE ASSIGNED TO IT ONE OR MORE MEMBERS OF THE PEIR TEAM WHO WILL MONITOR PROGRESS AND FORMALLY REPORT RESULTS AT THE NEXT PEIR TEAM MEETING. THESE REPORTS WILL APPEAR IN THE PEIR UNDER THE HEADING "REPORT ON PREVIOUSLY ASSIGNED ACTION ITEMS.

T O P S E C R E T -END OF MESSAGE-