FORM 126 5-63 USE PREVIOUS EDITIONS

CLASSIFIED MESSAGE

DATE

~~TOP SECRET~~

[redacted]

TO

FROM

ACTION

INFO

[redacted] [redacted] 7 MAR 1967

TO ~~TOP SECRET~~ INFO 070152Z CITE [redacted] CITE

[redacted] INFO [redacted]

CORONA RESIDENT OFFICE/J-1/J-3

ATTN: [redacted]

1. A SERIES OF PAYLOAD SYSTEM ENGINEERING EVALUATIONS ARE BEING PROGRAMMED FOR THE FIRST FOUR J-3 CORONA MISSIONS. THESE PAYLOADS HAVE BEEN INSTRUMENTED FOR R AND D PURPOSES, AND TEST DATA IS BEING RECORDED VIA SPECIAL T/M LINK, ON FILM AND ON A RECOVERABLE TAPE RECORDER. ENGINEERING MATERIALS GATHERED FROM THESE EVALUATIONS WILL BE ANALYZED BY [redacted] OR [redacted] AS APPROPRIATE. TEST PLANS HAVE NOT BEEN FINALIZED BUT PRESENT PLANNING IS AS FOLLOWS:

A. SYSTEMS CR-2, CR-3, AND CR-4 WILL BE EQUIPPED WITH NOD TO SCAN ENCODERS FOR IN-FLIGHT VERIFICATION OF THE NOD TO SCAN CALIBRATION. DATA IS BEING RECORDED ON THE FLIGHT FILM THROUGH USE OF A XENON FLASH TUBE AND FIBER OPTICS. IT IS ANTICIPATED THAT THE VALIDITY OF THE PRE-FLIGHT NOD TO SCAN CALIBRATION CAN BE ESTABLISHED THROUGH THESE THREE FLIGHTS,

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GROUP 1 EXCLUDED FROM AUTO. DOWNGRADING AND DECLASSIFICATION

[redacted]

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AND THAT IN-FLIGHT CALIBRATION WILL NOT BE NECESSARY ON CR-5 AND SUBSEQUENT.

B. PAYLOAD VIBRATION DATA IS BEING RECORDED ON FLIGHTS CR-1 THROUGH CR-4 FOR PURPOSES OF VERIFYING QUALIFICATION LEVELS AND ERROR BUDGET ANALYSES. THE VIBRATION DATA WILL BE PLAYED OUT OVER A SPECIAL AGENA T/M LINK WHICH HAS BEEN MADE AVAILABLE ON THESE FLIGHTS. ASCENT VIBRATION DATA IS BEING TAKEN ON PAYLOADS CR-1 AND CR-2 AND ON-ORBIT VIBRATION DATA ON PAYLOADS CR-3 AND CR-4.

C. SPECIAL TEMPERATURE MEASUREMENTS, SLIT AND FILTER POSITION RECORDINGS, VEHICLE GAS JET MONITORS, AND INSTRUMENT STATUS MONITORS ARE BEING RECORDED DURING INSTRUMENT OPERATES BY MEANS OF AN SRV TAPE RECORDER. THE TAPE WILL BE FORMATTED AT [redacted] FOLLOWING RECOVERY AND MADE AVAILABLE TO INTERESTED PARTIES FOR ANALYSIS.

D. A POST FLIGHT ENGINEERING EVALUATION ON REDESIGNED SRV SUBSYSTEMS WILL BE CONDUCTED ON CR-1 AND CR-2. CAPSULES FROM THESE FLIGHTS WILL BE RETURNED DIRECTLY TO [redacted] FOR DEFILMING IN ORDER TO FACILITATE THE LIFE SENSITIVE TESTING. SPECIAL RESET BOXES AND INSTRUCTIONS FOR THE VJ SERIES SRV WILL BE PROVIDED TO THE RECOVERY FORCES. A MAXIMUM TWO HOUR DELAY IN FILM DELIVERY WILL RESULT FROM THESE TESTS.

E. INSTRUMENT PERFORMANCE EVALUATIONS WILL BE CONDUCTED ON THE CR-1 THROUGH CR-4 FLIGHTS USING BOTH BRAINSTORM TARGETS AND CORN TARGETS AS ANALYSIS REFERENCES. THE RESULTS WILL BE USED TO VERIFY J-3 SYSTEM ERROR BUDGETS, AND TO COMPARE J-1 AND J-3 RESULTS.

THE PHASE-IN OF THE IMPROVED CR LENS WITH CR-3 WILL ALLOW FLIGHT VERIFICATION OF ITS PREDICTED PERFORMANCE IMPROVEMENT.

F. THE SYSTEM EXPOSURE CONTROL DEVICE WILL BE TESTED AS A PART OF THE CR-1 THROUGH CR-4 ENGINEERING EVALUATIONS, BUT WILL BE PROGRAMMED PRIMARILY ON THE LAST DAY OF THE MISSION. THE MATERIAL/FILTER TESTS ARE BEING VARIED ON EACH FLIGHT IN ORDER THAT THE FULL CAPABILITIES CAN BE EXAMINED AND ANALYZED BY THE END OF THE CR-4 MISSION.

PAYLOAD	CAMERA	FILM TYPE	FOOTAGE	FILTER
(LAUNCH DATE EST.)				
(A) CR-1	FWD LOOKING CAMERA	3404	16,000	W/23A
(JULY/AUG 67)				W/25
	AFT LOOKING CAMERA	3404	16,000	W/21 W/23A

THE CR-1 FLIGHT WILL BE USED PRIMARILY TO DEMONSTRATE THE RELIABILITY AND OPERATIONAL CONTROL OF THE J-3 EXPOSURE CONTROL DEVICE. IT WILL ALSO PROVIDE DATA NOT HERETOFORE AVAILABLE ON THE OPERATIONAL EFFECTS OF FILTRATION ON TARGET CONTRAST AND IMAGERY INFORMATION CONTENT. THE FILTER OPTIMIZATION STUDY WILL BE CONTINUED ON CR-3 AND CR-4 FLIGHT WITH THE GOAL TO OPTIMIZE ON A SCIENTIFIC BASIS OUR FILTER SELECTION.

(B) CR-2	FWD LOOKING CAMERA	3404	14,000	W/23A
		SO180	1,600	W/15 PLUS

				W/96(1.0)
(OCT 67)	AFT LOOKING CAMERA	3404	15,500	W/21
		S0340	400	NONE

CR-2 IS TO BE THE FIRST ENGINEERING DEMONSTRATION OF THE SPLIT MATERIAL CAPABILITY OF THE J-3 SYSTEM. A SMALL AMOUNT (1600 FT.) OF SO 180 WILL BE SPLICED ON TO THE END OF ROLL NBR 1 AND ABOUT ONE-QUARTER THAT AMOUNT OF SO 340 WILL BE PROVIDED ON ROLL NBR 2. SO 180 IS THE NEAR INFRARED COLOR FILM, COMMONLY CALLED CAMOUFLAGE DETECTION FILM. EVALUATIONS CONDUCTED ON THE EKIT PROGRAM HAVE DEMONSTRATED ITS COMPATIBILITY WITH THE CORONA CAMERA. TEST RESULTS HAVE INDICATED THAT POTENTIAL MAY EXIST FOR THIS FILM IN AGRICULTURAL, INDUSTRIAL, AND MINERALOGICAL ANALYSIS. A DETAILED POST FLIGHT REPORT ON ITS USE IN CR-2 WILL BE PREPARED BY [redacted] AND [redacted] S0340 IS A HIGH SPEED BLACK AND WHITE FILM THAT WILL BE USED FOR AN EXPERIMENT IN SATELLITE NIGHT PHOTOGRAPHY. A TEST AT OPERATIONAL ALTITUDES IS DESIRABLE TO VERIFY THE ANALYSIS IN EKIT REPORT NUMBER 6. THE TEST WITH S0340 WILL ALSO BE EXTREMELY VALUABLE AS AN INFLIGHT SYSTEM LIGHT LEAK ENGINEERING EVALUATION. THE NIGHT PHOTOGRAPHY WILL BE PRIMARILY MONO, SINCE, IN ANALYSIS, IT IS USED COMPARATIVELY WITH DAY MATERIALS.

(C)	CR-3	FWD LOOKING CAMERA	3404	15,000	W/25 (GLASS)
(FEB 68)			S0380	1,500	POLARIZER
		AFT LOOKING CAMERA	3404	15,000	W/21
			S0380	1,500	W/25

S0380 IS 3404 EMULSION ON ULTRA THIN BASE (UTB). ONE OF THE DESIGN GOALS OF THE J-3 PROGRAM WAS TO DEVELOP A SYSTEM CAPABLE OF HANDLING UTB. BY THE FLIGHT OF CR-3, WE BELIEVE WE WILL HAVE SUFFICIENT GROUND TEST DATA TO WARRANT A FLIGHT TEST WITH UTB. THE CR-3 FORWARD LOOKING CAMERA WILL BE TESTED WITH A POLARIZER IN AN ATTEMPT TO IMPROVE MIDWINTER PHOTOGRAPHY AT THE EXTREME NORTHERN LATITUDES. TEST RESULTS ON THE EKIT PROGRAM (EKIT TEST TEN) HAVE INDICATED NO DISCERNIBLE LOSS IN RESOLUTION THROUGH USE OF THE POLARIZER. THE AFT LOOKING CAMERA WILL BE USED IN THE FILTER OPTIMIZATION STUDY.

(D) CR-4	FWD LOOKING CAMERA	3404	14,500	W/25
(MAY 68)		S0230	1,500	W/44A PLUS 2E (GLASS)
	AFT LOOKING CAMERA	3404	15,000	W/21
		S0230	1,000	W/16

THE EVALUATION PROGRAMMED FOR CR-4 INVOLVES USE OF A NEW HIGHER SPEED, HIGH RESOLUTION BLACK AND WHITE FILM WHICH IS BEING MARKETED BY [redacted] (S0230). IF THE RESOLUTION OF THIS FILM APPROACHES THAT OF 3404 THE OPERATIONAL PHOTOGRAPHY OF BOTH THE J-1 AND J-3 SYSTEMS CAN BE IMPROVED THROUGH ITS USE. A COMPLETE LABORATORY TEST OF S0230 (EKIT TEST 15) WILL PRECEDE THE CR-4 FLIGHT. THE FORWARD LOOKING CAMERA FILTER DEVICE ON CR-4 WILL BE PROGRAMMED FOR A BI-COLOR EVALUATION, I.E., THE REPRODUCTION OF COLOR IMAGERY THROUGH THE PROPER FILTRATION OF THE BLACK AND WHITE NEGATIVES (SEE EKIT TEST PLAN 2). IF BI-COLOR REPRODUCTION WITH

THE CORONA PANORAMIC CAMERA PROVES SUCCESSFUL, COLOR PHOTOGRAPHY CAN BE SELECTIVELY PRODUCED ON J-3 WITHOUT SPECIAL FILM LOADING, AND WITHOUT LOSS IN RESOLUTION. THE AFT LOOKING CAMERA FILTER DEVICE WILL BE USED FOR THE FILTER OPTIMIZATION STUDIES.

2. A FINAL TEST AND ANALYSIS PLAN FOR EACH OF THE FOUR CR FLIGHT SYSTEMS WILL BE DISTRIBUTED AT R-9 DAY WHEN THE SYSTEM IS RELEASED FOR FLIGHT PREPARATIONS. THE DETAILED TEST AND ANALYSIS PLAN WILL DELINEATE RESPONSIBILITIES FOR ANALYSIS AND PROVIDE DIRECTION FOR DISTRIBUTION OF TEST MATERIALS.