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[redacted] NATIONAL RECONNAISSANCE

PROGRAM STATUS

7 December 1962

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[redacted] SUMMARY OF SATELLITE RECONNAISSANCE PROGRAM

1. CORONA-M - 162

The CORONA-Mural project is an extended version of the CORONA effort, consisting of two CORONA 24" focal length f3.5 panoramic cameras mounted at a 30° convergent angle for stereo. Capacity of each camera is 7800 feet of 70 mm thin-base film, covering 4.5 million square miles per flight. In addition, a 1.5" focal length framing camera and 55 mm Stellar camera is included, to enhance the use of the panoramic photography. The system utilizes the THOR/Agena vehicle and the recovery method is the same as previously used in the single-camera CORONA flights.

To date, there have been 16 CORONA-Mural launches, 14 of which have resulted in the successful recovery of the payload. Since 28 September 1962, four launches have been accomplished and all have been successful.

In addition to the 5 CORONA-Mural vehicles presently scheduled for flight (see schedule on last page), there are now 11 CORONA-J vehicles scheduled for next year. The CORONA-J is a CORONA system modified to have two complete recovery systems. These will provide double the present capacity and will result in a 7-day active life. A total of 30 days can elapse (130 nm perigee decaying to a minimum of 80 nm) between launch and recovery of the

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second capsule. The first operation will be for 4 days. Subsequent to the first recovery, the orbiting vehicle will be spun up and infrequent TLM readings will be taken to determine status. Ephemeris will be maintained by SPADATS. The second operation will be for 3 days with the same recovery procedures for recovery of the second operation. The first CORONA-J system is planned May 1963. It will be booster by the THOR, augmented by 3 solid rocket boosters, and referred to as the thrust augmented THOR or TAT. CORONA-M will be interchangeable with CORONA-J.

A special effort is being made to accelerate the availability of the CORONA components and to make all the vehicles using the THOR interchangeable so that we can have the maximum amount of scheduling flexibility. This will permit us to launch as many as three CORONAS in one month if needed to meet any special requirements or emergencies.

2. LANYARD

This project was initiated in May 1962 in order to obtain photography at an early date with resolution betwee[redacted] and CORONA-M. The system consists of a greatly simplified version of the discontinued 101B (E-5)

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project, using the same 66" focal length optical system and some of the camera hardware already produced. The recovery system is the same as that used for CORONA-M. The launch vehicle is a thrust assisted THOR/Agena. The vehicle will have a 4-day life and should produce photography with a ground resolution of from 4.5 to 5.5 feet at altitudes of 110-130 nm. Dynamic payload tests recently completed in an altitude chamber have demonstrated a resolution of 80-85 lines per mm.

The 5 LANYARD payloads will be interchangeable with the additional CORONA-M and ARGON payloads which are available, affording considerable flexibility.

3. ARGON

ARGON is a photographic project for geodetic and mapping purposes. It consists of a 3" focal length frame-type terrain camera of high geometric fidelity, supplemented by a 3" focal length stellar camera, both recording images on a single roll of 5" film. The terrain camera capacity is 6000 photographs (235x235 nm format) covering 166 million square miles in a 4-day mission. Stereo is provided by overlap in the photographs. Expected positional accuracy obtainable from this photography (alone) is 750 feet, and

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expected contour accuracy is 1500 feet. The same basic THOR/Agena vehicle and recovery system is used for ARGON as for CORONA.

Mission 9046 was launched on 13 October. It performed and was recovered successfully.

The last ARGON scheduled for this year was deferred until next spring because it could not have been launched until mid-November and by this date the sun angle and snow coverage in the target areas precluded useful data.

4. 722 (698BJ-201/E-6)

Project 722 is a photographic area coverage system designed for 8-10 feet resolution. The sensor consists of two 36" focal length f/4 panoramic cameras with a 23.4 degree stereo angle. Development was initiated in October 1960. The system will obtain 14,000,000 square nautical miles of coverage during a 5-day mission of which 9,000,000 square nautical miles will be non-redundant.

The fifth flight test vehicle was launched 11 November. The system, including the payload, operated properly throughout the launch, injection, orbital, and deboost phases of the mission with the exception that there was not a positive indication of hatch cut during injection. The re-entry phase of the mission was not successful. High temperatures were observed on the inside of the

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vehicle along the aft half of the bottom section and on the corresponding section of the aft bulkhead. All other temperatures, inside and out, were nominal. The recovery sequence actuated early, probably due to a heat induced firing of the deceleration parachute drogue slug. The vehicle impacted at a time corresponding to a drag force equivalent to a reefed main chute, probably indicating tearing of the chutes due to deployment at excess speed.

As compared to Vehicle Number 4, this vehicle was much better instrumented and considerable data were obtained. The analyses of these data are not yet completed but indications are that a hole was opened in the aft end of the ablative shell in some manner. This could have been caused by a breech plug or a sink plug being exposed, an outside temperature or pressure sensor causing a crack in the shell, or by a bond and/or shell failure induced by the separation shock.

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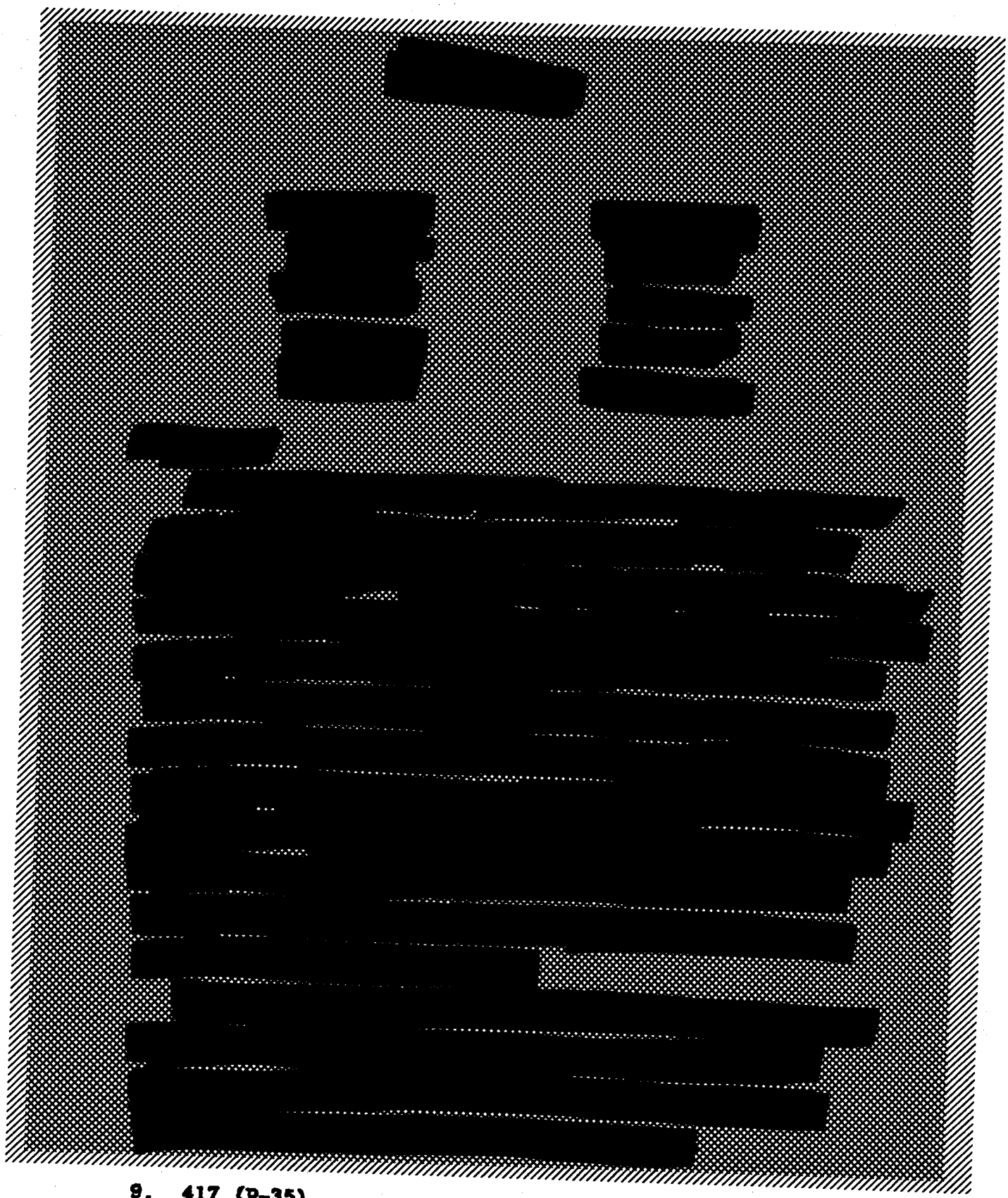

9. 417 (P-35)

Project 417 is a small weather satellite that provides daily cloud cover information of the area of interest in

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direct support of the forecasting activities which support the satellite reconnaissance program. The 417 space vehicle weighs 100 pounds, and is spin stabilized in a 400-mile orbit. Through magnetic tape recording of a video image, vertical cloud cover pictures of about one-mile resolution will be provided to read-out stations at Vandenberg AFB and New Boston, N.H.

The first successful launch was accomplished 23 August 1962. All systems operated normally, and the 417 payload achieved an excellent orbit with apogee of 463 nm and perigee of 340 nm. All satellite subsystems have been operating satisfactorily since the launch. As of 5 December 1962 after 103 days on orbit, 5500 pictures have been received. 3820 of these (70%) have been useable and have been incorporated into daily operational forecasts prepared by the Global Weather Central, in direct support of the satellite reconnaissance activities. Present indications are that the satellite can continue to provide useful information through about mid-January 1963.

The third 417 vehicle is ready for launch and will be launched when the payload presently on orbit fails.

An emergency direct readout station was set up at Eglin AFB on 28 October to support the Cuban operation.

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A van mounted mobile station is being built that will permit direct readout from any location to meet such emergencies in the future.

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LAUNCH SCHEDULE As of 6 Dec 62

PHOTOGRAPHIC

		1962 O	N	D	1963 J	F	M	A	M	J	J	A	S	O	N	D	1964 J	F	M	A	M	J	J	A	S	O
CORONA M	10-15' resolution general search			1	1	1	1	1																		
J	10-15' resolution general search								1	1	2	[illegible]	1	2	1	2	1	2	1	2	1	2	1	2	1	2
L	5' resolution specific coverage					1	1	1	1	1	1		1	1												
ARGON	Geodetic coverage 350' resolution							1		1																
722 (201	10' resolution gross coverage				2																					
[redacted]																										

ELECTRONIC

		O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
315 (102)	High volume search location accuracy - 20-30 nm				1			1	1	1			1		1		1		1	1		1		1		
[redacted]																										

WEATHER

		O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
417 (P-35)	Weather coverage of areas of interest				1			1			1			1			1			1						

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