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BYE-15706-71
as of 31 March 1971

QUARTERLY PROGRAM REVIEW

Overall General Summary

Program Director: Brig Gen W. G. King, Jr.
Vice Director : Col H. D. L'Heureux

1. Quarterly Summary of Operations

a. Project CORONA launched two missions this quarter. Mission #1113 carrying payload CR-13 was destroyed shortly after launch on 17 February following a malfunction. Mission #1114 carrying payload CR-14 was launched successfully on 24 March. The first portion was air recovered on 31 March and initial evaluation shows results comparable to or better than the best of past missions. The second portion is still in progress.

b. Project GAMBIT flew one mission which was successfully launched on 21 January with both capsules air recovered on 29 January and 8 February. The mission's peak resolution was [] or one of the best yet in this series.



c. The following vehicles launched in previous periods were still operating as of 31 March:

<u>VEHICLE</u>	<u>PAYLOAD</u>	<u>PURPOSE</u>	<u>OPERATIONAL LIFE</u>
2736	STRAWMAN	TI/EOB	7 Months
[]			
4419	SAVANT II	Soviet type [] [] collection	18 Months
4422	TIVOLI III	TI on ABM emitters & [] search	13 Months
4421	TRIPOS IV/ SOUSEA III	General search & EOB ABM [] emitters	10 Months

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was supported 60 times between 14 and 21 February 1971. [redacted] was supported once on 12 March 1971 and four times between 13 and 16 March 1971. [redacted] was also supported 10 times by the STRAWMAN II wideband transmitter during the latter part of March 1971. The vehicle power system currently has sufficient power remaining to support future use of the [redacted]

(d) The vehicle's attitude is still being determined by a computer attitude predict program, due to failure of the horizon sensor heads. Although this program is completely passive, it continues to correlate with REAPER calibrations and is the only source for vehicle attitude data.

(2) STRAWMAN III - FV 2736

(a) This vehicle was launched on 26 August 1970 and has exceeded 217 days of operation as of 31 March 1971. The fourth yaw around maneuver was successfully completed on 8 March 1971.

(b) Wideband transmitter #1 failed on Rev 2131, 12 January 1971. Transmitter #2 was selected on Rev 2137, 13 January 1971; normal operation was restored and has continued since that time.

(c) Full amplitude noise was observed on one head on side one of Data Storage Unit (DSU) #1 wideband tape recorder during readouts on Revs 2764, 2771, 2776, 2779 on 23, 24 February 1971. Side two of the recorder was selected on Rev 2782 and normal operation was restored. Side one was read out again on Rev 3013, 11 March 1971 but one head exhibited the same phenomenon. Operation of DSU #1 must be restricted to side two only which provides normal analog data storage except total storage capacity is reduced from 40 minutes to 20 minutes. Due to this reduced capacity, DSU #2 was selected on Rev 3240, 26 March 1971; the full 40 min DSU analog data storage capability was restored and has continued since that time.

(d) THRESHER: The THRESHER payload has been operating in the EOB mode only during this reporting period due to problems previously reported. Tasking of THRESHER has been reduced during periods when the vehicle is in full sun because the temperature of the THRESHER power supply exceeds its specified upper limit. The first occurrence of the high power supply temperature was on 30 January 1971 resulting in vehicle activity being reduced to station acquisitions only between REVs 2394 and 2402. The normal 1300 secs per Rev tasking for THRESHER was reduced to a maximum of 600 secs per Rev between Revs 2425 and

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backup unit; the primary DSU has reduced capacity and the vehicle is presently using the backup unit; THRESHER tasking must be reduced during periods when vehicle is exposed to the sun 100 percent of the time; REAPER outputs digital data words that contain all zeros at infrequent intervals and on several occasions, incorrect digital words were in THRESHER EOB data. These problems could be indicating initial degradation of 2736 vehicle performance.

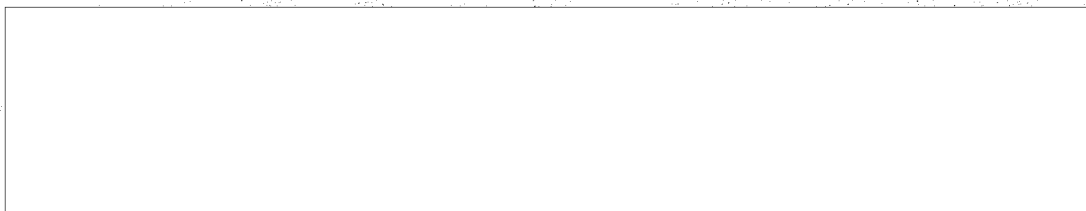
b. Vehicles in Process

(1) STRAWMAN IV - FV 2737

(a) The THRESHER Payload was delivered on 8 January 1971.

(b) The REAPER payload was delivered on 14 January 1971.

(c) The HARVESTER payload was delivered on 13 February 1971.



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(f) STRAWMAN IV started systems testing on 16 January 1971. Two ambient system runs have been successfully completed. It is presently in the Thermal Vacuum Chamber for environmental testing, which is scheduled for completion in early April 1971. If testing is continued from that point, the earliest possible launch date is 3 June 1971. If launch direction is not provided, it can be held at launch minus 45 days to approximately mid-August 1971. At that time, payload recycle will be required followed by additional system testing if the expected reliability and one year vehicle life are to be maintained. If reduced reliability and reduced expected life of the vehicle are acceptable, STRAWMAN IV can be held at launch minus 45 days for an extended period of time.

(2) STRAWMAN V - FV 2738

The FV 2738 vehicle has been terminated and negotiations are in progress

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clean up, corrections to the APTCI logic, software modeling of the 100/90 constraint, and changes to reduce the generation time of Alter and MCS messages.

b. The second test of the software and system capability to support GAMBIT HIGHERBOY missions was successfully completed on 18 Feb 1971. A change to the 'GTERMIN recovery event generator was identified and will be scheduled in a redelivery of 'GTERMIN prior to November 1971.

c. The HEXAGON orbit software contract with TRW provides for a two-phase development. Phase 1 consists of an Initial Operating Capability (IOC) and Phase 2 the Final Operating Capability (FOC). The final IOC incentivized event, the operational demonstration, was completed on schedule, 8 Oct 1970. Since that time, IOC software has been exercised and rehearsed in preparation for the first HEXAGON flight. With regard to Phase 2, the first FOC incentivized event, Milestone 4, was completed on schedule, 5 Feb 1971. The remainder of this reporting quarter has been absorbed with FOC coding and development testing.

d. Operational computer programs developed for Program 770 (EARPOP) STRAWMAN vehicle are on contract with General Electric for development, maintenance, and improvement. The command programs generate payload, station acquisition, and "load logic" commands to support the on-orbit operation of the loadable programmer used by STRAWMAN. These programs also format and check command messages prior to transmission to the vehicle and provide history and post-pass command summaries as inputs to data processing programs.

(1) The Block IV version of this software is presently operationally on line supporting FV #2735 (STRAWMAN #2).

(2) The Block V version is presently operationally on line supporting FV #2736 (STRAWMAN #3).

(3) Development of required changes to the Block V software for support of FV #2737 is in process and was delivered on 22 Jan 1971. This block has been designated as Block VI and is currently in integration testing.

e. The RCASP system of computer programs (command scheduling and history programs) is for operational computer program development and maintenance in support of Program 989. This software

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BYE-15592-72
as of 31 Dec 1971

QUARTERLY PROGRAM REVIEW

Overall General Summary

Program Director:
Vice Director:

Brig Gen Lew Allen, Jr.
Col F. S. Buzard

1. Quarterly Summary of Operations

a. No CORONA missions were flown in this period. As of 31 Dec 1971 two systems were in a reserve status of R-38 or less.

b. The second launch of Project HEXAGON was scheduled for 21 Dec 1971. Technical problems with the booster have now delayed the launch until early January.

c. Project GAMBIT, Mission 4333, was successfully launched on 23 October. Satellite Recovery Vehicles 1 and 2 were air recovered on 3 and 16 Nov. A peak resolution of [redacted] was obtained on the tribar targets--the best ever produced.

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d. Project SIGINT successfully launched POPPY [redacted] on 14 December. The four payloads were ejected as planned.



f. The following vehicles launched in previous periods were still operating as of 31 December:

<u>Vehicle</u>	<u>Payload</u>	<u>Purpose</u>	<u>Operational Life</u>
2736	STRAWMAN III	TI/EOB	16 months (limited operating mode)
2737	STRAWMAN IV	TI/EOB	5½ months



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as of 31 Dec 1971

QUARTERLY PROGRAM REVIEW

Program 770

Program Director: Brig Gen Lew Allen, Jr.
Project Director: Col H. B. Stelling, Jr.

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1. Overviewa. Launches

The Poppy [] booster was successfully launched from Space Launch Complex One, West Pad, on 14 December 1971. The four payloads were ejected as planned.

b. On-Orbit Vehicles(1) STRAWMAN III

(a) STRAWMAN III completed 493 days of operation as of 31 December 1971. This vehicle has been used in the limited operating mode during this quarter because of reduced system power capability. In the limited operating mode all tasking and tracking station acquisitions are accomplished when the vehicle is in daylight.

(b) The Mission 7166 THRESHER payload (125 to 2100 MHz) and the Mission 7235 REAPER payload (1800 to 3300 MHz) continue to operate successfully in the Electronic Order of Battle (EOB) Mode. The REAPER payload is still usable in the Technical Intelligence (TI) Mode but is not being so tasked because of reduced system power capability.

(c) Both payloads have successfully supported three Time Critical Reporting (TCR) missions during this quarter. These missions are: ABSCOND [], PALMWOOD [] and OVERRIDE []

(2) STRAWMAN IV

(a) STRAWMAN IV completed 169 days of operation as of 31 December 1971. The vehicle continued to operate successfully until the redundant analog recorder, Data Storage Unit

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as of 31 Dec 1971

(DSU) #1, failed on 19 November 1971. Since that time the vehicle has been operated in the EOB mode only.

(b) The two primary payloads (REAPER and THRESHER) have complete capability in both modes, EOB and TI. However, the TI mode has not been used since the failure of DSU #1.

(c) The HARVESTER payload (2 to 12 GHz) has a high band (8 to 12 GHz) capability only. There continues to be a mechanical restraint that limits the antenna positive roll excursion to one degree. There are no restrictions in antenna pitch or negative roll. The high band data collected is good using this limited field of view.

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(f) Both primary payloads (REAPER and THRESHER) have successfully supported three TCR missions during this quarter. These missions are: ABSCOND [redacted], PALMWOOD [redacted], and OVERRIDE [redacted].

2. Program Direction

a. STRAWMAN

Program direction increased from \$3.432 to \$3.798 principally because of recognition of Aerospace requirements.

b. POPPY

Program direction increased from \$14.917 to \$15.167 because of increased NRL funding.

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BYE 15929-71
as of 30 Sep 1971

QUARTERLY PROGRAM REVIEW

Overall General Summary

Program Director: Brig Gen Lew Allen, Jr.
Vice Director: Col F. S. Buzard

1. Quarterly Summary of Operations

a. Project CORONA, Mission No. 1115, carrying payload CR-15 and P-989 Vehicle No. 4427 (ARROYO), was successfully launched on 10 September. Both capsules were recovered in the air on 17 and 29 September.

b. Project HEXAGON's first flight was finally completed on 6 August when the vehicle was de-boosted from orbit. The third reentry vehicle was lost on 10 July due to a parachute malfunction. Efforts are now under way by the Navy to try to retrieve it from the ocean. The fourth reentry vehicle was recovered in the air on 16 July.

c. Project GAMBIT, Mission No. 4332, was launched on 12 August after a one-day delay. Both reentry vehicles were successfully air recovered on 22 August and 3 September. This was the first flight of the long tank booster and the R-5 lens.

d. Project EARPOP launched the fourth STRAWMAN vehicle on 16 July. Both the REAPER and THRESHER payloads have operated perfectly while the HARVESTER payload registered two anomalies which limit its effectiveness.

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e. The following vehicles launched in previous periods were still operating as of 30 September:

<u>VEHICLE</u>	<u>PAYLOAD</u>	<u>PURPOSE</u>	<u>OPERATIONAL LIFE</u>
2736	STRAWMAN	TI/EOB	13 Months



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BYE 15929-71
as of 30 Sep 1971

QUARTERLY PROGRAM REVIEW

Program 770

Program Director: Brig Gen Lew Allen, Jr
Project Director: Col H B Stelling, Jr

1. Overview

a. Launches

STRAWMAN IV, Flight Vehicle (FV) 2737, was successfully launched from Space Launch Complex One, West Pad, Vandenberg AFB, California, at 0349 PDT, on 16 July 1971.

b. On-Orbit Vehicles

(1) STRAWMAN II - Flight Vehicle (FV) 2735

STRAWMAN II remained in a caretaker status up to its operational termination on 26 July 1971. After the second battery failed on 26 July, the vehicle was disabled on Revolution 11109 Guam at 2144 PDT, after 725 days of operation.

(2) STRAWMAN III - Flight Vehicle (FV) 2736

(a) STRAWMAN III was placed in a caretaker status on 14 July due to the 2737 launch. It remained in caretaker status until 8 Sep 1971 when it supported U.S. Naval exercises in conjunction with FV 2737. Battery No. 1 ceased generating current to the power system on Revolution 5256 Cook on 5 Aug 1971; however, batteries No. 2 and 3 are sharing the usage load and continue to retain their fully charged state.

(b) The REAPER payload (1800 to 3300 MHz) continues to operate perfectly and has full capability in both the Technical Intelligence (TI) and Electronic Order of Battle (EOB) modes. The THRESHER payload (125 to 2100 MHz) has EOB capability only.

(c) In addition to supporting the Naval exercises, both STRAWMAN III and IV also supported Project Abscond over the [redacted] area from 24 September to 3 October 1971.

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(3) STRAWMAN IV - Flight Vehicle (FV) 2737

(a) STRAWMAN IV was launched on 16 July 1971. All booster phase objectives were achieved with ephemeris data as follows:

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Period..... 94 minutes, 34.1 seconds
 Apogee..... 286.3 NM
 Perigee 270.1 NM
 Eccentricity..... 0.00057
 Inclination..... 74.992 degrees

(b) The two primary payloads (REAPER and THRESHER) continue to operate perfectly demonstrating full EOB and TI capability.

(c) The HARVESTER payload has two major anomalies which limit its operation:

1. The Low Band System (2 to 8 GHz) completely failed. The most probable cause is an "open" between the antenna and the receiver.

2. The High Band System (8 to 12 GHz) intercept data is normal; however, the antenna freedom of movement is restricted due to a short RF cable. The field of view is restricted in the positive roll direction, and the antenna boresight alignment changes with antenna movement. The restricted field of view reduces the number of targets which can be tasked for any given revolution, and the change in boresight alignment has been compensated for by adding bias correction factors into the steering software.

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c. Vehicles in Process

POPPY. The next POPPY Vehicle (2707) has completed its ascent simulation (thermal vacuum) testing and is in a hold period. The primary payloads furnished GFE from the Naval Research Laboratories will be one month late, and the launch was accordingly slipped from 17 November to 14 December 1971.

2. Program Direction

STRAWMAN:

Program direction remained at the initial approval level of \$3.432 million.

POPPY:

Program direction increased from the initial level of \$6.895 million to \$12.106 million because of Vehicle #8 NRL payload requirements.

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corrector configuration, and modify the 'GTERMIN reentry planning program for GAMBIT HIGHERBOY support. Logic revisions also include improved modeling of the minimum frame length constraint and a new capability to eliminate targets based upon predicted weather forecasts. Milestone 8 delivery of Block 11.1D is scheduled for support of Mission 4334.

(4) Prototype Evaluations: Three potentially significant software changes are under evaluation by TRW. These changes, scheduled for completion by 1 December 1971, are:

(a) Selection of first pass candidates by target weight and sub-rev target distribution.

(b) Programming of high priority targets with alternate burst times.

(c) An algorithm which allows stereo interleaving and improved conflict checks.

b. The original HEXAGON orbit software (TUNITY) contract, [redacted] with TRW provided for a two-phase development. Phase I consisted of an Initial Operating Capability (IOC), and Phase 2 consisted of a Final Operating Capability 50X1 (FOC).

(1) IOC software was used to support Mission 1201 and will also be used to support Mission 1202.

(2) The last FOC incentivized event, an Operational Demonstration, was completed ahead of schedule on 31 August 1971. Current plans call for FOC to be: (a) exercised briefly during the inactive solo portion of Mission 1202, (b) exercised and rehearsed between flights, and (c) implemented to support Mission 1203.

(3) A sole source follow-on contract [redacted] with TRW was initiated 17 August 1971. This contract, called "MOD1," provides for continued on-orbit support as well as modification package to enhance TUNITY software. MOD1 is a cost incentivized contract and features two deliveries, March and August 1972. Work to date is on schedule.

c. Operational computer programs developed for Program 770 (EARPOP) STRAWMAN vehicle are on contract with General Electric for development, maintenance and improvement. The command programs generate payload, station acquisition, and the "load logic" commands to support on-orbit operation of the

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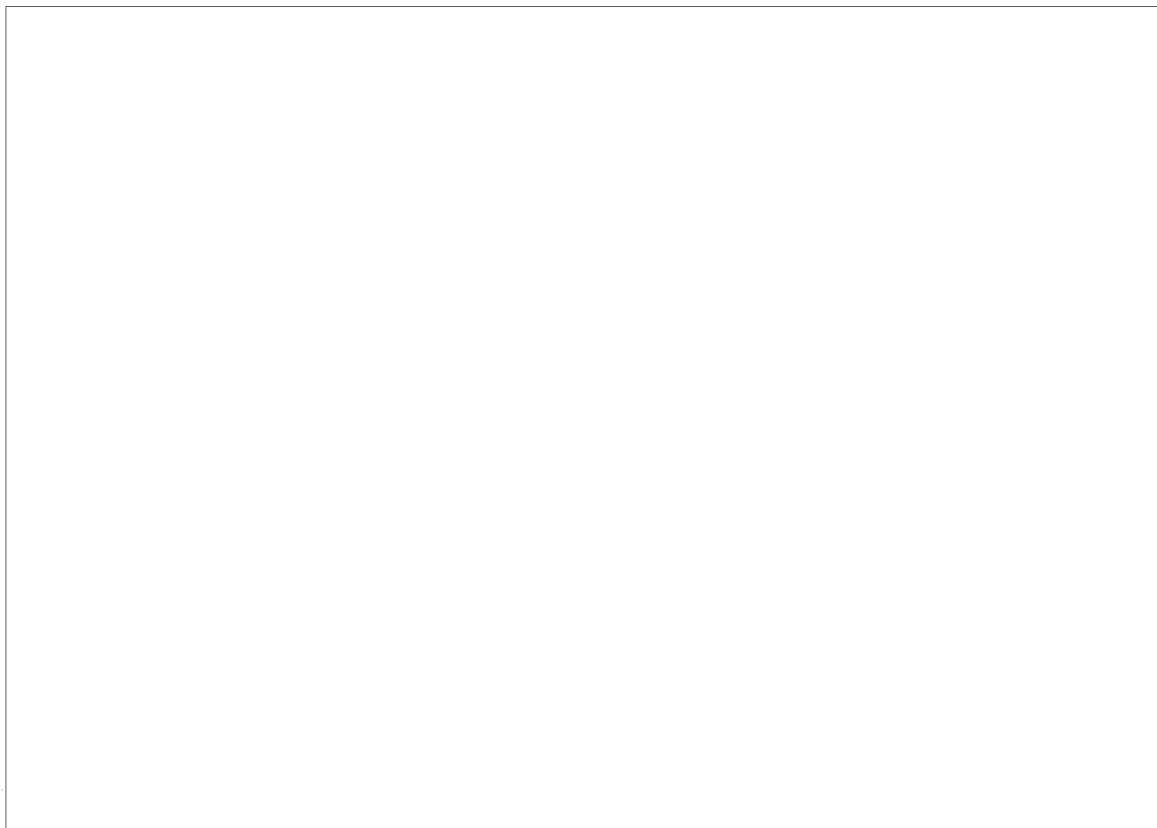
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loadable programmer used by STRAWMAN. These programs also format and check command messages prior to transmission to the vehicle, and provide history and post pass command summaries as inputs to data processing.

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(1) The Block V version is presently operationally on line supporting FV #2736 (STRAWMAN #3).

(2) The Block VI version is presently operationally on line supporting FV #2737 (STRAWMAN #4).



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as of 30 June 1971

QUARTERLY PROGRAM REVIEW

Project 770

Program Director: Brig Gen Lew Allen, Jr.
Project Director: Col H. B. Stelling

1. Overviewa. Launches

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There were no launches during this period.

b. On-Orbit Vehicles(1) STRAWMAN II - Flight Vehicle (FV) 2735

STRAWMAN II continued to remain in a caretaker status.

(2) STRAWMAN III - Flight Vehicle (FV) 2736

FV 2736 contains two primary payloads: THRESHER and REAPER. This is an ELINT mission vehicle designed to operate in two modes: Technical Intelligence (TI) and Electronic Order of Battle (EOB). The vehicle successfully completed its nine month contractual performance incentive phase on 22 May 1971.

(a) THRESHER: Frequency Range: 125 to 2100 MHz. The TI mode was discontinued on 12 December 1970 due to a failed recognizer. The EOB mode was operated throughout this period with the exception of a 15 day span when the thermal limits were exceeded during a high sun period. The EOB mode continued to function properly with no anomalies.

(b) REAPER: Frequency Range: 1800 to 3300 MHz. The REAPER payload has operated in both its primary modes (TI and EOB) within design specification for the entire mission duration. No hardware failures have occurred and the entire payload remains fully operational.

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(c) Both payloads have successfully supported four quick reaction projects during this reporting period: FLAVOR [REDACTED], PENDULUM [REDACTED], ECUMENIC [REDACTED] and LEMONWOOD [REDACTED]. Data from these projects has been collected, processed, and shipped to the user in the respective times as follows:

	<u>AVERAGE TIME</u>	50X1
FLAVOR	- 6 hours	
PENDULUM	- 4 hours, 10 minutes	
ECUMENIC	- 4 hours, 10 minutes	
LEMONWOOD	- 4 hours, 46 minutes	

c. Vehicles in Process

(1) STRAWMAN IV - FLIGHT VEHICLE (FV) 2737

This vehicle contains three primary payloads:

REAPER, THRESHER, and HARVESTER, [REDACTED]

[REDACTED] The REAPER has been modified to provide more precise TI data by doubling the recognition sets. The THRESHER payload is essentially of the same configuration as STRAWMAN III, however, special screening and relay tests were performed as a result of the recognizer failure on STRAWMAN III. The HARVESTER has a steerable antenna system designed to intercept and collect data in the [REDACTED] range on the radars associated with the [REDACTED]

[REDACTED] The STRAWMAN IV ascent vehicle (Agena) was shipped to Vandenberg AFB on 17 June 1971, while the payload vehicle was shipped on 25 June 1971. The Vandenberg AFB checkout program is progressing toward a scheduled launch date of 16 July 1971.

(2) POPPY

The next POPPY vehicle (FV 2707) is progressing satisfactorily towards a November 1971 launch.

2. Program Direction

a. STRAWMAN

The approved program for FY 1971 declined from \$12.912, 31 March 1971, to \$12.362 on 30 June 1971. This was caused by the fact that increases in the BLACK Spacecraft and Payloads

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as of 30 June 1971

line caused by the launch date slip were more than compensated for by related reductions in the Spacecraft WHITE line and in miscellaneous WHITE requirements. In addition, \$830,000 of FY 1971 MADS funding was declared available for use against 1972 MADS costs in the FY 1972 Financial Program.

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b. POPPY

The approved program for POPPY declined from \$12.299 on 21 March 1971 to \$11.117 on 30 June 1971, because of reduced requirements for payload integration and Agena peculiarization.

3. Technical Status - STRAWMAN, POPPYa. On-Orbit Status(1) STRAWMAN II - Flight Vehicle (FV) 2735

(a) FV 2735 was launched on 31 July 1969 and has exceeded 699 days of operation as of 30 June 1971. The twelfth yaw around was successfully completed on 7 June 1971.

(b) No TI or EOB activity occurred during this reporting period. The THRESHER and REAPER payloads were turned off on Rev 5918 (28 August 1970) as previously reported. The spacecraft has remained in caretaker status throughout this reporting period and the telemetry system is read twice daily for state of health determination only.

(d) The vehicle's attitude is still being determined by a computer attitude predict program, due to failure of the horizon sensor heads. Although this program is completely passive, it continues to correlate with REAPER calibrations and is the only source for vehicle attitude data.

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(2) STRAWMAN III - Flight Vehicle (FV) 2736

(a) This vehicle was launched on 26 August 1970 and has exceeded 308 days of operation as of 30 June 1971. The fifth yaw around was successfully completed on 10 May 1971.

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(b) As previously reported, Data Storage Unit (DSU) No. 2 was selected on 26 March 1971. On two occasions (May 5 and May 11) an unusual noise phenomenon was noted in the data from DSU No. 2. In both instances the data was processable and the mission was not impacted. Since that time, DSU No. 2 has been successfully used on both sides 1 and 2. Side 1 of DSU No. 1 continues to exhibit full amplitude noise on one headwheel. We therefore have full storage capability (40 minutes) on one DSU and one half storage (20 minutes) capability on the other.

(c) THRESHER: The payload has been operating in the EOB mode only because of the recognizer failure previously reported. The specified temperature limits of the THRESHER power supply were again exceeded during the last full sun period. For that reason the maximum on time per Rev was reduced from the normal time of 1300 seconds to 1000 seconds on 1 April 1971 and to 600 seconds on 2 April 1971. The maximum of 600 seconds remained until 17 April 1971 when normal tasking was resumed. The EOB mode continues to be operational and geopositioning accuracies for all receiver bands are within specification and are as follows:

<u>Band</u>	<u>Average (NM) Miss Distance</u>	<u>95% (NM) Confidence</u>
2	7.8	14.3
3	12.0	17.6
4	7.9	14.9
5	15.2	24.4

(d) REAPER: As previously reported, on rare occasions a REAPER digital word appears as all zeros. The rate of occurrence is less than 0.1 of 1 percent and apparently occurs when the payload is commanded to the single pulse mode and is over a dense environment. This condition has not affected data processing, and intercept data has not been lost. Geopositioning accuracies for both bands are within specification and are as follows:

	<u>Average (NM) Miss Distance</u>	<u>95% (NM) Confidence</u>
Low Band	2.27	4.39
High Band	2.19	4.44

(e) It has been determined that the incorrect THRESHER digital words which occurred in late March 1971 were caused by a malfunction in one stack (No. 3) of the Core Storage

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Unit (CSU). On 1 April 1971, stack no. 3 was disabled and the problem has not recurred. This action reduced the digital storage capacity by 25%, but has not affected the mission because digital data has not been lost.

(f) A summary of STRAWMAN III status during this reporting period shows no significant changes. The vehicle attitude, power and general health remains excellent. Therefore, continued operation should be possible for the foreseeable future.

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to establish a test program utilizing the MK-9 as a possible replacement for the existing conical extension parachute system which experienced deployment and instability problems during development. Action on the contractor's response to the program office is still pending.

b. Two Program 467 operations were supported by the 307 recovery forces during this quarter. The first operation resulted in water retrieval of the R/C because of excessive parachute damage which prevented an aerial retrieval. The second operation also had parachute damage, but aerial recovery was performed. A team of AF and contractor personnel are investigating the cause of the parachute (main and cone) damage which is suspected to occur during deployment.

6. On-Orbit Operations

a. STRAWMAN

In preparation for the July launch of STRAWMAN No. 4, a development rehearsal of 21 revolutions was conducted on 22 and 23 June 1971. Station training for this launch is progressing on schedule.

b. GAMBIT

A 34 revolution rehearsal was conducted on 13-15 April in preparation for the launch of Mission No. 4331. The launch occurred on 22 April with 385 passes scheduled and supported. The last of the drag measurement system (DMS) experiments was flown on this flight. Electrical power limitations curtailed DMS turn-on to two short rev spans (Revs 290 to 306 and 321 to 331).

c. HEXAGON

A development rehearsal of 80 revolutions was conducted on 18-23 May, followed by a 42 revolution dress rehearsal on 7-10 June. The first HEXAGON launch was made on 15 June.

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as of 30 Jun 1971

QUARTERLY PROGRAM REVIEW

Mission Optimization

Program Director: Erig Gen Lew Allen, Jr.
Project Director: Col K. R. Duncan

OTHER PROJECTS - PART III

1. General

The purpose of this project is to improve and maintain total mission effectiveness through operational analysis, special studies, and improved program capabilities.

2. Program Status

a. Project GAMBIE software has existed in two configurations during this reporting period.

(1) Block 11.1B: This software configuration was used successfully for support of Missions #4330 and #4331.

(2) Block 11.1C: This software configuration will be used to support Mission #4332. It includes selected Block 11.1 updates to maintain a low corrector configuration and milestone documentation. Logic has been implemented which models the 100 roll/90 minute hardware constraint. This will result in both reduced frame eliminations and stereo operations performed with roll motion between frames disallowed. In addition, changes have been implemented to the message bookkeeping and ALTER mode operation which will reduce the frequency of message regenerations and regeneration execution time.

(3) Block 11.1D: Redelivery of selected computer program is scheduled on 6 Aug 1971 to implement corrections to the AP301 logic, maintain the low corrector configuration, and changes to the 'GEMMIN re-entry planning computer program which are required for GAMBIE HIGHEROY support.

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b. The HEXAGON orbit software (TUNITY) contract with TRW provides for a two-phase development. Phase 1 consists of an Initial Operating Capability (IOC), and Phase 2 consists of the Final Operating Capability (FOC). In addition, efforts have been undertaken for a follow-on contract.

(1) The last IOC incentivized milestone, an operational demonstration, was completed 8 Oct 1970 on schedule. Since that time, IOC software has been exercised, rehearsed, and is currently supporting Flight #1201.

(2) The first FOC incentivized event, Milestone 4, occurred on schedule, 5 Feb 1971. Since that date, FOC software has undergone coding, development testing, validation testing, and the beginning of acceptance testing. 50X1

(3) In order to provide continuity in contracts, an RFP has been prepared and forwarded to TRW, which provides for on-orbit support and a TUNITY software enhancement modification package.

c. Operational computer programs developed for Program 770 (EARPOP) STRAWMAN vehicle are on contract with General Electric for development, maintenance, and improvement. The command programs generate payload, station acquisition, and "load logic" commands to support on-orbit operation of the loadable programmer used by STRAWMAN. These programs also format and check command messages prior to transmission to the vehicle, and provide history and post-pass command summaries as inputs to data processing programs.

(1) The Block IV version of this software is presently operationally on line supporting FV #2735 (STRAWMAN #2).

(2) The Block V version is presently operationally on line supporting FV #2736 (STRAWMAN #3).

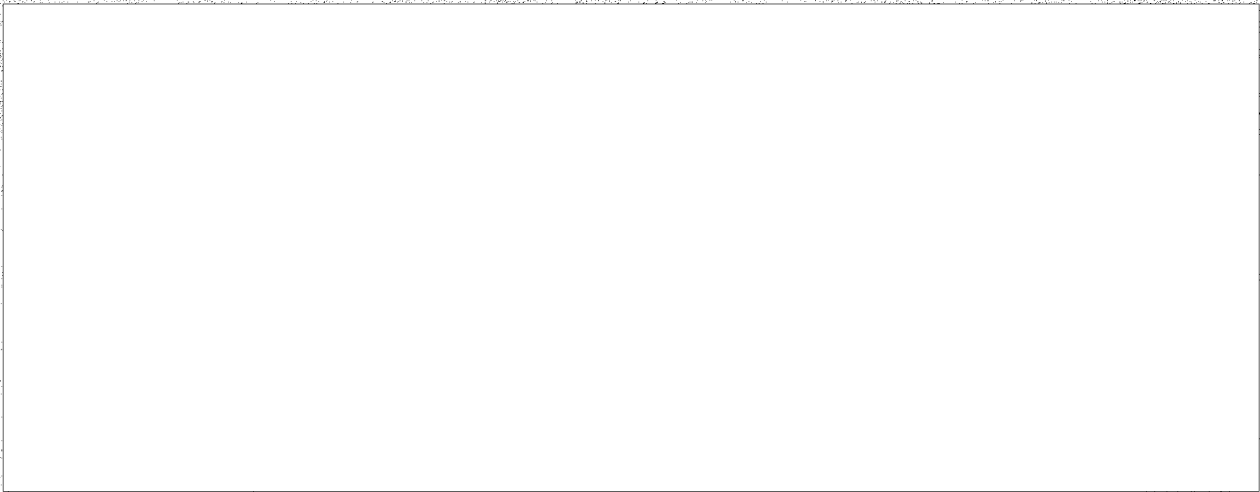
(3) Integration testing was completed on the Block VI version and it was delivered for operational support of FV #2737 (STRAWMAN #4), 9 June 1971. This was the last software development for Program 770.

Handle Via

BYEMAN

~~TOP SECRET~~

BYM-17733-71



50X1

Handle Via
BYEMAN