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. No CORONA missions were flown during this period. As of 31 March 1972 two systems were in a reserve status of R-38 or less. These vehicles are now scheduled for flight in April and May 1972.

b. The second launch of Project HEXAGON occurred 20 January 1972. Reentry capsules were recovered on 26 January and 8, 17, and 28 February 1972.

c. Project GAMBIT, Mission 4334, was successfully launched on 17 March 1972. The first reentry vehicle was air recovered 28 March 1972 with the second one scheduled for 10 April 1972.

[redacted] 25X1

e. Project SIGINT successfully launched a P-11 vehicle on the HEXAGON satellite on 20 January 1972.

f. The following vehicles launched in previous periods were still operating as of 31 March 1972:

Vehicle	Payload	Purpose	Operational Life
2736	STRAWMAN III	TI/EOB	17.6 Months (Terminated 7 Feb 1972)
2737	STRAWMAN IV	TI/EOB	8.5 Months
[redacted]			25X1
4421	TRIPOS IV/ SOUSEA III	General Search & EOB, ABM Pulsed & CW Emitters	22 Months

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QUARTERLY PROGRAM REVIEW

Program 770

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

1. Overview.

a. Launches.

There were no STRAWMAN launches during this quarter.

b. On-Orbit Vehicles.

(1) STRAWMAN 3 (2736).

STRAWMAN 3 operation was terminated 7 February 1972. The last remaining good battery started cycling 30 January 1972; however, the vehicle bus could not support the command programmer, and the vehicle was disabled on Rev. 8110 at Cook, 1635 PST, after completing 531 days of operation.

(2) STRAWMAN 3 (2737).

(a) STRAWMAN 4 completed 248 days of operation as of 21 March 1972. The vehicle continues to operate successfully in the Electronic Order of Battle (EOB) mode. The vehicle has not operated in the Technical Intelligence (TI) mode since 19 November 1971 when the second Data Storage Unit (DSU) failed.

(b) The two primary payloads, Reaper (1800 and 3300 MHz) and Thresher (125 to 2100 MHz), have complete capability in both TI and EOB modes; however, the TI mode has not been used since the failure of DSU #1, but could be reactivated by operating in a real time mode should there be a specific requirement for further fine gain signal analysis. There have been more than 360,000 emitters intercepted by Reaper to date and more than 120,000 by Thresher.

(c) The HARVESTER payload (2 to 12 GHz) has a high band (8 to 12 MHz) capability only. There continues to be a mechanical restraint that limits the antenna positive roll to 4° (instead of plus 30°). There are no restrictions in antenna pitch (73°) or in negative roll (minus 30°). The antenna restriction has not limited the number of

Detailed arrangements concerning accesses, visits, courier support for returning payload and facility turnover will be included in an OPI in coordination with SP-7 and the Agency.

d. [redacted] 25X1

[redacted]

[redacted]

f. Program Number Changes.

The following SIGINT and IR program number changes were effected this quarter:

[redacted] - [redacted] - 770 - [redacted] 25X1

These numbers changed to keep missions associated with numbers obscure. Media and other sources were beginning to speculate too accurately about the associated activity.

BYE-15891-72
as of 30 June 1972

QUARTERLY PROGRAM REVIEW

Program 770

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

1. On-Orbit Vehicles.

a. STRAWMAN 4 (2737). STRAWMAN 4 completed 350 days of operation as of 30 June 1972. The vehicle continues to operate successfully in the Electronic Order of Battle (EOB) mode. The spacecraft has not operated in the Technical Intelligence (TI) mode since 19 November 1971. The vehicle successfully completed the fifth yaw maneuver 31 March and the sixth yaw on Revolution 4868, 30 May 1972. The spacecraft is now orbiting with the minus Z axis forward and the Harvester antennas on the left side of the spacecraft looking forward. During this 60-day sun cycle the spacecraft reached 82° beta on 24 June 1972. Tasking was reduced when the spacecraft reached 60° beta in an attempt to enhance battery life.

c. There were two spacecraft problems during this reporting period:

(1) The No. 1 SGLS transmitter degraded in output, Revolutions 4101 through 4106, and the redundant transmitter was selected on Revolution 4107. There was no mission impact because of this failure, and the SGLS transmitter No. 2 is working satisfactorily.

(2) On Revolution 4986, 7 June 1972, the vehicle lost modulation on the telemetry downlink during a BOSS pass. The problem was isolated to a spurious command getting into the 375 MH_z backup command system, thereby turning off the downlink. On the next pass the telemetry system was turned on and read out. It has since worked satisfactorily.

c. The two primary payloads, Reaper (1800 to 3300 MH_z) and Thresher (125 to 2100 MH_z) have complete capability in both the TI and EOB modes. However, because of the wideband recorder failure, the TI mode is not being utilized. Both primary payloads are operating within specification in the EOB mode, and there have been no major anomalies through 11 months of operation.

d. (1) The Harvester payload (2 to 12 GHz) has only the high band (8 to 12 GHz) capability. There continues to be a mechanical restraint that limits the antenna positive roll to 4° (instead of positive 30°). There are no restrictions in antenna pitch (73°) or in negative roll (30°).

(2) On 11 May, Revolution 4569, the Harvester antenna platform was placed in a fixed position, 54.3° pitch and minus 28.4° roll, to optimize for the general search mode. Subject mode has proven to be successful as well as conserving power.

(3) The STRAWMAN SGLS-AGE was installed in the [redacted] in mid-June to readout in real time the Harvester wideband data. The wideband recorder was placed in the bypass mode and used as a transponder to transmit to the MGS the 8-12 GHz wideband data.

e. [redacted] 25X1

f. There were four time-critical reporting (TCR) missions during this period.

TCR	Area	Date
Millboard	East Germany & Russia	25 Dec - 10 Apr 72
Lute	East Germany	15 Mar - 20 Apr 72
Wineglass	Southeast Asia	3 Apr - still active
Granada	Ocean Surveillance (Sea of Japan, China Sea, Off S/E Asia)	9 May - still active

2. Program Direction.

Program approval decreased from $2.824 million to $2.759 million as follows:

BLACK [redacted] 25X1

Spacecraft	.072
Payloads	(.072)
MADS	(.185)
Mission Planning	.120
Net Change	(.065)

(b) The Block 11.1G configuration implements a minor modification in the TRW frame extension logic to facilitate manual efforts.

(3) Short Range Software Modifications.

(a) Block 1G. General Electric software changes to support Mission 4337 have been completed. General Electric is currently system testing the software changes and is scheduled to deliver the software for 1 Aug 72. Expected operational delivery is scheduled for 23 Sep 72.

(b) Block 1T. TRW changes to support Mission 4337 have been completed. TRW is currently completing system test of the software and is scheduled to deliver the software on 1 Aug 72. Expected operational delivery is scheduled for 23 Sep 72.

(4) Long Range Software Modifications.

(a) An RFQ was issued to TRW and General Electric in June for development of a new software configuration to support hardware changes on GAMBIT Vehicle 42. Expected effective date of the development contracts is 1 Oct 72.

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

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

c. The Planning Research Corporation commanding and scheduling software program (RCASP), developed for operational support of Program 989, is on contract for modification and maintenance. RCASP performs mission planning by resolving vehicle-to-vehicle

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QUARTERLY PROGRAM REVIEW

Overall General Summary

25X1

Program Director: Maj Gen Lew Allen, Jr.
Vice Director: Colonel F. S. Buzard

1. Quarterly Summary of Operations.

a. HEXAGON Mission 1203 was launched successfully 7 July with aerial recoveries made as follows: 15 and 29 July, 12 August, and 2 September. Deboost was accomplished 13 September or 69 days after launch.

b. GAMBIT Mission 4336 was launched 1 September after a 3-day delay on the pad. Both reentry vehicles were air recovered 15 and 28 September. The best CORN ground resolution observed by the "Quick-Look" team was [redacted]

c. Project SIGINT launched a P-11 satellite (URSALA 1) on HEXAGON Mission 1203 on 7 July. Spin-up, orbital transfer, injection into final orbit, and antenna deployment were executed successfully. No anomalies have appeared.

d. The following non-photo vehicles launched in previous periods were still operating as of 30 Sep 1972:

Vehicle No.	Name	Purpose	Operational Life
2737	STRAWMAN 4	TI/EOB	14.5 Months
[redacted]			
4421	TRIPOS IV/ SOUSEA III	General Search and EOB, ABM [redacted] Emitters	28.0 Months
4423	TOPHAT 1	Map and copy [redacted]	22.0 Months
4424	MABELI	[redacted] measurements on Soviet ABM Radars	8.0 Months

25X1

Handle Via
BYEMAN
Control System Only

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QUARTERLY PROGRAM REVIEW

Project STRAWMAN

Program Director: Maj Gen Lew Allen, Jr.
Project Director: Col Jack Simonton

1. On-Orbit Vehicles.

a. STRAWMAN 4 (2737). STRAWMAN 4 completed 442 days of operation as of 30 Sep 1972. The vehicle continues to operate successfully in the Electronic Order of Battle (EOB) mode. The basic Technical Intelligence (TI) mode was discontinued 19 Nov 1971 due to an intermittent hold-on condition in the wideband recorder which was potentially dangerous to long life of the batteries. However, the TI mode has been used in a limited manner since 26 Jun 1972 to make real-time readouts to the [redacted] In January 1972 a daylight operating mode was adopted to enhance battery life and potentially extend operation well beyond the normal one-year life. Only Time-Critical Reporting missions are tasked, and readout is accomplished during dark periods. The vehicle completed the seventh yaw maneuver on 1 Aug 1972 and has since orbited with the plus Z axis forward. The next yaw maneuver is scheduled for 2 Oct 1972.

b. There were no spacecraft problems during this reporting period.

c. The two primary payloads, Thresher (125 to 2100 MHz) and Reaper (1800 to 3300 MHz) have complete capability in both the EOB and TI modes. Because of the wideband recorder failure, the normal TI mode is not being utilized. However, the Thresher payload has been tasked in the TI mode over [redacted] with direct readout to the [redacted] 25X1

d. The Harvester payload (2 to 12 GHz) has only the high band (8 to 12 GHz) capability, and there continues to be a mechanical restraint that limits the antenna in positive roll to 4°. Within these limits the payload has been tasked normally in the EOB mode and in the TI mode over [redacted] with direct readout to the [redacted]

e. [redacted]

f. Time-Critical Reporting missions are still being tasked but require no special handling at [redacted] since all types of EOB data are now processed and transmitted within 10 hours of intercept.

Handle Via
BYEMAN
Control System Only

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BYE-15606-73
as of 31 Dec 1972

QUARTERLY PROGRAM REVIEW

Overall General Summary

Program Director: Maj Gen Lew Allen, Jr.
Vice Director: Colonel Davis P. Parrish

1. Quarterly Summary of Operations

a. HEXAGON Mission 1204 was launched 10 October with aerial recoveries made as follows: 21 Oct, 5 & 23 Nov, and 17 Dec. Deboost is planned for 8 January after 93 days total time on orbit.

b. GAMBIT Mission 4337 was launched 21 Dec after a 1-day delay. Recovery events are planned for 5 & 22 January.

c. [redacted] 25X1

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

Vehicle Number	Name	(Months) Operational Life
2737	STRAWMAN	17.5
[redacted]		
4421	TRIPOS IV/ SOUSEA III	31.0
4423	TOPHAT I	25.0
4424	MABELI	11.0
4425	URSALA I	5.7

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QUARTERLY PROGRAM REVIEW

Project STRAWMAN

Program Director: Maj Gen Lew Allen, Jr.
Project Director: Col Jack Simonton

25X1

1. On-Orbit Vehicles

a. STRAWMAN 4 (2737). STRAWMAN 4 completed 534 days of operation as of 31 December 1972. The vehicle continues to operate successfully in the Electronic Order of Battle (EOB) mode, but the Technical Intelligence (TI) mode was discontinued on 19 November 1971 as a result of losing the second wideband recorder. However, the TI mode was used in a limited manner by real time readouts to the [redacted] 26 July to 20 Dec 1972. This operation was discontinued 20 Dec 1972 [redacted] The normal, daylight only, operating mode continues to function successfully, with Time Critical Reporting (TCR) missions limited to a maximum depth of discharge of 6 AMP-hr/rev. The spacecraft successfully completed the ninth yaw maneuver on 29 November, and the next one is scheduled for 29 January.

b. There were no major spacecraft problems during this reporting period. The charge controllers were cycling in early December due to solar array output versus minimum power usage. The redundant set of charge controllers were selected on 14 December; better charge/discharge balance was achieved, and the problem was resolved.

c. The two primary payloads, Thresher (125 to 2100 MHz) and Reaper (1800 to 3300 MHz) continue to operate successfully in the EOB mode.

d. The Harvester payload (2 to 12 GHz) has only the 8 to 12 GHz high band capability and remains limited to positive 4° roll. However, the EOB mode within this limited range operates successfully.

[redacted]

25X1

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(b) Block 2 is currently undergoing Critical Design Review in all functional areas. Delivery to operational personnel is scheduled for 1 Nov 73.

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

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

c. The commanding and scheduling software program (RCASP), developed for operational support of Program 989 (EARPOP) is on contract with Planning Research Corporation for modification and maintenance. RCASP performs mission planning by resolving vehicle-to-vehicle conflicts and scheduling read-in of data in priority order to maximize vehicle capabilities. Tasking history is maintained to aid target environment analysis. 25X1

(1) The Block 7D version of this software system is presently supporting all on-orbit 989 vehicles. This block incorporated operations oriented changes to improve program interfaces and augment user capabilities.

(2) The Block 7E version is in the initia coding process. This block contains a precision spin axis determination program and new system output changes in support of direct NSA payload processing. This Block will be on-line mid-April 73 and be used to support all 989 vehicles. A number of long term system optimization study items will be the basis for Block 7E with others being programmed as prototype concepts as the study continues.

d. The HEXAGON software follow-on contract with TRW, [redacted] provides for maintenance of the MOD1B and MOD1BR configurations and development of a new software package, MOD2.