

USAF REVIEW COMPLETED

8949-68  
Copy 8 of 13  
16 APR 1968

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NRO REVIEW COMPLETED

MEMORANDUM FOR: Director, CIA Reconnaissance Programs  
SUBJECT: Program Progress Report

Forwarded herewith are Program Progress Reports  
(5 copies each) for OXCART and IDEALIST for the period  
1 January 1968 - 31 March 1968.

SIGNED

PAUL N. BACALIS  
Brigadier General, USAF  
Director of Special Activities

Attachments -  
As stated

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GROUP 1  
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SAS/O/OSA,  (10 April 1968)

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OXCART

DEVELOPMENT SUMMARY AND PROGRESS

(1 January 1968 - 31 March 1968)

I. AIRFRAME

An A-12 Flight Handbook performance meeting, convened by Operations, was attended at LAC, Burbank to review the latest revisions. The revised data included non-standard day performance, high-altitude turn technique and a proposed revised format for mission profiles.

II. PROPULSION

Aircraft 127 experienced an engine compressor stall problem at 20,000 feet during a rapid descent on 27 February at Kadena. The stall problem could not be cleared and the aircraft landed with the left engine in a stalled condition. The engine involved (S/N 229) was immediately returned [ ] for flight investigation in Aircraft 121. The objectives of these flight tests included duplication of the problem experienced in Aircraft 127 and investigation of possible techniques to be used by the pilot for clearing such stalls if the problem is encountered in flight. Four flights in Aircraft 121 failed to duplicate the problem and another engine (S/N 221) which had exhibited similar stall characteristics has replaced S/N 229 in Aircraft 121 in another effort to duplicate and investigate the problem in flight.

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III. PAYLOAD

During this quarterly period a total of 41 camera missions were flown.

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a. Type I - Twenty-eight (28) camera flights were made. Six (6) of these were operational missions and all were successful. There were no failures during any of the twenty-two (22) non-operational missions.

b. Type IV - Thirteen (13) missions, all non-operational, were flown during this quarter. There was one failure. SN-3 malfunctioned twenty seconds after turn-on. Inspection revealed gears in planetary drive motor froze due to defective seal which caused loss of lubrication.

c. Final missions for low sun tests were completed late in March. The data is now at Perkin Elmer for analysis. Altitude calibration tests utilizing Type IV were completed. Tests using Type I are being initiated.

d. New Type I exposure tables committed to operational use.

e. A study by [redacted] was completed and received by SSD/R&D/OSA. The data is currently being utilized.

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IV. AIRCRAFT FLIGHT TEST AND OPERATIONAL TRAINING SUMMARY\*  
(January, February, March 1968)

<u>Acft</u>	<u>Flights J-F-M</u>	<u>Time J-F-M</u>	<u>Total Flights</u>	<u>Total Time</u>
121	13	29:53	319	414:23
122	-	-	162	177:51
123	-	-	78	136:10
124	13	20:15	598	1051:15

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<u>Acft</u>	<u>Flights</u> <u>J-F-M</u>	<u>Time</u> <u>J-F-M</u>	<u>Total</u> <u>Flights</u>	<u>Total</u> <u>Time</u>
125	-	-	203	334:55
126	-	-	104	169:16
127	15	35:15	250	476:05
128	13	27:00	227	443:45
129	12	22:05	261	394:10
130	9	16:45	206	381:15
131	13	30:10	168	322:40
132	12	32:40	185	345:15
133	-	-	9	8:17
Totals	100	214:03	2770	4655:18

\*Includes Ferry Flights and Operational Missions

V. LIFE SUPPORT

During this period no major life support development activities occurred. Modification kits for each pilot's pressure suit were delivered during this period which will provide various flotation improvements developed in the past. Included in the modifications are pressure relief valves for protection against inadvertent inflation at altitude, provisions for using the LAC provided, water activated, automatic inflator, drain provisions for coveralls legs and pockets, and relocation of the inflator for easy access of lanyard with either hand. Flame resistant cloth boots (NOMEX H-T) were delivered for each pilot's pressure suit for use with the canvas tropical boots being used on BLACK SHIELD flights. New ejection seat headrests with improved man/seat separators were installed by service bulletin during this period. This development was conducted during the preceding calendar year by LAC. New life raft delivery was accomplished during this period after a long delay due to inability of the contractor to procure adequate materials. A one day familiarization visit to the Kadena facility was made by [ ] during this period.

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OXCART

OPERATIONAL SUMMARY AND PROGRESS  
(1 January 1968 - 31 March 1968)

I. OVERFLIGHT SUMMARY (PINWHEEL)

Six A-12 overflight missions were flown during this period. All missions were launched and recovered from Kadena Air Base, Okinawa. The following is a brief resume of each mission.

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a. [redacted] against North Vietnam targets in the north central area. Total flight time was 3:57. [redacted]

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Eight of the nine priority SSM targets were covered.

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b. [redacted] against North Vietnam targets in the north eastern and north central areas. Total flight time was 4:09. [redacted] A

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total of 182 SAM sites covered; 16 occupied; one new site identified. Seven of the nine priority SSM targets were covered.

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c. [redacted] and accomplished three passes over North Korea. Total flight time was 4:00. [redacted]

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[redacted] A total of 13 SAM sites covered; 12 occupied. Good coverage was obtained of both North Korean and ROK military installations/forces, activity along the DMZ and large portions of the transportation system and industrial base. The U.S.S. Pueblo was located anchored in an inlet in Wonsan Bay. Overall photographic quality was excellent and 90 percent of the areas covered were cloud-free.

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d. [redacted] against North Vietnam targets in the north central area with one pass over the DMZ. Total flight time was 3:54. [redacted]

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[redacted] No target coverage was obtained due to 95 percent cloud cover in area of interest.

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e. [redacted] and accomplished two passes over North Korea. Total flight time was 3:39. The mission obtained good coverage of the southern two-fifths of North Korea. Haze and snow cover hampered interpretation in the mountainous area. [redacted]

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[redacted] A total of 11 SAM sites covered; 8 occupied; 2 for identification only. Eighty-eight bonus targets were covered. One SSM target was covered. Four new SAM sites were uncovered on this mission bringing new North Korea total SAMs to eighteen.

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f. [redacted] against targets of interest in the DMZ area, North Vietnam and the Cambodian/Laotian border of South Vietnam. Total flight time was 4:01.

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[redacted] Portions of Laos, Cambodia and the South Vietnamese-Cambodian border were covered on cloud-free photography. Nine bonus targets were obtained in Laos and four bonus targets were obtained in Cambodia. No useable photography of North Vietnam was obtained due to cloud cover. This mission was designed and flown primarily to obtain coverage of the high interest area around the DMZ and Khe Sanh.

II. PILOT AND A-12 AIRCRAFT LOCATIONS

Pilots	U.S. [redacted]	Okinawa, Kadena AB
A-12 Aircraft	4	2
	5*	3
*Includes trainers (#124) and one flight test aircraft (#121) plus aircraft 130 which was placed in storage [redacted] on 26 February 1968.		

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III. OTHER ASSOCIATED OPERATIONAL ACTIVITIES

a. SAC/SR-71 Take Over of North Vietnam Coverage:

Three SAC/SR-71 aircraft deployed to Kadena Air Base, Okinawa on 9, 11 and 13 March 1968. Primary responsibility for surveillance of North Vietnam was assumed by the SR-71's effective 0001Z/15 March 1968. Per DNRO decision, OXCART Deployed Task Force will remain at Kadena a minimum of thirty days and redeploy upon direction by higher authority. While co-located at Kadena with the SR-71 Task Force, OXCART will maintain capability to generate/execute operational mission(s) if directed to do so.

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IDEALIST

DEVELOPMENT SUMMARY AND PROGRESS

(1 January 1968 - 31 March 1968)

I. AIRFRAME

a. The second U-2R development status and technical meeting was held at LAC, Burbank, on 1 February. Design changes in the hydraulic system and in the emergency brake system were reviewed. Instrumented flight data indicated excellent agreement between predicted and actual maximum power range factors and altitudes.

b. U-2R Delivery Schedule - Aircraft Nos. 3 and 4 were delivered to Edwards Air Force Base during the period. Aircraft No. 3 was delivered on 12 January and performed its first flight on 17 February 1968. Aircraft No. 4 was delivered on 13 February and flew for the first time on 29 March 1968. Acceptance of the aircraft by the Detachment has been delayed pending resolution of the propulsion system ejector problem.

c. U-2R Flight Test Summary (thru 31 March 1968)

<u>AIRCRAFT</u>	<u>TOTAL FLIGHTS</u>	<u>TOTAL HOURS</u>
1	50	161:37
2	18	57:13
3	6	12:18
4	<u>2</u>	<u>1:11</u>
	76	232:19

d. U-2R Milestones

1. Maximum Altitude
2. Maximum Duration
3. Maximum Take-Off  
Gross Weight



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II. PROPULSION

The flight test program for the U-2R aircraft has been delayed by problems encountered with the ejector type exhaust nozzle which involves serious unaxisymmetric thrust components on take-off, and high noise levels during ground running. The problem appears to be caused by flow separation in the diverging portion of the ejector, and attachment of the primary (tailpipe) flow on the ejector wall. Both the unaxisymmetric thrust and noise problems appear to be affected by very slight variations in tailpipe/ejector geometry and the amount and distribution of secondary airflow in the ejector. A number of schemes have been tested to date in an attempt to solve the problem. These have included cut and try modifications as well as efforts to remedy the problems through some understanding of the aerodynamics involved.

III. PAYLOAD

On 20 March 1968 a successful flight test of the B-2 camera S/N 229 was conducted in the U-2R vehicle 052. Flight altitude for the test was [redacted] Photographic coverage was obtained of the Edwards target range, Los Angeles, San Diego and Phoenix. The best measured resolution was

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[redacted] Quality of the photography was consistently better than previously demonstrated in the "C" vehicle. The improved photographic quality is attributed to better stability of the U-2R vehicle, higher quality window glass, improved vibration isolator mounts on camera, and clear haze free weather in the target area(s) at the time of the test.

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IV. LIFE SUPPORT

a. U-2C

1. Q-445 Seat Kit - An accidental disconnect of the pilot's oxygen leads from his seat kit during taxi-out

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occurred in January and has led to major meetings between ASD/R&D (Life Support), Detachment G personnel and Seat Kit contractors (LAC [redacted]). The immediate fix required was a one time inspection and updating of all Q-445 seat kits and a tightening of IRAN procedures and Quality Control inspections by the contractors involved. This was accomplished on all kits immediately after the incident and the subsequent discovery of the basic problem by Detachment G personnel. Because of the incident, the ECP for an improved Q-445 seat kit previously requested from LAC has been delayed. Agreements were reached during this period regarding the improvements required for improved safety, reliability, and protection. The new ECP is expected to be received shortly.

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2. Partial Pressure Suit Modifications - If the Q-445 seat kit is modified to provide redundancy of oxygen supply (i.e., separate ship supply and emergency supply hoses), the P.P.S. will require additional oxygen hose attachments and check valves. An engineering study was initiated during this period to determine the exact requirements for such P.P.S. modifications.

3. Flame Resistant (NOMEX H-T) Coveralls - NOMEX coveralls for all IDEALIST pilots were delivered during this period.

4. Training - [redacted] initiated training of Detachment G Personal Equipment technicians and technical representatives in the operation of the one man altitude chamber installed in the Freuhauf maintenance van during this period. [redacted] received partial pressure suit indoctrination from [redacted] in this chamber during this reporting period.

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b. U-2R

1. S-1010 PPA: Three project pilots and the project test pilot received S-1010 Pilot Protective Assembly fittings and altitude chamber indoctrinations from [redacted] during this period. The fittings were very successful, and the pilot acceptance and evaluation of the new equipment has been very satisfactory. The production of S-1010 PPAs has proceeded smoothly and no major problems have been encountered.

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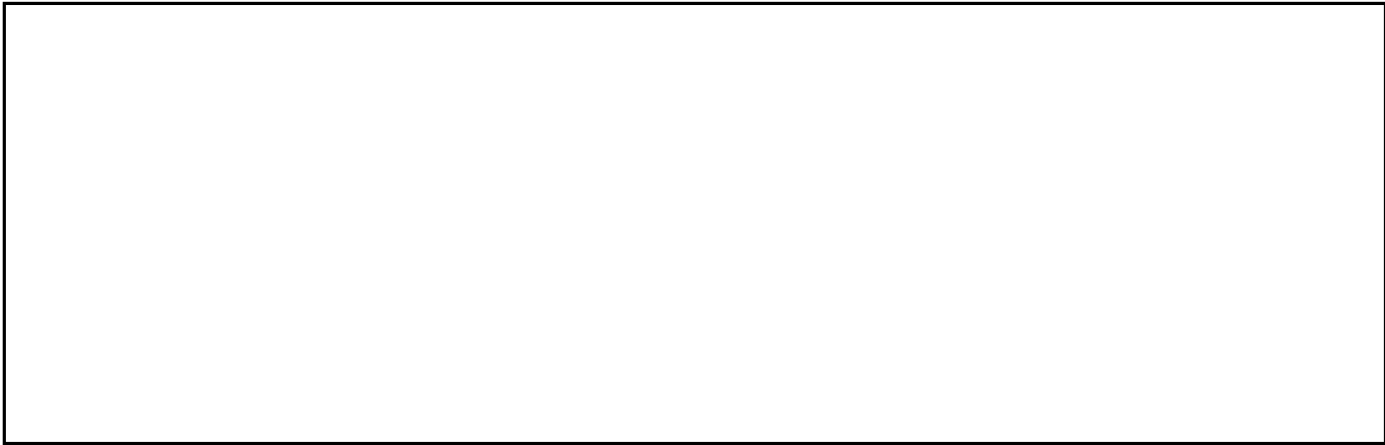
2. Support Equipment: AGE and test equipment for the S-1010 PPA and related U-2R life support equipment for Detachment G's FAKs and for Detachment H is in production and delivery has started on some items. No delays in out-fitting either the FAKs or Detachment H are expected.

3. Visit to Detachment H: [redacted] visited Detachment H for three days in January to assist in obtaining [redacted] for the S-1010 PPA and to discuss U-2R life support equipment and AGE requirements with Detachment personnel. The status of U-2C support at Detachment H was also reviewed and found to be very satisfactory.

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IDEALIST

OPERATIONAL SUMMARY AND STATUS  
(1 January 1968 - 31 March 1968)

I. OVERFLIGHT SUMMARY

Three Agency U-2 overflight missions were flown during the third quarter of FY 68. Three other missions were alerted, however, two were cancelled due to weather and one was recalled after take-off (prior to entry into denied territory) due to deteriorating weather in the target area.

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1. [redacted]  
[redacted] This mission covered the Central China Coast with the "H" camera. The aircraft did not overfly the China mainland. [redacted]

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[redacted] No aircraft missiles or contrails were sighted by the pilot. [redacted]

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2. [redacted]  
[redacted] This mission covered South China along the Sino-DRV border, with the Delta Camera. This was the first overflight of the China land mass since 8 September 1967. [redacted]

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[redacted]  
[redacted] One MIG-21 was sighted by the pilot. Over-all photo analysis was considered good with 60% cloud cover.

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3. [redacted]  
[redacted]

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[redacted]

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[redacted] The observed weather was good over the target area and 80% of photo coverage was obtained. There were no reactions to the overflight. No fighter or missile activity was noted [redacted]

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[redacted]

II. GENERAL

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[redacted]

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b. [redacted]

Three flights were made in January for the purpose of obtaining photographic coverage of designated tactical and strategic U.S. targets for the U.S. Navy. Excellent results were obtained.

c. SWAP SHOP

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SWAP SHOP IX, ferry of Article 385 from [redacted] on 23 January, to [redacted] was completed on 30 January.

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d. U-2R (Orientation Flights)

Three orientation flights were conducted in the U-2R by Detachment pilots. Orientation flights are currently curtailed due to unresolved vehicle tailpipe vibrations.

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e. JP-5 Fuel Tests

All flights on Article 349 during January and February were flown using JP-5 fuel in continuation of the test utilizing JP-5 fuel for the U-2 aircraft. As a result of an engine change on Article 349 this test was terminated on 28 February.

f. RED DOT

Five RED DOT missions were flown this quarter. These are film evaluation missions.

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h. [redacted]

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Carrier requalifications were scheduled during February. Four [redacted] pilots participated in multiple MLPs at Edwards and subsequently 10 sorties were flown on 27 February utilizing the aircraft carrier USS Constellation, off the Pacific coast.



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RESEARCH & DEVELOPMENT, OSA  
QUARTERLY PROGRAM PROGRESS REPORT  
(1 January 1968 - 31 March 1968)

I. GENERAL RESEARCH AND DEVELOPMENT

a. Induced Drag Reduction Program

The wind tunnel test program for the potential induced drag reduction concept is proceeding on schedule. Partial quantitative data were obtained using a single diffuser model [redacted]

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[redacted] wind tunnel. This data showed that significant forces are generated on the wing surface by the diffuser. During this period arrangements were completed to shift the quantitative part of the test program to the four-foot wind tunnel at the U.S. Naval Postgraduate School at Monterey, California. The tunnel has a 200 mph speed capability and a three component force balance. The tunnel is similar to the now dismantled tunnel at Cal Tech initially proposed for this program.

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c. HAZE ATTENUATION STUDY

A small [redacted] six-month study was initiated with [redacted] to define the degree of improvement in aerial photography attainable by means of automatic

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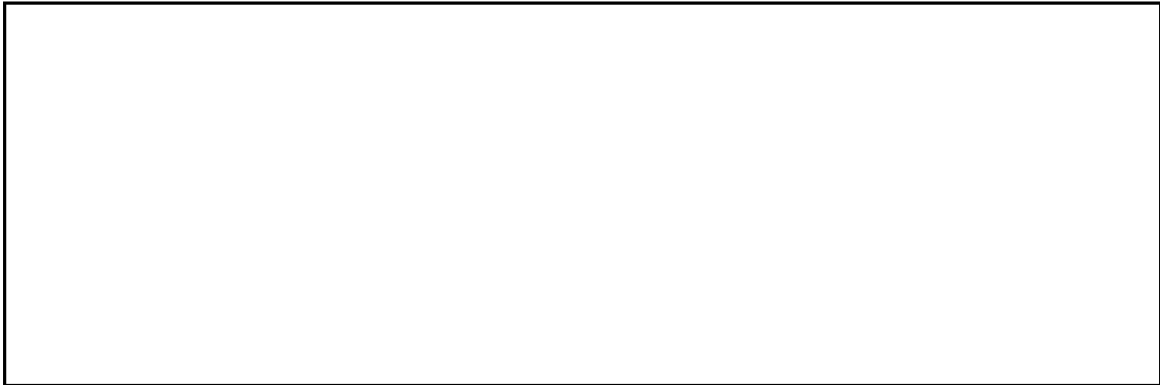
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polarization control. The effort was started in early February. No significant results are available, or expected at this time.



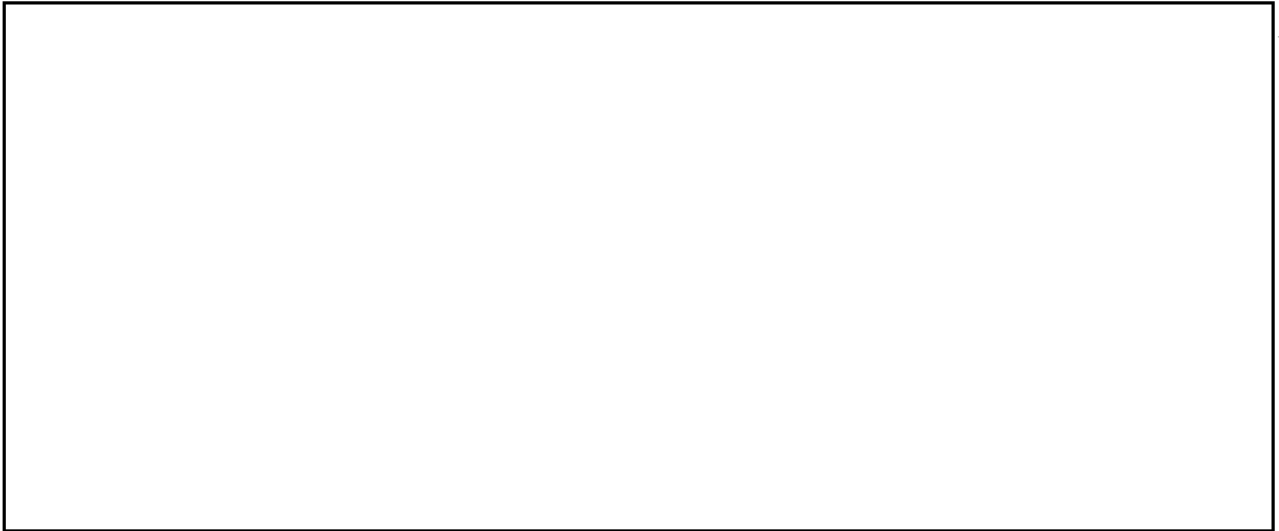
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f. BALLOONS

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Contractual relations with [redacted] were terminated on 15 January 1968. The program was generally unsuccessful. It is not expected to further pursue balloon vehicles from this office.

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II. SENSOR SYSTEMS

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III. LIFE SUPPORT

Conference at Lovelace Clinic, Albuquerque, New Mexico. [ ] attended and participated in a conference on Special Project Aeromedical and Life Support Activities which B/Gen Don Flickinger conducted. Participants included Lovelace Clinic personnel, USAF Surgeon General Maj/Gen Kenneth Pletcher, and Aeromedical/Life Support Personnel from [ ] Detachment G, USAF Surgeon General's Office, and Beale AFB. [ ] reviewed OSA's life support requirements, equipment, and developmental efforts.

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IV. MISCELLANEOUS

a. The semi-annual OXCART A-12 Aircraft Experience Data and Systems Reliability publication was updated through 31 December 1967.

b. D/R&D personnel presented 16 hours of instruction during the OSA portion of the DDS&T Career Development Course.

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