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# National Reconnaissance Office



## GAMBIT and HEXAGON Declassification Guidelines

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## Preface

This document contains general guidelines for the protection of National Reconnaissance Office (NRO) equities involving the GAMBIT and HEXAGON families of reconnaissance satellites. It is meant as a starting point for those planning events and publications associated with these two programs.

All government and contract employees are obligated to protect national security information. The NRO's Prepublication Review process is intended to carefully control and monitor the release of UNCLASSIFIED NRO information to the public. This process, if followed, will minimize the chances of releasing information potentially damaging or harmful to national security.

Any unclassified material proposed for public release by any means, which deals with our organization, its mission or its functions, MUST be submitted to the NRO's Information Access and Release Team (IART) for prepublication review processing.

The Director of the NRO (DNRO) has appointed IART as the NRO's initial 25-Year Release and Denial Authority. **Only the IART is authorized to review information equities and 25-year old NRO records for declassification.** NRO encourages you to provide the IART with sufficient time to conduct a thorough review. To submit your materials for prepublication review, please FEDEX them to the address below:

Via FEDEX:  
National Reconnaissance Office  
Information Review and Release Team  
14675 Lee Road  
Chantilly VA 20151

On an individual basis, The IART will field questions from industry partners regarding other releasable information not covered in these guidelines. Please call (703)227-9411.

For those individuals approached by the media for interviews regarding GAMBIT and HEXAGON and their association with the two programs or are considering contacting the media themselves, please call the NRO Office of Corporate Communication at 703-808-1198.

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## Program Overview

The following programs constitute the GAMBIT and HEXAGON family of programs covered in this guidance. Collectively they fill the gap between the currently declassified CORONA, ARGON, and LANYARD (KH-1 through KH-6) systems and the end of U.S. film-based imagery satellite missions.

**E-6**, initially BLANKET, was a component of the WS-117L/SAMOS project that became GAMBIT. Initiated by SAFSP in 1960, it was intended as a film-return search system with capabilities beyond CORONA.

**Project 307**, established as an unclassified "null program" under USAF Space Systems Division in July 1961, provided security as the cover for E-6 wore thin. Under Project (or Program) 307 Air Force Systems Command procured four Agena-Bs and six Atlas boosters for EXEMPLAR.

**EXEMPLAR**, established in September 1961, was the Confidential-classified name for the destination of materials obtained through Project 307. This term provided cover for the first four GAMBIT launches.

**CUE BALL**, also known as Air Force system No. 483A, provided an unclassified name for EXEMPLAR.

**Project (or Program) 206** provided an additional unclassified name for CUE BALL/EXEMPLAR, the USAF Space Systems Division E-6 (GAMBIT) effort. The effort was transferred to SAFSP in late 1962.

**GAMBIT (KH-7)**, also known as or partially contained in E-6, Project 307, EXEMPLAR, CUE BALL, 483A, and Project 206, was the film return system flown from July 1963 through June 1967 (Missions 4001-4038). GAMBIT (KH-7) served as the first high-resolution surveillance satellite. Considerable KH-7 imagery has been declassified and released. Considerable GAMBIT (KH-7) programmatic information has been declassified and released under KH-7, the unclassified designation for GAMBIT's camera system often used as an unclassified designator for the entire GAMBIT(KH-7)program.

**HIGHERBOY**, also known as HIGHBOY and DUAL MODE, emerged in the late 1960's out of concern that the HEXAGON system might not be available on schedule or perform as promised. HIGHERBOY would place a modified GAMBIT vehicle into a high

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altitude (300-350 mile perigee) orbit on 90 day missions, providing coverage similar to HEXAGON, before transit to lower (78 mile perigee) altitude for the balance of the mission. HIGHERBOY flew a single mission, on GAMBIT-3 vehicle No. 52 (Mission 4352). One of its two buckets failed to return on schedule; the second also suffered a malfunction and returned degraded film.

**Film Read-Out GAMBIT (FROG)** served as NRO Program A's competitor to NRO Program B's initial electro-optical imagery (EOI) satellite.

**GAMBIT-3 (KH-8)** developed out of GAMBIT to fly a higher resolution camera system designated KH-8. It flew 54 missions (4301-4354) from July 1966 through April 1984. Imagery and most hardware specifics remain classified.

**FULCRUM** emerged in late 1963 as a Central Intelligence Agency (CIA) concept for an NRO system combining CORONA coverage with GAMBIT resolution. Program A's similar S-2 concept provided competition for what became the HEXAGON system.

**HELIX** served as a later name for the FULCRUM effort.

**HEXAGON (KH-9)** also known as or partially contained in FULCRUM, S-2, and HELIX, emerged from competing concepts to provide a surveillance system that flew 20 missions (1201-1220) from June 1971 through April 1986. Considerable imagery from HEXAGON's mapping camera, flown on missions 1205-1216, has been declassified and released. Considerable HEXAGON mapping system programmatic information has been declassified and released under KH-9, the declassified designation for HEXAGON's camera system often used as an unclassified designator for the entire HEXAGON program.

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### 1.1 *Terms, Code Words, Program and Project Names*

**Release:**

Release the following names and terms in association with each other and the GAMBIT and HEXAGON programs. These programs, as part of the larger GAMBIT and HEXAGON reconnaissance satellite families, are included within this declassification guidance.

BLANKET	EXEMPLAR	GAMBIT	
E-6	CUE BALL	HIGHERBOY	PROJECT 307
PROJECT 206	FROG	GAMBIT-3	FULCRUM
HELIX	S-2	HEXAGON	HIGH BOY
DUAL MODE	483A	KH-7	KH-8
KH-9	Sunset Strip	698-AL	

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## 1.2 Acquisition Participants and Relationships

### Classified Information:

The following information about the GAMBIT and HEXAGON family of programs remains *classified*.

A. All contractors and subcontractors associated with the design, development, launch, and operation of the GAMBIT and HEXAGON reconnaissance satellite families that are not listed below.

B. Detailed contractual information not approved for release.

C. Management data related to sensitive budgetary details and trends, classified contracting methodologies and measures, identities of individuals under cover, or still sensitive relationships and facilities.

### Release:

A. Release the following NRO contractors and subcontractors associated with the design, development, launch, and operation of the GAMBIT and HEXAGON family of programs:

Avco	Lockheed-Martin
Aerospace	Martin Marietta
Barnes Engineering	McDonnell Douglas
Boeing	North American
Corning Glass	Owens-Illinois
Eastman Kodak	Para Dynamics
Fairchild	Perkin-Elmer
General Electric	Philco
General Dynamics	Raytheon
Goodyear	RCA
Hughes Danbury	Rockwell
Irving Air Chute	STL
Itek	Textron
ITT	TRW
Lockheed	

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### 1.3 *Funding and Personnel*

#### Classified Information:

The following information about the GAMBIT and HEXAGON family of programs remains *classified*.

- A. NRO program funding information and methods, including amounts in programming and budget proposals, approved budgets, and transfers of funds per approved budgets, unless specifically directed otherwise.
- B. Manning totals for NRO organizational elements.
- C. Security mechanisms related to contracting, financial practices, operational security, and personnel security.
- D. Covert or still sensitive contracting security practices related to current security practices.

#### Release:

- A. Release total program budgets for GAMBIT, HEXAGON, and related programs, but no breakdown figures.
- B. Release names of NRO personnel and contracting firm employees associated with KH-7, KH-8, KH-9, and associated programs that have not been previously released in association with the NRO only after confirmation with the appropriate security office and IART. NRO organizational information and personnel names are protected under 10 USC 424.

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#### ***1.4 Schedules, Concepts, and Plans***

##### **Classified Information:**

The following information about the GAMBIT and HEXAGON family of programs remains *classified*.

Post-launch mission timelines, operational concepts related to sensitive aspects of current systems, collection plans, and collection success or failure against any specific target.

##### **Release:**

A. Release general information on program schedules, program requirements, concepts, and plans, subject to redaction guidance above.

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## 1.5 System Description

### 1.5.1 General

For specific quantifications of best resolution use:

- A. KH-7: Three to two feet
- B. KH-8: "better than 2 feet"
- C. KH-9: Three to two feet

### Classified Information:

The following information about the GAMBIT and HEXAGON family of programs remains *classified*.

- A. Vehicle capabilities or the development of future systems. That information may be found in photographs, illustrations, or physical artifacts as well as text.
- B. Operational data related to collection strategy, sensitive collection operations, satellite command and control, collection by or in cooperation with other intelligence disciplines, sensor slew rates, and still sensitive intelligence activities or covert operations.
- C. Targeting information beyond "fact of" targets in the Soviet Union and China.

### Release:

- A. Release programmatic details of the GAMBIT and HEXAGON family of programs, including contracting firm identities as listed in Section 1.2 of this pamphlet.
- B. Release the non-operational IMINT mission numbers listed below as a mission group (all flights) and individually, associated with mission launch and recovery dates and general operations:

4000	GAMBIT (KH-7, Jul 63 - Jun 67)
4300	GAMBIT-3 (KH-8, Jul 66 - Apr 84)
1200	HEXAGON (KH-9, Jun 71 - Apr 86)
- C. Release the S-2 program as a development effort sponsored by Program A (SAF/SP) in the early to mid-1960s as a follow-on to the CORONA photo-satellite system.

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D. Release orbital ephemerides and ground traces for KH-7, KH-8, and KH-9 missions.

E. Release information about major program milestones, unless directed otherwise by specific guidance.

F. Release discussion of film types and specific details currently approved for release under the Corona-Argon-Lanyard programs.

G. Release association of the GAMBIT and HEXAGON programs with the Air Force Satellite Control Network's Satellite Test Center in Sunnyvale, California as otherwise currently approved for release under the Corona-Argon-Lanyard programs.

H. Release photographs, drawings, and models/artifacts of the GAMBIT and HEXAGON family of programs, provided they do not offer substantial assistance to potential adversaries or represent any substantial risk to currently operational systems

I. Release information about system boosters and launches unless specifically directed otherwise.

1.5.2 *GAMBIT (KH-7)*

Release:

Release the fact of the GAMBIT KH-7 surveillance system and the following facts about it:

A. Operational from July 1963 to June 1967.

B. Mission Numbers (4001-4038) and individual mission dates.

C. Returned single bucket of film to earth for each mission.

D. Date of bucket reentry.

E. Successfully returned film on 34 of 38 missions; usable images were obtained from 30 of those 34 missions.

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F. Returned 19,000 mappings, totaling 43,000 linear feet.

G. "Footprint" on the ground for KH-7 collections was approximately 10 nm by 12 nm; total ground coverage for all missions was about 6.6 million square nm.

H. Best resolution was initially four feet (1.2 meters) on ground; by 1966, best resolution improved to two feet (.6 meters).

I. Capable of imaging areas 12nm wide, ranging from 5 to 400 nm long.

J. Provided cartographic information for large scale (1:50,000) maps for Department of Defense.

K. Priority targets for the system included Soviet and Chinese nuclear installations and ICBM sites.

L. Release "fact of" Film Readout of Gambit (FROG) as a competitor for initial EOI development and general description of the film readout approach, but no additional details.

**1.5.3 GAMBIT-3 (KH-8)**

**Release:**

Release the fact of the GAMBIT-3 KH-8 surveillance system and the following facts about it:

A. The GAMBIT-3/KH-8 system developed out of the GAMBIT/KH-7 system and achieved a resolution better than two feet.

B. Operational from July 1966 - April 1984.

C. Mission Numbers (4301-4354) and dates.

D. Designed to return 1 bucket of film to earth for vehicle numbers 1-22 and 2 buckets for vehicles 23-54.

E. The 54 KH-8 missions failed to reach orbit 3 times. They returned images each time they reached orbit, achieving over 94 percent reliability.

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F. The roll joint's design and capabilities can be released.

#### 1.5.4 *HIGHERBOY*

Release:

Release the fact of HIGHERBOY as a proposed high altitude GAMBIT mapping mission and the following facts about it:

A. The HIGHERBOY/HIGHBOY/DUAL MODE concept emerged in the late 1960's out of concern that the HEXAGON system might not be available on schedule or perform as promised.

B. HIGHERBOY would place a GAMBIT vehicle into a high altitude (300-350 mile perigee) orbit on 90 day missions before lowering it to lower (78 mile perigee) altitude for the balance of the mission.

C. From a high altitude orbit the system would provide coverage similar to Hexagon.

D. Configuration changes were necessary to both the payload and satellite control sections of the vehicle to support dual-mode operations.

E. HIGHERBOY flew a single mission, on GAMBIT-3 vehicle No. 52. One of its two buckets proved unrecoverable; the second also suffered a malfunction and returned degraded film.

#### 1.5.5 *FULCRUM/HELIX*

Release:

Release the fact of FULCRUM and HELIX and the following facts about them:

A. The CIA developed the FULCRUM concept for an NRO system, beginning in late 1963, as a vehicle combining CORONA coverage with GAMBIT resolution.

B. FULCRUM and Program A's S-2 were competing concepts for what became the HEXAGON system.

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C. HELIX served as a later name for the FULCRUM effort.

D. Information about FULCRUM and HELIX program management and mission goals is releasable, subject to other guidance.

1.5.6 *HEXAGON (KH-9)*

Release:

Release the fact of the Hexagon KH-9 surveillance system and the following facts about it:

A. Operational from June 1971 to April 1986.

B. Mission Numbers and dates, including dates of bucket reentry.

C. The mapping camera was flown on 12 of the 20 missions (1205-5 through 1216-5), all of them successful; duration of each of these missions (ranging from 42 to 119 days).

D. This "mapping camera" imagery system was devoted solely to mapping, charting, and geodesy (MC&G).

E. The mapping camera returned single bucket of film to earth for each mission.

F. The mapping camera returned 29,000 mappings totaling 48,000 linear feet.

G. The mapping camera "footprint" on the ground was approximately 70 nm by 140 nm; total ground coverage for all 12 missions was about 104 million square nm.

H. The mapping camera provided key cartographic information for Level 1 Digital Terrain Elevation Data (DTED) and 1:200,000 scale maps.

I. Average mapping camera resolution was initially about 30 ft on the ground; improved to about 20 ft on later missions.

J. The mapping camera was designed to support foreign and domestic mapping requirements and global geodetic

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positioning; biggest users were the Defense Mapping Agency (DMA) and United States Geological Survey (USGS).

K. The panoramic (main) camera achieved 2-7 foot resolution with a footprint approximately 16.8 nm by 300 nm. Total ground coverage for all missions was about 230,000,000 square nm.

L. Coverage of key control point areas was imaged in stereo or tri-laps (three times) on a single operation to provide analysts with enough detailed information.

M. Hexagon employed a maximum of 5 buckets per vehicle, 4 for the main camera and one for the mapping camera when it was flown.