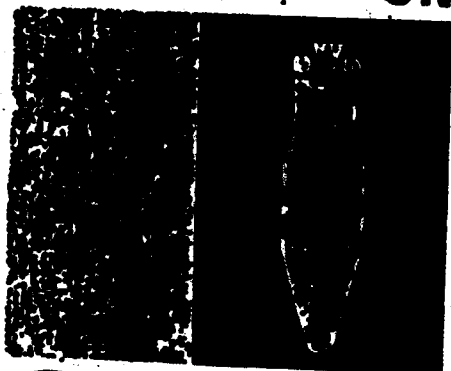


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of a deteriorating manuscript series  
A. 48 0000 2004

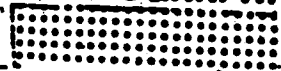
01146112



SAMOS

SATELLITE RECONNAISSANCE SYSTEM

PHOTOGRAPHIC



REQMTS PROVIDED BY:  
UNITED STATES INTELLIGENCE BOARD  
- SATELLITE INTELLIGENCE REQMS COMMITTEE

DEVELOPMENT AGENCY  
UNITED STATES AIR FORCE

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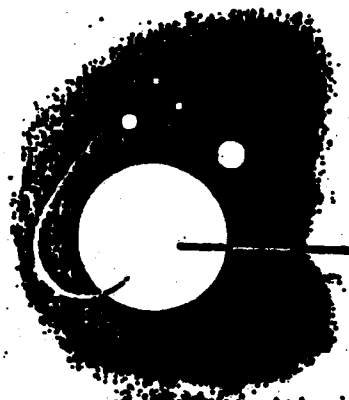
604018

DECLASSIFIED WITH DELETIONS  
Agency Code 94-256-1  
NLE Code 94-256-1  
By [Signature] NLE 01/18/97

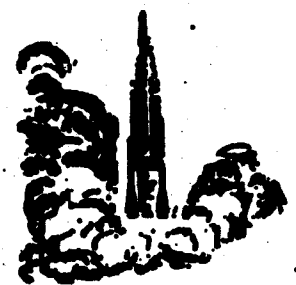
Office of the Staff Secretary: Records of Paul T. Carroll, Andrew J. Goodpaster, L. Arthur Minnich and Christopher H. Russell, 1952-61.  
Subject Series  
Alphabetical Subseries  
Box 15  
Intelligence Matters (14) [March-May 1960]

AF-59 0:00 17:35

# SAMOS SYSTEM ELEMENTS

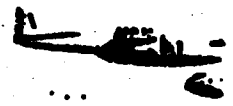


PAYLOAD

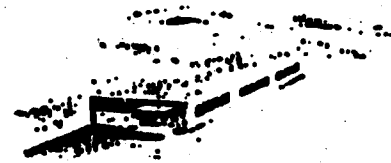


**SATELLITE LAUNCH**

LAUNCH  
ASSEMBLY AND GROUND  
GROUND SUPPORT EQUIPMENT



**RECOVERY FORCE**  
DATA ACQUISITION



**SATELLITE TEST CENTER**

SYSTEM CONTROL CENTER  
DATA DISPLAY AND ASSESSMENT  
DATA DISTRIBUTION TO USERS



**TRACKING AND ACQUISITION STATION**

VEHICLE TRACKING  
TELEMETRY  
COMMAND  
DATA ACQUISITION

**VEHICLE**

AIRFRAME  
PROPULSION  
GUIDANCE AND CONTROL  
VEHICLE TELEMETRY  
VEHICLE COMMAND  
EQUIPMENT  
ORBIT CONTROL  
SYSTEM

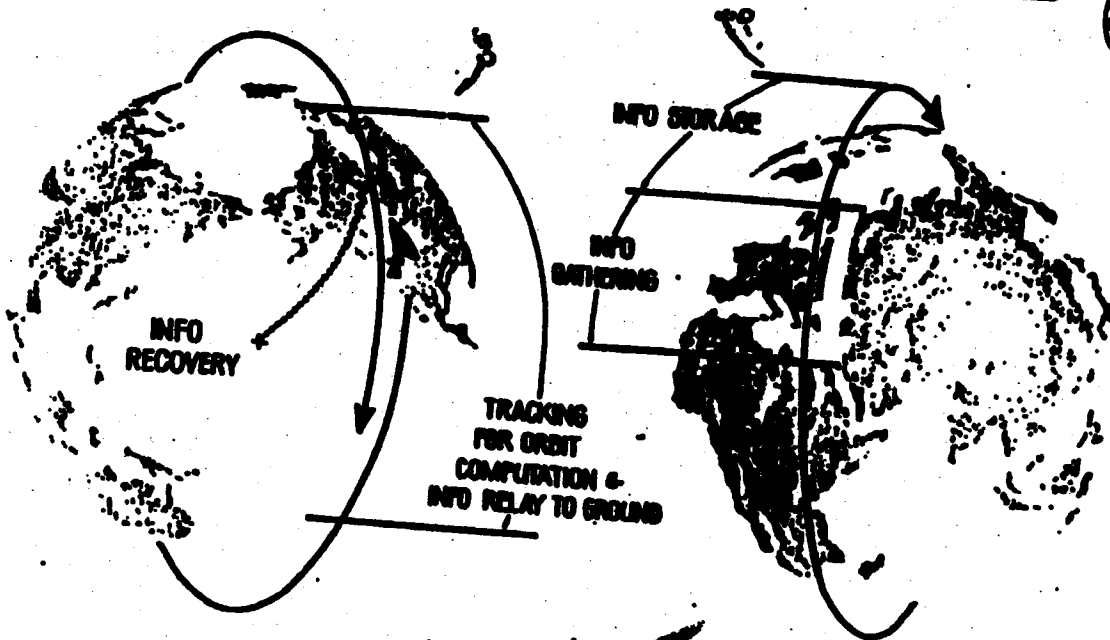
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**SAMOS CONCEPT**

DA AG FORM 3044

150-300 S.MI. ALTITUDE - PHOTO

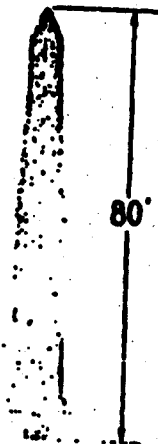


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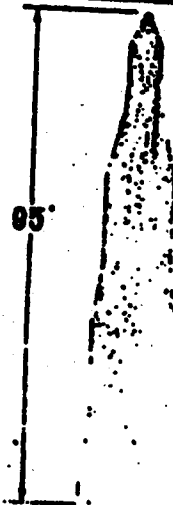
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**TYPICAL SIZE AND WEIGHT**

**THOR  
AGENA B**



**ATLAS  
AGENA B**



AGENA B	EMPTY WEIGHT	1,400
	LAUNCH WEIGHT	16,150
THOR	EMPTY WEIGHT	8,830
	LAUNCH WEIGHT	107,170
TOTAL BOOSTER AND AGENA WEIGHT AT LAUNCH		123,320 LBS

AGENA B	EMPTY WEIGHT	1,400
	LAUNCH WEIGHT	19,800
ATLAS	EMPTY WEIGHT	14,150
	LAUNCH WEIGHT	258,130
TOTAL BOOSTER AND AGENA WEIGHT AT LAUNCH		277,930 LBS

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**SAM08**



- A SATELLITE RECONNAISSANCE SYSTEM IS COMPLEX WITH MANY ADVANCED DEVELOPMENTS REQUIRED, BUT IT CAN BE MADE TO WORK
- DEVELOPMENT PROGRESSION REQUIRED DUE TO PRESENT STATE-OF-THE-ART LIMITATIONS:

PHOTOGRAPHIC: 20' GROUND RESOLUTION  3' OR LESS

ACTIVE LIFE: 1 WEEK  4 MONTHS  1 YEAR

- THE DEVELOPMENT PROGRAM WILL INCLUDE FAILURES IN THE COURSE OF THE DEVELOPMENT EFFORT

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# INTELLIGENCE REQUIREMENTS FOR SAMOS

## PRIORITY I

PHOTOGRAPHIC-LOCATION OF OPERATIONAL ICBM SITES



## PRIORITY II

A. PHOTOGRAPHIC-DESCRIPTIVE INFORMATION ON HIGH PRIORITY  
TARGET LIST ITEMS

## PRIORITY III

A. PHOTOGRAPHIC-TECHNICAL CHARACTERISTICS OF HIGH PRIORITY  
LIST ITEMS

## PRIORITY IV

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~~TOP SECRET~~  
**OUTLINE REQUIREMENTS**  
**USIB - 6 JULY '60**

**PHOTOGRAPHIC**

**"GENERAL SEARCH" - 20' "RECOGNIZABILITY"**

- 1st PRIORITY - TO LOCATE SUSPECTED ICBM LAUNCH SITES  
BETWEEN NOW & END OF 1962  
REPETITIVE SEARCH - ONCE EACH MONTH INITIALLY

**"DESCRIPTIVE" INFORMATION - 5' "RECOGNIZABILITY"**

- 2nd PRIORITY - COVERAGE OF HIGHEST PRIORITY TARGET  
CATEGORY & SUSPICIOUS LOCATION  
LAUNCH & CONTROL OF THESE - MISSION  
ON SHORT NOTICE

**"TECHNICAL CHARACTERISTICS" - BETTER THAN 5' "RECOGNIZABILITY"**

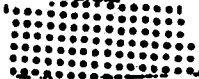
- 3rd PRIORITY - HIGH RESOLUTION COVERAGE TO DETERMINE  
TECHNICAL CHARACTERISTICS OF HIGHEST  
PRIORITY TARGETS BY THE END OF 1962



E-2 (LIMITED SEARCH  
CAPABILITY)  
1st FLT - APR '61  
E-8  
1st FLT - JAN '62

E-6  
1st FLT - SEPT '61

ADVANCED RESEARCH  
USIB-60000



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Randolph Library for reproduction  
of a deteriorating document etc.

**OUTLINE REQUIREMENTS**  
**USIB - 6 JULY '60**

PHOTOGRAPHIC

**"GENERAL SEARCH" - 20' "RECOGNIZABILITY"**

- 1ST PRIORITY - TO LOCATE SUSPECTED ICBM LAUNCH SITES  
BETWEEN NOW & END OF 1962  
REPETITIVE SEARCH - ONCE EACH MONTH INITIALLY

**"DESCRIPTIVE" INFORMATION - 5' "RECOGNIZABILITY"**

- 2ND PRIORITY - COVERAGE OF HIGHEST PRIORITY TARGET  
CATEGORY & SUSPICIOUS LOCATION  
LAUNCH & CONTROL OF THESE - MISSION  
ON SHORT NOTICE

**"TECHNICAL CHARACTERISTICS" - BETTER THAN 5' "RECOGNIZABILITY"**

- 3RD PRIORITY - HIGH RESOLUTION COVERAGE TO DETERMINE  
TECHNICAL CHARACTERISTICS OF HIGHEST  
PRIORITY TARGETS BY THE END OF 1962

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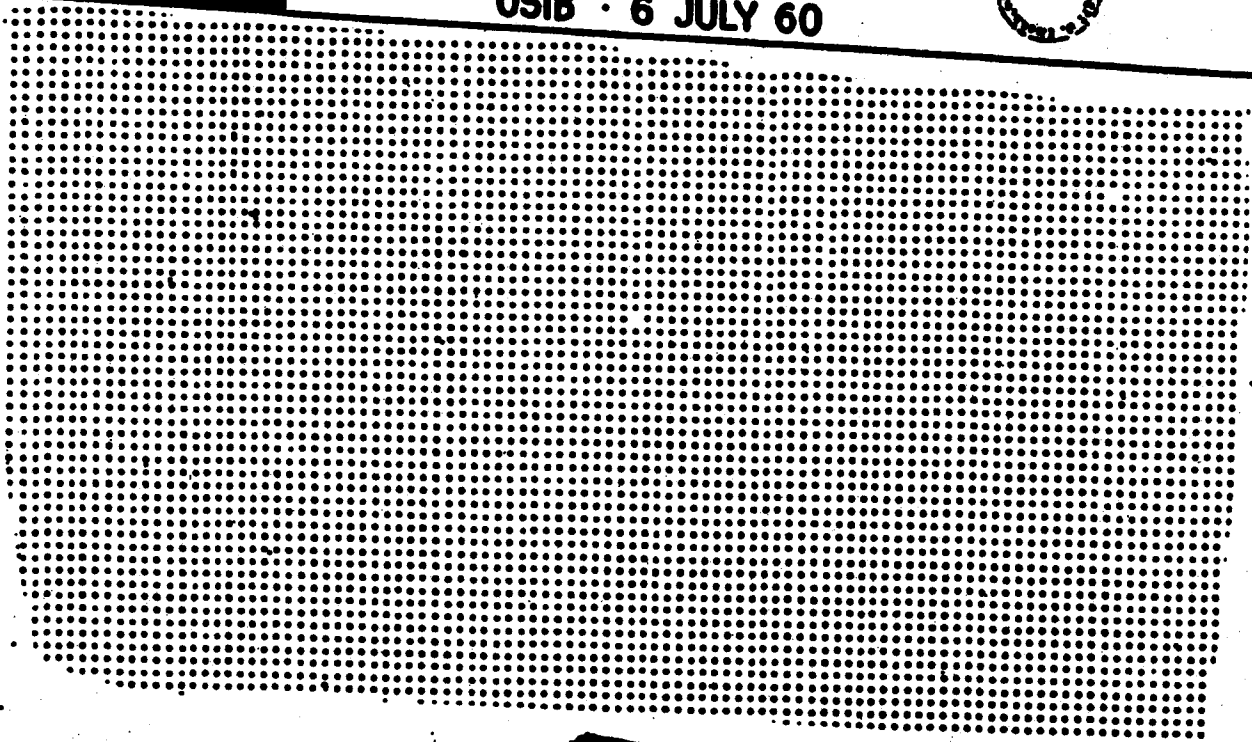
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*[Handwritten mark]*

**OUTLINE REQUIREMENTS**  
**USIB · 6 JULY 60**

AI 18 000 25039



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# EXAMPLE OF TARGET THAT MAY BE IDENTIFIED AT DIFFERENT GROUND RESOLUTION

**100 ft**  
CITIES, FORESTS, RAIL ALIGNMENT, INDUSTRIAL COMPLEXES, MAJOR MILITARY INSTALLATIONS, AND LARGE BODIES OF WATER.

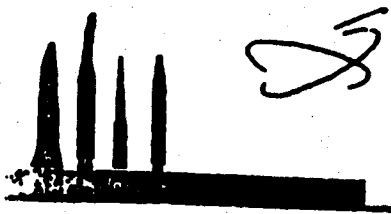
**20 ft**  
COMPONENTS OF MILITARY INSTALLATIONS, AIRBASE RUNWAYS, SUBMARINE BASES, MAJOR SURFACE TO AIR MISSILE SITES, ATOMIC ENERGY INSTALLATIONS, BALLISTIC MISSILE SITES, SURFACED SUBMARINES, LARGE AIRCRAFT AND MISSILE LAUNCHING PADS, IDENTIFICATION OF MAJOR SOVIET NAVAL FORCES.

**10 ft**  
LARGE AIRCRAFT AND KNOWN MISSILE CARRYING SUBMARINES, LOCATING SPECIAL WEAPONS, ABOVE GROUND ICBM AND IRBM FACILITIES, CAPACITY OF MILITARY STORAGE FACILITIES, IDENTIFICATION OF NAVAL SHIPS BY TYPES.

**5 ft**  
DETAILED INFORMATION ON MOST MILITARY AND INDUSTRIAL INSTALLATIONS, ALL AIRCRAFT, GROUND FORCES EQUIPMENT AND DISPOSITION, LARGE MISSILES, AAA SITES, STRUCTURAL SHIPBOARD CONFIGURATIONS, LEVELS OF MILITARY ACTIVITY.

**1 ft**  
DETAILED TECHNICAL INFORMATION ON AIR, NAVAL AND GROUND FORCES EQUIPMENT AND INDUSTRIAL PRODUCTION PROCESSES.

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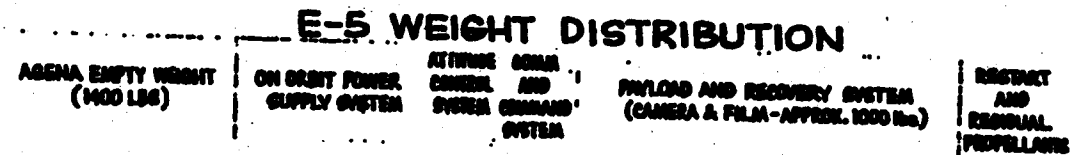


# ORBITAL CAPABILITY



VEHICLE	WEIGHT ON ORBIT	
	AT 150 N. MILES ALTITUDE:	AT 261 N. MILES ALTITUDE:
THOR & AGENA B	2800 LBS	2600 LBS
ATLAS & AGENA B	6500 LBS	6200 LBS

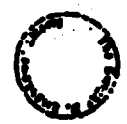
SYSTEM	WEIGHT ON ORBIT	
	AT 150 N. MILES ALTITUDE:	AT 261 N. MILES ALTITUDE:
E-5	5700 LBS	4300 LBS
E-1		4100 LBS
E-2		4400 LBS
		4900 LBS



WEIGHT ON ORBIT - (IN THOUSANDS OF LBS)

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# CHARACTERISTICS PHOTO PAYLOAD SYSTEMS



SYSTEM	DATA RETRIEVAL METHOD	RESOLUTION	SWATH WIDTH	OPERATING LIFE	MAX DAILY COVERAGE MILLION SQ NMI	TOTAL COVERAGE MILLION SQ NMI
E-1	READOUT	100'	87 NMI	10 DAYS	.57 (1 STA)	5.7
E-2	READOUT	20'	14.5 NMI	4 MOS	.033 (2 STA)	4.0
E-5	RECOVERY	5'	53 NMI	15-30 DA	0.6	4.9
E-6	RECOVERY	8'	200 NMI	5 DA	3.0	14.0

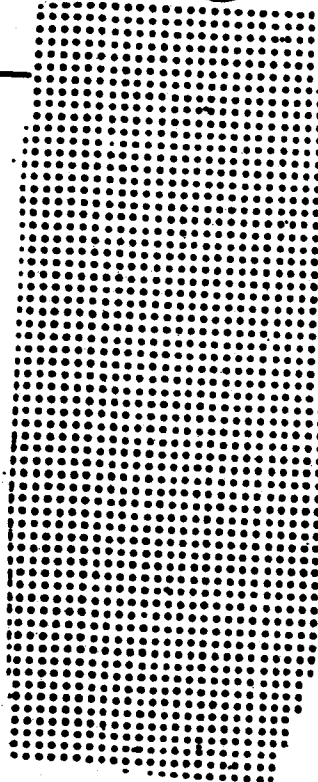
ENCLOSURE

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# VISUAL SENSORS CAPABILITIES

SI 7 000 2'41

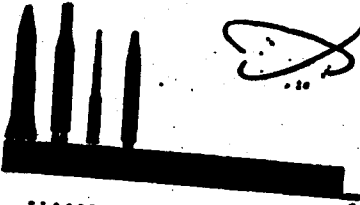
E-1 COMPONENT TEST PAYLOAD	E-2	E-5	E-6
TERRAIN FEATURES & COMMUNICATION CENTERS	IDENTIFY FEATURES & COMPLEXES	LEVEL OF MILITARY ACTIVITY	IDENTIFY FEATURES & COMPLEXES
AIRFIELDS	LARGE AIRCRAFT	IDENTIFY AIRCRAFT	LARGE AIRCRAFT
HARBOR FACILITIES & SHIPPING	SUBS-PIERS-SUPPORTING FACILITIES	IDENTIFY TYPES & USES IN SUPPORTING FACILITIES	SUBS-PIERS SUPPORTING FACILITIES
LOCATE INDUSTRIAL COMPLEXES	IDENTIFY INSTALLATIONS	IDENTIFY MATERIAL PRODUCTION	IDENTIFY INSTALLATIONS
SUSPECT CONSTRUCTION OF MISSILE SITES	LOCATE MISSILE SITES	IDENTIFY TYPE OF MISSILE SITE	LOCATE MISSILE SITES
FIRST FLIGHT - SEP 60 3 FLIGHTS STRIP CAMERA 6" FOCAL LENGTH	FIRST FLIGHT - APR 61 3 FLIGHTS STRIP CAMERA 36" FOCAL LENGTH	FIRST FLIGHT - SEPT 61 7 FLIGHTS PANORAMIC CAMERA 66" FOCAL LENGTH	FIRST FLIGHT - JAN 62 7 FLIGHTS PROBABLY A PANORAMIC CAMERA 36" TO 36" FOCAL LENGTH



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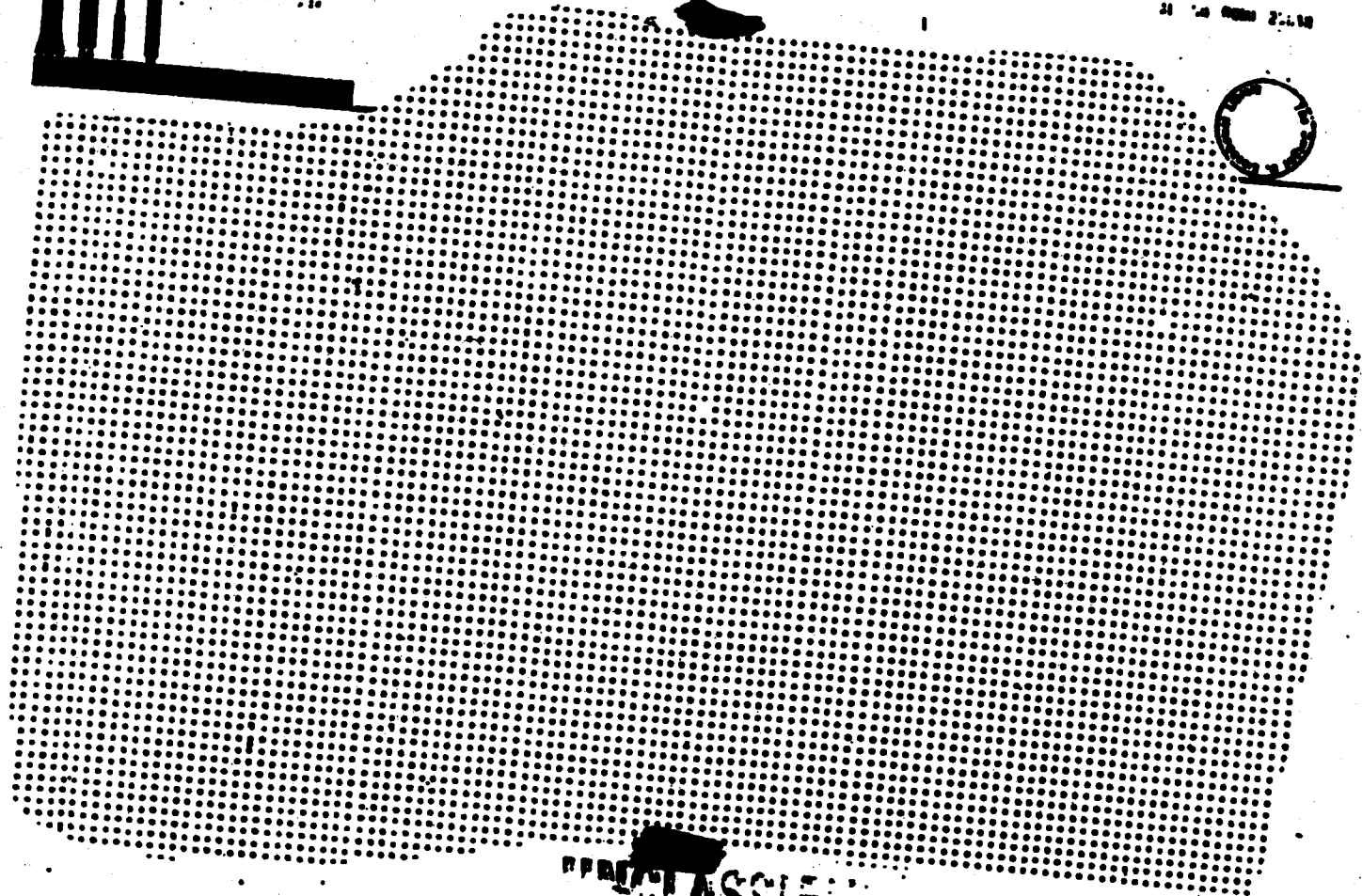
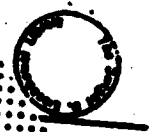
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21 JAN 1950



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# SAMOS OUTPUTS

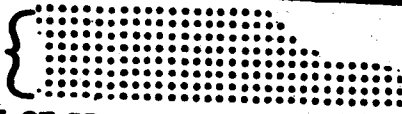
SI 60 000 7-66



READOUT

PHOTO E-2 (20)

READOUT TIME {



- 25 MIN PER DAY

- 55 MIN PER DAY

PER MINUTE OF READOUT - 800 SQ MILES 80 FT  
OF 35 M PRIMARY RECORD = 12-9 1/2" X 18" PHOTOS

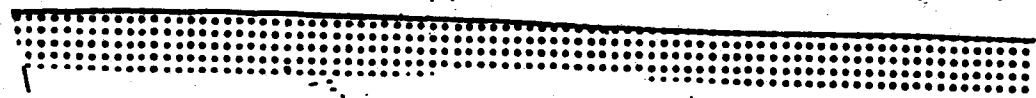
**RECOVERY**

PHOTO E-5 (5)

PER MISSION - 4.9 MILLION SQ N MI

E-8 (5)

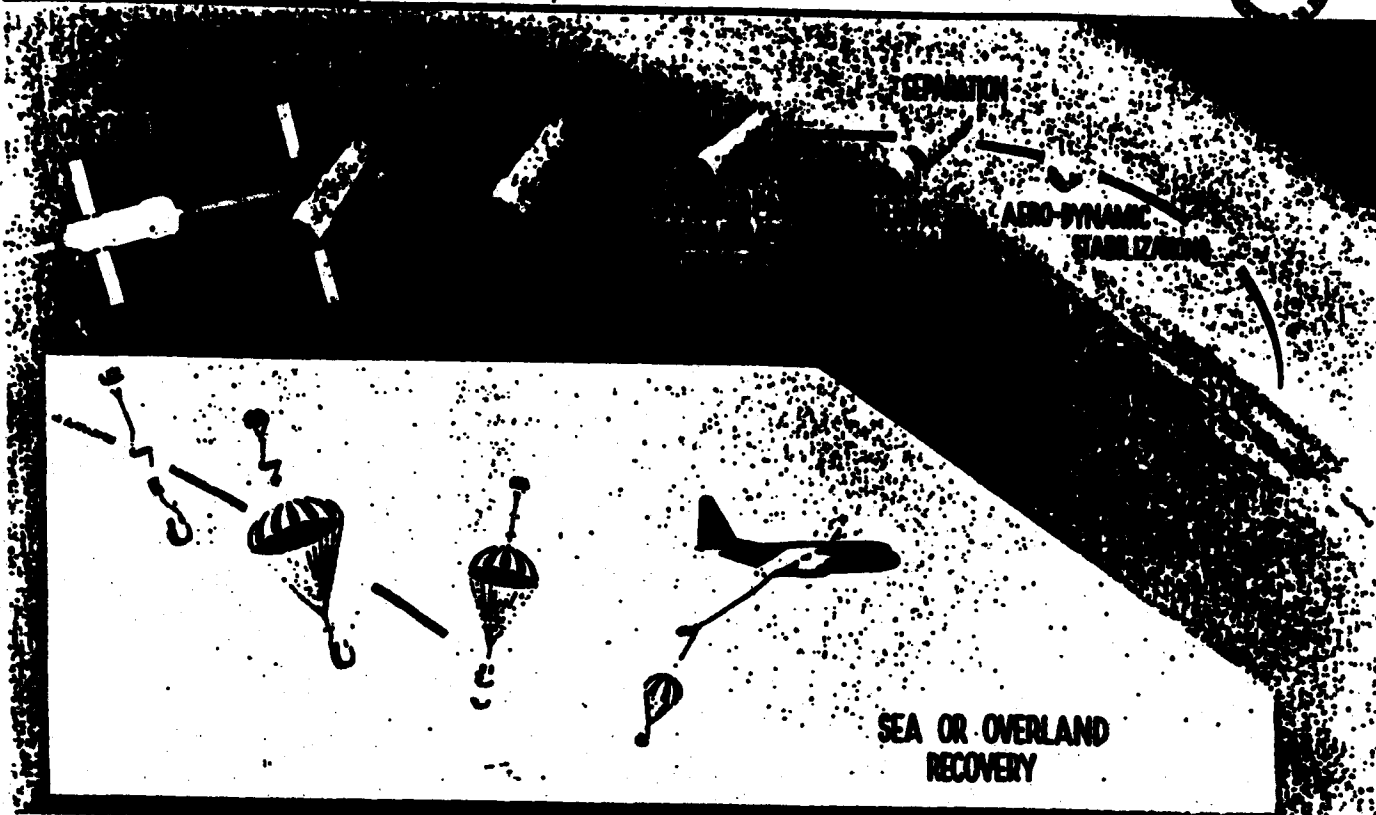
PER MISSION - 9.0 MILLION SQ N MI



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# SAMOS E5 RECOVERY SEQUENCE



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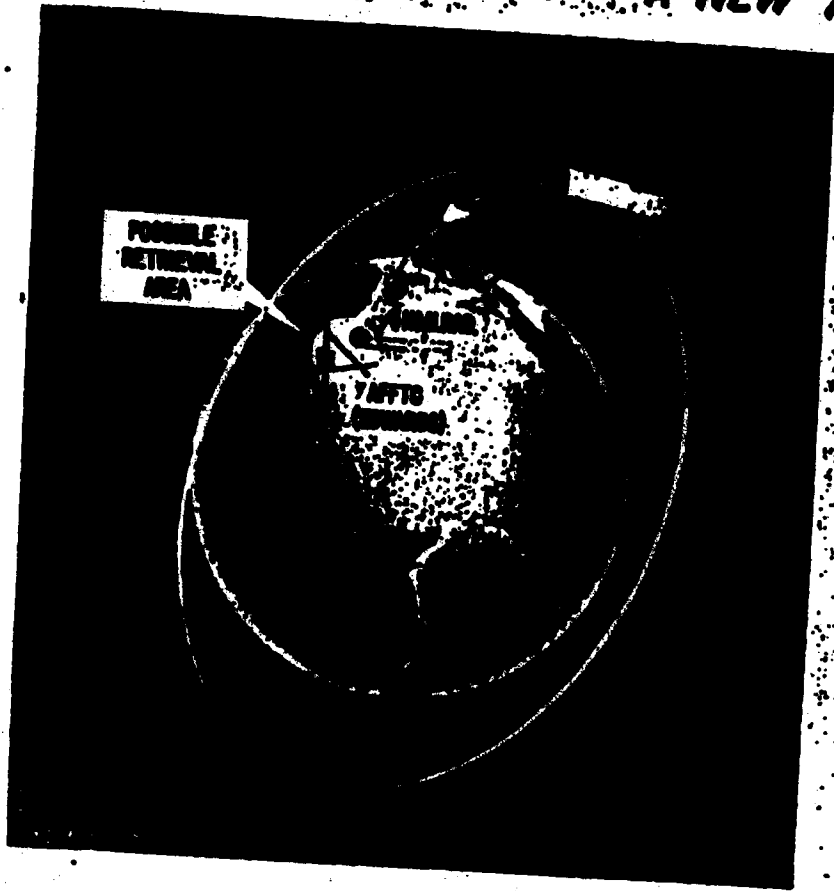
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FILE 10/16/67



# SAMOS E-6 — A NEW APPROACH

AL 64 00001 1 1001



- RELIABILITY (SHORT LIFE)
- LARGE AREA COVERAGE
- HIGH RESOLUTION
- EARLY CAPABILITY
- PRECISE OVERLAND RETRIEVAL
- BROADENED CONTRACTOR BASE
- COMPATIBLE WITH DATA PROCESSING EQUIPMENT
- UTILIZE EXISTING GROUND FACILITIES

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# SAMOS E-6 - DRAG BRAKE RE-ENTRY SEQUENCE

AL 44 0000 2-0001

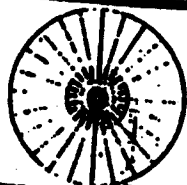
LAUNCH



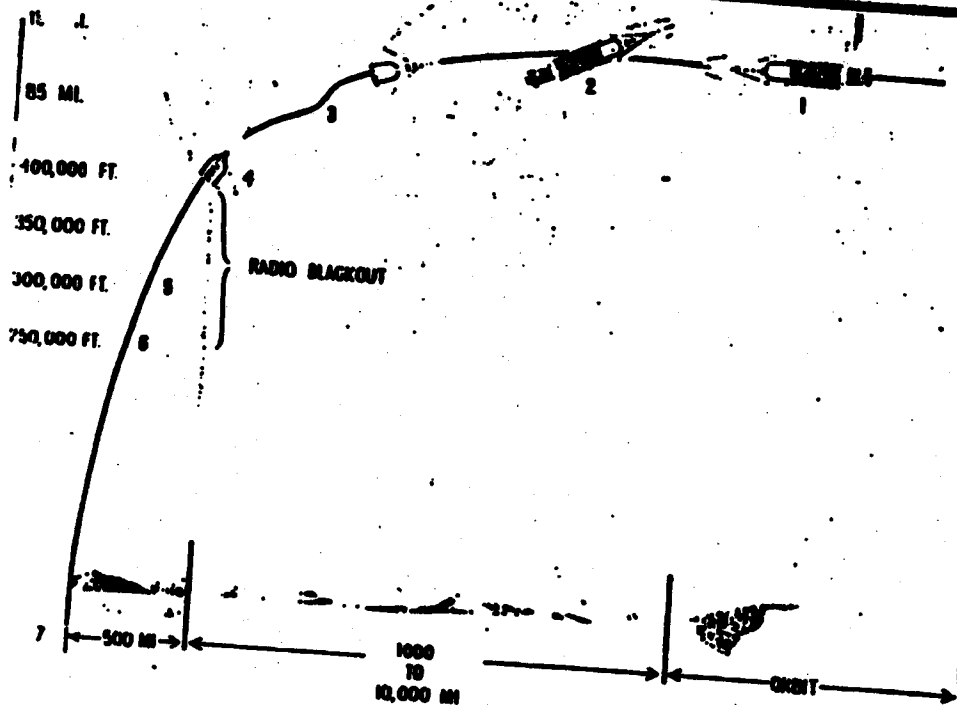
IN ORBIT



SIDE VIEW FULLY OPENED



PLAN VIEW FULLY OPENED



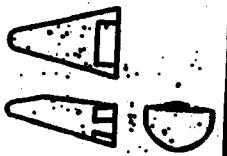
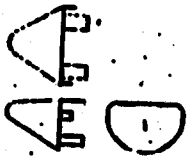
- 1 VEHICLE IN ORBIT
- 2 REORIENTATION, RETRO FIRING & SEPARATION
- 3 MODULATE FOR RANGE CORRECTION
- 4 FULL OPEN
- 5 PEAK HEATING
- 6 PEAK DECELERATION
- 7 LANDING - 40 F.P.S.

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for preservation purposes by  
Blanchester Library for the  
purpose of determining its

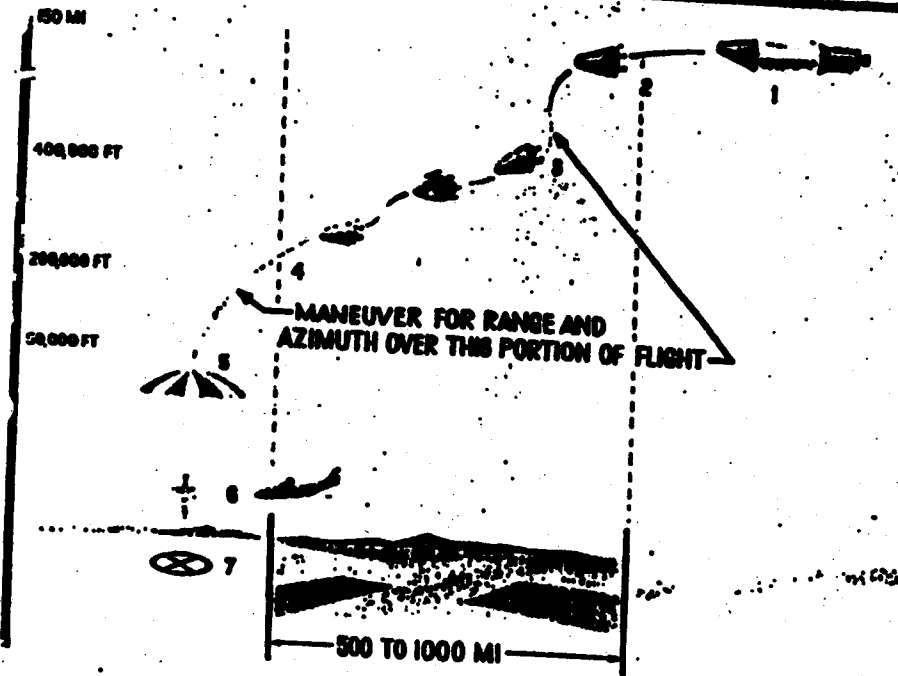
# SAMOS E-6 - TYPICAL LIFT RE-ENTRY SEQUENCE

11 10 0000 2:00

POSSIBLE SHAPES



- 1 VEHICLE IN ORBIT
- 2 RETRO-ROCKET FIRING AND SEPARATION
- 3 RE-ENTRY AND RADIO BLACK-OUT-START RANGE AND AZIMUTH CORRECTIONS
- 4 POST-BLACKOUT-MACH 15 COMMUNICATE FOR TERMINAL GUIDANCE
- 5 PARACHUTE OPEN-MACH 0.8 TO 1.0
- 6 AIR PICKUP ATTEMPT POSSIBLE
- 7 IMPACT - 25 F.P.S.

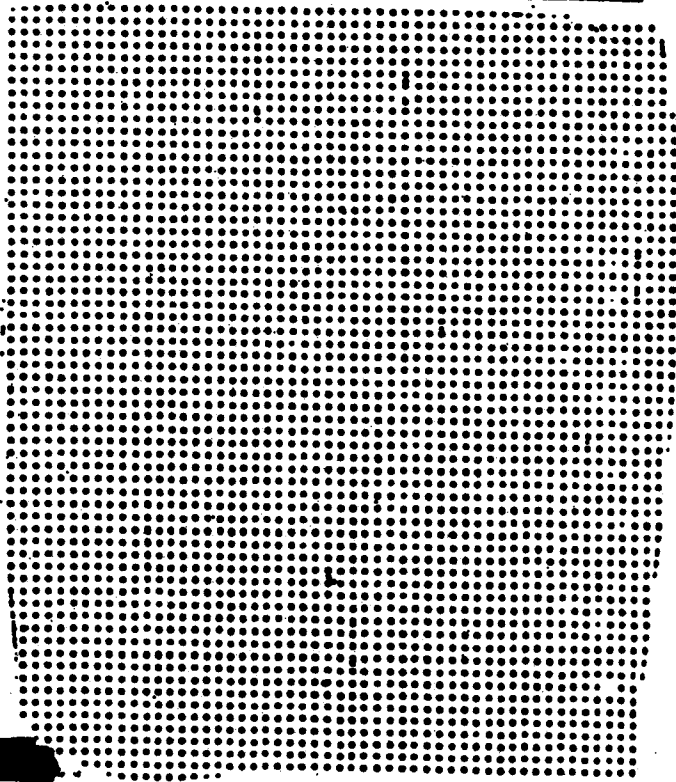
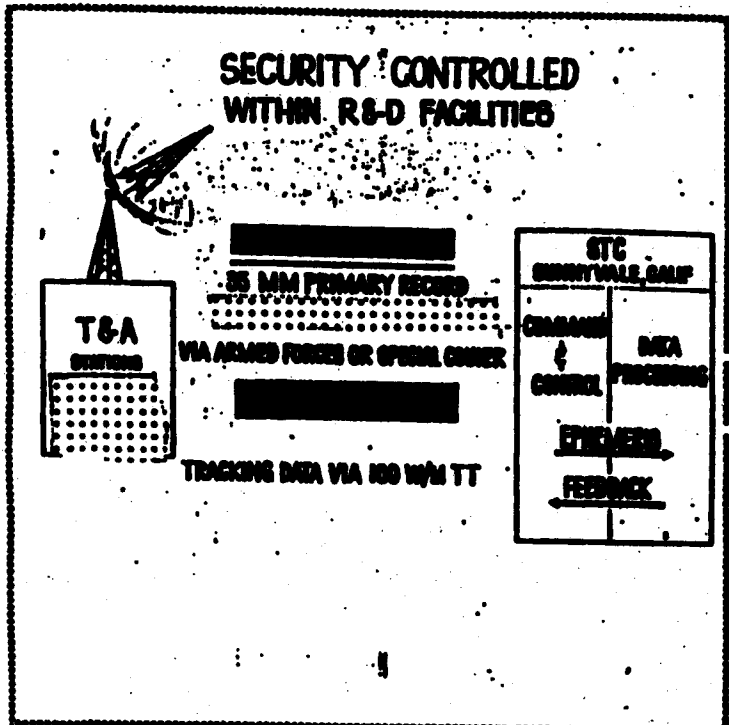


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AL 60 0001 2752

# INTERIM READOUT R & D DATA FLOW



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# SAMOS LAUNCH SCHEDULE

11 AUG 60 DEV PLAN

AL 44 0000 27001



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# SUMMARY

## ELEMENTS OF SAMOS RESEARCH AND DEVELOPMENT PROGRAM

- RECOVERY
  - E-5 PHOTO 5' RESOLUTION \_\_\_\_\_ 7
  - E-6 PHOTO 5' RESOLUTION \_\_\_\_\_ 7
  - DIAGNOSTIC RECOVERY \_\_\_\_\_ 4

- READOUT
  - COMPONENT TESTS PHOTO E-1 \_\_\_\_\_ 8
  - E-2 PHOTO 20' RESOLUTION \_\_\_\_\_ 2
  - \_\_\_\_\_ 1

24 PLUS 5 UNASSIGNED  
ATLAS/AGENA (THRU 1962)

- SPECIAL COMPONENT TESTS
- LAUNCHINGS FROM PT. ARGUELLO
- TRACKING STATIONS

- CONTROL - SATELLITE TEST CENTER - SUNNYVALE
- DATA PROCESSING
- RECOVERY CENTER - HAWAII

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[REDACTED]

# SAMOS FUNDING STATUS

(IN MILLIONS)

REALIGNMENT OF PRESENT PROGRAM.  
TECHNICAL DIRECTION AND SYSTEM  
INTEGRATION FOR PRESENT PROGRAM.  
TOTAL PRESENT PROGRAM FOR FY 1961.  
NEW RECOVERY PROGRAM.  
ADDITIONAL BACK-UP TECHNICAL EFFORT.  
ADDITIONAL BOOSTERS + AGENAS FOR  
FLEXIBILITY.  
AGENA GROUND SUPPORT EQUIPMENT FOR  
NEW STANDS.  
TOTAL ADDITIONAL PROGRAM  
**TOTAL REVISED FY 61  
SAMOS PROGRAM**

## FY 1961 FUNDING REQUIREMENTS



*Re...*  
*...*  
*March 1961*

[REDACTED]

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