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NATIONAL PHOTOGRAPHIC
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PHOTOGRAPHIC EVALUATION REPORT

MISSION 1114

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GLOSSARY OF TERMS

ALTITUDE - Vertical distance from the vehicle to the Hough Ellipsoid at the time of exposure.

APOGEE - That point in an elliptical orbit of a satellite at which the distance is greatest between the orbiting body and the surface of the Hough Ellipsoid.

BINARY TIME WORD - Binary presentation of the accumulated system time.

DATE OF PHOTOGRAPHY - Day, month, and year (GMT) that the photography was acquired.

DISIC - Dual Improved Stellar Index Camera.

ECCENTRICITY - A measure of the deviation of an ellipse from a true circle; expressed by dividing the distance between the foci of the ellipse by the length of its major axis.

EXPOSURE TIME - Time during which a light-sensitive material is subjected to the influence of light; expressed in this text in fractions of a second. Formula:

$$\text{Exposure time (sec)} = \frac{\text{slit width (in)}}{\text{scan rate (radians per sec}}$$

FIDUCIAL MARK - A standard geometrical reference point imaged within the frame of a photograph. The intersection of the primary fiducial marks usually defines the intersection of the principal ray with the focal plane.

FOCAL LENGTH (CALIBRATED) - Adjusted value of the equivalent focal length. Computed to distribute the effect of lens distortion over the entire field.

FOCAL LENGTH (EQUIVALENT) - Distance measured along the lens axis from the rear nodal point to the plane of best average definition over the entire field. Points other than the rear nodal point may be used but must be specified for correct interpretation of data.

FOCAL PLANE - Plane perpendicular to the lens axis, in which images of points in the object field of the lens are focused.

FORMAT - The portion of the frame that contains imagery produced by the primary optical system of the camera.

FRAME* - A single exposure which contains the format and peripheral border information relevant to the format.

GENERATION - Number of reproductive steps by which a negative or positive photographic copy is separated from the original scene, ie., the original negative is generation one, a positive made from the original negative is generation two, etc.

GROUND RESOULUTION* - The minimum distance (expressed as bar plus space) between two adjacent linear features which can be detected by a photographic system, as determined from standard three bar resolution targets. A target is considered to be resolved when a grouping of three bars can be distinguished as three distinct lines.

HOUGH ELLIPSOID - A reference ellipsoid around the earth having a semi-major axis of 20,925,738.18 feet and a semiminor axis of 20,855,588.20 feet.

IMAGE MOTION COMPENSATION (IMC) - A correction made to compensate for relative image motion at the camera focal plane.

INCLINATION - The angle between the orbital and equatorial planes measured counterclockwise from the equatorial plane to the orbital plane with the ascending node as the vertex.

INTERPRETABILITY (PHOTOGRAPHIC) - Suitability of the imagery with respect to answering requirements on a given type of target. Various factors such as halation, uncompensated image motion, poor contrast, incorrect focus, improper film processing, atmospheric conditions (both natural and manmade), ground resolution, and insufficient natural or artificial lighting of the target affect interpretability. The 3 levels of interpretability are: Poor (P) - Unsuitable for adequately answering requirements on a given type of target. Fair (F) - Suitable for answering requirements on a given type of target but with only average detail. Good (G) - Suitable for answering requirements on a given type of target in considerable detail.

INDEX CAMERA - A framing camera used to record terrain imagery. The product is used for relative orientation and mapping purposes.

LOCAL SUN TIME - Time of day computed from the position of the sun relative to the imaged terrain.

MATERIAL CHANGE DETECTOR (MCD) - A pre-exposed pre-processed film strip (approximately three feet long) that is detected by telemetry when it passes through the panoramic camera. This strip is generally spliced between two different film types to signal the film change.

NODAL TRACE - A continuous line imaged along the major axis of each frame to define the optical axis of the lens relative to any given instant of exposure.

PAN GEOMETRY DOTS - Images of the rail holes associated with the pan geometry calibration of the camera.

PANORAMIC CAMERA - Photographs a partial or complete panorama of the terrain in a transverse direction through a scanning motion of the lens system.

PASS - Photographic portion of an orbital revolution. A prefix "D" indicates the descending node, a prefix "A" indicates the ascending node, and a prefix "M" indicates a continuous camera operation from the ascending node through the descending node. An additional suffix "E" indicates that the associated photography was generated for engineering purposes.

PERIGEE - That point in an elliptical orbit of a satellite at which its distance is nearest the surface of the Hough Ellipsoid.

PERIOD - The time required for a satellite to complete one revolution about the earth.

PITCH - Rotation of the camera about its transverse axis. Positive pitch indicates nose up attitude.

PRINCIPAL RAY - That ray of light which emanates from a point in object space and passes undeviated through the centers of curvature of the lens surfaces. It is coincident with the optical axis of the lens.

RELATIVE ORIENTATION - The determining (analytically or in a photogrammetric instrument) of the position and attitude of one of a pair of overlapping photographs with respect to the other.

RESOLUTION - Measure, expressed in lines/nm, of the smallest array of point objects distinguishable as independent point images.

ROLL - Rotation of the camera about its longitudinal axis. Positive roll indicates left wing up attitude.

SOLAR ELEVATION - The angular distance to the sun measured from a plane tangent to the earth at the intersection of the principal ray of the camera and the earth.

STELLAR CAMERA - A framing camera which records stellar images. The product, in conjunction with the product of the Index camera, is used for attitude determination.

UNIVERSAL GRID - An X - Y coordinate system used to define image location on photographic formats.

VEHICLE GROUND TRACK AZIMUTH - Clockwise horizontal angle measured from the longitudinal meridian's intersection of the earth's surface to the vehicle's ground track.

VIGNETTING - Gradual reduction in density of parts of a photographic image due to the stopping of some of the rays entering the lens.

YAW - Rotation of the camera about its vertical axis. Positive yaw represents nose left attitude, as viewed from top of the camera.

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* Defined differently than in the Glossary of NPIC Terminology.

[redacted]

SYNOPSIS

Mission 1114, a two-part satellite reconnaissance mission, was launched at 2105Z on 24 March 1971. The first capsule was recovered dry on rev 115 at 2327Z on 31 March 1971; the second, on rev 260 at 2137Z on 9 April 1971, terminating the mission.

The overall image quality is good and comparable to the best of past missions. Imagery not degraded by atmospherics is consistently sharp and, in many cases, maintains edge sharpness at magnifications of 100X.

Due to an attitude control problem, the perigee for the mission was raised after the third day, reducing the scale.

All cameras operated satisfactorily through pass D235, when an on-board programmer failed, ceasing photographic acquisition.

Approximately 30 percent of the mission is obscured by clouds.

[redacted]

[redacted]

PART I. GENERAL SYSTEM INFORMATION

A. Camera Numbers

Forward-Looking Panoramic	329
Aft-Looking Panoramic	328
DISIC Unit	1R

B. Launch and Recovery Dates

	1114-1	1114-2
Launch	24 Mar 71/2105Z	NA
Recovery	31 Mar 71/2327Z	9 Apr 71/2137Z
Recovery Rev	D115	D260

C. Orbital Elements

Element	Actual 1114-1 (Rev 17)	Actual 1114-2 (Rev 224)	Photo Range
Period (min)	88.441	88.575	NA
Perigee (nm)	85.6	95.4	83.4 (D006)
Apogee (nm)	142.2	140.6	105.0 (D170)
Eccentricity	0.00758	0.00589	NA
Inclination (deg)	81.51	81.52	NA
Perigee Latitude (Geod) (deg-min)	32-13N	33-23N	NA

NA - Not applicable.

D. Photographic Operations

1. Panoramic Cameras:

Type	1114-1 Passes	1114-1 Frames	1114-2 Passes	1114-2 Frames	Total Passes	Total Frames
Operational						
Fwd	32	2,836	36	2,737	68	5,573
Aft	32	2,851	35	2,728	68	5,579
Operational/Domestic						
Fwd	0	0	0	0	0	0
Aft	0	0	0	0	0	0
Domestic						
Fwd	4	112	4	64	8	176
Aft	4	113	4	64	8	177
Engineering (no imagery)						
Fwd	2	25	1	6	3	31
Aft	2	26	1	6	3	32
Total						
Fwd	38	2,973	41	2,807	79	5,780
Aft	38	2,990	41	2,798	79	5,788

2. Secondary Cameras:

Camera	Frames
Stellar (1114-1)	2,438 Starboard 2,433 Port
Index (1114-1)	2,446
Stellar (1114-2)	2,536 Starboard 2,558 Port
Index (1114-2)	2,574

E. Film Usage

Camera	Film Load (Total)	Pre-Flight Footage	Processed Footage*	Film Type
Fwd-Looking (1114-1)	16,300**	235	464	3404
			7,944	3414
Aft-Looking (1114-1)	16,300**	334	446	3404
			8,105	3414
Fwd-Looking (1114-2)	NA	NA	534	3404
			6,849	3414
Aft-Looking (1114-2)	NA	NA	555	3404
			6,871	3414
Stellar (1114-1)	2,000	13	740	3401
Stellar (1114-2)	NA	NA	693	3401
Index (1114-1)	2,200	58	1,147	3400
Index (1114-2)	NA	NA	1,071	3400

*Values include pre-flight footages.
**Total load for both buckets (feet).
NA - Not applicable.

PART II. CAMERA OPERATION

All cameras operated satisfactorily through pass D235, but no photography was acquired after rev D235. Due to an onboard programmer failure, 95 percent of the main camera film, 70 percent of the stellar film, and 100 percent of the index film was used.

PART III. IMAGE ANALYSIS

A. Fwd-Looking Panoramic Camera

1. Density: Medium to heavy throughout the mission.

2. Contrast: Medium to low throughout the mission.

3. Image Quality: Good overall and comparable to the best of past missions. Imagery not degraded by atmospherics is consistently sharp and, in many instances, maintains sharpness at magnifications of 100X. Some of the factors contributing to the good performance of this mission are as follows:

a. Pre-flight lens focusing to adjust for an average flight temperature of 60 degrees F.

b. The use of 3414 film and dual gamma processing which permits shorter exposure times.

c. The installation of glass filters with the IV-generation Petzval lens.

d. This mission was flown at the time of year that permitted shorter exposure times.

e. The introduction of SO-192 duplicating material.

The MIPs for Mission 1114 are 120 and 125, respectively. The increase on Bucket 2 is not attributed to a change in camera performance, but is at least partially attributable to the availability of imagery suitable for MIP testing.

4. Imaged Degradations:

a. Light Leaks - Roller/equipment shadowgraphs are present on the first and last parts of many passes. These shadowgraphs range from .5 to 1.5 inches in length and extend across the film web. Degradation to the imagery is very minor.

b. Static - The pre-flight material and the first 10 passes contain two rows of plus density static spots. The spots occur at a frequency of 1.6 inches and are located 1.5 and 0.6 inches from the time track edge. The spots are offset along the film web 0.7 inches from each other.

c. Other - The characteristic out-of-focus bands are present on frames 3 and 4 of some passes. These areas are associated with film path rollers, and the severity of degradation is dependent upon the length of camera-off time between operates.

5. Physical Degradations:

a. Rail scratches are heavy on the pre-flight material and diminish slightly as the mission progresses.

b. A relatively minor base scratch, located 0.75 inch from the time track edge, begins in frame 5 of pass A09E. By pass D024, its severity decreases to a point that it becomes nearly impossible to detect.

c. Frames 108 and 109 of pass D103 contain very fine scratches and abrasions apparently associated with the cut and wrap sequence.

d. Splices are located at the following locations:

Pass	Frame	Type
D49	75	Manufacturer's
D90	39	3414/3404 transition
D103	106	Bucket transfer
D105	27	3404/3414 transition
D135	19	Manufacturer's

B. Aft-Looking Panoramic Camera

1. Density: Medium to heavy throughout mission.

2. Contrast: Medium to low throughout mission.

3. Image Quality: Slightly less overall than that of the fwd. Most aft imagery retains sharpness at magnifications up to 50X, and some, to 100X.

4. Imaged Degradations:

a. Light Leaks:

(1) Roller/equipment shadowgraphs, similar to those described in Part III, paragraph 4a, are present.

(2) Some passes contain a small, one-eighth-inch-wide plus density fog pattern across the film web. This pattern occurs on the seventh-from-the-last frame on passes so affected.

b. Static - Dendritic static is present intermittently from pass 151 throughout the rest of the mission.

c. Other - None noted.

5. Physical Degradations:

a. A small foreign deposit is present in frame 04 of pass A09E. The deposit repeats every 3.12 inches and is located 1.0 inch from the time track edge. A base scratch begins at the point of the first deposit and continues through pass D040. Its severity decreases during pass 038, becomes intermittent during pass D039, and stops at a point 0.12 inch from the time track edge on frame 180 of pass D040. A processing cut was made in frame 180 of pass D040. The scratch could not be detected after the processing cut.

b. Splices are located at the following locations:

Pass	Frame	Type
D40	180	Processing
D90	48	3414/3404 transition
D103	109	Bucket transfer
D105	26	3404/3414 transition
D167	66	Manufacturer's

c. Stellar Cameras

1. Density: Generally medium throughout mission.

2. Contrast: Adequate for detection of stellar images.

3. Image Shape: Generally point-type.

4. Images per Frame: Approximately 8 to 12 stellar images are recorded on the starboard formats and 10 to 15 images, on the port formats.

5. Image Degradations:

a. Light Leaks - None noted.

b. Static - The last 18 inches of film contain dendritic and corona static marking associated with the cut and wrap sequence.

c. Other - The trailing edge of the starboard format contains a series of minus density spots, which appear to be caused by particles on the reseau plate.

6. Physical Degradations: None noted.

D. Index Camera

1. Density: Generally medium.

2. Contrast: Medium to low.

3. Image Quality: Generally good.

4. Imaged Degradations:

a. Light Leaks - None noted.

b. Static - None noted.

c. Other - None noted.

5. Physical Degradations: None noted.

PART IV. IMAGED AUXILIARY DATA

The auxiliary data for all cameras is imaged properly throughout the mission except as noted below:

1. The horizon format locations of both the fwd and aft units are slightly erratic with respect to the main camera formats. The two formats never overlap. However, a minimum distance of .06 inch occurs between a shutdown panoramic frame and the adjacent horizon frame.

2. Imagery from the fwd unit on pass D001 contains sequentially overexposed, underexposed, and smeared camera number images. All passes after D001 contain alternately overexposed and underexposed camera number images.

3. The binary time word is not recorded on some stellar and index frames throughout the mission.

PART V. MENSURATION QUALITY

Eighty-nine requests for mensuration, twice the average number for a KH-4B mission, were fulfilled during the initial-phase readout of 1114. The overall mensuration quality is good, with excellent acuity and slightly better-than-average accuracy.

[redacted]

PART VI. FILM PROCESSING

A. Processing Data

Camera	Mission	Machine/ Process	Process Chemistry	Film	Average Gamma	Speed AEI	Speed AFS
Fwd	1114-1	Yardleigh/ Dual Gamma	XK-30	3414	2.12	5.74	15.89
	1114-1	Yardleigh/ Dual Gamma	XK-3	3404	2.13	3.27	9.15
	1114-2	Yardleigh/ Dual Gamma	XK-3	3404	2.10	3.23	9.04
	1114-2	Yardleigh/ Dual Gamma	XK-30	3414	2.24	5.12	15.00
Aft	1114-1	Yardleigh	XK-30	3414	2.12	5.37	16.26
	1114-1	Yardleigh	XK-3	3404	2.13	3.27	9.15
	1114-2	Yardleigh	XK-3	3404	2.10	3.23	9.04
	1114-2	Yardleigh	XK-30	3414	2.16	5.74	15.71
Stellar	1114-1	Trenton/ Single Level	P-693	3401	2.12	60.81	205
	1114-2	Trenton/ Single Level	P-693	3401	2.17	73.95	249
Index	1114-1	Viscous Fultron/ Dual Gamma	XK-15E	3400	1.63	26.55	71.79
	1114-2	Viscous Fultron/ Dual Gamma	XK-15E	3400	1.64	25.64	70.16

B. Film Handling Summary

Film handling and initial breakdown were accomplished in the normal procedure with the following exceptions:

1. This was the first KH-4B mission to be duplicated on SO-192 film. Some difficulties in breakdown were encountered on the first bucket. The main difficulty was attributed to the improved image transfer characteristics of SO-192 and the cross-frame titling used on KH-4B missions. The titling transferred to adjacent wraps on the original and caused many beauty defects in the duplicates. Attempts to remove the transferred titling proved futile and caused delay in duplication. On the second bucket, a lacquering machine was used to alleviate the problem.

2. Both portions of the mission contained split loads of 3404 and 3414 film. This change in film necessitated a chemistry change-over, delaying processing of the film approximately four hours.

[redacted]

Approximately 90 percent of Mission 1114-2 was multiple printed. This is the highest percentage of multiple printing of any KH-4B mission. Some of the reasons for this high level of multiple printing are as follows:

a. In order to permit stereo viewing from imagery of comparable density, the NPIC requested that if a light or dark print was required from a fwd or aft record, it should be made from both.

b. The density ranges of the original negative printing parts were unusually high compared to 1114-1 and other late-winter missions.

c. There was a change in system sensitometry resulting from the shift to SO-192 ultra-fine-grain duplication material and the liberalized use of multiple printing levels in borderline cases due to the improved micro-imagery in the SO-192.

C. Timetable

Mission	Recovered	Received at Processing Site	Priority 1A at NPIC
1114-1	31 Mar 71/2327Z	1 Apr 71/1855Z	4 Apr 71/1417Z
1114-2	9 Apr 71/2137Z	10 Apr 71/1830Z	14 Apr 71/1715Z

PART VII. PI SUITABILITY

A. PI Statistics

1. Target Summary:

	1114-1	1114-2	Total
Reported	168	295	463

2. PI Quality:*

Target Type	Ratings Ex	Good	Fair	Poor	Total Reports
Missiles	0	7	59	83	149
Air Installations	0	3	80	49	132
Nuclear Energy	0	1	31	14	46
Military Installations	0	0	35	30	65
Chemical/Biological/ Radiological Warfare	0	9	7	7	23
Electronics	0	0	0	0	0
Industry	0	0	0	0	0
Basic Services	0	0	0	0	0
Ports and Harbors	0	0	0	0	0
Storage	0	0	1	0	1
Urban Complexes	0	0	2	0	2
Unidentified Installations/ Activities	0	0	2	0	2
Miscellaneous	0	7	5	0	12
Total	0	28	241	194	463

3. Summary of PI Quality Ratings:

Excellent	0%
Good	6%
Fair	52%
Poor	42%

*Data from OAK Report by target type in NPIC category code order.

B. PI Comments

1. Atmospheric Attenuation: Listed below is the photointerpreters' report of weather conditions for Priority 1 targets covered on this mission.

a.	Clear	268	or 57.8%
b.	Scattered Clouds	86	or 17.9%
c.	Heavy Clouds	50	or 10.9%
d.	Haze	62	or 13.4%
e.	Cloud Shadow	0	or 0%

2. Product Interpretability: The PI suitability for this mission ranges from good to poor, with most photography in the fair-to-poor category. Due to an attitude control problem, the perigee for the mission was raised after the third day, reducing the scale of the imagery thereafter. Passes D001 through D048 were obtained at altitudes ranging from 86 nm to 96 nm. After pass D048 the altitude ranged from 99 nm to 105 nm. The reduced scale after the third day produced imagery of poorer interpretability over some target areas. Interpretability was degraded by poor atmospheric conditions in some areas; 13.4 percent of the mission was reported to be affected by haze. This is the highest percentage of haze reported on any KH-4B mission.

PART VIII. RESOLUTION TARGET DATA

Target Designator	1		2	
Pass	D048		D048	
Date of Photography	27 Mar 71		27 Mar 71	
Location	Safford, Ariz		Safford, Ariz	
Type	51/51 T-Bar		Vernier	
Contrast	5:1		5:1	
Geographic Coordinates (deg-min)	32-49N 109-44W		32-49N 109-44W	
Local Sun Time	1243		1243	
Solar Elevation (deg)	58.7		58.7	
Vehicle Ground Track Azimuth (deg)	172.7		172.7	
Altitude (nm) (avg fwd and aft)	84.5		84.5	
Processing	Dual Gamma		Dual Gamma	
Weather Conditions	Clear		Clear	
Camera (looking)	Fwd	Aft	Fwd	Aft
Frame	009	015	009	015
Universal Grid Coordinates (deg-min)	38.2-3.2	37.5-3.3	38.2-3.2	37.5-3.3
Exposure	1/580	1/766	1/580	1/766
Filter (Wratten)	W25	W23	W25	W23

GROUND RESOLUTION IN FEET AS DETERMINED FROM THE ORIGINAL NEGATIVE AND SECOND GENERATION DUPLICATE POSITIVE

		ORIGINAL NEGATIVE				DUPLICATE POSITIVE			
		Fwd		Aft		Fwd		Aft	
Target	Observer	Along Track	Across Track	Along Track	Across Track	Along Track	Across Track	Along Track	Across Track
1	1	5.0	6.3	7.2	7.2	5.6	6.3	6.3	7.2
	2	5.6	5.0	6.3	6.3	7.2	6.3	5.6	6.3
	3	5.6	5.6	7.2	6.3	5.6	6.3	5.6	6.3
	4	5.6	6.3	7.2	7.2	5.6	6.3	7.2	7.2
	5	5.0	6.3	5.6	6.3	5.6	6.3	6.3	7.2
2	1	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
	2	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
	3	7.0	7.0	7.5	7.0	7.0	7.0	7.0	7.0
	4	7.0	7.0	7.5	7.0	7.0	7.0	8.0	7.0
	5	7.0	7.0	7.5	7.0	7.0	7.0	7.5	7.0

PART VIII. (CONTINUED)

Target Designator	3		4	
Pass	D048		D048	
Date of Photography	27 Mar 71		27 Mar 71	
Location	Ft. Huachuca, Ariz		Ft. Huachuca, Ariz	
Type	Leg A		Leg C	
Contrast	10:1		17:1	
Geographic Coordinates (deg-min)	31-36N 110-19W		31-36N 110-19W	
Local Sun Time	1243		1243	
Solar Elevation (deg)	59.7		59.7	
Vehicle Ground Track Azimuth (deg)	172.9		172.9	
Altitude (nm) (avg fwd and aft)	84.5		84.5	
Processing	Dual Gamma		Dual Gamma	
Weather Conditions	Clear		Clear	
Camera (looking)	Fwd	Aft	Fwd	Aft
Frame	018	024	018	024
Universal Grid Coordinates (deg-min)	12.8-2.6	63.0-4.0	12.8-2.6	63.0-4.0
Exposure	1/580	1/766	1/580	1/766
Filter (Wratten)	W25	W23	W25	W23

GROUND RESOLUTION IN FEET AS DETERMINED FROM THE ORIGINAL NEGATIVE AND SECOND GENERATION DUPLICATE POSITIVE

		ORIGINAL NEGATIVE				DUPLICATE POSITIVE			
		Fwd		Aft		Fwd		Aft	
Target	Observer	Along Track	Across Track	Along Track	Across Track	Along Track	Across Track	Along Track	Across Track
3	1	12.5	11.2	14.1	14.1	11.2	11.2	14.1	14.1
	2	11.2	10.0	14.1	11.2	12.5	12.5	12.5	14.1
	3	11.2	11.2	14.1	14.1	11.2	11.2	14.1	14.1
	4	11.2	12.5	12.5	12.5	11.2	14.1	14.1	14.1
	5	11.2	11.2	12.5	14.1	11.2	11.2	11.2	14.1
4	1	8.8	10.0	14.1	14.1	8.8	8.8	14.1	14.1
	2	8.8	10.0	14.1	14.1	11.2	10.0	12.5	12.5
	3	8.8	10.0	14.1	14.1	8.8	10.0	12.5	12.5
	4	11.2	10.0	12.5	14.1	11.2	10.0	14.1	16.0
	5	11.2	11.2	16.0	16.0	11.2	10.0	14.1	16.0

PART VIII. (CONTINUED)

Target Designator	5		6	
Pass	D048		D048	
Date of Photography	27 Mar 71		27 Mar 71	
Location	Douglas, Ariz		Douglas, Ariz	
Type	51/51 T-Bar		Vernier	
Contrast	5:1		5:1	
Geographic Coordinates (deg-min)	31-24N 109-35W		31-24N 109-35W	
Local Sun Time	1243		1243	
Solar Elevation (deg)	60.1		60.1	
Vehicle Ground Track Azimuth (deg)	173.0		173.0	
Altitude (nm) (avg fwd and aft)	84.5		84.5	
Processing	Dual Gamma		Dual Gamma	
Weather Conditions	Clear		Clear	
Camera (looking)	Fwd	Aft	Fwd	Aft
Frame	020	027	020	027
Universal Grid Coordinates (deg-min)	36.2-1.3	39.4-0.4	36.2-1.3	39.4-0.4
Exposure	1/580	1/766	1/580	1/766
Filter (Wratten	W25	W23	W25	W23

GROUND RESOLUTION IN FEET AS DETERMINED FROM THE ORIGINAL NEGATIVE AND SECOND GENERATION DUPLICATE POSITIVE

		ORIGINAL NEGATIVE				DUPLICATE POSITIVE			
		Fwd		Aft		Fwd		Aft	
Target	Observer	Along Track	Across Track	Along Track	Across Track	Along Track	Across Track	Along Track	Across Track
5	1	*	8.0	*	12.0	*	7.2	*	7.2
	2		6.3		12.0		7.2		7.2
	3		7.2		8.0		7.2		5.6
	4		7.2		8.0		7.2		8.0
	5		8.0		8.0		7.2		7.2
6	1	9.0	8.5	7.5	7.5	9.0	7.5	7.0	7.5
	2	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
	3	9.5	7.5	7.5	7.5	9.0	7.5	7.0	7.5
	4	8.0	7.5	7.0	7.5	9.0	8.0	8.5	7.5
	5	9.0	7.5	7.0	7.5	9.0	7.5	7.0	7.5

*Along-track resolution not read due to wind damage of target.

PART IX. MISSION 1114 DATA

		Forward-Looking			Aft-Looking			Stellar		Index
		▲ Pan	Takeup Horizon	Supply Horizon	● Pan	Takeup Horizon	Supply Horizon	Port	Starboard	
Camera Number		329	*	*	328	*	*	1R		1R
Reseau Number		*	*	*	*	*	*	16P	10	103
Lens Serial Number		I-216	E-40782	E-40792	I-217	E-28518	E-40781	16P	10	103
Slit Position/ Slit Widths (in.)	1	0.142			0.110					
	2	0.184			0.152					
	3	0.220	*	*	0.189	*	*	*		*
	4	0.323			0.278					
	FS	0.198			0.163					
Aperture		*	f/8.0	f/6.3	*	f/6.3	f/8.0	f/2.8	f/2.8	f/6.3
Exposure Time (sec)		Variable	1/100	1/100	Variable	1/100	1/100	1.5	1.5	.002
Filter (Wratten) Primary		W25 (.037)	W25	W25	W23 (.037)	W25	W25			W12
Alternate		W25 (.040)	*	*	W23 (.040)	*	*	None	None	*
Focal Length (mm)		609.678	55.0	55.0	609.587	55.0	55.0	76.20	76.20	76.20
Film Length (ft)		16,300	*	*	16,300	*	*	2,000		2,200
Splices		5	*	*	6	*	*	0		0
Emulsion		3414-7-2-3-1/ 3404-452-10-3-1	* *	* *	3414-7-2-3-1/ 3404-452-10-3-1	* *	* *	364-1-12-0		227-8-9-0
Film Type		3414/3404			3414/3404			3401		3400
Resolution Data (L/mm)		- - -	187R/166T	187R/166T	- - -	209R/187T	187R/166T	NA	NA	91R/91T
Static										
High Contrast		NA	NA	NA	NA	NA	NA	NA	NA	NA
Low Contrast		168	NA	NA	204	NA	NA	NA	NA	NA
Dynamic										
I High Contrast		255	NA	NA	272	NA	NA	NA	NA	NA
I Low Contrast		168	NA	NA	164	NA	NA	NA	NA	NA
P High Contrast		337	NA	NA	298	NA	NA	NA	NA	NA
P Low Contrast		218	NA	NA	176	NA	NA	NA	NA	NA

NA - Not Available.
* - Not Applicable.
R - Radial Resolution on Axis.
T - Tangential Resolution on Axis.
▲ - Resolution Tested using a W25 filter.
● - Resolution Tested using a W23 filter.

PART X. MISSION INFORMATION POTENTIAL (MIP)
HISTORY, 1100 Series

Mission	MIP#	Pass	Frame	Universal Grid Coord	
1101	85	159D	2 Fwd	39.0	1.5
1102*	90	16D	22 Fwd	26.8	1.3
1103	90	79D	15 Fwd	41.8	3.8
1104*	115	16D	6 Fwd	33.1	4.1
1105*	95	16D	20 Aft	47.3	1.2
1106*	110	32D	8 Fwd	17.9	1.8
1107	95	122D	30 Aft	43.7	2.4
1108-1	105	30D	20 Fwd	28.8	0.5
1108-2	100	242D	20 Fwd	33.7	2.3
1109-1	110	16D	3 Fwd	25.8	3.2
1109-2	100	145D	6 Fwd	40.5	2.5
1110-1	90	122D	55 Fwd	49.1	6.3
1110-2	95	201D	112 Fwd	51.7	4.8
1111-1	105	A10	1 Fwd	36.7	1.9
1111-2	105	A189	14 Fwd	16.9	4.2
1112-1	115	D16	11 Aft	50.8	2.9
1112-2	115	D242	12 Aft	38.0	1.2
1114-1	120	D056	95 Fwd	13.3	2.8
1114-2	125	D203	32 Fwd	38.5	3.2

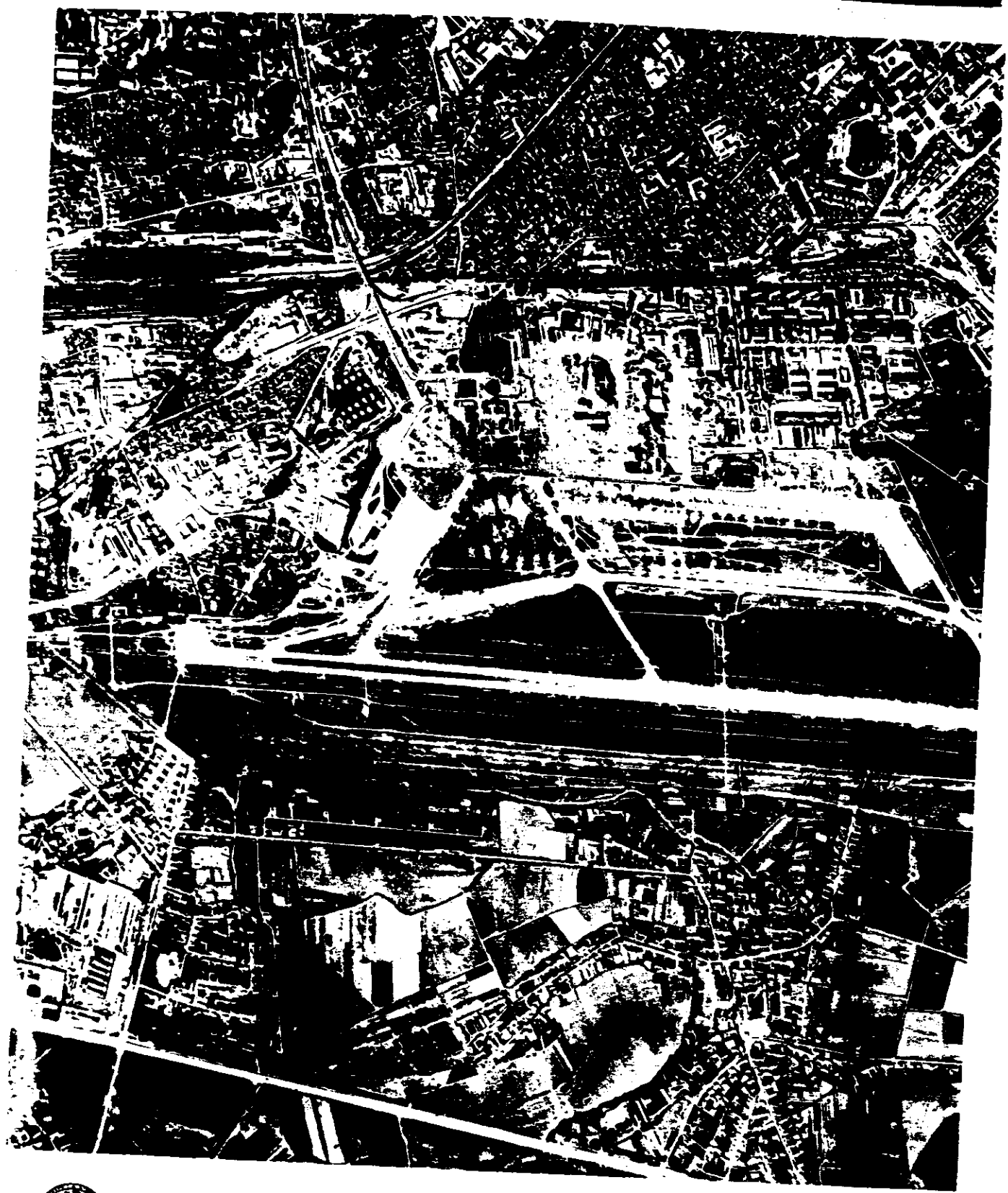
*Standards

FIGURE 1. BEST IMAGE QUALITY (1114-1 MIP)
TASHKENT AIRFIELD SOUTH, USSR

FIGURE 2. BEST IMAGE QUALITY (1114-2 MIP)
LOD AIRFIELD, ISRAEL

	Figure 1	Figure 2
Camera	329	329
Pass	D056	D203
Frame	95 Fwd	32 Fwd
Date of Photography (GMT)	28 Mar 71	6 Apr 71
Universal Grid Coordinates (deg-min)	13.3X 2.8Y	38.5X 3.2Y
Enlargement Factor	20X	20X
Geographic Coordinates (format center) (deg-min)	41-23N 70.12E	31-59N 34-53E
Altitude (ft)	586,630	584,742
Local Sun Time	1230	1105
Solar Elevation (deg-min)	51-15	62-15
Exposure (sec)	1/499	1/493
Filter (Wratten)	W25	W25
Vehicle Ground Track Azimuth (deg-min)	171-11	172-53
Processing	Dual Gamma	Dual Gamma

[redacted]



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