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PRE-ORBITER INVESTIGATION

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PRE-ORBITER INVESTIGATION

ABSTRACT

With the National Aeronautics and Space Administrations's (NASA) Lunar Orbiter Program forthcoming, it was necessary to determine the mapping potential of the system. This system of transmission and assembly of segments of photographs into a complete photographic frame was new. It was necessary, therefore, to determine the specific geometrical characteristics of the system as completely as possible. As the key phase of the investigation, the Army Map Service (AMS), under contract to the NASA Manned Spacecraft Center (MSC), Houston, Texas, produced a film strip to test the readout and assembly systems. This study was coordinated with NASA by the Defense Intelligence Agency.

The analysis of the Orbiter System was of a highly cooperative nature, reflecting the interest of many organizations in achieving the maximum results from this program to further extraterrestrial exploration. During the period of this study, AMS supplied various films and other information to U. S. Geological Survey (USGS), Aeronautical Chart and Information Center (ACIC), and MSC. This report covers:

a. Mensuration of control.

b. Reduction of measurements to selenodetic control.

c. Production of the Special Readout Test Film.

d. Analysis of the Time Data Block.

e. Dusting of models for the Lunar Landmark and Simulator Materials Study.

f. Analysis of the Special Readout Test Film and Goldstone Film in the Camera System Study which predicts the contour interval that can be obtained from photogrammetric models of Orbiter photography.

FOREWORD

This final report describes the studies conducted and the conclusions and recommendations derived for the project "Pre-Orbiter Investigation," Production Order Number 95514-014, approved 11 March 1966. This project was conducted under an Army Map Service (AMS)-National Aeronautics and Space Administration (NASA) Agreement, NASA Defense Purchase Request No. T-55870, coordinated by the Defense Intelligence Agency (DIA). Due to the complexity of the project, it was divided into several phases: (a) Mensuration for Intensification of Selenodetic Control, (b) Intensification of Selenodetic Control in Support of NASA Project Apollo, (c) Special Readout Test Film, (d) Analysis of the Time Data Block, (e) Lunar Landmarks and Simulator Materials, and (f) Camera System Study. The above operations and studies were conducted by Messrs. R. Barrett, L. Bowles, R. Harpe, and D. Light. All phases of the project except the Intensification of Selenodetic Control were completed on or before September 1966, and drafts of the preliminary data were included in monthly reports to the Manned Spacecraft Center, NASA, Houston, Texas. This final report represents the refinement and consolidation of all data derived in the Pre-Orbiter Investigation.

The reduction and analysis of data derived from the Mensuration for Intensification of Selenodetic Control were performed by Miss M. Short and Messrs. D. Popevis and G. Schiebel, project leader. Chapter 3, "Intensification of Selenodetic Control," was co-authored by Mr. G. Schiebel and Miss M.

Short. This phase of the work was supervised by Mr. M. Marchant, under the general direction of Mr. E. Rutscheidt, Chief, Research and Analysis Division. The overall direction of the geodetic reduction program was under the direction of Mr. D. Mills, Chief, Department of Geodesy.

Conduct of supporting phases, coordination and consolidation of all phases, as well as the writing of the all but Chapter 3 of the final report, were the responsibility of Project Engineer Mr. R. Harpe. The entire project was conducted under the supervision of Mr. J. Theis, Chief, Investigations and Improvements Branch, under the general direction of Mr. V. Bauer, Chief, Department of Applied Cartography. Others contributing to the investigation with special skills were:

a. Messrs. M. Abelson, C. Becker, J. Odell, and F. Pickering - acquisition of earth-based telescopic photography of the moon.

b. Mr. R. Thomas - training in and supervision of mensuration techniques.

c. Messrs. J. Bunell, V. Deitz, C. Lanham, and L. Schenk - cataloging.

d. Messrs. F. Duffy, R. Gordon, L. Hummon, C. Hurdell, C. Kiljian, D. Knott, A. Popolaski, Z. Sloan, B. Smith, and C. Warren - comparator operators.

e. Messrs. D. Morris, R. Mulloy, and L. Vance - photographic processing of Special Readout Test Film.

f. Mr. M. Coleman - programming and data processing assistance.

g. Mr. E. Meyers - comparator maintenance.

The Defense Intelligence Agency Lunar C rbiter Committee, advisers for this investigation, was comprised of: Dr. R. Hardy (DIA), Mr. D. Lyon (ACIC), and Mr. A. Nowicki (AMS).

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PRE-ORBITER INVESTIGATION

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PRE-ORBITER INVESTIGATION

CHAPTER 1

GENERAL INTRODUCTION

1. PURPOSE. Studies, training, and investigation were accomplished to provide: (a) skilled personnel for the future reduction of Lunar Orbiter photography into map data; (b) sufficient control for mapping in the Apollo area of interest; and (c) sufficient data to permit the maximum exploitation of stereophotogrammetric measurements of features from future Lunar Orbiter photography.

2. SCOPE. The above objectives encompassed the following activities: (a) training of personnel in recognition and mensuration techniques, and the subsequent mensuration of lunar features appearing on earth-based photography, (b) intensification of selenodetic control in the Apollo area of interest, (c) design of a Special Readout Test Film for the Orbiter readout and reassembly components, (d) analysis of the Time Data Block, (e) limited preliminary Lunar Landmark experiments, and (f) a study of the camera system including an indication of the contour interval that could be obtained from Orbiter photography.

3. FORMAT. a. This report is divided into chapters which discuss the above mentioned activities, arranged in approximate order of investigative sequence. Because of the complexity of the project summaries for each investigative phase and recommendations--where appropriate--are presented

at the end of each chapter.

b. Tabular and illustrative data that are principally for reference purposes are included as appendixes. These comprise: mensuration results, statistical data and analyses, line and vector graphs, diagrams of test material characteristics, trig lists, and photographs of selected lunar areas.

CHAPTER 2

MENSURATION FOR INTENSIFICATION OF SELENODETIC NETWORK

SECTION I. INTRODUCTION

4. SUBJECT. The densification of control within the equatorial band of the Lunar surface between +45° and -55° longitude and ±5° latitude required numerous steps. Each step will be described under the following headings: (a) training of personnel, (b) acquisition of phase photography, and (c) description of mensuration technique and its application.

5. BACKGROUND. The control that had been established in the areas for which photography was proposed in the Lunar Orbiter Program was inadequate. A minimum of six selenodetic control points is required for each photographic site, if the areas are to be adequately compiled photogrammetrically. The Army Map Service (AMS) suggested that the area of interest be saturated with control points; it was proposed that these include craters approximately 3 kilometers or less in diameter.

SECTION II. DISCUSSION AND SUMMARY

6. TRAINING OF PERSONNEL. On 11 January 1966, training of highly skilled photogrammetric instrument operators in recognition and mensuration techniques with Mann Monocomparators was begun.

a. Instruction. The instruction consisted of: (1) the basic use of the measuring engine, (2) the use of both Telecordex - typewriter and Mann Data Logger - IBM keypunch combination, (3) recognition of lunar features, and

(4) the AMS "boxing-in" technique for measurement of Lunar features.

b. Length of Training. The individual training periods ranged from 5 to 17 days. A factor that extended some operator training periods was the mechanical failure of the measuring engines, Telecordex, typewriter, or card punch.

c. Qualification. Of the 11 operators trained, only one failed to meet the requirements established for evaluating predetermined positions on test plates. Previous records for training of selected personnel showed a non-qualification rate of 30 to 40 percent.

7. ACQUISITION OF PHOTOGRAPHY. a. Observatories Visited. Two teams of specially trained personnel were selected to acquire the necessary earth-based photography. These teams visited the following observatories: (1) Allegheny at Pittsburgh, Pennsylvania; (2) Yerkes at Williams Bay, Wisconsin; (3) Lowell at Flagstaff, Arizona; and (4) Lick at Mount Hamilton, California.

b. Type of Photography. Photography acquired with earth-based cameras with the aid of refractor-type telescopes is the only type that can be used with AMS measurement and reduction techniques. Although reflector-type telescopes produce photography with superior resolution, refractor telescopes retain the geometric and photometric relationships necessary for AMS instrumention. Investigation of observatory holdings of photography acquired with refractor telescopes disclosed that photography having a complete lunar image with a diameter of 5 to 7 inches and with a scale range of approximately 1:20,000,000 to 1:27,000,000 was available.

c. Plate Selection. Approximately 100 plates were duplicated at the observatories. A re-evaluation of the plates was necessary after all plates had been received at AMS. The new evaluation was based on the quality of the photography and the fundamentals concerning the plates, such as time of acquisition, length of exposure, and meteorological conditions. As a result of this re-evaluation, the number of usable plates was reduced to 16.

d. Point Selection. It had been previously agreed upon to measure a minimum of 1,000 points for basic control. AMS selected 1,240 points for measurement. Only these points that had not previously been measured or that had a crater diameter of 7 kilometers or less were selected. The average diameter of the points selected for measurement was estimated at 3.2 kilometers.

e. Pre-Mensuration Cataloguing. The 16 selected plates were used to make enlarged photographic prints. The lunar image on each plate was enlarged to 30 inches. It was then necessary to identify and record all known control on these photographic prints. Also, the previously selected points were identified and recorded on this photography. The cataloging consisted of the following information: (1) crater name, (2) number code, (3) crater diameter, (4) estimated rim height, (5) orthographic coordinates, and (6) plate identification.

8. DESCRIPTION OF MENSURATION TECHNIQUE AND APPLICATION.

a. Technique. The measurement of craters at AMS is accomplished by a technique referred to as "boxing-in." This technique requires the operator to bring the crosshair into tangency with the rim of the crater at four separate stations: right center, left center, top center, and bottom center. The crater center is thus defined mathematically. Each plate is measured in two different orientations, one designated as 0^{o} and the other as 180^{o}. The primary purpose for rotating the plate is to eliminate operator bias.

b. Application. The first step in this operation requires that the plates be "sessionized" (i.e., the subdivision of plates into sections containing 44 to 65 points so that any measurement sequence started by an operator can be completed during one measuring time, or session). The average number of points that can be measured in any 8-hour period is 50, providing that the instrument is equipped with an on-line card punch.

(1) The 1,240 selected points were identified and measured. Their average diameter, previously estimated at 3.2 kilometers, was found to be 2.7 kilometers.

(2) The 1,240 points were identified on as many of the 16 plates as possible. This increased the number of craters to be measured to 7,307. An average of 41 known control points were identified on each of the 16 plates for a total of 669 points. These control points increased the number of required measurements to 7,976.

(3) With each point measured at the two separate orientations of 0^{o}

and 180°, a total of 15,952 points had to be measured. The observation of each point was made three times for a total of 47,856 observations. With the "boxing-in" technique, each point was measured from four tangent positions for a total of 191,424 comparator readings. The data for each of these readings were entered on a separate IBM card.

(4) The IBM cards were delivered to the computer personnel in blocks of 12,000 to 31,000 for processing through the card reader. The print-out of the data was returned and analyzed for input errors before being forwarded to the Selenodetic Studies Group, Department of Geodesy, for data reduction.

9. EQUIPMENT. Three Mann Monocomparators were used as the measuring engines. Each instrument was situated on a clean bench. When these instruments were put into service on a 24-hour-per-day basis, some difficulties were encountered and breakdown time was quite high, except where solid-state units were used (table I).

10. PREVENTATIVE MAINTENANCE. Instruments were cleaned and lubricated on a biweekly basis. This preventative maintenance was the main reason for reduced breakdown time when the solid-state system matched units were installed.

11. SUMMARY. The mensuration phase was completed on 18 May 1966. This phase required a considerable clerical effort because of the number of operators, instruments in use, photographic prints and plates, print-out sheets, and the required correlation of some 200,000 IBM cards.

Table I. Instrument Operation and Breakdown Time

Unit No.	Original Equipment	Operational (Hours)	Breakdown (Hours)	Replacement	Operational (Hours)	Breakdown (Hours)
1	Clean Bench					
	Mann (Monocular) Monocomparator					
	Telecordex (2) (Accumulator)			Mann Data Logger		
	Typewriter	180.5	123.5	526 IBM Card Punch	816.5	47.5
2	Clean Bench			Clean Bench		
	Mann (Monocular) Monocomparator			Mann (Binocular) Monocomparator		
	Wang Lab (Accumulator)			Mann Data Logger		
	026 IBM Card Punch	296.0	280.0	562 IBM Card Punch	280.0	5.5
3	Clean Bench					
	Mann (Monocular) Monocomparator					
	Mann Data Logger					
	526 IBM Card Punch	1185.0	7.0			
		1661.5	410.5		1096.5	53.0

Totals: 2,758.0 operational hours; 463.0 breakdown hours.
Percentage: breakdown time compared with operational time 16.8%

CHAPTER 3

INTENSIFICATION OF SELENODETIC CONTROL

SECTION I. INTRODUCTION

12. PURPOSE. In support of NASA project Apollo, AMS initiated a project to increase the existing control of the lunar surface by using additional high-quality, earth-based photography.

13. SCOPE. The potential Apollo landing area in which control was to be intensified was bounded by the selenocentric parallels of $\pm 5^\circ$ and by the meridians of 50° and 300° (figure 1).

SECTION II. PHOTOGRAPHY

14. COLLECTION. Since phase photography available at AMS was not adequate for the project, additional phase photography was obtained from the Lick Observatory. The plates acquired were reproduced on 9.5- x 9.5- x 0.25-inch Super Aerographic Medium Contrast glass plates. Identification data for the photographs obtained from Lick Observatory are given in table II.

Table II. Lick Photography Used in Mensuration

Lick Designation	Universal Time h	m	s	Date d	mon	yr
M1	4	02	00	3	June	1938
M2	4	14	05	7	May	1938
M3	3	54	48	12	January	1938
M4A	8	03	25	22	October	1937
M5	13	00	40	24	October	1937
M6	13	41	00	26	October	1937
M7	12	47	19	20	August	1938
M7A	12	57	18	11	September	1936
2A	11	21	34	6	September	1936
183B	4	00	42	9	August	1940
187 1B	4	07	54	10	August	1940
190A	3	39	08	7	April	1938
250C	4	36	02	23	July	1942
425C	12	18	10	2	August	1937
429A	4	20	06	7	July	1938
430 A1	12	12	01	22	September	1959

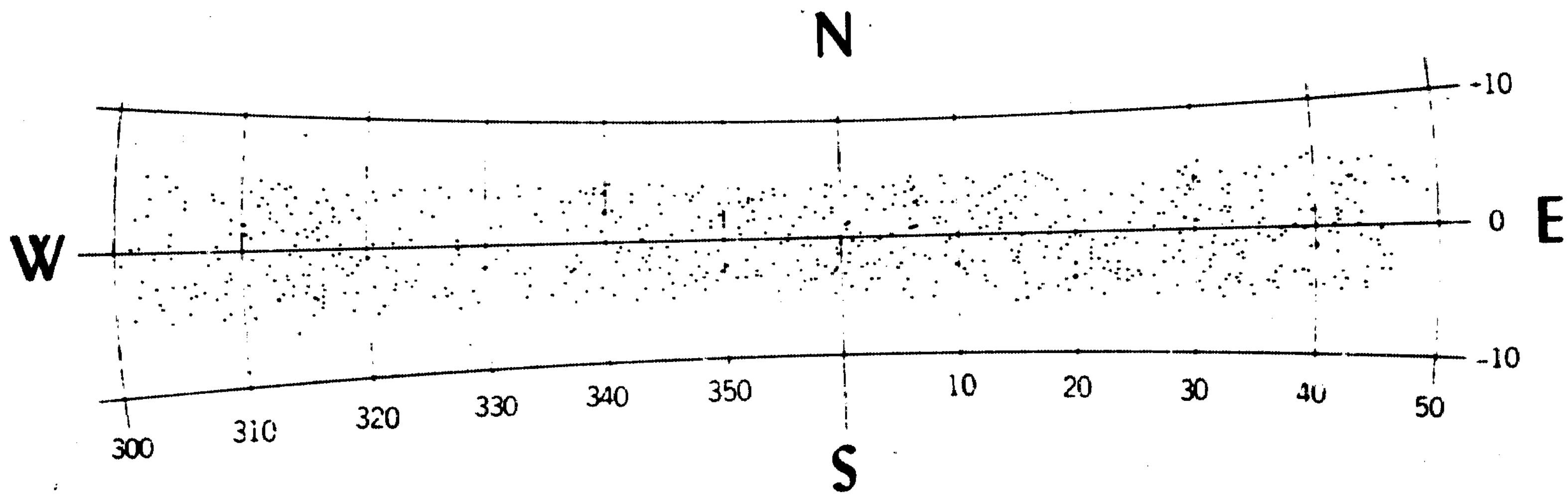


Figure 1. Distribution of points intensifying selenodetic control.

15. MEASUREMENT. a. Control Density. In order to establish sufficient selenodetic control for the potential Apollo landing sites, it was necessary to intensify the existing known control by selecting 684 additional craters for mensuration.

b. Technique. AMS used the "boxing-in" technique. Four points on each crater were measured three times per orientation. After the craters were measured in the 0^{o} orientation, the plate was rotated through an angle P_p^c of 180^{o} $\pm 0.004^{o}$. P_p^c is defined in paragraph 19a. The four points of each crater were measured again, resulting in 24 measures for each crater.

SECTION III. APPROXIMATE COORDINATES OF CONTROL POINTS

16. IDENTIFICATION OF CRATERS. The intensification project was quite extensive, utilizing measures on 853 craters. Of this total, 169 had been included in DOD-66[1] (figure 2); hence, approximate coordinates for these craters were not required (table III). Moreover, 91 of the 853 craters were designated in the International Astronomical Union Lunar Catalog,[2] but their approximate coordinates were obtained from Lunar Aeronautical Charts (LAC).[3] The remaining 593 craters did not appear in any catalog.

17. DETERMINATION OF COORDINATES. With the aid of 12-times enlargements of the intensification strip used in choosing the points (table IV and figures 67-82), approximate selenocentric rectangular coordinates $\left(\xi_k^a \text{ and } \eta_k^a \right)$, for the remaining 593 craters were obtained by placing a grid system over the appropriate LAC charts. For purposes of mathematical analysis,

[1] Superscripts refer to similarly numbered entries in the Literature Cited section of this chapter.

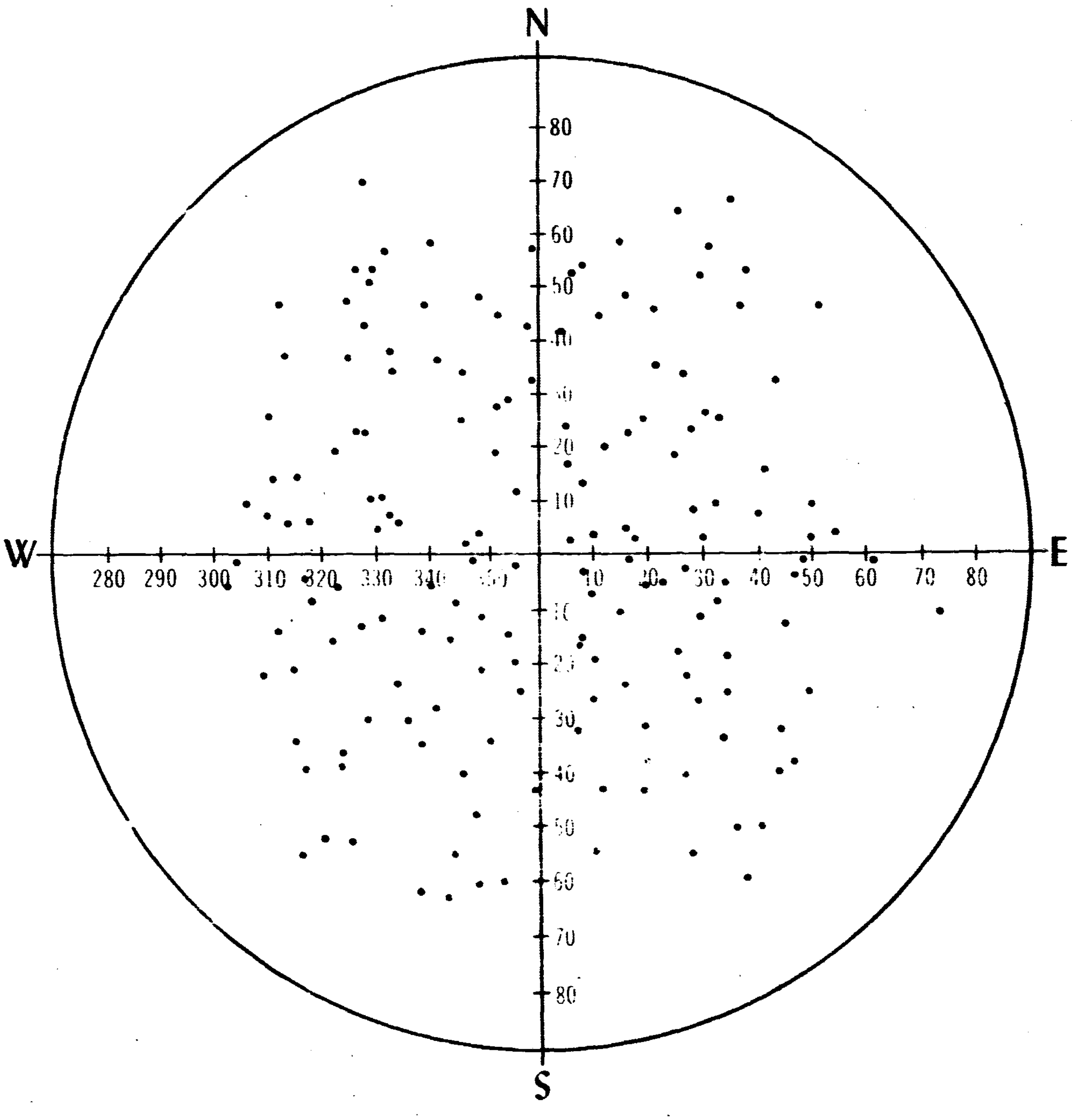


Figure 2. Distribution of DOD-66 control points.

Table III. DOD-66 Selenodetic Control Used as Base Control for Intensification Points

International Astronomical Union Lunar Catalog Numbers												
162	391	622	1073	1366	1579	1813	2288	2491	2898	3516	3968	4286
177	409	645	1121	1392	1600	1814	2295	2537	2922	3550	4004	4292
199	429	725	1123	1394	1602	1832	2318	2554	2933	3559A	4047	4336
216	446	727	1125	1497	1605	1833	2343	2627	3028	3607	4064	4396
219	453	729	1145	1500	1611	1835A	2354	2694	3055	3613	4079	4411
224	458	798	1146	1519	1612	1880A	2358	2707	3071	3648	4108	4427B
227	482	800	1147	1520	1628	1985	2412	2738	3084	3666	4118	4504
242	491	829	1185	1522	1635	1992	2425	2748	3165	3680	4143	4506
249	519	834	1212	1529	1636	2127	2443	2804	3197	3722	4156	4512
260	553	895	1217	1530	1659	2142	2444	2818	3236	3780	4222	4609
280	561	930	1283	1542B	1708	2157B	2457	2831	3237	3789	4227	4610
281	606	965	1297	1573	1739	2207	2462	2856	3377	3845	4256	4656
308	619	966	1315	1578	1806	2282	2483	2880	3499	3852	4257	4665

Table IV. Area of Crater Coverage on Photographic Identification.

Plate	Latitudinal Boundaries		Longitudinal Boundaries	
	Upper	Lower	Left	Right
M1	5°24'06"	-4°30'27"	34°52'44"	50°02'07"
M2	5 10 44	-5 16 47	3 05 53	50 02 07
M3	4 42 18	-5 17 10	323 35 34	49 06 43
M4A	5 29 01	-5 36 15	299 36 37	50 02 07
M5	5 29 01	-5 36 15	299 36 37	29 43 05
M6	5 17 29	-5 13 27	299 36 37	3 00 35
M7	5 29 01	-5 20 23	301 10 23	329 38 57
M7A	5 23 20	-5 06 25	301 37 20	318 57 46
2A	5 10 15	-4 48 05	299 36 37	21 16 19
183B	5 38 40	-5 16 47	30 26 32	50 02 07
187 1B	5 38 40	-5 36 15	10 39 01	49 52 56
190A	5 38 40	-5 36 15	10 40 24	50 02 07
250C	5 38 40	-5 36 15	344 28 19	50 02 07
425C	5 23 20	-4 42 14	299 36 37	318 57 46
429A	5 38 40	-5 36 15	340 49 36	47 23 49
430 A1	5 10 15	-5 20 23	299 36 37	22 54 26

the spherical coordinates (latitude, longitude, and height) were computed from the following:

$$\phi^a_{ki} = \text{arc sin}\left[\eta^a_{ki}/(1 + h^a_{ki})\right]; \quad -90^0 \leq \phi^a_{ki} \leq +90^0 \qquad (1)$$

$$\lambda^a_{ki} = \text{arc tan}\left(\xi^a_{ki} / \zeta^a_{ki}\right); \quad 0^0 \leq \lambda^a_{ki} \leq 360^0 \qquad (2)$$

where

$\xi^a_{ki}, \eta^a_{ki}, \zeta^a_{ki}$ = approximate selenocentric rectangular coordinates of crater k

and

$$\zeta^a_{ki} = \left[1 - (\xi^a_{ki})^2 - (\eta^a_{ki})^2\right]^{\frac{1}{2}}$$

h^a_{ki} = assumed height of the crater above a selenocentric sphere of radius 1,738 kilometers

$\phi^a_{ki}, \lambda^a_{ki}$ = latitude and longitude of crater k.

Note: In obtaining the approximate coordinates, it was assumed that h^a_{ki}=0.

SECTION IV. PRELIMINARY ADJUSTMENT OF PHOTOGRAPHIC PLATE MEASUREMENTS

18. DIFFERENTIATION OF SESSIONS. In order to facilitate the measurement of the large number of intensification points and to eliminate a duplication of measuring effort, the DOD-66 craters (i.e., known control) were measured in only one session per plate. The remaining sessions per plate consisted entirely of measures of craters with approximate coordinates.

19. ADJUSTMENT OF SESSIONS. a. Preliminary Coordinate Adjustment. It was necessary to adjust the sessions with craters having approximate coordinates to the corresponding session having craters with known coordinates. Using the 0^{o} and 180^{o} measurements of the orientation points, the rotation ($180^{o} \pm 0.004^{o} = P^{c}_{pi}$) and the translations ($\delta x_{pi}$ and δy_{pi}) were computed per session. Next, the averaged crater measurements (taken directly from the comparator) and the computed P^{c}_{pi}, δx_{pi}, δy_{pi} were used to compute the coordinates of the craters and orientation points (x_{kp} and y_{kp})[4] as follows:

$$\begin{Vmatrix} x_{kp} \\ y_{kp} \end{Vmatrix} = \begin{Vmatrix} \cos(180^{o} + P^{c}_{pi}) & -\sin(180^{o} + P^{c}_{pi}) \\ \sin(180^{o} + P^{c}_{pi}) & \cos(180^{o} + P^{c}_{pi}) \end{Vmatrix} \cdot \begin{Vmatrix} X^{0}_{f} + \delta x_{pi} \\ Y^{0}_{f} + \delta y_{pi} \end{Vmatrix} - \begin{Vmatrix} X^{180}_{f} \\ Y^{180}_{f} \end{Vmatrix} \tag{3}$$

where

x_{kp}, y_{kp} = coordinates of crater k and orientation points as measured on plate p

P^{c}_{pi} = i^{th} approximation of the angle through which the plate was rotated between the 0^{o} orientation and the 180^{o} orientation ($\approx 180^{o} \pm 0.004^{o}$)

X^{0}_{f}, Y^{0}_{f} = coordinates of the geometric center of each feature and orientation point obtained by averaging three sets of the maximum and minimum abscissae and ordinates in the 0^{o} orientation

δx_{pi}, δy_{pi} = i^{th} approximation of the distance through which the plate was translated between 0^o orientation and 180^o orientation, referred to the coordinate system of the 0^o orientation

X_f^{180}, Y_f^{180} = coordinates of the geometric center of each feature and orientation point obtained by averaging three sets of the maximum and minimum abscissae and ordinates in the 180^o orientation.

b. Adjusted Crater Coordinates. Inasmuch as the 0^o orientation measures are adjusted to the 180^o orientation measures, the x_{kp}, y_{kp} of the orientation points of the sessions having craters with approximate coordinates were adjusted to coincide with the x_{kp}, y_{kp} of the orientation points of the corresponding session having craters with known coordinates. This yielded an adjusted P^c_{pi}, δx_{pi}, δy_{pi}. These new quantities were denoted as $P^c_{pi(2)}$, $\delta x_{pi(2)}$, and $\delta y_{pi(2)}$. Applying these adjusted values to the crater coordinates as computed previously, new values for the crater coordinates were obtained. Eliminating the 180^o orientation crater coordinates in equation (3) gave the equation used for the adjusted x_{kp}, y_{kp}; namely,

$$\begin{Vmatrix} x_{kp(2)} \\ y_{kp(2)} \end{Vmatrix} = \begin{Vmatrix} \cos(180^o + P^c_{pi(2)}) & -\sin(180^o + P^c_{pi(2)}) \\ \sin(180^o + P^c_{pi(2)}) & \cos(180^o + P^c_{pi(2)}) \end{Vmatrix} \cdot \begin{Vmatrix} x_{kp} + \delta x_{pi(2)} \\ y_{kp} + \delta y_{pi(2)} \end{Vmatrix} \qquad (4)$$

where

$x_{kp(2)}$, $y_{kp(2)}$ = adjusted coordinates of crater k as measured on plate p

$P^c_{pi(2)}$ = i^{th} approximation of the angle of rotation between the session having craters with approximate coordinates and the session having craters with known coordinates

$\delta x_{pi(2)}$, $\delta y_{pi(2)}$ = i^{th} approximation of the translated coordinates of the center of the measuring axes between the session having craters with approximate coordinates and the session having craters with known coordinates.

20. TESTING. Testing of the preceding computations was performed on a Bendix G-15 Computer prior to production computations on the Honeywell 800.

21. PRELIMINARY ADJUSTMENT. Using the method of successive approximations, a preliminary adjustment was performed with the DOD-66 craters to determine the best theoretical values of the translations, rotation, and scale per plate. Assuming that there was no further error in the computation of the plate constants, they were applied to the adjusted coordinates of the intensification craters (table V).

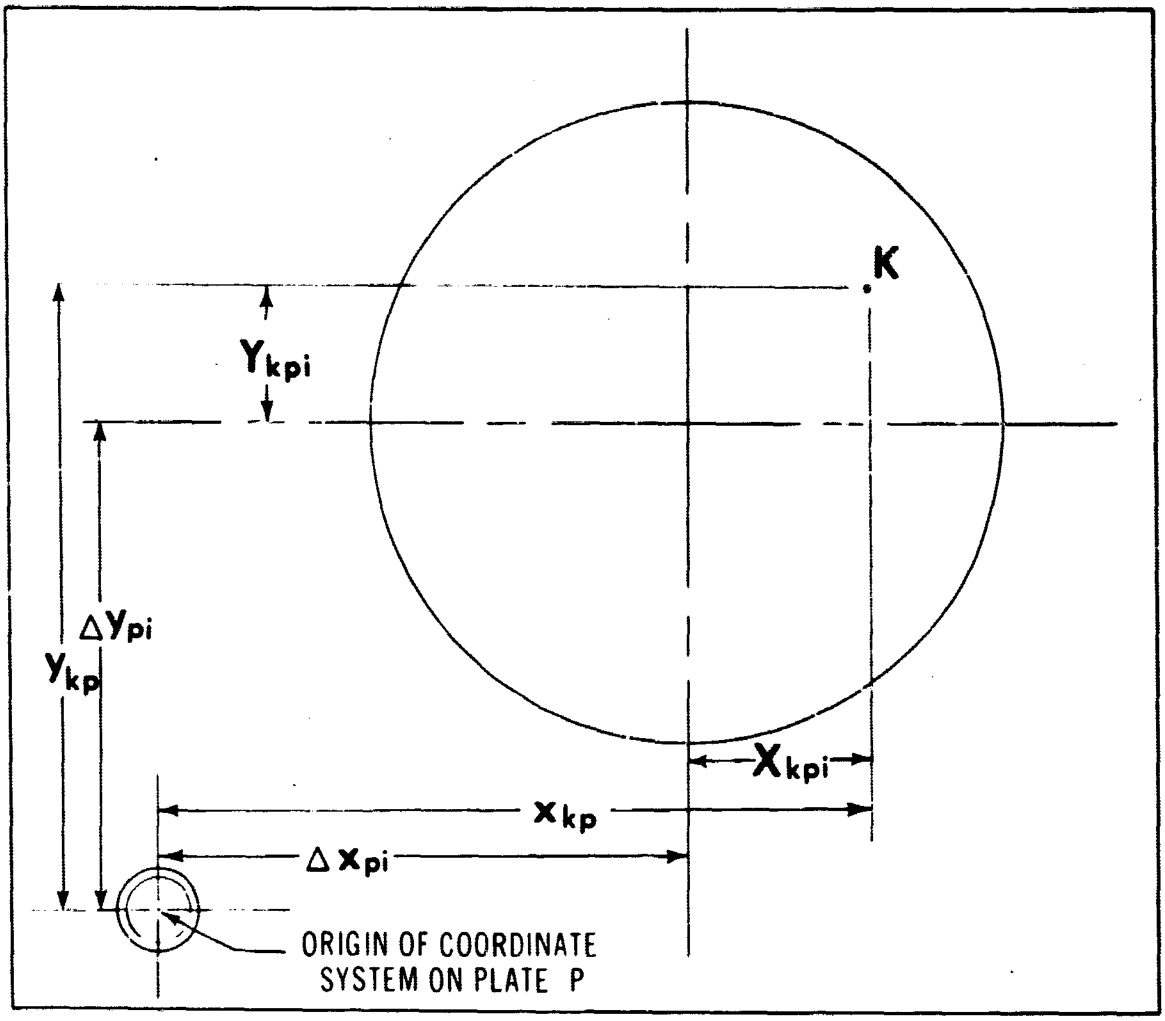
Table V. Plate Constants Computed for Lick Photographs

Lick	PLATE CONSTANTS			
Designation	P_{pi}, degrees	r_{pi}, dμ	Δx_{pi}, dμ	Δy_{pi}, dμ
M1	-18.4315922	167708.7	227411.5	196046.8
M2	1.3780038	165637.1	229665.5	185954.4
M3	12.8693567	170002.0	214278.0	190365.8
M4A	12.5497074	171664.4	168574.9	158022.5
M5	- 2.7791150	169411.0	133315.4	177609.3
M6	3.7658377	165505.5	156891.1	198211.6
M7	3.3697240	168397.9	112760.9	186656.3
M7A	-12.4370145	158672.5	112827.3	135841.6
2A	13.2713354	168919.3	118554.8	192727.1
183B	-23.6317610	167080.7	231448.6	171356.5
187 1B	-21.7204505	165694.7	196755.7	196571.2
190A	- 1.1706121	167861.0	207658.1	173116.0
250C	1.4860952	168240.8	226816.4	190002.7
425C	4.0770473	168401.2	139712.7	175430.5
429A	- 3.5279494	155203.2	166894.3	205690.2
430 A1	- 1.3278034	153368.2	155479.5	166946.9

22. TRANSLATION. The crater coordinates were corrected so that the center of the coordinate system to which they were referred coincided with the optical center of the moon's image on the plate (figure 3).

23. ROTATION. The measurement axes to which the crater coordinates were referred were rotated so that the axes were parallel to the projection of the moon's equatorial coordinate system on the plate (figure 4).

24. REFRACTION. Because the earth's atmosphere refracts the moon's image on the plate in the direction of the local zenith, the components referred



X_{kpi}, Y_{kpi} = i^{th} approximation of the coordinates of the feature k corrected so that the center to which they were referred coincided with the projection on the plate of the optical center of the moon

Δx_{pi}, Δy_{pi} = i^{th} approximation of the coordinates of the center of the measuring engine axes in the X^{iv}_{pi} , Y^{iv}_{pi} system.

Figure 3. Translation of the coordinates of feature k corrected so that the center to which the measurements referred coincided with the projection on the plate of the optical center of the moon.

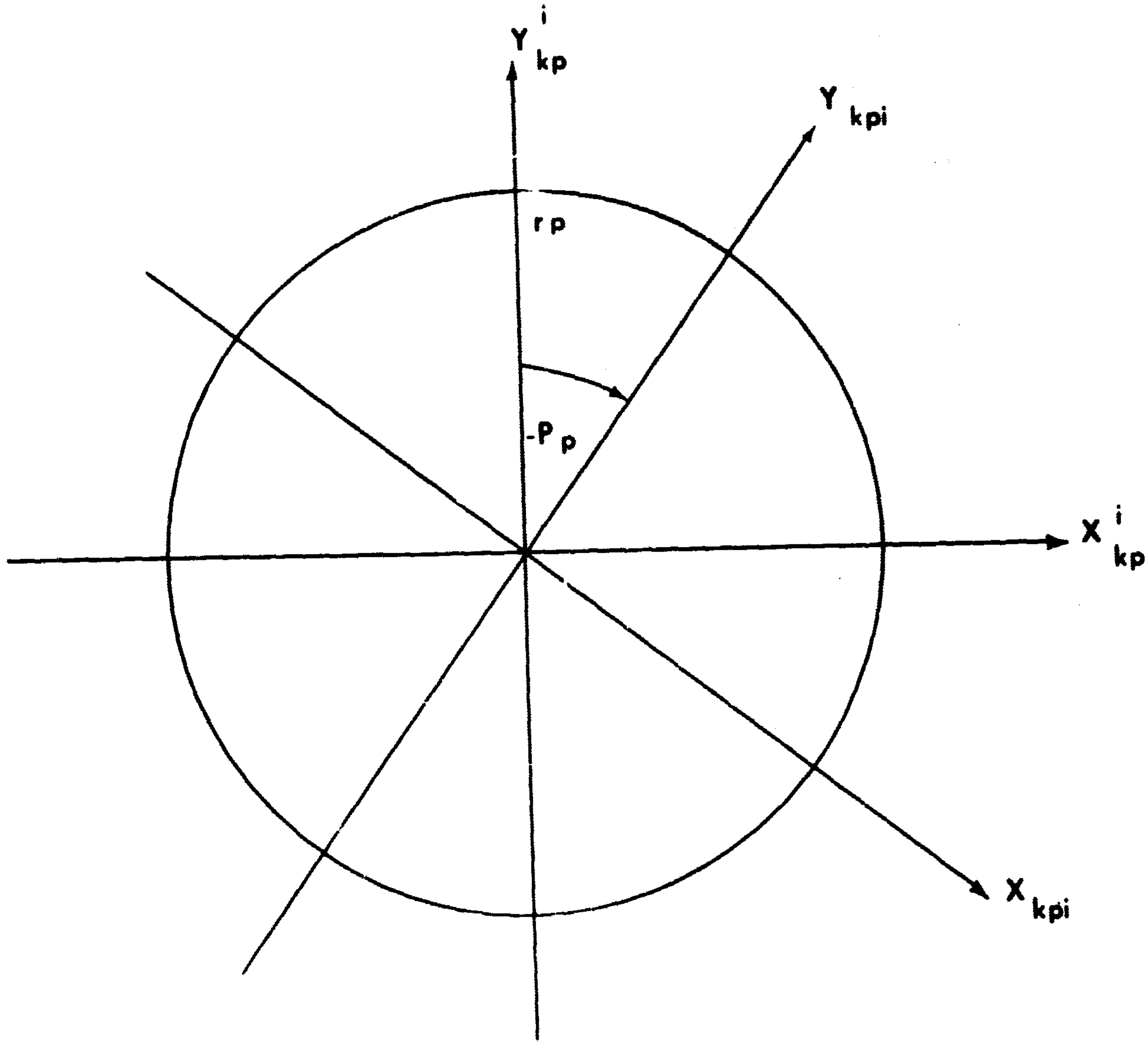


Figure 4. Rotation of the measurement axes to which the crater coordinates were referred so that the axes were parallel to the projection of the moon's equatorial system on the plate.

to the rectangular axes (see paragraph 23) were corrected according to the equations in AMS Technical Report No. 29 (Part One: Methods).[5] (See table VI.)

25. SCALE. The measured coordinates were expressed in units of lunar radii using the method described in AMS Technical Report No. 29 (Part One: Methods). (See figure 5.)

Table VII. Values of S_p'' Used in the Projection of the X^{iii}, Y^{iii} System into the X^{iv}, Y^{iv} System

Plate	S_p'', degrees	Plate	S_p'', degrees
M1	0.272894537	2A	0.274998713
M2	0.269590786	183B	0.271848155
M3	0.276700086	187 1B	0.269632937
M4A	0.279410821	190A	0.273222498
M5	0.275713455	250C	0.273765411
M6	0.269430823	425C	0.274170164
M7	0.274050292	429A	0.252531045
M7A	0.258221005	430 A1	0.249758334

26. PROJECTION. Since the ξ_k^a, η_k^a, ζ_k^a system is orthographic and the camera was at a finite distance from the moon when the photograph was taken, the measured coordinates of the features were corrected for projection. (See table VII.)

Table VI. Weather Information Used in the Computation of Refraction Coefficients

Lick Designation	Temperature, °C.	Barometric Pressure, mm.	x-coefficient, 10^{-3}	y-coefficient, 10^{-3}
M1	23.06	654.3	.44541343	.15890776
M2	10.59	652.5	.08000705	.10639574
M3	14.07	656.6	.00480986	.02550332
M4A	19.62	657.2	-.08641705	.02021304
M5	18.53	556.6	.02471374	.01652221
M6	18.44	654.7	-.03246976	.02812040
M7	18.28	656.6	-.14987281	-.02137994
M7A	19.94	651.3	-.35766567	-.35160800
2A	16.50	656.9	-.02076230	.02742779
183B	24.22	655.1	.72364249	.93869127
187 1B	25.60	656.3	.40956717	.73497232
190A	6.82	655.8	.08202394	.00316440
250C	27.50	657.4	-.00878339	.42634829
425C	16.00	656.6	-.47137206	-.11463144
429A	23.11	655.2	-.21549483	.44348573
430 A1	13.28	653.4	.02341697	.03103581

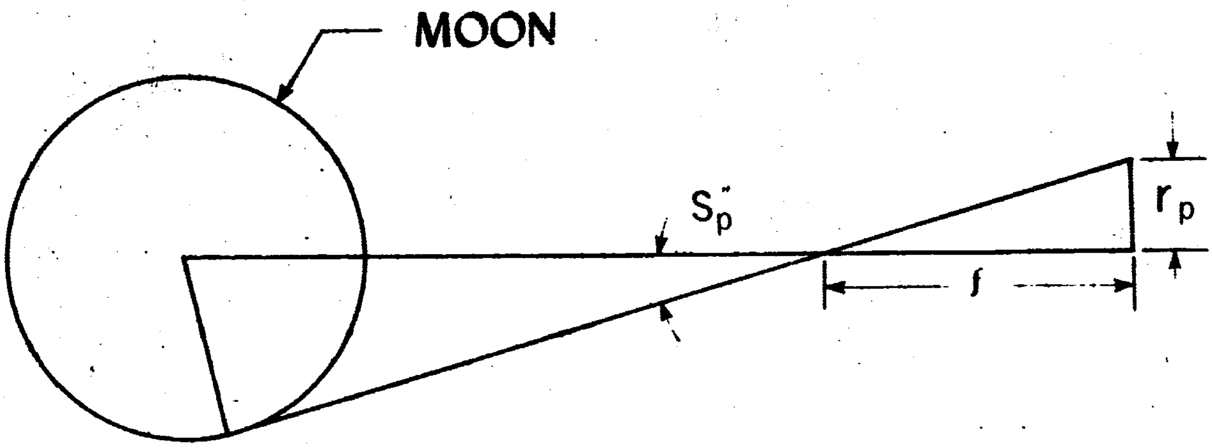


Figure 5. First approximation of the semi-diameter of the moon's image r_p, on plate p, expressed in units of demi-microns, used in scaling the crater coördinates.

Table VIII. Selenocentric Longitude and Latitude of Plate p

Plate	L_p, degrees	B_p, degrees
M1	4.719001410	7.316203120
M2	4.635207520	7.281203390
M3	-4.718633420	-0.891783780
M4A	1.318091020	-0.153758920
M5	3.928451860	3.402743360
M6	6.034675650	5.937428330
M7	-3.901215270	3.332841210
M7A	6.864489950	3.642500080
2A	4.740797470	-3.721102750
183B	3.451055760	-0.994325710
187 1B	4.410145160	-2.521746720
190A	0.745583400	4.863292600
250C	-4.740014585	-5.798851693
425C	0.493964137	0.817564777
429A	6.279338150	1.972281140
430 1A	-0.170668266	6.040926185

27. <u>CORRECTION OF ERRORS.</u> Due to observational errors in measuring the craters on the plates, the selenocentric rectangular coordinates of each crater were computed using the orthographically projected values of the assumed selenocentric coordinates. That is,

$$\begin{Vmatrix} \xi^{iv}_{kp} \\ \eta^{iv}_{kp} \\ \zeta^{iv}_{kp} \end{Vmatrix} = \begin{Vmatrix} \cos L_p & -\sin B_p \ \sin L_p & \cos B_p \ \sin L_p \\ 0 & \cos B_p & \sin B_p \\ -\sin L_p & -\sin B_p \ \cos L_p & \cos B_p \ \cos L_p \end{Vmatrix} \cdot \begin{Vmatrix} X^{iv}_{kp} \\ Y^{iv}_{kp} \\ Z^{iv}_{kp} \end{Vmatrix} \qquad (5)$$

$$= (H_p \cdot J_p)^T \cdot \begin{Vmatrix} X^{iv}_{kp} \\ Y^{iv}_{kp} \\ Z^{iv}_{kp} \end{Vmatrix} ,$$

where

$$\underset{3x3}{H} = \begin{Vmatrix} 1 & 0 & 0 \\ 0 & \cos B_p & -\sin B_p \\ 0 & \sin B_p & \cos B_p \end{Vmatrix} , \quad \underset{3x3}{J} = \begin{Vmatrix} \cos L_p & 0 & -\sin L_p \\ 0 & 1 & 0 \\ \sin L_p & 0 & \cos L_p \end{Vmatrix}$$

B_p, L_p = selenocentric latitude and longitude of the moon's image on plate p. (See table VIII.)

Then, the corrections to the approximate selenocentr· rectangular coordinates were computed in the preliminary adjustment as follows:

$$\begin{Vmatrix} \Delta\xi_k \\ \Delta\eta_k \\ \Delta\zeta_k \end{Vmatrix} = \begin{Vmatrix} \xi^{iv}_{kp} \\ \eta^{iv}_{kp} \\ \zeta^{iv}_{kp} \end{Vmatrix} - \begin{Vmatrix} \xi^{a}_{k} \\ \eta^{a}_{k} \\ \zeta^{a}_{k} \end{Vmatrix} . \qquad (6)$$

After the preliminary plate constant adjustment was completed on all the sessions, the corrections to the approximate selenocentric rectangular coordinates which exceeded arbitrarily set limits were analyzed.

28. COMPARISON OF COORDINATE SYSTEMS. For comparison, the selenocentric rectangular coordinate system to which the approximate coordinates were referred was rotated into the coordinate system to which the measurements were referred, forming the following system:

$$\begin{Vmatrix} X^v_{kp} \\ Y^v_{kp} \\ Z^v_{kp} \end{Vmatrix} = \begin{Vmatrix} \cos L_p & 0 & -\sin L_p \\ -\sin B_p \sin L_p & \cos B_p & -\sin B_p \cos L_p \\ \cos B_p \sin L_p & \sin B_p & \cos B_p \cos L_p \end{Vmatrix} \cdot \begin{Vmatrix} \xi^a_k \\ \eta^a_k \\ \zeta^a_k \end{Vmatrix} \tag{7}$$

$$= (H_p \cdot J_p) \cdot \begin{Vmatrix} \xi^a_k \\ \eta^a_k \\ \zeta^a_k \end{Vmatrix} ,$$

where

ξ^a_k, η^a_k, ζ^a_k = selenocentric rectangular coordinate system in which the η^a_k - axis coincides with the moon's polar axis, the ξ^a_k - and ζ^a_k - axes are perpendicular to each other, and the ζ^a_k - axis passes through the central meridian of the mean visible disk

X^v_{kp}, Y^v_{kp}, Z^v_{kp} = rectangular coordinate system centered at the optical center of the moon. The X^v_{kp}, Y^v_{kp} plane is parallel to the plane of the photograph, and Z^v_{kp} is parallel to the optical axis of the camera.

With the computed values from the comparison system (per crater) it was possible to determine the linear residuals, i.e.,

$$\begin{Vmatrix} \nu(x) \\ \nu(y) \end{Vmatrix} = \begin{Vmatrix} X^{iv}_{kp} \\ Y^{iv}_{kp} \end{Vmatrix} - \begin{Vmatrix} X^{v}_{kp} \\ Y^{v}_{kp} \end{Vmatrix} . \tag{8}$$

The craters per session that had residuals which exceeded specified limits were also analyzed.

29. DELETION CRITERIA. The deletion criteria imposed on the residuals and crater coordinate corrections were ± 0.002 lunar radii in $\Delta\xi$, $\Delta\eta$; ± 0.002 lunar radii in $\nu(x)$; and ± 0.003 lunar radii in $\nu(y)$. When the residuals and/or crater coordinate corrections of a feature were inconsistent with the remaining measures of that feature, the erroneous measure was deleted from any further computations. A second preliminary adjustment was performed for all the sessions after the analyses. The data were now ready for the differential adjustment.

SECTION V. OBSERVATION EQUATIONS

30. OBSERVATION COEFFICIENTS (OBCO). The intensification points were adjusted differentially. This differential control adjustment program, OBCO,

was used ext sively for the first time in the Research and Analysis Division on this project. Unlike the fundamental adjustment, the plate constants were not updated and reapplied to the crater measures. Combining the observations of a crater, the method of least-squares was used to determine the corrections to the crater coordinates. Thus, the observation equations were formed using the following:

$$\underset{2x3}{C_p} = \begin{Vmatrix} \cos L_p & 0 & -\sin L_p \\ -\sin B_p \sin L_p & \cos B_p & -\sin B_p \cos L_p \end{Vmatrix}$$

$$\underset{2x1}{E_{kp}} = \begin{Vmatrix} X^v_{kp} \\ Y^v_{kp} \end{Vmatrix} = C_p \cdot \begin{Vmatrix} \xi^a_k \\ \eta^a_k \\ \zeta^a_k \end{Vmatrix}$$

$$\underset{2x1}{F_{kp}} = \begin{Vmatrix} X^{iv}_{kp} \\ Y^{iv}_{kp} \end{Vmatrix}$$

$$\underset{3x1}{\overset{k}{\Theta}} = \begin{Vmatrix} \Delta\xi \\ \Delta\eta \\ \Delta\zeta \end{Vmatrix} .$$

The observation equations[6] were given by:

$$\underset{2x3}{C_p} \cdot \underset{3x1}{\overset{k}{\Theta}} = \underset{2x1}{F_{kp}} - \underset{2x1}{E_{kp}} . \tag{9}$$

31. INDEPENDENT ADJUSTMENT. Each crater could be adjusted independently of the remaining craters, thus facilitating a speedier reduction of the data.

SECTION VI. ERROR ANALYSIS

32. FINAL STATISTICS. The final system consisted of 684 craters, 7,772 observation equations, and 2,052 crater unknowns. The results of this system are provided in Appendix I, in the form of a trig list. Each crater of the final system of 144 sessions was measured on an average of six plates.

33. GRAPHS. Graphs were plotted to determine the acceptance of each crater in the system. In particular, the horizontal and vertical uncertainties were plotted versus the spherical arc distance of the corresponding crater from the point of zero latitude and longitude, θ_k. Curves that best fitted the corresponding data were superimposed on the graphs. Those craters which exceeded one standard error were investigated and were considered for possible deletion.

34. CHARTS. Contour charts were drawn for the heights and the vertical and horizontal uncertainties per crater. Craters having values which were incongruous with the contour intervals were listed for deletion. These criteria and the two specified in paragraph 33 were the standards for deletion. Craters failing two of the five stated criteria were deleted. Prior to the mensuration, 1,241 craters with approximate coordinates were identified on enlargements of the sixteen photographic plates to establish the intensification system. Applying the deletion criteria, a total of 557 craters were deleted.

35. UNCERTAINTIES. The rms uncertainties were given by:

Table IX. RMS Uncertainties

in	± Meters
ξ	425
η	408
ζ	4250
ψ	2147
N	442
H	3688
Hor	2192

The rms uncertainty in the observation of unit weight, σ_{ok}, was ± 814 meters.

36. AVERAGE DIAMETERS. In order to obtain adequate base control for the Lunar Orbiter photography, it was necessary to choose craters for the intensification of selenodetic control which had average diameters of 3 kilometers. With the crater dimensions approaching the limits of resolution of earth-based photography, it was difficult to distinquish one crater from another. In order to meet the schedule established by the contractor, it was necessary to eliminate the computation of predetermined approximate crater coordinates. If predetermined coordinates had been furnished to the comparator operators, however, they would have been able to pinpoint more efficiently the same crater on different plates.

37. OBCO PROGRAM EVALUATED. a. Undetermined Reliability. At the outset of the project it was decided that the intensification of selenodetic control in the potential Apollo landing area should be a differential adjustment.

Since such a large differential adjustment had never been performed for selenodetic control at AMS, this decision meant that a relatively untested process would be employed for the first time.

b. Inadequate Investigation. The analyses of the numerical results were expedited so that the scheduled completion date could be met, thereby eliminating an opportunity to investigate the OBCO program in conjunction with the numerical results. Time limitations also prevented an investigation of the errors propagated by the topocentric librations with respect to their application in the observation equations.

38. ANALYSIS OF THE CRATER MEASUREMENTS. Since the project was restricted to a rigid schedule, the crater measurements per session received from the comparator operators were immediately sent to the Honeywell 800 for processing in the preliminary plate constant adjustment. No time was allowed for remeasurement although the project staff thought that this was necessary. If the dispersion of the 0^{o} and 180^{o} orientation comparator measurements exceeded 25 microns, the crater should have been remeasured. The effective percentage of deletions would have been less if there had been a remeasurement program.

SECTION VII. CONCLUSIONS AND RECOMMENDATIONS

39. CONCLUSIONS. a. Theory. The general photogrammetric model is not customarily solved for production purposes. Instead of a general solution,

various combinations of the parameters are solved within the adjustment while other parameters are accepted as known. At the outset of the project, it was indicated that a differential adjustment, OBCO, might be suitably employed for the intensification of selenodetic control. The OBCO program accepts the plate constants P_{pi}, r_{pi}, Δx_{pi}, Δy_{pi}, and solves for the selenocentric rectangular crater coordinate corrections, $\Delta \xi_k$, $\Delta \eta_k$, and $\Delta \zeta_k$.

b. Application. The reliability of any system depends on a thorough study of test data before it can be used on a production basis. A periodic analysis of the quality of the measurements during the preliminary adjustment phase of the project was not maintained. Due to the absence of this analysis, it was concluded that the statistical acceptability of the crater measurements was questionable. Even though certain aspects of the procedure could not be followed, this adjustment is probably the most complete--both statistically and mathematically--selenodetic differential photogrammetric adjustment ever published.

40. RECOMMENDATIONS. A comparative analysis of other differential adjustment schemes should be pursued which would rigorously establish the most suitable scheme for the present situation. Use of this scheme on the available measurements would, then, produce the optimal set of intensified control craters using earth-based photography.

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CHAPTER 4

SPECIAL READOUT TEST FILM

SECTION I. GENERAL

41. SUBJECT. A Special Readout Test Film was designed to test the Lunar Orbiter Readout and Reassembly Systems prior to launch. Unique specifications and processing were required to produce this test film.

42. BACKGROUND. For photogrammetric purposes, it was necessary to determine the distortions in the Lunar Orbiter Readout and Reassembly Systems. A simulated Lunar Orbiter Film Strip was designed to facilitate this investigation.

a. Material Furnished. Messrs. L. Kosofsky and C. Broom of the NASA Lunar Orbiter Project Office (LOPO) furnished AMS with 100 feet of S0243 film with pre-exposed edge data, one set of blueprint of the Lunar Orbiter film, and data density requirements.

b. Report. An interim AMS report covered the preparation of the film strip in its various stages and the shipment of the product to NASA and other designated users.

c. Coordination. Items selected to be shown on the film strip were coordinated with ACIC and DIA through the DIA Lunar Orbiter Committee. The precision grids used in the test film were furnished by ACIC.

SECTION II. PRODUCTION OF FILM STRIP

43. SPECIFICATIONS. The specifications set forth by NASA for the Lunar

Orbiter film, photography, and system in general were studied to determine those applicable to the Special Readout Test Film. All requirements, or variations, were coordinated with Messrs. C. Broom and L. Kosofsky before work was commenced on the film strip (figure 6).

a. Film. The original specifications were: 70-mm width stable base, 7 mil thickness. After the first strip was made, specifications were changed by LOPO, NASA to include edge data, described in paragraph c below.

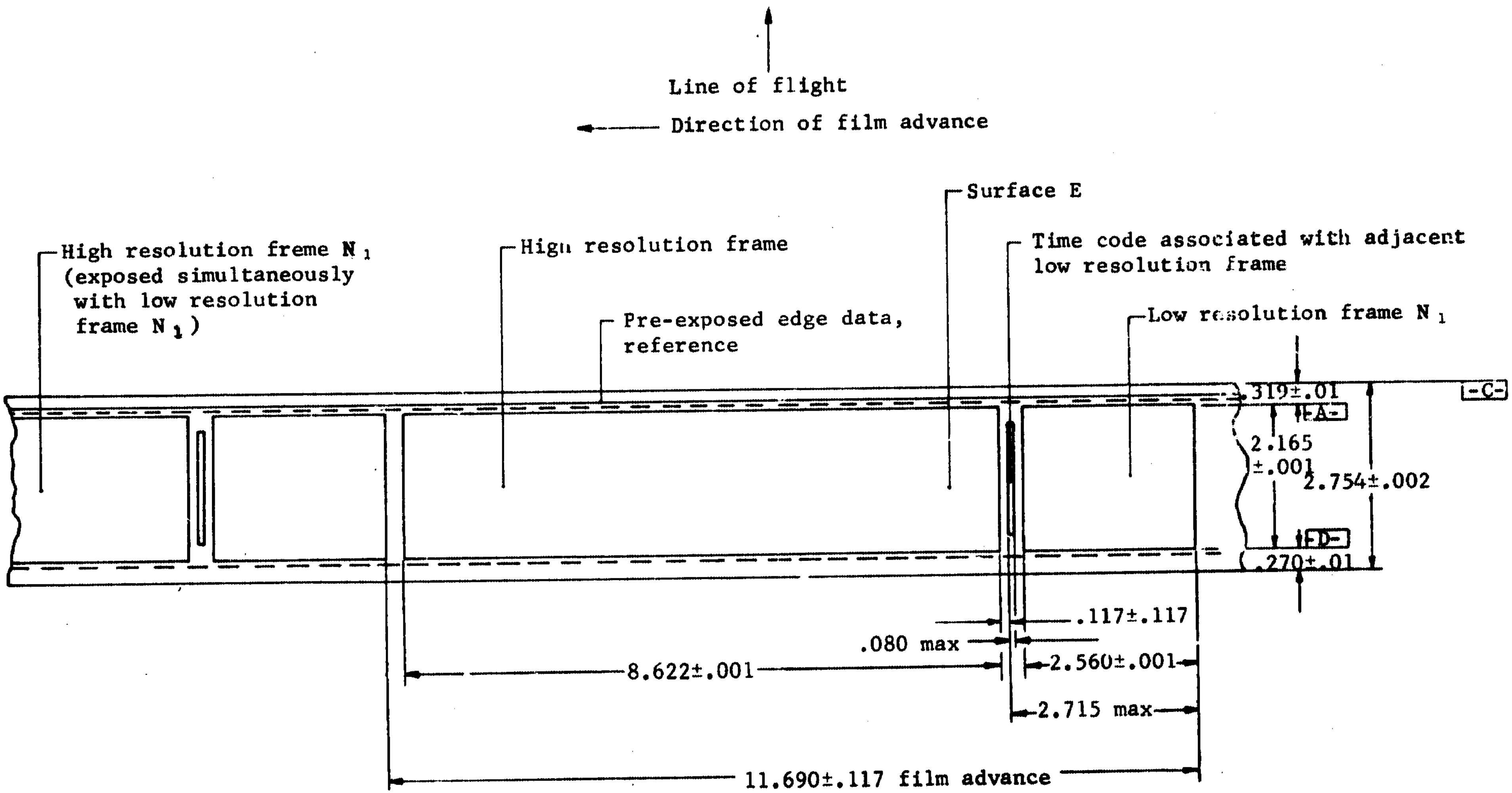
b. Frame Size. The scene width in the line of flight was to be 2. 165 inches with a tolerance of $\pm$0. 001 inch. Length of image across the line of flight varied between 2. 165 and 8. 622 inches for the test film.

c. Edge Data. In order to provide for proper image scanning, edge data were pre-exposed on film by Eastman Kodak. These data were an additional requirement specified by LOPO, NASA after the first test film was completed. This specification could be fulfilled only by NASA, and, therefore, the 70-mm film for the test film strip was furnished by LOPO, NASA.

d. Image Position. The photographic images were to be positioned [illegible] inch from the edge of the 70-mm film containing the pre-exposed edge data with a tolerance of $\pm$ 0. 01 inch.

e. Film Length. The 36 feet of film required for the final film strip comprised 3 feet of leader, 4 feet of image area, and 29 feet of trailer.

f. Reseau. A saw-toothed reseau was to be shown along the edge of the photo image in the direction of the line of flight. The distance between fiducials was to be 0. 060 inch with a noncumulative tolerance of $\pm$ 0. 001 inch.



NOTE: All values are given in inches.

Figure 6. Film format.

g. Image Quality. The quality of the photographic images of the film strip was to approximate that predicted for the Lunar Orbiter photography; i. e., 76 lines per millimeter.

h. Density of Images. The maximum allow^ble density of the photo images was specified as 1. 0, with a gamma of 1. 2. The specified density of the pre-exposed edge data was 1. 5.

44. METHODS. Because of the specifications imposed, the equipment available at AMS, and the limited supply of film, it was necessary to determine optimum procedures before attempting any film processing.

a. Images. Five photographs of the Arizona Test Area (figure 7) were selected as the images to be used in the test film. This selection was based on the following:

(1) The photographs were part of a camera test and, therefore, contained ideal geometry and a camera calibration certificate.

(2) Numerous photo-identified geodetic control points existed in the area of photo coverage.

(3) Resolution was greater than 20 lines per millimeter with a 9- by 9-inch format.

(4) By reducing the image size by a factor of 4. 157, a format size compatible with Lunar Orbiter photography of 2. 165 inches was obtainable. With this reduction the resolution (considering normal deterioration for processing) approached that of Lunar Orbiter photography; i. e., resolution

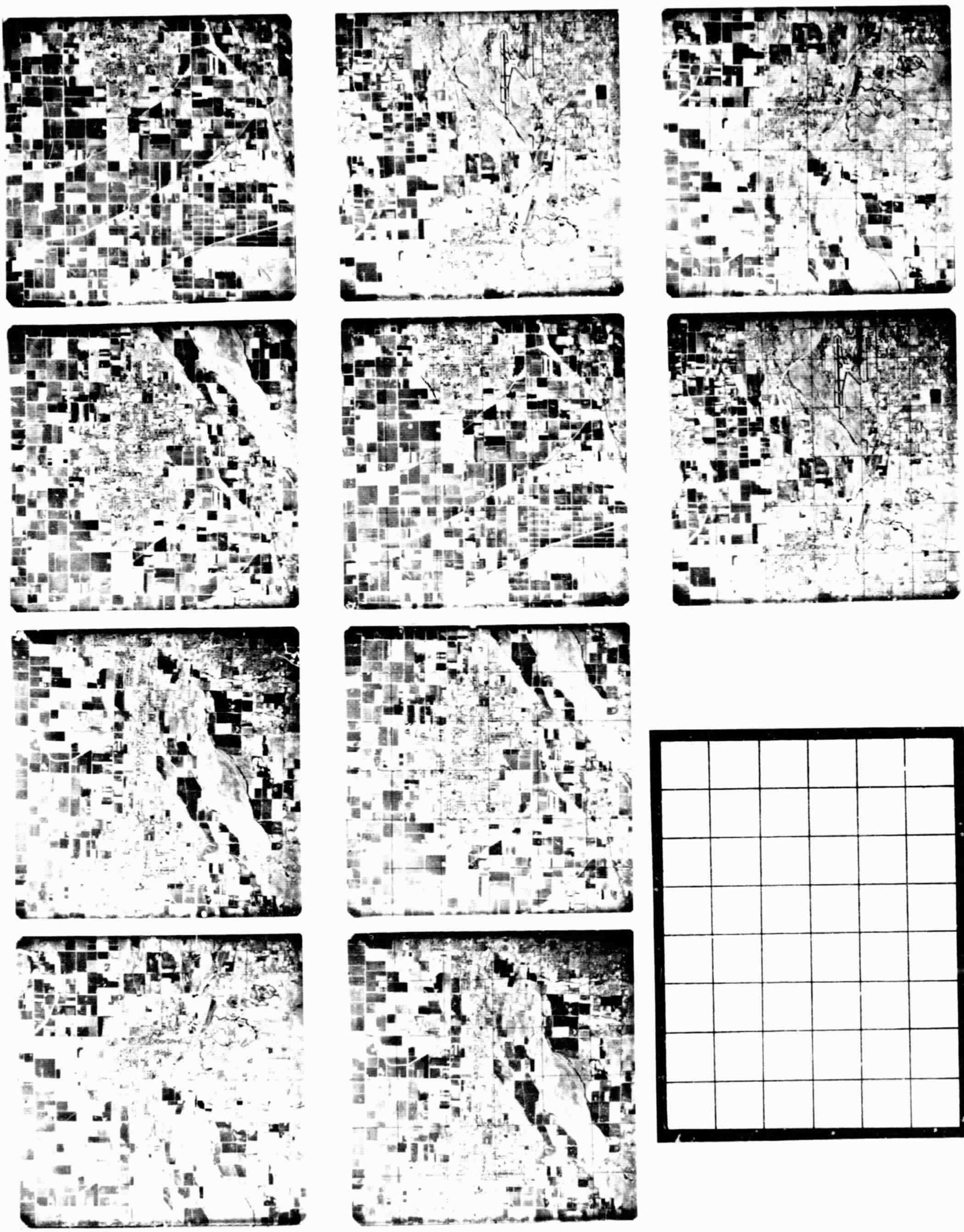


Figure 7. Test film.

of reduced film = (4.157) (22 lines/mm) - 20 percent deterioration

= 73 lines/mm.

b. Fiducials. Fiducials, six times the size of those appearing in the Lunar Orbiter camera and of a slightly different shape, were engraved on plastic. This negative was then reduced to the format size of Orbiter and superimposed on the image field of five Arizona Test Area photographs (figure 7).

c. Grids. Precision grid images supplied by ACIC were reduced photographically to proper format size and superimposed on five of the Arizona Test Area photographs. Eight separate grid prints were produced on the test film strip (figure 7).

d. Special Equipment. In order to produce a photographic film strip 4 feet in length, with the requirements of holding image positions to $\pm$ 0.01 inch, it was necessary to design and construct a special vacuum frame. The vacuum frame was designed and constructed by AMS.

e. Step by Step Procedures. The film strip was produced in the following sequence:

(1) Design, layout, engraving, and reduction of fiducials to proper size on glass plates.

(2) Reduction of photographs of Arizona test area onto glass plates, at proper size, using a Wild U3C printer.

(3) Reduction of grids to proper size on glass plates using a Wild U3B printer.

(4) Combining of reduced fiducials and test area photographs on reproduction negatives using a point light source printer.

(5) Combining of reduced test area photographs and grids on reproduction negatives using a point light source printer.

(6) Printing of 10 photographs of Arizona Test Area (5 with fiducials and 5 with grids) and 8 grids (measuring 55 by 73 mm) onto the 70-mm Special Readout Test Film, using AMS point light source and the Special Vacuum Frame.

(7) Processing the film with a Kodak Versamat processor (after numerous tests of the 70-mm film had been performed to assure the proper density and gamma would be obtained).

45. <u>EQUIPMENT</u>. The following equipment was used in producing this film strip:

a. Herrenfeld sensitometer.

b. Macbeth densitometer.

c. Zeiss microscope.

d. AF-type 228 lines/mm resolution targets.

e. Ansco microdensitometer.

*f. AMS point light source.

*g. AMS special vacuum frame.

h. Aristo point light.

i. Kodak Versamat processor.

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* Items designed and fabricated by AMS

j. Wild U3A glass plate printer.

k. Wild U3B glass plate printer.

l. Wild U3C glass plate printer.

m. Photovolt foot-candle meter.

n. Kodak step wedges.

46. RESULTS. The film strip was delivered to Mr. L. Kosofsky, NASA, LOPO, Washington, D. C., for inclusion in the Lunar Orbiter readout test that was to be performed by Boeing Company, Seattle, Washington. The film strip fulfilled the specifications stipulated by NASA and was successfully put through the Lunar Orbiter Readout and Reassembly Systems.

CHAPTER 5

ANALYSIS OF THE TIME DATA BLOCK

SECTION I. INTRODUCTION

47. SUBJECT. During each of the 10 photographic missions, time will be recorded on the SO-243 film in binary code using a set of 20 lights. This time data block will be recorded at 12-inch intervals on the film in the spacecraft. The photography will be read out by a flying spot scanner in the spacecraft and reconstructed on earth with a 6.5-times enlargement. As a result, the time data block will appear at intervals of 78 inches on this film. The possible use of these light images as linear control for distortions was suggested by LOPO. This chapter will discuss: (a) the techniques used for mensuration of distances between exposed images of the time data block lights and (b) an evaluation of the precision of these measurements.

48. BACKGROUND. To determine the application of the data that appear on the Lunar Orbiter film to the photogrammetric problem, it is necessary to separate and analyze the components to ascertain their individual reliabilities. In support of this effort, six sets of the time data block images on SO-243 film were delivered to AMS by Mr. L. Kosofsky, NASA for evaluation.

SECTION II. INVESTIGATION

49. GENERAL. From 4 to 10 successive observations were made for each of the 20 images in each of the 6 sets of images supplied by NASA. Independent measurements were made by two experienced Monocomparator operators.

Both operators used the same instrument, and the plate was not disturbed between the two sets of operator measurements. The data were reduced and evaluated using standard statistical techniques with high-speed computers. All numerical data were extracted, or reproduced, from hard copy produced by the Honeywell-800 (H-800) computer.

50. TEST EQUIPMENT AND MATERIALS. a. Comparator. The Mann Monocomparator, with data logger and IBM 526 card punch, was used for the mensuration and recording. The precision of the instrument, as determined by grid tests, is one micron. The precision of the film image to be observed is, of course, a function of the resolution capability in a given film.

b. Computational Media. The H-800 computer was used for all major mathematical reduction of data. The Monroe Epic 2000 was used for all minor statistical determinations.

c. Statistical Program. The computer program used to evaluate a control set of time data block images--referred to as the 100 series (see paragraph 51a)--is titled "Statistical Analysis of x, y, z Data," developed by AMS in April 1965.

d. Transformation Program. The computer program used to accomplish the horizontal transformation of the data to the control data block positions in the 100 series is titled "Photogrammetric Horizontal Adjustment" and was developed by AMS. This program is now in use by AMS for all production-type reduction of photogrammetric data.

e. Sample Data. Each set of time data block images supplied by NASA contained 20 images (figure 8).

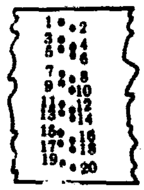

Figure 8. Time data block images.

51. TEST PROCEDURES. a. Control Set Selection. One of the six sets of time data block images was selected as the standard to which all of the other images would be compared. This selection was based on the overall quality of the images; the factors considered were density, regularity of shape, lack of halos, and sharpness of definition when viewed under 10-times magnification with the comparator. The selected set was designated as the 100 series and images were numbered from 101 through 120.

b. Mensuration Technique. Each operator measured the six sets of time data block images using the AMS "boxing-in" technique (figure 9). This involved the following steps.

(1) With the horizontal crosshair centered on the dot, the vertical crosshair was placed tangent to the left edge of the dot.

(2) With the horizontal crosshair centered on the dot, the vertical crosshair was placed in tangency with the right edge of the dot.

(3) With the vertical crosshair centered on the dot, the horizontal crosshair was placed tangent to the upper edge of the dot.

(4) With the vertical crosshair centered on the dot, the horizontal crosshair was placed tangent to the lower edge of the dot.

(5) The center of the dot was then computed mathematically.

The computed center of one dot in the 100 series may be represented by:

$$\frac{(x_2 - x_1) + (x_4 - x_3) + \cdots\cdots + (x_{20} - x_{19})}{20} = C_{x_{100}}$$

$$\frac{(y_2 - y_1) + (y_4 - y_3) + \cdots\cdots + (y_{20} - y_{19})}{20} = C_{y_{100}} \quad .$$

The computed center of each dot in all other series may be represented as:

$$\frac{(x_2 - x_1) + (x_4 - x_3) + (x_6 - x_5)}{6} = C_{x_n}$$

$$\frac{(y_2 - y_1) + (y_4 - y_3) + (y_6 - y_5)}{6} = C_{y_n} \quad .$$

$$\left.\begin{array}{l} x_1 = \text{tangent to left side} = \\ x_2 = \text{tangent to right side} = \\ y_1 = \text{tangent to upper side} = \\ y_2 = \text{tangent to lower side} = \end{array}\right\} \begin{array}{l} \text{represents one} \\ \text{complete} \\ \text{measurement} \\ \text{of one dot.} \end{array}$$

Figure 9. "Boxing-in" technique.

c. Statistical Equations. The equations used in the statistical reduction of the data are shown in tables XIII and XIV. The descriptions used in the column titled "Symbols in Tables" are to be used to coordinate the results and their statistical meaning in all other tables.

d. Horizontal Transformation Equations. The equations used to achieve the horizontal transformation, programmed for the H-800, are represented as:

$$X = X_o + m\,(x \cos\theta - y \sin\theta)$$

$$Y = Y_o + m\,(x \sin\theta + y \cos\theta) \qquad (10)$$

where:

m is the scale factor
X, Y is the known position of the control point
x, y is an instrument measured position
θ is the orientation angle.

52. RESULTS OF ANALYSIS OF THE 100 SERIES. The standard deviations and related data are shown in tables XV through XXI. The time data block control coordinates (100 series) are shown in table XVIII. These coordinates represent the horizontal control to which all other coordinate readings in the 200 through 600 series were adjusted.

53. RESULTS OF ANALYSIS OF THE 200 THROUGH 600 SERIES. A comparison of the computed coordinates of the dots and their residuals with the time data block control coordinates (table XVIII) is shown in tables XXII through XXXI. The standard deviation and circular error for all points in a series, as compared with the 100 series, are shown in table XXXII.

SECTION III. CONCLUSIONS AND RECOMMENDATIONS

54. CONCLUSIONS. a. The circular error of variation in the position of any light image is of the order of 14 microns.

b. The holes through which the light is emitted apparently were not burnished. The images vary in size, shape, and definition.

c. A prediction of the positional errors of the light images within any framelet, from the measurements of a previous framelet, is highly improbable.

d. Linear distortions within the particular framelet in which the light images appear can be determined by the use of the tables in this chapter. However, since images of the Lunar surface do not always appear in these framelets, the information is of limited use.

55. RECOMMENDATION. It is recommended that the images made by the

time data block lights be used only for the purpose for which they were designed, i.e., the determination of time by a coded light system.

CHAPTER 6

LUNAR LANDMARK MATERIAL

SECTION I. INTRODUCTION

56. SUBJECT. This chapter describes the limited experiments conducted by AMS to produce a lunar approach and landing chart for selected areas. The three processes involved consisted of: (a) dusting a lunar topographic model with copper oxide to approximate the photometric function of the moon's surface material, (b) photographing this model, under parallel light illumination projected from a series of angles to simulate various lunar shadow conditions, and (c) correlating this photography with a source map.

57. BACKGROUND. a. AMS proposed that a study be made to determine optimum methods for showing realistic shadow conditions of lunar landmark features on landing approach charts of the moon. Eastman Kodak Company had done extensive research and experimentation in dusting techniques with copper oxide in connection with photometric studies, and, also, had prepared movies of simulated lunar landings. The Kodak report, "Final Report-Lunar Photo Study Contract NAS 9-3826, 1 Dec 64 - 1 Oct 65, Z-3841," prepared for NASA, Manned Spacecraft Center, Houston, Texas, was used as a reference in the AMS model dusting.

b. It was suggested that a product formulated by Mylon Merriam of AMS nearly 20 years ago be combined with the Eastman dusting technique in the following manner:

(1) A model of a given elliptical Apollo landing area was to be carved.

(2) The model was to be dusted with copper oxide.

(3) With the aid of a parallel light source, the model was to be photographed from five angles: (a) from the vertical (or as near vertical as possible) position, (b) from both ends of the proposed orbital path, and (c) from right and left positions normal to the orbital path.

(4) These photographs were to be combined into a folding packet, providing the astronaut with a handy, compact approach chart of the landing zone (figure 10).

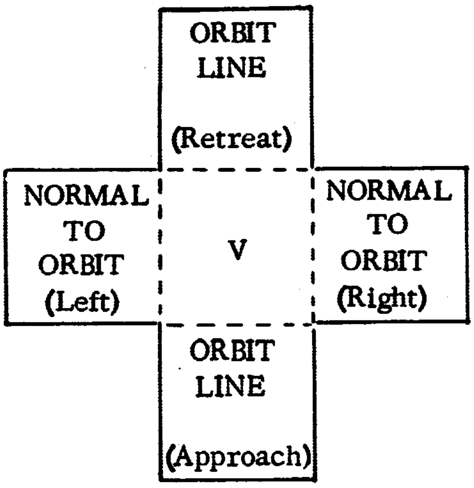

Figure 10. Landing zone approach chart.

SECTION II. APPROACH

58. <u>MODEL</u>. The relief model used in this experiment was made by AMS from the Geological Survey Ranger VII 1:80-scale map. This map was made from the last picture taken by Ranger VII (P3-979) at 0. 18 seconds before

impact, from an altitude of approximately 1,600 feet. The photograph showed an area of about 98 by 164 feet, with resolution of the order of 1 foot. The contour interval of the map was 0.5 foot; the elevation difference was 5.5 feet.

59. DUSTING. A lunar model was coated with a mild plastic solvent and placed under a plastic pyramid-type tent. Copper oxide was then sifted through a fine-mesh screen located at the top of the tent. The copper oxide drifted onto the surface of the model. When the model was evenly coated, it was removed from the tent.

60. PHOTOGRAPHY. Using parallel light, created with a parabolic mirror, various shadow conditions were simulated by placing the light source at several angles to the surface of the model. Two photographs were taken of the model at each angular setting of the light. Transparencies were then made of the photographs.

61. CORRELATION. Attempts were made to orient the landmark features of the transparencies to the corresponding features of the flat map from which the model had been made. Only very limited correlation was possible. Time limitations for the project prevented further investigation into the factors relative to correlation deficiencies.

SECTION III. DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

62. DUSTING. The dusting operation was accomplished with difficulty. Moreover, since copper oxide is highly corrosive to the respiratory system and should be handled only under highly controlled conditions, further dusting will not be attempted by AMS until adequate safety measures can be

incorporated into the program.

63. PHOTOGRAPHY. As encountered in the Eastman Kodak experimentation, collinearity of light source and camera could not be attained by AMS. A truly vertical photograph, therefore, with both the light source and the camera normal to the model surface, could not be obtained.

64. CORRELATION. The correlation of the shadowed landmark features on the transparencies with the same features on the source map was very difficult and could be achieved only within limited areas. The experiment was too limited to allow for analysis of correlation problems.

65. RECOMMENDATIONS. Dependent on current NASA requirements, a more comprehensive and rigorously controlled program should be set up to identify and solve the correlation problems.

CHAPTER 7

CAMERA SYSTEM STUDY

SECTION I. INTRODUCTION

66. SUBJECT. This chapter describes the measurements of the Lunar Orbiter Camera System that were made and the subsequent analysis of the data. Analysis was made of the measurements of the test material that had been read through the Lunar Orbiter system as well as the calibration data furnished by the Lunar Orbiter Project Office. The end product of this study is an indicated contour interval, as a function of those aspects of the camera system studied. (This is indicated relative accuracy. An absolute accuracy statement would also have to include errors in the control.)

67. BACKGROUND. Two test films were used for measurement and analysis of the Lunar Orbiter Camera System: (a) The Special Readout Test Film was designed and produced by AMS for the purpose of determining the distortion characteristics of the readout and reassembly systems and their effect on the geometric characteristics of the photography. (b) The Goldstone Test Film was furnished by NASA and was used in the inspection of linear distortions since the film could be viewed only monoscopically.

SECTION II. APPROACH

68. TECHNIQUES. The various images measured on the test films are indicated in figures 11 and 12. The diagrams depict the approximate positioning of the crosshair of the instrument when the observation was made.

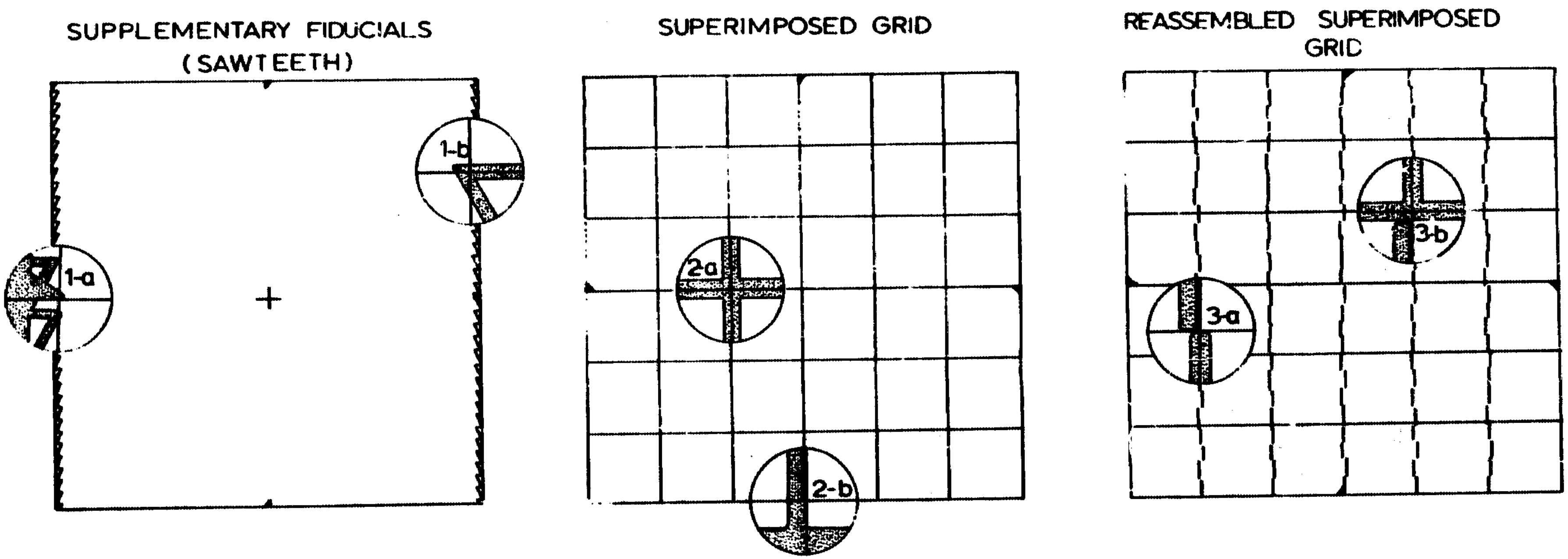

DIAGRAM 1
1a FIDUCIAL OVER SAWTEETH
1b SUPPLEMENTARY FIDUCIAL

DIAGRAM 2
2 a GRID INTERSECTION
2 b FIDUCIAL OVER GRID

DIAGRAM 3
3a REASSEMBLED GRID LINE
3 b REASSEMBLED GRID INTERSECTION

FIGURE 11. MEASUREMENT POSITIONS SPECIAL READOUT TEST FILM.

GOLDSTONE TARGET PLATE

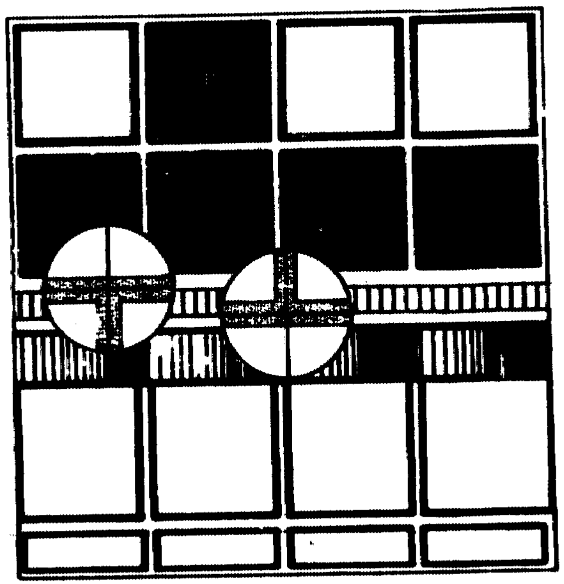

DIAGRAM 4

4 a GRID INTERSECTION (TOP)

4 b GRID INTERSECTION (BOTTOM)

GOLDSTONE FRAMELET PLATE

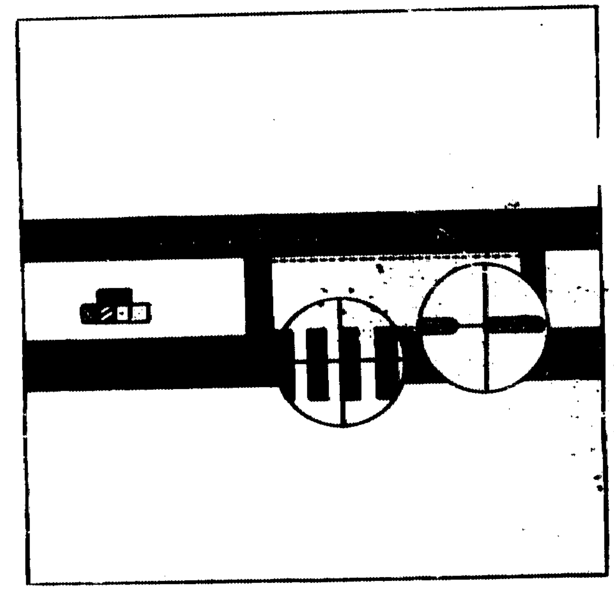

DIAGRAM 5

5 a GRE MARKS

5 b HORIZONTAL DRUM MARKS

FIGURE 12. MEASUREMENT POSITIONS GOLDSTONE TEST FILM.

69. MATERIALS FURNISHED. Various organizations were interested in the materials to be used in the study of the distortion characteristics of the readout and reassembly system. At the request of NASA, Manned Spacecraft Center, Houston, AMS furnished applicable materials to the interested organizations in order that they might aid in the error analysis of the Lunar Orbiter System. The materials, and the organizations to which they were furnished, are listed below.

a. Data Furnished.

(1) Film positive of the 35-mm framelets of the Special Readout Test Film (approximately 1,000 feet of 70-mm film).

(2) Copy of the subframes of the Special Readout Test Film (approximately 75 feet of 9.5-inch film).

(3) Camera Calibration Certificate for the KC-1B, 63-112 camera, dated 28 Oct 1963.

(4) Arizona Test Area Control Index No. 2 of 4.

(5) Book of Arizona Test Area Photo-Identified Control Points, Lines P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, and AD, 3 through 9.

(6) Set of Arizona Test Area Photography, VM 1370 PMW Test - 2, 7 Aug 1965, Nos. 2-1, 2-2, 2-3, 2-4, and 2-5.

(7) Five contact prints of the framelets of the Goldstone Test Film (approximately 375 feet of 70-mm film)--furnished only to the Manned Spacecraft Center, Houston, Texas.

b. Organizations to Which Data Were Furnished.

(1) Aeronautical Chart and Information Center, St. Louis, Missouri.

(2) U. S. Geological Survey, Flagstaff, Arizona.

(3) Lunar Orbiter Project Office, NASA, Langley, Virginia.

(4) Manned Spacecraft Center, NASA, Houston, Texas.

70. ANALYSIS. The following paragraphs describe the techniques and general mathematical equations used in the systems analysis.

a. Statistical Analyses. The equations used in the statistical reduction of data are shown in table XXXIII. The descriptions used in the column titled "Symbols in Tables" are to be used to coordinate the results and their statistical meaning.

b. Horizontal Transformation Equations. The equations used to achieve the horizontal transformation, programmed for the H-800, are represented as

$$X = X_o + m\,(x \cos\theta - y \sin\theta) \qquad (11)$$

$$Y = Y_o + m\,(x \sin\theta + y \cos\theta)$$

where: m is the scale factor

X, Y is the known position of the control point

x, y is an instrument-measured position

θ is the orientation angle.

c. Distance. The H-800 was programmed to determine the distance between two points, or intersections, on a grid line. The equations used were

$$x_n - x_{n-1} = 1_n \qquad (12)$$

$$x_{n-1} - x_m = 1$$

where: x_m is the last value of the grid line or intersection

x_{n-1} is the next to last value

x_n is the first value of the grid line.

d. Systems Analysis. A determination was made of the systematic errors that were encountered in the instrument readings when compared to the positions of the points of the original Special Readout Test Film before it was put through the Lunar Orbiter System. The following parameters were computed: the linear scale factors (scale X, scale Y) and α(the non-perpendicularity of the X and Y coordinates). A statistical analysis of the computed parameters and errors follows.

(1) The general form of the mathematical model is:

$$X = \left[(x-a)(1+S_x) + (y-b)(1+S_y)\alpha\right] \cos \kappa + \left[(y-b)(1+S_y)\right] \sin \kappa$$

$$Y = \left[(x-a)(1+S_x) + (y-b)(1+S_y)\alpha\right] -\sin \kappa + \left[(y-b)(1+S_y)\right] \cos \kappa$$

where X, Y = adjusted coordinate values

x, y = instrument reading coordinate values

a, b = computed translation values

S_x, S_y = scale factors

α = ccmputed non-perpendicularity of the axis

κ = rotation about the vertical axis.

(2) Method of Measurement. Measurements were made directly from the grid intersections.

e. Radial Lens Distortion. To utilize the camera calibration data furnished by NASA, it was necessary to change them into a form compatible to the analytical photogrammetrist. The general form for the radial distortion curve is a polynominal:

$$\Delta r = K_0 r + K_1 r^3 + K_2 r^5 + K_3 r^7 + \ldots$$

where: Δr is the radial distortion at a point (x, y)

r is the radial distance from the principal point (x_p, y_p)

K's are the unknown lens distortion parameters.

Also, $r = f \tan \alpha$

where: f is the focal length

α is the azimuth angle, about the z axis in the plane of the negative.

SECTION III. DATA MEASUREMENT SUMMARY

71. SUBJECT. Many measurements were made of selected marks on the Special Readout Test Film, the Goldstone Target Plate (the original target before readout in Lunar Orbiter), and the Goldstone 35 mm-Framelets. This section summarizes the data measured and their general significance relative to the photogrammetric section.

72. DATA STUDIED. a. GRE Strobe Light Marks. These marks appear on the 35mm-film on which the framelets are produced. These marks are put onto the 35mm-film during the processing or reassembly of the image in the GRE machine. The positions of observation are indicated in figure 12 (diagram 5). The variations in the spacing of the marks are indicated in table XXXIV. The variations are relatively insignificant and indicate that

the GRE used was feeding film through the system at a fairly constant rate of speed. Therefore, distortions of the film images should be negligible due to the variation of film speed through the GRE.

b. Horizontal Drum Marks. These marks appear as dashed lines within each framelet and are positioned within a few hundredths of an inch from the edges of the framelet. See Figure 12 (diagram 5). These marks are imaged onto the photo framelet in the spacecraft during the readout or transmission of each framelet. These marks are 180° in length, are in opposition to each other, and are etched on either end of the phosphorous drum. This series of dashed lines on either side of the framelet indicates the redundant information readout for each framelet that appears on the adjoining framelets. They serve as splicing lines in the reassembly of Lunar Orbiter photography. The appearance of these marks as dashes merely indicates that the drum is turning Measurements made of the lengths and spacing of these marks, shown in tables XXXV through XXXVIII, indicate that the drum was turning at a fairly constant speed.

c. Fiducials (Original Special Readout Test Film). The positions for the measurement of these points are indicated in figure 11 (diagram 1). The fiducial numbering system is shown in figure 13. The positions and statistical analysis of the points that appear on the original film are shown in tables XXXIII and XXXIX through XLIII.

d. Superimposed Grid Original. The positions for the measurement of these points are indicated in figure 11 (diagram 2). The positions and statistical results of these points that appear on the original film are shown

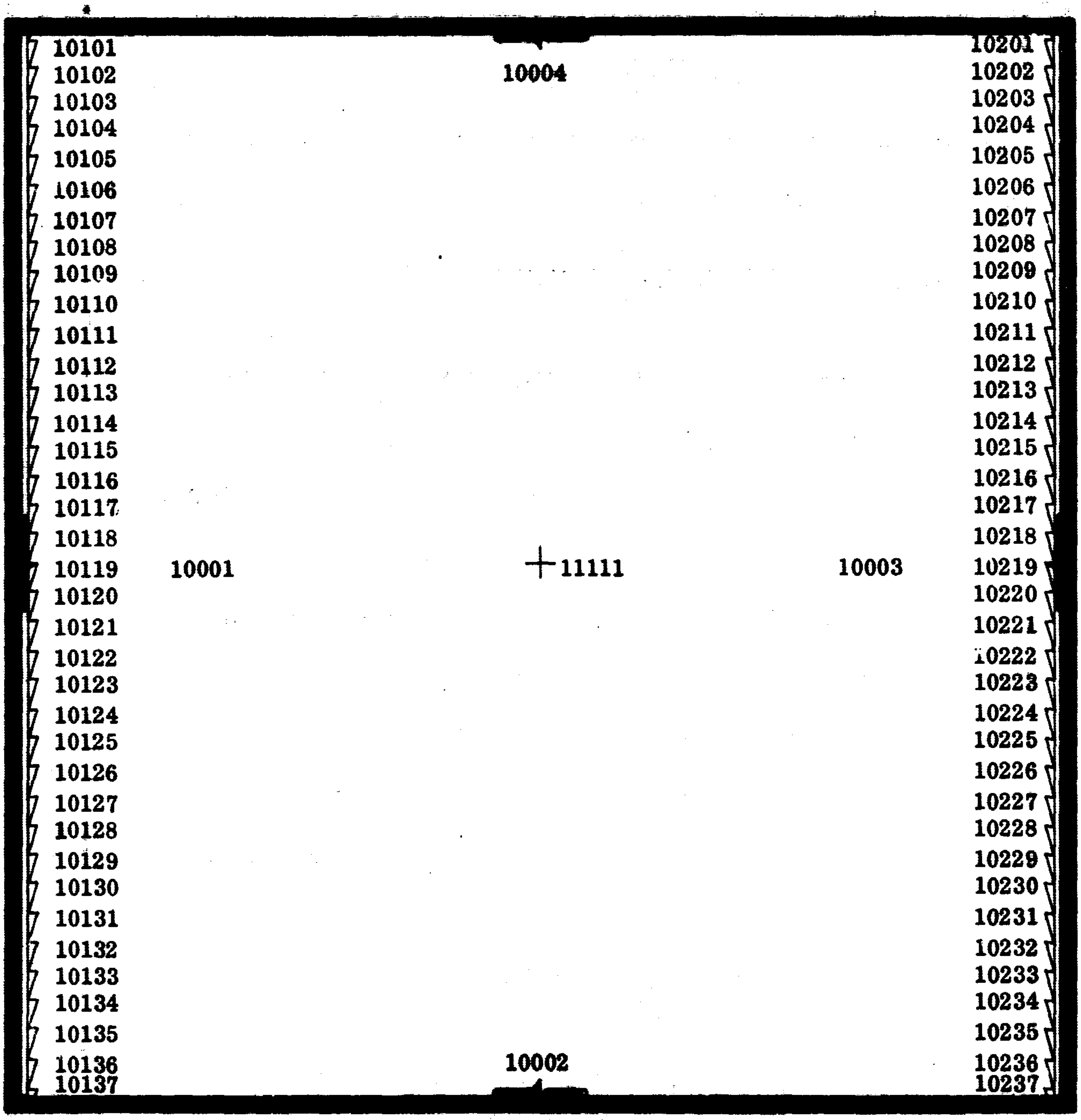

Figure 13. Fiducial numbering system.

letting $m_x\sqrt{2} = (dx_2 - dx_1)$ equal the precision of a single observation. Assuming that the error for an observation will be the root mean square error in the five plates, the z coordinate accuracy for a single point may be stated as

$$m = \frac{H}{f} \cdot \frac{H}{B} (m_x)\sqrt{2} \quad . \tag{13}$$

Using equation (13) with orbiter photography having a base: height ratio of 0.09, the z coordinate accuracy will be

$$\left(\frac{46 \text{ km}}{80 \text{ mm}}\right) \left[\frac{46 \text{ km}}{(1.00 - .87)\left(\frac{46 \text{ km}}{80 \text{ mm}}\right)(55 \text{ mm})}\right] (51)\sqrt{2} = 459 \text{ meters} \quad .$$

Using photographs number 1 and 4, however, the base is increased to

$$(0.13 \text{ gain})\ (3)\ (575{,}000)\ (55 \text{ mm}) = 12.33375 \text{ km} \quad .$$

Using this value in equation (13), the z coordinate accuracy for a single point is 153 meters.

b. Framelets. The subframes were used to determine and set the photogrammetric model. The model was further refined by removing parallax created by the individual framelets. With a model so defined and utilizing the residuals indicated in tables LXVIII through LXXXII, an estimate of the expected heighting capability for each framelet can be determined, where:

$$m = \frac{H}{f} \cdot \frac{H}{B} (dx_2 - dx_1)$$

and

$$(dx_2 - dx_1) = \left(\frac{\Sigma v^2}{n}\right)^{1/2} \sqrt{2} \quad .$$

c. Contour Interval. From table X, 91 meters is the smallest approx-in tables XLIV through XLVIII. This numbering system of the grid intersections is shown in figure 14. These positions were used as basic control points in the adjustment or transformation of reassembled data that pertain to this superimposed grid.

e. Goldstone Target Plate. A copy of the original target for Lunar Orbiter readout test from the spacecraft was used. Figure 12 (diagram 4) indicates the positions on the grid ladder at which measurements were made. The positions and spacings, indicated in tables XLIX through LVII, were used as basic control in the adjustment or transformation of all measured telemetered data of the Goldstone Test framelets. Tables LVIII through LXII contain horizontally adjusted grid intersections and broken grid lines treated as pass points for complete frames. Tables LXIII through LXVII contain horizontally adjusted grid intersections for the center subframe of the photographs.

SECTION IV. EVALUATION

73. SPECIAL READOUT TEST FILM. In the reassembly of Orbiter framelets into a complete photograph, various planes at random levels will be created. With the use of tables LXVIII through LXXXII and their related curves in figures 15 through 29, a determination of the errors that will be involved with a 5-point solution has been made.

a. Subframes. In the subframe analysis (tables LXIII through LXVII), the root mean square error of any x for the five plates is 51 microns. This is derived using the equation $m = \frac{H}{f} \cdot \frac{H}{B} (dx_2 - dx_1)$ assuming $dx_2 = dx_1$ and

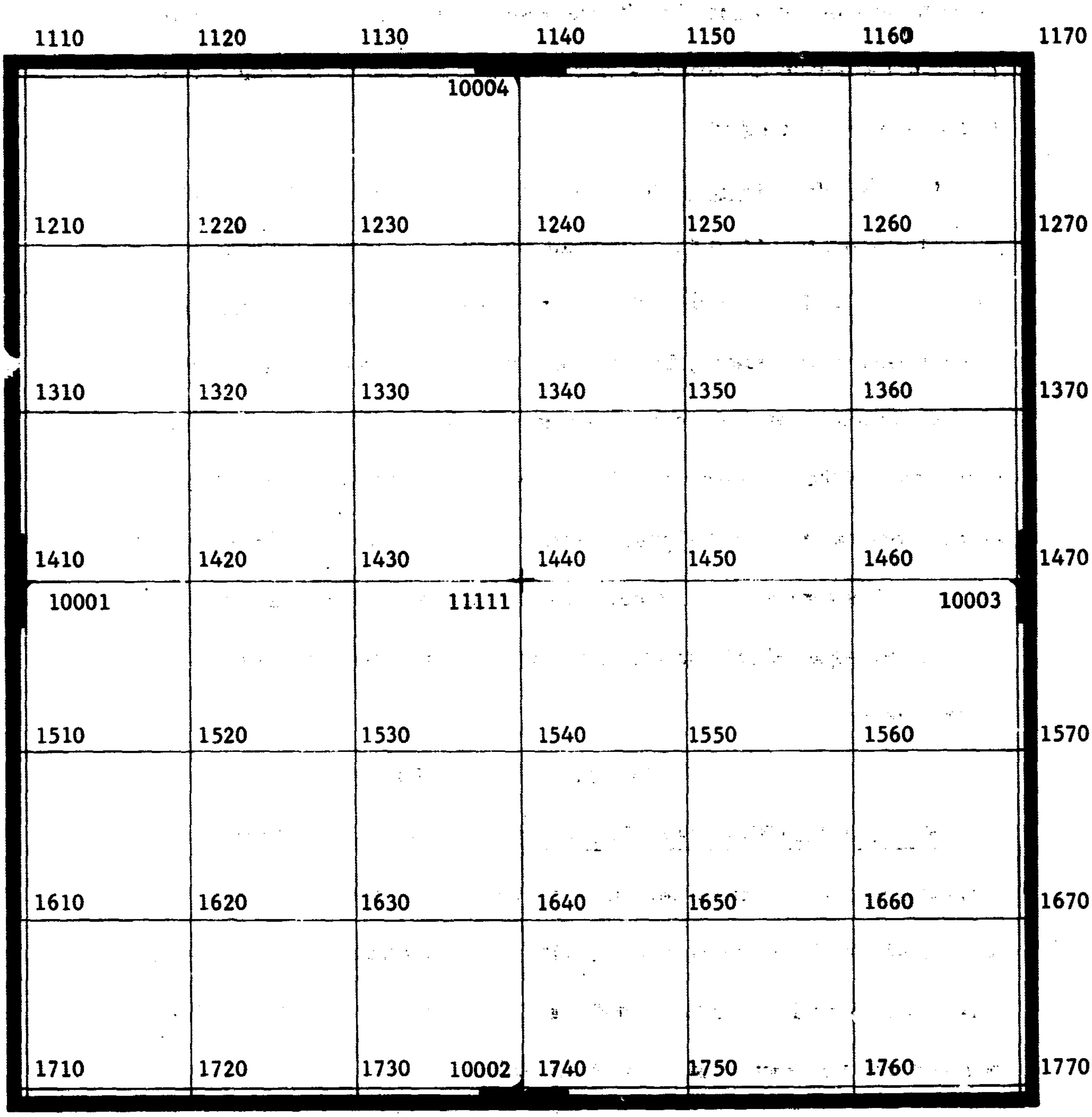

Figure 14. Grid intersection numbering system.

imate contour interval achievable at a 1.6-sigma confidence level, using the RMS of all points of 19 microns, where the base : height ratio is 0.27. The poorest conditions exist where the base : height ratio is 0.09, and the approximate contour interval with a 1.6-sigma confidence level would be ±273 meters.

Table X. Heighting Capability

Table	Spacecraft RMS in Microns	Forward Gain 13% Base = 4.11125 km Heighting in Meters 1σ	Forward Gain 39% Base = 12.33375 km Heighting in Meters 1σ
LXVIII	30.0	270	90
LXIX	8.2	74	25
LXX	18.1	163	54
LXXI	21.3	191	64
LXXII	7.7	69	23
LXXIII	24.9	224	75
LXXIV	25.8	232	77
LXXV	11.5	104	35
LXXVI	5.5	50	17
LXXVII	6.9	62	21
LXXVII	8.8	79	26
LXXIX	23.1	208	69
LXXX	13.3	120	40
LXXXI	25.1	226	75
LXXXII	22.3	201	67

d. Reassembled Superimposed Grid. (1) Figure 11 (diagram 3) indicates the grid intersections and the reassembled grid line positions of measurement. The statistical results of grid intersection measurements and the positions used in the following analysis are shown in tables LIII through LVII. The grid intersection numbering system is shown in figure 14.

(2) The reassembled grid intersection positions are transformed and adjusted by the least squares method to the original positions using the AMS Horizontal Adjustment Program, together with the reassembled grid line measurements denoted by the prefix "B" as auxiliary points. This adjustment was performed using frames, subframes, and framelets. The results of the adjustments are indicated in tables LVIII through LXXXII. Figures 15 through 47 are the line and vector graphs associated with the aforementioned tables.

(3) The reassembled grid-intersection positions were transformed and adjusted by the least squares method to the original positions, using the AMS System Analysis Program. This adjustment was performed using frames and subframes. Figure 48 indicates the numbering system used in this adjustment. The results of the adjustments are indicated in tables LXXXIII through XCIV. Figures 49 through 60 are the vector graphs associated with the aforementioned tables.

(4) The displacements indicate the type of distortions that can be expected in the Orbiter photography. They were found to be random, but an analysis of them will permit a more accurate determination of the indicated contour interval that can be drawn from the Lunar Orbiter photography by

photogrammetric methods. The need for a réseau to appear in the Lunar Orbiter camera, or to be preprinted on the Orbiter film, is obvious.

74. GOLDSTONE FILM. This film was read out just prior to launch of Lunar Orbiter Mission "1."

a. Figure 61 indicates the positions at which the measurements of the grid ladder were made. The statistical results, the spacing of the grid ladder measurements, and the positions used in the following analysis are shown in tables XCV through XCVIII.

b. The Horizontal Adjustment Program was used to adjust the framelet measurements to the original target measurements. The adjusted results are indicated in tables XCIX through CII. Figures 62 through 65 are the graphs associated with the aforementioned tables.

c. Two methods of analyzing the distortions were used, and by comparing the results, it can readily be determined that a réseau is needed in the Lunar Orbiter photography system, and the results that can be expected through its use can be predicted.

75. LENS DISTORTION FOR 80-MM FOCAL-LENGTH CAMERA. Figure 66 shows the graph of the radial distortion furnished by the Boeing Company. Table CIII indicates the k values used that were derived by an AMS Radial Distortion Program. These results were used to remove distortions in the Orbiter photography caused by the camera lens.

76. GOLDSTONE TARGET. The transmitted framelets of the grid ladder that appear in the center portion of Goldstone Target were measured, and

two linear adjustments were made to the original target readings.

a. The first adjustment used all of the intersections of the grid ladder points of the original target as control, and each point of the transmitted material was adjusted to these points. The residuals are shown in tables C and CII, and the graphs of these points are shown in figures 63 and 65. The heighting capability of a single point (table XI) can be determined using the RMS of these points and the equation

$$m = \frac{H}{f} \cdot \frac{H}{B} \quad (dx_2 - dx_1) \tag{14}$$

where: m = heighting capability

H = altitude of the vehicle above the surface

B = distance of photographic base

f = focal length of the camera

$(dx_2 - dx_1)$ = the precision of a single observation of an image appearing on two photographs.

Table XI. Goldstone 42 Control Points

Base 4. 11125				Base 12. 3375 km			
Framelet				Framelet			
533		534		533		534	
RMS	Heighting 1 σ	RMS	Heighting 1 σ	RMS	Heighting 1 σ	RMS	Heighting 1 σ
22	198	30	270	22	66	30	90

Letting $m_x\sqrt{2} = (dx_2 - dx_1)$, where m_x is equal to the RMS of the linear adjustment, the following equation is obtained:

$$m = \left[\frac{46\ \text{km}}{80\ \text{mm}}\right] \left[\frac{46\ \text{km}}{B}\right] (\text{RMS})\sqrt{2} \quad . \qquad (15)$$

In this equation, which indicates the heighting capability that can be expected with a réseau,

46 km is the mean altitude of Orbiter

80 mm is the focal length of the moderate-resolution camera.

b. The second test used only the two end points as control similar to the condition existing in Lunar Orbiter Mission "1." The same procedure was used as outlined in a. above to compile table XII. See tables XCIX and CI and their associated graphs (figures 62 and 64) for the residuals used to obtain these figures.

Table XII. Goldstone 2 Control Points

Base 4. 11125 km				Base 12. 3375 km			
Framelet				Framelet			
533		534		533		534	
RMS	Heighting 1σ	RMS	Heighting 1σ	RMS	Heighting 1σ	RMS	Heighting 1σ
29	261	41	369	29	87	41	123

c. Using tables XI and XII an indication is given of what will be obtained with the use of a réseau. The réseau provided a better heighting capability by 21 to 33 meters at the 1σ level with a base : height ratio of 0.27 and 63 to 99 meters at the base : height ratio of 0.09.

SECTION V. CONCLUSIONS AND RECOMMENDATIONS

77. CONTOUR EXPECTANCY. From the information contained in tables XI and XII, a prediction of the contour interval for Missions 1 and 2 of the Lunar Orbiter Series can be made.

a. Mission 1. Except for the sawtooth fiducial marks, no réseau will be used for this system, and results will be computed using the two-point control formula.

(1) With a base : height ratio of 0. 27, an approximate contour interval of not less than 139 meters nor greater than 195 meters is obtainable with a 1. 6-sigma or 90 percent confidence level.

(2) With a base : height ratio of 0. 09, an approximate contour interval of not less than 420 meters nor greater than 590 meters is obtainable with a 1. 6-sigma or 90 percent confidence level.

b. Mission 2. With a réseau preprinted on the film, the results will be computed using the 42-point control solution.

(1) With a base : height ratio of 0. 27, an approximate contour interval of not less than 105 meters nor greater than 145 meters is obtainable with a 1. 6-sigma or 90 percent confidence level.

(2) With a base : height ratio of 0. 09, an approximate contour interval of not less than 320 meters nor greater than 430 meters is obtainable with a 1. 6-sigma or 90 percent confidence level.

78. RECOMMENDATIONS. a. Instruments. The use of analytical plotters is indicated for all conditions because of the various distortions disclosed by

the Camera System Study as well as the curvature of the lunar surface. However, since analogical instruments can be used with distortion compensating devices and are usually much faster for compilation purposes, it is recommended that the analogical instruments be used only in areas where base : height ratios approach 0. 18 to 0. 27, and that the analytical instruments be used in the areas where base : height ratios approach 0. 09.

b. Reseau. It is recommended that a reseau be included in the camera system of Lunar Orbiter. If, however, this is not feasible, the reseau should be preprinted on the Orbiter film at approximate 2-mm intervals in the line of flight and spaced approximately 0. 07 to 0. 08 inch apart across the line of flight.

c. Calibration. Both camera systems in Orbiter need a thorough calibration and should be calibrated in accordance with the specifications of the American Society of Photogrammetry.

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APPENDIX I

INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APPOLO

APPENDIX I. CATALOG I

INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
10001	1527	.008531	87	.012319	85	1.001727	878
10002	537*	.006993	96	.020872	94	1.000143	887
10006	542	.004307	383	.062551	239	.997065	3412
10010	534	.019044	179	.006895	174	.999016	1652
10022	538*	.025937	72	.021726	70	.999561	683
10027	544	.026635	269	.073980	268	1.000470	3143
10041	533	.041418	92	.012388	90	.999740	823
10045	545	.043036	164	.057290	161	.997818	1511
10045B	528	.047562	190	.058799	191	.999344	1754
10063	530	.068104	492	.039244	406	.998660	3821
10067 A	526	.062546	316	.073000	293	.996771	3265
10070	518	.074337	293	.002720	295	.998107	2736
10084	523	.080064	584	.045373	497	.996443	5019
10086	524	.080865	278	.061773	272	.993679	2874
10087A	525	.084198	49	.071991	49	.995280	434
10094	522	.090119	228	.049167	262	.998973	2238
10096	1506	.090542	90	.064168	86	.993809	919
10099	1514	.099728	108	.090284	115	.991092	1153

* - Throughout the appendix these craters have IAU Lunar Catalog designations but the approximate coordinates were obtained from LAC charts.

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Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
10001	1527	0° 42' 16"	0° 29' 16"	3195	1525	211
10002	537*	1 11 44	0 24 02	669	1542	232
10006	542	3 35 23	0 14 51	-1677	5919	856
10010	534	0 23 43	1 05 32	-1354	2872	430
10022	538*	1 14 41	1 29 11	233	1188	170
10027	544	4 13 39	1 31 30	6178	5455	720
10041	533	0 42 34	2 22 20	1172	1431	220
10045	545	3 16 59	2 28 11	673	2627	392
10045B	528	3 21 48	2 43 29	3826	3047	471
10063	530	2 14 43	3 54 05	3040	6624	1206
10067A	526	4 10 50	3 35 26	2426	5649	916
10070	518	0 09 21	4 15 34	1520	4743	797
10084	523	2 35 56	4 35 38	1188	8735	1248
10086	524	3 32 44	4 39 09	-1955	4995	669
10087A	525	4 07 21	4 50 08	2479	751	137
10094	522	2 48 23	5 09 17	7359	3882	653
10096	1506	3 40 45	5 12 20	- 25	1595	235
10099	1514	5 10 44	5 44 46	313	1993	341

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
11001	516*	.107737	101	.015232	100	.995214	960
11001 C	517	.102343	195	.011641	193	.995562	1856
11002	1509	.100320	455	.027550	577	.995774	5254
11004 A	1504	.109618	180	.047793	197	.995284	1783
11005	510	.107314	240	.052189	223	.991695	2129
11006	509*	.103747	79	.061274	79	.993892	710
11007	1825	.109109	272	.076211	420	.992963	3536
11008	507	.100843	257	.083675	281	.996931	2747
11011 B	1503	.111931	75	.017732	75	.995917	721
11012	513*	.119035	103	.028481	94	.994354	1002
11015	511*	.112802	57	.052972	56	.993305	537
11016 A	1505	.118670	513	.060912	492	.992506	5823
11025	512*	.125681	491	.050931	408	.988958	4682
11032	1517	.139673	416	.025735	410	.990894	4051
11041 A	1502	.143583	47	.017335	47	.990800	452
11042	498*	.145839	123	.027395	130	.989366	1170
11045	501	.149290	287	.052305	373	.989294	3726
11049	1500	.147114	181	.090073	182	.984394	1737

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
11001	516*	0°	52'	18"	6°	10'	43"	1989	1663	278
11001C	517	0	39	59	5	52	10	1523	3218	529
11002	1509	1	34	37	5	45	11	2074	9114	1394
11004A	1504	2	43	58	6	17	06	4245	3084	554
11005	510	2	59	42	6	10	34	-2001	3683	671
11006	509*	3	30	32	5	57	33	2032	1231	219
11007	1825	4	21	46	6	16	14	3202	6125	999
11008	507	4	46	25	5	46	34	9570	4759	764
11011B	1503	1	00	49	6	24	45	4073	1247	221
11012	513*	1	37	44	6	49	35	3231	1745	214
11015	511*	3	01	59	6	28	44	1898	930	161
11016A	1505	3	29	14	6	49	06	2484	10130	1152
11025	512*	2	55	29	7	14	33	-3108	8133	1136
11032	1517	1	28	23	8	01	24	1774	7010	1214
11041A	1502	0	59	31	8	14	44	2259	779	154
11042	498*	1	34	09	8	23	07	751	2020	391
11045	501	2	59	33	8	34	53	3235	6425	1154
11049	1500	5	10	15	8	29	59	-1055	2983	640

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
11050C	497	.150377	94	.004963	94	.990263	901
11057A	504	.153984	124	.078853	118	.984127	1298
11065	1501	.164004	290	.050262	247	.988911	2238
11085	301	.185163	312	.056737	229	.982457	3120
11088A	299	.184450	302	.083957	281	.980843	2578
11092	306	.193934	307	.023309	341	.986397	3191
11093A	305	.190937	190	.034352	181	.984715	1770
11097	298*	.196996	114	.075678	105	.979267	1064
12000	1169	.206255	421	.007264	553	.980126	4947
12004	304	.205143	239	.044203	235	.978418	2321
12011	287	.210420	362	.011819	361	.978058	3367
12012	290*	.214028	215	.029390	209	.978171	2116
12015	302	.210532	287	.056998	306	.978073	3113
12015A	1613	.212339	160	.052851	160	.978460	1827
12023	291	.228526	402	.036017	385	.972385	3987
12030A	1167	.235818	393	.007349	323	.973069	3377
12031A	1620	.234901	229	.017577	224	.970618	2327
12032	289	.235753	288	.021946	295	.971069	2922

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
11050 C	497	0°	17'	02"	8°	38'	05"	2830	1551	314
11057 A	504	4	31	34	8	53	34	-1361	2232	446
11065	1501	2	52	14	9	24	59	6392	3848	873
11085	301	3	14	53	10	40	24	2367	5370	1010
11088 A	299	4	48	31	10	39	01	2713	4428	988
11092	306	1	19	42	11	07	23	9648	5478	1175
11093 A	305	1	57	41	10	58	25	6333	3045	634
11097	298*	4	19	57	11	22	27	3037	1823	413
12000	1169	0	24	56	11	53	02	2814	8406	2175
12004	304	2	31	54	11	50	30	1163	3963	951
12011	287	0	40	37	12	08	30	880	5746	1418
12012	290*	1	40	52	12	20	31	3031	3619	834
12015	302	3	15	38	12	08	52	3646	5333	1171
12015A	1613	3	01	18	12	14	39	4570	3140	613
12023	291	2	03	54	13	13	32	- 822	6790	1687
12030A	1167	0	25	14	13	37	22	2195	5815	1187
12031 A	1620	1	00	30	13	36	17	-2098	3977	920
12032	289	1	15	29	13	38	46	- 837	4997	1152

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
12036	294	.236779	246	.067677	269	.974064	3608
12036A	1623	.235770	60	.068612	49	.973669	512
12040	285*	.243927	100	.003293	97	.970243	981
12048	296*	.243620	169	.082223	142	.968161	1400
12048B	1640	.249154	122	.087525	125	.964921	1295
12052	1622	.258457	349	.022616	291	.970519	3762
12053	292	.251677	358	.031452	315	.972647	2950
12054 A	293	.252447	183	.047746	189	.964976	1867
12055 A	1616	.257922	426	.055082	349	.969294	3653
12064	281	.266180	412	.048760	395	.965783	3484
12069	1618	.269296	179	.090799	185	.959952	1836
12070 A	284	.275458	428	.001026	344	.962329	3233
12075 A	1615	.272747	210	.051964	180	.965456	2861
12077	1637	.273500	139	.078105	142	.958971	1332
12082	262	.286952	441	.024132	432	.957859	4830
12086	276	.287112	609	.069119	615	.958039	5537
12088 A	275	.285733	232	.083492	230	.951964	2168
12098 A	1605	.292002	108	.085702	102	.952574	1027

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Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
12036	294	3° 51' 44"	13° 39' 46"	8189	6128	1469
12036A	1623	3 55 05	13 36 43	7221	882	179
12040	285*	0 11 19	14 06 44	767	1667	436
12048	296*	4 42 30	14 07 27	2993	2382	624
12048B	1640	5 01 09	14 28 41	705	2194	587
12052	1622	1 17 24	14 54 44	7993	6428	1437
12053	292	1 47 35	14 30 26	8990	5014	1354
12054A	293	2 44 26	14 39 38	-2445	3157	879
12055A	1616	3 08 36	14 54 03	7879	6270	1382
12064	281	2 47 11	15 24 32	5176	5890	1721
12069	1618	5 12 13	15 40 14	1974	3078	950
12070A	284	0 03 31	15 58 24	1698	5446	1678
12075A	1615	2 57 54	15 46 31	7974	4847	1210
12077	1637	4 28 42	15 55 06	459	2241	677
12082	262	1 22 57	16 40 37	363	8197	2109
12086	276	3 57 12	16 40 58	4383	9236	3093
12088A	275	4 48 06	16 42 26	-4481	3632	1150
12098A	1605	4 54 59	17 02 33	6	1719	545

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
13001	260	.306159	508	.011887	461	.950322	4656
13007	273*	.308370	137	.075948	135	.946138	1359
13008A	1604	.300337	84	.081471	80	.949428	802
13010	1626	.313670	242	.009771	260	.953562	2727
13026	269*	.320915	91	.064160	89	.944355	896
13028	272*	.326442	131	.081473	123	.942352	1279
13032	257*	.333172	238	.021922	198	.942729	2408
13034	266	.330465	510	.045266	493	.942572	4348
13051	1601	.352470	140	.017285	140	.935302	1264
13056	271*	.354705	66	.060214	65	.933211	652
13072	251*	.375814	160	.024542	158	.927022	1545
13085	244	.385826	133	.054195	124	.920221	1243
14011	231	.414314	232	.015955	234	.910812	1653
14022	235*	.421582	172	.024132	158	.905741	1599
14024	236	.426055	228	.040394	231	.902198	2321
14024A	237	.421010	267	.048294	271	.908007	2563
14026	238	.423905	128	.064867	127	.902426	1240
14040	229	.449044	221	.003499	201	.891925	1975

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
13001	260	0°	40'	56"	17°	51'	25"	-2620	7793	2486
13007	273*	4	21	52	18	03	07	-3447	2262	756
13008A	1604	4	40	38	17	33	14	-1519	1339	436
13010	1626	0	33	28	18	12	30	6734	4539	1498
13026	269*	3	40	50	18	46	09	- 948	1489	509
13028	272*	4	40	13	19	06	24	1069	2128	713
13032	257*	1	15	22	19	27	51	194	4037	1230
13034	266	2	35	41	19	19	14	- 262	7205	2588
13051	1601	0	59	27	20	38	56	- 587	2073	806
13056	271*	3	27	06	20	48	[illegible]	282	1069	407
13072	251*	1	24	20	22	04	03	1049	2510	1029
13085	244	3	06	32	22	44	50	-1212	2001	873
14011	231	0	54	49	24	27	36	1294	2619	1311
14022	235*	1	23	01	24	57	35	-1147	2556	1166
14024	236	2	19	06	25	16	43	-2508	3726	1688
14024A	237	2	45	45	24	52	32	3523	4064	1938
14026	238	3	43	21	25	09	41	-1498	1968	931
14040	229	0	12	03	26	43	24	-2449	3085	1591

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
14052A	221	.459724	138	.022395	139	.886616	1358
14052B	1600	.455672	193	.022496	211	.894770	1967
14063	1609	.468669	128	.038431	126	.881683	1234
14068	224	.460559	125	.083478	122	.880840	1170
14073A	220	.473948	226	.034215	230	.880806	2171
14078	1631	.477190	152	.081907	153	.873736	1454
14081A	217	.487417	144	.014475	141	.871785	1347
14084	1630	.486675	154	.048134	143	.869839	1548
14085	214	.480592	319	.056362	328	.881705	4769
14088	1606	.485295	205	.087508	221	.869035	2034
14095	211*	.494498	128	.056667	127	.866310	1240
14096	1607	.491992	195	.061215	196	.869116	1674
14097A	210	.494277	200	.071674	201	.865040	1968
14097B	77	.499514	192	.072365	188	.860141	1794
15000	72	.501893	430	.008796	519	.866180	4525
15003A	70	.509427	223	.031674	221	.858689	1919
15006	71	.508271	564	.065528	573	.863120	4803
15009A	76	.503275	163	.093600	159	.856362	1642

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
14052A	221	1°	17'	05"	27°	24'	27"	- 1795	2104	1124
14052B	1600	1	17	00	26	59	17	7593	3083	1558
14063	1609	2	12	15	27	59	36	- 1311	1916	1013
14068	224	4	48	02	27	36	12	- 4383	1817	960
14073A	220	1	57	33	28	17	03	1404	3347	1830
14078	1631	4	42	12	28	38	28	- 1884	2217	1271
14081A	217	0	49	49	29	12	35	- 1919	2070	1147
14084	1630	2	45	53	29	13	37	- 3662	2406	1260
14085	214	3	12	45	28	35	37	10007	7220	4147
14088	1606	5	01	28	29	10	49	- 1399	3120	1744
14095	211*	3	15	05	29	43	05	- 1537	1895	1075
14096	1607	3	30	27	29	30	49	1014	2528	1517
14097A	210	4	06	53	29	44	36	- 1964	2977	1754
14097B	77	4	09	40	30	08	43	- 4705	2727	1583
15000	72	0	30	12	30	05	22	1947	6935	3888
15003A	70	1	49	01	30	40	45	- 1856	2913	1714
15006	71	3	44	34	30	29	34	6599	7341	4212
15009A	76	5	22	59	30	26	32	- 4000	2491	1447

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
15012	1728	.519132	360	.028273	381	.852956	3354
15030	62	.534851	206	.004998	202	.846231	2342
15032	1727	.532250	595	.025479	601	.845955	5225
15033 A	1712	.538290	312	.031428	254	.842701	3175
15035 A	64	.538500	234	.055195	225	.839152	2299
15038	65*	.532032	156	.085645	151	.841895	1564
15040	1714	.547255	430	.007752	350	.835545	4376
15042B	60	.543533	351	.023609	314	.843744	3569
15042 C	1713	.541426	499	.028367	446	.838430	4830
15044	1730	.547133	163	.047738	161	.834312	1577
15046	59	.544897	143	.061325	141	.836841	1384
15067	81	.566032	485	.070931	591	.823615	4717
15070	53	.573310	166	.002390	135	.820241	1689
15070A	1827	.579479	285	.004292	254	.812302	2997
15072 A	49	.573309	263	.028640	246	.819466	2871
15076	1725	.575526	328	.069154	317	.812275	3031
15078	1729	.577319	119	.086622	118	.812658	1152
15081 A	1182	.581593	332	.012591	405	.811948	3970

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
15012	1728	1° 37' 19"	31° 19' 33"	-1885	4989	3151
15030	62	0 17 10	32 17 40	1908	3508	2125
15032	1727	1 27 37	32 10 37	- 366	7622	5150
15033 A	1712	1 48 01	32 34 09	772	4860	2704
15035 A	64	3 10 06	32 41 21	-2431	3420	2141
15038	65*	4 54 54	32 17 26	- 712	2331	1447
15040	1714	0 26 41	33 13 24	-2014	6655	3808
15042 B	60	1 20 51	32 47 21	6843	5453	3070
15042 C	1713	1 37 41	32 51 10	-2686	7287	4326
15044	1730	2 44 22	33 15 23	-1991	2326	1505
15046	59	3 30 51	33 04 10	849	2044	1316
15067	81	4 03 35	34 29 56	3269	6871	4666
15070	53	0 08 13	34 57 06	1291	2523	1545
15070A	1827	0 14 47	35 30 12	-3786	4382	2892
15072 A	49	1 38 25	34 58 38	893	4212	2749
15076	1725	3 58 26	35 19 08	-3651	4394	3013
15078	1729	4 57 59	35 23 25	1055	1655	1163
15081 A	1182	0 43 20	35 36 50	-2027	5570	4173

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
15081B	84	.588090	167	.013355	163	.807136	1592
15084	45	.585867	258	.040112	239	.808783	2370
15085	46	.580963	210	.051933	204	.810961	2114
15097	37	.595262	319	.071940	309	.800232	3062
16008	34	.608123	169	.083652	166	.791496	1533
16010	33	.617545	205	.002749	192	.788786	1793
16020	1755	.629127	270	.001357	232	.777560	2311
16022	32	.626868	202	.023454	190	.777871	1793
16029	93	.625860	214	.096295	211	.771653	2020
16032B	86	.638554	270	.024617	204	.768819	2575
16034	1731	.631938	170	.043731	169	.772546	1683
16039	94	.632542	174	.098228	172	.766572	1582
16041	28	.648881	99	.011761	93	.760324	921
16050A	1709	.651218	198	.009110	195	.758769	1868
16051	1708	.651065	184	.015088	172	.756802	1607
16059A	1721	.656438	89	.091317	86	.748183	823
16060	1200	.660942	335	.001592	298	.748999	2940
16062	91	.661177	133	.020397	148	.749618	1215

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
15081 B	84	0° 45' 58"	36° 04' 39"	-2177	2293	1600
15084	45	2 18 00	35 55 08	- 889	3447	2335
15085	46	2 58 48	35 37 02	-1849	3045	2120
15097	37	4 07 32	36 38 39	- 101	4326	3196
16008	34	4 47 26	37 32 09	2845	2169	1600
16010	33	0 09 26	38 03 27	3085	2513	1908
16020	1755	0 04 40	38 58 35	350	3193	2512
16022	32	1 20 42	38 51 52	-1220	2531	1882
16029	93	5 32 09	39 02 39	-3113	2824	2149
16032 B	86	1 24 39	39 42 43	- 487	3658	2646
16034	1731	2 30 32	39 16 59	-1665	2346	1796
16039	94	5 38 40	39 31 41	-2269	2172	1739
16041	28	0 40 27	40 28 42	- 628	1248	1028
16050 A	1709	0 31 19	40 38 17	- 88	2559	2055
16051	1708	0 51 57	40 42 18	-2728	2175	1807
16059 A	1721	5 14 31	41 15 47	- 845	1108	930
16060	1200	0 05 29	41 25 35	-1872	3907	3385
16062	91	1 10 09	41 24 46	- 437	1605	1416

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
16064	1720	.663665	201	.043302	200	.745238	1857
16065	26*	.660744	90	.057340	88	.748659	815
16065 B	1818	.668575	465	.054633	457	.739934	4410
16071 B	21	.671479	159	.019294	171	.740513	1669
16076	1705	.676720	471	.066149	312	.731231	3743
16076A	1718	.677756	187	.068598	169	.729042	1462
16078 A	19	.670939	70	.085069	67	.735672	648
16080	17	.684710	102	.001594	100	.726968	978
16083 A	16	.688392	260	.031991	257	.731153	2149
16086	14	.689378	125	.065780	146	.720571	1334
16091	1829	.691155	115	.017545	102	.721335	962
16096 A	97	.699216	261	.060911	253	.710964	2484
16098	1722	.690099	381	.089490	438	.721773	3543
17009	100	.700813	248	.091356	241	.706713	2349
17017	8	.716995	353	.078586	330	.694068	3064
17025	7	.725233	114	.057959	111	.685379	1090
17035	1726	.736241	160	.057692	162	.672789	1405
17036 A	4	.733767	168	.063317	158	.674807	1561

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
16064	1720	2°	29'	05"	41°	41'	11"	-1994	2481	2123
16065	26*	3	17	12	41	25	50	314	1097	923
16065B	1818	3	08	09	42	05	59	-2191	5810	5126
16071B	21	1	06	21	42	12	03	- 334	2218	1914
16076	1705	3	47	55	42	46	58	-2588	5083	4177
16076A	1718	3	56	32	42	54	44	-3862	1979	1654
16078A	19	4	53	00	42	21	54	-1210	859	747
16080	17	0	05	29	43	17	07	-2336	1279	1147
16083A	16	1	49	29	43	16	29	8229	2786	2567
16086	14	3	46	26	43	43	57	-1051	1734	1575
16091	1829	1	00	22	43	46	34	-1455	1264	1127
16096A	97	3	29	44	44	31	22	-1667	3236	2927
16098	1722	5	07	15	43	42	53	4514	4574	4244
17009	100	5	14	40	44	45	35	- 931	3013	2820
17017	8	4	30	10	45	55	51	1727	3834	3789
17025	7	3	19	27	46	37	06	- 812	1351	1356
17035	1726	3	18	38	47	34	42	-1717	1628	1861
17036A	4	3	38	03	47	23	49	-1924	1898	1979

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
17054	2	.753963	176	.048400	197	.652825	1991
17068	1717	.760480	322	.085271	380	.640789	3512
17069A	1701	.762695	451	.094097	451	.639177	3477
20013	551	-.016285	95	.038717	94	.999603	983
20014 B	550	-.019053	334	.043778	292	.996977	2982
20017 A	1813	-.019041	65	.078599	64	.996298	660
20022 A	553	-.027421	261	.029775	233	.998495	2530
20025 A	549	-.020226	167	.053583	177	.998613	1599
20026 B	1814	-.021368	201	.063348	186	1.000116	1806
20028 A	548	-.027090	90	.081455	88	.998372	856
20040	1164	-.041970	158	.009607	168	1.001837	2141
20044 A	557	-.045385	139	.041852	136	1.000484	1326
20047 B	564	-.045326	67	.073677	65	.996554	633
20050	1162	-.052638	254	.000321	224	1.002578	4167
20063	560	-.066745	184	.030977	230	1.002696	2023
20064	561	-.061283	148	.049045	153	.996746	1487
20070 A	558	-.078521	282	.008472	252	.997652	2810
20071	559	-.074438	319	.018343	282	1.000113	2924

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
17054	2	2°	46'	42"	49°	06'	43"	-2623	2188	2720
17068	1717	4	54	03	49	52	56	-3295	4262	4454
17069A	1701	5	24	06	50	02	07	- 778	4148	4532
20013	551	2	13	04	359	04	00	844	1705	253
20014B	550	2	30	50	358	54	19	-3268	5182	772
20017A	1813	4	30	36	358	54	18	- 739	1143	185
20022A	553	1	42	27	358	25	37	-1191	4390	662
20025A	549	3	04	15	358	50	23	442	2776	442
20026B	1814	3	37	25	358	46	34	4080	3133	514
20028A	548	4	39	45	358	26	44	3573	1483	249
20040	1164	0	32	56	357	36	04	4800	3716	450
20044A	557	2	23	35	357	24	10	4148	2298	375
20047B	564	4	13	26	357	23	45	524	1097	188
20050	1162	0	01	06	356	59	40	6880	7243	572
20063	560	1	45	56	356	11	30	9372	3503	591
20064	561	2	48	42	356	28	54	- 293	2571	452
20070A	558	0	29	06	355	29	59	1344	4851	865
20071	559	1	02	52	355	44	36	5296	5061	871

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
20083	572	-.089172	392	.033402	418	.994488	3499
20086	569	-.084485	239	.065992	256	.995700	2875
20096	568	-.097700	319	.065994	360	.997815	3615
21003	576	-.105477	324	.030734	279	.994286	3082
21007 A	567	-.100902	246	.075349	215	.992268	2433
21011	574	-.113973	316	.010491	303	.993107	3414
21016	580	-.119067	406	.060415	364	.992766	3904
21017 A	581	-.115324	140	.071606	134	.990665	1444
21023	577*	-.128326	106	.031411	95	.990966	1028
21026	1525	-.127765	137	.063041	120	.989670	1368
21032	1526	-.136255	144	.027651	129	.991942	1551
21034	578	-.130747	396	.042916	380	.994454	3819
21035	587*	-.136645	320	.054214	364	.988428	3296
21036	1524	-.135150	128	.064069	121	.988019	1312
21041	591	-.148762	173	.018413	179	.989842	1949
21041A	1807	-.148230	92	.010595	81	.986864	1511
21044	588	-.142218	290	.049689	248	.990552	2857
21045	586*	-.149295	106	.055465	93	.987385	1064

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
20083	572	1°	54'	58"	354°	52'	34"	-1675	6057	1135
20086	569	3	46	42	355	09	00	2527	4961	851
20096	568	3	45	58	354	24	28	8267	6232	1153
21003	576	1	45	38	353	56	40	585	5300	1071
21007A	567	4	19	13	354	11	37	394	4182	847
21011	574	0	36	05	353	27	11	556	5885	1074
21016	580	3	27	28	353	09	39	2962	6706	1402
21017A	581	4	06	24	353	21	36	- 135	2480	513
21023	577*	1	48	02	352	37	17	- 462	1761	390
21026	1525	3	36	53	352	38	38	- 221	2341	523
21032	1526	1	34	55	352	10	43	2847	2665	523
21034	578	2	27	00	352	30	36	6830	6545	1456
21035	587*	3	06	36	352	07	45	-1217	5649	1270
21036	1524	3	40	34	352	12	39	-1259	2245	499
21041	591	1	03	14	351	27	11	1960	3333	738
21041A	1807	0	36	30	351	27	28	-3493	2609	373
21044	588	2	50	34	351	49	47	3376	4874	1160
21045	586*	3	10	45	351	24	07	256	1813	436

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJEC. APOLLO

Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
21054	1522	-.158119	235	.046496	263	.985906	3201
21057	583	-.150848	180	.076382	173	.984043	1738
21065	585*	-.163275	96	.055633	92	.985311	990
21067	584*	-.164575	95	.078999	90	.984185	978
21073 B	598	-.178706	80	.037690	76	.983972	820
21083 A	597	-.186498	108	.034019	107	.979570	1135
21085	603*	-.183338	54	.056479	51	.982279	553
21092	596	-.191728	316	.020173	269	.982220	3244
22003 A	600*	-.207981	68	.034386	65	.978544	702
22007	606	-.209472	154	.071200	147	.975766	1588
22008 A	605	-.201697	119	.061645	127	.974252	1188
22011	614	-.217154	319	.016175	383	.980770	3555
22016	607	-.217646	104	.065432	100	.973707	1004
22026	1401	-.221921	108	.061065	107	.971732	1136
22026 C	608	-.226366	175	.068440	162	.973114	1795
22040	616	-.249849	144	.007526	143	.968482	1514
22046	610*	-.244371	113	.068319	107	.966973	1158
22058	621	-.257549	113	.081364	108	.962991	1165

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
21054	1522	2°	39'	58"	350°	53'	19"	- 718	5496	1060
21057	583	4	23	15	351	17	05	-2670	2964	723
21065	585*	3	11	18	350	35	28	513	1686	414
21067	584*	4	31	36	350	30	25	1690	1664	417
21073B	598	2	09	30	349	42	23	1354	1393	360
21083A	597	1	57	14	349	13	14	-3919	1927	497
21085	603*	3	14	06	349	25	39	1454	938	248
21092	596	1	09	17	348	57	17	1670	5468	1551
22003A	600*	1	56	07	348	00	03	1725	1183	340
22007	606	4	04	51	347	53	02	928	2674	780
22008A	605	4	41	29	348	18	12	-3032	2011	556
22011	614	0	55	21	347	30	56	8087	6009	1676
22016	607	3	45	08	347	24	01	- 211	1685	514
22026	1401	3	30	21	347	08	08	-2399	1911	561
22026C	608	3	55	08	346	54	17	2497	3009	926
22040	616	0	25	52	345	32	03	381	2529	811
22046	610*	3	55	07	345	49	02	- 503	1930	631
22058	621	4	39	59	345	01	37	264	1933	662

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
22063	619	-.263279	245	.039721	254	.966773	2749
22065	620*	-.262541	84	.057336	80	.963596	859
22078	623	-.277309	161	.083694	160	.956605	1698
22082A	627	-.282757	117	.025590	112	.958240	1315
22090	628*	-.290891	76	.002181	84	.957488	808
22091	629*	-.295229	281	.019010	269	.953651	2796
23005A	636	-.303636	315	.058865	314	.954757	3319
23007	637	-.303308	276	.071856	256	.947627	2835
23023	634	-.320486	502	.038415	476	.944224	4995
23023A	633	-.327440	208	.030364	183	.941692	2082
23034	642	-.333203	149	.047512	148	.940430	1565
23038	639	-.337487	203	.084389	208	.937051	2250
23041A	644	-.342314	153	.010679	152	.942220	1784
23041B	645	-.346814	440	.016722	571	.939387	4768
23044	643	-.345695	262	.044566	243	.936637	2687
23057	1808	-.356725	168	.074729	171	.928378	2363
23057A	653	-.353409	338	.072889	318	.937990	3042
23058	1809	-.355560	49	.080248	50	.931607	686

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
22063	619	2°	16'	13"	344°	45'	58"	4811	4570	1523
22065	620*	3	17	09	344	45	33	636	1425	491
22078	623	4	48	12	343	50	01	- 871	2807	994
22082 A	627	1	28	02	343	33	35	-1017	2172	764
22090	628*	0	07	30	343	06	03	1222	1332	489
22091	629*	1	05	27	342	47	55	-2634	4590	1734
23005A	636	3	21	45	342	21	29	6264	5444	2057
23007	637	4	07	50	342	15	06	-4214	4629	1809
23023	634	2	12	22	341	15	07	-3701	8131	3268
23023A	633	1	44	40	340	49	36	-4417	3359	1428
23034	642	2	43	35	340	29	25	-2008	2537	1046
23038	639	4	50	35	340	11	35	- 796	3642	1510
23041A	644	0	36	37	340	02	01	4402	2898	1167
23041B	645	0	57	24	339	44	11	2611	7739	3214
23044	643	2	33	21	339	44	31	-1060	4319	1881
23057	1808	4	17	49	338	58	51	-4592	3823	1555
23057A	653	4	09	33	339	21	18	8701	4842	2271
23058	1809	4	36	04	339	06	36	655	1111	450

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
23062	649	-.368395	197	.022812	189	.930341	2410
23065	651*	-.364171	146	.059069	146	.930040	1540
23067	654*	-.369797	315	.072876	314	.928806	3318
23077	655	-.374320	307	.078677	250	.925099	2931
23081	663	-.388642	122	.016661	111	.926130	1311
23085B	659	-.386441	627	.055933	569	.920741	5423
23094	661	-.397515	411	.043428	418	.918550	3794
24005	658	-.400483	100	.056791	97	.916295	1121
24017	667*	-.413503	145	.076371	135	.908486	1463
24023A	1400	-.428543	237	.034242	215	.900487	2551
24024	673	-.429552	491	.045526	468	.904196	4259
24038	668	-.430394	357	.081835	340	.896343	3095
24041	678	-.444342	317	.015341	452	.896553	4110
24056	671	-.453247	512	.066889	385	.888802	4881
24058A	670	-.453637	304	.081442	256	.889300	2745
24062A	681	-.466398	133	.021272	123	.881315	1363
24071A	680	-.471572	183	.012635	173	.881443	1821
24082	684*	-.481398	222	.026967	206	.875357	2281

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
23062	649	1°	18'	22"	338°	23'	51"	1536	3860	1696
23065	651*	3	23	04	338	36	59	942	2464	1108
23067	654*	4	10	09	338	17	25	4116	5292	2419
23077	655	4	30	28	337	58	13	1836	4597	2300
23081	663	0	57	01	337	14	06	7836	2048	1041
23085B	659	3	12	22	337	13	55	199	8683	3953
23094	661	2	29	04	336	35	56	3158	5995	2929
24005	658	3	15	01	336	23	29	2785	1724	938
24017	667*	4	22	31	335	31	37	1880	2262	1211
24023A	1400	1	58	00	334	33	01	-3742	3889	2200
24024	673	2	36	14	334	35	21	3610	6580	3588
24038	668	4	42	18	334	21	04	-4030	4763	2644
24041	678	0	52	42	333	38	11	1287	6396	3324
24056	671	3	50	08	332	58	50	- 108	7284	4488
24058A	670	4	39	50	332	58	25	2843	4200	2367
24062A	681	1	13	20	332	06	43	-4615	2053	1223
24071A	680	0	43	27	331	51	12	- 450	2747	1632
24082	684*	1	32	47	331	11	30	-1111	3403	2100

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
24083	686	-.483141	371	.038768	345	.873342	3810
24086	689	-.481238	384	.065881	342	.872575	3427
24092	685	-.490529	340	.027406	324	.870[illegible]56	2948
25000	792	-.509774	115	.002896	126	.859796	1149
25028	800	-.522384	174	.081239	165	.847137	1830
25030	808	-.535760	423	.005328	394	.843018	4128
25046	804	-.544118	553	.065695	395	.835357	4918
25058	1811	-.554576	334	.082355	307	.825376	3535
25065	813	-.563968	208	.050825	183	.826582	2136
25075	1281	-.574221	222	.050854	167	.816249	2236
25077A	817	-.575913	434	.078612	545	.810851	5090
25091	827*	-.592965	105	.011693	110	.804066	1140
26002A	826	-.604173	210	.023861	218	.793958	2310
26007A	820	-.603422	268	.070795	234	.800295	2825
26008A	819	-.601465	289	.080224	376	.793377	3730
26010	828	-.612122	169	.007576	187	.789116	1864
26030	830	-.633935	81	.005591	84	.773337	885
26036	1269	-.630371	146	.064154	152	.773290	1610

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
24083	686	2°	13'	28"	331°	02'	53"	-2041	5676	3523
24086	689	3	46	57	331	07	21	-2333	5028	3315
24092	685	1	34	17	330	35	30	-1116	4383	2774
25000	792	0	09	58	329	20	11	- 758	1736	1029
25028	800	4	40	00	328	20	24	-2499	2639	1821
25030	808	0	18	20	327	33	47	-1960	5822	4311
25046	804	3	46	12	326	55	17	-1563	6776	5341
25058	1811	4	44	04	326	06	09	-3844	4922	3761
25065	813	2	54	28	325	41	41	3369	2975	2272
25075	1281	2	55	01	324	52	27	-1236	3027	2483
25077A	817	4	31	10	324	36	56	-4058	7073	5449
25091	827*	0	40	14	323	35	34	-1507	1578	1227
26002A	826	1	22	12	322	43	49	-3512	3120	2579
26007A	820	4	02	25	322	59	01	8323	3770	3205
26008A	819	4	36	25	322	50	02	-2050	5137	4039
26010	828	0	26	05	322	11	57	-2214	2498	2109
26030	830	0	19	13	320	39	26	- 39	1159	1031
26036	1269	3	40	45	320	48	50	- 468	2117	1867

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
26037	1267	-.636968	148	.076508	143	.767147	1792
26044	836	-.649452	310	.043138	322	.759658	3748
26055	838	-.655049	294	.054183	269	.758490	3106
26057	844	-.658835	149	.070612	165	.748547	1644
26060	852	-.667839	143	.004673	132	.743936	1517
26063	851	-.669675	247	.035013	263	.739086	2852
26074	850	-.674354	300	.044631	275	.738214	3171
26075	849	-.674385	297	.054546	272	.736384	3140
26080	1265	-.687082	235	.001020	244	.730122	2580
26081	1264	-.682688	368	.018087	337	.735096	3887
26084	1263	-.681218	125	.040700	114	.731880	1319
26086	848	-.682223	214	.064020	217	.726262	2163
26088	846*	-.685481	215	.081407	192	.724106	2318
26091	855	-.690848	135	.013842	140	.723697	1784
26092	1259	-.697355	226	.025785	209	.717140	2272
26093	1280	-.692055	202	.032028	149	.717700	2080
26093A	1262	-.691056	107	.037054	217	.725734	2414
26096	847	-.696104	107	.062321	130	.717457	1335

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
26037	1267	4°	23'	16"	320°	17'	49"	84	2393	2027
26044	836	2	28	17	319	28	19	634	4881	4384
26055	838	3	05	41	319	11	07	6360	3906	3789
26057	844	4	03	02	318	38	50	- 545	2089	1988
26060	852	0	16	04	318	05	07	- 460	1870	1888
26063	851	2	00	38	317	49	15	-3532	3571	3494
26074	850	2	33	21	317	35	19	1481	3880	3976
26075	849	3	07	36	317	30	59	27	3838	3942
26080	1265	0	03	30	316	44	22	4479	3170	3226
26081	1264	1	01	58	317	07	01	5862	4714	4915
26084	1263	2	19	52	317	03	12	1184	1600	1669
26086	848	3	40	34	316	47	27	-2623	2660	2709
26088	846*	4	40	03	316	34	10	730	2778	2962
26091	855	0	47	33	316	19	49	1043	2209	2201
26092	1259	1	28	36	315	48	05	1094	2701	2929
26093	1230	1	50	24	316	02	32	-4299	2467	2678
26093A	1262	2	07	03	316	24	08	4878	2912	3061
26096	847	3	34	03	315	51	56	2769	1609	1697

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
27002	859*	-.702095	140	.020478	141	.709914	1508
27002A	1260	-.704975	136	.029[illegible]12	124	.708168	1434
27005	1261	-.700011	274	.052397	248	.713674	2993
27010A	1258	-.716267	320	.005699	333	.698178	3522
27010B	861	-.714073	155	.003955	155	.698730	1717
27012	860	-.710691	234	.020587	246	.700658	2855
27014	864	-.715288	254	.043513	233	.697281	2689
27016A	866	-.713281	218	.069193	218	.695854	2277
27016B	865	-.719663	232	.062582	240	.691302	2632
[illegible]7018	868	-.719812	92	.083546	95	.692204	1008
27020	862	-.724609	128	.001479	97	.690005	1294
27028	869*	-.722833	236	.081550	211	.684995	2538
27032	1254	-.731637	224	.026587	220	.679971	2379
27033	880	-.733568	197	.038338	205	.678231	2170
27034	879	-.73[illegible]808	91	.044747	84	.670563	964
27036	873	-.739484	227	.069342	203	.668837	2444
27038	1256	-.731079	64	.089036	59	.677467	677
27038A	1257	-.735421	171	.083213	157	.670557	1811

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
27002	859*	1°	10'	30"	315°	19'	02"	-2318	1801	1934
27002A	1260	1	42	11	315	07	46	- 543	1677	1871
27005	1261	3	00	01	315	33	13	1817	3577	3831
27010A	1258	0	19	35	314	16	02	455	4140	4581
27010B	861	0	13	37	314	22	40	-1618	2005	2242
27012	860	1	10	54	314	35	34	-3108	3265	3793
27014	864	2	29	39	314	16	11	- 234	3094	3554
27016A	866	3	58	20	314	17	29	-1938	2648	2989
27016B	865	3	35	19	313	50	55	- 234	3057	3452
27018	868	4	46	56	313	52	48	3695	1177	1317
27020	862	0	05	05	313	35	56	1014	1442	1748
27028	869*	4	40	54	313	27	38	-1429	2864	3399
27032	1254	1	31	29	312	54	14	-1425	2661	3211
27033	880	2	11	51	312	45	19	- 357	2480	2884
27034	879	2	34	04	312	13	40	-2179	1064	1312
27036	873	3	58	42	312	07	42	- 880	2683	3335
27038	1256	5	06	17	312	49	13	1187	757	914
27038A	1257	4	46	46	312	21	31	-2247	2004	2460

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
27042	881	-.745234	172	.024162	158	.667690	1819
27044	1252	-.740058	143	.048658	131	.669504	1508
27045A	874	-.745544	145	.059955	129	.665392	1560
27046	1255	-.741251	519	.061349	483	.672840	5066
27049	870	-.743190	158	.092148	145	.661471	1667
27058	872	-.755879	167	.085714	153	.647968	1763
27061	1251	-.760026	115	.018522	106	.647903	1220
27062	1250	-.763348	134	.020837	123	.643205	1420
27063	877*	-.760057	164	.033370	163	.645905	1866
27072A	1018	-.774401	210	.024628	231	.636508	2724
27073A	1019	-.773135	101	.039605	90	.629641	1177
27080A	1015	-.786770	131	.003702	131	.613115	1451
27086	1020*	-.780021	220	.061129	220	.618853	2435
27086B	1021	-.788299	199	.064575	178	.609659	2202
27097A	1022	-.790605	133	.071791	133	.607051	1473
28005	1027	-.809693	266	.055077	266	.585729	2941
28006	1205	-.808981	261	.063841	240	.582282	2763
28018	1026	-.819812	202	.080952	152	.565046	1929

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
27042	881	1°	23'	00"	311°	51'	31"	1535	1990	2489
27044	1252	2	47	29	312	08	04	-1487	1661	2055
27045A	874	3	26	01	311	44	55	1891	1699	2140
27046	1255	3	30	25	312	13	49	5146	5548	6946
27049	870	5	17	29	311	40	14	-1420	1818	2286
27058	872	4	45	14	310	36	16	-1249	1878	2452
27061	1251	1	03	45	310	26	48	-1948	1294	1701
27062	1250	1	11	45	310	07	04	-2743	1495	1989
27063	877*	1	54	58	310	21	30	-3485	2032	2558
27072A	1018	1	24	27	309	25	05	4727	2864	3810
27073A	1019	2	16	29	309	09	34	-3693	1219	1659
27080A	1015	0	12	46	307	55	43	-4411	1476	2070
27086	1020*	3	30	47	308	25	40	-4221	2512	3448
27086B	1021	3	42	27	307	43	04	-2376	2209	3160
27097A	1022	[illegible]	07	10	307	31	06	-1112	1487	2109
28005	1027	3	09	16	305	52	55	1490	2849	4293
28006	1205	3	39	53	305	44	43	-2106	2615	4074
28018	1026	4	38	53	304	34	34	-1806	1721	2911

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
28020A	1030	-.825084	219	.009840	196	.560922	2361
28022A	1029	-.822952	155	.022844	144	.564770	1669
28027	1204	-.821001	172	.076654	158	.567059	1816
28029	1202	-.824638	177	.095497	184	.556315	2144
28036	1209	-.836266	121	.066144	126	.539301	1505
28039	1040	-.839122	156	.093658	162	.530660	2063
28040	1031*	-.840571	241	.007220	241	.527613	2664
28044A	1036	-.841209	163	.045402	169	.533880	1920
28044B	1035	-.849064	122	.042560	133	.522801	1446
28050	1206	-.853911	214	.004318	223	.516598	2358
28050A	1207	-.850036	230	.001364	211	.521496	2435
28063	1033	-.867202	138	.035808	142	.492843	1599
30000A	447	-.005411	87	-.007870	85	1.000687	832
30001	1159	-.006236	360	-.014280	348	1.001550	3497
30002	1157	-.005138	245	-.023782	242	1.002191	2536
30002A	1567	-.001233	184	-.026898	173	.999718	1767
30004	1566	-.008900	159	-.043364	141	.997418	1770
30015A	1568	-.015727	126	-.053495	130	.998100	1491

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
28020A	1030	0°	33'	54"	304°	12'	33"	-3920	2127	3545
28022A	1029	1	18	40	304	27	39	-2838	1540	2486
28027	1204	4	23	35	304	37	57	1280	1668	2711
28029	1202	5	29	01	304	00	15	-1188	2037	3151
28036	1209	3	48	11	302	49	03	-4733	1205	2006
28039	1040	5	23	20	302	18	33	-4789	1875	3082
28040	1031*	0	24	50	301	52	19	-1303	2303	4060
28044A	1036	2	36	33	302	24	06	-4594	1720	2888
28044B	1035	2	26	39	301	37	20	-3443	1266	2194
28050	1206	0	14	52	301	10	23	-3430	2022	3604
28050A	120[illegible]	0	04	42	301	31	44	-4765	2034	3751
28063	1033	2	03	22	299	36	37	-3291	1274	2494
30000A	447	-0	27	02	359	41	25	1273	1446	215
30001	1159	-0	49	01	359	38	36	2905	6077	879
30002	1157	-1	21	34	359	42	23	4321	4407	600
30002A	1567	-1	32	28	359	55	46	141	3069	455
30004	1566	-2	29	22	359	29	20	-2781	3071	404
30015A	1568	-3	04	03	359	[illegible]	50	- 598	2585	366

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
30015B	451	-.010855	62	-.050391	60	.998990	585
30017	454	-.012547	283	-.078765	332	1.000311	2490
30023	459	-.025528	175	-.038894	171	1.001722	1669
30025	457	-.026553	236	-.057599	168	1.002108	2096
30035	458*	-.035893	104	-.059420	102	.998945	1048
30043	461*	-.042992	135	-.033479	135	1.000226	1210
30043A	460	-.041674	236	-.036963	230	.996674	1854
30046	1125	-.046153	424	-.060598	331	.999682	4554
30051	464	-.058917	120	-.011592	104	.998154	1110
30056A	471	-.054732	278	-.064190	257	.994362	2524
30063	466*	-.065003	74	-.034554	73	.998213	708
30064A	1564	-.062089	86	-.046532	92	.995715	856
30068	472	-.061837	282	-.080575	316	.997361	3071
30077	473*	-.078876	75	-.069978	73	.994800	715
30080	480*	-.088777	106	-.005779	103	.995356	1007
30085A	1563	-.082565	82	-.052313	81	.995499	736
30098	474	-.096716	339	-.084399	334	.989988	2965
30099B	1562	-.092563	91	-.091160	87	.992695	795

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
30015B	451	-2°	53'	15"	359°	22'	39"	555	1015	165
30017	454	-4	30	07	359	16	53	6058	4319	805
30023	459	-2	13	22	358	32	25	4869	2895	470
30025	457	-3	17	19	358	28	56	7148	3621	645
30035	458*	-3	24	07	357	56	32	2353	1816	291
30043	461*	-1	54	55	357	32	20	2971	2098	365
30043A	460	-2	07	19	357	36	21	-3077	3215	612
30046	1125	-3	27	55	357	21	24	4484	7950	562
30051	464	-0	39	51	356	37	19	- 73	1920	331
30056 A	471	-3	41	17	356	50	58	-3590	4365	787
30063	466*	-1	58	42	356	16	27	1606	1225	218
30064 A	1564	-2	40	14	356	25	55	-2201	1478	281
30068	472	-4	36	36	356	27	08	4378	5297	983
30077	473*	-4	00	40	355	28	00	648	1232	245
30080	480*	-0	19	53	354	54	11	-1176	1739	325
30085A	1563	-2	59	52	355	15	32	496	1269	257
30098	474	-4	50	59	354	25	13	-2997	5103	1092
30099 B	1562	-5	13	27	354	40	23	2015	1366	304

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
31003A	478	-.102090	316	-.036510	333	.999862	2867
31015	487	-.118834	141	-.050129	132	.992645	1318
31021	482	-.127891	202	-.012834	199	.991522	2042
31024	486*	-.127970	69	-.047001	68	.991142	659
31025	1560	-.127587	91	-.051578	88	.989933	862
31043	484*	-.140342	91	-.030953	89	.990947	870
31045	1561	-.141028	74	-.054700	68	.988888	663
31055	493*	-.15613[illegible]	68	-.054087	59	.986639	578
31074A	696	-.173743	193	-.045474	165	.984639	1984
31074B	495	-.170641	319	-.042133	303	.984029	3276
31081A	699	-.183421	123	-.016292	105	.985098	1265
31086	695	-.186256	177	-.060450	177	.982686	1516
31092A	700	-.197135	68	-.020542	65	.980454	703
31094	697	-.199583	180	-.044925	184	.983946	1699
31096	694	-.193929	526	-.065178	511	.976983	4856
32004	1462	-.207961	227	-.049750	224	.975791	2041
32007	693*	-.203436	136	-.073171	129	.976730	1395
32011	702	-.214921	75	-.016891	72	.976862	774

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
31003A	478	-2°	04'	50"	354°	10'	12"	9948	4934	1058
31015	487	-2	52	14	353	10	24	1718	2258	512
31021	482	-0	44	08	352	39	01	- 315	3513	709
31024	486*	-2	41	34	352	38	35	824	1130	252
31025	1560	-2	57	29	352	39	21	- 951	1478	331
31043	484*	-1	46	17	351	56	21	2283	1490	340
31045	1561	-3	08	04	351	53	01	678	1133	270
31055	493*	-3	05	57	351	00	27	662	986	243
31074A	696	-2	36	15	349	59	35	1536	3347	936
31074B	495	-2	24	57	350	09	44	- 690	5556	1460
31081A	699	-0	55	53	349	27	09	3755	2134	598
31086	695	-3	27	31	349	16	03	3488	2582	682
31092A	700	-1	10	36	348	37	53	499	1186	334
31094	697	-2	33	43	348	32	01	8670	2874	810
31096	694	-3	44	38	348	46	22	-3173	8176	2455
32004	1462	-2	51	17	347	58	09	-1833	3426	1073
32007	693*	-4	11	41	348	14	04	644	2341	711
32011	702	-0	58	03	347	35	31	639	1300	388

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
32014	708	-.210570	397	-.041790	286	.974888	3105
32015	709*	-.217126	53	-.059488	52	.973945	505
32024A	1460	-.223779	169	-.048635	148	.974133	1689
32036	710*	-.230670	326	-.066609	241	.974862	3204
32042	706*	-.243416	50	-.027799	48	.969969	471
32047B	713	-.248966	202	-.079930	163	.965160	1629
32050	720*	-.257022	142	-.008991	135	.965995	1464
32051	1461	-.253647	233	-.018734	224	.966086	2253
32054A	717	-.255297	281	-.048304	268	.968230	3113
32056A	714	-.252277	215	-.065938	213	.966352	2027
32063	718	-.268437	210	-.039076	193	.966311	2440
32067A	715*	-.267260	81	-.071804	80	.961875	702
32070B	722	-.279279	348	-.007492	296	.960885	3341
32082	1457	-.288951	134	-.022785	133	.957866	1410
32082A	723	-.281824	358	-.020672	362	.959225	3502
32083B	1455	-.280286	49	-.038144	49	.959271	516
32084	726	-.287784	311	-.043638	246	.958133	2542
32087B	729	-.286483	169	-.070921	161	.955714	1737

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
32014	708	-2° 23' 57"	347° 48' 42"	-3051	5226	1593
32015	709*	-3 24 42	347 25 56	- 650	850	256
32024 A	1460	-2 47 09	347 03 45	1197	2822	898
32036	710*	-3 48 15	346 41 15	6940	5307	1830
32042	706*	-1 35 32	345 54 45	751	789	252
32047B	713	-4 35 05	345 32 08	- 80	2714	924
32050	720*	-0 30 55	345 06 02	- 619	2431	827
32051	1461	-1 04 28	345 17 20	-1730	3739	1293
32054A	717	-2 45 42	345 13 44	4321	5176	1713
32056A	714	-3 46 38	345 22 08	1587	3388	1099
32063	718	-2 13 53	344 28 30	6369	4061	1319
32067A	715*	-4 06 50	344 28 19	1553	1165	413
32070B	722	-0 25 44	343 47 37	1176	5458	2136
32082	1457	-1 18 17	343 12 49	1320	2321	849
32082A	723	-1 11 04	343 37 37	- 30	5778	2109
32083B	1455	-2 11 09	343 42 44	188	851	306
32084	726	-2 29 51	343 16 55	2381	4154	1653
32087B	729	-4 03 57	343 18 49	426	2841	1097

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
32094	725	-.297805	90	-.040971	84	.952993	928
33008A	730	-.300671	148	-.083364	141	.952021	1524
33011	739	-.311622	136	-.015535	163	.953533	1479
33014A	735	-.318331	156	-.045217	155	.948831	1642
33020A	1458	-.321686	293	-.008904	272	.945197	3008
33021	741	-.325381	99	-.011106	89	.948597	955
33033A	1819	-.331231	231	-.030607	235	.946212	3244
33037	732	-.333935	279	-.075543	287	.943842	3296
33046	749	-.349593	99	-.065200	95	.933249	1072
33064	747	-.367552	264	-.046305	268	.928784	3707
33067	751*	-.367803	134	[illegible]69724	133	.927822	1408
33072	758	-.376705	129	-.024697	124	.925795	1577
33081	1454	-.381345	115	-.015067	106	.924752	1220
33083	1453	-.386881	130	-.035814	121	.922468	1337
33084	755	-.389861	165	-.040460	170	.917334	1838
33088	752	-.381477	251	-.085786	241	.921959	3069
33093	757	-.397398	170	-.033645	158	.916024	1747
33096	1071	-.396906	131	-.062639	130	.915671	1376

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
32094	725	-2°	20'	59"	342°	38'	47"	-1251	1520	584
33008A	730	-4	46	23	342	28	21	3209	2477	1004
33011	739	-0	53	14	341	54	08	5704	2430	917
33014A	735	-2	35	13	341	27	13	3176	2671	1075
33020A	1458	-0	30	39	341	12	17	-2646	4885	1989
33021	741	-0	38	04	341	04	02	5062	1549	639
33033A	1819	-1	44	55	340	42	25	5179	5312	1973
33037	732	-4	18	54	340	30	58	6987	5391	2057
33046	749	-3	44	36	339	27	51	-2243	1726	739
33064	747	-2	39	15	338	24	35	- 107	5976	2497
33067	751*	-3	59	46	338	22	33	864	2237	1046
33072	758	-1	24	56	337	51	31	- 337	2516	1131
33081	1454	-0	51	47	337	35	24	711	1915	950
33083	1453	-2	03	02	337	14	49	1657	2106	1028
33084	755	-2	19	28	336	58	29	-4237	2900	1403
33088	752	-4	54	51	337	31	19	2512	4870	2260
33093	757	-1	55	48	336	32	51	-1601	2736	1375
33096	1071	-3	35	29	336	33	55	- 77	2156	1082

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
34017	765*	-.415867	137	-.073146	136	.907738	1438
34021	770	-.423256	202	-.018107	205	.909441	2836
34031	771	-.433476	231	-.013819	230	.898733	2434
34043A	778	-.444355	156	-.032984	145	.893302	1605
34046	779	-.442589	149	-.061862	154	.892408	1658
34053	776	-.458651	465	-.039872	498	.886488	4655
34054	777	-.451346	98	-.042603	97	.891135	1027
34057	780	-.451352	271	-.075259	253	.887573	2512
34070	773	-.471477	162	-.007212	150	.883325	1660
34091	791*	-.491144	115	-.010663	114	.868684	1207
35003	885*	-.504111	141	-.032065	148	.860927	1533
35016	888	-.517771	487	-.062660	486	.857359	4837
35017	889	-.512506	303	-.077301	293	.855688	2914
35030	901*	-.534795	195	-.003532	185	.843584	2052
35030A	900	-.533999	155	-.009014	161	.844617	1704
35038	890	-.533939	236	-.085727	169	.841078	2101
35042	899	-.542814	521	-.022051	372	.842688	4627
35046	892	-.544372	203	-.062449	224	.834142	2238

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
34017	765*	-4°	11'	24"	335°	23'	09"	1983	2229	1179
34021	770	-1	02	03	335	02	33	5687	4463	2152
34031	771	-0	47	36	334	15	04	-3642	3753	2033
34043A	778	-1	53	37	333	33	10	-3021	2449	1387
34046	779	-3	33	13	333	37	15	-3389	2536	1417
34053	776	-2	17	15	332	38	38	-1903	7061	4125
34054	777	-2	26	32	333	08	19	- 304	1564	892
34057	780	-4	19	20	333	02	44	-2463	3793	2255
34070	773	-0	24	46	331	54	32	2262	2494	1499
34091	791*	-0	36	44	330	31	00	-3525	1795	1122
35003	885*	-1	50	27	329	38	57	-3174	2274	1433
35016	888	-3	34	47	328	52	18	6140	7150	4579
35017	889	-4	25	54	329	04	51	729	4203	2921
35030	901*	-0	12	09	327	37	38	-2042	2936	2078
35030A	900	-0	31	01	327	41	51	-1205	2451	1707
35038	890	-4	55	06	327	35	29	- 129	2899	2278
35042	899	-1	15	37	327	12	45	4562	6390	5007
35046	892	-3	35	15	326	52	16	-3451	3173	2310

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INTENSIFIED SELENODETIC CONTROL IN SUPPORT OF NASA PROJECT APOLLO

Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
35056	1365	-.550784	408	-.067819	307	.830739	4113
35066	908	-.564878	337	-.067745	309	.819766	3560
35082	917	-.582526	360	-.025309	418	.811180	4645
35084	914	-.586421	292	-.047153	32[illegible]	.809224	3225
35094	915	-.596971	234	-.046619	244	.797848	2576
35095	1058	-.591451	192	-.052768	176	.803695	2033
36003	919	-.608122	241	-.030834	277	.795202	2465
36004	921	-.609401	188	-.049799	195	.788397	2066
36011	1362	-.619782	205	-.011139	213	.783917	2257
36012	1360	-.618083	265	-.026737	247	.783583	2585
36015	922	-.610250	206	-.055758	214	.787755	2262
36028	925	-.627240	211	-.080129	192	.772429	2501
36029	926	-.629886	178	-.092889	163	.768728	1878
36035	927	-.634152	281	-.053421	294	.771452	2978
36041	932	-.646983	184	-.014220	191	.761239	2018
36041A	931	-.640272	212	-.011864	193	.767875	2510
36042	934	-.649949	173	-.021360	191	.757348	1909
36051	933	-.656392	104	-.011165	115	.755527	1145

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Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
35056	1365	-3° 53' 33"	326° 27' 20"	-1660	5665	4449
35066	908	-3 53 34	325 25 49	-3746	4691	3884
35082	917	-1 27 06	324 19 01	-1747	6320	5113
35084	914	-2 42 05	324 04 13	831	4418	3531
35094	915	-2 40 43	323 11 43	-4256	3487	2869
35095	1058	-3 01 37	323 39 00	-1284	2724	2296
36003	919	-1 45 51	322 35 36	2700	3331	2770
36004	921	-2 51 40	322 17 50	-3985	2760	2345
36011	1362	-0 38 19	321 40 10	-1061	2999	2582
36012	1360	-1 32 05	321 44 02	-2833	3353	3057
36015	922	-3 12 10	322 14 10	-3416	3017	2572
36028	925	-4 36 15	320 55 20	-3047	3244	2934
36029	926	-5 20 23	320 40 09	-3195	2394	2259
36035	927	-3 03 43	320 34 44	122	3902	3473
36041	932	-0 48 56	319 38 19	-1501	2599	2400
36041A	931	-0 40 47	320 10 40	- 243	3236	2967
36042	934	-1 13 34	319 21 51	-3074	2446	2285
36051	933	-0 38 21	319 00 59	1561	1461	1379

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
36053	1357	-.656477	136	-.032902	141	.750823	1491
36055	937	-.651791	111	-.059985	115	.753327	1155
36058	940*	-.654633	77	-.082042	78	.752080	908
36060	1356	-.668109	207	-.002832	189	.747796	2452
36062	947	-.666948	255	-.025565	192	.74[illegible]675	2573
36063	935	-.661990	156	-.035144	143	.748511	1653
36070	950	-.674697	334	-.009711	286	.736563	3548
36072	948	-.672926	98	-.021537	90	.737265	1037
36082	949	-.687463	340	-.025867	355	.722775	3770
36084	1053	-.687932	432	-.049193	325	.724065	4117
36085	944	-.688903	157	-.053818	157	.718949	1733
36086	1051	-.686723	105	-.068596	109	.722437	1156
36086A	1052	-.686932	182	-.062490	167	.724150	1926
36087	1355	-.684953	170	-.073017	156	.723076	1802
36091	953	-.699159	351	-.019321	264	.713427	3535
36096	1352	-.695172	133	-.068808	139	.718628	1468
36098	1353	-.698968	121	-.082838	160	.714443	1324
37000	952	-.708485	256	-.007372	234	.710294	2702

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Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma(H_k)$	$\sigma(hor_k)$
36053	1357	-1° 53' 22"	318° 50' 07"	-3672	1893	1802
36055	937	-3 26 46	319 07 59	-3539	1453	1413
36058	940*	-4 42 14	318 57 46	781	1152	1095
36060	1356	-0 09 42	318 13 16	4839	3064	3002
36062	947	-1 27 54	318 09 06	12	3127	3245
36063	935	-2 00 51	318 30 37	- 231	2048	2049
36070	950	-0 33 25	317 30 36	-1882	4315	4472
36072	948	-1 14 10	317 36 44	-2737	1266	1303
36082	949	-1 29 08	316 26 04	-3759	4564	4777
36084	1053	-2 49 11	316 27 57	- 52	4848	5346
36085	944	-3 05 37	316 1[illegible] 21	-4897	2084	2208
36086	1051	-3 56 13	316 27 06	-1558	1404	1461
36086A	1052	-3 34 57	316 30 39	151	2296	2474
36087	1355	-4 11 34	316 33 03	-2321	2147	2316
36091	953	-1 06 29	315 34 43	-1587	4097	4642
36096	1352	-3 56 12	315 57 02	3841	1767	1870
36098	1353	-4 44 16	315 37 38	5074	1601	1689
37000	952	-0 25 16	315 04 23	5659	3151	3533

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
37003A	955	-.706902	148	-.033231	148	.705830	1640
37005A	959	-.703714	151	-.055271	150	.705140	1660
37006	1049	-.702554	136	-.061566	123	.707777	1480
37006A	1050	-.700496	457	-.065366	423	.709000	4597
37014	957	-.716742	133	-.047483	138	.695808	1459
37016	960*	-.717416	84	-.064216	87	.691701	921
37020	954	-.721131	364	-.002214	334	.693979	3850
37023	956	-.722587	310	-.038574	265	.688036	3629
37023A	1351	-.720476	408	-.038484	473	.688774	5251
37032	973	-.739406	149	-.021915	137	.674126	1580
37033	971	-.733912	132	-.039660	123	.676113	1601
37036	968	-.730284	230	-.064045	256	.676373	2410
37043	972	-.740132	201	-.032590	184	.667855	2124
37051	974	-.756118	122	-.012225	112	.653942	1295
37054	970	-.759862	379	-.044102	348	.649897	4011
37057	966	-.758610	470	-.072346	431	.648080	4965
37058	1350	-.754791	113	-.087772	113	.649351	1249
37072	1301	-.776281	164	-.027637	171	.625454	1803

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
37003A	955	-1°	54'	19"	314°	57'	23	- 860	1931	2128
37005A	959	-3	10	32	315	03	29	-3924	1965	2144
37006	1049	-3	31	58	315	12	44	-1460	1745	1917
37006A	1050	-3	45	08	315	20	44	-2045	5385	6001
37014	957	-2	43	17	314	09	03	107	1703	1907
37016	960*	-3	41	13	315	57	16	-2384	1069	1209
37020	954	-0	07	36	313	54	03	1427	4389	5122
37023	956	-2	12	50	313	35	49	-2598	4159	4795
37023A	1351	-2	12	40	313	42	41	-4370	5974	6985
37032	973	-1	15	17	312	21	21	1431	1743	2152
37033	971	-2	16	34	312	39	10	-2323	1814	2134
37036	968	-3	40	53	312	48	19	-4440	2698	3258
37043	972	-1	52	21	312	03	41	-4448	2325	2905
37051	974	-0	42	02	310	51	20	- 431	1383	1798
37054	970	-2	31	32	310	32	23	1477	4243	5604
37057	966	-4	08	50	310	30	26	635	5230	6953
37058	1350	-5	02	16	310	42	20	- 808	1340	1730
37072	1301	-1	35	17	308	51	31	-4726	1889	2535

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
37073	977	-.774056	208	-.036430	220	.629115	2338
37077	981	-.773043	261	-.079256	243	.627583	2547
37080	987	-.785080	245	-.007454	305	.618581	3107
37083	978	-.781282	241	-.037164	277	.624217	2795
37085	984	-.788603	218	-.059798	195	.612717	2218
37085A	979	-.780744	77	-.054503	58	.620796	739
37088	982	-.780994	305	-.086001	320	.619834	3188
37091	988	-.795629	166	-.015993	172	.601008	1824
37095	1302	-.795878	198	-.052808	206	.602153	2176
38004	991	-.808154	144	-.040192	144	.585543	1589
38005	1815	-.809019	326	-.050554	245	.585730	3288
38005A	994	-.807453	214	-.059264	222	.582387	2352
38007	996	-.808576	223	-.078717	156	.586818	2739
38014	992	-.812416	197	-.048332	148	.577359	1987
38020	1009	-.825746	147	-.003943	148	.561427	1745
38024	1002*	-.823900	229	-.043931	238	.564133	2703
38028	997	-.822894	192	-.088935	244	.559559	3052
38030A	1010	-.839339	116	-.005494	116	.538751	1288

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Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
37073	977	-2° 05' 30"	309° 06' 09"	-3240	2433	3297
37077	981	-4 33 04	309 04 15	-1967	2563	3663
37080	987	-0 25 38	308 14 07	- 827	3236	4376
37083	978	-2 07 42	308 37 25	1242	2946	3914
37085	984	-3 25 36	307 50 45	775	2258	3165
37085A	979	-3 07 39	308 29 22	-1809	731	1069
37088	982	-4 55 47	308 26 14	1340	3229	4567
37091	988	-0 55 08	307 04 01	-4793	1834	2619
37095	1302	-3 01 44	307 06 39	-1043	2181	3130
38004	991	-2 18 23	305 55 30	-2097	1531	2325
38005	1815	-2 53 51	305 54 16	127	3036	4893
38005A	994	-3 24 24	305 48 06	-4641	2279	3435
38007	996	-4 30 18	305 58 12	3774	2575	4032
38014	992	-2 46 35	305 24 01	-3742	1809	2972
38020	1009	-0 13 34	304 12 43	-2545	1634	2581
38024	1002*	-2 31 09	304 24 00	- 880	2543	3992
38028	997	-5 06 25	304 12 55	-1591	2935	4452
38030A	1010	-0 18 56	302 41 43	-4548	1140	1948

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
38034	1003	-.833521	115	-.046291	94	.546294	1358
38036	1001	-.832574	148	-.062914	141	.548166	1558
38036A	1000	-.830314	149	-.069558	142	.551627	1570
38043	1008	-.845088	134	-.035316	99	.533782	1551
38045	1004	-.845241	199	-.055586	199	.529085	2205
38048	1006	-.849910	279	-.083471	280	.514949	3056
38050	1014	-.858850	179	-.009624	164	.513435	1895
38051	1013	-.859118	161	-.014663	113	.506995	1977
40002	448	.009644	85	-.021892	84	.997473	884
40003	449	.009306	389	-.032604	376	1.001381	3806
40005	452	.003059	210	-.055488	209	.998778	1951
40010	446	.013705	485	-.004637	446	1.001249	4318
40017A	441	.015000	163	-.073654	161	.996316	1653
40020	445	.028635	351	-.004521	347	1.001330	3583
40021	1816	.026722	284	-.014211	208	1.000485	2833
40024	443	.025828	315	-.041931	271	1.000733	3762
40033	444	.037250	221	-.036731	218	1.000585	2026
40037B	1570	.036765	72	-.077375	71	.997713	677

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
38034	1003	-2°	39'	34"	303°	14'	28"	-4057	1215	2041
38036	1001	-3	36	41	303	21	39	-2066	1399	2345
38036A	1000	-3	59	29	303	35	54	-1259	1419	2358
38043	1008	-2	01	25	302	16	40	298	1307	2375
38045	1004	-3	11	26	302	02	41	-2214	1903	3362
38048	1006	-4	48	05	301	12	40	-4797	2599	4683
38050	1014	-0	33	04	300	52	18	1156	1549	2938
38051	1013	-0	50	32	300	32	47	-4052	1584	3068
40002	448	-1	15	26	0	33	14	-3893	1537	206
40003	449	-1	51	53	0	31	57	3397	6613	951
40005	452	-3	10	47	0	10	32	561	3383	567
40010	446	-0	15	55	0	47	03	2353	7503	1155
40017A	441	-4	13	39	0	51	45	-1482	2865	451
40020	445	-0	15	31	1	38	17	3040	6228	857
40021	1816	-0	48	49	1	31	48	1638	4920	636
40024	443	-2	23	55	1	28	42	3379	6533	762
40033	444	-2	06	03	2	07	55	3392	3518	556
40037B	1570	-4	25	54	2	06	37	2406	1173	200

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
40040	431*	.048584	109	-.003649	107	1.000063	972
40045	436	.048074	292	-.056364	281	.997164	3570
40050 A	430	.058339	118	-.000325	115	.999249	1033
40053	435*	.052516	64	-.038120	63	.998850	586
40053A	434*	.053477	82	-.032235	81	.998439	779
40056	437	.053823	435	-.065115	439	.994405	4459
40072	429	.077826	375	-.021878	412	.994782	3664
40083	1572	.089688	322	-.038592	264	1.000377	3107
40084	424	.083631	193	-.043700	192	.994980	2251
40088	426*	.086905	53	-.083869	52	.993685	501
40091	421	.093656	165	-.017356	163	.996869	1570
40095	1556	.098772	205	-.059879	207	.992035	1634
41002	422	.107391	109	-.026261	106	.994759	1169
41008 A	1554	.103869	70	-.087276	67	.991844	578
41022	416*	.122971	65	-.027138	65	.992677	623
41023	1043*	.128824	43	-.036149	43	.991367	387
41037	410*	.132565	77	-.070289	77	.989629	691
41038 A	1555	.134575	81	-.088032	82	.987954	778

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
40040	431*	-0°	12'	32"	2°	46'	53"	2172	1690	263
40045	436	-3	13	53	2	45	36	- 153	6196	771
40050 A	430	-0	01	07	3	20	29	1652	1795	288
40053	435*	-2	10	57	3	00	35	1662	1018	164
40053 A	434*	-1	50	47	3	03	57	677	1352	211
40056	437	-3	44	28	3	05	53	-3498	7727	1220
40072	429	-1	15	22	4	28	24	-3369	6357	1034
40083	1572	-2	12	01	5	07	23	8917	5375	884
40084	424	-2	30	22	4	48	17	- 966	3897	579
40088	426*	-4	48	22	4	59	54	1735	865	163
40091	421	-0	59	35	5	22	02	2449	2721	447
40095	1556	-3	26	14	5	41	09	-2195	3166	626
41002	422	-1	30	13	6	09	42	1536	2028	292
41008A	1554	-5	00	05	5	58	42	1877	999	200
41022	416*	-1	33	15	7	03	42	1100	1076	195
41023	1043*	-2	04	15	7	24	14	618	669	131
41037	410*	-4	01	36	7	37	46	1632	1190	250
41038 A	1555	-5	02	44	7	45	25	1661	1336	292

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
41050	401	.157162	136	-.003214	127	.988339	1213
41050A	1551	.158604	120	-.005111	136	.985692	1231
41053	403	.154113	199	-.030870	218	.987109	2094
41060	1552	.165926	326	-.001636	262	.990332	2581
41064 A	404	.169298	114	-.040739	103	.986564	1060
41076	407*	.170311	61	-.067881	60	.983936	576
41080	390	.188037	343	-.008089	342	.986450	2779
41082	391	.183169	426	-.020820	463	.984829	4372
41084	394*	.182567	60	-.047594	56	.983585	572
41085	395	.186458	395	-.055746	340	.979676	2776
41093	393	.193851	268	-.039555	257	.981249	2578
42016	383*	.211880	134	-.069495	129	.976427	1287
42016A	384	.218259	131	-.060334	133	.975358	1199
42023	386*	.229420	83	-.037535	81	.973162	821
42027	382	.224446	167	-.076687	159	.969666	1588
42052	378*	.250788	106	-.024022	100	.968368	1010
42052A	1696	.259316	236	-.028198	223	.965361	2516
42053	1676	.259136	264	-.037382	238	.968304	2379

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
41050	401	-0°	11'	02"	9°	02'	07"	1325	2085	446
41050A	1551	-0	17	36	9	08	27	-2809	2119	429
41053	403	-1	46	11	8	52	25	- 793	3604	719
41060	1552	-0	05	36	9	30	41	7191	4484	733
41064 A	404	-2	19	50	9	44	14	3152	1822	381
41076	407*	-3	53	20	9	49	12	1514	988	222
41080	390	-0	27	41	10	47	32	7376	4762	1164
41082	391	-1	11	26	10	32	10	3361	7502	1624
41084	394*	-2	43	26	10	30	55	2635	978	229
41085	395	-3	11	58	10	46	34	-2052	4754	1225
41093	393	-2	15	53	11	10	31	1731	4418	984
42016	383*	-3	58	44	12	14	35	2720	2193	543
42016A	384	-3	27	16	12	36	48	2258	2049	502
42023	386*	-2	09	00	13	15	54	943	1397	356
42027	382	-4	24	21	13	01	57	-3037	2701	694
42052	378*	-1	22	32	14	31	10	1049	1715	453
42052A	1696	-1	36	57	15	02	09	- 32	4263	1129
42053	1676	-2	08	09	14	58	56	5347	4044	1061

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
42054	379*	.252714	55	-.040855	54	.967936	542
42059 A	1680	.253643	177	-.097919	166	.965150	1723
42060 A	1675	.265582	120	-.002931	108	.964710	1151
42061 A	377	.265549	284	-.019834	255	.968530	2374
42064	1677	.260346	121	-.044380	115	.963666	1181
42066	371	.268151	211	-.062643	168	.961775	2059
42068	370	.262860	259	-.080853	257	.962380	2231
42069 A	1684	.269727	88	-.092657	84	.960082	863
42081	374	.288932	151	-.014855	158	.957916	1555
42088	1679	.289743	193	-.081259	175	.955144	1855
42093	1695	.295679	196	-.035791	217	.953565	1880
42097	1655	.294282	328	-.073083	312	.957544	3832
43000	1681	.308578	472	-.000500	401	.952814	3671
43001	375*	.301762	134	-.019148	131	.953360	1323
43013	363	.314167	138	-.034914	137	.948164	1436
43021	360*	.329772	123	-.018024	124	.943502	1215
43022	361	.323037	387	-.022094	338	.946237	3484
43026	1678	.326682	209	-.069223	198	.941589	1761

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
42054	379*	-2°	20'	19"	14°	37'	57"	2114	917	253
42059 A	1680	-5	36	15	14	43	28	4719	2909	826
42060A	1675	-0	10	04	15	23	32	1050	1955	513
42061A	377	-1	07	53	15	19	57	7769	4038	1072
42064	1677	-2	32	44	15	07	06	-1390	1996	557
42066	371	-3	35	24	15	34	44	731	3501	877
42068	370	-4	38	00	15	16	37	1571	3748	1181
42069 A	1684	-5	18	30	15	41	32	2688	1450	438
42081	374	-0	51	02	16	47	05	1135	2606	812
42088	1679	-4	39	15	16	52	31	2479	3116	941
42093	1695	-2	03	11	17	13	39	-1746	3140	1037
42097	1655	-4	10	22	17	05	02	7660	6431	1902
43000	1681	-0	01	43	17	56	42	2669	6164	1964
43001	375*	-1	05	49	17	33	50	280	2212	708
43013	363	-2	00	07	18	19	56	- 925	2374	838
43021	360*	-1	01	59	19	15	56	- 635	2009	716
43022	361	-1	15	57	18	50	58	179	5808	1930
43026	1678	-3	58	23	19	08	03	-1650	2924	1033

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
43028 A	1673	.324574	447	-.080452	378	.943118	4154
43030	359	.333748	270	-.008761	216	.941695	2535
43038	353	.335352	410	-.084838	391	.943559	3898
43040	358*	.348757	78	-.005565	76	.936684	765
43044	357	.341678	197	-.042796	165	.938108	1929
43046	355	.340300	237	-.067313	212	.936585	2036
43047	354*	.343649	99	-.070003	97	.936408	980
43056	350*	.355523	94	-.061054	95	.932990	952
43061	1672	.365606	250	-.011060	235	.929490	2439
43062	346	.364021	212	-.021475	200	.930603	2069
43063 A	1669	.362254	218	-.034623	223	.931685	2481
43064	348*	.361726	64	-.046037	63	.930614	635
43065	349	.362193	142	-.053361	138	.930320	1382
43068	351*	.362313	136	-.081113	124	.927593	1347
43073 A	1686	.375024	334	-.039070	291	.924392	3700
43079	1662	.375749	380	-.091183	368	.925999	3558
43081	343	.383653	158	-.019573	144	.923251	1562
43084	339*	.389037	154	-.046203	159	.920653	1580

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Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
43028A	1673	-4° 36' 42"	18° 59' 27"	1123	6940	2233
43030	359	-0 30 09	19 30 54	-1519	4250	1309
43038	353	-4 50 33	19 33 57	8635	6438	2329
43040	358*	-0 19 08	20 25 19	- 834	1261	465
43044	357	-2 27 16	20 00 46	-1197	3218	1043
43046	355	-3 51 52	19 58 06	-2151	3364	1231
43047	354*	-4 00 52	20 09 09	- 126	1611	604
43056	350*	-3 29 57	20 51 35	516	1555	612
43061	1672	-0 38 04	21 28 18	-1963	4011	1498
43062	346	-1 13 52	21 21 50	- 873	3403	1269
43063A	1669	-1 59 01	21 14 49	402	4060	1550
43064	348*	-2 38 24	21 14 27	- 862	1038	404
43065	349	-3 03 34	21 16 19	- 412	2260	886
43068	351*	-4 39 24	21 20 07	-1496	2196	872
43073A	1686	-2 14 34	22 04 56	-2897	6094	2190
43079	1662	-5 12 49	22 05 10	6052	5772	2403
43081	343	-1 07 18	22 33 54	- 30	2539	1032
43084	339*	-2 38 48	22 54 26	944	2539	1117

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
43085	338*	.385473	139	-.054569	143	.922265	1421
43085A	1665	.388589	135	-.055168	127	.920086	1316
43091A	341	.398032	133	-.011621	138	.916710	1364
43091 B	342	.393110	152	-.017697	169	.917261	1736
43093	1689	.399300	262	-.038784	366	.920876	3221
43095	337	.394938	233	-.055656	228	.914604	2312
43096	1663	.395869	251	-.069847	233	.913724	2034
43097	336	.397193	235	-.077036	215	.912280	2108
44001	329*	.409469	96	-.009764	95	.913241	955
44007 A	335	.406320	104	-.077586	102	.910475	1027
44016 A	334	.411014	203	-.060209	201	.912506	1945
44016 B	1660	.419141	92	-.061792	91	.904211	915
44020	1173	.422034	167	-.002121	162	.906742	1334
44020A	1174	.424286	316	-.002831	309	.905112	2534
44021	328*	.425454	147	-.018066	145	.902358	1370
44025A	332	.426601	141	-.057446	139	.902604	1399
44026	1653	.423122	113	-.062735	111	.904147	1118
44045	320	.447492	262	-.059224	241	.893872	2724

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Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
43085	338*	-3° 07' 29"	22° 40' 59"	1859	2285	1000
43085A	1665	-3 09 42	22 53 47	524	2140	871
43091A	341	-0 39 58	23 28 13	- 937	2201	943
43091B	342	-1 00 57	23 11 55	-3291	2821	1140
43093	1689	-2 12 46	23 26 31	7767	5196	2226
43095	337	-3 11 51	23 21 19	-3850	3730	1600
43096	1663	-4 00 44	23 25 28	-3060	3303	1392
43097	336	-4 25 38	23 31 39	-3521	3380	1518
44001	329*	-0 33 32	24 09 00	1537	1533	678
44007A	335	-4 26 59	24 03 00	70	1643	742
44016A	334	-3 26 34	24 14 53	4534	3109	1419
44016B	1660	-3 32 52	24 52 11	-2526	1456	676
44020	1173	-0 07 17	24 57 33	260	2078	1105
44020A	1174	-0 09 44	25 06 56	- 648	3941	2110
44021	328*	-1 02 15	25 14 37	-3838	2182	1019
44025A	332	-3 17 36	25 17 49	- 14	2221	1047
44026	1653	-3 35 46	25 04 43	390	1777	832
44045	320	-3 23 26	26 35 37	2400	4319	2034

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
44059A	1657	.450900	184	-.091044	241	.890196	2159
44062A	324	.461558	197	-.022755	195	.886887	1910
44064	321	.460212	132	-.045472	131	.889617	1138
44070	1697	.479824	171	-.004484	166	.878925	1498
44078	316	.472389	221	-.085751	210	.877002	2086
44081A	1650	.482267	189	-.017447	186	.875642	1825
44083	312	.481824	123	-.038978	121	.873914	1187
44083A	311	.482297	230	-.031180	200	.873912	2208
44084	313*	.486596	145	-.045224	142	.871454	1435
45007	1793	.502389	205	-.075868	186	.858799	1931
45008	1792	.508557	240	-.086543	236	.857209	2288
45011	1786	.519412	268	-.017318	192	.852297	2784
45012	204	.511493	417	-.028653	340	.857052	4243
45014	1791	.517862	206	-.043513	177	.852280	2029
45015	199	.516695	314	-.055447	285	.859281	2996
45016	198	.512394	133	-.065693	123	.857330	1314
45021	206	.527538	163	-.015622	151	.847113	1497
45024	201	.525227	218	-.042750	210	.852381	2013

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Reference Number	AMS Number	Latitude	Longitude	H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
44059A	1657	-5° 12' 47"	26° 51' 47"	3514	3357	1757
44062A	324	-1 18 14	27 29 37	107	2978	1546
44064	321	-2 35 58	27 21 12	4584	1777	928
44070	1697	-0 15 24	28 37 52	2397	2329	1236
44078	316	-4 55 12	28 18 31	- 316	3242	1706
44081A	1650	-1 00 00	28 50 39	- 317	2811	1539
44083	312	-2 14 12	28 52 11	-2261	1826	1004
44083A	311	-1 47 21	28 53 37	-2344	3421	1818
44084	313*	-2 35 40	29 10 40	-1518	2208	1212
45007	1793	-4 21 38	30 19 38	-3753	2937	1696
45008	1792	-4 57 45	30 40 46	805	3454	2055
45011	1786	-0 59 39	31 21 33	-3045	4308	2274
45012	204	-1 38 40	30 49 44	-2623	6583	3450
45014	1791	-2 29 54	31 17 01	-3083	3074	1789
45015	199	-3 09 55	31 01 08	7295	4519	2690
45016	198	-3 45 47	30 51 55	1632	2004	1139
45021	206	-0 53 49	31 54 45	-3357	2271	1327
45024	201	-2 26 42	31 38 27	3685	3035	1819

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
45038	194	.532408	289	-.086431	315	.843360	2693
45039A	1802	.530754	448	-.092291	428	.845981	3895
45041	1789	.549747	336	-.016932	299	.832946	3537
45042	209	.542323	391	-.029057	319	.838379	3983
45046	1784	.542917	233	-.068573	209	.838190	2341
45046A	1778	.547919	340	-.069890	338	.839615	3296
45047	1779	.549945	189	-.078144	184	.832512	1712
45048	193	.542651	286	-.080947	265	.834471	2652
45053A	187	.550782	392	-.033967	347	.834700	3689
45053B	1775	.558638	173	-.036264	166	.828024	1741
45054	186	.556020	293	-.043241	272	.830472	2899
45054A	1774	.558411	170	-.041222	166	.830274	1713
45056	1776	.554458	260	-.065224	288	.827846	2883
45062	184	.564805	370	-.025738	304	.827024	4052
45067	1771	.569350	182	-.078490	190	.816768	1752
45069	1795	.569399	243	-.092192	225	.817688	2400
45071	180	.579589	216	-.010936	204	.812502	2211
45081	1187	.585882	525	-.016384	400	.808852	5227

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
45038	194	-4°	57'	10"	32°	15'	50"	1898	3986	2562
45039A	1802	-5	16	47	32	06	12	5122	5852	3569
45041	1789	-0	58	19	33	25	30	-3211	5327	3167
45042	209	-1	40	01	32	53	52	-1880	6063	3452
45046	1784	-3	55	41	32	55	56	1758	3472	2188
45046A	1778	-3	59	15	33	07	40	8715	4898	3086
45047	1779	-4	28	42	33	26	53	1408	2534	1625
45048	193	-4	38	57	33	02	08	-2292	3901	2549
45053A	187	-1	56	43	33	25	09	1075	5473	3461
45053B	1775	-2	04	45	34	00	22	- 856	2560	1668
45054	186	-2	28	39	33	48	12	619	4301	2716
45054A	1774	-2	21	33	33	55	24	2498	2513	1648
45056	1776	-3	44	43	33	48	45	-2604	4261	2719
45062	184	-1	28	20	34	19	50	3157	6054	3693
45067	1771	-4	30	27	34	52	44	-2206	2544	1735
45069	1795	-5	17	10	34	51	06	1155	3507	2332
45071	180	-0	37	40	35	30	06	-3304	3229	2147
45081	1187	-0	56	23	35	55	02	-1940	7636	5053

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
45087	164	.586841	123	-.079347	118	.804189	1226
45092	171	.595358	319	-.024082	296	.806052	3156
45095	1765	.591158	316	-.059904	350	.809141	3537
45095A	1764	.599975	218	-.052257	204	.798751	2026
45097A	1768	.591521	134	-.074741	135	.804025	1274
45098	1799	.598742	142	-.081946	136	.793448	1464
46000	173	.607243	155	-.005036	155	.799734	1593
46000A	174	.605417	310	-.003605	330	.797666	3576
46001A	172	.603877	394	-.010099	345	.800008	3056
46025	1760	.626261	204	-.058525	191	.774557	1922
46026	158	.620735	153	-.060967	139	.782263	1440
46026A	1761	.628923	94	-.060051	85	.772361	845
46032	155	.637575	345	-.027470	349	.767816	3285
46038A	1758	.638317	130	-.084503	122	.763077	1221
46038B	1759	.632753	243	-.082035	277	.769724	2224
46042	1757	.642339	292	-.026858	275	.767017	2881
46050	1199	.655651	216	-.003548	198	.752122	2124
46058	131	.651576	98	-.083348	91	.751473	776

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
45087	164	-4°	33'	25"	36°	07'	10"	-2262	1765	1231
45092	171	-1	22	36	36	27	00	4123	4549	3155
45095	1765	-3	25	16	36	09	07	6734	5103	3526
45095A	1764	-2	59	40	36	54	42	611	2869	2105
45097A	1768	-4	16	56	36	20	31	1686	1812	1315
45098	1799	-4	42	46	37	02	19	-4553	2089	1491
46000	173	-0	17	15	37	12	35	7236	2303	1584
46000A	174	-0	12	23	37	11	53	2443	5127	3599
46001A	172	-0	34	38	37	02	49	4151	4365	3160
46025	1760	-3	21	45	38	57	25	-3857	2690	2038
46026	158	-3	29	37	38	25	57	838	2003	1543
46026A	1761	-3	27	01	39	09	20	-3748	1186	896
46032	155	-1	34	36	39	42	19	-2785	4564	3535
46038A	1758	-4	51	18	39	54	45	-2717	1684	1328
46038B	1759	-4	42	23	39	25	19	- 364	3056	2452
46042	1757	-1	32	16	39	56	40	1421	4009	3081
46050	1199	-0	12	13	41	04	47	-3846	2911	2326
46058	131	-4	47	24	40	55	39	-3298	1046	881

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Reference Number	AMS Number	ξ_k	$\sigma\{\xi_k\}$	η_k	$\sigma\{\eta_k\}$	ζ_k	$\sigma\{\zeta_k\}$
46061	143	.666500	212	-.012169	228	.745112	2087
46063	1800	.664375	193	-.033705	193	.745645	1788
46067	1753	.660935	254	-.070961	249	.745087	2654
46068	1751	.666851	431	-.087349	385	.740510	4537
46076	135	.675191	113	-.066230	104	.732128	1016
46077	134	.674250	354	-.071352	350	.736642	3138
46081A	146	.689789	133	-.012826	130	.722262	1275
46096	123	.699848	409	-.066583	359	.708590	3202
46098	126	.692653	504	-.080570	448	.715920	5274
46098A	128	.696196	351	-.082787	338	.712353	3513
47002	120	.700166	135	-.020250	110	.710559	935
47002A	1805	.706615	262	-.029118	266	.708433	2551
47002B	119	.706650	101	-.020496	104	.704886	968
47010 A	118	.712695	98	-.002317	95	.700154	932
47014	116	.714375	248	-.046973	253	.695312	1991
47015A	117	.710583	113	-.057683	106	.699074	1061
47023A	113	.721229	219	-.038782	215	.688435	1960
47025	111	.720668	357	-.053369	378	.695315	3511

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Reference Number	AMS Number	Latitude			Longitude			H_k	$\sigma\{H_k\}$	$\sigma\{hor_k\}$
46061	143	-0°	41'	51"	41°	48'	45"	- 380	2763	2412
46063	1800	-1	55	59	41	42	05	-1289	2382	2050
46067	1753	-4	04	31	41	34	30	-2586	3617	2929
46068	1751	-5	00	34	42	00	14	587	6156	5028
46076	135	-3	48	16	42	40	59	-3235	1339	1182
46077	134	-4	05	13	42	28	05	2037	4142	3653
46081A	146	-0	44	09	43	40	57	-2056	1657	1508
46096	123	-3	49	29	44	38	40	-3201	4050	3932
46098	126	-4	37	27	44	03	13	-1041	6923	6121
46098A	128	-4	45	04	44	20	34	- 879	4524	4188
47002	120	-1	09	47	44	34	40	-3884	1168	1170
47002A	1805	-1	40	01	44	55	35	1763	3121	3214
47002B	119	-1	10	35	45	04	18	-2923	1209	1196
47010A	118	-0	07	58	45	30	31	-1603	1177	1138
47014	116	-2	41	52	45	46	29	-3482	2477	2494
47015A	117	-3	18	43	45	28	04	-2643	1353	1281
47023A	113	-2	13	39	46	19	58	-3812	2426	2450
47025	111	-3	03	02	46	01	33	4923	4344	4380

APPENDIX II

REFERENCE DATA -- TABLES

Table XIII. Symbol Clarification for Tables XV through XX

Terminology	Standard Symbol	Symbols in Tables	Equation
Arithmetic Mean	$\bar{X}_x$	BAR X	$\sum_{i=1}^{n} x_i/n$
	$\bar{X}_y$	BAR Y	$\sum_{i=1}^{n} y_i/n$
	n = the number of times each point was measured.		
Residual	v_x	DELTA X	x_i - BAR X
	v_y	DELTA Y	y_i - BAR Y
Standard Deviation	σ_{s_x}	SIGMA X	$\left[\frac{\Sigma(\text{DELTA X})^2}{n-1}\right]^{\frac{1}{2}}$
	σ_{s_y}	SIGMA Y	$\left[\frac{\Sigma(\text{DELTA Y})^2}{n-1}\right]^{\frac{1}{2}}$
Root Mean Square Error	RMS	RMSE X	$\left[\frac{\Sigma(\text{DELTA X})^2}{n}\right]^{\frac{1}{2}}$
		RMSE Y	$\left[\frac{\Sigma(\text{DELTA Y})^2}{n}\right]^{\frac{1}{2}}$
Maximum Sigma	$3.3\sigma_{s_x}$	MAX SIGMA X	3.3 SIGMA X
	$3.3\sigma_{s_y}$	MAX SIGMA Y	3.3 SIGMA Y
Standard Error of the Mean	σ_{m_x}	SIGMA X MEAN	$\frac{\text{SIGMA X}}{\sqrt{n}}$
	σ_{m_y}	SIGMA Y MEAN	$\frac{\text{SIGMA Y}}{\sqrt{n}}$

Statistical notations concerning each individual light are listed in the table. Ten repetitive observations of each light were made and are represented in the equations by the letter "n".

Table XIV. Symbol Clarification for Table XXI

Terminology	Standard Symbol	Symbols in Tables	Equation
Standard Deviation	σ_{s_x}	XSIGMAL	$\left(\frac{\Sigma v_x^2}{n-1}\right)^{\frac{1}{2}}$
	σ_{s_y}	YSIGMAL	$\left(\frac{\Sigma v_y^2}{n-1}\right)^{\frac{1}{2}}$
Maximum Error	E_{max}	XSIGMA 3.3L	3.3 (X SIGMAL)
		YSIGMA 3.3L	3.3 (Y SIGMAL)
Three-SIGMA	$3\sigma_{s_x}$	XSIGMA 3L	3 (X SIGMAL)
	$3\sigma_{s_y}$	YSIGMA 3L	3 (Y SIGMAL)
Two-SIGMA	$2\sigma_{s_x}$	XSIGMA 2L	2 (X SIGMAL)
	$2\sigma_{s_y}$	YSIGMA 2L	2 (Y SIGMAL)
90% Error	E_{90_x}	XSIGMA.90L	1.6449 (X SIGMAL)
	E_{90_y}	YSIGMA.90L	1.6449 (Y SIGMAL)
Probable Error	E_{p_x}	XPEL	0.6745 (X SIGMAL)
	E_{p_y}	YPEL	0.6745 (Y SIGMAL)
Root Mean Square Error	RMS_x	XRMSEL	$(v_x^2/n)^{\frac{1}{2}}$
	RMS_y	YRMSEL	$(v_y^2/n)^{\frac{1}{2}}$
Circular Standard Error	Kr	CIRCULAR STD ERROR XYZ	$\sqrt{(\text{X SIGMAL})^2 + (\text{Y SIGMAL})^2 + (\text{Z SIGMAL})^2}$

Statistical notations concerning all 20 lights are listed in the table. The letter "n" represents the number of repetitive observations of each point multiplied by the total number of points; i. e., n = (10) (20). The letters "v_x^2" and "v_y^2" represent the summation of each residual squared.

$$v_x^2 = v_{1x_1}^2 + v_{2x_1}^2 + \dots + v_{10x_1}^2 + v_{1x_2}^2 + v_{2x_2}^2 + \dots + v_{10x_2}^2 + \dots + v_{1x_{20}}^2 + \dots + v_{10x_{20}}^2$$

$$v_y^2 = v_{1y_1}^2 + v_{2y_1}^2 + \dots + v_{10y_1}^2 + v_{1y_2}^2 + v_{2y_2}^2 + \dots + v_{10y_2}^2 + \dots + v_{1y_{20}}^2 + \dots + v_{10y_{20}}^2$$

Table XV. Standard Deviation - Individual Points - 100 Series

Point Identity	Operator S		Operator T	
	SIGMA X (mm)	SIGMA Y (mm)	SIGMA X (mm)	SIGMA Y (mm)
101	.3559026E-02	.2581989E-02	.1288410E-02	.1490713E-02
102	.5773504E-03	.2160247E-02	.9741097E-03	.2521904E-02
103	.5773502E-03	.8164966E-03	.6716482E-03	.1664665E-02
104	.5537749E-02	.1154701E-02	.1727554E-02	.1314872E-02
105	.7916228E-02	.1825742E-02	.2439490E-02	.2036882E-02
106	.5944185E-02	.8082904E-02	.2698971E-02	.1752458E-02
107	.3651484E-02	.8124038E-02	.2037428E-02	.2147349E-02
108	.5259911E-02	.4932883E-02	.8844325E-03	.1551343E-02
109	.6298148E-02	.6806859E-02	.2541653E-02	.1943651E-02
110	.5715476E-02	.9451631E-02	.1507757E-02	.1292715E-02
111	.3785939E-02	.1008299E-01	.3770647E-02	.7717224E-03
112	.2081666E-02	.6454972E-02	.1436044E-02	.1914854E-02
113	.5228129E-02	.4041452E-02	.1217465E-02	.2246973E-02
114	.6782330E-02	.3872983E-02	.1851725E-02	.1610383E-02
115	.4830459E-02	.5416026E-02	.2141131E-02	.1539841E-02
116	.7788881E-02	.6531973E-02	.1027403E-02	.1820866E-02
117	.8793937E-02	.6582806E-02	.2048306E-02	.1339155E-02
118	.5033223E-02	.6782330E-02	.3128010E-02	.2058586E-02
119	.4163332E-02	.5033223E-02	.1436044E-02	.1466667E-02
120	.4973931E-02	.3272359E-02	.1394432E-02	.1851726E-02

Significant figures are three places to th. ight of the decimal point.

Table XVI. Root Mean Square Error - Individual Points - 100 Series

Point Identity	Operator S		Operator T	
	RMSE X (mm)	RMSE Y (mm)	RMSE X (mm)	RMSE Y (mm)
101	.2905933E-02	.2108185E-02	.1222293E-02	.1414214E-02
102	.4714046E-03	.1763834E-02	.9241216E-03	.2392488E-02
103	.4714045E-03	.6666667E-03	.6371815E-03	.1579240E-02
104	.4521553E-02	.9428091E-03	.1638902E-02	.1247397E-02
105	.6463573E-02	.1490712E-02	.2314303E-02	.1932356E-02
106	.4853407E-02	.6599663E-02	.2560469E-02	.1662528E-02
107	.2981424E-02	.6633250E-02	.1932874E-02	.2037154E-02
108	.4294700E-02	.4027682E-02	.8390463E-03	.1471733E-02
109	.5142416E-02	.5557777E-02	.2411224E-02	.1843909E-02
110	.4666667E-02	.7717225E-02	.1430384E-02	.1226377E-02
111	.3091206E-02	.8232726E-02	.3577149E-02	.7321201E-03
112	.1699673E-02	.5270463E-02	.1362351E-02	.1816590E-02
113	.4268749E-02	.3299832E-02	.1154989E-02	.2131666E-02
114	.5537749E-02	.3162278E-02	.1756701E-02	.1527743E-02
115	.3944053E-02	.4422166E-02	.2031255E-02	.1460822E-02
116	.6359595E-02	.5333333E-02	.9746799E-03	.1727425E-02
117	.7180220E-02	.5374838E-02	.1943193E-02	.1270434E-02
118	.4109609E-02	.5537749E-02	.2967491E-02	.1952946E-02
119	.3399346E-02	.4109609E-02	.1362351E-02	.1391402E-02
120	.4061198E-02	.2671870E-02	.1322875E-02	.1756702E-02

Significant figures are three places to the right of the decimal point.

Table XVII. Arithmetic Mean - Individual Points - 100 Series

Point Identity	Operator S		Operator T	
	BARX (mm)	BARY (mm)	BARX (mm)	BARY (mm)
101	.1766833E 03	.6064767E 02	.1766777E 03	.6064700E 02
102	.1753967E 03	.6147433E 02	.1753997E 03	.6146420E 02
103	.1766220E 03	.6371667E 02	.1766209E 03	.6370830E 02
104	.1753043E 03	.6448167E 02	.1753041E 03	.6447160E 02
105	.1765923E 03	.6520500E 02	.1765986E 03	.6519270E 02
106	.1754223E 03	.6591367E 02	.1753954E 03	.6590320E 02
107	.1766060E 03	.6818000E 02	.1766096E 03	.6816250E 02
108	.1753413E 03	.6895300E 02	.1753422E 03	.6894510E 02
109	.1765997E 03	.6973133E 02	.1766177E 03	.6972200E 02
110	.1753583E 03	.7052000E 02	.1753589E 03	.7050880E 02
111	.1765627E 03	.7267667E 02	.1765604E 03	.7272540E 02
112	.1752900E 03	.7343033E 02	.1752886E 03	.7341000E 02
113	.1765627E 03	.7422833E 02	.1765657E 03	.7422420E 02
114	.1753190E 03	.7496500E 02	.1752971E 03	.7495070E 02
115	.1766120E 03	.7722300E 02	.1766141E 03	.7721670E 02
116	.1753333E 03	.7793667E 02	.1753565E 03	.7790020E 02
117	.1765683E 03	.7872467E 02	.1765614E 03	.7873230E 02
118	.1753880E 03	.7947800E 02	.1753879E 03	.7947570E 02
119	.1766773E 03	.8174900E 02	.1766766E 03	.8173040E 02
120	.1753670E 03	.8251267E 02	.1753695E 03	.8249310E 02

Significant figures are three places to the right of the decimal point.

Table XVIII. Time Data Block Control Coordinates - 100 Series

Point Identity	X - Coordinate $\frac{BARX_s + BARX_t}{2} = \overline{X}$ (mm)	Y - Coordinate $\frac{BARY_s + BARY_t}{2} = \overline{Y}$ (mm)
101	176.6805	60.64734
102	175.3982	61.46926
103	176.6214	63.71248
104	175.3042	64.47664
105	176.5955	65.19885
106	175.4088	65.90844
107	176.6078	68.17125
108	175.3418	68.94905
109	176.6087	69.72666
110	175.3586	70.51440
111	176.5616	72.70104
112	175.2893	73.42016
113	176.5642	74.22626
114	175.3080	74.95785
115	176.6130	77.21985
116	175.3449	77.91844
117	176.5648	78.72848
118	175.3880	79.47685
119	176.6770	81.73970
120	175.3682	82.50288

Table XIX. Maximum Sigma - Individual Points - 100 Series

Point Identity	Operator S		Operator T	
	MAX SIGMA X (mm)	MAX SIGMA Y (mm)	MAX SIGMA X (mm)	MAX SIGMA Y (mm)
101	.1174479E-01	.8520563E-02	.4251753E-02	.4919352E-02
102	.1905256E-02	.7128815E-02	.3214562E-02	.8322284E-02
103	.1905256E-02	.2694439E-02	.2216439E-02	.5493396E-02
104	.1827457E-01	.3810512E-02	.5700929E-02	.4339078E-02
105	.2612355E-01	.6024948E-02	.8050317E-02	.6721712E-02
106	.1961581E-01	.2667358E-01	.8906606E-02	.5783113E-02
107	.1204990E-01	.2680933E-01	.6723511E-02	.7086252E-02
108	.1735771E-01	.1627851E-01	.2918627E-02	.5119433E-02
109	.2078389E-01	.2246264E-01	.8387454E-02	.6414047E-02
110	.1886107E-01	.3119038E-01	.4975599E-02	.4265959E-02
111	.1249360E-01	.3327386E-01	.1244313E-01	.2546684E-02
112	.6869498E-02	.2130141E-01	.4738947E-02	.6319019E-02
113	.1725283E-01	.1333679E-01	.4017636E-02	.7415012E-02
114	.2238169E-01	.1278085E-01	.6110694E-02	.5314262E-02
115	.1594051E-01	.1787288E-01	.7065732E-02	.5081476E-02
116	.2570331E-01	.2155551E-01	.3390429E-02	.6008858E-02
117	.2901999E-01	.2172326E-01	.6759409E-02	.4419211E-02
118	.1660964E-01	.2238169E-01	.1032243E-01	.6793334E-02
119	.1373900E-01	.1660964E-01	.4738946E-02	.4840000E-02
120	.1641397E-01	.1079878E-01	.4601627E-02	.6110697E-02

Significant figures are three places to the right of the decimal point.

Table XX. Mean Sigma - Individual Points - 100 Series

Point Identity	Operator S		Operator T	
	SIGMA X MEAN (mm)	SIGMA Y MEAN (mm)	SIGMA X MEAN (mm)	SIGMA Y MEAN (mm)
101	.2054805E-02	.1490712E-02	.4074310E-03	.4714047E-03
102	.3333334E-03	.1247219E-02	.3080405E-03	.7974961E-03
103	.3333333E-03	.4714045E-03	.2123938E-03	.5264134E-03
104	.3197221E-02	.6666667E-03	.5463006E-03	.4157991E-03
105	.4570436E-02	.1054093E-02	.7714344E-03	.6441188E-03
106	.3431877E-02	.4666667E-02	.8534897E-03	.5541760E-03
107	.2108185E-02	.4690416E-02	.6442912E-03	.6790514E-03
108	.3036811E-02	.2848001E-02	.2796821E-03	.4905778E-03
109	.3636237E-02	.3929942E-02	.8037412E-03	.6146363E-03
110	.3299832E-02	.5456902E-02	.4767947E-03	.4087923E-03
111	.2185813E-02	.5821416E-02	.1192383E-02	.2440400E-03
112	.1201850E-02	.3726780E-02	.4541171E-03	.6055300E-03
113	.3018462E-02	.2333333E-02	.3849964E-03	.7105554E-03
114	.3915780E-02	.2236068E-02	.5855670E-03	.5092477E-03
115	.2788867E-02	.3126944E-02	.6770850E-03	.4869406E-03
116	.4496913E-02	.3771236E-02	.3248933E-03	.5758084E-03
117	.5077182E-02	.3800585E-02	.6477311E-03	.4234779E-03
118	.2905933E-02	.3915780E-02	.9891637E-03	.6509821E-03
119	.2403701E-02	.2905933E-02	.4541171E-03	.4638007E-03
120	.2871701E-02	.1889297E-02	.4409582E-03	.5855673E-03

Significant figures are three places to the right of the decimal point.

Table XXI. Error in Any Point - 100 Series

All values are in mm

Operator S			Circular Standard Error X Y			
XSIGMAL .003	XSIGMA3.3L .010	XSIGMA3L .009	XSIGMA2L .006	XSIGMA.90L .003	XPEL .002	XRMSEL .003
YSIGMAL .00	YSIGMA3.3L .011	YSIGMA3L .010	YSIGMA2L .007	YSIGMA.90L .006	YPEL .002	YRMSEL .003
Operator T			**Circular Standard Error X Y**			
XSIGMAL .002	XSIGMA3.3L .008	XSIGMA3L .007	XSIGMA2L .005	XSIGMA.90L .002	XPEL .002	XRMSEL .002
YSIGMAL .002	YSIGMA3.3L .007	YSIGMA3L .007	YSIGMA2L .004	YSIGMA.90L .004	YPEL .001	YRMSEL .002

$$K_r = \left(\sigma_x{}^2 + \sigma_y{}^2 + \sigma_z{}^2\right)^{1/2} \text{ and } \sigma_z = 0$$

$$\therefore K_r = \left(\sigma_{x^2} + \sigma_{y^2}\right)^{1/2}$$

Table XXII. Coordinates for Set Number 200 - Operator T

X-Coordinate	Y-Coordinate	Residual-x	Residual-y
176 681,63	60 645,61	1,13	- 1,73
175 400,75	61 467,16	2,55	- 2,10
176 623,05	63 715,77	1,65	3,29
175 301,38	64 476,22	- 2,82	- 0,42
176 597,44	65 191,90	1,99	- 6,95
175 405,82	65 915,77	- 2,98	7,33
176 612,12	68 168,34	4,32	- 2,91
175 343,35	68 951,94	1,55	2,89
176 621,28	69 713,53	DELETED 12,58	DELETED - 13,13
175 353,43	70 522,13	- 5,17	7,73
176 556,85	72 735,70	DELETED - 4,75	DELETED 34,66
175 285,40	73 417,36	- 3,90	- 2,80
176 570,18	74 225,94	5,98	- 0,32
175 299,58	74 955,57	- 8,42	- 2,28
176 616,77	77 222,48	3,77	2,63
175 348,30	77 912,13	3,40	- 6,31
176 553,08	78 731,46	- 11,72	2,98
175 387,37	79 478,41	- 0,63	1,56
176 681,61	81 736,25	4,61	- 3,45
175 372,91	82 503,74	4,71	0,86

Table XXIII. Coordinates for Set Number 200 - Operator S

X-Coordinate	Y-Coordinate	Residual-x	Residual-y
176 678,11	60 646,72	- 2,39	- 0,62
175 399,82	61 471,03	1,62	1,77
176 618,81	63 712,60	- 2,59	0,12
175 298,73	64 480,84	- 5,47	4,20
176 595,32	65 191,11	- 0,13	- 7,74
175 419,22	65 920,83	10,42	12,39
176 613,19	68 176,31	5,39	5,06
175 343,05	68 950,69	1,25	1,64
176 601,48	69 725,79	- 7,22	- 0,87
175 360,25	70 518,24	1,65	3,84
176 554,52	72 671,83	- 2,08	- 29,21
175 289,45	73 422,24	0,15	2,08
166 578,45	74 191,91	DELETED - 9 985,75	DELETED - 34,35
175 318,74	74 955,86	10,74	- 1,99
176 618,60	77 215,66	5,60	- 4,19
175 317,59	77 953,98	DELETED - 27,31	DELETED 35,54
176 606,08	78 701,20	DELETED 41,28	DELETED - 27,28
175 357,91	79 476,65	- 30,09	- 0,20
176 682,70	81 749,51	5,70	9,81
175 375,64	82 506,79	7,44	3,91

Table XXIV. Coordinates for Set Number 300 - Operator T

X-Coordinate	Y-Coordinate	Residual-x	Residual-y
176 682,92	60 644.63	2,42	- 2,71
175 400,94	61 473.23	2,74	3,97
176 622,03	63 708.77	0,63	- 3,71
175 303,39	64 469.77	- 0,81	- 6,87
176 592,22	65 205.34	- 3,23	6.49
175 427,85	65 901.82	DELETED 19,05	DELETED - 6.62
176 606,39	68 179.76	- 1,41	8.51
175 338,83	68 952.25	- 2,97	3.20
176 615,01	69 719.93	6.31	- 6.73
175 348,71	70 517.39	- 9,89	2.99
176 548,73	72 746.14	DELETED - 12,87	DELETED 45.10
175 284,09	73 411.65	- 5,21	- 8.51
176 565,73	74 225.26	1,53	- 1,00
175 320,81	74 962.53	12,81	4.68
176 616,06	77 218.30	3,06	- 1,55
175 345,76	77 916.85	0,86	- 1,59
176 558,42	78 729.16	- 6,38	0,68
175 382,60	79 479.72	- 5,40	2,87
176 677,92	81 742.49	0,92	2,79
175 372,23	82 499.37	4,03	- 3.51

Table XXV. Coordinates for Set Number 300 - Operator S

X-Coordinate	Y-Coordinate	Residual-x	Residual-y
176 680.14	60 645.07	- 0.36	- 2.27
175 386.81	61 469.77	- 11.39	0.51
176 630.22	63 712.50	8.82	0.02
175 311.31	64 473.49	7.11	- 3.15
176 597.38	65 205.82	1.93	6.97
175 410.81	65 906.59	2.01	- 1.85
176 608.57	68 182.73	0.77	11.48
175 340.68	68 950.23	- 1.12	1.18
176 595.31	69 738.82	- 13.39	12.16
175 354.46	70 512.05	- 4.14	- 2.35
176 562.19	72 680.17	0.59	- 20.87
175 288.00	73 414.75	- 1.30	- 5.41
176 565.81	74 224.11	1.61	- 2.15
175 321.61	74 960.40	13.61	2.55
176 614.07	77 211.66	1.07	- 8.19
175 316.99	77 956.45	DELETED - 27.91	DELETED 38.01
176 601.07	78 688.80	DELETED 36.27	DELETED - 39.68
175 382.28	79 469.82	- 5.72	- 7.03
176 673.05	81 754.08	- 3.95	14.38
175 372.05	82 506.90	3.85	4.02

Table XXVI. Coordinates for Set Number 400 - Operator T

X-Coordinate	Y-Coordinate	Residual-x	Residual-y
176 683.99	60 650.73	3,49	3,39
175 392.89	61 474.66	- 5,31	5,40
176 623.86	63 713.59	2,46	1,11
175 300.55	64 470.69	- 3,65	- 5,95
176 584.16	65 205.57	- 6,29	6,72
175 406.56	65 910.21	- 2,24	1,77
176 609.64	68 174.23	1,84	2,98
175 337.36	68 951.13	- 4,44	2,08
176 631.09	69 719.97	22,39	- 6,69
175 353.88	70 516.87	- 4,72	2,47
176 557.59	72 675.97	- 4,01	- 25,07
175 290.16	73 410.88	0,86	- 9,28
176 569.06	74 224.74	4,86	- 1,52
175 318.58	74 950.60	10,58	- 7,25
176 614.63	77 225.28	1,63	5,43
175 334.14	77 940.26	- 10,76	21,82
176 554.01	78 736.32	- 5,79	7,84
175 382.54	79 479.91	- 5,46	3,06
176 679.53	81 738.60	2,53	- 1,10
175 370.21	82 495.65	2,01	- 7,23

Table XXVII. Coordinates for Set Number 400 - Operator S

X-Coordinate	Y-Coordinate	Residual-x	Residual-y
176 678,09	60 637.64	- 2,41	- 9.70
175 396.73	61 469.05	- 1.47	- 0.21
176 624.89	63 713.39	3,49	0,91
175 299.35	64 474.00	- 4,85	- 2,64
176 590.66	65 207.32	- 4,79	8.47
175 406.82	65 910.52	- 1.98	2.08
176 609.07	68 175.92	1,27	4.67
175 344.51	68 948.33	2,71	- 0.72
176 617,99	69 728.67	9,29	2,01
175 357.49	70 518.05	- 1,11	3.65
176 563.47	72 702.50	1,87	1.46
175 287.73	73 412.99	- 1.57	- 7.17
176 568.29	74 223.29	4,09	- 2.97
175 313.61	74 956.69	5.61	- 1.16
176 615.78	77 223.78	2,78	3.93
175 323.11	77 951.31	DELETED - 21,79	DELETED 32.87
176 560.60	78 729.76	- 4.20	1.28
175 379.92	79 480.92	- 8,08	4.07
176 675.05	81 736.03	- 1.95	- 3.67
175 369.50	82 498.58	1.30	- 4.30

Table XXVIII. Coordinates for Set Number 500 - Operator T

X-Coordinate	Y-Coordinate	Residual-x	Residual-y
176 682.16	60 645.93	1.66	- 1.41
175 398.44	61 473.87	0.24	4.61
176 621.07	63 717.64	- 0.33	5.16
175 300.22	64 471.74	- 3.98	- 4.90
176 592.40	65 200.05	- 3.05	1.20
175 416.29	65 909.87	7.49	1.43
176 590.41	65 203.05	DELETED - 17.39	DELETED - 2 968.20
175 419.29	65 909.87	DELETED 77.49	DELETED - 3 039.18
176 611.99	68 172.69	DELETED 3.29	DELETED - 1 553.97
175 340.15	68 953.64	DELETED - 18.45	DELETED - 1 560.76
176 557.08	72 677.78	- 4.52	- 23.26
175 290.14	73 417.77	0.84	- 2.39
176 566.52	74 228.03	2.32	1.77
175 319.54	74 960.98	11.54	3.13
176 613.13	77 222.58	0.13	2.73
175 330.13	77 928.65	- 14.77	10.21
176 560 55	78 733.01	- 4.25	4.53
175 384.53	79 481.79	- 3.47	4.94
176 682.10	81 736.39	5.10	- 3.31
175 373.26	82 498.45	5.06	- 4.43

Table XXIX. Coordinates for Set Number 500 - Operator S

X-Coordinate	Y-Coordinate	Residual-x	Residual-y
176 671.83	60 645.60	- 8.67	- 1.74
175 400.13	61 473.94	1.93	4.65
176 621.67	63 709.27	0.27	- 3.21
175 306.90	64 469.73	2.70	- 6.91
176 599.03	65 199.13	3.58	0.28
175 437.05	65 899.40	DELETED 28.25	DELETED - 9.04
176 610.70	68 177.77	- 2.90	6.52
175 341.90	68 947.15	0.10	- 1.90
176 602.14	69 726.56	- 6.56	- 0.10
175 354.36	70 513.90	- 5.24	- 0.50
176 556.83	72 696.30	- 4.77	- 4.74
175 295.97	73 427.70	6.67	7.54
176 567.23	74 225.08	- 3.03	- 1.18
175 329.36	74 962.44	21.36	4.59
176 607.89	77 218.66	- 5.11	- 1.19
175 326.06	77 954.09	DELETED - 18.84	DELETED 35.65
176 557.30	78 728.55	- 7.50	0.07
175 388.39	79 473.80	0.39	- 3.05
176 676.93	81 737.99	- 0.07	- 1.71
175 363.17	82 505.45	- 5.03	2.57

Table XXX. Coordinates for Set Number 600 - Operator T

X-Coordinate	Y-Coordinate	Residual-x	Residual-y
176 684.46	60 642.13	3.96	- 5.21
175 400.78	61 468.57	2.58	- 0.69
176 624.21	63 712.75	2.81	0.27
175 302.25	64 470.84	- 1.95	- 5.80
176 598.10	65 197.63	2.65	- 1.22
175 392.47	65 915.93	- 16.33	7.49
176 611.76	68 174.06	3.96	2.81
175 343.52	68 956.69	1.72	7.64
176 633.96	69 723.39	DELETED 25.26	DELETED - 3.27
175 356.54	70 523.92	- 2.06	9.52
176 559.95	72 672.94	DELETED - 1.65	DELETED - 28.10
175 286.18	73 409.54	- 3.12	- 10.62
176 566.12	74 226.11	1.92	- 0.15
175 318.39	74 956.98	10.39	- 0.87
176 616.57	77 221.90	3.57	2.05
175 333.22	77 917.43	- 11.68	- 1.01
176 560.26	78 727.47	- 4.54	- 1.01
175 387.35	79 472.09	- 0.65	- 4.76
176 676.49	81 740.92	- 0.51	1.22
175 375.47	82 503.22	7.27	0.34

Table XXXI. Coordinates for Set Number 600 - Operator S

X-Coordinate	Y-Coordinate	Residual-x	Residual-y
176 672.69	60 644.43	- 7.81	- 2.91
175 395.34	61 470.00	- 2.86	0.74
176 621.90	63 714.66	0.50	2.18
175 299.41	64 457.83	- 4.79	- 18.81
176 588.99	65 202.23	- 6.46	3.38
175 427.71	65 913.05	18.91	4.61
176 612.13	68 175.27	4.33	4.02
175 345.24	68 953.98	3.44	4.93
176 606.54	69 728.07	- 2.16	1.41
175 357.51	70 519.95	- 1.09	5.55
176 566.04	72 669.49	DELETED 4.44	DELETED - 31.55
175 285.44	73 421.08	- 3.86	0.92
176 568.44	74 223.37	4.24	- 2.89
175 316.97	74 960.26	9.97	2.41
176 614.37	77 215.63	1.37	- 4.22
175 340.15	77 928.31	- 4.75	9.87
176 559.22	78 728.96	- 5.58	0.48
175 387.69	79 464.65	- 0.31	- 12.20
176 678.88	81 741.94	1.88	2.24
175 364.23	82 501.18	- 3.97	- 1.70

Table XXXII. Standard Deviation of Time Data Block Sets

Standard Deviations in Microns						Time Data Block Set Number
Operator S			Operator T			
σ_x	σ_y	*Circular Error	σ_x	σ_y	*Circular Error	
9	9	13	5	4	6	200
7	8	11	5	5	7	300
4	4	6	7	9	11	400
7	4	8	6	7	9	500
6	7	9	6	4	7	600
7	6		6	6		$\bar{\sigma}_s$
		9			8	K_r

*Circular Error defined as $K_r = (\sigma_x^2 + \sigma_y^2)^{\frac{1}{2}}$.

Table XXXIII. Symbol Clarification for Statistical Analysis Tables

Terminology	Standard Symbol	Symbols in Tables		Equation
Arithmetic Mean	$\overline{M}_x$	BAR X	*	$\sum_{i=1}^{n} x_i/n$
	$\overline{M}_y$	BAR Y		$\sum_{i=1}^{n} y_i/n$
Residual	v_x	DELTA X		x_i - BAR X
	v_y	DELTA Y		y_i - BAR Y
Standard Deviation	σ_{s_x}	SIGMA X		$\left[\frac{\Sigma(\text{DELTA X})^2}{n-1}\right]^{\frac{1}{2}}$
	σ_{s_y}	SIGMA Y	*	$\left[\frac{\Sigma(\text{DELTA Y})^2}{n-1}\right]^{\frac{1}{2}}$
Root Mean Square Error	RMS	RMSE X		$\left[\frac{\Sigma(\text{DELTA X})^2}{n}\right]^{\frac{1}{2}}$
		RMSE Y	*	$\left[\frac{\Sigma(\text{DELTA Y})^2}{n}\right]^{\frac{1}{2}}$
Maximum Sigma	$3.3\sigma_{s_x}$	MAX SIGMA X		3.3 SIGMA X
	$3.3\sigma_{s_y}$	MAX SIGMA Y		3.3 SIGMA Y
Standard Error of the Mean	σ_{m_x}	SIGMA X MEAN		$\frac{\text{SIGMA X}}{\sqrt{n}}$
	σ_{m_y}	SIGMA Y MEAN	*	$\frac{\text{SIGMA Y}}{\sqrt{n}}$
Standard Deviation	σ_{s_x}	XSIGMAL	**	$\left(\frac{\Sigma\ v_x^2}{n-1}\right)^{\frac{1}{2}}$
	σ_{s_y}	YSIGMAL		$\left(\frac{\Sigma\ v_y^2}{n-1}\right)^{\frac{1}{2}}$
Maximum Error	E_{max}	XSIGMA 3.3L		3.3 (X SIGMAL)
		YSIGMA 3.3L		3.3 (Y SIGMAL)
Three-SIGMA	$3\sigma_{s_x}$	XSIGMA 3L		3 (X SIGMAL)
	$3\sigma_{s_y}$	YSIGMA 3L		3 (Y SIGMAL)
Two-SIGMA	$2\sigma_{s_x}$	XSIGMA 2L		2 (X SIGMAL)
	$2\sigma_{s_y}$	YSIGMA 2L		2 (Y SIGMAL)
90% Error	E_{90_x}	XSIGMA.90L		1.6449 (X SIGMAL)
	E_{90_y}	YSIGMA.90L		1.6449 (Y SIGMAL)
Probable Error	E_{p_x}	XPEL		0.6745 (X SIGMAL)
	E_{p_y}	YPEL		0.6745 (Y SIGMAL)
Root Mean Square Error	RMS_x	XRMSEL	**	$(v_x^2/n)^{\frac{1}{2}}$
	RMS_y	YRMSEL		$(v_y^2/n)^{\frac{1}{2}}$
Circular Standard Error	Kr	CIRCULAR STD ERROR XYZ		$\sqrt{(\text{X SIGMAL})^2 + (\text{Y SIGMAL})^2 + (\text{Z SIGMAL})^2}$

* n = the number of times each point was observed.

** The letter "n" represents the number of observations of each point multiplied by the total number of points; i. e., n = (10) (20).
The letters "v_x^2" and "v_y^2" represent the summation of of each residual squared.

$$v_x^2 = v_{1x_1}^2 + v_{2x_1}^2 + \cdots + v_{10x_1}^2 + v_{1x_2}^2 + v_{2x_2}^2 + \cdots + v_{10x_2}^2 + \cdots + v_{1x_{20}}^2 + \cdots + v_{10x_{20}}^2$$

$$v_y^2 = v_{1y_1}^2 + v_{2y_1}^2 + \cdots + v_{10y_1}^2 + v_{1y_2}^2 + v_{2y_2}^2 + \cdots + v_{10y_2}^2 + \cdots + v_{1y_{20}}^2 + \cdots + v_{10y_{20}}^2$$

Table XXXIV. GRE Strobe Light Marks (Distances)

Coldstone Framelet No. 154 West

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
100344.	345.	1
100689.	348.	2
101037.	348.	3
101385.	350.	4
101735.	340.	5
102075.	347.	6
102422.	348.	7
102770.	346.	8
103116.	350.	9
103466.	349.	10
103815.	343.	11
104158.	349.	12
104507.	347.	13
104854.	348.	14
105202.	341.	15
105543.	354.	16
105897.	344.	17
106241.	349.	18
106590.	350.	19
106940.	344.	20
107284.	351.	21
107635.	347.	22
107982.	345.	23
108327.	346.	24

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
108673.		25
	346.	
109019.		26
	349.	
109368.		27
	346.	
109714.		28
	342.	
110056.		29
	348.	
110404.		30
	348.	
110752.		31
	349.	
111101.		32
	345.	
111446.		33
	347.	
111793.		34
	351.	
112144.		35
	346.	
112490.		36
	347.	
112837.		37
	347.	
113184.		38
	347.	
113531.		39
	343.	
113874.		40
	349.	
114223.		41
	346.	
114569.		42
	346.	
114915.		43
	345.	
115260.		44
	349.	
115609.		45
	345.	
115954.		46
	344.	
116298.		47
	349.	
116647.		48
	347.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
116994.		49
	345.	
117339.		50
	352.	
117691.		51
	344.	
118035.		52
	346.	
118381.		53
	350.	
118731.		54
	342.	
119073.		55
	348.	
119421.		56
	344.	
119765.		57
	349.	
120114.		58
	346.	
120460.		59
	349.	
120809.		60
	345.	
121154.		61
	349.	
121503.		62
	346.	
121849.		63
	346.	
122195.		64
	344.	
122539.		65
	350.	
122889.		66
	343.	
123232.		67
	346.	
123578.		68
	347.	
123925.		69
	344.	
124269.		70
	344.	
124613.		71
	348.	
124961.		72
	346.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
125307.		73
	344.	
125651.		74
	345.	
125996.		75
	.9.	
126345.		76
	344.	
126689.		77
	345.	
127034.		78
	346.	
127380.		79
	347.	
127727.		80
	344.	
128071.		81
	352.	
128423.		82
	340.	
128763.		83
	344.	
129107		84
	346.	
129453.		85
	347.	
129800.		86
	347.	
130147.		87
	348.	
130495.		88
	343.	
130838.		89
	350.	
131188.		90
	344.	
131532.		91
	347.	
13[illegible]879.		92
	346.	
132225.		93
	346.	
132571.		94
	349.	
132920.		95
	341.	
133261.		96
	344.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
133605.		97
	347.	
133952.		98
	345.	
134297.		99
	348.	
134645.		100
	346.	
134991.		101
	349.	
135340.		102
	348.	
135688.		103
	343.	
136031.		104
	346.	
136377.		105
	348.	
136725.		106
	347.	
137072.		107
	347.	
137419.		108
	348.	
137767.		109
	347.	
138114.		110
	344.	
138458.		111
	349.	
138807.		112
	342.	
139149.		113
	351.	
139500.		114
	350.	
139850.		115
	343.	
140193.		116
	350.	
140543.		117
	347.	
140890.		118
	348.	
141238.		119
	342.	
141580.		120
	351.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
141931.		121
	345.	
142276.		122
	346.	
142622.		123
	349.	
142971.		124
	343.	
143314.		125
	349.	
143663.		126
	341.	
144004.		127
	343.	
144347.		128
	353.	
144700.		129
	343.	
145043.		130
	346.	
145389.		131
	347.	
145736.		132
	349.	
146085.		133
	341.	
146426.		134
	346.	
146772.		135
	348.	
147120.		136
	344.	
147464.		137
	345.	
147809.		138
	348.	
148157.		139
	345.	
148502.		140
	344.	
148846.		141
	349.	
149195.		142
	348.	
149543.		143
	345.	
149388.		144
	347.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
150235.	342.	145
150577.	346.	146
150923.	354.	147
151277.	342.	148
151619.	348.	149
151967.	344.	150
152311.	342.	151
152653.	344.	152
152997.	347.	153
153344.	350.	154
153694.	345.	155
154039.	348.	156
154387.	344.	157
154731.	349.	158
155080.	345.	159
155425.	344.	160
155769.	348.	161
156117.	343.	162
156460.	345.	163
156805.	350.	164
157155.	340.	165
157495.	346.	166
157841.	348.	167
158189.	344.	168

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
158533.		169
	342.	
158875.		170
	346.	
159221.		171
	350.	
159571.		172
	344.	
159915.		173
	344.	
160259.		174
	348.	
160607.		175
	349.	
160956.		176
	349.	
161305.		177
	342.	
161647.		178
	343.	
161990.		179
	348.	
162338.		180
	344.	
162682.		181
	347.	
163029.		182
	342.	
163371.		183
	346.	
163717.		184
	349.	
164066.		185
	343.	
164409.		186
	348.	
164757.		187
	346.	
165103.		188
	347.	
165450.		189
	342.	
165792.		190
	354.	
166146.		191
	341.	
166487.		192
	346.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
166833.		193
	348.	
167181.		194
	346.	
167527.		195
	342.	
167869.		196
	349.	
168218.		197
	348.	
168566.		198
	344.	
168910.		199
	354.	
169264.		200
	344.	
169608.		201
	345.	
169953.		202
	347.	
170307.		203
	345.	
170645.		204
	351.	
170996.		205
	345.	
171341.		206
	347.	
171688.		207
	342.	
172030.		208
	347.	
172377.		209
	345.	
172722.		210
	347.	
173069.		211
	345.	
173414.		212
	349.	
173763.		213
	347.	
174110.		214
	345.	
174455.		215
	348.	
174803.		216
	345.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
175148.		217
	344.	
175492.		218
	348.	
175840.		219
	346.	
176186.		220
	347.	
176533.		221
	347.	
176880.		222
	348.	
177228.		223
	347.	
177575.		224
	348.	
177923.		225
	349.	
178272.		226
	350.	
178622.		227
	345.	
178967.		228
	346.	
179313.		229
	347.	
179660.		230
	346.	
180006.		231
	349.	
180355.		232
	346.	
180701.		233
	345.	
181046.		234
	344.	
181390.		235
	350.	
181740.		236
	344.	
182084.		237
	348.	
182432.		238
	340.	
182772.		239
	352.	
183124.		240
	351.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
183475.	341.	241
183816.	348.	242
184164.	343.	243
184507.	346.	244
184853.	347.	245
185200.	352.	246
185552.	341.	247
185893.	341.	248
186234.	350.	249
186584.	346.	250
186930.	345.	251
187275.	353.	252
187628.	341.	253
187969.	346.	254
188315.	349.	255
188664.	341.	256
189005.	348.	257
189353.	350.	258
189703.	345.	259
190048.	344.	260
190392.	345.	261
190737.	344.	262
191081.	349.	263
191430.	343.	264

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
191773.	351.	265
192124.	340.	266
192464.	353.	267
192817.	346.	268
193163.	350.	269
193513.	344.	270
193857.	348.	271
194205.	348.	272
194553.	346.	273
194899.	349.	274
195248.	346.	275
195594.	348.	276
195942.	347.	277
196289.	346.	278
196635.	345.	279
196980.	347.	280
197327.	352.	281
197679.	341.	282
198020.	349.	283
198369.	346.	284
198715.	341.	285
199056.	348.	286
199404.	345.	287
199749.	343.	288

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
200092.		289
	348.	
200440.		290
	347.	
200787.		291
	346.	
201133.		292
	347.	
201480.		293
	343.	
201823.		294
	349.	
202172.		295
	344.	
202516.		296
	347.	
202863.		297
	349.	
203212.		298
	345.	
203557.		299
	348.	
203905.		300
	350.	
204255.		301
	346.	
204601.		302
	346.	
204947.		303
	345.	
205292.		304
	350.	
205642.		305
	347.	
205989.		306
	353.	
206342.		307
	343.	
206685.		308
	346.	
207031.		309
	347.	
207378.		310
	349.	
207727.		311
	346.	
208073.		312
	345.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
208418.		313
	350.	
208768.		314
	345.	
209113.		315
	341.	
209454.		316
	351.	
209805.		317
	341.	
210146.		318
	346.	
210492.		319
	346.	
210838.		320
	349.	
211187.		321
	341.	
211528.		322
	348.	
211876.		323
	348.	
212224.		324
	343.	
212567.		325
	346.	
212913.		326
	348.	
213261.		327
	344.	
213605.		328
	346.	
213951.		329
	341.	
214292.		330
	347.	
214639.		331
	348.	
214987.		332
	344.	
215331.		333
	345.	
215676.		334
	350.	
216026.		335
	343.	
216369.		336
	352.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
216721.		337
	343.	
217064.		338
	347.	
217411.		339
	349.	
217760.		340
	345.	
218105.		341
	345.	
218450.		342
	347.	
218797.		343
	347.	
219144.		344
	346.	
219490.		345
	346.	
219836.		346
	347.	
220183.		347
	349.	
220532.		348
	377.	
220909.		349
	312.	
221221.		350
	347.	
221568.		351
	349.	
221917.		352
	345.	
222262.		353
	343.	
222605.		354
	349.	
222954.		355
	346.	
223300.		356
	348.	
223648.		357
	346.	
223994.		358
	346.	
224340.		359
	347.	
224687.		360
	349.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
225036.		361
	342.	
225378.		362
	348.	
225726.		363
	347.	
226073.		364
	345.	
226418.		365
	345.	
226763.		366
	345.	
227108.		367
	346.	
227454.		368
	346.	
227800.		369
	342.	
228142.		370
	344.	
228486.		371
	348.	
228834.		372
	347.	
229181.		373
	345.	
229526.		374
	343.	
229869.		375
	342.	
230211.		376
	351.	
230562.		377
	345.	
230907.		378
	347.	
231254.		379
	341.	
231595.		380
	346.	
231941.		381
	350.	
232291.		382
	344.	
232635.		383
	344.	
232979.		384
	351.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
233330.		385
	344.	
233674.		386
	348.	
234022.		387
	344.	
234366.		388
	346.	
234712.		389
	347.	
235059.		390
	349.	
235408.		391
	347.	
235755.		392
	347.	
236102.		393
	347.	
236449.		394
	347.	
236796.		395
	348.	
237144.		396
	348.	
237492.		397
	343.	
237835.		398
238179.		399
	345.	
238524.		400
	348.	
238872.		401
	347.	
239219.		402
	348.	
239567.		403
	339.	
239906.		404
	350.	
240256.		405
	344.	
240600.		406
	345.	
240945.		407
	350.	
241295.		408
	346.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
241641.		409
	341.	
241982.		410
	354.	
242336.		411
	342.	
242678.		412
	342.	
243020.		413
	343.	
243363.		414
	350.	
243713.		415
	345.	
244058.		416
	345.	
244403.		417
	348.	
244751.		418
	342.	
245093.		419
	349.	
245442.		420
	345.	
245787.		421
	346.	
246133.		422
	343.	
246476.		423
	347.	
246823.		424
	350.	
247173.		425
	342.	
247515.		426
	340.	
247855.		427
	355.	
248210.		428
	343.	
248553.		429
	346.	
248899.		430
	346.	
249245.		431
	343.	
249588.		432
	348.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
249936.		433
	346.	
250282.		434
	343.	
250625.		435
	348.	
250973.		436
	348.	
251321.		437
	342.	
251663.		438
	346.	
252009.		439
	348.	
252357.		440
	342.	
252699.		441
	345.	
253044.		442
	347.	
253391.		443
	349.	
253740.		444
	344.	
254084.		445
	349.	
254433.		446
	346.	
254779.		447
	342.	
255121.		448
	351.	
255472.		449
	347.	
255819.		450
	350.	
256169.		451
	344.	
256513.		452
	348.	
256861.		453
	346.	
257207.		454
	348.	
257555.		455
	342.	
257897.		456
	348.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
258245.		457
	346.	
258591.		458
	349.	
258940.		459
	347.	
259287.		460
	342.	
259629.		461
	350.	
259979.		462
	345.	
260324.		463
	348.	
260672.		464
	345.	
261017.		465
	343.	
261360.		466
	345.	
261705.		467
	346.	
262051.		468
	347.	
262398.		469
	347.	
262745.		470
	346.	
263091.		471
	344.	
263435.		472
	350.	
263785.		473
	346.	
264131.		474
	344.	
264475.		475
	351.	
264826.		476
	347.	
265173.		477
	343.	
265516.		478
	342.	
265858.		479
	350.	
266208.		480
	347.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
266555.		481
	346.	
266901.		482
	348.	
267249.		483
	354.	
267603.		484
	339.	
267942.		485
	351.	
268293.		486
	345.	
268638.		487
	350.	
268988.		488
	348.	
269336.		489
	343.	
269679.		490
	350.	
270029.		491
	344.	
270373.		492
	348.	
270721.		493
	347.	
271068.		494
	345.	
271413.		495
	346.	
271759.		496
	345.	
272104.		497
	347.	
272451.		498
	346.	
272797.		499
	350.	
273147.		500
	342.	
273489.		501
	348.	
273837.		502
	342.	
274179.		503
	346.	
274525.		504
	351.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
274876.		505
	340.	
275216.		506
	348.	
275564.		507
	341.	
275905.		508
	347.	
276252.		509
	348.	
276600.		510
	343.	
276943.		511
	345.	
277288.		512
	346.	
277634.		513
	345.	
277979.		514
	346.	
278325.		515
	348.	
278673.		516
	344.	
279017.		517
	346.	
279363.		518
	346.	
279709.		519
	348.	
280057.		520
	341.	
280398.		521
	345.	
280743.		522
	348.	
281091.		523
	350.	
281441.		524
	346.	
281787.		525
	346.	
282133.		526
	348.	
282481.		527
	348.	
282829.		528
	350.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
283179.	343.	529
283522.	345.	530
283867.	355.	531
284222.	341.	532
284563.	347.	533
284910.	347.	534
285257.	344.	535
285601.	347.	536
285948.	350.	537
286298.	344.	538
286642.	344.	539
286986.	344.	540
287330.	350.	541
287680.	347.	542
288027.	348.	543
288375.	346.	544
288721.	345.	545
289066.	347.	546
289413.	346.	547
289759.	347.	548
290106.	343.	549
290449.	345.	550
290794.	347.	551
291141.	348.	552

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
291489.		553
	346.	
291837.		554
	341.	
292178.		555
	345.	
292523.		556
	350.	
292873.		557
	346.	
293219.		558
	345.	
293564.		559
	345.	
293909.		560
	346.	
294255.		561
	349.	
294604.		562
	342.	
294946.		563
	348.	
295294.		564
	346.	
295640.		565
	342.	
295982.		566
	348.	
296330.		567
	348.	
296678.		568
	349.	
297027.		569
	341.	
297368.		570
	350.	
297718.		571
	348.	
298066.		572
	347.	
298413.		573
	344.	
298757.		574
	352.	
299109.		575
	342.	
299451.		576
	348.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
299799.		577
	350.	
300149.		578
	347.	
300496.		579
	343.	
300839.		580
	353.	
301192.		581
	344.	
301536.		582
	348.	
301884.		583
	347.	
302231.		584
	349.	
302580.		585
	340.	
302920.		586
	351.	
303271.		587
	346.	
303617.		588
	342.	
303959.		589
	346.	
304305.		590
	348.	
304653.		591
	342.	
304995.		592
	347.	
305342.		593
	350.	
305692.		594
	345.	
306037.		595
	347.	
306384.		596
	343.	
306727.		597
	352.	
307079.		598
	341.	
307420.		599
	349.	
307769.		600
	343.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
308112.		601
	351.	
308463.		602
	346.	
308809.		603
	346.	
309155.		604
	339.	
309494.		605
	351.	
309845.		606
	349.	
310194.		607
	347.	
310541.		608
	341.	
310882.		609
	347.	
311229.		610
	350.	
311579.		611
	346.	
311925.		612
	348.	
312273.		613
	341.	
312614.		614
	352.	
312966.		615
	342.	
313308.		616
	347.	
313655.		617
	343.	
313998.		618
	349.	
314347.		619
	342.	
314689.		620
	349.	
315038.		621
	345.	
315383.		622
	345.	
315728.		623
	347.	
316075.		624
	342.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
316417.		625
	349.	
316766.		626
	342.	
317108.		627
	347.	
317455.		628
	343.	
317798.		629
	349.	
318147.		630
	345.	
318492.		631
	343.	
318835.		632
	347.	
319182.		633
	348.	
319530.		634
	345.	
319875.		635
	349.	
320224.		636
	346.	
320570.		637
	345.	
320915.		638
	350.	
321265.		639
	348.	
321613.		640
	348.	
321961.		641
	344.	
322305.		642
	350.	
322655.		643
	344.	
322999.		644
	344.	
323343.		645
	347.	
323690.		646
	345.	
324035.		647
	354.	
324389.		648
	345.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
324734.		649
	343.	
325077.		650
	348.	
325425.		651
	346.	
325771.		652
	351.	
326122.		653
	344.	
326466.		654
	346.	
326812.		655
	347.	
327159.		656
	345.	
327504.		657
	343.	
327847.		658
	344.	
328191.		659
	347.	
328538.		660
	345.	
328883.		661
	351.	
329234.		662
	339.	
329573.		663
	350.	
329923.		664
	343.	
330266.		665
	350.	
330616.		666
	346.	
330962.		667
	346.	
331308.		668
	345.	
331653.		669
	352.	
332005.		670
	345.	
332350.		671
	343.	
332693.		672
	348.	

Table XXXIV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
333041.		673
	346.	
333387.		674
	346.	
333733.		675
	351.	
334084.		676
	345.	
334429.		677
	348.	
334777.		678
	346.	
335123.		679
	347.	
335470.		680
	350.	
335820.		681
	342.	
336162.		682
	349.	
336511.		683
	345.	
336856.		684
	345.	
337201.		685
	345.	
337546.		686
	347.	
337893.		687
	350.	
338243.		688
	347.	
338590.		689
	340.	
338930.		690
	345.	
339275.		691
	354.	
339629.		692
	337.	
339966.		693
	350.	
340316.		694
	339.	
340655.		695

Table XXXV. Drum Marks - Photo 3, Grid, West Side, Framelet 912, N

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
135605.		1
	449.	
136054.		2
	433.	
136487.		3
	454.	
136941.		4
	436.	
137377.		5
	496.	
137873.		6
	378.	
138251.		7
	437.	
138688.		8
	444.	
139132.		9
	433.	
139565.		10
	446.	
140011.		11
	434.	
140445.		12
	444.	
140889.		13
	428.	
141317.		14
	448.	
141765.		15
	428.	
142193.		16
	436.	
142629.		17
	485.	
143114.		18
	434.	
143548.		19
	434.	
143982.		20
	431.	
144413.		21
	436.	
144849.		22
	445.	
145294.		23
	417.	
145711.		24
	453.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
146164.		25
	445.	
146609.		26
	464.	
147073.		27
	434.	
147507.		28
	440.	
147947.		29
	444.	
148391.		30
	451.	
148842.		31
	415.	
149257.		32
	474.	
149731.		33
	402.	
150133.		34
	472.	
150605.		35
	422.	
151027.		36
	453.	
151480.		37
	433.	
151913.		38
	466.	
152379.		39
	415.	
152794.		40
	464.	
153258.		41
	433.	
153691.		42
	1340.	
155031.		43
	433.	
155464.		44
	448.	
155912.		45
	391.	
156303.		46
	388.	
156691.		47
	422.	
157113.		48
	543.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
157656.		49
	451.	
158107.		50
	385.	
158492.		51
	429.	
158921.		52
	1364.	
160285.		53
	429.	
160714.		54
	1353.	
162067.		55
	449.	
162516.		56
	453.	
162969.		57
	434.	
163403.		58
	435.	
163838.		59
	451.	
164289.		60
	456.	
164745.		61
	420.	
165165.		62
	450.	
165615.		63
	482.	
166097.		64
	411.	
166508.		65
	443.	
166951.		66
	425.	
167376.		67
	440.	
167816.		68
	488.	
168304.		69
	407.	
168711.		70
	414.	
169125.		71
	436.	
169561.		72
	462.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
170023.		73
	449.	
170472.		74
	431.	
170903.		75
	474.	
171377.		76
	418.	
171795.		77
	414.	
172209.		78
	452.	
172661.		79
	469.	
173130.		80
	429.	
173559.		81
	430.	
173989.		82
	468.	
174457.		83
	419.	
174876.		84
	438.	
175314.		85
	464.	
175778.		86
	428.	
176206.		87
	424.	
176630.		88
	5739.	
182369.		89
	460.	
182829.		90
	444.	
183273.		91
	462.	
183735.		92
	424.	
184159.		93
	468.	
184627.		94
	420.	
185047.		95
	452.	
185499.		96
	455.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
185954.		97
186363.	409.	98
186828.	465.	99
187249.	421.	100
187668.	419.	101
188118.	450.	102
189483.	1365.	103
189911.	428.	104
190359.	448.	105
190816.	457.	106
191242.	426.	107
191641.	399.	108
193004.	1363.	109
193474.	470.	110
193940.	466.	111
194335.	395.	112
194775.	440.	113
195216.	441.	114
195642.	426.	115
196106.	464.	116
196544.	438.	117
196974.	430.	118
197390.	416.	119
197048.	458.	120
	442.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
198290.		121
198716.	426.	122
199172.	456.	123
199607.	435.	124
200049.	442.	125
200508.	459.	126
200958.	450.	127
201371.	413.	128
203560.	2189.	129
203995.	435.	130
204459.	464.	131
204882.	423.	132
205353.	471.	133
205756.	403.	134
206211.	455.	135
206671.	460.	136
207110.	439.	137
207539.	429.	138
208034.	495.	139
208420.	386.	140
215905.	7485.	141
216297.	392.	142
216771.	474.	143
217187.	416.	144
	401.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
217588.		145
	395.	
217983.		146
	578.	
218561.		147
	442.	
219003.		148
	503.	
219506.		149
	316.	
219822.		150
	522.	
220344.		151
	432.	
220776.		152
	429.	
221205.		153
	366.	
221571.		154
	529.	
222100.		155
	426.	
222526.		156
	469.	
222995.		157
	423.	
223418.		158
	467.	
223885.		159
	329.	
224214.		160
	462.	
224676.		161
	348.	
225024.		162
	473.	
225497.		163
	412.	
225909.		164
	595.	
226504.		165
	365.	
226869.		166
	436.	
227305.		167
	430.	
227735.		168
	6578.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
234313.		169
234735.	422.	170
235172.	437.	171
235648.	476.	172
236103.	455.	173
236569.	466.	174
237048.	479.	175
237410.	362.	176
237847.	437.	177
238264.	417.	178
238789.	525.	179
239233.	444.	180
239654.	421.	181
240049.	395.	182
240511.	462.	183
240878.	367.	184
241324.	446.	185
241759.	435.	186
242206.	447.	187
242653.	447.	188
243077.	424.	189
243522.	445.	190
243935.	413.	191
244392.	457.	192
	428.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
244820.		193
245294.	474.	194
245719.	425.	195
246153.	434.	196
246596.	443.	197
247041.	445.	198
247454.	413.	199
247928.	474.	200
248387.	459.	201
248843.	456.	202
249263.	420.	203
249700.	437.	204
250127.	427.	205
250554.	427.	206
251002.	448.	207
251466.	464.	208
251892.	426.	209
252319.	427.	210
252759.	440.	211
253185.	426.	212
253673.	488.	213
254094.	421.	214
254572.	478.	215
254959.	387.	216
	1406.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
256365.		217
256677.	312.	218
258060.	1383.	219
258449.	389.	220
258958.	509.	221
259381.	423.	222
259953.	572.	223
260293.	340.	224
260699.	406.	225
261242.	543.	226
261563.	321.	227
261999.	436.	228
262550.	551.	229
262956.	406.	230
264214.	1258.	231
264655.	441.	232
265083.	428.	233
265527.	444.	234
266120.	593.	235
266490.	370.	236
266915.	425.	237
267326.	411.	238
270511.	3185.	239
270839.	328.	240
	479.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
271318.		241
	385.	
271703.		242
	498.	
272201.		243
	371.	
272572.		244
	469.	
273041.		245
	382.	
273423.		246
	515.	
273938.		247
	406.	
274344.		248
	506.	
274850.		249
	385.	
275235.		250
	500.	
275735.		251
	380.	
276115.		252
	442.	
276557.		253
	418.	
276975.		254
	577.	
277552.		255
	388.	
277940.		256
	500.	
278440.		257
	358.	
278798.		258
	519.	
279317.		259
	345.	
279662.		260
	467.	
280129.		261
	398.	
280527.		262
	469.	
280996.		263
	439.	
281435.		264
	442.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
281877.		265
282320.	443.	266
282770.	450.	267
283203.	433.	268
283653.	450.	269
284071.	418.	270
284540.	469.	271
284968.	428.	272
286342.	1374.	273
286731.	389.	274
287150.	419.	275
287607.	457.	276
288925.	1318.	277
289368.	443.	278
289795.	427.	279
290258.	463.	280
290720.	462.	281
291138.	418.	282
291688.	550.	283
292075.	387.	284
292507.	432.	285
292905.	398.	286
293374.	469.	287
293821.	447.	288
	471.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
294292.		289
	357.	
294649.		290
	453.	
295102.		291
	459.	
295561.		292
	443.	
296004.		293
	457.	
296461.		294
	431.	
296892.		295
	390.	
297282.		296
	597.	
297879.		297
	341.	
298220.		298
	437.	
298657.		299
	450.	
299107.		300
	463.	
299570.		301
	392.	
299962.		302
	3166.	
303128.		303
	375.	
303503.		304
	522.	
304025.		305
	468.	
304493.		306
	472.	
304965.		307
	330.	
305295.		308
	7505.	
312800.		309
	388.	
313188.		310
	425.	
313613.		311
	397.	
314010.		312
	521.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
314531.		313
314947.	416.	314
315488.	541.	315
315900.	412.	316
316371.	471.	317
316731.	360.	318
317169.	438.	319
317614.	445.	320
318069.	455.	321
318543.	474.	322
318944.	401.	323
319389.	445.	324
319805.	416.	325
320239.	434.	326
320687.	448.	327
321108.	421.	328
321551.	443.	329
321998.	447.	330
322449.	451.	331
322896.	447.	332
326038.	3142.	333
326440.	402.	334
326932.	492.	335
327312.	380.	336
	522.	

Table XXXV -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
327834.		337
	373.	
328207.		338
	424.	
328631.		339
	428.	
329059.		340
	444.	
329503.		341
	420.	
329923.		342
	458.	
330381.		343
	440.	
330821.		344
	432.	
331253.		345
	446.	
331699.		346
	393.	
332092.		347
	453.	
332545.		348
	481.	
333026.		349
	431.	
333457.		350
	474.	
333931.		351
	424.	
334355.		352
	460.	
334815.		353
	444.	
335259.		354
	426.	
335685.		355
	414.	
336099.		356

Table XXXVI. Drum Marks - Photo 3, Grid, West Side, Framelet 912 S

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
135658.	409.	1
136067.	466.	2
136533.	432.	3
136965.	1342.	4
138307.	418.	5
138725.	522.	6
139247.	352.	7
139599.	470.	8
140069.	410.	9
140479.	460.	10
140939.	418.	11
141357.	450.	12
141807.	443.	13
142250.	501.	14
142751.	375.	15
143126.	435.	16
143561.	459.	17
144020.	428.	18
144448.	453.	19
144901.	438.	20
145339.	428.	21
145767.	438.	22
146205.	429.	23
146634.	471.	24

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
147105.		25
	439.	
147544.		26
	466.	
148010.		27
	439.	
148449.		28
	431.	
148880.		29
	452.	
149332.		30
	382.	
149714.		31
	452.	
150166.		32
	495.	
150661.		33
	408.	
151069.		34
	484.	
151553.		35
	408.	
151961.		36
	421.	
152382.		37
	417.	
152799.		38
	471.	
153270.		39
	421.	
153691.		40
	469.	
154160.		41
	396.	
154556.		42
	4037.	
158593.		43
	453.	
159046.		44
	428.	
159474.		45
	458.	
159932.		46
	441.	
160373.		47
	434.	
160807.		48
	451.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
161258.		49
	438.	
161696.		50
	434.	
162130.		51
	450.	
162580.		52
	419.	
162999.		53
	450.	
163449.		54
	452.	
163901.		55
	444.	
164345.		56
	482.	
164827.		57
	391.	
165218.		58
	439.	
165657.		59
	442.	
166099.		60
	442.	
166541.		61
	430.	
166971.		62
	2217.	
169188.		63
	441.	
169629.		64
	452.	
170081.		65
	434.	
170515.		66
	459.	
170974.		67
	433.	
171407.		68
	453.	
171860.		69
	419.	
172279.		70
	499.	
172778.		71
	406.	
173184.		72
	428.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
173612.		73
	474.	
174086.		74
	409.	
174495.		75
	443.	
174938.		76
	448.	
175386.		77
	438.	
175824.		78
	456.	
176280.		79
	432.	
176712.		80
	491.	
177203.		81
	397.	
177600.		82
	425.	
178025.		83
	451.	
178476.		84
	454.	
178930.		85
	443.	
179373.		86
	469.	
179842.		87
	375.	
180217.		88
	472.	
180689.		89
	433.	
181122.		90
	461.	
181583.		91
	402.	
181985.		92
	491.	
182476.		93
	429.	
182905.		94
	421.	
183326.		95
	407.	
183733.		96
	494.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
184227.		97
184643.	416.	98
185108.	465.	99
185517.	409.	100
185983.	466.	101
186403.	420.	102
186860.	457.	103
187315.	455.	104
187784.	469.	105
188188.	404.	106
188639.	451.	107
189075.	436.	108
189525.	450.	109
189957.	432.	110
190411.	454.	111
190847.	436.	112
191294.	447.	113
191681.	387.	114
193058.	1377.	115
193484.	426.	116
193969.	485.	117
194374.	405.	118
194881.	507.	119
195271.	390.	120
	437.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
195708.		121
	421.	
196129.		122
	466.	
196595.		123
	423.	
197018.		124
	454.	
197472.		125
	427.	
197899.		126
	448.	
198347.		127
	438.	
198785.		128
	441.	
199226.		129
	442.	
199668.		130
	469.	
200137.		131
	411.	
200548.		132
	437.	
200985.		133
	422.	
201407.		134
	498.	
201905.		135
	390.	
202295.		136
	494.	
202789.		137
	381.	
203170.		138
	461.	
203631.		139
	437.	
204068.		140
	462.	
204530.		141
	407.	
204937.		142
	448.	
205385.		143
	433.	
205818.		144
	458.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
206276.		145
206707.	431.	146
207148.	441.	147
207571.	423.	148
208049.	478.	149
208458.	409.	150
208867.	409.	151
209358.	491.	152
209784.	426.	153
210227.	443.	154
210695.	468.	155
211101.	406.	156
211573.	472.	157
211985.	412.	158
212432.	447.	159
212858.	426.	160
213317.	459.	161
213755.	438.	162
215045.	1290.	163
215517.	472.	164
215935.	418.	165
216354.	419.	166
216879.	525.	167
217269.	390.	168
	446.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
217715.		169
	385.	
218100.		170
	488.	
218588.		171
	415.	
219003.		172
	445.	
219448.		173
	398.	
219846.		174
	537.	
220383.		175
	379.	
220762.		176
	466.	
221228.		177
	416.	
221644.		178
	430.	
222074.		179
	464.	
222538.		180
	427.	
222965.		181
	425.	
223390.		182
	473.	
223863.		183
	425.	
224288.		184
	440.	
224728.		185
	418.	
225146.		186
	531.	
225677.		187
	376.	
226053.		188
	479.	
226532.		189
	382.	
226914.		190
	468.	
227382.		191
	408.	
227790.		192
	465.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
228255.		193
	415.	
228670.		194
	476.	
229146.		195
	360.	
229506.		196
	476.	
229932.		197
	481.	
230463.		198
	436.	
230899.		199
	476.	
231375.		200
	409.	
231784.		201
	409.	
232193.		202
	442.	
232635.		203
	416.	
233051.		204
	460.	
233511.		205
	406.	
233917.		206
	504.	
234421.		207
	434.	
234855.		208
	390.	
235245.		209
	470.	
235715.		210
	449.	
236164.		211
	402.	
236566.		212
	437.	
237003.		213
	441.	
237444.		214
	457.	
237901.		215
	433.	
238334.		216
	427.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
238761.		217
	457.	
239218.		218
	467.	
239685.		219
	396.	
240081.		220
	478.	
240559.		221
	409.	
240968.		222
	453.	
241421.		223
	411.	
241832.		224
	473.	
242305.		225
	408.	
242713.		226
	444.	
243157.		227
	478.	
243635.		228
	403.	
244038.		229
	364.	
244402.		230
	574.	
244976.		231
	410.	
245386.		232
	447.	
245833.		233
	381.	
246214.		234
	466.	
246680.		235
	430.	
247110.		236
	465.	
247575.		237
	394.	
247969.		238
	456.	
248425.		239
	431.	
248856.		240
	486.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
249342.		241
249750.	-408.	242
250191.	441.	243
250648.	457.	244
251139.	491.	245
251516.	377.	246
251933.	417.	247
252346.	413.	248
252861.	515.	249
253232.	371.	250
253709.	477.	251
254127.	418.	252
254635.	508.	253
255005.	370.	254
255504.	499.	255
255868.	364.	256
256340.	472.	257
256767.	427.	258
258131.	1364.	259
258546.	415.	260
259031.	485.	261
259413.	382.	262
259890.	477.	263
260299.	409.	264
	531.	

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
260830.		265
	382.	
261212.		266
	446.	
261658.		267
	403.	
262061.		268
	491.	
262552.		269
	403.	
262955.		270
	459.	
263414.		271
	413.	
263827.		272
	479.	
264306.		273
	407.	
264713.		274
	440.	
265153.		275
	451.	
265604.		276
	441.	
266045.		277
	446.	
266491.		278
	417.	
266908.		279
	452.	
267360.		280
	475.	
267835.		281
	428.	
268263.		282
	473.	
268736.		283
	400.	
269136.		284
	442.	
269578.		285
	425.	
270003.		286
	515.	
270518.		287
	390.	
270908.		288
	444.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
271352.		289
	419.	
271771.		290
	460.	
272231.		291
	407.	
272638.		292
	460.	
273098.		293
	441.	
273539.		294
	416.	
273955.		295
	472.	
274427.		296
	422.	
274849.		297
	462.	
275311.		298
	442.	
275753.		299
	436.	
276189.		300
	434.	
276623.		301
	455.	
277078.		302
	1339.	
278417.		303
	403.	
278820.		304
	484.	
279304.		305
	412.	
279716.		306
	433.	
280149.		307
	468.	
280617.		308
	456.	
281073.		309
	405.	
281478.		310
	446.	
281924.		311
	460.	
282384.		312
	433.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
282817.		313
	434.	
283251.		314
	477.	
283728.		315
	383.	
284111.		316
	464.	
284575.		317
	449.	
285024.		318
	453.	
285477.		319
	451.	
285928.		320
	447.	
286375.		321
	424.	
286799.		322
	446.	
287245.		323
	430.	
287675.		324
	443.	
288118.		325
	433.	
288551.		326
	476.	
289027.		327
	372.	
289399.		328
	481.	
289880.		329
	430.	
290310.		330
	439.	
290749.		331
	446.	
291195.		332
	458.	
291653.		333
	420.	
292073.		334
	3164.	
295237.		335
	407.	
295644.		336
	437.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
296081.		337
	452.	
296533.		338
	429.	
296962.		339
	440.	
297402.		340
	431.	
297833.		341
	446.	
298279.		342
	451.	
298730.		343
	424.	
299154.		344
	460.	
299614.		345
	449.	
300063.		346
	430.	
300493.		347
	452.	
300945.		348
	418.	
301363.		349
	460.	
301823.		350
	453.	
302276.		351
	453.	
302729.		352
	427.	
303156.		353
	383.	
303539.		354
	492.	
304031.		355
	436.	
304467.		356
	447.	
304914.		357
	438.	
305352.		358
	445.	
305797.		359
	429.	
306226.		360
	447.	

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
306673.		361
	446.	
307119.		362
	440.	
307559.		363
	443.	
308002.		364
	450.	
308452.		365
	403.	
308855.		366
	465.	
309320.		367
	447.	
309767.		368
	428.	
310195.		369
	456.	
310651.		370
	461.	
311112.		371
	401.	
311513.		372
	7483.	
318996.		373
	431.	
319427.		374
	436.	
319863.		375
	455.	
320318.		376
	458.	
320776.		377
	429.	
321205.		378
	432.	
321637.		379
	444.	
322081.		380
	445.	
322526.		381
	424.	
322950.		382
	472.	
323422.		383
	391.	
323813.		384
	469.	

Table XXXVI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
324282.		385
	436.	
324718.		386
	444.	
325162.		387
	402.	
325564.		388
	463.	
326027.		389
	454.	
326481.		390
	460.	
326941.		391
	391.	
327332.		392
	471.	
327803.		393
	444.	
328247.		394
	444.	
328691.		395
	422.	
329113.		396
	464.	
329577.		397
	416.	
329993.		398
	446.	
330439.		399
	441.	
330880.		400
	441.	
331321.		401
	420.	
331741.		402
	452.	
332193.		403
	446.	
332639.		404
	461.	
333100.		405
	430.	
333530.		406
	439.	
333969.		407
	446.	
334415.		408

Table XXXVII. Drum Marks - Photo 3, Grid, East Side, Framelet 912 N

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
308363.	462.	1
308825.	425.	2
309250.	468.	3
309718.	448.	4
310166.	425.	5
310591.	1311.	6
311902.	444.	7
312346.	412.	8
312758.	424.	9
313182.	5778.	10
318960.	417.	11
319377.	461.	12
319838.	438.	13
320276.	451.	14
320727.	434.	15
321161.	431.	16
321592.	438.	17
322030.	465.	18
322495.	451.	19
322946.	1450.	20
324396.	312.	21
324708.	1403.	22
326111.	365.	23
326476.	460.	24

Table XXXVII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
326936.		25
	402.	
327338.		26
	486.	
327824.		27
	407.	
328231.		28
	409.	
328640.		29
	436.	
329076.		30
	445.	
329521.		31
	445.	
329966.		32
	454.	
330420.		33
	418.	
330838.		34
	450.	
331288.		35
	453.	
331741.		36
	1336.	
333077.		37
	422.	
333499.		38
	486.	
333985.		39
	389.	
334374.		40
	466.	
334840.		41
	443.	
335283.		42
	435.	
335718.		43
	429.	
336147.		44
	434.	
336581.		45
	448.	
337029.		46
	431.	
337460.		47
	435.	
337895.		48
	431.	

Table XXXVII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
338326.		49
338811.	485.	50
342777.	3966.	51
343177.	400.	52
345371.	2194.	53
345817.	446.	54
346278.	461.	55
346696.	418.	56
347148.	452.	57
347569.	421.	58
348016.	447.	59
348444.	428.	60
348872.	428.	61
349320.	448.	62
349756.	436.	63
350202.	446.	64
350654.	452.	65
351075.	421.	66
351542.	467.	67
351974.	432.	68
352460.	486.	69
352848.	388.	70
353294.	446.	71
353723.	429.	72
	454.	

Table XXXVII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
354177.		73
354581.	404.	74
355909.	1328.	75
356368.	459.	76
356815.	447.	77
357233.	418.	78
357692.	459.	79
358118.	426.	80
358566.	448.	81
358978.	412.	82
359442.	464.	83
359872.	430.	84
360319.	447.	85
360752.	433.	86
361182.	430.	87
361611.	429.	88
362079.	468.	89
362503.	424.	90
363000.	497.	91
363381.	381.	92
363832.	451.	93
364266.	434.	94
364701.	435.	95
365115.	414.	96
	475.	

Table XXXVII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
365590.		97
	418.	
366008.		98
	460.	
366468.		99
	418.	
366886.		100
	452.	
367338.		101
	423.	
367761.		102
	434.	
368195.		103
	447.	
368642.		104
	456.	
369098.		105
	422.	
369520.		106
	441.	
369961.		107
	421.	
370382.		108
	436.	
370818.		109
	479.	
371297.		110
	428.	
371725.		111
	414.	
372139.		112
	463.	
372602.		113
	398.	
373000.		114
	4873.	
377873.		115
	462.	
378335.		116
	389.	
378724.		117
	455.	
379179.		118
	455.	
379634.		119
	442.	
380076.		120
	432.	

Table XXXVII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
380508.		121
	455.	
380963.		122
	448.	
381411.		123
	447.	
381858.		124
	3939.	
385797.		125
	419.	
386216.		126
	4860.	
391076.		127
	458.	
391534.		128
	464.	
391998.		129
	440.	
392438.		130
	1229.	
393667.		131
	495.	
394162.		132
	485.	
394647.		133
	445.	
395092.		134
	397.	
395489.		135
	453.	
395942.		136
	426.	
396368.		137
	463.	
396831.		138
	3921.	
400752.		139
	475.	
401227.		140
	451.	
401678.		141
	425.	
402103.		142
	1356.	
403459.		143
	411.	
403870.		144
	459.	

Table XXXVII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
404329.		145
	462.	
404791.		146
	2229.	
407020.		147
	403.	
407423.		148
	3976.	
411399.		149
	465.	
411864.		150
	4840.	
416704.		151
	445.	
417149.		152
	447.	
417596.		153
	415.	
418011.		154
	447.	
418458.		155
	482.	
418940.		156
	6622.	
425562.		157
	413.	
425975.		158
	457.	
426432.		159
	324.	
426756.		160
	1452.	
428208.		161
	420.	
428628.		162
	3178.	
431806.		163
	341.	
432147.		164
	447.	
432594.		165
	438.	
433032.		166
	4884.	
437916.		167
	395.	
438311.		168
	478.	

Table XXXVII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
438789.		169
439200.	411.	170
440529.	1329.	171
440926.	397.	172
441393.	467.	173
441824.	431.	174
443204.	1380.	175
443613.	409.	176
445834.	2221.	177
446245.	411.	178
446680.	435.	179
446955.	275.	180
452000.	5045.	181
452412.	412.	182
452925.	513.	183
453316.	391.	184
516148.	62832.	185
516612.	464.	186
517048.	436.	187
517488.	440.	188

Table XXXVIII. Drum Marks - Photo 3, Grid, East Side, Framelet 912, S

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
308441.	417.	1
308858.	472.	2
309330.	421.	3
309751.	457.	4
310208.	456.	5
310664.	419.	6
311083.	438.	7
311521.	482.	8
312003.	430.	9
312433.	424.	10
312857.	404.	11
313261.	538.	12
313799.	431.	13
314230.	443.	14
314673.	387.	15
315060.	1376.	16
316436.	435.	17
316871.	402.	18
317273.	447.	19
317720.	1288.	20
319008.	422.	21
319430.	466.	22
319896.	421.	23
320317.	454.	24

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
320771.		25
321207.	436.	26
321660.	453.	27
322080.	420.	28
322535.	455.	29
322941.	406.	30
324304.	1363.	31
324726.	422.	32
325159.	433.	33
325597.	438.	34
326052.	455.	35
326504.	452.	36
326933.	429.	37
327354.	421.	38
327828.	474.	39
328249.	421.	40
328704.	455.	41
329118.	414.	42
329585.	467.	43
330011.	426.	44
330476.	465.	45
330894.	418.	46
331340.	446.	47
331774.	434.	48
	445.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
332219.		49
	425.	
332644.		50
	459.	
333103.		51
	433.	
333536.		52
	446.	
333982.		53
	488.	
334470.		54
	5743.	
340213.		55
	381.	
340594.		56
	442.	
341036.		57
	432.	
341468.		58
	399.	
341867.		59
	441.	
342308.		60
	508.	
342816.		61
	394.	
343210.		62
	492.	
343702.		63
	412.	
344114.		64
	451.	
344565.		65
	416.	
344981.		66
	3102.	
348083.		67
	504.	
348587.		68
	406.	
348993.		69
	411.	
349404.		70
	418.	
349822.		71
	419.	
350241.		72
	463.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
350704.		73
351134.	430.	74
351598.	464.	75
352013.	415.	76
352468.	455.	77
352886.	418.	78
353338.	452.	79
353755.	417.	80
354225.	470.	81
354647.	422.	82
355108.	461.	83
355520.	412.	84
363004.	7484.	85
363425.	421.	86
363868.	443.	87
364305.	437.	88
364749.	444.	89
365176.	427.	90
365651.	475.	91
366056.	405.	92
366521.	465.	93
366911.	390.	94
367413.	502.	95
367812.	399.	96
	439.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
368251.		97
368708.	457.	98
369148.	440.	99
369568.	420.	100
370011.	443.	101
370437.	426.	102
370881.	444.	103
371325.	444.	104
371764.	439.	105
372206.	442.	106
372647.	441.	107
373074.	427.	108
373535.	461.	109
373936.	401.	110
374406.	470.	111
374832.	426.	112
375291.	459.	113
375725.	434.	114
376166.	441.	115
376593.	427.	116
377047.	454.	117
377466.	419.	118
377907.	441.	119
3783[illegible].	428.	120
	470.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
378805.		121
379211.	406.	122
379694.	483.	123
380103.	409.	124
380520.	417.	125
381030.	510.	126
381445.	415.	127
381854.	409.	128
382324.	470.	129
382676.	352.	130
383272.	596.	131
383615.	343.	132
384090.	475.	133
384495.	405.	134
384968.	473.	135
385370.	402.	136
385814.	444.	137
386226.	412.	138
386702.	476.	139
387014.	312.	140
387618.	604.	141
388011.	393.	142
388496.	485.	143
388853.	357.	144
	785.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
389638.		145
	162.	
389800.		146
	468.	
390268.		147
	408.	
390676.		148
	445.	
391121.		149
	447.	
391568.		150
	435.	
392003.		151
	455.	
392458.		152
	420.	
392878.		153
	450.	
393328.		154
	461.	
393789.		155
	388.	
394177.		156
	507.	
394684.		157
	424.	
395108.		158
	522.	
395630.		159
	362.	
395992.		160
	452.	
396444.		161
	414.	
396858.		162
	477.	
397335.		163
	427.	
397762.		164
	421.	
398183.		165
	458.	
398641.		166
	438.	
399079.		167
	409.	
399488.		168
	441.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
399929.		169
	478.	
400407.		170
	446.	
400853.		171
	450.	
401303.		172
	397.	
401700.		173
	485.	
402185.		174
	419.	
402604.		175
	545.	
403149.		176
	327.	
403476.		177
	480.	
403956.		178
	351.	
404307.		179
	522.	
404829.		180
	457.	
405286.		181
	393.	
405679.		182
	487.	
406166.		183
	449.	
406615.		184
	458.	
407073.		185
	395.	
407468.		186
	495.	
407963.		187
	424.	
408387.		188
	450.	
408837.		189
	427.	
409264.		190
	3121.	
412385.		191
	383.	
412768.		192
	484.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
413252.		193
413690.	438.	194
415010.	1320.	195
415391.	381.	196
417684.	2293.	197
418084.	400.	198
418548.	464.	199
418970.	422.	200
424733.	5763.	201
425126.	393.	202
425652.	526.	203
426050.	398.	204
426507.	457.	205
426926.	419.	206
430065.	3139.	207
430458.	393.	208
430912.	454.	209
431375.	463.	210
432690.	1315.	211
433117.	427.	212
433508.	391.	213
433934.	426.	214
434426.	492.	215
434898.	472.	216
	377.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
435275.		217
	435.	
435710.		218
	4903.	
440613.		219
	449.	
441062.		220
	470.	
441532.		221
	390.	
441922.		222
	484.	
442406.		223
	440.	
442846.		224
	1283.	
444129.		225
	408.	
444537.		226
	1334.	
44[illegible]71.		227
	441.	
446312.		228
	438.	
446750.		229
	469.	
447219.		230
	469.	
447688.		231
	296.	
447984.		232
	3224.	
451208.		233
	419.	
451627.		234
	545.	
452172.		235
	345.	
452517.		236
	427.	
452944.		237
	431.	
453375.		238
	446.	
453821.		239
	462.	
454283.		240
	442.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
454725.		241
	412.	
455137.		242
	487.	
455624.		243
	396.	
456020.		244
	405.	
456425.		245
	379.	
456804.		246
	510.	
457314.		247
	448.	
457762.		248
	503.	
458265.		249
	385.	
458650.		250
	1345.	
459995.		251
	391.	
460386.		252
	549.	
460935.		253
	353.	
461288.		254
	449.	
461737.		255
	424.	
462161.		256
	443.	
462604.		257
	446.	
463050.		258
	447.	
463497.		259
	448.	
463945.		260
	391.	
464336.		261
	475.	
464811.		262
	425.	
465236.		263
	454.	
465690.		264
	412.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
466102.		265
	450.	
466552.		266
	450.	
467002.		267
	427.	
467429.		268
	462.	
467891.		269
	433.	
468324.		270
	473.	
468797.		271
	406.	
469203.		272
	3985.	
473188.		273
	368.	
473556.		274
	450.	
474006.		275
	449.	
474455.		276
	1295.	
475750.		277
	438.	
476188.		278
	488.	
476676.		279
	414.	
477090.		280
	493.	
477583.		281
	427.	
478010.		282
	488.	
478498.		283
	380.	
478878.		284
	3076.	
481954.		285
	392.	
482346.		286
	471.	
482817.		287
	416.	
483233.		288
	462.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
483695.		289
484122.	427.	290
484637.	515.	291
485004.	367.	292
485462.	458.	293
485891.	429.	294
486410.	519.	295
486779.	369.	296
488076.	1297.	297
488504.	428.	298
488979.	475.	299
489432.	453.	300
489819.	387.	301
490275.	456.	302
490709.	434.	303
491147.	438.	304
491588.	441.	305
492095.	507.	306
492394.	299.	307
492890.	496.	308
493354.	464.	309
493784.	430.	310
494239.	455.	311
494629.	390.	312
	4067.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
498696.		313
	384.	
499080.		314
	437.	
499517.		315
	425.	
499942.		316
	3945.	
503887.		317
	441.	
504328.		318
	1587.	
505915.		319
	261.	
506176.		320
	1258.	
507434.		321
	397.	
507831.		322
	507.	
508338.		323
	405.	
508743.		324
	514.	
509257.		325
	361.	
509618.		326
	470.	
510088.		327
	372.	
510460.		328
	1385.	
511845.		329
	399.	
512244.		330
	434.	
512673.		331
	468.	
513146.		332
	409.	
513555.		333
	409.	
513964.		334
	491.	
514455.		335
	387.	
514842.		336
	499.	

Table XXXVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
515341.		337
	465.	
515806.		338
	425.	
516231.		339
	426.	
516657.		340
	433.	
517090.		341
	438.	
517528.		342
	459.	
517987.		343
	433.	
518420.		344
	448.	
518868.		345
	445.	
519313.		346
	445.	
519758.		347
	444.	
520202.		348

Table XXXIX. Statistical Analysis of Fiducials - Plate 1

No.	Pt. Ident.	BAR X	BAR Y
1	11111	.3299940E 02	.3300120E 02
2	10001	.5887300E 01	.3298270E 02
3	10002	.3297700E 02	.5861700E 01
4	10003	.6012170E 02	.3299710E 02
5	10004	.3299150E 02	.6013040E 02
6	10101	.5848900E 01	.6046530E 02
7	10102	.5844000E 01	.5894390E 02
8	10103	.5822400E 01	.5742260E 02
9	10104	.5829500E 01	.5588400E 02
10	10105	.5849600E 01	.5435250E 02
11	10106	.5826700E 01	.5282100E 02
12	10107	.5828400E 01	.5129860E 02
13	10108	.5839300E 01	.4978170E 02
14	10109	.5833100E 01	.4825160E 02
15	10110	.5837700E 01	.4672050E 02
16	10111	.5831200E 01	.4520480E 02
17	10112	.5851000E 01	.4367530E 02
18	10113	.5836100E 01	.4214680E 02
19	10114	.5825400E 01	.4062800E 02
20	10115	.5841600E 01	.3911340E 02
21	10116	.5835900E 01	.3758590E 02
22	10117	.5809800E 01	.3606180E 02
23	10118	.5827000E 01	.3454190E 02
24	10119	.5829700E 01	.3301110E 02
25	10120	.5832500E 01	.3149540E 02
26	10121	.5838400E 01	.2997050E 02
27	10122	.5845000E 01	.2844610E 02
28	10123	.5849900E 01	.2692260E 02
29	10124	.5848000E 01	.2539570E 02
30	10125	.5827600E 01	.2386890E 02
31	10126	.5836400E 01	.2234010E 02
32	10127	.5627100E 01	.2080940E 02
33	10128	.5836200E 01	.1928820E 02
34	10129	.5838400E 01	.1776450E 02
35	10130	.5841900E 01	.1623600E 02
36	10131	.5852500E 01	.1474030E 02
37	10132	.5846200E 01	.1319280E 02
38	10133	.5847400E 01	.1168150E 02
39	10134	.5853600E 01	.1013550E 02
40	10135	.5854100E 01	.8610200E 01
41	10136	.5858000E 01	.7095400E 01
42	10201	.6024890E 02	.6046860E 02
43	10202	.6023800E 02	.5893900E 02

Table XXXIX -- Continued

No.	Pt. Ident.	BAR X	BAR Y
44	10203	.6024560E 02	.5741230E 02
45	10204	.6026370E 02	.5588490E 02
46	10205	.6025870E 02	.5435320E 02
47	10206	.6025100E 02	.5282370E 02
48	10207	.6027330E 02	.5129500E 02
49	10208	.6024970E 02	.4977240E 02
50	10209	.6025060E 02	.4825300E 02
51	10210	.6025320E 02	.4671750E 02
52	10211	.6024810E 02	.4520200E 02
53	10212	.6026240E 02	.4368330E 02
54	10213	.6026380E 02	.4215710E 02
55	10214	.6024910E 02	.4063590E 02
56	10215	.6025170E 02	.3910380E 02
57	10216	.6025800E 02	.3758620E 02
58	10217	.6026420E 02	.3606160E 02
59	10218	.6026440E 02	.3454780E 02
60	10219	.6026160E 02	.3301920E 02
61	10220	.6024760E 02	.3148500E 02
62	10221	.6026010E 02	.2996270E 02
63	10222	.6027900E 02	.2843250E 02
64	10223	.6027030E 02	.2691680E 02
65	10224	.6026460E 02	.2538660E 02
66	10225	.6025340E 02	.2385870E 02
67	10226	.6025060E 02	.2229510E 02
68	10227	.6025120E 02	.2080890E 02
69	10228	.6026500E 02	.1926920E 02
70	10229	.6025660E 02	.1773970E 02
71	10230	.6026560E 02	.1620720E 02
72	10231	.6025970E 02	.1468670E 02
73	10232	.6026190E 02	.1315610E 02
74	10233	.6025660E 02	.1163620E 02
75	10234	.6026950E 02	.1010710E 02
76	10235	.6026230E 02	.8583500E 01
77	10236	.6026000E 02	.7059000E 01

X SIGMAL	.003	Y SIGMAL	.003
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.011	Y SIGMA 3.3L	.010
X SIGMA 3L	.010	Y SIGMA 3L	.009
X SIGMA 2L	.007	Y SIGMA 2L	.006
X SIGMA.90L	.003	Y SIGMA.9L	.005
X PEL	.002	Y PEL	.002
X RMSEL	.003	Y RMSEL	.003

Table XL. Statistical Analysis of Fiducials - Plate 2

No.	Pt. Ident.	BAR X	BAR Y
1	22222	.3300130E 02	.3299980E 02
2	20001	.5909800E 01	.3298390E 02
3	20002	.3298080E 02	.5869700E 01
4	20003	.6012320E 02	.3298640E 02
5	20004	.3298220E 02	.6012710E 02
6	20101	.5782500E 01	.5892040E 02
7	20102	.5760000E 01	.5740290E 02
8	20103	.5762200E 01	.5586490E 02
9	20104	.5795200E 01	.5433070E 02
10	20105	.5770200E 01	.5280540E 02
11	20106	.5769500E 01	.5127660E 02
12	20107	.5784500E 01	.4975740E 02
13	20108	.5774500E 01	.4823100E 02
14	20109	.5774500E 01	.4670280E 02
15	20110	.5772500E 01	.4518690E 02
16	20111	.5790200E 01	.4365960E 02
17	20112	.5774500E 01	.4212990E 02
18	20113	.5762900E 01	.4060890E 02
19	20114	.5778400E 01	.3909740E 02
20	20115	.5773300E 01	.3756980E 02
21	20116	.5749900E 01	.3604610E 02
22	20117	.5767700E 01	.3452340E 02
23	20118	.5770100E 01	.3300120E 02
24	20119	.[illegible]700E 01	.3147340E 02
25	20120	.5775[illegible] 01	.2995420E 02
26	20121	.5784400E 01	.2843040E 02
27	20122	.5790500E 01	.2690270E 02
28	20123	.5789500E 01	.2537110E 02
29	20124	.5767200E 01	.2384630E 02
30	20125	.5773400E 01	.2231900E 02
31	20126	.5768600E 01	.2079150E 02
32	20127	.5774700E 01	.1927450E 02
33	20128	.5774100E 01	.1774870E 02
34	20129	.5778800E 01	.1622150E 02
35	20130	.5786100E 01	.1472620E 02
36	20131	.5781600E 01	.1318000E 02
37	20132	.5784300E 01	.1167300E 02
38	20133	.5789400E 01	.1012150E 02
39	20134	.5787500E 01	.8595900E 01
40	20135	.5788700E 01	.7079100E 01
41	20136	.5771300E 01	.5548600E 01
42	20201	.6018430E 02	.6044180E 02
43	20202	.6017170E 02	.5891220E 02

Table XL -- Continued

No.	Pt. Ident.	BAR X	BAR Y
44	20203	.6018460E 02	.5738730E 02
45	20204	.6019520E 02	.5585690E 02
46	20205	.6019160E 02	.5432840E 02
47	20206	.6018730E 02	.5279580E 02
48	20207	.6020390E 02	.5126760E 02
49	20208	.6018490E 02	.4974480E 02
50	20209	.6018720E 02	.4822940E 02
51	20210	.6018870E 02	.4669000E 02
52	20211	.6018620E 02	.4517770E 02
53	20212	.6020130E 02	.4365570E 02
54	20213	.6020130E 02	.4213250E 02
55	20214	.6018420E 02	.4061120E 02
56	20215	.6018240E 02	.3907830E 02
57	20216	.6019460E 02	.3755940E 02
58	20217	.6019740E 02	.3603560E 02
59	20218	.6019730E 02	.3452430E 02
60	20219	.6020080E 02	.3299320E 02
61	20220	.6017880E 02	.3146030E 02
62	20221	.6019290E 02	.2993560E 02
63	20222	.6021260E 02	.2840980E 02
64	20223	.6020250E 02	.2689160E 02
65	20224	.6019610E 02	.2536580E 02
66	20225	.6018680E 02	.2383450E 02
67	20226	.6018620E 02	.2227510E 02
68	20227	.6018210E 02	.2078690E 02
69	20228	.6019560E 02	.1924930E 02
70	20229	.6018750E 02	.1771470E 02
71	20230	.6019160E 02	.1618290E 02
72	20231	.6018820E 02	.1466740E 02
73	20232	.6019050E 02	.1313020E 02
74	20233	.6018600E 02	.1161630E 02
75	20234	.6019480E 02	.1008190E 02
76	20235	.6019040E 02	.8563400E 01
77	20236	.6018710E 02	.7039800E 01
78	20237	.6018700E 02	.5506400E 01

X	SIGMAL	.003	Y	SIGMAL	.003
X	STEML	.000	Y	STEML	.000
X	SIGMA 3.3L	.011	Y	SIGMA 3.3L	.009
X	SIGMA 3L	.010	Y	SIGMA 3L	.008
X	SIGMA 2L	.007	Y	SIGMA 2L	.006
X	SIGMA.90L	.003	Y	SIGMA.90L	.005
X	PEL	.002	Y	PEL	.002
X	RMSEL	.003	Y	RMSEL	.003

Table XLI. Statistical Analysis of Fiducials - Plate 3

No.	Pt. Ident.	BAR X	BAR Y
1	33333	.3300240E 02	.3300040E 02
2	30001	.5913600E 01	.3298010E 02
3	30002	.3297920E 02	.5868100E 01
4	30003	.6015980E 02	.3299130E 02
5	30004	.3298870E 02	.6013680E 02
6	30101	.5895300E 01	.6043890E 02
7	30103	.5867500E 01	.5738910E 02
8	30104	.5878400E 01	.5585610E 02
9	30105	.5900300E 01	.5432360E 02
10	30106	.5883200E 01	.5279120E 02
11	30107	.5882700E 01	.5126680E 02
12	30108	.5898400E 01	.4975210E 02
13	30109	.5882800E 01	.4822040E 02
14	30110	.5889900E 01	.4666980E 02
15	30111	.5884800E 01	.4517430E 02
16	30112	.5903100E 01	.4364540E 02
17	30113	.5883300E 01	.4211790E 02
18	30114	.5873100E 01	.4060270E 02
19	30115	.5890700E 01	.3908610E 02
20	30116	.5884100E 01	.3755710E 02
21	30117	.5861400E 01	.3603230E 02
22	30118	.5881900E 01	.3451610E 02
23	30119	.5876300E 01	.3298440E 02
24	30120	.5872500E 01	.3145870E 02
25	30121	.5883500E 01	.2993860E 02
26	30122	.5894400E 01	.2841360E 02
27	30123	.5895100E 01	.2689090E 02
28	30124	.5896800E 01	.2536540E 02
29	30125	.5874600E 01	.2383760E 02
30	30126	.5887500E 01	.2231080E 02
31	30127	.5879100E 01	.2078180E 02
32	30128	.5884000E 01	.1926540E 02
33	30129	.5883700E 01	.1773790E 02
34	30130	.5885700E 01	.1620950E 02
35	30131	.5897200E 01	.1471630E 02
36	30132	.5897000E 01	.1316110E 02
37	30133	.5896700E 01	.1165820E 02
38	30134	.5899900E 01	.1010910E 02
39	30135	.5897600E 01	.8585300E 01
40	30136	.5899600E 01	.7067300E 01
41	30137	.5884300E 01	.5534400E 01
42	30201	.6029410E 02	.6042720E 02
43	30202	.6028500E 02	.5889730E 02

Table XLI -- Continued

No.	Pt. Ident.	BAR X	BAR Y
44	30203	.6029600E 02	.5737330E 02
45	30204	.6030790E 02	.5583950E 02
46	30205	.6029740E 02	.5431220E 02
47	30206	.6029610E 02	.5278130E 02
48	30207	.6031790E 02	.5124910E 02
49	30208	.6029990E 02	.4972860E 02
50	30209	.6029420E 02	.4821610E 02
51	30210	.6029970E 02	.4667900E 02
52	30211	.6029670E 02	.4516040E 02
53	30212	.6030750E 02	.4364050E 02
54	30213	.6030530E 02	.4211680E 02
55	30214	.6029120E 02	.4059560E 02
56	30215	.6028970F 02	.3906070E 02
57	30216	.6029960F 02	.3754410E 02
58	30217	.6030680E 02	.3602130E 02
59	30218	.6030840E 02	.3450630E 02
60	30220	.6028980E 02	.3144530E 02
61	30221	.6030170E 02	.2992180E 02
62	30222	.6031620E 02	.2839780E 02
63	30223	.6030930E 02	.2687600E 02
64	30224	.6029760F 02	.2535070E 02
65	30225	.6029030E 02	.2382080F 02
66	30226	.6029170E 02	.2225820E 02
67	30227	.6029170E 02	.2077280E 02
68	30228	.6030270E 02	.1923030E 02
69	30229	.6029990E 02	.1770270E 02
70	30230	.6030080E 02	.1616950E 02
71	30231	.6029970E 02	.1465120E 02
72	30232	.6029710E 02	.1311890E 02
73	30233	.6029590E 02	.1160220E 02
74	30234	.6030330E 02	.1007000E 02
75	30235	.6030270E 02	.8551100E 01
76	30236	.6029840E 02	.7023100E 01

X SIGMAL	.004	Y SIGMAL	.003
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.012	Y SIGMA 3.3L	.008
X SIGMA 3L	.011	Y SIGMA 3L	.008
X SIGMA 2L	007	Y SIGMA 2L	.005
X SIGMA.90L	.004	Y SIGMA.90L	.004
X PEL	.002	Y PEL	.002
X RMSEL	.004	Y RMSEL	.003

Table XLII. Statistical Analysis of Fiducials - Plate 4

No.	Pt. Ident.	BAR X	BAR Y
1	44444	.3300090E 02	.3299920E 02
2	40001	.5917700E 01	.3293250E 02
3	40002	.3303840E 02	.5858700E 01
4	40003	.6013960E 02	.3304240E 02
5	40004	.3294150E 02	.6014230E 02
6	40101	.5854200E 01	.6040250E 02
7	40102	.5856300E 01	.5887510E 02
8	40103	.5837000E 01	.5736120E 02
9	40104	.5840700E 01	.5582110E 02
10	40105	.5864000E 01	.5428470E 02
11	40106	.5841300E 01	.5275820E 02
12	40107	.5840800E 01	.5123310E 02
13	40108	.5850200E 01	.4972020E 02
14	40109	.5842600E 01	.4818880E 02
15	40110	.5847000E 01	.4665850E 02
16	40111	.5844200E 01	.4514260E 02
17	40112	.5858900E 01	.4361340E 02
18	40113	.5841000E 01	.4208600E 02
19	40114	.5831600E 01	.4056850E 02
20	40115	.5846900E 01	.3905120E 02
21	40116	.5849700E 01	.3752660E 02
22	40117	.5821500E 01	.3600540E 02
23	40118	.5837100E 01	.3448340E 02
24	40119	.5837700E 01	.3295590E 02
25	40120	.5832000E 01	.3143170E 02
26	40121	.5842200E 01	.2990930E 02
27	40122	.5853000E 01	.2838540E 02
28	40123	.5856900E 01	.2685890E 02
29	40124	.5854700E 01	.2533200E 02
30	40125	.5837500E 01	.2380600E 02
31	40126	.5839300E 01	.2227890E 02
32	40127	.5836200E 01	.2074770E 02
33	40128	.5845100E 01	.1923180E 02
34	40129	.5841700E 01	.1770610E 02
35	40130	.5844700E 01	.1618030E 02
36	40131	.5856000E 01	.1468120E 02
37	40132	.5858000E 01	.1313650E 02
38	40133	.5850400E 01	.1163160E 02
39	40134	.5858200E 01	.1007930E 02
40	40135	.5855700E 01	.8552700E 01
41	40136	.5857600E 01	.7039700E 01
42	40137	.5836100E 01	.5505500E 01
43	40201	.6025010E 02	.6039510E 02

Table XLII -- Continued

No.	Pt. Ident.	BAR X	BAR Y
44	40202	.6023730E 02	.5886680E 02
45	40203	.6025000E 02	.5734140E 02
46	40204	.6026460E 02	.5580860E 02
47	40205	.6025610E 02	.5428210E 02
48	40206	.6025180E 02	.5274760E 02
49	40207	.6027440E 02	.5122110E 02
50	40208	.6025430E 02	.4969910E 02
51	40209	.6025340E 02	.4818400E 02
52	40210	.6025550E 02	.4664570E 02
53	40211	.6025240E 02	.4512950E 02
54	40212	.6026430E 02	.4360840E 02
55	40213	.6026570E 02	.4208510E 02
56	40214	.6024840E 02	.4056220E 02
57	40215	.6025110E 02	.3903070E 02
58	40216	.6025760E 02	.3751210E 02
59	40217	.6026610E 02	.3598940E 02
60	40218	.6026120E 02	.3447360E 02
61	40220	.6024310E 02	.3141330E 02
62	40221	.6025620E 02	.2988670E 02
63	40222	.6027670E 02	.2836140E 02
64	40223	.6026780E 02	.2684070E 02
65	40224	.6026240E 02	.2531530E 02
66	40225	.6024830E 02	.2378470E 02
67	40226	.6024800E 02	.2222230E 02
68	40227	.6024800E 02	.2073870E 02
69	40228	.6025960E 02	.1920090E 02
70	40229	.6025220E 02	.1766850E 02
71	40230	.6025990E 02	.1613540E 02
72	40231	.6025170E 02	.1461500E 02
73	40232	.6025540E 02	.1308260E 02
74	40233	.6025470E 02	.1156470E 02
75	40234	.6026280E 02	.1003400E 02
76	40235	.6025660E 02	.8512300E 01
77	40236	.6025270E 02	.6986300E 01

X SIGMAL	.003	Y SIGMAL	.002
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.011	Y SIGMA 3.3L	.007
X SIGMA 3L	.010	Y SIGMA 3L	.007
X SIGMA 2L	.007	Y SIGMA 2L	.005
X SIGMA.90L	.003	Y SIGMA.90L	.004
X PEL	.002	Y PEL	.002
X RMSEL	.003	Y RMSEL	.002

Table XLIII. Statistical Analysis of Fiducials - Plate 5

No.	Pt. Ident.	BAR X	BAR Y
1	55555	.3299900E 02	.3299850E 02
2	50001	.5911300E 01	.3299750E 02
3	50002	.3297980E 02	.5856100E 01
4	50003	.6015030E 02	.3298590E 02
5	50004	.3299500E 02	.6013580E 02
6	50101	.5855600E 01	.6046220E 02
7	50103	.5831200E 01	.5742110E 02
8	50104	.5836100E 01	.5587940E 02
9	50105	.5862100E 01	.5434600E 02
10	50106	.5841200E 01	.5281530E 02
11	50107	.5843500E 01	.5129150E 02
12	50108	.5851700E 01	.4977520E 02
13	50109	.5847400E 01	.4824980E 02
14	50110	.5348700E 01	.4671870E 02
15	50111	.5939800E 01	.4520180E 02
16	50112	.5957500E 01	.4367720E 02
17	50113	.5840800E 01	.4214400E 02
18	50114	.5829200E 01	.4062790E 02
19	50115	.5846800E 01	.3911100E 02
20	50116	.5843200E 01	.3758700E 02
21	50117	.5814900E 01	.3606340E 02
22	50118	.5832700E 01	.3454190E 02
23	50119	.5927400E 01	.3301370E 02
24	50120	.5828900E 01	.3149140E 02
25	50121	.5839900E 01	.2997050E 02
26	50122	.5851000E 01	.2844450E 02
27	50123	.5854400E 01	.2691760E 02
28	50124	.5851300E 01	.2539260E 02
29	50125	.5833100E 01	.2386480E 02
30	50126	.5843500E 01	.2233650E 02
31	50127	.5838200E 01	.2080620E 02
32	50128	.5842400E 01	.1929170E 02
33	50129	.5837500E 01	.1776270E 02
34	50130	.5847200E 01	.1623580E 02
35	50131	.5855700E 01	.1473480E 02
36	50132	.5851900E 01	.1319040E 02
37	50133	.5857400E 01	.1168170E 02
38	50134	.5858100E 01	.1013500E 02
39	50135	.5856400E 01	.8608400E 01
40	50136	.5859600E 01	.7094800E 01
41	50137	.5840900E 01	.5560200E 01
42	50201	.6025520E 02	.6045440E 02
43	50202	.6024570E 02	.5892540E 02

Table XLIII -- Continued

No.	Pt. Ident.	BAR X	BAR Y
44	50203	.6025140E 02	.5739960E 02
45	50204	.6026870E 02	.5587070E 02
46	50205	.6025980E 02	.5434400E 02
47	50206	.6025580E 02	.5281180E 02
48	50207	.6027940E 02	.5128080E 02
49	50208	.6025370E 02	.4975700E 02
50	50209	.6025950E 02	.4824120E 02
51	50210	.6025820E 02	.4670530E 02
52	50211	.6025620E 02	.4518860E 02
53	50212	.6026580E 02	.4366740E 02
54	50213	.6026830E 02	.4214150E 02
55	50214	.6024780E 02	.4061920E 02
56	50215	.6025000E 02	.3908810E 02
57	50216	.6025810E 02	.3756840E 02
58	50217	.6026210E 02	.3604530E 02
59	50218	.6025830E 02	.3453390E 02
60	50219	.6026990E 02	.3300440E 02
61	50220	.6024790E 02	.3147090E 02
62	50221	.6026080E 02	.2994450E 02
63	50222	.6027790E 02	.2841820E 02
64	50223	.6026770E 02	.2690050E 02
65	50224	.6026120E 02	.2537440E 02
66	50225	.6024910E 02	.2384430E 02
67	50226	.6024950E 02	.2228390E 02
68	50227	.6025110E 02	.2079580E 02
69	50228	.6025720E 02	.1925650E 02
70	50229	.6025090E 02	.1772380E 02
71	50230	.6025920E 02	.1619280E 02
72	50231	.6025670E 02	.1467190E 02
73	50232	.6025540E 02	.1314380E 02
74	50234	.6024690E 02	.1162500E 02
75	50235	.6026080E 02	.1009320E 02
76	50236	.6025450E 02	.8573100E 01
77	50237	.6025380E 02	.7045800E 01

X SIGMAL	.003	Y SIGMAL	.002
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.011	Y SIGMA 3.3L	.008
X SIGMA 3L	.010	Y SIGMA 3L	.007
X SIGMA 2L	.007	Y SIGMA 2L	.005
X SIGMA.90L	.003	Y SIGMA.90L	.004
X PEL	.002	Y PEL	.002
X RMSEL	.003	Y RMSEL	.002

Table XLIV. Statistical Analysis of Grid Intersections - Plate 1 (Original)

Number	Point Ident.	Bar x	Bar y
1	11111	.3300020E 02	.3299570E 02
2	10001	.5873400E 01	.3301760E 02
3	10002	.3293040E 02	.5850300E 01
4	10003	.6010360E 02	.3295770E 02
5	10004	.3298000F 02	.6009320E 02
6	1110	.5518100E 01	.6049050E 02
7	1120	.1467890E 02	.6048910E 02
8	1130	.2384330E 02	.6048980E 02
9	1140	.3299720E 02	.6048940E 02
10	1150	.4216380E 02	.6049490E 02
11	1160	.5133100E 02	.6048880E 02
12	1170	.6049190E 02	.6048500E 02
13	1210	.5516500E 01	.5132640E 02
14	1220	.1468460E 02	.5132100E 02
15	1230	.2384540E 02	.5132300E 02
16	1240	.3300730E 02	.5132660E 02
17	1250	.4216450E 02	.5132020E 02
18	1260	.5132780E 02	.5132140E 02
19	1270	.6049020E 02	.5131830E 02
20	1310	.5509200E 01	.4216560E 02
21	1320	.1468200E 02	.4216060E 02
22	1330	.2384440E 02	.4216190E 02
23	1340	.3300370E 02	.4215910E 02
24	1350	.4216350E 02	.4215770E 02
25	1360	.5132760F 02	.4215870E 02
26	1370	.6048740E 02	.4215890E 02
27	1420	.1468380E 02	.3300110E 02
28	1430	.2384280E 02	.3300280E 02
29	1440	.3300060E 02	.3299960E 02
30	1450	.4216130E 02	.3299630E 02
31	1460	.5132700E 02	.3299230E 02
32	1470	.6049010E 02	.3298680E 02
33	1510	.5515400E 01	.2384700E 02
34	1520	.1468010E 02	.2384090E 02
35	1530	.2383920E 02	.2383730E 02
36	1540	.3300080E 02	.2383530E 02
37	1550	.4216230E 02	.2383080E 02
38	1560	.5132220E 02	.2382740E 02
39	1610	.5521400E 01	.1467950E 02
40	1620	.1468060E 02	.1466460E 02
41	1630	.2384210E 02	.1467370E 02
42	1640	.3300090E 02	.1467010E 02
43	1650	.4215910E 02	.1466620E 02
44	1660	.5132140E 02	.1466310E 02
45	1710	.5510100E 01	.5521900E 01
46	1720	.1467200E 02	.5520200E 01
47	1730	.2383330F 02	.5510800E 01
48	1740	.3299690E 02	.5507100E 01
49	1750	.4215680E 02	.5501200E 01
50	1760	.5132230E 02	.5492300E 01
51	1770	.6048520E 02	.5489900E 01

Table XLIV -- Continued

X SIGMAL	.003	Y SIGMAL	.003
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.008	Y SIGMA 3.3L	.009
X SIGMA 3L	.008	Y SIGMA 3L	.008
X SIGMA 2L	.005	Y SIGMA 2L	.006
X SIGMA.90L	.003	Y SIGMA.9L	.005
X PEL	.002	Y PEL	.002
X RMSEL	.003	Y RMSEL	.003

Table XLV. Statistical Analysis of Grid Intersections - Plate 2 (Original)

Number	Point Ident.	Bar x	Bar y
1	22222	.3299940E 02	.3300080E 02
2	20001	.5872300E 01	.3306550E 02
3	20002	.3300630F 02	.5959000E 01
4	20003	.6010080E 02	.3308670E 02
5	20004	.3294160E 02	.6022300E 02
6	2110	.5497400E 01	.6051210E 02
7	2120	.1466500E 02	.6051240E 02
8	2130	.2383070E 02	.6051490E 02
9	2140	.3299640E 02	.6051770E 02
10	2150	.4216750E 02	.6052040E 02
11	2160	.5134150E 02	.6052010E 02
12	2170	.6051300E 02	.6051660E 02
13	2210	.5503100E 01	.5133700E 02
14	2220	.1466460E 02	.5133970E 02
15	2230	.2383140E 02	.5134360E 02
16	2240	.3299710E 02	.5134480E 02
17	2250	.4216550E 02	.5134170E 02
18	2260	.5133520E 02	.5133860E 02
19	2310	.5507700E 01	.4216880E 02
20	2320	.1466970E 02	.4217110E 02
21	2330	.2383140E 02	.4216730E 02
22	2340	.3299620E 02	.4216850E 02
23	2350	.4216220E 02	.4216910E 02
24	2360	.5133200E 02	.4216780E 02
25	2420	.1466950E 02	.3300730E 02
26	2430	.2383150E 02	.3300720E 02
27	2440	.3299900E 02	.3300130E 02
28	2450	.4215870E 02	.3300260E 02
29	2460	.5132990E 02	.3299890E 02
30	2510	.5511300E 01	.2384290E 02
31	2520	.1467110E 02	.2384310E 02
32	2530	.2383590E 02	.2383520E 02
33	2540	.3299830E 02	.2383550E 02
34	2550	.4215770E 02	.2383810E 02
35	2560	.5132400E 02	.2383180E 02
36	2610	.5506400E 01	.1468320E 02
37	2620	.1467080E 02	.1468120E 02
38	2630	.2383120E 02	.1467890E 02
39	2640	.3299270E 02	.1467190E 02
40	2650	.4215520F 02	.1467040E 02
41	2660	.5131950E 02	.1466450E 02
42	2710	.5503400E 01	.5523500E 01
43	2720	.1466740E 02	.5522200E 01
44	2730	.2382890E 02	.5516100E 01
45	2740	.3298900E 02	.5508900E 01
46	2750	.4215130E 02	.5501000E 01
47	2760	.5131490E 02	.5497300E 01

Table XLV -- Continued

X SIGMAL	.003	Y SIGMAL	.003
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.008	Y SIGMA 3.3L	.010
X SIGMA 3L	.008	Y SIGMA 3L	.009
X SIGMA 2L	.005	Y SIGMA 2L	.006
X SIGMA.90L	.003	Y SIGMA.9L	.005
X PEL	.002	Y PEL	.002
X RMSEL	.003	Y RMSEL	.003

Table XLVI. Statistical Analysis of Grid Intersections - Plate 3 (Original)

Number	Point Ident.	Bar x	Bar y
1	33333	.3300150E 02	.3299980E 02
2	30001	.5910200E 01	.3299470E 02
3	30002	.3301600E 02	.5901900E 01
4	30003	.6011090E 02	.3301480E 02
5	30004	.3299930E 02	.6013790E 02
6	3110	.5525800E 01	.6048700E 02
7	3120	.1468580E 02	.6049000E 02
8	3130	.2384320F 02	.6049250E 02
9	3140	.3300060E 02	.6049450E 02
10	3150	.4216380E 02	.6049290E 02
11	3160	.5132770E 02	.6049380E 02
12	3170	.6048920E 02	.6048830E 02
13	3210	.5527900E 01	.5132800E 02
14	3220	.1468210E 02	.5132480E 02
15	3230	.2384390F 02	.5132640E 02
16	3240	.3300460E 02	.5132940E 02
17	3250	.4216620E 02	.5132900E 02
18	3260	.5132860E 02	.5132710E 02
19	3270	.6048790E 02	.5132440E 02
20	3310	.5524300E 01	.4216450E 02
21	3320	.1468570E 02	.4216410E 02
22	3330	.2384500E 02	.4216390E 02
23	3340	.3300280E 02	.4216440E 02
24	3350	.4216420E 02	.4216380E 02
25	3360	.5132640E 02	.4216200E 02
26	3370	.6048770E 02	.4216190E 02
27	3410	.5528600E 01	.3300190E 02
28	3420	.1468600E 02	.3300240E 02
29	3430	.2384410E 02	.3300510E 02
30	3440	.3300370E 02	.3300120E 02
31	3450	.4216590F 02	.3300060E 02
32	3460	.5132750E 02	.3299920E 02
33	3510	.5531000E 01	.2384410E 02
34	3520	.1468780F 02	.2384270E 02
35	3530	.2384300E 02	.2384330E 02
36	3540	.3300510E 02	.2384160E 02
37	3550	.4216620E 02	.2384030E 02
38	3560	.5132750E 02	.2383780E 02
39	3570	.6049440F 02	.2383840E 02
40	3610	.5528100E 01	.1468410E 02
41	3620	.1468850E 02	.1468100E 02
42	3630	.2384310E 02	.1468110E 02
43	3640	.3300340E 02	.1467710E 02
44	3650	.4216420E 02	.1467600E 02
45	3660	.5132730E 02	.1467420E 02
46	3670	.6049090E 02	.1466130E 02
47	3720	.1468640F 02	.5521400E 01
48	3730	.2384120E 02	.5515700E 01
49	3740	.3300250F 02	.5514700E 01
50	3750	.4216350E 02	.5509700E 01
51	3760	.5132810E 02	.5502900E 01
52	3770	.6049260E 02	.5503100E 01

Table XLVI -- Continued

X SIGMAL	.002	Y SIGMAL	.003
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.008	Y SIGMA 3.3L	.010
X SIGMA 3L	.007	Y SIGMA 3L	.009
X SIGMA 2L	.005	Y SIGMA 2L	.006
X SIGMA.90L	.002	Y SIGMA.9L	.005
X PEL	.002	Y PEL	.002
X RMSEL	.002	Y RMSEL	.003

Table XLVII. Statistical Analysis of Grid Intersections - Plate 4 (Original)

Number	Point Ident.	Bar x	Bar y
1	44444	.3300220E 02	.3299950E 02
2	40001	.5917300E 01	.3302140E 02
3	40002	.3299900E 02	.5883100E 01
4	40003	.6010820E 02	.3301730E 02
5	40004	.3300990E 02	.6012360E 02
6	4110	.5518000E 01	.6048540E 02
7	4120	.1468160E 02	.6048880E 02
8	4130	.2383880E 02	.6049100E 02
9	4140	.3299690E 02	.6049210E 02
10	4150	.4215930E 02	.6049450E 02
11	4160	.5132570E 02	.6049580E 02
12	4170	.6049130E 02	.6049520E 02
13	4210	.5518600E 01	.5132400E 02
14	4220	.1468180E 02	.5131870E 02
15	4230	.2383790E 02	.5132250E 02
16	4240	.3299850E 02	.5132910E 02
17	4250	.4215530E 02	.5132440E 02
18	4260	.5131630E 02	.5132420E 02
19	4270	.6048930E 02	.5132840E 02
20	4320	.1468550E 02	.4216160E 02
21	4330	.2384460E 02	.4215960E 02
22	4340	.3300310E 02	.4216410E 02
23	4350	.4216390E 02	.4216580E 02
24	4360	.5132760E 02	.4216590E 02
25	4370	.6049060E 02	.4216580E 02
26	4420	.1468690E 02	.3300200E 02
27	4430	.2384510E 02	.3300360E 02
28	4440	.3300180E 02	.3300200E 02
29	4450	.4216530E 02	.3300300E 02
30	4460	.5132870E 02	.3300280E 02
31	4470	.6049350E 02	.3300030E 02
32	4520	.1468810E 02	.2384010E 02
33	4530	.2384350E 02	.2384150E 02
34	4540	.3300490E 02	.2384210E 02
35	4550	.4216330E 02	.2384090E 02
36	4560	.5132960E 02	.2383970E 02
37	4570	.6049450E 02	.2384020E 02
38	4620	.1468430E 02	.1467950E 02
39	4630	.2384290E 02	.1468010E 02
40	4640	.3300610E 02	.1467530E 02
41	4650	.4216500E 02	.1467510E 02
42	4660	.5133090E 02	.1467490E 02
43	4670	.6049850E 02	.1467590E 02
44	4720	.1468670E 02	.5518000E 01
45	4730	.2384440E 02	.5514900E 01
46	4740	.3300300E 02	.5516500E 01
47	4750	.4216710E 02	.5508300E 01
48	4760	.5133020E 02	.5504900E 01
49	4770	.6049410E 02	.5507100E 01

Table XLVII -- Continued

X SIGMAL	.003	Y SIGMAL	.002
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.009	Y SIGMA 3.3L	.007
X SIGMA 3L	.008	Y SIGMA 3L	.007
X SIGMA 2L	.005	Y SIGMA 2L	.004
X SIGMA.90L	.003	Y SIGMA.9L	.004
X PEL	.002	Y PEL	.001
X RMSEL	.003	Y RMSEL	.002

Table XLVIII. Statistical Analysis of Grid Intersections - Plate 5 (Original)

Number	Point Ident.	Bar x	Bar y
1	55555	.3300050E 02	.3300030E 02
2	50001	.5875100F 01	.3298800E 02
3	50002	.3295800F 02	.5835300E 01
4	50003	.6013410F 02	.3295160E 02
5	50004	.3299350F 02	.6007220E 02
6	5110	.5519400E 01	.6048010E 02
7	5130	.2384040E 02	.6048710E 02
8	5140	.3299370F 02	.6048710E 02
9	5150	.4215250F 02	.6049080E 02
10	5160	.5131760F 02	.6049350E 02
11	5170	.6047910F 02	.6048850E 02
12	5220	.1468290F 02	.5131710E 02
13	5230	.2384060F 02	.5132100E 02
14	5240	.3300070F 02	.5133000E 02
15	5250	.4215510F 02	.5132800E 02
16	5260	.5131570F 02	.5132370E 02
17	5270	.6047700F 02	.5132210E 02
18	5310	.5520600F 01	.4215480E 02
19	5320	.1467720F 02	.4215140E 02
20	5330	.2383820F 02	.4215980E 02
21	5340	.3299670F 02	.4216040E 02
22	5350	.4215310F 02	.4215960E 02
23	5360	.5131830F 02	.4216380E 02
24	5370	.6048110E 02	.4216180E 02
25	5410	.5524100F 01	.3299880E 02
26	5420	.1468200E 02	.3299830E 02
27	5430	.2384210F 02	.3300020E 02
28	5440	.3300040F 02	.3300120E 02
29	5450	.4215590E 02	.3299750E 02
30	5460	.5132100F 02	.3299700E 02
31	5470	.6048280F 02	.3299740E 02
32	5510	.5522200F 01	.2383960E 02
33	5520	.1468070F 02	.2383800E 02
34	5530	.2383970E 02	.2383700E 02
35	5540	.3300150F 02	.2383770E 02
36	5550	.4215870F 02	.2383790E 02
37	5560	.5131910F 02	.2383810E 02
38	5570	.6048650F 02	.2383770E 02
39	5610	.5524100F 01	.1467860E 02
40	5620	.1468340F 02	.1467960E 02
41	5630	.2384230F 02	.1467450E 02
42	5640	.3300100F 02	.1467360E 02
43	5650	.4215930F 02	.1467300E 02
44	5660	.5132220F 02	.1467330E 02
45	5720	.1468320F 02	.5516800E 01
46	5730	.2384330F 02	.5513900E 01
47	5740	.3300080E 02	.5513600E 01
48	5750	.4216500F 02	.5507400E 01
49	5760	.5132360F 02	.5504300E 01
50	5770	.6048780E 02	.5506100E 01

Table XLVIII -- Continued

X SIGMAL	.002	Y SIGMAL	.002
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.007	Y SIGMA 3.3L	.007
X SIGMA 3L	.007	Y SIGMA 3L	.007
X SIGMA 2L	.005	Y SIGMA 2L	.005
X SIGMA.90L	.002	Y SIGMA.9L	.004
X PEL	.002	Y PEL	.002
X RMSEL	.002	Y RMSEL	.002

Table XLIX. Statistical Analysis of Goldstone Grid Ladder - Framelet 533

Number	Point Ident.	Bar x	Bar y
1	1001	.1025406E 03	.1030490E 03
2	1002	.1036189E 03	.1030509E 03
3	1003	.1048932E 03	.1030587E 03
4	1004	.1062237E 03	.1030570E 03
5	1005	.1074673E 03	.1030602E 03
6	1006	.1087749E 03	.1030599E 03
7	1007	.1100550E 03	.1030624E 03
8	1008	.1113540E 03	.1030594E 03
9	1009	.1126468E 03	.1030521E 03
10	1010	.1138904E 03	.1030541E 03
11	1011	.1151940E 03	.1030523E 03
12	1012	.1164882E 03	.1030514E 03
13	1013	.1177485E 03	.1030507E 03
14	1014	.1190573E 03	.1030498E 03
15	1015	.1203512E 03	.1030463E 03
16	1016	.1216263E 03	.1030434E 03
17	1017	.1229077E 03	.1030463E 03
18	1018	.1241701E 03	.1030440E 03
19	1019	.1254812E 03	.1030482E 03
20	1020	.1267650E 03	.1030414E 03
21	1021	.1280526E 03	.1030431E 03
22	1022	.1293384E 03	.1030443E 03
23	1023	.1306224E 03	.1030486E 03
24	1024	.1319014E 03	.1030475E 03
25	1025	.1332044E 03	.1030492E 03
26	1026	.1344805E 03	.1030530E 03
27	1027	.1357876E 03	.1030519E 03
28	1028	.1370601E 03	.1030446E 03
29	1029	.1383481E 03	.1030478E 03
30	1030	.1396126E 03	.1030456E 03
31	1031	.1408956E 03	.1030456E 03
32	1032	.1421797E 03	.1030483E 03
33	1033	.1434367E 03	.1030472E 03
34	1034	.1447667E 03	.1030492E 03
35	1035	.1460618E 03	.1030527E 03
36	1036	.1473382E 03	.1030542E 03
37	1037	.1486117E 03	.1030548E 03
38	1038	.1499115E 03	.1030552E 03
39	1039	.1511611E 03	.1030553E 03
40	1040	.1524614E 03	.1030547E 03
41	1041	.1537389E 03	.1030577E 03
42	1042	.1550159E 03	.1030564E 03
43	1043	.1562993E 03	.1030498E 03
44	1044	.1575807E 03	.1030440E 03

X SIGMAL	.002	Y SIGMAL	.002
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.008	Y SIGMA 3.3L	.006
X SIGMA 3L	.007	Y SIGMA 3L	.005
X SIGMA 2L	.005	Y SIGMA 2L	.004
X SIGMA .90L	.002	Y SIGMA .90L	.003
X PEL	.002	Y PEL	.001
X RMSEL	.002	Y RMSEL	.002

Table L. Statistical Analysis of Goldstone Grid Ladder - Framelet 534

Number	Point Ident.	Bar x	Bar y
1	2001	.1025335E 03	.1004727E 03
2	2002	.1036209E 03	.1004723E 03
3	2003	.1048917E 03	.1004807E 03
4	2004	.1062147E 03	.1004808E 03
5	2005	.1074658E 03	.1004827E 03
6	2006	.1087596E 03	.1004771E 03
7	2007	.1100404E 03	.1004790E 03
8	2008	.1113494E 03	.1004730E 03
9	2009	.1126422E 03	.1004720E 03
10	2010	.1138889E 03	.1004743E 03
11	2011	.1151838E 03	.1004776E 03
12	2012	.1164770E 03	.1004752E 03
13	2013	.1177412E 03	.1004792E 03
14	2014	.1190501E 03	.1004812E 03
15	2015	.1203373E 03	.1004823E 03
16	2016	.1216132E 03	.1004853E 03
17	2017	.1229015E 03	.1004844E 03
18	2018	.1241660E 03	.1004881E 03
19	2019	.1254706E 03	.1004834E 03
20	2020	.1267519E 03	.1004845E 03
21	2021	.1280361E 03	.1004830E 03
22	2022	.1293296E 03	.1004837E 03
23	2023	.1306093E 03	.1004855E 03
24	2024	.1318965E 03	.1004840E 03
25	2025	.1331831E 03	.1004823E 03
26	2026	.1344663E 03	.1004821E 03
27	2027	.1357749E 03	.1004778E 03
28	2028	.1370472E 03	.1004755F 03
29	2029	.1383326E 03	.1004758E 03
30	2030	.1396049E 03	.1004769E 03
31	2031	.1408919E 03	.1004740E 03
32	2032	.1421665E 03	.1004736E 03
33	2033	.1434305E 03	.1004743E 03
34	2034	.1447672E 03	.1004743E 03
35	2035	.1460588E 03	.1004702E 03
36	2036	.1473288E 03	.1004744E 03
37	2037	.1486140E 03	.1004762E 03
38	2038	.1499097E 03	.1004792E 03
39	2039	.1511631E 03	.1004819E 03
40	2040	.1524685E 03	.1004847E 03
41	2041	.1537472E 03	.1004815E 03
42	2042	.1550302E 03	.1004825E 03
43	2043	.1563063E 03	.1004784E 03
44	2044	.1575821E 03	.1004719E 03

X SIGMAL	.002	Y SIGMAL	.002
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.007	Y SIGMA 3.3L	.007
X SIGMA 3L	.006	Y SIGMA 3L	.006
X SIGMA 2L	.004	Y SIGMA 2L	.004
X SIGMA .90L	.002	Y SIGMA .90L	.003
X PEL	.001	Y PEL	.001
X RMSEL	.002	Y RMSEL	.002

Table LI. Spacing of Goldstone Grid Ladder - Framelet 533

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
102541.		1001
	-1078.	
103619.		1002
	-1274.	
104893.		1003
	-1331.	
106224.		1004
	-1243.	
107467.		1005
	-1308.	
108775.		1006
	-1280.	
110055.		1007
	-1299.	
111354.		1008
	-1293.	
112647.		1009
	-1243.	
113890.		1010
	-1304.	
115194.		1011
	-1294.	
116488.		1012
	-1261.	
117749.		1013
	-1308.	
119057.		1014
	-1294.	
120351.		1015
	-1275.	
121626.		1016
	-1282.	
122908.		1017
	-1262.	
124170.		1018
	-1311.	
125481.		1019
	-1284.	
126765.		1020
	-1288.	
128053.		1021
	-1285.	
129338.		1022
	-1284.	
130622.		1023
	-1279.	
131901.		1024
	-1303.	

Table LI -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
133204.		1025
	-1277.	
134481.		1026
	-1307.	
135788.		1027
	-1272.	
137060.		1028
	-1288.	
138348.		1029
	-1265.	
139613.		1030
	-1283.	
140896.		1031
	-1284.	
142180.		1032
	-1257.	
143437.		1033
	-1330.	
144767.		1034
	-1295.	
146062.		1035
	-1276.	
147338.		1036
	-1274.	
148612.		1037
	-1300.	
149912.		1038
	-1249.	
151161.		1039
	-1300.	
152461.		1040
	-1278.	
153739.		1041
	-1277.	
155016.		1042
	-1283.	
156299.		1043
	-1282.	
157581.		1044

Table LII. Spacing of Goldstone Grid Ladder - Framelet 534

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
102534.		2001
	-1087.	
103621.		2002
	-1271.	
104892.		2003
	-1323.	
106215.		2004
	-1251.	
107466.		2005
	-1294.	
108760.		2006
	-1280.	
110040.		2007
	-1309.	
111349.		2008
	-1293.	
112642.		2009
	-1247.	
113889.		2010
	-1295.	
115184.		2011
	-1293.	
116477.		2012
	-1264.	
117741.		2013
	-1309.	
119050.		2014
	-1287.	
120337.		2015
	-1276.	
121613.		2016
	-1289.	
122902.		2017
	-1264.	
124166.		2018
	-1305.	
125471.		2019
	-1281.	
126752.		2020
	-1284.	
128036.		2021
	-1294.	
129330.		2022
	-1279.	
130609.		2023
	-1288.	
131897.		2024
	-1286.	

Table LII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
133183.		2025
	-1283.	
134466.		2026
	-1309.	
135775.		2027
	-1272.	
137047.		2028
	-1286.	
138333.		2029
	-1272.	
139605.		2030
	-1287.	
140892.		2031
	-1275.	
142167.		2032
	-1264.	
143431.		2033
	-1336.	
144767.		2034
	-1292.	
146059.		2035
	-1270.	
147329.		2036
	-1285.	
148614.		2037
	-1296.	
149910.		2038
	-1253.	
151163.		2039
	-1306.	
152469.		2040
	-1278.	
153747.		2041
	-1283.	
155030.		2042
	-1276.	
156306.		2043
	-1276.	
157582.		2044

Table LIII. Statistical Analysis of Grid Intersections - Plate 1 (Reassembled)

Number	Point Ident.	Bar x	Bar y
1	11111	.1000060E 03	.9999800E 02
2	10001	.1267633E 02	.10[illegible]1047E 03
3	10002	.9967633E 02	.1195133E 02
4	10003	.1868133E 03	.9998700E 02
5	10004	.9986133E 02	.1877527E 03
6	1110	.1165267E 02	.1889360E 03
7	1130	.7055500E 02	.1889670E 03
8	1140	.9993633E 02	.1889767E 03
9	1220	.4088500E 02	.1591250E 03
10	1230	.7039533E 02	.1591520E 03
11	1240	.9964433E 02	.1591853E 03
12	1250	.1291110E 03	.1592227E 03
13	1260	.1584527E 03	.1592667E 03
14	1270	.1879043E 03	.1593163E 03
15	1320	.4091667E 02	.1298690E 03
16	1330	.7042000E 02	.1298517E 03
17	1340	.9969633E 02	.1298260E 03
18	1350	.1289607E 03	.1298070E 03
19	1360	.1586397E 03	.1298290E 03
20	1420	.4120933E 02	.1000433E 03
21	1430	.7058067E 02	.1000167E 03
22	1440	.9999867E 02	.1000020E 03
23	1450	.1293203E 03	.1000050E 03
24	1460	.1586770E 03	.1000197E 03
25	1510	.1175633E 02	.7033200E 02
26	1520	.4128833E 02	.7035667E 02
27	1530	.7051567E 02	.7032467E 02
28	1540	.9994600E 02	.7031500E 02
29	1550	.1293207E 03	.7032300E 02
30	1560	.1587967E 03	.7034200E 02
31	1620	.4139933E 02	.4065867E 02
32	1630	.7076567E 02	.4064033E 02
33	1640	.1000450E 03	.4064867E 02
34	1650	.1294960E 03	.4069067E 02
35	1660	.1587247E 03	.4072900E 02
36	1710	.1160767E 02	.1078233E 02
37	1720	.4108133E 02	.1081367E 02
38	1730	.7051233E 02	.1081700E 02
39	1740	.9988967E 02	.1083267E 02
40	1750	.1290980E 03	.1084433E 02
41	1760	.1587033E 03	.1087233E 02

Table LIII -- Continued

X SIGMAL	.003	Y SIGMAL	.003
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.010	Y SIGMA 3.3L	.011
X SIGMA 3L	.009	Y SIGMA 3L	.010
X SIGMA 2L	.006	Y SIGMA 2L	.007
X SIGMA.90L	.003	Y SIGMA.9L	.005
X PEL	.002	Y PEL	.002
X RMSEL	.003	Y RMSEL	.003

Table LIV. Statistical Analysis of Grid Intersections - Plate 2 (Reassembled)

Number	Point Ident.	Bar x	Bar y
1	22222	.9999767E 02	.1000057E 03
2	20002	.1002580E 03	.1211033E 02
3	20003	.1870100E 03	.1003040E 03
4	20004	.9988300E 02	.1883203E 03
5	2110	.1194400E 02	.1893827E 03
6	2120	.4140567E 02	.1893777E 03
7	2130	.7078200E 02	.1893413E 03
8	2140	.1000777E 03	.1892717E 03
9	2150	.1296057E 03	.1892353E 03
10	2170	.1883243E 03	.1891820E 03
11	2220	.4150800E 02	.1596810E 03
12	2230	.7078933E 02	.1596227E 03
13	2240	.1002017E 03	.1595757E 03
14	2250	.1296137E 03	.1595390E 03
15	2260	.1589847E 03	.1595140E 03
16	2320	.4105667E 02	.1296193E 03
17	2330	.7057267E 02	.1296020E 03
18	2340	.9984900E 02	.1296043E 03
19	2350	.1291613E 03	.1296003E 03
20	2360	.1587160E 03	.1295967E 03
21	2420	.4120333E 02	.1000267E 03
22	2430	.7056867E 02	.1000177E 03
23	2440	.9999500E 02	.1000060E 03
24	2450	.1293977E 03	.1000160E 03
25	2460	.1588927E 03	.1000037E 03
26	2520	.4147633E 02	.7019233E 02
27	2530	.7095067E 02	.7017067E 02
28	2540	.1001490E 03	.7017200E 02
29	2550	.1297307E 03	.7017633E 02
30	2560	.1589513E 03	.7018133E 02
31	2620	.4151467E 02	.4031700E 02
32	2630	.7073233E 02	.4034433E 02
33	2640	.1001100E 03	.4039500E 02
34	2650	.1293970E 03	.4046100E 02
35	2660	.1588610E 03	.4053467E 02
36	2720	.4147533E 02	.1067333E 02
37	2730	.7092500E 02	.1069967E 02
38	2740	.1003700E 03	.1073833E 02
39	2750	.1295807E 03	.1080367E 02
40	2760	.1591253E 03	.1087867E 02

Table LIV -- Continued

X SIGMAL	.003	Y SIGMAL	.005
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.011	Y SIGMA 3.3L	.015
X SIGMA 3L	.010	Y SIGMA 3L	.014
X SIGMA 2L	.007	Y SIGMA 2L	.009
X SIGMA.90L	.003	Y SIGMA.9L	.008
X PEL	.002	Y PEL	.003
X RMSEL	.003	Y RMSEL	.005

Table LV. Statistical Analysis of Grid Intersections - Plate 3 (Reassembled)

Number	Point Ident.	Bar x	Bar y
1	33333	.1000053E 03	.9999833E 02
2	30002	.9959633E 02	.1191600E 02
3	30003	.1870547E 03	.1001433E 03
4	30004	.9978633E 02	.1878173E 03
5	3110	.1163700E 02	.1891317E 03
6	3120	.4121167E 02	.1890690E 03
7	3130	.7049267E 02	.1890357E 03
8	3150	.1293147E 03	.1889640E 03
9	3160	.1586613E 03	.1889373E 03
10	3170	.1879900E 03	.1889250E 03
11	3220	.4123767E 02	.1593407E 03
12	3230	.7055033E 02	.1592960E 03
13	3240	.9979900E 02	.1592683E 03
14	3250	.1292657E 03	.1592463E 03
15	3260	.1585750E 03	.1592200E 03
16	3270	.1880517E 03	.1592117E 03
17	3320	.4105433E 02	.1297037E 03
18	3330	.7048300E 02	.1296800E 03
19	3340	.9994767E 02	.1296777E 03
20	3350	.1291037E 03	.1296660E 03
21	3360	.1587067E 03	.1296873E 03
22	3370	.1879140E 03	.1297073E 03
23	3420	.4128000E 02	.1000373E 03
24	3430	.7072267E 02	.1000153E 03
25	3440	.1000000E 03	.9999533E 02
26	3450	.1293257E 03	.1000090E 03
27	3460	.1587220E 03	.1000260E 03
28	3520	.4099767E 02	.7018667E 02
29	3530	.7039233E 02	.7015667E 02
30	3540	.9976433E 02	.7015733E 02
31	3550	.1291990E 03	.7015467E 02
32	3560	.1586363E 03	.7015833E 02
33	3570	.1879027E 03	.7017833E 02
34	3620	.4093900E 02	.4071567E 02
35	3630	.7024133E 02	.4059900E 02
36	3640	.9965033E 02	.4050900E 02
37	3650	.1289073E 03	.4043333E 02
38	3660	.1583603E 03	.4035500E 02
39	3670	.1878883E 03	.4024867E 02
40	3721	.4091167E 02	.1096100E 02
41	3722	.4087700E 02	.1096100E 02
42	3731	.7038033E 02	.1085000E 02
43	3732	.7036033E 02	.1084800E 02
44	3741	.9965700E 02	.1073900E 02
45	3742	.9971267E 02	.1073933E 02
46	3751	.1289127E 03	.1063500E 02
47	3752	.1291087E 03	.1062967E 02
48	3761	.1584703E 03	.1054400E 02
49	3762	.1584020E 03	.1054000E 02

Table LV -- Continued

X SIGMAL	.003	Y SIGMAL	.003
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.011	Y SIGMA 3.3L	.012
X SIGMA 3L	.010	Y SIGMA 3L	.010
X SIGMA 2L	.007	Y SIGMA 2L	.007
X SIGMA.90L	.003	Y SIGMA.9L	.006
X PEL	.002	Y PEL	.002
X RMSEL	.003	Y RMSEL	.003

Table LVI. Statistical Analysis of Grid Intersections - Plate 4 (Reassembled)

Number	Point Ident.	Bar x	Bar y
1	44444	.1000007E 03	.1000013E 03
2	40002	.9943067E 02	.1209500E 02
3	40003	.1868590E 03	.1000917E 03
4	40004	.9962633E 02	.1877523E 03
5	4110	.1142233E 02	.1891423E 03
6	4120	.4087100E 02	.1890697E 03
7	4130	.7024267E 02	.1889880E 03
8	4140	.9957700E 02	.1889397E 03
9	4150	.1290807E 03	.1888640E 03
10	4160	.1584533E 03	.1888063E 03
11	4170	.1877513E 03	.1887400E 03
12	4220	.4096533E 02	.1594850E 03
13	4230	.7030000E 02	.1594680E 03
14	4240	.9965700E 02	.1594667E 03
15	4250	.1289560E 03	.1594553E 03
16	4260	.1584013E 03	.1594507E 03
17	4270	.1878210E 03	.1594613E 03
18	4321	.4108567E 02	.1297283E 03
19	4322	.4090067E 02	.1297290E 03
20	4331	.7062967E 02	.1296967E 03
21	4332	.7027500E 02	.1296947E 03
22	4340	.9982600E 02	.1296927E 03
23	4350	.1291437E 03	.1297127E 03
24	4360	.1585873E 03	.1296990E 03
25	4370	.1879880E 03	.1296960E 03
26	4420	.4121600E 02	.1000267E 03
27	4430	.7058233E 02	.1000110E 03
28	4440	.1000013E 03	.1000097E 03
29	4450	.1293553E 03	.1000053E 03
30	4460	.1586847E 03	.1000120E 03
31	4470	.1880243E 03	.1000280E 03
32	4520	.4105767E 02	.7044467E 02
33	4530	.7026467E 02	.7042900E 02
34	4540	.9981300E 02	.7041567E 02
35	4550	.1289543E 03	.7042700E 02
36	4560	.1583380E 03	.7042300E 02
37	4570	.1878100E 03	.7044267E 02
38	4620	.4085633E 02	.4063800E 02
39	4630	.7016167E 02	.4058167E 02
40	4640	.9970900E 02	.4052900E 02
41	4650	.1289890E 03	.4052033E 02
42	4660	.1583523E 03	.4048867E 02
43	4670	.1878307E 03	.4046233E 02
44	4720	.4080033E 02	.1098700E 02
45	4730	.7007300E 02	.1093300E 02
46	4740	.9949300E 02	.1089767E 02
47	4750	.1287977E 03	.1086700E 02
48	4760	.1582953E 03	.1084533E 02
49	4770	.1877413E 03	.1086433E 02

Table LVI -- Continued

X SIGMAL	.003	Y SIGMAL	.004
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.012	Y SIGMA 3.3L	.013
X SIGMA 3L	.010	Y SIGMA 3L	.012
X SIGMA 2L	.007	Y SIGMA 2L	.008
X SIGMA.90L	.003	Y SIGMA.9L	.006
X PEL	.002	Y PEL	.003
X RMSEL	.003	Y RMSEL	.004

Table LVII. Statistical Analysis of Grid Intersections - Plate 5 (Reassembled)

Number	Point Ident.	Bar x	Bar y
1	55555	.1000020E 03	.1000020E 03
2	50002	.9985567E 02	.1178900E 02
3	50003	.1869850E 03	.9993800E 02
4	50004	.1001263E 03	.1887107E 03
5	5110	.1184400E 02	.1900370E 03
6	5130	.7052067E 02	.1900177E 03
7	5140	.1000730E 03	.1900020E 03
8	5160	.1585583E 03	.1900113E 03
9	5170	.1880843E 03	.1900273E 03
10	5220	.4102733E 02	.1592333E 03
11	5230	.7027900E 02	.1592150E 03
12	5240	.9980500E 02	.1592327E 03
13	5250	.1290870E 03	.1592253E 03
14	5260	.1584257E 03	.1592237E 03
15	5270	.1879067E 03	.1592283E 03
16	5320	.4124200E 02	.1296297E 03
17	5330	.7051300E 02	.1296283E 03
18	5340	.9986567E 02	.1296217E 03
19	5350	.1292217E 03	.1296080E 03
20	5360	.1586760E 03	.1296393E 03
21	5370	.1881217E 03	.1296313E 03
22	5420	.4113367E 02	.1000107E 03
23	5430	.7071133E 02	.1000000E 03
24	5440	.1000147E 03	.9999367E 02
25	5450	.1292507E 03	.9999500E 02
26	5460	.1588013E 03	.1000060E 03
27	5470	.1880607E 03	.1000357E 03
28	5520	.4128867E 02	.7023700E 02
29	5530	.7051667E 02	.7023333E 02
30	5540	.1000870E 03	.7023900E 02
31	5550	.1293637E 03	.7025633E 02
32	5560	.1586403E 03	.7028000E 02
33	5620	.4157233E 02	.4055700E 02
34	5630	.7089600E 02	.4057233E 02
35	5640	.1002257E 03	.4060467E 02
36	5650	.1295287E 03	.4068267E 02
37	5660	.1589137E 03	.4073400E 02
38	5721	.4123267E 02	.1074467E 02
39	5722	.4150800E 02	.1074400E 02
40	5731	.7073000E 02	.1076167E 02
41	5732	.7076800E 02	.1076067E 02
42	5741	.9997200E 02	.1081033E 02
43	5742	.1000200E 03	.1080833E 02
44	5751	.1293897E 03	.1084133E 02
45	5752	.1295777E 03	.1084167E 02
46	5761	.1587527E 03	.1091067E 02
47	5762	.1588693E 03	.1091433E 02
48	5770	.1881827E 03	.1096267E 02

Table LVII -- Continued

X SIGMAL	.006	Y SIGMAL	.005
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.019	Y SIGMA 3.3L	.015
X SIGMA 3L	.017	Y SIGMA 3L	.014
X SIGMA 2L	.011	Y SIGMA 2L	.009
X SIGMA.90L	.006	Y SIGMA.9L	.008
X PEL	.004	Y PEL	.003
X RMSEL	.006	Y RMSEL	.005

Table LVIII. Photogrammetric Horizontal Adjustment - EW Strip GI-1

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A  -.67964593497(+ 26)  -.67964593497(+ 26)   B  -.67964593497(+ 26)  -.67964593497(+ 26)

              NO. OF CONTROL  25     DEGREE OF TRANS. 1    RUN 1

                 COEFFICIENTS                       COEFFICIENTS
            A. +.31041885152   (+ 00)      B. -.62260813737   (- 03)
            C. +.20136726348   (+ 04)      D. +.19335341410   (+ 04)
```

Table LVIII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
1110	11 652.67	88 936.00	5 668.38	60 655.71	150.28	165.21
1130	70 555.00	88 967.00	23 952.79	60 628.66	109.49	138.86
1140	99 936.33	88 976.70	33 073.31	60 613.38	76.11	123.98
1220	40 885.00	59 125.00	14 724.08	51 383.62	39.48	62.62
1230	70 395.33	59 152.00	23 884.66	51 373.62	39.26	50.62
1240	99 644.33	59 185.30	32 964.12	51 365.75	- 43.18	39.15
1250	29 111.00	59 222.70	42 111.16	51 359.01	- 53.34	38.81
1260	58 452.70	59 266.70	51 219.40	51 354.40	- 108.40	33.00
1270	87 904.30	59 316.30	60 361.76	51 351.46	- 128.44	33.16
1320	40 916.67	29 869.00	14 715.70	42 301.98	33.70	141.38
1330	70 420.00	29 851.70	23 874.08	42 278.24	29.68	116.34
1340	99 696.33	29 826.00	32 961.99	42 252.04	- 41.71	92.94
1350	28 960.70	29 807.00	42 046.19	42 227.92	- 117.31	70.22
1360	58 639.70	29 829.00	51 259.12	42 216.27	- 68.48	57.57
1420	41 209.33	00 043.30	14 787.97	33 043.34	104.17	42.24
1430	70 580.67	00 016.70	23 905.38	33 016.80	62.58	14.00
1440	99 998.67	00 002.00	33 037.27	32 993.92	36.67	- 5.68
1450	29 320.30	00 005.00	42 139.26	32 976.59	- 22.04	- 19.71

Table LVIII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
1460	58 677.00	00 019.70	51 252.14	32 962.88	- 74.86	- 29.42
1510	11 756.33	70 332.00	5 626.71	23 838.73	111.31	- 8.27
1520	41 288.33	70 356.67	14 794.01	23 828.00	113.91	- 12.90
1530	70 515.67	70 324.67	23 866.71	23 799.87	27.51	- 37.43
1540	99 946.66	70 315.00	33 002.64	23 778.55	1.84	- 56.75
1550	29 320.70	70 323.00	42 120.90	23 762.74	- 41.40	- 68.06
1560	58 796.70	70 342.00	51 270.82	23 750.29	- 51.38	- 77.11
1620	41 399.33	40 658.67	14 809.98	14 609.11	129.38	- 55.49
1630	70 765.67	40 640.33	23 925.84	14 585.14	83.74	- 88.56
1640	00 045.00	40 648.67	33 014.70	14 569.50	13.80	- 100.60
1650	29 496.00	40 690.67	42 156.87	14 564.20	- 2.23	- 102.00
1660	58 724.70	40 729.00	51 230.03	14 557.90	- 91.37	- 105.20
1710	11 607.67	10 782.33	5 543.49	5 353.48	33.39	- 168.42
1720	41 081.33	10 813.67	14 692.69	5 344.86	20.69	- 175.34
1730	70 512.33	10 817.00	23 828.63	5 327.57	- 4.67	- 183.23
1740	99 889.67	10 832.67	32 947.92	5 314.15	- 48.98	- 192.95
1750	29 098.00	10 844.33	42 014.74	5 299.58	- 142.06	- 201.62
1760	58 703.30	10 872.33	51 204.80	5 289.84	- 117.50	- 202.46

Table LVIII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
1220	40 885.00	59 125.00	14 724.08	51 383.62	39.48	62.62
1230	70 395.33	59 152.00	23 884.66	51 373.62	39.26	50.62
1240	99 644.33	59 185.30	32 964.12	51 365.75	- 43.18	39.15
1250	29 111.00	59 222.70	42 111.16	51 359.01	- 53.34	38.81
1260	58 452.70	59 266.70	51 219.40	51 354.40	- 108.40	33.00
1320	40 916.67	29 869.00	14 715.70	42 301.98	33.70	141.38
1330	70 420.00	29 851.70	23 874.08	42 278.24	29.68	116.34
1340	99 696.33	29 826.00	32 961.99	42 252.04	- 41.71	92.94
1350	28 960.70	29 807.00	42 046.19	42 227.92	- 117.31	70.22
1360	58 639.70	29 829.00	51 259.12	42 216.27	- 68.48	57.57
1420	41 209.33	00 043.30	14 787.97	33 043.34	104.17	42.24
1430	70 580.67	00 016.70	23 905.38	33 016.80	62.58	14.00
1440	99 998.67	00 002.00	33 037.27	32 993.92	36.67	- 5.68
1450	29 320.30	00 005.00	42 139.26	32 976.59	- 22.04	- 19.71
1460	58 677.00	00 019.70	51 252.14	32 962.88	- 74.86	- 29.42
1520	41 288.33	70 356.67	14 794.01	23 828.00	113.91	- 12.90
1530	70 515.67	70 324.67	23 866.71	23 799.87	27.51	- 37.43
1540	99 946.66	70 315.00	33 002.64	23 778.55	1.84	- 56.75

Table LVIII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
1550	29 320.70	70 323.00	42 120.90	23 762.74	- 41.40	- 68.06
1560	58 796.70	70 342.00	51 270.82	23 750.29	- 51.38	- 77.11
1620	41 399.33	40 658.67	14 809.98	14 609.11	129.38	- 55.49
1630	70 765.67	40 640.33	23 925.84	14 585.14	83.74	- 88.56
1640	00 045.00	40 648.67	33 014.70	14 569.50	13.80	- 100.60
1650	29 496.00	40 690.67	42 156.87	14 564.20	- 2.23	- 102.00
1660	58 724.70	40 729.00	51 230.03	14 557.90	- 91.37	- 105.20

Table LVIII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-1201	41 259.00	14 853.90	173.53
B-1202	41 036.00	14 784.67	104.30
B-1203	41 016.00	14 773.35	92.98
B-1204	40 954.00	14 754.06	73.69
B-1205	40 990.00	14 760.20	79.83
B-1206	40 855.00	14 718.26	37.89
B-1207	40 872.00	14 718.48	38.11
B-1208	41 073.00	14 780.83	100.46
B-1209	41 161.00	1[illegible] 605.50	125.13
B-1210	41 213.00	14 821.53	141.16
B-1211	41 213.00	14 819.39	139.02
B-1212	40 986.00	14 748.88	68.51
B-1213	40 986.00	14 743.78	63.41
B-1214	41 099.00	14 778.83	98.46
B-1215	41 111.11	14 777.56	97.19
B-1216	40 915.00	14 716.64	36.27
B-1217	40 887.00	14 702.88	22.51
B-1218	41 110.00	14 772.06	91.69
B-1219	41 117.00	14 769.19	88.82
B-1220	40 767.00	14 660.51	- 19.86
B-1221	40 766.00	14 655.11	- 25.26
B-1222	41 176.00	14 782.35	101.98
B-1223	41 176.00	14 777.31	96.94
B-1224	40 894.00	14 689.77	9.40
B-1225	40 842.00	14 668.49	- 11.88
B-1226	40 965.00	14 706.65	26.28

Table LVIII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-1227	41 032.00	14 722.40	42.03
B-1228	40 932.00	14 691.33	10.96
B-1229	40 931.00	14 685.93	5.56
B-1230	41 207.00	14 771.58	91.21
B-1231	41 219.00	14 770.25	89.88
B-1232	41 150.00	14 748.82	68.45
B-1233	41 128.00	14 736.91	56.54
B-1234	41 065.00	14 717.30	36.93
B-1235	41 113.00	14 729.64	49.27
B-1236	41 251.00	14 772.34	91.97
B-1237	41 233.00	14 764.35	83.98
B-1238	41 114.00	14 727.37	47.00
B-1239	41 096.00	14 716.70	36.33
B-1240	41 384.00	14 806.08	125.71
B-1241	41 402.00	14 806.63	126.26
B-1242	41 034.00	14 692.36	11.99
B-1243	41 014.00	14 681.06	0.69
B-1244	41 217.00	14 744.06	63.69
B-1245	41 245.00	14 747.70	67.33
B-1246	41 103.00	14 703.59	23.22
B-1301	70 591.00	23 959.04	117.54
B-1302	70 330.00	23 878.00	36.50
B-1303	70 309.00	23 866.39	24.89
B-1304	70 355.00	23 880.66	39.16
B-1305	70 397.00	23 888.63	47.13
B-1306	70 392.00	23 887.08	45.58

Table LVIII -- Continued

Pt. Ident.	Instrument	X	Residual X
B-1307	70 361.00	23 872.33	30,83
B-1308	70 388.00	23 880.72	39,22
B-1309	70 448.00	23 896.64	55,14
B-1310	70 520.00	23 918.91	77,41
B-1311	70 519.00	23 916.43	74,93
B-1312	70 316.00	23 853.39	11,89
B-1313	70 308.00	23 845.87	4,37
B-1314	70 308.00	23 845.87	4,37
B-1315	70 327.00	23 846.63	5,13
B-1316	70 392.00	23 866.81	25,31
B-1317	70 386.00	23 859.84	18,34
B-1318	70 436.00	23 875.34	33,84
B-1319	70 465.00	23 879.26	37,76
B-1320	70 170.00	23 787.69	- 53,81
B-1321	70 144.00	23 774.51	- 66,99
B-1322	70 571.00	23 907.06	65,56
B-1323	70 575.00	23 903.22	61,72
B-1324	70 258.00	23 804.79	- 36,71
B-1325	70 247.00	23 796.28	- 45,22
B-1326	70 515.00	23 879.46	37,96
B-1327	70 543.00	23 883.08	41,58
B-1328	70 307.00	23 809.80	- 31,70
B-1329	70 307.00	23 804.69	- 36,81
B-1330	70 467.00	23 854.36	12,86
B-1331	70 479.00	23 853.01	11,51
B-1332	70 428.00	23 837.17	- 4,33

Table LVIII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-1333	70 405.00	23 824.96	- 16,54
B-1334	70 466.00	23 843.85	2,35
B-1335	70 537.00	23 863.22	21,72
B-1336	70 639.00	23 894.69	53,19
B-1337	70 622.00	23 887.16	45,66
B-1338	70 543.00	23 862.63	21,13
B-1339	70 521.00	23 850.71	9,21
B-1340	70 728.00	23 914.95	73,45
B-1341	70 750.00	23 916.72	75,22
B-1342	70 362.00	23 796.25	- 45,25
B-1343	70 329.00	23 780.90	- 60,60
B-1344	70 350.00	23 787.42	- 54,08
B-1345	70 377.00	23 790.74	- 50,76
B-1346	70 532.00	23 838.84	- 2,66
B-1401	99 947.00	33 071.64	70,58
B-1402	99 660.00	32 982.52	- 18,54
B-1403	99 648.00	32 973.73	- 27,33
B-1404	99 674.00	32 981.80	- 19,26
B-1405	99 694.00	32 982.90	- 18,16
B-1406	99 635.00	32 964.58	- 36,48
B-1407	99 613.00	32 952.64	- 48,42
B-1408	99 633.00	32 958.85	- 42,21
B-1409	99 689.00	32 973.52	- 27,54
B-1410	99 766.00	32 997.35	- 3,71
B-1411	99 742.00	32 987.70	- 13,36
B-1412	99 744.00	32 988.32	- 12,74

Table LVIII -- Continued

Pt. Ident.	Instrument X	X	Residual X
B-1413	99 708.00	32 972.04	- 29.02
B-1414	99 805.00	33 002.15	1.09
B-1415	99 826.00	33 003.60	2.54
B-1416	99 679.00	32 957.94	- 43.12
B-1417	99 651.00	32 944.16	- 56.90
B-1418	99 871.00	33 012.44	11.38
B-1419	99 909.00	33 019.17	18.11
B-1420	99 522.00	32 899.02	- 102.04
B-1421	99 498.00	32 886.47	- 114.59
B-1422	99 975.00	33 034.53	33.47
B-1423	99 975.00	33 029.45	28.39
B-1424	99 618.00	32 918.62	- 82.44
B-1425	99 597.00	32 907.00	- 94.06
B-1426	99 775.00	32 962.24	- 38.82
B-1427	99 802.00	32 965.54	- 35.52
B-1428	99 787.00	32 960.88	- 40.18
B-1429	99 786.00	32 955.46	- 45.60
B-1430	99 893.00	32 988.67	- 12.39
B-1431	99 908.00	32 988.26	- 12.80
B-1432	99 713.00	32 927.71	- 73.35
B-1433	99 699.00	32 918.29	- 82.77
B-1434	99 845.00	32 963.58	- 37.48
B-1435	99 891.00	32 975.09	- 25.97
B-1436	99 982.00	33 003.12	2.06
B-1437	99 982.00	33 001.01	- 0.05
B-1438	99 754.00	32 930.20	- 70.86

Table LVIII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-1439	99 753.00	32 924.81	- 76,25
B-1440	00 023.00	33 008.62	7,56
B-1441	00 033.00	33 006.65	5,59
B-1442	99 679.00	32 896.74	- 104,32
B-1443	99 674.00	32 890.09	- 110,97
B-1444	99 960.00	32 978.87	- 22,19
B-1445	99 998.00	32 985.60	- 15,46
B-1446	99 896.00	32 953.91	- 47,15
B-1501	29 284.00	42 178.34	16,73
B-1502	29 075.00	42 113.46	- 48,15
B-1503	29 075.00	42 108.36	- 53,25
B-1504	29 013.00	42 089.11	- 72,50
B-1505	29 039.00	42 092.09	- 69,52
B-1506	29 102.00	42 111.65	- 49,96
B-1507	29 075.00	42 098.16	- 63,45
B-1508	29 183.00	42 131.69	- 29,92
B-1509	29 222.00	42 141.10	- 20,51
B-1510	29 305.00	42 166.78	5,17
B-1511	29 289.00	42 159.56	- 2,05
B-1512	29 167.00	42 121.69	- 39,92
B-1513	29 127.00	42 104.16	- 57,45
B-1514	29 153.00	42 112.24	- 49,37
B-1515	29 175.00	42 113.98	- 47,63
B-1516	28 937.00	42 040.09	- 121,52
B-1517	28 927.00	42 031.90	- 129,71

Table LVIII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-1518	29 160.00	42 104.22	- 57.39
B-1519	29 191.00	42 108.77	- 52.84
B-1520	28 857.00	42 005.07	- 156.54
B-1521	28 837.00	41 993.77	- 167.84
B-1522	29 282.00	42 131.89	- 29.72
B-1523	29 303.00	42 133.34	- 28.27
B-1524	28 974.00	42 031.20	- 130.41
B-1525	28 973.00	42 025.78	- 135.83
B-1526	29 099.00	42 064.89	- 96.72
B-1527	29 129.00	42 069.10	- 92.51
B-1528	29 116.00	42 065.06	- 96.55
B-1529	29 065.00	42 044.14	- 117.47
B-1530	29 272.00	42 108.40	- 53.21
B-1531	29 289.00	42 108.59	- 53.02
B-1532	29 274.00	42 103.93	- 57.68
B-1533	29 242.00	42 088.91	- 72.70
B-1534	29 297.00	42 105.98	- 55.63
B-1535	29 333.00	42 114.28	- 47.33
B-1536	29 411.00	42 138.31	- 23.30
B-1537	29 391.00	42 130.05	- 31.56
B-1538	29 225.00	42 078.51	- 83.10
B-1539	29 213.00	42 069.69	- 91.92
B-1540	29 486.00	42 154.44	- 7.17
B-1541	29 518.00	42 159.29	- 2.32
B-1542	29 033.00	42 008.72	- 152.89
B-1543	29 018.00	41 998.97	- 162.64

Table LVIII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-1544	29 139.00	42 036.53	- 125.08
B-1545	29 153.00	42 035.79	- 125.82
B-1546	29 100.00	42 019.33	- 142.28
B-1601	58 718.00	51 315.16	- 10.45
B-1602	58 461.00	51 235.38	- 90.23
B-1603	58 464.00	51 231.21	- 94.40
B-1604	58 401.00	51 211.64	- 113.97
B-1605	58 419.00	51 212.13	- 113.48
B-1606	58 441.00	51 218.96	- 106.65
B-1607	58 421.00	51 207.66	- 117.95
B-1608	58 510.00	51 235.29	- 90.32
B-1609	58 553.00	51 245.99	- 79.62
B-1610	58 598.00	51 259.89	- 65.72
B-1611	58 585.00	51 253.53	- 72.08
B-1612	58 585.00	51 253.53	- 72.08
B-1613	58 568.00	51 243.13	- 82.48
B-1614	58 420.00	51 197.18	- 128.43
B-1615	58 475.00	51 209.18	- 116.43
B-1616	58 618.00	51 253.56	- 72.05
B-1617	58 618.00	51 248.48	- 77.13
B-1618	58 586.00	51 238.54	- 87.07
B-1619	58 622.00	51 244.62	- 80.99
B-1620	58 336.00	51 155.83	- 169.78
B-1621	58 311.00	51 142.97	- 182.64
B-1622	58 631.00	51 242.31	- 83.30

Table LVIII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-1623	58 665.00	51 247.76	- 77.85
B-1624	58 422.00	51 172.33	- 153.28
B-1625	58 402.00	51 161.02	- 164.59
B-1626	58 637.00	51 233.97	- 91.64
B-1627	58 670.00	51 239.12	- 86.49
B-1628	58 482.00	51 180.76	- 144.85
B-1629	58 462.00	51 169.45	- 156.16
B-1630	58 756.00	51 260.71	- 64.90
B-1631	58 772.00	51 260.59	- 65.02
B-1632	58 642.00	51 220.23	- 105.38
B-1633	58 642.00	51 215.14	- 110.47
B-1634	58 624.00	51 209.56	- 116.05
B-1635	58 663.00	51 218.69	- 106.92
B-1636	58 711.00	51 233.43	- 92.18
B-1637	58 695.00	51 226.51	- 99.10
B-1638	58 648.00	51 211.92	- 113.69
B-1639	58 616.00	51 196.87	- 128.74
B-1640	58 698.00	51 222.33	- 103.28
B-1641	58 736.00	51 229.04	- 96.57
B-1642	58 504.00	51 157.02	- 168.59
B-1643	58 502.00	51 151.30	- 174.31
B-1644	58 502.00	51 151.30	- 174.31
B-1645	58 558.00	51 163.59	- 162.02
B-1646	58 708.00	51 210.16	- 115.45

Table LIX. Photogrammetric Horizontal Adjustment - EW Strip GI-2

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A  +.31041885152(+ 00)  -.62260813737(- 03)    B  +.19335341410(+ 04)  +.20136726348(+ 04)

           NO. OF CONTROL  25       DEGREE OF TRANS. 1    RUN 1

              COEFFICIENTS                   COEFFICIENTS
         A. +.30985865057   (+ 00)      B. -.14957507389   (- 03)
         C. +.20466798627   (+ 04)      D. +.19668540483   (+ 04)
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Table LIX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
2220	41 508.00	59 681.00	14 852.35	51 519.01	187.75	179.31
2230	70 789.33	59 622.70	23 925.42	51 496.57	94.02	152.97
2240	00 201.70	59 575.70	33 039.09	51 477.60	41.99	132.80
2250	29 613.70	59 539.00	42 152.64	51 461.83	- 12.86	120.13
2260	58 984.70	59 514.00	51 253.50	51 449.69	- 81.70	111.09
2320	41 056.67	29 619.30	14 708.01	42 204.20	38.31	33.10
2330	70 572.67	29 602.00	23 853.79	42 194.42	22.39	27.12
2340	99 849.00	29 604.30	32 925.32	42 190.76	- 70.88	22.26
2350	29 161.30	29 600.30	42 007.99	42 185.13	- 154.21	16.03
2360	58 716.00	29 596.70	51 165.76	42 179.60	- 166.24	11.80
2420	41 203.33	00 026.70	14 749.02	33 034.66	79.52	27.36
2430	70 568.67	00 017.70	23 848.13	33 027.47	16.63	20.27
2440	99 995.00	00 006.00	32 966.13	33 019.45	- 32.87	18.15
2450	29 397.70	00 016.00	42 076.81	33 018.15	- 81.89	15.55
2460	58 892.70	00 003.70	51 216.09	33 009.93	- 113.81	11.03
2520	41 476.33	70 192.33	14 829.15	23 790.18	158.05	- 52.92
2530	70 950.67	70 170.67	23 962.03	23 779.06	126.13	- 56.14
2540	00 149.00	70 172.00	33 009.38	23 775.10	11.08	- 60.40

Table LIX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
2550	29 730.70	70 176.33	42 175.53	23 772.02	17.83	- 66.08
2560	58 951.30	70 181.33	51 229.79	23 769.20	- 94.21	- 62.60
2620	41 514.67	40 317.00	14 836.56	14 533.04	165.76	- 148.16
2630	70 732.33	40 344.33	23 889.91	14 537.14	58.71	- 141.76
2640	00 110.00	40 395.00	32 992.85	14 548.45	0.15	- 123.45
2650	29 397.00	40 461.00	42 067.69	14 564.52	- 87.51	- 105.88
2660	58 861.00	40 534.67	51 197.37	14 582.94	- 122.13	- 81.56

Table LIX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
2110	11 944.00	89 382.70	5 696.13	60 726.76	198.73	214.66
2120	41 405.67	89 377.70	14 825.09	60 720.81	158.59	208.41
2130	70 782.00	89 341.30	23 927.59	60 705.13	96.89	188.23
2140	00 077.70	89 271.70	33 005.11	60 679.18	8.71	161.48
2150	29 605.70	89 235.30	42 154.61	60 663.49	-12.89	143.09
2170	88 324.30	89 182.00	60 349.06	60 638.19	-163.94	121.59
2220	41 508.00	59 681.00	14 852.35	51 519.01	187.75	179.31
2230	70 789.33	59 622.70	23 925.42	51 496.57	94.02	152.97
2240	00 201.70	59 575.70	33 039.09	51 477.60	41.99	132.80
2250	29 613.70	59 539.00	42 152.64	51 461.83	-12.86	120.13
2260	58 984.70	59 514.00	51 253.50	51 449.69	-81.70	111.09
2320	41 056.67	29 619.30	14 708.01	42 204.20	38.31	33.10
2330	70 572.67	29 602.00	23 853.79	42 194.42	22.39	27.12
2340	99 849.00	29 604.30	32 925.32	42 190.76	-70.88	22.26
2350	29 161.30	29 600.30	42 007.99	42 185.13	-154.21	16.03
2360	58 716.00	29 596.70	51 165.76	42 179.60	-166.24	11.80
2420	41 203.33	00 026.70	14 749.02	33 034.66	79.52	27.36
2430	70 568.67	00 017.70	23 848.13	33 027.47	16.63	20.27

Table LIX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
2440	99 995.00	00 006.00	32 966.13	33 019.45	- 32.87	18.15
2450	29 397.70	00 016.00	42 076.81	33 018.15	- 81.89	15.55
2460	58 892.70	00 003.70	51 216.09	33 009.93	- 113.81	11.03
2520	41 476.33	70 192.33	14 829.15	23 790.18	158.05	- 52.92
2530	70 950.67	70 170.67	23 962.03	23 779.06	126.13	- 56.14
2540	00 149.00	70 172.00	33 009.38	23 775.10	11.08	- 60.40
2550	29 730.70	70 176.33	42 175.53	23 772.02	17.83	- 66.08
2560	58 951.30	70 181.33	51 229.79	23 769.20	- 94.21	- 62.60
2620	41 514.67	40 317.00	14 836.56	14 533.04	165.76	- 148.16
2630	70 732.33	40 344.33	23 889.91	14 537.14	58.71	- 141.76
2640	00 110.00	40 395.00	32 992.85	14 548.45	0.15	- 123.45
2650	29 397.00	40 461.00	42 067.69	14 564.52	- 87.51	- 105.88
2660	58 861.00	40 534.67	51 197.37	14 582.94	- 122.13	- 81.56
2720	41 475.33	10 673.33	14 819.94	5 347.70	152.54	- 174.50
2730	70 925.00	10 699.67	23 945.18	5 351.46	116.28	- 164.64
2740	00 370.00	10 738.33	33 068.97	5 359.03	79.97	- 149.87
2750	29 580.70	10 803.67	42 120.17	5 374.91	- 31.13	- 126.09
2760	59 125.30	10 878.67	51 274.83	5 393.73	- 40.07	- 103.57

Table LIX -- Continued

Pt. Ident.	Instrument	X	Residual X
B-2101	11 895,00	5 680,24	175,36
B-2102	11 700,00	5 619,82	114,94
B-2115	11 905,00	5 675,96	171,08
B-2116	11 628,00	5 590,13	85,25
B-2117	11 584,00	5 575,26	70,38
B-2118	11 893,00	5 671,00	166,12
B-2119	11 893,00	5 669,79	164,91
B-2201	41 344,00	14 805,26	136,96
B-2202	41 344,00	14 805,26	136,96
B-2203	41 318,00	14 795,98	127,68
B-2204	41 298,00	14 789,78	121,48
B-2205	41 298,00	14 788,56	120,26
B-2206	41 150,00	14 742,70	74,40
B-2207	41 103,00	14 726,91	58,61
B-2208	41 510,00	14 853,02	184,72
B-2209	41 565,00	14 868,85	200,55
B-2210	41 081,00	14 718,87	50,57
B-2211	41 081,00	14 718,17	49,87
B-2212	41 132,00	14 733,95	65,65
B-2213	41 098,00	14 722,88	54,58
B-2214	41 279,00	14 778,96	110,66
B-2215	41 278,00	14 777,44	109,14
B-2216	41 046,00	14 705,54	37,24
B-2217	41 046,00	14 704,32	36,02
B-2218	41 192,00	14 749,55	81,25
B-2219	41 235,00	14 761,67	93,37

Table LIX -- Continued

Pt. Ident.	Instrument	X	Residual X
B-2220	41 090.00	14 716.73	48.43
B-2221	41 049.00	14 702.80	34.50
B-2222	41 267.00	14 770.34	102.04
B-2223	41 303.00	14 780.28	111.98
B-2224	41 205.00	14 749.91	81.61
B-2225	41 175.00	14 739.39	71.09
B-2226	41 191.00	14 744.35	76.05
B-2227	41 214.00	14 750.25	81.95
B-2228	41 135.00	14 725.77	57.47
B-2229	41 099.00	14 713.39	45.09
B-2230	41 404.00	14 807.90	139.60
B-2231	41 473.00	14 828.06	159.76
B-2232	41 220.00	14 749.66	81.36
B-2233	41 219.00	14 748.13	79.83
B-2234	41 472.00	14 826.51	158.21
B-2235	41 509.00	14 836.77	168.47
B-2236	41 116.00	14 714.99	46.69
B-2237	41 116.00	14 714.40	46.10
B-2238	41 172.00	14 731.73	63.43
B-2239	41 172.00	14 731.08	62.78
B-2240	41 435.00	14 812.56	144.26
B-2241	41 490.00	14 828.39	160.09
B-2242	41 086.00	14 703.21	34.91
B-2243	41 066.00	14 695.78	27.48
B-2244	41 333.00	14 778.51	110.21
B-2245	41 364.00	14 786.90	118.60

Table LIX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-2246	41 085.00	14 700.45	32,15
B-2247	41 071.00	14 694.88	26,58
B-2248	41 451.00	14 812.62	144,32
B-2301	70 759.00	23 919.75	88,18
B-2302	70 645.00	23 884.42	52,85
B-2303	70 610.00	23 872.35	40,78
B-2304	70 724.00	23 907.67	76,10
B-2305	70 724.00	23 906.45	74,88
B-2306	70 529.00	23 846.02	14,45
B-2307	70 508.00	23 838.30	6,73
B-2308	70 778.00	23 921.95	90,38
B-2309	70 788.00	23 923.84	92,27
B-2310	70 531.00	23 844.20	12,63
B-2311	70 531.00	23 843.48	11,91
B-2312	70 590.00	23 861.73	30,16
B-2313	70 560.00	23 851.93	20,36
B-2314	70 524.00	23 840.78	9,21
B-2315	70 564.00	23 851.95	20,38
B-2316	70 563.00	23 851.64	20,07
B-2317	70 541.00	23 843.60	12,03
B-2318	70 660.00	23 880.47	48,90
B-2319	70 682.00	23 886.07	54,50
B-2320	70 364.00	23 787.53	-44,04
B-2321	70 364.00	23 786.31	-45,26
B-2322	70 548.00	23 843.32	11,75
B-2323	70 572.00	23 849.53	17,96

Table LIX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-2324	70 572.00	23 849.53	17,96
B-2325	70 534.00	23 836.53	4,96
B-2326	70 695.00	23 886.42	54,85
B-2327	70 715.00	23 891.40	59,83
B-2328	70 525.00	23 832.52	0,95
B-2329	70 488.00	23 819.82	- 11,75
B-2330	70 906.00	23 949.34	117,77
B-2331	70 922.00	23 953.08	121,51
B-2332	70 574.00	23 845,25	13,68
B-2333	70 546.00	23 835,35	3,78
B-2334	70 704.00	23 884.30	52,73
B-2335	70 744.00	23 895,48	63,91
B-2336	70 649.00	23 866.05	34,48
B-2337	70 673,00	23 872,87	41,30
B-2338	70 720.00	23 887.42	55,85
B-2339	70 707,00	23 882.76	51,19
B-2340	70 679.00	23 874.08	42,51
B-2341	70 703.00	23 880.30	48,73
B-2342	70 554.00	23 834.13	2,56
B-2343	70 534.00	23 826.70	- 4,87
B-2344	70 620.00	23 853,35	21,78
B-2345	70 677,00	23 869.80	38,23
B-2346	70 539.00	23 827.03	- 4,54
B-2347	70 538.00	23 825.50	- 6,07
B-2348	70 902,00	23 938.28	106,71
B-2401	00 072.00	33 002.63	7,10

Table LIX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-2402	99 954.00	32 966.06	- 29,47
B-2403	99 919.00	32 953.99	- 41,54
B-2404	00 152.00	33 026.18	30,65
B-2405	00 169.00	33 030.23	34,70
B-2406	99 892.00	32 944.40	- 51,13
B-2407	99 854.00	32 931.40	- 64,13
B-2408	00 195.00	33 037.07	41,54
B-2409	00 194.00	33 035.53	40,00
B-2410	99 838.00	32 925.22	- 70,31
B-2411	99 840.00	32 925.09	- 70,44
B-2412	99 874.00	32 935.57	- 59,96
B-2413	99 874.00	32 935.13	- 60,40
B-2414	00 057.00	32 991.83	- 3,70
B-2415	00 078.00	32 997.12	1,59
B-2416	99 851.00	32 926.78	- 68,75
B-2417	99 805.00	32 911.30	- 84,23
B-2418	99 965.00	32 960.88	- 34,65
B-2419	99 994.00	32 968.65	- 26,88
B-2420	99 956.00	32 956.87	- 38,66
B-2421	99 956.00	32 955.64	- 39,89
B-2422	00 006.00	32 971.13	- 24,40
B-2423	00 037.00	32 979.52	- 16,01
B-2424	99 975.00	32 960.31	- 35,22
B-2425	99 948.00	32 950.71	- 44,82
B-2426	00 108.00	33 000.29	4,76
B-2427	00 108.00	32 999.07	3,54

Table LIX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-2428	99 873.00	32 926.25	- 69.28
B-2429	99 846.00	32 916.65	- 78.88
B-2430	00 122.00	33 002.17	6.64
B-2431	00 142.00	33 007.15	11.62
B-2432	99 864.00	32 921.01	- 74.52
B-2433	99 789.00	32 896.65	- 98.98
B-2434	00 155.00	33 009.95	14.42
B-2435	00 190.00	33 019.58	24.05
B-2436	99 969.00	32 951.10	- 44.43
B-2437	99 998.00	32 959.47	- 36.06
B-2438	00 055.00	32 977.11	- 18.42
B-2439	00 028.00	32 968.13	- 27.40
B-2440	00 052.00	32 975.57	- 19.96
B-2441	00 096.00	32 987.98	- 7.55
B-2442	99 925.00	32 934.99	- 60.54
B-2443	99 924.00	32 933.46	- 62.07
B-2444	00 114.00	32 992.33	- 3.20
B-2445	00 158.00	33 004.75	9.22
B-2446	99 806.00	32 895.67	- 99.86
B-2447	99 806.00	32 894.45	- 101.08
B-2448	00 350.00	33 063.00	67.47
B-2501	29 580.00	42 145.93	- 13.80
B-2502	29 586.00	42 147.79	- 11.94
B-2503	29 566.00	42 140.36	- 19.37
B-2504	29 534.00	42 130.44	- 29.29
B-2505	29 573.00	42 141.31	- 1[illegible].42

Pt. Ident.	Instrument x	X	Residual X
B-2506	29 270.00	42 047.41	- 112,32
B-2507	29 231.00	42 034.11	- 125,62
B-2508	29 603.00	42 149.38	- 10,35
B-2509	29 600.00	42 147.23	- 12,50
B-2510	29 233.00	42 033,51	- 126,22
B-2511	29 232.00	42 032,42	- 127.31
B-2512	29 285.00	42 048.79	- 110.94
B-2513	29 264.00	42 041,87	- 117.86
B-2514	29 322,00	42 059,85	- 99,88
B-2515	29 329.00	42 060,79	- 98,94
B-2516	29 179.00	42 014,31	- 145,42
B-2517	29 135.00	41 999.45	- 160,28
B-2518	29 298.00	42 049.96	- 109,77
B-2519	29 350.00	42 064.85	- 94,88
B-2520	29 242.00	42 031.38	- 128,35
B-2521	29 226.00	42 025,20	- 134.53
B-2522	29 374.00	42 071,06	- 88,67
B-2523	29 391.00	42 075,10	- 84,63
B-2524	29 392.00	42 075,41	- 84,32
B-2525	29 358.00	42 063,65	- 96,08
B-2526	29 408.00	42 079.14	- 80,59
B-2527	29 430.00	42 084,74	- 74,99
B-2528	29 234.00	42 024,01	- 135,72
B-2529	29 234.00	42 022,78	- 136,95
B-2530	29 715.00	42 171,82	12,09
B-2531	29 717.00	42 171,22	11,49

Table LIX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-2532	29 359.00	42 060.29	- 99.44
B-2533	29 359.00	42 059.06	- 100.67
B-2534	29 467.00	42 092.53	- 67.20
B-2535	29 488.00	42 097.82	- 61.91
B-2536	29 243.00	42 021.90	- 137.83
B-2537	29 242.00	42 020.96	- 138.77
B-2538	29 295.00	42 037.36	- 122.37
B-2539	29 272.00	42 029.65	- 130.08
B-2540	29 329.00	42 047.31	- 112.42
B-2541	29 366.00	42 057.55	- 102.18
B-2542	29 236.00	42 017.27	- 142.46
B-2543	29 245.00	42 018.83	- 140.90
B-2544	29 514.00	42 102.18	- 57.55
B-2545	29 557.00	42 114.29	- 45.44
B-2546	29 272.00	42 025.98	- 133.75
B-2547	29 272.00	42 024.75	- 134.98
B-2548	29 554.00	42 112.13	- 47.60
B-2601	58 985.00	51 257.31	- 70.83
B-2602	58 929.00	51 239.96	- 88.18
B-2603	58 912.00	51 233.46	- 94.68
B-2604	58 978.00	51 253.91	- 74.23
B-2605	58 978.00	51 252.69	- 75.45
B-2606	58 860.00	51 216.13	- 112.01
B-2607	58 860.00	51 214.90	- 113.24
B-2608	58 968.00	51 248.37	- 79.77
B-2609	58 968.00	51 247.15	- 80.99

Table LIX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-2610	58 677.00	51 156.98	- 171.16
B-2611	58 677.00	51 156.19	- 171.95
B-2612	58 746.00	51 177.50	- 150.64
B-2613	58 707.00	51 165.04	- 163.10
B-2614	58 623.00	51 139.01	- 189.13
B-2615	58 623.00	51 137.79	- 190.35
B-2616	58 698.00	51 161.03	- 167.11
B-2617	58 683.00	51 155.16	- 172.98
B-2618	58 792.00	51 183.93	- 139.21
B-2619	58 837.00	51 201.65	- 126.49
B-2620	58 674.00	51 151.14	- 177.00
B-2621	58 652.00	51 143.10	- 185.04
B-2622	58 856.00	51 206.31	- 121.83
B-2623	58 890.00	51 215.62	- 112.52
B-2624	58 871.00	51 209.74	- 118.40
B-2625	58 855.00	51 203.55	- 124.59
B-2626	58 876.00	51 210.06	- 118.08
B-2627	58 882.00	51 210.70	- 117.44
B-2628	58 732.00	51 164.21	- 163.93
B-2629	58 717.00	51 158.34	- 169.80
B-2630	58 916.00	51 220.00	- 108.14
B-2631	58 948.00	51 228.70	- 99.44
B-2632	58 706.00	51 153.71	- 174.43
B-2633	58 669.00	51 141.02	- 187.12
B-2635	58 862.00	51 199.61	- 128.53
B-2634	58 857.00	51 199.27	- 128.87

Table LIX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-2636	58 807.00	51 182.56	- 145.58
B-2637	58 810.00	51 182.84	- 145.30
B-2638	58 854.00	51 196.46	- 131.68
B-2639	58 829.00	51 188.15	- 139.99
B-2640	58 792.00	51 176.68	- 151.46
B-2641	58 858.00	51 195.92	- 132.22
B-2642	58 662.00	51 135.18	- 192.96
B-2643	58 662.00	51 133.96	- 194.18
B-2644	58 789.00	51 173.31	- 154.83
B-2645	58 818.00	51 181.07	- 147.07
B-2646	58 727.00	51 152.88	- 175.26
B-2647	58 727.00	51 151.65	- 176.49
B-2648	59 097.00	51 266.30	- 61.84

Table LX. Photogrammetric Horizontal Adjustment - EW Strip GI-3

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A  +.30985865057(+ 00)  -.14957507389(- 03)    B  +.19668540483(+ 04)  +.20466798627(+ 04)

            NO. OF CONTROL  25     DEGREE OF TRANS. 1   RUN 1

              COEFFICIENTS                     COEFFICIENTS
           A. +.31017046795   (+ 00)        B. +.43849920018   (- 03)
           C. +.19626744665   (+ 04)        D. +.20834325700   (+ 04)
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Table LX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
3220	41 237.67	59 340.70	14 804.27	51 403.54	122.17	78.74
3230	70 550.33	59 296.00	23 896.21	51 402.53	52.31	76.13
3240	99 799.00	59 268.30	32 968.30	51 406.76	- 36.30	77.36
3250	29 265.70	59 246.30	42 108.01	51 412.86	- 58.19	83.86
3260	58 575.00	59 220.00	51 198.90	51 417.55	- 129.70	90.45
3320	41 054.33	29 703.70	14 760.40	42 210.93	74.70	46.83
3330	70 483.00	29 680.00	23 888.31	42 216.49	43.31	52.59
3340	99 947.67	29 677.70	33 027.38	42 228.69	24.58	64.29
3350	29 103.70	29 666.00	42 070.73	42 237.85	- 93.47	74.05
3360	58 706.70	29 687.30	51 252.70	42 257.44	- 73.70	95.44
3420	41 280.00	00 037.30	14 843.40	33 009.39	157.40	6.99
3430	70 722.67	00 015.30	23 975.66	33 015.48	131.56	10.38
3440	00 000.00	99 995.33	33 056.63	33 022.12	52.93	20.92
3450	29 325.70	00 009.00	42 152.59	33 039.22	- 13.31	38.62
3460	58 722.00	00 026.00	51 270.45	33 057.39	- 57.05	58.19
3520	40 997.67	70 186.67	14 768.92	23 750.48	81.12	- 92.22
3530	70 392.33	70 156.67	23 886.29	23 754.07	43.29	- 89.23
3540	99 764.33	70 157.33	32 996.62	23 767.15	- 8.48	- 74.45

Table LX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
3550	29 199.00	70 154.67	42 126.38	23 779.23	- 39.82	- 61.07
3560	58 636.30	70 158.33	51 256.96	23 793.28	- 70.54	- 44.52
3620	40 939.00	40 715.67	14 763.65	14 609.42	75.15	- 71.58
3630	70 241.33	40 599.00	23 852.42	14 586.09	9.32	- 95.01
3640	99 650.33	40 509.00	32 974.26	14 571.07	- 29.14	- 106.03
3650	28 907.30	40 433.33	42 048.94	14 560.43	- 115.26	- 115.57
3660	58 360.30	40 355.00	51 184.43	14 549.04	- 142.87	- 125.16

Table LX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
3110	11 637.00	89 131.70	5 609.95	60 630.85	84.15	143.85
3120	41 211.67	89 069.00	14 783.17	60 624.37	97.37	134.37
3130	70 492.67	89 035.70	23 865.29	60 626.88	22.09	134.38
3150	29 314.70	88 964.00	42 110.17	60 630.43	- 53.63	137.53
3160	58 661.30	88 937.30	51 212.63	60 635.02	- 115.07	141.22
3170	87 990.00	88 925.00	60 309.54	60 644.06	- 179.66	155.76
3220	41 237.67	59 340.70	14 804.27	51 403.54	122.17	78.74
3230	70 550.33	59 296.00	23 896.21	51 402.53	52.31	76.13
3240	99 799.00	59 268.30	32 968.30	51 406.76	- 36.30	77.36
3250	29 265.70	59 246.30	42 108.01	51 412.86	- 58.19	83.86
3260	58 575.00	59 220.00	51 198.90	51 417.55	- 129.70	90.45
3270	88 051.70	59 211.70	60 341.70	51 427.90	- 146.20	103.50
3320	41 054.33	29 703.70	14 760.40	42 210.93	74.70	46.83
3330	70 483.00	29 680.00	23 888.31	42 216.49	43.31	52.59
3340	99 947.67	29 677.70	33 027.38	42 228.69	24.58	64.29
3350	29 103.70	29 666.00	42 070.73	42 237.85	- 93.47	74.05
3360	58 706.70	29 687.30	51 252.70	42 257.44	- 73.70	95.44
3370	87 914.00	29 707.30	60 311.93	42 276.45	- 175.77	114.55

Table LX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
3420	41 280.00	00 037.30	14 843.40	33 009.39	157.40	6.99
3430	70 722.67	00 015.30	23 975.66	33 015.48	131.56	10.38
3440	00 000.00	99 995.33	33 056.63	33 022.12	52.93	20.92
3450	29 325.70	00 009.00	42 152.59	33 039.22	- 13.31	38.62
3460	58 722.00	00 026.00	51 270.45	33 057.39	- 57.05	58.19
3520	40 997.67	70 186.67	14 768.92	23 750.48	81.12	- 92.22
3530	70 392.33	70 156.67	23 886.29	23 754.07	43.29	- 89.23
3540	99 764.33	70 157.33	32 996.62	23 767.15	- 8.48	- 74.45
3550	29 199.00	70 154.67	42 126.33	23 779.23	- 39.82	- 61.07
3560	58 636.30	70 158.33	51 256.96	23 793.28	- 70.54	- 44.52
3570	87 902.70	70 178.33	60 334.53	23 812.32	- 159.87	- 26.08
3620	40 939.00	40 715.67	14 763.65	14 609.42	75.15	- 71.58
3630	70 241.33	40 599.00	23 852.42	14 586.09	9.32	- 95.01
3640	99 650.33	40 509.00	32 974.26	14 571.07	- 29.14	- 106.03
3650	28 907.30	40 433.33	42 048.94	14 560.43	- 115.26	- 115.57
3660	58 360.30	40 355.00	51 184.43	14 549.04	- 142.87	- 125.16
3670	87 888.30	40 248.67	60 343.19	14 529.01	- 147.71	- 132.29
3721	40 911.67	10 961.00	14 768.22	5 380.39	81.82	- 141.01

Table LX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
3722	40 877.00	10 961.00	14 757.46	5 380.38	71.06	- 141.02
3731	70 380.33	10 850.00	23 908.57	5 358.89	67.37	- 156.81
3732	70 360.33	10 848.00	23 902.37	5 358.26	61.17	- 157.44
3741	99 657.00	10 739.00	32 989.38	5 337.29	- 13.12	- 177.41
3742	99 712.67	10 739.33	33 006.65	5 337.42	4.15	- 177.28
3751	28 912.70	10 635.00	42 063.68	5 317.87	- 99.82	- 191.83
3752	29 108.70	10 629.67	42 124.48	5 316.30	- 39.02	- 193.40
3761	58 470.30	10 544.00	51 231.62	5 302.60	- 96.48	- 200.30
3762	58 402.00	10 540.00	51 210.43	5 301.33	- 117.67	- 201.57

Table LX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-3201	41 179.00	14 775.74	89,70
B-3202	41 271.00	14 804.30	118,26
B-3203	41 312.00	14 820.57	134,53
B-3204	40 836.00	14 672.96	- 13,08
B-3205	40 816.00	14 670.49	- 15,55
B-3206	41 226.00	14 797.66	111,62
B-3207	41 226.00	14 801.07	115,03
B-3208	40 879.00	14 693.45	7,41
B-3209	40 878.00	14 694.38	8,34
B-3210	40 913.00	14 705.31	19,27
B-3211	40 913.00	14 707.62	21,58
B-3212	41 197.00	14 795.71	109,67
B-3213	41 098.00	14 768.55	82,51
B-3214	41 140.00	14 781.59	95,55
B-3215	41 074.00	14 764.71	78,67
B-3216	41 018.00	14 747.37	61,33
B-3217	41 017.00	14 750.61	64,57
B-3218	40 857.00	14 700.98	14,94
B-3219	40 824.00	14 694.35	8,31
B-3220	41 070.00	14 770.68	84,64
B-3221	41 102.00	14 784.16	98,12
B-3222	41 147.00	14 798.12	112,08
B-3223	41 115.00	14 791.80	105,76
B-3224	41 240.00	14 830.59	144,55
B-3225	41 282.00	14 847.17	161,13
B-3226	41 019.00	14 765.62	79,58

Table LX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-3227	41 000.00	14 763.31	77.27
B-3228	41 401.00	14 887.71	201.67
B-3229	41 432.00	14 900.88	214.84
B-3230	41 010.00	14 770.01	83.97
B-3231	40 996.00	14 769.23	83.19
B-3232	41 239.00	14 844.64	158.60
B-3233	41 288.00	14 863.38	177.34
B-3234	40 862.00	14 731.25	45.21
B-3235	40 862.00	14 732.93	46.89
B-3236	40 901.00	14 745.08	59.04
B-3237	40 887.00	14 742.57	56.53
B-3238	41 202.00	14 840.30	154.26
B-3239	41 202.00	14 843.84	157.80
B-3240	40 939.00	14 762.30	76.26
B-3241	40 879.00	14 747.26	61.22
B-3242	41 128.00	14 824.52	138.48
B-3243	41 128.00	14 828.07	142.03
B-3244	41 087.00	14 815.37	129.33
B-3245	41 032.00	14 801.90	115.86
B-3246	40 906.00	14 762.84	76.80
B-3247	40 906.00	14 766.41	80.37
B-3248	40 880.00	14 758.35	72.31
B-3301	70 447.00	23 853.86	10.50
B-3302	70 521.00	23 876.81	33.45
B-3303	70 546.00	23 888.15	44.79
B-3304	70 514.00	23 878.22	34.86

Pt. Ident.	Instrument x	X	Residual X
B-3305	70 476.00	23 870.01	26,65
B-3306	70 507.00	23 879.65	36,29
B-3307	70 545.00	23 895.01	51.65
B-3308	70 257.00	23 805.68	- 37,68
B-3309	70 275.00	23 812.58	- 30,78
B-3310	70 299.00	23 820.11	- 23,25
B-3311	70 279.00	23 816.09	- 27,27
B-3312	70 301.00	23 822.92	- 20,44
B-3313	70 333.00	23 836.41	- 6,95
B-3314	70 448.00	23 872.10	28,74
B-3315	70 448.00	23 875.70	32,34
B-3316	70 452.00	23 876.94	33,58
B-3317	70 461.00	23 883.29	39,93
B-3318	70 233.00	23 812.58	- 30,78
B-3319	70 205.00	23 807.47	- 35,89
B-3320	70 490.00	23 895.90	52,54
B-3321	70 518,00	23 908.15	64,79
B-3322	70 428,00	23 880.25	36,89
B-3323	70 396.00	23 873.93	30,57
B-3324	70 713,00	23 972.26	128,90
B-3325	70 743,00	23 985.13	141,77
B-3326	70 438,00	23 890.55	47,19
B-3327	70 402,00	23 882.96	39,60
B-3328	70 602,00	23 945.01	101,65
B-3329	70 631,00	23 957.57	114,21
B-3330	70 394,00	23 884,07	40,71

Table LX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-3331	70 365.00	23 878.65	35,29
B-3332	70 494.00	23 918.70	75,34
B-3333	70 516.00	23 929.07	85,71
B-3334	70 428.00	23 901.77	58,41
B-3335	70 428.00	23 903.50	60,14
B-3336	70 484.00	23 920.93	77,57
B-3337	70 440.00	23 909.10	65,74
B-3338	70 642.00	23 971.77	128,41
B-3339	70 642.00	23 975,32	131,95
B-3340	70 231.00	23 847.86	4,50
B-3341	70 188.00	23 838.11	-5,25
B-3342	70 409.00	23 906.67	63,31
B-3343	70 409.00	23 910.23	66,87
B-3344	70 383.00	23 902.17	58,81
B-3345	70 316.00	23 884.79	41,63
B-3346	70 377.00	23 903.92	60,56
B-3347	70 376.00	23 907,22	63,86
B-3348	70 360.00	23 902.27	58,91
B-3401	99 734.00	32 937.85	-65,39
B-3402	99 977.00	33 013.23	9,99
B-3403	00 014.00	33 028.27	25,03
B-3404	99 703.00	32 931.84	-71,40
B-3405	99 703.00	32 935.40	-67,84
B-3406	99 778.00	32 958.69	-44,55
B-3407	99 778.00	32 962.24	-41,00
B-3408	99 689.00	32 934.64	-68,60

Pt. Ident.	Instrument X	X	Residual X
B-3409	99 697.00	32 938.53	- 64.71
B-3410	99 712.00	32 943.26	- 59.98
B-3411	99 704.00	32 942.88	- 60.36
B-3412	99 887.00	32 999.65	- 3.59
B-3413	99 899.00	33 006.94	3.70
B-3414	99 824.00	32 983.69	- 19.55
B-3415	99 793.00	32 977.66	- 25.58
B-3416	99 907.00	33 013.03	9.79
B-3417	99 929.00	33 023.42	20.18
B-3418	99 681.00	32 946.51	- 56.73
B-3419	99 654.00	32 941.73	- 61.51
B-3420	99 739.00	32 968.10	- 35.14
B-3421	99 744.00	32 973.22	- 30.02
B-3422	99 722.00	32 966.40	- 36.84
B-3423	99 692.00	32 960.69	- 42.55
B-3424	99 972.00	33 047.55	44.31
B-3425	00 027.00	33 068.19	64.95
B-3426	99 786.00	32 993.45	- 9.79
B-3427	99 743.00	32 983.70	- 19.54
B-3428	99 912.00	33 036.13	32.89
B-3429	99 976.00	33 059.56	56.32
B-3430	99 762.00	32 993.20	- 10.04
B-3431	99 731.00	32 987.15	- 16.09
B-3432	99 946.00	33 053.85	50.61
B-3433	99 971.00	33 065.15	61.91
B-3434	99 613.00	32 954.12	- 49.12

Table LX -- Continued

Pt. Ident.	Instrument X	X	Residual X
B-3435	99 612.00	32 955.57	- 47.67
B-3436	99 662.00	32 971.13	- 32.11
B-3437	99 636.00	32 964.89	- 38.35
B-3438	99 965.00	33 066.95	63.71
B-3439	99 970.00	33 072.06	68.82
B-3440	99 648.00	32 972.20	- 31.04
B-3441	99 590.00	32 957.79	- 45.45
B-3442	99 850.00	33 038.45	35.21
B-3443	99 850.00	33 042.02	38.78
B-3444	99 754.00	33 012.26	9.02
B-3445	99 710.00	33 002.21	- 1.03
B-3446	99 656.00	32 985.46	- 17.78
B-3447	99 656.00	32 989.07	- 14.17
B-3448	99 712.00	33 006.44	3.20
B-3501	29 289.00	42 104.98	- 59.88
B-3502	29 308.00	42 110.88	- 53.98
B-3503	29 333.00	42 122.21	- 42.65
B-3504	29 117.00	42 055.23	- 109.63
B-3505	29 084.00	42 048.56	- 116.30
B-3506	29 238.00	42 096.33	- 68.53
B-3507	29 261.00	42 107.04	- 57.82
B-3508	29 006.00	42 027.95	- 136.91
B-3509	29 017.00	42 032.88	- 131.98
B-3510	29 037.00	42 039.12	- 125.74
B-3511	29 001.00	42 029.97	- 134.89
B-3512	29 144.00	42 074.33	- 90.53

Table LX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-3513	29 167.00	42 085.03	- 79.83
B-3514	29 150.00	42 079.76	- 85.10
B-3515	29 136.00	42 079.01	- 85.85
B-3516	29 061.00	42 055.76	- 109.10
B-3517	29 100.00	42 071.43	- 93.43
B-3518	28 983.00	42 035.15	- 129.71
B-3519	28 952.00	42 029.12	- 135.74
B-3520	29 194.00	42 104.19	- 60.67
B-3521	29 224.00	42 117.08	- 47.78
B-3522	29 191.00	42 106.84	- 58.02
B-3523	29 170.00	42 103.92	- 60.94
B-3524	29 294.00	42 142.39	- 22.47
B-3525	29 327.00	42 156.21	- 8.65
B-3526	29 126.00	42 093.87	- 70.99
B-3527	29 100.00	42 089.40	- 75.46
B-3528	29 427.00	42 190.83	25.97
B-3529	29 442.00	42 199.05	34.19
B-3530	29 236.00	42 135.17	- 29.69
B-3531	29 205.00	42 129.13	- 35.73
B-3532	29 394.00	42 187.77	22.91
B-3533	29 407.00	42 195.36	30.50
B-3534	28 953.00	42 054.54	- 110.32
B-3535	28 954.00	42 056.65	- 108.21
B-3536	28 975.00	42 063.23	- 101.63
B-3537	28 937.00	42 053.26	- 111.60
B-3538	29 254.00	42 151.58	- 13.28

Table LX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-3539	29 260.00	42 157.01	- 7.85
B-3540	28 901.00	42 045.68	- 119.18
B-3541	28 852.00	42 034.07	- 130.79
B-3542	29 083.00	42 105.72	- 59.14
B-3543	29 094.00	42 112.71	- 52.15
B-3544	29 042.00	42 096.59	- 68.27
B-3545	29 008.00	42 089.64	- 75.22
B-3546	28 902.00	42 056.77	- 108.09
B-3547	28 901.00	42 060.05	- 104.81
B-3548	29 110.00	42 124.89	- 39.97
B-3601	58 634.00	51 206.97	- 120.62
B-3602	58 623.00	51 203.56	- 124.03
B-3603	58 624.00	51 207.46	- 120.13
B-3604	58 542.00	51 182.03	- 145.56
B-3605	58 499.00	51 172.27	- 155.32
B-3606	58 569.00	51 193.99	- 133.60
B-3607	58 568.00	51 197.25	- 130.34
B-3608	58 447.00	51 159.72	- 167.87
B-3609	58 447.00	51 161.30	- 166.29
B-3610	58 452.00	51 162.93	- 164.66
B-3611	58 404.00	51 149.94	- 177.65
B-3612	58 495.00	51 178.16	- 149.43
B-3613	58 518.00	51 188.87	- 138.72
B-3614	58 723.00	51 252.47	- 75.12
B-3615	58 722.00	51 255.74	- 71.85
B-3616	58 682.00	51 243.34	- 84.25

Pt. Ident.	Instrument x	X	Residual X
B-3617	58 681.00	51 246.61	- 80.98
B-3618	58 312.00	51 132.16	- 195.43
B-3619	58 313.00	51 136.06	- 191.53
B-3620	58 476.00	51 186.63	- 140.96
B-3621	58 499.00	51 197.35	- 130.24
B-3622	58 526.00	51 205.72	- 121.87
B-3623	58 502.00	51 201.87	- 125.72
B-3624	58 723.00	51 270.42	- 57.17
B-3625	58 735.00	51 277.73	- 49.86
B-3626	58 573.00	51 227.48	- 100.11
B-3627	58 554.00	51 225.18	- 102.41
B-3628	58 850.00	51 316.99	- 10.60
B-3629	58 864.00	51 324.91	- 2.68
B-3630	58 645.00	51 256.99	- 70.60
B-3631	58 608.00	51 249.10	- 78.49
B-3632	58 591.00	51 243.82	- 83.77
B-3633	58 602.00	51 250.82	- 76.77
B-3634	58 551.00	51 235.00	- 92.59
B-3635	58 551.00	51 236.82	- 90.77
B-3636	58 575.00	51 244.33	- 83.26
B-3637	58 511.00	51 226.30	- 101.29
B-3638	58 603.00	51 254.84	- 72.75
B-3639	58 612.00	51 261.21	- 66.38
B-3640	58 360.00	51 183.05	- 144.54
B-3641	58 333.00	51 178.26	- 149.33

Table LX -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-3642	58 465.00	51 219.21	- 108.38
B-3643	58 479.00	51 227.13	- 100.46
B-3644	58 570.00	51 255.37	- 72.22
B-3645	58 530.00	51 246.56	- 81.03
B-3646	58 465.00	51 226.40	- 101.19
B-3647	58 478.00	51 234.00	- 93.59
B-3648	58 420.00	51 216.02	- 111.57

Table LXI. Photogrammetric Horizontal Adjustment - EW Strip GI-4

A	+.310170046795(+ 00)	+.438499200018(- 03)	B	+.20834325700(+ 04)	+.19626744665(+ 04)

NO. OF CONTROL 23 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31006705387	(+ 00)	B. +.88293197199	(- 04)
C. +.19793571879	(+ 04)	D. +.20928514697	(+ 04)

Table LXI -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
4220	40 965.33	59 485.00	14 780.77	51 434.02	98.97	115.32
4230	70 300.00	59 468.00	23 876.49	51 431.34	38.59	108.84
4240	99 657.00	59 466.70	32 979.12	51 433.53	-19.38	104.43
4250	28 956.00	59 455.30	42 063.78	51 432.58	-91.52	108.18
4260	58 401.30	59 450.70	51 193.80	51 433.75	-122.50	109.55
4340	99 826.00	29 692.70	33 034.15	42 201.60	31.05	37.50
4350	29 143.70	29 712.70	42 124.61	42 210.39	-39.29	44.59
4360	58 587.30	29 699.00	51 254.10	42 208.75	-73.50	42.85
4420	41 216.00	00 026.70	14 863.74	32 997.98	176.84	-4.02
4430	70 582.33	00 011.00	23 969.28	32 995.71	124.18	-7.89
4440	00 001.30	00 009.70	33 091.13	32 997.90	89.33	-4.10
4450	29 355.30	00 005.30	42 192.84	32 999.13	27.54	-3.87
4460	58 684.70	00 012.00	51 286.92	33 003.79	-41.78	0.99
4520	41 057.67	70 444.67	14 817.26	23 825.55	129.16	-14.55
4530	70 264.67	70 429.00	23 873.39	23 823.27	29.89	-18.23
4540	99 813.00	70 415.67	33 035.36	23 821.75	30.46	-20.35
4550	28 954.30	70 427.00	42 071.11	23 827.84	-92.19	-13.06
4560	58 338.00	70 423.00	51 182.03	23 829.19	-147.57	-10.51

Table LXI -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
4620	40 856.33	40 638.00	14 757.47	14 583.47	73.17	- 96.03
4630	70 161.67	40 581.67	23 644.09	14 568.59	1.19	- 111.51
4640	99 709.00	40 529.00	33 005.75	14 554.87	- 0.35	- 120.43
4650	28 989.00	40 520.33	42 084.51	14 554.77	- 80.49	- 120.33
4660	58 352.30	40 488.67	51 189.11	14 547.54	- 141.79	- 127.36

Table LXI -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
4110	11 422.33	89 142.30	5 617.84	60 627.16	99.84	141.76
4120	40 871.00	89 069.70	14 748.91	60 607.25	67.31	118.45
4130	70 242.67	88 988.00	23 856.10	60 584.51	17.30	93.51
4140	99 577.00	88 939.70	32 951.72	60 572.13	- 45.18	80.03
4150	29 080.70	88 864.00	42 099.85	60 551.26	- 59.45	56.76
4160	58 453.30	88 806.30	51 207.33	60 535.96	- 118.37	40.16
4170	87 751.30	88 740.00	60 291.68	60 517.99	- 199.62	22.79
4220	40 965.33	59 485.00	14 780.77	51 434.02	98.97	115.32
4240	99 657.00	59 466.70	32 979.12	51 433.53	- 19.38	104.43
4250	28 956.00	59 455.30	42 063.78	51 432.58	- 91.52	108.18
4260	58 401.30	59 450.70	51 193.80	51 433.75	- 122.50	109.55
4270	87 821.00	59 461.30	60 315.88	51 439.64	- 173.42	111.24
4321	41 085.67	29 728.30	14 820.71	42 207.46	135.21	45.86
4322	40 900.67	29 729.00	14 763.35	42 207.66	77.85	46.06
4331	70 629.67	29 696.70	23 981.33	42 200.27	136.73	40.67
4332	70 275.00	29 694.70	23 871.36	42 199.62	26.76	40.02
4340	99 826.00	29 692.70	33 034.15	42 201.60	31.05	37.50
4350	29 143.70	29 712.70	42 124.61	42 210.39	- 39.29	44.59

Table LXI -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
4360	58 587.30	29 699.00	51 254.10	42 208.75	- 73.50	42.85
4370	87 988.00	29 696.00	60 370.29	42 210.41	- 120.31	44.61
4420	41 216.00	00 026.70	14 863.74	32 997.98	176.84	- 4.02
4430	70 582.33	00 011.00	23 969.28	32 995.71	124.18	- 7.89
4440	00 001.30	00 009.70	33 091.13	32 997.90	89.33	- 4.10
4450	29 355.30	00 005.30	42 192.84	32 999.13	27.54	- 3.87
4460	58 684.70	00 012.00	51 286.92	33 003.79	- 41.78	0.99
4470	88 024.30	00 028.00	60 384.16	33 011.35	- 109.34	11.05
4520	41 057.67	70 444.67	14 817.26	23 825.55	129.16	- 14.55
4530	70 264.67	70 429.00	23 873.39	23 823.27	29.89	- 18.23
4540	99 813.00	70 415.67	33 035.36	23 821.75	30.46	- 20.35
4550	28 954.30	70 427.00	42 071.11	23 827.84	- 92.19	- 13.06
4560	58 338.00	70 423.00	51 182.03	23 829.19	- 147.57	- 10.51
4570	87 810.00	70 442.67	60 320.33	23 837.89	- 174.17	- 2.31
4620	40 856.33	40 638.00	14 757.47	14 583.47	73.17	- 96.03
4630	70 161.67	40 581.67	23 844.09	14 568.59	1.19	- 111.51
4640	99 709.00	40 529.00	33 005.75	14 554.87	- 0.35	- 120.43
4650	28 989.00	40 520.33	42 084.51	14 554.77	- 80.49	- 120.33

Table LXI -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
4660	58 352.30	40 488.67	51 189.11	14 547.54	- 141.79	- 127.36
4670	37 830.70	40 462.33	60 329.39	14 541.98	- 169.11	- 133.92
4720	40 800.33	10 987.00	14 742.72	5 389.67	56.02	- 128.33
4730	70 073.00	10 933.00	23 819.21	5 375.51	- 25.19	- 139.39
4740	99 493.00	10 897.67	32 941.39	5 367.15	- 61.61	- 149.35
4750	28 797.70	10 867.00	42 027.82	5 360.23	- 139.28	- 148.07
4760	58 295.30	10 845.33	51 174.05	5 356.11	- 156.15	- 148.79
4770	87 741.30	10 864.33	60 304.28	5 364.60	- 189.82	- 142.50

Table LXI -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-4202	40 932.00	14 768.01	83.02
B-4203	40 955.00	14 775.86	90.87
B-4204	40 703.00	14 697.73	12.74
B-4205	40 680.00	14 691.31	6.32
B-4206	40 909.00	14 762.33	77.34
B-4207	40 940.00	14 772.62	87.63
B-4208	40 947.00	14 774.83	89.84
B-4209	40 946.00	14 775.25	90.26
B-4210	41 199.00	14 853.70	168.71
B-4211	41 225.00	14 871.30	186.31
B-4212	41 027.00	14 801.08	116.09
B-4213	41 000.00	14 793.43	108.44
B-4214	41 063.00	14 812.97	127.98
B-4215	41 062.00	14 813.37	128.38
B-4216	40 899.00	14 762.83	77.84
B-4217	40 863.00	14 752.40	67.41
B-4218	41 354.00	14 904.65	219.66
B-4219	41 401.00	14 919.93	234.94
B-4220	41 119.00	14 832.50	147.51
B-4221	41 090.00	14 824.23	139.24
B-4222	41 156.00	14 844.70	159.71
B-4223	41 199.00	14 858.75	173.76
B-4224	41 569.00	14 973.48	288.49
B-4225	41 568.00	14 973.89	288.90
B-4226	41 225.00	14 867.54	182.55
B-4227	41 260.00	14 879.11	194.12

Table LXI -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-4228	40 930.00	14 776.79	91.80
B-4229	40 876.00	14 760.77	75.78
B-4230	40 958.00	14 786.19	101.20
B-4231	41 025.00	14 807.69	122.70
B-4232	41 079.00	14 824.43	139.44
B-4233	41 079.00	14 824.81	139.82
B-4234	41 100.00	14 831.33	146.34
B-4235	41 054.00	14 817.40	132.41
B-4236	41 018.00	14 806.24	121.25
B-4237	41 052.00	14 817.50	132.51
B-4238	40 889.00	14 766.96	81.97
B-4239	40 847.00	14 754.66	69.67
B-4240	41 108.00	14 835.59	150.60
B-4241	41 126.00	14 841.89	156.90
B-4242	40 935.00	14 782.67	97.68
B-4243	40 892.00	14 770.06	85.07
B-4244	40 988.00	14 799.83	114.84
B-4245	41 012.00	14 807.99	123.00
B-4246	40 794.00	14 740.40	55.41
B-4301	70 224.00	23 850.50	8.04
B-4302	70 238.00	23 854.84	12.38
B-4303	70 263.00	23 863.32	20.86
B-4304	70 190.00	23 840.68	-1.78
B-4305	70 164.00	23 833.34	-9.12
B-4306	70 250.00	23 860.01	17.55
B-4307	70 293.00	23 874.03	31.57

Table LXI -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-4308	70 282.00	23 870.65	28,19
B-4309	70 268.00	23 867.04	24,58
B-4310	70 520.00	23 945.18	102,72
B-4311	70 555.00	23 956.74	114,28
B-4312	70 417.00	23 913.96	71,50
B-4313	70 412.00	23 913.13	70,67
B-4314	70 601.00	23 971.73	129,27
B-4315	70 600.00	23 972.14	129,68
B-4316	70 274.00	23 871.06	28,60
B-4317	70 240.00	23 861.24	18,78
B-4318	70 686.00	23 999.54	157,08
B-4319	70 686.00	24 000.26	157,80
B-4320	70 374.00	23 903.52	61,06
B-4321	70 342.00	23 894.32	51,86
B-4322	70 541.00	23 956.02	113,56
B-4323	70 540.00	23 956.43	113,97
B-4324	71 062.00	24 118.29	275,83
B-4325	71 022.00	24 106.61	264,15
B-4326	70 583.00	23 970.49	128,03
B-4327	70 600.00	23 976.48	134,02
B-4328	70 280.00	23 877.26	34,80
B-4329	70 265.00	23 873.33	30,87
B-4330	70 239.00	23 865.27	22,81
B-4331	70 258.00	23 871.88	29,42
B-4332	70 472.00	23 938.24	95,78
B-4333	70 486.00	23 942.97	100,51

Table LXI -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-4334	70 484.00	23 942.36	99.90
B-4335	70 448.00	23 931.52	89.06
B-4336	70 365.00	23 905.78	63.32
B-4337	70 376.00	23 909.91	67.45
B-4338	70 190.00	23 852.24	9.78
B-4339	70 161.00	23 843.97	1.51
B-4340	70 412.00	23 921.80	79.34
B-4341	70 412.00	23 922.52	80.06
B-4342	70 257.00	23 874.46	32.00
B-4343	70 222.00	23 864.33	21.87
B-4344	70 560.00	23 969.14	126.68
B-4345	70 579.00	23 975.75	133.29
B-4346	70 053.00	23 812.65	-28.29
B-4401	99 567.00	32 948.81	-53.23
B-4402	99 677.00	32 982.92	-19.12
B-4403	99 695.00	32 989.22	-12.82
B-4404	99 488.00	32 925.04	-77.00
B-4405	99 444.00	32 912.11	-89.93
B-4406	99 700.00	32 991.49	-10.55
B-4407	99 700.00	32 992.20	-9.84
B-4408	99 638.00	32 972.99	-29.05
B-4409	99 603.00	32 962.86	-39.18
B-4410	99 918.00	33 060.53	58.49
B-4411	99 940.00	33 068.07	66.03
B-4412	99 682.00	32 988.07	-13.97
B-4413	99 681.00	32 988.49	-13.55

Table LXI -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-4414	99 789.00	33 021.97	19,93
B-4415	99 817.00	33 031.38	29,34
B-4416	99 720.00	33 001.30	- 0,74
B-4417	99 690.00	32 992.72	- 9,32
B-4418	00 018.00	33 094.43	92,39
B-4419	00 033.00	33 099.80	97,76
B-4420	99 640.00	32 977.94	- 24,10
B-4421	99 618.00	32 971.84	- 30,20
B-4422	99 939.00	33 071.38	69,34
B-4423	99 990.00	33 087.91	85,87
B-4424	00 278.00	33 177.21	175,17
B-4425	00 278.00	33 177.93	175,89
B-4426	99 838.00	33 041.51	39,47
B-4427	99 876.00	33 054.01	51,97
B-4428	99 557.00	32 955.10	- 46,94
B-4429	99 535.00	32 948.99	- 53,05
B-4430	99 763.00	33 019.70	17,66
B-4431	99 800.00	33 031.88	29,84
B-4432	99 810.00	33 034.98	32,94
B-4433	99 810.00	33 035.40	33,36
B-4434	99 810.00	33 035.41	33,37
B-4435	99 774.00	33 024.55	22,51
B-4436	99 717.00	33 006.88	4,84
B-4437	99 728.00	33 011.01	8,97
B-4438	99 722.00	33 009.15	7,11
B-4439	99 721.00	33 009.56	7,52

Table LXI -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-4440	99 774.00	33 026.00	23.96
B-4441	99 796.00	33 033.54	31.50
B-4442	99 570.00	32 963.46	- 38.58
B-4443	99 539.00	32 954.57	- 47.47
B-4444	99 858.00	33 053.49	51.45
B-4445	99 875.00	33 059.48	57.44
B-4446	99 478.00	32 936.38	- 65.66
B-4501	29 076.00	42 098.59	- 64.15
B-4502	29 090.00	42 102.93	- 59.81
B-4503	29 090.00	42 103.65	- 59.09
B-4504	28 708.00	41 985.21	- 177.53
B-4505	28 708.00	41 985.92	- 176.82
B-4506	28 953.00	42 061.89	- 100.85
B-4507	28 953.00	42 062.60	- 100.14
B-4508	28 953.00	42 062.61	- 100.13
B-4509	28 917.00	42 052.17	- 110.57
B-4510	29 218.00	42 145.50	- 17.24
B-4511	29 236.00	42 151.80	- 10.94
B-4512	29 021.00	42 085.14	- 77.60
B-4513	29 005.00	42 080.90	- 81.84
B-4514	29 115.00	42 115.00	- 47.74
B-4515	29 140.00	42 123.48	- 39.26
B-4516	29 049.00	42 095.26	- 67.48
B-4517	29 010.00	42 083.89	- 78.85
B-4518	29 391.00	42 202.03	39.29
B-4519	29 391.00	42 202.75	40.01

Table LXI -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-4520	29 186.00	42 139.19	- 23,55
B-4521	29 185.00	42 139.60	- 23,14
B-4522	29 296.00	42 174.02	11,28
B-4523	29 296.00	42 174.74	12,00
B-4524	29 736.00	42 311.17	148,43
B-4525	29 714.00	42 305.07	142,33
B-4526	29 348.00	42 191.59	28,85
B-4527	29 361.00	42 196.34	33,60
B-4528	28 989.00	42 081.00	- 81,74
B-4529	28 960.00	42 072.72	- 90,02
B-4530	28 919.00	42 060.01	- 102,73
B-4531	28 937.00	42 066.31	- 96,43
B-4532	28 983.00	42 080.58	- 82,16
B-4533	28 968.00	42 076.34	- 86,40
B-4534	28 961.00	42 074.17	- 88,57
B-4535	28 942.00	42 068.59	- 94,15
B-4536	28 963.00	42 075.10	- 87,64
B-4537	28 976.00	42 079.85	- 82,89
B-4538	29 010.00	42 090.40	- 72,34
B-4539	28 980.00	42 081.82	- 80,92
B-4540	29 181.00	42 144.14	- 18,60
B-4541	29 215.00	42 155.40	- 7,34
B-4542	29 075.00	42 112.00	- 50,74
B-4543	29 074.00	42 112.41	- 50,33
B-4544	29 184.00	42 146.52	- 16,22
B-4545	29 208.00	42 154.68	- 8,06

Table LXI -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-4546	28 783.00	42 022.90	- 139.84
B-4601	58 434.00	51 201.55	- 125.45
B-4602	58 310.00	51 163.10	- 163.90
B-4603	58 315.00	51 165.37	- 161.63
B-4604	58 385.00	51 187.08	- 139.92
B-4605	58 362.00	51 180.66	- 146.34
B-4606	58 362.00	51 180.66	- 146.34
B-4607	58 361.00	51 181.06	- 145.94
B-4608	58 384.00	51 188.20	- 138.80
B-4609	58 356.00	51 180.23	- 146.77
B-4610	58 449.00	51 209.07	- 117.93
B-4611	58 448.00	51 209.48	- 117.52
B-4612	58 414.00	51 198.94	- 128.06
B-4613	58 326.00	51 172.38	- 154.62
B-4614	58 552.00	51 242.46	- 84.54
B-4615	58 577.00	51 250.93	- 76.07
B-4615	58 325.00	51 172.79	- 154.21
B-4617	58 325.00	51 173.51	- 153.49
B-4618	58 861.00	51 339.71	12.71
B-4619	58 884.00	51 347.56	20.56
B-4620	58 643.00	51 272.84	- 54.16
B-4621	58 642.00	51 273.25	- 53.75
B-4622	58 642.00	51 273.25	- 53.75
B-4623	58 682.00	51 286.37	- 40.63
B-4624	59 204.00	51 448.23	121.23
B-4625	59 204.00	51 448.95	121.95

Table LXI -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-4626	58 592.00	51 259.19	- 67.81
B-4627	58 591.00	51 259.61	- 67.39
B-4628	58 361.00	51 188.29	- 138.71
B-4629	58 338.00	51 181.88	- 145.12
B-4630	58 298.00	51 169.48	- 157.52
B-4631	58 317.00	51 176.09	- 150.91
B-4632	58 633.00	51 274.07	- 52.93
B-4633	58 598.00	51 263.63	- 63.37
B-4634	58 598.00	51 263.64	- 63.36
B-4635	58 583.00	51 259.29	- 67.71
B-4636	58 458.00	51 220.54	- 106.46
B-4637	58 458.00	51 221.26	- 105.74
B-4638	58 366.00	51 192.73	- 134.27
B-4639	58 336.00	51 184.15	- 142.85
B-4640	58 528.00	51 243.69	- 83.31
B-4641	58 528.00	51 244.41	- 82.59
B-4642	58 406.00	51 206.58	- 120.42
B-4643	58 406.00	51 207.30	- 119.70
B-4644	58 646.00	51 281.72	- 45.28
B-4645	58 646.00	51 282.44	- 44.56
B-4646	58 274.00	51 167.10	- 159.90

Table LXII. Photogrammetric Horizontal Adjustment - EW Strip GI-5

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A  +.310067053871+ 00)  +.882931971991- 04)   B  +.20928514697(+ 04)  +.197935718791+ 04)

     NO. OF CONTROL  26        DEGREE OF TRANS. 1   RUN 1

          COEFFICIENTS                  COEFFICIENTS
       A. +.31012905038   (+ 00)   B. -.54834349915   (- 05)
       C. +.19854573694   (+ 04)   D. +.19915327083   (+ 04)
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Table LXII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
5220	41 027.33	59 233.30	14 716.17	51 368.10	33.27	51.00
5230	70 279.00	59 215.00	23 787.97	51 362.27	-52.63	41.27
5240	99 805.00	59 232.70	32 944.84	51 367.60	-55.86	37.60
5250	29 087.00	59 225.30	42 026.03	51 365.14	-129.07	37.14
5260	58 425.70	59 223.70	51 124.82	51 364.48	-190.88	40.78
5320	41 242.00	29 629.70	14 782.59	42 187.17	105.39	35.77
5330	70 513.00	29 628.30	23 860.37	42 186.57	22.17	26.77
5340	99 865.67	29 621.70	32 963.49	42 184.36	-33.21	23.96
5350	29 221.70	29 608.00	42 067.65	42 179.95	-85.45	20.35
5360	58 676.00	29 639.30	51 202.28	42 189.50	-116.02	25.70
5420	41 133.67	00 010.70	14 748.83	33 001.46	66.83	3.16
5430	70 711.33	00 000.00	23 921.72	32 997.97	79.62	-2.23
5440	00 014.70	99 993.67	33 009.54	32 995.85	9.14	-5.35
5450	29 250.70	99 995.00	42 076.48	32 996.10	-79.42	-1.40
5460	58 801.30	00 006.00	51 240.98	32 999.35	-80.02	2.35
5520	41 288.67	70 237.00	14 796.73	23 767.77	116.03	-70.23
5530	70 516.67	70 233.33	23 861.19	23 766.47	21.49	-70.53
5540	00 087.00	70 239.00	33 031.80	23 768.06	30.30	-69.64

Table LXII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
5550	29 363.70	70 256.33	42 111.36	23 773.28	- 47.34	- 64.62
5560	58 640.30	70 283.33	51 190.88	23 781.49	- 128.22	- 56.61
5620	41 572.33	40 557.00	14 884.54	14 563.13	201.14	- 116.47
5630	70 896.00	40 572.33	23 978.66	14 567.73	136.36	- 106.77
5640	00 225.70	40 604.67	33 074.66	14 577.60	73.66	- 96.00
5650	29 528.70	40 682.67	42 162.37	14 601.62	3.07	- 71.38
5660	58 913.70	40 734.00	51 275.51	14 617.38	- 46.69	- 55.92

Table LXII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
5130	70 520.67	90 017.70	23 863.08	60 915.08	22.68	427.98
5140	00 073.00	90 002.00	33 028.12	60 910.05	34.42	422.95
5160	58 558.30	90 011.30	51 166.11	60 912.61	- 151.49	419.11
5170	88 084.30	90 027.30	60 322.98	60 917.41	- 156.12	428.91
5220	41 027.33	59 233.30	14 716.17	51 368.10	33.27	51.00
5230	70 279.00	59 215.00	23 787.97	51 362.27	- 52.63	41.27
5240	99 805.00	59 232.70	32 944.84	51 367.60	- 55.86	37.60
5250	29 087.00	59 225.30	42 026.03	51 365.14	- 129.07	37.14
5260	58 425.70	59 223.70	51 124.82	51 364.48	- 190.88	40.78
5270	87 906.70	59 228.30	60 267.73	51 365.75	- 209.27	43.65
5320	41 242.00	29 629.70	14 782.59	42 187.17	105.39	35.77
5330	70 513.00	29 628.30	23 860.37	42 186.57	22.17	26.77
5340	99 865.67	29 621.70	32 963.49	42 184.36	- 33.21	23.96
5350	29 221.70	29 608.00	42 067.65	42 179.95	- 85.45	20.35
5360	58 676.00	29 639.30	51 202.28	42 189.50	- 116.02	25.70
5370	88 121.70	29 631.30	60 334.25	42 186.86	- 146.85	25.06
5420	41 133.67	00 010.70	14 748.83	33 001.46	66.83	3.16
5430	70 711.33	00 000.00	23 921.72	32 997.97	79.62	- 2.23

Table LXII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
5440	00 014.70	99 993.67	33 009.54	32 995.85	9.14	- 5.35
5450	29 250.70	99 995.00	42 076.48	32 996.10	- 79.42	- 1.40
5460	58 801.30	00 006.00	51 240.98	32 999.35	- 80.02	2.35
5470	88 060.70	00 035.70	60 315.17	33 008.40	- 167.63	11.00
5520	41 288.67	70 237.00	14 796.73	23 767.77	116.03	- 70.23
5530	70 516.67	70 233.33	23 861.19	23 766.47	21.49	- 70.53
5540	00 087.00	70 239.00	33 031.80	23 768.06	30.30	- 69.64
5550	29 363.70	70 256.33	42 111.36	23 773.28	- 47.34	- 64.62
5560	58 640.30	70 283.33	51 190.88	23 781.49	- 128.22	- 56.61
5620	41 572.33	40 557.00	14 884.54	14 563.13	201.14	- 116.47
5630	70 896.00	40 572.33	23 978.66	14 567.73	136.36	- 106.77
5640	00 225.70	40 604.67	33 074.66	14 577.60	73.66	- 96.00
5650	29 528.70	40 682.67	42 162.37	14 601.62	3.07	- 71.38
5660	58 913.70	40 734.00	51 275.51	14 617.38	- 46.69	- 55.92
5721	41 232.67	10 744.67	14 779.04	5 317.47	95.84	- 199.33
5722	41 508.00	10 744.00	14 864.43	5 317.26	181.23	- 199.54
5731	70 730.00	10 761.67	23 927.02	5 322.58	83.72	- 191.32
5732	70 768.00	10 760.67	23 938.80	5 322.27	95.50	- 191.63

Table LXII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (m)	Residual Y (m)
5741	99 972.00	10 810.33	32 995.81	5 337.51	- 4.99	- 176.09
5742	00 020.00	10 808.33	33 010.70	5 336.89	9.90	- 176.71
5751	29 389.70	10 841.33	42 119.10	5 346.96	- 45.90	- 160.44
5752	29 577.70	10 841.67	42 177.40	5 347.06	12.40	- 160.34
5761	58 752.70	10 910.67	51 225.42	5 368.30	- 98.18	- 136.00
5762	58 869.30	10 914.33	51 261.58	5 369.44	- 62.02	- 134.86
5770	88 182.70	10 962.67	60 352.51	5 384.27	- 135.29	- 121.83

Table LXII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-5201	41 315.00	14 805,52	123,95
B-5202	41 045,00	14 721,79	40,22
B-5203	41 045.00	14 721,74	40,17
B-5204	41 220.00	14 776.01	94,44
B-5205	41 285.00	14 796.16	114,59
B-5206	41 295,00	14 799,26	117,69
B-5207	41 295.00	14 799.22	117,65
B-5208	41 054.00	14 724,48	42,91
B-5209	41 021.00	14 714,20	32,63
B-5210	41 326.00	14 808.79	127,22
B-5211	41 344.00	14 814,33	132,76
B-5212	41 240.00	14 782.08	100,51
B-5213	41 201.00	14 769,39	87,82
B-5214	41 170.00	14 760.32	78,75
B-5215	41 169.00	14 759,97	78,40
B-5216	41 241.00	14 782,30	100,73
B-5217	41 177.00	14 762.40	80,83
B-5218	41 496.00	14 861.34	179,77
B-5219	41 496.00	14 861 29	179,72
B-5220	41 266.00	14 789,96	108,39
B-5221	41 244.00	14 783.09	101,52
B-5222	41 374.00	14 823.41	141,84
B-5223	41 406.00	14 833,29	151,72
B-5224	41 118.00	14 743,97	62,40
B-5225	41 118.00	14 743,93	62,36
B-5226	41 401.00	14 831.69	150,12

Pt. Ident.	Instrument x	X	Residual X
B-5227	41 437.00	14 842.81	161.24
B-5228	41 123.00	14 745.43	63.86
B-5229	41 104.00	14 739.50	57.93
B-5230	41 235.00	14 780.12	98.55
B-5231	41 274.00	14 792.17	110.60
B-5232	41 028.00	14 715.88	34.31
B-5233	41 028.00	14 715.87	34.30
B-5234	41 132.00	14 748.13	66.56
B-5235	41 102.00	14 738.79	57.22
B-5236	41 407.00	14 833.37	151.80
B-5237	41 406.00	14 833.02	151.45
B-5238	41 136.00	14 749.29	67.72
B-5239	41 136.00	14 749.24	67.67
B-5240	41 526.00	14 870.19	188.62
B-5241	41 589.00	14 889.68	208.11
B-5242	41 458.00	14 849.06	167.49
B-5243	41 427.00	14 839.40	157.83
B-5244	41 416.00	14 835.99	154.42
B-5245	41 462.00	14 850.21	168.64
B-5246	41 248.00	14 783.84	102.27
B-5217	41 229.00	14 777.90	96.33
B-5248	41 500.00	14 861.95	180.38
B-5301	70 523.00	23 863.77	22.83
B-5302	70 552.00	23 872.76	31.82
B-5303	70 535.00	23 867.45	26.51
B-5304	70 646.00	23 901.87	60.93

Table LXII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-5305	70 676.00	23 911.16	70.22
B-5306	70 694.00	23 916.74	75.80
B-5307	70 694.00	23 916.71	75.77
B-5308	70 284.00	23 789.56	- 51.38
B-5309	70 284.00	23 789.51	- 51.43
B-5310	70 590.00	23 884.41	43.47
B-5311	70 612.00	23 891.19	50.25
B-5312	70 461.00	23 844.36	3.42
B-5313	70 430.00	23 834.70	- 6.24
B-5314	70 604.00	23 888.66	47.72
B-5315	70 638.00	23 899.16	58.22
B-5316	70 500.00	23 856.36	15.42
B-5317	70 477.00	23 849.19	8.25
B-5318	70 855.00	23 966.41	125.47
B-5319	70 905.00	23 981.88	140.94
B-5320	70 641.00	23 900.00	59.06
B-5321	70 575.00	23 879.49	38.55
B-5322	70 686.00	23 913.91	72.97
B-5323	70 717.00	23 923.48	82.54
B-5324	70 717.00	23 923.48	82.54
B-5325	70 684.00	23 913.20	72.26
B-5326	70 599.00	23 886.84	45.90
B-5327	70 615.00	23 891.76	50.82
B-5328	70 529.00	23 865.09	24.15
B-5329	70 198.00	23 762.39	- 78.55
B-5330	70 465.00	23 845.19	4.25

Pt. Ident.	Instrument x	X	Residual X
B-5331	70 512.00	23 859.73	18,79
B-5332	70 512.00	23 859.73	18,79
B-5333	70 512.00	23 859.72	18,78
B-5334	70 589.00	23 883.60	42,66
B-5335	70 588.00	23 883.25	42,31
B-5336	70 893.00	23 977.84	136,90
B-5337	70 923.00	23 987.10	146,16
B-5338	70 364.00	23 813.74	- 27,20
B-5339	70 330.00	23 803.15	- 37,79
B-5340	70 851.00	23 964.72	123,78
B-5341	70 878.00	23 973.05	132,11
B-5342	70 696.00	23 916.61	75,67
B-5343	70 696.00	23 916.57	75,63
B-5344	70 747.00	23 932.38	91,44
B-5345	70 801.00	23 949.08	108,14
B-5346	70 748.00	23 932.65	91,71
B-5347	70 724.00	23 925.16	84,22
B-5348	70 762.00	23 936.94	96,00
B-5401	00 080.00	33 030.26	31,00
B-5402	99 804.00	32 944.66	- 54,60
B-5403	99 803.00	32 944.30	- 54,96
B-5404	99 936.00	32 985.55	- 13,71
B-5405	99 957.00	32 992.05	- 7,21
B-5406	99 957.00	32 992.05	- 7,21
B-5407	99 956.00	32 991.70	- 7,56
B-5408	99 817.00	32 948.60	- 50,66

Table LXII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-5409	99 816.00	32 948.24	- 51.02
B-5410	00 006.00	33 007.17	7.91
B-5411	00 065.00	33 025.42	26.16
B-5412	99 887.00	32 970.22	- 29.04
B-5413	99 872.00	32 965.52	- 33.74
B-5414	99 965.00	32 994.36	- 4.90
B-5415	00 014.00	33 009.51	10.25
B-5416	99 870.00	32 964.85	- 34.41
B-5417	99 835.00	32 953.95	- 45.31
B-5418	00 073.00	33 027.76	28.50
B-5419	00 090.00	33 032.99	33.73
B-5420	99 782.00	32 937.47	- 61.79
B-5421	99 754.00	32 928.74	- 70.52
B-5422	00 076.00	33 028.61	29.35
B-5423	00 126.00	33 044.07	44.81
B-5424	00 007.00	33 007.16	7.90
B-5425	99 974.00	32 996.88	- 2.38
B-5426	99 973.00	32 996.57	- 2.69
B-5427	00 013.00	33 008.93	9.67
B-5428	99 941.00	32 986.60	- 12.66
B-5429	99 908.00	32 976.32	- 22.94
B-5430	00 024.00	33 012.30	13.04
B-5431	00 024.00	33 012.25	12.99
B-5432	99 716.00	32 916.73	- 82.53
B-5433	99 716.00	32 916.73	- 82.53
B-5434	99 805.00	32 944.33	- 54.93

Table LXII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-5435	99 804,00	32 943,98	- 55,28
B-5436	00 242,00	33 079,82	80,56
B-5437	00 241,00	33 079,46	80,20
B-5438	99 885,00	32 969,06	- 30,20
B-5439	99 884,00	32 968,70	- 30,56
B-5440	00 166,00	33 056,16	56,90
B-5441	00 218,00	33 072,24	72,98
B-5442	00 011,00	33 008,04	8,78
B-5443	00 010,00	33 007,69	8,43
B-5444	00 068,00	33 025,68	26,42
B-5445	00 105,00	33 037,11	37,85
B-5446	00 002,00	33 005,16	5,90
B-5447	99 970,00	32 995,19	- 4,07
B-5448	00 028,00	33 013,18	13,92
B-5501	29 247,00	42 075,79	- 81,30
B-5502	29 108,00	42 032,68	- 124,41
B-5503	29 083,00	42 024,88	- 132,21
B-5504	29 921,00	42 284,77	127,68
B-5505	29 320,00	42 098,37	- 58,72
B-5506	29 275,00	42 084,41	- 72,68
B-5507	29 292,00	42 089,65	- 67,44
B-5508	29 094,00	42 028,24	- 128,85
B-5509	29 080,00	42 023,86	- 133,23
B-5510	29 303,00	42 093,02	- 64,07
B-5511	29 366,00	42 112,51	- 44,58
B-5512	29 234,00	42 071,57	- 85,52

Table LXII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-5513	29 234.00	42 071.53	- 85.56
B-5514	29 246.00	42 075.25	- 81.84
B-5515	29 273.00	42 083.58	- 73.51
B-5516	29 217.00	42 066.21	- 90.88
B-5517	29 216.00	42 065.86	- 91.23
B-5518	29 625.00	42 192.70	35.61
B-5519	29 638.00	42 196.69	39.60
B-5520	29 384.00	42 117.91	- 39.18
B-5521	29 372.00	42 114.15	- 42.94
B-5522	29 393.00	42 120.66	- 36.43
B-5523	29 432.00	42 132.71	- 24.38
B-5524	29 245.00	42 074.71	- 82.38
B-5525	29 245.00	42 074.67	- 82.42
B-5526	29 281.00	42 085.83	- 71.26
B-5527	29 295.00	42 090.13	- 66.96
B-5528	29 220.00	42 066.87	- 90.22
B-5529	29 220.00	42 066.83	- 90.26
B-5530	29 358.00	42 109.62	- 47.47
B-5531	29 358.00	42 109.58	- 47.51
B-5532	29 158.00	42 047.55	- 109.54
B-5533	29 158.00	42 047.55	- 109.54
B-5534	29 239.00	42 072.67	- 84.42
B-5535	29 239.00	42 072.63	- 84.46
B-5536	29 462.00	42 141.79	- 15.30
B-5537	29 462.00	42 141.74	- 15.35
B-5538	29 140.00	42 041.88	- 115.21

Table LXII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-5539	29 120,00	42 035.64	- 121,45
B-5540	29 492,00	42 151,00	- 6,09
B-5541	29 542,00	42 166.46	9,37
B-5542	29 357,00	42 109,09	- 48,00
B-5543	29 350,00	42 106,87	- 50,22
B-5544	29 350,00	42 106.87	- 50,22
B-5545	29 393,00	42 120.17	- 36,92
B-5546	29 393,00	42 120,17	- 36,92
B-5547	29 393,00	42 120.12	- 36,97
B-5548	29 594,00	42 182.46	25,37
B-5601	58 546,00	51 162.26	- 157,38
B-5602	58 640,00	51 191.41	- 128,23
B-5603	58 679,00	51 203.46	- 116,18
B-5604	58 679,00	51 203.46	- 116,18
B-5605	58 679,00	51 203.45	- 116,19
B-5606	58 654,00	51 195.69	- 123,95
B-5607	58 654,00	51 195.66	- 123,98
B-5608	58 450,00	51 132.39	- 187,25
B-5609	58 422,00	51 123.66	- 195,98
B-5610	58 728,00	51 218.56	- 101,08
B-5611	58 753,00	51 226.27	- 93,37
B-5612	58 680,00	51 203.63	- 116,01
B-5613	58 680,00	51 203.59	- 116,05
B-5614	58 738,00	51 221.58	- 98,06
B-5615	58 772,00	51 232.07	- 87,57
B-5616	58 668,00	51 199.82	- 119,82

Table LXII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-5617	58 643,00	51 192,02	- 127,62
B-5618	58 827,00	51 249,09	- 70,55
B-5619	58 867,00	51 261,45	- 58,19
B-5620	58 678,00	51 202,83	- 116,81
B-5621	58 678,00	51 202,79	- 116,85
B-5622	58 764,00	51 229,46	- 90,18
B-5623	58 764,00	51 229,41	- 90,23
B-5624	58 809,00	51 243,37	- 76,27
B-5625	58 770,00	51 231,23	- 88,41
B-5626	58 744,00	51 223,17	- 96,47
B-5627	58 764,00	51 229,32	- 90,32
B-5628	58 682,00	51 203,89	- 115,75
B-5629	58 662,00	51 197,65	- 121,99
B-5630	58 618,00	51 184,00	- 135,64
B-5631	58 618,00	51 183,96	- 135,68
B-5632	58 606,00	51 180,23	- 139,41
B-5633	58 606,00	51 180,23	- 139,41
B-5634	58 667,00	51 199,15	- 120,49
B-5635	58 667,00	51 199,11	- 120,53
B-5636	58 929,00	51 280,36	- 39,28
B-5637	58 969,00	51 292,72	- 26,92
B-5638	58 522,00	51 154,09	- 165,55
B-5639	58 522,00	51 154,05	- 165,59
B-5640	58 864,00	51 260,11	- 59,53

Table LXII -- Continued

Pt. Ident.	Instrument x	X	Residual X
B-5641	51 270,61	58 898,00	-49,03
B-5642	51 238,05	58 793,00	-81,59
B-5643	51 238,00	58 793,00	-81,64
B-5644	51 233,04	58 777,00	-86,60
B-5645	51 241,06	58 803,00	-78,58
B-5646	51 228,97	58 764,00	-90,67
B-5647	51 228,61	58 763,00	-91,03
B-5648	51 265,21	58 881,00	-54,43

Table LXIII. Photogrammetric Horizontal Adjustment · EW Strip GI-1

A -.67964593497(+ 26) -.67964593497(+ 26) B -.67964593497(+ 26) -.67964593497(+ 26)

NO. OF CONTROL 15 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS COEFFICIENTS

A. +.31060036563 (+ 00) B. -.33859133139 (- 03)

C. +.19319522907 (+ 04) D. +.19243211205 (+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
1320	40 916.67	29 869.00	14 685.21	42 281.43	3.21	120.83
1330	70 420.00	29 851.70	23 854.85	42 266.06	10.45	104.16
1340	99 696.33	29 826.00	32 953.93	42 248.16	- 49.77	89.06
1350	28 960.70	29 807.00	42 049.31	42 232.35	- 114.19	74.65
1360	58 639.70	29 829.00	51 273.56	42 229.14	- 54.04	70.44
1420	41 209.33	00 043.30	14 766.07	33 011.49	82.27	10.39
1430	70 580.67	00 016.70	23 894.68	32 993.28	51.88	- 9.52
1440	99 998.67	00 002.00	33 037.80	32 978.75	37.20	- 20.85
1450	29 320.30	00 005.00	42 150.98	32 969.76	- 10.32	- 26.54
1460	58 677.00	00 019.70	51 275.06	32 964.38	- 51.94	- 27.92
1520	41 288.33	70 356.67	14 780.57	23 784.85	100.47	- 56.05
1530	70 515.67	70 324.67	23 864.43	23 765.01	25.23	- 72.29
1540	99 946.66	70 315.00	33 011.59	23 752.04	10.79	- 83.26
1550	29 320.70	70 323.00	42 141.05	23 744.58	- 21.25	- 86.22
1560	58 796.70	70 342.00	51 302.21	23 740.50	- 19.99	- 86.90

Table LXIV. Photogrammetric Horizontal Adjustment - EW Strip GI-2

A +.31080036563(+ 00) -.338591331 39(- 03) B +.19243211205(+ 04) +.19319522907(+ 04)

NO. OF CONTROL 15 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS COEFFICIENTS

A. +.31092945736 (+ 00) B. -.51519828389 (- 03)

C. +.19826159050 (+ 04) D. +.18394662118 (+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
2320	41 056.67	29 619.30	14 671.97	42 263.92	2.27	92.82
2330	70 572.67	29 602.00	23 849.36	42 243.34	17.96	76.04
2340	99 849.00	29 604.30	32 952.23	42 228.97	- 43.97	60.47
2350	29 161.30	29 600.30	42 066.29	42 212.62	- 95.91	43.52
2360	58 716.00	29 596.70	51 255.71	42 196.28	- 76.29	28.48
2420	41 203.33	00 026.70	14 702.33	33 062.64	32.83	55.34
2430	70 568.67	00 017.70	23 832.87	33 044.71	1.37	37.51
2440	99 995.00	00 006.00	32 982.38	33 025.91	- 16.62	24.61
2450	29 397.70	00 016.00	42 124.55	33 013.87	- 34.15	11.27
2460	58 892.70	00 003.70	51 295.41	32 994.85	- 34.49	- 4.05
2520	41 476.33	70 192.33	14 771.84	23 786.11	100.74	- 56.99
2530	70 950.67	70 170.67	23 936.27	23 764.19	100.37	- 71.01
2540	00 149.00	70 172.00	33 014.89	23 749.56	16.59	- 85.94
2550	29 730.70	70 176.33	42 212.72	23 735.67	55.02	- 102.43
2560	58 951.30	70 181.33	51 298.26	23 722.17	- 25.74	- 109.63

Table LXV. Photogrammetric Horizontal Adjustment - EW Strip GI-3

A +.31092945736(+ 00) -.51519828389(- 03) B +.18394662118(+ 04) +.19826159050(+ 04)

NO. OF CONTROL 15 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS COEFFICIENTS

A. +.31075219016 (+ 00) B. +.97030442230 (- 04)

C. +.19315163767 (+ 04) D. +.19743581133 (+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
3320	41 054.33	29 703.70	14 719.50	42 241.21	33.80	77.11
3330	70 483.00	29 680.00	23 864.52	42 236.70	19.52	72.80
3340	99 947.67	29 677.70	33 020.73	42 238.84	17.93	74.44
3350	29 103.70	29 666.00	42 081.03	42 238.04	- 83.17	74.24
3360	58 706.70	29 687.30	51 280.23	42 247.53	- 46.17	85.53
3420	41 280.00	00 037.30	14 792.50	33 022.33	106.50	19.93
3430	70 722.67	00 015.30	23 941.88	33 018.35	97.78	13.25
3440	00 000.00	99 995.33	33 039.87	33 014.99	36.17	13.79
3450	29 325.70	00 009.00	42 152.90	33 022.08	- 13.00	21.48
3460	58 722.00	00 026.00	51 287.86	33 030.22	- 39.64	31.02
3520	40 997.67	70 186.67	14 707.66	23 746.16	19.86	- 96.54
3530	70 392.33	70 156.67	23 842.12	23 739.69	- 0.88	- 103.61
3540	99 764.33	70 157.33	32 969.53	23 742.74	- 35.57	- 98.86
3550	29 199.00	70 154.67	42 116.42	23 744.77	- 49.78	- 95.53
3560	58 636.30	70 158.33	51 264.13	23 748.76	- 63.37	- 89.04

Table LXVI. Photogrammetric Horizontal Adjustment - EW Strip GI-4

A +.31075219016(+ 00) +.970304422230(- 04) B +.197435811330(+ 04) +.19315163767(+ 04)

NO. OF CONTROL 13 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31138257544	(+ 00)	B. -.65726474380	(- 04)
C. +.18679051060	(+ 04)	D. +.19191294519	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
4340	99 826.00	29 692.70	33 011.73	42 245.39	8.63	81.29
4350	29 143.70	29 712.70	42 140.75	42 249.69	- 23.15	83.89
4360	58 587.30	29 699.00	51 308.98	42 243.49	- 18.62	77.59
4420	41 216.00	00 026.70	14 759.65	33 01[illegible].77	72.75	9.77
4430	70 582.33	00 011.00	23 903.81	33 004.95	58.71	1.35
4440	00 001.30	00 009.70	33 064.37	33 002.61	62.57	0.61
4450	29 355.30	00 005.30	42 204.69	32 999.31	39.39	- 3.69
4460	58 684.70	00 012.00	51 337.35	32 999.47	8.65	- 3.33
4520	41 057.67	70 444.67	14 708.40	23 800.45	20.30	- 39.65
4530	70 264.67	70 429.00	23 802.95	23 793.65	- 40.55	- 47.85
4540	99 813.00	70 415.67	33 003.79	23 787.56	- 1.11	- 54.54
4550	28 954.30	70 427.00	42 077.88	23 789.17	- 85.42	- 51.73
4560	58 338.00	70 423.00	51 227.45	23 785.99	- 102.15	- 53.71

Table LXVII. Photogrammetric Horizontal Adjustment - EW Strip GI-5

A +.31138257544(+ 00) -.65726474380(- 04) B +.19191294519(+ 04) +.18679051060(+ 04)

NO. OF CONTROL 15 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31105196468	(+ 00)	B. -.95153222877	(- 04)
C. +.19156698611	(+ 04)	D. +.18982335671	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
5320	41 242.00	29 629.70	14 738.97	42 233.32	61.77	81.92
5330	70 513.00	29 628.30	23 843.78	42 230.10	5.58	70.30
5340	99 865.67	29 621.70	32 973.98	42 225.25	- 22.72	64.85
5350	29 221.70	29 608.00	42 105.23	42 218.20	- 47.87	58.60
5360	58 676.00	29 639.30	51 267.05	42 225.13	- 51.25	61.33
5420	41 133.67	00 010.70	14 702.46	33 020.28	20.46	21.98
5430	70 711.33	00 000.00	23 902.65	33 014.14	60.55	13.94
5440	00 014.70	99 993.67	33 017.52	33 009.38	17.12	8.18
5450	29 250.70	99 995.00	42 111.43	33 007.01	- 44.47	9.51
5460	58 801.30	00 006.00	51 303.21	33 007.62	- 17.79	10.62
5520	41 288.67	70 237.00	14 747.84	23 759.10	67.14	- 78.90
5530	70 516.67	70 233.33	23 839.27	23 755.18	- 0.43	- 81.82
5540	00 087.00	70 239.00	33 037.18	23 754.13	35.68	- 83.57
5550	29 363.70	70 256.33	42 143.75	23 756.73	- 14.95	- 81.17
5560	58 640.30	70 283.33	51 250.30	23 762.34	- 68.80	- 75.76

Table LXVIII. Photogrammetric Horizontal Adjustment - EW Strip GI-1-3

A +.15526062687(+ 02) -.18262220007(+ 02) B +.52709075076(+ 06) +.19708307050(+ 07)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31161188692	(+ 00)	B. +.10500598802	(- 03)
C. +.16905188805	(+ 04)	D. +.19418546830	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
1320	40 916.67	29 869.00	14 678.34	42 163.54	- 3.66	2.94
1330	70 420.00	29 851.70	23 871.93	42 161.25	27.53	- 0.65
1340	99 696.33	29 826.00	32 994.78	42 156.31	- 8.92	- 2.79
1350	28 960.70	29 807.00	42 113.91	42 153.46	- 49.59	- 4.24
1360	58 639.70	29 829.00	51 362.24	42 163.44	34.64	4.74

Table LXIX. Photogrammetric Horizontal Adjustment - EW Strip GI-1-4

A +.31161188692(+ 00) +.10500598802(- 03) B +.19418546830(+ 04) +.16905188805(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31192601015	(+ 00)	B. -.19507634202	(- 04)
C. +.18023601157	(+ 04)	D. +.18219001878	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
1420	41 209.33	00 043.30	14 678.11	33 007.66	- 5.69	6.56
1430	70 580.67	00 016.70	23 839.80	32 998.79	- 3.00	- 4.01
1440	99 998.67	00 002.00	33 016.04	32 993.63	15.44	- 5.97
1450	29 320.30	00 005.00	42 162.22	32 994.00	0.92	- 2.30
1460	58 677.00	00 019.70	51 319.33	32 998.01	- 7.67	5.71

Table LXX. Photogrammetric Horizontal Adjustment - EW Strip GI-1-5

A +.31192601015(+ 00) -.19507634202(- 04) B +.18219001878(+ 04) +.18023601157(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31177781531	(+ 00)	B. -.81113106675	(- 04)
C. +.19144083073	(+ 04)	D. +.18256607930	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
1520	41 288.33	70 356.67	14 704.15	23 846.71	24.05	5.81
1530	70 515.67	70 324.67	23 816.59	23 834.36	- 22.61	- 2.94
1540	99 946.66	70 315.00	32 992.52	23 828.96	- 8.28	- 6.34
1550	29 320.70	70 323.00	42 150.69	23 829.07	- 11.61	- 1.73
1560	58 796.70	70 342.00	51 340.65	23 832.60	18.45	5.20

Table LXXI. Photogrammetric Horizontal Adjustment - EW Strip GI-2-3

A +.31177781531(+ 00) -.81113106675(- 04) B +.18256607930(+ 04) +.19144083073(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS COEFFICIENTS

A. +.31185053978 (+ 00) B. +.33393643740 (- 04)

C. +.17481854192 (+ 04) D. +.18577627921 (+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
2320	41 056.67	29 619.30	14 656.98	42 171.41	- 12.72	0.31
2330	70 572.67	29 602.00	23 861.56	42 167.00	30.16	- 0.30
2340	99 849.00	29 604.30	32 991.40	42 168.69	- 4.80	0.19
2350	29 161.30	29 600.30	42 132.46	42 168.42	- 29.74	- 0.68
2360	58 716.00	29 596.70	51 349.11	42 168.29	17.11	0.49

Table LXXII. Photogrammetric Horizontal Adjustment - EW Strip GI-2-4

A +.31185053978(+ 00) +.33393643740(- 04) B +.18577627921(+ 04) +.17481854192(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31150761689	(+ 00)	B. -.22237181957	(- 04)
C. +.18505549473	(+ 04)	D. +.18411581734	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
2420	41 203.33	00 026.70	14 678.53	33 008.72	9.03	1.42
2430	70 568.67	00 017.70	23 826.06	33 005.26	- 5.44	- 1.94
2440	99 995.00	00 006.00	32 992.59	33 000.96	- 6.41	- 0.34
2450	29 397.70	00 016.00	42 151.75	33 003.42	- 6.95	0.82
2460	58 892.70	00 003.70	51 339.67	32 998.94	9.77	0.04

Table LXXIII. Photogrammetric Horizontal Adjustment - EW Strip GI-2-5

A +.31150761689(+ 00) -.22237181957(- 04) B +.18411581734(+ 04) +.18505549473(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31194389732	(+ 00)	B. -.49689305627	(- 04)
C. +.19499566519	(+ 04)	D. +.17210380611	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
2520	41 476.33	70 192.33	14 662.81	23 843.96	- 8.29	0.86
2530	70 950.67	70 170.67	23 857.15	23 835.74	21.25	0.54
2540	00 149.00	70 172.00	32 965.39	23 834.71	- 32.91	- 0.79
2550	29 730.70	70 176.33	42 193.23	23 834.59	35.53	- 3.51
2560	58 951.30	70 181.33	51 308.41	23 834.70	- 15.59	2.90

Table LXXIV. Photogrammetric Horizontal Adjustment - EW Strip GI-3-3

A +.31194389732(+ 00) -.49689305627(- 04) B +.17210380611(+ 04) +.19499566519(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31164443570	(+ 00)	B. +.34978803628	(- 04)
C. +.17451803930	(+ 04)	D. +.18888295183	(+ 04)

Point Ident	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
3320	41 054.33	29 703.70	14 678.65	42 168.05	- 7.05	3.95
3330	70 483.00	29 680.00	23 849.93	42 161.70	4.93	- 2.20
3340	99 947.67	29 677.70	33 032.43	42 162.01	29.63	- 2.39
3350	29 103.70	29 666.00	42 118.74	42 159.38	- 45.46	- 4.42
3360	58 706.70	29 687.30	51 344.35	42 167.06	17.95	5.06

Table LXXV. Photogrammetric Horizontal Adjustment - EW Strip GI-3-4

A +.31164443570(+ 00) +.34978803628(- 04) B +.18888295183(+ 04) +.17451803930(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31212527742	(+ 00)	B. -.63914301510	(- 05)
C. +.17846345559	(+ 04)	D. +.17891286592	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
3420	41 280.00	00 037.30	14 674.30	33 008.54	- 11.70	6.14
3430	70 722.67	00 015.30	23 864.10	33 001.49	20.00	- 3.61
3440	00 000.00	99 995.33	33 002.30	32 995.07	- 1.40	- 6.13
3450	29 325.70	00 009.00	42 155.59	32 999.14	- 10.31	- 1.46
3460	58 722.00	00 026.00	51 330.92	33 004.26	3.42	5.06

Table LXXVI. Photogrammetric Horizontal Adjustment - EW Strip GI-3-5

A +.31212527742(+ 00) -.63914301510(- 05) B +.17891286592(+ 04) +.17846345559(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31148446697	(+ 00)	B. +.18612840943	(- 04)
C. +.19846806759	(+ 04)	D. +.19217221432	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
3520	40 997.67	70 186.67	14 690.55	23 847.50	2.75	4.80
3530	70 392.33	70 156.67	23 846.53	23 838.70	3.53	- 4.60
3540	99 764.33	70 157.33	32 995.46	23 839.46	- 9.64	- 2.14
3550	29 199.00	70 154.67	42 163.90	23 839.18	- 2.30	- 1.12
3560	58 636.30	70 158.33	51 333.16	23 840.86	5.66	3.06

Table LXXVII. Photogrammetric Horizontal Adjustment - EW Strip GI-4-3

A +.31148446697(+ 00) +.18612840943(- 04) B +.19217221432(+ 04) +.19846806759(+ 04)

NO. OF CONTROL 4 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31178978596	(+ 00)	B. +.10974670193	(- 04)
C. +.17245263012	(+ 04)	D. +.18864198238	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
4340	99 826.00	29 692.70	33 009.72	42 162.48	6.62	- 1.62
4350	29 143.70	29 712.70	42 150.68	42 169.04	- 13.22	3.24
4360	58 587.30	29 699.00	51 330.90	42 165.09	3.30	- 0.81
4360	58 587.30	29 699.00	51 330.90	42 165.09	3.30	- 0.81

Table LXXVIII. Photogrammetric Horizontal Adjustment - EW Strip GI-4-4

A -.67964593497(+ 26) -.67964593497(+ 26) B -.67964593497(+ 26) -.67964593497(+ 26)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS COEFFICIENTS

A. +.31188467992 (+ 00) B. +.40668405832 (- 04)

C. +.18061106844 (+ 04) D. +.18311627643 (+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
4420	41 216.00	00 026.70	14 681.73	33 004.58	- 5.17	2.58
4430	70 582.33	00 011.00	23 840.64	33 000.88	- 4.46	- 2.72
4440	00 001.30	00 009.70	33 015.97	33 001.67	14.17	- 0.33
4450	29 355.30	00 005.30	42 171.03	33 001.49	5.73	- 1.51
4460	58 684.70	00 012.00	51 318.42	33 004.77	- 10.28	1.97

Table LXXIX. Photogrammetric Horizontal Adjustment - EW Strip GI-4-5

A +.31178978596(+ 00) +.10974670193(- 04) B +.18864198238(+ 04) +.172452.3012(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31236966526	(+ 00)	B. +.4352567068	(- 04)
C. +.18369915683	(+ 04)	D. +.18702104073	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
4520	41 057.67	70 444.67	14 692.31	23 843.56	4.21	3.46
4530	70 264.67	70 429.00	23 815.70	23 839.93	- 27.80	- 1.57
4540	99 813.00	70 415.67	33 045.70	23 837.06	40.80	- 5.04
4550	28 954.30	70 427.00	42 148.56	23 841.86	- 14.74	0.96
4560	58 338.00	70 423.00	51 327.13	23 841.89	- 2.47	2.19

Table LXXX. Photogrammetric Horizontal Adjustment - EW Strip GI-5-3

A +.31236966526(+ 00) +.43525670618(- 04) B +.18702104073(+ 04) +.18369915683(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31200362103	(+ 00)	B. +.84924906666	(- 04)
C. +.17069215116	(+ 04)	D. +.18374003821	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
5320	41 242.00	29 629.70	14 694.04	42 155.36	16.84	3.96
5330	70 513.00	29 628.30	23 826.70	42 157.41	- 11.50	- 2.39
5340	99 865.67	29 621.70	32 984.84	42 157.84	- 11.86	- 2.56
5350	29 221.70	29 608.00	42 144.03	42 156.06	- 9.07	- 3.54
5360	58 676.00	29 639.30	51 333.88	42 168.33	15.58	4.53

Table LXXXI. Photogrammetric Horizontal Adjustment - EW Strip GI-5-4

A +.31200362103(+ 00) +.84924906666(- 04) B +.18374003821(+ 04) +.17069215116(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS		COEFFICIENTS	
A. +.31166839808	(+ 00)	B. -.27257472977	(- 05)
C. +.18319379868	(+ 04)	D. +.18386716784	(+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
5420	41 133.67	00 010.70	14 659.01	33 002.00	- 22.99	3.70
5430	70 711.33	00 000.00	23 877.43	32 998.59	35.33	- 1.61
5440	00 014.70	99 993.67	33 010.37	32 996.53	9.97	- 4.67
5450	29 250.70	99 995.00	42 122.30	32 996.87	- 33.60	- 0.63
5460	58 801.30	00 006.00	51 332.29	33 000.21	11.29	3.21

Table LXXXII. Photogrammetric Horizontal Adjustment - EW Strip GI-5-5

A +.31166839808(+ 00) -.27257472977(- 05) B +.18386716784(+ 04) +.18319379868(+ 04)

NO. OF CONTROL 5 DEGREE OF TRANS. 1 RUN 1

COEFFICIENTS COEFFICIENTS

A. +.31202661949 (+ 00) B. -.11918350281 (- 03)

C. +.19298498892 (+ 04) D. +.17953743693 (+ 04)

Point Ident.	Instrument x (mm)	Instrument y (mm)	X (m)	Y (m)	Residual X	Residual Y
5520	41 288.67	70 237.00	14 686.91	23 840.74	6.21	2.74
5530	70 516.67	70 233.33	23 806.82	23 836.11	- 32.88	- 0.89
5540	00 087.00	70 239.00	33 033.55	23 834.36	32.05	- 3.34
5550	29 363.70	70 256.33	42 168.67	23 836.28	9.97	- 1.62
5560	58 640.30	70 283.33	51 303.75	23 841.21	- 15.35	3.11

Table LXXXIII. Pre-Orbiter Arizona (Original - Reassembled) Grid Image Plate 1

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)
.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80

ROTATION K (SEC)
.000000E-80

SOLVING PROBLEM FOR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y) — INSTRUMENT VALUES

PT. ID	X	Y	PT. ID	X	Y
0 1	.01468060	.01466460	1 1	.04139933	.04065867
0 2	.02384210	.01467370	1 2	.07076567	.04064033
0 3	.03300090	.01467010	1 3	.10004500	.04064867
0 4	.04215910	.01466620	1 4	.12949600	.04069067
0 5	.05132140	.01466310	1 5	.15872470	.04072900
0 6	.01468010	.02384090	1 6	.04128833	.07035667
0 7	.02383920	.02383730	1 7	.07051567	.07032467
0 8	.03300080	.02383530	1 8	.09994600	.07031500
0 9	.04216230	.02383080	1 9	.12932070	.07032300
010	.05132220	.02382740	110	.15879670	.07034200
011	.01468380	.03300110	111	.04120933	.10004330
012	.02384280	.03300280	112	.07058067	.10001670
013	.03300060	.03299960	113	.09999867	.10000200
014	.04216130	.03299630	114	.12932030	.10000500
015	.05132700	.03299230	115	.15867700	.10001970
016	.01468200	.04216060	116	.04091667	.12986900
017	.02384440	.04216190	117	.07042000	.12985170
018	.03300370	.04215910	118	.09969633	.12982600
019	.04216350	.04215770	119	.12896070	.12980700
020	.05132760	.04215870	120	.15863970	.12982900
021	.01468460	.05132100	121	.04088500	.15912500
022	.02384540	.05132300	122	.07039533	.15915200
023	.03300730	.05132660	123	.09964433	.15918530
024	.04216450	.05132020	124	.12911100	.15922270
025	.05132780	.05132140	125	.15845270	.15926670

Table LXXXIII -- Continued

NO. CF ITERATIONS	LEVEL OF RESIDUALS	NUMBER OF POINTS
1	.133899E 00	25.00
2	.264942E-02	25.00
3	.423862E-05	25.00
4	.594140E-06	25.00
5	.133016E-05	25.00

CUTPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.688146E 00	-.69[illegible]6E 00	.209115E 03	-.555567E-02	-.681159E-02	.808976E 02

STD. ERRCR OF UNKNOWNS

SCALE X	SCAI E Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.143662E-03	.14[illegible]8E-03	.651385E-03	.715361E-04	.721934E-04	.460672E-03

SC CF DIFFS	STD. ERRCR	ST ERRCR/2	SUM VX/N	SUM VY/N
.391784E-07	.298399E-04	.149199E-04	-.132964E-05	.521882E-09

INVERSE CF NCRMAL EQUATIONS

.231789E 02	-.267549E-11	.242480E 00	.786290E 01	.317207E-09	-.298285E-08
-.267549E-11	.227440E 02	-.759761E-01	-.789818E-02	.786211E 01	.135731E-02
.242480E 00	-.759761E-01	.476521E 03	.252681E 02	.254193E 02	-.238336E 03
.786290E 01	-.789818E-0[illegible]	.252681E 02	.574721E 01	-.588016E-02	.255618E-01
.317207E-09	.786211E 01	.254193E 02	-.588016E-02	.585330E 01	-.254451E 02
-.298285E-08	.135731E-02	-.238336E 03	.255618E-01	-.254451E 02	.238336E 03

Table LXXXIII -- Continued

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
1.	.14696976E-01	.14663232E-01	16.38	-1.37
2.	.23854961E-01	.14653970E-01	12.86	-19.73
3.	.32985842E-01	.14652969E-01	-15.06	-17.13
4.	.42170297E-01	.14662345E-01	11.20	-3.86
5.	.51285422E-01	.14670614E-01	-35.98	7.51
6.	.14696068E-01	.23840343E-01	15.57	-.56
7.	.23810690E-01	.23826880E-01	-28.51	-10.42
8.	.32988540E-01	.23820292E-01	-12.16	-15.01
9.	.42149262E-01	.23819171E-01	-13.04	-11.63
10.	.51341487E-01	.23821438E-01	19.29	-5.96
11.	.14705127E-01	.33013937E-01	21.33	12.84
12.	.23864661E-01	.33002125E-01	21.86	-.67
13.	.33038761E-01	.32993985E-01	36.16	-5.62
14.	.42182827E-01	.32994325E-01	21.53	-4.97
15.	.51337843E-01	.32992277E-01	10.84	-.23E-01
16.	.14647712E-01	.42230532E-01	-34.20	69.93
17.	.23848419E-01	.42221578E-01	4.02	59.68
18.	.32978326E-01	.42210055E-01	-25.37	50.96
19.	.42104510E-01	.42200605E-01	-58.99	42.90
20.	.51360045E-01	.42203773E-01	32.44	45.07
21.	.14671042E-01	.51271050E-01	-13.56	-49.95
22.	.23873982E-01	.51275784E-01	28.58	-47.22
23.	.32995432E-01	.51282497E-01	-11.87	-44.10
24.	.42184769E-01	.51290450E-01	20.27	-29.75
25.	.51335140E-01	.51300458E-01	7.34	-20.94

Table LXXXIV. Pre-Orbiter Arizona (Original - Reassembled) Grid Image Plate 2

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)
.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80

ROTATION K (SEC)
.000000E-80

SOLVING PROBLEM FOR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y) — INSTRUMENT VALUES

PT. ID	X	Y	PT. ID	X	Y
0 1	.01467080	.01468120	1 1	.04151467	.04031700
0 2	.02383120	.01467890	1 2	.07073233	.04034433
0 3	.03299270	.01467190	1 3	.10011000	.04039500
0 4	.04215520	.01467040	1 4	.12939700	.04046100
0 5	.05131950	.01466450	1 5	.15886100	.04053467
0 6	.01467110	.02384310	1 6	.04147633	.07019233
0 7	.02383590	.02383520	1 7	.07095067	.07017067
0 8	.03299830	.02383550	1 8	.10014900	.07017200
0 9	.04215770	.02383810	1 9	.12973070	.07017633
010	.05132400	.02383180	110	.15895130	.07018133
011	.01466950	.03300730	111	.04120333	.10002670
012	.02383150	.03300720	112	.07056867	.10001770
013	.032[illegible]9900	.03300130	113	.09999500	.10000600
014	.04215870	.03300260	114	.12939770	.10001600
015	.05132990	.03299890	115	.15889270	.10000370
016	.01466970	.04217110	116	.04105667	.12961930
017	.02383140	.04216730	117	.07057267	.12960200
018	.03299620	.04216850	118	.09984900	.12960430
019	.04216220	.04216910	119	.12916130	.12960030
020	.05133200	.04216780	120	.15871600	.12959670
021	.01466460	.05133970	121	.04150800	.15968100
022	.02383140	.05134360	122	.07078933	.15962270
023	.03299710	.05134480	123	.10020170	.15957570
024	.04216550	.05134170	124	.12961370	.15953900
025	.05133520	.05133860	125	.15898470	.15951400

Table LXXXIV -- Continued

NC. CF ITERATIONS	LEVEL CF RESIDUALS	NUMBER OF POINTS
1	.134052E 00	25.00
2	.275521E-02	25.00
3	.120372E-05	25.00
4	.486109E-06	25.00
5	.109313E-05	25.00

CUTPUT VALUES FCR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.688068E 00	-.692159E 00	.358585E 02	-.560865E-02	-.727858E-02	.452075E 02

STC. ERRCR CF UNKNOWNS

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.196281E-03	.193657E-03	.889772E-03	.977012E-04	.989996E-04	.629245E-03

SG CF DIFFS	STD. ERROR	ST ERROR/2	SUM VX/N	SUM VY/N
.731608E-07	.407768E-04	.203884E-04	-.109289E-05	.238463E-09

INVERSE CF NCRMAL EQUATIONS

.231703E 02	-.198609E-11	.459802E-01	.785657E 01	-.206335E-09	.191830E-08
-.198609E-11	.225550E 02	-.875836E-02	-.134809E-02	.785753E 01	-.397913E-02
.459802E-01	-.875836E-02	.476137E 03	.251998E 02	.255171E 02	-.238129E 03
.785657E 01	-.134809E-02	.251998E 02	.574082E 01	-.101129E-02	.437866E-02
-.206335E-09	.785753E 01	.255171E 02	-.101129E-02	.589442E 01	-.255215E 02
.191830E-08	-.397913E-02	-.238129E 03	.437866E-02	-.255215E 02	.238129E 03

Table LXXXIV -- Continued

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
1.	.14710743E-01	.14648636E-01	39.94	-32.56
2.	.23824665E-01	.14655052E-01	-6.54	-23.85
3.	.32988504E-01	.14668642E-01	-4.20	-3.26
4.	.42124065E-01	.14686957E-01	-31.14	16.56
5.	.51314839E-01	.14707622E-01	-4.66	43.12
6.	.14705993E-01	.23845482E-01	34.89	2.38
7.	.23899970E-01	.23836800E-01	64.07	1.60
8.	.33007855E-01	.23835213E-01	9.56	-.29
9.	.42235327E-01	.23834523E-01	77.63	-3.58
10.	.51350160E-01	.23834065E-01	26.16	2.26
11.	.14628035E-01	.33029735E-01	-41.46	22.44
12.	.23788014E-01	.33024957E-01	-43.49	17.76
13.	.32967017E-01	.33019344E-01	-31.98	18.04
14.	.42138655E-01	.33020412E-01	-20.05	17.81
15.	.51339078E-01	.33014609E-01	9.18	15.71
16.	.14589429E-01	.42139553E-01	-80.27	-31.55
17.	.23796401E-01	.42132209E-01	-35.00	-35.09
18.	.32928618E-01	.42130916E-01	-67.58	-37.58
19.	.42072053E-01	.42127681E-01	-90.15	-41.42
20.	.51291101E-01	.42124552E-01	-40.90	-43.25
21.	.14737467E-01	.51393738E-01	72.87	54.04
22.	.23871229E-01	.51373789E-01	39.83	30.19
23.	.33045869E-01	.51357309E-01	48.77	12.51
24.	.42220396E-01	.51344001E-01	54.90	2.30
25.	.51382137E-01	.51334297E-01	46.94	-4.30

Table LXXXV. Pre-Orbiter Arizona (Original - Reassembled Grid Image Plate 3

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)
.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80

ROTATION K (SEC)
.000000E-80

SOLVING PROBLEM FOR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y) — INSTRUMENT VALUES

PT. ID	X	Y	PT. ID	X	Y
0 1	.01468850	.01468100	1 1	.04093900	.04071567
0 2	.02384310	.01468110	1 2	.07024133	.04059900
0 3	.03300340	.01467710	1 3	.09965033	.04050900
0 4	.04216420	.01467600	1 4	.12890730	.04043333
0 5	.05132730	.01467420	1 5	.15836030	.04035500
0 6	.01468780	.02384270	1 6	.04099767	.07018667
0 7	.02384300	.02384330	1 7	.07039233	.07015667
0 8	.03300510	.02384160	1 8	.09976433	.07015733
0 9	.04216620	.02384030	1 9	.12919900	.07015467
010	.05132750	.02383730	110	.15863630	.07015833
011	.01468600	.03300240	111	.04128000	.10003730
012	.02384410	.03300510	112	.07072267	.10001530
013	.03300370	.03300120	113	.10000000	.09999533
014	.04216590	.03300060	114	.12932570	.10000900
015	.05132750	.03299920	115	.15872200	.10002600
016	.01468570	.04216410	116	.04105433	.12970370
017	.02384500	.04216390	117	.07048300	.12968000
018	.03300280	.04216440	118	.09994767	.12967770
019	.04216420	.04216380	119	.12910370	.12966600
020	.05132640	.04216200	120	.15870670	.12968730
021	.01468210	.05132480	121	.04123767	.15934070
022	.02384390	.05132640	122	.07055033	.15929600
023	.03300460	.05132940	123	.09979900	.15926830
024	.04216620	.05132900	124	.12926570	.15924630
025	.05132860	.05132710	125	.15857500	.15922000

Table LXXXV -- Continued

NO. OF ITERATIONS	LEVEL OF RESIDUALS	NUMBER OF POINTS
1	.133759E 00	25.00
2	.281579E-02	25.00
3	.348114E-05	25.00
4	.147737E-05	25.00
5	.331069E-05	25.00

OUTPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.688083E 00	-.691536E 00	-.854441E 02	-.619531E-02	-.697249E-02	-.164019E 03

STD. ERROR OF UNKNOWNS

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.156714E-03	.154950E-03	.710465E-03	.780202E-04	.788937E-04	.502422E-03

SQ OF DIFFS	STD. ERROR	ST ERROR/2	SUM VX/N	SUM VY/N
.466003E-07	.325438E-04	.162719E-04	.330806E-05	.263098E-08

INVERSE OF NORMAL EQUATIONS

.231889E 02	.102764E-10	-.845591E-01	.787363E 01	.150976E-08	-.140625E-07
.102764E-10	.226697E 02	.455527E-01	.321919E-02	.785825E 01	-.151090E-01
-.845591E-01	.455527E-01	.476595E 03	.251699E 02	.255359E 02	-.238342E 03
.787363E 01	.321919E-02	.251699E 02	.574748E 01	.240752E-02	-.104566E-01
.150976E-08	.785825E 01	.255359E 02	.240752E-02	.587691E 01	-.255253E 02
-.140625E-07	-.151090E-01	-.238342E 03	-.104566E-01	-.255253E 02	.238342E 03

Table LXXXV -- Continued

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
1.	.14670552E-01	.14721736E-01	-17.95	40.74
2.	.23810531E-01	.14693015E-01	-32.57	11.92
3.	.32983764E-01	.14672548E-01	-19.64	-4.55
4.	.42109566E-01	.14656463E-01	-54.63	-19.54
5.	.51296516E-01	.14639607E-01	-30.78	-34.59
6.	.14669416E-01	.23812470E-01	-18.38	-30.23
7.	.23838136E-01	.23810507E-01	-4.86	-32.79
8.	.32999768E-01	.23817996E-01	-5.33	-23.60
9.	.42180950E-01	.23824476E-01	14.75	-15.82
10.	.51362949E-01	.23832906E-01	35.45	-4.89
11.	.14737792E-01	.33020362E-01	51.79	17.96
12.	.23921482E-01	.33020878E-01	77.38	15.78
13.	.33053599E-01	.33021980E-01	49.90	20.78
14.	.42200780E-01	.33033470E-01	34.88	32.87
15.	.51369981E-01	.33046006E-01	42.48	46.81
16.	.14647835E-01	.42171299E-01	-37.86	7.20
17.	.23827160E-01	.42171288E-01	-17.84	7.39
18.	.33017699E-01	.42177887E-01	14.90	13.49
19.	.42111975E-01	.42181509E-01	-52.22	17.71
20.	.51345646E-01	.42195422E-01	19.25	33.42
21.	.14685476E-01	.51313269E-01	3.38	-11.53
22.	.23828629E-01	.51306752E-01	-15.27	-19.65
23.	.32951811E-01	.51305462E-01	-52.79	-23.94
24.	.42142996E-01	.51305984E-01	-23.20	-23.02
25.	.51285089E-01	.51305141E-01	-43.51	-21.96

Table LXXXVI. Pre-Orbiter Arizona (Original - Reassembled Grid Image Plate 4

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)
.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80

ROTATION K (SEC)
.000000E-80

SOLVING PROBLEM FOR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y) — INSTRUMENT VALUES

PT. ID	X	Y	PT. ID	X	Y
C 1	.01468430	.01467950	1 1	.04085633	.04063800
C 2	.02384290	.01468010	1 2	.07061670	.04058167
C 3	.03300610	.01467530	1 3	.09970900	.04052900
C 4	.04216500	.01467510	1 4	.12898900	.04052033
C 5	.05133090	.01467490	1 5	.15835230	.04048867
C 6	.01468810	.02384010	1 6	.04105767	.07044467
C 7	.02384350	.02384150	1 7	.07026467	.07042900
C 8	.03300490	.02384210	1 8	.09981300	.07041567
C 9	.04216330	.02384090	1 9	.12895430	.07042700
C10	.05132960	.02383970	110	.15833800	.07042300
C11	.01468690	.03300200	111	.04121600	.10002670
C12	.02384510	.03300360	112	.07058233	.10001100
C13	.03300180	.03300200	113	.10000130	.10000970
C14	.0421[illegible]0	.03300300	114	.12935530	.10000530
C15	.05132870	.03300280	115	.15868470	.10000120
C16	.01468550	.04216160	116	.04108567	.12972830
C17	.02384460	.04215960	117	.07062967	.12969670
C18	.03300310	.04216410	118	.09982600	.12969270
C19	.04216390	.04216580	119	.12914370	.12971270
C20	.05132760	.04216590	120	.15858730	.12969900
C21	.01468180	.05131870	121	.04096533	.15948500
C22	.02383790	.05132250	122	.07030000	.15946800
C23	.03299850	.05132910	123	.09965700	.15946670
C24	.04215530	.05132440	124	.12895600	.15945530
C25	.05131630	.05132420	125	.15840130	.15945070

Table LXXXVI -- Continued

NO. OF ITERATIONS	LEVEL OF RESIDUALS	NUMBER OF POINTS
1	.133800E 00	25.00
2	.277131E-02	25.00
3	.119538E-05	25.00
4	.861612E-06	25.00
5	.193255E-05	25.00

OUTPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.687873E 00	-.691638E 00	-.366797E 01	-.601013E-02	-.694435E-02	-.876547E 02

STD. ERROR OF UNKNOWNS

SCALE X	SCALE Y	ALFA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.173044E-03	.170930E-03	.7 3980E-03	.860345E-04	.870851E-04	.554401E-03

SQ OF DIFFS	STD. ERROR	ST ERROR/2	SUM VX/N	SUM VY/N
.567386E-07	.359098E-04	.179549E-04	.193173E-05	.821747E-09

INVERSE OF NORMAL EQUATIONS

.232212E 02	-.406801E-12	.113543E-01	.787117E 01	-.794081E-09	.741526E-08
-.406801E-12	.226573E 02	.167626E-01	.138120E-03	.786191E 01	-.154560E-01
.113543E-01	.167626E-01	.476633E 03	.251871E 02	.255262E 02	-.238354E 03
.787117E 01	.138120E-03	.251871E 02	.574009E 01	.103320E-03	-.448432E-03
-.794081E-09	.786191E 01	.255262E 02	.103320E-03	.588113E 01	-.255257E 02
.741526E-08	-.154560E-01	-.238354E 03	-.448432E-03	-.255257E 02	.238354E 03

Table LXXXVI -- Continued

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
1.	.14621221E-01	.14678801E-01	-63.08	-.70
2.	.23910254E-01	.14665379E-01	67.35	-14.72
3.	.32990764E-01	.14652996E-01	-15.34	-22.30
4.	.42129854E-01	.14654206E-01	-35.15	-20.89
5.	.51294947E-01	.14648338E-01	-35.95	-26.56
6.	.14679629E-01	.23870070E-01	-8.47	29.97
7.	.23795934E-01	.23869112E-01	-47.57	27.61
8.	.33018776E-01	.23868921E-01	13.88	26.82
9.	.42114572E-01	.23876280E-01	-48.73	35.38
10.	.51286029E-01	.23878945E-01	-43.57	39.24
11.	.14724645E-01	.32992064E-01	37.75	-9.94
12.	.23890682E-01	.32991117E-01	45.58	-12.48
13.	.33073147E-01	.32994619E-01	71.35	-7.38
14.	.42235333E-01	.32997156E-01	70.03	-5.84
15.	.51389841E-01	.32999782E-01	61.14	-3.02
16.	.14679546E-01	.42150889E-01	-5.95	-10.71
17.	.23901040E-01	.42145064E-01	56.44	-14.54
18.	.33014013E-01	.42147703E-01	10.91	-16.40
19.	.42164866E-01	.42157759E-01	.97	-8.04
20.	.51355020E-01	.42157440E-01	27.42	-8.46
21.	.14637556E-01	.51326707E-01	-44.24	8.01
22.	.23793711E-01	.51325356E-01	-44.19	2.86
23.	.32956833E-01	.51328649E-01	-41.67	-.25
24.	.42101853E-01	.51329420E-01	-53.45	4.82
25.	.51292537E-01	.51331707E-01	-23.76	7.51

Table LXXXVII. Pre-Orbiter Arizona (Original - Reassembled) Grid Image Plate 4a

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INPUT  VALUES FOR
 SCALE X         SCALE Y          ALPHA (SEC)    TRANS A (M)    TRANS B (M)
 .000000E-80     .000000E-80      .000000E-80    .000000E-80    .000000E-80
 ROTATION K (SEC)
 .000000E-80
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              SOLVING PROBLEM FOR UNKNOWNS
                                  SCALE X
                                  SCALE Y
                                  ALPHA
                                  TRANSLATION A
                                  TRANSLATION B
                                  ROTATION K

              ITERATION LIMIT    .100000E-07
```

GRID PLATE STANDARD (X,Y) — INSTRUMENT VALUES

PT. ID	X	Y	PT. ID	X	Y
C 1	.01468430	.01467950	1 1	.04085633	.04063800
C 2	.02384290	.01468010	1 2	.07161670	.04058167
C 3	.03300610	.01467530	1 3	.09970900	.04052900
C 4	.04216500	.01467510	1 4	.12898900	.04052033
C 5	.05133090	.01467490	1 5	.15835230	.04048867
C 6	.01468810	.02384010	1 6	.04105767	.07044467
C 7	.02384350	.02384150	1 7	.07026467	.07042900
C 8	.03300490	.02384210	1 8	.09981300	.07041567
C 9	.04216330	.02384090	1 9	.12895430	.07042700
C10	.05132960	.02383970	110	.15833800	.07042300
C11	.01466690	.03300200	111	.04121600	.10002670
C12	.02384510	.03300360	112	.07058233	.10001100
C13	.03300180	.03300200	113	.10000130	.10000970
C14	.04216530	.03300300	114	.12935530	.10000530
C15	.05132870	.03300280	115	.15868470	.10000120
C16	.01468550	.04216160	116	.04090067	.12972900
C17	.02384460	.04215960	117	.07027500	.12969470
C18	.03300310	.04216410	118	.09982600	.12969270
C19	.04216390	.04216580	119	.12914370	.12971270
C20	.05132760	.04216590	120	.15858730	.12969900
C21	.01468180	.05131870	121	.04096533	.15948500
C22	.02383790	.05132250	122	.07030000	.15946800
C23	.03299850	.05132910	123	.09965700	.15946670
C24	.04215530	.05132440	124	.12895600	.15945530
C25	.05131630	.05132420	125	.15840130	.15945070

Table LXXXVII -- Continued

NO. OF ITERATIONS	LEVEL OF RESIDUALS	NUMBER OF POINTS
1	.133819E 00	25.00
2	.272598E-02	25.00
3	.131051E-05	25.00
4	.872543E-06	25.00
5	.195804E-05	25.00

OUTPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.687823E 00	-.691638E 00	.106343E 03	-.579210E-02	-.694429E-02	-.876874E 02

STD. ERROR OF UNKNOWNS

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.313538E-03	.309654E-03	.142026E-02	.155835E-03	.157763E-03	.100436E-02

SQ OF DIFFS	STD. ERROR	ST ERROR/2	SUM VX/N	SUM VY/N
.186207E-06	.650537E-04	.325268E-04	.195721E-05	.831831E-09

INVERSE OF NORMAL EQUATIONS

.232293E 02	-.830195E-11	.140133E 00	.787141E 01	-.860137E-09	.800425E-08
-.830195E-11	.226574E 02	-.224278E-01	-.400569E-02	.786191E 01	-.154719E-01
.140133E 00	-.224278E-01	.476641E 03	.252133E 02	.255133E 02	-.238361E 03
.787141E 01	-.400569E-02	.252133E 02	.573836E 01	-.299651E-02	.130059E-01
-.860137E-09	.786191E 01	.255133E 02	-.299651E-02	.588121E 01	-.255265E 02
.800425E-08	-.154719E-01	-.238361E 03	.130059E-01	-.255265E 02	.238361E 03

Table LXXXVII -- Continued

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
1.	.14580854E-01	.14678781E-01	-103.45	-.72
2.	.24183501E-01	.14665493E-01	340.60	-14.61
3.	.32953240E-01	.14652980E-01	-52.86	-22.32
4.	.42093768E-01	.14654192E-01	-71.23	-20.91
5.	.51260292E-01	.14648727E-01	-70.61	-26.57
6.	.14655175E-01	.23870065E-01	-32.93	29.97
7.	.23772912E-01	.23869109E-01	-70.59	27.61
8.	.32997204E-01	.23868920E-01	-7.70	26.82
9.	.42094441E-01	.23876281E-01	-68.86	35.38
10.	.51267344E-01	.23878948E-01	-62.26	39.25
11.	.14715982E-01	.32992073E-01	29.08	-9.93
12.	.23883458E-01	.32991129E-01	38.36	-12.47
13.	.33067372E-01	.32994632E-01	65.57	-7.37
14.	.42231003E-01	.32997171E-01	65.70	-5.83
15.	.51386955E-01	.32999799E-01	58.25	-3.00
16.	.14628971E-01	.42151105E-01	-56.53	-10.50
17.	.23798937E-01	.42144426E-01	-45.66	-15.17
18.	.33024067E-01	.42147731E-01	20.97	-16.37
19.	.42176376E-01	.42157789E-01	12.48	-8.01
20.	.51367974E-01	.42157472E-01	40.37	-3.43
21.	.14660604E-01	.51326746E-01	-21.20	8.05
22.	.23818196E-01	.51325397E-01	-19.70	2.90
23.	.32982764E-01	.51328892E-01	-15.74	-.21
24.	.42129223E-01	.51329465E-01	-26.08	4.86
25.	.51321355E-01	.51331754E-01	5.06	7.55

Table LXXXVIII. Pre-Orbiter Arizona (Original - Reassembled) Grid Image Plate 5

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)
.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80

ROTATION K (SEC)
.000000E-80

SOLVING PROBLEM FOR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y) INSTRUMENT VALUES

PT. ID	X	Y	PT. ID	X	Y
0 1	.01468340	.01467960	1 1	.04157233	.04055700
0 2	.02384230	.01467450	1 2	.07089600	.04057233
0 3	.03300100	.01467360	1 3	.10022570	.04060467
0 4	.04215930	.01467300	1 4	.12952870	.04068267
0 5	.05132220	.01467330	1 5	.15891370	.04073400
0 6	.01468070	.02383800	1 6	.04128867	.07023700
0 7	.02383970	.02383700	1 7	.07051667	.07023333
0 8	.03300150	.02383770	1 8	.10008700	.07023900
0 9	.04215870	.02383790	1 9	.12936370	.07025633
010	.05131910	.02383810	110	.15864030	.07028000
011	.01468200	.03299830	111	.04113367	.10001070
012	.02384210	.03300020	112	.07071133	.10000000
013	.03300040	.03300120	113	.10001470	.09999367
014	.04215590	.03299750	114	.12925070	.09999500
015	.05132100	.03299700	115	.15880130	.10000600
016	.01467720	.04215140	116	.04124200	.12962970
017	.02383820	.04215980	117	.07051300	.12962830
018	.03299670	.04216040	118	.09986567	.12962170
019	.04215310	.04215960	119	.12922170	.12960800
020	.05131830	.04216380	120	.15867600	.12963930
021	.01468290	.05131710	121	.04102733	.15923330
022	.02384060	.05132100	122	.07027900	.15921500
023	.03300070	.05133000	123	.09980500	.15923270
024	.04215510	.05132800	124	.12908700	.15922530
025	.05131570	.05132370	125	.15842570	.15922370

Table LXXXVIII -- Continued

NC. CF ITERATICNS	LEVEL CF RESIDUALS	NUMBER OF POINTS
1	.133911E 00	25.00
2	.264262E-02	25.00
3	.413075E-05	25.00
4	.508682E-06	25.00
5	.113916E-05	25.00

CUTPUT VALUES FCR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.688024E 00	-.691068E 00	.210761E 03	-.543277E-02	-.690290E-02	.645484E 02

STC. ERRCR OF UNKNOWNS

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.109047E-03	.107950E-03	.494243E-03	.542561E-04	.547906E-04	.349534E-03

SC CF DIFFS	STC. ERRCP	ST ERRCR/2	SUM VX/N	SUM VY/N
.225484E-07	.226376E-04	.113188E-04	-.113880E-05	.356727E-09

INVERSE CF NCRMAL EQUATICNS

.232039E 02	-.914694E-11	.246102E 00	.786511E 01	.217096E-08	-.203629E-07
-.914694E-11	.227395E 02	-.751128E-01	-.795785E-02	.786483E 01	-.983005E-04
.246102E 00	-.751128E-01	.476671E 03	.252674E 02	.254330E 02	-.238406E 03
.786511E 01	-.795785E-02	.252674E 02	.574426E 01	-.592730E-02	.257601E-01
.217096E-08	.786483E 01	.254330E 02	-.592730E-02	.585801E 01	-.254590E 02
-.203629E-07	-.983005E-04	-.238406E 03	.257601E-01	-.254590E 02	.238406E 03

Table LXXXVIII -- Continued

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
1.	.14717566E-01	.14657296E-01	34.17	-22.30
2.	.23865876E-01	.14659169E-01	23.58	-15.33
3.	.33016087E-01	.14666296E-01	15.09	-7.30
4.	.42158019E-01	.14687532E-01	-1.28	14.53
5.	.51325502E-01	.14700521E-01	3.30	27.22
6.	.14662267E-01	.23826426E-01	-18.43	-11.57
7.	.23780709E-01	.23822439E-01	-58.99	-14.56
8.	.33005961E-01	.23821304E-01	4.46	-16.40
9.	.42139620E-01	.23823799E-01	-19.08	-14.10
10.	.51273255E-01	.23828254E-01	-45.85	-9.85
11.	.14647212E-01	.33024492E-01	-34.79	26.19
12.	.23874732E-01	.33018298E-01	32.63	18.10
13.	.33016695E-01	.33013482E-01	16.28	12.28
14.	.42137628E-01	.33011039E-01	-18.27	13.54
15.	.51356731E-01	.33011552E-01	35.73	14.55
16.	.14714136E-01	.42174739E-01	36.94	23.34
17.	.23845996E-01	.42171449E-01	7.80	11.65
18.	.3300332[illegible]E-01	.42166544E-01	6.63	6.14
19.	.42161702E-01	.42159446E-01	8.60	-.15
20.	.51350784E-01	.42166240E-01	32.48	2.44
21.	.14680275E-01	.51320261E-01	-2.62	3.16
22.	.23806[illegible]E-01	.51311752E-01	-34.51	-9.25
23.	.33017521E-01	.51314[illegible]37E-01	16.82	-15.66
24.	.42152805E-01	.51300192E-01	-2.29	-18.81
25.	.51305786E-01	.51305834E-01	-9.91	-17.87

Table LXXXIX. Pre-Orbiter Arizona (Original - Reassembled) Grid Image Plate 1 Subframe

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80

SOLVING PROBLEM FOR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y)		
PT. ID	X	Y
0 6	.01468010	.02384090
0 7	.02383920	.02383730
0 8	.03300080	.02383530
0 9	.04216230	.02383080
010	.05132220	.02382740
011	.01468380	.03300110
012	.02384280	.03300280
013	.03300060	.03299960
014	.04216130	.03299630
015	.05132700	.03299230
016	.01468200	.04216060
017	.02384440	.04216190
018	.03300370	.04215910
019	.04216350	.04215770
020	.05132760	.04215870

INSTRUMENT VALUES		
PT. ID	X	Y
1 6	.04128833	.07035667
1 7	.07051567	.07032467
1 8	.09994600	.07031500
1 9	.12932070	.07032300
110	.15879670	.07034200
111	.04120933	.10004330
112	.07058067	.10001670
113	.09999867	.10000200
114	.12932030	.10000500
115	.15867700	.10001970
116	.04091667	.12986900
117	.07042000	.12985170
118	.09969633	.12982600
119	.12896070	.12980700
120	.15863970	.12982900

Table LXXXIX -- Continued

NO. OF ITERATIONS	LEVEL OF RESIDUALS	NUMBER OF POINTS
1	.133948E 00	15.00
2	.269492E-02	15.00
3	.457832E-05	15.00
4	.546763E-08	15.00

OUTPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.688228E 00	-.692035E 00	.278528E 03	-.550594E-02	-.708452E-02	-.533143E 00

STD. ERROR OF UNKNOWNS

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.142253E-03	.243330E-03	.912406E-03	.984275E-04	.996441E-04	.456272E-03

SQ OF DIFFS	STD. ERROR	ST ERROR/2	SUM VX/N	SUM VY/N
.125788E-07	.228936E-04	.114468E-04	-.546647E-08	-.115961E-11

INVERSE OF NORMAL EQUATIONS

.386093E 02	-.380664E-10	.609527E 00	.131161E 02	-.182808E-08	.169290E-07
-.380664E-10	.112970E 03	-.429624E 00	-.524355E-01	.393113E 02	-.657181E-01
.609527E 00	-.429624E 00	.158835E 04	.126218E 03	.424171E 02	-.397208E 03
.131161E 02	-.524355E-01	.126218E 03	.184843E 02	-.252687E-01	.568080E-01
-.182808E-08	.393113E 02	.424171E 02	-.252687E-01	.189441E 02	-.425895E 02
.169290E-07	-.657181E-01	-.397208E 03	.568080E-01	-.425895E 02	.397208E 03

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
6.	.14693641E-01	.23849176E-01	13.54	8.30
7.	.23805856E-01	.23839364E-01	-33.34	2.06
8.	.32981387E-01	.23836410E-01	-19.41	1.11
9.	.42139599E-01	.23838898E-01	-22.70	8.10
10.	.51329407E-01	.23844773E-01	7.21	17.37
11.	.14709075E-01	.32991632E-01	25.27	-9.47
12.	.23866192E-01	.32983464E-01	23.39	-19.34
13.	.33037872E-01	.32978960E-01	37.27	-20.64
14.	.42179531E-01	.32979908E-01	18.23	-16.39
15.	.51332140E-01	.32984459E-01	5.14	-7.84
16.	.14658083E-01	.42176897E-01	-23.92	16.30
17.	.23856363E-01	.42171593E-01	11.96	9.69
18.	.32983860E-01	.42163701E-01	-19.84	4.60
19.	.42107637E-01	.42157674E-01	-55.86	.17
20.	.51360739E-01	.42164673E-01	33.14	5.97

Table XC. Pre-Orbiter Arizona (Original - Reassembled) Grid Image Plate 2 Subframe

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80

SOLVING PROBLEM FOR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y)		
PT. ID	X	Y
0 6	.01467110	.02384310
0 7	.02383590	.02383520
0 8	.03299830	.02383550
0 9	.04215770	.02383810
010	.05132400	.02383180
011	.01466950	.03300730
012	.02383150	.03300720
013	.03299900	.03300130
014	.04215870	.03300260
015	.05132990	.03299890
016	.01466970	.04217110
017	.02383140	.04216730
018	.03299620	.04216650
019	.04216220	.04216910
020	.05133200	.04216780

INSTRUMENT VALUES		
PT. ID	X	Y
1 6	.04147633	.07019233
1 7	.07095067	.07017067
1 8	.10014900	.07017200
1 9	.12973070	.07017633
110	.15895130	.07018133
111	.04120333	.10002670
112	.07056867	.10001770
113	.09999500	.10000600
114	.12939770	.10001600
115	.15889270	.10000370
116	.04105667	.12961930
117	.07057267	.12960200
118	.09984900	.12960430
119	.12916130	.12960030
120	.15871600	.12959670

Table XC -- Continued

NO. OF ITERATIONS	LEVEL OF RESIDUALS	NUMBER OF POINTS
1	.133976E 00	15.00
2	.260633E-02	15.00
3	.685366E-05	15.00
4	.732079E-07	15.00
5	.164420E-06	15.00

OUTPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.688233E 00	-.691517E 00	.412668E 03	-.510596E-02	-.705682E-02	.859573E 01

STD. ERROR OF UNKNOWNS

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.138868E-03	.237951E-03	.890734E-03	.960983E-04	.971211E-04	.445423E-03

SQ OF DIFFS	STD. ERROR	ST ERROR/2	SUM VX/N	SUM VY/N
.119973E-07	.223581E-04	.111791E-04	-.164413E-06	.678331E-11

INVERSE OF NORMAL EQUATIONS

.385777E 02	.341733E-10	.847172E 00	.131009E 02	.390803E-09	-.354457E-08
.341733E-10	.113267E 03	-.690403E 00	-.777753E-01	.392885E 02	-.441929E-01
.847172E 00	-.690403E 00	.158718E 04	.126208E 03	.422139E 02	-.396894E 03
.131009E 02	-.777753E-01	.126208E 03	.184740E 02	-.373537E-01	.840709E-01
.390803E-09	.392885E 02	.422139E 02	-.373537E-01	.188694E 02	-.424688E 02
-.354457E-08	-.441929E-01	-.396894E 03	.840709E-01	-.424688E 02	.396895E 03

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
6.	.14678377E-01	.23829452E-01	7.28	-13.65
7.	.23867468E-01	.23822387E-01	31.57	-12.81
8.	.32970554E-01	.23822418E-01	-27.75	-13.08
9.	.42193168E-01	.23823370E-01	35.47	-14.73
10.	.51303205E-01	.23824532E-01	-20.80	-7.27
11.	.14653337E-01	.33032854E-01	-16.16	25.55
12.	.23808471E-01	.33029696E-01	-23.03	22.50
13.	.32982613E-01	.33025705E-01	-16.39	24.40
14.	.42149433E-01	.33028408E-01	-9.27	25.81
15.	.51344983E-01	.33024230E-01	15.08	25.33
16.	.14667199E-01	.42161673E-01	-2.50	-9.43
17.	.23869286E-01	.42155953E-01	37.89	-11.35
18.	.32996692E-01	.42156282E-01	.49	-12.22
19.	.42135300E-01	.42154667E-01	-26.90	-14.43
20.	.51349480E-01	.42153173E-01	17.48	-14.63

Table XCI. Pre-Orbiter Arizona (Original - Reassembled) Grid Image Plate 3 Subframe

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80

SOLVING PROBLEM FOR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y)		
PT. ID	X	Y
0 6	.01468780	.02384270
0 7	.02384300	.02384330
0 8	.03300510	.02384160
0 9	.04216620	.02384030
010	.05132750	.02383780
011	.01468600	.03300240
012	.02384410	.03300510
013	.03300370	.03300120
014	.04216590	.03300060
015	.05132750	.03299920
016	.01468570	.04216410
017	.02384500	.04216390
018	.03300280	.04216440
019	.04216420	.04216380
020	.05132640	.04215200

INSTRUMENT VALUES		
PT. ID	X	Y
1 6	.04099767	.07018667
1 7	.07039233	.07015667
1 8	.09976433	.07015733
1 9	.12919900	.07015467
110	.15863630	.07015833
111	.04128000	.10003730
112	.07072267	.10001530
113	.10000000	.09999533
114	.12932570	.10000900
115	.15872200	.10002600
116	.04105433	.12970370
117	.07048300	.12968000
118	.09994767	.12967770
119	.12910370	.12966600
120	.15870670	.12968730

Table XCI -- Continued

NO. OF ITERATIONS	LEVEL OF RESIDUALS	NUMBER OF POINTS
1	.133836E 00	15.00
2	.285220E-02	15.00
3	.126898E-05	15.00
4	.983993E-07	15.00
5	.221183E-06	15.00

OUTPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.688250E 00	-.692164E 00	-.677762E 02	-.609966E-02	-.724806E-02	-.956836E 01

STD. ERROR OF UNKNOWNS

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.178784E-03	.305741E-03	.114688E-02	.123740E-03	.125314E-03	.573485E-03

SQ OF DIFFS	STD. ERROR	ST ERROR/2	SUM VX/N	SUM VY/N
.198696E-07	.287733E-04	.143866E-04	.221172E-06	.106373E-10

INVERSE OF NORMAL EQUATIONS

.386080E 02	-.592879E-12	-.737677E-01	.131181E 02	-.224845E-08	.209703E-07
-.592879E-12	.112909E 03	.178212E 00	.127599E-01	.393263E 02	-.576907E-01
-.737677E-01	.178212E 00	.158875E 04	.126116E 03	.426561E 02	-.397251E 03
.131181E 02	.127599E-01	.126116E 03	.184946E 02	.615436E-02	-.138267E-01
-.224845E-08	.393263E 02	.426561E 02	.615436E-02	.189678E 02	-.426141E 02
.209703E-07	-.576907E-01	-.397251E 03	-.138267E-01	-.426141E 02	.397251E 03

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
6.	.14656023E-01	.23837841E-01	-31.78	-4.86
7.	.23819806E-01	.23829031E-01	-23.19	-14.27
8.	.32976514E-01	.23829659E-01	-28.59	-11.94
9.	.42152761E-01	.23829265E-01	-13.44	-11.03
10.	.51329826E-01	.23830818E-01	2.33	-6.98
11.	.14733804E-01	.33026928E-01	47.80	24.53
12.	.23912552E-01	.33020582E-01	68.45	15.48
13.	.33039754E-01	.33014858E-01	36.05	13.66
14.	.42182024E-01	.33019490E-01	16.12	18.89
15.	.51346302E-01	.33025148E-01	18.80	25.95
16.	.14653280E-01	.42159296E-01	-32.42	-4.80
17.	.23827664E-01	.42152426E-01	-17.34	-11.47
18.	.33013263E-01	.42152144E-01	10.46	-12.26
19.	.42102647E-01	.42148964E-01	-61.55	-14.84
20.	.51331363E-01	.42155949E-01	4.96	-6.05

Table XCII. Pre-Orbiter Arizona (Original - Reassembled) Grid Image Plate 4 Subframe

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80

SOLVING PROBLEM FOR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y)		
PT. ID	X	Y
0 6	.01468810	.02384010
0 7	.02384350	.02384150
0 8	.03300490	.02384210
0 9	.04216330	.02384090
010	.05132960	.02383970
011	.01468690	.03300200
012	.02384510	.03300360
013	.03300180	.03300200
014	.04216530	.03300300
015	.05132870	.03300280
016	.01468550	.04216160
017	.02384460	.04215960
018	.03300310	.04216410
019	.04216390	.04216580
020	.05132760	.04216590

INSTRUMENT VALUES		
PT. ID	X	Y
1 6	.04105767	.07044467
1 7	.07026467	.07042900
1 8	.09981300	.07041567
1 9	.12895430	.07042700
110	.15833800	.07042300
111	.04121600	.10002670
112	.07058233	.10001100
113	.10000130	.10000970
114	.12935530	.10000530
115	.15868470	.10000120
116	.04108567	.12972830
117	.07062967	.12969670
118	.09982600	.12969270
119	.12914370	.12971270
120	.15858730	.12969900

Table XCII -- Continued

NO. OF ITERATIONS	LEVEL OF RESIDUALS	NUMBER OF POINTS
1	.133876E 00	15.00
2	.276439E-02	15.00
3	.324582E-05	15.00
4	.349165E-06	15.00
5	.779636E-06	15.00

OUTPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.687888E 00	-.690905E 00	-.174132E 03	-.622189E-02	-.669959E-02	-.446932E 02

STD. ERROR OF UNKNOWNS

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.181461E-03	.311228E-03	.116270E-02	.125288E-03	.126511E-03	.581396E-03

SQ OF DIFFS	STD. ERROR	ST ERROR/2	SUM VX/N	SUM VY/N
.204219E-07	.291704E-04	.145852E-04	.779466E-06	.170174E-09

INVERSE OF NORMAL EQUATIONS

.386973E 02	-.953513E-11	-.295713E 00	.131183E 02	-.181305E-08	.169454E-07
-.953513E-11	.113834E 03	.353415E 00	.328717E-01	.393178E 02	-.425062E-01
-.295713E 00	.353415E 00	.158874E 04	.125894E 03	.425486E 02	-.397246E 03
.131183E 02	.328717E-01	.125894E 03	.184473E 02	.157255E-01	-.354830E-01
-.181305E-08	.393178E 02	.425486E 02	.157255E-01	.188092E 02	-.424412E 02
.169454E-07	-.425062E-01	-.397246E 03	-.354830E-01	-.424412E 02	.397246E 03

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
6.	.14686232E-01	.23848059E-01	-1.87	7.96
7.	.23802106E-01	.23845191E-01	-41.39	3.69
8.	.33024511E-01	.23843069E-01	19.61	.97
9.	.42119854E-01	.23848542E-01	-43.45	7.64
10.	.51290868E-01	.23849292E-01	-38.73	9.59
11.	.14708694E-01	.32991711E-01	21.79	-10.29
12.	.23874297E-01	.32988844E-01	29.20	-14.76
13.	.33056316E-01	.32990432E-01	54.52	-11.57
14.	.42218060E-01	.32991057E-01	52.76	-11.94
15.	.51372126E-01	.32991773E-01	43.43	-11.03
16.	.14640953E-01	.42172301E-01	-44.55	10.70
17.	.23862023E-01	.42164532E-01	17.42	4.93
18.	.32974556E-01	.42165270E-01	-28.54	1.17
19.	.42124948E-01	.42173435E-01	-38.95	7.63
20.	.51314666E-01	.42171191E-01	-12.93	5.29

Table XCIII. Pre-Orbiter Arizona (Original - Reassembled) Grid Image Plate 4a Subframe

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80	.000000E-80

SOLVING PROBLEM FOR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y)		
PT. ID	X	Y
0 6	.01468810	.02384010
0 7	.02384350	.02384150
0 8	.03300490	.02384210
0 9	.04216330	.02384090
010	.05132960	.02383970
011	.01468690	.03300200
012	.02384510	.03300360
013	.03300180	.03300200
014	.04216530	.03300300
015	.05132870	.03300280
016	.01468550	.04216160
017	.02384460	.04215960
018	.03300310	.04216410
019	.04216390	.04216580
020	.05132760	.04216590

INSTRUMENT VALUES		
PT. ID	X	Y
1 6	.04105767	.07044467
1 7	.07026467	.07042900
1 8	.09981300	.07041567
1 9	.12895430	.07042700
110	.15833800	.07042300
111	.04121600	.10002670
112	.07058233	.10001100
113	.10000130	.10000970
114	.12935530	.10000530
115	.15868470	.10000120
116	.04090067	.12972900
117	.07027500	.12969470
118	.09982600	.12969270
119	.12914370	.12971270
120	.15858730	.12969900

Table XCIII -- Continued

NO. OF ITERATIONS	LEVEL OF RESIDUALS	NUMBER OF POINTS
1	.133840E 00	15.00
2	.274991E-02	15.00
3	.141064E-05	15.00
4	.318777E-06	15.00
5	.712283E-06	15.00

OUTPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.688146E 00	-.690904E 00	-.566888E 02	-.615084E-02	-.669923E-02	-.446476E 02

STD. ERROR OF UNKNOWNS

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.221596E-03	.380381E-03	.142104E-02	.153252E-03	.154619E-03	.710577E-03

SQ OF DIFFS	STD. ERROR	ST ERROR/2	SUM VX/N	SUM VY/N
.305051E-07	.356517E-04	.178259E-04	.712130E-06	.153511E-09

INVERSE OF NORMAL EQUATIONS

.386335E 02	-.245040E-10	-.677419E-01	.131184E 02	-.427422E-08	.399394E-07
-.245040E-10	.113835E 03	.143252E 00	.107103E-01	.393178E 02	-.420349E-01
-.677419E-01	.143252E 00	.158873E 04	.126052E 03	.424761E 02	-.397247E 03
.131184E 02	.107103E-01	.126052E 03	.184778E 02	.512367E-02	-.115611E-01
-.427422E-08	.393178E 02	.424761E 02	.512367E-02	.188091E 02	-.424411E 02
.399394E-07	-.420349E-01	-.397247E 03	-.115611E-01	-.424411E 02	.397247E 03

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
6.	.14695816E-01	.23848052E-01	7.72	7.95
7.	.23804151E-01	.23845180E-01	-39.35	3.68
8.	.33018930E-01	.23843054E-01	14.03	.95
9.	.42106767E-01	.23848523E-01	-56.53	7.62
10.	.51270202E-01	.23849270E-01	-59.40	9.57
11.	.14735082E-01	.32991747E-01	48.18	-10.25
12.	.23893105E-01	.32988877E-01	48.00	-14.72
13.	.33067539E-01	.32990461E-01	65.74	-11.54
14.	.42221712E-01	.32991082E-01	56.41	-11.92
15.	.51368214E-01	.32991795E-01	39.51	-11.01
16.	.14626595E-01	.42172586E-01	-58.91	10.99
17.	.23787119E-01	.42163967E-01	-57.48	4.37
18.	.33002727E-01	.42165343E-01	-.37	1.24
19.	.42145571E-01	.42173504E-01	-18.33	7.70
20.	.51327690E-01	.42171257E-01	.90E-01	5.36

Table XCIV. Pre-Orbiter Arizona (Original - Reassembled) Grid Image Plate 5 Subframe

INPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.000000E-80	.000000E-80	.000000E-60	.000000E-80	.000000E-80	.000000E-80

SOLVING PROBLEM FCR UNKNOWNS
SCALE X
SCALE Y
ALPHA
TRANSLATION A
TRANSLATION B
ROTATION K

ITERATION LIMIT .100000E-07

GRID PLATE STANDARD (X,Y)		
PT. ID	X	Y
0 6	.01468070	.02383800
0 7	.02383970	.02383700
0 8	.03300150	.02383770
0 9	.04215870	.02383790
010	.05131910	.02383810
011	.01468200	.03299830
012	.02384210	.03300020
013	.03300040	.03300120
014	.04215590	.03299750
015	.05132100	.03299700
016	.01467720	.04215140
017	.02383820	.04215980
018	.03299670	.04216040
019	.04215310	.04215960
020	.05131830	.04216380

INSTRUMENT VALUES		
PT. ID	X	Y
1 6	.04128867	.07023700
1 7	.07051667	.07023333
1 8	.10008700	.07023900
1 9	.12936370	.07025633
110	.15864030	.07028000
111	.04113367	.10001070
112	.07071133	.10000000
113	.10001470	.09999367
114	.12925070	.09999500
115	.15880130	.10000600
116	.04124200	.12962970
117	.07051300	.12962830
118	.09986567	.12962170
119	.12922170	.12960800
120	.15867600	.12963930

Table XCIV -- Continued

NO. OF ITERATIONS	LEVEL OF RESIDUALS	NUMBER OF POINTS
1	.133916E 00	15.00
2	.272102E-02	15.00
3	.119468E-05	15.00
4	.555847E-07	15.00
5	.124600E-06	15.00

OUTPUT VALUES FOR

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
-.688101E 00	-.691439E 00	.688691E 02	-.573761E-02	-.698791E-02	.640767E 01

STD. ERROR OF UNKNOWNS

SCALE X	SCALE Y	ALPHA (SEC)	TRANS A (M)	TRANS B (M)	ROTATION K (SEC)
.121122E-03	.207518E-03	.776601E-03	.857306E-04	.846363E-04	.388337E-03

SQ OF DIFFS	STD. ERROR	ST ERROR/2	SUM VX/I	SUM VY/N
.910942E-08	.194823E-04	.974114E-05	-.124598E-05	.290049E-11

INVERSE OF NORMAL EQUATIONS

.386515E 02	.629960E-11	.120342E 00	.131092E 02	.544727E-10	-.490585E-09
.629960E-11	.113458E 03	-.136374E 00	-.129888E-01	.393226E 02	.136043E-01
.120342E 00	-.136374E 00	.158997E 04	.126106E 03	.424425E 02	-.397317E 03
.131092E 02	-.129888E-01	.126106E 03	.184709E 02	-.623391E-02	.140334E-01
.544727E-10	.393226E 02	.424425E 02	-.623391E-02	.168727E 02	-.424851E 02
-.490585E-09	.136043E-01	-.397317E 03	.140334E-01	-.424851E 02	.397317E 03

POINT NUMBER	ADJUSTED COORD. X (M)	ADJUSTED COORD. Y (M)	DIFFERENCE X (MICRONS)	DIFFERENCE Y (MICRONS)
6.	.14690872E-01	.23828175E-01	10.17	-9.82
7.	.23807064E-01	.23826759E-01	-32.64	-10.24
8.	.33030031E-01	.23828222E-01	28.53	-9.48
9.	.42161420E-01	.23833286E-01	2.72	-4.61
10.	.51292780E-01	.23840306E-01	-26.32	2.21
11.	.14652754E-01	.33015193E-01	-29.25	16.89
12.	.23878002E-01	.33011604E-01	35.90	11.40
13.	.33017701E-01	.33009367E-01	17.30	8.17
14.	.42136390E-01	.33009494E-01	-19.51	11.99
15.	.51353206E-01	.33012602E-01	32.21	15.60
16.	.14696715E-01	.42154473E-01	19.52	3.07
17.	.23826320E-01	.42153758E-01	-11.88	-6.04
18.	.32981395E-01	.42151437E-01	-15.30	-8.96
19.	.42137516E-01	.42146925E-01	-15.58	-12.68
20.	.51324303E-01	.42156297E-01	6.00	-7.50

Table XCV. Statistical Analysis of Goldstone Ladder - Reassembled

Number	Point Ident.	Bar x	Bar y
1	1000	.9999930E 02	.2000000E 03
2	1001	.1107261E 03	.2000000E 03
3	1002	.1198248E 03	.2000000E 03
4	1003	.1291635E 03	.2000000E 03
5	1004	.1383108E 03	.2000000E 03
6	1005	.1476044E 03	.2000000E 03
7	1006	.1566962E 03	.2000000E 03
8	1007	.1659516E 03	.2000000E 03
9	1008	.1752979E 03	.2000000E 03
10	1009	.1844538E 03	.2000000E 03
11	1010	.1937639E 03	.2000000E 03
12	1011	.2034127E 03	.2000000E 03
13	1012	.2124751E 03	.2000000E 03
14	1013	.2215788E 03	.2000000E 03
15	1014	.2309667E 03	.2000000E 03
16	1015	.2399810E 03	.2000000E 03
17	1016	.2491497E 03	.2000000E 03
18	1017	.2583075E 03	.2000000E 03
19	1018	.2677541E 03	.2000000E 03
20	1019	.2770349E 03	.2000000E 03
21	1020	.2863537E 03	.2000000E 03
22	1021	.2957182E 03	.2000000E 03
23	1022	.3049652E 03	.2000000E 03
24	1023	.3143633E 03	.2000000E 03
25	1024	.3235728E 03	.2000000E 03
26	1025	.3328852E 03	.2000000E 03
27	1026	.3423268E 03	.2000000E 03
28	1027	.3513686E 03	.2000000E 03
29	1028	.3606490E 03	.2000000E 03
30	1029	.3698835E 03	.2000000E 03
31	1030	.3790557E 03	.2000000E 03
32	1031	.3885488E 03	.2000000E 03
33	1032	.3975831E 03	.2000000E 0
34	1033	.4070058E 03	.2000000E 0
35	1034	.4161280E 03	.2000000E 0
36	1035	.4251458E 03	.2000000E 03
37	1036	.4344896E 03	.2000000E 03
38	1037	.4438682E 03	.2000000E 03
39	1038	.4530873E 03	.2000000E 03
40	1039	.4622743E 03	.2000000E 03
41	1040	.4713160E 03	.2000000E 03
42	1041	.4807016E 03	.2000000E 03
43	2042	.4898507E 03	.2000000E 03
44	1043	.4977793E 03	.2000000E 03

Table XCV -- Continued

X SIGMAL	.004	Y SIGMAL	.000
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.013	Y SIGMA 3.3L	.000
X SIGMA 3L	.012	Y SIGMA 3L	.000
X SIGMA 2L	.008	Y SIGMA 2L	.000
X SIGMA .90L	.004	Y SIGMA .90L	.000
X PEL	.003	Y PEL	.000
X RMSEL	.004	Y RMSEL	.000

Table XCVI. Statistical Analysis of Goldstone Ladder - Reassembled

Number	Point Ident.	Bar x	Bar y
1	2000	.9999770E 02	.1000000E 03
2	2001	.1116077E 03	.1000000E 03
3	2002	.1208526E 03	.1000000E 03
4	2003	.1300150E 03	.1000000E 03
5	2004	.1393129E 03	.1000000E 03
6	2005	.1486917E 03	.1000000E 03
7	2006	.1576823E 03	.1000000E 03
8	2007	.1670875E 03	.1000000E 03
9	2008	.1763059E 03	.1000000E 03
10	2009	.1855335E 03	.1000000E 03
11	2010	.1948035E 03	.1000000E 03
12	2011	.2043981E 03	.1000000E 03
13	2012	.2135072E 03	.1000000E 03
14	2013	.2226148E 03	.1000000E 03
15	2014	.2318189E 03	.1000000E 03
16	2015	.2409394E 03	.1000000E 03
17	-2016	.2502037E 03	.1000000E 03
18	2017	.2593793E 03	.1000000E 03
19	2018	.2686872E 03	.1000000E 03
20	2019	.2778524E 03	.1000000E 03
21	2020	.2872392E 03	.1000000E 03
22	2021	.2965311E 03	.1000000E 03
23	2022	.3056297E 03	.1000000E 03
24	2023	.3150002E 03	.1000000E 03
25	2024	.3242769E 03	.1000000E 03
26	2025	.3335906E 03	.1000000E 03
27	2026	.3430523E 03	.1000000E 03
28	2027	.3522352E 03	.1000000E 03
29	2028	.3614851E 03	.1000000E 03
30	-2029	.3707580E 03	.1000000E 03
31	2030	.3802193E 03	.1000000E 03
32	2031	.3897272E 03	.1000000E 03
33	2032	.3988065E 03	.1000000E 03
34	2033	.4082709E 03	.1000000E 03
35	2034	.4176610E 03	.1000000E 03
36	2035	.4266741E 03	.1000000E 03
37	2036	.4357874E 03	.1000000E 03
38	2037	.4451184E 03	.1000000E 03
39	2038	.4543292E 03	.1000000E 03
40	2039	.4638214E 03	.1000000E 03
41	2040	.4727966E 03	.1000000E 03
42	2041	.4822956E 03	.1000000E 03
43	2042	.4914922E 03	.1000000E 03
44	-2043	.4992837E 03	.1000000E 03

Table XCVI -- Continued

X SIGMAL	.003	Y SIGMAL	.000
X STEML	.000	Y STEML	.000
X SIGMA 3.3L	.010	Y SIGMA 3.3L	.000
X SIGMA 3L	.009	Y SIGMA 3L	.000
X SIGMA 2L	.006	Y SIGMA 2L	.000
X SIGMA.90L	.003	Y SIGMA.9L	.000
X PEL	.002	Y PEL	.000
X RMSEL	.003	Y RMSEL	.000

Table XCVII. Orbiter Goldstone Grid Framelet 533 North Edge

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
99999.		1000
	-10727.	
110726.		1001
	-9099.	
119825.		1002
	-9339.	
129164.		1003
	-9147.	
138311.		1004
	-9293.	
147604.		1005
	-9092.	
156696.		1006
	-9256.	
165952.		1007
	-9346.	
175298.		1008
	-9156.	
184454.		1009
	-9310.	
193764.		1010
	-9649.	
203413.		1011
	-9062.	
212475.		1012
	-9104.	
221579.		1013
	-9388.	
230967.		1014
	-9014.	
239981.		1015
	-9169.	
249150.		1016
	-9158.	
258308.		1017
	-9446.	
267754.		1018
	-9281.	
277035.		1019
	-9319.	
286354.		1020
	-9364.	
295718.		1021
	-9247.	
304965.		1022
	-9398.	
314363.		1023
	-9210.	

Table XCVII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
323573.		1024
	-9312.	
332885.		1025
	-9442.	
342327.		1026
	-9042.	
351369.		1027
	-9280.	
360649.		1028
	-9235.	
369884.		1029
	-9172.	
379056.		1030
	-9493.	
388549.		1031
	-9034.	
397583.		1032
	-9423.	
407006.		1033
	-9122.	
416128.		1034
	-9018.	
425146.		1035
	-9344.	
434490.		1036
	-9378.	
443868.		1037
	-9219.	
453087.		1038
	-9187.	
462274.		1039
	-9042.	
471316.		1040
	-9386.	
480702.		1041
	-9149.	
489851.		1042
	-7928.	
497779.		1043

Table XCVIII. Orbiter Goldstone Grid Framelet 534 South Edge

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
99998.		2000
	-11610.	
111608.		2001
	-9245.	
120853.		2002
	-9162.	
130015.		2003
	-9298.	
139313.		2004
	-9379.	
148692.		2005
	-8990.	
157682.		2006
	-9406.	
167088.		2007
	-9218.	
176306.		2008
	-9228.	
185534.		2009
	-9270.	
194804.		2010
	-9594.	
204398.		2011
	-9109.	
213507.		2012
	-9108.	
222615.		2013
	-9204.	
231819.		2014
	-9120.	
240939.		2015
	-9265.	
250204.		2016
	-9175.	
259379.		2017
	-9308.	
268687.		2018
	-9165.	
277852.		2019
	-9387.	
287239.		2020
	-9292.	
296531.		2021
	-9099.	
305630.		2022
	-9370.	
315000.		2023
	-9277.	

Table XCVIII -- Continued

X (MICRONS)	X DISTANCE (MICRONS)	PT. NUMBER
324277.		2024
	-9314.	
333591.		2025
	-9461.	
343052.		2026
	-9183.	
352235.		2027
	-9250.	
361485.		2028
	-9273.	
370758.		2029
	-9461.	
380219.		2030
	-9508.	
389727.		2031
	-9080.	
398807.		2032
	-9464.	
408271.		2033
	-9390.	
417661.		2034
	-9013.	
426674.		2035
	-9113.	
435787.		2036
	-9331.	
445118.		2037
	-9211.	
454329.		2038
	-9492.	
463821.		2039
	-8976.	
472797.		2040
	-9499.	
482296.		2041
	-9196.	
491492.		2042
	-7792.	
499284.		2043

Table XCIX. Photogrammetric Horizontal Adjustment E-W Strip 533 Goldstone Grid Ladder

```
A  -.67964593497(+ 26)  -.67964593497(+ 26)   B  -.67964593497(+ 26)  -.67964593497(+ 26)

          NO. OF CONTROL  2      DEGREE OF TRANS. 1   RUN 1

          COEFFICIENTS                      COEFFICIENTS
    A. +.13895273480    (+ 00)       B. -.29014192901    (- 05)
    C. +.75260674302    (+ 05)       D. +.88232625308    (+ 05)
```

Table XCIX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
1001	10 726.10	00 000.00	103 618.90	103 050.90	0.00	- 0.00
1002	19 824.80	00 000.00	104 883.19	103 050.87	- 10.01	- 7.83
1003	29 163.50	00 000.00	106 180.83	103 050.85	- 42.87	- 6.15
1004	38 310.80	00 000.00	107 451.87	103 050.82	- 15.43	- 9.38
1005	47 604.40	00 000.00	108 743.24	103 050.79	- 31.66	- 9.11
1006	56 696.20	00 000.00	110 006.57	103 050.77	- 48.43	- 11.63
1007	65 951.60	00 000.00	111 292.63	103 050.74	- 61.37	- 8.66
1008	75 297.90	00 000.00	112 591.33	103 050.71	- 55.47	- 1.39
1009	84 453.80	00 000.00	113 863.57	103 050.69	- 26.83	- 3.41
1010	93 763.90	00 000.00	115 157.23	103 050.66	- 36.77	- 1.64
1011	03 412.70	00 000.00	116 497.96	103 050.63	9.76	- 0.77
1012	12 475.10	00 000.00	117 757.20	103 050.60	8.70	- 0.10
1013	21 578.80	00 000.00	119 022.19	103 050.58	- 35.11	0.78
1014	30 966.70	00 000.00	120 326.66	103 050.55	- 24.54	4.25
1015	39 981.00	00 000.00	121 579.22	103 050.52	- 47.08	7.12
1016	49 149.70	00 000.00	122 853.24	103 050.50	- 54.46	4.20
1017	58 307.50	00 000.00	124 125.74	103 050.47	- 44.36	6.47
1018	67 754.10	00 000.00	125 438.37	103 050.44	- 42.83	2.24

Table XCIX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
1019	77 034.90	00 000.00	126 727.96	103 050.42	- 37.04	9.02
1020	86 353.70	00 000.00	128 022.84	103 050.39	- 29.76	7.29
1021	95 718.20	00 000.00	129 324.06	103 050.36	- 14.34	6.06
1022	04 965.20	00 000.00	130 608.95	103 050.34	- 13.45	1.74
1023	14 363.30	00 000.0C	131 914.85	103 050.31	13.45	2.81
1024	23 572.80	00 000.00	133 194.53	103 050.28	- 9.87	1.08
1025	32 885.20	00 000.00	134 488.51	103 050.26	8.01	- 2.74
1026	42 326.80	00 000.00	135 800.45	103 050.23	12.85	- 1.67
1027	51 368.60	00 000.00	137 056.83	103 050.20	- 3.27	5.60
1028	60 649.00	00 000.00	138 346.37	103 050.17	- 1.73	2.37
1029	69 883.50	00 000.00	139 629.53	103 050.15	16.93	4.55
1030	79 055.70	00 000.00	140 904.03	103 050.12	8.43	4.52
1031	88 548.80	00 000.00	142 223.12	103 050.09	43.42	1.79
1032	97 583.10	00 000.00	143 478.46	103 050.07	41.76	2.87
1033	07 005.80	00 000.00	144 787.77	103 050.04	21.07	0.84
1034	16 128.00	00 000.00	146 055.33	103 050.01	- 6.47	- 2.69
1035	25 145.80	00 000.00	147 308.38	103 049.99	- 29.82	- 4.21
1036	34 489.60	00 000.00	148 606.72	103 049.96	- 4.98	- 4.84

Table XCIX -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
1037	43 868.20	0U 000.00	149 909.91	103 049.93	- 1.59	- 5.27
1038	53 087.30	00 000.00	151 190.93	103 049.91	29.83	- 5.39
1039	62 274.3C	00 000.00	152 467.48	103 049.88	6.08	- 4.82
1040	71 316.00	00 000.00	153 723.85	103 049.85	- 15.05	- 7.85
1041	80 701.60	00 000.00	155 028.01	103 049.83	12.11	- 6.57
1042	89 850.70	00 000.00	156 299.30	103 049.80	0.00	- 0.00

Table C. Photogrammetric Horizontal Adjustment E-W Strip 533 Goldstone Grid Ladder

```
A  -.67964593497(+ 26)  -.67964593497(+ 26)    B  -.67964593497(+ 26)  -.67964593497(+ 26)

              NO. OF CONTROL  42      DEGREE OF TRANS. 1   RUN 2

                COEFFICIENTS                         COEFFICIENTS
          A. +.138818797P6    (+ 00)       B. -.76659278733    (- 05)
          C. +.75289618874    (+ 05)       D. +.88284091741    (+ 05)
```

Table C -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
1001	10 726.10	00 000.00	103 656.49	103 052.53	37.59	1.63
1002	19 824.30	00 000.00	104 919.56	103 052.46	26.36	- 6.24
1003	29 163.50	00 000.00	106 215.95	103 052.39	- 7.75	- 4.61
1004	38 310.80	00 000.00	107 485.76	103 052.32	18.46	- 7.88
1005	47 604.40	00 000.00	108 775.89	103 052.25	0.99	- 7.65
1006	56 696.20	00 000.00	110 038.00	103 052.18	- 17.00	- 10.22
1007	65 951.60	00 000.00	111 322.83	103 052.11	- 31.17	- 7.29
1008	75 297.90	00 000.00	112 620.27	103 052.03	- 26.53	- 0.07
1009	84 453.80	00 000.00	113 891.28	103 051.96	0.88	- 2.14
1010	93 763.90	00 000.00	115 183.70	103 051.89	- 10.30	- 0.41
1011	03 412.70	00 000.00	116 523.13	103 051.82	34.93	0.42
1012	12 475.10	00 000.00	117 781.16	103 051.75	32.66	1.05
1013	21 578.80	00 000.00	119 044.93	103 051.68	- 12.37	1.88
1014	30 966.70	00 000.00	120 348.14	103 051.61	- 3.06	5.31
1015	39 981.00	00 000.00	121 599.50	103 051.54	- 26.80	8.14
1016	49 149.70	00 000.00	122 872.29	103 051.47	- 35.41	5.17
1017	58 307.50	00 000.00	124 143.56	103 051.40	- 26.54	7.40
1018	67 754.10	00 000.00	125 454.93	103 051.33	- 26.27	3.13

Table C -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
1019	77 034.90	00 000.00	126 743.28	103 051.25	- 21.72	9.85
1020	86 353.70	00 000.00	128 036.90	103 051.18	- 15.70	9.08
1021	95 718.20	00 000.00	129 336.87	103 051.11	- 1.53	6.81
1022	04 965.20	00 000.00	130 620.53	103 051.04	- 1.87	2.44
1023	14 363.30	00 000.00	131 925.16	103 050.97	23.76	3.47
1024	23 572.80	00 000.00	133 203.61	103 050.90	- 0.79	1.70
1025	32 885.20	00 000.00	134 496.35	103 050.83	15.85	- 2.17
1026	42 326.80	00 000.00	135 807.02	103 050.75	19.42	- 1.15
1027	51 368.60	00 000.00	137 062.19	103 050.68	2.09	6.08
1028	60 649.00	00 000.00	138 350.49	103 050.61	2.39	2.81
1029	69 883.50	00 000.00	139 632.41	103 050.54	19.81	4.94
1030	79 055.70	00 000.00	140 905.68	103 050.47	10.08	4.87
1031	88 548.80	00 000.00	142 223.50	103 050.40	43.80	2.10
1032	97 583.10	00 000.00	143 477.63	103 050.33	40.93	3.13
1033	07 005.80	00 000.00	144 785.68	103 050.26	18.98	1.06
1034	16 128.00	00 000.00	146 052.01	103 050.19	- 9.79	- 2.51
1035	25 145.80	00 000.00	147 303.85	103 050.12	- 34.35	- 4.08
1036	34 489.60	00 000.00	148 600.95	103 050.05	- 10.75	- 4.75

Table C -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
1037	43 868.20	00 000.00	149 902.87	103 049.98	- 8.63	- 5.22
1038	53 087.30	00 000.00	151 182.66	103 049.91	21.56	- 5.39
1039	62 274.30	00 000.00	152 457.99	103 049.83	- 3.41	- 4.87
1040	71 316.00	00 000.00	153 713.15	103 049.77	- 25.75	- 7.93
1041	80 701.60	60 000.00	155 016.04	103 049.69	0.14	- 6.71
1042	89 850.70	00 000.00	156 286.11	103 049.62	- 13.19	- 0.18
1043	97 779.30	00 000.00	157 386.75	103 049.56	DELETED - 193.95	DELETED 5.56

Table CI. Photogrammetric Horizontal Adjustment E-W Strip 534 Goldstone Grid Ladder

```
A  -.67964593497(+ 26)  -.67964593497(+ 26)    B  -.67964593497(+ 26)  -.67964593497(+ 26)

            NO. OF CONTROL   2     DEGREE OF TRANS. 1   RUN 1

              COEFFICIENTS                          COEFFICIENTS
         A. +.13868794331   (+ 00)       B. +.16057510711   (- 04)
         C. +.86601713528   (+ 05)       D. +.88143863380   (+ 05)
```

Table CI -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
2001	11 607.70	00 000.00	103 620.90	100 472.30	0.00	0.00
2002	20 852.60	00 000.00	104 903.06	100 472.45	11.36	- 8.25
2003	30 015.00	00 000.00	106 173.77	100 472.60	- 40.93	- 8.20
2004	39 312.90	00 000.00	107 463.28	100 472.74	- 2.52	- 9.96
2005	48 691.70	00 000.00	108 764.00	100 472.90	4.40	- 4.20
2006	57 682.30	00 000.00	110 010.89	100 473.04	- 29.51	- 5.96
2007	67 087.50	00 000.00	111 315.28	100 473.19	- 34.12	0.19
2008	76 305.90	00 000.00	112 593.76	100 473.34	- 48.44	1.34
2009	85 533.50	00 000.00	113 873.52	100 473.49	- 15.38	- 0.81
2010	94 805.50	00 000.00	115 159.15	100 473.64	- 24.65	- 3.96
2011	04 398.10	00 000.00	116 489.81	100 473.79	12.81	- 1.41
2012	13 507.20	00 000.00	117 753.13	100 473.94	11.93	- 5.26
2013	22 614.80	00 000.00	119 016.25	100 474.08	- 33.85	- 7.12
2014	31 818.90	00 000.00	120 292.74	100 474.23	- 44.56	- 8.07
2015	40 939.40	00 000.00	121 557.65	100 474.38	- 55.55	- 10.92
2016	50 203.70	00 000.00	122 842.49	100 474.53	- 59.01	- 9.87
2017	59 379.30	00 000.00	124 115.04	100 474.67	- 50.96	- 13.43
2018	68 687.20	00 000.00	125 405.93	100 474.82	- 64.67	- 8.58

Table CI -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
2019	77 852.40	00 000.00	126 677.04	100 474.97	- 74.86	- 9.53
2020	87 239.20	00 000.00	127 978.87	100 475.12	- 57.23	- 7.88
2021	96 531.10	00 000.00	129 267.55	100 475.27	- 62.05	- 8.43
2022	05 629.70	00 000.00	130 529.41	100 475.42	- 79.89	- 10.08
2023	15 000.20	00 000.00	131 828.99	100 475.57	- 67.51	- 8.43
2024	24 276.90	00 000.00	133 115.55	100 475.71	- 67.55	- 6.59
2025	33 590.60	00 000.00	134 407.25	100 475.86	- 59.05	- 6.24
2026	43 052.30	00 000.00	135 719.48	100 476.02	- 55.42	- 1.78
2027	52 235.20	00 000.00	136 993.03	100 476.16	- 54.17	0.66
2028	61 485.10	00 000.00	138 275.88	100 476.31	- 56.72	0.51
2029	70 758.00	00 000.00	139 561.92	100 476.46	- 42.98	- 0.44
2030	80 219.30	00 000.00	140 874.09	100 476.61	- 17.81	2.61
2031	89 727.20	00 000.00	142 192.72	100 476.77	26.22	3.17
2032	98 806.50	00 000.00	143 451.91	100 476.91	21.41	2.61
2033	08 270.90	00 000.00	144 764.51	100 477.06	- 2.69	2.76
2034	17 661.00	00 000.00	146 066.80	100 477.21	8.00	1.01
2035	26 674.10	00 000.00	147 316.81	100 477.36	- 11.99	2.96
2036	35 787.40	00 000.00	148 580.72	100 477.51	- 33.28	1.31

Table CI -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
2037	45 118.40	00 000.00	149 874.81	100 477.66	- 34.89	- 1.54
2038	54 329.20	00 000.00	151 152.24	100 477.80	- 10.86	- 4.10
2039	63 821.40	00 000.00	152 466.69	100 477.96	0.19	- 6.74
2040	72 796.60	00 000.00	153 713.45	100 478.10	- 33.75	- 3.40
2041	82 295.60	00 000.00	155 030.84	100 478.25	0.64	- 4.25
2042	91 492.20	00 000.00	156 306.30	100 478.40	- 0.00	0.00

Table CII. Photogrammetric Horizontal Adjustment E-W Strip 534 Goldstone Grid Ladder

A	-.67964593497(+ 26)	-.67964593497(+ 26)	B	-.67964593497(+ 26) -.67964593497(+ 26)

NO. OF CONTROL 42 DEGREE OF TRANS. 1 RUN 2

COEFFICIENTS		COEFFICIENTS	
A. +.13866877642	(+ 00)	B. -.90320146303	(- 06)
C. +.86612558848	(+ 05)	D. +.88177226632	(+ 05)

Table CII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
2001	11 607.70	00 000.00	103 653.82	100 479.34	32.92	7.04
2002	20 852.60	00 000.00	104 935.80	100 479.33	44.10	- 1.37
2003	30 015.00	00 000.00	106 206.34	100 479.32	- 8.36	- 1.48
2004	39 312.90	00 000.00	107 495.67	100 479.31	29.87	- 3.39
2005	48 691.70	00 000.00	108 796.21	100 479.30	36.61	2.20
2006	57 682.30	00 000.00	110 042.93	100 479.29	2.53	0.29
2007	67 087.50	00 000.00	111 347.14	100 479.29	- 2.26	6.29
2008	76 305.90	00 000.00	112 625.44	100 479.28	- 16.76	7.28
2009	85 533.50	00 000.00	113 905.02	100 479.27	16.12	4.97
2010	94 803.50	00 000.00	115 190.48	100 479.26	6.68	1.66
2011	04 398.10	00 000.00	116 520.95	100 479.25	43.95	4.05
2012	13 507.20	00 000.00	117 784.10	100 479.24	42.90	0.04
2013	22 614.80	00 000.00	119 047.04	100 479.24	- 3.06	- 1.96
2014	31 818.90	00 000.00	120 323.36	100 479.23	- 13.94	- 3.07
2015	40 939.40	00 000.00	121 588.09	100 479.22	- 25.11	- 6.08
2016	50 203.70	00 000.00	122 872.76	100 479.21	- 28.74	- 5.19
2017	59 379.30	00 000.00	124 145.13	100 479.20	- 20.87	- 8.90
2018	68 687.20	00 000.00	125 435.84	100 479.19	- 34.76	- 4.21

Table CII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
2019	77 852.40	00 000.00	126 706.77	100 479.19	- 45.13	- 5.31
2020	87 239.20	00 000.00	128 008.43	100 479.18	- 27.67	- 3.82
2021	96 531.10	00 000.00	129 296.92	100 479.17	- 32.68	- 4.53
2022	05 629.70	00 000.00	130 558.61	100 479.16	- 50.69	- 6.34
2023	15 000.20	00 000.00	131 858.01	100 479.15	- 38.49	- 4.85
2024	24 276.90	00 000.00	133 144.40	100 479.14	- 38.70	- 3.16
2025	33 590.60	00 000.00	134 435.92	100 479.14	- 30.38	- 2.96
2026	43 052.30	00 000.00	135 747.96	100 479.13	- 26.94	1.33
2027	52 235.20	00 000.00	137 021.34	100 479.12	- 25.86	3.62
2028	61 485.10	00 000.00	138 304.01	100 479.11	- 28.59	3.31
2029	70 758.00	00 000.00	139 589.88	100 479.10	- 15.02	2.20
2030	80 219.30	00 000.00	140 901.86	100 479.09	9.96	5.09
2031	89 727.20	00 000.00	142 220.31	100 479.08	53.81	5.48
2032	98 806.50	00 000.00	143 479.33	100 479.08	48.83	4.78
2033	08 270.90	00 000.00	144 791.74	100 479.07	24.54	4.77
2034	17 661.00	00 000.00	146 093.86	100 479.06	35.06	8.86
2035	26 674.10	00 000.00	147 343.69	100 479.05	14.89	4.65
2036	35 787.40	00 000.00	148 607.42	100 479.04	- 6.58	2.84

Table CII -- Continued

Point Ident.	Instrument x(mm)	Instrument y(mm)	X (m)	Y (m)	Residual X (μ)	Residual Y (μ)
2037	45 118.40	00 000.00	149 901.34	100 479.03	- 8.36	- 0.17
2038	54 329.20	00 000.00	151 178.59	100 479.03	15.49	- 2.87
2039	63 821.40	00 000.00	152 494.86	100 479.02	26.36	- 5.68
2040	72 796.60	00 000.00	153 739.44	100 479.01	- 7.76	- 2.49
2041	82 295.60	00 000.00	155 056.66	100 479.00	26.46	- 3.50
2042	91 492.20	00 000.00	156 331.94	100 478.99	25.64	0.59
2043	99 283.70	00 000.00	157 412.38	100 478.99	DELETED - 169.72	DELETED 7.09

Table CIII. Lunar Orbiter 80-mm Camera Serial No. 4

FOCAL LENGTH .0800250 SUM (RESIDUALS) .0000255 RMSE .0000114

ANGLE (DEG.)	.0	7.5	15.0	22.5	27.5
* DISTORTION DELTA R	25.5	48.7	87.5	64.7	-86.2
* CALCULATED DELTA R	.0	48.8	87.5	64.8	-86.3
* RESIDUALS	25.5	-.0	.0	-.0	.0

K0 .47294532E-02 K1 -.78275380E 00 K2 -.12079025E 04 K3 -.34509213E 06

FOCAL LENGTH .0800250 SUM (RESIDUALS) -.0000000 RMSE .0000000

ANGLE (DEG.)	7.5	15.0	22.5	27.5
* DISTORTION DELTA R	48.7	87.5	64.7	-86.2
* CALCULATED DELTA R	48.8	87.5	64.8	-86.3
* RESIDUALS	-.0	.0	-.0	.0

K0 .47294532E-02 K1 -.78275380E 00 K2 -.12079025E 04 K3 -.34509213E 06

FOCAL LENGTH .0800250 SUM (RESIDUALS) -.0000011 RMSE .0000026

ANGLE (DEG.)	5.0	7.5	10.0	15.0	20.0	22.5	25.0	27.5
* DISTORTION DELTA R	35.5	48.7	65.5	87.5	77.5	64.7	21.0	-86.2
* CALCULATED DELTA R	36.0	51.7	65.1	82.8	81.8	64.5	19.1	-85.6
* RESIDUALS	-.5	-3.0	.4	4.7	-4.3	.2	1.9	-.6

K0 .53336930E-02 K1 -.41032840E 01 K2 .26865934E 04 K3 -.15993756E 07

FOCAL LENGTH .0800250 SUM (RESIDUALS) -.0000016 RMSE .0000026

ANGLE (DEG.)	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5
* DISTORTION DELTA R	35.5	48.7	65.5	79.8	87.5	85.4	77.5	64.7	21.0	-86.2
* CALCULATED DELTA R	36.6	52.5	66.0	76.5	83.5	86.2	82.0	64.4	18.8	-85.5
* RESIDUALS	-1.1	-3.8	-.5	3.3	4.0	-.8	-4.5	.3	2.2	-.7

K0 .54287040E-02 K1 -.42605614E 01 K2 .27496019E 04 K3 -.16011614E 07

FOCAL LENGTH .0800250 SUM (RESIDUALS) -.0000038 RMSE .0000027

ANGLE (DEG.)	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0	27.5
* DISTORTION DELTA R	15.0	35.5	48.7	65.5	79.8	87.5	85.4	77.5	64.7	21.0	-86.2
* CALCULATED DELTA R	18.5	36.1	52.0	65.5	76.2	83.5	86.4	82.2	64.4	18.6	-85.4
* RESIDUALS	-3.5	-.6	-3.3	-.0	3.6	4.0	-1.0	-4.7	.3	2.4	-.8

K0 .53512777E-02 K1 -.39779091E 01 K2 .24607895E 04 K3 -.15133763E 07

LINEAR VALUES ARE IN METERS EXCEPT VALUES WITH * ARE IN MICRONS.

APPENDIX III

REFERENCE DATA -- FIGURES

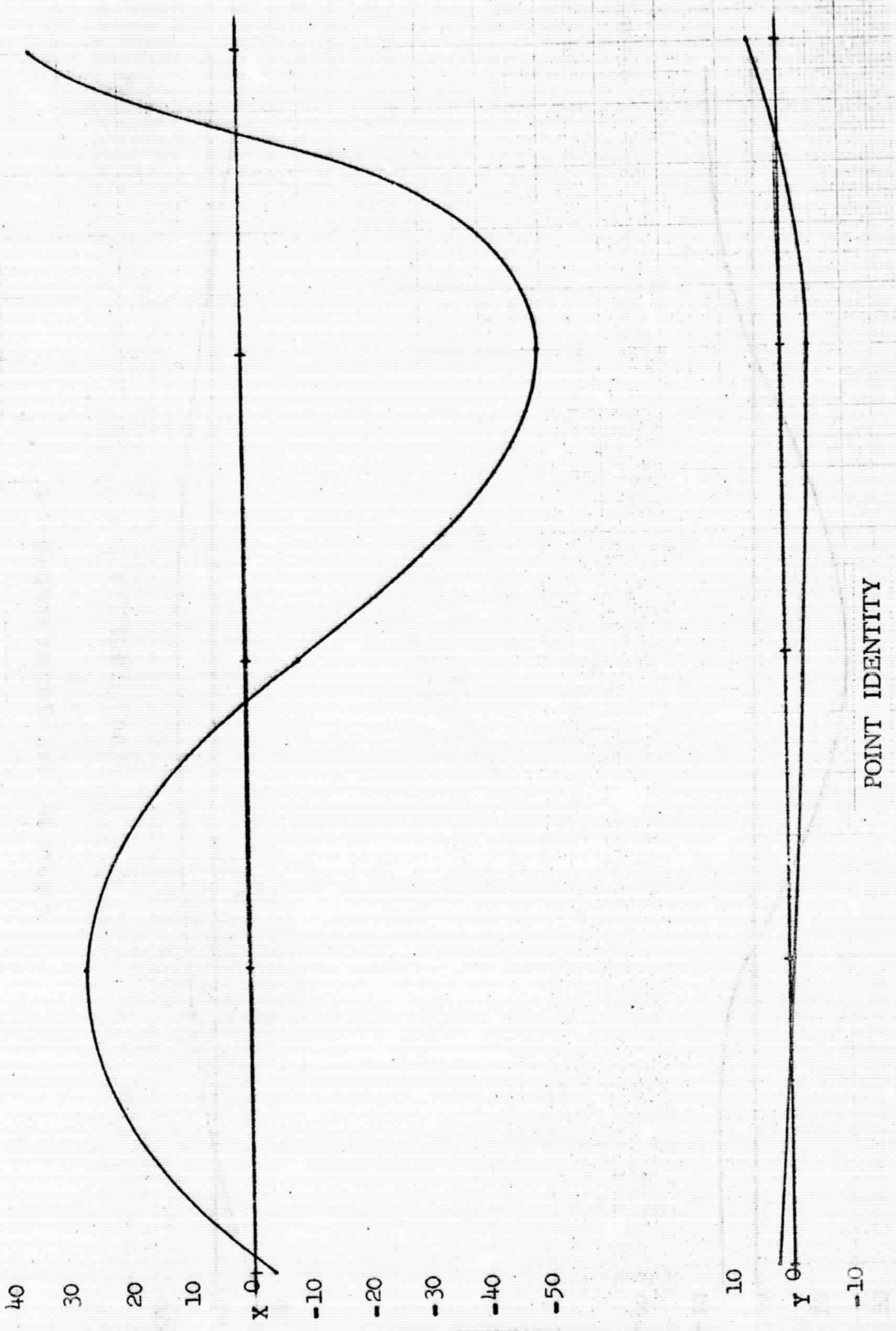


Figure 15. Pre-Orbiter strip GI-1-3.

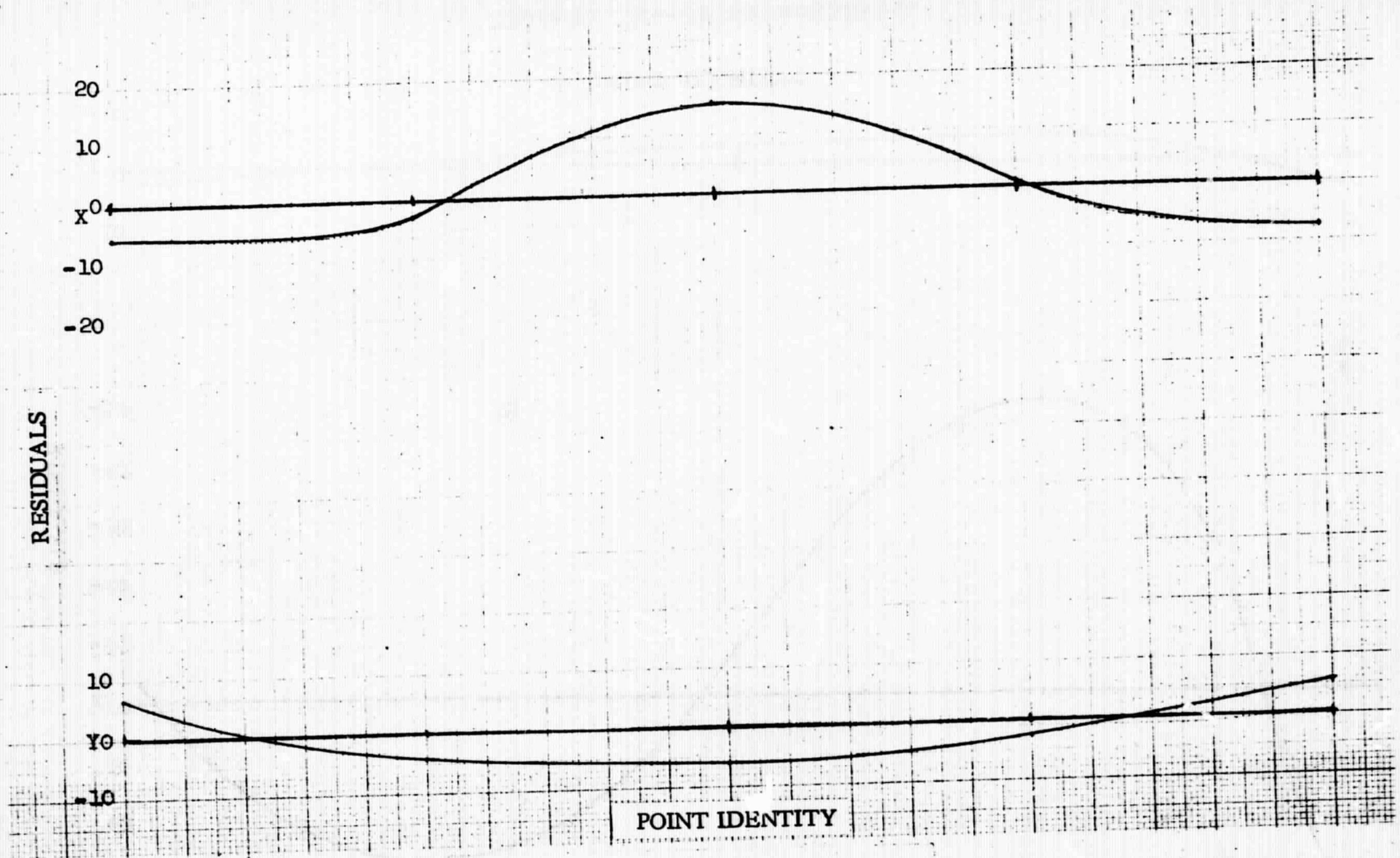


Figure 16. Pre-Orbiter strip GI-1-4.

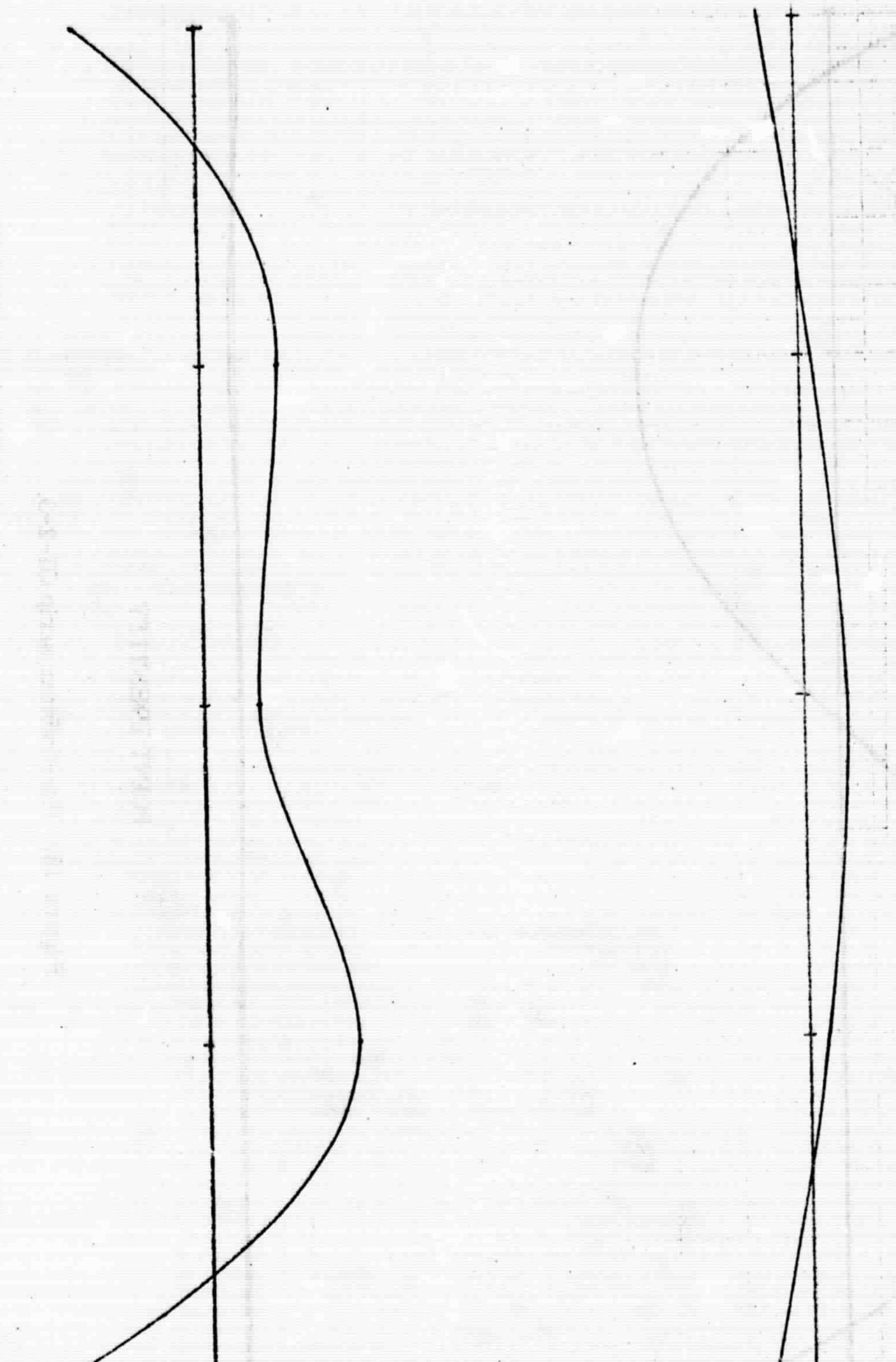


Figure 17. Pre-Orbiter strip GI-1-5.

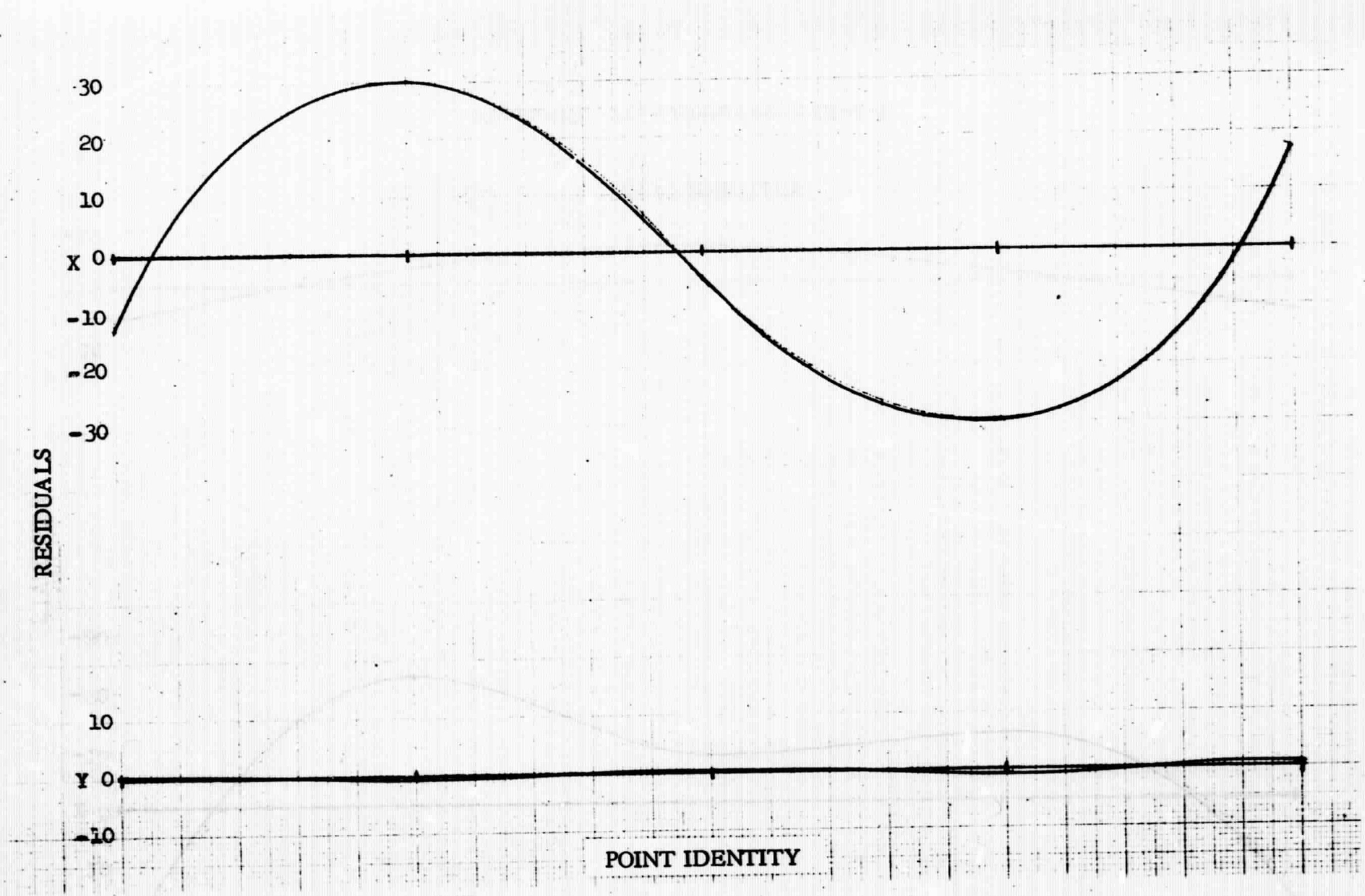


Figure 18. Pre-Orbiter strip GI-2-3.

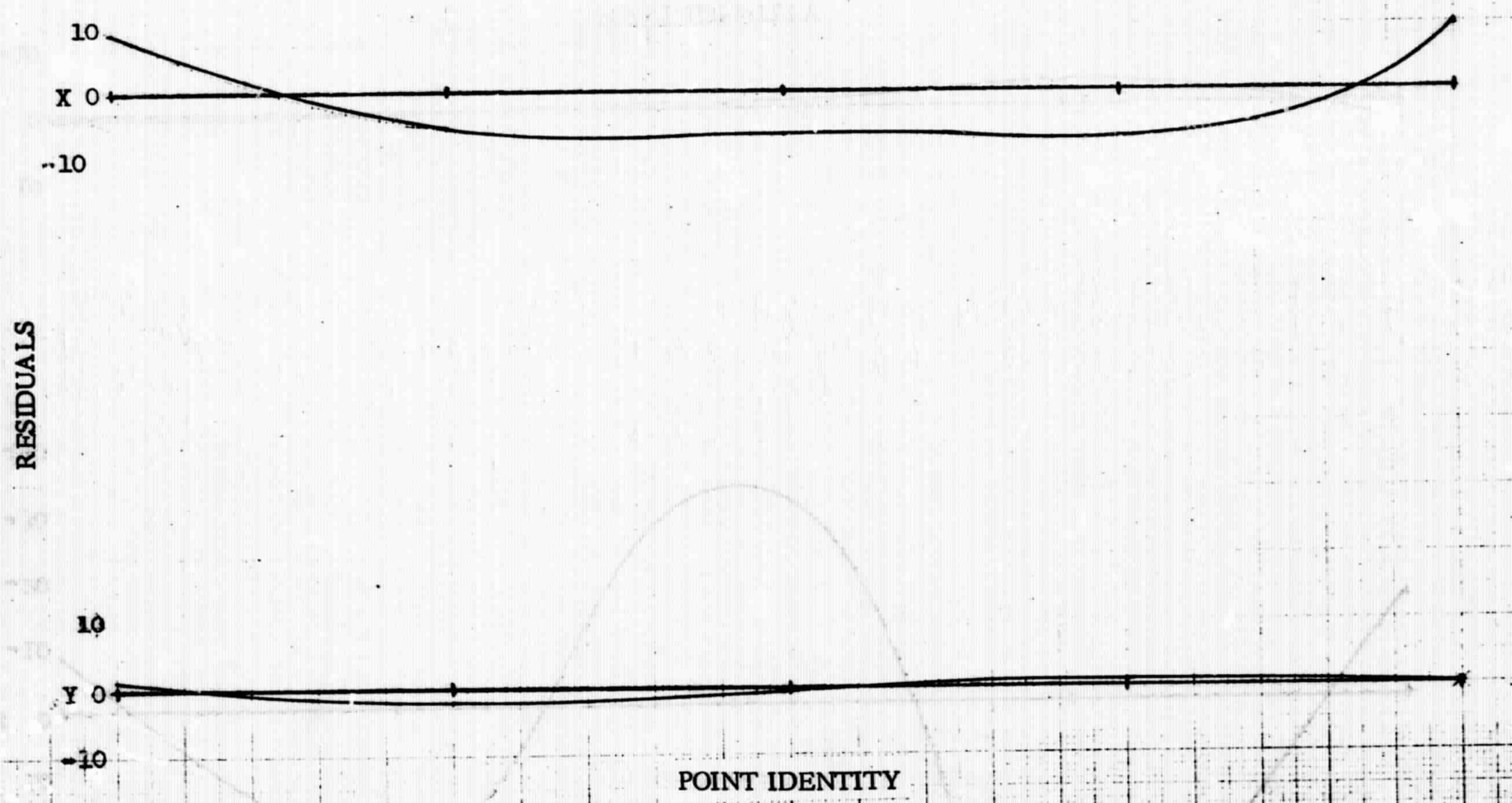


Figure 19. Pre-Orbiter strip GI-2-4.

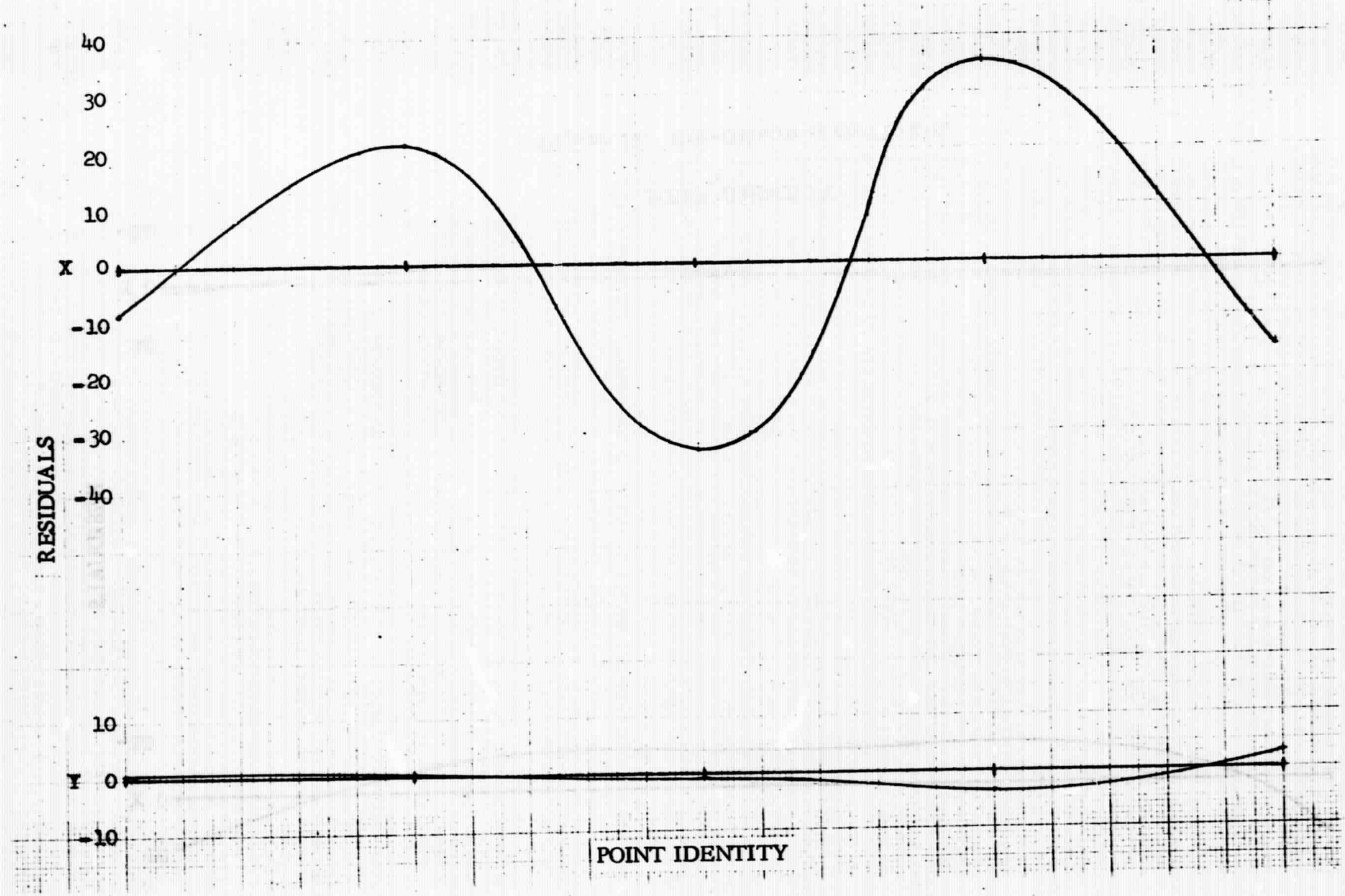


Figure 20. Pre-Orbiter strip GI-2-5.

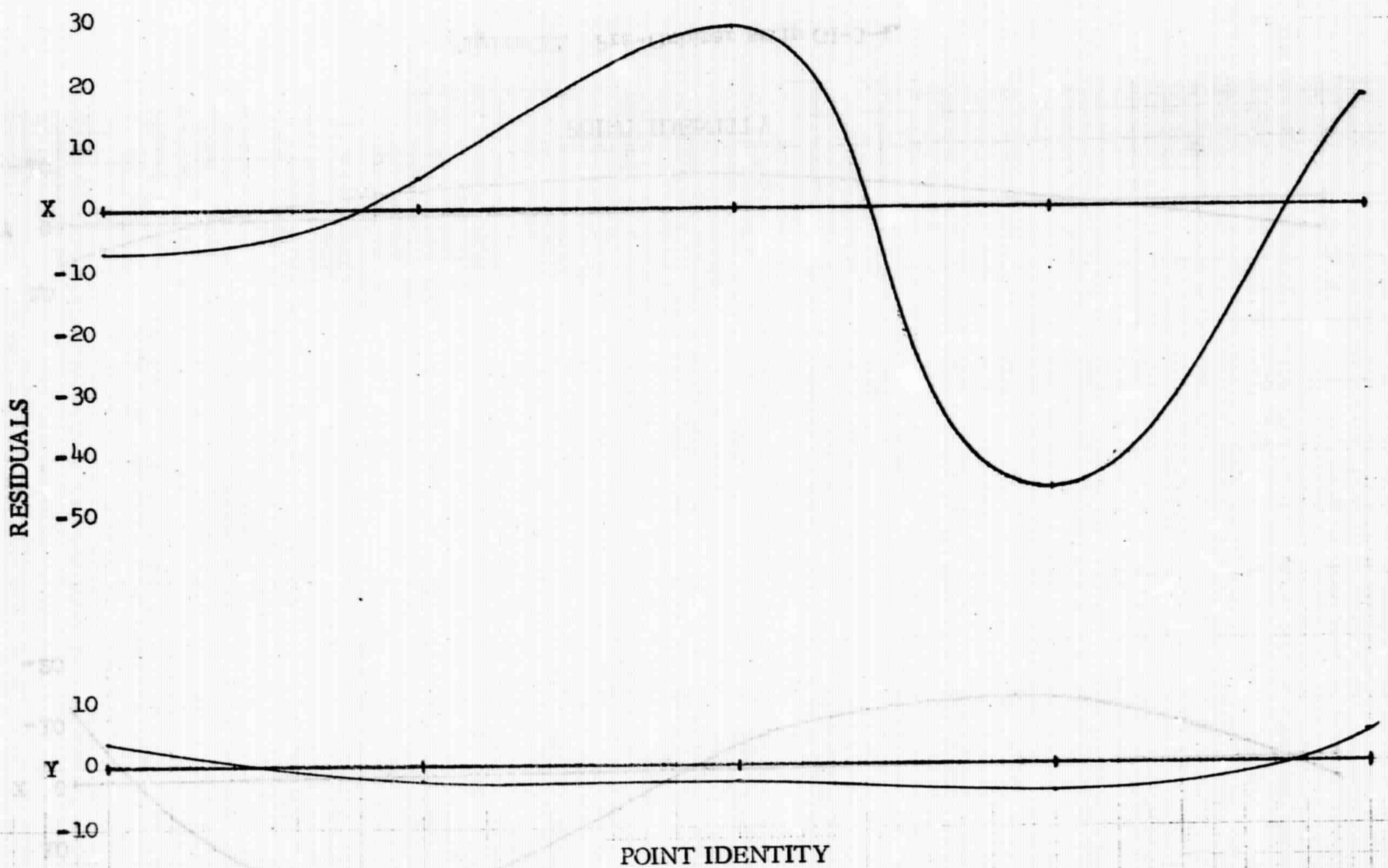


Figure 21. Pre-Orbiter strip GI-3-3.

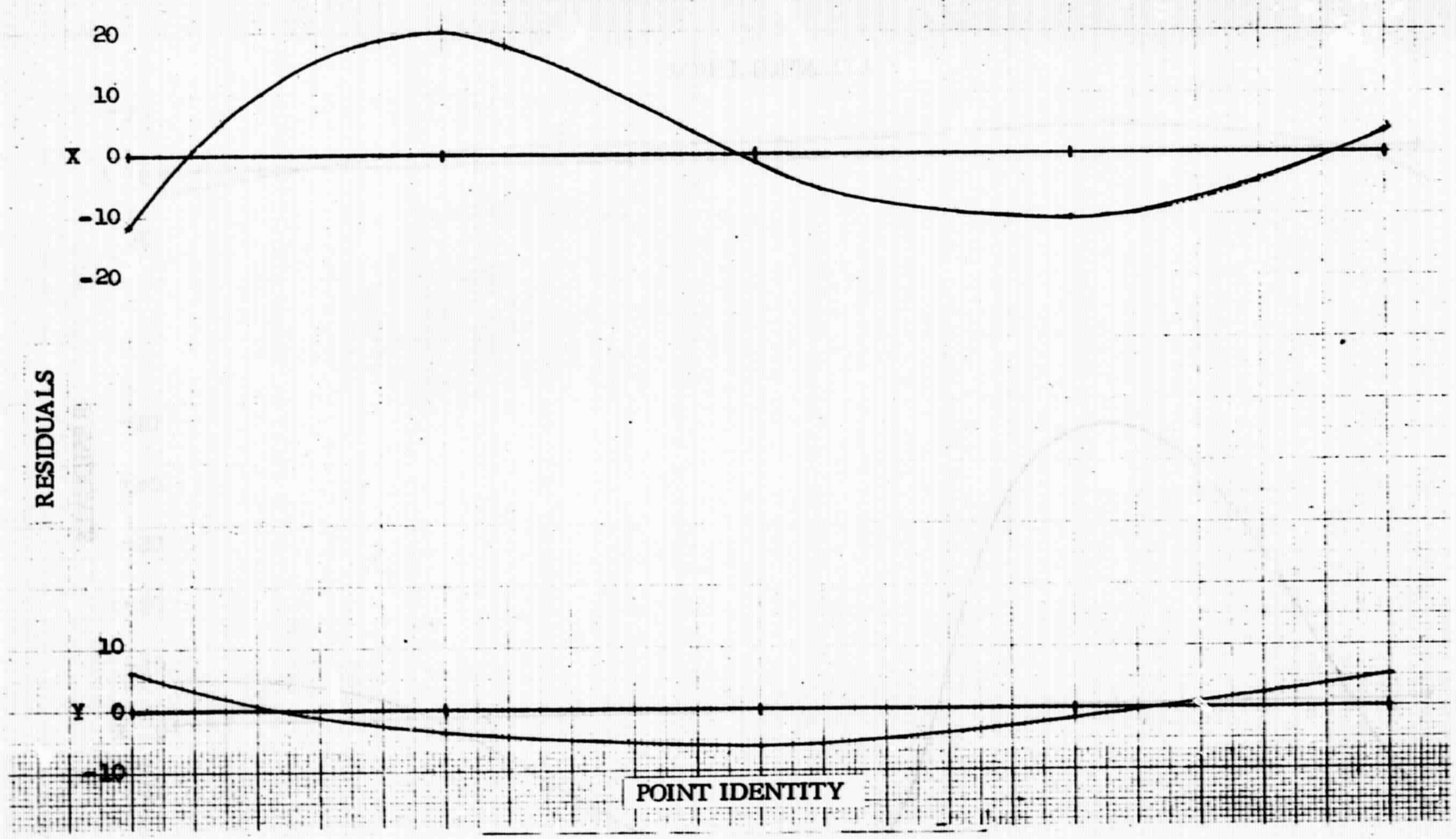


Figure 22. Pre-Orbiter strip GI-3-4.

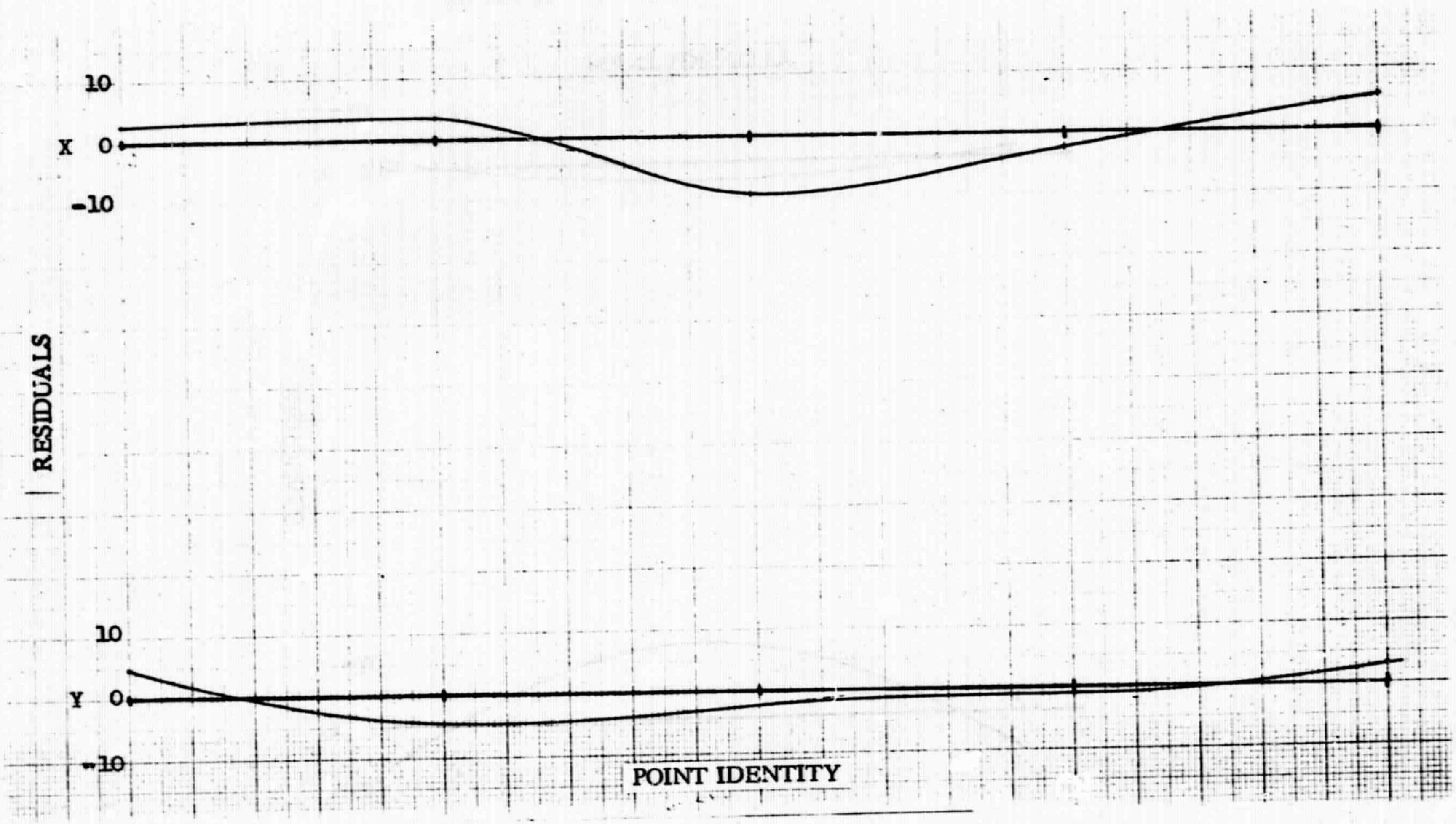


Figure 23. Pre-Orbiter strip GI-3-5.

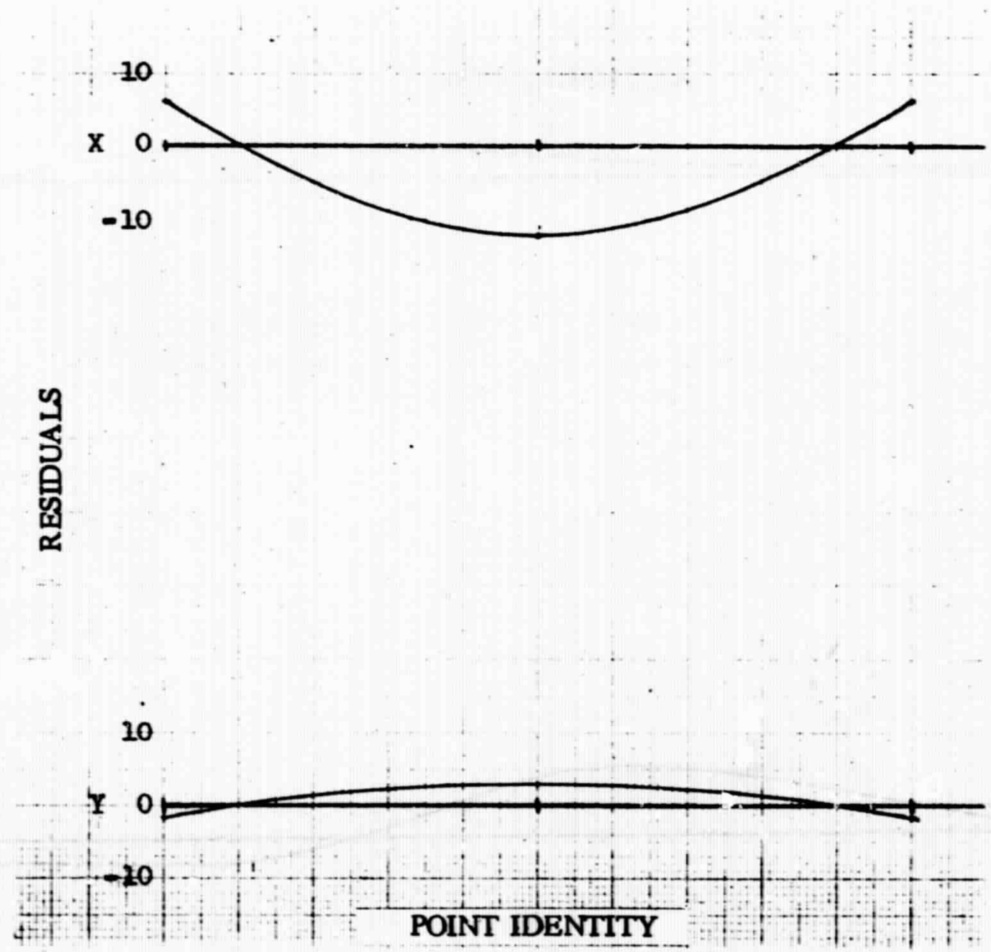


Figure 24. Pre-Orbiter strip GI-4-3.

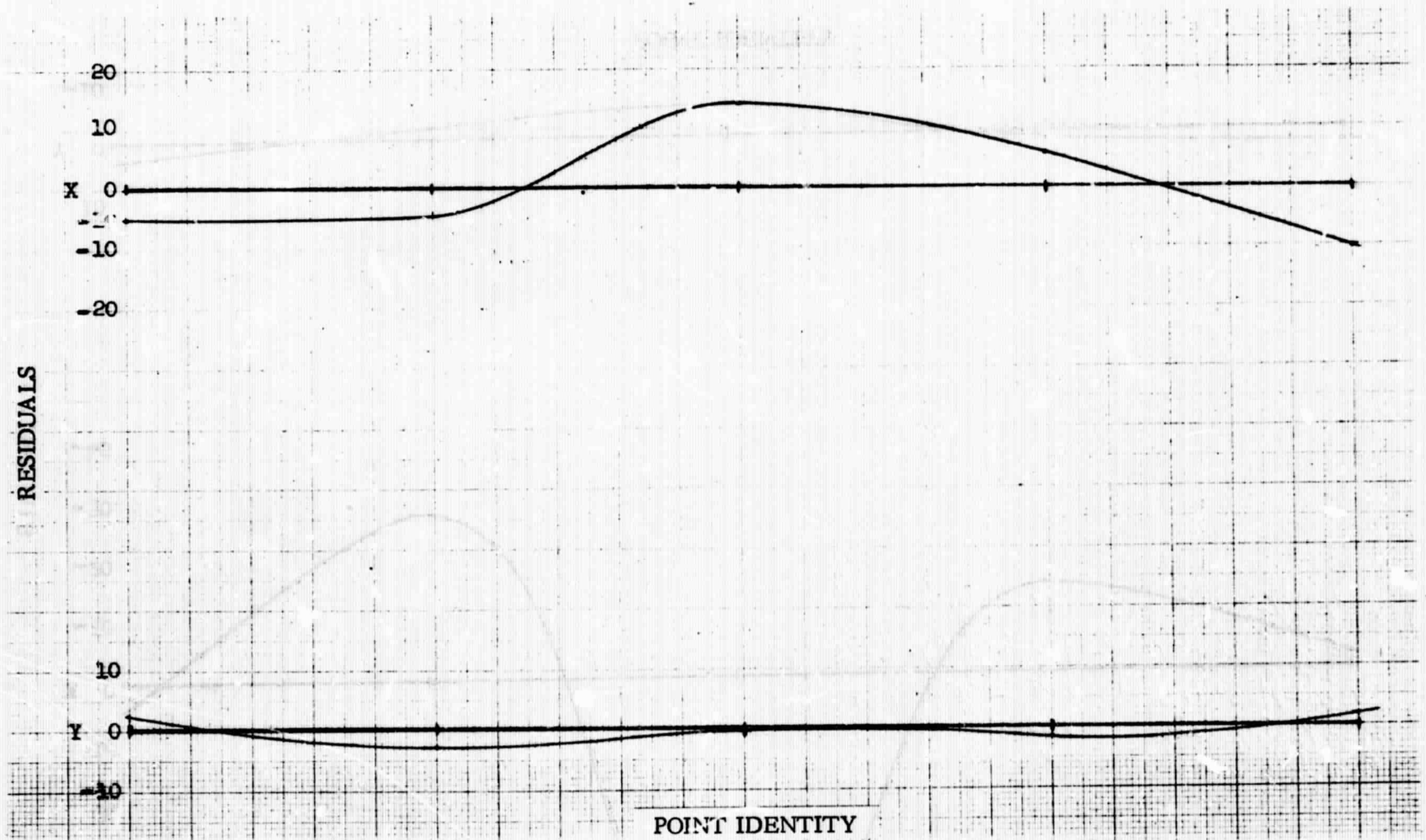


Figure 25. Pre-Orbiter strip GI-4-4.

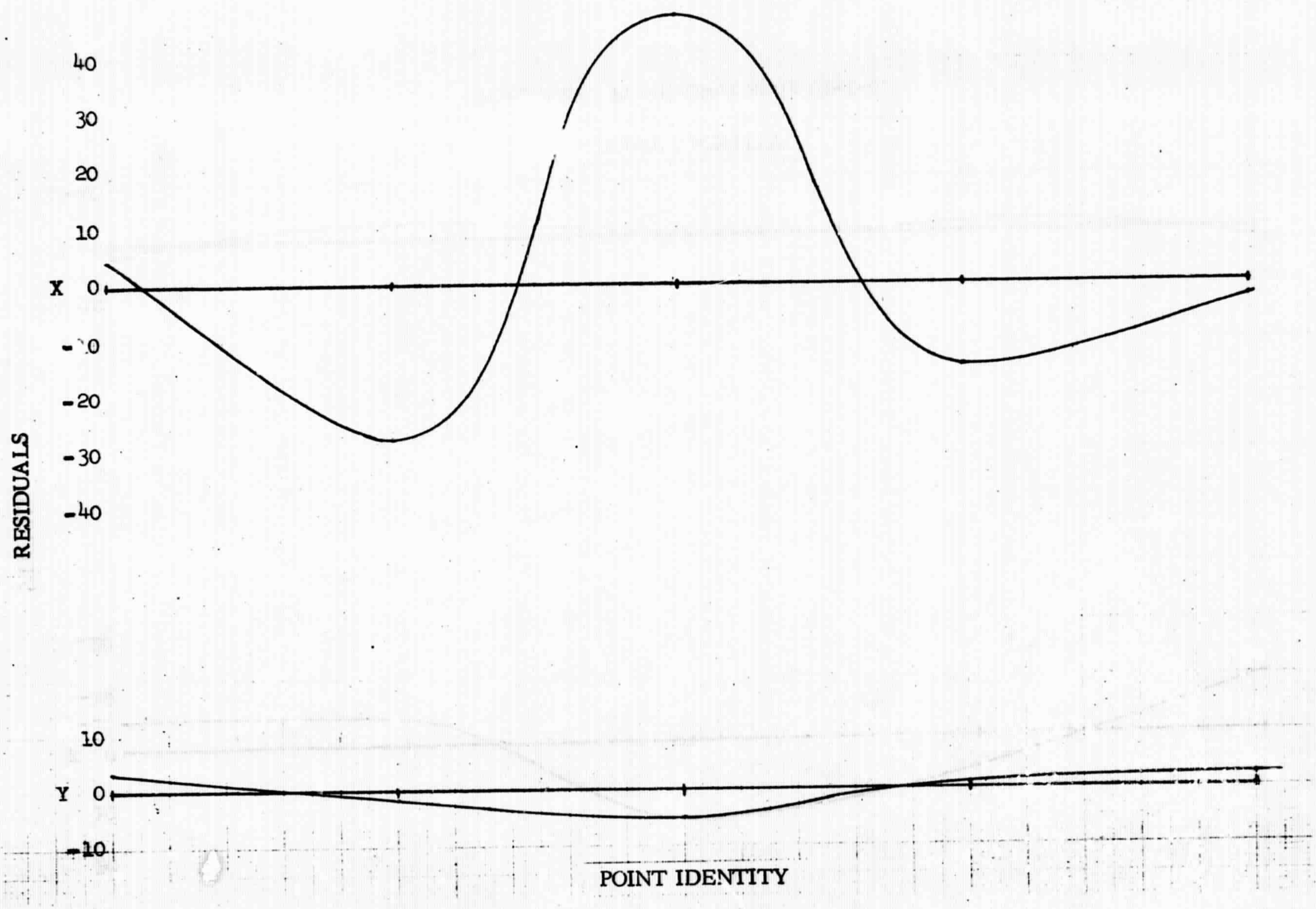


Figure 26. Pre-Orbiter strip GI-4-5.

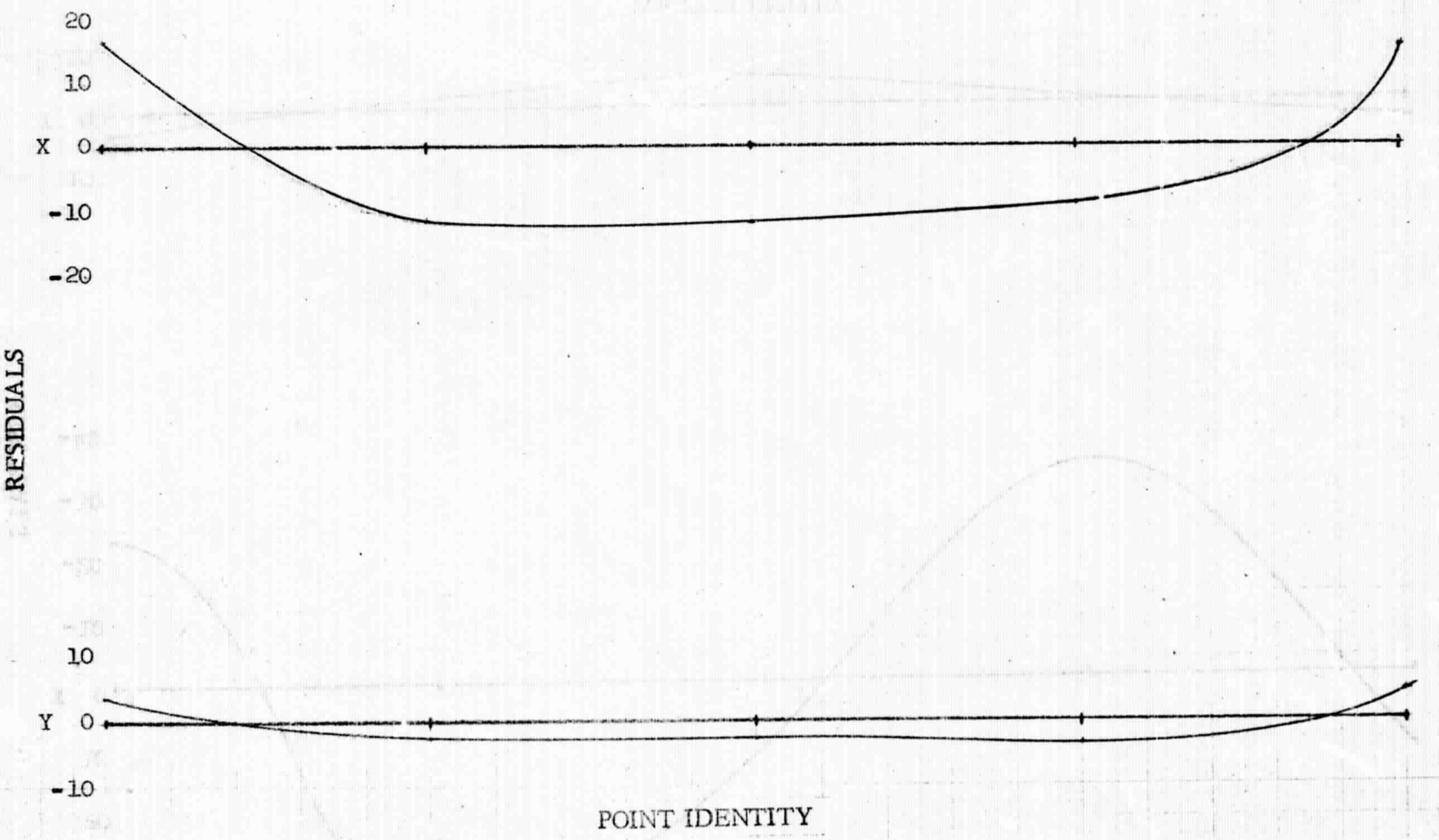


Figure 27. Pre-Orbiter strip GI-5-3.

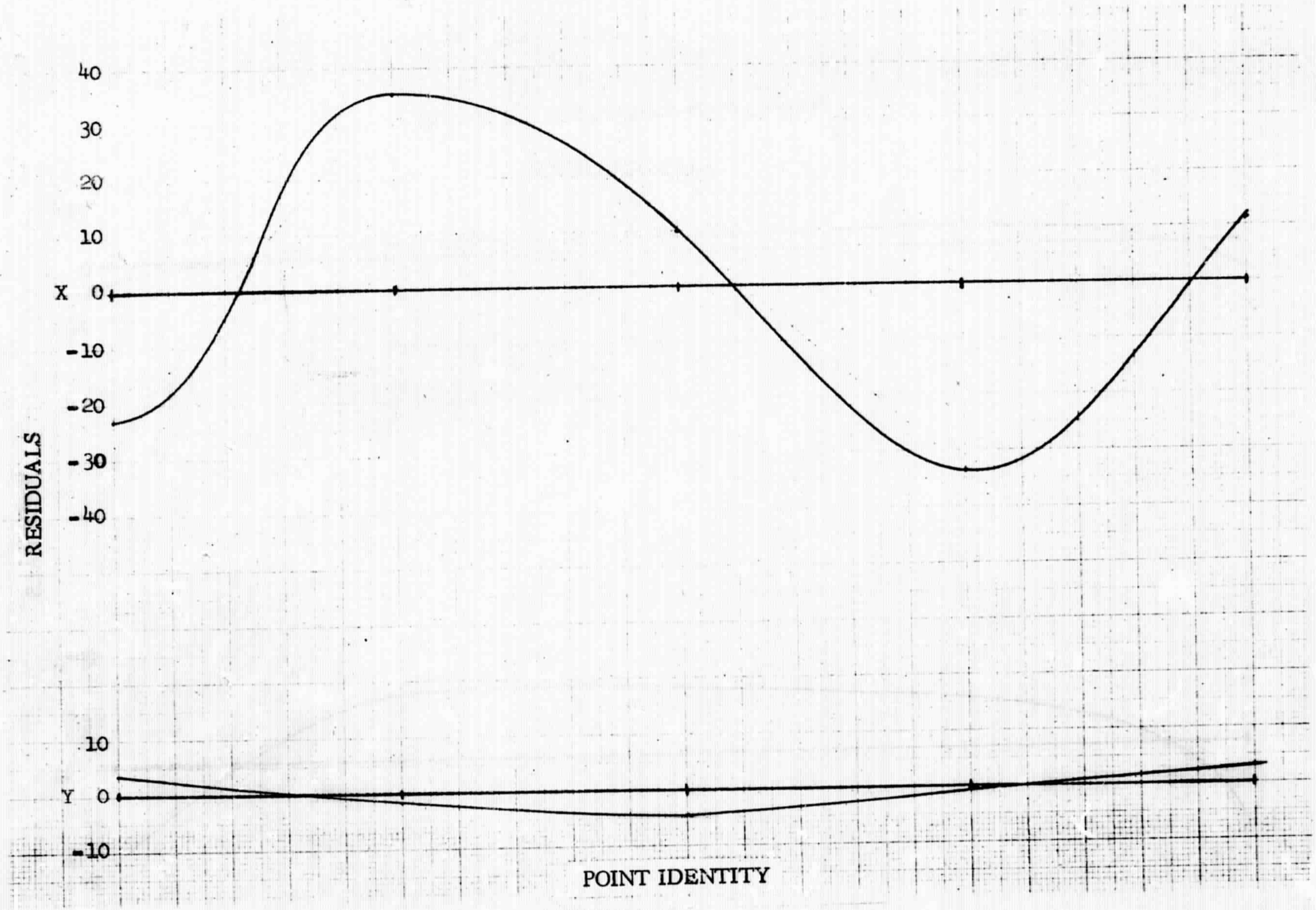


Figure 28. Pre-Orbiter strip GI-5-4.

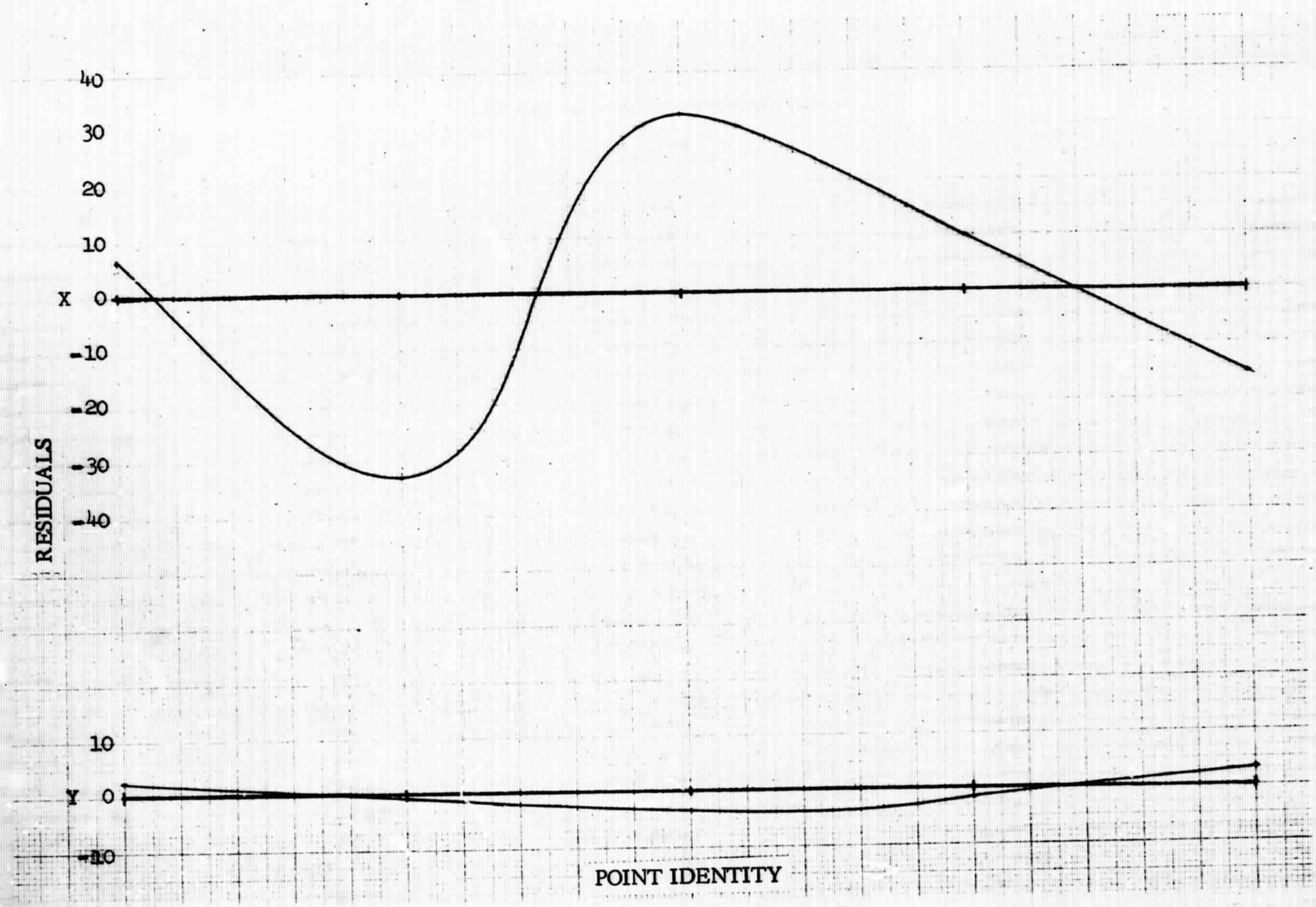


Figure 29. Pre-Orbiter strip GI-5-5.

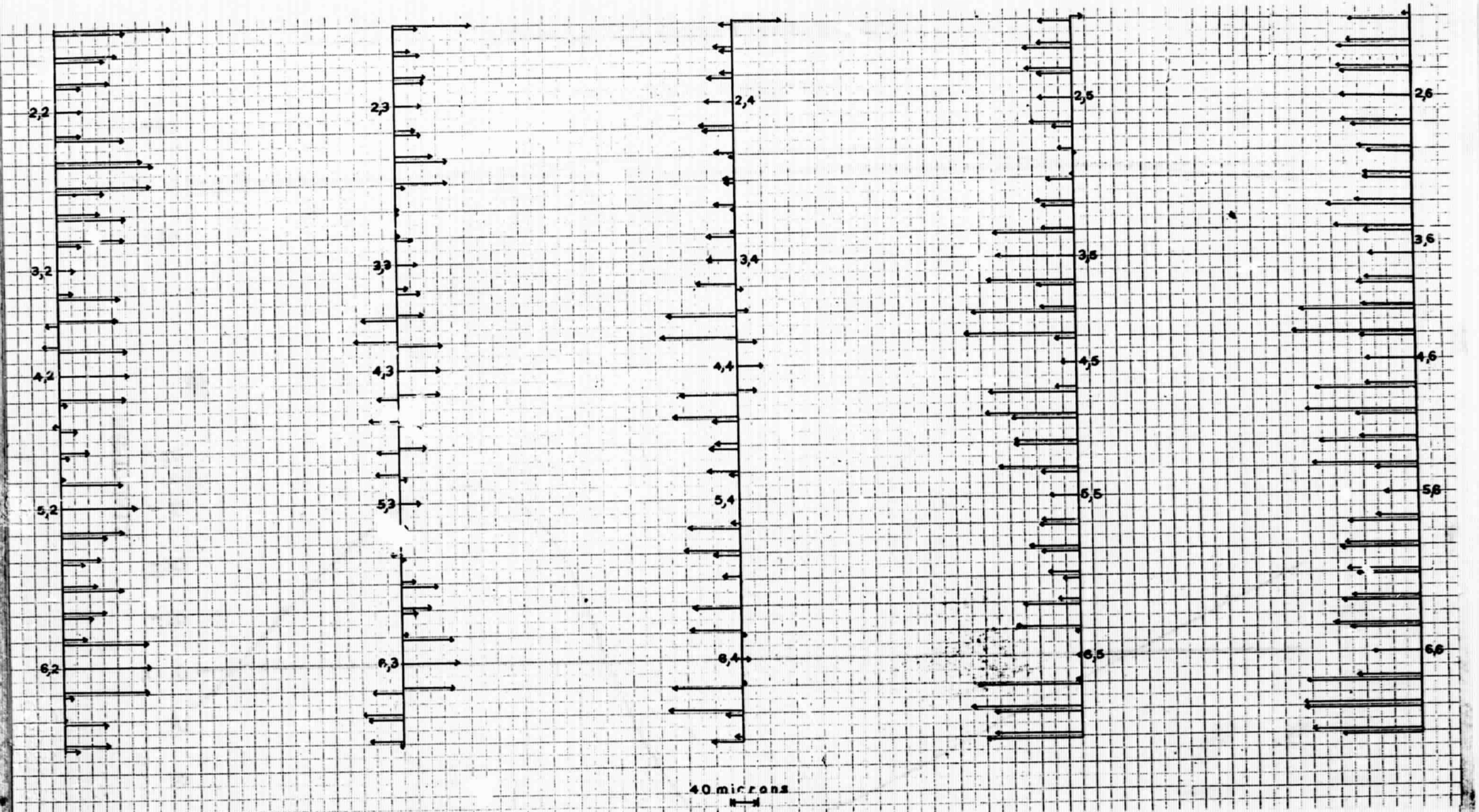


Figure 30. Pre-Orbiter reassembled plate 1.

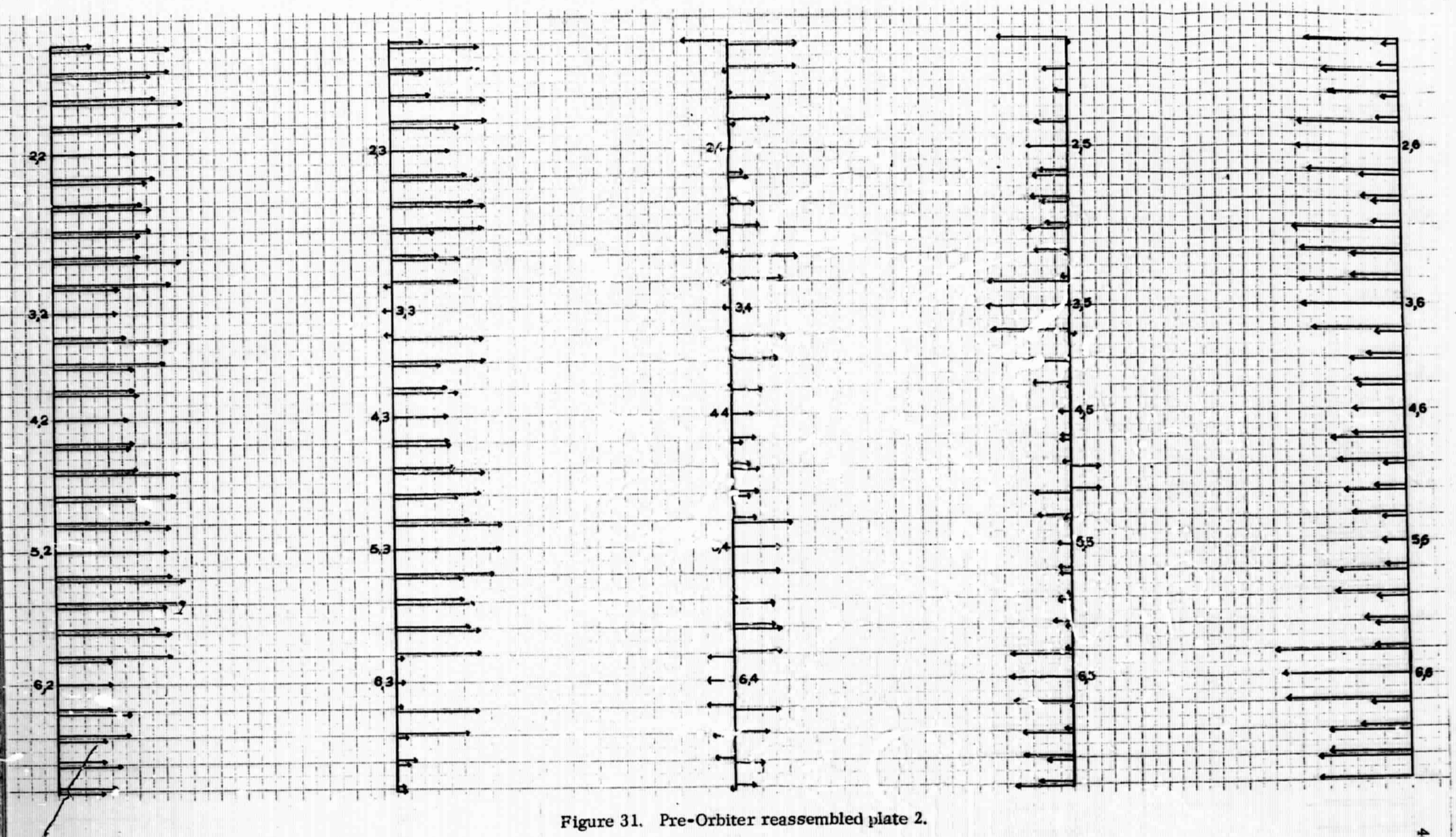


Figure 31. Pre-Orbiter reassembled plate 2.

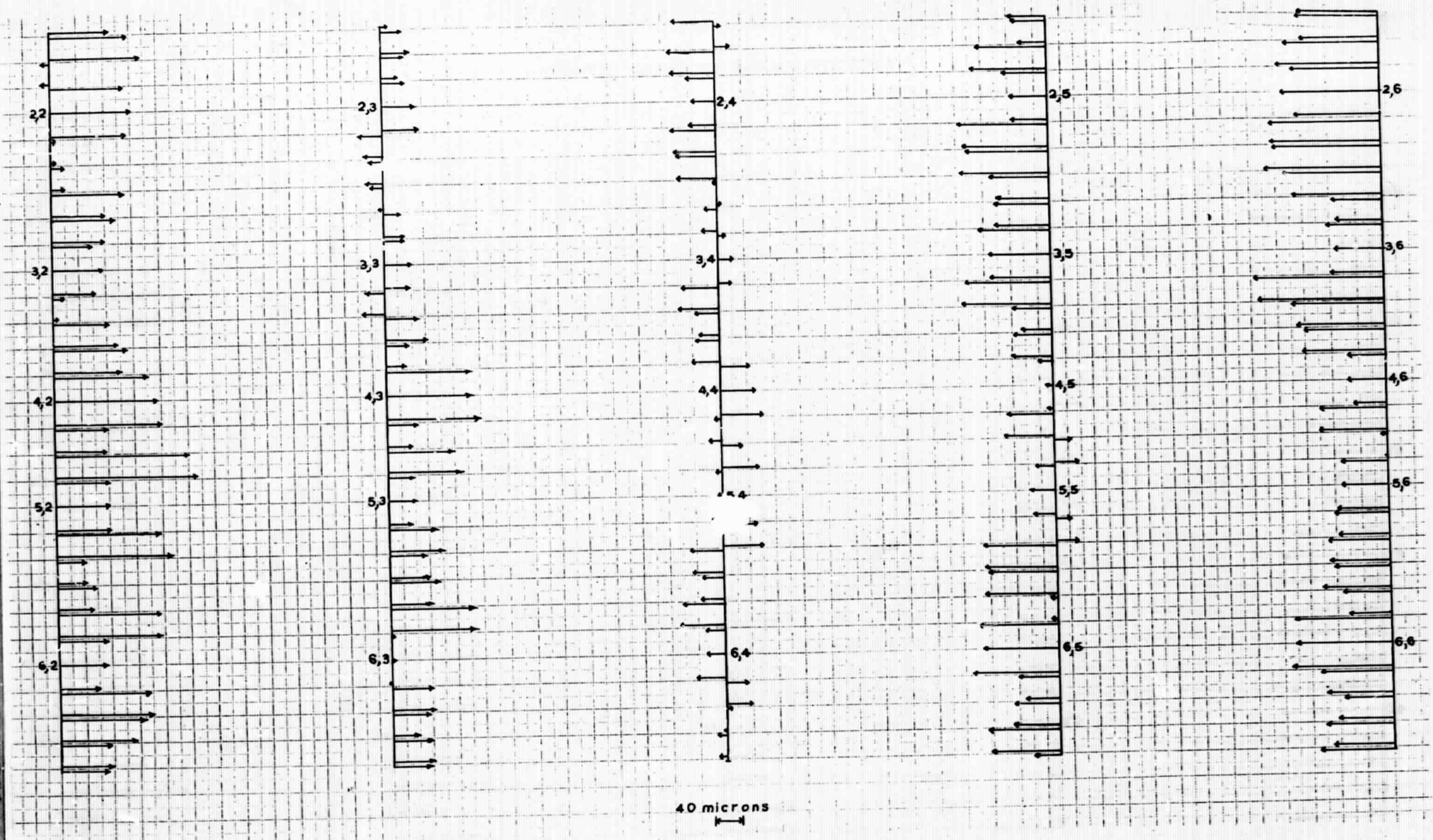


Figure 32. Pre-Orbiter reassembled plate 3.

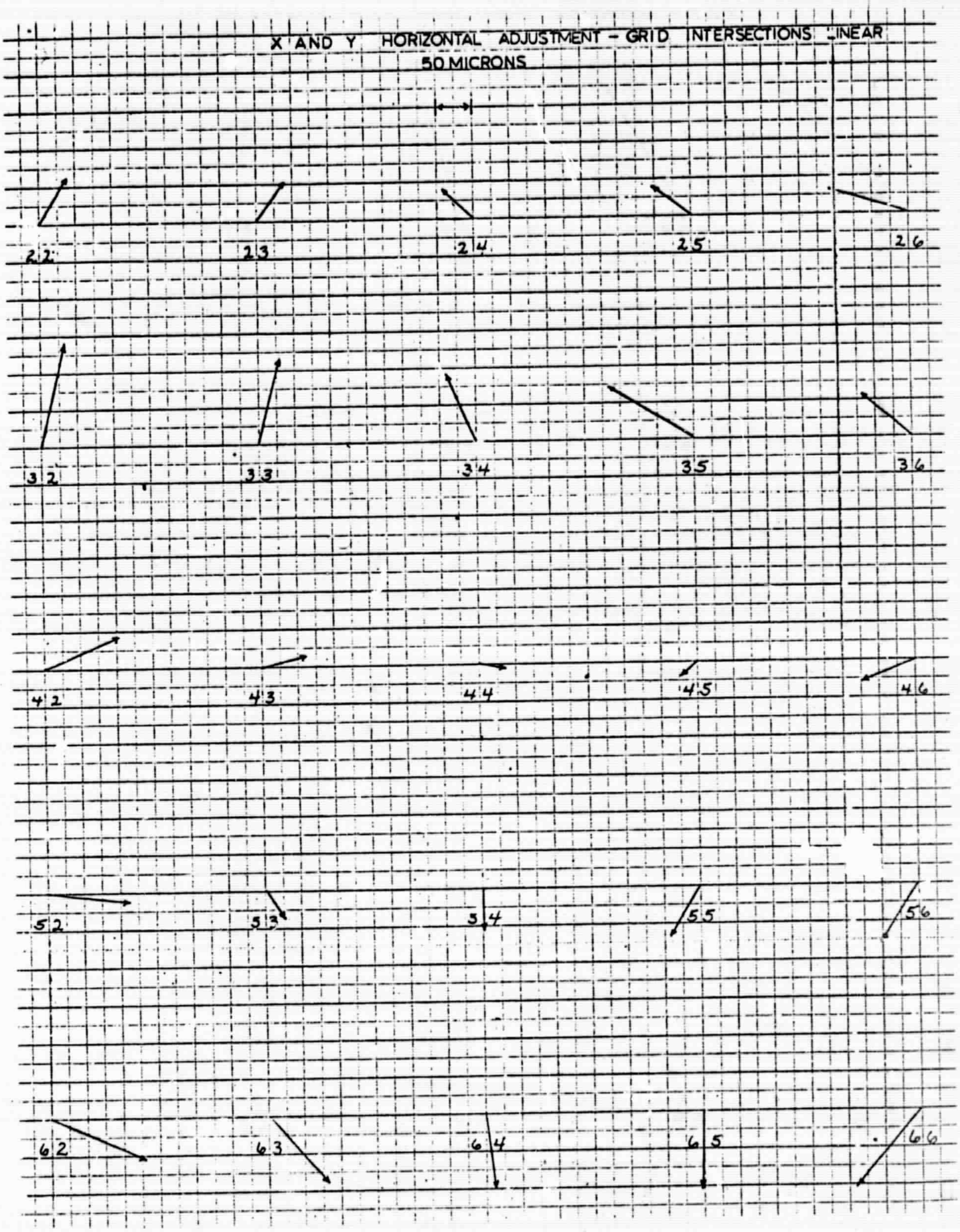


Figure 33. Vector diagram: plate 1.

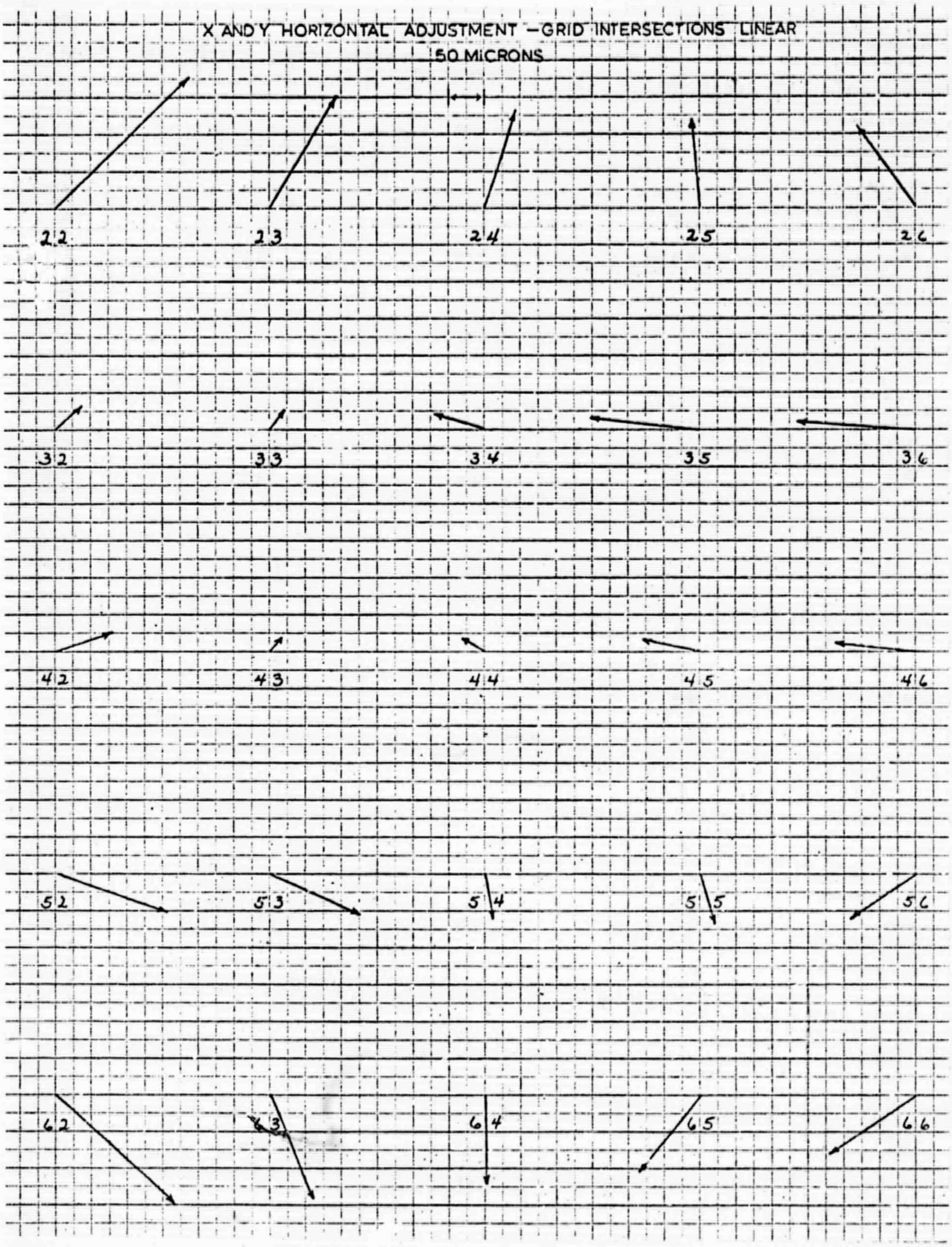


Figure 34. Vector diagram: plate 2.

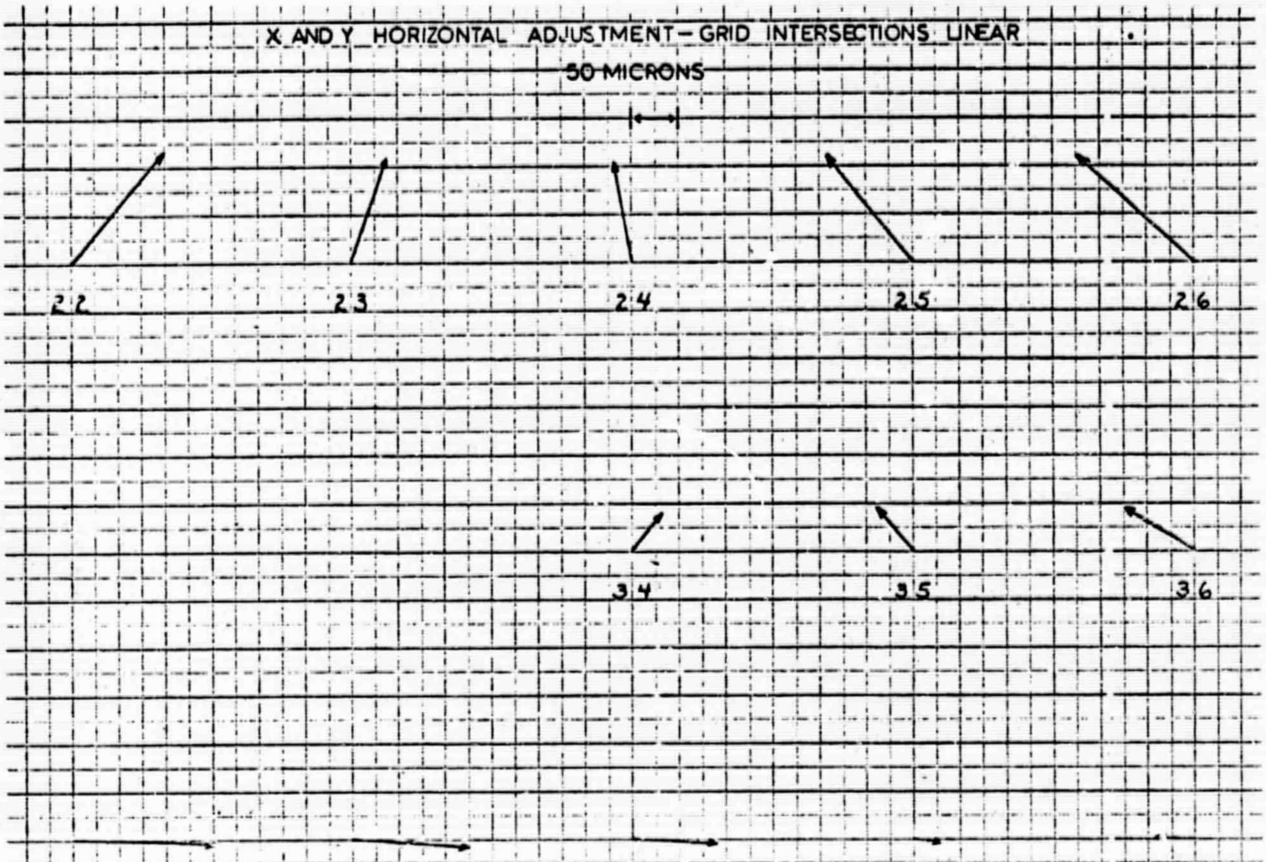


Figure 36. Vector diagram: plate 4.

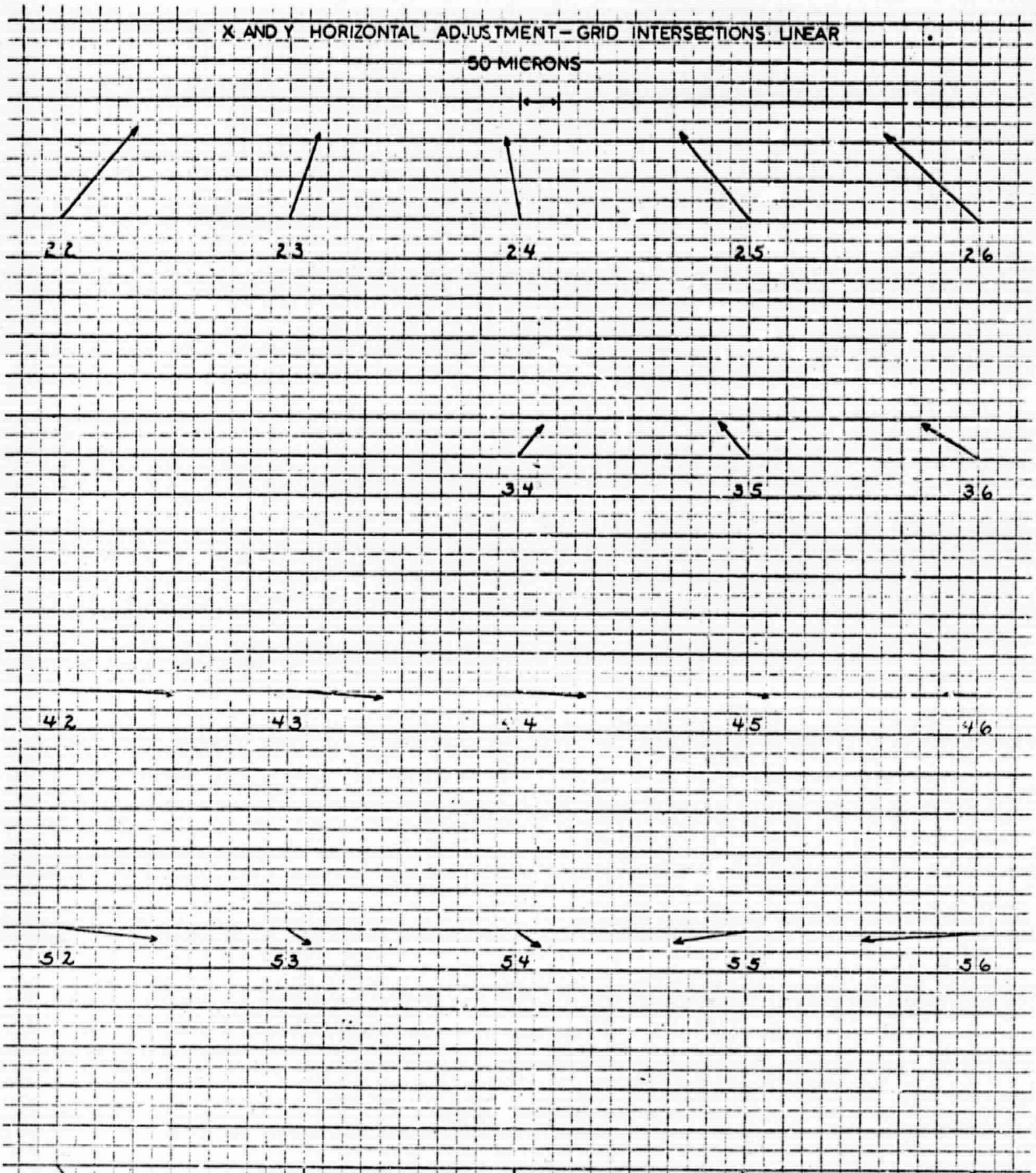


Figure 36. Vector diagram: plate 4.

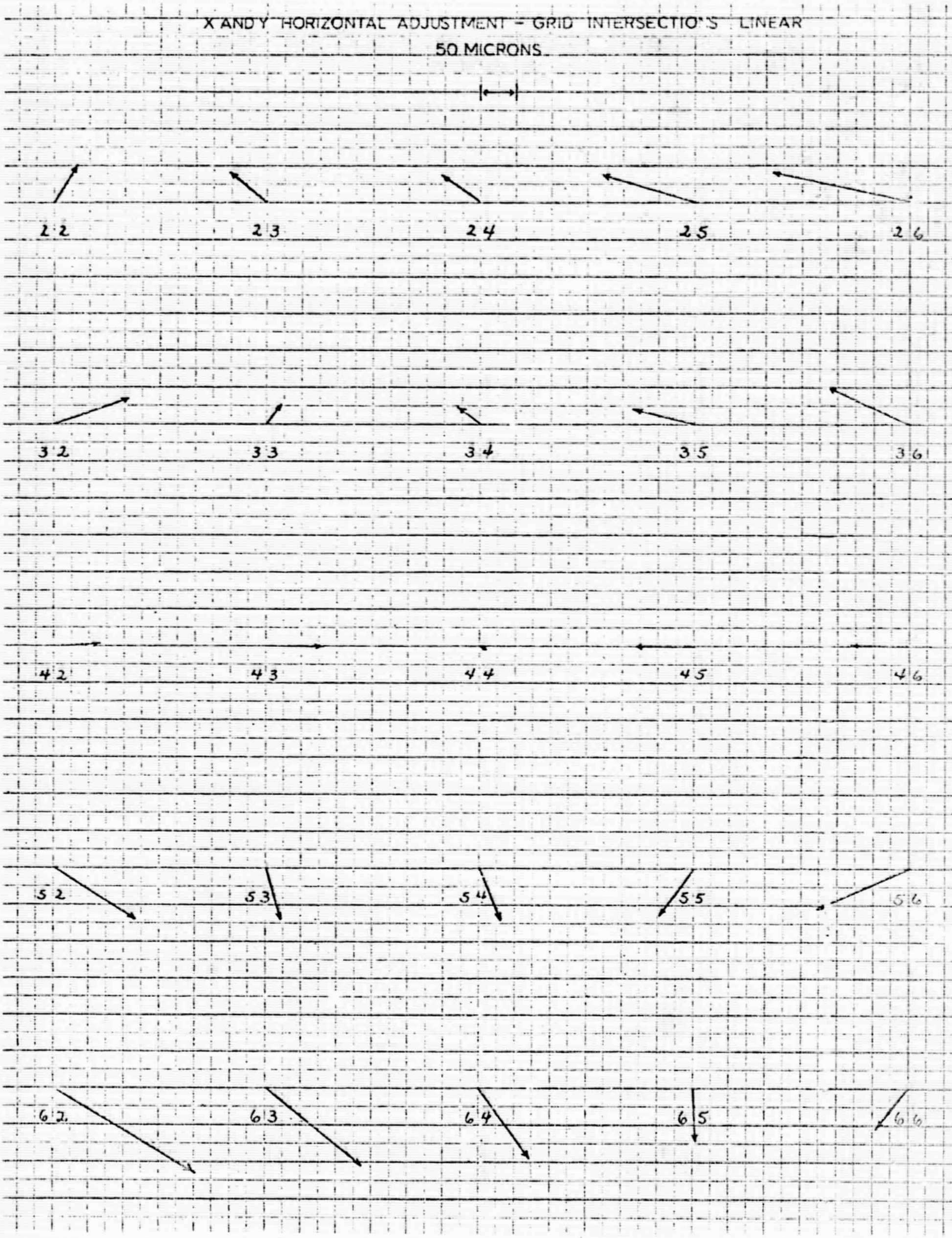


Figure 37. Vector diagram: plate 5.

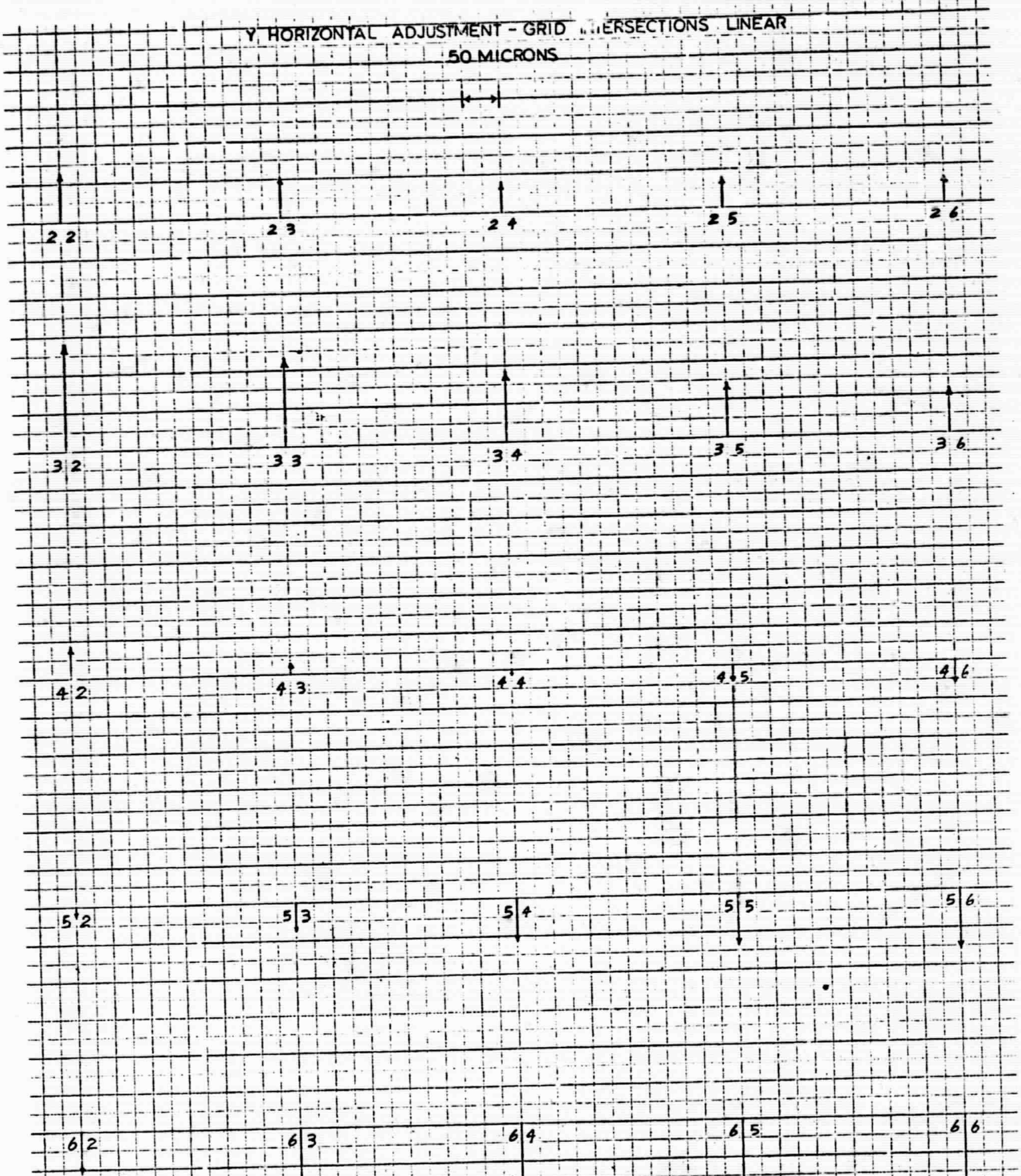


Figure 38. Vector diagram: reassembled plate 1.

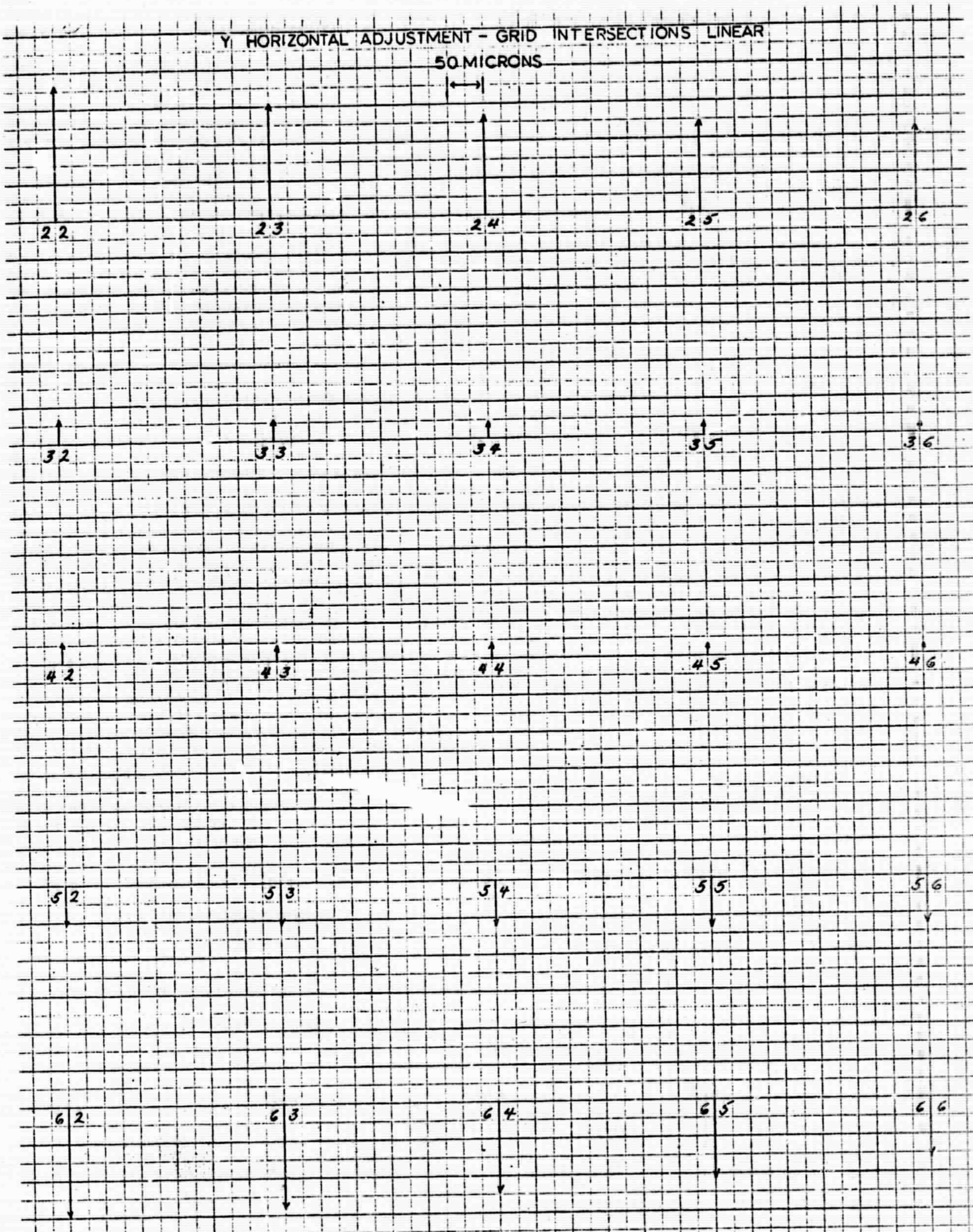


Figure 39. Vector diagram: reassembled plate 2.

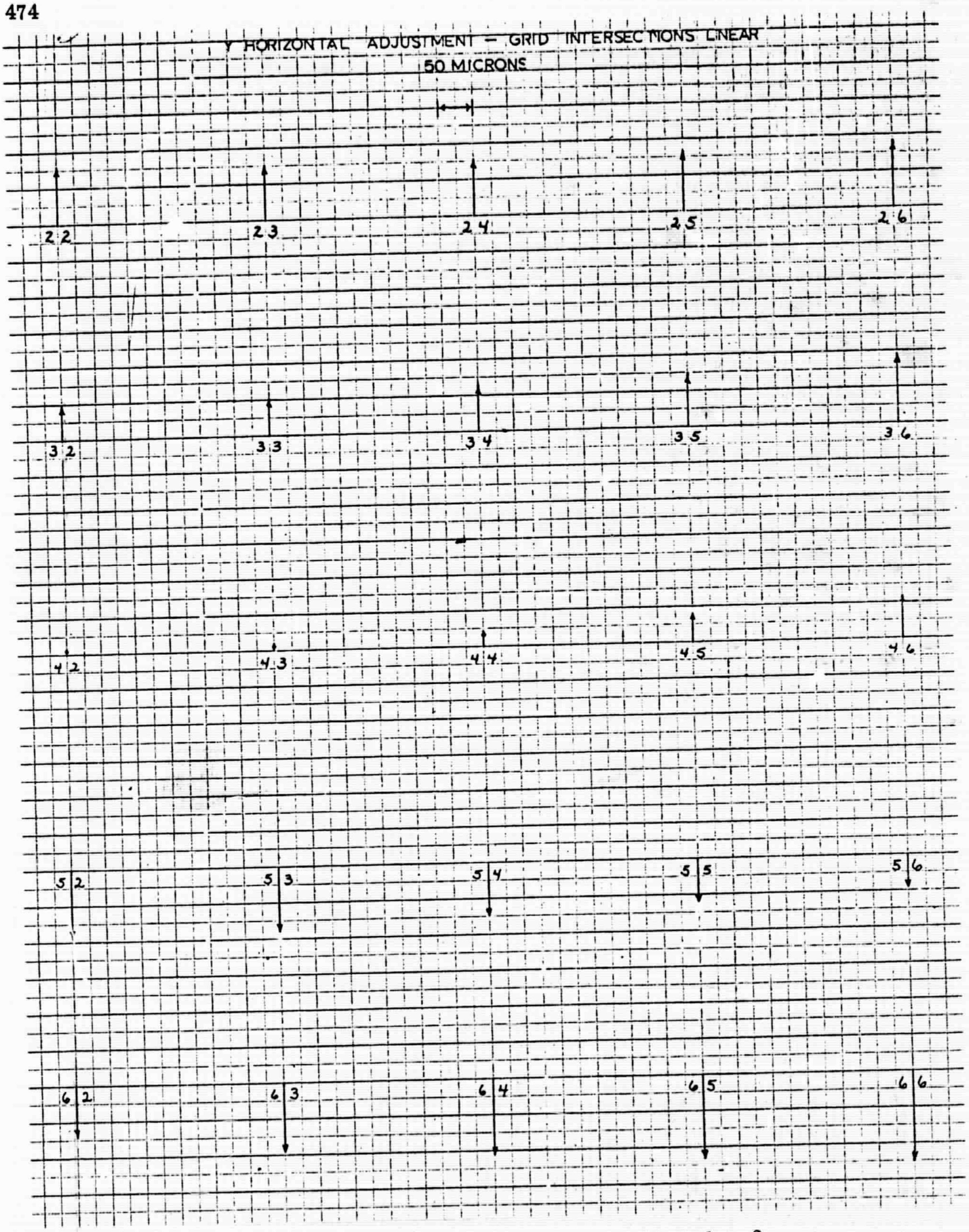


Figure 40. Vector diagram: reassembled plate 3.

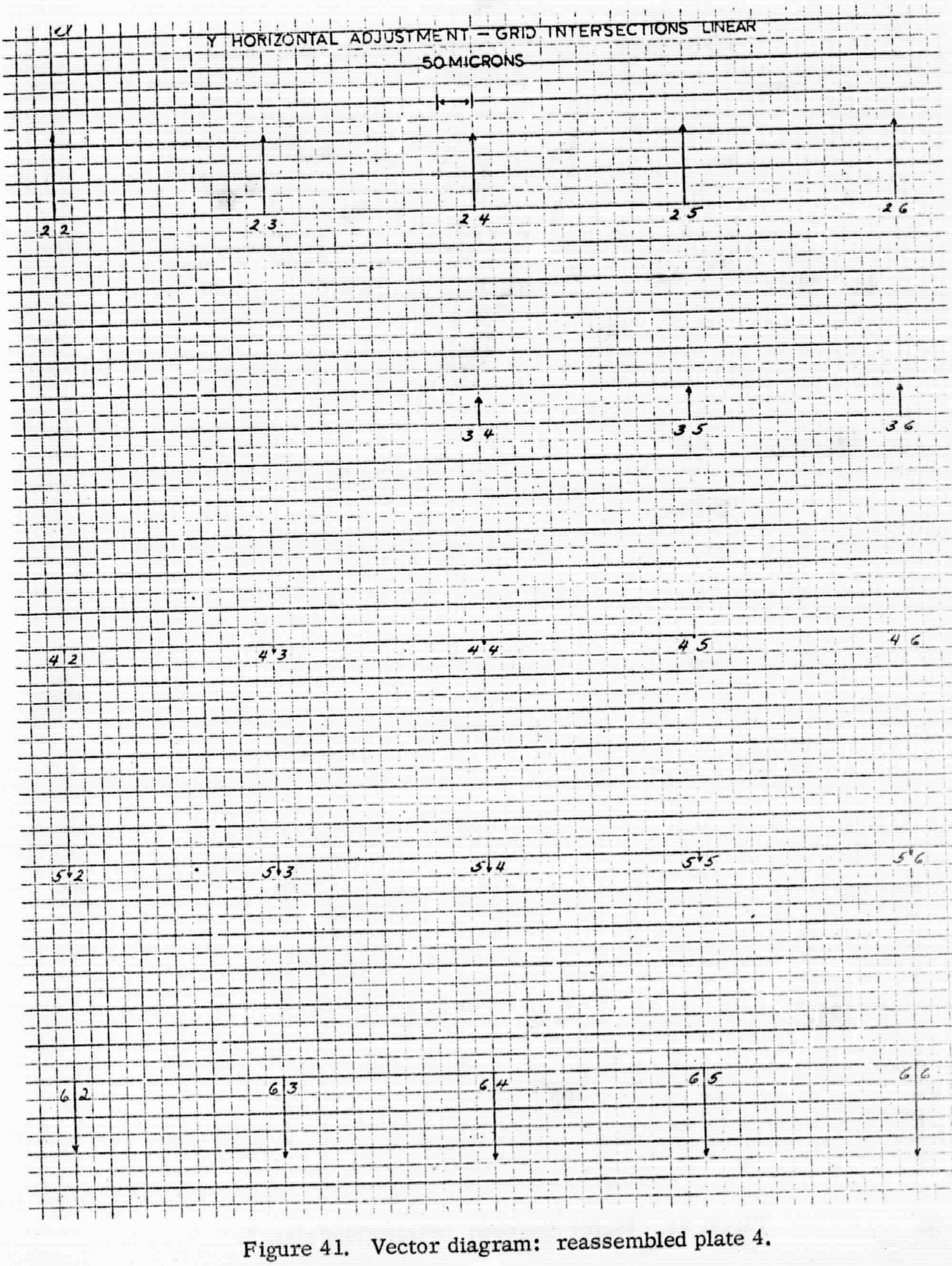


Figure 41. Vector diagram: reassembled plate 4.

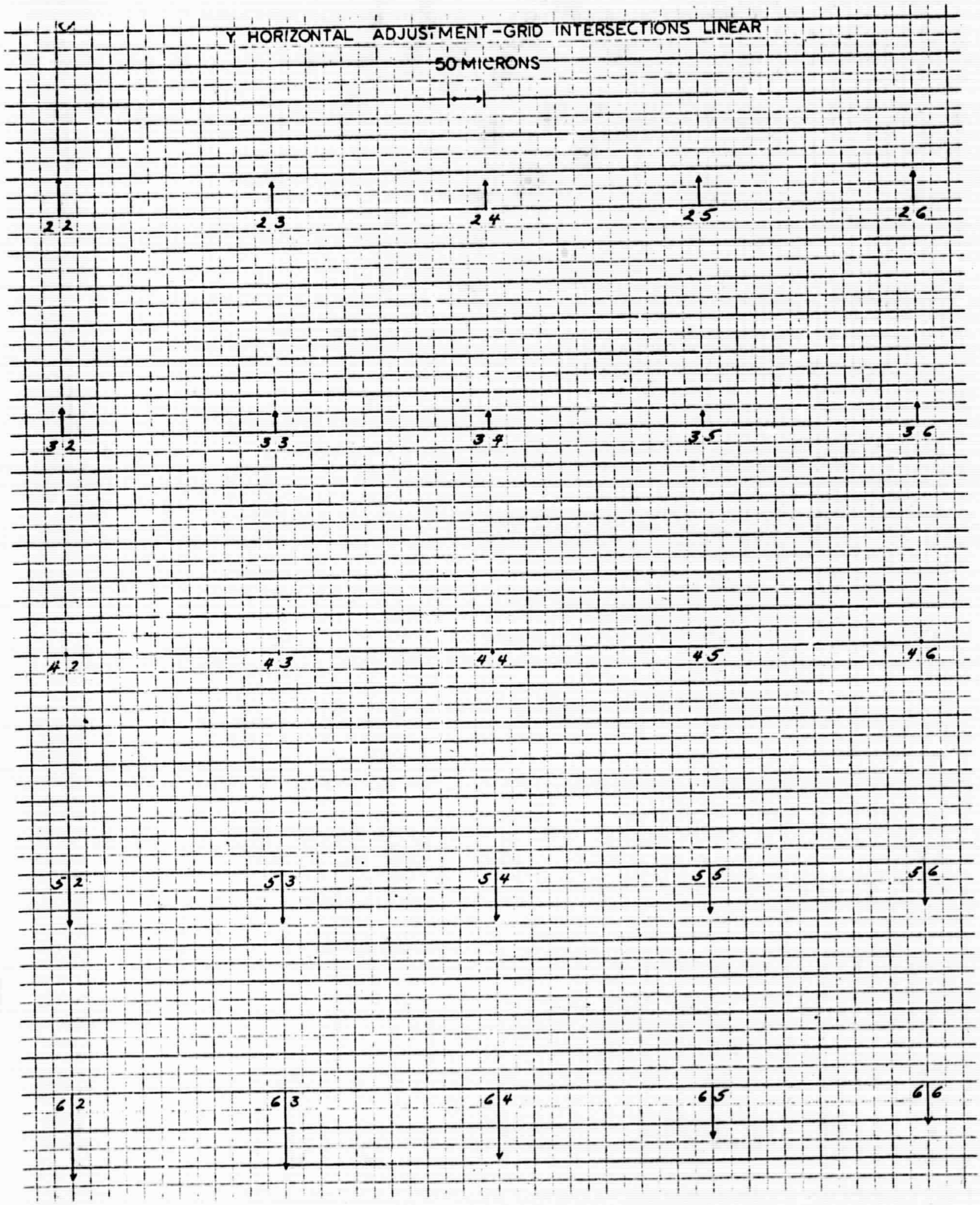


Figure 42. Vector diagram: reassembled plate 5.

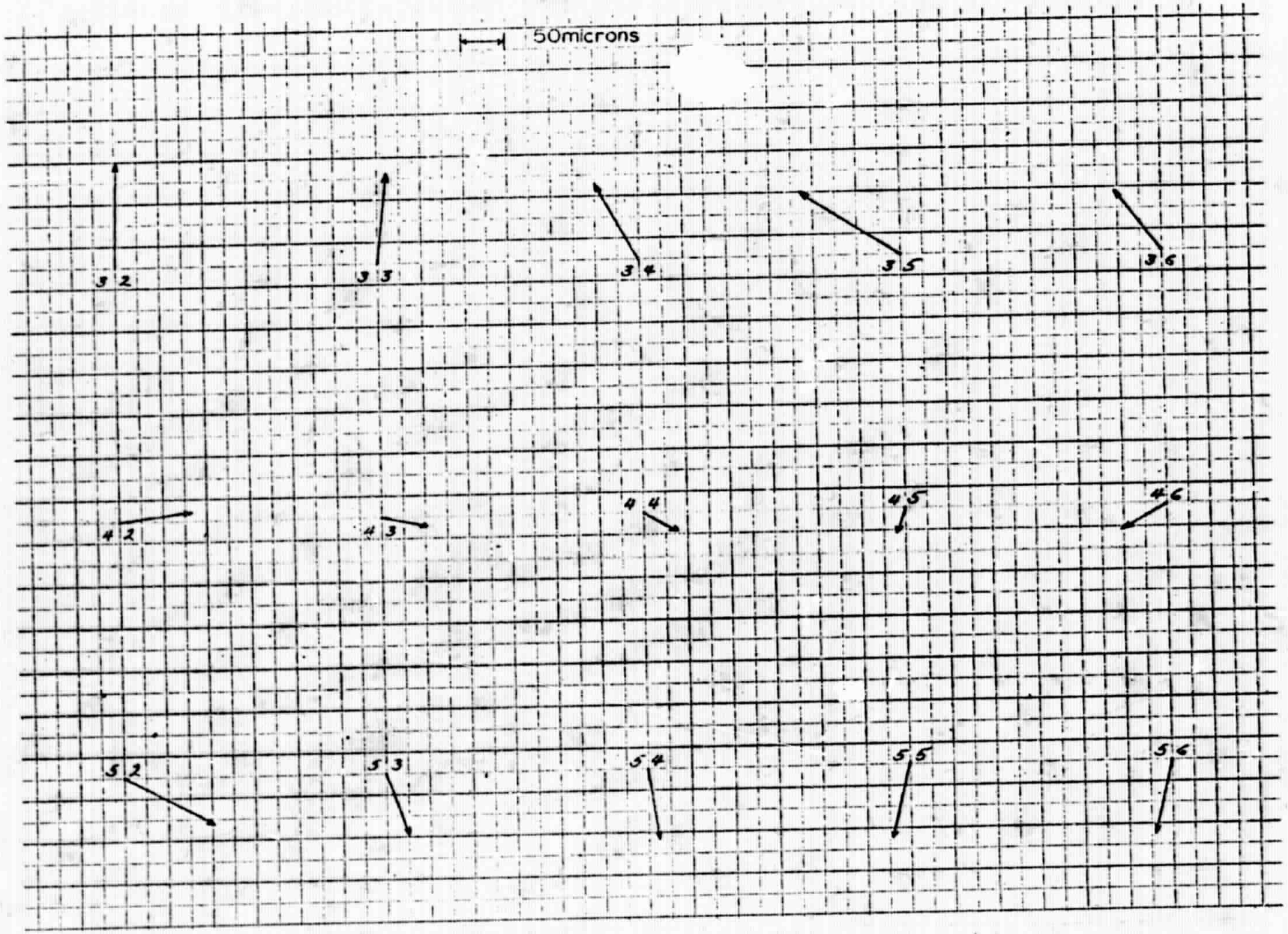


Figure 43. Pre-Orbiter - Arizona Test Area subframes. Plate 1 linear transformation.

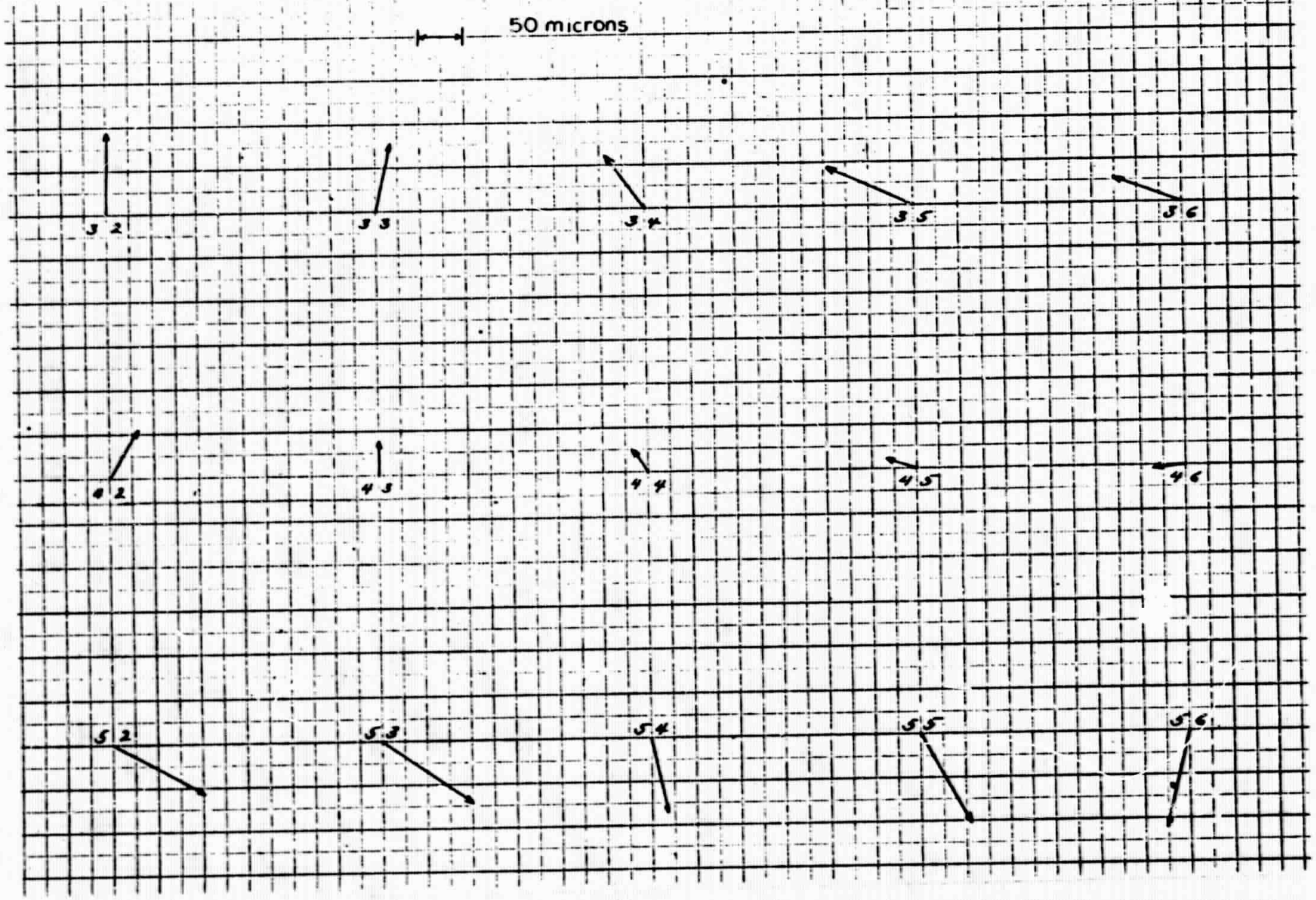


Figure 44. Pre-Orbiter - Arizona Test Area subframes. Plate 2 linear transformation.

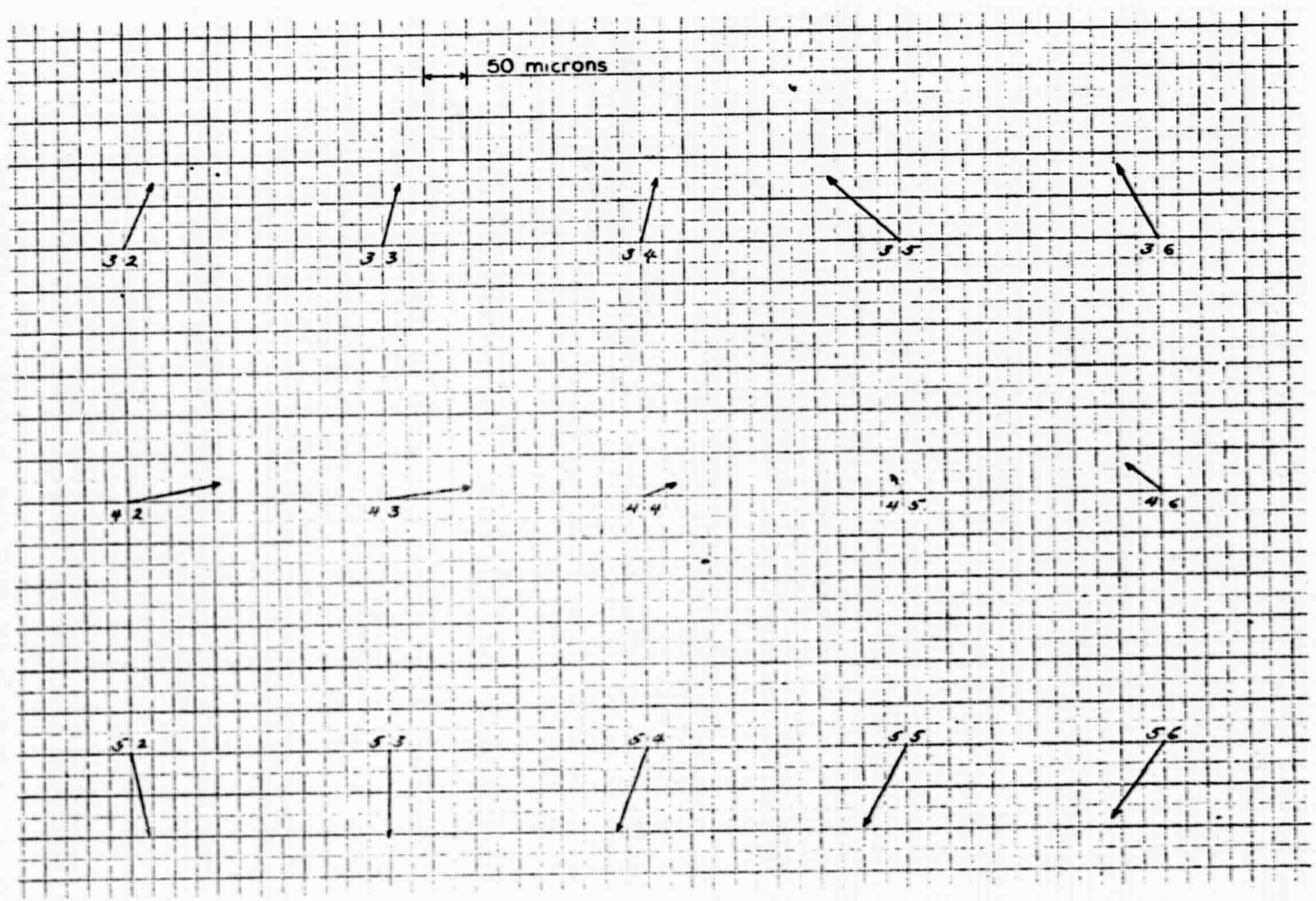


Figure 45. Pre-Orbiter - Arizona Test Area subframes. Plate 3 linear transformation.

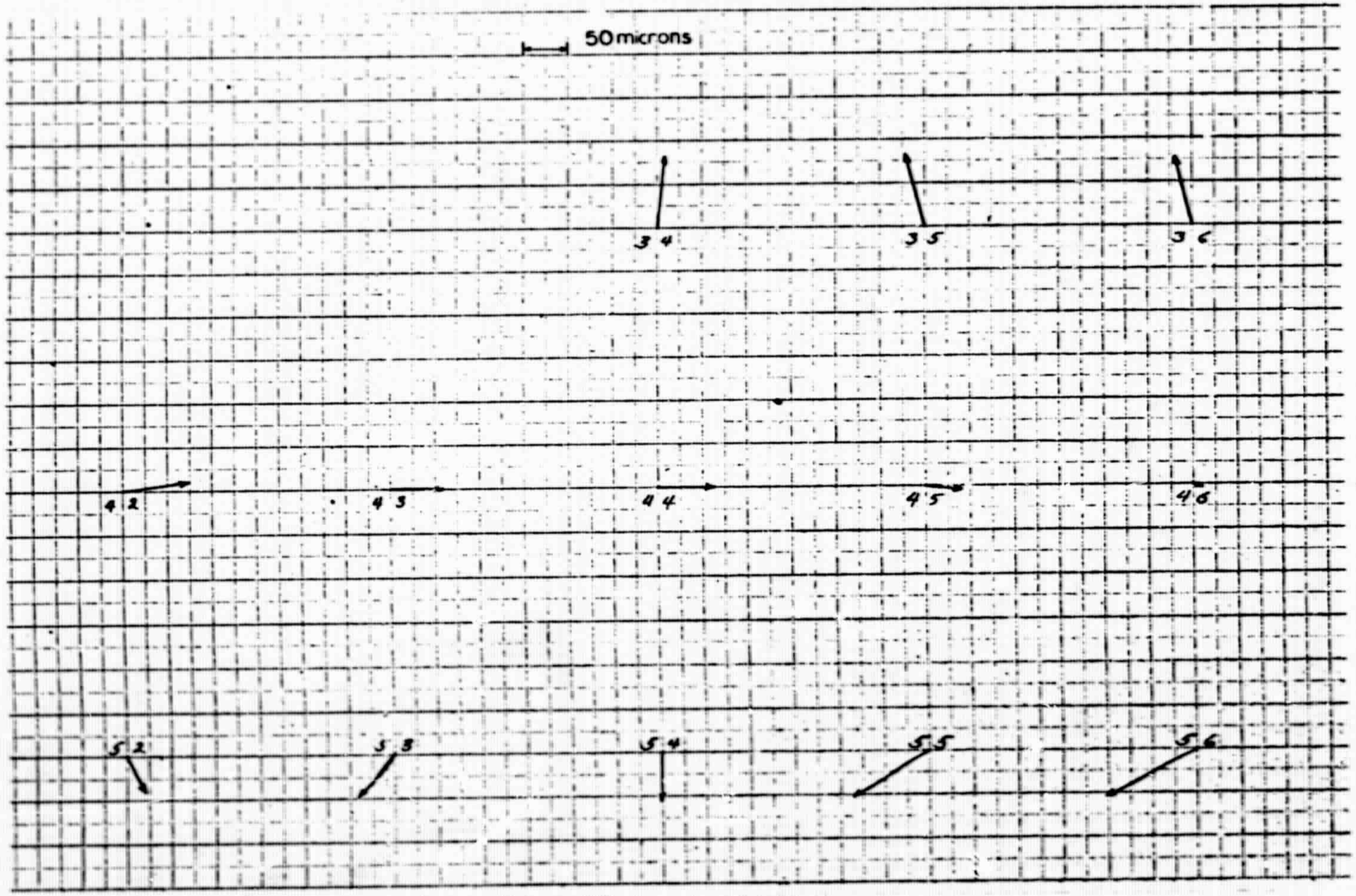


Figure 46. Pre-Orbiter - Arizona Test Area subframes. Plate 4 linear transformation.

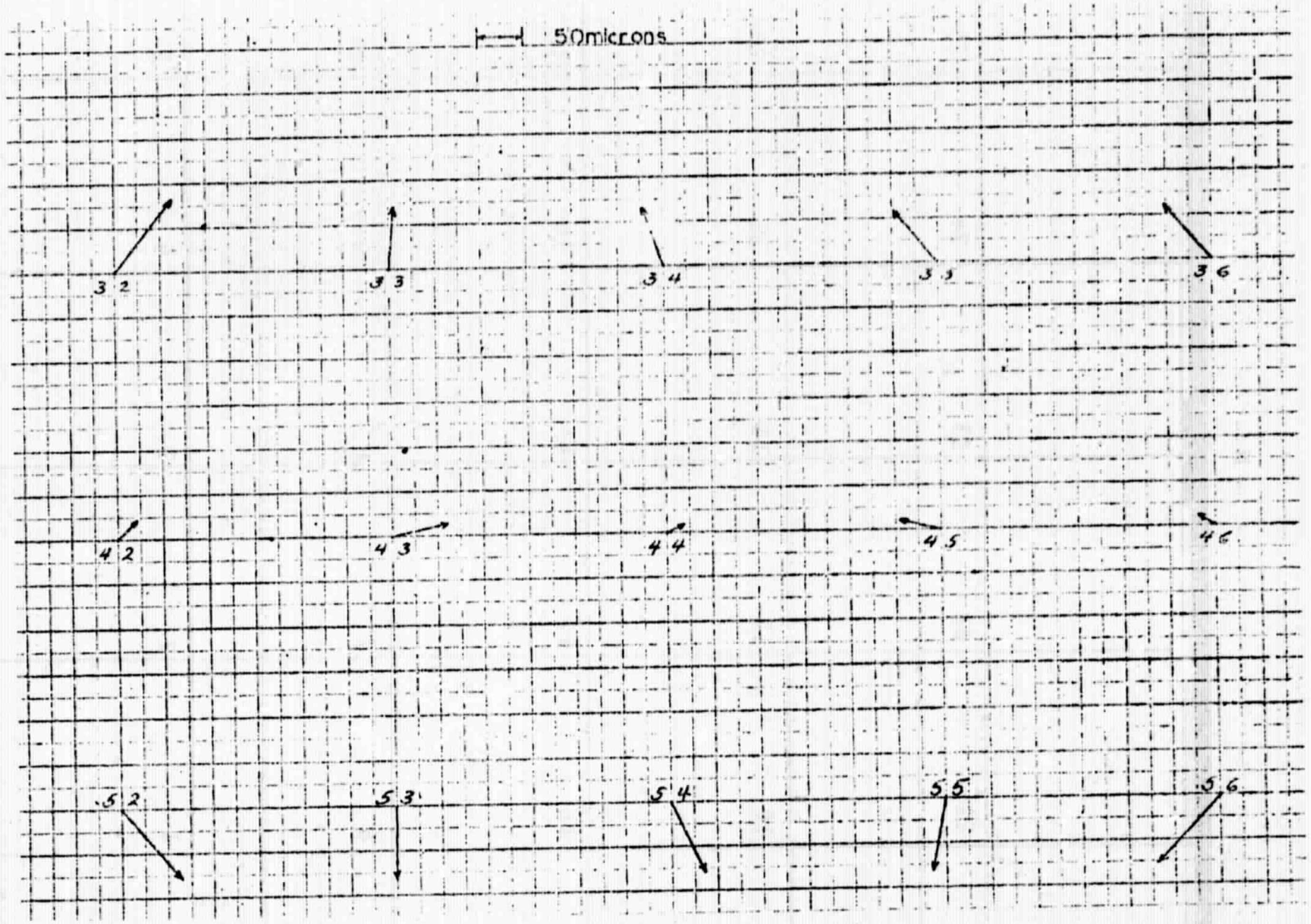


Figure 47. Pre-Orbiter - Arizona Test Area subframes. Plate 5 linear transformation.

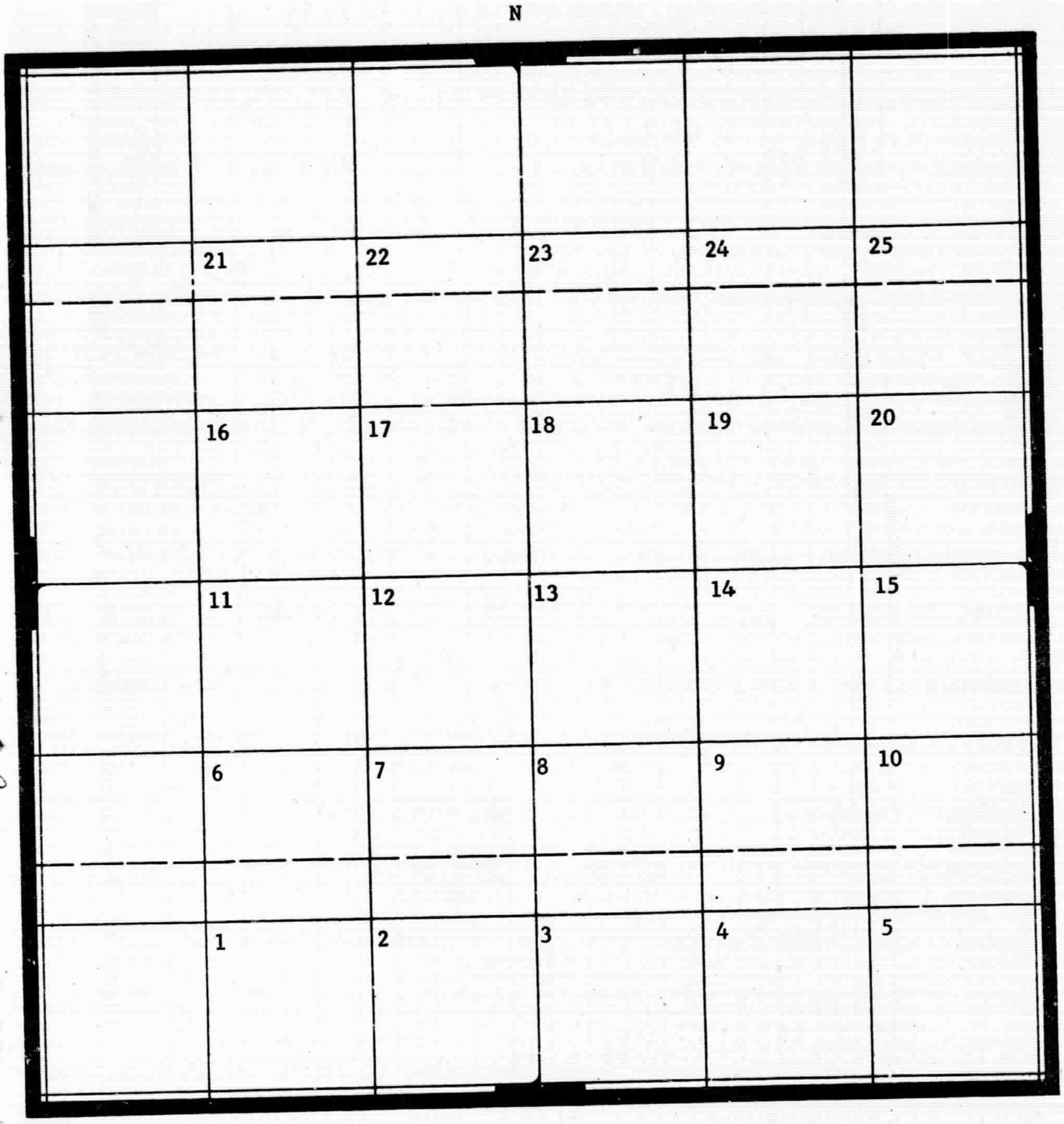


Figure 48. Number system for grid intersections systems analysis.

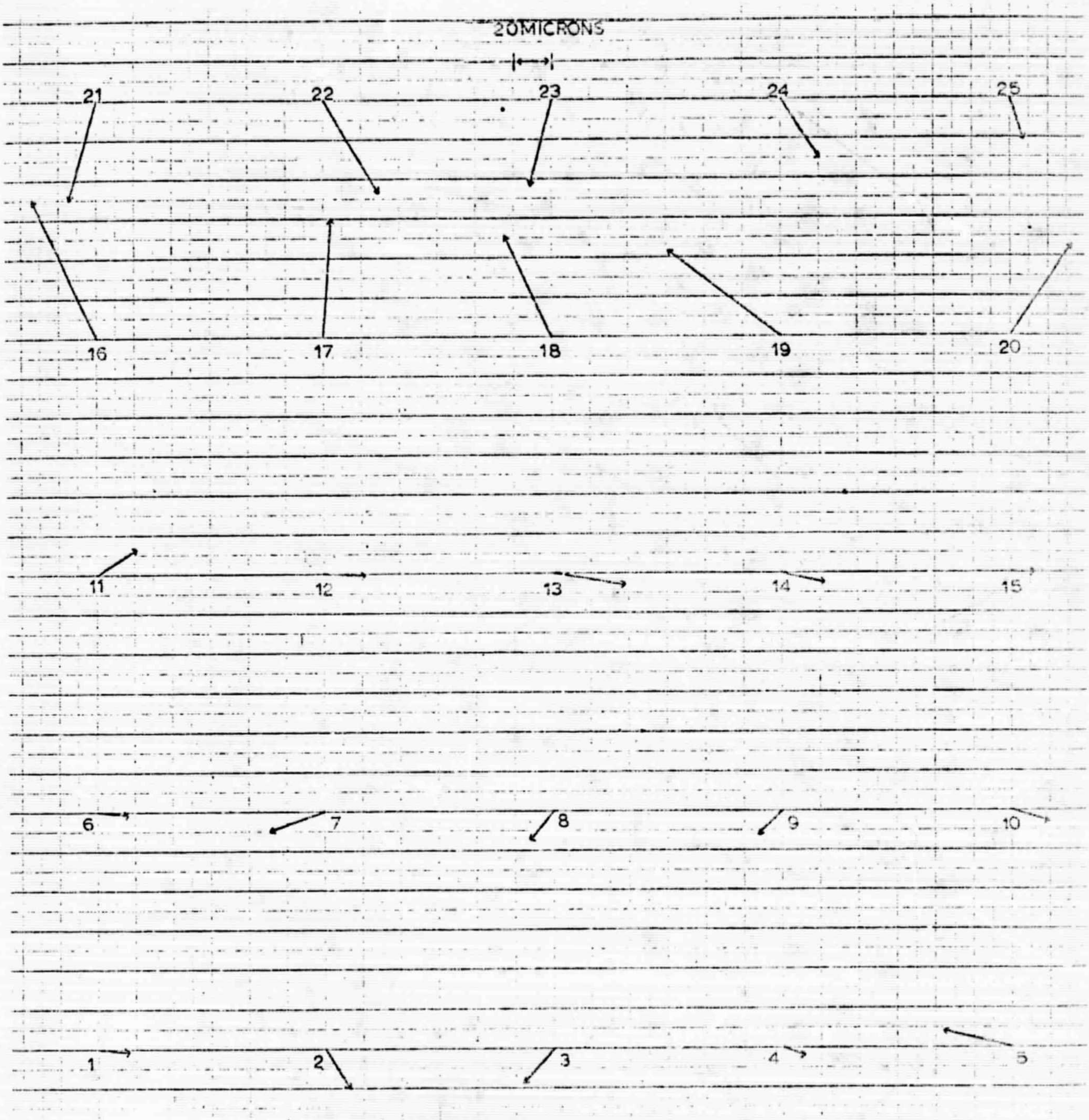


Figure 49. Pre-Orbiter - Arizona Test Area frames. Plate 1 systems analysis.

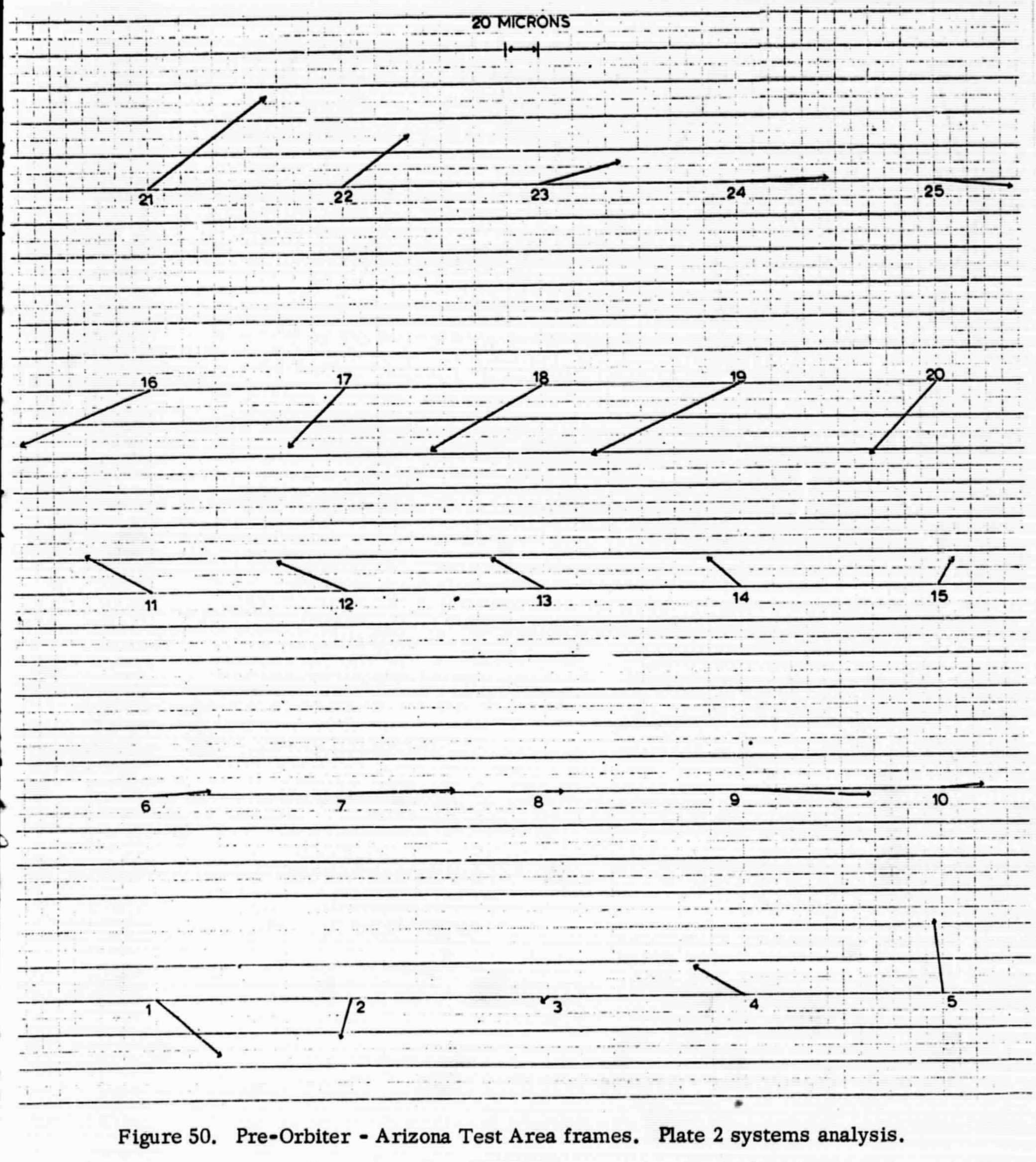


Figure 50. Pre-Orbiter - Arizona Test Area frames. Plate 2 systems analysis.

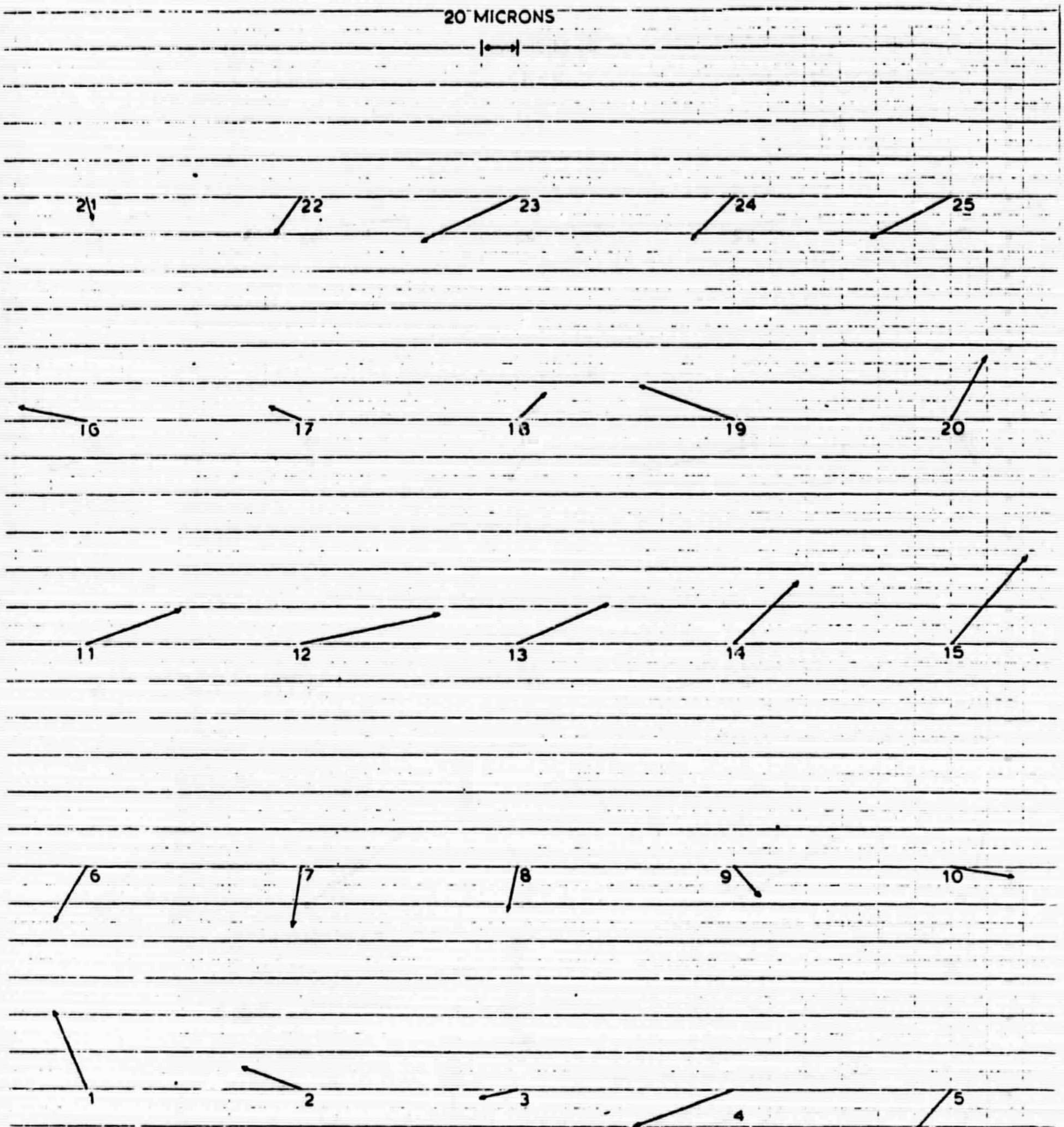


Figure 51. Pre-Orbiter - Arizona Test Area frames. Plate 3 systems analysis.

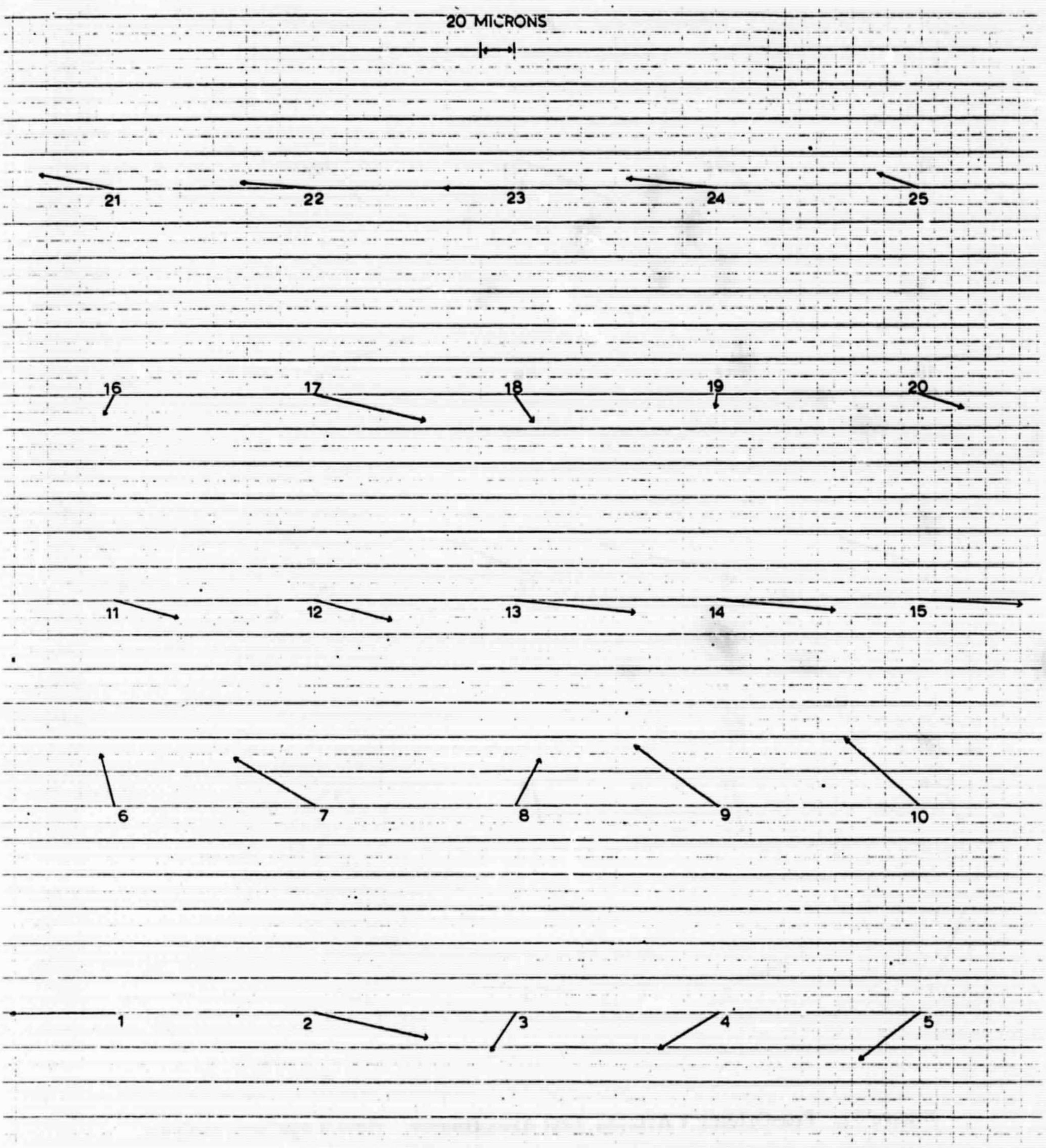


Figure 52. Pre-Orbiter - Arizona Test Area frames. Plate 4 systems analysis.

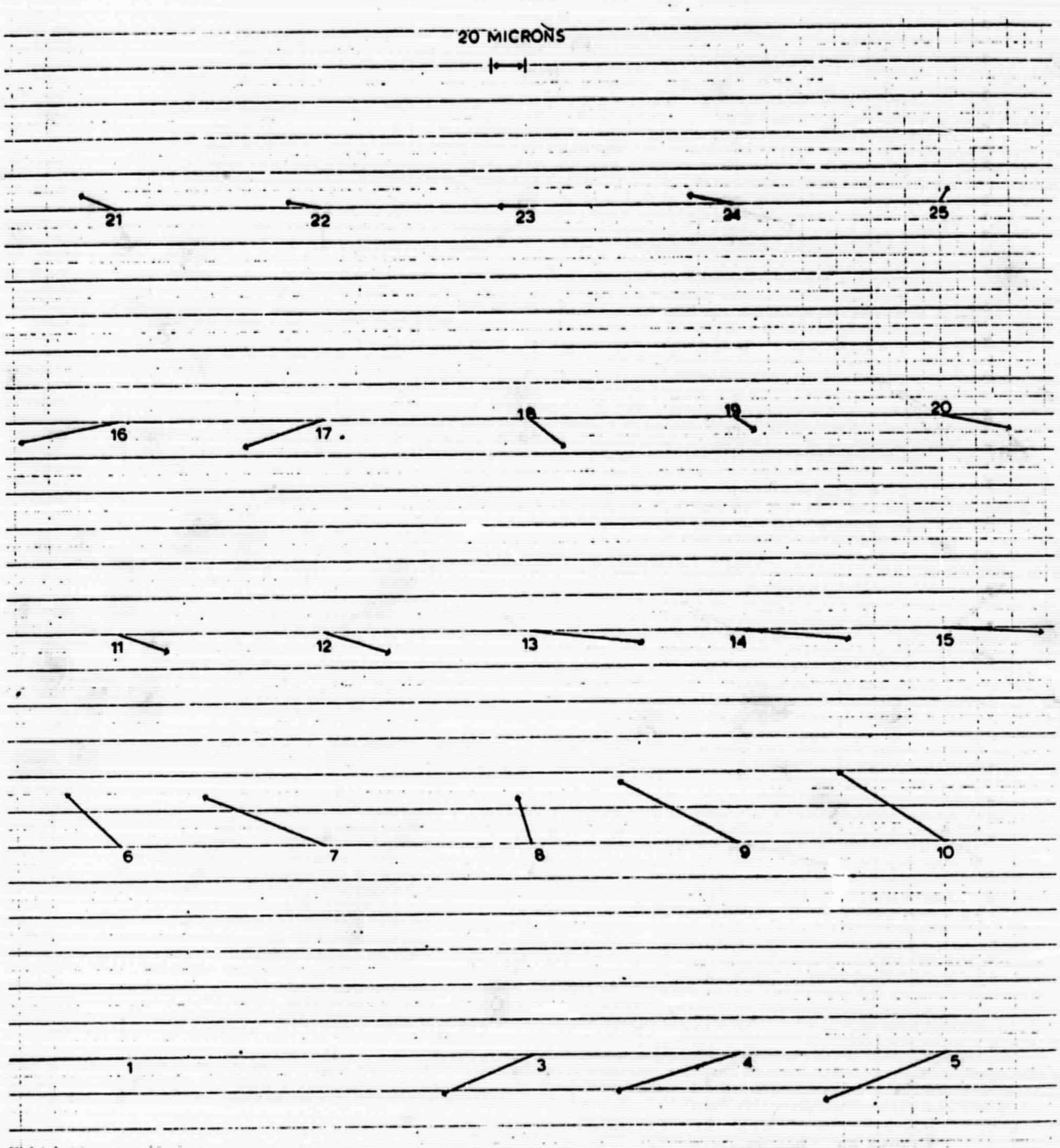


Figure 53. Pre-Orbiter - Arizona Test Area frames. Plate 4A systems analysis.

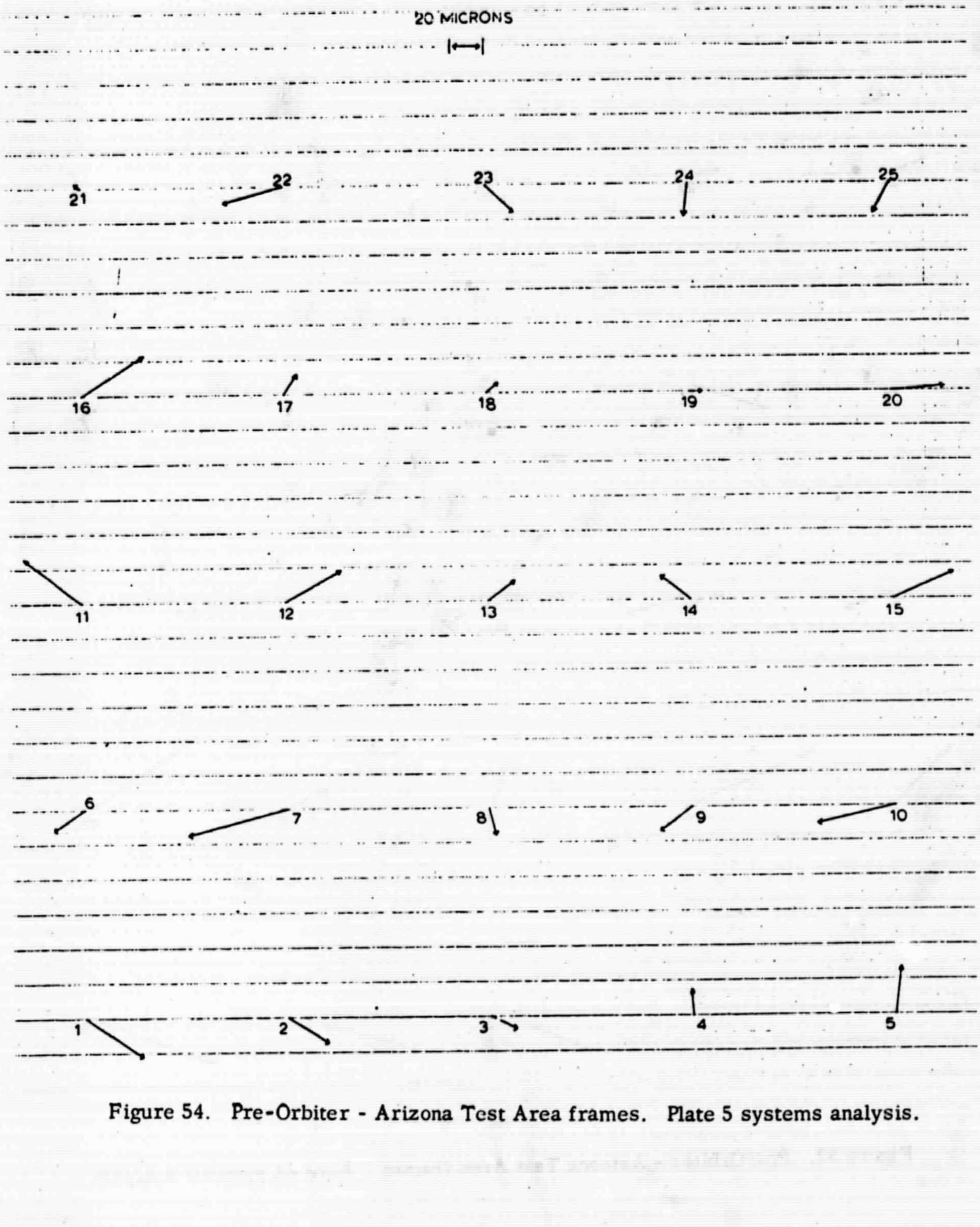


Figure 54. Pre-Orbiter - Arizona Test Area frames. Plate 5 systems analysis.

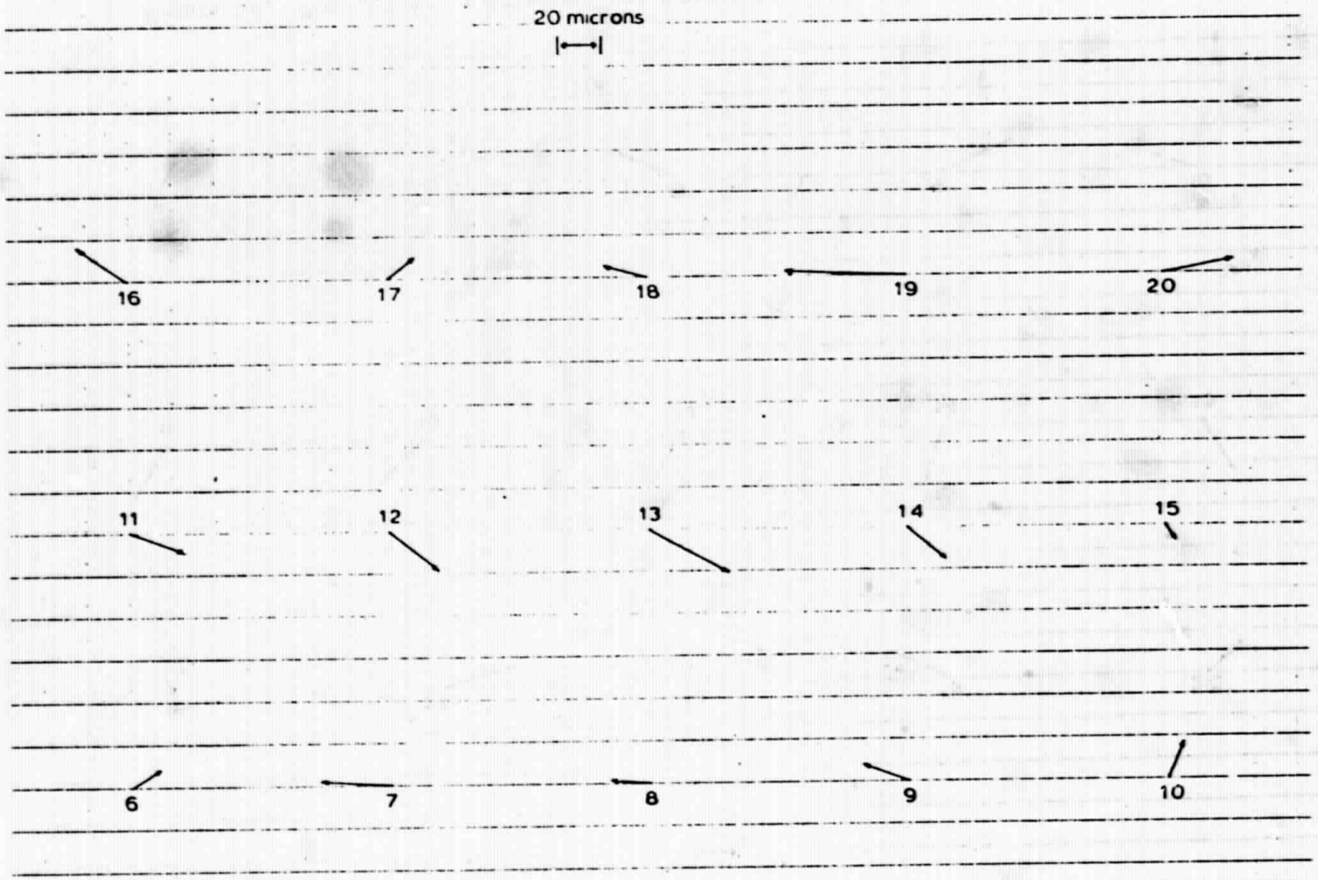


Figure 55. Pre-Orbiter - Arizona Test Area subframes. Plate 1 systems analysis.

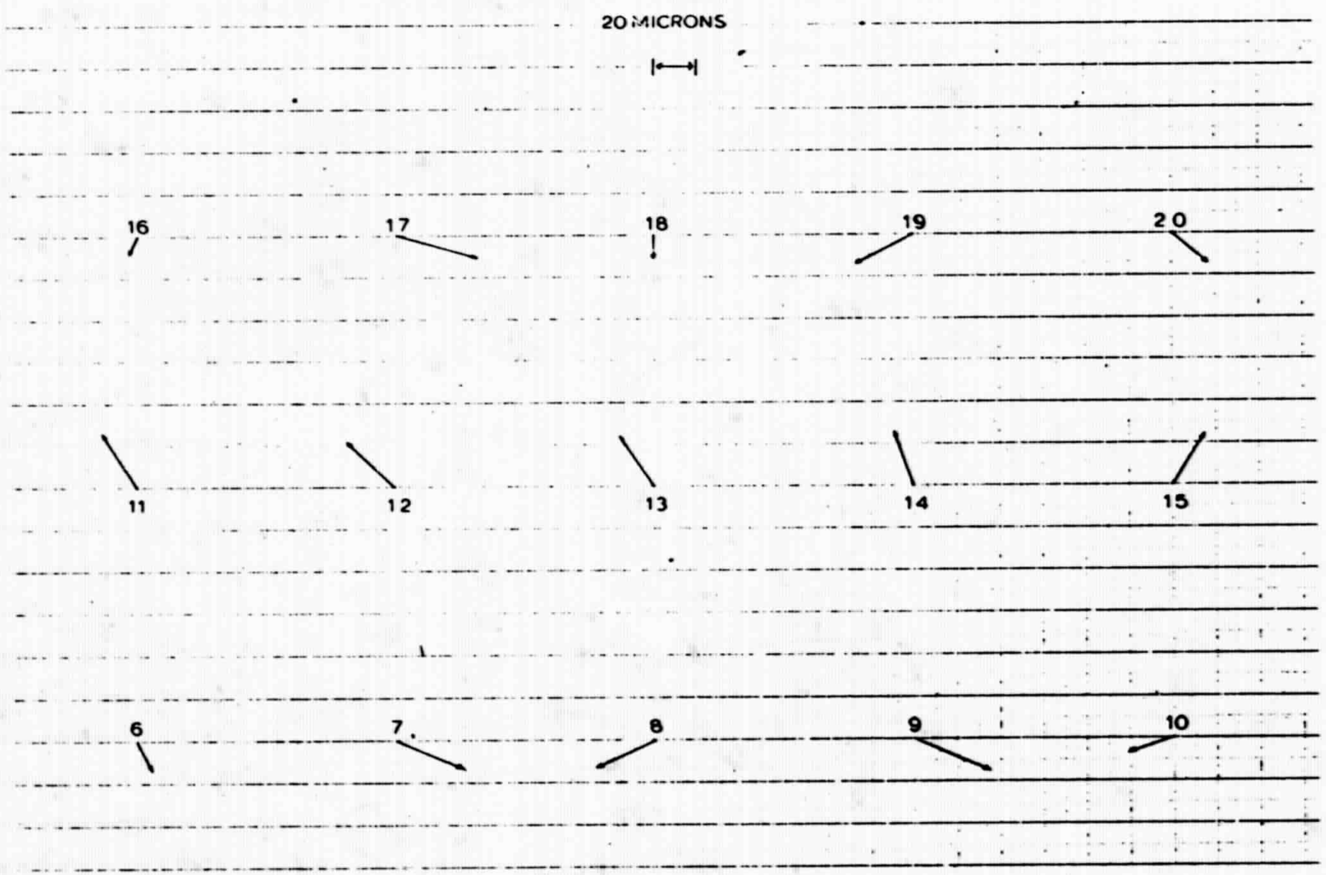


Figure 56. Pre-Orbiter - Arizona Test Area subframes. Plate 2 systems analysis.

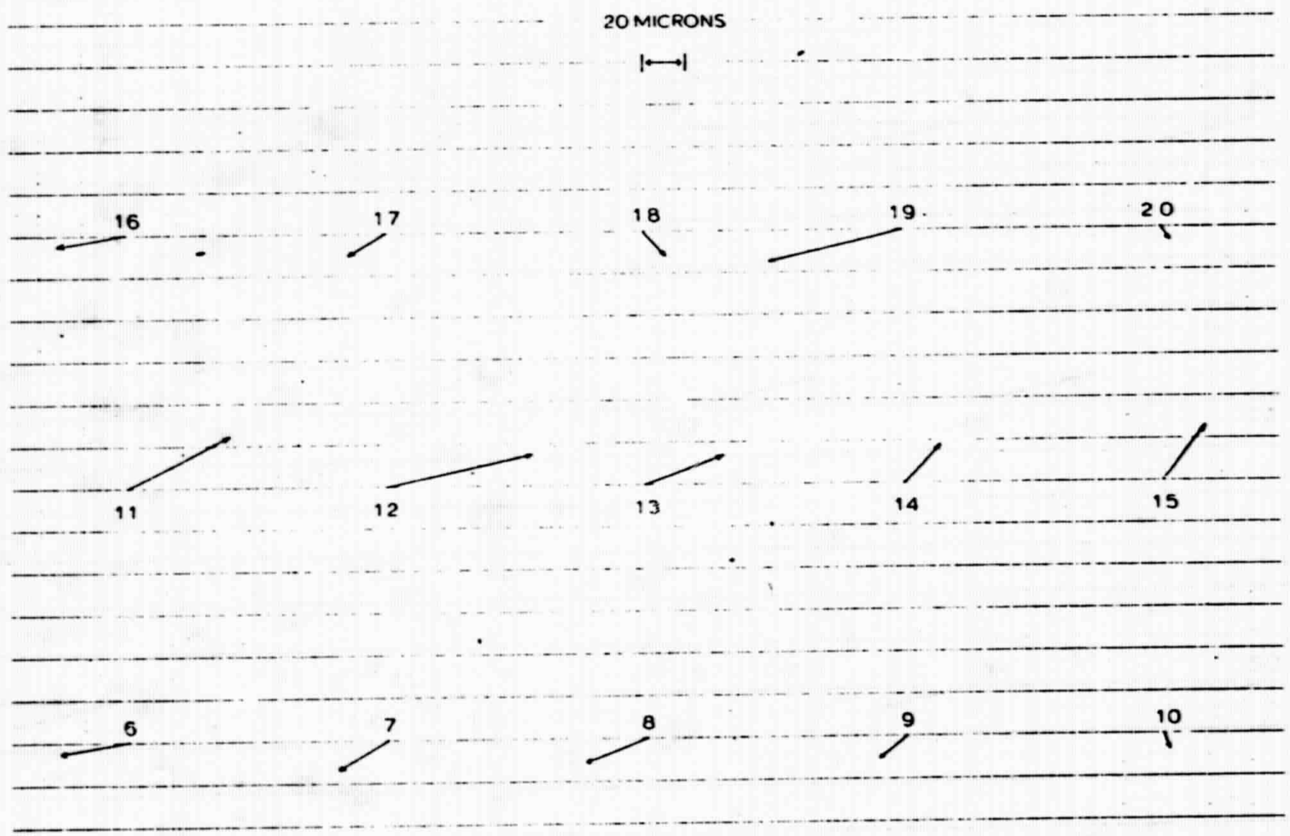


Figure 57. Pre-Orbiter - Arizona Test Area subframes. Plate 3 systems analysis.

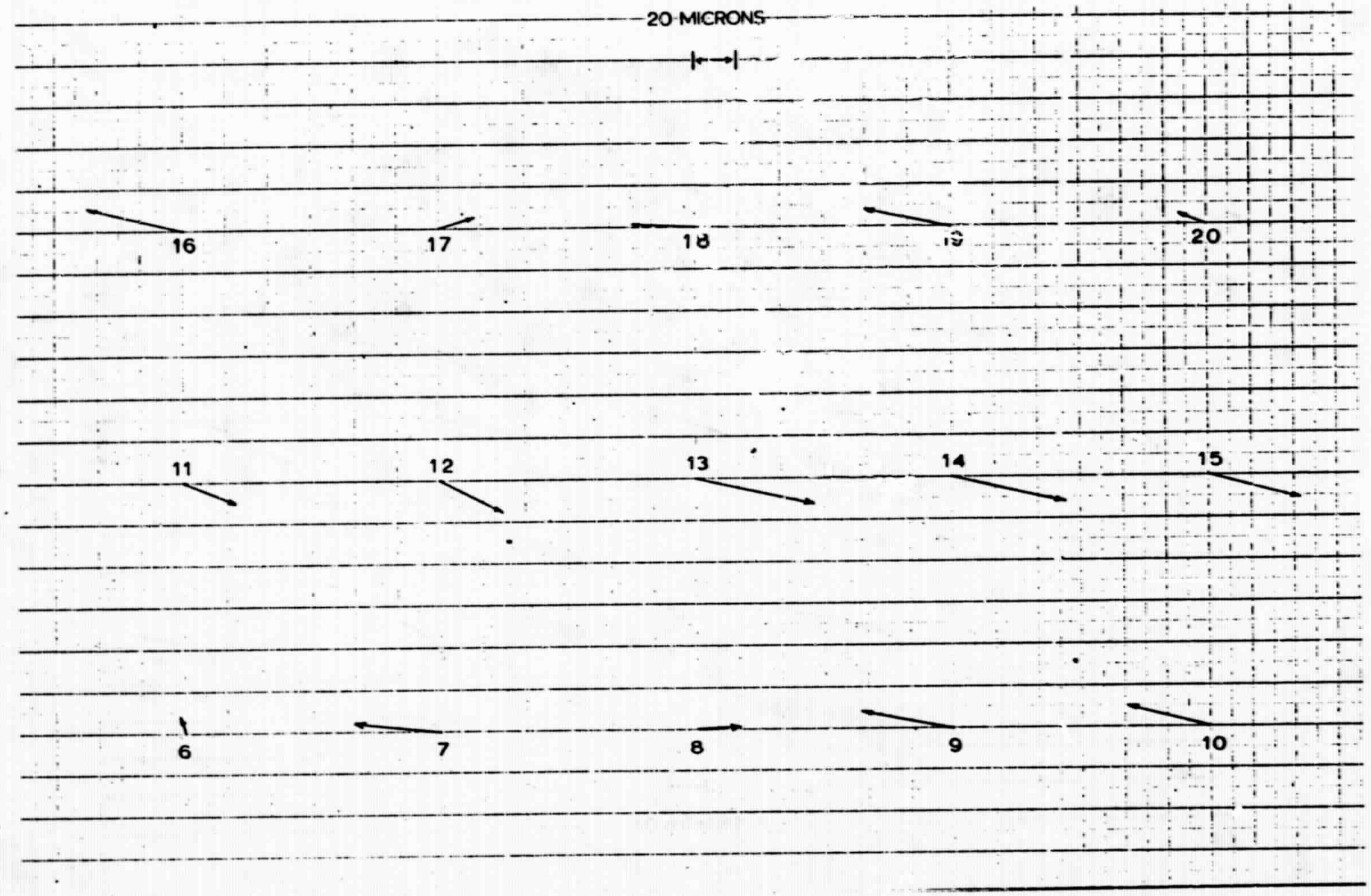


Figure 58. Pre-Orbiter - Arizona Test Area subframes. Plate 4 systems analysis.

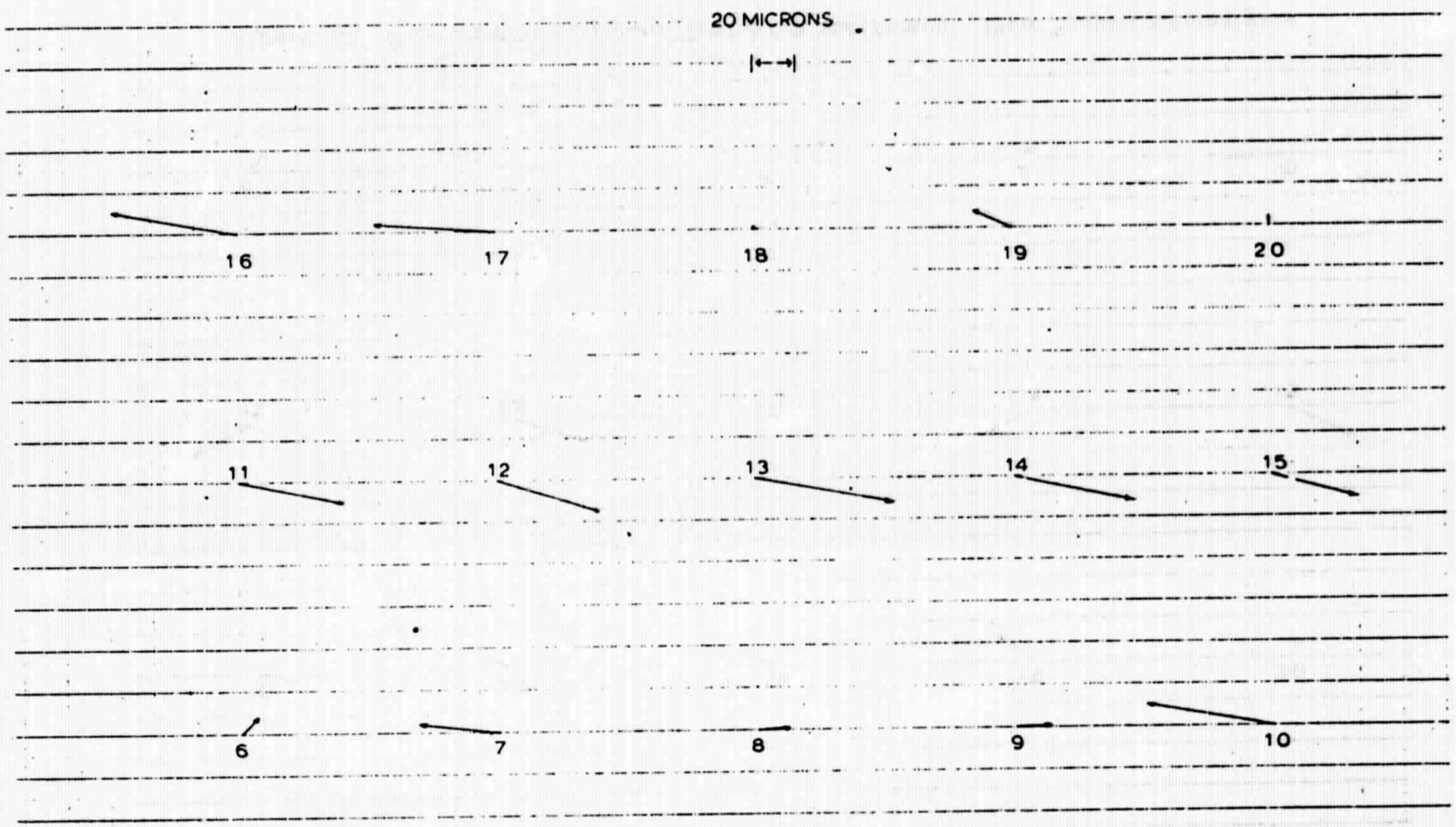


Figure 59. Pre-Orbiter - Arizona Test Area subframes. Plate 4A systems analysis.

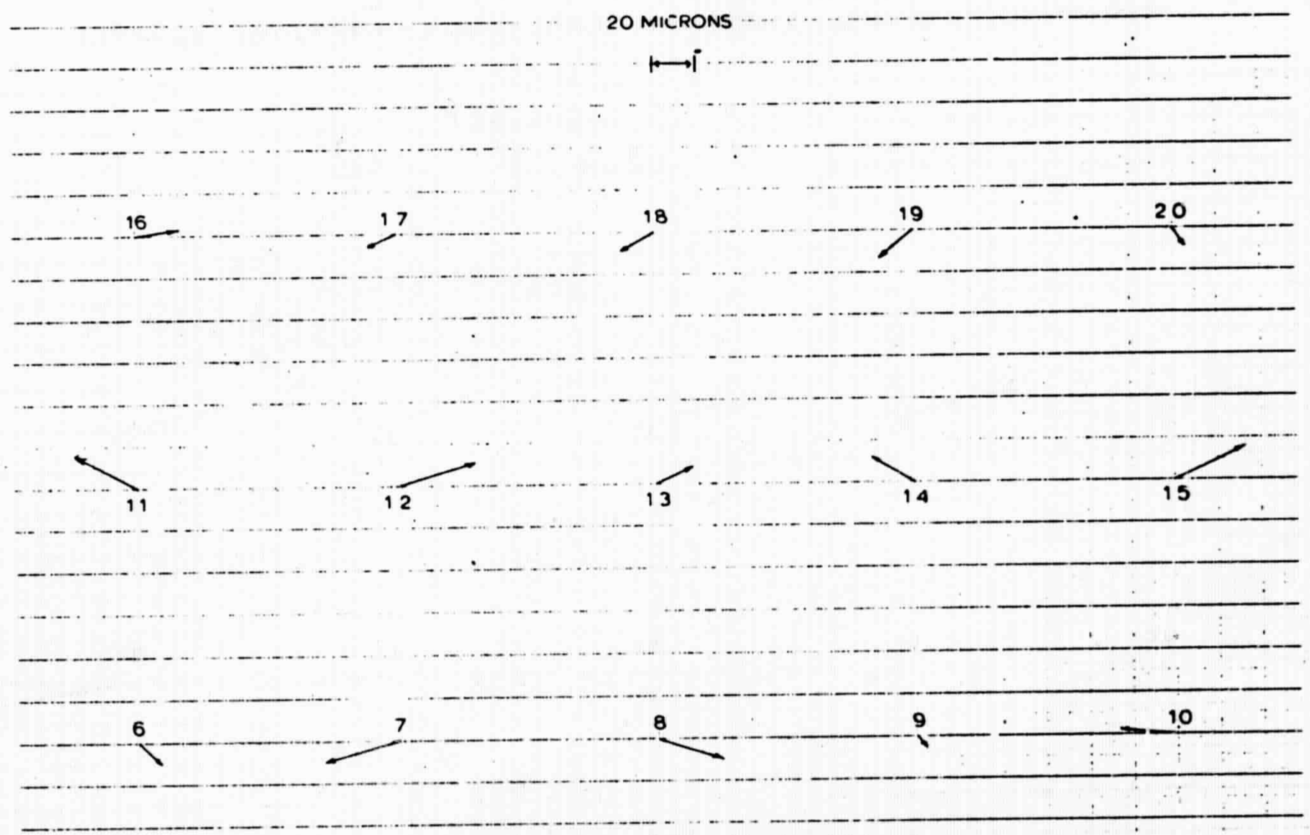
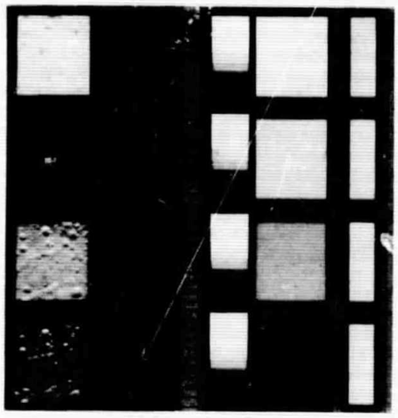


Figure 60. Pre-Orbiter - Arizona Test Area subframes. Plate 5 systems analysis.

GOLDSTONE TARGET PLATE



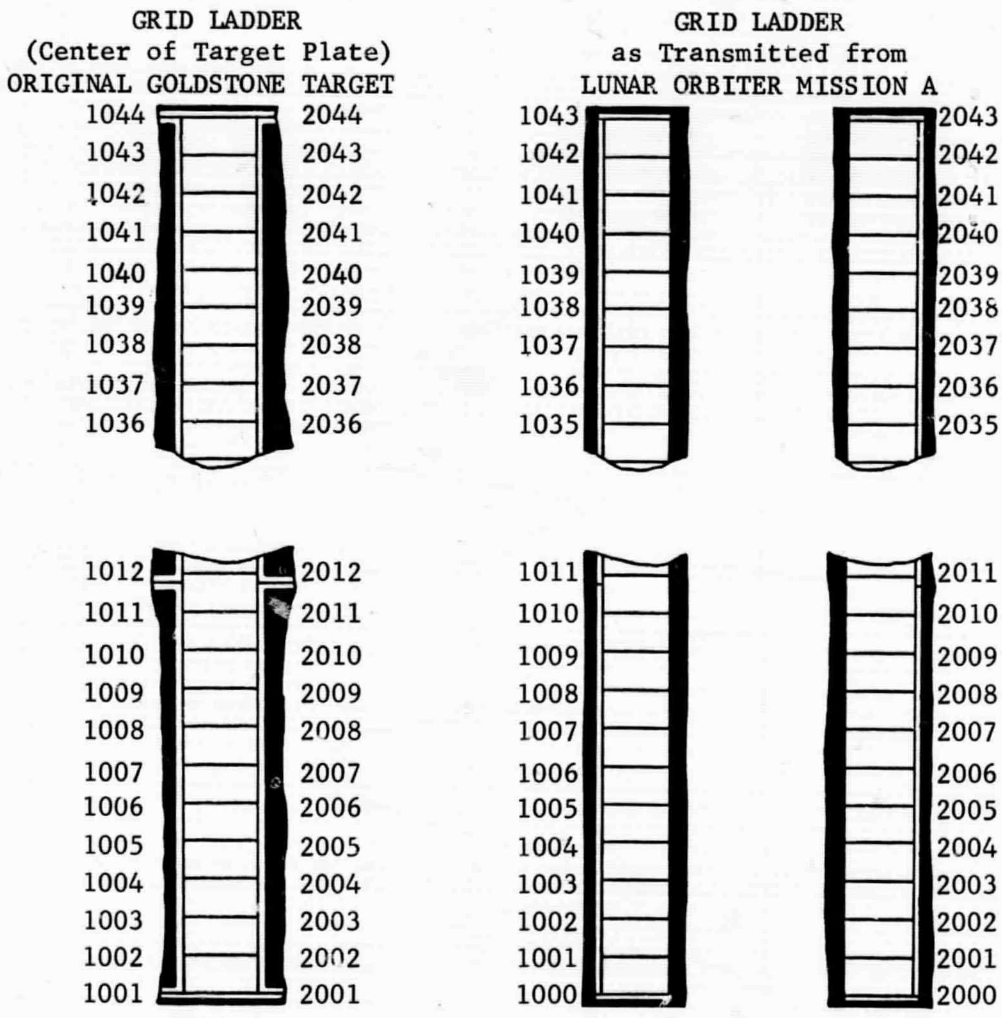


Figure 61. Goldstone grid ladder numbering system.

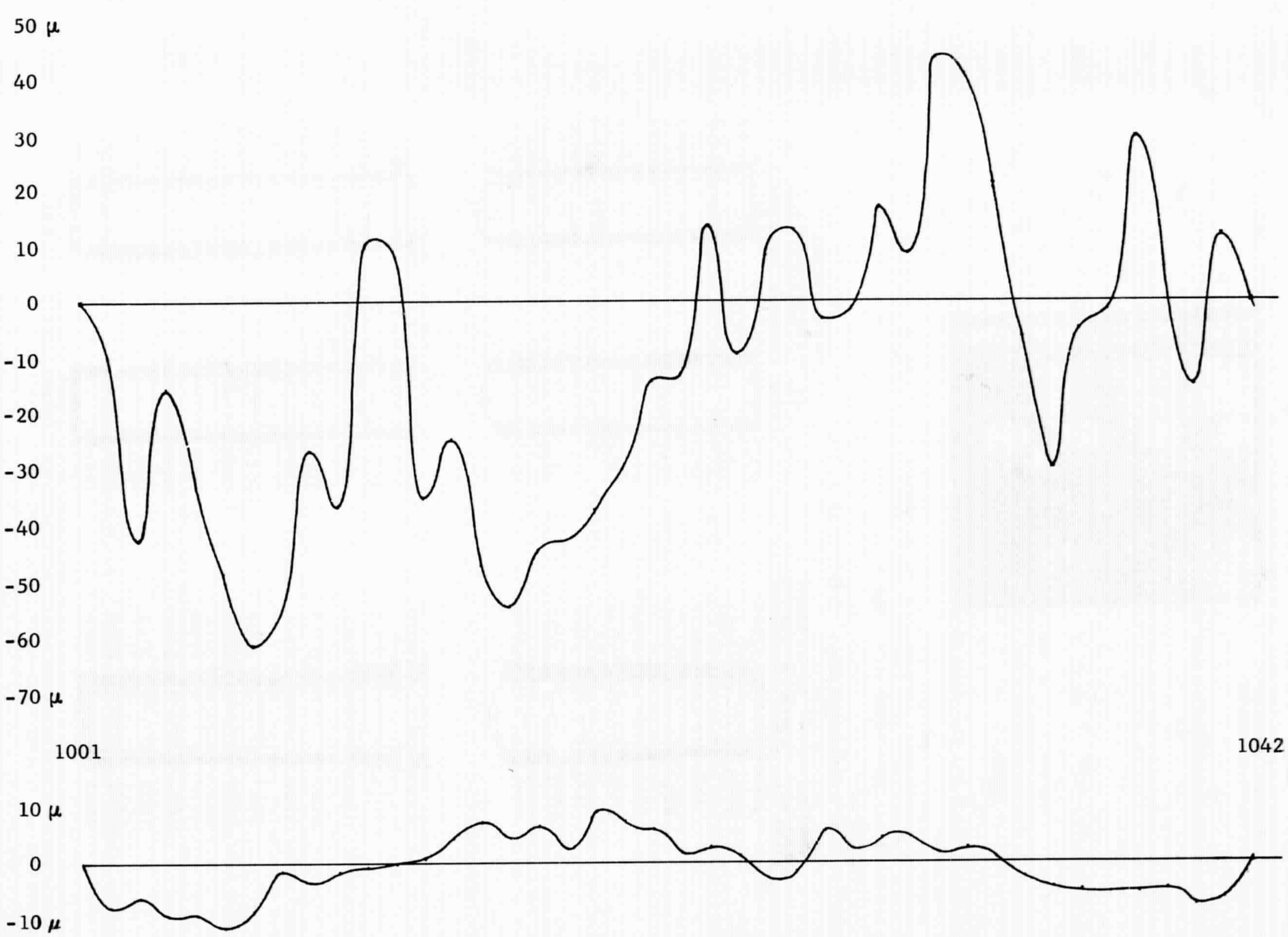


Figure 62. Goldstone grid ladder graph 1001-1042 of framelet 533.

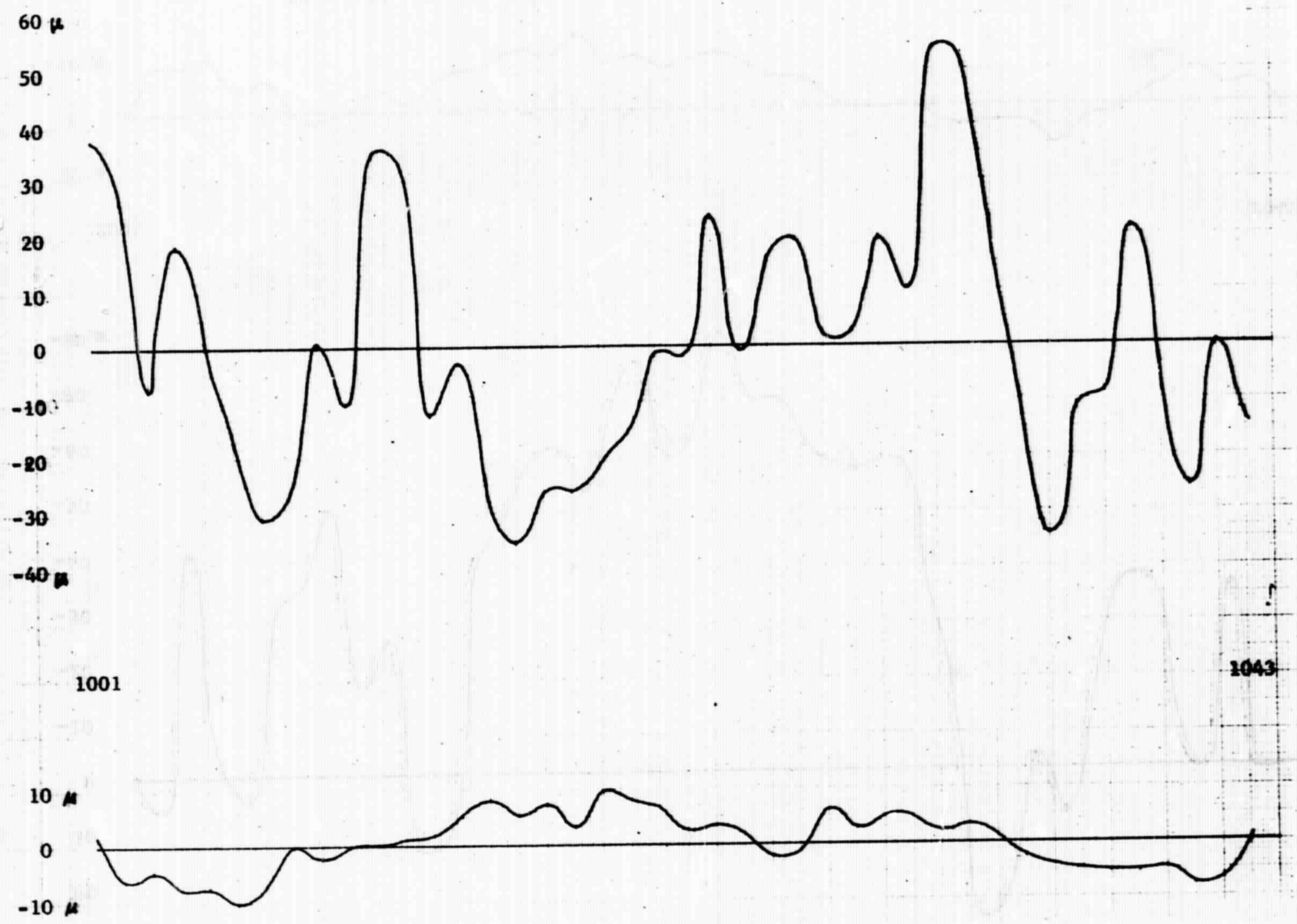


Figure 63. Goldstone grid ladder graph 1001-1043 of framelet 534.

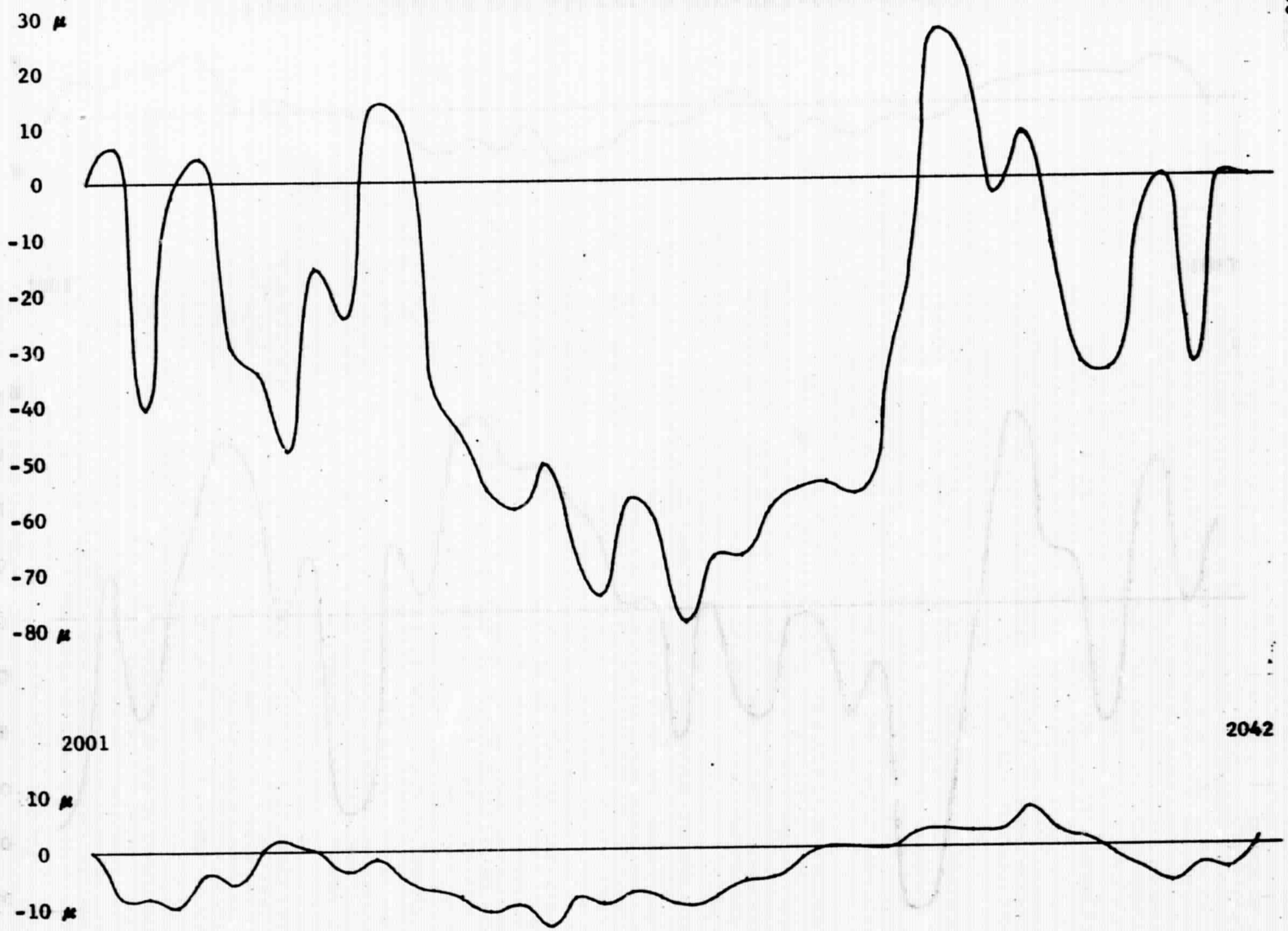


Figure 64. Goldstone grid ladder graph 2001-2042 of framelet 533.

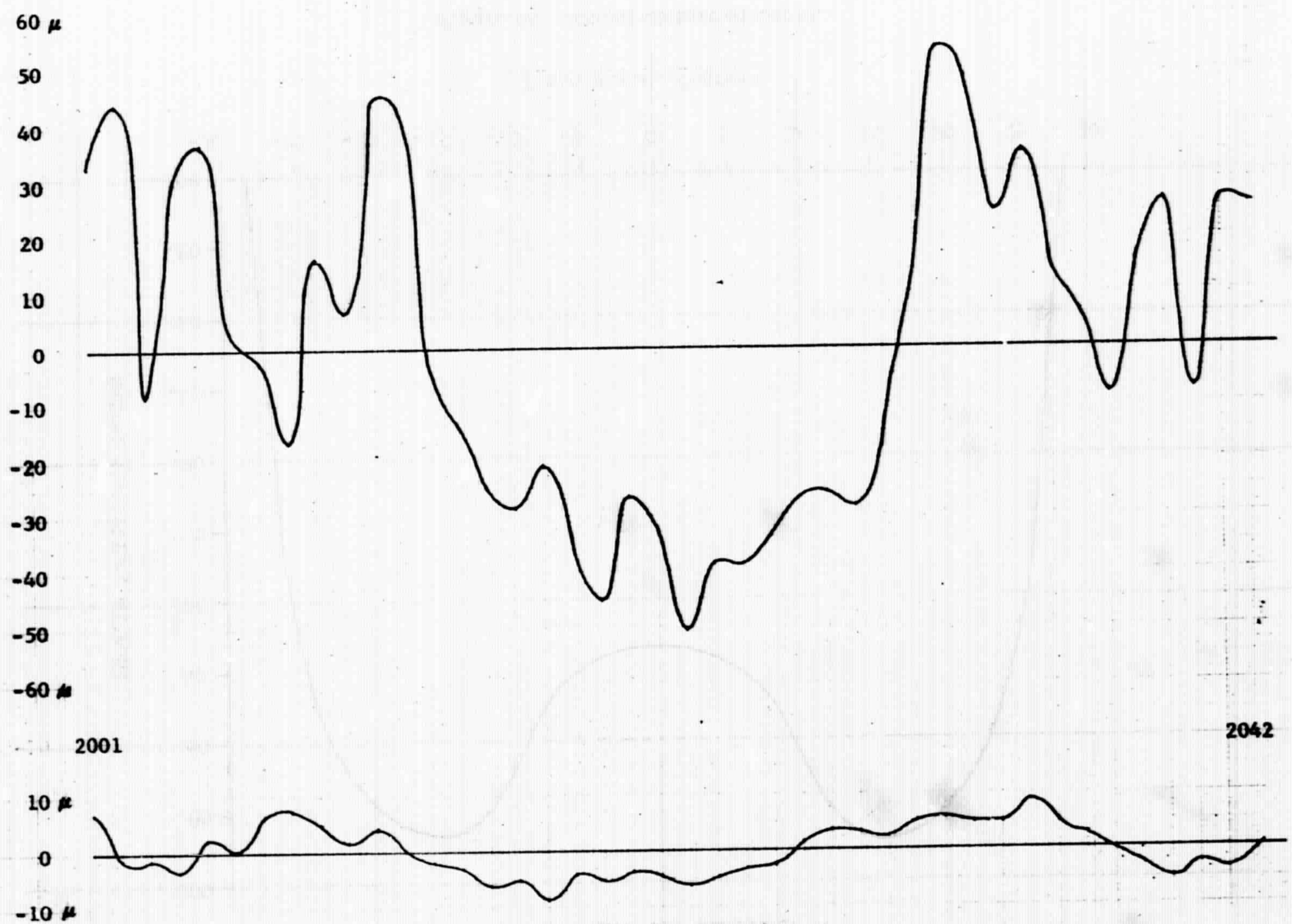


Figure 65. Goldstone grid ladder graph 2001-2042 of framelet 534.

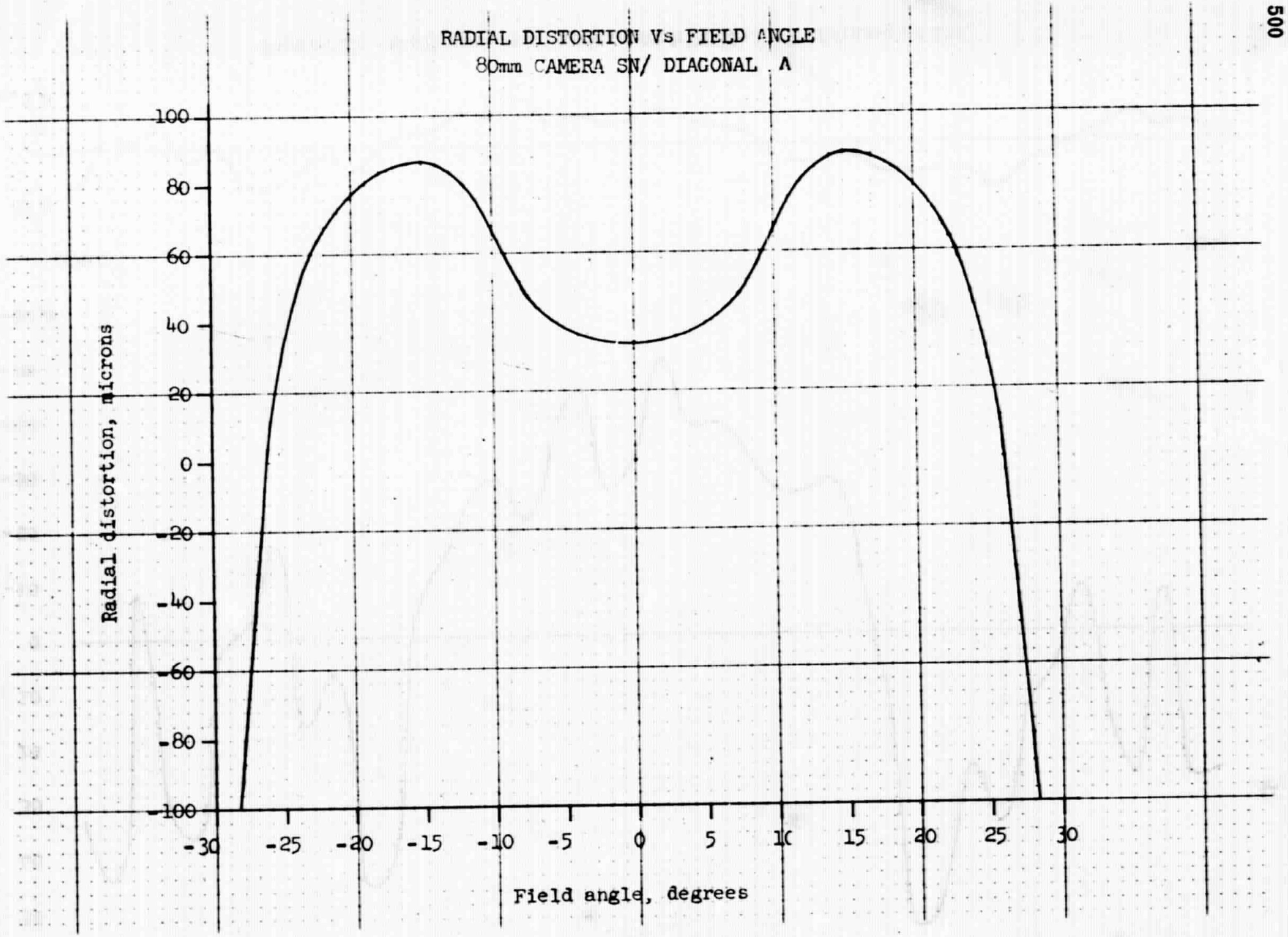


Figure 66. Radial distortion curve.

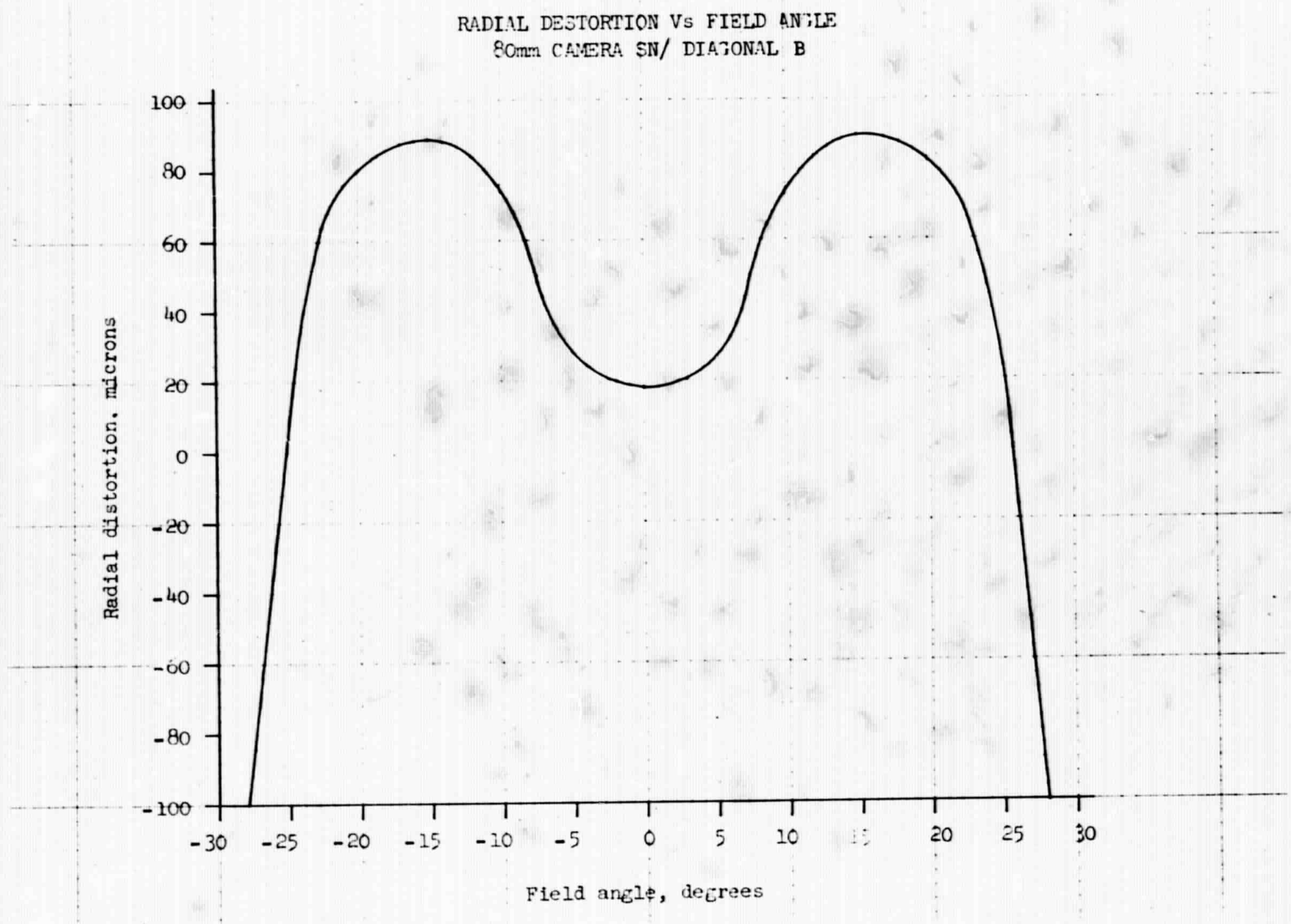


Figure 66 - Continued.

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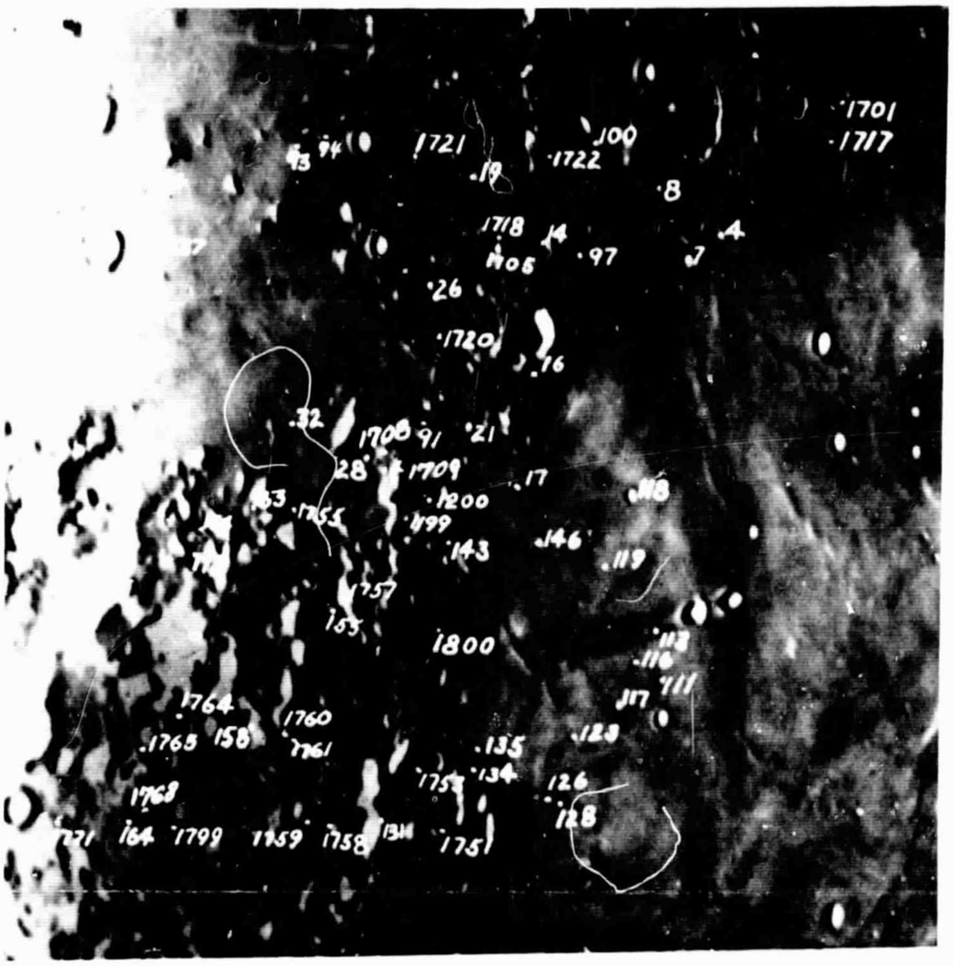
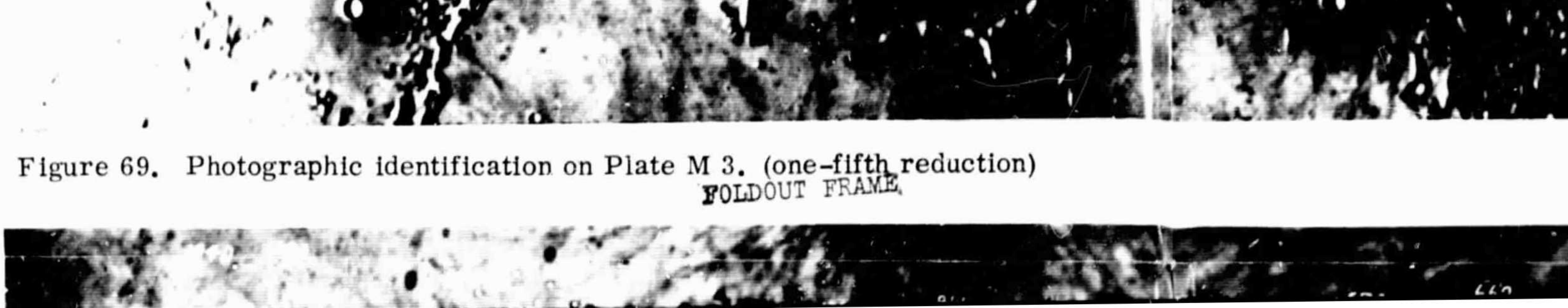


Figure 67. Photographic identification on Plate M 1.

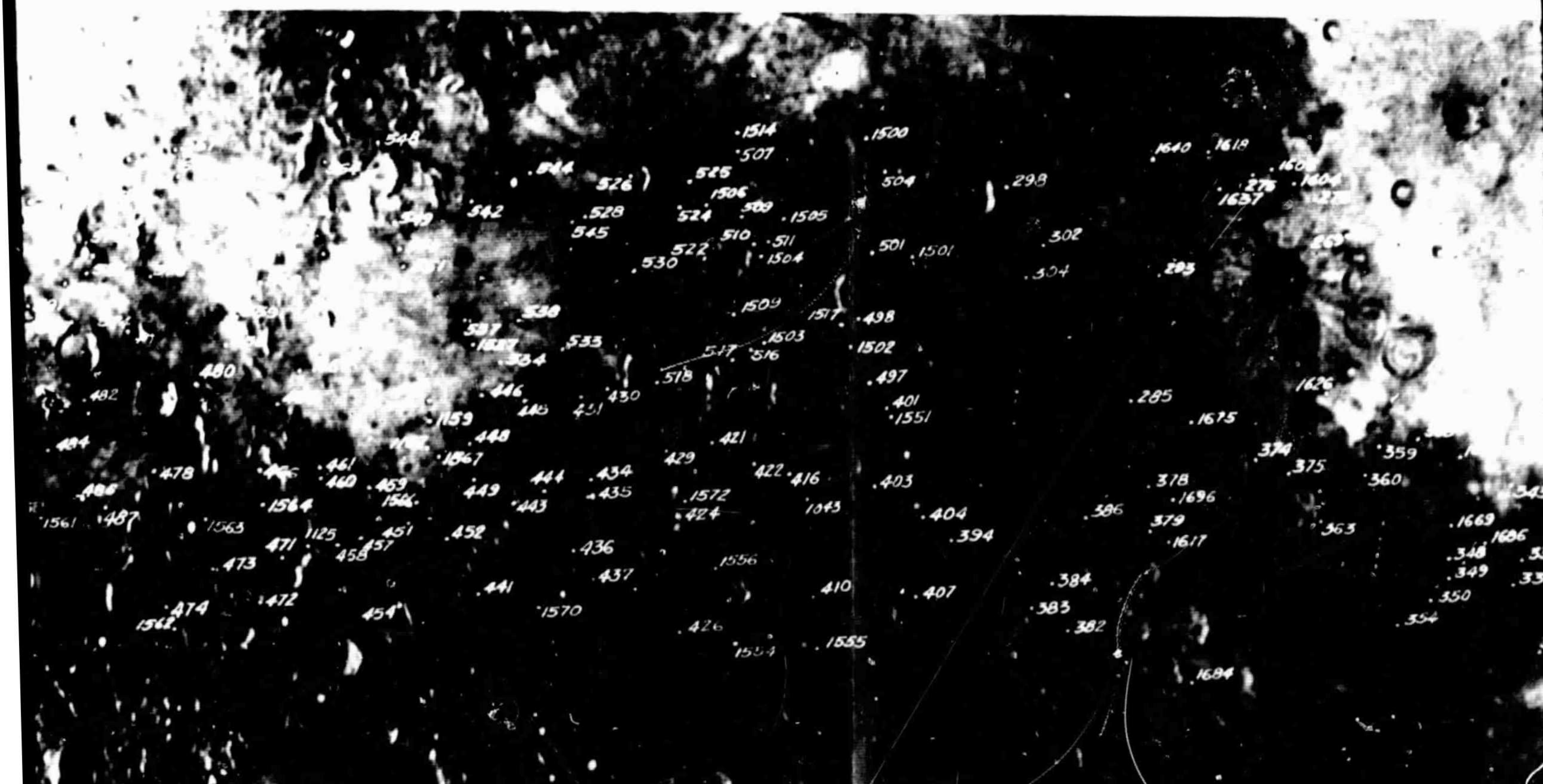
Figure 68. Photogr

Figure 69. Photographic identification on Plate M 3. (one-fifth reduction)

FOLDOUT FRAME



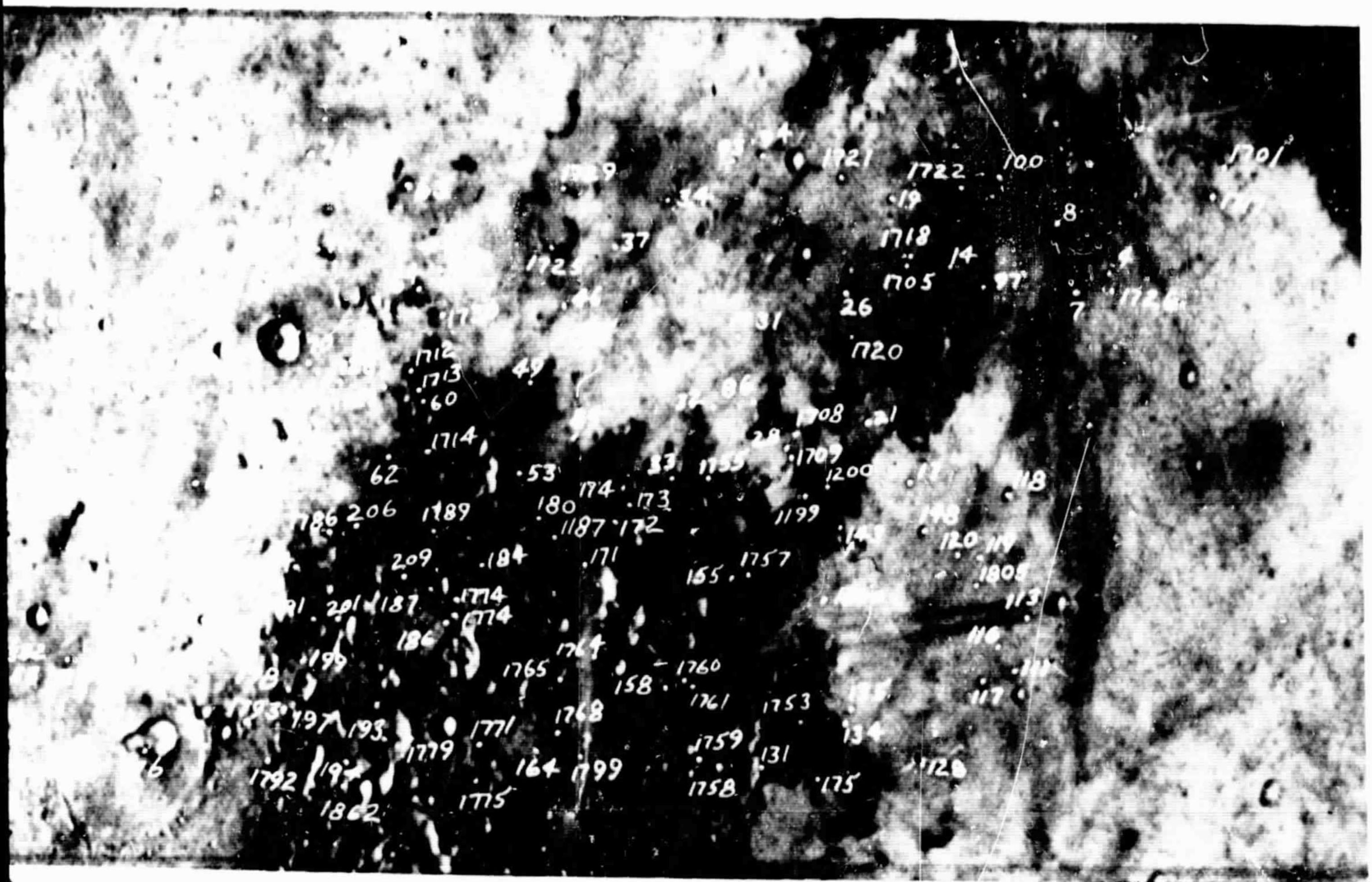
68. Photographic identification on Plate M 2.

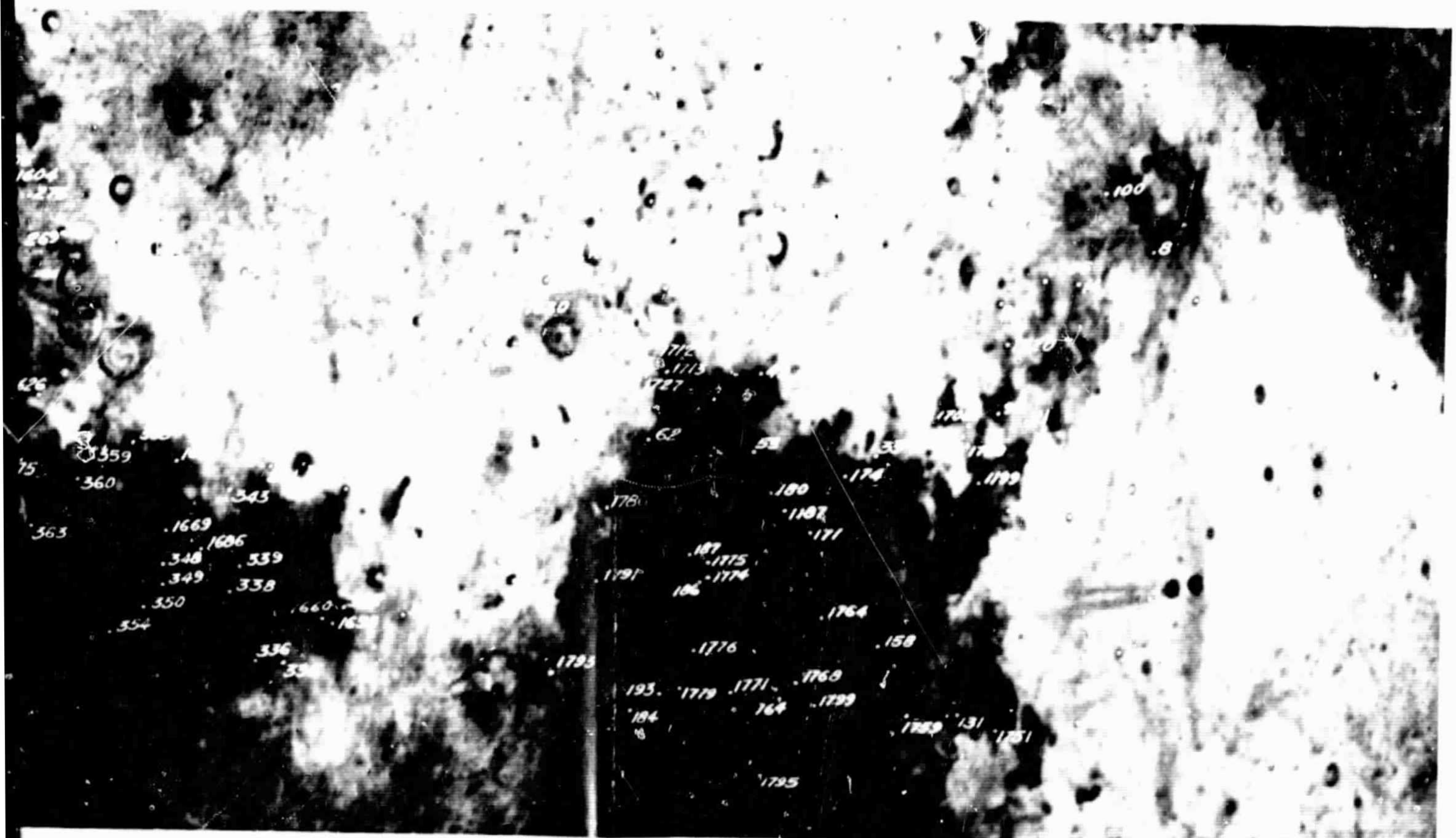


FOLDOUT FRAME

FOLDOUT FRAME 3

UNAR PHOTOGRAPHS





DOUT FRAME

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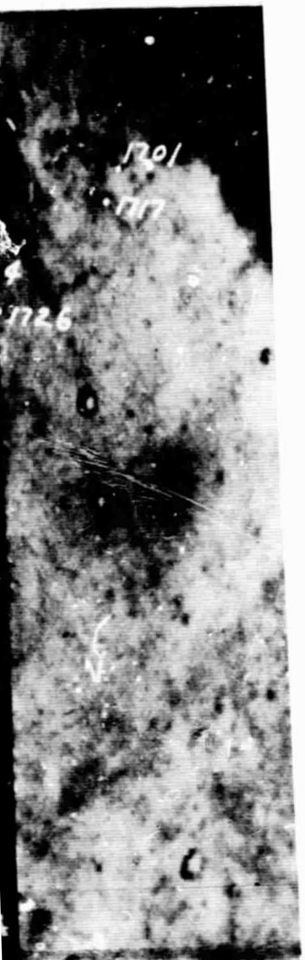


OLDOUT FRAME

FOLDOUT FRAME

Figure 69. Photographic identification on Plate M 3. (one-fifth reduction)

FOLDOUT FRAME

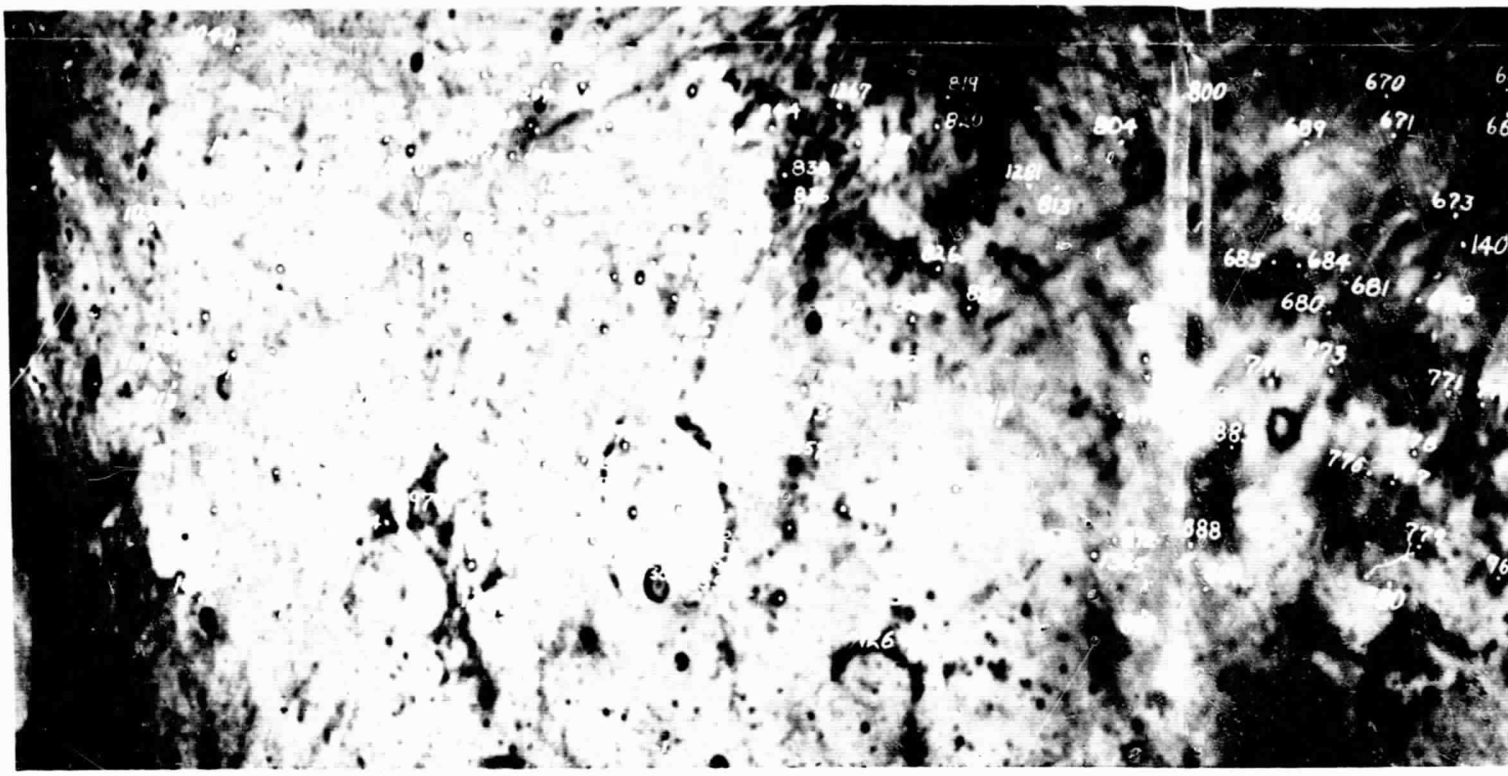


Figure 70. Photographic identification on Plate M 4A. (one-fifth reduction)

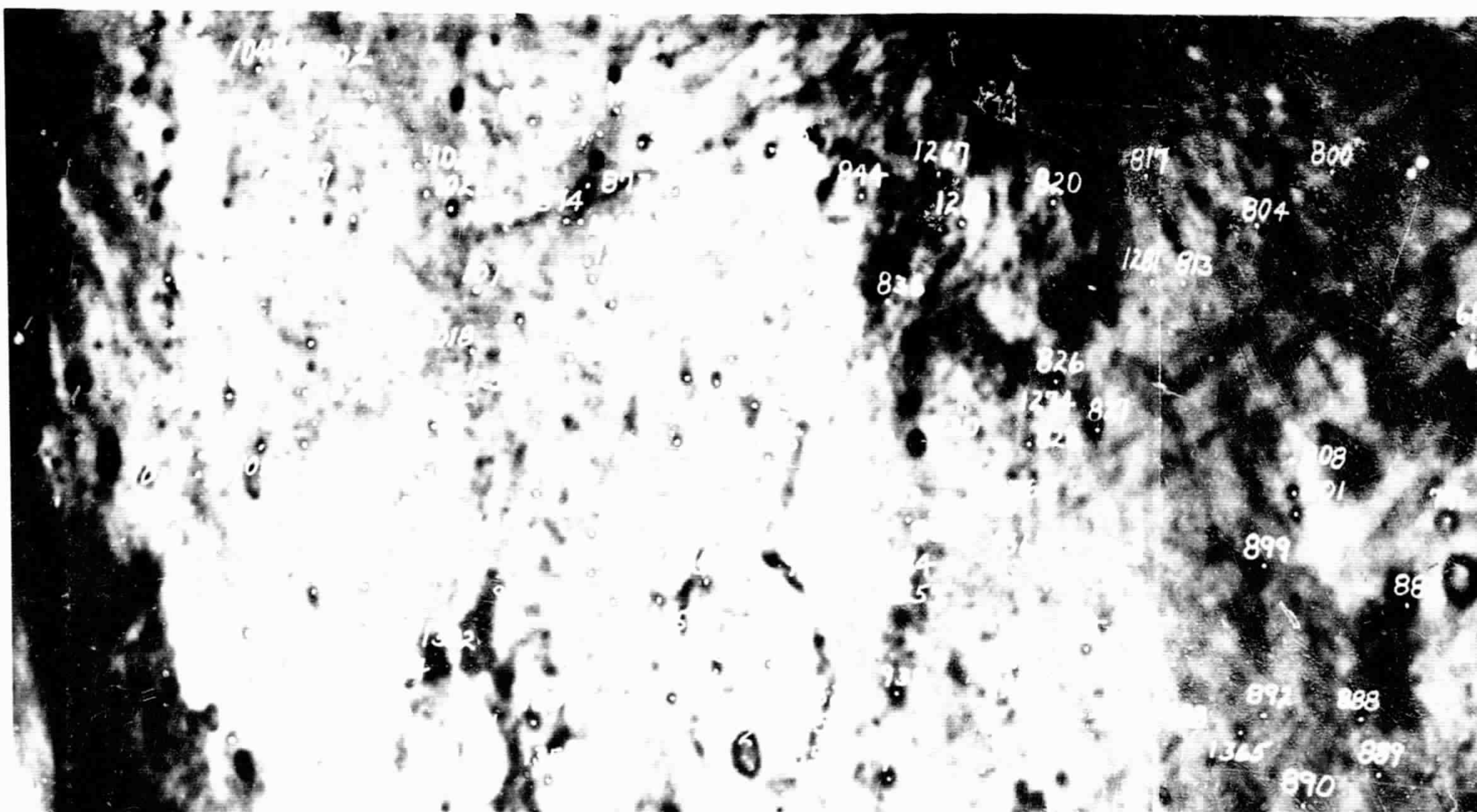
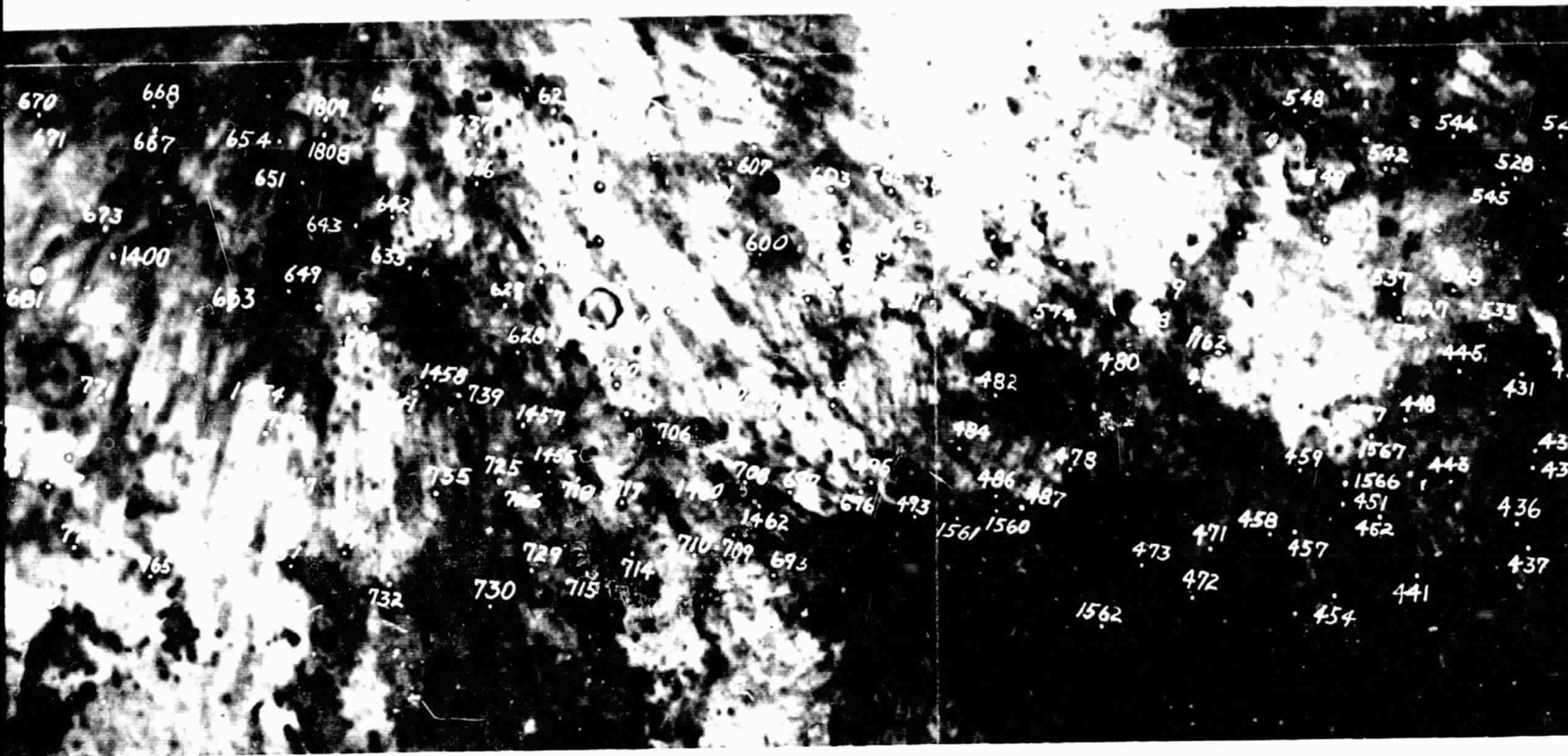


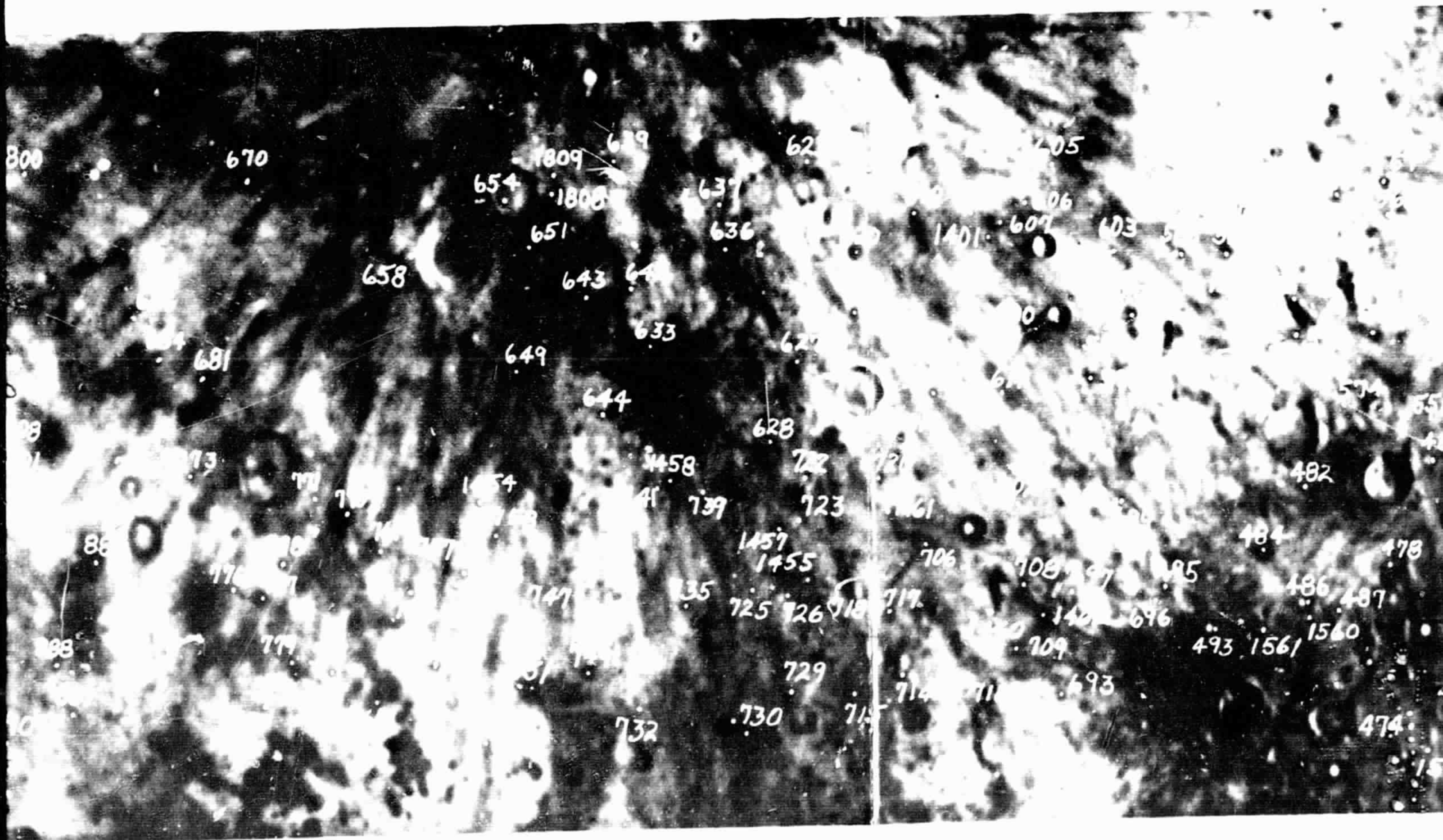
Figure 71. Photographic identification on Plate M 5.

FOLDOUT FRAME 5

FOLDOUT FRAME

FOLDOUT FRAME





FOLDOUT FRAME 6

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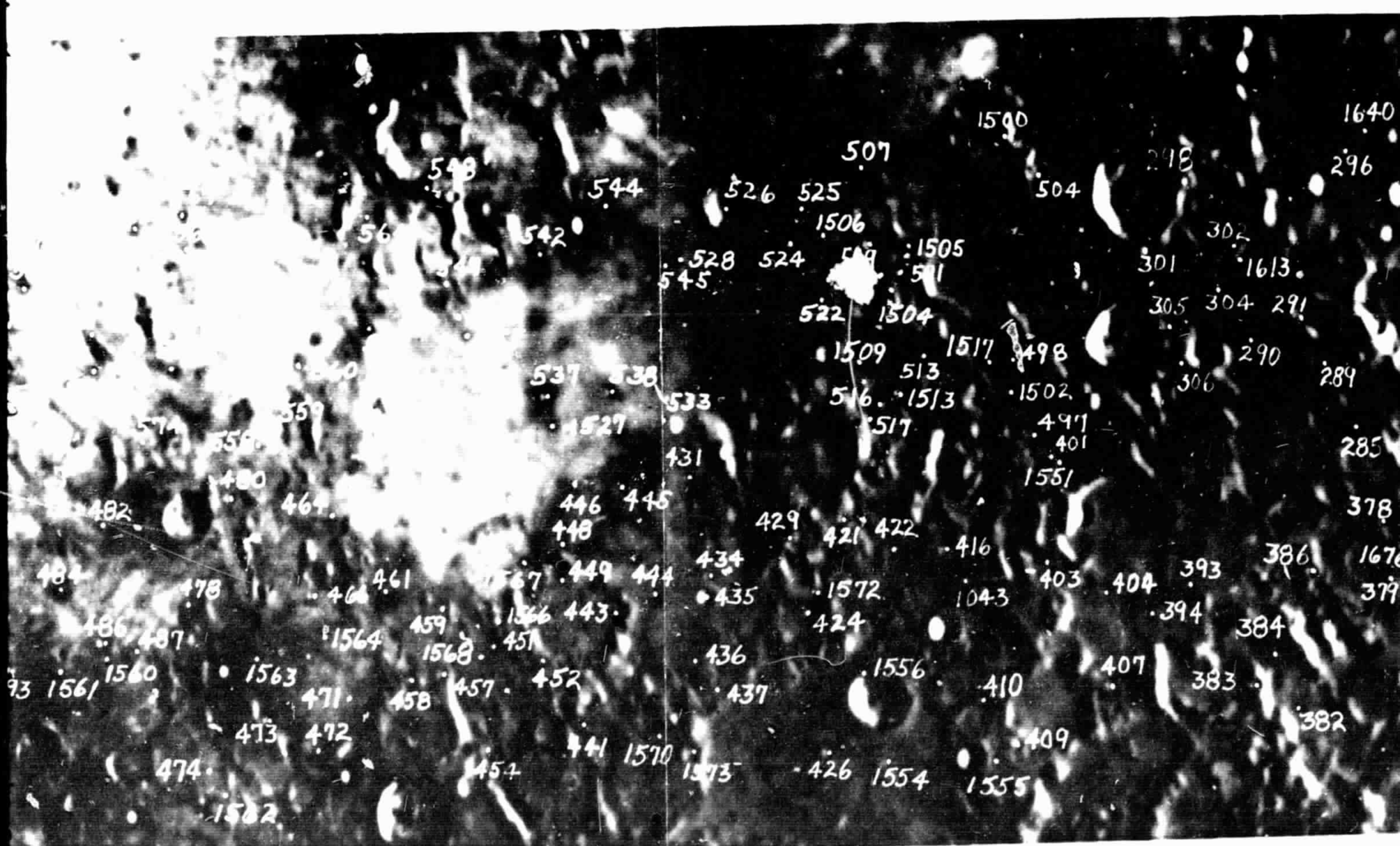

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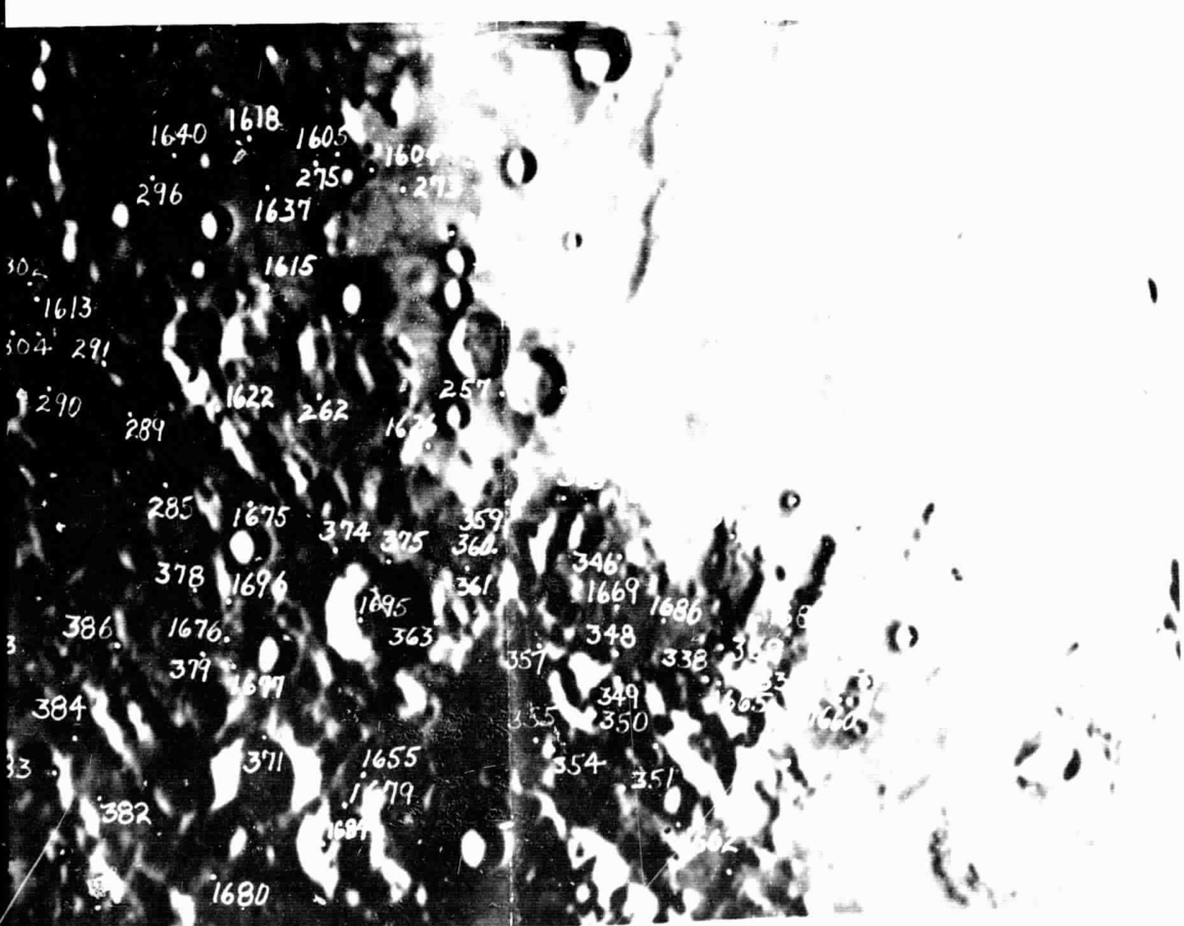

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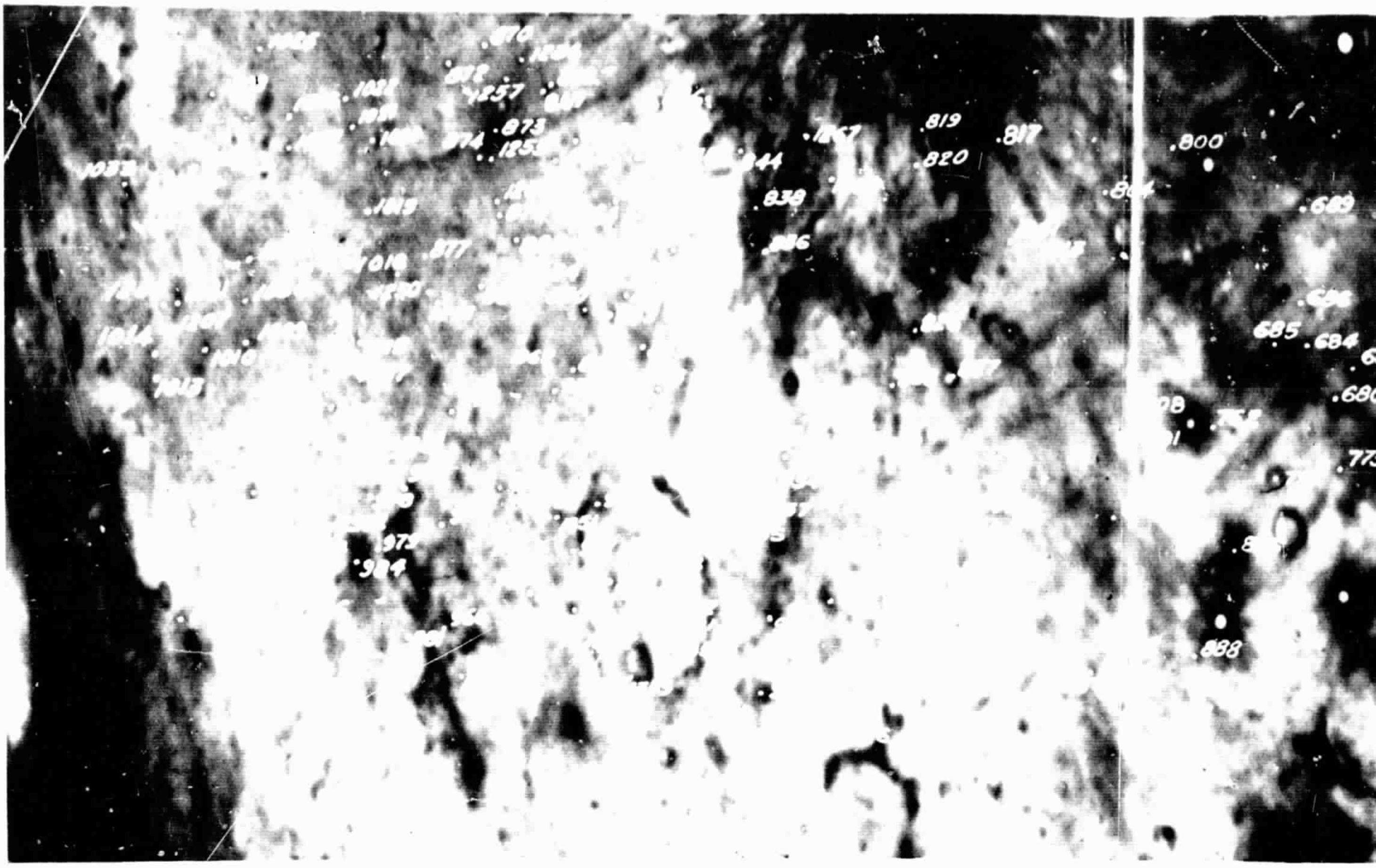

Figure 72. Photographic identification on Plate M 6.

Figure 73. Photographic identification on Plate M 7.

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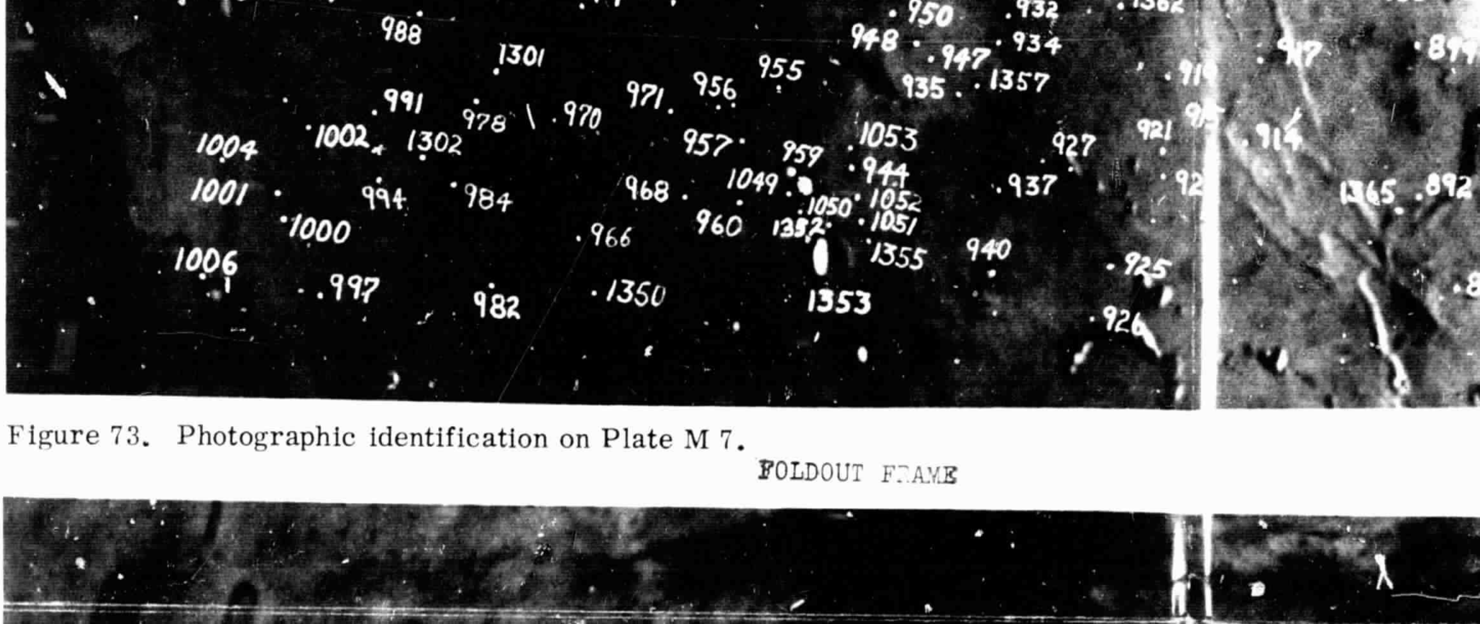

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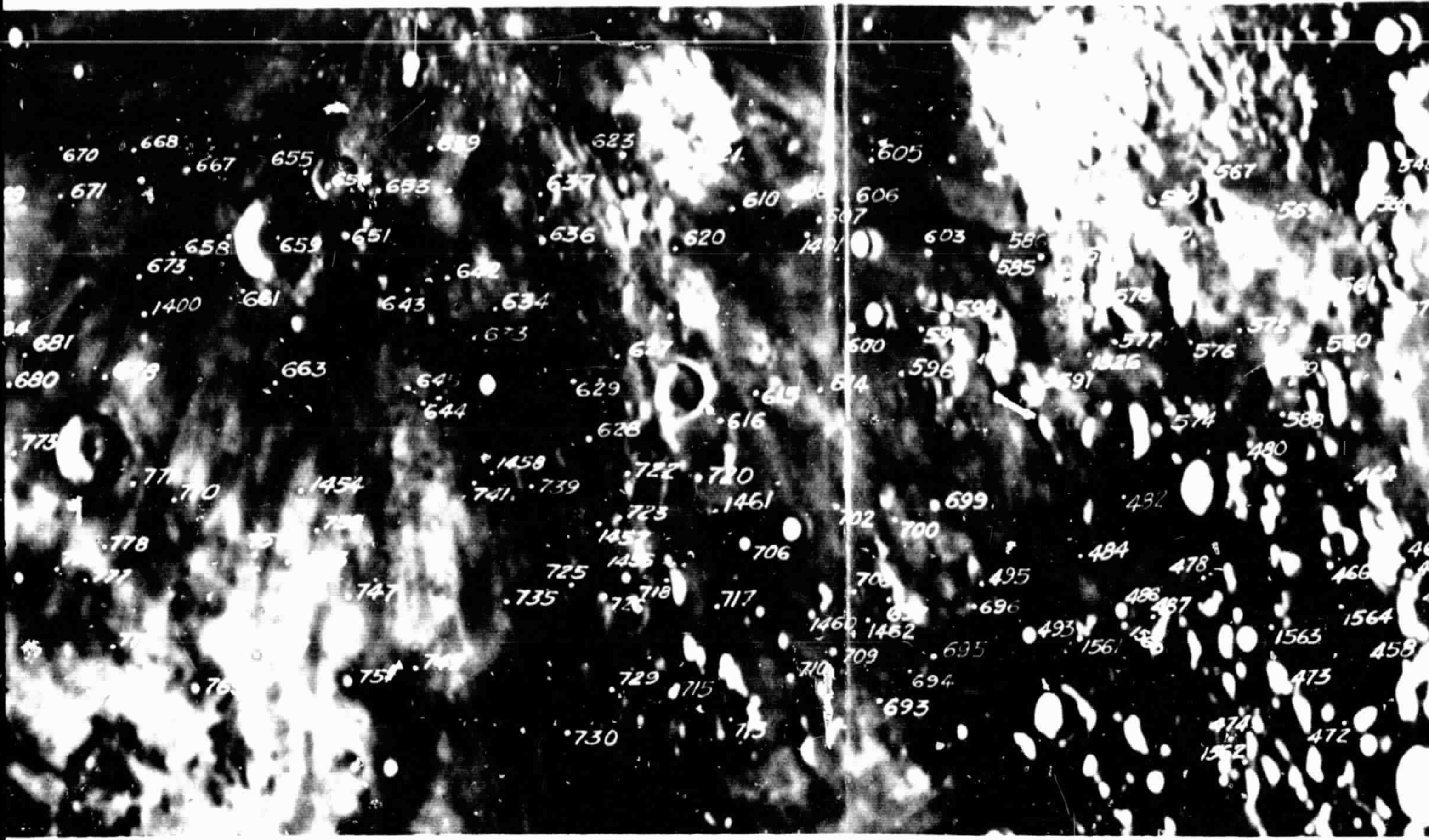

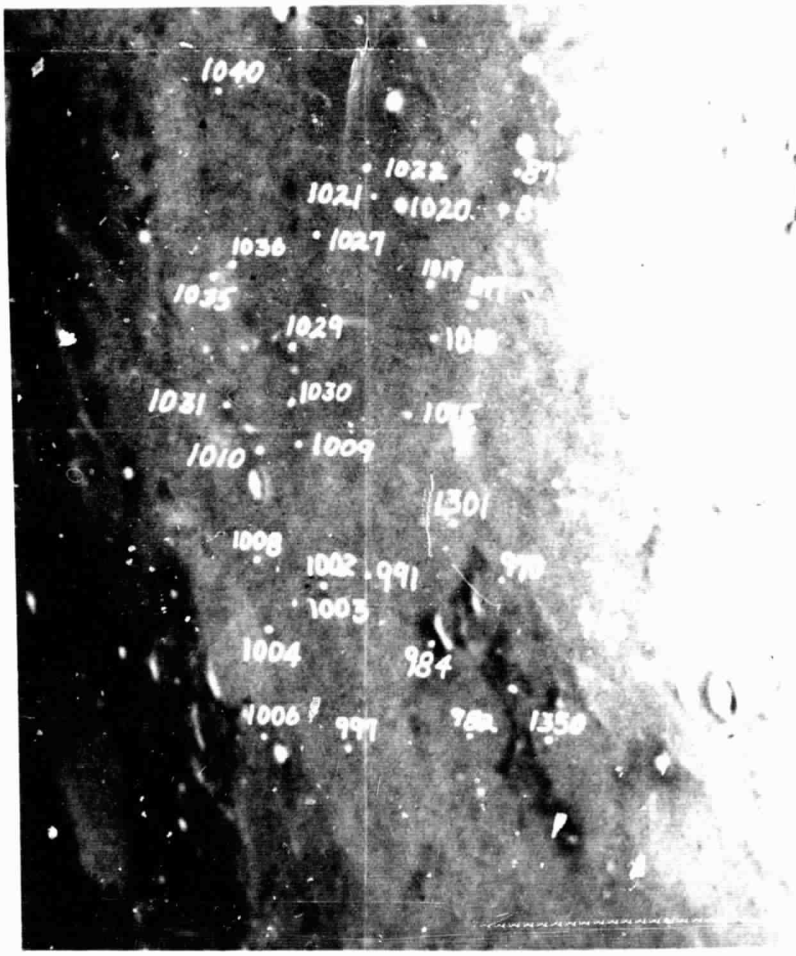

Figure 74. Photographic identification on Plate M 7A.

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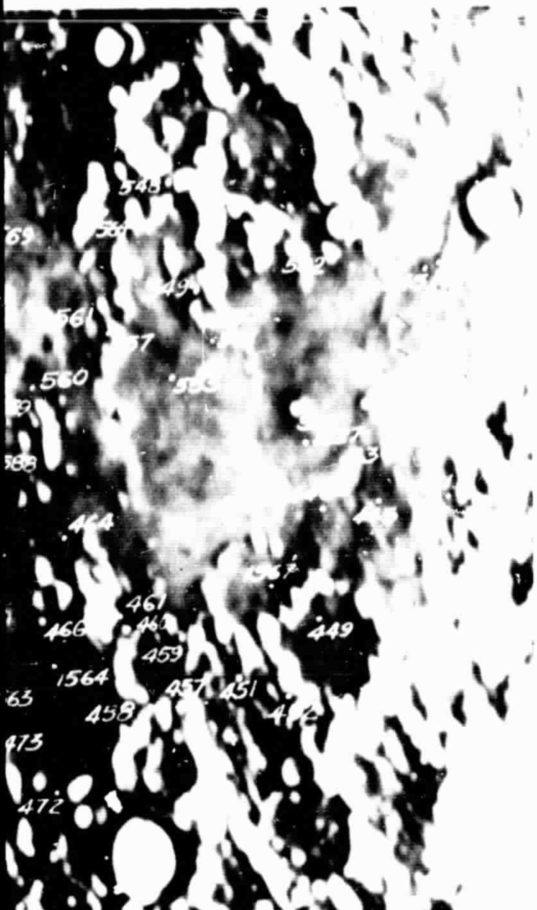

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Figure 73. Photographic identification on Plate M 7.

FOLDOUT FRAME

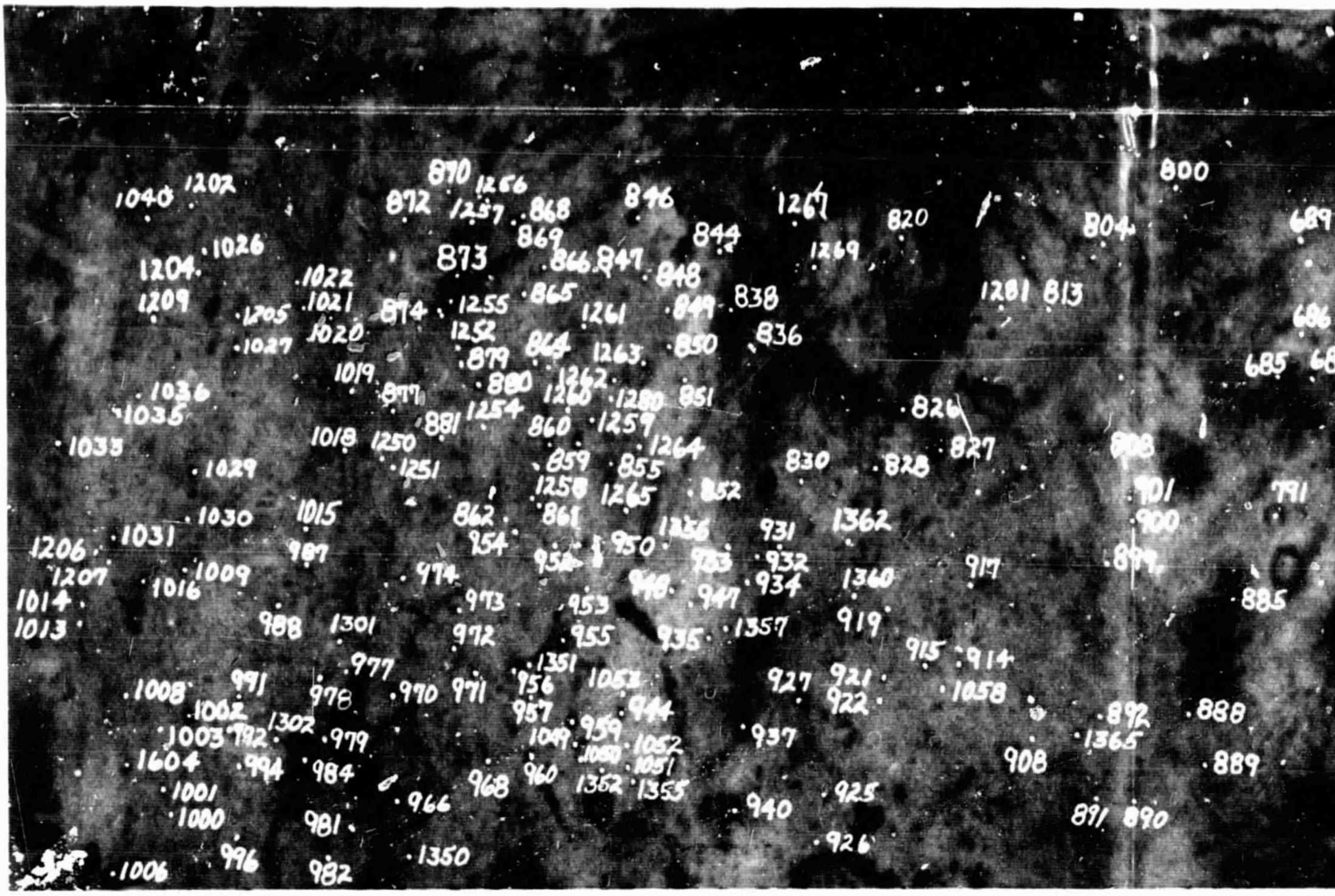

Figure 75. Photographic identification on Plate 2A.

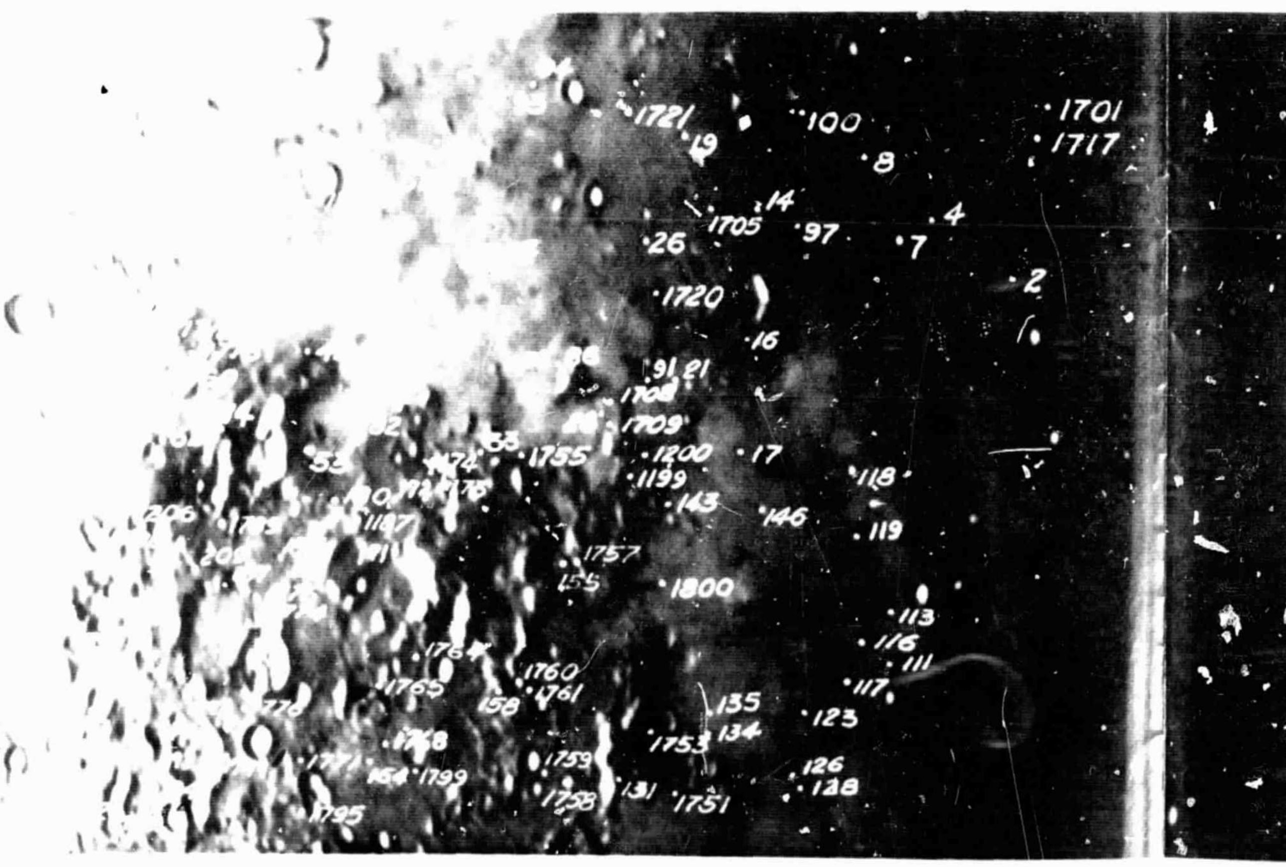

Figure 76. Photographic identification on Plate 183B.

FOLDOUT FRAME 4

Figure 74. Photographic identification on Plate M 7A.

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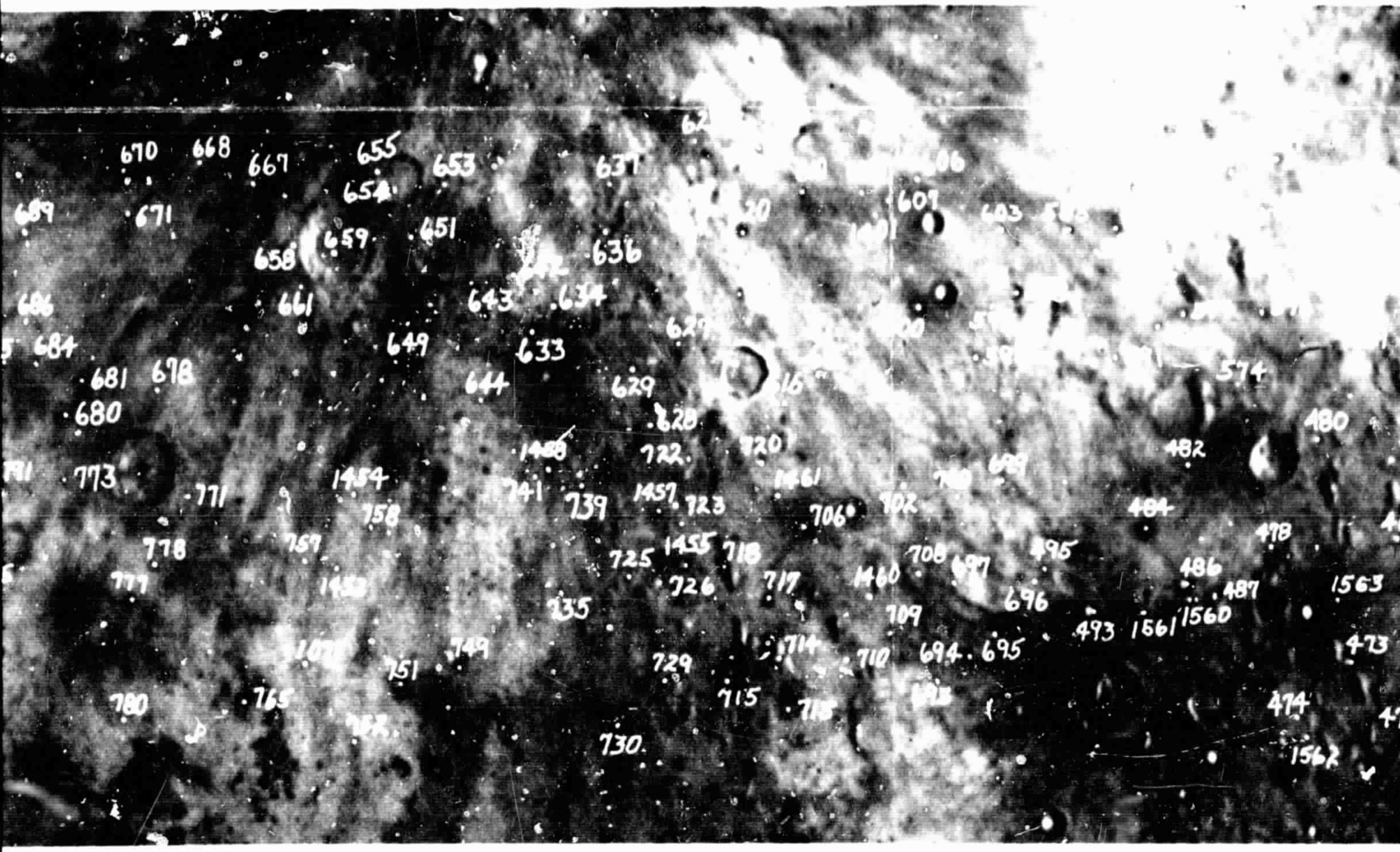

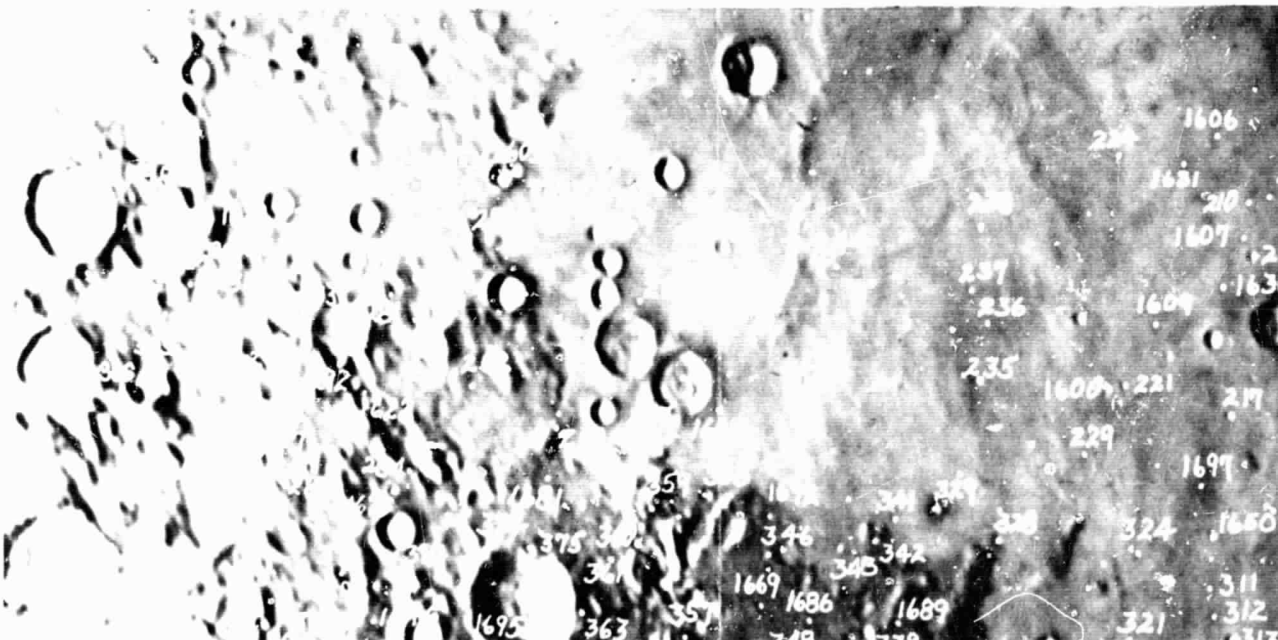

Figure 77. Photographic identification on Plate 187 1B.

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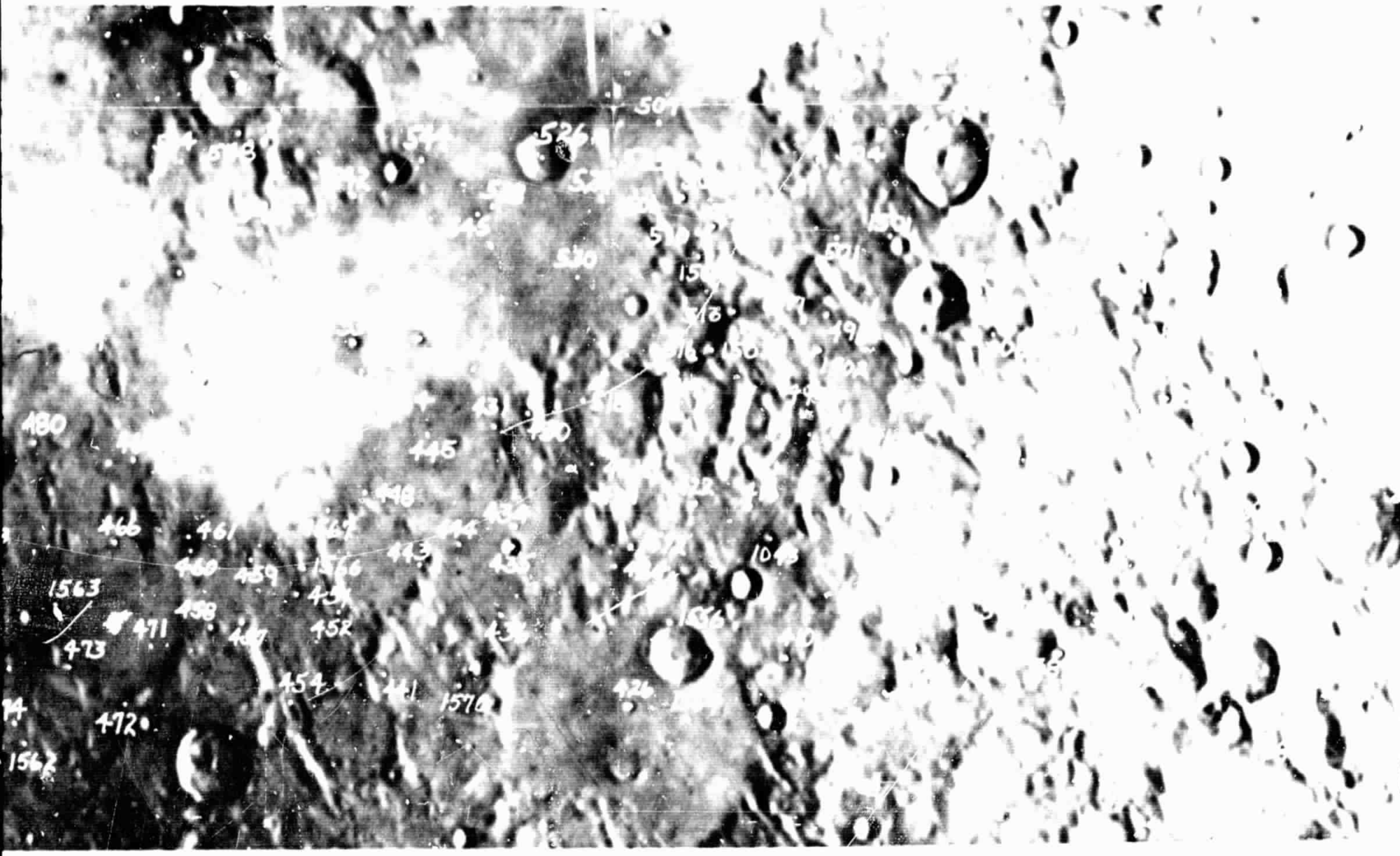
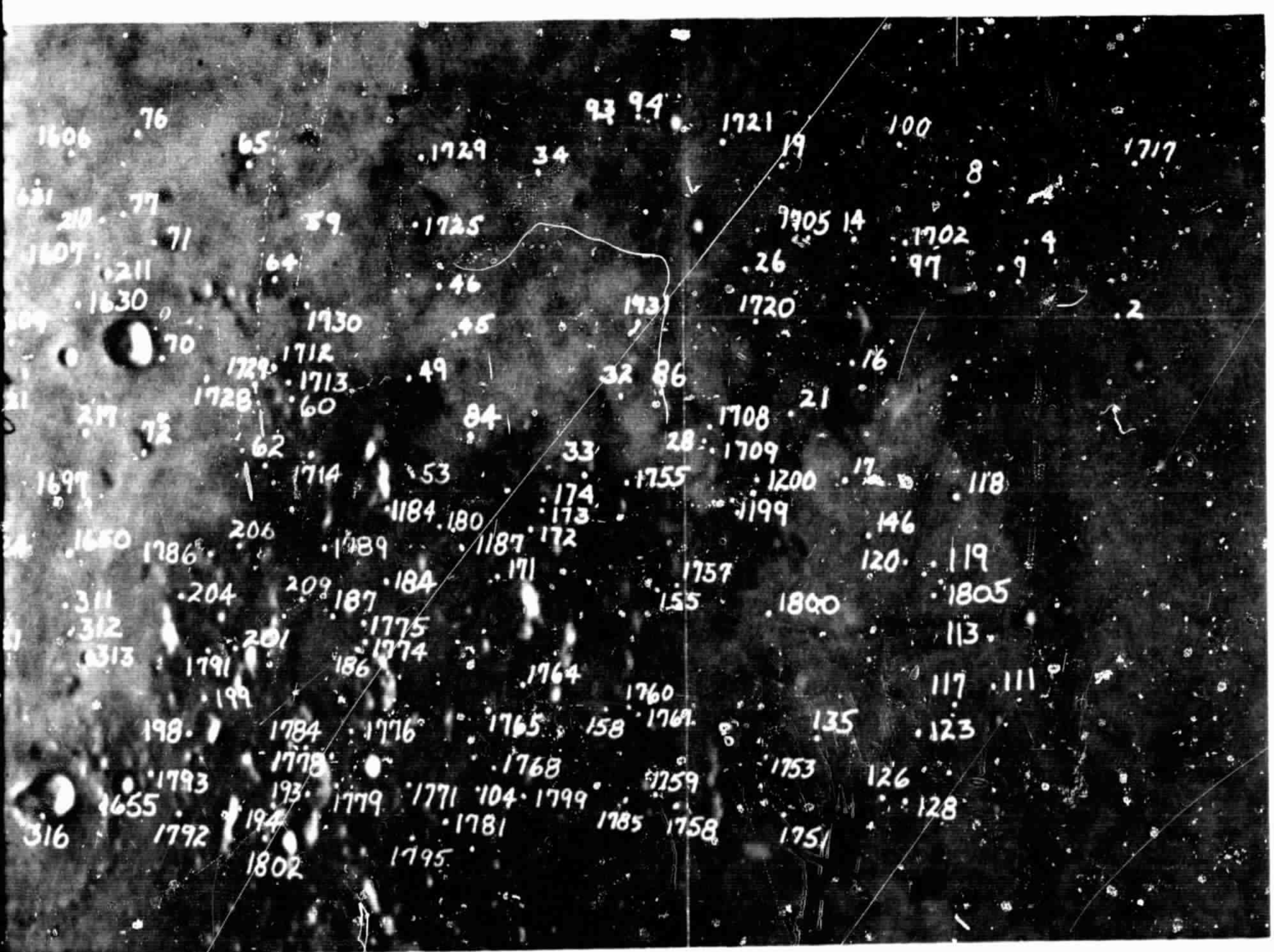
FOLDOUT FRAME





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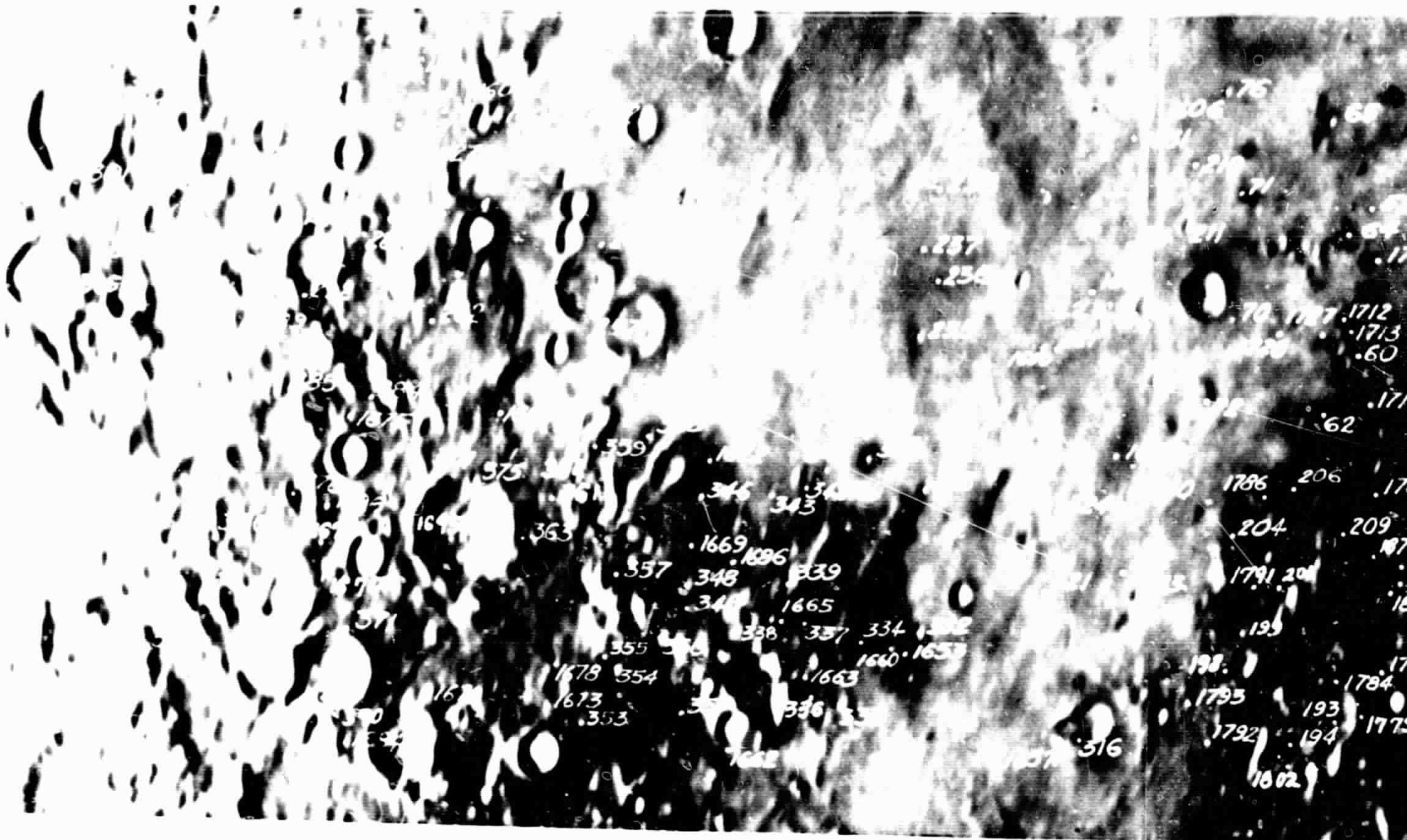


Figure 78. Photographic identification on Plate 190A.

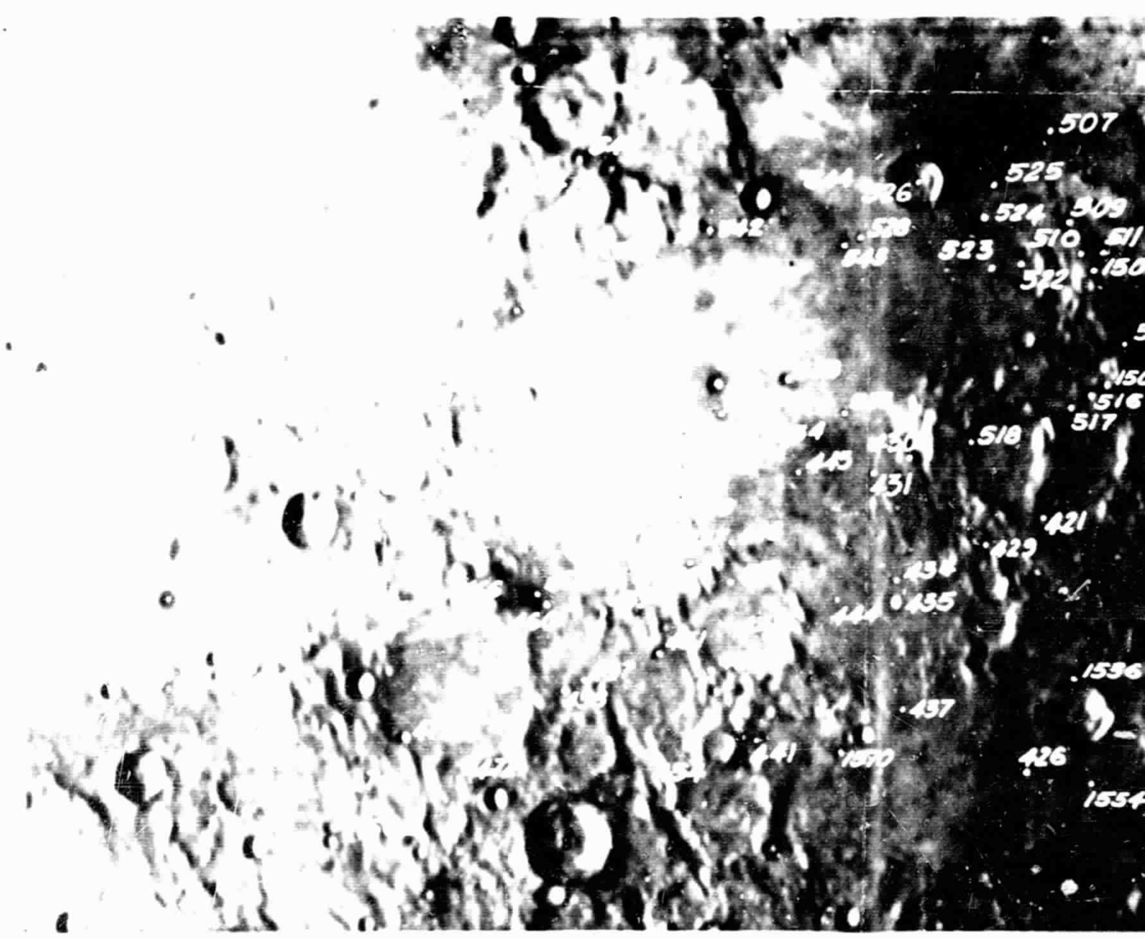
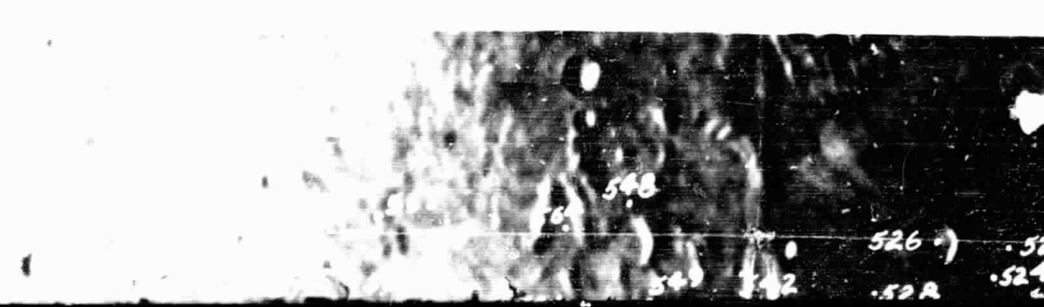


Figure 79. Photographic identification on Plate 250C. FOLDOUT FRAME



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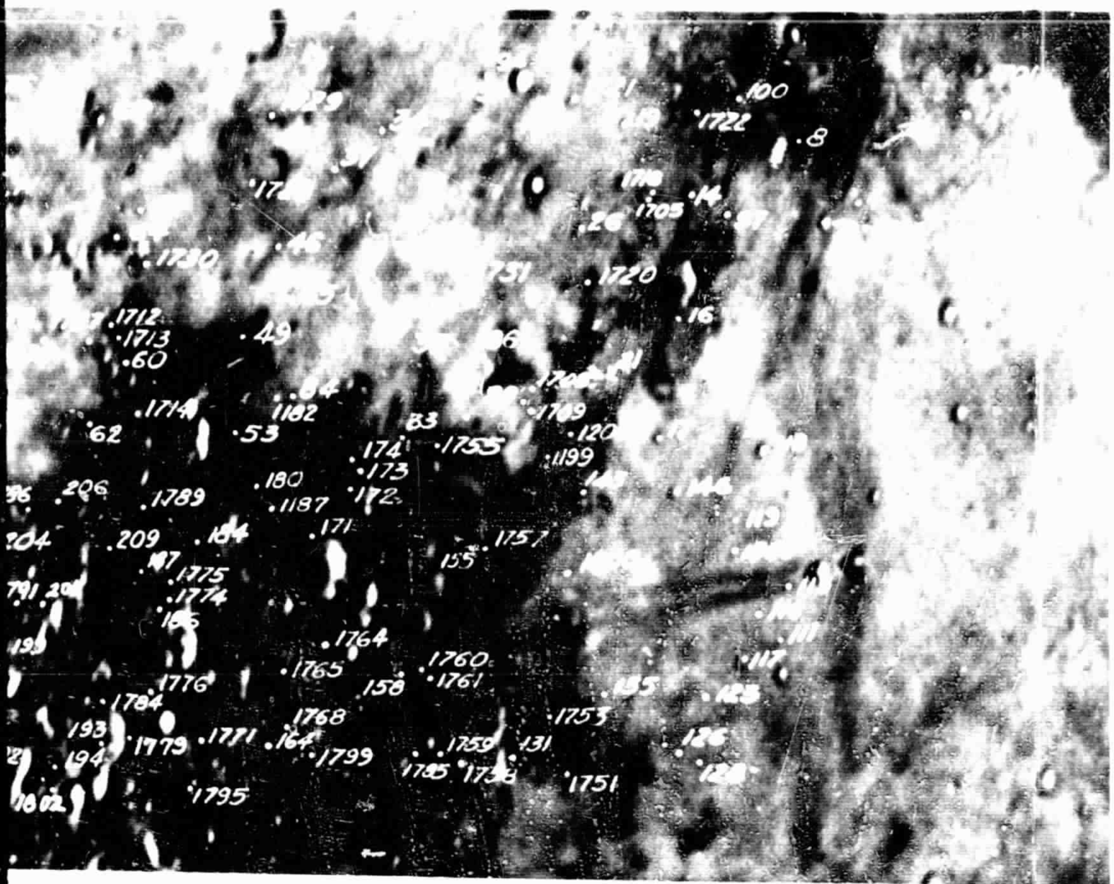

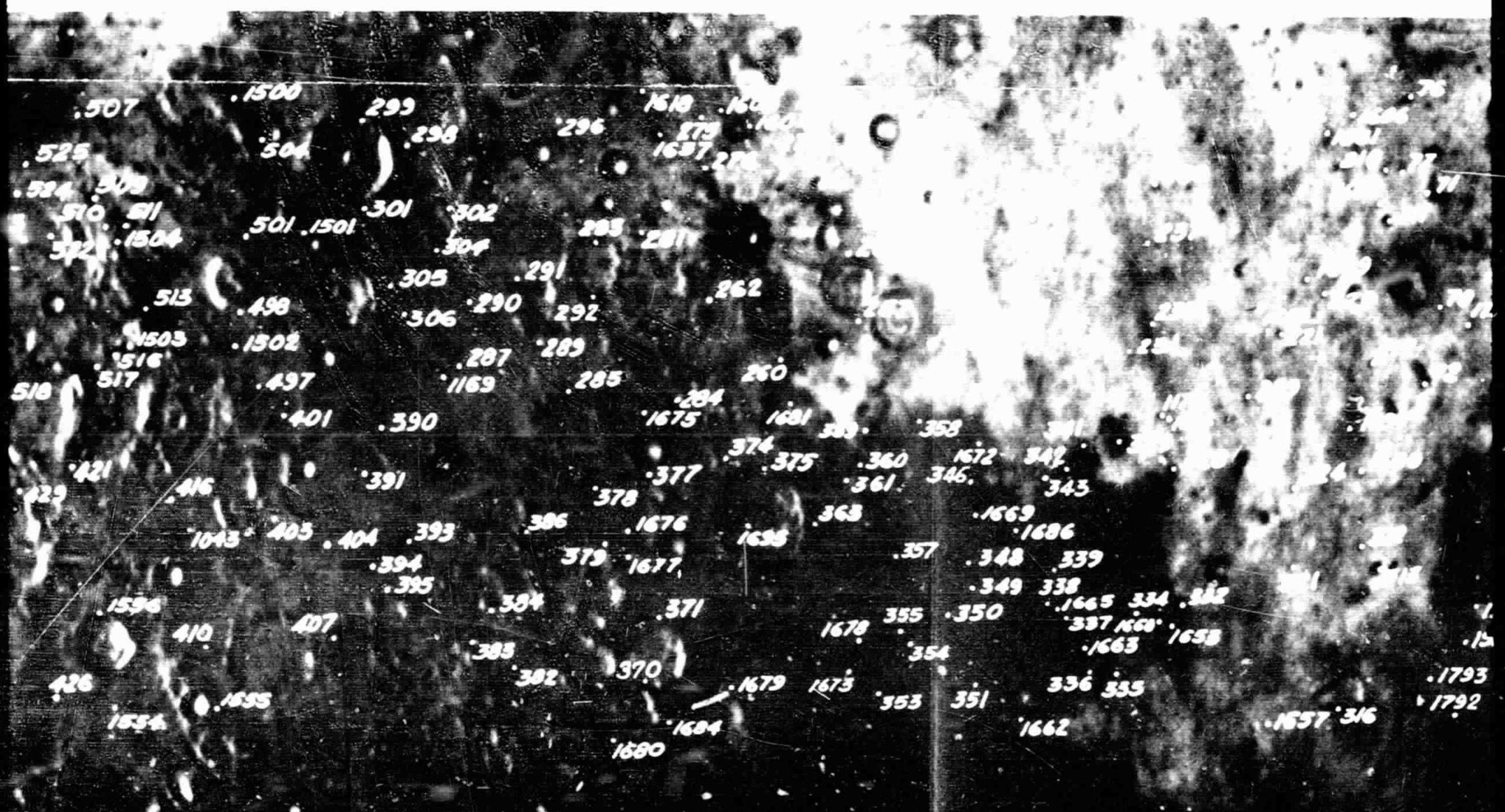

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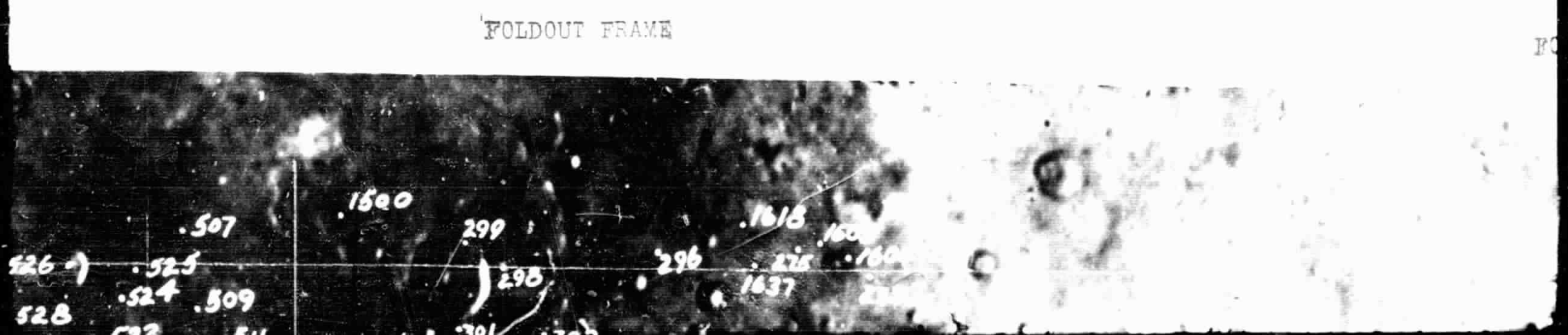

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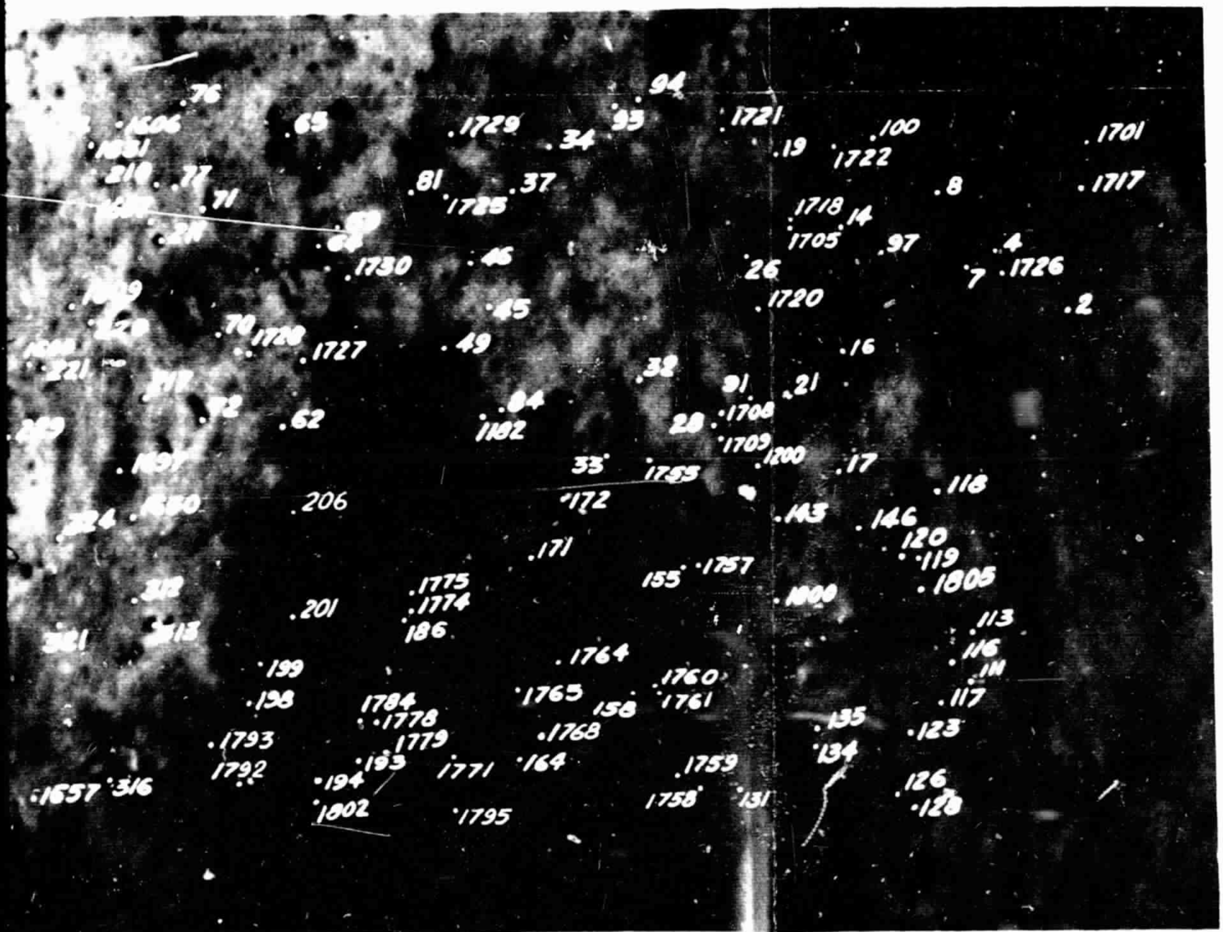

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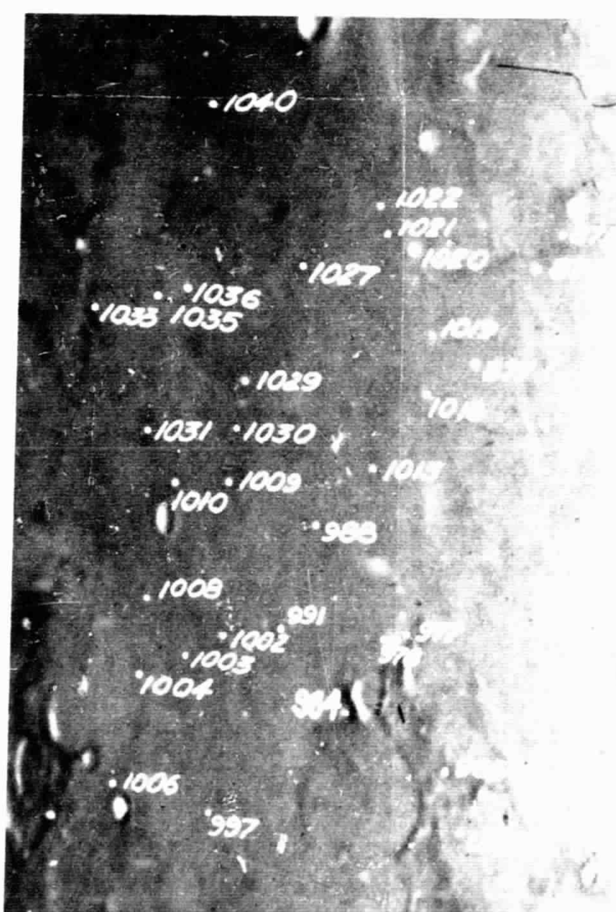
504 + 506 BLANK NOT FILM



AME Figure 80. Photographic identification on Plate 425C.

Figure 79. Photographic identification on Plate 250C. FOLDOUT FRAME

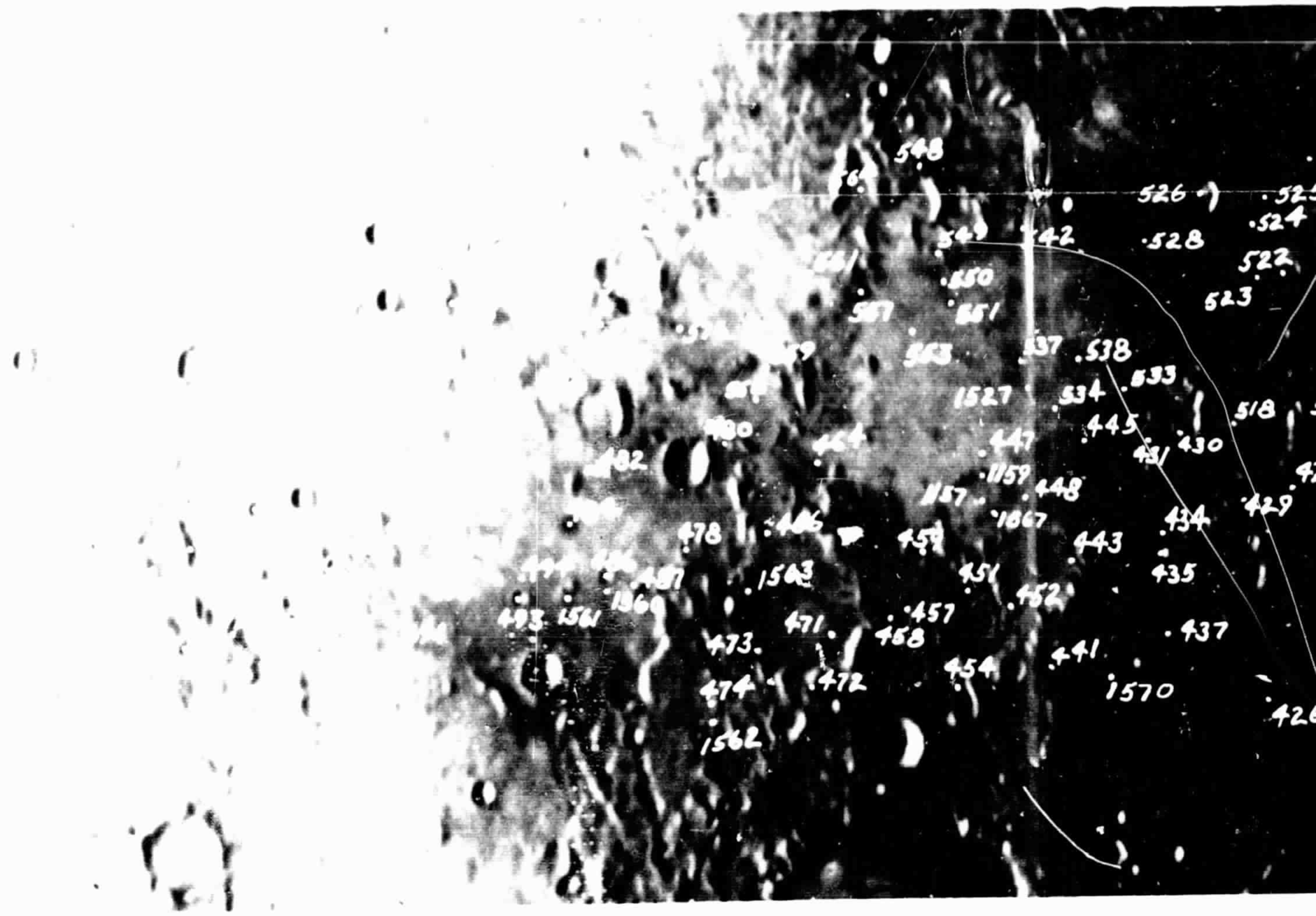


Figure 81. Photographic identification on Plate 429A.

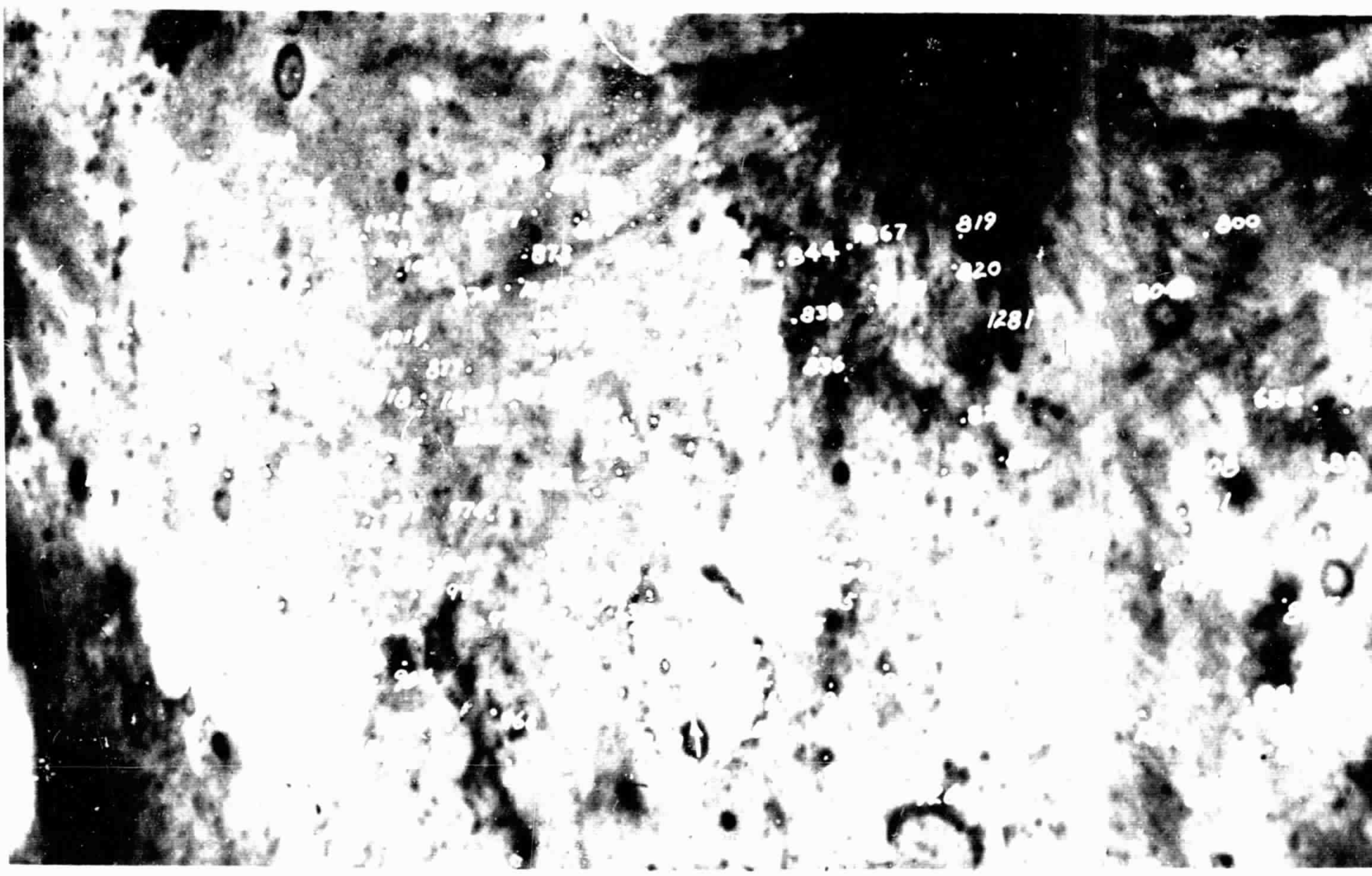


Figure 82. Photographic identification on Plate 430 A1.

FOLDOUT FRAME 5

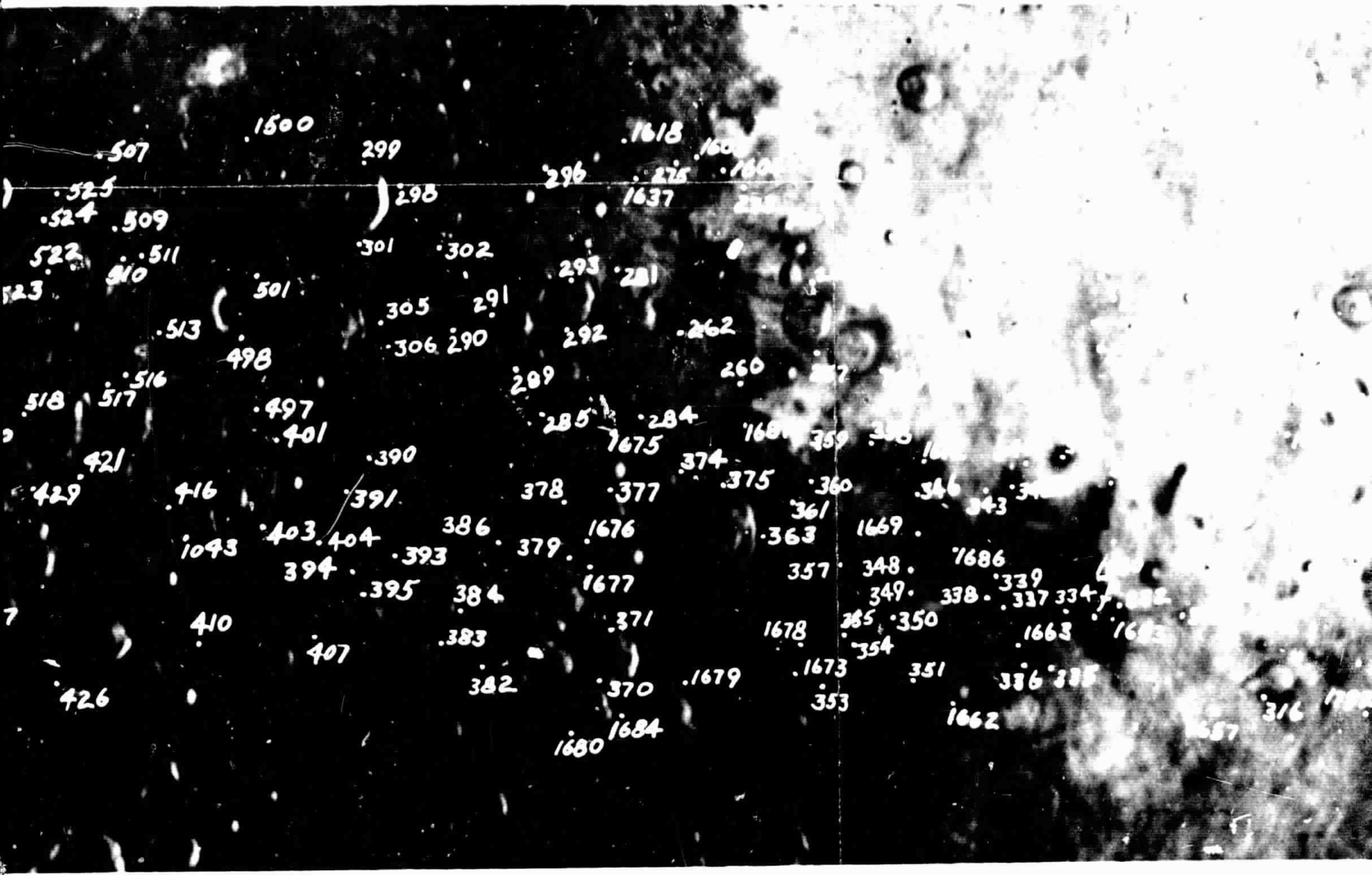


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Figure 80. Pho

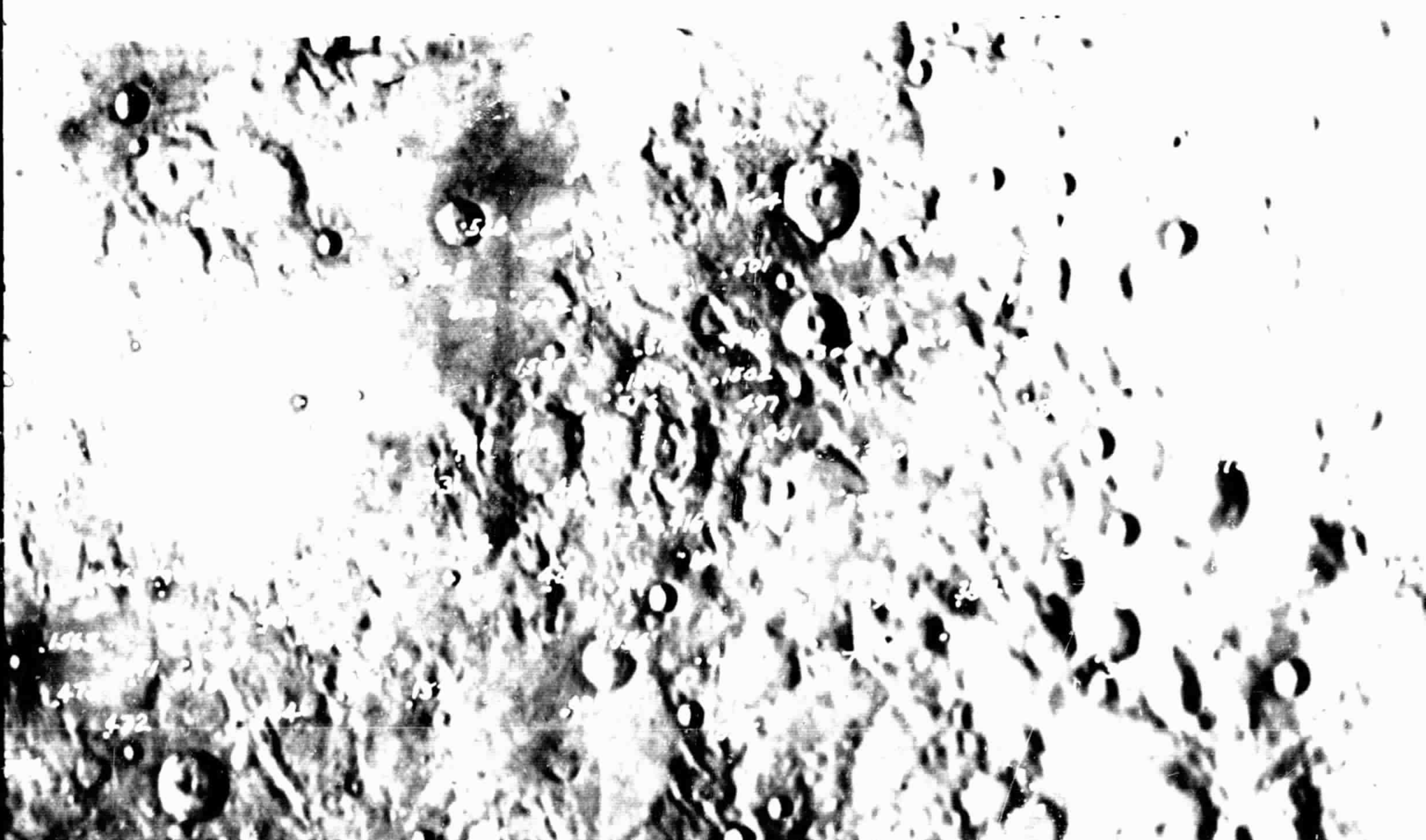

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Figure 80. Photographic identification on Plate 425C.

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