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23 Pages
(Including Cover Sheet)

CORONA "J" FLIGHT DATA BOOK

SYSTEM NO. J-03

VEHICLE NO. 1170

MISSION NO. 1011

CAMERA NOS. 160/161

Prepared by: [redacted]

Checked by: [redacted]

Approved by: [redacted]

Approved by: [redacted]
for, [redacted] Manager

[redacted]

[redacted]

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SYSTEM NO. J-03
VEHICLE NO. 1170
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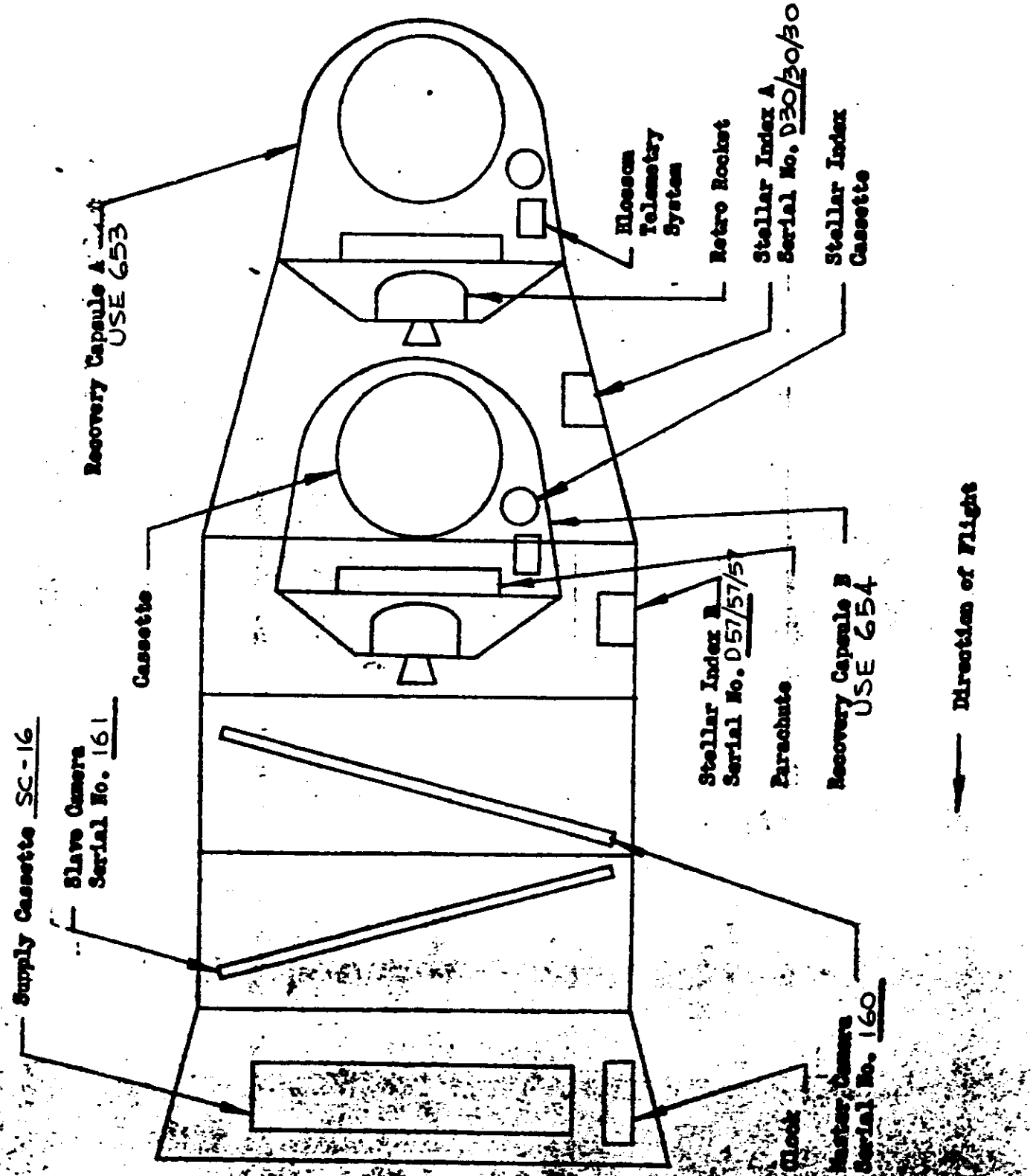
CAMERA NOS. 160/161

VEHICLE LAYOUT:



SYSTEM NO. 1-03
VEHICLE NO. 1170
MISSION NO. 1011
CAMERA NOS. 160/161

[redacted]

GENERAL FLIGHT DATA:

Master Camera Serial No. 160

Slave Camera Serial No. 161

Stellar Index "A" Serial No. D 30/30/30

Stellar Index "B" Serial No. D 57/57/57

Launch Date OCT. 5, 1964

Reactivation Date _____

Reactivation Orbit No. _____

Orbital Parameters: (Rev. 56)

Period 90.715 Min. Eccentricity 0.01964

Perigee 98.59 NM Perigee Latitude 31.4 Deg. N

Apogee 240.4 NM Inclination Angel 79.98 Deg. N

Recovery Orbit No. 65

Recovery Date OCT. 9, 1964

REMARKS:

MAKE FOLLOWING CORRECTION TO PARA. I. 1. A.
IN TWX [redacted], [redacted]:
CHANGE YT VALUE FROM 0.07 TO 0.071.

[redacted]

SYSTEM NO. J-03
VEHICLE NO. 1170
MISSION NO. 1011
CAMERA NOS. 160/161

LENS SETTINGS AND FILM TYPES:

Panoramic Camera Settings:	Camera No. 160	Camera No. 161
Panoramic Optics Slit Width	0.175 in.	0.175 in.
Panoramic Optics Filter Type	WRATTEN 21	WRATTEN 21
Horizon Optics Exp. Time	1/100 sec.	1/100 sec.
Horizon Optics Aperture	F6.8 SUPPLY F8.0 TAKEUP	F8.0 SUPPLY F6.8 TAKEUP
Horizon Optics Filter Type	WRATTEN 25	WRATTEN 25

Stellar Index Camera Settings:

	Stellar Index A		Stellar Index B	
	Stellar	Index	Stellar	Index
Exposure Time	2.0	1/500	2.0	1/500
Aperture Setting	F1.8	F4.5	F1.8	F4.5
Filter Type	NONE	WRATTEN 21	NONE	WRATTEN

Ratio: One Stellar Index Frame Per _____ Master Camera Frames.

Film:

Panoramic Cameras:	Camera No. 160	Camera No. 161
Type	7J-40	7J-40
Length	16000 ft.	16000 ft.
Splices	4	4
Emul. Data	68-6-7-4	68-6-7-4

Stellar Index Cameras:

	Stellar Index A		Stellar Index B	
	Stellar	Index	Stellar	Index
Type	3J-34	7J-33	3J-34	7J-33
Emul. Data	7-3-6-4	29-3-6-4	7-3-6-4	29-3-6-4

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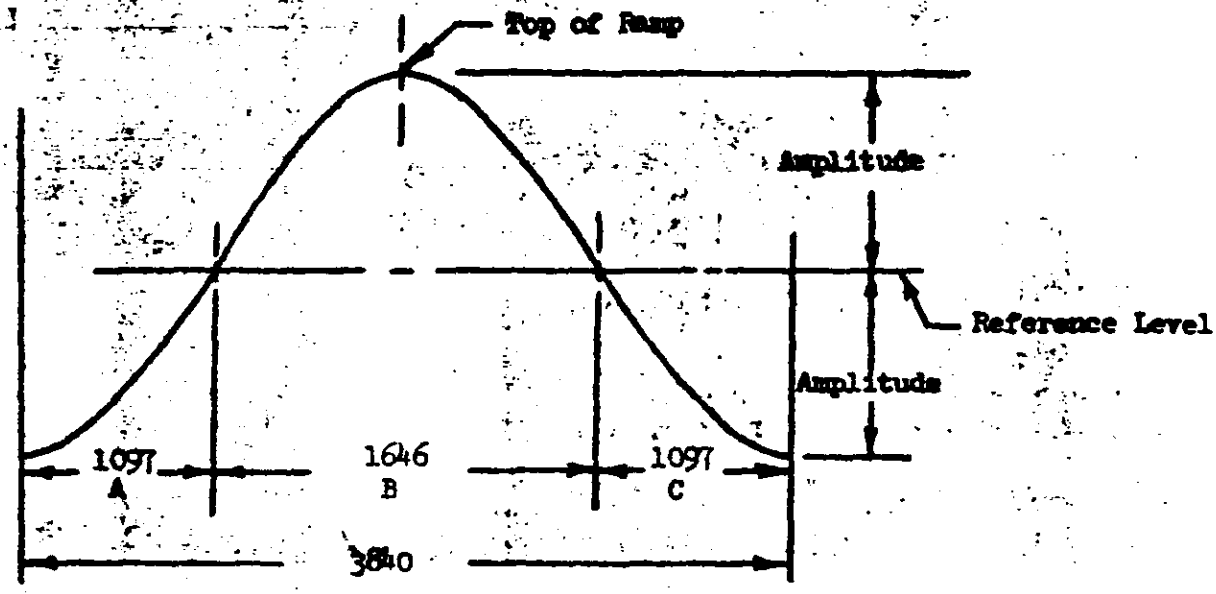
SYSTEM NO. 4-03

VEHICLE NO. 1170

MISSION NO. 1011

CAMERA NOS. 160/161

RAMP CONFIGURATION AND CONSTANTS:



Cycle Rate Computation:

A. 0 to 1097 Sec Up Ramp: CPS = R+A Sin (1.5 X -1.5707963)

B. 1097 to 2743 Sec Up Ramp: CPS = R+A Sin (2 X -2.0943951) $\leq$ .4625

C. 2743 to 3840 Sec Up Ramp: CPS = R+A Sin (1.5 X -0.7853982)

FMC Rate Computation:

$$\text{FMC Rate (In/Sec)} = 2\pi \left\{\frac{(0.3223)}{CP}\right\} = 2.02507 \times CPS$$

$$\text{FMC Rate (Radians/Sec)} = 2\pi \frac{(0.3224)}{(24\ CP)} = 0.84378 \times CPS$$

Scan Velocity Computation:

$$\text{Scan Velocity (In/Sec)} = \frac{48\pi}{CP} = 150.796 \times CPS$$

$$\text{Scan Velocity (Radians/Sec)} = \frac{48\pi}{24\ CP} = 6.28319 \times CPS$$

$$\text{Exposure Time (Milliseconds)} = 1000 \left\{\frac{(CP \times SLIT)}{48\pi}\right\} = 6.63146 \left\{\frac{(SLIT)}{CPS}\right\}$$

WHERE: $X = \frac{\text{Time Up Ramp (Seconds)}}{1047.6942}$ $\qquad R = \frac{1}{2}(CPS(top) + CPS(bottom))$

$A = \frac{1}{2}(CPS\ top - CPS\ bottom)$ $\qquad CP$ = Camera Cycle Period in Sec/Cycle

CPS = Camera Cycle Rate in Cycles/Sec

SLIT = Slit Width in Inches

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CYCLE PERIOD DATA:

PRE-FLIGHT CYCLE PERIODS:

V/H Ramp Level	V/H Ramp Amplitude	Cycle Period Seconds		Time Up Ramp Sec
		Master	Slave	
7	4	5.063	5.049	106
7	4	2.290	2.280	1641
7	4	2.264	2.253	1687
7	4	2.216	2.231	1808

IN-FLIGHT CYCLE PERIODS

V/H Ramp Level	V/H Ramp Amplitude	Cycle Period Seconds		Orbit No.	Time Up Ramp Sec
		Master	Slave		
7	4	5.036	5.156	9	106
7	4	2.34	2.39	16	1641
6	4	2.24	2.32	32	1687
6	4	2.208	2.292	47	1808
NOTE:	RAMP 6-4 USED TO INCREASE CAMERA				
	RATE TO 7-4 PRE-FLIGHT RATES.				

[redacted]

SYSTEM NO. J-03
VEHICLE NO. 1170
MISSION NO. 1011
CAMERA NOS. 160/161

LENS DATA SUMMARY: Master Camera No. 160

Lens Serial No. 1352435

Slit Width .175 Inch

Filter Type WRATTEN 21

Equivalent Operational Focal Length 609.625 MM

Resolution:

Static:

	Lines/MM	Film Type	Target Contrast
Bench Test	275	SO-132	HI
[redacted]	166	SO-132	LO

Dynamic:

Itek [redacted]	187	SO-132	HI
Itek [redacted]	130	SO-132	LO
AP	178	SO-132	HI
AP	115	SO-132	LO
Other			

Note: Itek Post Vibration Resolution of 187 lines/MM Reported In Message No. [redacted] dated

Distortion - Positive (Pincushion)

Angle Off Axis Deg.	3	2	1	0	359	358	357		
Distortion Millimeters	.004	.000	.000	.000	.000	.003	.007		

[redacted]

SYSTEM NO. I-03
VEHICLE NO. 170
MISSION NO. 101
CAMERA NOS. 160/161

LENS DATA SUMMARY: (Horizon Cameras for MASTER Camera No. 160)

	Take-Up	Supply
Lens Serial No.	814025	814028
Exposure Time	1/100 Sec.	1/100 Sec.
Filter Type	WRATTEN 25	WRATTEN 25
Aperture	F8.0	F6.8
Operational Focal Length	54.65 MM	55.14 MM
Radial Distortion:		
10° off Axis	.000 MM	.001 MM
20° off Axis	.001 MM	.005 MM
Tangential Distortion (Maximum Vector)	.005 MM	.007 MM

Resolution:

Angle off Axis Deg.	0	10	15	20	25	27.5		0	10	15	20	25	27.5	
Radial Resolution	170	118	79	67	83	56		170	132	92	76	77	59	
Tangential Resolution	170	116	84	63	55	38		170	130	89	72	55	42	

92 Lines/MM Avg. 97 Lines/MM Avg.

Note:

1. Distortion and resolution are read at equivalent operational focal length.
2. Resolution in lines per mm on SO-132 film and _____ contrast target.

[redacted]

[redacted]

SYSTEM NO. J-03 [redacted]

VEHICLE NO. 1170

MISSION NO. 1011

CAMERA NOS. 160/161

LENS DATA SUMMARY: Slave Camera No. 161

Lens Serial No. 1332435

Slit Width .175 Inch

Filter Type WRATTEN 21

Equivalent Operational Focal Length 609.549 MM

Resolution:

Static:

	Lines/MM	Film Type	Target Contrast
Bench Test	256	SO-132	HI
[redacted]	171	SO-132	LO

Dynamic:

Itek [redacted]	178	SO-132	HI
Itek [redacted]	125	SO-132	LO
AP	173	SO-132	HI
AP	120	SO-132	LO
Other			

NOTE: Itek Post Vibration Resolution of 178 lines/MM Reported In Message No. [redacted] dated _____.

Distortion - Positive (Pincushion)

Angle Off Axis Deg.	3	2	1	0	359	358	357		
Distortion Millimeters	.003	.000	.000	.000	.002	.004	.005		

[redacted]

[redacted]

SYSTEM NO. J-03

VEHICLE NO. 1170

MISSION NO. 1011

CAMERA NOS. 160/161

[redacted]

LENS DATA SUMMARY: (Horizon Cameras for SLAVE Camera No. 161)

	Take-Up	Supply
Lens Serial No.	814023	814027
Exposure Time	1/100 Sec.	1/100 Sec.
Filter Type	WRATTEN 25	WRATTEN 25
Aperture	F6.8	F8.0
Operational Focal Length	55.07 MM	55.60 MM
Radial Distortion:		
10° off Axis	.006 MM	.003 MM
20° off Axis	.007 MM	.004 MM
Tangetial Distortion. (Maximum Vector)	.002 MM	.005 MM

Resolution:

Angle off Axis Deg.	0	10	15	20	25	27.5	
Radial Resolution	170	105	65	60	65	67	
Tangetial Resolution	170	104	67	56	55	45	

0	10	15	20	25	27.5	
170	118	69	75	73	59	
170	116	80	75	52	42	

86 Lines/MM Avg. 92 Lines/MM Avg.

NOTE:

1. Distortion and resolution are read at equivalent operational focal length.
2. Resolution in lines per MM on SO-132 film and _____ contrast target.

[redacted]

DEFINITION OF PANORAMIC CAMERA FORMAT CALIBRATIONS:

1.0 Measurements are made with respect to collimator targets fixed with respect to the mechanical interface between the total payload assembly and the orbital vehicle.

2.0 Two sets of three targets each, are aligned to be coplanar within ±5" of arc so positioned to form an angle of -15.00° ±5" to the mechanical interface for master camera calibrations and an angle of +15.00°±5" to the mechanical interface for slave camera calibrations.

2.1 One target, Target 1 of each set is imaged on the Terrain format.

2.2 The second and third targets of each set are at angles of 75.00° ±5" from target one and are imaged on the horizon formats.

3.0 The indicated center of format for the panoramic cameras is given by the intersection of a line through the center of mass of the central shrinkage marker drawn normal to the edge of format containing the shrinkage marker and a line parallel to the same edge located at a position half-way between the format edges.

4.0 The indicated principal points of the horizon cameras are the points of intersection of lines joining opposite fiducials.

5.0 Xvo and Yvo are the offsets of Target 1 from the indicated center of format of the panoramic cameras as defined in Paragraph 3.

6.0 Xs, Ys and Xt, Yt are the offsets of Targets 2 and 3 from the indicated principal points of the supply and take-up horizon cameras respectively.

7.0 The indicated flight direction is the direction of vehicle travel during orbit. The forward edge of format is the edge opposite the shrinkage markers for the master camera and is the edge containing the shrinkage markers for the slave camera.

8.0 Dimensions A, B and C are the spacings of the shrinkage markers and dimensions D and E are the spacings of the Y Axis fiducials. Techniques for exact measurement of these dimensions have not been developed. The figures quoted are measurements made on hand processed film without control of shrinkage.

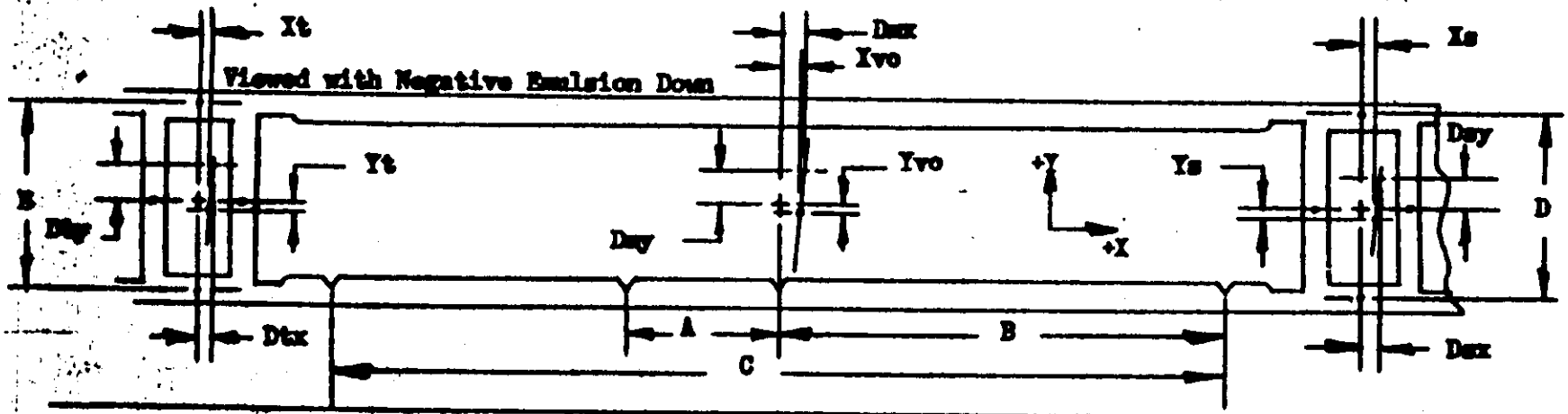
9.0 The format dimensions are measured to the best estimate of format edge.

10.0 Measurement of the angle between the indicated axis of the panoramic cameras and the line of intersection of the plane defined in Paragraph 2 on the format is obtained from the offset dimensions Dmx and Dmy of Target 1 for each camera.

11.0 Measurement of the angle between the indicated axis of the horizon cameras and the line of intersection of the plane defined in Paragraph 2 on the format is made by measuring the scan direction offset of the targets defined in Paragraph 2.2 at a fixed distance from the target center in the Y direction. Dimensions Dtx, Dty, Dsx and Dsy are the offsets of these measurements.

SYSTEM NO. ____
VEHICLE NO. ____
MISSION NO. 1017
CAMERA NOS. ____

FORMAT DIMENSIONS: (PANORAMIC CAMERAS)



Camera No. 160	Vehicle Motion ↑	Scan Direction ←
A 76.1	Xt +0.198	Dtx +0.193
B 355.3	Yt -0.071	Dty +2.425
C 710.6	Xs -0.064	Dax -0.064
D 56.510	Ys +0.006	Day +2.599
E 56.519	Xvo +0.990	Dax +0.996
	Yvo +0.747	Day -2.253

Format Dimensions:

	Panoramic	Take-Up	Supply
Height	56.142	NA	NA
Width	755.3	NA	NA

Camera No. 161	Vehicle Motion ↑	Scan Direction ←
A 76.1	Xt +0.381	Dtx +0.374
B 355.5	Yt -0.070	Dty +2.035
C 710.9	Xs +0.158	Dax +0.149
D 56.468	Ys +0.065	Dsy -2.309
E 56.518	Xvo -0.859	Dax -0.862
	Yvo -0.180	Day -3.180

Format Dimensions:

	Panoramic	Take-Up	Supply
Height	56.714	NA	NA
Width	753.9	NA	NA

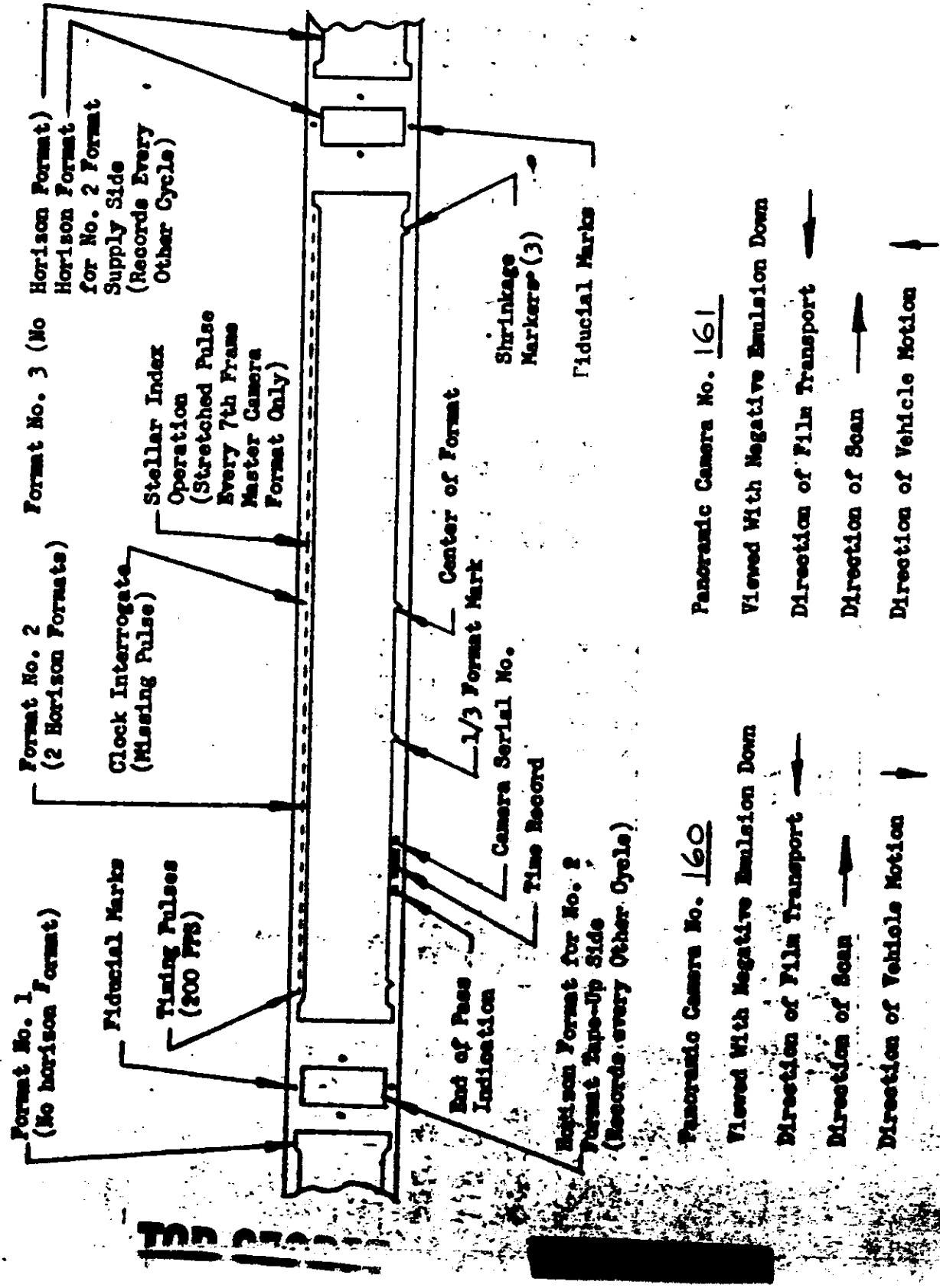
Notes: 1. All dimensions are in millimeters and are average dimensions of three formats.
2. Height of main format is taken at center of format.
3. Dt, Da, Ds, I and Y dimensions are taken 10MM above point defining target center.
4. Format Sign Convention

-X+Y	+X+Y
-X-Y	+X-Y

[redacted]

SYSTEM NO. J-03
VEHICLE NO. 1170
MISSION NO. 1011
CAMERA NOS. 160/161

FORMAT LAYOUT: (PANORAMIC CAMERAS)



SYSTEM NO. J-03

VEHICLE NO. 1170

MISSION NO. 1011

CAMERA NOS. 160/161

LENS DATA SUMMARY STELLAR INDEX D30/30/30 "A" MISSION

	Stellar		Index	
Lens Serial No.	10090		811897	
Reseau Serial No.	30		30	
Filter Type	NONE		WRATTEN 21	
Aperture	F 1.8		F 4.5	
Exposure Time	2.0	Sec.	1/500	Sec.
Equivalent Focal Length	NA	MM	NA	MM

Resolution:

Angle Off Axis	0	10	20	30	35
Resolution L/MM High Contrast	93	98	102	99	70

NOTE: Index Resolution of 75 Lines/MM AWAR

Read From SO-130 Film.

Distortion:

All distortions less than maximum allowable. Full Data to be reported as part of Photogondometer Data Reduction.

Alignment:

0.0007 "/.937 Inches 0.0008 "/2.25 Inches

[redacted]

SYSTEM NO. J-03
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CAMERA NOS. 160/161

TOP SECRET

LENS DATA SUMMARY STELLAR INDEX D57/57/57 : "B" UNIT

	Stellar		Index	
Lens Serial No.	11174		813065	
Reseau Serial No.	57		57	
Filter Type	NONE		WRATTEN 21	
Aperture	F1.8		F4.5	
Exposure Time	2.0	Sec.	1/500	Sec.
Equivalent Focal Length	NA	mm.	NA	mm.

Resolution:

Angle Off Axis	0	10	20	30	35
Resolution L/mm High Contrast					

NOTE: Index Resolution of 73 Lines/MM AWAR
Read From SO-130 Film.

Distortion:

All distortions less than maximum allowable. Full Data to be reported as part of Photogoniometer Data Reduction.

Alignment:

0.0007 "/.937 Inches   0.0004 "/2.25 Inches

[redacted]

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SYSTEM NO. J-03
VEHICLE NO. 1110
MISSION NO. 1011
CAMERA NOS. 160/161

[redacted]

PRELIMINARY CLOCK CORRELATION:

ORBIT	SYSTEM TIME	CLOCK TIME	DIFFERENCE
9	39916.195	397,100.629	
16	79696.309	436,880.744	+0.005
25	40651.921	484,236.357	-0.002
31	74888.407	518,472.845	+0.002
32	80332.711	523,917.150	0.000
40	35741.650	28,855.179	+0.005
47	75681.316	68,794.847	-0.008
56	36619.949	116,133.480	+0.002
63	76218.228	155,731.760	+0.007

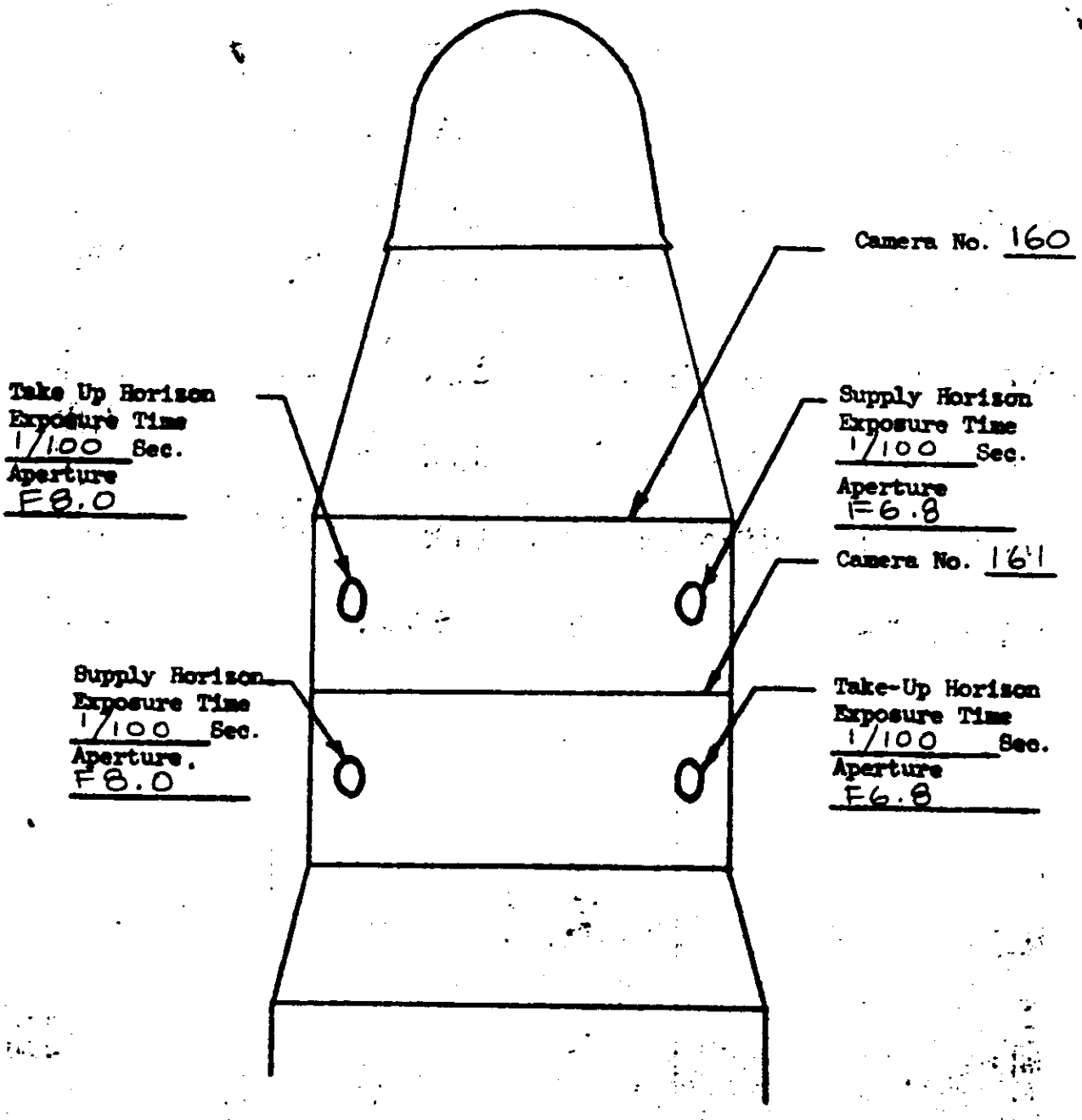
NOTE: THESE DATA HAVE NOT

[redacted]

[redacted]

SYSTEM NO. J-03
VEHICLE NO. 170
MISSION NO. 1011
CAMERA NOS. 160/161

HORIZON LENS SETTINGS (Viewed from top of vehicle inflight)



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~~PRIORITY~~ [redacted] INFO ~~PRIORITY~~ [redacted] CITE [redacted]

[redacted] (FINAL)

A. 1011-1

B. DRY

C. THRU U. FOLLOW

SUB	PROG	CAM NO.	PAN FR.	SI FR	LAT. ON	LAT. OFF	TIME ON ZD	TIME ON ST	TUR NO	DUR SEC.	SOLAR SEC ON	SOLAR SEC OFF	EXPOS. ON	EXPOS. OFF
LAUNCH		160	122	17										
LAUNCH		161	117											
1	1 0	160	11	02	256	254	0583942		7 4	1325	32	25 27	3.7	3.6
1	1 0	161	11		257	255	0583942		7 4	1325	32	24 26	3.7	3.6
5	4 1	160	72	10	250	238	0619440		7 4	1441	176	30 39	3.0	2.8
5	4 1	161	72		251	239	0619440		7 4	1441	176	30 38	3.0	2.8
6	8 1	160	24	03	277	273	0624424		7 4	930	81	6 11	4.3	4.1
6	8 1	161	23		278	274	0624424		7 4	930	81	5 10	4.5	4.2
6	8 2	160	55	08	257	248	0624769		7 4	1274	145	24 32	3.3	3.0
6	8 2	161	53		258	249	0624769		7 4	1274	145	24 31	3.4	3.1
6	8 3	160	35	05	244	238	0624980		7 4	1486	83	35 39	2.9	2.8
6	8 3	161	34		244	239	0624980		7 4	1486	83	34 38	3.0	2.9
6	8 4	160	64	09	231	221	0625174		7 4	1679	142	43 48	2.7	2.6
6	8 4	161	62		231	222	0625174		7 4	1679	142	43 48	2.7	2.7
7	8 1	160	32	05	256	251	0630232		7 4	1293	84	25 29	3.3	3.1
7	8 1	161	31		257	252	0630232		7 4	1293	84	25 29	3.4	3.2
7	8 2	160	58	08	247	238	0630368		7 4	1429	144	32 39	3.0	2.8
7	8 2	161	57		248	239	0630368		7 4	1429	144	31 38	3.1	2.9
9	7 0	160	9	01	139	142	0639888		7 4	59	47-37-35		6.9	6.8
9	7 0	161	9		137	140	0639888		7 4	59	47-38-36		6.8	6.8
9	7 1	160	80	12	254	241	0641157		7 4	1328	205	27 37	3.2	2.9
9	7 1	161	79		255	242	0641157		7 4	1328	205	26 36	3.3	2.9
14	4 1	160	29	04	224	219	0668846		7 4	1805	67	47 49	2.8	2.8
14	4 1	161	28		225	220	0668846		7 4	1805	67	46 48	2.9	2.9
16	6 0	160	15	02	238	236	0679530		7 4	1602	37	38 40	3.1	3.0
16	6 0	161	14		239	236	0679530		7 4	1602	37	38 40	3.3	3.2
19	4 1	160	19	03	280	278	07	8725	6 4	868	66	0 4	4.4	4.1
19	4 1	161	19		180	279	07	8725	6 4	868	66	-0 3	4.5	4.3
19	4 2	160	66	09	268	257	07	8992	6 4	1135	182	15 25	3.5	3.1
19	4 2	161	64		269	258	07	8992	6 4	1135	182	14 24	3.7	3.2
19	4 3	160	29	04	255	250	07	9213	6 4	1356	70	27 30	3.0	2.8
19	4 3	161	28		256	251	07	9213	6 4	1356	70	26 30	3.1	2.9
20	4 1	160	83	12	261	247	0714566		6 4	1264	209	22 32	3.2	2.8
20	4 1	161	81		262	248	0714566		6 4	1264	209	21 32	3.3	2.9
21	4 1	160	75	11	261	248	0720013		6 4	1270	194	22 32	3.2	2.9
21	4 1	161	73		262	249	0720013		6 4	1270	194	21 31	3.3	2.9
21	4 2	160	66	09	231	221	0720466		6 4	1723	144	44 49	2.6	2.5
21	4 2	161	65		232	222	0720466		6 4	1723	144	44 49	2.7	2.6
22	7 1	160	24	04	276	272	0725187		6 4	1000	77	7 11	4.0	3.8
22	7 1	161	23		277	273	0725187		6 4	1000	77	6 10	4.2	3.9
22	7 2	160	64	09	259	248	0725490		6 4	1303	163	23 32	3.2	2.9
22	7 2	161	62		260	249	0725490		6 4	1303	163	23 31	3.3	2.9
22	7 3	160	84	12	240	227	0725779		6 4	1592	187	38 46	2.7	2.6
22	7 3	161	82		241	228	0725779		6 4	1592	187	37 46	2.8	2.6
24	7 1	160	60	09	270	260	0736200		6 4	1114	170	14 23	3.6	3.1
24	7 1	161	58		271	260	0736200		6 4	1114	170	13 22	3.7	3.2
24	7 2	160	42	06	252	245	0736493		6 4	1407	100	29 34	2.9	2.7

~~TOP SECRET~~

24	7	2	161	41		252	246	0736493	6	4	1407	100	28	34	3.0	2.8
25	7	1	160	118	16	257	239	0741853	6	4	1325	280	25	39	3.0	2.6
25	7	1	161	114		258	239	0741853	6	4	1325	280	24	38	3.1	2.7
30	5	1	160	26	04	239	235	0769359	6	4	1629	60	39	41	2.8	2.7
30	5	1	161	25		240	235	0769359	6	4	1629	60	38	41	2.9	2.9
30	5	2	160	27	04	232	228	0769457	6	4	1727	60	43	46	2.7	2.7
30	5	2	161	26		233	229	0769457	6	4	1727	60	43	45	2.8	2.8
32	6	0	160	16	02	238	235	0780261	6	4	1647	38	39	41	2.9	2.9
32	6	0	161	15		239	236	0780261	6	4	1647	38	39	40	3.1	3.1
36	9	1	160	127	18	261	241	0815292	6	4	1311	306	22	38	3.1	2.6
36	9	1	161	124		262	241	0815292	6	4	1311	306	21	37	3.2	2.7
37	9	1	160	22	04	275	271	0820494	6	4	1072	68	8	12	3.9	3.7
37	9	1	161	21		276	272	0820494	6	4	1072	68	7	11	4.0	3.8
37	9	2	160	40	05	269	262	0820599	6	4	1177	113	14	20	3.5	3.2
37	9	2	161	39		270	263	0820599	6	4	1177	113	13	20	3.7	3.4
37	9	3	160	29	04	254	249	0820845	6	4	1423	70	28	31	3.0	2.8
37	9	3	161	28		255	250	0820845	6	4	1423	70	27	31	3.1	3.0
37	9	4	160	63	09	244	234	0820996	6	4	1574	143	36	43	2.7	2.6
37	9	4	161	61		244	235	0820996	6	4	1574	143	35	42	2.8	2.7
37	9	5	160	33	05	224	219	0821293	6	4	1871	70	49	52	2.6	2.6
37	9	5	161	32		224	220	0821293	6	4	1871	70	49	52	2.7	2.7
38	4	1	160	26	04	258	253	0826224	6	4	1360	70	24	28	3.3	3.1
38	4	1	161	26		259	254	0826224	6	4	1360	70	23	27	3.3	3.1
38	4	2A	160	26	04	251	246	0826336	6	4	1472	66	30	34	3.1	3.0
38	4	2B	160	43	06	243	236	0826448	6	4	1584	103	36	41	2.9	2.8
38	4	2C	160	20	03	229	226	0826655	6	4	1791	45	46	48	2.7	2.7
38	4	2	161	152		252	227	0826336	6	4	1472	361	29	47	3.1	2.7
39	6	1	160	32	04	269	263	0831493	6	4	1192	89	14	19	3.5	3.3
39	6	1	161	31		270	264	0831493	6	4	1192	89	13	18	3.6	3.4
39	6	2	160	55	08	259	250	0831645	6	4	1344	140	23	30	3.1	2.9
39	6	2	161	54		260	251	0831645	6	4	1344	140	22	30	3.2	3.0
39	6	3	160	28	04	248	244	0831820	6	4	1520	65	32	36	2.8	2.7
39	6	3	161	27		249	244	0831820	6	4	1520	65	32	35	2.9	2.8
39	6	4	160	36	05	241	236	0831922	6	4	1622	80	37	41	2.7	2.6
39	6	4	161	35		242	237	0831922	6	4	1622	80	37	41	2.8	2.7
40	9	1	160	151	22	261	237	0837064	6	4	1323	359	21	40	3.1	2.6
40	9	1	161	146		262	238	0837064	6	4	1323	359	20	40	3.2	2.7
41	3	1	160	56	08	253	244	0842635	6	4	1452	131	28	35	2.8	2.7
41	3	1	161	55		254	245	0842635	6	4	1452	131	28	35	2.9	2.8
47	4	1	160	50	07	238	231	0875519	6	4	1691	114	40	45	2.7	2.7
47	4	1	161	49		239	231	0875519	6	4	1691	114	39	45	2.8	2.7
52	9	1	160	159	23	261	236	0915986	6	4	1359	372	21	42	3.0	2.6
52	9	1	161	155		262	237	0915986	6	4	1359	372	20	41	3.1	2.6
53	9	1	160	177	25	243	216	0921703	6	4	1635	395	37	55	2.7	2.6
53	9	1	161	171		244	217	0921703	6	4	1635	395	36	54	2.8	2.7
54	6	1	160	169	24	252	226	0927012	6	4	1505	384	29	49	2.8	2.6
54	6	1	161	164		253	227	0927012	6	4	1505	384	28	48	2.9	2.6
55	1	1	160	166	24	261	235	0932315	6	4	1365	389	21	43	3.0	2.6
55	1	1	161	161		262	236	0932315	6	4	1365	389	20	42	3.1	2.6
56	1	1	160	75	10	263	251	0937726	6	4	1387	179	19	30	3.0	2.7
56	1	1	161	72		264	252	0937726	6	4	1387	179	19	29	3.1	2.8
57	2	1	160	56	08	255	247	0943293	6	4	1515	131	26	34	2.8	2.7
57	2	1	161	55		256	247	0943293	6	4	1515	131	26	33	2.9	2.7
57	2	2	161	39		301	308	0943293	6	4	2376	98	60	59	2.9	3.1

CCC DD E FFF GGG HH IJJ IKK LLMMMMM NN O PPPP QQQ RR SS TTT UUU

C ORBITAL TIMER SUBCYCLE NUMBER
D PROGRAM NUMBER
E OPERATION NUMBER
F PAN CAMERA SERIAL NUMBER (MASTER IS EVEN, SLAVE IS ODD)
G EST NO OF PAN FRAMES BASED ON COUNTER READINGS INFLIGHT
H EST NUMBER OF STELLAR/INDEX FRAMES
I QUADRANT
J EST LATITUDE OF FIRST FORMAT CENTER IN PASS
K EST LATITUDE OF LAST FORMAT CENTER IN PASS
L ZULU DATE
M SYSTEM TIME IN SECONDS (GMT)
N FMC PROGRAMMER REFERENCE LEVEL
O FMC PROFRAMMER AMPLITUDE LEVEL
P EST TIME UP RAMP IN SECONDS TO OPERATE COMMAND
Q EST SECONDS DURATION OF OPERATION BETWEEN ON AND OFF
R SOLAR ELEVATION AT ITEM J
S SOLAR ELEVATION AT ITEM K
T EST MILLISECONDS EXPOSURE TIME AT ITEM J
U EST MILLISECONDS EXPOSURE TIME AT ITEM K

V. RAMP PROFILE R-7 A-4
PERIOD = 3840 SEC.
R= 0.3249 A= 0.1286

TIME	PERIOD	CPS	GAV
0	5.094	0.1963	0.01775
100	5.060	0.1976	0.01787
200	4.962	0.2015	0.01823
300	4.808	0.2080	0.01881
400	4.612	0.2168	0.01961
500	4.389	0.2279	0.02061
600	4.151	0.2409	0.02179
700	3.912	0.2557	0.02312
800	3.679	0.2718	0.02459
900	3.459	0.2891	0.02615
1000	3.257	0.3071	0.02777
1100	3.071	0.3256	0.02945
1200	2.857	0.3500	0.03165
1300	2.678	0.3735	0.03378
1400	2.531	0.3952	0.03574
1500	2.414	0.4143	0.03747
1600	2.324	0.4302	0.03891
1700	2.261	0.4423	0.04001
1800	2.222	0.4501	0.04071
1900	2.206	0.4534	0.04101
2000	2.212	0.4520	0.04088
2100	2.242	0.4460	0.04034
2200	2.296	0.4356	0.03939
2300	2.375	0.4211	0.03809
2400	2.480	0.4032	0.03647
2500	2.615	0.3824	0.03459
2600	2.781	0.3595	0.03252
2700	2.981	0.3354	0.03034

2800	3.181	0.3144	0.02844
2900	3.376	0.2962	0.02679
3000	3.589	0.2786	0.02520
3100	3.817	0.2620	0.02369
3200	4.055	0.2466	0.02230
3300	4.294	0.2329	0.02106
3400	4.525	0.2210	0.01999
3500	4.734	0.2112	0.01911
3600	4.906	0.2038	0.01843
3700	5.028	0.1989	0.01799
3800	5.089	0.1965	0.01777

W. SMOOTHED CLOCK CORRELATION

REV	CLOCK TIME	COR SYS TM
9	397100.629	39916.195
16	436880.744	79696.309
25	484236.357	40651.921
31	518472.845	74888.407
32	523917.150	80332.711
40	028855.179	35741.650
47	068794.847	75681.316
56	116133.480	36619.949
63	155731.760	76218.228

RATIO OF CLOCK TIME TO SYSTEM TIME=1.00000001

X. CYCLE PERIOD DATA

PREFLIGHT CALIBRATION

V/H RAMP LEVEL	V/H RAMP AMPLITUDE	CYCLE PERIOD (SECONDS) MASTER	SLAVE	TIME UP RAMP SEC.
7	4	5.063	5.049	0106
7	4	2.290	2.280	1641
7	4	2.264	2.253	1687
7	4	2.216	2.231	1808

INFLIGHT OBSERVATION

V/H RAMP LEVEL	V/H RAMP AMPLITUDE	CYCLE PERIOD (SECONDS) MASTER	SLAVE	TIME UP RAMP SEC.	ORBIT NO.
7	4	5.036	5.156	1808	09
7	4	2.34	2.39	1808	16
6	4	2.24	2.32	1808	32
6	4	2.208	2.292	1808	47

Y. NOTES

1) RAMP SETTING R7A4 IS NOMINAL FOR ORBIT ACHIEVED. HOWEVER,
1) BOTH CAMERAS ARE OPERATING SLOWER THAN THE PREFLIGHT CALIBRATION. IN ADDITION, CAMERA 161 IS APPROXIMATELY 3 PERCENT SLOWER THAN CAMERA 160. THE SETTING OF R6A4 IS AN ATTEMPT TO BOOST CYCLE RATES TO APPROXIMATE R7A4.
2) OPERATIONS 38-4-2 AND 57-2-2 WERE TAKEN WITH THE STEREO SUPRESS OPTION ENABLED.
3) PROBABLE READING ERROR FOR CLOCK CORRELATION IS WITHIN

TEN MILLISECONDS.

4) FRAMES TO FEET, PAN X 2.645 STELLAR X 0.099 INDEX X 0.198