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22 Pages
(Including Cover Sheet)

CORONA "M" FLIGHT DATA BOOK

SYSTEM NO. M15

VEHICLE NO. 1135

MISSION NO. 9048

Prepared by: [redacted]

Checked by: [redacted]

Approved by: [redacted]
(Engineering Manager)

Approved by: [redacted]
(Project Manager)

Approved by: [redacted]
(SETD)

[redacted]

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SYSTEM NO. M16
VEHICLE NO. 1133
MISSION NO. 9048
CAMERA NOS. 100 & 101

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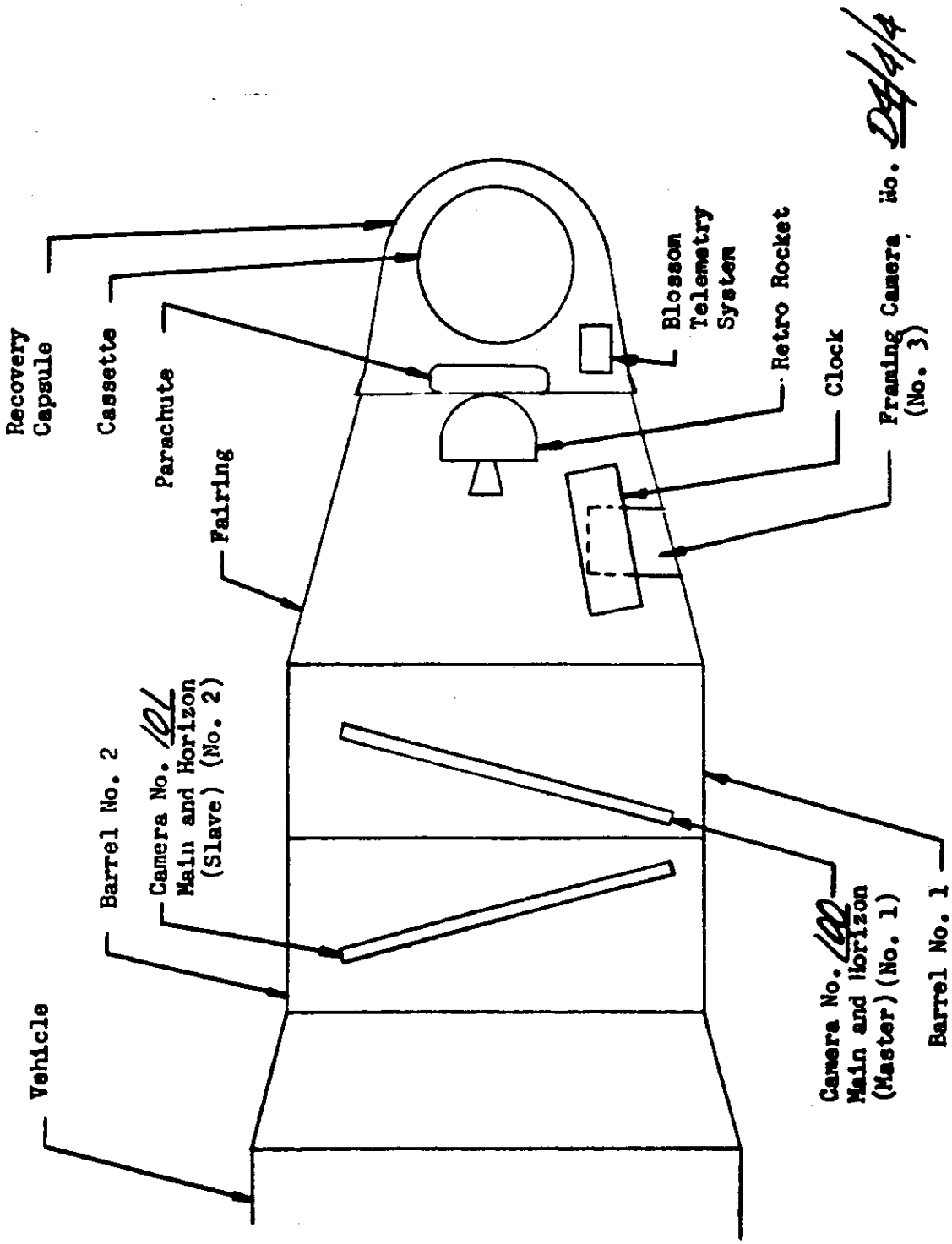
VEHICLE LAYOUT:



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SYSTEM NO. M 15
VEHICLE NO. 133
MISSION NO. 9048
CAMERA NOS. 100 & 101

PRE-LAUNCH INFORMATION:

V/H Programmer Set On Step 5 At Launch

Main Camera Settings:

	Camera No. 100	Camera No. 101
Main Optics Slit Width	.200 in.	.200 in.
Horizon Optics Exposure Time	1/100 Sec.	1/100 Sec.
Horizon Optics Aperture	F6.8	F6.8

Framing Camera Settings:	Terrain Lens	Stellar Lens
Exposure Time	1/125 Sec.	1/2 Sec.
Aperture	F4.5	F1.9

Ratio: One Framing Camera Frame for 7 Camera No. 1 Frames

Film:

	Camera No. 100	Camera No. 101	Framing Camera Terrain	Framing Camera Stellar
Type	7J23 (S0132)	7J23 (S0132)	S0 206	S0130
Length	7800 Ft.	7800 Ft.	135 Ft.	— Ft.
No. of Splices	1	2	—	—
Emulsion Lots	34-11-8-2	34-11-10-8-2	1-9-2	1-9-9-2

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SYSTEM NO. M/S
VEHICLE NO. 1133
MISSION NO. 9068
CAMERA NOS. 100 & 101

[redacted]

GENERAL FLIGHT DATA:

Main Camera No. 1 Serial No. 100

Main Camera No. 2 Serial No. 101

Framing Camera Serial No. D4/4/4

Launch Date 11/24/62

Orbital Parameters: (Rev. 29)

Period 89.93 Min. Eccentricity .010

Perigee 114 NM Perigee Latitude 26.0 Deg. N

Apogee 184 NM Inclination Angle 65.17 Deg. N

Recovery Revolution No. 81

Recovery Date 11/29/62

REMARKS:

[redacted]

[redacted]

SYSTEM NO. M-15
VEHICLE NO. 1135
MISSION NO. 9048
CAMERA NOS. 100 & 101
FRAMING CAMERA NO. D-4

[redacted]

PERFORMANCE ESTIMATE

PASS NO.	FRAMES CAMERA NO.		FEET CAMERA NO.		LATITUDE DEGREES		TIME ON	SOLAR ANGLE		EXP. TIME MILLISEC		RAMP NO.	INST ON SEC. UP RAMP	DUR.
	100	101	100	101	ON	OFF	HR. MIN.	ON	OFF	ON	OFF			
PRE-LAUNCH	121	120	319	316										
1DX1	22	21	58	54	64	63	23 24	03	05	4.1	4.0	5	786	64
2DX1	47	45	124	119	59	54	00 57	10	15	3.8	3.7	5	875	123
3DX1	42	42	111	111	54	49	02 29	15	19	3.8	3.7	10	1022	110
4DX1	39	38	103	100	54	48	03 59	15	19	3.8	3.7	10	1037	100
5DX1	49	49	129	129	55	48	05 28	14	19	3.8	3.7	10	1015	128
6DX1	63	62	166	163	58	50	06 57	11	18	3.9	3.7	10	947	165
6DX2	108	106	285	279	33	18	07 05	29	35	3.4	3.2	10	1274	248
7DX1	122	120	322	316	65	53	08 23	01	16	4.1	3.7	10	750	326
7 [redacted]	67	67	177	177	50	41	08 30	18	24	3.7	3.5	10	1117	167
18DX1	51	50	134	132	60	55	00 56	09	14	3.9	3.8	5	911	137
23DX1	106	104	279	279	64	54	08 23	03	15	4.0	3.7	5	807	283
23DX2	170	162	448	443	51	26	08 29	17	32	3.7	3.3	5	1115	406
30DX1	48	47	127	124	25	19	19 06	33	35	3.4	3.3	3	1535	111
34DX1	55	54	145	142	60	54	00 55	09	15	3.9	3.8	5	922	146
34DX1	87	84	229	221	53	41	03 57	16	24	3.7	3.5	10	1086	217
37DX1	74	73	195	192	53	49	05 25	11	18	3.9	3.7	10	962	193
37DX2	83	81	219	214	44	34	05 32	28	35	3.5	3.3	10	1364	192
37DX3	37	37	98	98	35	28	05 43	39	39	3.2	3.2	10	1934	85
38DX1	104	103	274	272	60	47	06 31	09	20	3.9	3.6	10	908	270
38DX2	65	65	171	171	25	18	07 12	32	36	3.2	3.2	10	1957	146
38 [redacted]	18	17	47	45	12	08	08 32	41	45	3.0	3.0	10	2572	61
[redacted]														

SYSTEM NO. M-15
VEHICLE NO. 1135
MISSION NO. 9048
CAMERA NOS. 100 & 101
FRAMING CAMERA NO. D-4

[redacted]

PERFORMANCE ESTIMATE

PASS NO.	FRAMES CAMERA NO.		FEET CAMERA NO.		LATITUDE DEGREES		TIME ON	SOLAR ANGLE		EXP. TIME MILLISEC		RAMP NO.	INST ON SEC. UP RAMP	DUR.
	100	101	100	101	ON	OFF	HR. MIN.	ON	OFF	ON	OFF			
55 DX1	66	66	174	174	61	54	08 22	08	15	3.9	3.7	10	924	177
55 DX2	54	53	142	140	49	40	08 27	19	25	3.7	3.5	10	1179	134
57 AE	14	14	37	37	38	41	11 06	26	24	4.8	4.7	10	83	49
66 DX1	60	58	158	153	58	50	00 52	11	18	3.9	3.7	5	998	156
67 DX1	39	38	103	100	53	48	02 24	16	19	3.7	3.6	5	1105	100
68 DX1	58	56	153	148	55	48	03 53	14	19	3.8	3.6	5	1063	147
68 DX2	48	46	127	121	43	35	03 57	23	28	3.6	3.5	5	1275	117
69 DX1	64	62	169	163	58	49	05 22	11	19	3.9	3.7	5	997	165
69 DX2	143	138	377	364	42	20	05 27	23	35	3.6	3.3	5	1292	330
69 DX3	68	65	179	171	3N	7S	05 38	39	39	3.3	3.3	5	1877	151
70 DX1	202	194	532	511	64	40	06 48	03	25	4.1	3.5	5	805	517
70 DX2	80	77	211	203	34	22	06 60	28	34	3.4	3.3	5	1415	183
70 DX3	85	82	224	216	4N	7S	07 07	38	39	3.3	3.3	5	1844	190
71 DX1	108	103	285	272	63	50	08 20	05	18	4.0	3.7	5	913	279
72 AE	13	13	34	34	38	41	09 35	26	24	5.3	5.2	5	97	49
72 DX1	113	107	298	282	58	42	09 52	11	23	3.9	3.6	5	1029	283
80 DX1	34	31	90	82	63	61	21 48	05	08	4.1	3.9	5	861	93

SYSTEM NO. M-15
VEHICLE NO. 1135
MISSION NO. 9048
CAMERA NOS. 100 & 101
FRAMING CAMERA NO. D-4

[redacted]

PERFORMANCE ESTIMATE

PASS NO.	FRAMES CAMERA		FEET CAMERA	
	TERRAIN	STELLAR	TERRAIN	STELLAR
PRE-LAUNCH	17	17	3.3	1.6
1DX1	3	3	0.6	0.3
2DX1	7	7	1.4	0.7
3DY1	6	6	1.2	0.6
4DY1	5	5	1.0	0.5
5DY1	7	7	1.4	0.7
6DY1	9	9	1.8	0.9
6DY2	16	16	3.2	1.6
7DY1	17	17	3.3	1.6
7DY2	10	10	2.0	1.0
18DX1	7	7	1.4	0.7
23DX1	15	15	3.0	1.5
23DX2	24	24	4.8	2.4
30DX1	7	7	1.4	0.7
34DX1	8	8	1.6	0.8
36DY1	13	13	2.6	1.3
37DY1	10	10	2.0	1.0
37DY2	12	12	2.4	1.2
37DY3	5	5	1.0	0.5
38DY1	16	16	3.0	1.5
38DY2	9	9	1.8	0.9
39DY1	14	14	2.8	1.4
39DY2	[illegible]	[illegible]	[illegible]	[illegible]

PASS NO.	FRAMES CAMERA		FEET CAMERA	
	TERRAIN	STELLAR	TERRAIN	STELLAR
46DX1	7	7	1.4	0.7
55DY1	9	9	1.8	0.9
55DY2	8	8	1.6	0.8
57AE	2	2	0.4	0.2
66DX1	8	8	1.6	0.8
67DX1	6	6	1.2	0.6
68DX1	8	8	1.6	0.8
68DX2	7	7	1.4	0.7
69DX1	9	9	1.8	0.9
69DX2	21	21	4.1	2.1
69DX3	9	9	1.8	0.9
70DX1	29	29	5.7	2.9
70DX2	12	12	2.4	1.2
70DX3	12	12	2.4	1.2
71DX1	15	15	3.0	1.5
72AE	2	2	0.4	0.2
72DX1	16	16	3.2	1.6
80DX1	5	5	1.0	0.5
[redacted]				

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SYSTEM NO. M15
VEHICLE NO. 1135
MISSION NO. 9046
CAMERA NOS. 100 & 101

[redacted]

PRE-FLIGHT CYCLE PERIOD: (CAMERA NO. 100)

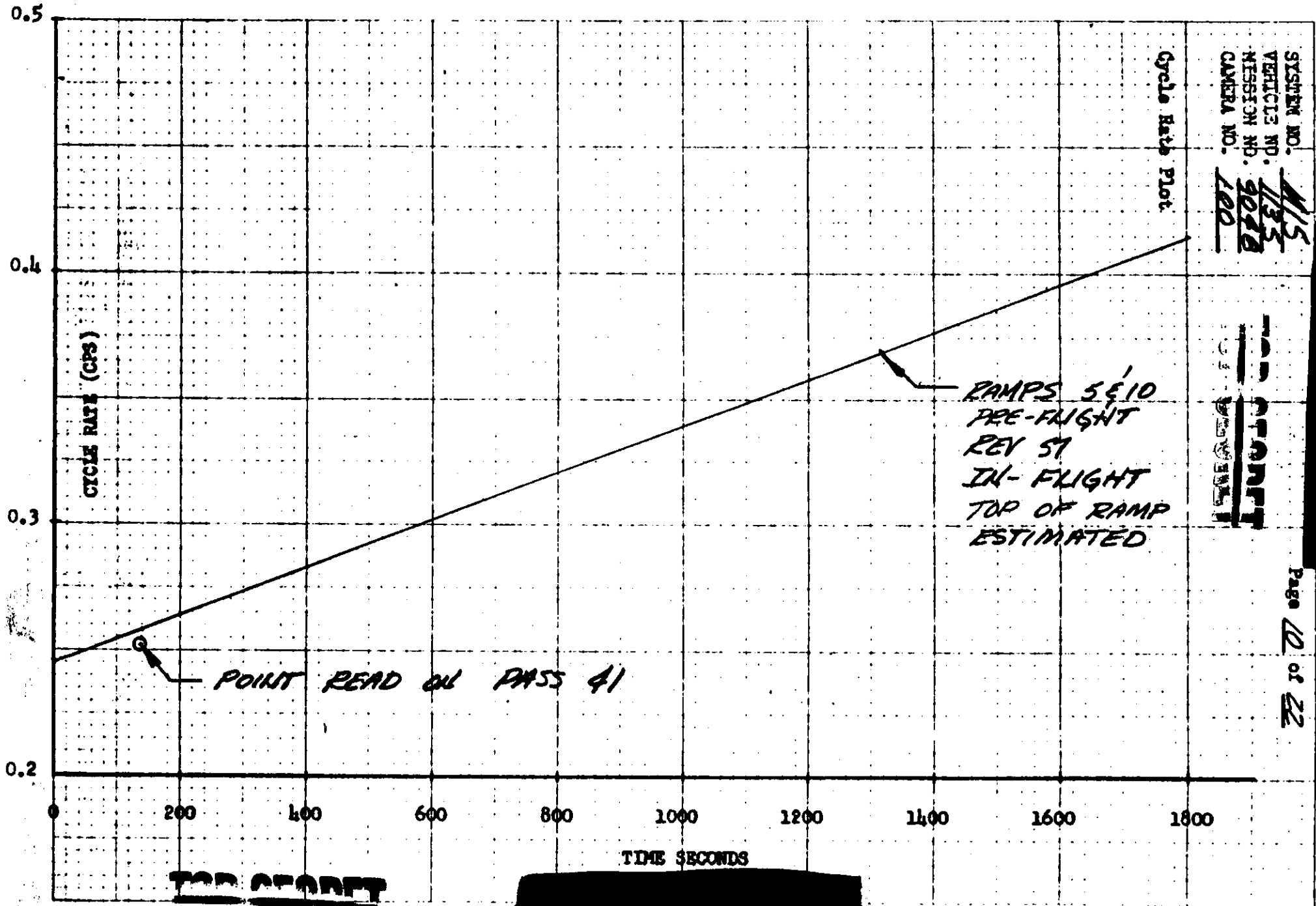
V/H Ramp	Cycle Period Seconds	FMC Rate		Scan Rate		
		Rad. Per Second	In. Per Second	Rad. Per Second	In. Per Second	Exposure Millisec
5 START	4.06	.021	.499	1.548	37.141	5.38
5 END	2.41	.035	.840	2.607	62.622	3.18
10 START	4.05	.021	.504	1.563	37.513	5.33
10 END	2.41	.035	.840	2.607	62.622	3.18

IN-FLIGHT CYCLE PERIOD: (CAMERA NO. 100)

Rev.No.	V/H Ramp	Cycle Period Seconds	FMC Rate		Scan Rate		
			Rad. Per Second	In. Per Second	Rad. Per Second	In. Per Second	Exposure Millisec
41	10 (140)	3.96	.021	.511	1.587	38.079	5.25
57	10 (140)	3.87	.022	.523	1.624	39.010	5.108

NO IN PARENTHESIS IS TIME UP RAMP.

[redacted]



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VEHICLE NO. 1133
MISSION NO. 9048
CAMERA NOS. 100 & 101

PRE-FLIGHT CYCLE PERIOD: (CAMERA NO. 101)

V/H Ramp	Cycle Period Seconds	FMC Rate		Scan Rate		
		Rad. Per Second	In. Per Second	Rad. Per Second	In. Per Second	Exposure Millisec
S START	4.05	.021	.504	1.563	37.513	5.33
S END	2.41	.035	.840	2.607	62.622	3.18
10 START	4.04	.021	.501	1.555	37.325	5.36
10 END	2.42	.035	.837	2.596	62.312	3.21

IN-FLIGHT CYCLE PERIOD: (CAMERA NO. 101)

Rev.No.	V/H Ramp	Cycle Period Seconds	FMC Rate		Scan Rate		
			Rad. Per Second	In. Per Second	Rad. Per Second	In. Per Second	Exposure Millisec
41	10(140)	3.89	.022	.521	1.615	38.765	5.16
57	10(140)	3.80	.022	.533	1.653	39.683	5.04

No. IN PARENTHESIS IS TIME UP RAMP

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TOP SECRET
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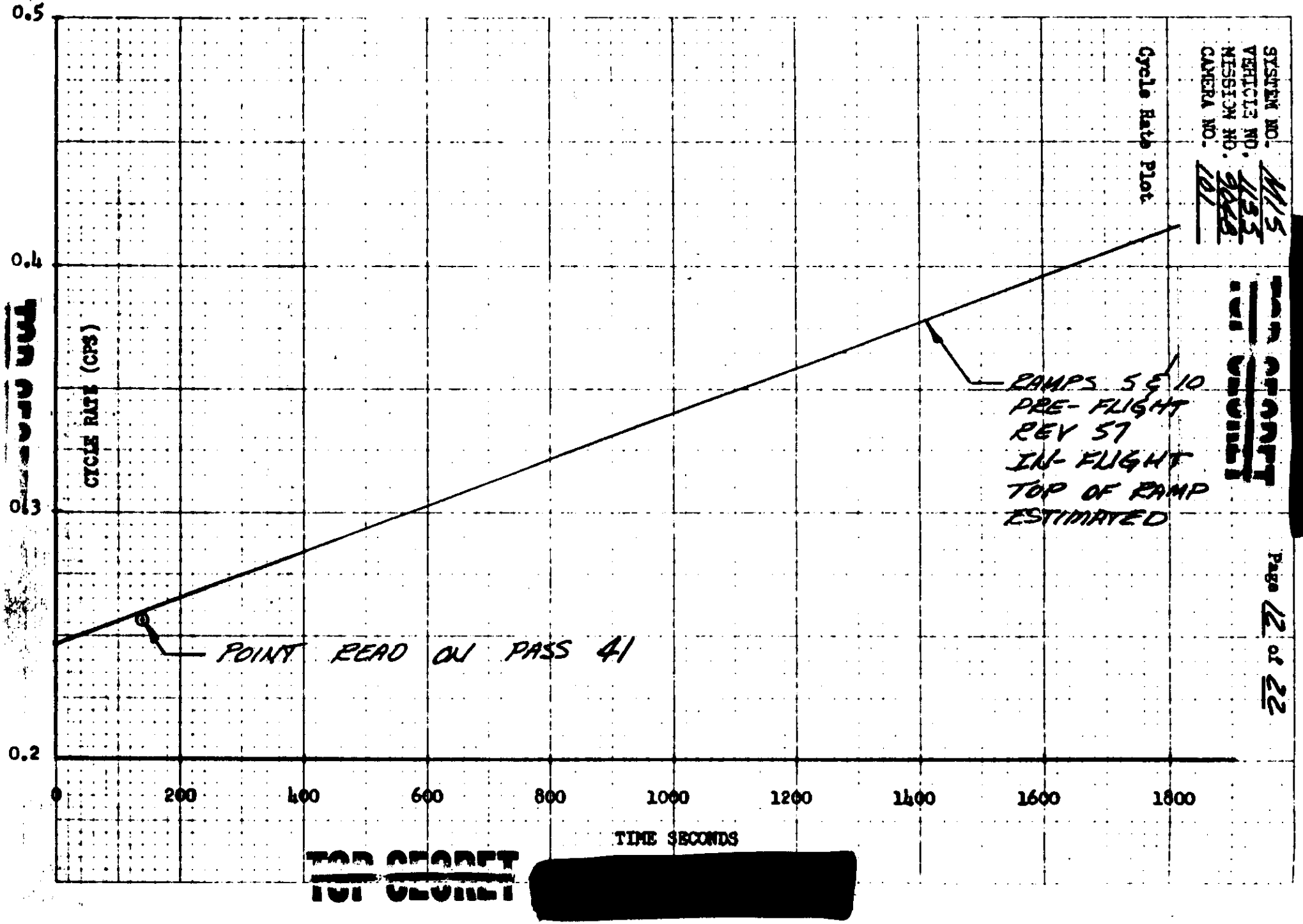
SYSTEM NO. MS
VEHICLE NO. 1103
MISSION NO. 2044
CAMERA NO. AFT

Cycle Rate Plot



TOP SECRET
TOP SECRET

SYSTEM NO. M15
VEHICLE NO. 1135
MISSION NO. 904B
CAMERA NOS. 100 & 101

[redacted]

LENS DATA SUMMARY: (Main Camera No. 100)

Lens Serial No. 0422435

Filter Type WRATTEN 21

Equivalent Operational Focal Length 609.610 MM

Resolution:

Static:

	Lines/MM	Film Type	Target Contrast
Bench Test	282	50243	HIGH
Other			

Dynamic:

Itek Pre-Vibration	161	50132	HIGH
Itek Post Vibration	156	50132	HIGH
AP	169	50132	HIGH
AP	91.6	50132	LOW
Other			

Note: Itek Post Vibration Resolution of 156 lines/MM Reported In Message No. _____ dated _____

Distortion - Positive (Pincushion)

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

[redacted]

[redacted]

SYSTEM NO. M1S [redacted] Page 14 of 22
VEHICLE NO. 1133
MISSION NO. 9048
CAMERA NOS. 100 & 101

[redacted]

LENS DATA SUMMARY: (Horizon Cameras for Main Camera No. 100)

	Take-Up	Supply
Lens Serial No.	807091	807557
Exposure Time	1/100 Sec.	1/100 Sec.
Filter Type	WRATTEN 25	WRATTEN 25
Aperture	F6.8	F6.8
Operational Focal Length	89.2 MM	88.95 MM
Radial Distortion:		
10° off Axis	.011 MM	.004 MM
20° off Axis	.047 MM	.045 MM
Tangential Distortion (Maximum Vector)	.012 MM	.004 MM

Resolution:

Angle off Axis Deg.	0	5	10	15	20	25	27.5	0	5	10	15	20	25	27.5
Radial Resolution	55	49	29	25	29	27	33	56	47	37	32	34	32	30
Tangential Resolution	55	46	44	34	29	25	22	51	44	36	34	34	25	20

35.9 Lines/MM Avg. 36.6 Lines/MM Avg.

Note:

1. Distortion and resolution are read at equivalent operational focal length.
2. Resolution in lines per mm on SUPER XX film and HIGH contrast target.

[redacted]

[redacted]

SYSTEM NO. M15
VEHICLE NO. 133
MISSION NO. 9028
CAMERA NOS. 102 & 101

[redacted] FOR DRAFT [redacted]

LENS DATA SUMMARY: (Main Camera No. 101)

Lens Serial No. 0372435

Filter Type WRATTEN 21

Equivalent Operational Focal Length 609.602 MM

Resolution:

Static:

	Lines/MM	Film Type	Target Contrast
Bench Test	232	SO243	HIGH
Other			

Dynamic:

Itek Pre-Vibration	170	SO132	HIGH
Itek Post Vibration	170	SO132	HIGH
AP	163	SO132	HIGH
AP	101.3	SO132	LOW
Other			

Note: Itek Post Vibration Resolution of 170 lines/MM Reported In Message No. _____ dated _____

Distortion - Positive (Pincushion)

Angle Off Axis Deg.	3	2	1	0	359	358	357		
Distortion Millimeters	.002	.001	.001	.000	.001	.001	.006		

FOR DRAFT [redacted]

SYSTEM NO. MI[redacted] Page 16 of 22
VEHICLE NO. 133
MISSION NO. 9048
CAMERA NOS. 100 & 101

[redacted]

LENS DATA SUMMARY: (Horizon Cameras for Main Camera No. 101)

	Take-Up	Supply
Lens Serial No.	807092	803797
Exposure Time	1/100 Sec.	1/100 Sec.
Filter Type	WRATTEN 25	WRATTEN 25
Aperture	F6.8	F6.8
Operational Focal Length	89.0 MM	89.05 MM
Radial Distortion:		
10° off Axis	.002 MM	.008 MM
20° off Axis	.025 MM	.045 MM
Tangential Distortion (Maximum Vector)	.010 MM	.007 MM

Resolution:

Angle off Axis Deg.	0	5	10	15	20	25	27.5	0	5	10	15	20	22.5	
Radial Resolution	51	49	39	30	31	34	34	56	49	44	31	29	23	
Tangential Resolution	51	46	39	32	31	25	20	51	47	44	38	27	23	

36.6 Lines/MM Avg. 38.5 Lines/MM Avg.

Note:

1. Distortion and resolution are read at equivalent operational focal length.
2. Resolution in lines per mm on SuperXX film and High contrast target.

[redacted]

[redacted]

DEFINITION OF MAIN 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 Agena vehicle with the position of the total payload being changed for each instrument calibration.

2.0 Three targets are aligned to be coplanar within ± 5" of arc. The longitudinal axis of the vehicle (Z axis) is so positioned to form an angle of 105.00° ± 5" to the target plane for camera number one calibrations and an angle of 75.00° ± 5" to the target plane for camera number two calibrations.

2.1 One target, Target 1, is in the ZX plane (Nadir) imaging on the terrain format.

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

3.0 The indicated center of format of the main cameras is given by the intersection of a line through the center of mass of the central shrinkage marker and an normal to the edge of format containing the shrinkage marker and [illegible] 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 as defined in paragraph 3.

6.0 Xs, Ys and Xu, Yu 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 camera number one and is the edge containing the shrinkage markers for camera number two.

8.0 Dimensions A, B, and C are the spacings of the shrinkage markers. 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 main cameras and the line of intersection of the plane dfined in Para. 2 on the format is not currently available. It is assumed to be zero, but is uncontrolled.

11.0 Measurement of the angle between the indicated axis of the horizon cameras and the line of intersection of the plane defined in Para. 2 on the format is made by positioning two targets for each horizon format normal ± 5" of arc to the plane defined in Para. 2. Dimensions F, G, H, J, K, L, M and N are the offsets of these targets.

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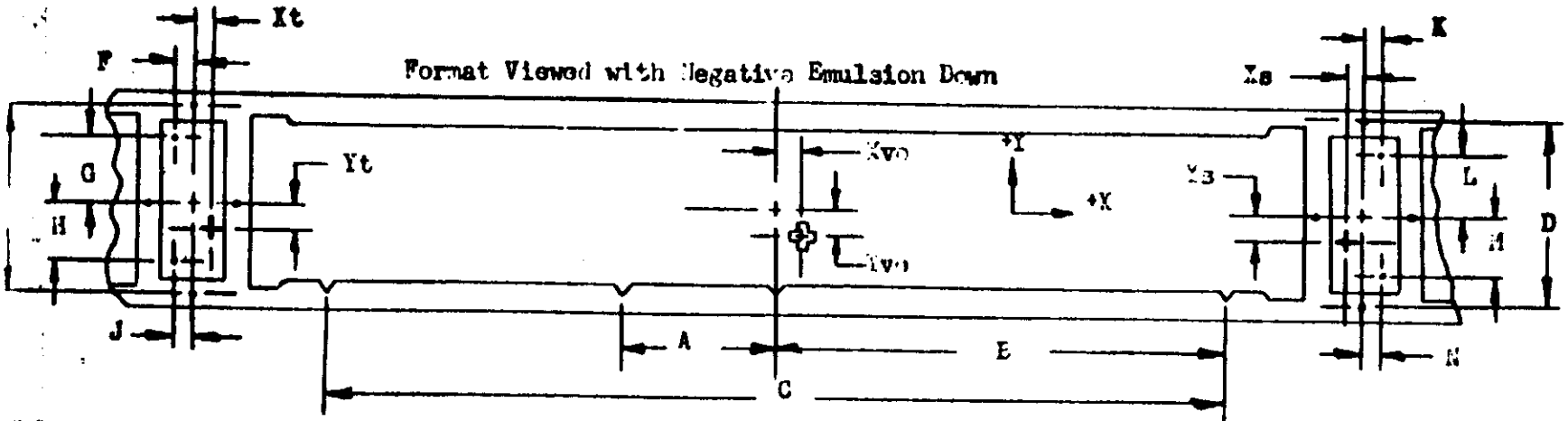
SYSTEM NO. 4115
VEHICLE NO. 4133
MISSION NO. 5028
CAMERA NOS. 100 & 101

FORMAT DIMENSIONS: (MAIN CAMERAS)



Camera No. 100 Vehicle Motion ↓ Scan Direction →

A	76.105	Xs	-.357	H	-23.720
B	355.230	Ys	-.106	J	-4.333
C	710.467	Xvo	-.237	K	+4.925
D	56.448	Yvo	-.275	L	+23.097
E	56.438	F	-4.383	M	-23.265
Xt	+.586	G	+23.911	N	+4.448
Yt	+.161				

Format Dimensions:

	Main Take-Up	Supply
Height	55.8	
Width	754.2	

Camera No. 101 Vehicle Motion ↓ Scan Direction →

A	76.190	Xs	+.266	H	-23.626
B	355.110	Ys	-.200	J	-5.094
C	710.320	Xvo	+.710	K	+5.215
D	56.369	Yvo	+.727	L	+23.619
E	56.431	F	4.904	M	-24.028
Xt	+.045	G	+22.712	N	+5.196
Yt	-.396				

Format Dimensions:

	Main Take-Up	Supply
Height	56.2	
Width	754.2	

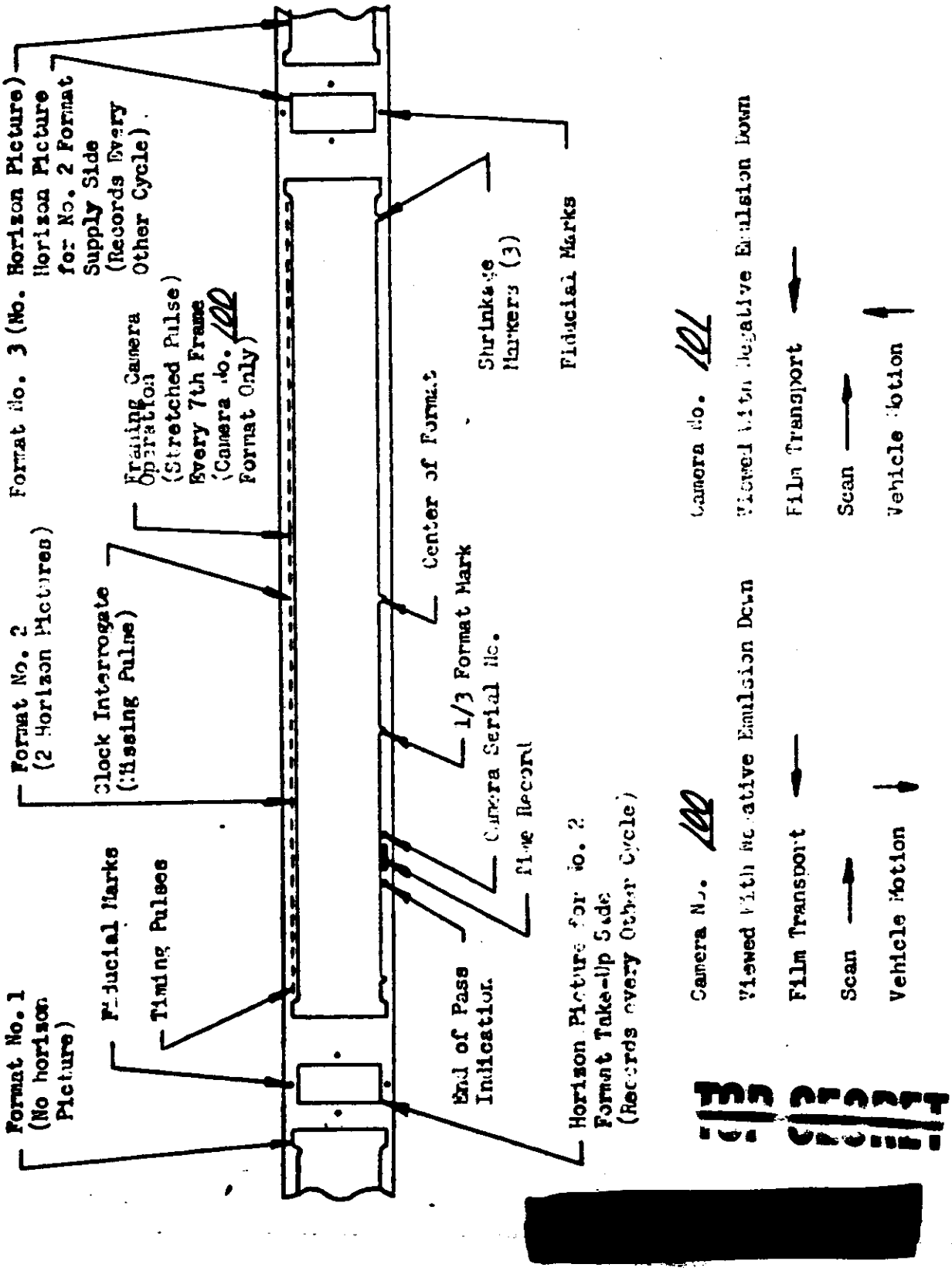
Note: 1. All dimensions are in millimeters and are average dimensions of three formats.
2. Height of main format is taken at center of format.
3. Format sign convention

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

[redacted]

SYSTEM NO. M15
VEHICLE NO. 1135
MISSION NO. 9012
CAMERA NOS. 100 & 101

FORMAT LAYOUT: (MAIN CAMERAS)



LENS DATA SUMMARY: (Framing Camera No. 04) (TERIAN Lens)

Lens Serial No. 809611

Reseau Serial No. 4

Filter Type W/PATTEN 21

Aperture F4.5

Exposure Time 1/125 Sec.

Equivalent Focal Length 38.46 MM Operational Focal Length 38.56 MM

Resolution: 82.6 Lines/MM AVAR

Angle off axis	0	10	20	30	35
Resolution L/MM High Contrast	113/107	106/103	117/86	103/59	91/37
Resolution L/MM Low Contrast	76/72	70/78	77/66	69/39	66/33

Note: Resolution data read from SO130 Film

Distortion:

Angle off Axis Deg.	0	10	20	30	35				
Distortion Millimeters	.000	.013	.054	.122	.172				

Perpendicularity of Reseau to Optical Axis .140 MM IN 57 MM

Date of Stellar Calibration 9/21/62

Knee Calibration 89 Deg. 51 Min. 59.6 Sec.

Location of Principal Point:

X -.016 MM Y -.014 MM

SYSTEM NO. MIS
VEHICLE NO. 1133
MISSION NO. 9048
CAMERA NOS. 100 & 101

[redacted]

LENS DATA SUMMARY: (Framing Camera No. 04) (STELLAR Lens)

Lens Serial No. 80029

Reseau Serial No. 4

Filter Type NONE

Aperture F 1.9

Exposure Time 1/2 Sec.

Equivalent Focal Length 83.65 MM Operational Focal Length 83.64 MM

Resolution: _____ Lines/MM AVAR

NOT REPORTED

Angle off axis					
Resolution L/MM High Contrast					
Resolution L/MM Low Contrast					

Note: Resolution data read from _____ Film

Distortion:

Angle off Axis Deg.	0	2.5	5	7.5					
Distortion Millimeters	.000	.001	.005	.007					

Perpendicularity of Reseau to Optical Axis .013 MM IN 35 MM

Date of Stellar Calibration 9/21/62

Knee Calibration 89 Deg. 51 Min. 59.6 Sec.

Location of Principal Point:

X +.129 MM Y -.056 MM

[redacted]

[redacted]

[redacted]

SYSTEM NO. M15
VEHICLE NO. 1133
MISSION NO. 9028
CAMERA NOS. 100 & 101

[redacted]

PRELIMINARY CLOCK CORRELATION:

Rev. No.	System Time	Clock Time	Delta Sys. Time	Delta Clock Time	Diff.
41	40091.943	105563.925			
57	40035.166	191907.165	86343.223	86343.240	+.017

[redacted]

[redacted]