[redacted]

[redacted]

MISSION NO. 90-1

Prepared by: [redacted]

Checked by: [redacted]

Approved by: [redacted]
(Engineering Manager)

Approved by: [redacted]
(Project Manager)

Approved by: [redacted]
(QA)

[redacted]

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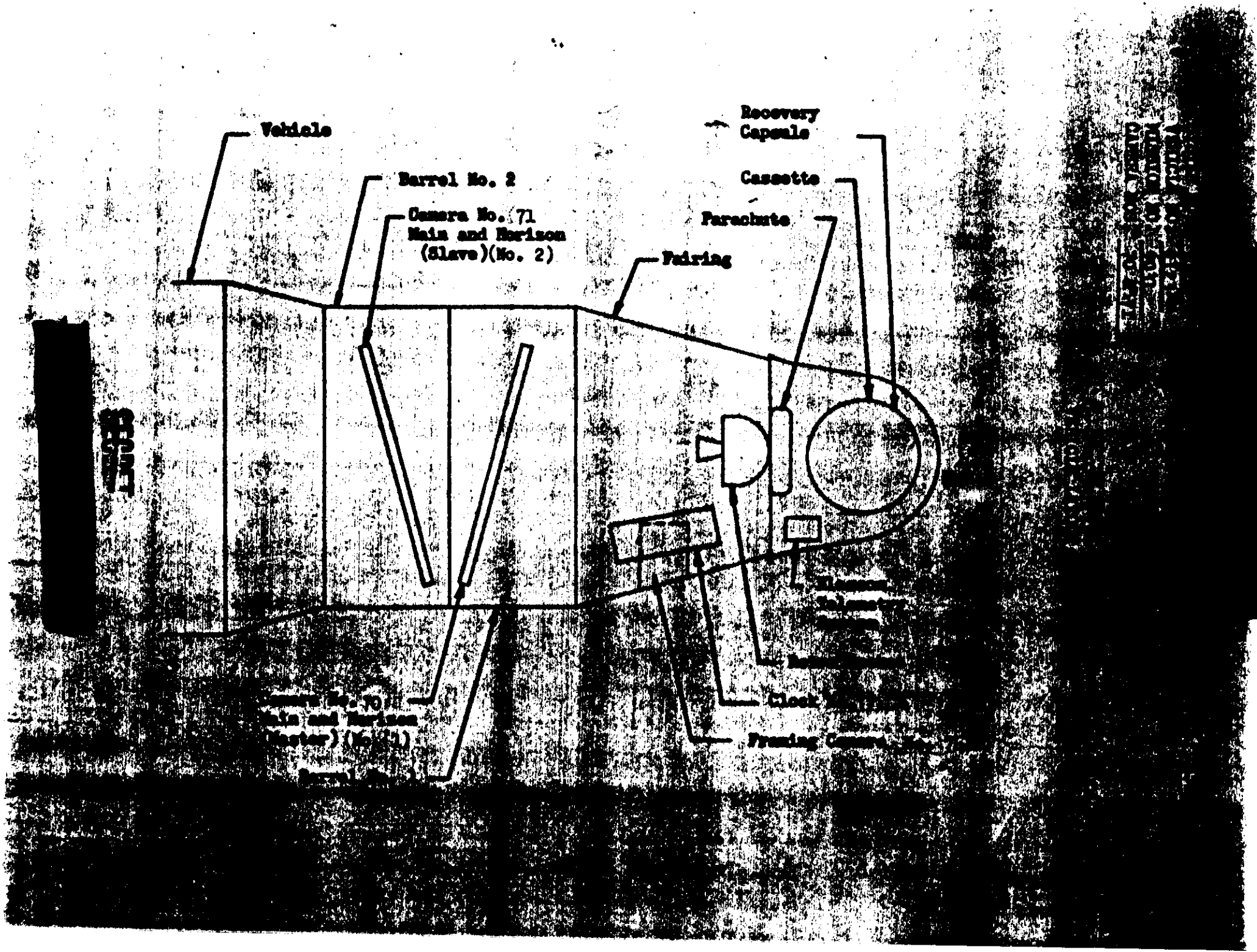
[redacted]


Vehicle
Barrel No. 2
Camera No. 71
Main and Horizon
(Slave)(No. 2)
Fairing
Recovery
Capsule
Cassette
Parachute

[redacted]

GENERAL FLIGHT DATA:

[redacted]

Main Camera No. 1 Serial No. [redacted]

Main Camera No. 2 Serial No. [redacted]

Framing Camera Serial No. [redacted]

Launch Date [redacted]

Orbital Parameters: (Rev. 33)

Period 90.55 Min. Eccentricity .0148

Perigee 115 NM [redacted]

Apogee 224 NM Inclination Angle 82.30 Deg.

Recovery Revolution No. 65

Recovery Date 3-3-62

REMARKS:

1. Framing camera did not operate on this mission.

2. Performance Estimate:

   (a) Latitude coverage is estimated full stereo coverage. Camera 71 will have about 6 frames or one degree coverage [redacted] the stereo turn on latitude.

   Camera 70 will have about 6 frames or one degree coverage [redacted] the stereo turn off latitude.

   (b) Exposure times are calculated using average cycle [redacted] two cameras adjusted for in flight variations.

   (c) Operation 570X1 covered by camera No. 70 only.

[redacted]

[redacted]

PRE-LAUNCH INFORMATION

V/H Programmer Set On Step [redacted]

Main Camera Settings: [redacted]

Main Optics Slit Width [redacted]

Horizon Optics Exposure Time [redacted] 1/100 Sec. 1/100 Sec.

Horizon Optics Aperture [redacted] F 6.3 F 6.3

Framing Camera Settings:

Exposure Time 1/250

Aperture F 6.3

Ratio: One Framing Camera Frame Per [redacted] Camera No. 1 Frames

Film:

	Camera No. 70	Camera No. 71	Framing Camera
Type	J 23	J 23	SO-130
Length	7600 Ft.	7600 Ft.	140 Ft.
No. of Splices	1	1	None
Emulsion Data	16-6-5-1-2	14-3-10-1	15-3

Note: See Horizon Lens Exposure Time Data Page [redacted]

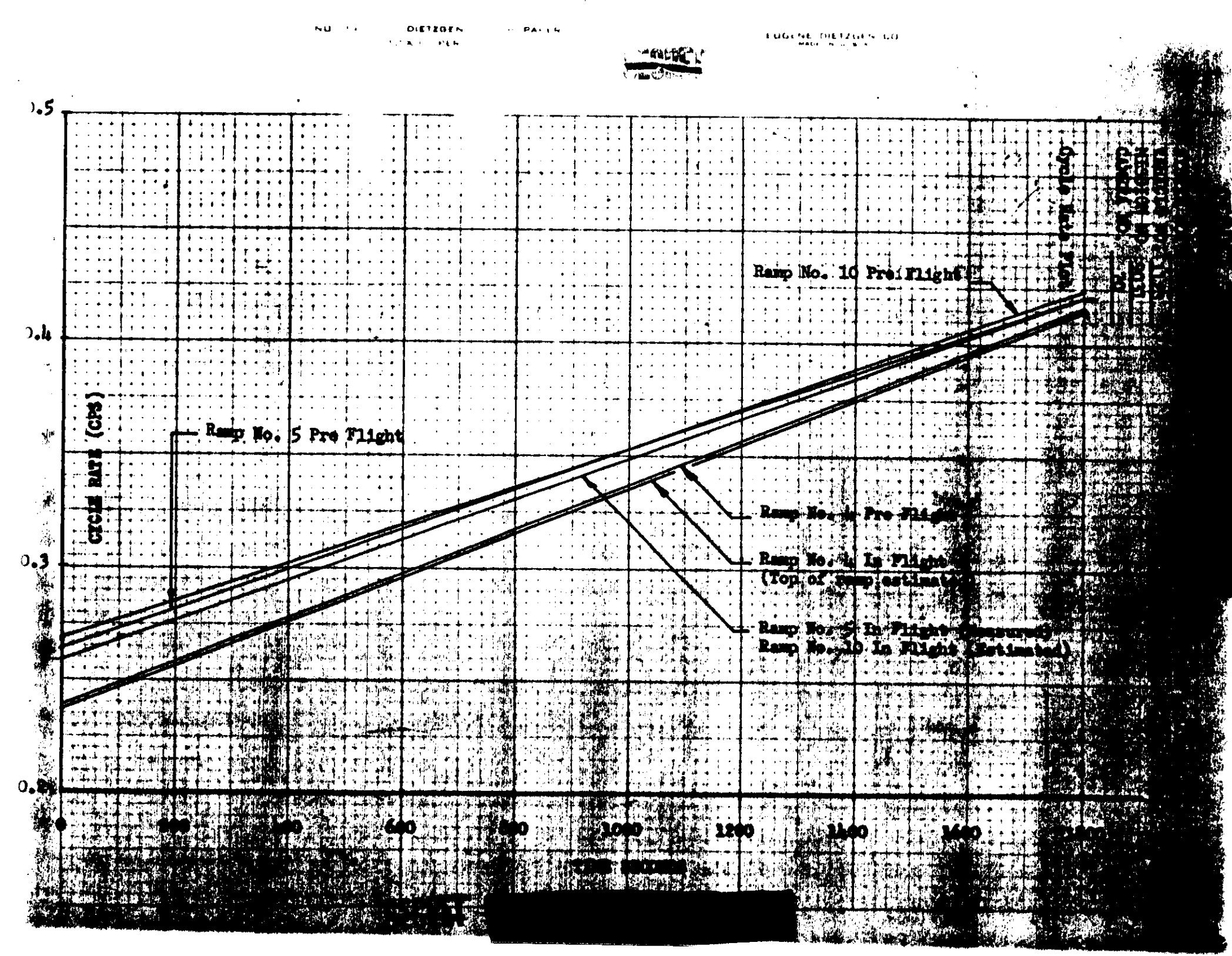
[redacted]

OP NO.	RAMP NO.	TIME SHOT UP RAMP	ELEVATION DEGREES ON	ELEVATION DEGREES OFF	APEX TIME (GMT) DY HR. MN.	APEX ALTITUDE STATUTE MILES	RANGE STATUTE MILES	RANGE NAUTICAL MILES	VELOCITY FEET PER SECOND
PL	4	-	-	-					
OR	4	-	-	-					
IDR	4	-	56.5	51.5	27 [illegible]				
2DX1	4	824	73.0	63.5	27 [illegible]				
3DY1	10	1011	61.5	56.5	28 [illegible]				
5DY1	10	803	75.0	70.5	28 03 06	92		78	
5DY2	10	1131	54.5	41.5	28 08 22	209	71	165	
6AE	10	-	44.5	36.5	28 04 23	45	38	33	
7DX1	5	866	71.5	62.5	28 06 09	136	116	113	
8DX1	5	885	70.5	35.5	28 07 40	216	[illegible]	[illegible]	
9AE	5	-	36.5	30.5	28 04 52	[illegible]	[illegible]	[illegible]	
9DY1	10	996	63.0	[illegible]	28 09 12	[illegible]	[illegible]	[illegible]	
18DY1	10	937	69.5	[illegible]	28 22 46	18	[illegible]	[illegible]	
19DY1	10	1060	61.5	[illegible]	01 00 18	128	[illegible]	120	
20DY1	10	1180	53.5	41.0	01 01 51	209	71	165	
21DY1	10	849	75.0	70.5	01 03 16	105	[illegible]	[illegible]	
21DY2	10	1087	60.5	50.0	01 03 20	177	[illegible]	[illegible]	
21DY3	10	1504	33.0	24.0	01 03 27	145	58	132	
22DY1	10	1086	61.0	54.0	01 04 50	124	43	114	
23DY1	10	1057	62.5	44.0	01 06 20	304	[illegible]	[illegible]	
24AE	10	-	36.5	30.5	01 07 31	[illegible]	[illegible]	[illegible]	
24DY1	10	904	73.0	54.0	01 07 48	312	240	220	
25DY1	10	1064	62.5	47.5	01 09 22	259	96	249	
34DY1	10	1111	56.5	55.5	01 22 58	41	15	40	
35DY1	10	1110	61.0	55.0	02 00 14	113	37	99	
36DY1	10	911	74.5	70.0	02 01 55	95	30	86	
36DY2	10	1230	53.5	41.0	02 02 00	209	[illegible]	[illegible]	
37DY1	10	900	74.5	69.5	02 03 25	105	[illegible]	[illegible]	
37DY2	10	1121	60.5	50.0	02 03 29	193	69	177	
37DY3	10	1480	37.0	23.5	02 03 35	220	85	224	
38DY1	10	1135	60.0	53.5	02 04 59	124	44	111	
39DY1	10	1107	62.5	44.5	02 06 29	304	107	[illegible]	
40AE	10	-	36.5	30.5	02 07 40	[illegible]	[illegible]	[illegible]	
40DX1	5	954	72.0	58.5	02 07 57	511	[illegible]	[illegible]	
41DX1	5	971	71.5	62.5	02 09 28	459	[illegible]	[illegible]	
47DX1	5	1368	46.5	39.5	02 18 37	119	[illegible]	[illegible]	
54DY1	10	1162	51.0	42.0	03 05 08	303	[illegible]	[illegible]	
55DY1	10	1150	51.0	42.5	03 06 38	304	[illegible]	[illegible]	
56AE	10	-	36.5	30.5	03 07 48	45	[illegible]	[illegible]	
56DX1	5	997	72.5	52.0	03 08 05	456	161	417	
57DX1	5	1014	55.5	48.0	03 09 41	144	53	134	

V/H Ramp	Cycle Period Seconds	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4 Start	4.23	.020				
4 End	2.41	.035				
5 Start	3.75	.023				
5 End	2.38	.035	.851	[illegible]	[illegible]	[illegible]
10 Start	3.78	.022	.536	[illegible]	[illegible]	[illegible]
10 End	2.36	.036	.850	[illegible]	[illegible]	[illegible]

IN-FLIGHT CYCLE PERIOD: (CAMERA NO. [illegible])

Rev.No.	V/H Ramp	Cycle Period Seconds	FMC Rate		Sem. [illegible]		
			Rad. Per Second	In. Per Second	Rad. Per Second	In. Per Second	
1	4 Start	4.27	.019	.474	1.472	35.35	
9	5 Start	3.87	.022	.523	1.624	39.01	
24	10 Start	3.87	.022	.523	[illegible]	[illegible]	
40	10 Start	3.87	.022	.523	[illegible]	[illegible]	
47	5 [illegible] Ramp	2.55	.033	.794	[illegible]	[illegible]	
56	10 Start	3.90	.021	.513	[illegible]	[illegible]	

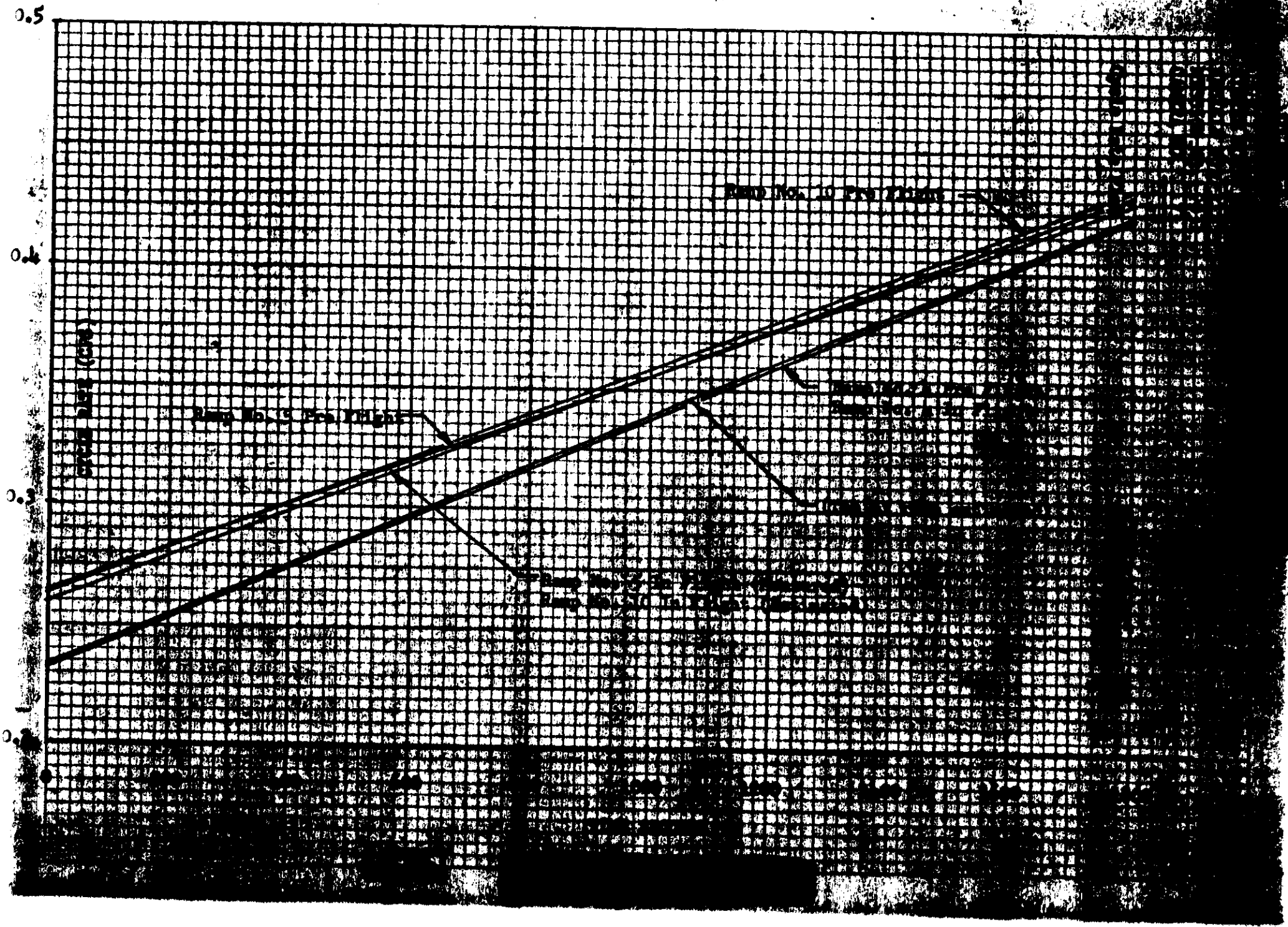

CYCLE RATE (CPS)
Ramp No. 5 Pre Flight
Ramp No. 10 Pre Flight
Ramp No. 5 In Flight (Top of Ramp estimated)
Ramp No. 5 In Flight (Measured)
Ramp No. 10 In Flight (Estimated)

V/H Ramp	Cycle Period Seconds	FMC Rate		Scan Rate		
		Rad. Per Second	In. Per Second	Rad. Per Second	In. Per Second	Exposure Milliroentgens
4 Start	4.30	.019	.473	1.167	35.228	5.676
4 End	2.37	.036	.869	2.696	64.741	3.128
5 Start	3.78	.022	.534	1.658	39.815	4.969
5 End	2.33	.036	.869	2.696	64.741	3.075
10 Start	3.79	.022	.534	1.658	39.815	5.003
10 End	2.30	.037	.881	2.736	65.696	3.036

IN-FLIGHT CYCLE PERIOD: (CAMERA NO. 71)

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 Milliroentgens
1 [redacted]	4 Start	4.28	.019	.473	1.167	35.228	5.[redacted]
9 [redacted]	5 Start	3.85	.022	.526	1.632	39.191	[redacted]
24 [redacted]	10 Start	3.85	.022	.526	1.632	39.191	[redacted]
40 [redacted]	10 Start	3.85	.022	.526	1.632	39.191	[redacted]
47 [redacted]	15 Ramp	2.48	.034	.813	1.527	60.587	[redacted]
56 [redacted]	10 Start	3.90	.022	.519	1.658	38.686	[redacted]

[redacted]



[redacted]
MISSION NO. 9031
CAMERA NOS. 70 & 71

LENS DATA SUMMARY: (Main Camera No. 70)

Lens Serial No. F 10

Filter Type WRATTEN 21

Equivalent Operational Focal Length 610.1

Resolution:

Static:

	Lines/MM	Film Type	Target Contrast
Bench Test	190.07	SO 243	High
Other	None		

Dynamic:

Itek Pre-Vibration	145	SO 132	High
Itek Post Vibration	138	SO 132	High
AP Pre-HATS	148.5	SO 132	High
AP Post-HATS	141	SO 132	High
Other	None		

Note: Itek Post Vibration Resolution of 138 lines/MM Reported In Message No. [redacted] dated 2/26/62

Distortion - Positive (Pincushion)

Angle Off Axis Deg.	357	357½	358	359	0	1	2	2½	3
Distortion Millimeters	.053	.029	.015	0	0	0	.010	.022	.035

SECRET

[redacted]

[redacted]

Exposure Time	[redacted]	[redacted]
Filter Type	[redacted]	[redacted]
Aperture	[redacted]	[redacted]
Operational Focal Length	[redacted]	[redacted]
Radial Distortion:		
10° off Axis	[redacted]	[redacted]
20° off Axis	[redacted]	[redacted]
Tangential Distortion (Maximum Vector)	[redacted]	[redacted]
Resolution:		

Angle off Axis Deg.	0	5	10	15	20	0	5	[redacted]
Resolution	56	49	39	30	[redacted]	[redacted]	[redacted]	[redacted]

Note:

1. Distortion and resolution are read at equivalent operational focal length.
2. Resolution is lines per mm on Super XX film and [redacted] target.

[redacted]

Lens Data [redacted]

Lens Serial No. [redacted]

Filter Type [redacted]

Equivalent [redacted]

Resolution:

Static:

	Lines/mm	[redacted]	[redacted]
Bench Test	188.1k	[redacted]	[redacted]
Other	None	[redacted]	[redacted]

Dynamic:

Itek Pre-Vibration	195	[redacted]	[redacted]
Itek Post Vibration	171	[redacted]	High
AP Pre-HATS	158	[redacted]	High
AP Post-HATS	184	[redacted]	High
Other	None	[redacted]	[redacted]

Note: Itek Post Vibration Resolution of 171 lines/mm Reported In [redacted]

Message No. [redacted] dated 1/26/62

Distortion - Positive (Pincushion)

Angle Off Axis Deg.	357	357½	358	359	0	[redacted]	[redacted]	[redacted]
Distortion Millimeters	.050	.029	.010	.000	0	.000	.010	[redacted]

[redacted]

[redacted]

[redacted]

LENS DATA [redacted]

	Indoor	Supply
Lens Serial No.	[redacted]	[redacted]
Exposure Time	1/100 Sec.	1/50 Sec.
Filter Type	WRATTEN 25	WRATTEN 25
Aperture	F 6.8	F 6.8
Operational Focal Length	88.8 MM	89.0 MM
Radial Distortion:		
10° off Axis	+.004 MM	+.007 MM
20° off Axis	+.026 MM	+.038 MM
Tangential Distortion (Maximum Vector)	+.005 MM	+.003 MM

Resolution:

Angle off Axis Deg.	0	5	10	15	20
Resolution	51	44	33	31	22

0	5	10	15	[illegible]
51	49	33	[illegible]	[illegible]

Note:

1. Distortion and resolution are read at equivalent operational focal length.

2. Resolution in lines per mm on Super [illegible] film and [illegible] target.

SECRET

[redacted]

[redacted]

respect to [redacted]
the [redacted]
for [redacted]

2.0 [redacted]
tudinal axis of the vehicle [redacted]
105.00° ± 5° to the target plane [redacted]
an angle of 15.00° ± 5° to the [redacted]
brations.

2.1 One target, target 1, is in the [redacted]
Terrain format.

2.2 The second and third targets are [redacted] of 15.00° ± 5°
target one and are imaged on the [redacted] format.

3.0 The indicated center of format of the main camera is given by
(intersection of a line through the center [redacted] the
shrinkage marker drawn normal to the [redacted]
shrinkage marker and a line parallel to [redacted]
position half-way between the format edges.

4.0 The indicated principal points of the [redacted]
of intersection of lines joining opposite fiducials.

5.0 Xvo and Yvo are the offsets of Target 1 from the indicated center
format as defined in paragraph).

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

7.0 The indicated flight direction is the direction of vehicle travel
orbit. The forward edge of format is the edge opposite the shr
markers for camera number one and is the edge containing the
markers for camera number two.

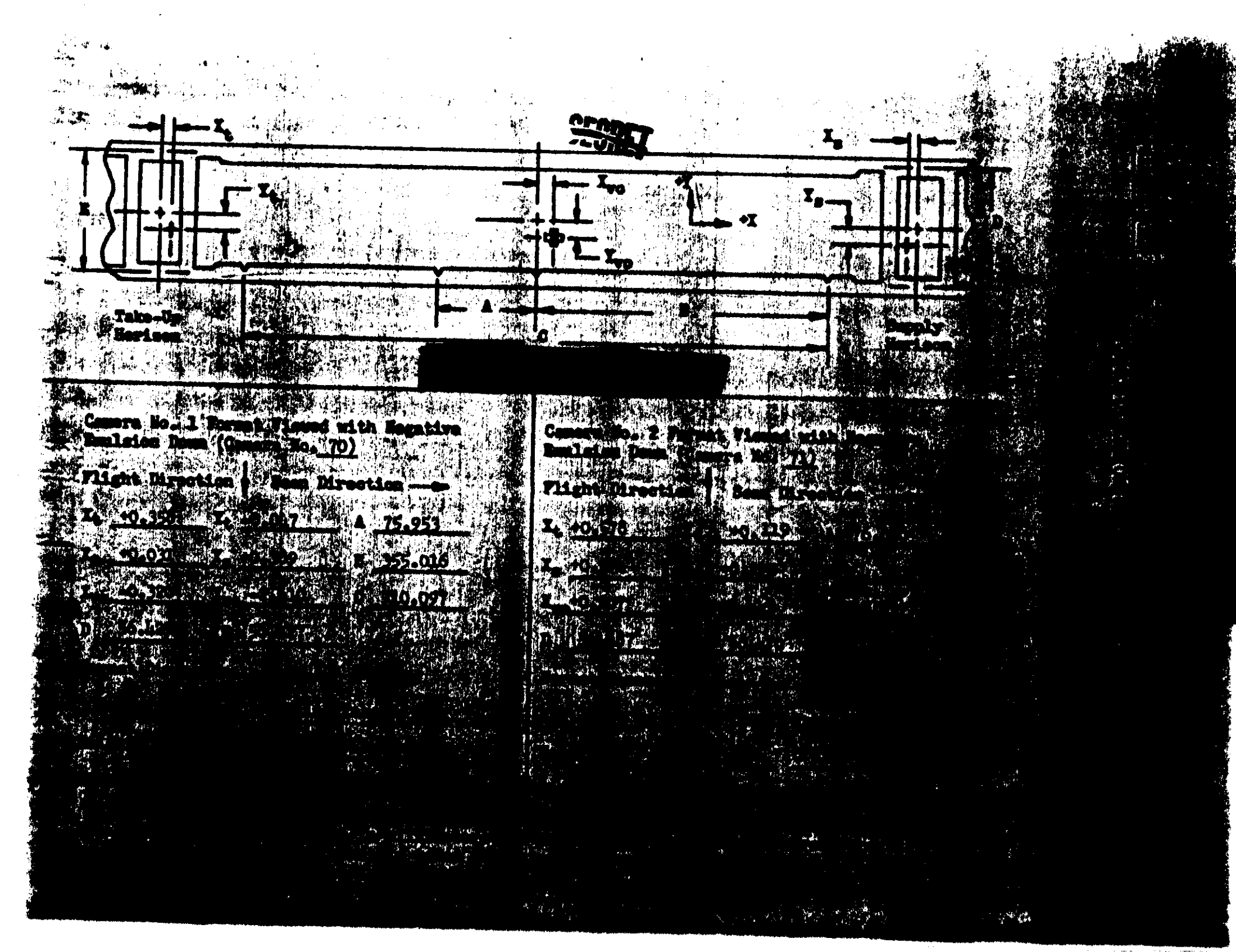
8.0 Dimensions A, B, and C are the spacings of the shrinkage markers
Dimensions D and E are the spacings of the [redacted]
for exact measurement of these dimensions have not been developed.
figures quoted are measurements made on [redacted]
control of shrinkage.

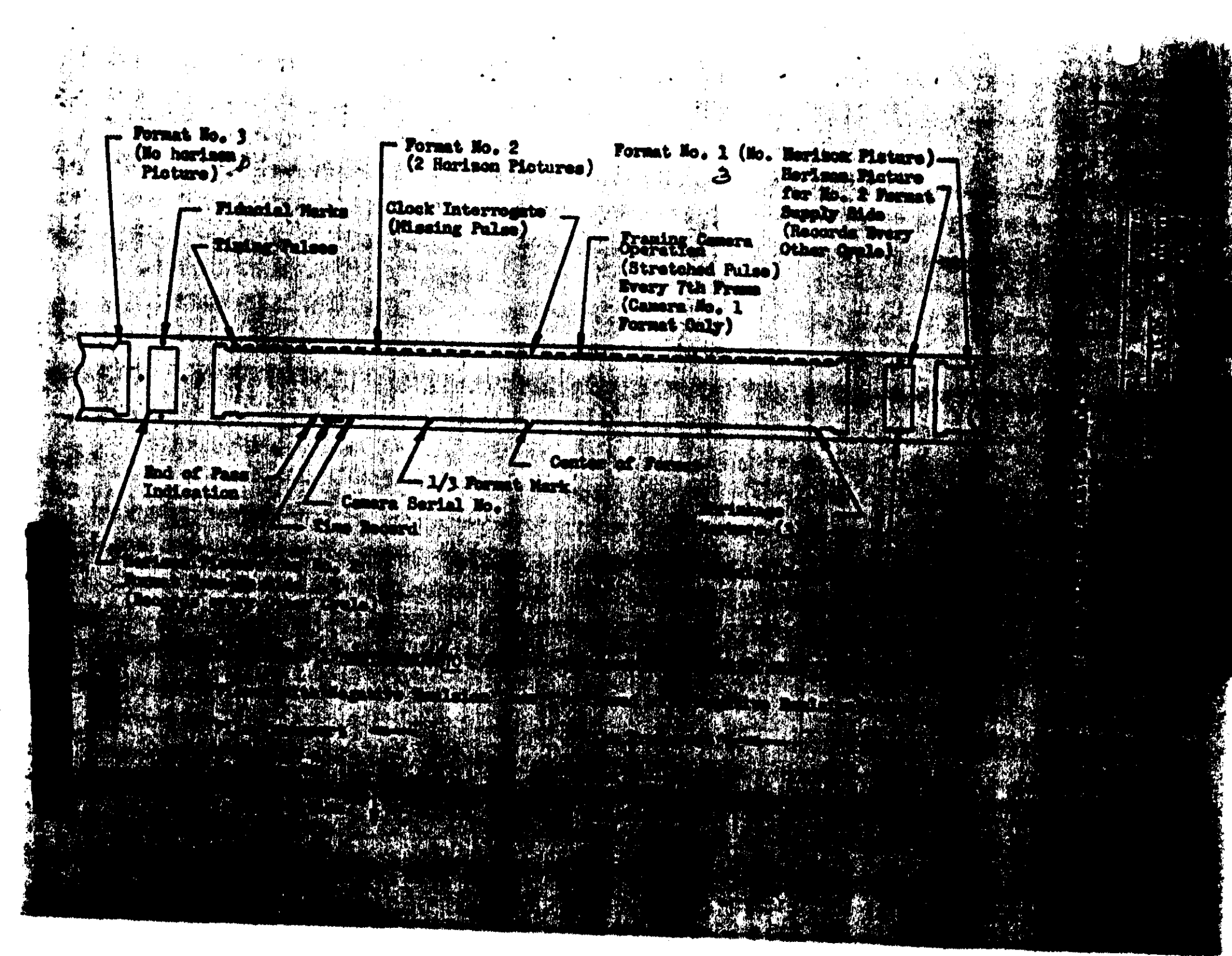
9.0 The format dimensions are measured to the best estimate of [redacted]

10.0 Measurement of the angle between the indicated [redacted]
and the line of intersection of the plane [redacted]
is not currently available. It is assumed to be zero, but is unknown.

11.0 Similarly, the angle between the plane and the indicated axis of
format is uncontrolled and assumed to be zero.

[redacted]


Take-Up Section
Camera No. 1 Format Viewed with Negative
Emulsion Down (Camera No. 70)
Flight Direction
Scan Direction
A 75.953
B 255.016
Camera No. 2 Format Viewed with
Emulsion Down (Camera No. 71)
Flight Direction
Scan Direction


Format No. 3
(No horizon Picture)
Fiducial Marks
Timing Pulses
Format No. 2
(2 Horizon Pictures)
Clock Interrogate
(Missing Pulse)
Format No. 1 (No. Horizon Picture)
Horizon Picture
for No. 2 Format
Supply Side
(Records Every
Other Cycle)
Framing Camera
Operation
(Stretched Pulse)
Every 7th Frame
(Camera No. 1
Format Only)
End of Pass
Indication
Camera Serial No.
1/3 Format Mark

Lens Serial No. [illegible]

Filter type [illegible]

Aperture [illegible]

Exposure Time [illegible]

Equivalent Focal Length [illegible]

Resolution:

AWAR 97 Lines/mm

Angle off Axis (Deg.) [illegible]

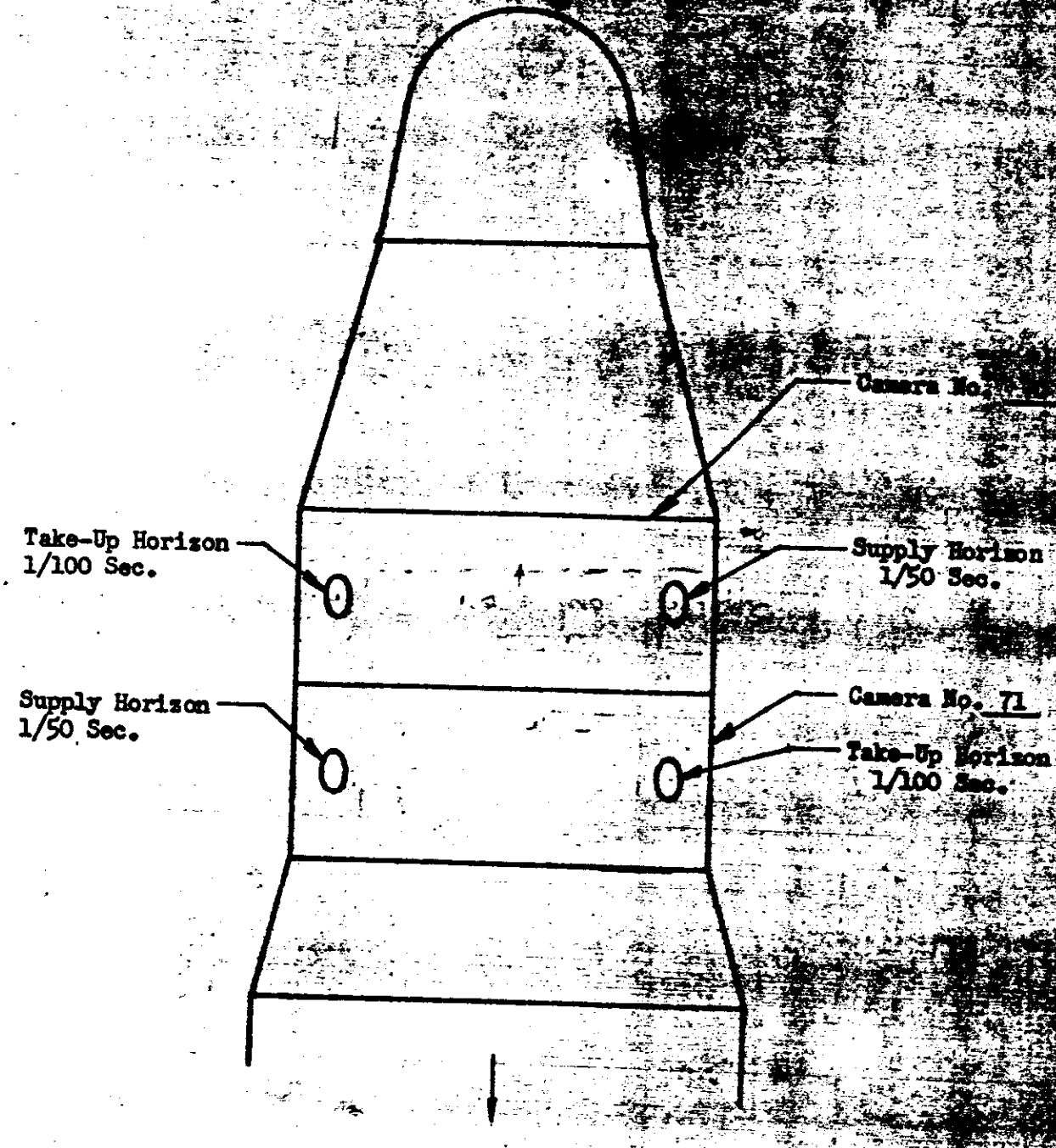
Resolution Lines/mm [illegible]

Note: Resolution figures are read from [illegible]

using High contrast target.

Distortion:

No distortion data available for this instrument.


Camera No.
Take-Up Horizon
1/100 Sec.
Supply Horizon
1/50 Sec.
Supply Horizon
1/50 Sec.
Camera No. 71
Take-Up Horizon
1/100 Sec.
FLIGHT DIRECTION

SECRET