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22 Pages
(Including Cover Sheet)

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CORONA "M" FLIGHT DATA BOOK

SYSTEM NO. M19

VEHICLE NO. 1160

MISSION NO. 9053

Prepared by: [redacted]

Checked by: [redacted]

Approved by: [redacted]

Approved by: [redacted]
(Project Manager)

Approved by: [redacted]
(SETD)



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SYSTEM NO. M19
VEHICLE NO. 1160
MISSION NO. 905
CAMERA NOS. 106 & 107



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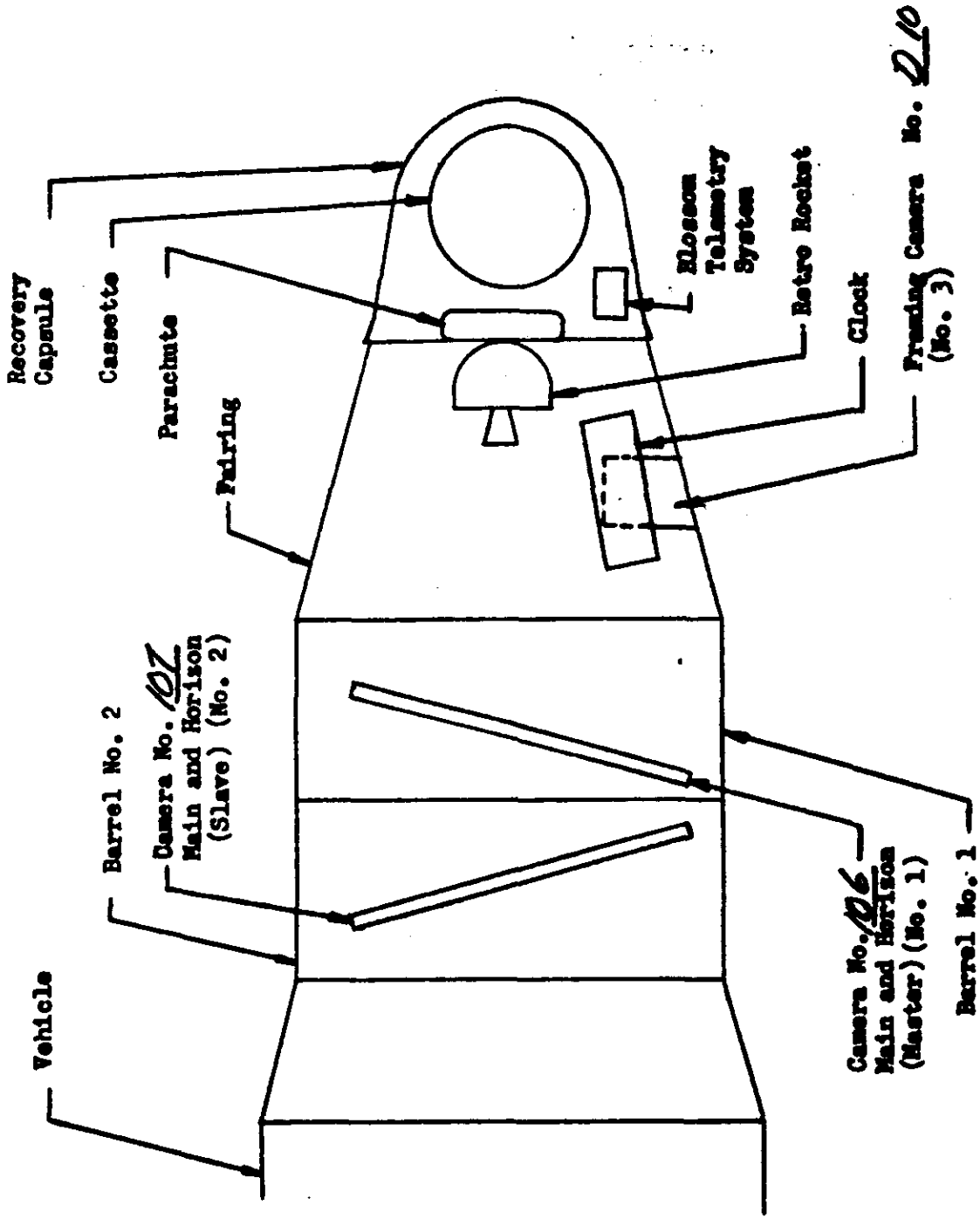
SYSTEM NO. H19
VEHICLE NO. 1160
MISSION NO. 9053
CAMERA NOS. 106 & 107



VEHICLE LAYOUT:

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TOP SECRET

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SYSTEM NO. M19
VEHICLE NO. 1160
MISSION NO. 9033
CAMERA NOS. 106 & 107



GENERAL FLIGHT DATA:

Main Camera No. 1 Serial No. 106

Main Camera No. 2 Serial No. 107

Framing Camera Serial No. D10/10/10

Launch Date 4/1/63

Orbital Parameters: (Rev. 25)

Period 90.62 Min. Eccentricity .0152

Perigee 112 NM Perigee Latitude 26.6 Deg. N

Apogee 222 NM Inclination Angle 75.36 Deg. N

Recovery Revolution No. 49

Recovery Date 4/4/63

REMARKS:

[redacted]

[redacted]

SYSTEM NO. M19
VEHICLE NO. 1160
MISSION NO. 1053
CAMERA NOS. 106 & 107



PRE-LAUNCH INFORMATION:

Command settings at launch:

| Command | 8 | 9 | 10 | 11 | 12 | — |
|---|---|---|---|---|---|---|
| Setting | 9 | 1 | 5 | 4 | 11 | |

Main Camera Settings: Camera NO. 106 Camera NO. 107

| | | |
|---|---|---|
| Main Optics Slit Width | .200 in. | .200 in. |
| Main Optics Filter Type | WRATTEN 21 | WRATTEN 21 |
| Horizon Optics Exp. Time | 1/100 sec. | 1/100 sec. |
| Horizon Optics Aperture | F 6.8 | F 6.8 |
| Horizon Optics Filter Type | WRATTEN 25 | WRATTEN 25 |

Framing Camera (S/I) Settings:

| | Terrain Lens | Stellar Lens |
|---|---|---|
| Exposure Time | 1/125 sec. | 1/2 sec. |
| Aperture Setting | F 4.5 | F 1.9 |
| Filter Type | WRATTEN 21 | NONE |

Ratio: One Framing Camera (S/I) Frame Per 7 Camera No. 1 Frames.

Film:

| | Camera No. 106 | Camera No. 107 | Framing Camera (S/I) Terrain | Framing Camera (S/I) Stellar |
|---|---|---|---|---|
| Type | 2T23 (S0132) | 7J23 (S0132) | 2T37 (S0206) | (S0130/S0102) |
| Length | 7800 ft. | 7800 ft. | 130 ft. | 75 ft. |
| Splices | 2 | 2 | — | — |
| Emul. Data | 34-9-7-2 | 34-7-8-2 | 2-1-1-3 | SPECIAL |

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SYSTEM NUMBER M-19
VEHICLE NUMBER 1160
MISSION NUMBER 9053
CAMERA NUMBERS 106 AND 107
STELLAR INDEX NUMBER D10/10/10

PERFORMANCE ESTIMATE

| OPN | INST | NO. FR. | LAT ON | LAT OFF | TIME ON D H M | DUR SEC | CYCL PER. ON | CYCL PER. OFF | EXPOS ON | EXPOS OFF | SUN EL ON | SUN EL OFF | SI FR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LAUNCH | 106 | 125 | | | | | | | | | | | |
| LAUNCH | 107 | 123 | | | | | | | | | | | |
| 1AX1 | 106 | 38 | 69 | 75 | 2/0019 | 133 | 3.54 | 3.38 | 4.7 | 4.5 | 06 | 14 | 7 |
| 1AX1 | 107 | 37 | 68 | 74 | 2/0019 | 133 | 3.60 | 3.44 | 4.7 | 4.6 | 05 | 12 | |
| 1DX1 | 106 | 32 | 73 | 69 | 2/0025 | 101 | 3.09 | 3.00 | 4.1 | 4.0 | 22 | 26 | 4 |
| 1DX1 | 107 | 31 | 74 | 70 | 2/0025 | 101 | 3.19 | 3.09 | 4.2 | 4.1 | 21 | 25 | |
| 2AX1 | 106 | 22 | 66 | 69 | 2/0148 | 082 | 3.68 | 3.57 | 4.9 | 4.7 | 03 | 06 | 4 |
| 2AX1 | 107 | 22 | 65 | 68 | 2/0148 | 82 | 3.71 | 3.60 | 4.9 | 4.8 | 03 | 05 | |
| 2DX1 | 106 | 99 | 74 | 63 | 2/0154 | 299 | 3.14 | 2.86 | 4.2 | 3.8 | 21 | 31 | 14 |
| 2DX1 | 107 | 98 | 75 | 64 | 2/0154 | 299 | 3.17 | 2.89 | 4.2 | 3.8 | 19 | 30 | |
| 3DY1 | 106 | 39 | 74 | 69 | 2/0326 | 118 | 3.03 | 2.94 | 4.0 | 3.9 | 21 | 26 | 5 |
| 3DY1 | 107 | 38 | 75 | 70 | 2/0326 | 118 | 3.06 | 2.97 | 4.1 | 3.9 | 19 | 25 | |
| 3DY2 | 106 | 50 | 59 | 51 | 2/0331 | 139 | 2.79 | 2.70 | 3.7 | 3.6 | 33 | 38 | 7 |
| 3DY2 | 107 | 49 | 60 | 51 | 2/0331 | 139 | 2.82 | 2.73 | 3.8 | 3.6 | 32 | 37 | |
| 4DY1 | 106 | 36 | 66 | 63 | 2/0459 | 104 | 2.89 | 2.81 | 3.8 | 3.7 | 28 | 31 | 5 |
| 4DY1 | 107 | 35 | 67 | 64 | 2/0459 | 104 | 2.92 | 2.84 | 3.9 | 3.8 | 28 | 30 | |
| 4DY2 | 106 | 53 | 54 | 45 | 2/0503 | 146 | 2.74 | 2.64 | 3.6 | 3.5 | 36 | 40 | 8 |
| 4DY2 | 107 | 53 | 55 | 46 | 2/0503 | 146 | 2.77 | 2.67 | 3.7 | 3.5 | 35 | 39 | |
| 5DY1 | 106 | 51 | 57 | 47 | 2/0633 | 141 | 2.76 | 2.67 | 3.7 | 3.5 | 34 | 39 | 7 |
| 5DY1 | 107 | 50 | 58 | 48 | 2/0633 | 141 | 2.79 | 2.70 | 3.7 | 3.6 | 33 | 39 | |

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5DY2 | 106 | 52 | 44 | 35 | 2/0636 | 138 | 2.63 | 2.55 | 3.5 | 3.4 | 40 | 43 | 8 |
| 5DY2 | 107 | 52 | 45 | 36 | 2/0636 | 138 | 2.66 | 2.58 | 3.5 | 3.4 | 40 | 42 | |
| 6DY1 | 106 | 78 | 60 | 47 | 2/0802 | 222 | 2.86 | 2.72 | 3.8 | 3.6 | 32 | 39 | 11 |
| 6DY1 | 107 | 78 | 61 | 48 | 2/0802 | 222 | 2.91 | 2.75 | 3.9 | 3.7 | 32 | 39 | |
| 6DY2 | 106 | 123 | 46 | 23 | 2/0807 | 321 | 2.68 | 2.49 | 3.6 | 3.3 | 39 | 44 | 17 |
| 6DY2 | 107 | 122 | 47 | 24 | 2/0807 | 321 | 2.69 | 2.50 | 3.6 | 3.3 | 39 | 44 | |
| 6DY3 | 106 | 124 | 6 | 14- | 2/0816 | 306 | 2.43 | 2.43 | 3.2 | 3.2 | 41 | 33 | 18 |
| 6DY3 | 107 | 123 | 7 | 13- | 2/0816 | 306 | 2.46 | 2.46 | 3.3 | 3.3 | 42 | 34 | |
| 7DY1 | 106 | 59 | 63 | 52 | 2/0932 | 175 | 3.01 | 2.83 | 4.0 | 3.8 | 31 | 37 | 9 |
| 7DY1 | 107 | 59 | 64 | 53 | 2/0932 | 175 | 3.01 | 2.83 | 4.0 | 3.8 | 33 | 36 | |
| 7DY2 | 106 | 133 | 51 | 28 | 2/0936 | 354 | 2.80 | 2.52 | 3.7 | 3.3 | 37 | 44 | 19 |
| 7DY2 | 107 | 131 | 52 | 29 | 2/0936 | 354 | 2.83 | 2.57 | 3.8 | 3.4 | 37 | 44 | |
| 8DY1 | 106 | 123 | 71 | 50 | 2/1100 | 372 | 3.21 | 2.83 | 4.3 | 3.8 | 24 | 38 | 17 |
| 8DY1 | 107 | 121 | 72 | 51 | 2/1100 | 372 | 3.25 | 2.88 | 4.3 | 3.8 | 23 | 37 | |
| 9AE | 106 | 10 | 38 | 40 | 2/1215 | 48 | 4.92 | 4.80 | 6.5 | 6.4 | -0 | -0 | 2 |
| 9AE | 107 | 10 | 37 | 39 | 2/1215 | 48 | 4.90 | 4.78 | 6.5 | 6.3 | -0 | -0 | |
| 9DY1 | 106 | 66 | 61 | 49 | 2/1234 | 189 | 2.69 | 2.73 | 3.8 | 3.6 | 32 | 38 | 9 |
| 9DY1 | 107 | 66 | 62 | 50 | 2/1234 | 189 | 2.92 | 2.75 | 3.9 | 3.7 | 31 | 38 | |
| 9DY2 | 106 | 59 | 36 | 26 | 2/1241 | 151 | 2.56 | 2.50 | 3.4 | 3.3 | 42 | 44 | 8 |
| 9DY2 | 107 | 58 | 37 | 27 | 2/1241 | 151 | 2.56 | 2.53 | 3.4 | 3.3 | 42 | 44 | |
| 21DY1 | 106 | 61 | 60 | 50 | 3/0642 | 174 | 2.89 | 2.76 | 3.8 | 3.7 | 32 | 37 | 9 |
| 21DY1 | 107 | 60 | 61 | 51 | 3/0642 | 174 | 2.91 | 2.78 | 3.9 | 3.7 | 32 | 37 | |
| 21DY2 | 106 | 93 | 42 | 27 | 3/0646 | 244 | 2.66 | 2.53 | 3.6 | 3.4 | 41 | 44 | 13 |
| 21DY2 | 107 | 92 | 43 | 28 | 3/0646 | 244 | 2.70 | 2.55 | 3.6 | 3.4 | 40 | 44 | |
| 21DY3 | 106 | 104 | 7 | 11- | 3/0656 | 260 | 2.46 | 2.46 | 3.3 | 3.3 | 42 | 35 | 15 |
| 21DY3 | 107 | 103 | 8 | 10- | 3/0656 | 260 | 2.48 | 2.48 | 3.3 | 3.3 | 42 | 35 | |

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8.42

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22DY1 | 106 | 72 | 62 | 50 | 3/0812 | 205 | 2.88 | 2.74 | 3.8 | 3.6 | 31 | 38 | 10 |
| 22DY1 | 107 | 72 | 63 | 51 | 3/0812 | 205 | 2.90 | 2.76 | 3.9 | 3.7 | 31 | 37 | |
| 22DY2 | 106 | 110 | 48 | 30 | 3/0816 | 290 | 2.72 | 2.54 | 3.6 | 3.4 | 39 | 43 | 16 |
| 22DY2 | 107 | 109 | 49 | 31 | 3/0816 | 290 | 2.74 | 2.56 | 3.6 | 3.4 | 38 | 43 | |
| 22DY3 | 106 | 85 | 6 | 8- | 3/0826 | 212 | 2.46 | 2.46 | 3.3 | 3.3 | 41 | 36 | 12 |
| 22DY3 | 107 | 85 | 7 | 7- | 3/0826 | 212 | 2.48 | 2.48 | 3.3 | 3.3 | 42 | 36 | |
| 23DY1 | 106 | 130 | 69 | 53 | 3/0939 | 354 | 2.83 | 2.58 | 3.8 | 3.4 | 26 | 36 | 19 |
| 23DY1 | 107 | 130 | 70 | 54 | 3/0939 | 354 | 2.84 | 2.59 | 3.8 | 3.4 | 25 | 36 | |
| 23DY2 | 106 | 92 | 47 | 36 | 3/0946 | 230 | 2.55 | 2.41 | 3.4 | 3.2 | 39 | 42 | 13 |
| 23DY2 | 107 | 91 | 48 | 37 | 3/0946 | 230 | 2.56 | 2.42 | 3.4 | 3.2 | 39 | 42 | |
| 24DY1 | 106 | 0 | | | | | | | | | | | 0 |
| 24DY1 | 107 | 147 | 64 | 40 | 3/1113 | 397 | 2.82 | 2.55 | 3.7 | 3.4 | 30 | 41 | |
| 25AE | 106 | 9 | 38 | 40 | 3/1225 | 40 | 4.09 | 4.00 | 5.4 | 5.3 | -0 | -0 | 1 |
| 25AE | 107 | 0 | | | | | | | | | | | |
| 35AY1 | 106 | 41 | 65 | 72 | 4/0339 | 152 | 3.84 | 3.56 | 5.1 | 4.8 | 03 | 09 | 6 |
| 35AY1 | 107 | 40 | 64 | 72 | 4/0339 | 152 | 3.87 | 3.60 | 5.1 | 4.8 | 02 | 09 | |
| 35DY1 | 106 | 56 | 59 | 50 | 4/0350 | 156 | 2.83 | 2.68 | 3.8 | 3.5 | 33 | 38 | 8 |
| 35DY1 | 107 | 56 | 60 | 51 | 4/0350 | 156 | 2.83 | 2.68 | 3.8 | 3.6 | 32 | 37 | |
| 39DY1 | 106 | 202 | 72 | 40 | 4/0946 | 563 | 3.05 | 2.55 | 4.0 | 3.4 | 23 | 41 | 29 |
| 39DY1 | 107 | 199 | 73 | 41 | 4/0946 | 563 | 3.09 | 2.59 | 4.1 | 3.4 | 22 | 41 | |
| 40DY1 | 106 | 93 | 63 | 47 | 4/1122 | 256 | 2.65 | 2.63 | 3.6 | 3.5 | 31 | 39 | 13 |
| 40DY1 | 107 | 0 | | | | | | | | | | | |
| 40DY2 | 106 | 59 | 37 | 28 | 4/1129 | 150 | 2.53 | 2.53 | 3.4 | 3.4 | 42 | 44 | 9 |
| 40DY2 | 107 | 0 | | | | | | | | | | | |
| 41AE | 106 | 7 | 38 | 40 | 4/1235 | 32 | 4.53 | 4.47 | 6.0 | 5.9 | -0 | -0 | 1 |
| 41AE | 107 | 7 | 37 | 39 | 4/1235 | 32 | 4.52 | 4.45 | 6.0 | 5.9 | -0 | -0 | |

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SYSTEM NO. M19
VEHICLE NO. 1160
MISSION NO. 9053
CAMERA NOS. 106 & 107



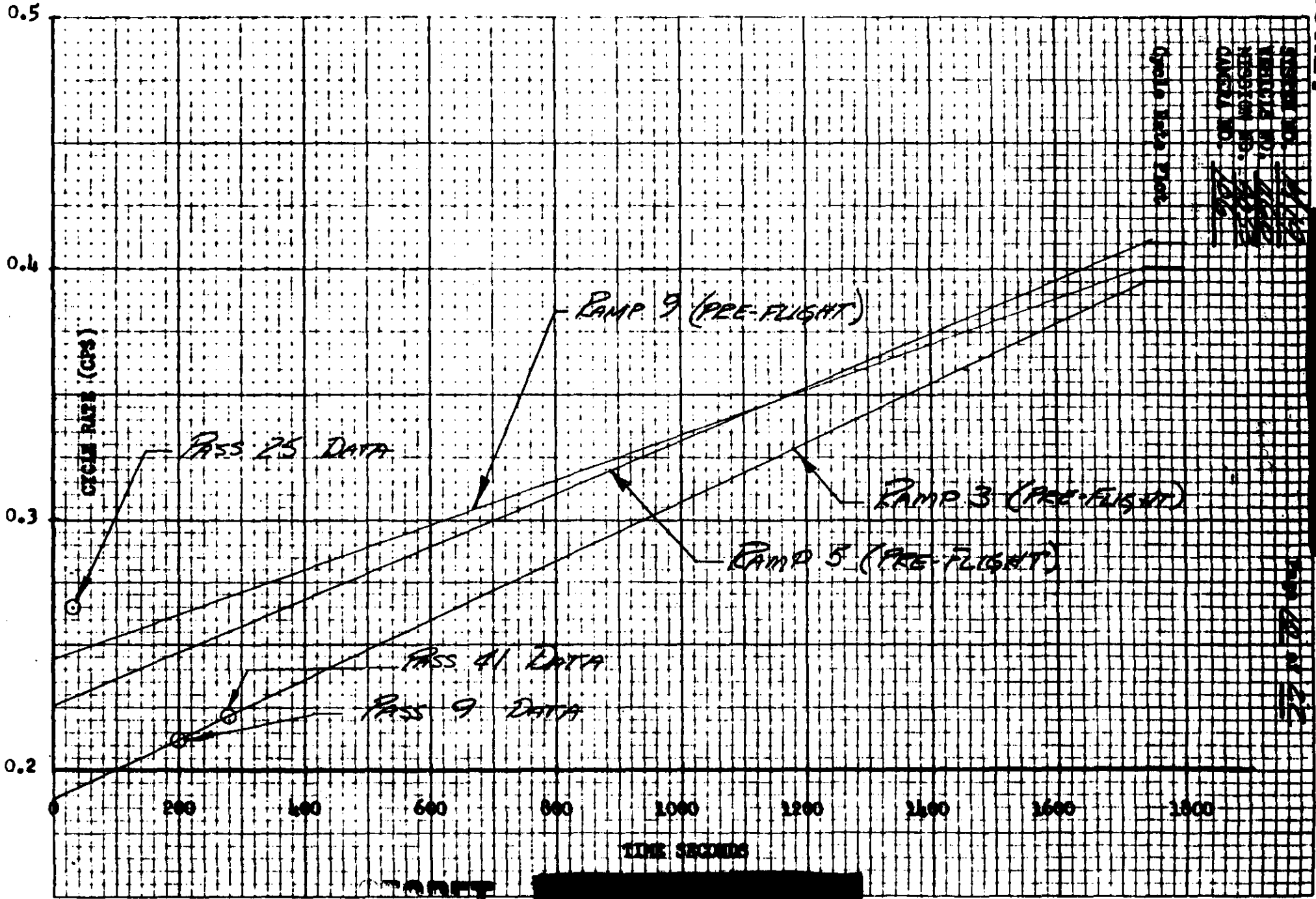
PRE-FLIGHT CYCLE PERIOD: (CAMERA NO. 106)

| V/H Ramp | Cycle Period Seconds | FMC Rate | | Scan Rate | | |
|---|---|---|---|---|---|---|
| | | Rad. Per Second | In. Per Second | Rad. Per Second | In. Per Second | Exposure Millisec |
| 3 START | 5.32 | .016 | .381 | 1.181 | 28.345 | 7.06 |
| 3 END | 2.53 | .033 | .800 | 2.483 | 59.603 | 3.36 |
| 5 START | 4.09 | .021 | .495 | 1.536 | 36.869 | 5.42 |
| 5 END | 2.49 | .034 | .813 | 2.523 | 60.560 | 3.30 |
| 9 START | 4.43 | .019 | .457 | 1.418 | 34.039 | 5.88 |
| 9 END | 2.43 | .035 | .833 | 2.586 | 62.055 | 3.22 |
| | | | | | | |
| | | | | | | |

IN-FLIGHT CYCLE PERIOD: (CAMERA NO. 106)

| 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 |
| 9 | 3 (200) | 4.69 | .018 | .432 | 1.340 | 32.152 | 6.22 |
| 25 | 5 (30) | 3.76 | .022 | .539 | 1.671 | 40.105 | 4.99 |
| 41 | 3 (280) | 4.49 | .019 | .451 | 1.408 | 33.584 | 5.96 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

NO. IN PARENTHESIS IS TIME UP RAMP WHERE CYCLE PERIOD WAS READ.


0.5
0.4
0.3
0.2
CPS
RATE (CPS)
RAMP 9 (PRE-FLIGHT)
PASS 25 DATA
RAMP 3 (PRE-FLIGHT)
RAMP 5 (PRE-FLIGHT)
PASS 41 DATA
PASS 9 DATA
200
400
600
800
1000
1200
1400
1600
1800
TIME SECONDS

[redacted]

SYSTEM NO. 119
VEHICLE NO. 1160
MISSION NO. 9053
CAMERA NOS. 106 & 107



PRE-FLIGHT CYCLE PERIOD: (CAMERA NO. 107)

| V/H Ramp | Cycle Period Seconds | FMC Rate | | Scan Rate | | |
|---|---|---|---|---|---|---|
| | | Rad. Per Second | In. Per Second | Rad. Per Second | In. Per Second | Exposure Millisec |
| 3 START | 5.29 | .016 | .383 | 1.188 | 28.506 | 7.02 |
| 3 END | 2.54 | .033 | .797 | 2.473 | 59.369 | 3.37 |
| 5 START | 4.09 | .021 | .495 | 1.536 | 36.869 | 5.42 |
| 5 END | 2.50 | .034 | .810 | 2.513 | 60.318 | 3.32 |
| 9 START | 4.43 | .019 | .457 | 1.418 | 34.039 | 5.88 |
| 9 END | 2.44 | .035 | .829 | 2.575 | 61.801 | 3.24 |
| | | | | | | |
| | | | | | | |

IN-FLIGHT CYCLE PERIOD: (CAMERA NO. 107)

| 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 |
| 9 | 3(200) | 4.82 | .017 | .420 | 1.303 | 31.285 | 6.39 |
| 25 | No | OPERATION | | | | | |
| 91 | 3(280) | 4.58 | .018 | .442 | 1.372 | 32.925 | 6.07 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

TOP SECRET

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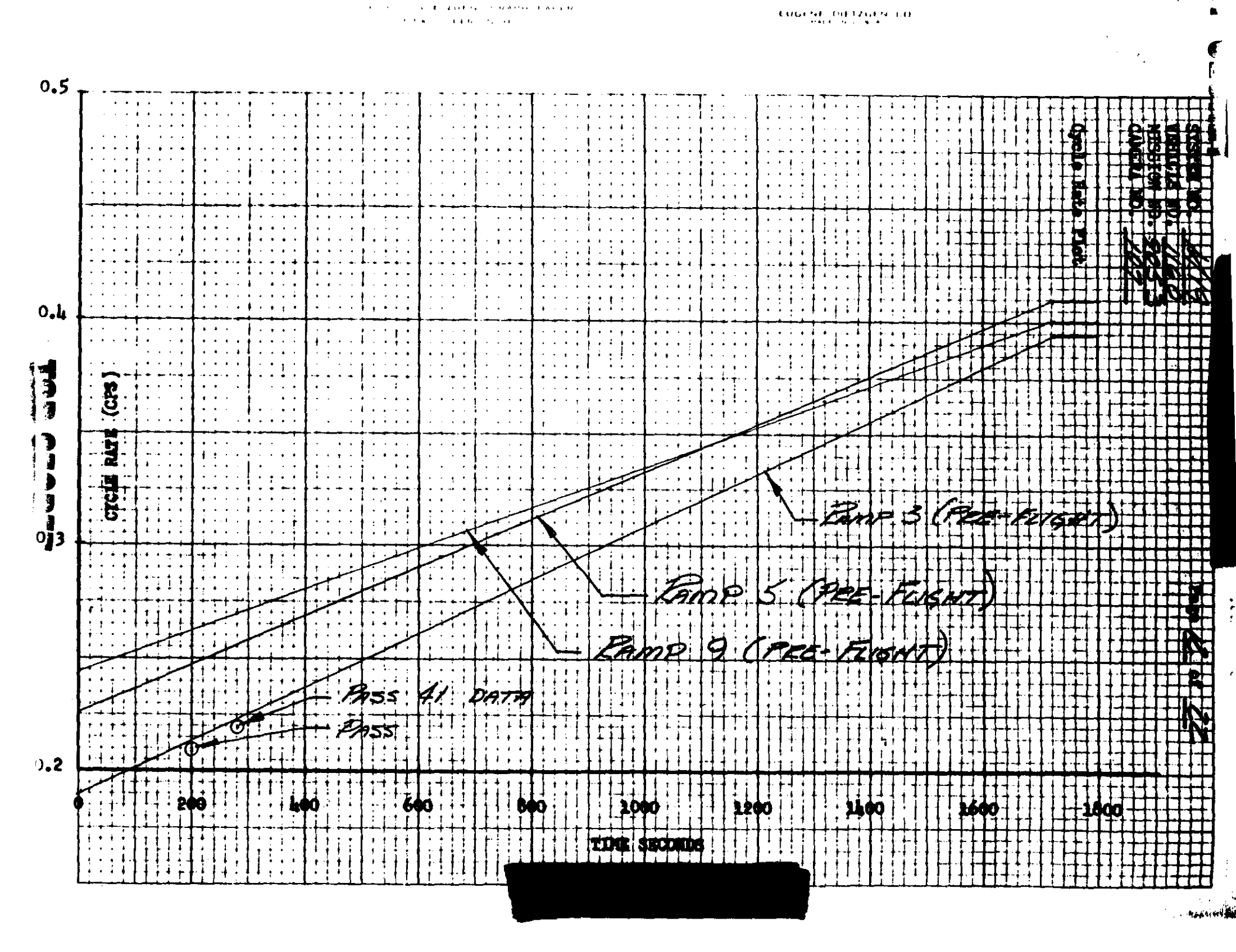
0.5
0.4
0.3
0.2
CYCLE RATE (CPS)
0
200
400
600
800
1000
1200
1400
1600
1800
TIME SECONDS
RAMP 3 (PRE-FLIGHT)
RAMP 5 (PRE-FLIGHT)
RAMP 9 (PRE-FLIGHT)
PASS 41 DATA
PASS

SYSTEM NO. M19
VEHICLE NO. 1162
MISSION NO. 9033
CAMERA NOS. 106 & 107

LENS DATA SUMMARY: (Main Camera No. 106)

Lens Serial No. 0432435

Filter Type KRATEN 21

Equivalent Operational Focal Length 609.628 MM

Resolution:

Static:

| | Lines/MM | Film Type | Target Contrast |
|---|---|---|---|
| Bench Test | 247 | SO243 | HIGH |
| Other | | | |

Dynamic:

| | | | |
|---|---|---|---|
| Itek Pre-Vibration | 138 (159) | SO132 | HIGH |
| Itek Post Vibration | 136 (159) | SO132 | HIGH |
| AP | 166 | SO132 | HIGH |
| AP | 93 | SO132 | LOW |
| Other | | | |

Note: Itek Post Vibration Resolution of 136 lines/~~MM~~ Reported In

Message No. _____ dated _____

Distortion - Positive (Pincushion)

| Angle Off Axis Deg. | 3 | 2 | 1 | 0 | 359 | 358 | 357 | | |
|---|---|---|---|---|---|---|---|---|---|
| Distortion Millimeters | .103 | .003 | .001 | .000 | .002 | .004 | .007 | | |

TOP SECRET

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SYSTEM NO. M19 [redacted] Page 14 of 22

VEHICLE NO. 1160

MISSION NO. 9053

CAMERA NOS. 106 & 107

LENS DATA SUMMARY: (Horizon Cameras for Main Camera No. 106)

| | Take-Up | Supply |
|---|---|---|
| Lens Serial No. | 807099 | 807105 |
| Exposure Time | 1/100 Sec. | 1/100 Sec. |
| Filter Type | WRATTEN 25 | WRATTEN 25 |
| Aperture | F6.8 | F6.8 |
| Operational Focal Length | 88.9 MM | 89.0 MM |
| Radial Distortion: | | |
| 10° off Axis | .003 MM | .010 MM |
| 20° off Axis | .038 MM | .040 MM |
| Tangential Distortion (Maximum Vector) | .009 MM | .010 MM |

Resolution:

| Angle off Axis Deg. | 0 | 5 | 10 | 15 | 20 | 25 | 27.5 | 0 | 5 | 10 | 15 | 20 | 25 | 27.5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Radial Resolution | 56 | 47 | 42 | 32 | 32 | 34 | 29 | 56 | 51 | 42 | 30 | 29 | 34 | 32 |
| Tangential Resolution | 51 | 47 | 39 | 30 | 30 | 29 | 24 | 51 | 44 | 39 | 32 | 30 | 25 | 22 |

37.3 Lines/MM Avg. 36.9 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]

MISSION NO. 419
VEHICLE NO. 1160
MISSION NO. 9033
CAMERA NOS. 106 & 107

LENS DATA SUMMARY: (Main Camera No. 107)

Lens Serial No. 0512435

Filter Type WRATTEN 21

Equivalent Operational Focal Length 609.602 MM

Resolution:

Static:

| | Lines/MM | Film Type | Target Contrast |
|---|---|---|---|
| Bench Test | 248 | SO243 | HIGH |
| Other | | | |

Dynamic:

| | | | |
|---|---|---|---|
| Itek Pre-Vibration | 158 (162) | SO132 | HIGH |
| Itek Post Vibration | 144 (162) | SO132 | HIGH |
| AP | 161.5 | SO132 | HIGH |
| AP | 95.5 | SO132 | LOW |
| Other | | | |

Note: Itek Post Vibration Resolution of 144 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 | .000 | .000 | .000 | .001 | .002 | | |

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[redacted] NO. [redacted] Page 16 of 22
VEHICLE NO. 1160
MISSION NO. 9033
CAMERA NOS. 106 & 107

LENS DATA SUMMARY: (Horizon Cameras for Main Camera No. 107)

| | Take-Up | Supply |
|---|---|---|
| Lens Serial No. | 808623 | 807103 |
| Exposure Time | 1/100 Sec. | 1/100 Sec. |
| Filter Type | WRATTEN 25 | WRATTEN 25 |
| Aperture | F6.8 | F6.8 |
| Operational Focal Length | 89.20 MM | 89.9 MM |
| Radial Distortion: | | |
| 10° off Axis | .008 MM | .009 MM |
| 20° off Axis | .039 MM | .043 MM |
| Tangential Distortion (Maximum Vector) | .010 MM | .012 MM |
| Resolution: | | |

| Angle off Axis Deg. | 0 | 5 | 10 | 15 | 20 | 25 | 27.5 | 0 | 5 | 10 | 15 | 20 | 25 | 27.5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Radial Resolution | 51 | 44 | 42 | 37 | 32 | 34 | 30 | 63 | 49 | 44 | 30 | 30 | 27 | 27 |
| Tangential Resolution | 51 | 44 | 37 | 34 | 30 | 27 | 20 | 63 | 47 | 42 | 32 | 29 | 25 | 19 |

36.1 Lines/MM Avg. 37.6 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]

## 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 with ± 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 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 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 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 defined in Paragraph 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 Paragraph 2 on the format is made by positioning two targets for each horizon format normal ± 5" of arc to the plane defined in Paragraph 2. Dimensions F, G, H, J, K, L, M and N are the offset of these targets.

SYSTEM NO. MK4
VEHICLE NO. MK4
MISSION NO. 2053
CAMERA NOS. 106 & 107

FORMAT DIMENSIONS: (MAIN CAMERAS)

[redacted]

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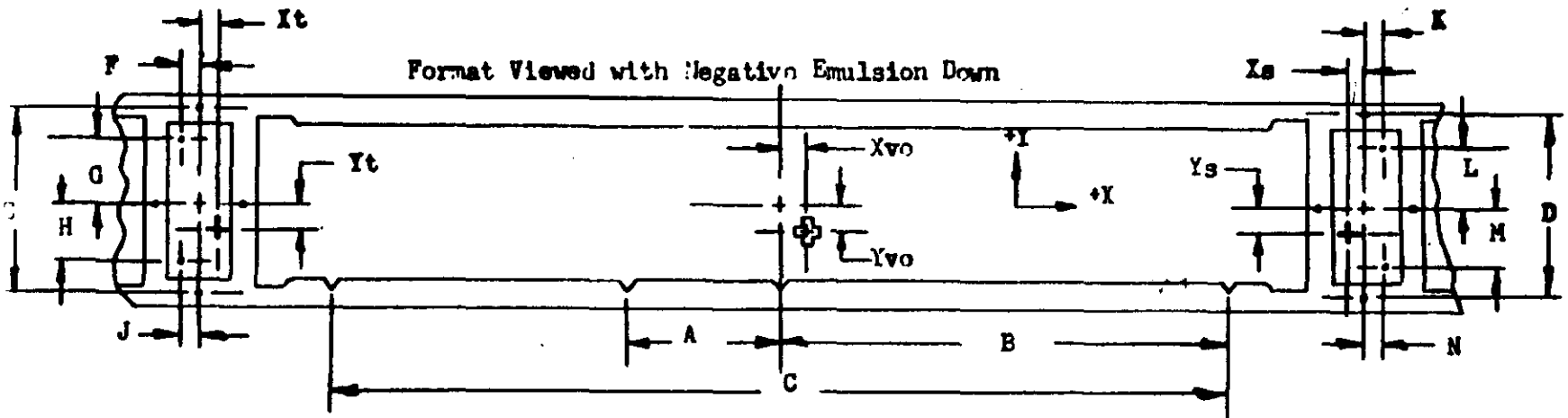



Camera No. 106 Vehicle Motion ↓ Scan Direction →

| | | | | | |
|---|---|---|---|---|---|
| A | 76.055 | Xs | +.329 | H | −24.105 |
| B | 355.040 | Ys | +.113 | J | −5.702 |
| C | 709.940 | Xvo | −1.040 | K | +5.479 |
| D | 56.452 | Yvo | −.180 | L | +23.338 |
| E | 56.463 | F | −5.668 | M | −23.051 |
| Xt | −.721 | G | +23.594 | N | +5.350 |
| Yt | −.200 | | | | |

Format Dimensions:

| | Main | Take-Up | Supply |
|---|---|---|---|
| Height | 56.0 | | |
| Width | 753.7 | | |

Camera No. 107 Vehicle Motion ↓ Scan Direction →

| | | | | | |
|---|---|---|---|---|---|
| A | 76.130 | Xs | −.202 | H | −23.575 |
| B | 355.200 | Ys | +.043 | J | −5.406 |
| C | 710.250 | Xvo | | K | +9.736 |
| D | 56.411 | Yvo | | L | +24.115 |
| E | 56.399 | F | −5.514 | M | −24.029 |
| Xt | −.361 | G | +22.969 | N | +9.808 |
| Yt | −.220 | | | | |

Format Dimensions:

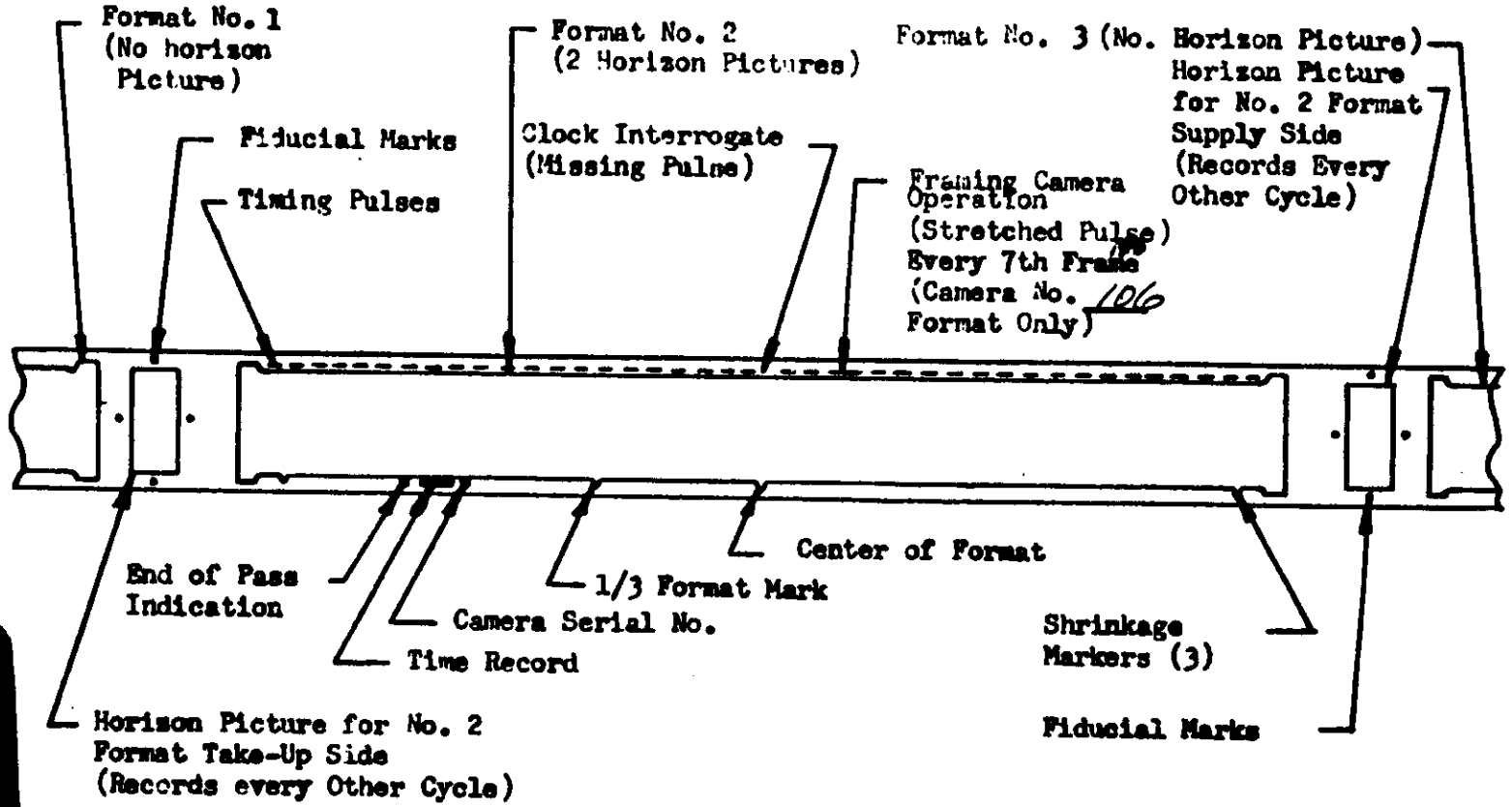
| | Main | Take-Up | Supply |
|---|---|---|---|
| Height | 56.7 | | |
| Width | 754.7 | | |

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 |

DRAFT

[redacted]




Camera No. 106

Viewed With Negative Emulsion Down

Film Transport ←

Scan →

Vehicle Motion ↓

Camera No. 107

Viewed With Negative Emulsion Down

Film Transport →

Scan →

Vehicle Motion ↑

FORMAT LAYOUT: (MULTI CAMERAS)

VEHICLE NO. 1160
MISSION NO. 2033
CAMERA NOS. 106 & 107

SYSTEM NO. H19
VEHICLE NO. 1160
MISSION NO. 9053
CAMERA NOS. 106 & 107 [redacted]

LENS DATA SUMMARY: (Framing Camera No. D10) (TERRAIN Lens)

Lens Serial No. 809926

Reseau Serial No. 10

Filter Type WRATTEN 21

Aperture F 4.5

Exposure Time 1/125 Sec.

Equivalent Focal Length 38.15 MM Operational Focal Length 38.23 MM

Resolution: 75.8 Lines/MM AWAR

| Angle off axis | 0 | 10 | 20 | 30 | 35 |
|---|---|---|---|---|---|
| Resolution L/MM High Contrast | 114 | 110 | 105 | 67 | 57 |
| Resolution L/MM Low Contrast | 71 | 76 | 72 | 43 | 37 |

Note: Resolution data read from SO130 Film

Distortion:

| Angle off Axis Deg. | 0 | 10 | 20 | 30 | 35 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Distortion Millimeters | .000 | .014 | .052 | .142 | .170 | | | | |

Perpendicularity of Reseau to Optical Axis .000 IN 57.15 MM

Date of Stellar Calibration —

Knee Calibration Not Deg. Repeteron. _____ Sec.

Location of Principal Point:

X -.027 MM Y -.027 MM

[redacted]

SYSTEM NO. 419
VEHICLE NO. 1160
MISSION NO. 2053
CAMERA NOS. 106 & 107

[redacted]

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

Lens Serial No. 80256

Reseau Serial No. 10

Filter Type NONE

Aperture F1.9

Exposure Time 1/2 Sec.

Equivalent Focal Length 83.80 MM Operational Focal Length 83.58 MM

Resolution: _____ Lines/MM AWAR

| | | | | | |
|---|---|---|---|---|---|
| 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 | .000 | .003 | .007 | | | | | |

Perpendicularity of Reseau to Optical Axis .012 MM IN 55 MM

Date of Stellar Calibration NOT REPORTED

Knee Calibration NOT REPORTED Deg. _____ Min. _____ Sec.

Location of Principal Point:

X +.142 MM Y -.069 MM

[redacted]

[redacted]



SYSTEM NO. M-19
VEHICLE NO. 1160
MISSION NO. 9033
CAMERA NOS. 106 & 107

PRELIMINARY CLOCK CORRELATION:

| Rev. No. | System Time | Clock Time | Delta Sys. Time | Delta Clock Time | Diff. |
|---|---|---|---|---|---|
| Pre-Launch | 67601.866 | 474000.770 | ——— | ——— | ——— |
| 9 | 44143.614 | 000071.632 | 62941.748 | 62941.773 | +.025 |
| 25 | 44742.997 | 087071.007 | 86999.383 | 86999.375 | -.008 |
| 31 | 78871.649 | 121199.658 | 34128.652 | 34128.651 | -.001 |
| 41 | 45327.617 | 174055.627 | 52855.968 | 52855.969 | +.001 |
| ——— | ——— | ——— | ——— | ——— | ——— |
| ——— | ——— | ——— | ——— | ——— | ——— |
| ——— | ——— | ——— | ——— | ——— | ——— |
| ——— | ——— | ——— | ——— | ——— | ——— |
| ——— | ——— | ——— | ——— | ——— | ——— |

[redacted]

[redacted]