[redacted] TOP SECRET/C [redacted]

Copy No. [redacted]

[redacted]

CORONA CR

MISSION SUMMARY

AND

TELEMETRY ANALYSIS

MISSION 1113

AGENA 1659/PAYLOAD CR-13

Prepared by [redacted]

Reviewed by

Approved by

Approved by

Distribution:

[redacted]

GROUP [redacted]

[redacted]

MISSION SUMMARY

1.0 SUMMARY

Lift off occurred at 12:04: 30.45 (System Time 72270.45) on Feb. 17, 1971. T/M data was lost at approximate system time 72334. Preliminary information from Douglas indicates that their main engine stopped approximately 30 seconds after lift off. From then on the solid bottles only were burning. The vehicle subsequently destructed itself. Range Safety did not send Command Destruct. Agena T/M indicated normal pitch and roll rates from lift off through lift off plus 23 seconds. Subsequently a random tumble. No "D" Timer start was observed. No Agena malfunctions were indicated.

2.0 NOMINAL MISSION PARAMETERS

2.1 Orbital Parameters

Inclination Angle	96.40 Deg
Perigee Altitude	89.872 N.M.
Apogee Altitude	172.79 N.M.
Orbital Period	89.24 Min
Geodetic Perigee Latitude	36.89 Deg
Eccentricity	0.0117
Regression Rate	22.31 Deg/Rev
Longitude of Ascending Node	318.37 Deg W

2.2 Mission Profile

Ten days stable orbit operations

Recovery #1 (Pass 163)

Nine days stable orbit operations

Recovery #2 (Pass 309)

3.0 HARDWARE DEFINITIONS

3.1 Agena

FTV. 1659 was an Agena Vehicle (SS-01B) and a Thorad Booster (SLV-24) S/N 537. The Agena was oriented nose first in orbit with the following configurations:

1) Eight Thiokol DMU Rockets. All Thiokol DMU Rockets were 3000 lb-sec. rockets.
2) Third Primary Control Gas Bottle (-5 Heavy Control gas mixture).
3) A/P-3 Payload with Digital Storage Register.

4) Solar Array System with two 1H batteries. Solar Array alpha angle + 2%.

5) Aft-Payload - [redacted] Doppler Beacon, LOGACS and Quantic Star Tracker.

6) Link 3 T/M system and Tape Recorder for LOGACS and Quantic.

7) FTV. 1659 was the second vehicle to utilize High Density Acid (Oxidizer) and new fuel Hyderzine 300 (instead of IRFNA and UDMH).

8) 3/4 Speed Type VIII Programmer (325 subcycles).

9) LB Timer events change required due to 96° inclination angle.

3.2 Payload

The standard J-3 payload configuration basically consisted of the following:

1) Panoramic Cameras of the Constant Rotating type using a digital storage register (DSR)/Cascade execute source for primary camera enable/disable control. Operational backing capability is provided by two (2) emergency programs.

A FMC programmer varies the pan cameras cycling rate to match the V/H of the orbit. This program profile (RAMP) is varied by RTC.

The pan cameras had variable slit widths and filters for exposure control. The slit widths were programmed for automatic exposure control or individually selected by RTC. The normal and alternate filter are selected by RTC.

2) DISIC system consisting of a terrain and two stellar cameras which operated slave to the Pan cameras unless turned off by RTC. The system could also be operated independent of the Pan cameras by RTC.

One Port and one Starboard stellar frame is exposed for each terrain frame taken.

3) Pressure Make-Up system included two bottles for dual range capability. The system is enabled or disabled by RTC. Vacuum gauges were installed to monitor on orbit pressures of the system.

4) Dual Recovery system with early "A" to "B" transfer was available by RTC for both Pan and DISIC systems. A tape recorder was carried in each bucket to record T/M data from all operations.

5) Thermal configuration consisting of a black surface covering 90 degrees of both top and bottom and aluminized mystic tape covering 90 degrees of each side. The top black surface was reduced to 56 degrees on the fairing and 76 degrees on the barrel and conic sections.

3.3 Camera And Programmer Settings

1) Panoramic Cameras Slit Width Data (Measured Values)

	Fwd Looking	Aft Looking
Pos. 1	0.125	0.095
Pos. 2	0.195	0.123
Pos. 3	0.260	0.178
Pos. 4	0.288	0.248
Failsafe	0.135	0.088

Filter Data	Fwd Looking	Aft Looking
Normal Pos.	W-25 0.037 Glass	W-21 Gelatin
Alternate Pos.	W-25 0.040 Glass	W-21 0.007 Glass

Film Data

Type	3414	3414
Length (Ft)	16,300	16,300

Exposure Control Timing

T1 (20 sec. Increment) Initial Setting	100
T3 Slit 3 Duration	40
T4 Slit 2 Duration	80
T6A (420 sec. Increment) Initial Setting	320
T2 DISIC Exposure to 1/500	120
T5 DISIC Exposure to 1/250	40

DISIC Terrain shutter locked in single mode 1/500 second.

No system function controlled by T2 and T5.

2 DISIC

Terrain Camera Cycle Period	9.375 sec.
Terrain Camera Filter	W-12

Film Data	Stellar	Terrain
Type	3401	3400
Length (Ft.)	2000	2000

3. FMC Programmer

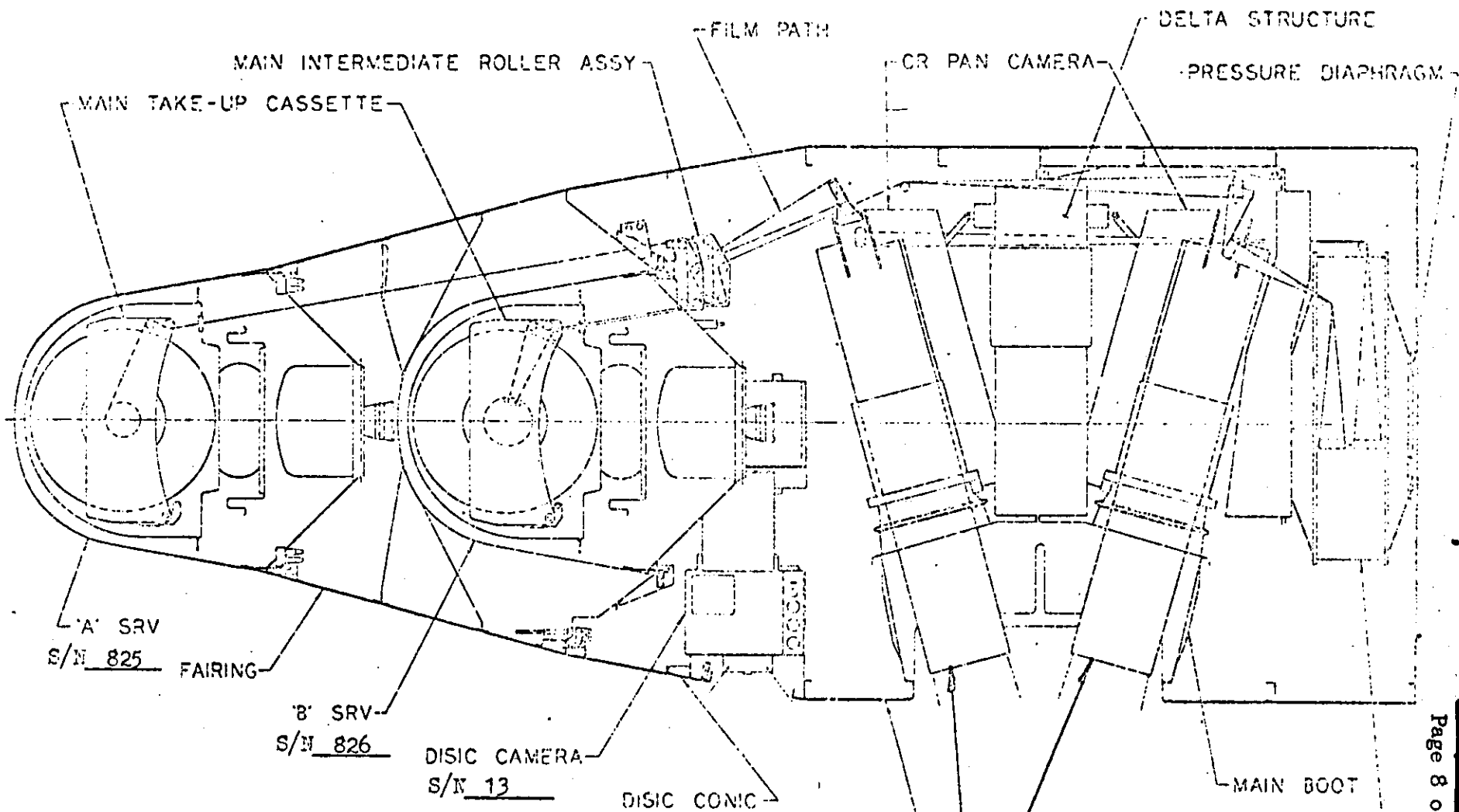
Eccentricity Function

Period	3809 sec.
Delay Step Size	50 sec.

Oblateness Function

Period	5245.0 sec.
Gain Factor	0.1016

4.1 PAYLOAD PROFILE AND SERIAL NUMBERS



SYSTEM NO. CR-13

TEST FLIGHT

PMU S/N 1015

SLOPE PROGRAMMER S/N 214

CLOCK S/N 620

SWITCH PROGRAMMER S/N 214

4.2 CR-13 PREDICTED TEMPERATURES - AVERAGE OF PAN INSTRUMENTS

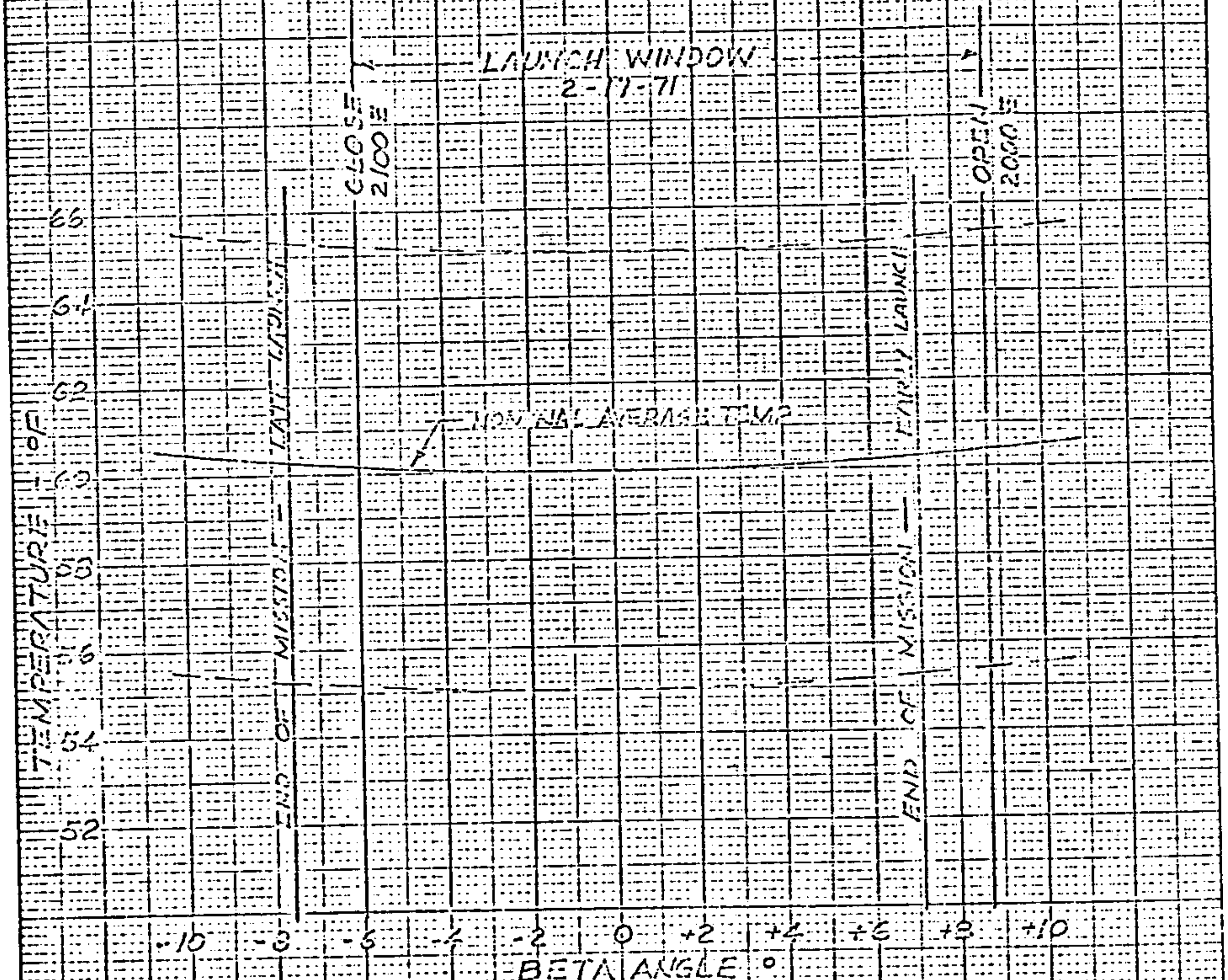


FIG. 1

~~TOP SECRET~~

4.2

1113 CR13 1659

NOMINAL BETA ANGLE HISTOR

LAUNCH ON 2-17-71

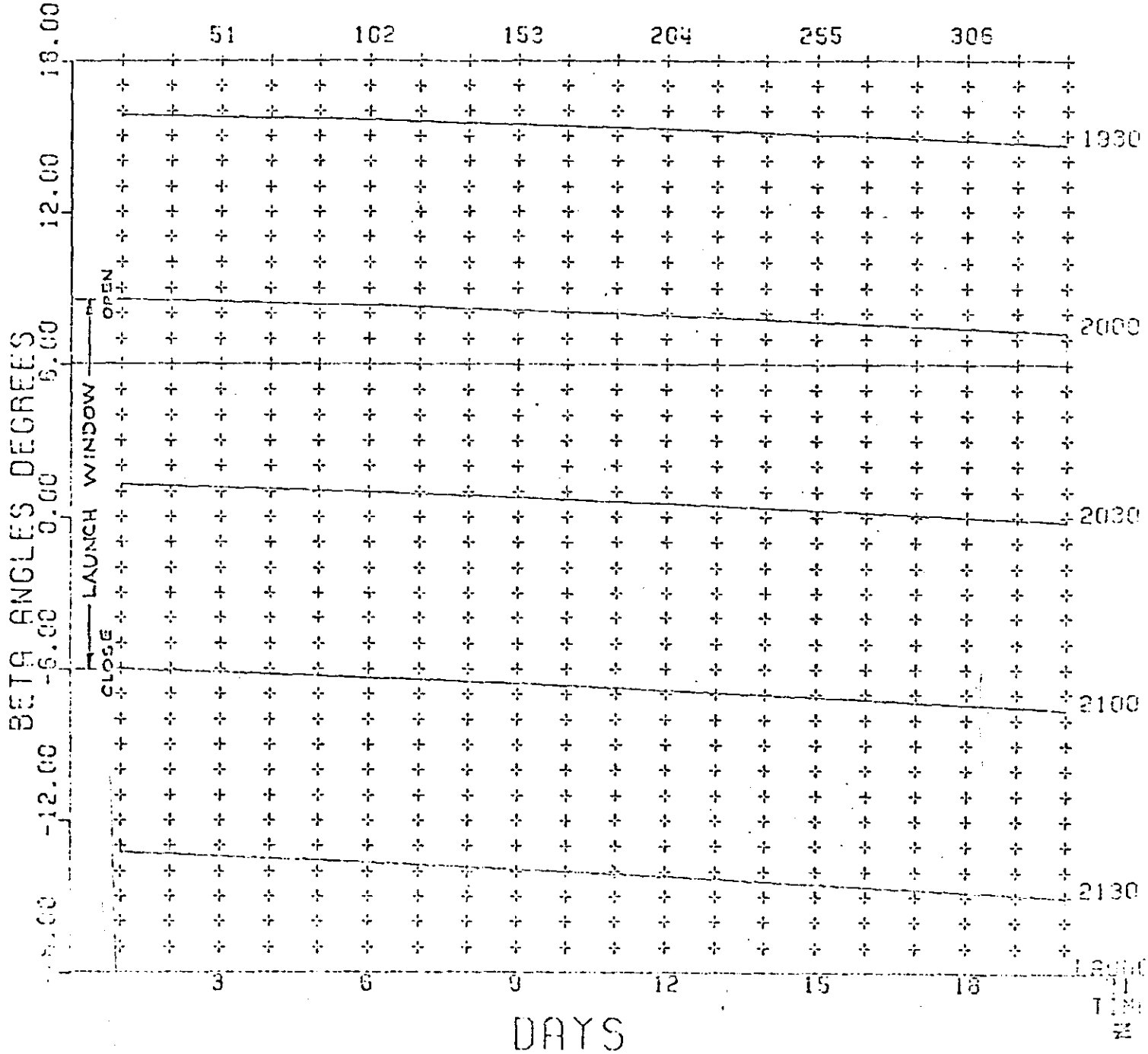


FIG 2