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14 00029430

To: Col. L. Battle

Sept. 10, 1962

Subject: FIRST INCREMENT REPORT FOR CORONA "M" PROGRAM -  
SYSTEMS 1 - 6

The following report is a summary of schedule information organized into flight systems CM-1 through CM-6 and representing the first increment of the Corona "M" program.

Each system is broken down into 3 major product areas: Boston, Philadelphia and Advanced Projects. Information contained under each product area represents events which occurred at the Associate Contractor's facility. Any other problems or information connected with a particular subsystem, after shipment to Advanced Projects, is included in the last section under System Flight Preparation.

This report is presented to provide a complete factual source of pertinent statistics and historical data, in a timely manner, for easy reference.

[Redacted]  
Advanced Projects Manager

[Redacted]  
cc: Capt. A. W. Johnson  
L/Col. C. Murphy

Declassified and Released by the NRO

In Accordance with E. O. 12958

on NOV 26 1997

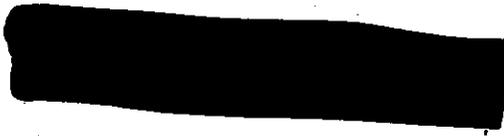
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COPY

SETD  
SCHEDULE HISTORY  
C/M FLIGHT #1



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PARACHUTE FLIGHT #

13512  
554-BPIS  
368-10  
510-1721-151  
Parachute  
Cetro  
Bracket

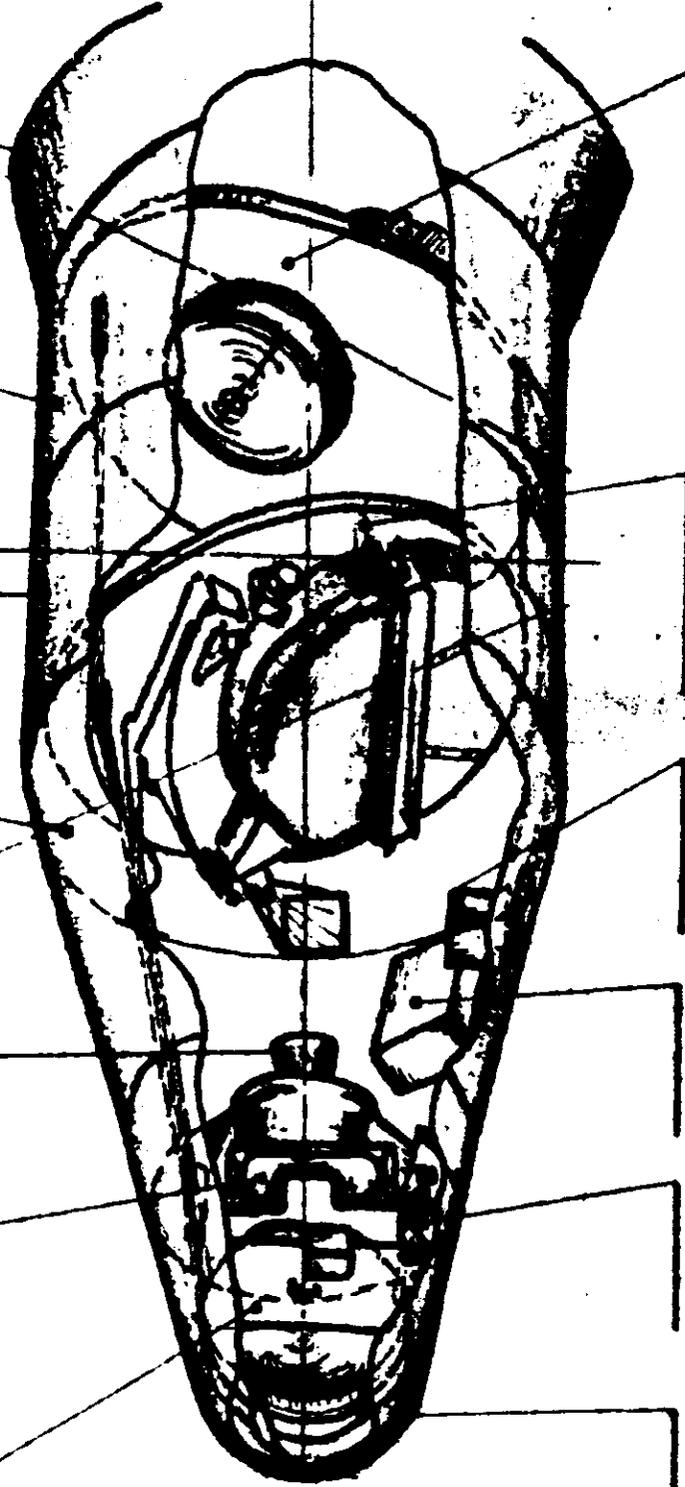
1120  
Pairing

1120  
Barrel #1

1120  
Barrel #2

1123  
Vehicle

76/77  
Cassette  
Assembly



Recovery  
System  
Use  
58L

Blossom  
TM 57

Clock  
7

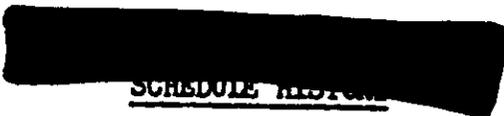
Frame  
Camera  
74

No. 1 Main Camera, 70  
Panoramic F-10  
Horizon R.H. 803304  
Horizon L.H. 803305

No. 2 Main Camera, 71  
Panoramic P3/P6  
Horizon R.H. 806557  
Horizon L.H. 803709

Harnesses

- A M-501-A
- B M-501-B
- C M-501-C
- D M-501-D



SCHEDULE SYSTEMS

C/M 1 FLIGHT SYSTEM

BOSTON PRODUCT

<u>Panoramic System</u>	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Received</u>	<u>Scheduled Receipt</u>
	70/71	9/10/61	12/1/61	12/8/61	12/18/61	12/20/61	12/15/61

Assy drawing #42600, Assy Schem. #44105C, #44286C  
" " #42650

Problem Areas:

1. 9/1/61 V/H Programmer out of spec. - Steps 1 thru 5 must match steps 6 thru 10 within 1%. Bought off as waiver.
2. 9/1/61 Freq. marker lamps irregular performance - considered inadequate. Carry-over from C111 - problem unresolved.
3. 10/13/61 Q.C. clean-up required. Resolved 10-20-61.
4. 10/20/61 Console conflict with #52 and #57. Resolved 11-17-61.
5. 12/4/61 Star wheel drive assembly being reworked. Design tolerances too loose. Resolved 12-7-61.
6. 12/12/61 Instr. #71 - trunnion mechanism problem. Trunnions replaced - resumed testing 12-13-61.
7. 12/10/61 Definite lack of necessary log book procedures. Resolved 12/20/61

<u>Frame Camera</u>	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Received</u>	<u>Scheduled Receipt</u>
	74	12/29/61	1/10/62	1/26/62	1/31/62	2/1/62	

Assy drawing #J-44446, Assy Schem. #46355B

<u>Cassette</u>	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Received</u>	<u>Scheduled Receipt</u>
	76/77	12/20/61	12/26/61	1/15/62	1/22/62	1/27/62	1/23/62

Assy drawing #44276, Assy Schem. #410460

Spec. & Proc.

Panoramic System - Specification #SCH 61-8214-331, Procedure #SCH 61-8214-335.

Frame Camera - Specification #SCH 62-8214-23, Procedure #

Cassette - Specification #PQA 002.3, Procedure #SCH 61-8214-335.



SCHEDULE HISTORY

C/M 1 FLIGHT SYSTEM

PHILADELPHIA PRODUCT

<u>Recovery Sub-System</u>	<u>Serial Number</u>	<u>In Fab</u>	<u>In Assembly</u>	<u>In Test</u>	<u>Ready</u>	<u>Received</u>	<u>Scheduled Receipt</u>
	#581	6-1-61	7-1-61	7-7-61	7-14-61	7-21-61	7-21-61

A/P Mods. to Phila Product

Ballast System

12-20-61 12-11-61

Note: 12-14-61 Need approval on TD for lightweight ballast installation. Resolved 12-20-61.

" 12-14-61 No qualified reefing line cutters available.

Aft Cover (2 piece)

12-20-61 12-13-61

Note: Preparation for Qual Test on 1-piece and 2-piece covers proceeding - ready for test 12-8-61. Expect completion on 1-9-61. Qual test will not hold up flight items. Decision for 1 or 2-piece covers due 12-20-61.

TM Serial No. 57

Components

Note: 12-1-61 Dimple motor wiring harnesses rejected by Q.C.

" Dimple motors #DM-25-J7 Acceptance Testing completed on 2-14-62.

NEW YORK PRODUCT

Clock

S/N #7 Received 1-12-62.

C/N 1 FLIGHT SYSTEM

A/P PRODUCT

	<u>Serial Number</u>	<u>In Fab</u>	<u>In Assembly</u>	<u>Ready</u>	<u>Received Syst. Test</u>	<u>Scheduled Receipt</u>
<u>Fairing</u>	#1120	7-1-61	8-14-61	12-7-61	1-9-62	11-18-61

Problem Areas:

1. 8-10-61 A and D harnesses - drawing errors and revisions. Resolved on 10-10-61.
2. 9-18-61 Lack of released drawings holding units.
3. 1-4-62 A and D harnesses - incorrect wiring discovered. Resolved on 1-9-62.

Forward Barrel

#1120	7-1-61	8-14-61	12-7-61	1-9-62	11-18-61
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Problem Areas:

1. 8-10-61 B harness - drawing error and revisions. Resolved 10-10-61.
2. 9-10-61 Lack of released assembly drawings for structure holding unit.
3. 9-10-61 Incorrect welding techniques used in fabrication of structure. Resolved 9-25-61.
4. 12-18-61 Structure failed light leak test. Redesign of sealing accomplished 1-5-62.

Aft Barrel

#1120	7-1-61	8-14-61	12-7-61	1-9-62	11-18-61
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Problem Areas:

Same as for Forward Barrel.

SYSTEM ASSEMBLED AT A/P 1-2-62

Instruments

#70/#71 Fairing and Barrels #1120, capsule USE 581, Serial #3 New York, #72 front end, #74 third unit.

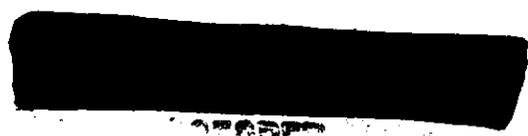
#1 Clock: substituted for #3 on 1-21-62.

#5 Clock: substituted for #1 on 2-13-62.

#7 Clock: substituted for #5 on 2-25-62.

SYSTEMS TEST

- Electrical mating completed 1/5/62.
- Physical mating completed 1/9/62.
- Collimation completed 1/12/62.
- Functional checks completed 1/15/62.



## C/M 1 FLIGHT SYSTEM

SYSTEMS TEST (cont'd)

In HATS Test on 1-29-62 (lamp sync unit failed in altitude - under major redesign - A/P Mod. and its incorporation on Units #1 and #2 accomplished 2-9-62.)

Third unit integration on 2-7-62.

In Post HATS resolution on 2-11-62. (Instrument #70 - star wheel drive shaft failure. Shaft replaced on 2-12-62.)

Resolution re-run 2-12-62 - results proved to be low. (Further investigation showed that difference existed in individual target readers. Resolved by restricting individuals who read targets.) (System displayed tendency for the payload to pull out of the rails. During the Resolution, system would not cycle properly and confidence run was delayed. Star wheel assembly was overhauled and system retimed on 1-26-62.)

Confidence run completed 2-17-62.

System shipped 2-17-62.

Problem with frame camera interfering with arm circuit - isolation and fusing of this unit being accomplished at the base.

Test aim failure, damaged clock and Blossom TM. As a result of failure, TM No. 54 replaced by No. 57 and #5 clock was replaced by #7.

System launched 2-27-62 as scheduled.

Frame camera T.M. not functioning. Impossible to determine if unit is operating.

FLIGHT (4 day)

Successful orbit. Air recovery on 65th rev. Ablative shield recovered with capsule. Main instrument operation okay. No frame camera operation. Full spool of film recovered.

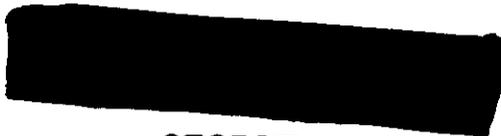
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SETD

SCHEDULE HISTORY

C/M FLIGHT #2



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Harnesses

AM-502-A

BM-502-B

CM-502-C

DM-502-D

NO. 2 CALIBRATION PLATE # 2

74/75  
Cassette  
Assembly

13311  
Paralite

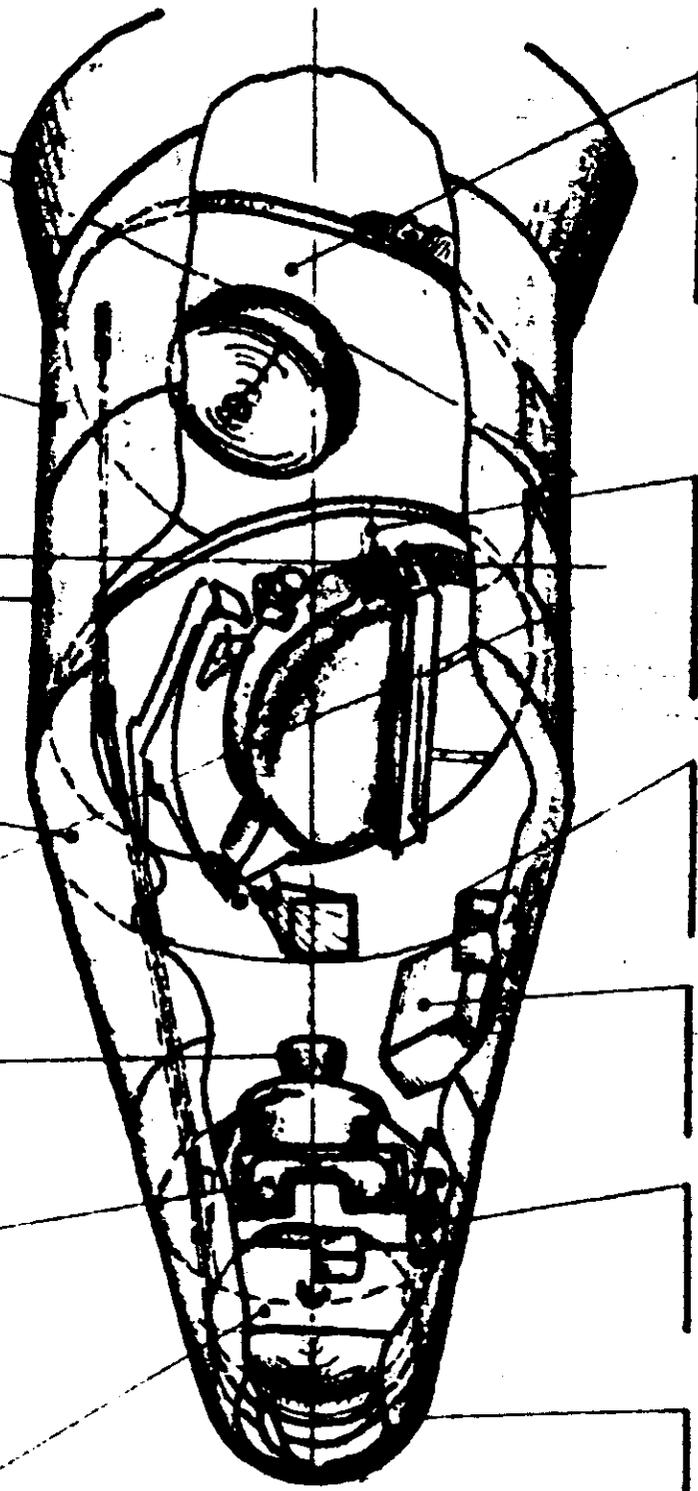
8P-15  
452-9  
Metro  
Bracket

861  
Pairing

701  
Barrel #1

601  
Barrel #2

1124  
Vehicle



Recovery  
System  
Use  
504

Blossom  
TM 53

Clock  
1

Frame  
Camera  
NONE

No. 1 Main Camera, 72  
Panorams F 8  
Horizon R.N. 806561  
Horizon L.N. 806862

No. 2 Main Camera, 73  
Panoramio I-4  
Horizon R.N. 803796  
Horizon L.N. 806560



SCHEDULE HISTORY

U/M 2 FLIGHT SYSTEM  
(QUAL UNIT)

BOSTON PRODUCT

Panoramic System

<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Received</u>	<u>Scheduled Receipt</u>
72/73	10/1/61	12/4/61	12/16/61	1/4/62	1/5/62	12/27/61

Problem Areas

1. 12/12/61 Faulty star wheel drive assembly replaced; completed 12/13/61.
2. 12/15/61 5-volt noise level in lamp sync unit. Filter circuit designed and installed.
3. 12/30/62 Double pulsing of data blocks no frequency markers or fiducials and no end markers.
4. 1/2/62 Above problem resolved except during shutdown there would be a double pulse.
5. 1/3/62 Data blocks firing intermittent - repaired same date.
6. 1/4/62 TM readouts out-of-spec. Specification relaxed to  $\pm 10\%$ .

Assy drawing #42600 (master)  
 " " #42650 (slave)

Assy Schematic #44105C (master)  
 " " #44286C (slave)

Frame Camera

Note: No frame camera flown on this system, because operational unit was not available at time of launch.

Cassette

<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Received</u>	<u>Scheduled Receipt</u>
74/75				1/4/62	1/5/62	12/27/61

Assy drawing #44276; Assy Schematic #44046G

Spec. & Proc.

Panoramic System - Specification #SCH 61-8214-331, Procedure #SCH 61-8214-335.

Cassette - Specification #PQA 002.3, Procedure #SCH 61-8214-335.



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SETD  
3-6-62



SCHEDULE HISTORY

CG/M 2 FLIGHT SYSTEM  
(Qual Unit)

PHILADELPHIA PRODUCT

<u>Recovery Sub-System</u>	<u>Serial Number</u>	<u>In Fabrication</u>	<u>In Assembly</u>	<u>In Test</u>	<u>Ready</u>	<u>Received</u>	<u>Scheduled Receipt</u>
	#584	7-3-61	8-3-61	8-9-61	8-16-61	8-24-61	

Note: This unit reassigned from C/M-3 on 1/22/62 to replace USE #583. (Due to rejection of capsule for Manufacturing.)

A/P Mods. to Phila. Product

Ballast System 1-9-62 1-26-62

Note: No qualified cutters available.

Aft Cover (2 piece) 1-5-62 1-23-62

TM Serial #53

Components

Note: 12-19-61 Dimple motor harnesses rejected by Q.A.

NEW YORK PRODUCT

Clock

S/N #1 Received 10/12/61. Sent back for retrofits 11/21/61. Received at A/P 12/15/61. 2/13/62 - unit inoperative, A/P unable to incorporate mods. Sent back to N.Y. Received at A/P on 3/3/62.

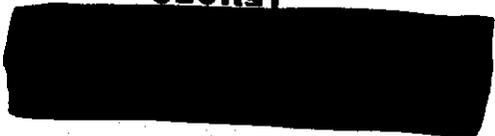
A/P PRODUCT

<u>Fairing</u>	<u>Serial Number</u>	<u>In Fab</u>	<u>In Assembly</u>	<u>Ready</u>	<u>Received Syst. Test</u>	<u>Scheduled Receipt</u>
	#801	7-14-61	9-6-61	12-12-61	12-12-61	12-4-61

Problem Areas:

1. 12-1-61 Unit lacks signal conditioner; delivered 12-11-61.
2. 12-20-61 A&D harnesses, Q.C. problems; resolved 12-28-62

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SETD  
3-6-62

SCHEDULE HISTORY

C/M 2 FLIGHT SYSTEM  
(Qual Unit)

A/P PRODUCT (continued)

	<u>Serial Number</u>	<u>In Fab</u>	<u>In Assembly</u>	<u>Ready</u>	<u>Received Syst. Test</u>	<u>Scheduled Receipt</u>
<u>Forward Barrel</u>	#701	7-14-61	9-6-61	12-12-61	12-13-61	12-4-61

Problem Areas:

1. 12-20-61 B harness, Q.C. problems resolved 12-28-61.

<u>Aft Barrel</u>	#601	7-14-61	9-6-61	12-12-61	12-13-61	12-4-61
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Problem Areas:

1. 12-20-61 C harness, Q.C. problems, resolved 12-28-61.

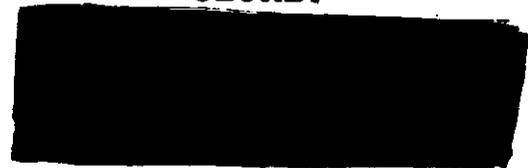
SYSTEM ASSEMBLED AT A/P 1-27-62

Instruments  
#72/#73

Fairing #801, Aft barrel #601, forward barrel #701, Recovery Sub-system, USE #584, Clock Serial #3, TM #53, Signal Conditioner #74 Cassette.

- Ser. #4, Clock, substituted for #3 on 1-25-62.
- " #7, Clock, substituted for #4 on 1-25-62.
- " #1, Clock, substituted for #7 on 1-25-62.
- " #7, Clock, substituted for #1 on 2-3-62.
- " #1, Clock, substituted for #7 on 2-4-62.
- " #7, Clock, substituted for #1 on 2-4-62.
- " #4, Clock, substituted for #7 on 3-6-62.
- " #1, Clock, substituted for #4 on 4-9-62.
- 2-26-62 Frame camera SN 70 removed (sent back to Boston)
- 3-21-62 Temperature sensor replaced
- 3-21-62 Frame camera SN 78 installed, checked and removed. SN 76 installed.
- 4-9-62 Frame camera SN 76 removed from system

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SCHEDULE HISTORY

C/M 2 FLIGHT SYSTEM  
(Qual Unit)

SYSTEMS QUAL TEST & FLIGHT PREPARATION

Receiving Inspection completed on 1/6/62.

- 1. 1/8/62 Ramp steps out of tolerance. Resolved 1/9/62.
- 2. 1/9/62 Instrument #72 ran backwards because supply spools had full torque and cassette had backup and takeup at same time. Problem resolved 1/23/62.

Acceptance completed 1/10/62.

- 3. 1/10/62 Double pulsing caused by lamp sync unit during start and stop of instrument operate. Boston fix on 1/15/62 not satisfactory. Resolved by LMSC fix 2/6/62.
- 4. 1/12/62 Ground loop between unregulated and regulated voltages caused instrument #72 operation with 28 volts unregulated applied only.
- 5. 1/16/62 Instrument #72 lamp sync unit would not interrogate clock.

Functional Test (Electrical) completed on 1/16/62.

- 6. 1/18/62 Instrument #2 cassette no backup capability. Resolved 1/22/62.

Systems testing completed 1/19/62.

- 7. 1/20/62 Instrument #2 right horizon shutter malfunctioned. Resolved 1/20/62.

Pre-HATS resolution completed 1/28/62.

- 8. 1/28/62 Instrument #3 has no takeup, open wire on metering solenoid. Resolved same date.

Vibration test completed 1/31/62.

- 9. 2/12/62 No shutter operation on Instrument #3 during HATS.

HATS testing completed 2/12/62.

- 10. 2/13/62 Loose motor commutators caused cassette malfunction during off spooling. Commutators removed.

Post HATS resolution completed on 2/14/62.

Acceleration test completed 2/20/62.

Light leak test completed 2/26/62.

Post acceleration resolution completed 3/2/62.



SCHEDULE HISTORY

C/M 2 FLIGHT SYSTEM  
(Qual Unit)

SYSTEMS QUAL TEST & FLIGHT PREPARATION (cont'd)

11. 3/3/62 Horizon camera lens assemblies excessive grease deposits  
Unit reworked by Boston

System refurbishment completed 3/6/62.

12. 3/31/62 No frequency marker (instr. #72)--Transistor failure in LSU.  
Lamp sync unit repaired and reinstalled 4/2/62.

13. 4/2/62 No T/M on channel 13. Removed signal conditioner and  
commutator. Replaced broken connector.

Pre-ship tests completed 4/4/62.

System shipped to VAFB on 4/5/62.

14. 4/9/62 SN #4 clock failed, due to operator error. Unit replaced  
with SN #1.

15. 4/9/62 Frame camera SN #76 failed, and was removed. Metering  
solenoid burned. No replacement was made on system.

Pad run completed 4/10/62.

System launched on 4/17/62.

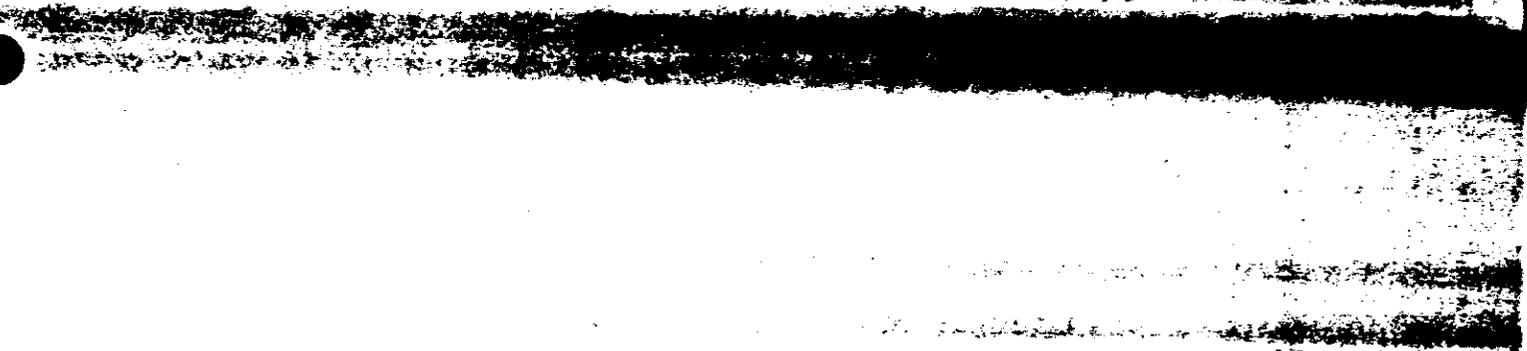
FLIGHT (2 day)

Successful orbit. Air recovery on 33rd rev. panoramic instrument  
operation okay.



SCHEDULE HISTORY

C/N 3 FLIGHT SYSTEM



SECRET



2-DIMENSIONALIZATION REPORT # 3

619-8P15  
452-13

Intro  
Foot

619-1721-158  
13457-13759

Enclosure

90/91

Cartridge  
Assembly

802

Painting

702

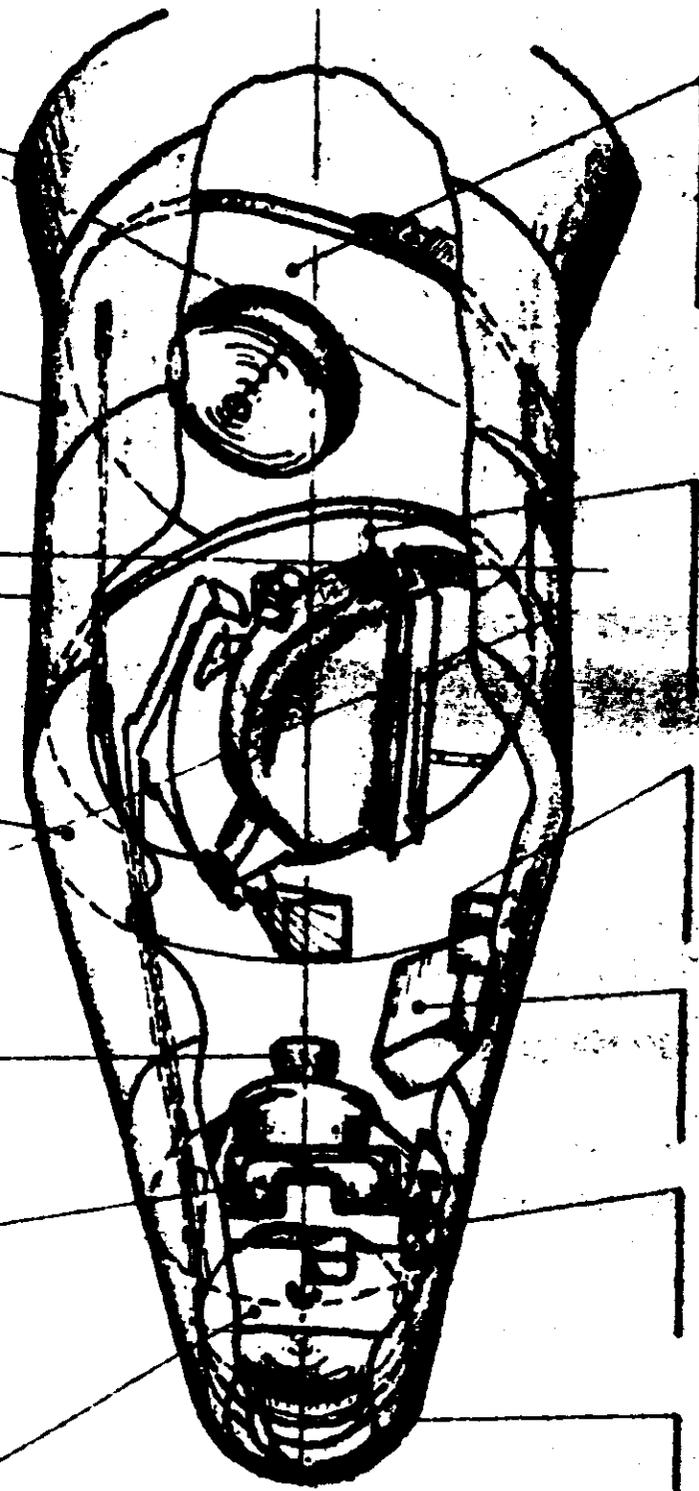
Barrel #1

602

Barrel #2

1125

Vehicle



Recovery  
System  
Use  
5186

Blossom  
TH 52

Clock  
6

Trans  
Camera  
70

Main Camera, 74  
Barrel #1  
Barrel #2  
Horizon R.I. 806563  
Horizon L.I. 806063

No. 2 Main Camera, 75  
Panoramic 0142435  
Horizon R.I. 806558  
Horizon L.I. 806860

Harnesses

- A M-503-A
- B M-503-B
- C M-503-C
- D M-503-D

SECRET

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SCHEDULE HISTORY

C/M 3 FLIGHT SYSTEM

BOSTON PRODUCT

<u>Panoramic System</u>	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Rec'd</u>	<u>Scheduled Receipt</u>
	#74/75	11-28-61	1-4-62	1-17-62	1-26-62	1-27-62	1-3-62

Assembly drawing #42600, #42650  
 Assembly schematics #46337, #46338.

Problem Areas

1. 1/9/62 Clutches failed in main units, removed and sent to vendor for solution. Repaired 1/12/62.
2. 1/12/62 System required various electrical completions this date. Resolved 1/17/62.
3. 1/15/62 System is static because of recurrence of clutch trouble - testing clutch from second source. Resolved 1/16/62.
4. 1/19/62 Star wheel drive assy failed during post vibration check of launch mode, power on - Instr. #75.

Frame Camera

<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Rec'd</u>	<u>Scheduled Receipt</u>
#70	8-30-61	10-10-61	12-7-61	12-17-61	1-5-62	- -

Problem Areas

1. 9/30/61 D.C.S. promised 9/15/61, still undelivered.
2. 10/10/61 Unit undergoing redesign, drive mechanism. Completed 10/21/61.
3. 11/29/61 Metering and cycling problems resolved 12/7/61.
4. 12/17/61 Unit is inoperative - will be shipped in this condition.

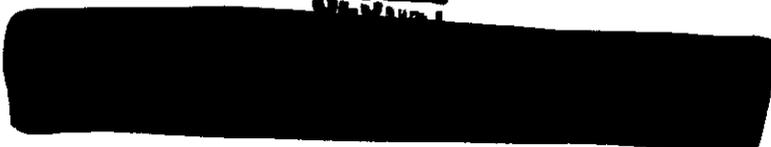
Unit sent back to Boston for complete rework 3/4/62.

Refurbishment completed and re-acceptance testing started 4/13/62.

Testing completed 4/17/62.

Unit received at A/P 4/18/62.

CRANE  
REPAIR



**G/M 3 FLIGHT SYSTEM**

BOSTON PRODUCT (continued)

	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Rec'd</u>	<u>Scheduled Receipt</u>
<u>Cassette</u>	90/91	2/10/62	3/16/62	3/21/62	3/30/62	4/3/62	3/15/62

SPEC. & PROC.

Panoramic System - Spec. #SCH 61-8214-331, Proc. #SCH 61-8214-335.  
 Frame Camera - Spec. #SCH 62-8214-23.  
 Cassette - Spec. #PQA 002.3, Proc. #SCH 61-8214-335.

PHILADELPHIA PRODUCT

	<u>Serial Number</u>	<u>In Fabrication</u>	<u>In Assembly</u>	<u>In Test</u>	<u>Ready</u>	<u>Rec'd</u>	<u>Scheduled Receipt</u>
<u>Recovery Subsystem</u>	#586					9-15-61	9-15-61

A/P Mods. to Phila. Product

Ballast System 1-27-62 1-30-62 2-16-62 1-16-62

Problem: 1/12/62 Ballast system held up because of lack of new cutters

Aft Cover (2 piece) 1-26-62 1-30-62 2-6-62 1-16-62

Problem: 1/2/62 Unit was rejected because of excessive leakage. Sent back to shop for rework.

T/M - Serial No. 52

Components - 12/20/61 Dimple motor wiring harnesses not available.

NEW YORK PRODUCT

S/N #6 Clock received 1/4/62.





SCHEDULE HISTORY

C/M 3 FLIGHT SYSTEM

A/P PRODUCT

	<u>Serial Number</u>	<u>In Fabrication</u>	<u>In Assembly</u>	<u>Ready</u>	<u>Received Syst. Test</u>	<u>Scheduled Receipt</u>
Fairing	#802	7-21-61	12-8-61	1-2-62	1-3-62	12-23-61

Problem areas:

1. 12/28/61 Unit held up because of signal conditioner rework. Modification completed on 1/5/62.

Forward Barrel	#702	7-21-61	10-28-61	1-2-62	1-3-62	12-23-61
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Aft Barrel	#602	7-21-61	11-15-61	1-2-62	1-3-62	12-23-61
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System Assembled at A/P - 2/5/62.

Instruments #74/75, Fairing #802, Forward Barrel, Recovery Capsule USG 986, Clock SN-6, Hleson in [redacted], Cassette 76/77, Signal Conditioner SN 140.

Substitutions

1/10/62 SN 76/77 Cassette replaced by SN 90/91 - erratic tension. This is the second cassette with same serialization (C/M #1).

1/20/61 SN 70 Frame Camera substituted for SN 78.

Flight Preparation

Receiving-inspection completed 1/27/62.

Acceptance testing completed 2/5/62.

System functional tests completed 2/15/62.

- 1) 2/17/62 - Main drive motor Instr. #75 overheating. Unit replaced 2/20/62.



SCHEDULE HISTORY

C/K 3 FLIGHT SYSTEM

A/P PRODUCT

Flight Preparation (cont'd)

2) 2/20/62 - Geneva drive pin failure, Instr. #75.

3) 2/20/62 - Cycle rates on Instr. #75 slow.

System testing completed 2/22/62.

Pre-environmental resolution completed 2/27/62.

Environmental testing completed 3/2/62.

Post environmental resolution completed 3/7/62.

4) 3/29/62 - 2 KC inverter failed - unit replaced.

5) 4/5/62 - Bent coupling pins in Geneva drive system - Instr. #74.

6) 4/11/62 - Payload came out of rails during pre-ship checks - caused by version problem. Resolved.

System shipped to BASE 4/11/62.

7) 4/12/62 - Erratic operation of REC programmer - unit replaced.

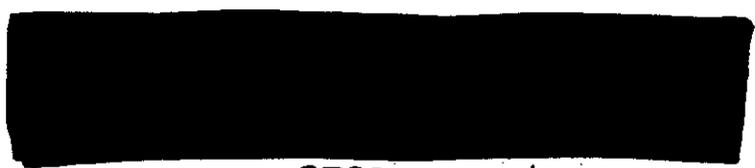
Pad run completed 4/16/62.

8) 4/20/62 - SN 78 Frame Camera - motor burnout. Unit replaced by SN 70.

System launched on 4/28/62.

Flight (4 Day)

Successful orbit. Initiated recovery on 64th rev. System failed to eject chute and was lost.

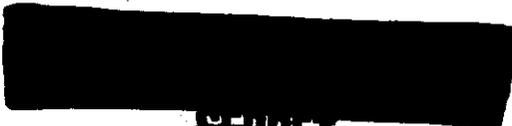


SECRET



SCHEDULE HISTORY

C/M 4 FLIGHT SYSTEM



SECRET

CAN SPECIALIZATION FLIGHT # 4

78/79  
Cassette  
Assembly

13310  
Parachute

619-BP15  
452-14  
Intro  
Rocket

803  
Pairing

703  
Barrel #1

603  
Barrel #2

1126  
Vehicle



Recovery  
System  
Use  
585

Blossom  
TM 55

Clock  
9

Frame  
Camera  
82

No. 1 Main Camera, 76  
Panoramic Q132435  
Horizon P.H. 803735  
Horizon L.H. 807530

No. 2 Main Camera, 77  
Panoramic O152435  
Horizon P.H. 803735  
Horizon L.H. 806562

Harnesses

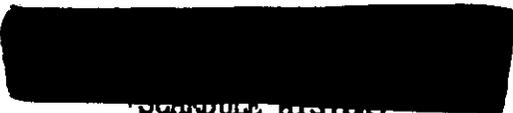
AM-504-A

BM-504-B

CM-504-C

DM-504-D

Grant



SCHEDULE HISTORY

C/M 4 FLIGHT SYSTEM

BOSTON PRODUCT

	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Rec'd</u>	<u>Scheduled Receipt</u>
<u>Panoramic System</u>	76/77	12/1/61	1/15/62	2/7/62	2/14/62	2/16/62	2/4/62

Assembly Drawings: #42600 (Master)  
#42650 (Slave)

Assy Schematic: #46337 (Master)  
#46338 (Slave)

Problem Areas

1. 1/27/62 Cycle rates out of spec. Resolved 2/8/62.
2. 2/1/62 LSU failed. Under major redesign. Boston fix installed prior to shipment.
3. 2/8/62 101 Clutch failure. Resolved 2/9/62.
4. 2/13/62 Payload pulled out of rails. Supply spool break failure.

Frame Camera

	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Completed</u>	<u>Received</u>
	#82	2/28/62	4/25/62	4/27/62	5/1/62	5/4/62

Problem Areas

1. 4/26/62 Unit slewed on normal operate mode. Spring on metering solenoid replaced.
2. 4/26/62 Shutter failed - assembly replaced.
3. 4/27/62 Cassette would not take up due to missing ground connection, resolved.

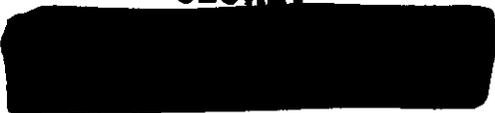
Cassette

	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Completed</u>	<u>Received</u>
	78/79	1/5/62	1/10/62	2/5/62	2/14/62	2/16/62

Assembly Drawing #44276

Assembly Schematic #41046

**SECRET**  
**SECRET**



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C/M h FLIGHT SYSTEM

PHILADELPHIA PRODUCT

	<u>Serial Number</u>	<u>In Fab</u>	<u>In Assembly</u>	<u>In Test</u>	<u>Ready</u>	<u>Rec'd</u>	<u>Scheduled Receipt</u>
<u>Main System</u>	585	7/13/61	8/15/61	8/22/61	8/29/61	9/5/61	9/5/61

Reassigned from C/M #4 to C/M #3 on 1/22/62  
 Reassigned from C/M #3 to C/M #4 on 2/5/62

<u>A/P Mods to Philly Product</u>	<u>In Assembly</u>	<u>Completed</u>	<u>Scheduled Receipt</u>
Ballast System	2/13/62	2/16/62	1/25/62
Aft Cover (2 piece)		2/16/62	1/25/62

2/4/62 Bonding attempted 3 times - still leaks.  
 Resolved 2/8/62.

TM #55

NEW YORK PRODUCT

Clock SN 9 Received 2/10/62/

A/P PRODUCT

	<u>Serial Number</u>	<u>In Fab</u>	<u>In Assy</u>	<u>Ready</u>	<u>Received Sys. Test</u>	<u>Scheduled Receipt</u>
<u>Fairing</u>	803	10/9/61	12/30/61	1/13/62	1/13/62	1/12/62

Problem Areas:

1. 1/12/62 Lacks signal conditioner. Delivered 1/16/62.
2. 2/5/62 Being reworked to incorporate latest changes. completed 2/16/62.



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C/M & FLIGHT SYSTEM

A/P PRODUCT (continued)

	<u>Serial Number</u>	<u>In Fab</u>	<u>In Assy</u>	<u>Ready</u>	<u>Received Sys. Test</u>	<u>Scheduled Receipt</u>
<u>Forward Barrel</u>	703	10/9/61	12/11/61	1/13/62	1/13/62	1/12/62
<u>Aft Barrel</u>	603	10/9/61	12/26/61	1/13/62	1/13/62	1/12/62

System Assembled: (Initial)

Main Instrument 76/77  
 Cassette SN 78/79  
 Frame Camera SN 78 on 3/12/62  
 Fairing SN 803  
 Forward Barrel SN 703  
 Aft Barrel SN 603

Clock #3

IRC USE 585.

Substitutions:

3/17/62 SN 3 Clock replaced by SN 9  
 3/30/62 SN 76 Frame camera replaced SN 78  
 4/23/62 SN 80 Frame camera replaced SN 76  
 5/4/62 SN 82 Frame camera replaced SN 80  
 5/23/62 SN 8 Destruct timer replaced SN 7

Page 1

SECRET

[REDACTED]

SCHEDULE HISTORY

C/M 4 FLIGHT SYSTEM

A/P PRODUCT (continued) -----

A/P Flight Preparations:

Receiving inspection, Phase I, completed 2/19/62.

- 1) 2/22/62 - Main drive coupler to metering roller pin sheared. Pin replaced, operation O.K.
- 2) 2/23/62 - T.M. return broken in adapter cable. Repaired same day.

Acceptance testing, Phase II, complete 2/24/62.

Functional tests, Phase III, complete 2/28/62.

- 3) 3/5/62 - Double pulsing. Replaced LSU - did not correct situation. 40 uf capacitor added to LSU eliminated problem 3/6/62.

Systems testing complete, Phase IV, 3/7/62.

4) 3/9/62 - [REDACTED]

Pre-HATS Resolution, Phase V, complete 3/10/62.

SN-78 Frame Camera installed in system 3/12/62.

- 5) 3/17/62 - Clock accuracy failure. SN-3 replaced with SN-9.

Environmental testing, Phase VI, complete 3/17/62.

Post HATS Resolution, Phase VII, complete 3/21/62.

- 6) 3/24/62 - Double pulsing when Frame Camera transport monitor pulse occurred. Also some clock readouts missing. Lamp sync unit failed during HATS.
- 7) 3/30/62 - No takeup on Frame Camera - J702 replacement. SN-78.
- 8) 3/30/62 - Frame Camera failure SN-78. Motor was burned out because of insufficient voltage to meter unit. SN-76 from C/M-2 was substituted to complete compatibility test.

SCHEDULE HISTORY

C/M 4 FLIGHT SYSTEM

A/P PRODUCT

A/P Flight Preparation (Cont'd)

- 9) 3/30/62 - SN-76 Frame Camera does not operate. Wiring error in fuse box addition.
- 10) 4/2/62 - Recovery tray assembly. Destruct wiring burned, accidental shorting of component.
- 11) 4/3/62 - SN-76 Frame Camera failure. Insufficient voltage to operate unit, motor burnout.

Vehicle compatibility test completed 4/4/62.

- 12) 4/6/62 - Stainless steel pins in Geneva drive bent. Replaced with tempered steel pins 4/11/62.

Frame camera SN 80 installed 4/23/62.

Frame camera SN-82 substituted 5/4/62, modifications required.

- 13) 5/9/62 - Destruct timer SN-7 had to be replaced due to working parts problem. Unit replaced.

System shipped to VAFB 5/14/62.

- 14) 5/19/62 - Frame Camera would not slew. Problem in switching circuit, bad connection. Operation of unit O.K. after correction.

Pad Run Completed 5/21/62.

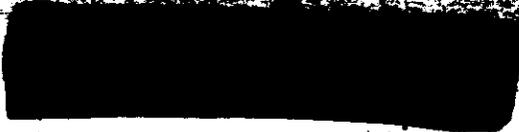
- 15) 5/22/62 - Shutter blades on Frame Camera bent. Condition existed prior to shipment, non detrimental.
- 16) 5/23/62 - Destruct Timer SN-7 had to be replaced due to workmanship problem on connector.

System launched 5/29/62.

Flight (3 Day)

Successful orbit. Panoramic camera operation O.K. No frame camera operation. Air recovery on 49th orbit. During recovery sequence one of four parachute risers burned off. Full spools of film recovered.

**SECRET**  
**SECRET**



SCHEDULE HISTORY

Q/M 5 FLIGHT SYSTEM



CONFIDENTIAL

C/N SERIALIZATION PL. INT #5

GID-1721-58 619-BPIS

13313

Parachute

Intro  
hooket

804

Parison

704

Barrel #1

604

Barrel #2

1128

Vehicle

82/83

Cassette  
Assembly



Recovery  
System  
Use

IM 44

Clock

8

Frame  
Camera

76

No. 1 Main Camera, 78

Parison R.H. 806858

Parison L.H. 806855

No. 2 Main Camera, 79

Parison R.H. 807531

Parison L.H. 807529

Harnesses

AM-505-A

BM-505-B

CM-505-C

DM-505-D

SCHEDULE HISTORY

C/M 5 FLIGHT SYSTEM

BOSTON PRODUCT

<u>Panoramic System</u>	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Rec'd</u>	<u>Scheduled Receipt</u>
	#78/79	12-15-61	1-28-62	2-12-62	2-26-62	2-28-62	2-12-62

Assembly drawing #42600-Master, #42650-Slave  
 Assembly schematics #47117-Master, #47118-Slave

Problem Areas

1. 2-1-62 - Lamp Sync unit failure - under major redesign - Boston fix installed on 2-22-62.
2. 2-8-62 - Omega bearing froze - component replaced and cycle rates ran again 2-9-62.
3. 2-10-62 - Cycle rates out - procedural problem - resolved 2-11-62.
4. 2-26-62 - Lamp problem - No end of pass, data block skipping, no freq. markers.

Frame Camera  
(Qual. Unit)

<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Rec'd</u>
#76	12-29-62	2-5-62	2-16-62	3-21-62	3-22-62

Started qual test 2-16-62  
 Completed qual test 2-25-62  
 Unit refurbished  
 Started acceptance test 3-14-62  
 Testing completed 3-21-62

Problem Areas

1. 2-17-62 - Unit failed to transport during pre-environmental test. Metering solenoid and break solenoid spring repositioned. Completed 2-13-62. Operation OK. (Qual Test).
2. 2-24-62 - Shutter misfiring at low end voltage during post environmental test also unit failed to transport. No repair or adjustment made to correct transport failure. Low voltage shutter failure bought off. (Qual Test).
3. 3-16-62 - After vibration unit would not transport and shutter would not operate. Low voltage in test set up and retainer ring for one gear had slipped off causing gear interference. Low voltage failure during post vibration run and gear problem during altitude test. Repaired 3-17-62. Operation OK. (Acceptance Test).
4. 3-19-62 - Shutter operation and metering intermittent. Adjustment in S702 microswitch corrected problem. (Acceptance Test).
5. 3-19-62 - Metering solenoid shaft broke. Replacement made. (Acceptance Test).



Problem Areas

(cont'd)

- 6. 3-19-62 - Unit failed to transport. Required metering solenoid adjustment and metering roller pawl modification. (Acceptance Test).

Assy. Drawing - 44446  
 Assy. Schematic - 46355

<u>Cassette</u>	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Ready</u>	<u>Rec'd</u>	<u>Scheduled Received</u>
	82783	1-16-62	2-13-62	2-14-62	2-25-62	2-28-62	2-12-62

Problem Areas

- 1. 2-23-62 - Erratic tension. Unit sent back to Newton for repair.

Assy. Drawing - 44276  
 Assy. Schematic - 41046

Spec's and Proc's

Main Sys. - Spec. #SCH-61-8214-331  
 Proc. #SCH-61-8214-335

Frame Camera - Spec. #SCH-62-8214-23

Cassette - Spec. #PQA-002.3  
 Proc. #SCH-61-8214-335

PHILADELPHIA PRODUCT

<u>Recovery Subsystem</u>	<u>Serial Number</u>	<u>Rec'd</u>
	USE 583	8-17-61

- 1. 1-22-62 Bucket out of tolerance - was on C/M #2 - unit returned to Philly. Rec'd at A/P 3-6-62.

A/P Mods to Philly Product

Ballast System	<u>In Assy.</u> 2-13-62	<u>Compl'd</u> 2-16-62	
Aft Cover (2 piece)	<u>In.Fab.</u> 1-23-62	<u>In Assy.</u> 2-14-62	<u>Compl'd</u> 4-4-62

Problems: 2-26-62 - Hat Sect. rejected by Q.C. & Engineering

M. Serial #44

NEW YORK PRODUCT

Clock SN 8 Rec'd 2-3-62



A/P PRODUCT

	<u>Serial Number</u>	<u>In Fabrication</u>	<u>In Assembly</u>	<u>Ready</u>	<u>Received Syst. Test</u>	<u>Scheduled Receipt</u>
Fairing	#804	8-2-61	1-15-62	1-27-62	1-27-62	1-29-62
Forward Barrel	#704	8-2-61	1-15-62	1-27-62	1-27-62	1-29-62
Aft Barrell	#604	8-2-61	1-15-62	1-27-62	1-27-62	1-29-62

System Assembled 3-7-62 (Initial)

- Panoramic Instruments 78/79
- Cassette 82/83
- Fairing 804
- Fwd. Barrel 704
- Aft. Barrel 604
- Clock SN 8
- Commutator SN 2216
- V/H Programmer SN 74
- Sig. Cond. SN 1127

Substitutions

- 3-8-62 - Replaced SN 74 V/H Programmer with SN 76.
- 4-2-62 - Freq. Lamp driver SN 81 replaced SN 85 in instrument #79
- 5-24-62- Recovery tray SN 40-1 substituted for SN 53-1.

A/P Flight Preparation

Receiving Inspection, Phase I, complete 3-3-62

- (1) 3-3-62 - Horizon Cameras - Excessive oil and grease in units. Cameras removed and cleaned.

Acceptance Testing, Phase II, complete 3-7-62

- (2) 3-8-62 - Failure of SN 74 V/H Programmer, intermittent motor operation - unit replaced.
- (3) 3-12-62- Unable to interrogate clock with center format switch for Instr. 2. No repair data available.

Functional Tests, Phase III, complete 3-14-62

- (4) 3-15-62- Instr. #1 Drive motor heated more than Instr. #2 motor. Led to replacement below.
- (5) 3-20-62- Film transport problem - intermittent on cassette side (Instr. #1) - Replaced clutch 3-23-62 - Did not correct problem. Drive motor replaced 3-23-62.
- (6) 3-26-62- Flay in Geneva Drive - Drive pins replaced.

- (7) 3-27-62 - Capacitive discharge coming thru LSU-operates Instr. after shut off - unit modified and reinstalled 3-28-62.

Systems Testing, Phase IV, complete 3-28-62

- (8) 3-29-62 - Lamp problem - binaries and freq. markers both instr's bad - adjustments made on Instr. 78, operation OK - lamp driver replaced on Instr. 79, operation OK.

Pre-HATS Resolution, Phase V complete 4-2-62

- (9) 4-3-62 - Frequency lamp intensity varies along format. Finally resolved 5-16-62.
- (10) 4-13-62 - Pins in Geneva coupling replaced because of excessive wear.

HATS and Vibration testing, Phase VI, completed 4-11-62

- (11) 4-14-62 - Supply spool damaged while removing from instrument. Flanges replaced.

POST HATS Resolution, Phase VI, completed 4-18-62

- (12) 5-3-62 - Recovery tray programmer component failure (R-1 relay) component replaced.
- (13) 5-4-62 - Recovery tray programmer component failure (R-1 relay) component replaced 5-11-62.
- (14) 5-9-62 - Cycle rates on Instrument #79 out of specification. Replaced Tech - corrected problem.

System Shipped to Base 5-20-62

- (15) 5-21-62 - Connector interference with lens boots. Excess connector potting trimmed.
- (16) 5-21-62 - Water seal harness damaged - exposed wire, unit repaired.
- (17) 5-24-62 - Recovery programmer failure. Unit used during pad run but replaced prior to flight. SN 40-1 substituted.
- (18) 5-25-62 - Pre-pad confidence run indicated metering problem in Instr. #79 - film rapped around metering roller. No visual damage after rethreading.

Pad System run completed 5-26-62

- (19) 5-30-62 - Fiducial lamps on Instr. #78 burned out. Will fly with them out.
- (20) 5-30-62 - Open squib circuit - Wire was short causing pull-out from plug. - Repaired by butt splicing.

System Launched 6-1-62

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UNCLASSIFIED



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SCHEDULE HISTORY

C/M FLIGHT SYSTEM NO. 6



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Flight

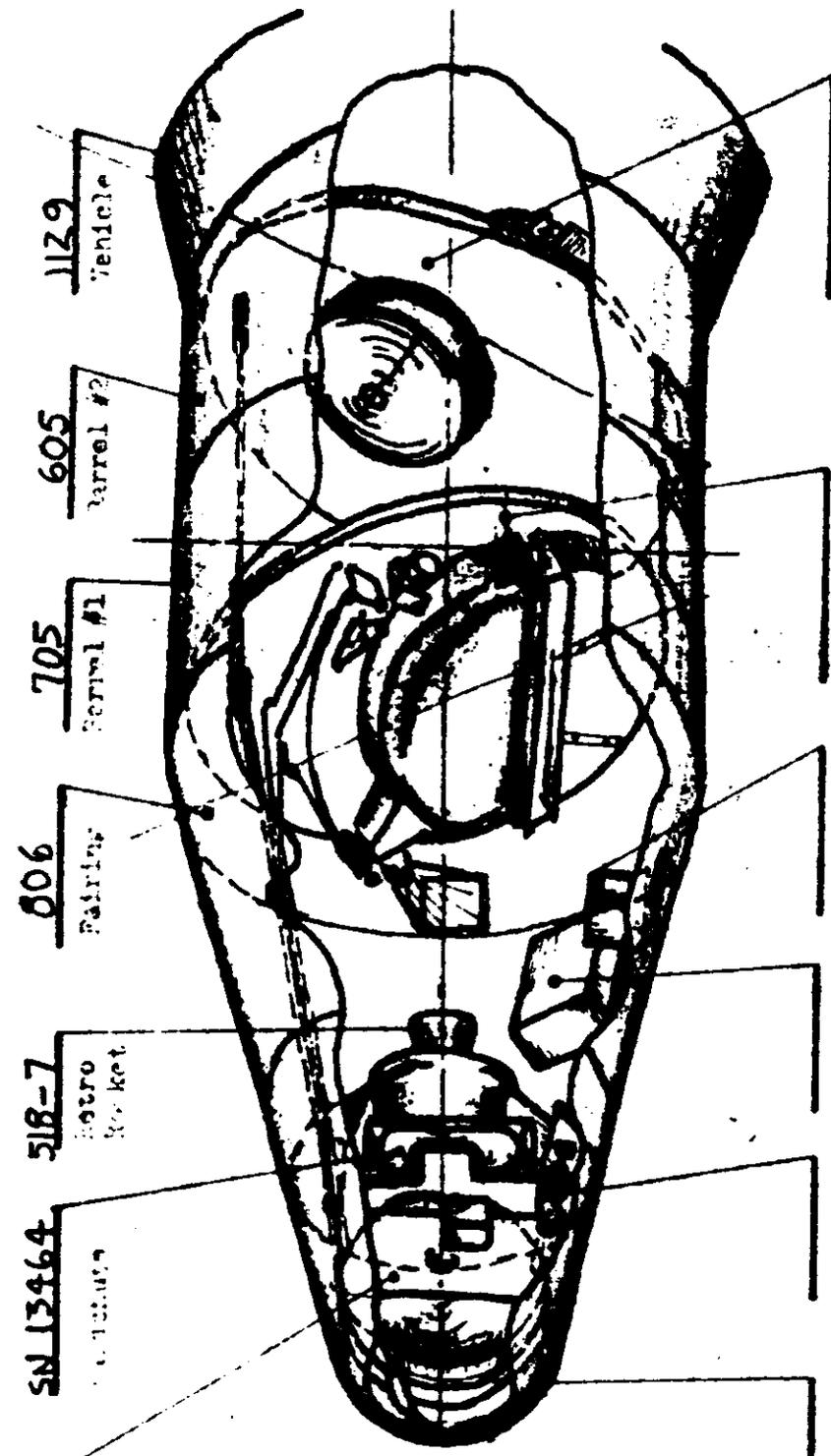
Successful orbit. T.M. indicated proper panoramic camera and frame camera operation. During air recovery attempt, chute was torn - bucket went into sea and sank.

~~SECRET~~

Harnesses

- A M506A
- B M506B
- C M506C
- D M506D

IDENTIFICATION TAG # 6



Recovery System Use **591**

Blossom TX **18**

Clock **10**

Frame Camera **88**

No. 1 Main Camera, **80**  
 Panoramic **0182435(H4)**  
 Horizon R.H. **807548**  
 Horizon L.H. **806800**

No. 2 Main Camera, **81**  
 Panoramic **0162435(H1)**  
 Horizon R.H. **807457**  
 Horizon L.H. **807564**

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SCHEDULE HISTORY

C/M 6 FLIGHT SYSTEM

BOSTON PRODUCT

<u>Panoramic System</u>	<u>Serial Number</u>	<u>Assembly</u>	<u>Debug</u>	<u>Test</u>	<u>Ready</u>	<u>Rec'd</u>	<u>Scheduled Receipt</u>
	#80/81	12/27/61	2/2/62	3/2/62	3/20/62	3/22/62	2/19/62

Assembly drawing #42600-Master, #42650-Slave  
 Assembly schematics #47142-Master, #47143-Slave

Problem Areas:

1. 3/6/62 - Erratic cycle rates - replaced drive motor and mag. amp. (Instr. #81) 3/8/62. Resolved 3/12/62 by replacing tachometers in both instruments.
2. 3/12/62- Improper start & shutdown sequence in Instr. #81 - Q107 failure, unit replaced.
3. 3/12/62- Star Wheel drive coupling pin failed. Replaced.

<u>Frame Camera</u>	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Completed</u>	<u>Received</u>
	#88	4/6/62	5/18/62	5/24/62	5/29/62	6/3/62

No operational problems during testing.  
 Assembly drawing #44446, Assembly schematic #46355.

<u>Cassette</u>	<u>Serial Number</u>	<u>In Assembly</u>	<u>In Debug</u>	<u>In Test</u>	<u>Completed</u>	<u>Received</u>
	#84/85	1/25/62	2/13/62	3/2/62	3/19/62	3/22/62

Assembly drawing #44276  
 Assembly schematic #41046

Spec's & Proc's

Panoramic System: Spec. #SCH-61-8214-331  
 Proc. #SCH-61-8214-335

Frame Camera: Spec. #SCH-62-8214-23

Cassette: Spec. #PQA-002.3  
 Proc. #SCH-61-8214-335

SECRET

SCHEDULE HISTORY

SETD  
8-31-62  
Page 2

C/M 6 FLIGHT SYSTEM

PHILADELPHIA PRODUCT

<u>Recovery Subsystem</u>	<u>Serial Number</u>	<u>Mfg. &amp; Assy Completed</u>	<u>Systems Test Completed</u>	<u>Buy-off</u>	<u>Ship</u>	<u>Rec'd</u>
	#591	2/8/62	2/19/62	2/21/62	3/8/62	3/21/62

A/P Mods to Phila. Product

	<u>In Fab.</u>	<u>In Assy</u>	<u>Completed</u>
Ballast System	--	2/28/62	3/28/62
Aft Cover (2 piece)	2/10/62	--	4/14/62
Programmer	--	--	4/3/62

NEW YORK PRODUCT

Clock #SN-10 - Received 2/17/62.

A/P PRODUCT

	<u>Serial Number</u>	<u>In Fabrication</u>	<u>In Assembly</u>	<u>Completed</u>	<u>Scheduled Completion</u>
Pairing	#806	9/12/62	1/8/62	2/26/62	2/25/62
Forward Barrel	#705	8/6/62	1/23/62	2/9/62	2/12/62
Aft Barrel	#605	8/6/62	1/23/62	2/9/62	2/12/62

SECRET

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SCHEDULE HISTORY

C/M 6 FLIGHT SYSTEM

System Assembled 3-31-62 (Initial)

- Panoramic Instruments #80/81
- Cassette 84/85
- Fairing #806
- Forward Barrel #705
- Aft Barrel #605
- Clock SN-10
- Frame Camera SN-78, 4-2-62 Installation.

Substitutions

- 4/17/62 - SN-78 Frame Camera replaced by SN-76
- 5/23/62 - SN-76 Frame Camera replaced by SN-84
- 6/20/62 - SN-84 Frame Camera replaced by SN-88.

A/P Flight Preparation

Receiving Inspection, Phase I, complete 3-22-62.

- (1) 3/26/62 Taper pin in Geneva Drive Shaft of both instruments badly bent. Pins replaced.

Acceptance Testing, Phase II, complete 3-31-62.

- (2) 4/2/62 Pin sheared on Geneva Drive pulley shaft of Instrument #81. Caused by hand cycling instrument. Pin replaced.
- (3) 4/4/62 Relay failure on TB 1 in Barrel #1. Terminal board replaced.
- (4) 4/5/62 Supply spool break malfunction Instrument #80. Unit replaced.

System Functional Test, Phase III, complete 4-9-62.

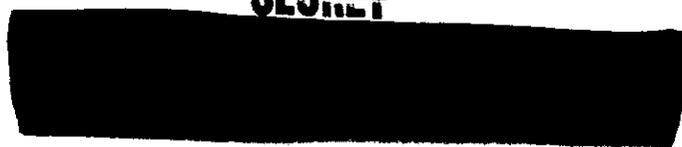
Complete Systems Testing, Phase IV, complete 4-13-62.

- (5) 4-17-62 Freq. marker problem. Trouble in harness, harness replaced.

Pre-environmental Resolution, Phase V, complete 4/18/62.

- (6) 4/18/62 During vibration test, payload was subjected to an abnormal level of 8 g's for approximately 1 second, fault of vibration equipment. No apparent visual or operational damage.

~~SECRET~~



SCHEDULE HISTORY

SETD  
8-31-62  
Page 4

C/M 6 FLIGHT SYSTEM

- (7) 4/19/62 Operation of Frame Camera erratic during HATS test. Clock would double interrogate during Frame Camera shutter wind motor actuation. Finally 5 Amp. fuse blew, ceasing operation of this unit.
- (8) 4/20/62 T/M records of HATS test indicated V/H Programmer did not start when commanded. Trouble later traced to G.S.E. malfunction.

Environmental Tests, Phase VI, complete 4/20/62.

- (9) 4/23/62 Instr. #80 displayed erratic shuttle operation. Re-pinned timing roller 4/27/62.
- (10) 5/1/62 Master Instr. SN-80 - solenoid failure in supply spool brake - solenoid replaced.
- (11) 5/3/62 Recovery Tray Programmer - component failure. Replaced.

Post Environmental Resolution, Phase VII, complete 4/25/62.

- (12) 5/3/62 Cycle rates out-of-spec. Cause determined to be sheared pin in Geneva Drive Assy. Pin replaced, operation O.K., rates within spec. 5/22/62.

Frame Camera SN-88 installed 5/23/62.

- (13) 5/24/62 Continuous burn on Freq. Lamps during pre-ship test phase, both instruments. Condition disappeared, could not simulate, no action taken.
- (14) 5/25/62 Horizon camera actuator on Instr. #81 binding. Caused by RTV material. Unit cleaned. Found later that actuating arm was bent, 5/26/62. Theodolite Test re-run.
- (15) 5/26/62 Homing function of each instrument not independent of each other. Master instrument miswired.
- (16) 5/26/62 Instrument #81 payload wrapped around metering roller during Theodolite Test. Instruments operated five cycles in this condition. Geneva Assemblies checked-OK. No further action taken.

System shipped to Base 5/28/62.

- (17) 6/13/62 Ground loop between DRC and fairing. Caused by structure on thrust cone contacting fairing. Resolved by channels on thrust cone.
- (18) 6/14/62 Ground loop between regulated and unregulated ground. Mounting screws on commutator bracket contacting commutator case.

C/M 6 FLIGHT SYSTEM

Pad System Run complete 6/15/62.

(19) 6/20/62 Frame Camera SN-84 inoperative. Unit replaced by SN-88.

System Launched 6/22/62.

Flight

Successful orbit. Panoramic camera operation OK. Frame camera operation OK. Air recovery of payload after 50 rev. on 6/25/62. No known malfunctions in system. Full payload retrieval.

