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Code 5430

5170-8:MJV:js
16 January 1963

Code 5170

Payload Plans for Vehicle 2353

1. Vehicle 2353 is scheduled for launch on 11 April 1963 but verbal reports indicate that the launch will be delayed three weeks because of pad loading problems.
2. A review of the operation of payloads 120 and 121 indicate that it is not possible to operate on a separate command radio frequency for each payload in the 123 megacycle range because of interference from ground transmitters. Modifications to the command system for the next launch are required and a delay in the schedule will probably result.
3. If the vehicle schedule does slip to a date of 2 May 1963, NRL could meet the schedule if the payload requirements were reduced to include:

- Payload 110 Solar Radiation-Greb
- Payload 111 Lofti
- Payload 130 Dosimeter - Greb
- Payload 113 Calsphere (20" diameter).

4. It is requested that this be considered at an early date, or the situation will no longer be true and a delay will be required regardless of the reduction of payload requirements.

Martin J. Votaw
Head, Satellite Techniques Branch

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BYEMAN-TALENT KEYHOLE-CONTROL
CONTROL SYSTEMS JOURNAL

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To CNO(ONI)

From: Director NRL

Subj: Command Flexibility ~~66r~~7102 and 7103

A Ref: Message R-132212Z from SSO DIA to CNO

B- - : NRL Report and Ltr 5400-29:HOL;PK BYE-10611-63 of 21 May 1963

1. Ref (A) expresses concern over the lack of ability to ~~interrogate~~ interrogate every possible combination of the collection bands in the 7102 payloads and requests a review of the situation for 7103.

2. Experience with Payload 7101A where extraneous ground-to-air signals have given made it necessary to abandon repeated spurious interrogations has/ ~~led to the decision to abandon~~ this frequency in more reliable frequency now being used favor of the/ ~~frequency~~ for interrogations of Payload 7101B.

2. An explanation of the command situation for 7102 seems to be in order even though this subject was ~~not~~ discussed before the TOG during the ~~early part of this year.~~ early part of this year.

A- The command frequency is identical to that now being used so successfully on 7101B and this fact may allow ~~unintentional~~ inadvertent mode changes of 7101B when it is within the/ ~~antenna beam~~ Command pattern during an attempted interrogation of one of the 7102 satellites. This is not a serious problem since ~~it~~ mode changes have been ~~experienced repeatedly with 7101A without~~ great serious degradation of the data and also because the/ ~~separation~~ separation of the orbits of the 7101 and the 7102 satellites.

to be
B- The Interim Command System/ ~~being~~ employed on the 7102 series has certain distinct advantages over the systems previously used: 1- command tones must be present in certain discreet pairs, with very tight tolerances on the tone frequency and the rate with which they are switched. One ~~of these~~ tone of each pair is used and is unique for each of the satellites in the 7102 series. Arm as an arming tone/ ~~is not~~ tones used in the 7101 series needed to be sent only once per orbit while this along with the Arm tone must be present/ ~~being~~ actuate tones used for the various commands in the 7102 series.

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OPTIONAL FORM NO. 10
5010-104

UNITED STATES GOVERNMENT

Memorandum

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TO : Code 5430

5170-10:MJV:js
DATE: 17 January 1963

FROM : Code 5170

SUBJECT: Command System Changes for May Launch

1. This memorandum is to define a change in plans for command systems in payloads 110, 130, and 112. These changes are intended to prevent future interference similar to that experienced with payload 120 in orbit.
2. The command system will be designed for operation of these payloads on the same radio frequency carrier. The command frequency for payload 121 will be used since it has experienced no interference in orbit. Using this frequency will cause payload 121 to be commanded inadvertently but the frequency of this occurrence will be low because of separation of orbits.
3. Command receivers will not be flown with a sensitivity greater than -115 dbm at room temperature.

Martin J. Votaw

Martin J. Votaw
Head, Satellite Techniques Branch

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CONTROL SYSTEMS JOINTLY

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Satellite Cost Breakdown)

Based on 6 satellites

Description	5170	Mult.	Ships
Man Weeks/satellite	230	1.65	380
% over time	30%	.33	10%
Labor cost/satellite	43.3 K	1.45	62.0 K
Materials, travel, /sat	70.5 K	.23	16.0 K
Major prog./sat	174.0 K		
Overhead /sat	84.6 K		
Total man weeks/sat	610		
Total cost /sat	450.4 K		
Overhead % of labor	80%		
Overhead % of total	25%		

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