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SPAR-R.677

①
FEASIBILITY STUDY OF A
GENERAL PURPOSE SPACECRAFT BUS

VOLUME II
SPECIFICATIONS AND RESPONSES
FROM VENDORS

ERRATA ADDENDUM

P
91
C655
G452
1975
v.2
Pt.2



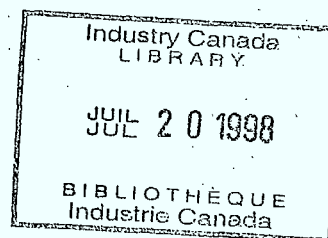
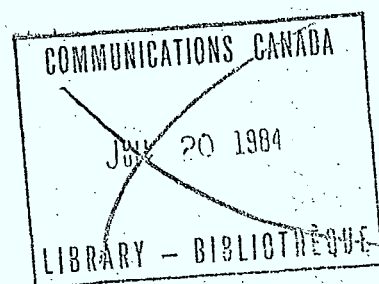
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Reference: Department of Supply and
Services Contract
PL36100-4-2010
Serial OPL4-0192

For Department of Communications

August, 1975



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FOREWORD

All holders of SPAR-R.677, "Feasibility Study of a General Purpose Spacecraft Bus", are requested to append the respective errata sheets to each of Volumes I, II and III, in their possession. Issuing of this errata document has become necessary due to a number of minor errors and inconsistencies in the original documents. Inconvenience caused to the readers is sincerely regretted.

Page No. Section No.

Correction

3 of 3.4
SPAR-SG.359

Replace entire section with:-

Reaction Control Subsystem (RCS)

The Reaction Control Subsystem shall provide appropriate external forces and torques to the spacecraft to precess the spin axis in the spinning mode, despin, acquire 3-axis stabilized attitude, acquire station and perform on-orbit attitude and east/west and north/south stationkeeping. The detailed RCS requirements are as defined in SPAR-SG.350 entitled Multipurpose Bus Study Specification, Requirements, Reaction Control Subsystem.

7 of 3.11.2
SPAR-SG.359

Change "1.20" to "1.10"
Change "1.50" to "1.25"

3.11.3

Change "3.81g" to "2.8g"

10 of 4.3
SPAR-SG.359

Replace para b)i)a) with:-
a) Z (Thrust Axis)

<u>Frequency (Hz)</u>	<u>g Level</u>	<u>Duration</u>
5-15	1.5	2 Cycles (lower level vibration for 2-3 sec.)
15-21	5.0	3-4 sec (lower level vibration for 20 sec. total)
21-100	1.5	Transients

10 of 4.3
SPAR-SG.359

Replace para b)i)b) with:-

b) X-Y (Lateral Axis)

<u>Frequency (Hz)</u>	<u>g Level</u>	<u>Duration</u>
5-14	1.3	2-3 cycles
14-100	1.0	Transients

Shock inputs are often replaced during spacecraft qualifications by high frequency sinusoidal vibration inputs.

The qualification level inputs then applied at the base of the spacecraft adapter are (sweep rate 2 octaves per minute):

Z Axis

<u>Frequency (Hz)</u>	<u>g Level</u>
100-250	2.3
250-400	4.5
400-2000	7.5

X and Y Axes

<u>Frequency (Hz)</u>	<u>g Level</u>
100-250	1.5
250-400	4.5
400-2000	7.5

Replace para b)ii) with

ii) Random Vibration Spectrum

20-350 Hz	:	+4db/octave
350-700 Hz	:	.04g ² /Hz
700-2000 Hz	:	-3db/octave
Overall Level	:	7.1g RMS

11 of 4.3
SPAR-SG.359

Replace para b)iii) with:

iii) Acoustic Levels

<u>Octave Band Centre Freq. (Hz)</u>	<u>Sound Pressure Level₂ in db (Ref. .0002 dynes/cm²)</u>
31.5	126
63	129
125	133
250	138
500	142
1000	136
2000	133
4000	129
8000	126

Overall level: 145 db

15 of Figure 2.4
SPAR-SG.359

Delete Figure 2.4

20 of 4.7.1 (a)
SPAR-SG.359

Add "Sweep Rate: 2 octaves per minute".
Change ".4" to "0.5 inch d.a.".
Delete fourth, fifth and sixth lines
of table and replace with:

21-250 Hz 2.3g*

Add note at bottom of table as follows:

"*Notched to 0.83g minimum input at the
major spacecraft axial resonances".

21 of 4.7.1 (b)
SPAR-SG.359

Add: "Sweep Rate: 2 octaves per minute".
Delete lines 1, 2, 3 and 4 of table and
replace with:

5-9 Hz	0.5 inch d.a.
9-14 Hz	2.0g
14-250 Hz	1.5g*

Delete last sentence and replace with
the following note:

"*The input will be notched at the
spacecraft/adaptor first bending mode
to limit the S/C C of M response to 3g."

4.7.3

Table: Sweep Rate should be 2 oct/min
(not 2 oct/cm)

2-8 2.1.2.2

Replace the first three sentences, from "At this point.... to as the baseline" with the following:-

At this point in time, because of the considerable weight advantages to be gained, the GPB will be using as its baseline an RCS, as described in section 2.1.2.7, which uses superheated and non-superheated electrothermal hydrazine thrusters. These engines, although at this time considered advanced technology, should be developed and available for the GPB and a launch in 1979.

The decision to choose this baseline was made subsequent to the completion of the RCS report which, for the major reason of present flight qualification status, originally chose the all catalytic RCS design as the baseline. Because of a lack of time to reanalyze the new baseline and rewrite the report, the remainder of this section and following paragraphs of section 2.1.2 present the original RCS report.

For the purpose of this report, the Hamilton Standard (HS) design is presented on behalf of all catalytic vendors, as the baseline.

2-17 2.1.2.4

Second paragraph this page, change the first sentence to read:-

The long term, eight years, compatibility of the oxidizer with the hardware, especially valve components, is questionable.

2-33

2.1.2.7.3

Delete the following:-

"Although the development status
has not advanced to a point where
Spar would recommend the design as
the baseline, we are"

Replace with:-

"Spar is"



LOWE-MARTIN No. 1137.

