

*Records*

GEORGE C. MARSHALL SPACE FLIGHT CENTER  
HUNTSVILLE, ALABAMA

*Memorandum*

TO : MSFC Co-Chairman, G&P Subpanel,  
R-AERO-DAP

DATE : July 12, 1967

FROM : Member, G&P Subpanel, R-ASTR-NG

In reply refer to:  
R-ASTR-NG-52-67  
CMcMahen/lw/876-8476

SUBJECT: Orbital limit cycle rates for AS-208

1. The attached tabulations show expected maximum values of the orbital limit-cycle attitude rates for the AS-208 vehicle during inertial hold for docking and after LM extraction. These values have been predicted on the basis of statistical treatment of vehicle and control system tolerances and digital simulation of orbital flight. The numbers may be considered satisfactory for sizing of related problems, for simulation work, and for post-flight comparison of performance.

2. Care should be taken to avoid any implication that these numbers are guaranteed maximum, therefore, I do not recommend that they be used in any formal intercenter documentation.

SAT 13

*C. M. McMahon*

C. M. McMahon  
Technical Assistant,  
R-ASTR-NG

2 Enc:  
a/s

CONCURRENCE:

*M. Brooks*  
M. Brooks

Chief, Guidance and Control  
Systems Analysis Branch, R-ASTR-NG

Addressee:

R-AERO-DAP, Mr. Joe Cremin

cc:

R-ASTR-N, Mr. Moore  
R-ASTR-NG, Record copy/branch file  
R-ASTR-NG, Mr. Brooks  
R-ASTR-X, Reference file

AS-208 LAUNCH VEHICLE  
MAXIMUM ATTITUDE RATES EXPECTED  
DURING INERTIAL HOLD FOR DOCKING

AXIS OF ROTATION	NO VENTING DISTURBANCES INCLUDED	S-IVB LOX & LH2 TANK CONTINUOUS VENT DISTURBANCES INCLUDED
ROLL	0.051 °/s	0.054 °/s
PITCH	0.012 °/s	0.018 °/s
YAW	0.026 °/s	0.028 °/s

- NOTE  
PERIOD (SECONDS): TB4 = 10,514 TO TB4 = 16,814

SPACE SUPPORT DIVISION  
SPERRY RAND CORPORATION  
DEPARTMENT 211  
JUNE 29, 1967

AS-208 LAUNCH VEHICLE  
 MAXIMUM ATTITUDE RATES EXPECTED  
 DURING POST-EXTRACTION PERIOD OF INERTIAL HOLD

AXIS OF ROTATION	NO EXTRACTION DISTURBANCES INCLUDED	RCS IMPINGEMENT & UMBILICAL SEVERANCE DELAY DISTURBANCED INCLUDED
ROLL	0.062 °/s	0.100 °/s
PITCH	0.021 °/s	0.026 °/s
YAW	0.031 °/s	0.030 °/s

NOTE  
 PERIOD (SECONDS): TB4 = 15,614 TO TB4 = 16,814

TABLE 2

Space Support Division  
 Sperry Rand Corporation  
 Department 211  
 July 7, 1967

~~ENCLOSURE~~