

8/65

Three-man ballistics committee
olling.

CONFIDENTIAL

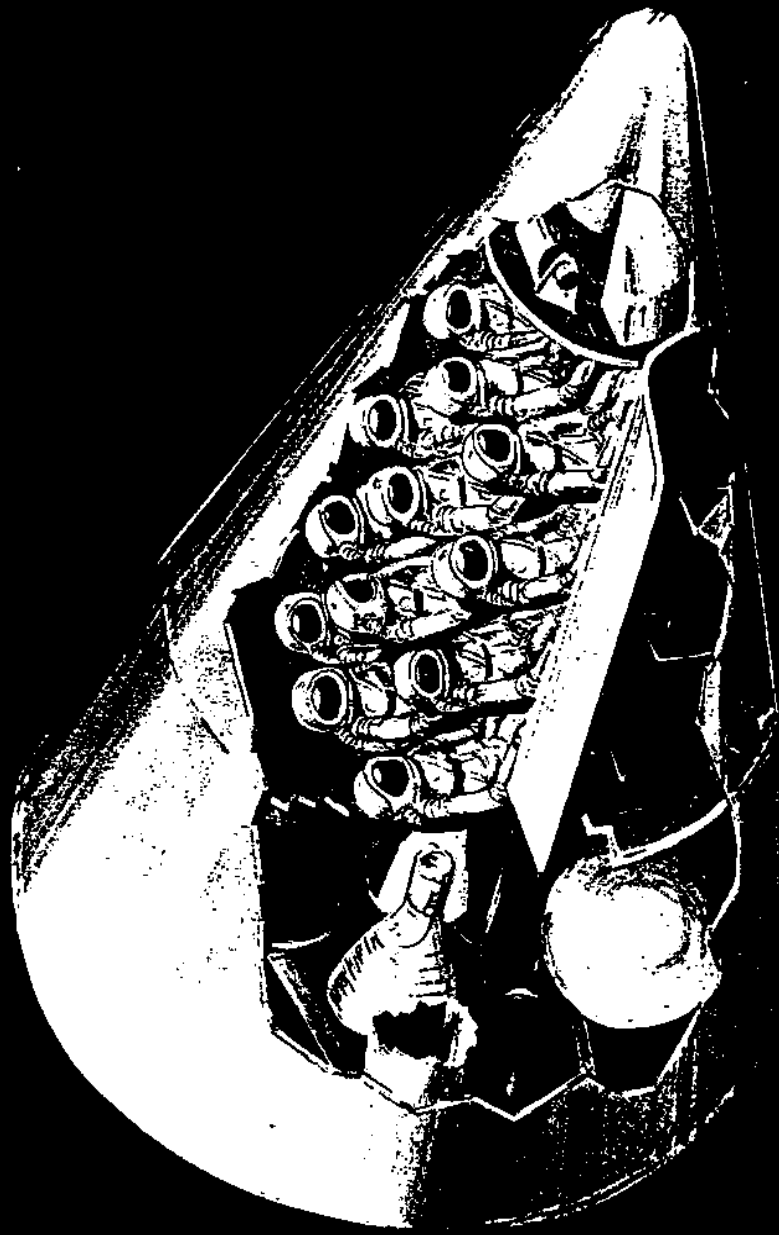
The National Ballistics Institute
objector to the committee.

It is requested that you
with copy and report to the
Aeronautics and Astronautics
Houston 1, Texas

CONFIDENTIAL
National
St. Louis, Mo.

NASA
3-63-88 (17)

12 MAN BALLISTICS REENTRY LOGISTICS S/C



NASA-MSC E HOLLING 16 APR 63 S-140-274



~~CONFIDENTIAL~~

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS 77058

MAY 9 1966

IN REPLY REFER TO: GS-64111

Mr. Walter F. Burke
Vice President and General Manager
Spacecraft and Missiles
McDonnell Aircraft Corporation
St. Louis, Missouri 63166

Attention: Mr. C. A. Jacobson
Mr. M. R. Czarnik

Dear Mr. Burke:

Subject: Contract NAS 9-170, Gemini, Initial conditions for use in rendezvous analyses

This letter is in response to a McDonnell Aircraft Corporation (MAC) request for official submittal of data. Data for use by MAC in construction of a standard set of initial conditions for rendezvous analyses are submitted in the enclosed tables.

Table I contains actual and planned trajectory conditions at spacecraft separation for GT-2 through GT-8. Table I also contains design values of out-of-plane position at spacecraft separation for use in rendezvous analyses.

Table II contains actual inertial guidance system (IGS) insertion errors in guidance coordinates, with a positive error indicating that the IGS value was larger than the actual value, for GT-2 through GT-8. Table II also contains the design criteria for use in rendezvous analyses.

Sincerely yours,
ORIGINAL SIGNED BY
K. S. KLEINKNECHT

Charles W. Mathews
Manager, Gemini Program

Enclosures 2

~~CONFIDENTIAL~~

(UNCLASSIFIED WHEN ENCLOSURES ARE DETACHED)

RECEIVED

MAY 12 1966

CODE MG

cc:
Mr. Frank G. Morgan
McDonnell Aircraft Corporation
Houston, Texas 77058

NASA Hqs, Leroy E. Day, MG

TABLE I
TRAJECTORY CONDITIONS AT SPACECRAFT SEPARATION

	GT-2	GT-3	GT-4	GT-5	GT-6	GT-7	GT-8
Altitude (Ft.)							
Planned	525,971	531,129	531,097	531,121	529,218	529,242	526,934
Actual	524,867	531,505	532,349	531,068	529,027	529,978	525,734
Geodetic Latitude Degrees North							
Planned	25.80	30.55	30.83	30.84	29.05	29.03	26.76
Actual	25.85	30.56	30.97	30.89	29.11	29.05	26.70
Down Range (N. M.)							
Planned	529.2	539.7	538.5	540.4	534.6	578.0	544.0
Actual	525.3	552.9	573.8	539.6	546.0	585.4	572.7
Longitude, Deg. West							
Planned	71.15	72.05	70.59	70.56	70.43	69.60	70.53
Actual	71.21	72.21	69.88	70.55	70.20	69.45	70.03
Inertial Velocity (Ft./Sec.)							
Planned	25,731	25,699	25,756	25,807	25,729	25,804	25,728
Actual	25,738	25,682	25,743	25,805	25,718	25,793	25,738
Inertial Flight Path Angle (Deg.)							
Planned	-2.28	0.00	0.00	0.00	0.00	.01	0.0
Actual	-2.29	0.04	0.07	0.00	0.04	.05	0.04
Heading Angle East of North (Deg.)							
Planned	108.98	78.54	78.52	78.54	90.91	89.82	101.66
Actual	108.95	78.66	78.90	78.52	91.02	89.88	101.88
Time from Lift-off (Sec.)							
Planned	356.48	338.42	355.80	356.93	356.63	368.61	355.59
Actual	352.45	333.75	365.60	356.91	361.01	368.79	365.66
Design Values of out of Plane Position Errors at Spacecraft Separation	-22,000	-22,000	-44,000	-22,000	-27,986	-55,000	

CONFIDENTIAL

CONFIDENTIAL

GROUP 4
Downgraded at 3 year
intervals; declassified
after 12 years.

CONFIDENTIAL

TABLE II
INERTIAL GUIDANCE SYSTEM INSERTION ERRORS

	<u>Design</u> <u>3 Sigma</u>	<u>GT-2</u>	<u>GT-3</u>	<u>GT-4</u>	<u>GT-5</u>	<u>GT-6</u>	<u>GT-7</u>	<u>GT-8</u>
Delta V _x (Pt./Sec.)	±8.0	*9.0	*7.0	-4.2	2.4	0.8	5.0	5.0
Delta V _y (Pt./Sec.)	±15	-11.0	*0	-3.8	1.7	11.0	6.0	-4.9
Delta V _z (Pt./Sec.)	±8	-6.3	-2.6	13.4	-3.7	-2.3	-5.0	11.4
Delta X (Feet)	±1700	*2000	*4700	-980	607	570	450	920
Delta Y (Feet)	±1275	-900	*0	-670	347	225	350	120
Delta Z (Feet)	±1218	0	-1568	880	-131	-400	150	1015

*These values have been compensated to exclude the effect of equipment failures.

CONFIDENTIAL

GROUP 4
Downgraded at 3 year
Intervals; declassified
after 12 years.