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TRAJECTORIES AND REENTRY ENVIRONMENTS
FOR THE ALRH DURING MULTIPLE REVOLUTION
HIGHLY ELLIPTICAL ORBITAL DECAY AFTER
SUPERCIRCULAR VELOCITY REENTRY

H. R. Spahr, 9513

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August 1969

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ABSTRACT

Trajectories and reentry environments are presented for the Apollo Lunar Radioisotope Heater (ALRH) during multiple revolution highly elliptical orbital decay after shallow angle supercircular velocity reentry. The trajectories and reentry environments from a closed form approximate solution and from numerical integration of the equations of motion are compared for two of the five perigee altitudes investigated.

The cutoff date for information in this report, with the exception of the TIA trajectory code calculations, is March 15, 1969. The cutoff date for information on the TIA trajectory calculations is May 19, 1969.

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SUMMARY

In the Aerospace Nuclear Safety Program, safety analyses are required to determine the behavior of nuclear systems during launch aborts after liftoff and during reentries after use in space. These safety analyses are conducted for all nuclear systems designed for use in space.

As part of the Aerospace Nuclear Safety Program, the Sandia Laboratories Aerospace Nuclear Safety Department conducted aerothermodynamic analyses of the Apollo Lunar Radioisotope Heater (ALRH). These analyses included orbital decay reentries, prompt supercircular velocity reentries, and multiple revolution supercircular velocity reentries.

After an Apollo mission abort during or after translunar injection, the ALRH and lunar module (LM) can reenter the Earth's atmosphere at shallower than nominal reentry angles. For these very shallow reentry angles, the ALRH undergoes multiple revolution orbital decay from a highly elliptical orbit with apogee near the Moon.

This report summarizes the definition of the trajectory and reentry environment for the ALRH during such a multiple revolution highly elliptical orbital decay. The trajectory and reentry environment definition was part of an aerothermodynamic analysis performed to define the response of the ALRH to such reentries.

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TRAJECTORIES AND REENTRY ENVIRONMENTS
FOR THE ALRH DURING MULTIPLE REVOLUTION
HIGHLY ELLIPTICAL ORBITAL DECAY AFTER
SUPERCIRCULAR VELOCITY REENTRY

Introduction

As part of the NASA Apollo program, the Apollo Lunar Surface Experiment Package (ALSEP) will gather data regarding the characteristics and environment of the lunar surface and subsurface. References 1 and 2 describe, in some detail, the different experiments which are part of the original package. (The original packages, with the SNAP-27 radioisotope thermoelectric generator developed by General Electric Co. under AEC contract, will be used on the later Apollo missions.)

A lighter weight ALSEP package, defined as the Early Apollo Scientific Experiment Package (EASEP) was developed for the earlier Apollo missions. One of the EASEP's consists of an Early Apollo Scientific Experiment - Passive Seismic Experiment Package (EASE-PSEP). Figure 1 shows the EASE-PSEP in the deployed configuration.

While the EASE-PSEP receives electrical power from two solar cell arrays, 30 watts of thermal energy must be supplied to the central station electronics package during the lunar night to permit the electronics to survive the lunar night. Two 15-watt Apollo Lunar Radioisotope Heaters (ALRH's), shown in Figure 1, provide the required 30 watts of thermal energy for the duration of the EASE-PSEP mission.

The Space Electric Power Office (SEPO) of the AEC's Space Nuclear Systems (SNS) Division developed the ALRH to supply thermal energy to the EASE-PSEP. Mound Laboratory was charged with the ALRH design responsibility, while Sandia Laboratories provided the aerothermodynamic and safety test programs to evaluate the design and to provide input data to the Safety Assessment Summary report to be written by AEC Headquarters personnel. As the Sandia evaluation, analyses, and test programs progressed, design changes, leading to improved heat source capabilities, were recommended to Mound Laboratory. These recommendations included definition of protective materials and their sizes and locations outside of the basic fuel container. The final ALRH design, incorporating the recommended changes, is shown in Figure 2.

An aerothermodynamic analysis of the ALRH³ was conducted by the Reentry and Space Sciences Division of Sandia Laboratories Aerospace Nuclear Safety Department between December 1968 and February 1969. This analysis was completed to define the ability of the heat source to contain the fuel inventory in the reentry and launch environments resulting from possible aborts during various phases of the Apollo mission.

This report describes the analysis conducted by the Sandia Laboratories Reentry and Space Sciences Division which defined the trajectories and reentry environments for the ALRH during multiple revolution orbital decay. This analysis was part of the aerothermodynamic analysis of the ALRH which is summarized in Reference 3.

Figure 1. EASE-PSEP deployed configuration
(without insulation)

Figure 2. Apollo Lunar Radioisotope Heater

ALRH and LM Configurations Analyzed

The pertinent LM configuration from translunar aborts, as defined by NASA's Manned Spacecraft Center personnel, is the ascent and descent stages together, all fuel tanks 100 percent full. For this analysis this configuration was assumed to reenter crosswise. For this orientation, the official NASA Manned Spacecraft Center data⁴ are:

Weight = 32,963.6 pounds
 C_D = 3.2 (constant)
 Reference area = 129.4 square feet.

This corresponds to a constant ballistic coefficient of 79.607 pounds per square foot. (Reference 4, which superseded Reference 5, does not present separate drag coefficients for the free molecule and continuum flow regimes.) The above data are for Lunar Module 5, without the landing legs.

The ALRH configuration analyzed consisted of the ALRH without the aluminum base plate. This configuration is a right circular cylinder 3.02 inches long and 3.00 inches in diameter.

Modified Newtonian flow theory,⁶ with a pressure coefficient of 1.83 and with corrections for three dimensional effects, was used to calculate the drag area of the ALRH for three orientations in the hypersonic continuum flow regime. The resultant ballistic coefficients, based on a weight of 2.0463 pounds without the aluminum base plate, were:

<u>Orientation</u>	<u>Hypersonic Continuum Flow Ballistic Coefficient (lb/ft²)</u>
Crosswise	29.6
End-on	25.3
Random tumbling	28.0

Free molecule flow theory^{7,8} was used to calculate the drag area of the ALRH for three orientations in the hypersonic free molecule flow regime. These calculations were based on a free stream air temperature of 693.61°R, an ALRH surface temperature of 730°R, and typical S numbers (ratio of the speed of the object to the most probable random speed of the air molecules) for this type of reentry. The resultant ballistic coefficients, based on a weight of 2.0463 pounds without the aluminum base plate, were:

<u>Orientation</u>	<u>Hypersonic Free Molecule Flow Ballistic Coefficient (lb/ft²)</u>
Crosswise	14.9
End-on	18.0
Random tumbling	15.8

Computer code HRS015 (Reference 9) was used with the Sandia Laboratories QUIKTRAN remote terminal and the IBM 7040/44 computer in Los Angeles to compute the variation in hypersonic ballistic coefficient with altitude in the transition flow regime for the three orientations. This computer code is based on Reference 10. A characteristic dimension of 0.375 foot and the U. S. Standard Atmosphere, 1962 (Reference 11) were used in the computations.

The results of these computer calculations are contained in Figure 3 which presents the variation in hypersonic ballistic coefficient with altitude for three ALRH orientations. Appendices A through C contain the tabulated computer output from computer code HRS015 for the ALRH in crosswise, end-on, and random tumbling orientations, respectively.

Figure 3.
Variation of hypersonic ballistic coefficient with altitude for the ALRH for three orientations

As the ALRH aerothermodynamic analyses required the trajectory and reentry environment only during the severe or high velocity part of the reentry, the aerodynamic models for the ALRH in three orientations did not include supersonic, transonic, or subsonic aerodynamic data.

Computer Code HRS017

The highly elliptical Earth orbits examined in this analysis have orbital periods measured in days. As will be shown later, the perigee altitude range of interest corresponds to many revolutions during the orbital decay process. Thus, the orbital decay process occurs during a time period measured in hours up to months.

Ideally, a complex trajectory code including the Earth, lunar, and solar gravitational fields would be used to numerically integrate the differential equations of motion for the orbital decay process; or, as an approximation, a trajectory code such as the Sandia Laboratories TTA trajectory code¹²⁻¹⁴ which contains only the Earth's gravitational field could be used to numerically integrate the differential equations of motion for the orbital decay process.

Unfortunately, either of the above methods would require computer times measured in hours, and computers are rarely available for such lengthy runs. Also, use of existing computer codes would result in an output format which would require either intermediate manual calculations and key punching or a computer code to provide punched card input data in the required format for usage with the Charring Materials Ablation (CMA) code.¹⁵ The CMA code was used in the aerothermodynamic analysis to define surface recession as a function of time for the ALRH.

To eliminate the above restrictions on the analysis, which would result if numerical integration of the differential equations of motion were done, computer code HRS017 was written. Computer code HRS017 uses a closed form approximate solution for the orbital decay of an object initially in an elliptical orbit.

The closed form approximate solution uses a Keplerian elliptical orbit to define the trajectory for each revolution. Perigee altitude is assumed to be constant during the orbital decay. At the apogee of each revolution, a step change in apogee radius is made with the change in apogee radius, Δr_a , defined by:

$$\Delta r_a = -\sqrt{2\pi} \frac{C_D A}{W} \frac{\rho_p}{\sqrt{\beta}} \frac{r_a (r_a + r_p)}{\sqrt{\frac{r_a - r_p}{2}}} \quad (1)$$

where

Δr_a = change in apogee radius per revolution, feet

π = 3.14157, dimensionless

C_D = hypersonic drag coefficient of the object at the perigee altitude, dimensionless

A = aerodynamic reference area of the object, square feet

W = weight of the object, pounds

ρ_p = atmospheric density at the perigee altitude, pounds per cubic foot

β = atmospheric density exponential for an exponential atmosphere, evaluated at perigee, per foot

r_a = distance from the object to the center of the Earth when the object is at apogee, apogee radius, feet

r_p = distance from the object to the center of the Earth when the object is at perigee, perigee radius, feet

The development of Eq. (1) is discussed in detail in References 16 and 17. The required assumptions in the development were:

1. The change in orbital shape and size per orbit is very small.
2. The eccentricity of the initial undisturbed orbit is assured equal to or greater than 0.05.
3. The perigee radius remains constant while the apogee radius decreases.
4. The Earth has a spherically symmetric gravitational field which is defined by an inverse square field.
5. The Earth is spherical in shape.
6. The Earth's atmosphere is spherically symmetric and is an exponential atmosphere.
7. The effects of the rotation of the Earth's atmosphere with the Earth are neglected, i.e., the air relative velocity is assumed equal to the inertial velocity of the object.
8. The object has a constant ballistic parameter, $W/C_D A$, during the region of interest near perigee.
9. The eccentricity of the orbit, squared, is much less than one.
10. The inertial velocity of the object in its elliptical orbit is assumed constant at the inertial velocity at perigee.
11. The incremental distance at any point in the orbit can be approximated by the perigee radius times the incremental central range angle.
12. The difference between apogee altitude and perigee altitude must remain larger than approximately five times the atmospheric scale height.
13. The gravitational fields of the Moon and Sun were ignored.

Some of the assumptions in the development are, of necessity, violated. For the class of highly elliptical orbits being examined, assumption 9 is violated except for the final few orbits. Assumption 12 is violated for the final few orbits for the higher perigee altitudes as these orbits become almost circular. Also, assumption 3 is violated as the perigee radius decreases during the decay process.

The results of the closed form approximate solution computer code are compared in a later section with the results of the TTA trajectory code. This comparison will define the validity of using the closed form approximate solution.

The closed form approximate solution computer code calculates pertinent parameters at selected values of the central range angle, θ , around the orbit. The equations required¹⁸⁻²¹ to define the radius from the center of the Earth, the altitude above the spherical Earth, the velocity, and the geocentric reentry angle are:

$$r = \frac{2r_a r_p}{(r_a + r_p) + (r_a - r_p) \cos \theta} \quad (2)$$

where

r = distance from the object to the center of the Earth, feet

θ = central range angle of the object from perigee, degrees

and

$$h = r - r_e \quad (3)$$

where

h = geocentric geometric altitude of the object above the spherical Earth, feet

r_e = radius of the spherical Earth, feet

and

$$v = \sqrt{\mu \left(\frac{2}{r} - \frac{1}{a} \right)} \quad (4)$$

where

V = inertial and air relative velocity of the object, feet per second

μ = Earth spherical gravitational field constant, feet³ per second²

a = semimajor axis of the orbit = $(r_a + r_p)/2$, feet

and

$$\gamma = \arccos \sqrt{\frac{r_a r_p}{r(r_a + r_p - r)}} \quad (5)$$

where

γ = geocentric reentry angle, radians

The pertinent equations used to calculate the time at each point around the orbit are:

$$e = \frac{r_a - r_p}{r_a + r_p} \quad (6)$$

where

e = orbital eccentricity, dimensionless

and

$$E = \arccos \left(\frac{a - r}{ae} \right) \quad (7)$$

where

E = eccentric anomaly, radians

and

$$\Delta T = \sqrt{\frac{a^3}{\mu}} (E - e \sin E) \quad (8)$$

where

ΔT = time increment from perigee, seconds

The pertinent equations for aerodynamic heating are:

$$Q_{FM} = \frac{C_1 \rho V^3}{50,063} \quad (9)$$

where

Q_{FM} = free molecule flow stagnation point heating rate to the object, Btu per square foot second

C_1 = thermal accommodation coefficient, dimensionless

ρ = atmospheric density at the altitude h , pounds per cubic foot

and

$$Q_{CONT} = 865 C_2 \left(\frac{\rho}{\rho_{SL}} \right)^{0.5} \left(\frac{V}{10,000} \right)^{3.15} \quad (\text{Reference 22}) \quad (10)$$

where

Q_{CONT} = continuum flow stagnation point heating rate to the object, Btu per square foot second

C_2 = constant which includes the effects of the square root of the object's nose radius on the heating as well as the effect of the shape of the object on the heating, dimensionless

ρ_{SL} = sea level atmospheric density, pounds per cubic foot

The stagnation pressure at the stagnation point on the object is calculated by:

$$P_T = \frac{\rho V^2}{32.2} \quad (11)$$

where

P_T = stagnation pressure at the stagnation point of the object,
pounds per square foot

The preceding 11 equations define the trajectory and reentry environment parameters for the object decaying from orbit. Version 1 of computer code HRS017 solves these equations. This version was written in QUIKTRAN²³ and made operational on the Sandia Laboratories QUIKTRAN remote terminal. The remote terminal is linked by phone lines to an IBM 7040/44 computer in Los Angeles. Use of the remote terminal with "instant access" to a computer provided the quickest way to write the code, make the code operational, and provide preliminary results for the multiple revolution reentry analysis of the ALRH.

The equations below define the additional reentry environment input data required by the CMA code:

$$P_{T_A} = \frac{P_T}{2116.4} \quad (12)$$

where

P_{T_A} = stagnation pressure at the stagnation point of the object,
atmospheres

and

$$H_R = \frac{V^2}{50,063} \quad (13)$$

where

H_R = stagnation enthalpy at the stagnation point of the object,
Btu per pound

Version 2 of the code was written in FORTRAN²⁴ for use on the Sandia CDC 3600 computer. This code basically consisted of version 1, with the slight changes required in converting from QUIKTRAN to FORTRAN. The stagnation point convective heating rate, QDOTC, was defined as the free molecule value, QFM, above a specified altitude and as the continuum value, QCONT, below the specified altitude. The correct PUNCH format statement was added to punch the required CMA computer code input data into a card deck with a format compatible with the CMA computer code. Cards were punched for all the points around the orbit.

Version 3 of the computer code was identical to version 2, with three changes. The stagnation point heating rate, QDOTC, was more realistically defined as the

minimum value of QFM and QCONT. The time punched in the data deck was the time for each orbit from the first point around the orbit where the altitude was below one million feet. Version 3 punched CMA computer code input cards only for those points in the orbit where the altitude was below one million feet.

Appendix D contains a listing of the FORTRAN source deck of version 3 of computer code HRS017. The source deck listed is used on a CDC 6600 computer. Other source decks of this code are operational on a CDC 3600 and a Univac 1108. Output from version 3 of computer code HRS017 is contained in Appendices E, F, G, H, and I, and are discussed later in this report.

Computer code HRS017 is not discussed in detail in this report. This computer code will be documented in a separate report.

Trajectories and Reentry Environments From Computer Code HRS017

Previous similar calculations for the SNAP-27 graphite lunar module fuel cask²⁵ had shown that:

1. The perigee altitude range of interest is from 260,000 feet to 300,000 feet. (Perigee altitudes above 300,000 feet are not of interest because the ALRH would still be in the lunar module, and thus would not be exposed to the reentry environment.)
2. The pertinent configuration for this perigee altitude range for most of the multiple revolution reentry would be the ALRH.

Thus, computer code HRS017, version 3, was used to compute the trajectory and reentry environment for the ALRH alone for the following perigee altitudes:

1. Perigee altitude = 260,000 feet, ALRH W/C_pA = 29.513 pounds per square foot, decayed in 7 revolutions.
2. Perigee altitude = 270,000 feet, ALRH W/C_pA = 28.630 pounds per square foot, decayed in 15 revolutions.
3. Perigee altitude = 280,000 feet, ALRH W/C_pA = 25.868 pounds per square foot, decayed in 25 revolutions.
4. Perigee altitude = 290,000 feet, ALRH W/C_pA = 22.267 pounds per square foot, decayed in 39 revolutions.
5. Perigee altitude = 300,000 feet, ALRH W/C_pA = 19.296 pounds per square foot, decayed in 62 revolutions.

The results of these computations are presented in Appendices E through I.

Part 1 of Appendices E through I contains tabulations of the trajectory and reentry environment which is printed out. The parameters printed out are:

TIME	- time from the start of the multiple revolution reentry, seconds
THETA	- central range angle from perigee, degrees
ALTITUDE	- geometric altitude above the spherical Earth model, feet
GAMMA	- magnitude of the geocentric inertial reentry angle, degrees
QCONT	- continuum aerodynamic stagnation point cold wall heating rate, Btu per square foot second
QFM	- free molecule aerodynamic stagnation point cold wall heating rate, Btu per square foot second
V	- inertial and air relative velocity, feet per second
P_T	- stagnation pressure at the stagnation point, pounds per square foot

Part 2 of Appendices E through I contains listings of the punched card reentry environment output which is used as input for the CMA ablation code. (To minimize the number of pages in this report, the listings contain only those revolutions used in the CMA computer code and the ablation analysis.) Cards were inserted in the decks to provide revolution identification and column headings. The parameters listed are:

TIME	- time from the first point computed in the orbit which is below one million feet altitude, seconds
H_R	- stagnation point total enthalpy, Btu per pound
QDOTR	- radiative aerodynamic stagnation point heating rate, Btu per square foot second
$QDOTC/H_R$	- convective aerodynamic stagnation point cold wall heating rate, QDOTC, divided by the stagnation point total enthalpy, H_R , pounds per square foot second
P_{TA}	- stagnation pressure at the stagnation point, atmospheres
I.D.	- object identification

(Computer code HRS017 sets QDOTR to 0 because the radiative heating to the ALRH is negligible for the altitude and velocity ranges which exist in the multiple orbit problem.)

The convective aerodynamic stagnation point cold wall heating rate histories for the decaying ALRH are summarized in Figures 4 through 6. These figures present the convective aerodynamic stagnation point cold wall heating rate as a function of time from perigee for the first and next to last revolution for three different perigee altitudes. Figures 4 through 6 correspond to perigee altitudes of 260,000 feet (7 revolutions), 280,000 feet (25 revolutions), and 300,000 feet (62 revolutions), respectively.

Figure 4. Convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first and sixth revolutions, perigee altitude = 260,000 feet (7 revolutions) HRS017 computer code

Figure 5. Convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first and twenty-fourth revolutions, perigee altitude = 280,000 feet (25 revolutions), HRS017 computer code

Figure 6. Convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first and sixty-first revolutions, perigee altitude = 300,000 feet (61 revolutions), HRS017 computer code

TTA Trajectory Code

The TTA program (Theoretical Trajectory program A) was developed in 1961 to provide a versatile tool to generate theoretical trajectories in support of Sandia Laboratories activities. Since late 1961, the program has been used to compute over 20,000 reentry, rocket-boosted, and free-fall trajectories in support of various weapons programs, research activities, and the Aerospace Nuclear Safety Program. The TTA program is continually being revised and updated to increase its capabilities and flexibility.

The TTA program numerically integrates the equations of motion for a rigid object flying a 6-degree-of-freedom trajectory in the vicinity of the Earth. (However, only the point mass 3-degree-of-freedom option was used for the trajectories presented in this report.) The integration subroutine uses a modified Adams-Moulton predictor corrector method of order two (parabolic). The numerical integration time step size is controlled by an automatic mesh control system.

The rigid object can be subjected to all the aerodynamic forces and moments (including magnus forces and moments) and to the thrust, Earth gravitational field, buoyancy forces, and arbitrary external forces and moments acting on the object while moving relative to a rotating oblate Earth. The objects weight, aerodynamic coefficients, thrust, and arbitrary external forces and moments can be defined as variable functions of from one to three computed parameters.

The atmospheric models currently used have properties that are functions of height alone and rotate with the Earth. Provisions are available for including wind velocities in the atmospheric models.

The only gravitational field in the TTA computer code is that of the oblate rotating Earth. This gravitational field includes the second gravitational harmonic. The Earth is described as an oblate spheroid with a polar radius of 20,855,107 feet and an equatorial radius of 20,925,540 feet. The rotational rate of the Earth is $7.29211513186 \times 10^{-5}$ radians per second.

The input data to the code can be either inertial or Earth relative. Coordinates, while normally in a geodetic system, can be expressed in either a geocentric system or a cartesian coordinate system. Output data can be either inertial or Earth relative. The number of parameters available as output data is approximately 250. The TTA trajectory code is currently being used on a CDC 3600 electronic computer.

The results of the Sandia Laboratories TTA program were successfully compared with the results of trajectory codes used by the Air Force Special Weapons Center, AVCO Corporation, Atomics International, General Electric, Ling-Temco-Vought Corporation, Lockheed, and the National Aeronautics and Space Administration. References 12, 13, and 14 provide detailed descriptions of the Sandia Laboratories TTA code.

Trajectories and Reentry Environments From the TTA Trajectory Code

The Sandia Laboratories TTA code was used to compute the trajectory and reentry environment for the ALRH for multiple revolution orbital decay from two initial perigee altitudes to check the accuracy of the closed form approximate solution used in computer code HRS017. The results of these computations are presented in Appendices J and K, as discussed below.

The initial conditions for the first TTA trajectory, at the minimum perigee altitude, were:

Inertial velocity = 35,910.7 feet per second

Inertial geodetic reentry angle = -6.9730 degrees

Inertial heading angle (counterclockwise from east is positive) = -90.0 degrees

Geometric geodetic altitude above mean sea level = 578,068.0 feet

Geodetic latitude = 14.0 degrees

Longitude = 0.0 degree

These initial conditions were transformed to the TTA coordinate system from a point calculated by the HRS017-3 computer code. This point was on the first revolution, prior to entering the dense atmosphere, of the 260,000 feet perigee altitude calculation.

The first trajectory had an initial drag perigee altitude of 259,392 feet. The lunar module (LM) aerodynamic data presented previously were used until an altitude of 300,000 feet was first reached. Then the ALRH side-on aerodynamic data presented previously were used to impact. (The portion of the trajectory presented in Appendix J where the Mach number is below 3 should be ignored, since only hypersonic aerodynamic data were used for the ALRH.)

Part 1 of Appendix J contains a listing of the TTA code input for the first trajectory. Part 2 of Appendix J contains the tabulated trajectory and reentry environment computed for the first trajectory. Part 3 of Appendix J contains a listing of the punched card CMA input.

The trajectory and reentry environment parameters presented are:

HITE	-	Geometric geodetic altitude above mean sea level, feet
LAT	-	Geodetic latitude, degrees
LONG	-	Longitude, degrees
Q	-	Dynamic pressure, pounds per square foot
VT	-	Air relative velocity, feet per second
MACH	-	Mach number, dimensionless
GAMMA	-	Air relative geodetic reentry angle, degrees
TAU	-	Angle between the earth relative velocity vector and east, positive counterclockwise, degrees
AT	-	Acceleration along the flight path, g
DQC	-	Continuum flow aerodynamic convective heating reference rate at the stagnation point of a 1-foot radius sphere, Btu per square foot-second
QC	-	Time integral of DQC, Btu per square foot
RADVC	-	Distance from the center of the Earth, feet
RHO	-	Atmospheric density, pounds per square foot
TIME	-	Time from the start of the reentry, seconds
CD	-	Drag coefficient, dimensionless

Figure 7 presents the convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first and third revolutions from the four revolution first trajectory.

Similar trajectories in Reference 25 indicated that relatively large amounts of computer time would be required to compute a trajectory with an initial perigee altitude of 280,000 feet if the entire trajectory were to be computed. Thus, the logic in the TTA computer code was used to compute only the portion of the trajectory in the Earth's atmosphere.

Figure 7. Convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first and third revolutions, perigee altitude $\approx$ 260,000 feet (4 revolutions), TTA computer code

The initial conditions for the second TTA trajectory, at the perigee altitude of 280,000 feet where the HRS017-3 reentry environments predicted maximum ablation,²⁶ were:

Inertial velocity = 35,893.5 feet per second

Inertial geodetic reentry angle = -6.9737178 degrees

Inertial heading angle (counterclockwise from east is positive) = -90.0 degrees

Geometric geodetic altitude above mean sea level = 598,411.0 feet

Geodetic latitude = 14.09096 degrees

Longitude = 0.0 degree

These initial conditions were transformed to the TTA coordinate system from a point calculated by the HRS017-3 computer code. This point was on the first revolution, prior to entering the dense atmosphere, of the 280,000 feet perigee altitude calculation.

The second trajectory had an initial drag perigee altitude of 279,702 feet. The LM aerodynamic data presented previously were used until an altitude of 300,000 feet was first reached. Then the ALRH side-on aerodynamic data presented previously were used to impact. (The portion of the trajectory presented in Appendix K where the Mach number is below 3 should be ignored, since only hypersonic aerodynamic data were used for the ALRH.)

Part 1 of Appendix K contains a listing of the TTA code input for the second trajectory. Part 2 of Appendix K contains the tabulated trajectory and reentry environment computed for the second trajectory. Part 3 of Appendix K contains a listing of the punched card CMA input.

Figure 8 presents the convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first and eighth revolutions of the nine revolution second trajectory.

Figure 8. Convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first and eighth revolutions, perigee altitude $\approx$ 280,000 feet (9 revolutions), TTA computer code

Comparison of the Trajectories and Reentry Environments From the HRS017 and TTA Computer Codes

The first comparison of the results of the HRS017 and the TTA computer codes was for the minimum initial perigee altitude of approximately 260,000 feet. For this case, the HRS017 code showed the ALRH reentered on the seventh revolution while the TTA code showed the ALRH reentered on the fourth revolution.

Figure 9 presents the convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first revolution as computed by the HRS017 and TTA computer codes for an initial perigee altitude of approximately 260,000 feet. Examination of Figure 9 shows that the two codes computed almost identical heating rate histories for the first revolution.

Figure 9. Convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first revolution from the HRS017 and TTA computer codes, initial perigee altitude $\approx$ 260,000 feet

Figure 10 presents the convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the sixth revolution computed by the HRS017 computer code and for the third revolution computed by the TTA computer code for an initial perigee altitude of approximately 260,000 feet. (These revolutions are the next-to-the-last revolution for each method of computation. The last revolutions, during which the ALRH reenters, are not compared because the orbital decay equations obviously break down on the last revolution.)

Figure 10. Convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the next-to-the-last revolution from the HRS017 and TTA computer codes, initial perigee altitude $\approx$ 260,000 feet

Examination of Figure 10 shows that the two codes computed heating rate histories which are similar for the next-to-the-last revolution. The TTA computer code, which predicted reentry on the fourth revolution, has a higher heating rate history on the next-to-the-last revolution than does the HRS017 computer code, which predicted reentry on the seventh revolution.

The results shown in Figures 9 and 10 are expected, as the HRS017 computer code uses a constant perigee and the TTA computer code computes the actual decaying perigee. The drag perigee altitudes for successive revolutions from the TTA computer code results were:

- Revolution 1 - Drag perigee altitude $\approx$ 259,392 feet
- Revolution 2 - Drag perigee altitude $\approx$ 255,829 feet
- Revolution 3 - Drag perigee altitude $\approx$ 250,877 feet
- Revolution 4 - Reentered on fourth revolution

Figures 9 and 10 have shown that the aerodynamic heating rate histories calculated for the ALRH by computer codes HRS017 and TTA are similar. Examination of the tabular data in Appendices E and J shows that the histories of other pertinent ablation parameters are similar for the two methods of computation.

Ablation calculations, documented in Reference 26, were made for the ALRH using the reentry environments computed by the HRS017 and TTA computer codes for an initial perigee altitude of 260,000 feet. (Reentry environments from a previously computed ALRH and LM orbital decay trajectory were used with the HRS017 reentry environment.) The resultant total ablation at the stagnation point of the ALRH (crosswise stable, no roll) were:

HRS017 reentry environment input (6 revolutions + orbital decay) =
0.414 inch ablation

HRS017 reentry environment input (7 revolutions + orbital decay) =
0.476 inch ablation

TTA reentry environment input = 0.359 inch ablation

Some questions exist as to whether the HRS017 results for the final revolution should be included in the ablation analyses. Therefore, the ablation calculations using HRS017 reentry environment input were computed with and without the final revolution.

Figure 11 presents the convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first revolution computed by the HRS017 and TTA computer codes for an initial perigee altitude of approximately 280,000 feet. Examination of Figure 11 shows that the two codes computed almost identical heating rate histories for the first revolution.

Figure 11. Convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the first revolution from the HRS017 and TTA computer codes, initial perigee altitude $\approx$ 280,000 feet

Figure 12 presents the convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the twenty-fourth revolution computed by the HRS017 computer code and for the eighth revolution computed by the TTA computer code for an initial perigee altitude of approximately 280,000 feet. (These revolutions are the next-to-the-last revolution for each method of computation. The last revolutions, which reenter, are not compared because the orbital decay equations obviously break down on the last revolution.)

Figure 12. Convective aerodynamic heating rate to the stagnation line of the ALRH as a function of time for the next-to-the-last revolution from the HRS017 and TTA computer codes, initial perigee altitude $\approx$ 280,000 feet

Examination of Figure 12 shows that the codes computed heating rate histories which are similar for the next-to-the-last revolution. The TTA computer code, which predicted reentry on the ninth revolution, has a higher heating rate history on the next-to-the-last revolution than does the HRS017 computer code, which predicted reentry on the twenty-fifth revolution.

The results shown in Figures 11 and 12 are expected, as the HRS017 computer code uses a constant perigee and the TTA computer code computes the actual decaying perigee. The drag perigee altitudes for several revolutions from the TTA computer code results were:

- Revolution 1 - Drag perigee altitude $\approx$ 279,702 feet
- Revolution 3 - Drag perigee altitude $\approx$ 278,426 feet
- Revolution 5 - Drag perigee altitude $\approx$ 276,522 feet
- Revolution 7 - Drag perigee altitude $\approx$ 273,035 feet
- Revolution 8 - Drag perigee altitude $\approx$ 269,303 feet
- Revolution 9 - Reentered on ninth revolution

Figures 11 and 12 have shown that the aerodynamic heating rate histories calculated for the ALRH by computer codes HRS017 and TTA are similar. Examination of the tabular data in Appendices G and K shows that the histories of other pertinent ablation parameters are similar for the two methods of computation.

Ablation calculations, documented in Reference 26, were made for the ALRH using the reentry environments computed by the HRS017 and TTA computer codes for an initial perigee altitude of 280,000 feet. The same techniques described previously were used in the HRS017 reentry environment ablation calculations. The resultant total ablation at the stagnation point of the ALRH (crosswise stable, no roll) were:

HRS017 reentry environment input (24 revolutions + orbital decay) =
0.616 inch ablation

HRS017 reentry environment input (25 revolutions + orbital decay) =
0.645 inch ablation

TTA reentry environment input = 0.419 inch ablation

Examination of the ablation calculation results for a perigee altitude of 260,000 feet shows that the TTA reentry environment results in a calculated ablation approximately 25 percent less than the HRS017 reentry environments results. For a perigee altitude of 280,000 feet, examination of the ablation calculation results shows that the TTA reentry environment results in a calculated ablation approximately 35 percent lower than the HRS017 reentry environments results.

Conclusions

This report has presented and discussed the reentry environments for the ALRH during multiple revolution orbital decay after shallow angle supercircular velocity reentry. The reentry environments were defined for five initial perigee altitudes using the HRS017 and TTA computer codes.

Based on the analyses and results documented in this report, and the ablation analysis in Reference 26, the following conclusions are drawn:

1. The pertinent initial perigee range of interest for the ALRH multiple revolution reentry problem is the altitude range from 260,000 to 300,000 feet.
2. The LM disassembles the first time it reaches 300,000 feet, so the ALRH is the pertinent configuration for almost all of the multiple revolution reentry.
3. The HRS017 and TTA computer codes compute similar reentry environments for the same initial conditions. As would be expected, the HRS017 computer code calculates more revolutions during the reentry and lower heating rate histories for the later orbits than are computed by the TTA computer code.

4. For the specified orientation (side-on stable, no roll), multiple revolution reentry is the most severe reentry mode for ablation.
5. Ablation calculations, using the reentry environments from computer codes HRS017 and TTA, show that the TTA reentry environment predicts 25 to 35 percent less ablation than does the HRS017 reentry environment.

These results and conclusions, with the exception of the TTA trajectory calculations, were contained in a rough draft of Reference 3, which was mailed to AEC/SEPO on February 25, 1969.

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APPENDIX A

Tabular Variation of ALRH
Hypersonic Ballistic Coefficient
With Altitude, Crosswise Orientation

BLANK

QUIET. AT YOUR SERVICE

1103 READY ;USER ██████████

101. -READY LOAD(HRS015)

174. +READY START(0)

121. =1 00 EARLY APOLLO SCIENTIFIC EXPERIMENT PACKAGE HEATER, CROSSWISE

133. =1 99 14.9 29.6 0.375 1.1E+7

137. =0 01

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137. = 3

137. = 4

137. = 5

137. = 6

137. = 7

137. = 8

137. = 9

137. = 10

137. = 11

137. = 12

139. =0 53

139. = 2

139. = 3

139. = 4

139. = 5

141. =0 05

141. = 2

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141. = 4

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141. = 9

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142. = 4

143. =0 55

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143. = 3

143. = 4

143. = 5

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143. = 7

143. = 8

169. =0 09

169. =0 09

169. =0 09

169. =0 09

169. =0 09

169. =0 09

COMPUTER PROGRAM HRS015

A COMPUTER PROGRAM FOR THE COMPUTATION OF THE TRANSITION

FLOW HYPERSONIC BALLISTIC COEFFICIENT OF AN OBJECT

(WRITTEN BY H. R. SPANR - DIVISION 9513 - EXT. 1940)

READ SANDIA CORPORATION RESEARCH REPORT SC-RR-69-529

FOR A DETAILED DESCRIPTION OF THIS PROGRAM

ATMOSPHERE USED

U. S. STANDARD ATMOSPHERE, 1962

EARLY APOLLO SCIENTIFIC EXPERIMENT PACKAGE HEATER, CROSSWISE

HYPERSONIC FREE MOLECULE W/C A = 0.14900E 02 POUNDS PER SQUARE FOOT
D

HYPERSONIC CONTINUUM W/C A = 0.29600E 02 POUNDS PER SQUARE FOOT
D

CHARACTERISTIC DIMENSION, D, = 0.37500E-00 FEET

DIMENSIONAL CONSTANT, C1, = 0.11E 08 SQUARE FEET PER POUND

GEOMETRIC
ALTITUDE ABOVE
MEAN SEA LEVEL
(FEET)

HYPERSONIC
W/C A
D
(POUNDS PER
SQUARE FOOT)

HYPERSONIC
C A/W
D
(SQUARE FEET
PER POUND)

500000.0

490000.0

480000.0

470000.0

460000.0

450000.0

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0.14904E 02

0.14904E 02

0.14905E 02

0.14906E 02

0.14908E 02

0.67100E-01

0.67098E-01

0.67095E-01

0.67091E-01

0.67085E-01

0.67078E-01

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169. =0 09	430000.0	0.14913F 02	0.67055E-01
169. =0 09	420000.0	0.14918F 02	0.67035F-01
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121. =BREAK 121.			
174. +READY ;FINISH			

APPENDIX B

Tabular Variation of ALRH
Hypersonic Ballistic Coefficient
With Altitude, End-on Orientation

BLANK

QUIKTRAN AT YOUR SERVICE

LN03 READY ;USER

101. -READY LOAD(HRS015)

174. +READY START(0)

121. =I 08 EARLY APOLLO SCIENTIFIC EXPERIMENT PACKAGE HEATER, END-ON

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137. = 3

137. = 4

137. = 5

137. = 6

137. = 7

137. = 8

137. = 9

137. = 10

137. = 11

137. = 12

139. =0 53

139. = 2

139. = 3

139. = 4

139. = 5

141. =0 05

141. = 2

141. = 3

141. = 4

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141. = 6

141. = 7

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141. = 11

141. = 12

141. = 13

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141. = 15

141. = 16

141. = 17

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142. = 2

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143. = 8

169. =0 09

169. =0 09

169. =0 09

169. =0 09

169. =0 09

169. =0 09

COMPUTER PROGRAM HRS015

A COMPUTER PROGRAM FOR THE COMPUTATION OF THE TRANSITION
FLOW HYPERSONIC BALLISTIC COEFFICIENT OF AN OBJECT

(WRITTEN BY H. R. SPAHR - DIVISION 9513 - EXT. 1040)

READ SANDIA CORPORATION RESEARCH REPORT SC-RR-68-529

FOR A DETAILED DESCRIPTION OF THIS PROGRAM

ATMOSPHERE USED

U. S. STANDARD ATMOSPHERE, 1962

EARLY APOLLO SCIENTIFIC EXPERIMENT PACKAGE HEATER, END-ON

HYPERSONIC FREE MOLECULE W/C A = 0.18000E 02 POUNDS PER SQUARE FOOT
D

HYPERSONIC CONTINUUM W/C A = 0.25300E 02 POUNDS PER SQUARE FOOT
D

CHARACTERISTIC DIMENSION, D, = 0.37500E-00 FEET

DIMENSIONAL CONSTANT, C1, = 0.11E 08 SQUARE FEET PER POUND

GEOMETRIC
ALTITUDE ABOVE
MEAN SEA LEVEL
(FEET)

HYPERSONIC
W/C A
D
(POUNDS PER
SQUARE FOOT)

HYPERSONIC
C A/W
D
(SQUARE FEET
PER POUND)

500000.0

490000.0

480000.0

470000.0

460000.0

450000.0

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0.18003E 02

0.18003E 02

0.18004E 02

0.18004E 02

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0.55546E-01

0.55544E-01

0.55542E-01

0.55538E-01

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169. =0 09	260000.0	0.25269E 02	0.39574E-01
169. =0 09	250000.0	0.25299E 02	0.39527E-01
169. =0 09	240000.0	0.25300E 02	0.39526E-01
169. =0 09	230000.0	0.25300E 02	0.39526E-01
169. =0 09	220000.0	0.25300E 02	0.39526E-01
169. =0 09	210000.0	0.25300E 02	0.39526E-01
169. =0 09	200000.0	0.25300E 02	0.39526E-01
169. =0 09	190000.0	0.25300E 02	0.39526E-01
169. =0 09	180000.0	0.25300E 02	0.39526E-01
169. =0 09	170000.0	0.25300E 02	0.39526E-01
169. =0 09	160000.0	0.25300E 02	0.39526E-01
169. =0 09	150000.0	0.25300E 02	0.39526E-01
169. =0 09	140000.0	0.25300E 02	0.39526E-01
169. =0 09	130000.0	0.25300E 02	0.39526E-01
169. =0 09	120000.0	0.25300E 02	0.39526E-01
169. =0 09	110000.0	0.25300E 02	0.39526E-01
169. =0 09	100000.0	0.25300E 02	0.39526E-01
169. =0 09	90000.0	0.25300E 02	0.39526E-01
169. =0 09	80000.0	0.25300E 02	0.39526E-01
169. =0 09	70000.0	0.25300E 02	0.39526E-01
169. =0 09	60000.0	0.25300E 02	0.39526E-01
169. =0 09	50000.0	0.25300E 02	0.39526E-01
169. =0 09	40000.0	0.25300E 02	0.39526E-01
169. =0 09	30000.0	0.25300E 02	0.39526E-01
169. =0 09	20000.0	0.25300E 02	0.39526E-01
169. =0 09	10000.0	0.25300E 02	0.39526E-01
169. =0 09	0.	0.25300E 02	0.39526E-01
121. =1 08			
121. =BREAK 121.			
174. +READY ;FINISH			

APPENDIX C

Tabular Variation of ALRH
Hypersonic Ballistic Coefficient
With Altitude, Random Tumbling Orientation

BLANK

QUIKTRAN AT YOUR SERVICE

LN03 READY ;USER

101. -READY LOAD(HRS015)

174. +READY START(0)

121. =I 08 EARLY APOLLO SCIENTIFIC EXPERIMENT PACKAGE HEATER, RANDOM TUMBLING

123. =I 99 15.8 28.0 0.375 1.1E+7

137. =0 01

137. = 2

137. = 3

137. = 4

137. = 5

137. = 6

137. = 7

137. = 8

137. = 9

137. = 10

137. = 11

137. = 12

139. =0 53

139. = 2

139. = 3

139. = 4

139. = 5

141. =0 05

141. = 2

141. = 3

141. = 4

141. = 5

141. = 6

141. = 7

141. = 8

141. = 9

141. = 10

141. = 11

141. = 12

141. = 13

141. = 14

141. = 15

141. = 16

141. = 17

142. =0 52

142. = 2

142. = 3

142. = 4

143. =0 55

143. = 2

143. = 3

143. = 4

143. = 5

143. = 6

143. = 7

143. = 8

169. =0 09

169. =0 09

169. =0 09

169. =0 09

169. =0 09

169. =0 09

COMPUTER PROGRAM HRS015

A COMPUTER PROGRAM FOR THE COMPUTATION OF THE TRANSITION
FLOW HYPERSONIC BALLISTIC COEFFICIENT OF AN OBJECT

(WRITTEN BY H. R. SPAHR - DIVISION 9513 - EXT. 1040)

READ SANDIA CORPORATION RESEARCH REPORT SC-RR-68-529

FOR A DETAILED DESCRIPTION OF THIS PROGRAM

ATMOSPHERE USED

U. S. STANDARD ATMOSPHERE, 1962

EARLY APOLLO SCIENTIFIC EXPERIMENT PACKAGE HEATER, RANDOM TUMBLING

HYPERSONIC FREE MOLECULE W/C A = 0.15800E 02 POUNDS PER SQUARE FOOT
D

HYPERSONIC CONTINUUM W/C A = 0.28000E 02 POUNDS PER SQUARE FOOT
D

CHARACTERISTIC DIMENSION, D, = 0.37500F-00 FEET

DIMENSIONAL CONSTANT, C1, = 0.11F 08 SQUARE FEET PER POUND

GEOMETRIC
ALTITUDE ABOVE
MEAN SEA LEVEL
(FEET)

HYPERSONIC
W/C A
D
(POUNDS PER
SQUARE FOOT)

HYPERSONIC
C A/W
D
(SQUARE FEET
PER POUND)

500000.0

0.15803E 02

0.63280F-01

490000.0

0.15803E 02

0.63278E-01

480000.0

0.15804E 02

0.63275F-01

470000.0

0.15805E 02

0.63272E-01

460000.0

0.15806E 02

0.63267E-01

450000.0

0.15807E 02

0.63262E-01

169. =0 09	440000.0	0.15809E 02	0.63254E-01
169. =0 09	430000.0	0.15812E 02	0.63242E-01
169. =0 09	420000.0	0.15816E 02	0.63226E-01
169. =0 09	410000.0	0.15823E 02	0.63200E-01
169. =0 09	400000.0	0.15833E 02	0.63159E-01
169. =0 09	390000.0	0.15849E 02	0.63094E-01
169. =0 09	380000.0	0.15873E 02	0.62999E-01
169. =0 09	370000.0	0.15913E 02	0.62843E-01
169. =0 09	360000.0	0.15981E 02	0.62574E-01
169. =0 09	350000.0	0.16087E 02	0.62164E-01
169. =0 09	340000.0	0.16267E 02	0.61472E-01
169. =0 09	330000.0	0.16587E 02	0.60287E-01
169. =0 09	320000.0	0.17135E 02	0.58362E-01
169. =0 09	310000.0	0.18088E 02	0.55285E-01
169. =0 09	300000.0	0.19747E 02	0.50641E-01
169. =0 09	290000.0	0.22262E 02	0.44919E-01
169. =0 09	280000.0	0.25159E 02	0.39746E-01
169. =0 09	270000.0	0.27276E 02	0.36662E-01
169. =0 09	260000.0	0.27935E 02	0.35797E-01
169. =0 09	250000.0	0.27998E 02	0.35717E-01
169. =0 09	240000.0	0.28000E 02	0.35714E-01
169. =0 09	230000.0	0.28000E 02	0.35714E-01
169. =0 09	220000.0	0.28000E 02	0.35714E-01
169. =0 09	210000.0	0.28000E 02	0.35714E-01
169. =0 09	200000.0	0.28000E 02	0.35714E-01
169. =0 09	190000.0	0.28000E 02	0.35714E-01
169. =0 09	180000.0	0.28000E 02	0.35714E-01
169. =0 09	170000.0	0.28000E 02	0.35714E-01
169. =0 09	160000.0	0.28000E 02	0.35714E-01
169. =0 09	150000.0	0.28000E 02	0.35714E-01
169. =0 09	140000.0	0.28000E 02	0.35714E-01
169. =0 09	130000.0	0.28000E 02	0.35714E-01
169. =0 09	120000.0	0.28000E 02	0.35714E-01
169. =0 09	110000.0	0.28000E 02	0.35714E-01
169. =0 09	100000.0	0.28000E 02	0.35714E-01
169. =0 09	90000.0	0.28000E 02	0.35714E-01
169. =0 09	80000.0	0.28000E 02	0.35714E-01
169. =0 09	70000.0	0.28000E 02	0.35714E-01
169. =0 09	60000.0	0.28000E 02	0.35714E-01
169. =0 09	50000.0	0.28000E 02	0.35714E-01
169. =0 09	40000.0	0.28000E 02	0.35714E-01
169. =0 09	30000.0	0.28000E 02	0.35714E-01
169. =0 09	20000.0	0.28000E 02	0.35714E-01
169. =0 09	10000.0	0.28000E 02	0.35714E-01
169. =0 09	0.	0.28000E 02	0.35714E-01
121. =1 08			
121. =BREAK 121.			
174. +READY ;FINISH			

APPENDIX D

Listing of FORTRAN
Source Deck and Input Data For
Computer Code HRS017 (Version 3)

BLANK

SPAHR.
ACCOUNT,E08666,D09513,G7600,A0049131,RP,KUNC.
FUN(S)
LGO.
,

H R SPAHR BOX 651

```
PROGRAM HRS017(INPUT,OUTPUT,PUNCH)
C (WRITTEN BY HAROLD R. SPAHR, DIVISION 9513, SANDIA CORPORATION,
C SANDIA BASE, ALBUQUERQUE, NEW MEXICO - PHONE 264-1040, BUILDING
C 892, ROOM 233, HOME PHONE 299-5465)
C THIS IS VERSION THREE OF HRS017. THIS VERSION IS OPERATIONAL ON
C THE SANDIA CORPORATION CDC 3600.
DIMENSION ALT(500),RHO(500),AID(11),AIDD(11)
IREV = 1
PRINT 700
700 FORMAT( 1H1 , //// )
KJI = 4
IJK = 0
IJKL=0
XK1 = 6.2832**0.5
III = 0
XMU = 1.4098E+16
IRSUBE = 20925697
RSUBF = IRSUBE
189 READ 8,(AID(I), I = 1,11)
READ 7, 11
7 FORMAT(7X,I3)
READ 4, (ALT(J),RHO(J), J = 1,11)
4 FORMAT(F9.0,7X,E10.3)
188 READ 8,(AIDD(I), I = 1,11)
8 FORMAT(11A6)
READ 100, WCDA
READ 100, XHITEP
100 FORMAT(F15.1)
READ 106, RSUBA
106 FORMAT(E12.3)
READ 100, FUDGECE
READ 100, FUDGEFE
TIME = 0.0
L = 1
110 IF ( XHITEP - ALT(L)) 123,122,121
122 RHX = RHO(L)
M = L - 1
ALTD = ALT(M) - ALT(L)
RATIO = RHO(M)/RHO(L)
ALOGR = ALOG(RATIO)
XBETA = ALOGR/(-ALTD)
GO TO 124
121 M = L - 1
IF ( XHITEP - ALT(M)) 181,182,183
183 L = L - 1
GO TO 121
182 RHX = RHO(M)
ALTD = ALT(M) - ALT(L)
RATIO = RHO(M)/RHO(L)
```

```

      ALOGR = ALOG(RATIO)
      XBETA = ALOGR/(-ALTD)
      GO TO 124
181  ALTD = ALT(M) - ALT(L)
      RATIO = RHO(M)/RHO(L)
      ALOGR = ALOG(RATIO)
      XBETA = ALOGR/(-ALTD)
      POWER = (-XBETA*ALT(L))
      RHOS = RHO(L)/(EXP(POWER))
      POWER2 = (-XBETA*XHITEP)
      RHX = RHOS*EXP(POWER2)
      GO TO 124
123  L = L + 1
      GO TO 110
124  CONTINUE
      RHY = RHX
175  CONTINUE
      IF ( KJI - 60 ) 913,912,912
912  KJI = 4
      PRINT 700
913  CONTINUE
      PRINT 701, IREV
701  FORMAT( /// , 53X , 12H REVOLUTION , I3 )
      KJI = KJI + 4
      IF ( KJI - 61 ) 915,914,914
914  KJI = 4
      PRINT 700
915  CONTINUE
      PRINT 916
916  FORMAT( // )
      KJI = KJI + 3
      IF ( KJI - 59 ) 918,917,917
917  KJI = 4
      PRINT 700
918  CONTINUE
      PRINT 702
702  FORMAT( 9X , 6H TIME , 6X , 7H THETA , 6X , 10H ALTITUDE , 7X , 7H
1  GAMMA , 7X , 7H QCONT , 8X , 5H QFM , 4X , 10H VELOCITY , 11X , 3H
2 P , / , 111X , 3H T )
      KJI = KJI + 2
      IF ( KJI - 60 ) 920,919,919
919  KJI = 4
      PRINT 700
920  CONTINUE
      PRINT 916
      KJI = KJI + 3
      THETA = -180.0
      JJ = 0
150  CONTINUE
      RSUBP = RSUB + XHITEP
      B = RSUBA + RSUBP
      C = RSUBA - RSUBP
      D = THETA/57.29578
      E = COS(D)

```



```

      F = 2.0*RSUBA/( B + C*E )
      R = RSUBP*F
      XHITE = R - RSUBE
77 IF ( XHITE ) 188,15,15
15 CONTINUE
60 IF ( XHITE - ALT(L) ) 73,72,71
72 RHX = RHO(L)
   GO TO 74
71 M = L - 1
   IF ( M - 1 ) 161,161,162
161 RHX = 0.0
   GO TO 74
162 IF ( XHITE - ALT(M) ) 171,172,173
173 L = L - 1
   GO TO 71
172 RHX = RHO(M)
   GO TO 74
171 ALTD = ALT(M) - ALT(L)
   RATIO = RHO(M)/RHO(L)
   ALOGR = ALOG(RATIO)
   BETA = ALOGR/(-ALTD)
   POWER = (-BETA*ALT(L))
   RHOSS = RHO(L)/(EXP(POWER))
   POWER2 = (-BETA*XHITE)
   RHX = RHOSS*EXP(POWER2)
   GO TO 74
73 L = L + 1
   GO TO 60
74 CONTINUE
   X = RSUBP/( RSUBA + RSUBP - R )
   Y = RSUBA/R
   Z = (0.999999)*(( X*Y )**0.5)
   GAMMA = ACOSF( Z )
   GAMMAD = GAMMA*57.29578
   AAA = B/2.0
   XN = 1.0/(((AAA**3.0)/XMU)**0.5)
   V = (XMU*((2.0/R) - (1.0/AAA)))**0.5
   QCONT = 865.0*((RHX/0.076474)**0.5)*((V/10000.0)**3.15)
   QFM = (RHX*(V**3.0))/50063.0
   EE = C/B
   EEE = ACOSF( 0.999999*(( AAA - R )/( AAA*EE )))
   T2 = ( EEE - EE*SIN(EEE))/XN
   DT = ABS( T2 - T1 )
   IF ( JJ ) 133, 133, 134
133 DT = 0
134 CONTINUE
   TIME = TIME + DT
   PT = RHX*(V**2.0)/32.2
   PTA = PT/2116.4
   XHR = ( V**2.0 )/50063.0
   QDOT1 = FUDGECE*QCONT
   QDOT2 = FUDGEFE*QFM
   IF ( KJI - 62 ) 911,910,910
910 KJI = 4

```

```

      PRINT 700
911  CONTINUE
      PRINT 102, TIME, THETA, XHITE, GAMMAD, QDOT1, QDOT2, V, PT
102  FORMAT( 6X, F10.1, 4X, F7.2, 4X, F13.2, 4X, F10.5, 4X, F9.
      12, 4X, F10.3, 4X, F9.2, 4X, F13.5 )
      KJI = KJI + 1
      IF(QDOT1-QDOT2)632,632,633
632  QDOT = QDOT1
      GO TO 634
633  QDOT = QDOT2
634  CONTINUE
      QDOTHR = QDOT/XHR
      RDOT = 0.0
      IF ( IJKL ) 401,401,402
401  DT = 0.0
402  CONTINUE
      XTIME = XTIME + DT
      IJKL = IJKL + 1
      IF ( XHITE - 1000000.0 ) 213,213,214
213  CONTINUE
      IF ( IJK - 995 ) 262,262,263
262  CONTINUE
      IJK = IJK + 1
      81 FORMAT(1X,F9.4,1X,F9.3,1X,F9.4,1X,F9.7,1X,F9.6,11X,2A6)
      PUNCH 81,XTIME, XHR, RDOT, QDOTHR, PTA,(AIDD(I), I = 1,2)
263  CONTINUE
      GO TO 215
214  CONTINUE
      IJKL = 0
      XTIME = 0.0
215  CONTINUE
      ZZZ = ABS(THETA)
      IF ( THETA ) 57, 57, 58
57  IF ( ZZZ - 20.1 ) 87, 87, 88
87  THETA = THETA + 2.0
      GO TO 89
88  THETA = THETA + 20.0
      GO TO 89
58  IF ( ZZZ - 19.9 ) 87, 87, 88
89  CONTINUE
      T1 = T2
      JJ = JJ + 1
      IF ( THETA - 181.0 ) 150,150,192
192  DRSUBA=-(XK1*(1.0/WCDA)*RHY*(1.0/XBETA**0.5)*RSUBA*B/(C/2.0)**0.5)
      RSUBA = RSUBA + DRSUBA
      IREFV = IREFV + 1
      GO TO 175
      END

```

```

      U. S. STANDARD ATMOSPHERE, 1962
      257      NUMBER OF VALUES OF ALT AND RH
2320000      8.895E-15
2300000      9.491E-15
2280000      1.013E-14

```

2260000	1.081E-14
2240000	1.155E-14
2220000	1.234E-14
2200000	1.318E-14
2180000	1.409E-14
2160000	1.506E-14
2140000	1.611E-14
2120000	1.723E-14
2100000	1.843E-14
2080000	1.973E-14
2060000	2.112E-14
2040000	2.262E-14
2020000	2.423E-14
2000000	2.596E-14
1980000	2.783E-14
1960000	2.985E-14
1940000	3.207E-14
1920000	3.446E-14
1900000	3.704E-14
1880000	3.983E-14
1860000	4.286E-14
1840000	4.613E-14
1820000	4.967E-14
1800000	5.351E-14
1780000	5.767E-14
1760000	6.218E-14
1740000	6.707E-14
1720000	7.237E-14
1700000	7.814E-14
1680000	8.440E-14
1660000	9.120E-14
1640000	9.861E-14
1620000	1.069E-13
1600000	1.160E-13
1580000	1.259E-13
1560000	1.368E-13
1540000	1.487E-13
1520000	1.618E-13
1500000	1.761E-13
1480000	1.919E-13
1460000	2.092E-13
1440000	2.283E-13
1420000	2.493E-13
1400000	2.724E-13
1380000	2.979E-13
1360000	3.261E-13
1340000	3.572E-13
1320000	3.915E-13
1300000	4.301E-13
1280000	4.734E-13
1260000	5.215E-13
1240000	5.752E-13
1220000	6.351E-13
1200000	7.020E-13

1180000		7.769E-13	
1160000		8.607E-13	
1140000		9.548E-13	
1120000		1.060E-12	
1100000		1.179E-12	
1080000		1.313E-12	
1060000		1.464E-12	
1040000		1.634E-12	
1020000		1.827E-12	
1000000	249600	2.046E-12	5.1286E-9
980000	249143	2.294E-12	5.6872E-9
960000	248431	2.583E-12	6.3160E-9
940000	247695	2.912E-12	7.0257E-9
920000	246934	3.290E-12	7.8283E-9
900000	246138	3.724E-12	8.7375E-9
880000	245318	4.224E-12	9.7696E-9
860000	244468	4.800E-12	1.0943E-8
840000	243590	5.466E-12	1.2281E-8
820000	242682	6.238E-12	1.3809E-8
800000	241739	7.135E-12	1.5558E-8
780000	240767	8.179E-12	1.7565E-8
760000	239765	9.398E-12	1.9872E-8
740000	238385	1.086E-11	2.2534E-8
720000	236834	1.260E-11	2.5624E-8
700000	235238	1.467E-11	2.9221E-8
680000		1.713E-11	
660000	231919	2.008E-11	3.8351E-8
640000	230191	2.363E-11	4.4148E-8
620000	228246	2.796E-11	5.0998E-8
600000	225369	3.350E-11	5.9175E-8
580000	222423	4.040E-11	6.9023E-8
560000	219462	4.906E-11	8.0964E-8
540000	214415	6.090E-11	9.5641E-8
520000	208626	7.720E-11	1.1405E-7
500000	200259	1.020E-10	1.3799E-7
490000	195555	1.188E-10	1.5282E-7
480000	189443	1.415E-10	1.7033E-7
470000	183099	1.706E-10	1.9134E-7
460000	176510	2.088E-10	2.1689E-7
450000	169645	2.600E-10	2.4846E-7
440000	162467	3.301E-10	2.8819E-7
430000	154930	4.294E-10	3.3931E-7
420000	146951	5.751E-10	4.0686E-7
410000	138452	7.990E-10	4.9911E-7
400000	129310	1.1640E-9	6.3049E-7
390000	121336	1.7430E-9	8.2674E-7
380000	116244	2.5790E-9	1.1167E-6
370000	110838	3.9710E-9	1.5552E-6
360000	105349	6.3850E-9	2.2481E-6
350000	102423	1.0120E-8	3.3543E-6
340000	99344	1.6540E-8	5.1376E-6
330000	96103	2.7960E-8	8.1073E-6
320000	94228	4.7740E-8	1.3176E-5
310000	91753	8.3140E-8	2.1913E-5

300000	89450	1.4880E-7	3.7368E-5
290000	88400	2.6600E-7	6.5244E-5
280000	88400	4.6610E-7	1.1433E-4
270000	88400	8.1720E-7	2.0046E-4
260000	89110	1.4090E-6	3.5127E-4
250000	91950	2.2630E-6	6.0065E-4
240000	94712	3.5353E-6	9.9546E-4
230000	97396	5.3888E-6	1.6046E-3
220000	100011	8.0356E-6	2.5229E-3
210000	102562	1.1748E-5	3.8790E-3
200000	104798	1.6957E-5	5.8458E-3
195000	105413	2.0472E-5	7.1405E-3
190000	106025	2.4663E-5	8.7026E-3
185000	106634	2.9651E-5	1.0583E-2
180000	107240	3.5578E-5	1.2843E-2
175000	107843	4.2605E-5	1.5554E-2
170000	108202	5.1159E-5	1.8801E-2
165000	108202	6.1822E-5	2.2719E-2
160000	108202	7.4713E-5	2.7457E-2
155000	108143	9.0400E-5	3.3186E-2
150000	107299	1.1119E-4	4.0182E-2
145000	106447	1.3722E-4	4.8805E-2
140000	105588	1.6994E-4	5.9471E-2
135000	104722	2.1122E-4	7.2712E-2
130000	103848	2.6353E-4	8.9210E-2
125000	102967	3.3006E-4	1.0984E-1
120000	102077	4.1506E-4	1.3575E-1
115000	101179	5.2412E-4	1.6842E-1
110000	100272	6.6470E-4	2.0978E-1
105000	99418	8.4570E-4	2.6238E-1
101800	99208	9.8152E-4	3.0324E-1
101000	99155	1.0189E-3	3.1444E-1
100000	99090	1.0676E-3	3.2905E-1
99000	99024	1.1188E-3	3.4435E-1
98000	98958	1.1725E-3	3.6040E-1
97000	98892	1.2288E-3	3.7721E-1
96000	98826	1.2879E-3	3.9484E-1
95200	98773	1.3373E-3	4.0955E-1
95000	98759	1.3500E-3	4.1331E-1
94000	98693	1.4152E-3	4.3268E-1
93000	98627	1.4836E-3	4.5299E-1
92000	98561	1.5554E-3	4.7428E-1
91000	98494	1.6308E-3	4.9660E-1
90000	98428	1.7100E-3	5.2001E-1
89000	98362	1.7931E-3	5.4456E-1
88600	98335	1.8275E-3	5.5471E-1
88000	98295	1.8804E-3	5.7031E-1
87000	98229	1.9721E-3	5.9731E-1
86000	98162	2.0685E-3	6.2563E-1
85000	98095	2.1696E-3	6.5534E-1
84000	98029	2.2759E-3	6.8651E-1
83000	97962	2.3876E-3	7.1921E-1
82000	97895	2.5049E-3	7.5352E-1
81000	97828	2.6281E-3	7.8952E-1

80000	97762	2.7576E-3	8.2730E-1
79000	97695	2.8937E-3	8.6694E-1
78000	97628	3.0368E-3	9.0854E-1
77000	97561	3.1871E-3	9.5221E-1
76000	97493	3.3451E-3	9.9804E-1
75400	97453	3.4438E-3	1.0266E+0
75000	97426	3.5112E-3	1.0462E+0
74000	97359	3.6858E-3	1.0967E+0
73000	97292	3.8694E-3	1.1497E+0
72000	97224	4.0624E-3	1.2054E+0
71000	97157	4.2653E-3	1.2638E+0
70000	97090	4.4787E-3	1.3252E+0
69000	97022	4.7031E-3	1.3897E+0
68800	97009	4.7494E-3	1.4030E+0
68000	96955	4.9391E-3	1.4574E+0
67000	96887	5.1874E-3	1.5285E+0
66000	96819	5.4485E-3	1.6032E+0
65000	96808	5.7164E-3	1.6816E+0
64000	96808	5.9961E-3	1.7639E+0
63000	96808	6.2895E-3	1.8502E+0
62400	96808	6.4724E-3	1.9040E+0
62000	96808	6.5973E-3	1.9408E+0
61000	96808	6.9202E-3	2.0357E+0
60000	96808	7.2589E-3	2.1354E+0
59000	96808	7.6142E-3	2.2399E+0
58000	96808	7.9870E-3	2.3496E+0
57000	96808	8.3780E-3	2.4646E+0
56000	96808	8.7882E-3	2.5853E+0
55800	96808	8.8727E-3	2.6101E+0
55000	96808	9.2186E-3	2.7119E+0
54000	96808	9.6701E-3	2.8447E+0
53000	96808	1.0144E-2	2.9840E+0
52000	96808	1.0641E-2	3.1302E+0
51000	96808	1.1162E-2	3.2835E+0
50000	96808	1.1709E-2	3.4444E+0
49200	96808	1.2165E-2	3.5788E+0
49000	96808	1.2282E-2	3.6132E+0
48000	96808	1.2884E-2	3.7902E+0
47000	96808	1.3516E-2	3.9760E+0
46000	96808	1.4178E-2	4.4074E+0
45000	96808	1.4873E-2	4.3753E+0
44000	96808	1.5602E-2	4.5898E+0
43000	96808	1.6367E-2	4.8148E+0
42600	96808	1.6684E-2	4.9079E+0
42000	96808	1.7170E-2	5.0509E+0
41000	96808	1.8012E-2	5.2986E+0
40000	96808	1.8895E-2	5.5584E+0
39000	96808	1.9822E-2	5.8311E+0
38000	96808	2.0794E-2	6.1171E+0
37000	96808	2.1814E-2	6.4172E+0
36000	96874	2.2853E-2	6.7320E+0
35000	97314	2.3751E-2	7.0603E+0
34000	97752	2.4676E-2	7.4015E+0
33000	98188	2.5629E-2	7.7559E+0

32000	98622	2.6610E-2	8.1241E+0
31000	99055	2.7619E-2	8.5062E+0
30000	99485	2.8657E-2	8.9029E+0
29500	99699	2.9187E-2	9.1068E+0
29000	99914	2.9725E-2	9.3144E+0
28000	100340	3.0823E-2	9.7413E+0
27000	100765	3.1952E-2	1.0184E+1
26000	101189	3.3113E-2	1.0643E+1
25000	101610	3.4306E-2	1.1118E+1
24000	102030	3.5531E-2	1.1611E+1
23000	102448	3.6790E-2	1.2121E+1
22000	102865	3.8083E-2	1.2649E+1
21000	103280	3.9410E-2	1.3196E+1
20000	103693	4.0773E-2	1.3761E+1
19000	104105	4.2171E-2	1.4346E+1
18000	104515	4.3606E-2	1.4952E+1
17000	104923	4.5079E-2	1.5578E+1
16400	105168	4.5980E-2	1.5963E+1
16000	105330	4.6589E-2	1.6224E+1
15000	105736	4.8137E-2	1.6893E+1
14000	106139	4.9725E-2	1.7584E+1
13000	106542	5.1353E-2	1.8298E+1
12000	106943	5.3022E-2	1.9034E+1
11000	107342	5.4731E-2	1.9795E+1
10000	107740	5.6483E-2	2.0581E+1
9800	107820	5.6839E-2	2.0741E+1
9000	108137	5.8278E-2	2.1391E+1
8000	108532	6.0116E-2	2.2228E+1
7000	108926	6.1998E-2	2.3090E+1
6600	109083	6.2763E-2	2.3443E+1
6000	109319	6.3925E-2	2.3980E+1
5000	109710	6.5898E-2	2.4897E+1
4000	110099	6.7917E-2	2.5843E+1
3300	110371	6.9359E-2	2.6522E+1
3000	110488	6.9984E-2	2.6817E+1
2000	110875	7.2098E-2	2.7821E+1
1000	111261	7.4262E-2	2.8856E+1
0	111645	7.6474E-2	2.9921E+1

15 W. HEATFR
19.296
300000.0
1.2673E+9
2.83
1.000

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APPENDIX E

Trajectory and Reentry Environment
Output From Computer Code HRS017 (Version 3)
For a Perigee Altitude of 260,000 Feet
(Seven Revolutions)

Part 1 - Trajectory and Reentry
Environment Tabulated Data (Page 59)

Part 2 - Listing of Punched Card
CMA Input (Page 66)

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Part 1

Trajectory and Reentry Environment Tabulated Data

REVOLUTION 1

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
0.0	-180.00	1246374303.00	.08103	0.00	0.000	604.83	0.00000
385031.7	-160.00	435989528.61	74.58411	0.00	0.000	6310.82	0.00000
422284.5	-140.00	139889450.89	67.37027	0.00	0.000	12387.44	0.00000
428399.5	-120.00	59770068.80	58.34150	0.00	0.000	18097.74	0.00000
430259.2	-100.00	29160354.42	48.85871	0.00	0.000	23260.87	0.00000
431073.2	-80.00	14756604.58	39.19641	0.00	0.000	27718.45	0.00000
431527.3	-60.00	7165364.31	29.44712	0.00	0.000	31334.53	0.00000
431831.2	-40.00	3013545.18	19.65155	0.00	0.000	33999.00	0.00000
432067.0	-20.00	907340.93	9.83144	.91	.003	35630.81	.00014
432088.6	-18.00	782353.05	8.84866	1.39	.007	35735.00	.00032
432109.9	-16.00	671322.89	7.86580	2.11	.017	35828.31	.00073
432131.0	-14.00	573978.04	6.88287	3.25	.040	35910.70	.00172
432152.0	-12.00	490081.36	5.89988	5.44	.110	35982.17	.00477
432172.7	-10.00	419429.69	4.91687	12.16	.548	36042.67	.02364
432193.4	-8.00	361852.84	3.93386	38.58	5.491	36092.20	.23655
432213.9	-6.00	317212.74	2.95091	119.50	52.499	36130.74	2.25909
432234.3	-4.00	285402.70	1.96822	297.74	325.070	36158.28	13.97752
432254.2	-2.00	266346.90	.98661	507.46	942.879	36174.80	40.52385
432269.3	0.00	260000.00	.08103	603.52	1332.941	36180.31	57.27956
432284.3	2.00	266346.90	.98661	507.46	942.879	36174.80	40.52385
432304.3	4.00	285402.70	1.96822	297.74	325.070	36158.28	13.97752
432324.6	6.00	317212.74	2.95091	119.50	52.499	36130.74	2.25909
432345.1	8.00	361852.84	3.93386	38.58	5.491	36092.20	.23655
432365.8	10.00	419429.69	4.91687	12.16	.548	36042.67	.02364
432386.5	12.00	490081.36	5.89988	5.44	.110	35982.17	.00477
432407.5	14.00	573978.04	6.88287	3.25	.040	35910.70	.00172
432428.6	16.00	671322.89	7.86580	2.11	.017	35828.31	.00073
432450.0	18.00	782353.05	8.84866	1.39	.007	35735.00	.00032
432471.5	20.00	907340.93	9.83144	.91	.003	35630.81	.00014
432707.3	40.00	3013545.18	19.65155	0.00	0.000	33999.00	0.00000
433011.2	60.00	7165364.31	29.44712	0.00	0.000	31334.53	0.00000
433465.4	80.00	14756604.58	39.19641	0.00	0.000	27718.45	0.00000
434279.3	100.00	29160354.42	48.85871	0.00	0.000	23260.87	0.00000
436139.0	120.00	59770068.80	58.34150	0.00	0.000	18097.74	0.00000
442254.0	140.00	139889450.89	67.37027	0.00	0.000	12387.44	0.00000
479506.8	160.00	435989528.61	74.58411	0.00	0.000	6310.82	0.00000
864538.5	180.00	1246374303.00	.08103	0.00	0.000	604.83	0.00000

REVOLUTION 2

TIME	THETA	ALTITUDE	GAMMA	GCONT	RFM	VELOCITY	P T
864538.5	-180.00	185695488.13	.08103	0.00	0.000	3562.41	0.00000
881862.0	-160.00	142549337.81	49.82208	0.00	0.000	6979.07	0.00000
890168.5	-140.00	81165394.87	54.26699	0.00	0.000	12345.57	0.00000
893377.5	-120.00	43882085.36	49.92965	0.00	0.000	17643.69	0.00000
894764.1	-100.00	23831682.46	43.03333	0.00	0.000	22498.95	0.00000
895478.8	-80.00	12745756.23	35.08268	0.00	0.000	26713.56	0.00000
895913.0	-60.00	6388359.05	26.61227	0.00	0.000	30141.62	0.00000
896217.5	-40.00	2745038.48	17.86293	0.00	0.000	32671.15	0.00000
896459.9	-20.00	849272.27	8.96460	.97	.004	34221.48	.00019
896482.3	-18.00	735740.53	8.07001	1.44	.009	34320.50	.00041
896504.4	-16.00	634789.28	7.17487	2.16	.020	34409.17	.00091
896526.4	-14.00	546205.16	6.27923	3.30	.047	34487.48	.00210
896548.1	-12.00	469801.96	5.38317	5.76	.141	34555.40	.00635
896569.8	-10.00	405419.82	4.48677	13.63	.786	34612.91	.03532
896591.3	-8.00	352924.56	3.59012	41.77	7.356	34659.98	.32998
896612.7	-6.00	312207.15	2.69334	120.86	61.373	34696.61	2.75012
896634.0	-4.00	283183.24	1.79668	278.90	326.034	34722.78	14.59854
896655.3	-2.00	265792.82	.90111	453.45	860.555	34738.49	38.51491
896674.0	0.00	260000.00	.08103	531.20	1180.384	34743.72	52.82115
896692.8	2.00	265792.82	.90111	453.45	860.555	34738.49	38.51491
896714.0	4.00	283183.24	1.79668	278.90	326.034	34722.78	14.59854
896735.4	6.00	312207.15	2.69334	120.86	61.373	34696.61	2.75012
896756.8	8.00	352924.56	3.59012	41.77	7.356	34659.98	.32998
896778.3	10.00	405419.82	4.48677	13.63	.786	34612.91	.03532
896799.9	12.00	469801.96	5.38317	5.76	.141	34555.40	.00635
896821.7	14.00	546205.16	6.27923	3.30	.047	34487.48	.00210
896843.6	16.00	634789.28	7.17487	2.16	.020	34409.17	.00091
896865.8	18.00	735740.53	8.07001	1.44	.009	34320.50	.00041
896888.2	20.00	849272.27	8.96460	.97	.004	34221.48	.00019
897130.5	40.00	2745038.48	17.86293	0.00	0.000	32671.15	0.00000
897435.0	60.00	6388359.05	26.61227	0.00	0.000	30141.62	0.00000
897869.3	80.00	12745756.23	35.08268	0.00	0.000	26713.56	0.00000
898584.0	100.00	23831682.46	43.03333	0.00	0.000	22498.95	0.00000
899970.6	120.00	43882085.36	49.92965	0.00	0.000	17643.69	0.00000
903179.6	140.00	81165394.87	54.26699	0.00	0.000	12345.57	0.00000
911486.1	160.00	142549337.81	49.82208	0.00	0.000	6979.07	0.00000
928809.5	180.00	185695488.13	.08103	0.00	0.000	3562.41	0.00000

REVOLUTION 3

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFR	VELOCITY	P T
928809.5	-180.00	106436401.96	.08103	0.00	0.000	5619.04	0.00000
936003.4	-160.00	89716070.89	36.66910	0.00	0.000	8064.09	0.00000
940480.9	-140.00	59365223.01	45.43863	0.00	0.000	12702.83	0.00000
942733.6	-120.00	35606174.78	43.92767	0.00	0.000	17577.03	0.00000
943884.9	-100.00	20550674.12	38.78719	0.00	0.000	22135.89	0.00000
944538.7	-80.00	11391608.65	32.05421	0.00	0.000	26127.82	0.00000
944958.9	-60.00	5837925.25	24.51439	0.00	0.000	29388.92	0.00000
945263.4	-40.00	2549264.93	16.53553	0.00	0.000	31800.92	0.00000
945510.3	-20.00	806295.72	8.32035	1.02	.005	33281.09	.00024
945533.3	-18.00	701211.80	7.49127	1.50	.011	33375.67	.00050
945556.0	-16.00	607705.09	6.66128	2.22	.023	33460.37	.00109
945578.5	-14.00	525601.37	5.83050	3.40	.054	33535.18	.00252
945600.9	-12.00	454748.30	4.99904	6.16	.178	33600.06	.00821
945623.1	-10.00	395014.84	4.16702	15.27	1.084	33655.00	.05007
945645.2	-8.00	346290.88	3.33456	44.80	9.283	33699.97	.42827
945667.2	-6.00	308486.82	2.50184	122.89	69.628	33734.97	3.20898
945689.2	-4.00	281533.27	1.66915	267.35	328.714	33759.97	15.13830
945711.0	-2.00	265380.86	.83757	419.69	808.868	33774.98	37.23432
945730.9	0.00	260000.00	.08103	486.16	1084.856	33779.98	49.93141
945750.7	2.00	265380.86	.83757	419.69	808.868	33774.98	37.23432
945772.6	4.00	281533.27	1.66915	267.35	328.714	33759.97	15.13830
945794.5	6.00	308486.82	2.50184	122.89	69.628	33734.97	3.20898
945816.5	8.00	346290.88	3.33456	44.80	9.283	33699.97	.42827
945838.6	10.00	395014.84	4.16702	15.27	1.084	33655.00	.05007
945860.9	12.00	454748.30	4.99904	6.16	.178	33600.06	.00821
945883.2	14.00	525601.37	5.83050	3.40	.054	33535.18	.00252
945905.8	16.00	607705.09	6.66128	2.22	.023	33460.37	.00109
945928.5	18.00	701211.80	7.49127	1.50	.011	33375.67	.00050
945951.4	20.00	806295.72	8.32035	1.02	.005	33281.09	.00024
946198.3	40.00	2549264.93	16.53553	0.00	0.000	31800.92	0.00000
946502.8	60.00	5837925.25	24.51439	0.00	0.000	29388.92	0.00000
946923.0	80.00	11391608.65	32.05421	0.00	0.000	26127.82	0.00000
947576.8	100.00	20550674.12	38.78719	0.00	0.000	22135.89	0.00000
948728.1	120.00	35606174.78	43.92767	0.00	0.000	17577.03	0.00000
950980.8	140.00	59365223.01	45.43863	0.00	0.000	12702.83	0.00000
955458.3	160.00	89716070.89	36.66910	0.00	0.000	8064.09	0.00000
962652.2	180.00	106436401.96	.08103	0.00	0.000	5619.04	0.00000

REVOLUTION 4

TIME	THETA	ALTITUDE	GAMMA	GCONT	GFM	VELOCITY	P T
962652.2	-180.00	64335033.10	.08103	0.00	0.000	8112.88	0.00000
966106.2	-160.00	57209260.17	25.36035	0.00	0.000	9796.86	0.00000
968644.7	-140.00	42053442.17	35.67885	0.00	0.000	13521.07	0.00000
970207.6	-120.00	27625154.14	36.71389	0.00	0.000	17772.66	0.00000
971141.2	-100.00	16974210.66	33.50456	0.00	0.000	21887.79	0.00000
971724.9	-80.00	9800896.81	28.22263	0.00	0.000	25549.11	0.00000
972132.0	-60.00	5161197.12	21.83615	0.00	0.000	28565.10	0.00000
972436.0	-40.00	2301966.85	14.83246	0.00	0.000	30806.05	0.00000
972488.4	-20.00	751221.99	7.49169	1.11	.007	32184.68	.00032
972712.0	-18.00	656925.39	6.74674	1.61	.014	32272.85	.00067
972735.4	-16.00	572940.18	6.00049	2.35	.029	32351.82	.00141
972758.6	-14.00	499136.67	5.25309	3.66	.070	32421.57	.00337
972781.7	-12.00	435401.17	4.50471	6.99	.255	32482.07	.01221
972804.7	-10.00	381635.65	3.75550	17.89	1.664	32533.30	.07951
972827.5	-8.00	337757.56	3.00565	49.83	12.847	32575.24	.61317
972850.3	-6.00	303699.63	2.25537	126.93	83.086	32607.88	3.96158
972873.0	-4.00	279409.69	1.50503	254.93	334.392	32631.20	15.93250
972895.6	-2.00	264850.57	.75585	382.52	751.789	32645.20	35.80451
972916.5	0.00	260000.00	.08103	436.74	979.576	32649.86	46.64637
972937.4	2.00	264850.57	.75585	382.52	751.789	32645.20	35.80451
972960.1	4.00	279409.69	1.50503	254.93	334.392	32631.20	15.93250
972982.8	6.00	303699.63	2.25537	126.93	83.086	32607.88	3.96158
973005.5	8.00	337757.56	3.00565	49.83	12.847	32575.24	.61317
973028.4	10.00	381635.65	3.75550	17.89	1.664	32533.30	.07951
973051.4	12.00	435401.17	4.50471	6.99	.255	32482.07	.01221
973074.4	14.00	499136.67	5.25309	3.66	.070	32421.57	.00337
973097.7	16.00	572940.18	6.00049	2.35	.029	32351.82	.00141
973121.1	18.00	656925.39	6.74674	1.61	.014	32272.85	.00067
973144.7	20.00	751221.99	7.49169	1.11	.007	32184.68	.00032
973397.0	40.00	2301966.85	14.83246	0.00	0.000	30806.05	0.00000
973701.1	60.00	5161197.12	21.83615	0.00	0.000	28565.10	0.00000
974104.2	80.00	9800896.81	28.22263	0.00	0.000	25549.11	0.00000
974691.9	100.00	16974210.66	33.50456	0.00	0.000	21887.79	0.00000
975625.4	120.00	27625154.14	36.71389	0.00	0.000	17772.66	0.00000
977188.4	140.00	42053442.17	35.67885	0.00	0.000	13521.07	0.00000
979726.9	160.00	57209260.17	25.36035	0.00	0.000	9796.86	0.00000
983180.9	180.00	64335033.10	.08103	0.00	0.000	8112.88	0.00000

REVOLUTION 5

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
983180.9	-180.00	38337058.52	.08103	0.00	0.000	11193.49	0.00000
984960.6	-160.00	35290412.89	16.25453	0.00	0.000	12291.42	0.00000
986429.6	-140.00	28041904.25	25.51494	0.00	0.000	15010.80	0.00000
987492.6	-120.00	19964201.67	28.23487	0.00	0.000	18413.96	0.00000
988227.2	-100.00	13082517.93	26.92431	0.00	0.000	21877.12	0.00000
988743.4	-80.00	7916850.19	23.30259	0.00	0.000	25041.93	0.00000
989125.4	-60.00	4314244.06	18.33833	0.00	0.000	27688.14	0.00000
989428.2	-40.00	1981713.61	12.58687	.05	.000	29671.24	.00000
989687.1	-20.00	678563.55	6.39366	1.29	.010	30897.05	.00051
989711.6	-18.00	598432.47	5.75991	1.82	.020	30975.58	.00101
989735.9	-16.00	526976.84	5.12443	2.65	.042	31045.93	.00213
989760.0	-14.00	464116.20	4.48741	4.38	.116	31108.07	.00577
989784.0	-12.00	409779.72	3.84906	9.02	.487	31161.99	.02430
989807.9	-10.00	363906.12	3.20962	23.24	3.220	31207.64	.16042
989831.7	-8.00	326443.62	2.56930	58.91	20.606	31245.03	1.02535
989855.4	-6.00	297349.91	1.92838	133.85	106.047	31274.12	5.27197
989879.1	-4.00	276592.15	1.28732	241.87	345.528	31294.91	17.16606
989902.7	-2.00	264146.87	.64757	341.77	689.012	31307.38	34.21693
989924.8	0.00	260000.00	.08103	382.80	863.988	31311.54	42.90066
989946.9	2.00	264146.87	.64757	341.77	689.012	31307.38	34.21693
989970.5	4.00	276592.15	1.28732	241.87	345.528	31294.91	17.16606
989994.1	6.00	297349.91	1.92838	133.85	106.047	31274.12	5.27197
990017.9	8.00	326443.62	2.56930	58.91	20.606	31245.03	1.02535
990041.7	10.00	363906.12	3.20962	23.24	3.220	31207.64	.16042
990065.6	12.00	409779.72	3.84906	9.02	.487	31161.99	.02430
990089.6	14.00	464116.20	4.48741	4.38	.116	31108.07	.00577
990113.7	16.00	526976.84	5.12443	2.65	.042	31045.93	.00213
990138.0	18.00	598432.47	5.75991	1.82	.020	30975.58	.00101
990162.5	20.00	678563.55	6.39366	1.29	.010	30897.05	.00051
990421.4	40.00	1981713.61	12.58687	.05	.000	29671.24	.00000
990724.2	60.00	4314244.06	18.33833	0.00	0.000	27688.14	0.00000
991106.2	80.00	7916850.19	23.30259	0.00	0.000	25041.93	0.00000
991622.4	100.00	13082517.93	26.92431	0.00	0.000	21877.12	0.00000
992357.0	120.00	19964201.67	28.23487	0.00	0.000	18413.96	0.00000
993420.0	140.00	28041904.25	25.51494	0.00	0.000	15010.80	0.00000
994889.0	160.00	35290412.89	16.25453	0.00	0.000	12291.42	0.00000
996668.7	180.00	38337058.52	.08103	0.00	0.000	11193.49	0.00000

REVOLUTION 6

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
996668.7	-180.00	20620815.13	.08103	0.00	0.000	15139.19	0.00000
997605.8	-160.00	19450721.24	9.07516	0.00	0.000	15775.37	0.00000
998449.3	-140.00	16422061.96	15.51828	0.00	0.000	17478.34	0.00000
999147.3	-120.00	12572367.23	18.54859	0.00	0.000	19805.41	0.00000
999701.6	-100.00	8812225.50	18.71280	0.00	0.000	22331.22	0.00000
1000140.0	-80.00	5638982.92	16.83509	0.00	0.000	24737.49	0.00000
1000495.2	-60.00	3218048.09	13.59546	0.00	0.000	26802.47	0.00000
1000795.3	-40.00	1548385.80	9.48598	.09	.000	28374.89	.00000
1001062.3	-20.00	577767.50	4.86280	1.69	.021	29355.83	.00110
1001087.9	-18.00	517162.82	4.38330	2.37	.041	29418.88	.00216
1001113.3	-16.00	463028.07	3.90171	3.74	.100	29475.39	.00530
1001138.7	-14.00	415333.42	3.41828	6.94	.345	29525.32	.01815
1001163.9	-12.00	374052.34	2.93326	15.55	1.722	29568.66	.09052
1001199.0	-10.00	339161.70	2.44691	35.54	8.959	29605.36	.47047
1001214.1	-8.00	310641.82	1.95951	76.81	41.712	29635.42	2.18833
1001239.1	-6.00	288476.53	1.47142	146.33	150.986	29658.82	7.91489
1001264.0	-4.00	272653.22	.98318	228.52	367.543	29675.54	19.25622
1001288.9	-2.00	263162.85	.49669	296.90	619.730	29685.57	32.45775
1001312.5	0.00	260000.00	.08103	323.72	736.508	29688.92	38.56949
1001336.0	2.00	263162.85	.49669	296.90	619.730	29685.57	32.45775
1001360.9	4.00	272653.22	.98318	228.52	367.543	29675.54	19.25622
1001385.9	6.00	288476.53	1.47142	146.33	150.986	29658.82	7.91489
1001410.9	8.00	310641.82	1.95951	76.81	41.712	29635.42	2.18833
1001435.9	10.00	339161.70	2.44691	35.54	8.959	29605.36	.47047
1001461.1	12.00	374052.34	2.93326	15.55	1.722	29568.66	.09052
1001486.3	14.00	415333.42	3.41828	6.94	.345	29525.32	.01815
1001511.6	16.00	463028.07	3.90171	3.74	.100	29475.39	.00530
1001537.1	18.00	517162.82	4.38330	2.37	.041	29418.88	.00216
1001562.6	20.00	577767.50	4.86280	1.69	.021	29355.83	.00110
1001829.7	40.00	1548385.80	9.48598	.09	.000	28374.89	.00000
1002129.7	60.00	3218048.09	13.59546	0.00	0.000	26802.47	0.00000
1002485.0	80.00	5638982.92	16.83509	0.00	0.000	24737.49	0.00000
1002923.4	100.00	8812225.50	18.71280	0.00	0.000	22331.22	0.00000
1003477.6	120.00	12572367.23	18.54859	0.00	0.000	19805.41	0.00000
1004175.7	140.00	16422061.96	15.51828	0.00	0.000	17478.34	0.00000
1005019.2	160.00	19450721.24	9.07516	0.00	0.000	15775.37	0.00000
1005956.2	180.00	20620815.13	.08103	0.00	0.000	15139.19	0.00000

REVOLUTION 7

TIME	THETA	ALTITUDE	GAMMA	GCONT	GFM	VELOCITY	P T
1005956.2	-180.00	7376443.15	.08103	0.00	0.000	20651.72	0.00000
1006429.7	-160.00	7092649.13	3.25578	0.00	0.000	20894.60	0.00000
1006886.7	-140.00	6306391.91	5.93100	0.00	0.000	21578.69	0.00000
1007312.2	-120.00	5183842.86	7.64295	0.00	0.000	22586.63	0.00000
1007700.2	-100.00	3927141.15	8.26448	0.00	0.000	23764.72	0.00000
1008051.1	-80.00	2716182.89	7.86700	0.00	0.000	24957.43	0.00000
1008370.0	-60.00	1681093.38	6.62755	.05	.000	26028.44	.00000
1008664.2	-40.00	902030.40	4.76027	.38	.001	26869.97	.00008
1008941.8	-20.00	421857.30	2.48229	4.95	.224	27405.31	.01271
1008969.0	-18.00	391169.22	2.24007	8.68	.686	27439.98	.03888
1008996.1	-16.00	363685.34	1.99608	15.63	2.220	27471.07	.12562
1009023.1	-14.00	339414.59	1.75052	27.98	7.084	27498.57	.40054
1009050.1	-12.00	318364.72	1.50363	49.11	21.768	27522.45	1.22970
1009077.0	-10.00	300542.34	1.25566	81.75	60.172	27542.69	3.39664
1009103.9	-8.00	285952.98	1.00691	124.63	139.557	27559.27	7.87310
1009130.8	-6.00	274601.11	.75778	171.63	264.257	27572.18	14.90105
1009157.6	-4.00	266490.20	.50911	215.11	414.664	27581.41	23.37444
1009184.4	-2.00	261622.67	.26415	245.77	540.898	27586.95	30.48407
1009210.0	0.00	260000.00	.08103	256.93	591.007	27588.80	33.30586
1009235.6	2.00	261622.67	.26415	245.77	540.898	27586.95	30.48407
1009262.4	4.00	266490.20	.50911	215.11	414.664	27581.41	23.37444
1009289.2	6.00	274601.11	.75778	171.63	264.257	27572.18	14.90105
1009316.0	8.00	285952.98	1.00691	124.63	139.557	27559.27	7.87310
1009342.9	10.00	300542.34	1.25566	81.75	60.172	27542.69	3.39664
1009369.9	12.00	318364.72	1.50363	49.11	21.768	27522.45	1.22970
1009396.8	14.00	339414.59	1.75052	27.98	7.084	27498.57	.40054
1009423.9	16.00	363685.34	1.99608	15.63	2.220	27471.07	.12562
1009451.0	18.00	391169.22	2.24007	8.68	.686	27439.98	.03888
1009478.1	20.00	421857.30	2.48229	4.95	.224	27405.31	.01271
1009755.8	40.00	902030.40	4.76027	.38	.001	26869.97	.00008
1010050.0	60.00	1681093.38	6.62755	.05	.000	26028.44	.00000
1010368.9	80.00	2716182.89	7.86700	0.00	0.000	24957.43	0.00000
1010719.8	100.00	3927141.15	8.26448	0.00	0.000	23764.72	0.00000
1011107.7	120.00	5183842.86	7.64295	0.00	0.000	22586.63	0.00000
1011533.2	140.00	6306391.91	5.93100	0.00	0.000	21578.69	0.00000
1011990.2	160.00	7092649.13	3.25578	0.00	0.000	20894.60	0.00000
1012463.7	180.00	7376443.15	.08103	0.00	0.000	20651.72	0.00000

Part 2
Listing of Punched Card CMA Input

REVOLUTION 1

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	25359.133	0.0000	.0000001	.000000	15 W. HEATER
21.5707	25507.659	0.0000	.0000003	.000000	15 W. HEATER
42.9054	25641.041	0.0000	.0000007	.000000	15 W. HEATER
64.0311	25759.116	0.0000	.0000015	.000001	15 W. HEATER
84.9734	25861.740	0.0000	.0000043	.000002	15 W. HEATER
105.7555	25948.789	0.0000	.0000211	.000011	15 W. HEATER
126.3964	26020.155	0.0000	.0002110	.000112	15 W. HEATER
146.9050	26075.753	0.0000	.0020133	.001067	15 W. HEATER
167.2577	26115.514	0.0000	.0114008	.006604	15 W. HEATER
187.2450	26139.390	0.0000	.0194136	.019148	15 W. HEATER
202.2643	26147.352	0.0000	.0230813	.027065	15 W. HEATER
217.2836	26139.390	0.0000	.0194136	.019148	15 W. HEATER
237.2709	26115.514	0.0000	.0114008	.006604	15 W. HEATER
257.6236	26075.753	0.0000	.0020133	.001067	15 W. HEATER
278.1322	26020.155	0.0000	.0002110	.000112	15 W. HEATER
298.7731	25948.789	0.0000	.0000211	.000011	15 W. HEATER
319.5552	25861.740	0.0000	.0000043	.000002	15 W. HEATER
340.4975	25759.116	0.0000	.0000015	.000001	15 W. HEATER
361.6232	25641.041	0.0000	.0000007	.000000	15 W. HEATER
382.9579	25507.659	0.0000	.0000003	.000000	15 W. HEATER
404.5286	25359.133	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 2

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	23392.721	0.0000	.0000002	.000000	15 W. HEATER
22.3645	23528.284	0.0000	.0000004	.000000	15 W. HEATER
44.5081	23650.025	0.0000	.0000008	.000000	15 W. HEATER
66.4573	23757.795	0.0000	.0000020	.000001	15 W. HEATER
88.2375	23851.463	0.0000	.0000059	.000003	15 W. HEATER
109.8733	23930.914	0.0000	.0000329	.000017	15 W. HEATER
131.3879	23996.052	0.0000	.0003066	.000156	15 W. HEATER
152.8029	24046.797	0.0000	.0025522	.001299	15 W. HEATER
174.1334	24083.088	0.0000	.0115808	.006898	15 W. HEATER
195.3610	24104.880	0.0000	.0188116	.018198	15 W. HEATER
214.1266	24112.147	0.0000	.0220306	.024958	15 W. HEATER
232.8921	24104.880	0.0000	.0188116	.018198	15 W. HEATER
254.1197	24083.088	0.0000	.0115808	.006898	15 W. HEATER
275.4503	24046.797	0.0000	.0025522	.001299	15 W. HEATER
296.8652	23996.052	0.0000	.0003066	.000156	15 W. HEATER
318.3799	23930.914	0.0000	.0000329	.000017	15 W. HEATER
340.0156	23851.463	0.0000	.0000059	.000003	15 W. HEATER
361.7958	23757.795	0.0000	.0000020	.000001	15 W. HEATER
383.7450	23650.025	0.0000	.0000008	.000000	15 W. HEATER
405.8887	23528.284	0.0000	.0000004	.000000	15 W. HEATER
428.2531	23392.721	0.0000	.0000002	.000000	15 W. HEATER

REVOLUTION 3

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	22124.743	0.0000	.0000002	.000000	15 W. HEATER
22.9214	22250.669	0.0000	.0000005	.000000	15 W. HEATER
45.6330	22363.754	0.0000	.0000010	.000001	15 W. HEATER
68.1598	22463.862	0.0000	.0000024	.000001	15 W. HEATER
90.5258	22550.870	0.0000	.0000079	.000004	15 W. HEATER
112.7547	22624.672	0.0000	.0000479	.000024	15 W. HEATER
134.8690	22685.179	0.0000	.0004092	.000202	15 W. HEATER
156.8899	22732.316	0.0000	.0030630	.001516	15 W. HEATER
178.8347	22766.027	0.0000	.0117433	.007153	15 W. HEATER
200.6992	22786.270	0.0000	.0184184	.017593	15 W. HEATER
220.5282	22793.020	0.0000	.0213293	.023593	15 W. HEATER
240.3573	22786.270	0.0000	.0184184	.017593	15 W. HEATER
262.2217	22766.027	0.0000	.0117433	.007153	15 W. HEATER
284.1666	22732.316	0.0000	.0030630	.001516	15 W. HEATER
306.1875	22685.179	0.0000	.0004092	.000202	15 W. HEATER
328.3018	22624.672	0.0000	.0000479	.000024	15 W. HEATER
350.5306	22550.870	0.0000	.0000079	.000004	15 W. HEATER
372.8967	22463.862	0.0000	.0000024	.000001	15 W. HEATER
395.4234	22363.754	0.0000	.0000010	.000001	15 W. HEATER
418.1351	22250.669	0.0000	.0000005	.000000	15 W. HEATER
441.0565	22124.743	0.0000	.0000002	.000000	15 W. HEATER

REVOLUTION 4

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	20691.008	0.0000	.0000003	.000000	15 W. HEATER
23.6068	20804.526	0.0000	.0000007	.000000	15 W. HEATER
47.0193	20906.469	0.0000	.0000014	.000001	15 W. HEATER
70.2603	20996.714	0.0000	.0000034	.000002	15 W. HEATER
93.3521	21075.149	0.0000	.0000121	.000006	15 W. HEATER
116.3165	21141.679	0.0000	.0000787	.000038	15 W. HEATER
139.1748	21196.224	0.0000	.0006061	.000290	15 W. HEATER
161.9469	21238.717	0.0000	.0039120	.001872	15 W. HEATER
184.6502	21269.107	0.0000	.0119861	.007528	15 W. HEATER
207.2872	21287.355	0.0000	.0179693	.016918	15 W. HEATER
228.1744	21293.440	0.0000	.0205108	.022040	15 W. HEATER
249.0617	21287.355	0.0000	.0179693	.016918	15 W. HEATER
271.6987	21269.107	0.0000	.0119861	.007528	15 W. HEATER
294.4020	21238.717	0.0000	.0039120	.001872	15 W. HEATER
317.1741	21196.224	0.0000	.0006061	.000290	15 W. HEATER
340.0323	21141.679	0.0000	.0000787	.000038	15 W. HEATER
362.9968	21075.149	0.0000	.0000121	.000006	15 W. HEATER
386.0886	20996.714	0.0000	.0000034	.000002	15 W. HEATER
409.3296	20906.469	0.0000	.0000014	.000001	15 W. HEATER
432.7420	20804.526	0.0000	.0000007	.000000	15 W. HEATER
456.3489	20691.008	0.0000	.0000003	.000000	15 W. HEATER

REVOLUTION 5

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	19068.526	0.0000	.0000005	.000000	15 W. HEATER
24.4674	19165.579	0.0000	.0000011	.000000	15 W. HEATER
48.7629	19252.735	0.0000	.0000022	.000001	15 W. HEATER
72.9066	19329.890	0.0000	.0000060	.000003	15 W. HEATER
96.9180	19396.948	0.0000	.0000251	.000011	15 W. HEATER
120.8164	19453.829	0.0000	.0001655	.000076	15 W. HEATER
144.6206	19500.462	0.0000	.0010567	.000484	15 W. HEATER
168.3485	19536.792	0.0000	.0054281	.002491	15 W. HEATER
192.0162	19562.713	0.0000	.0123637	.008111	15 W. HEATER
215.6289	19578.374	0.0000	.0174565	.016168	15 W. HEATER
237.7039	19583.577	0.0000	.0195469	.020271	15 W. HEATER
259.7789	19578.374	0.0000	.0174565	.016168	15 W. HEATER
283.3916	19562.773	0.0000	.0123637	.008111	15 W. HEATER
307.0593	19536.792	0.0000	.0054281	.002491	15 W. HEATER
330.7872	19500.462	0.0000	.0010567	.000484	15 W. HEATER
354.5914	19453.829	0.0000	.0001655	.000076	15 W. HEATER
378.4898	19396.948	0.0000	.0000251	.000011	15 W. HEATER
402.5013	19329.890	0.0000	.0000060	.000003	15 W. HEATER
426.6449	19252.735	0.0000	.0000022	.000001	15 W. HEATER
450.9405	19165.579	0.0000	.0000011	.000000	15 W. HEATER
475.4078	19068.526	0.0000	.0000005	.000000	15 W. HEATER

REVOLUTION 6

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	17213.601	0.0000	.0000012	.000001	15 W. HEATER
25.5878	17287.627	0.0000	.0000024	.000001	15 W. HEATER
51.0390	17354.105	0.0000	.0000058	.000003	15 W. HEATER
76.3691	17412.954	0.0000	.0000198	.000009	15 W. HEATER
101.5936	17464.103	0.0000	.0000986	.000043	15 W. HEATER
126.7276	17507.488	0.0000	.0005117	.000222	15 W. HEATER
151.7862	17543.057	0.0000	.0023777	.001034	15 W. HEATER
176.7827	17570.767	0.0000	.0083279	.003740	15 W. HEATER
201.7331	17590.584	0.0000	.0129908	.009099	15 W. HEATER
226.6394	17602.484	0.0000	.0168668	.015336	15 W. HEATER
250.1777	17606.453	0.0000	.0183866	.018224	15 W. HEATER
273.7160	17602.484	0.0000	.0168668	.015336	15 W. HEATER
298.6223	17590.584	0.0000	.0129908	.009099	15 W. HEATER
323.5717	17570.767	0.0000	.0083279	.003740	15 W. HEATER
348.5692	17543.057	0.0000	.0023777	.001034	15 W. HEATER
373.6278	17507.488	0.0000	.0005117	.000222	15 W. HEATER
398.7618	17464.103	0.0000	.0000986	.000043	15 W. HEATER
423.9863	17412.954	0.0000	.0000198	.000009	15 W. HEATER
449.3164	17354.105	0.0000	.0000058	.000003	15 W. HEATER
474.7676	17287.627	0.0000	.0000024	.000001	15 W. HEATER
500.3554	17213.601	0.0000	.0000012	.000001	15 W. HEATER

REVOLUTION 7

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	14421.736	0.0000	.0000001	.000000	15 W. HEATER
277.6590	15002.115	0.0000	.0000149	.000006	15 W. HEATER
304.8351	15040.096	0.0000	.0000456	.000018	15 W. HEATER
331.9371	15074.205	0.0000	.0001472	.000059	15 W. HEATER
358.9731	15104.399	0.0000	.0004690	.000189	15 W. HEATER
385.9514	15130.642	0.0000	.0014387	.000581	15 W. HEATER
412.8802	15152.902	0.0000	.0039710	.001605	15 W. HEATER
439.7673	15171.152	0.0000	.0082149	.003720	15 W. HEATER
466.6206	15185.369	0.0000	.0113024	.007041	15 W. HEATER
493.4468	15195.537	0.0000	.0141564	.011044	15 W. HEATER
520.2468	15201.643	0.0000	.0161671	.014404	15 W. HEATER
545.8274	15203.679	0.0000	.0168990	.015737	15 W. HEATER
571.4080	15201.643	0.0000	.0161671	.014404	15 W. HEATER
598.2080	15195.537	0.0000	.0141564	.011044	15 W. HEATER
625.0342	15185.369	0.0000	.0113024	.007041	15 W. HEATER
651.8875	15171.152	0.0000	.0082149	.003720	15 W. HEATER
678.7746	15152.902	0.0000	.0039710	.001605	15 W. HEATER
705.7033	15130.642	0.0000	.0014387	.000581	15 W. HEATER
732.6817	15104.399	0.0000	.0004690	.000189	15 W. HEATER
759.7177	15074.205	0.0000	.0001472	.000059	15 W. HEATER
786.8197	15040.096	0.0000	.0000456	.000018	15 W. HEATER
813.9958	15002.115	0.0000	.0000149	.000006	15 W. HEATER
1091.6548	14421.736	0.0000	.0000001	.000000	15 W. HEATER

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APPENDIX F

Trajectory and Reentry Environment
Output From Computer Code HRS017 (Version 3)
For a Perigee Altitude of 270,000 Feet
(Fifteen Revolutions)

Part 1 - Trajectory and Reentry
Environment Tabulated Data (Page 73)

Part 2 - Listing of Punched Card
CMA Input (Page 88)

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Part 1

Trajectory and Reentry Environment Tabulated Data

REVOLUTION 1

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
0.0	-180.00	1246374303.00	.08107	0.00	0.000	604.97	0.00000
385012.2	-160.00	436129763.02	74.58157	0.00	0.000	6309.33	0.00000
422283.0	-140.00	139956849.17	67.36903	0.00	0.000	12384.48	0.00000
428401.9	-120.00	59806338.69	58.34072	0.00	0.000	18093.40	0.00000
430262.8	-100.00	29183447.31	48.85817	0.00	0.000	23255.30	0.00000
431077.3	-80.00	14773251.19	39.19603	0.00	0.000	27711.81	0.00000
431531.9	-60.00	7178550.24	29.44686	0.00	0.000	31327.01	0.00000
431835.9	-40.00	3024819.92	19.65138	0.00	0.000	33990.85	0.00000
432071.9	-20.00	917641.13	9.83136	.88	.003	35622.26	.00013
432093.5	-18.00	792595.31	8.84859	1.34	.007	35726.43	.00030
432114.8	-16.00	681513.67	7.86574	2.03	.016	35819.71	.00067
432136.0	-14.00	584123.69	6.88281	3.09	.036	35902.09	.00156
432156.9	-12.00	500188.09	5.89984	5.04	.095	35973.54	.00409
432177.7	-10.00	429503.65	4.91683	10.48	.407	36034.03	.01757
432198.4	-8.00	371900.10	3.93382	30.49	3.433	36083.55	.14793
432218.9	-6.00	327239.29	2.95089	91.07	30.513	36122.08	1.31332
432239.3	-4.00	295414.49	1.96820	223.47	183.265	36149.61	7.88201
432259.3	-2.00	276349.85	.98661	384.10	540.601	36166.13	23.23999
432274.3	0.00	270000.00	.08103	459.27	772.531	36171.63	33.20540
432289.3	2.00	276349.85	.98661	384.10	540.601	36166.13	23.23999
432309.3	4.00	295414.49	1.96820	223.47	183.265	36149.61	7.88201
432329.7	6.00	327239.29	2.95089	91.07	30.513	36122.08	1.31332
432350.2	8.00	371900.10	3.93382	30.49	3.433	36083.55	.14793
432370.9	10.00	429503.65	4.91683	10.48	.407	36034.03	.01757
432391.7	12.00	500188.09	5.89984	5.04	.095	35973.54	.00409
432412.6	14.00	584123.69	6.88281	3.09	.036	35902.09	.00156
432433.8	16.00	681513.67	7.86574	2.03	.016	35819.71	.00067
432455.1	18.00	792595.31	8.84859	1.34	.007	35726.43	.00030
432476.7	20.00	917641.13	9.83136	.88	.003	35622.26	.00013
432712.6	40.00	3024819.92	19.65138	0.00	0.000	33990.85	0.00000
433016.7	60.00	7178550.24	29.44686	0.00	0.000	31327.01	0.00000
433471.2	80.00	14773251.19	39.19603	0.00	0.000	27711.81	0.00000
434285.8	100.00	29183447.31	48.85817	0.00	0.000	23255.30	0.00000
436146.7	120.00	59806338.69	58.34072	0.00	0.000	18093.40	0.00000
442265.6	140.00	139956849.17	67.36903	0.00	0.000	12384.48	0.00000
479536.4	160.00	436129763.02	74.58157	0.00	0.000	6309.33	0.00000
864548.6	180.00	1246374303.00	.08103	0.00	0.000	604.97	0.00000

REVOLUTION 2

TIME	THETA	ALTITUDE	GAMMA	GCONT	GFM	VELOCITY	P T
864548.6	-180.00	621735300.14	.08103	0.00	0.000	1183.56	0.00000
990568.4	-160.00	320168314.40	69.40553	0.00	0.000	6339.59	0.00000
1015367.5	-140.00	124150077.55	64.82231	0.00	0.000	12323.98	0.00000
1020467.1	-120.00	56223665.26	56.73057	0.00	0.000	17972.20	0.00000
1022419.2	-100.00	28078290.13	47.74918	0.00	0.000	23084.82	0.00000
1023213.1	-80.00	14373924.64	38.41485	0.00	0.000	27500.71	0.00000
1023663.8	-60.00	7027918.10	28.90923	0.00	0.000	31083.72	0.00000
1023968.0	-40.00	2973466.58	19.31241	0.00	0.000	33724.13	0.00000
1024205.3	-20.00	906612.37	9.66714	.89	.003	35341.30	.00014
1024227.0	-18.00	783746.05	8.70108	1.35	.007	35444.56	.00031
1024248.5	-16.00	674580.43	7.73485	2.03	.016	35537.03	.00070
1024269.8	-14.00	578854.74	6.76846	3.09	.037	35618.69	.00161
1024291.0	-12.00	496341.85	5.80195	5.06	.098	35689.52	.00427
1024311.9	-10.00	426847.13	4.83535	10.62	.430	35749.48	.01869
1024332.8	-8.00	370207.46	3.86871	30.85	3.607	35798.57	.15663
1024353.5	-6.00	326290.46	2.90210	91.11	31.347	35836.76	1.35997
1024374.1	-4.00	294993.83	1.93571	220.63	183.383	35864.05	7.94988
1024394.5	-2.00	276244.84	.97040	375.73	531.012	35880.43	23.00953
1024411.0	0.00	270000.00	.08103	447.94	754.367	35885.89	32.68285
1024427.6	2.00	276244.84	.97040	375.73	531.012	35880.43	23.00953
1024448.0	4.00	294993.83	1.93571	220.63	183.383	35864.05	7.94988
1024468.6	6.00	326290.46	2.90210	91.11	31.347	35836.76	1.35997
1024489.3	8.00	370207.46	3.86871	30.85	3.607	35798.57	.15663
1024510.1	10.00	426847.13	4.83535	10.62	.430	35749.48	.01869
1024531.1	12.00	496341.85	5.80195	5.06	.098	35689.52	.00427
1024552.2	14.00	578854.74	6.76846	3.09	.037	35618.69	.00161
1024573.5	16.00	674580.43	7.73485	2.03	.016	35537.03	.00070
1024595.0	18.00	783746.05	8.70108	1.35	.007	35444.56	.00031
1024616.8	20.00	906612.37	9.66714	.89	.003	35341.30	.00014
1024854.0	40.00	2973466.58	19.31241	0.00	0.000	33724.13	0.00000
1025158.3	60.00	7027918.10	28.90923	0.00	0.000	31083.72	0.00000
1025608.9	80.00	14373924.64	38.41485	0.00	0.000	27500.71	0.00000
1026402.9	100.00	28078290.13	47.74918	0.00	0.000	23084.82	0.00000
1028155.0	120.00	56223665.26	56.73057	0.00	0.000	17972.20	0.00000
1033454.6	140.00	124150077.55	64.82231	0.00	0.000	12323.98	0.00000
1058253.6	160.00	320168314.40	69.40553	0.00	0.000	6339.59	0.00000
1184273.5	180.00	621735300.14	.08103	0.00	0.000	1183.56	0.00000

REVOLUTION 3

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
1184273.5	-180.00	390639672.32	.08103	0.00	0.000	1831.78	0.00000
1243047.4	-160.00	243686548.08	63.71842	0.00	0.000	6434.45	0.00000
1260240.0	-140.00	109546614.84	61.94639	0.00	0.000	12286.31	0.00000
1264804.5	-120.00	52511065.90	54.90269	0.00	0.000	17854.85	0.00000
1266445.0	-100.00	26877229.88	46.48790	0.00	0.000	22906.00	0.00000
1267216.6	-80.00	13929757.18	37.52565	0.00	0.000	27272.46	0.00000
1267662.8	-60.00	6858272.25	28.29700	0.00	0.000	30816.81	0.00000
1267967.3	-40.00	2915232.10	18.92631	0.00	0.000	33429.30	0.00000
1268206.0	-20.00	894061.87	9.48006	.90	.003	35029.55	.00015
1268227.9	-18.00	773673.68	8.53304	1.35	.007	35131.73	.00033
1268249.6	-16.00	666687.44	7.58574	2.04	.017	35223.25	.00073
1268271.1	-14.00	572855.45	6.63819	3.10	.038	35304.06	.00168
1268292.4	-12.00	491961.87	5.69044	5.09	.102	35374.14	.00448
1268313.5	-10.00	423821.61	4.74254	10.80	.457	35433.48	.02006
1268334.6	-8.00	368279.52	3.79453	31.39	3.845	35482.06	.16848
1268355.5	-6.00	325209.65	2.84651	91.19	32.340	35519.86	1.41555
1268376.3	-4.00	294514.63	1.89869	217.55	183.601	35546.86	8.03034
1268397.0	-2.00	276125.21	.95195	366.59	520.531	35563.07	22.75664
1268414.4	0.00	270000.00	.08103	435.58	734.526	35568.47	32.10724
1268431.8	2.00	276125.21	.95195	366.59	520.531	35563.07	22.75664
1268452.5	4.00	294514.63	1.89869	217.55	183.601	35546.86	8.03034
1268473.3	6.00	325209.65	2.84651	91.19	32.340	35519.86	1.41555
1268494.2	8.00	368279.52	3.79453	31.39	3.845	35482.06	.16848
1268515.2	10.00	423821.61	4.74254	10.80	.457	35433.48	.02006
1268536.4	12.00	491961.87	5.69044	5.09	.102	35374.14	.00448
1268557.7	14.00	572855.45	6.63819	3.10	.038	35304.06	.00168
1268579.2	16.00	666687.44	7.58574	2.04	.017	35223.25	.00073
1268600.9	18.00	773673.68	8.53304	1.35	.007	35131.73	.00033
1268622.8	20.00	894061.87	9.48006	.90	.003	35029.55	.00015
1268861.5	40.00	2915232.10	18.92631	0.00	0.000	33429.30	0.00000
1269165.9	60.00	6858272.25	28.29700	0.00	0.000	30816.81	0.00000
1269612.2	80.00	13929757.18	37.52565	0.00	0.000	27272.46	0.00000
1270383.8	100.00	26877229.88	46.48790	0.00	0.000	22906.00	0.00000
1272024.3	120.00	52511065.90	54.90269	0.00	0.000	17854.85	0.00000
1276588.7	140.00	109546614.84	61.94639	0.00	0.000	12286.31	0.00000
1293781.4	160.00	243686548.08	63.71842	0.00	0.000	6434.45	0.00000
1352555.3	180.00	390639672.32	.08103	0.00	0.000	1831.78	0.00000

REVOLUTION 4

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
1352555.3	-180.00	268911006.96	.08103	0.00	0.000	2574.77	0.00000
1384296.6	-160.00	188770020.50	57.47431	0.00	0.000	6618.80	0.00000
1396458.8	-140.00	95820902.84	58.63929	0.00	0.000	12282.57	0.00000
1400354.3	-120.00	48603190.42	52.78114	0.00	0.000	17744.76	0.00000
1401878.9	-100.00	25546898.01	45.01916	0.00	0.000	22717.18	0.00000
1402625.7	-80.00	13424931.91	36.48863	0.00	0.000	27021.77	0.00000
1403067.0	-60.00	6662720.49	27.58243	0.00	0.000	30518.36	0.00000
1403371.5	-40.00	2847574.57	18.47549	0.00	0.000	33096.60	0.00000
1403611.9	-20.00	879421.58	9.26158	.92	.004	34676.19	.00016
1403634.0	-18.00	761921.34	8.33679	1.37	.008	34777.06	.00035
1403655.9	-16.00	657476.01	7.41159	2.05	.017	34867.39	.00077
1403677.6	-14.00	565852.74	6.48605	3.10	.040	34947.17	.00176
1403699.1	-12.00	486848.46	5.56021	5.14	.108	35016.36	.00478
1403720.5	-10.00	420288.99	4.63413	11.01	.492	35074.94	.02179
1403741.7	-8.00	366028.20	3.70789	32.07	4.150	35122.89	.18372
1403762.9	-6.00	323947.45	2.78159	91.35	33.559	35160.20	1.48393
1403783.9	-4.00	293954.96	1.85545	214.14	183.963	35186.86	8.12852
1403804.8	-2.00	275985.49	.93040	356.41	508.850	35202.86	22.47360
1403822.9	0.00	270000.00	.08103	421.83	712.431	35208.20	31.46010
1403841.1	2.00	275985.49	.93040	356.41	508.850	35202.86	22.47360
1403862.0	4.00	293954.96	1.85545	214.14	183.963	35186.86	8.12852
1403883.0	6.00	323947.45	2.78159	91.35	33.559	35160.20	1.48393
1403904.2	8.00	366028.20	3.70789	32.07	4.150	35122.89	.18372
1403925.4	10.00	420288.99	4.63413	11.01	.492	35074.94	.02179
1403946.8	12.00	486848.46	5.56021	5.14	.108	35016.36	.00478
1403968.3	14.00	565852.74	6.48605	3.10	.040	34947.17	.00176
1403990.0	16.00	657476.01	7.41159	2.05	.017	34867.39	.00077
1404011.9	18.00	761921.34	8.33679	1.37	.008	34777.06	.00035
1404034.0	20.00	879421.58	9.26158	.92	.004	34676.19	.00016
1404274.4	40.00	2847574.57	18.47549	0.00	0.000	33096.60	0.00000
1404578.9	60.00	6662720.49	27.58243	0.00	0.000	30518.36	0.00000
1405020.2	80.00	13424931.91	36.48863	0.00	0.000	27021.77	0.00000
1405767.0	100.00	25546898.01	45.01916	0.00	0.000	22717.18	0.00000
1407291.5	120.00	48603190.42	52.78114	0.00	0.000	17744.76	0.00000
1411187.1	140.00	95820902.84	58.63929	0.00	0.000	12282.57	0.00000
1423349.3	160.00	188770020.50	57.47431	0.00	0.000	6618.80	0.00000
1455090.6	180.00	268911006.96	.08103	0.00	0.000	2574.77	0.00000

REVOLUTION 5

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
1455090.6	-180.00	194640438.06	.08103	0.00	0.000	3421.93	0.00000
1473785.8	-160.00	147944758.15	50.85457	0.00	0.000	6919.40	0.00000
1482520.9	-140.00	83075932.02	54.88258	0.00	0.000	12329.68	0.00000
1485817.7	-120.00	44544789.57	50.33501	0.00	0.000	17651.55	0.00000
1487223.6	-100.00	24087650.39	43.31662	0.00	0.000	22523.36	0.00000
1487943.2	-80.00	12855002.40	35.28357	0.00	0.000	26750.47	0.00000
1488378.7	-60.00	6438368.33	26.75101	0.00	0.000	30187.95	0.00000
1488683.4	-40.00	2769244.09	17.95057	0.00	0.000	32724.13	0.00000
1488925.6	-20.00	862392.12	9.00710	.93	.004	34278.44	.00017
1488948.0	-18.00	748247.28	8.10819	1.38	.008	34377.71	.00038
1488970.1	-16.00	646755.68	7.20875	2.06	.018	34466.61	.00083
1488992.0	-14.00	557701.15	6.30883	3.12	.041	34545.12	.00186
1489013.8	-12.00	480895.02	5.40851	5.22	.115	34613.21	.00518
1489035.4	-10.00	416175.37	4.50786	11.35	.543	34670.86	.02435
1489056.9	-8.00	363406.28	3.60697	32.90	4.540	34718.05	.20331
1489078.3	-6.00	322477.32	2.70597	91.60	35.063	34754.78	1.56854
1489099.6	-4.00	293303.06	1.80509	210.40	184.528	34781.01	8.24862
1489120.8	-2.00	275822.74	.90530	345.19	495.953	34796.76	22.15966
1489139.4	0.00	270000.00	.08103	406.69	688.057	34802.01	30.73839
1489158.1	2.00	275822.74	.90530	345.19	495.953	34796.76	22.15966
1489179.3	4.00	293303.06	1.80509	210.40	184.528	34781.01	8.24862
1489200.6	6.00	322477.32	2.70597	91.60	35.063	34754.78	1.56854
1489222.0	8.00	363406.28	3.60697	32.90	4.540	34718.05	.20331
1489243.5	10.00	416175.37	4.50786	11.35	.543	34670.86	.02435
1489265.1	12.00	480895.02	5.40851	5.22	.115	34613.21	.00518
1489286.9	14.00	557701.15	6.30883	3.12	.041	34545.12	.00186
1489308.8	16.00	646755.68	7.20875	2.06	.018	34466.61	.00083
1489330.9	18.00	748247.28	8.10819	1.38	.008	34377.71	.00038
1489353.3	20.00	862392.12	9.00710	.93	.004	34278.44	.00017
1489595.5	40.00	2769244.09	17.95057	0.00	0.000	32724.13	0.00000
1489900.2	60.00	6438368.33	26.75101	0.00	0.000	30187.95	0.00000
1490335.7	80.00	12855002.40	35.28357	0.00	0.000	26750.47	0.00000
1491055.3	100.00	24087650.39	43.31662	0.00	0.000	22523.36	0.00000
1492461.2	120.00	44544789.57	50.33501	0.00	0.000	17651.55	0.00000
1495758.0	140.00	83075932.02	54.88258	0.00	0.000	12329.68	0.00000
1504493.1	160.00	147944758.15	50.85457	0.00	0.000	6919.40	0.00000
1523188.3	180.00	194640438.06	.08103	0.00	0.000	3421.93	0.00000

REVOLUTION 6

TIME	THETA	ALTITUDE	GAMMA	SCONT	QFM	VELOCITY	P T
1523188.3	-180.00	145206978.06	.08103	0.00	0.000	4382.16	0.00000
1534860.1	-160.00	116807484.39	44.11211	0.00	0.000	7361.94	0.00000
1541210.9	-140.00	71375437.29	50.68289	0.00	0.000	12448.37	0.00000
1543979.8	-120.00	40388970.59	47.53908	0.00	0.000	17588.09	0.00000
1545266.1	-100.00	22504133.19	41.35441	0.00	0.000	22331.92	0.00000
1545956.3	-80.00	12216488.74	33.88957	0.00	0.000	26462.09	0.00000
1546385.3	-60.00	6182389.01	25.78732	0.00	0.000	29826.43	0.00000
1546690.0	-40.00	2678932.89	17.34148	0.00	0.000	32310.91	0.00000
1546934.4	-20.00	842651.06	8.71165	.95	.004	33834.28	.00019
1546957.0	-18.00	732390.74	7.84279	1.41	.009	33931.59	.00041
1546979.4	-16.00	634320.71	6.97323	2.08	.019	34018.74	.00089
1547001.6	-14.00	548243.37	6.10306	3.15	.044	34095.70	.00201
1547023.6	-12.00	473986.12	5.23236	5.34	.126	34162.45	.00574
1547045.5	-10.00	411400.68	4.36124	11.78	.611	34218.97	.02775
1547067.3	-8.00	360362.54	3.48979	33.94	5.043	34265.24	.22884
1547088.9	-6.00	320770.47	2.61816	91.99	36.931	34301.24	1.67396
1547110.5	-4.00	292546.12	1.74661	206.36	185.369	34326.96	8.39582
1547132.0	-2.00	275633.75	.87616	332.96	481.864	34342.39	21.81499
1547151.3	0.00	270000.00	.08103	390.19	661.452	34347.54	29.94083
1547170.5	2.00	275633.75	.87616	332.96	481.864	34342.39	21.81499
1547192.0	4.00	292546.12	1.74661	206.36	185.369	34326.96	8.39582
1547213.6	6.00	320770.47	2.61816	91.99	36.931	34301.24	1.67396
1547235.3	8.00	360362.54	3.48979	33.94	5.043	34265.24	.22884
1547257.0	10.00	411400.68	4.36124	11.78	.611	34218.97	.02775
1547278.9	12.00	473986.12	5.23236	5.34	.126	34162.45	.00574
1547300.9	14.00	548243.37	6.10306	3.15	.044	34095.70	.00201
1547323.1	16.00	634320.71	6.97323	2.08	.019	34018.74	.00089
1547345.5	18.00	732390.74	7.84279	1.41	.009	33931.59	.00041
1547368.1	20.00	842651.06	8.71165	.95	.004	33834.28	.00019
1547412.5	40.00	2678932.89	17.34148	0.00	0.000	32310.91	0.00000
1547917.2	60.00	6182389.01	25.78732	0.00	0.000	29826.43	0.00000
1548346.2	80.00	12216488.74	33.88957	0.00	0.000	26462.09	0.00000
1549036.4	100.00	22504133.19	41.35441	0.00	0.000	22331.92	0.00000
1550322.7	120.00	40388970.59	47.53908	0.00	0.000	17588.09	0.00000
1553091.7	140.00	71375437.29	50.68289	0.00	0.000	12448.37	0.00000
1559442.4	160.00	116807484.39	44.11211	0.00	0.000	7361.94	0.00000
1571114.2	180.00	145206978.06	.08103	0.00	0.000	4382.16	0.00000

REVOLUTION 7

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
1571114.2	-180.00	110299947.60	.08103	0.00	0.000	5466.20	0.00000
1578710.3	-160.00	92539058.46	37.50942	0.00	0.000	7969.50	0.00000
1583372.8	-140.00	60720437.88	46.06959	0.00	0.000	12663.20	0.00000
1585682.3	-120.00	36183894.83	44.37043	0.00	0.000	17570.72	0.00000
1586849.9	-100.00	20801374.53	39.10429	0.00	0.000	22152.59	0.00000
1587508.4	-80.00	11505411.05	32.28170	0.00	0.000	26161.52	0.00000
1587930.0	-60.00	5891391.27	24.67246	0.00	0.000	29435.22	0.00000
1588234.7	-40.00	2575031.58	16.63571	0.00	0.000	31856.01	0.00000
1588481.5	-20.00	819796.42	8.36902	.98	.005	33341.40	.00022
1588504.4	-18.00	714026.38	7.53499	1.44	.010	33436.31	.00046
1588527.0	-16.00	619914.24	6.70008	2.11	.021	33521.31	.00098
1588549.5	-14.00	537282.88	5.86440	3.19	.048	33596.38	.00220
1588571.9	-12.00	465977.45	5.02806	5.51	.141	33661.49	.00651
1588594.1	-10.00	405864.77	4.19117	12.44	.715	33716.61	.03296
1588616.2	-8.00	356832.93	3.35387	35.14	5.679	33761.74	.26152
1588638.2	-6.00	318790.89	2.51631	92.69	39.366	33796.86	1.81096
1588660.1	-4.00	291668.16	1.67879	202.03	186.585	33821.95	8.57707
1588681.9	-2.00	275414.54	.84237	319.73	466.610	33837.01	21.43992
1588701.7	0.00	270000.00	.08103	372.39	632.675	33842.03	29.06600
1588721.5	2.00	275414.54	.84237	319.73	466.610	33837.01	21.43992
1588743.3	4.00	291668.16	1.67879	202.03	186.585	33821.95	8.57707
1588765.2	6.00	318790.89	2.51631	92.69	39.366	33796.86	1.81096
1588787.2	8.00	356832.93	3.35387	35.14	5.679	33761.74	.26152
1588809.3	10.00	405864.77	4.19117	12.44	.715	33716.61	.03296
1588831.5	12.00	465977.45	5.02806	5.51	.141	33661.49	.00651
1588853.8	14.00	537282.88	5.86440	3.19	.048	33596.38	.00220
1588876.3	16.00	619914.24	6.70008	2.11	.021	33521.31	.00098
1588899.0	18.00	714026.38	7.53499	1.44	.010	33436.31	.00046
1588921.9	20.00	819796.42	8.36902	.98	.005	33341.40	.00022
1589168.6	40.00	2575031.58	16.63571	0.00	0.000	31856.01	0.00000
1589473.4	60.00	5891391.27	24.67246	0.00	0.000	29435.22	0.00000
1589894.9	80.00	11505411.05	32.28170	0.00	0.000	26161.52	0.00000
1590553.5	100.00	20801374.53	39.10429	0.00	0.000	22152.59	0.00000
1591721.0	120.00	36183894.83	44.37043	0.00	0.000	17570.72	0.00000
1594030.5	140.00	60720437.88	46.06959	0.00	0.000	12663.20	0.00000
1598693.1	160.00	92539058.46	37.50942	0.00	0.000	7969.50	0.00000
1606289.2	180.00	110299947.60	.08103	0.00	0.000	5466.20	0.00000

REVOLUTION 8

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
1606289.2	-180.00	84551388.52	.08103	0.00	0.000	6688.01	0.00000
1611385.3	-160.00	73258558.13	31.26587	0.00	0.000	8762.50	0.00000
1614833.8	-140.00	51065239.97	41.09664	0.00	0.000	13002.74	0.00000
1616747.0	-120.00	31969253.47	40.80926	0.00	0.000	17620.08	0.00000
1617797.9	-100.00	18983455.91	36.53232	0.00	0.000	21998.08	0.00000
1618422.8	-80.00	10716656.91	30.42905	0.00	0.000	25855.27	0.00000
1618836.0	-60.00	5561054.88	23.38232	0.00	0.000	29016.25	0.00000
1619140.6	-40.00	2455460.33	15.81703	0.00	0.000	31358.24	0.00000
1619390.0	-20.00	793303.76	7.97109	1.02	.005	32796.78	.00025
1619413.2	-18.00	692729.46	7.17749	1.48	.011	32888.73	.00052
1619436.2	-16.00	603200.74	6.38281	2.16	.023	32971.08	.00110
1619459.1	-14.00	524562.87	5.58718	3.27	.053	33043.81	.00248
1619481.8	-12.00	456680.38	4.79073	5.76	.163	33106.90	.00764
1619504.3	-10.00	399436.67	3.99361	13.33	.867	33160.31	.04066
1619526.8	-8.00	352733.65	3.19597	36.65	6.525	33204.04	.30551
1619549.1	-6.00	316491.46	2.39799	93.74	42.541	33238.07	1.98989
1619571.4	-4.00	290648.21	1.59999	197.45	188.309	33262.38	8.80196
1619593.6	-2.00	275159.86	.80313	305.53	450.215	33276.97	21.03475
1619613.9	0.00	270000.00	.08103	353.32	601.774	33281.84	28.11170
1619634.3	2.00	275159.86	.80313	305.53	450.215	33276.97	21.03475
1619656.5	4.00	290648.21	1.59999	197.45	188.309	33262.38	8.80196
1619678.7	6.00	316491.46	2.39799	93.74	42.541	33238.07	1.98989
1619701.1	8.00	352733.65	3.19597	36.65	6.525	33204.04	.30551
1619723.6	10.00	399436.67	3.99361	13.33	.867	33160.31	.04066
1619746.1	12.00	456680.38	4.79073	5.76	.163	33106.90	.00764
1619768.8	14.00	524562.87	5.58718	3.27	.053	33043.81	.00248
1619791.7	16.00	603200.74	6.38281	2.16	.023	32971.08	.00110
1619814.7	18.00	692729.46	7.17749	1.48	.011	32888.73	.00052
1619837.9	20.00	793303.76	7.97109	1.02	.005	32796.78	.00025
1620087.3	40.00	2455460.33	15.81703	0.00	0.000	31358.24	0.00000
1620391.9	60.00	5561054.88	23.38232	0.00	0.000	29016.25	0.00000
1620805.1	80.00	10716656.91	30.42905	0.00	0.000	25855.27	0.00000
1621430.0	100.00	18983455.91	36.53232	0.00	0.000	21998.08	0.00000
1622480.9	120.00	31969253.47	40.80926	0.00	0.000	17620.08	0.00000
1624394.1	140.00	51065239.97	41.09664	0.00	0.000	13002.74	0.00000
1627842.5	160.00	73258558.13	31.26587	0.00	0.000	8762.50	0.00000
1632938.7	180.00	84551388.52	.08103	0.00	0.000	6688.01	0.00000

REVOLUTION 9

TIME	THETA	ALTITUDE	GAMMA	CCONT	QFM	VELOCITY	P T
1632938.7	-180.00	64898812.75	.08103	0.00	0.000	8066.39	0.00000
1636434.1	-160.00	57672274.10	25.52597	0.00	0.000	9760.78	0.00000
1638997.2	-140.00	42334871.51	35.84192	0.00	0.000	13499.92	0.00000
1640570.8	-120.00	27774946.60	36.84093	0.00	0.000	17762.36	0.00000
1641508.3	-100.00	17052531.94	33.59977	0.00	0.000	21885.18	0.00000
1642097.6	-80.00	9843348.15	28.29249	0.00	0.000	25552.13	0.00000
1642501.3	-60.00	5185694.23	21.88529	0.00	0.000	28572.21	0.00000
1642805.6	-40.00	2317449.14	14.86381	0.00	0.000	30815.98	0.00000
1643058.0	-20.00	762468.11	7.50697	1.07	.006	32196.27	.00030
1643081.6	-18.00	667928.73	6.76047	1.54	.013	32284.54	.00061
1643105.0	-16.00	583728.71	6.01248	2.24	.026	32363.60	.00127
1643128.2	-14.00	509737.56	5.26374	3.40	.061	32433.44	.00291
1643151.3	-12.00	445840.84	4.51383	6.14	.197	32494.01	.00942
1643174.3	-10.00	391939.92	3.76309	14.62	1.110	32545.30	.05302
1643197.2	-8.00	347951.75	3.01172	38.69	7.736	32587.29	.36908
1643219.9	-6.00	313808.62	2.25992	95.18	46.664	32619.96	2.22413
1643242.6	-4.00	289458.05	1.50806	192.55	190.524	32643.31	9.07436
1643265.3	-2.00	274862.65	.75736	290.38	432.691	32657.32	20.59958
1643286.2	0.00	270000.00	.08103	333.00	568.774	32661.99	27.07434
1643307.1	2.00	274862.65	.75736	290.38	432.691	32657.32	20.59958
1643329.7	4.00	289458.05	1.50806	192.55	190.524	32643.31	9.07436
1643352.4	6.00	313808.62	2.25992	95.18	46.664	32619.96	2.22413
1643375.2	8.00	347951.75	3.01172	38.69	7.736	32587.29	.36908
1643398.0	10.00	391939.92	3.76309	14.62	1.110	32545.30	.05302
1643421.0	12.00	445840.84	4.51383	6.14	.197	32494.01	.00942
1643444.1	14.00	509737.56	5.26374	3.40	.061	32433.44	.00291
1643467.3	16.00	583728.71	6.01248	2.24	.026	32363.60	.00127
1643490.8	18.00	667928.73	6.76047	1.54	.013	32284.54	.00061
1643514.4	20.00	762468.11	7.50697	1.07	.006	32196.27	.00030
1643766.8	40.00	2317449.14	14.86381	0.00	0.000	30815.98	0.00000
1644071.1	60.00	5185694.23	21.88529	0.00	0.000	28572.21	0.00000
1644474.8	80.00	9843348.15	28.29249	0.00	0.000	25552.13	0.00000
1645064.0	100.00	17052531.94	33.59977	0.00	0.000	21885.18	0.00000
1646001.6	120.00	27774946.60	36.84093	0.00	0.000	17762.36	0.00000
1647575.1	140.00	42334871.51	35.84192	0.00	0.000	13499.92	0.00000
1650138.3	160.00	57672274.10	25.52597	0.00	0.000	9760.78	0.00000
1653633.6	180.00	64898812.75	.08103	0.00	0.000	8066.39	0.00000

REVOLUTION 10

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
1653633.6	-180.00	49470873.61	.08103	0.00	0.000	9627.48	0.00000
1656067.8	-160.00	44865811.68	20.35463	0.00	0.000	10987.42	0.00000
1657977.1	-140.00	34437684.69	30.40126	0.00	0.000	14193.21	0.00000
1659261.0	-120.00	23620163.17	32.45791	0.00	0.000	18031.17	0.00000
1660089.2	-100.00	15007573.60	30.26084	0.00	0.000	21836.53	0.00000
1660640.7	-80.00	8875887.21	25.82136	0.00	0.000	25264.24	0.00000
1661033.7	-60.00	4757574.31	20.13873	0.00	0.000	28106.81	0.00000
1661337.5	-40.00	2157186.08	13.74627	.04	.000	30226.95	.00000
1661593.2	-20.00	726309.93	6.96147	1.14	.008	31533.99	.00037
1661617.3	-18.00	638829.90	6.27027	1.62	.015	31617.64	.00074
1661641.2	-16.00	560870.01	5.57754	2.34	.031	31692.57	.00152
1661664.9	-14.00	492325.68	4.88346	3.61	.073	31758.76	.00359
1661688.4	-12.00	433105.02	4.18822	6.75	.255	31816.17	.01244
1661711.8	-10.00	383128.71	3.49201	16.28	1.474	31864.79	.07194
1661735.2	-8.00	342329.85	2.79503	41.55	9.569	31904.60	.46631
1661758.4	-6.00	310653.84	2.09754	97.17	52.163	31935.57	2.53952
1661781.6	-4.00	288058.31	1.39994	187.30	193.371	31957.71	9.40754
1661804.8	-2.00	274513.07	.70356	274.26	414.027	31970.99	20.13417
1661826.3	0.00	270000.00	.08103	311.44	533.655	31975.42	25.94807
1661847.8	2.00	274513.07	.70356	274.26	414.027	31970.99	20.13417
1661870.9	4.00	288058.31	1.39994	187.30	193.371	31957.71	9.40754
1661894.1	6.00	310653.84	2.09754	97.17	52.163	31935.57	2.53952
1661917.3	8.00	342329.85	2.79503	41.55	9.569	31904.60	.46631
1661940.7	10.00	383128.71	3.49201	16.28	1.474	31864.79	.07194
1661964.1	12.00	433105.02	4.18822	6.75	.255	31816.17	.01244
1661987.7	14.00	492325.68	4.88346	3.61	.073	31758.76	.00359
1662011.4	16.00	560870.01	5.57754	2.34	.031	31692.57	.00152
1662035.2	18.00	638829.90	6.27027	1.62	.015	31617.64	.00074
1662059.3	20.00	726309.93	6.96147	1.14	.008	31533.99	.00037
1662315.0	40.00	2157186.08	13.74627	.04	.000	30226.95	.00000
1662618.8	60.00	4757574.31	20.13873	0.00	0.000	28106.81	0.00000
1663011.8	80.00	8875887.21	25.82136	0.00	0.000	25264.24	0.00000
1663563.3	100.00	15007573.60	30.26084	0.00	0.000	21836.53	0.00000
1664391.6	120.00	23620163.17	32.45791	0.00	0.000	18031.17	0.00000
1665675.4	140.00	34437684.69	30.40126	0.00	0.000	14193.21	0.00000
1667584.7	160.00	44865811.68	20.35463	0.00	0.000	10987.42	0.00000
1670018.9	180.00	49470873.61	.08103	0.00	0.000	9627.48	0.00000

REVOLUTION 11

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
1670018.9	-180.00	37058129.69	.08103	0.00	0.000	11409.27	0.00000
1671729.2	-160.00	34174410.48	15.75135	0.00	0.000	12474.81	0.00000
1673149.7	-140.00	27272398.56	24.87644	0.00	0.000	15129.45	0.00000
1674187.0	-120.00	19511856.10	27.66047	0.00	0.000	18470.80	0.00000
1674910.3	-100.00	12842269.00	26.46027	0.00	0.000	21883.56	0.00000
1675422.1	-80.00	7800268.39	22.94786	0.00	0.000	25008.98	0.00000
1675802.9	-60.00	4265702.36	18.08293	0.00	0.000	27625.51	0.00000
1676105.8	-40.00	1969193.20	12.42171	.05	.000	29587.82	.00000
1676365.3	-20.00	683407.22	6.31259	1.25	.010	30801.27	.00049
1676389.9	-18.00	604279.13	5.68704	1.75	.019	30879.02	.00095
1676414.2	-16.00	533711.57	5.05972	2.52	.039	30948.67	.00195
1676438.5	-14.00	471627.26	4.43084	4.02	.099	31010.20	.00494
1676462.5	-12.00	417958.10	3.80062	7.80	.368	31063.58	.01843
1676486.5	-10.00	372645.20	3.16928	18.81	2.130	31108.79	.10647
1676510.4	-8.00	335638.77	2.53705	45.73	12.550	31145.80	.62649
1676534.2	-6.00	306898.12	1.90422	100.38	60.271	31174.61	3.00586
1676558.0	-4.00	286391.65	1.27124	181.89	197.481	31195.19	9.84237
1676581.7	-2.00	274096.78	.63958	257.14	394.176	31207.54	19.63776
1676603.9	0.00	270000.00	.08103	288.61	496.320	31211.66	24.72329
1676626.0	2.00	274096.78	.63958	257.14	394.176	31207.54	19.63776
1676649.7	4.00	286391.65	1.27124	181.89	197.481	31195.19	9.84237
1676673.5	6.00	306898.12	1.90422	100.38	60.271	31174.61	3.00586
1676697.3	8.00	335638.77	2.53705	45.73	12.550	31145.80	.62649
1676721.2	10.00	372645.20	3.16928	18.81	2.130	31108.79	.10647
1676745.2	12.00	417958.10	3.80062	7.80	.368	31063.58	.01843
1676769.3	14.00	471627.26	4.43084	4.02	.099	31010.20	.00494
1676793.5	16.00	533711.57	5.05972	2.52	.039	30948.67	.00195
1676817.9	18.00	604279.13	5.68704	1.75	.019	30879.02	.00095
1676842.4	20.00	683407.22	6.31259	1.25	.010	30801.27	.00049
1677101.9	40.00	1969193.20	12.42171	.05	.000	29587.82	.00000
1677404.9	60.00	4265702.36	18.08293	0.00	0.000	27625.51	0.00000
1677785.6	80.00	7800268.39	22.94786	0.00	0.000	25008.98	0.00000
1678297.5	100.00	12842269.00	26.46027	0.00	0.000	21883.56	0.00000
1679020.7	120.00	19511856.10	27.66047	0.00	0.000	18470.80	0.00000
1680058.1	140.00	27272398.56	24.87644	0.00	0.000	15129.45	0.00000
1681478.5	160.00	34174410.48	15.75135	0.00	0.000	12474.81	0.00000
1683188.8	180.00	37058129.69	.08103	0.00	0.000	11409.27	0.00000

REVOLUTION 12

TIME	THETA	ALTITUDE	GAMMA	GCONT	GFM	VELOCITY	P T
1683188.8	-180.00	26836743.61	.08103	0.00	0.000	13470.43	0.00000
1684392.9	-160.00	25097316.66	11.66997	0.00	0.000	14274.60	0.00000
1685443.6	-140.00	20729279.67	19.35779	0.00	0.000	16370.95	0.00000
1686271.0	-120.00	15441163.18	22.45289	0.00	0.000	19142.51	0.00000
1686893.8	-100.00	10540935.77	22.12719	0.00	0.000	22072.03	0.00000
1687363.6	-80.00	6594729.60	19.57634	0.00	0.000	24812.54	0.00000
1687730.3	-60.00	3693457.58	15.62943	0.00	0.000	27136.72	0.00000
1688031.9	-40.00	1745101.82	10.82511	.06	.000	28893.40	.00000
1688295.8	-20.00	631564.56	5.52636	1.42	.014	29984.54	.00071
1688320.9	-18.00	562493.72	4.98013	1.96	.026	30054.56	.00134
1688345.9	-16.00	500841.79	4.43192	2.86	.055	30117.31	.00284
1688370.7	-14.00	446559.51	3.88197	4.82	.155	30172.75	.00798
1688395.4	-12.00	399603.31	3.33050	9.92	.652	30220.85	.03355
1688420.1	-10.00	359935.34	2.77778	23.18	3.545	30261.59	.18213
1688444.6	-8.00	327523.54	2.22406	51.93	17.728	30294.95	.90983
1688469.1	-6.00	302341.64	1.66967	105.01	72.297	30320.91	3.70712
1688493.5	-4.00	284349.19	1.11511	176.36	203.495	30339.46	10.42814
1688517.9	-2.00	273591.56	.56206	238.92	373.021	30350.60	19.10852
1688540.8	0.00	270000.00	.08103	264.37	456.534	30354.31	23.38370
1688563.7	2.00	273591.56	.56206	238.92	373.021	30350.60	19.10852
1688588.1	4.00	284349.19	1.11511	176.36	203.495	30339.46	10.42814
1688612.5	6.00	302341.64	1.66967	105.01	72.297	30320.91	3.70712
1688637.0	8.00	327523.54	2.22406	51.93	17.728	30294.95	.90983
1688661.5	10.00	359935.34	2.77778	23.18	3.545	30261.59	.18213
1688686.2	12.00	399603.31	3.33050	9.92	.652	30220.85	.03355
1688710.9	14.00	446559.51	3.88197	4.82	.155	30172.75	.00798
1688735.7	16.00	500841.79	4.43192	2.86	.055	30117.31	.00284
1688760.7	18.00	562493.72	4.98013	1.96	.026	30054.56	.00134
1688785.8	20.00	631564.56	5.52636	1.42	.014	29984.54	.00071
1689049.7	40.00	1745101.82	10.82511	.06	.000	28893.40	.00000
1689351.3	60.00	3693457.58	15.62943	0.00	0.000	27136.72	0.00000
1689718.0	80.00	6594729.60	19.57634	0.00	0.000	24812.54	0.00000
1690187.8	100.00	10540935.77	22.12719	0.00	0.000	22072.03	0.00000
1690810.6	120.00	15441163.18	22.45289	0.00	0.000	19142.51	0.00000
1691638.0	140.00	20729279.67	19.35779	0.00	0.000	16370.95	0.00000
1692688.7	160.00	25097316.66	11.66997	0.00	0.000	14274.60	0.00000
1693892.8	180.00	26836743.61	.08103	0.00	0.000	13470.43	0.00000

REVOLUTION 13

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
1693892.8	-180.00	18208015.97	.08103	0.00	0.000	15910.27	0.00000
1694734.5	-160.00	17234205.41	8.03324	0.00	0.000	16477.97	0.00000
1695501.6	-140.00	14682814.48	13.90133	0.00	0.000	18012.93	0.00000
1696149.5	-120.00	11374140.46	16.82897	0.00	0.000	20138.97	0.00000
1696675.8	-100.00	8069268.58	17.15873	0.00	0.000	22473.92	0.00000
1697100.8	-80.00	5222156.79	15.55959	0.00	0.000	24717.65	0.00000
1697451.1	-60.00	3013271.46	12.63549	0.00	0.000	26654.48	0.00000
1697750.7	-40.00	1470905.56	8.84839	.10	.000	28134.92	.00000
1698019.5	-20.00	567068.15	4.54537	1.73	.022	29060.56	.00120
1698045.3	-18.00	510455.70	4.09771	2.41	.043	29120.11	.00232
1698071.0	-16.00	459869.28	3.64793	3.73	.104	29173.48	.00553
1698096.6	-14.00	415286.99	3.19629	6.72	.335	29220.65	.01781
1698122.1	-12.00	376689.27	2.74305	14.21	1.489	29261.58	.07911
1698147.5	-10.00	344059.00	2.28846	30.44	6.805	29296.26	.36116
1698172.8	-8.00	317381.61	1.83281	61.63	27.807	29324.66	1.47427
1698198.1	-6.00	296645.08	1.37647	111.81	91.286	29346.76	4.83621
1698223.3	-4.00	281840.01	.92002	170.78	212.580	29362.56	11.25613
1698248.5	-2.00	272959.66	.46545	219.34	350.302	29372.04	18.54256
1698272.3	0.00	270000.00	.08103	238.42	413.765	29375.20	21.89950
1698296.1	2.00	272959.66	.46545	219.34	350.302	29372.04	18.54256
1698321.3	4.00	281840.01	.92002	170.78	212.580	29362.56	11.25613
1698346.6	6.00	296645.08	1.37647	111.81	91.286	29346.76	4.83621
1698371.8	8.00	317381.61	1.83281	61.63	27.807	29324.66	1.47427
1698397.2	10.00	344059.00	2.28846	30.44	6.805	29296.26	.36116
1698422.6	12.00	376689.27	2.74305	14.21	1.489	29261.58	.07911
1698448.0	14.00	415286.99	3.19629	6.72	.335	29220.65	.01781
1698473.6	16.00	459869.28	3.64793	3.73	.104	29173.48	.00553
1698499.3	18.00	510455.70	4.09771	2.41	.043	29120.11	.00232
1698525.2	20.00	567068.15	4.54537	1.73	.022	29060.56	.00120
1698793.9	40.00	1470905.56	8.84839	.10	.000	28134.92	.00000
1699093.5	60.00	3013271.46	12.63549	0.00	0.000	26654.48	0.00000
1699443.8	80.00	5222156.79	15.55959	0.00	0.000	24717.65	0.00000
1699868.8	100.00	8069268.58	17.15873	0.00	0.000	22473.92	0.00000
1700395.1	120.00	11374140.46	16.82897	0.00	0.000	20138.97	0.00000
1701043.0	140.00	14682814.48	13.90133	0.00	0.000	18012.93	0.00000
1701810.2	160.00	17234205.41	8.03324	0.00	0.000	16477.97	0.00000
1702651.8	180.00	18208015.97	.08103	0.00	0.000	15910.27	0.00000

REVOLUTION 14

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
1702651.8	-180.00	10680757.67	.08103	0.00	0.000	18923.61	0.00000
1703227.2	-160.00	10219476.31	4.73226	0.00	0.000	19269.55	0.00000
1703772.8	-140.00	8963437.14	8.49096	0.00	0.000	20232.63	0.00000
1704265.3	-120.00	7224145.70	10.72642	0.00	0.000	21625.13	0.00000
1704697.6	-100.00	5348622.88	11.36825	0.00	0.000	23219.51	0.00000
1705073.8	-80.00	3609051.81	10.63337	0.00	0.000	24803.91	0.00000
1705404.1	-60.00	2172022.54	8.83503	.02	.000	26205.59	.00000
1705700.6	-40.00	1119419.68	6.28379	.22	.000	27295.05	.00002
1705975.2	-20.00	482632.57	3.25726	2.63	.059	27983.28	.00329
1706001.9	-18.00	442240.00	2.93820	4.02	.138	28027.73	.00763
1706028.5	-16.00	406095.73	2.61712	6.95	.409	28067.59	.02264
1706055.0	-14.00	374201.27	2.29426	13.20	1.469	28102.83	.08124
1706081.5	-12.00	346557.76	1.96988	25.20	5.331	28133.42	.29459
1706107.8	-10.00	323166.03	1.64424	46.35	17.975	28159.34	.99245
1706134.2	-8.00	304026.71	1.31764	79.39	52.619	28180.57	2.90305
1706160.4	-6.00	289140.20	.99047	122.49	125.004	28197.10	6.89254
1706186.7	-4.00	278506.81	.66344	165.28	227.265	28208.92	12.52585
1706212.9	-2.00	272126.71	.33917	197.85	325.416	28216.01	17.93098
1706237.9	0.00	270000.00	.08103	210.08	366.782	28218.37	20.20861
1706262.8	2.00	272126.71	.33917	197.85	325.416	28216.01	17.93098
1706289.0	4.00	278506.81	.66344	165.28	227.265	28208.92	12.52585
1706315.3	6.00	289140.20	.99047	122.49	125.004	28197.10	6.89254
1706341.6	8.00	304026.71	1.31764	79.39	52.619	28180.57	2.90305
1706367.9	10.00	323166.03	1.64424	46.35	17.975	28159.34	.99245
1706394.3	12.00	346557.76	1.96988	25.20	5.331	28133.42	.29459
1706420.7	14.00	374201.27	2.29426	13.20	1.469	28102.83	.08124
1706447.2	16.00	406095.73	2.61712	6.95	.409	28067.59	.02264
1706473.8	18.00	442240.00	2.93820	4.02	.138	28027.73	.00763
1706500.5	20.00	482632.57	3.25726	2.63	.059	27983.28	.00329
1706775.1	40.00	1119419.68	6.28379	.22	.000	27295.05	.00002
1707071.6	60.00	2172022.54	8.83503	.02	.000	26205.59	.00000
1707402.0	80.00	3609051.81	10.63337	0.00	0.000	24803.91	0.00000
1707778.2	100.00	5348622.88	11.36825	0.00	0.000	23219.51	0.00000
1708210.5	120.00	7224145.70	10.72642	0.00	0.000	21625.13	0.00000
1708702.9	140.00	8963437.14	8.49096	0.00	0.000	20232.63	0.00000
1709248.5	160.00	10219476.31	4.73226	0.00	0.000	19269.55	0.00000
1709823.9	180.00	10680757.67	.08103	0.00	0.000	18923.61	0.00000

REVOLUTION 15

TIME	THETA	ALTITUDE	GAMMA	GCONT	GFM	VELOCITY	P T
1709823.9	-180.00	3696341.27	.08103	0.00	0.000	23016.47	0.00000
1710194.7	-160.00	3576905.16	1.57790	0.00	0.000	23137.42	0.00000
1710559.9	-140.00	3239385.06	2.92011	0.00	0.000	23482.18	0.00000
1710912.5	-120.00	2739937.90	3.84984	0.00	0.000	24000.78	0.00000
1711249.1	-100.00	2154773.66	4.26797	.02	.000	24622.02	.00000
1711568.8	-80.00	1563023.28	4.15898	.06	.000	25266.37	.00000
1711872.9	-60.00	1033962.82	3.57319	.23	.001	25857.22	.00004
1712164.0	-40.00	620740.12	2.60439	.98	.010	26329.08	.00060
1712446.2	-20.00	359314.29	1.37137	15.72	2.487	26632.56	.14516
1712474.1	-18.00	342427.03	1.23859	23.52	5.552	26652.30	.32387
1712501.9	-16.00	327284.49	1.10466	34.98	12.251	26670.01	.71420
1712529.7	-14.00	313897.70	.96973	50.44	25.423	26685.68	1.48117
1712557.5	-12.00	302276.34	.83400	70.48	49.550	26699.30	2.88538
1712585.2	-10.00	292428.78	.69768	93.95	87.934	26710.84	5.11833
1712612.9	-8.00	284362.09	.56106	118.22	139.068	26720.30	8.09183
1712640.6	-6.00	278082.03	.42466	141.12	197.977	26727.66	11.51635
1712668.3	-4.00	273593.07	.28970	160.18	254.879	26732.93	14.82343
1712696.0	-2.00	270898.43	.16101	172.83	296.618	26736.09	17.24886
1712722.5	0.00	270000.00	.08103	177.26	312.002	26737.15	18.14273
1712749.0	2.00	270898.43	.16101	172.83	296.618	26736.09	17.24886
1712776.6	4.00	273593.07	.28970	160.18	254.879	26732.93	14.82343
1712804.3	6.00	278082.03	.42466	141.12	197.977	26727.66	11.51635
1712832.0	8.00	284362.09	.56106	118.22	139.068	26720.30	8.09183
1712859.7	10.00	292428.78	.69768	93.95	87.934	26710.84	5.11833
1712887.5	12.00	302276.34	.83400	70.48	49.550	26699.30	2.88538
1712915.2	14.00	313897.70	.96973	50.44	25.423	26685.68	1.48117
1712943.0	16.00	327284.49	1.10466	34.98	12.251	26670.01	.71420
1712970.9	18.00	342427.03	1.23859	23.52	5.552	26652.30	.32387
1712998.8	20.00	359314.29	1.37137	15.72	2.487	26632.56	.14516
1713280.9	40.00	620740.12	2.60439	.98	.010	26329.08	.00060
1713572.1	60.00	1033962.82	3.57319	.23	.001	25857.22	.00004
1713876.1	80.00	1563023.28	4.15898	.06	.000	25266.37	.00000
1714195.8	100.00	2154773.66	4.26797	.02	.000	24622.02	.00000
1714532.4	120.00	2739937.90	3.84984	0.00	0.000	24000.78	0.00000
1714885.0	140.00	3239385.06	2.92011	0.00	0.000	23482.18	0.00000
1715250.2	160.00	3576905.16	1.57790	0.00	0.000	23137.42	0.00000
1715621.0	180.00	3696341.27	.08103	0.00	0.000	23016.47	0.00000

Part 2
Listing of Punched Card CMA Input

REVOLUTION 1

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	25346.972	0.0000	.0000001	.0000000	15 W. HEATER
21.5861	25495.427	0.0000	.0000003	.0000000	15 W. HEATER
42.9359	25628.745	0.0000	.0000006	.0000000	15 W. HEATER
64.0767	25746.763	0.0000	.0000014	.0000001	15 W. HEATER
85.0339	25849.338	0.0000	.0000037	.0000002	15 W. HEATER
105.8308	25936.345	0.0000	.0000157	.0000008	15 W. HEATER
126.4864	26007.677	0.0000	.0001320	.0000070	15 W. HEATER
147.0097	26063.248	0.0000	.0011707	.0000621	15 W. HEATER
167.3769	26102.990	0.0000	.0070208	.003724	15 W. HEATER
187.3787	26126.855	0.0000	.0147012	.010981	15 W. HEATER
202.4097	26134.813	0.0000	.0175732	.015690	15 W. HEATER
217.4408	26126.855	0.0000	.0147012	.010981	15 W. HEATER
237.4426	26102.990	0.0000	.0070208	.003724	15 W. HEATER
257.8098	26063.248	0.0000	.0011707	.0000621	15 W. HEATER
278.3331	26007.677	0.0000	.0001320	.0000070	15 W. HEATER
298.9886	25936.345	0.0000	.0000157	.0000008	15 W. HEATER
319.7856	25849.338	0.0000	.0000037	.0000002	15 W. HEATER
340.7428	25746.763	0.0000	.0000014	.0000001	15 W. HEATER
361.8836	25628.745	0.0000	.0000006	.0000000	15 W. HEATER
383.2334	25495.427	0.0000	.0000003	.0000000	15 W. HEATER
404.8195	25346.972	0.0000	.0000001	.0000000	15 W. HEATER

REVOLUTION 3

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	24510.507	0.0000	.0000001	.0000000	15 W. HEATER
21.9169	24653.712	0.0000	.0000003	.0000000	15 W. HEATER
43.6044	24782.315	0.0000	.0000007	.0000000	15 W. HEATER
65.0899	24896.159	0.0000	.0000015	.0000001	15 W. HEATER
86.3995	24995.107	0.0000	.0000041	.0000002	15 W. HEATER
107.5581	25079.036	0.0000	.0000182	.0000009	15 W. HEATER
128.5890	25147.845	0.0000	.0001529	.0000080	15 W. HEATER
149.5116	25201.451	0.0000	.0012832	.0000669	15 W. HEATER
170.3342	25239.787	0.0000	.0072743	.003794	15 W. HEATER
191.0002	25262.808	0.0000	.0145109	.010753	15 W. HEATER
208.4208	25270.485	0.0000	.0172366	.015171	15 W. HEATER
225.8414	25262.808	0.0000	.0145109	.010753	15 W. HEATER
246.5073	25239.787	0.0000	.0072743	.003794	15 W. HEATER
267.3299	25201.451	0.0000	.0012832	.0000669	15 W. HEATER
288.2526	25147.845	0.0000	.0001529	.0000080	15 W. HEATER
309.2834	25079.036	0.0000	.0000182	.0000009	15 W. HEATER
330.4421	24995.107	0.0000	.0000041	.0000002	15 W. HEATER
351.7517	24896.159	0.0000	.0000015	.0000001	15 W. HEATER
373.2371	24782.315	0.0000	.0000007	.0000000	15 W. HEATER
394.9247	24653.712	0.0000	.0000003	.0000000	15 W. HEATER
416.8416	24510.507	0.0000	.0000001	.0000000	15 W. HEATER

REVOLUTION 5

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	23470.655	0.0000	.0000002	.000000	15 W. HEATER
22.3427	23606.790	0.0000	.0000004	.000000	15 W. HEATER
44.4638	23729.044	0.0000	.0000008	.000000	15 W. HEATER
66.3897	23837.268	0.0000	.0000017	.000001	15 W. HEATER
88.1458	23931.331	0.0000	.0000048	.000002	15 W. HEATER
109.7570	24011.117	0.0000	.0000226	.000012	15 W. HEATER
131.2465	24076.529	0.0000	.0001886	.000096	15 W. HEATER
152.6358	24127.488	0.0000	.0014532	.000741	15 W. HEATER
173.9398	24163.932	0.0000	.0076365	.003897	15 W. HEATER
195.1384	24185.816	0.0000	.0142726	.010470	15 W. HEATER
213.8316	24193.114	0.0000	.0168102	.014524	15 W. HEATER
232.5248	24185.816	0.0000	.0142726	.010470	15 W. HEATER
253.7234	24163.932	0.0000	.0076365	.003897	15 W. HEATER
275.0275	24127.488	0.0000	.0014532	.000741	15 W. HEATER
296.4167	24076.529	0.0000	.0001886	.000096	15 W. HEATER
317.9063	24011.117	0.0000	.0000226	.000012	15 W. HEATER
339.5174	23931.331	0.0000	.0000048	.000002	15 W. HEATER
361.2736	23837.268	0.0000	.0000017	.000001	15 W. HEATER
383.1994	23729.044	0.0000	.0000008	.000000	15 W. HEATER
405.3205	23606.790	0.0000	.0000004	.000000	15 W. HEATER
427.6632	23470.655	0.0000	.0000002	.000000	15 W. HEATER

REVOLUTION 7

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	22205.007	0.0000	.0000002	.000000	15 W. HEATER
22.8963	22331.601	0.0000	.0000004	.000000	15 W. HEATER
45.5818	22445.286	0.0000	.0000009	.000000	15 W. HEATER
68.0816	22545.925	0.0000	.0000021	.000001	15 W. HEATER
90.4199	22633.395	0.0000	.0000062	.000003	15 W. HEATER
112.6203	22707.589	0.0000	.0000315	.000016	15 W. HEATER
134.7057	22768.417	0.0000	.0002494	.000124	15 W. HEATER
156.6971	22815.805	0.0000	.0017254	.000856	15 W. HEATER
178.6119	22849.694	0.0000	.0081658	.004053	15 W. HEATER
200.4452	22870.045	0.0000	.0139801	.010130	15 W. HEATER
220.2182	22876.831	0.0000	.0162780	.013734	15 W. HEATER
239.9913	22870.045	0.0000	.0139801	.010130	15 W. HEATER
261.8246	22849.694	0.0000	.0081658	.004053	15 W. HEATER
283.7394	22815.805	0.0000	.0017254	.000856	15 W. HEATER
305.7308	22768.417	0.0000	.0002494	.000124	15 W. HEATER
327.8161	22707.589	0.0000	.0000315	.000016	15 W. HEATER
350.0166	22633.395	0.0000	.0000062	.000003	15 W. HEATER
372.3549	22545.925	0.0000	.0000021	.000001	15 W. HEATER
394.8547	22445.286	0.0000	.0000009	.000000	15 W. HEATER
417.5402	22331.601	0.0000	.0000004	.000000	15 W. HEATER
440.4365	22205.007	0.0000	.0000002	.000000	15 W. HEATER

REVOLUTION 9

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	20705.903	0.0000	.0000003	.000000	15 W. HEATER
23.6112	20819.596	0.0000	.0000006	.000000	15 W. HEATER
47.0276	20921.697	0.0000	.0000013	.000001	15 W. HEATER
70.2721	21012.080	0.0000	.0000029	.000001	15 W. HEATER
93.3671	21090.637	0.0000	.0000093	.000004	15 W. HEATER
116.3345	21157.270	0.0000	.0000525	.000025	15 W. HEATER
139.1954	21211.899	0.0000	.0003647	.000174	15 W. HEATER
161.9700	21254.458	0.0000	.0021955	.001051	15 W. HEATER
184.6757	21284.894	0.0000	.0089511	.004288	15 W. HEATER
207.3148	21303.171	0.0000	.0136307	.009733	15 W. HEATER
228.1990	21309.265	0.0000	.0156270	.012793	15 W. HEATER
249.0832	21303.171	0.0000	.0136307	.009733	15 W. HEATER
271.7222	21284.894	0.0000	.0089511	.004288	15 W. HEATER
294.4279	21254.458	0.0000	.0021955	.001051	15 W. HEATER
317.2025	21211.899	0.0000	.0003647	.000174	15 W. HEATER
340.0635	21157.270	0.0000	.0000525	.000025	15 W. HEATER
363.0308	21090.637	0.0000	.0000093	.000004	15 W. HEATER
386.1259	21012.080	0.0000	.0000029	.000001	15 W. HEATER
409.3704	20921.697	0.0000	.0000013	.000001	15 W. HEATER
432.7868	20819.596	0.0000	.0000006	.000000	15 W. HEATER
456.3980	20705.903	0.0000	.0000003	.000000	15 W. HEATER

REVOLUTION 11

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	18950.487	0.0000	.0000005	.000000	15 W. HEATER
24.5463	19046.277	0.0000	.0000010	.000000	15 W. HEATER
48.9224	19132.300	0.0000	.0000020	.000001	15 W. HEATER
73.1480	19208.451	0.0000	.0000051	.000002	15 W. HEATER
97.2427	19274.637	0.0000	.0000191	.000009	15 W. HEATER
121.2253	19330.778	0.0000	.0001102	.000050	15 W. HEATER
145.1146	19376.805	0.0000	.0006477	.000296	15 W. HEATER
168.9284	19412.662	0.0000	.0031047	.001420	15 W. HEATER
192.6825	19438.305	0.0000	.0093574	.004651	15 W. HEATER
216.3822	19453.704	0.0000	.0132183	.009279	15 W. HEATER
238.5549	19458.839	0.0000	.0148317	.011682	15 W. HEATER
260.7275	19453.704	0.0000	.0132183	.009279	15 W. HEATER
284.4273	19438.305	0.0000	.0093574	.004651	15 W. HEATER
308.1814	19412.662	0.0000	.0031047	.001420	15 W. HEATER
331.9952	19376.805	0.0000	.0006477	.000296	15 W. HEATER
355.8844	19330.778	0.0000	.0001102	.000050	15 W. HEATER
379.8671	19274.637	0.0000	.0000191	.000009	15 W. HEATER
403.9618	19208.451	0.0000	.0000051	.000002	15 W. HEATER
428.1874	19132.300	0.0000	.0000020	.000001	15 W. HEATER
452.5635	19046.277	0.0000	.0000010	.000000	15 W. HEATER
477.1098	18950.487	0.0000	.0000005	.000000	15 W. HEATER

REVOLUTION 13

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	16869.063	0.0000	.0000013	.000001	15 W. HEATER
25.8280	16938.269	0.0000	.0000026	.000001	15 W. HEATER
51.5271	17000.418	0.0000	.0000061	.000003	15 W. HEATER
77.1120	17055.436	0.0000	.0000196	.000008	15 W. HEATER
102.5970	17103.253	0.0000	.00000871	.0000037	15 W. HEATER
127.9967	17143.814	0.0000	.00003970	.000171	15 W. HEATER
153.3250	17177.067	0.0000	.0016188	.000697	15 W. HEATER
178.5955	17202.973	0.0000	.0053064	.002285	15 W. HEATER
203.8206	17221.499	0.0000	.0099164	.005319	15 W. HEATER
229.0048	17232.624	0.0000	.0127282	.008761	15 W. HEATER
252.8456	17236.334	0.0000	.0138326	.010348	15 W. HEATER
276.6864	17232.624	0.0000	.0127282	.008761	15 W. HEATER
301.8707	17221.499	0.0000	.0099164	.005319	15 W. HEATER
327.0958	17202.973	0.0000	.0053064	.002285	15 W. HEATER
352.3663	17177.067	0.0000	.0016188	.000697	15 W. HEATER
377.6946	17143.814	0.0000	.0003970	.000171	15 W. HEATER
403.0943	17103.253	0.0000	.00000871	.0000037	15 W. HEATER
428.5793	17055.436	0.0000	.0000196	.000008	15 W. HEATER
454.1642	17000.418	0.0000	.0000061	.000003	15 W. HEATER
479.8633	16938.269	0.0000	.0000026	.000001	15 W. HEATER
505.6913	16869.063	0.0000	.0000013	.000001	15 W. HEATER

REVOLUTION 14

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	15641.573	0.0000	.0000038	.000002	15 W. HEATER
26.6964	15691.304	0.0000	.0000088	.000004	15 W. HEATER
53.2973	15735.964	0.0000	.0000260	.000011	15 W. HEATER
79.8134	15775.499	0.0000	.0000931	.000038	15 W. HEATER
106.2552	15809.860	0.0000	.0003372	.000139	15 W. HEATER
132.6334	15839.007	0.0000	.0011349	.000469	15 W. HEATER
158.9583	15862.902	0.0000	.0033171	.001372	15 W. HEATER
185.2400	15881.518	0.0000	.0077128	.003257	15 W. HEATER
211.4874	15894.831	0.0000	.0103981	.005918	15 W. HEATER
237.7031	15902.826	0.0000	.0124413	.008472	15 W. HEATER
262.6591	15905.491	0.0000	.0132080	.009549	15 W. HEATER
287.6152	15902.826	0.0000	.0124413	.008472	15 W. HEATER
313.8309	15894.831	0.0000	.0103981	.005918	15 W. HEATER
340.0783	15881.518	0.0000	.0077128	.003257	15 W. HEATER
366.3599	15862.902	0.0000	.0033171	.001372	15 W. HEATER
392.6848	15839.007	0.0000	.0011349	.000469	15 W. HEATER
419.0630	15809.860	0.0000	.0003372	.000139	15 W. HEATER
445.5049	15775.499	0.0000	.0000931	.000038	15 W. HEATER
472.0209	15735.964	0.0000	.0000260	.000011	15 W. HEATER
498.6218	15691.304	0.0000	.0000088	.000004	15 W. HEATER
525.3183	15641.573	0.0000	.0000038	.000002	15 W. HEATER

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APPENDIX G

Trajectory and Reentry Environment
Output From Computer Code HRS017 (Version 3)
For a Perigee Altitude of 280,000 Feet
(Twenty-Five Revolutions)

- Part 1 - Trajectory and Reentry
Environment Tabulated Data (Page 95)
- Part 2 - Listing of Punched Card
CMA Input (Page 120)

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Part 1

Trajectory and Reentry Environment Tabulated Data

REVOLUTION 1

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
0.0	-180.00	1246374303.00	.08103	0.00	0.000	605.11	0.00000
384992.7	-160.00	436269951.16	74.57993	0.00	0.000	6307.85	0.00000
422281.4	-140.00	140024240.32	67.36779	0.00	0.000	12381.53	0.00000
428404.2	-120.00	59842606.94	58.33493	0.00	0.000	18089.07	0.00000
430266.4	-100.00	29206539.70	48.85763	0.00	0.000	23249.73	0.00000
431081.5	-80.00	14789897.61	39.19565	0.00	0.000	27705.17	0.00000
431536.4	-60.00	7191736.11	29.44660	0.00	0.000	31319.51	0.00000
431840.7	-40.00	3036094.63	19.65122	0.00	0.000	33982.70	0.00000
432076.8	-20.00	927941.32	9.83128	.86	.003	35613.72	.00012
432098.4	-18.00	802837.57	8.84852	1.29	.006	35717.86	.00028
432119.7	-16.00	691704.45	7.86567	1.95	.014	35811.13	.00062
432140.9	-14.00	594269.33	6.88276	2.95	.033	35893.49	.00141
432161.9	-12.00	510294.83	5.89979	4.69	.082	35964.42	.00355
432182.7	-10.00	434577.61	4.91679	9.16	.312	36025.39	.01345
432203.3	-8.00	381947.35	3.93379	24.63	2.241	36074.90	.09658
432223.9	-6.00	337265.83	2.95087	69.85	17.962	36113.42	.77331
432244.3	-4.00	305426.28	1.96819	166.90	102.309	36140.94	4.40122
432264.3	-2.00	246352.79	.98660	289.89	308.179	36157.46	13.25155
432279.3	0.00	280000.00	.08103	346.59	440.306	36162.96	18.93003
432294.4	2.00	284352.79	.98660	289.89	308.179	36157.46	13.25155
432314.4	4.00	305426.28	1.96819	166.90	102.309	36140.94	4.40122
432334.8	6.00	337265.83	2.95087	69.85	17.962	36113.42	.77331
432355.3	8.00	381947.35	3.93379	24.63	2.241	36074.90	.09658
432376.0	10.00	439577.61	4.91679	9.16	.312	36025.39	.01345
432396.8	12.00	510294.83	5.89979	4.69	.082	35964.42	.00355
432417.8	14.00	594269.33	6.88276	2.95	.033	35893.49	.00141
432438.9	16.00	691704.45	7.86567	1.95	.014	35811.13	.00062
432450.3	18.00	802837.57	8.84852	1.29	.006	35717.86	.00028
432481.9	20.00	927941.32	9.83128	.86	.003	35613.72	.00012
432718.0	40.00	3036094.63	19.65122	0.00	0.000	33982.70	0.00000
433022.3	60.00	7191736.11	29.44660	0.00	0.000	31319.51	0.00000
433477.1	80.00	14789897.61	39.19565	0.00	0.000	27705.17	0.00000
434242.2	100.00	29206539.70	48.85763	0.00	0.000	23249.73	0.00000
436154.4	120.00	59842606.94	58.33493	0.00	0.000	18089.07	0.00000
442277.2	140.00	140024240.32	67.36779	0.00	0.000	12381.53	0.00000
479565.9	160.00	436269951.16	74.57993	0.00	0.000	6307.85	0.00000
864558.6	180.00	1246374303.00	.08103	0.00	0.000	605.11	0.00000

RESOLUTION 2

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
864558.6	-180.00	851855428.57	.08103	0.00	0.000	875.39	0.00000
1074395.2	-160.00	373835727.45	72.15444	0.00	0.000	6315.52	0.00000
1104849.8	-140.00	132258899.13	66.18093	0.00	0.000	12350.14	0.00000
1110567.2	-120.00	58134391.97	57.59027	0.00	0.000	18030.54	0.00000
1112377.3	-100.00	28685954.64	48.34148	0.00	0.000	23168.83	0.00000
1113182.7	-80.00	14602892.34	38.83212	0.00	0.000	27605.70	0.00000
1113635.7	-60.00	7121414.82	29.19643	0.00	0.000	31205.27	0.00000
1113940.1	-40.00	3012161.97	19.49349	0.00	0.000	33857.69	0.00000
1114176.9	-20.00	922805.99	9.75487	.86	.003	35482.16	.00013
1114198.5	-18.00	798717.29	8.77989	1.29	.006	35585.88	.00028
1114220.0	-16.00	688476.44	7.80477	1.95	.015	35678.77	.00063
1114241.2	-14.00	591816.28	6.82955	2.95	.033	35760.80	.00144
1114262.3	-12.00	508504.21	5.85424	4.69	.083	35831.94	.00361
1114283.2	-10.00	438340.91	4.87888	9.21	.318	35892.18	.01380
1114303.9	-8.00	381159.39	3.90349	24.72	2.286	35941.48	.09887
1114324.6	-6.00	336824.14	2.92816	69.84	18.181	35979.85	.78561
1114345.1	-4.00	305230.45	1.95307	165.91	102.337	36007.26	4.41881
1114365.3	-2.00	286303.91	.97906	286.92	305.609	36023.71	13.18981
1114381.2	0.00	280000.00	.08103	342.57	435.438	36029.20	18.79024
1114397.1	2.00	286303.91	.97906	286.92	305.609	36023.71	13.18981
1114417.3	4.00	305230.45	1.95307	165.91	102.337	36007.26	4.41881
1114437.8	6.00	336824.14	2.92816	69.84	18.181	35979.85	.78561
1114458.5	8.00	381159.39	3.90349	24.72	2.286	35941.48	.09887
1114479.2	10.00	438340.91	4.87888	9.21	.318	35892.18	.01380
1114500.1	12.00	508504.21	5.85424	4.69	.083	35831.94	.00361
1114521.2	14.00	591816.28	6.82955	2.95	.033	35760.80	.00144
1114542.4	16.00	688476.44	7.80477	1.95	.015	35678.77	.00063
1114563.8	18.00	798717.29	8.77989	1.29	.006	35585.88	.00028
1114585.5	20.00	922805.99	9.75487	.86	.003	35482.16	.00013
1114822.3	40.00	3012161.97	19.49349	0.00	0.000	33857.69	0.00000
1115126.6	60.00	7121414.82	29.19643	0.00	0.000	31205.27	0.00000
1115579.7	80.00	14602892.34	38.83212	0.00	0.000	27605.70	0.00000
1116385.1	100.00	28685954.64	48.34148	0.00	0.000	23168.83	0.00000
1118195.2	120.00	58134391.97	57.59027	0.00	0.000	18030.54	0.00000
1123912.6	140.00	132258899.13	66.18093	0.00	0.000	12350.14	0.00000
1154367.2	160.00	373835727.45	72.15444	0.00	0.000	6315.52	0.00000
1364203.7	180.00	851855428.57	.08103	0.00	0.000	875.39	0.00000

REVOLUTION 3

TIME	THETA	ALTITUDE	GAMMA	CCONT	QFM	VELOCITY	P T
1364203.7	-180.00	623819979.62	.08103	0.00	0.000	1180.06	0.00000
1490901.9	-160.00	320815293.51	69.43415	0.00	0.000	6337.78	0.00000
1515768.7	-140.00	124298509.63	64.43654	0.00	0.000	12321.34	0.00000
1521076.1	-120.00	56279270.37	56.73458	0.00	0.000	17968.59	0.00000
1522830.0	-100.00	28107472.23	47.75539	0.00	0.000	23080.29	0.00000
1523624.6	-80.00	14392793.50	38.41922	0.00	0.000	27495.38	0.00000
1524075.6	-60.00	7041946.76	28.41224	0.00	0.000	31077.73	0.00000
1524380.1	-40.00	2985029.46	19.31431	0.00	0.000	33717.66	0.00000
1524617.5	-20.00	916974.54	9.66806	.86	.003	35334.52	.00013
1524639.3	-18.00	794038.05	8.70191	1.30	.007	35437.76	.00029
1524660.8	-16.00	684810.18	7.73558	1.95	.015	35530.22	.00065
1524682.1	-14.00	589030.00	6.76910	2.95	.033	35611.86	.00146
1524703.3	-12.00	506470.21	5.80250	4.70	.085	35682.67	.00369
1524724.2	-10.00	436936.03	4.83581	9.26	.326	35742.63	.01420
1524745.1	-8.00	380264.23	3.86907	24.83	2.338	35791.70	.10155
1524765.8	-6.00	336322.34	2.90237	69.84	18.433	35829.89	.79987
1524786.5	-4.00	305007.98	1.93589	164.80	102.380	35857.18	4.43916
1524806.9	-2.00	286248.37	.97049	283.61	302.745	35873.55	13.12089
1524823.4	0.00	280000.00	.08103	338.09	430.015	35879.01	18.63391
1524839.9	2.00	286248.37	.97049	283.61	302.745	35873.55	13.12089
1524860.3	4.00	305007.98	1.93589	164.80	102.380	35857.18	4.43916
1524881.0	6.00	336322.34	2.90237	69.84	18.433	35829.89	.79987
1524901.7	8.00	380264.23	3.86907	24.83	2.338	35791.70	.10155
1524922.6	10.00	436936.03	4.83581	9.26	.326	35742.63	.01420
1524943.5	12.00	506470.21	5.80250	4.70	.085	35682.67	.00369
1524964.7	14.00	589030.00	6.76910	2.95	.033	35611.86	.00146
1524986.0	16.00	684810.18	7.73558	1.95	.015	35530.22	.00065
1525007.5	18.00	794038.05	8.70191	1.30	.007	35437.76	.00029
1525029.3	20.00	916974.54	9.66806	.86	.003	35334.52	.00013
1525266.7	40.00	2985029.46	19.31431	0.00	0.000	33717.66	0.00000
1525571.2	60.00	7041946.76	28.41224	0.00	0.000	31077.73	0.00000
1526122.2	80.00	14392793.50	38.41922	0.00	0.000	27495.38	0.00000
1526816.8	100.00	28107472.23	47.75539	0.00	0.000	23080.29	0.00000
1528570.7	120.00	56279270.37	56.73458	0.00	0.000	17968.59	0.00000
1533878.1	140.00	124298509.63	64.43654	0.00	0.000	12321.34	0.00000
1558744.9	160.00	320815293.51	69.43415	0.00	0.000	6337.78	0.00000
1685443.1	180.00	623819979.62	.08103	0.00	0.000	1180.06	0.00000

EVOLUTION 4

TIME	THETA	ALTITUDE	GAMMA	GCONT	GFM	VELOCITY	P T
1685443.1	-180.00	477171937.83	.08103	0.00	0.000	1520.38	0.00000
1767148.1	-160.00	275892759.84	66.42600	0.00	0.000	6379.52	0.00000
1787470.4	-140.00	116264941.70	63.32849	0.00	0.000	12297.50	0.00000
1792370.5	-120.00	54290470.63	55.78272	0.00	0.000	17904.48	0.00000
1794764.5	-100.00	27471567.50	47.09553	0.00	0.000	22984.76	0.00000
1794847.2	-80.00	14159002.26	37.95415	0.00	0.000	27374.43	0.00000
1795295.9	-60.00	6952936.37	28.59207	0.00	0.000	30936.84	0.00000
1795600.4	-40.00	2954528.89	19.11241	0.00	0.000	33562.33	0.00000
1795838.6	-20.00	910407.12	9.57024	.87	.003	35170.44	.00013
1795860.5	-18.00	788767.67	8.61404	1.30	.007	35273.13	.00030
1795882.1	-16.00	680680.36	7.65761	1.95	.015	35365.09	.00066
1795903.5	-14.00	585891.15	6.70099	2.45	.034	35446.29	.00149
1795924.8	-12.00	504178.66	5.74419	4.71	.086	35516.72	.00377
1795945.8	-10.00	435353.17	4.78728	9.31	.335	35576.35	.01466
1795966.8	-8.00	379255.62	3.83029	24.99	2.405	35625.16	.10497
1795987.6	-6.00	335756.92	2.87331	69.85	18.725	35663.15	.81632
1796008.4	-4.00	304757.29	1.91653	163.59	102.441	35690.28	4.46258
1796028.9	-2.00	286185.79	.96084	279.96	299.587	35706.57	13.04473
1796046.0	0.00	280000.00	.08103	333.16	424.038	35712.00	18.46084
1796063.0	2.00	286185.79	.96084	279.96	299.587	35706.57	13.04473
1796083.6	4.00	304757.29	1.91653	163.59	102.441	35690.28	4.46258
1796104.3	6.00	335756.92	2.87331	69.85	18.725	35663.15	.81632
1796125.2	8.00	379255.62	3.83029	24.99	2.405	35625.16	.10497
1796146.1	10.00	435353.17	4.78728	9.31	.335	35576.35	.01466
1796167.2	12.00	504178.66	5.74419	4.71	.086	35516.72	.00377
1796188.5	14.00	585891.15	6.70099	2.45	.034	35446.29	.00149
1796209.9	16.00	680680.36	7.65761	1.95	.015	35365.09	.00066
1796231.5	18.00	788767.67	8.61404	1.30	.007	35273.13	.00030
1796253.3	20.00	910407.12	9.57024	.87	.003	35170.44	.00013
1796491.5	40.00	2954528.89	19.11241	0.00	0.000	33562.33	0.00000
1796796.1	60.00	6952936.37	28.59207	0.00	0.000	30936.84	0.00000
1797244.8	80.00	14159002.26	37.95415	0.00	0.000	27374.43	0.00000
1798027.5	100.00	27471567.50	47.09553	0.00	0.000	22984.76	0.00000
1799721.5	120.00	54290470.63	55.78272	0.00	0.000	17904.48	0.00000
1804621.6	140.00	116264941.70	63.32849	0.00	0.000	12297.50	0.00000
1824943.9	160.00	275892759.84	66.42600	0.00	0.000	6379.52	0.00000
1906648.9	180.00	477171937.83	.08103	0.00	0.000	1520.38	0.00000

REVOLUTION 5

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
1906648.9	-180.00	376152938.77	.08103	0.00	0.000	1897.34	0.00000
1951864.0	-160.00	237845619.94	63.15001	0.00	0.000	6446.11	0.00000
1978502.4	-140.00	108271024.23	61.65275	0.00	0.000	12281.37	0.00000
1943003.9	-120.00	52183980.68	54.71528	0.00	0.000	17839.80	0.00000
1944634.4	-100.00	26779565.90	46.35839	0.00	0.000	22883.12	0.00000
1985404.7	-80.00	13401145.27	37.43428	0.00	0.000	27243.29	0.00000
1985450.8	-60.00	6854046.50	28.23407	0.00	0.000	30782.71	0.00000
1986155.5	-40.00	2920505.25	18.88662	0.00	0.000	33391.64	0.00000
1986394.5	-20.00	903066.09	9.46083	.87	.003	34989.73	.00014
1946416.4	-18.00	782875.74	8.51576	1.31	.007	35091.78	.00031
1986438.2	-16.00	676063.00	7.57041	1.96	.015	35183.17	.00068
1986459.7	-14.00	582381.41	6.62480	2.95	.035	35263.87	.00153
1986481.0	-12.00	501616.14	5.67898	4.71	.088	35333.86	.00387
1986502.2	-10.00	433583.00	4.73299	9.38	.346	35393.12	.01520
1986523.3	-8.00	378127.59	3.78690	25.19	2.486	35441.64	.10907
1986544.2	-6.00	335124.53	2.84080	69.87	19.059	35479.38	.83521
1986565.1	-4.00	304476.40	1.89488	162.26	102.525	35506.35	4.48938
1986585.8	-2.00	286115.80	.95005	275.98	296.139	35522.54	12.96140
1986603.3	0.00	280000.00	.02103	327.78	417.515	35527.93	18.27103
1986620.8	2.00	286115.80	.95005	275.98	296.139	35522.54	12.96140
1986641.5	4.00	304476.40	1.89488	162.26	102.525	35506.35	4.48938
1986662.4	6.00	335124.53	2.84080	69.87	19.059	35479.38	.83521
1986683.3	8.00	378127.59	3.78690	25.19	2.486	35441.64	.10907
1986704.4	10.00	433583.00	4.73299	9.38	.346	35393.12	.01520
1986725.6	12.00	501616.14	5.67898	4.71	.088	35333.86	.00387
1986746.9	14.00	582381.41	6.62480	2.95	.035	35263.87	.00153
1986768.5	16.00	676063.00	7.57041	1.96	.015	35183.17	.00068
1986790.2	18.00	782875.74	8.51576	1.31	.007	35091.78	.00031
1986812.1	20.00	903066.09	9.46083	.87	.003	34989.73	.00014
1987051.2	40.00	2920505.25	18.88662	0.00	0.000	33391.64	0.00000
1987355.8	60.00	6854046.50	28.23407	0.00	0.000	30782.71	0.00000
1987801.9	80.00	13401145.27	37.43428	0.00	0.000	27243.29	0.00000
1988571.8	100.00	26779565.90	46.35839	0.00	0.000	22883.12	0.00000
1990202.7	120.00	52183980.68	54.71528	0.00	0.000	17839.80	0.00000
1994704.2	140.00	108271024.23	61.65275	0.00	0.000	12281.37	0.00000
2011342.6	160.00	237845619.94	63.15001	0.00	0.000	6446.11	0.00000
2066557.7	180.00	376152938.77	.08103	0.00	0.000	1897.34	0.00000

REVOLUTION 6

TIME	THETA	ALTITUDE	GAMMA	RCONT	QFM	VELOCITY	P T
2006557.7	-180.00	303088668.35	.08103	0.00	0.000	2312.01	0.00000
2105215.2	-160.00	205565532.19	59.63676	0.00	0.000	6543.32	0.00000
2118470.0	-140.00	100410053.69	59.80641	0.00	0.000	12276.18	0.00000
2122480.8	-120.00	49976188.56	53.53276	0.00	0.000	17776.41	0.00000
2124552.0	-100.00	26033023.06	45.54022	0.00	0.000	22776.45	0.00000
2125308.0	-80.00	13618856.93	36.85676	0.00	0.000	27102.51	0.00000
2125751.3	-60.00	6744914.72	27.83618	0.00	0.000	30615.55	0.00000
2126056.0	-40.00	2882790.46	18.63560	0.00	0.000	33205.54	0.00000
2126246.0	-20.00	894909.65	9.33918	.88	.003	34792.21	.00014
2126318.1	-18.00	776328.46	8.40650	1.31	.007	34893.53	.00032
2126339.9	-16.00	670931.44	7.47345	1.96	.016	34984.26	.00070
2126361.5	-14.00	578480.39	6.54009	2.95	.035	35064.39	.00157
2126383.0	-12.00	498767.67	5.60547	4.73	.090	35133.89	.00398
2126404.3	-10.00	431615.16	4.67264	9.45	.358	35192.73	.01583
2126425.5	-8.00	376873.52	3.73867	25.43	2.580	35240.30	.11384
2126446.6	-6.00	334421.44	2.80465	69.91	19.442	35278.37	.85682
2126467.5	-4.00	304165.15	1.87041	160.84	102.638	35305.15	4.51992
2126488.4	-2.00	286037.97	.93805	271.68	292.406	35321.22	12.87097
2126506.3	0.00	280000.00	.08103	321.96	410.456	35326.58	18.06452
2126524.2	2.00	286037.97	.93805	271.68	292.406	35321.22	12.87097
2126545.1	4.00	304165.15	1.87041	160.84	102.638	35305.15	4.51992
2126566.0	6.00	334421.44	2.80465	69.91	19.442	35278.37	.85682
2126587.1	8.00	376873.52	3.73867	25.43	2.580	35240.30	.11384
2126608.3	10.00	431615.16	4.67264	9.45	.358	35192.73	.01583
2126629.6	12.00	498767.67	5.60547	4.73	.090	35133.89	.00398
2126651.1	14.00	578480.39	6.54009	2.95	.035	35064.39	.00157
2126672.7	16.00	670931.44	7.47345	1.96	.016	34984.26	.00070
2126694.5	18.00	776328.46	8.40650	1.31	.007	34893.53	.00032
2126716.6	20.00	894909.65	9.33918	.88	.003	34792.21	.00014
2126956.6	40.00	2882790.46	18.63560	0.00	0.000	33205.54	0.00000
2127261.3	60.00	6744914.72	27.83618	0.00	0.000	30615.55	0.00000
2127704.6	80.00	13618856.93	36.85676	0.00	0.000	27102.51	0.00000
2128460.6	100.00	26033023.06	45.54022	0.00	0.000	22776.45	0.00000
2130025.8	120.00	49976188.56	53.53276	0.00	0.000	17776.41	0.00000
2134142.6	140.00	100410053.69	59.80641	0.00	0.000	12276.18	0.00000
2147797.4	160.00	205565532.19	59.63676	0.00	0.000	6543.32	0.00000
2186454.9	180.00	303088668.35	.08103	0.00	0.000	2312.01	0.00000

REVOLUTION 7

TIME	THETA	ALTITUDE	GAMMA	RCOUNT	RFM	VELOCITY	P T
2186454.9	-180.00	248266828.95	.08103	0.00	0.000	2765.61	0.00000
2214243.9	-160.00	178088784.54	55.92703	0.00	0.000	6677.12	0.00000
2225520.3	-140.00	32754583.20	57.78770	0.00	0.000	12285.55	0.00000
2229269.8	-120.00	47683077.72	52.23043	0.00	0.000	17716.48	0.00000
2230767.5	-100.00	25233540.22	44.63621	0.00	0.000	22666.00	0.00000
2231508.5	-80.00	13311713.09	36.21821	0.00	0.000	26952.72	0.00000
2231948.8	-60.00	6625124.97	27.39604	0.00	0.000	30435.56	0.00000
2232253.6	-40.00	2841186.54	18.35785	0.00	0.000	33003.98	0.00000
2232494.6	-20.00	885889.36	9.20456	.89	.003	34577.64	.00015
2232516.7	-18.00	769086.66	8.28556	1.32	.007	34678.13	.00033
2232538.7	-16.00	665254.75	7.36614	1.97	.016	34768.13	.00072
2232560.5	-14.00	574164.47	6.44634	2.95	.036	34847.61	.00161
2232582.0	-12.00	495615.92	5.52622	4.75	.093	34916.54	.00413
2232603.5	-10.00	429437.62	4.60584	9.55	.373	34974.90	.01658
2232624.8	-8.00	375485.71	3.64528	25.69	2.689	35022.68	.11938
2232646.0	-6.00	333643.33	2.76465	69.97	19.878	35059.85	.88152
2232667.1	-4.00	303820.13	1.84417	159.31	102.786	35086.42	4.55465
2232688.1	-2.00	285951.83	.92477	267.06	288.394	35102.36	12.77352
2232706.4	0.00	280000.00	.08103	315.72	402.873	35107.67	17.84133
2232724.7	2.00	285951.83	.92477	267.06	288.394	35102.36	12.77352
2232745.7	4.00	303820.13	1.84417	159.31	102.786	35086.42	4.55465
2232766.8	6.00	333643.33	2.76465	69.97	19.878	35059.85	.88152
2232788.0	8.00	375485.71	3.64528	25.69	2.689	35022.68	.11938
2232809.3	10.00	429437.62	4.60584	9.55	.373	34974.90	.01658
2232830.8	12.00	495615.92	5.52622	4.75	.093	34916.54	.00413
2232852.3	14.00	574164.47	6.44634	2.95	.036	34847.61	.00161
2232874.1	16.00	665254.75	7.36614	1.97	.016	34768.13	.00072
2232896.1	18.00	769086.66	8.28556	1.32	.007	34678.13	.00033
2232918.2	20.00	885889.36	9.20456	.89	.003	34577.64	.00015
2233159.2	40.00	2841186.54	18.35785	0.00	0.000	33003.98	0.00000
2233464.0	60.00	6625124.97	27.39604	0.00	0.000	30435.56	0.00000
2233904.3	80.00	13311713.09	36.21821	0.00	0.000	26952.72	0.00000
2234645.3	100.00	25233540.22	44.63621	0.00	0.000	22666.00	0.00000
2236143.0	120.00	47683077.72	52.23043	0.00	0.000	17716.48	0.00000
2239492.5	140.00	92754583.20	57.78770	0.00	0.000	12285.55	0.00000
2251128.9	160.00	178088784.54	55.92703	0.00	0.000	6677.12	0.00000
2278957.9	180.00	248266828.95	.08103	0.00	0.000	2765.61	0.00000

REVOLUTION 8

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
2278957.9	-180.00	205929826.37	.08103	0.00	0.000	3259.61	0.00000
2299447.5	-160.00	154601168.24	52.07053	0.00	0.000	0853.53	0.00000
2308719.7	-140.00	85357999.64	55.59635	0.00	0.000	12313.59	0.00000
2312122.0	-120.00	45319851.09	50.80330	0.00	0.000	17662.48	0.00000
2313550.5	-100.00	24382690.41	43.64345	0.00	0.000	22553.22	0.00000
2314275.8	-80.00	12979202.02	35.51520	0.00	0.000	26794.68	0.00000
2314712.7	-60.00	6494192.30	26.91093	0.00	0.000	30243.00	0.00000
2315017.5	-40.00	2795465.21	18.05157	0.00	0.000	32786.85	0.00000
2315259.6	-20.00	875948.48	9.05607	.90	.004	34345.76	.00016
2315281.9	-18.00	761104.44	8.15218	1.33	.008	34445.32	.00034
2315304.0	-16.00	658996.75	7.24778	1.98	.017	34534.48	.00075
2315325.9	-14.00	569405.95	6.34293	2.96	.037	34613.22	.00167
2315347.6	-12.00	492140.57	5.43770	4.77	.096	34681.51	.00430
2315369.2	-10.00	427036.27	4.53216	9.68	.392	34739.33	.01755
2315390.7	-8.00	373955.14	3.62639	25.99	2.815	34786.66	.12581
2315412.0	-6.00	332785.13	2.72052	70.06	20.377	34823.49	.90976
2315433.3	-4.00	303439.57	1.81478	157.69	102.976	34849.81	4.59407
2315454.5	-2.00	285856.82	.91013	262.12	284.108	34865.60	12.66913
2315473.1	0.00	280000.00	.08103	309.06	394.776	34870.86	17.60146
2315491.7	2.00	285856.82	.91013	262.12	284.108	34865.60	12.66913
2315512.8	4.00	303439.57	1.81478	157.69	102.976	34849.81	4.59407
2315534.1	6.00	332785.13	2.72052	70.06	20.377	34823.49	.90976
2315555.5	8.00	373955.14	3.62639	25.99	2.815	34786.66	.12581
2315576.9	10.00	427036.27	4.53216	9.68	.392	34739.33	.01755
2315598.5	12.00	492140.57	5.43770	4.77	.096	34681.51	.00430
2315620.2	14.00	569405.95	6.34293	2.96	.037	34613.22	.00167
2315642.1	16.00	658996.75	7.24778	1.98	.017	34534.48	.00075
2315664.2	18.00	761104.44	8.15218	1.33	.008	34445.32	.00034
2315686.5	20.00	875948.48	9.05607	.90	.004	34345.76	.00016
2315928.6	40.00	2795465.21	18.05157	0.00	0.000	32786.85	0.00000
2316233.5	60.00	6494192.30	26.91093	0.00	0.000	30243.00	0.00000
2316670.4	80.00	12979202.02	35.51520	0.00	0.000	26794.68	0.00000
2317395.6	100.00	24382690.41	43.64345	0.00	0.000	22553.22	0.00000
2318824.1	120.00	45319851.09	50.80330	0.00	0.000	17662.48	0.00000
2322226.4	140.00	85357999.64	55.59635	0.00	0.000	12313.59	0.00000
2331498.7	160.00	154601168.24	52.07053	0.00	0.000	0853.53	0.00000
2351988.2	180.00	205929826.37	.08103	0.00	0.000	3259.61	0.00000

REVOLUTION 9

TIME	THETA	ALTITUDE	GAMMA	GCONT	GFM	VELOCITY	P T
2351988.2	-180.00	172462461.17	.08103	0.00	0.000	3795.74	0.00000
2367356.2	-160.00	134426508.29	48.12356	0.00	0.000	7078.48	0.00000
2375028.6	-140.00	78257045.91	53.23403	0.00	0.000	12364.91	0.00000
2378105.3	-120.00	42900712.99	49.24620	0.00	0.000	17617.27	0.00000
2379463.8	-100.00	23481976.56	42.55484	0.00	0.000	22439.76	0.00000
2380172.2	-80.00	12620704.90	34.74309	0.00	0.000	26629.21	0.00000
2380605.5	-60.00	6351549.94	26.37764	0.00	0.000	30038.14	0.00000
2380910.4	-40.00	2745358.11	17.71468	0.00	0.000	32554.06	0.00000
2381153.7	-20.00	865020.41	8.89270	.91	.004	34096.23	.00017
2381176.1	-18.00	752327.92	8.00543	1.34	.008	34194.73	.00036
2381198.4	-16.00	652114.88	7.11755	1.99	.017	34282.94	.00078
2381220.6	-14.00	564172.30	6.22915	2.97	.038	34360.85	.00173
2381242.3	-12.00	488317.74	5.34031	4.81	.100	34428.41	.00450
2381264.0	-10.00	424394.54	4.45109	9.83	.414	34485.62	.01868
2381285.6	-8.00	372271.21	3.56160	26.34	2.961	34532.45	.13333
2381307.2	-6.00	331840.87	2.67197	70.18	20.946	34568.88	.94206
2381328.6	-4.00	303020.84	1.78245	155.97	103.219	34594.92	4.63882
2381349.9	-2.00	285752.28	.89401	256.88	279.553	34610.54	12.55787
2381368.8	0.00	280000.00	.08103	301.99	386.174	34615.75	17.34486
2381387.8	2.00	285752.28	.89401	256.88	279.553	34610.54	12.55787
2381409.1	4.00	303020.84	1.78245	155.97	103.219	34594.92	4.63882
2381430.5	6.00	331840.87	2.67197	70.18	20.946	34568.88	.94206
2381452.1	8.00	372271.21	3.56160	26.34	2.961	34532.45	.13333
2381473.7	10.00	424394.54	4.45109	9.83	.414	34485.62	.01868
2381495.4	12.00	488317.74	5.34031	4.81	.100	34428.41	.00450
2381517.3	14.00	564172.30	6.22915	2.97	.038	34360.85	.00173
2381539.3	16.00	652114.88	7.11755	1.99	.017	34282.94	.00078
2381561.6	18.00	752327.92	8.00543	1.34	.008	34194.73	.00036
2381584.0	20.00	865020.41	8.89270	.91	.004	34096.23	.00017
2381827.3	40.00	2745358.11	17.71468	0.00	0.000	32554.06	0.00000
2382132.2	60.00	6351549.94	26.37764	0.00	0.000	30038.14	0.00000
2382565.5	80.00	12620704.90	34.74309	0.00	0.000	26629.21	0.00000
2383273.9	100.00	23481976.56	42.55484	0.00	0.000	22439.76	0.00000
2384632.3	120.00	42900712.99	49.24620	0.00	0.000	17617.27	0.00000
2387709.1	140.00	78257045.91	53.23403	0.00	0.000	12364.91	0.00000
2395381.5	160.00	134426508.29	48.12356	0.00	0.000	7078.48	0.00000
2410749.5	180.00	172462461.17	.08103	0.00	0.000	3795.74	0.00000

REVOLUTION 10

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
2410749.5	-180.00	145489404.42	.08103	0.00	0.000	4376.06	0.00000
2422455.5	-160.00	117008451.26	44.14549	0.00	0.000	7357.62	0.00000
2428820.7	-140.00	71474566.14	50.70482	0.00	0.000	12444.63	0.00000
2431544.1	-120.00	40438725.28	47.55328	0.00	0.000	17584.16	0.00000
2432881.9	-100.00	22532797.42	41.36505	0.00	0.000	22327.59	0.00000
2433572.8	-80.00	12235476.42	33.89701	0.00	0.000	26457.32	0.00000
2434002.1	-60.00	6136535.01	25.79246	0.00	0.000	29821.27	0.00000
2434307.0	-40.00	2690550.68	17.34474	0.00	0.000	32305.45	0.00000
2434551.5	-20.00	853026.74	8.71323	.92	.004	33828.63	.00018
2434574.2	-18.00	742693.65	7.84421	1.35	.008	33925.93	.00038
2434596.6	-16.00	644559.07	6.97449	2.00	.018	34013.06	.00082
2434618.8	-14.00	558425.21	6.10416	2.98	.039	34090.02	.00180
2434640.8	-12.00	484119.30	5.23331	4.87	.105	34156.76	.00477
2434662.7	-10.00	421492.93	4.36202	10.00	.440	34213.27	.02001
2434684.5	-8.00	370421.45	3.49042	26.74	3.132	34259.53	.14214
2434706.2	-6.00	330803.55	2.61863	70.33	21.598	34295.52	.97912
2434727.8	-4.00	302560.81	1.74692	154.17	103.524	34321.24	4.68962
2434749.3	-2.00	285637.42	.87621	251.34	274.733	34336.68	12.43981
2434768.5	0.00	280000.00	.08103	294.53	377.079	34341.82	17.07143
2434787.8	2.00	285637.42	.87621	251.34	274.733	34336.68	12.43981
2434809.3	4.00	302560.81	1.74692	154.17	103.524	34321.24	4.68962
2434830.9	6.00	330803.55	2.61863	70.33	21.598	34295.52	.97912
2434852.6	8.00	370421.45	3.49042	26.74	3.132	34259.53	.14214
2434874.4	10.00	421492.93	4.36202	10.00	.440	34213.27	.02001
2434896.3	12.00	484119.30	5.23331	4.87	.105	34156.76	.00477
2434918.3	14.00	558425.21	6.10416	2.98	.039	34090.02	.00180
2434940.5	16.00	644559.07	6.97449	2.00	.018	34013.06	.00082
2434962.9	18.00	742693.65	7.84421	1.35	.008	33925.93	.00038
2434985.5	20.00	853026.74	8.71323	.92	.004	33828.63	.00018
2435230.1	40.00	2690550.68	17.34474	0.00	0.000	32305.45	0.00000
2435535.0	60.00	6196535.01	25.79246	0.00	0.000	29821.27	0.00000
2435964.3	80.00	12235476.42	33.89701	0.00	0.000	26457.32	0.00000
2436655.2	100.00	22532797.42	41.36505	0.00	0.000	22327.59	0.00000
2437443.0	120.00	40438725.28	47.55328	0.00	0.000	17584.16	0.00000
2440716.4	140.00	71474566.14	50.70482	0.00	0.000	12444.63	0.00000
2447081.5	160.00	117008451.26	44.14549	0.00	0.000	7357.62	0.00000
2458787.6	180.00	145489404.42	.08103	0.00	0.000	4376.06	0.00000

RESOLUTION 11

TIME	THETA	ALTITUDE	GAMMA	SCONT	OFM	VELOCITY	P T
2454787.6	-180.00	123391361.92	.04113	0.00	0.000	5003.02	0.00000
2454820.9	-160.00	101891094.99	40.19447	0.00	0.000	7096.27	0.00000
2473114.1	-140.00	65022137.95	48.01565	0.00	0.000	12558.44	0.00000
2475606.5	-120.00	37945705.68	45.72116	0.00	0.000	17566.93	0.00000
2476823.6	-100.00	21536411.55	40.06747	0.00	0.000	22218.96	0.00000
2477495.9	-80.00	11822621.67	32.97123	0.00	0.000	26280.14	0.00000
2477920.9	-60.00	6028370.47	25.15105	0.00	0.000	29592.75	0.00000
2478225.9	-40.00	2630672.86	16.93886	0.00	0.000	32040.81	0.00000
2478471.8	-20.00	434874.91	8.51623	.94	.004	33542.44	.00019
2478494.6	-18.00	732126.70	7.66724	1.37	.009	33638.37	.00040
2478517.2	-16.00	636270.16	6.81744	2.01	.019	33724.29	.00086
2478539.6	-14.00	552119.41	5.96644	3.00	.041	33800.17	.00190
2478561.8	-12.00	479512.02	5.11584	4.93	.111	33865.98	.00509
2478583.9	-10.00	418308.35	4.26425	10.23	.474	33921.70	.02173
2478605.8	-8.00	368391.10	3.41227	27.29	3.355	33967.31	.15359
2478627.7	-6.00	329664.87	2.56007	70.55	22.354	34002.80	1.02211
2478649.5	-4.00	302055.80	1.70743	152.28	103.904	34028.17	4.74739
2478671.2	-2.00	285511.33	.45689	245.51	269.653	34043.38	12.31499
2478690.8	0.00	280000.00	.04103	286.68	367.498	34048.46	16.78101
2478710.3	2.00	285511.33	.45689	245.51	269.653	34043.38	12.31499
2478732.0	4.00	302055.80	1.70743	152.28	103.904	34028.17	4.74739
2478753.8	6.00	329664.87	2.56007	70.55	22.354	34002.80	1.02211
2478775.7	8.00	368391.10	3.41227	27.29	3.355	33967.31	.15359
2478797.7	10.00	418308.35	4.26425	10.23	.474	33921.70	.02173
2478819.7	12.00	479512.02	5.11584	4.93	.111	33865.98	.00509
2478842.0	14.00	552119.41	5.96644	3.00	.041	33800.17	.00190
2478864.4	16.00	636270.16	6.81744	2.01	.019	33724.29	.00086
2478886.9	18.00	732126.70	7.66724	1.37	.009	33638.37	.00040
2478909.7	20.00	834874.91	8.51623	.94	.004	33542.44	.00019
2479155.6	40.00	2630672.86	16.93886	0.00	0.000	32040.81	0.00000
2479460.6	60.00	6028370.47	25.15105	0.00	0.000	29592.75	0.00000
2479885.6	80.00	11822621.67	32.97123	0.00	0.000	26280.14	0.00000
2480557.9	100.00	21536411.55	40.06747	0.00	0.000	22218.96	0.00000
2481775.0	120.00	37945705.68	45.72116	0.00	0.000	17566.93	0.00000
2484267.4	140.00	65022137.95	48.01565	0.00	0.000	12558.44	0.00000
2484560.6	160.00	101891094.99	40.19447	0.00	0.000	7096.27	0.00000
2494543.9	180.00	123391361.92	.04103	0.00	0.000	5003.02	0.00000

RESOLUTION 12

TIME	THETA	ALTITUDE	GAMMA	CCONT	DEP	VELOCITY	P 1
2448593.9	-180.00	105030047.27	.08103	0.00	0.000	5679.55	0.00000
2505641.2	-160.00	88701076.00	36.32445	0.00	0.000	8099.43	0.00000
2510052.2	-140.00	58902430.81	45.17665	0.00	0.000	12712.58	0.00000
2512285.6	-120.00	35432151.93	43.74310	0.00	0.000	17569.97	0.00000
2513432.2	-100.00	20493893.91	38.65479	0.00	0.000	22116.55	0.00000
2514085.2	-80.00	11381065.90	31.95416	0.00	0.000	26099.03	0.00000
2514505.5	-60.00	5846144.82	24.44832	0.00	0.000	29352.97	0.00000
2514810.5	-40.00	2565287.42	16.49364	0.00	0.000	31759.90	0.00000
2515057.9	-20.00	825455.05	8.30000	.95	.004	33237.03	.00021
2515080.8	-18.00	720538.12	7.47299	1.39	.009	33331.41	.00043
2515103.6	-16.00	627177.89	6.64506	2.03	.020	33415.95	.00091
2515126.2	-14.00	545201.15	5.81632	3.02	.043	33490.60	.00201
2515148.6	-12.00	474456.41	4.98630	5.02	.118	33555.35	.00549
2515170.9	-10.00	414813.40	4.15691	10.53	.517	33610.18	.02393
2515193.0	-8.00	366162.62	3.32649	27.94	3.628	33655.06	.16761
2515215.1	-6.00	328414.96	2.49579	70.85	23.246	33689.98	1.07278
2515237.1	-4.00	301501.43	1.66512	150.32	104.375	33714.93	4.81323
2515259.0	-2.00	285372.91	.83556	239.38	264.317	33729.91	12.18347
2515278.9	0.00	280000.00	.08103	278.44	357.438	33734.90	16.47336
2515298.8	2.00	245372.91	.83556	239.38	264.317	33729.91	12.18347
2515320.7	4.00	301501.43	1.66512	150.32	104.375	33714.93	4.81323
2515342.7	6.00	328414.96	2.49579	70.85	23.246	33689.98	1.07278
2515364.8	8.00	366162.62	3.32649	27.94	3.628	33655.06	.16761
2515386.9	10.00	414813.40	4.15691	10.53	.517	33610.18	.02393
2515409.2	12.00	474456.41	4.98630	5.02	.118	33555.35	.00549
2515431.6	14.00	545201.15	5.81632	3.02	.043	33490.60	.00201
2515454.2	16.00	627177.89	6.64506	2.03	.020	33415.95	.00091
2515477.0	18.00	720538.12	7.47299	1.39	.009	33331.41	.00043
2515499.9	20.00	825455.05	8.30000	.95	.004	33237.03	.00021
2515747.3	40.00	2565287.42	16.49364	0.00	0.000	31759.90	0.00000
2516052.2	60.00	5846144.82	24.44832	0.00	0.000	29352.97	0.00000
2516472.6	80.00	11381065.90	31.95416	0.00	0.000	26099.03	0.00000
2517125.6	100.00	20493893.91	38.65479	0.00	0.000	22116.55	0.00000
2517272.2	120.00	35432151.93	43.74310	0.00	0.000	17569.97	0.00000
2520505.5	140.00	58902430.81	45.17665	0.00	0.000	12712.58	0.00000
2524916.5	160.00	88701076.00	36.32445	0.00	0.000	8099.43	0.00000
2531463.9	180.00	105030047.27	.08103	0.00	0.000	5679.55	0.00000

REVOLUTION 13

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
2531963.9	-180.00	89584177.81	.08103	0.00	0.000	6409.16	0.00000
2537512.6	-160.00	77132098.74	32.57993	0.00	0.000	8571.89	0.00000
2541194.8	-140.00	53111222.23	42.20131	0.00	0.000	12913.93	0.00000
2543190.2	-120.00	32907180.01	41.61519	0.00	0.000	17598.35	0.00000
2544266.9	-100.00	19406080.54	37.11888	0.00	0.000	22023.49	0.00000
2544499.7	-80.00	10909514.05	30.85315	0.00	0.000	25915.61	0.00000
2545315.1	-60.00	5648777.05	23.67825	0.00	0.000	29102.42	0.00000
2545619.9	-40.00	2493874.49	16.00503	0.00	0.000	31462.41	0.00000
2545868.9	-20.00	809635.93	8.06252	.98	.005	32911.63	.00022
2545892.1	-18.00	707821.62	7.25963	1.42	.010	33004.25	.00047
2545915.1	-16.00	617198.29	6.45571	2.05	.021	33087.21	.00097
2545937.8	-14.00	537606.12	5.65088	3.06	.046	33160.47	.00214
2545960.5	-12.00	468905.25	4.84527	5.13	.128	33224.02	.00598
2545983.0	-10.00	410975.30	4.03901	10.87	.570	33277.82	.02661
2546005.3	-8.00	363715.02	3.23225	28.70	3.956	33321.87	.18456
2546027.6	-6.00	327042.02	2.42518	71.23	24.281	33356.14	1.13178
2546049.9	-4.00	300992.44	1.61810	148.28	104.957	33380.63	4.88850
2546072.0	-2.00	285220.84	.81214	232.97	258.727	33395.33	12.04526
2546092.2	0.00	280000.00	.08103	269.83	346.905	33400.23	16.14813
2546112.4	2.00	285220.84	.81214	232.97	258.727	33395.33	12.04526
2546134.6	4.00	300992.44	1.61810	148.28	104.957	33380.63	4.88850
2546156.8	6.00	327042.02	2.42518	71.23	24.281	33356.14	1.13178
2546179.1	8.00	363715.02	3.23225	28.70	3.956	33321.87	.18456
2546201.4	10.00	410975.30	4.03901	10.87	.570	33277.82	.02661
2546223.9	12.00	468905.25	4.84527	5.13	.128	33224.02	.00598
2546246.6	14.00	537606.12	5.65088	3.06	.046	33160.47	.00214
2546269.3	16.00	617198.29	6.45571	2.05	.021	33087.21	.00097
2546292.3	18.00	707821.62	7.25963	1.42	.010	33004.25	.00047
2546315.5	20.00	809635.93	8.06252	.98	.005	32911.63	.00022
2546364.5	40.00	2493874.49	16.00503	0.00	0.000	31462.41	0.00000
2546369.3	60.00	5648777.05	23.67825	0.00	0.000	29102.42	0.00000
2547284.7	80.00	10909514.05	30.85315	0.00	0.000	25915.61	0.00000
2547917.5	100.00	19406080.54	37.11888	0.00	0.000	22023.49	0.00000
2548994.2	120.00	32907180.01	41.61519	0.00	0.000	17598.35	0.00000
2550989.6	140.00	53111222.23	42.20131	0.00	0.000	12913.93	0.00000
2554671.8	160.00	77132098.74	32.57993	0.00	0.000	8571.89	0.00000
2560220.5	180.00	89584177.81	.08103	0.00	0.000	6409.16	0.00000

REVOLUTION 14

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
2560220.5	-180.00	76447674.40	.08103	0.00	0.000	7196.98	0.00000
2564622.8	-160.00	66932021.66	28.99605	0.00	0.000	9118.43	0.00000
2567700.6	-140.00	47639054.93	39.10639	0.00	0.000	13170.02	0.00000
2569478.3	-120.00	30378464.72	39.33354	0.00	0.000	17657.94	0.00000
2570485.9	-100.00	18273495.30	35.45073	0.00	0.000	21943.52	0.00000
2571097.8	-80.00	10406395.18	29.64432	0.00	0.000	25731.80	0.00000
2571507.7	-60.00	5434980.97	22.83373	0.00	0.000	28841.66	0.00000
2571812.5	-40.00	2415810.69	15.46817	0.00	0.000	31147.95	0.00000
2572063.2	-20.00	792259.35	7.80134	1.00	.005	32565.29	.00025
2572086.5	-18.00	693849.02	7.02497	1.44	.011	32655.90	.00051
2572109.7	-16.00	606230.07	6.24744	2.09	.022	32737.06	.00105
2572132.7	-14.00	529256.80	5.46889	3.11	.049	32808.73	.00231
2572155.6	-12.00	462801.57	4.68947	5.28	.140	32870.90	.00662
2572178.3	-10.00	406754.46	3.90931	11.35	.644	32923.55	.03039
2572200.9	-8.00	361022.99	3.12859	29.58	4.353	32966.64	.20528
2572223.5	-6.00	325531.80	2.34750	71.70	25.491	33000.18	1.20096
2572245.9	-4.00	300222.52	1.56637	146.17	105.671	33024.14	4.97491
2572268.3	-2.00	285053.56	.78639	226.28	252.884	33038.52	11.90038
2572288.9	0.00	280000.00	.08103	260.85	335.902	33043.31	15.80485
2572309.4	2.00	285053.56	.78639	226.28	252.884	33038.52	11.90038
2572331.8	4.00	300222.52	1.56637	146.17	105.671	33024.14	4.97491
2572354.2	6.00	325531.80	2.34750	71.70	25.491	33000.18	1.20096
2572376.8	8.00	361022.99	3.12859	29.58	4.353	32966.64	.20528
2572399.4	10.00	406754.46	3.90931	11.35	.644	32923.55	.03039
2572422.1	12.00	462801.57	4.68947	5.28	.140	32870.90	.00662
2572445.0	14.00	529256.80	5.46889	3.11	.049	32808.73	.00231
2572468.0	16.00	606230.07	6.24744	2.09	.022	32737.06	.00105
2572491.2	18.00	693849.02	7.02497	1.44	.011	32655.90	.00051
2572514.5	20.00	792259.35	7.80134	1.00	.005	32565.29	.00025
2572765.3	40.00	2415810.69	15.46817	0.00	0.000	31147.95	0.00000
2573070.0	60.00	5434980.97	22.83373	0.00	0.000	28841.66	0.00000
2573479.9	80.00	10406395.18	29.64432	0.00	0.000	25731.80	0.00000
2574091.8	100.00	18273495.30	35.45073	0.00	0.000	21943.52	0.00000
2575099.4	120.00	30378464.72	39.33354	0.00	0.000	17657.94	0.00000
2576877.1	140.00	47639054.93	39.10639	0.00	0.000	13170.02	0.00000
2579454.9	160.00	66932021.66	28.99605	0.00	0.000	9118.43	0.00000
2584357.2	180.00	76447674.40	.08103	0.00	0.000	7196.98	0.00000

REVOLUTION 15

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
2544357.2	-180.00	65164264.74	.08103	0.00	0.000	8045.49	0.00000
2544371.8	-160.00	57892284.92	25.59690	0.00	0.000	9744.11	0.00000
2544446.6	-140.00	42472543.68	35.91154	0.00	0.000	13449.12	0.00000
2544525.3	-120.00	27852168.45	36.89509	0.00	0.000	17755.60	0.00000
2544565.0	-100.00	17096249.82	33.64033	0.00	0.000	21881.13	0.00000
2544555.1	-80.00	9869784.86	28.32224	0.00	0.000	25549.97	0.00000
2544595.3	-60.00	5203206.60	21.40621	0.00	0.000	28571.38	0.00000
2544635.8	-40.00	2330340.31	14.47716	0.00	0.000	30816.04	0.00000
2544676.3	-20.00	773132.51	7.51348	1.03	.006	32196.85	.00028
2544539.9	-18.00	678464.06	6.76632	1.48	.012	32285.15	.00056
2544563.4	-16.00	594149.70	6.01787	2.13	.024	32364.25	.00115
2544586.6	-14.00	520058.54	5.26828	3.16	.053	32434.10	.00252
2544609.7	-12.00	456075.82	4.51771	5.47	.156	32494.70	.00746
2544632.7	-10.00	402102.61	3.76632	11.95	.741	32546.01	.03538
2544655.6	-8.00	358055.61	3.01420	30.56	4.827	32588.01	.23031
2544678.4	-6.00	323866.93	2.26186	72.29	26.915	32620.70	1.28282
2544701.1	-4.00	299483.43	1.50935	143.99	106.541	32644.05	5.07428
2544723.7	-2.00	284969.11	.75800	219.31	246.788	32658.07	11.74881
2544744.6	0.00	280000.00	.08103	251.51	324.429	32662.74	15.44289
2544765.5	2.00	284869.11	.75800	219.31	246.788	32658.07	11.74881
2544788.2	4.00	299483.43	1.50935	143.99	106.541	32644.05	5.07428
2544811.9	6.00	323866.93	2.26186	72.29	26.915	32620.70	1.28282
2544833.7	8.00	358055.61	3.01420	30.56	4.827	32588.01	.23031
2544856.5	10.00	402102.61	3.76632	11.95	.741	32546.01	.03538
2544879.5	12.00	456075.82	4.51771	5.47	.156	32494.70	.00746
2544902.6	14.00	520058.54	5.26828	3.16	.053	32434.10	.00252
2544925.9	16.00	594149.70	6.01787	2.13	.024	32364.25	.00115
2544949.3	18.00	678464.06	6.76632	1.48	.012	32285.15	.00056
2544972.9	20.00	773132.51	7.51348	1.03	.006	32196.85	.00028
2545025.5	40.00	2330340.31	14.47716	0.00	0.000	30816.04	0.00000
2545030.0	60.00	5203206.60	21.40621	0.00	0.000	28571.38	0.00000
2545034.1	80.00	9869784.86	28.32224	0.00	0.000	25549.97	0.00000
2545074.2	100.00	17096249.82	33.64033	0.00	0.000	21881.13	0.00000
2545163.9	120.00	27852168.45	36.89509	0.00	0.000	17755.60	0.00000
2545242.7	140.00	42472543.68	35.91154	0.00	0.000	13449.12	0.00000
2601617.4	160.00	57892284.92	25.59690	0.00	0.000	9744.11	0.00000
2605132.0	180.00	65164264.74	.08103	0.00	0.000	8045.49	0.00000

REVOLUTION 16

TIME	THETA	ALTITUDE	GAMMA	CONT	JFM	VELOCITY	P T
2605132.0	-180.00	55384184.14	.08103	0.00	0.000	8963.81	0.00000
2607451.7	-160.00	49839317.05	22.39514	0.00	0.000	10454.76	0.00000
2610100.3	-140.00	37595349.35	32.53856	0.00	0.000	13880.42	0.00000
2611503.9	-120.00	25332838.38	34.29772	0.00	0.000	17899.36	0.00000
2612376.8	-100.00	15873902.81	31.67649	0.00	0.000	21841.71	0.00000
2612444.4	-80.00	9297293.97	26.87460	0.00	0.000	25372.99	0.00000
2613342.2	-60.00	4351561.44	20.88533	0.00	0.000	28297.43	0.00000
2613646.5	-40.00	2236534.74	14.22478	.03	.000	30466.10	.00000
2613901.0	-20.00	752017.10	7.19524	1.07	.006	31804.83	.00031
2613924.9	-18.00	661473.52	6.48075	1.52	.013	31890.48	.00063
2613948.5	-16.00	580804.39	5.76403	2.18	.026	31967.20	.00127
2613972.1	-14.00	509894.30	5.04645	3.27	.058	32034.96	.00283
2613995.4	-12.00	448641.95	4.32778	5.71	.177	32093.74	.00859
2614018.7	-10.00	396959.94	3.60820	12.71	.873	32143.52	.04223
2614041.9	-8.00	354774.60	2.88731	31.69	5.409	32184.27	.26128
2614064.9	-6.00	322025.85	2.16714	73.01	28.609	32215.98	1.38070
2614087.9	-4.00	298667.10	1.44628	141.76	107.607	32238.64	5.18951
2614110.9	-2.00	284665.12	.72662	212.05	240.437	32252.24	11.59049
2614132.1	0.00	280000.00	.08103	241.79	312.482	32256.77	15.06139
2614153.4	2.00	284665.12	.72662	212.05	240.437	32252.24	11.59049
2614176.3	4.00	298667.10	1.44628	141.76	107.607	32238.64	5.18951
2614199.3	6.00	322025.85	2.16714	73.01	28.609	32215.98	1.38070
2614222.4	8.00	354774.60	2.88731	31.69	5.409	32184.27	.26128
2614245.5	10.00	396959.94	3.60820	12.71	.873	32143.52	.04223
2614268.8	12.00	448641.95	4.32778	5.71	.177	32093.74	.00859
2614292.2	14.00	509894.30	5.04645	3.27	.058	32034.96	.00283
2614315.7	16.00	580804.39	5.76403	2.18	.026	31967.20	.00127
2614339.4	18.00	661473.52	6.48075	1.52	.013	31890.48	.00063
2614363.2	20.00	752017.10	7.19524	1.07	.006	31804.83	.00031
2614387.8	40.00	2236534.74	14.22478	.03	.000	30466.10	.00000
2614422.0	60.00	4351561.44	20.88533	0.00	0.000	28297.43	0.00000
2615319.8	80.00	9297293.97	26.87460	0.00	0.000	25372.99	0.00000
2615887.4	100.00	15873902.81	31.67649	0.00	0.000	21841.71	0.00000
2616760.4	120.00	25332838.38	34.29772	0.00	0.000	17899.36	0.00000
2618157.9	140.00	37595349.35	32.53856	0.00	0.000	13880.42	0.00000
2620312.5	160.00	49839317.05	22.39514	0.00	0.000	10454.76	0.00000
2623132.2	180.00	55384184.14	.08103	0.00	0.000	8963.81	0.00000

REVOLUTION 17

TIME	THETA	ALTITUDE	GAMMA	GCONT	GFM	VELOCITY	P T
2623132.2	-180.00	46834699.20	.08103	0.00	0.000	9959.09	0.00000
2623402.5	-160.00	42627537.99	19.39850	0.00	0.000	11257.43	0.00000
2627204.7	-140.00	32988831.47	29.31029	0.00	0.000	14354.31	0.00000
2628437.4	-120.00	22823241.49	31.54030	0.00	0.000	18098.78	0.00000
2629245.1	-100.00	14605254.91	29.54556	0.00	0.000	21831.90	0.00000
2629789.3	-80.00	8685905.05	25.28661	0.00	0.000	25204.46	0.00000
2630180.3	-60.00	4677694.88	19.75432	0.00	0.000	28005.90	0.00000
2630484.1	-40.00	2133233.35	13.50197	.04	.000	30097.35	.00000
2630740.8	-20.00	728613.57	6.84200	1.12	.007	31387.36	.00036
26310764.9	-18.00	642634.41	6.16290	1.58	.014	31469.94	.00071
26311788.9	-16.00	566001.41	5.48221	2.25	.029	31543.92	.00143
26310812.7	-14.00	488616.75	4.80014	3.39	.066	31609.26	.00323
26310836.4	-12.00	440391.64	4.11687	6.04	.207	31665.94	.01018
26310860.0	-10.00	391251.18	3.43261	13.67	1.056	31713.94	.05176
26310883.4	-8.00	351131.75	2.74755	33.03	6.143	31753.23	.30079
26310906.8	-6.00	319981.45	2.06196	73.90	30.650	31783.81	1.49929
26310930.1	-4.00	297759.96	1.37626	139.47	108.921	31805.66	5.32436
26310953.4	-2.00	284438.56	.69178	204.49	233.825	31818.78	11.42531
26310975.0	0.00	280000.00	.08103	231.70	300.049	31823.15	14.65918
26310996.6	2.00	284438.56	.69178	204.49	233.825	31818.78	11.42531
26311019.9	4.00	297759.96	1.37626	139.47	108.921	31805.66	5.32436
26311043.2	6.00	319981.45	2.06196	73.90	30.650	31783.81	1.49929
26311066.6	8.00	351131.75	2.74755	33.03	6.143	31753.23	.30079
26311090.0	10.00	391251.18	3.43261	13.67	1.056	31713.94	.05176
26311113.6	12.00	440391.64	4.11687	6.04	.207	31665.94	.01018
26311137.3	14.00	488616.75	4.80014	3.39	.066	31609.26	.00323
26311161.1	16.00	566001.41	5.48221	2.25	.029	31543.92	.00143
26311185.1	18.00	642634.41	6.16290	1.58	.014	31469.94	.00071
26311209.2	20.00	728613.57	6.84200	1.12	.007	31387.36	.00036
26311465.9	40.00	2133233.35	13.50197	.04	.000	30097.35	.00000
26311764.7	60.00	4677694.88	19.75432	0.00	0.000	28005.90	0.00000
2632160.7	80.00	8685905.05	25.28661	0.00	0.000	25204.46	0.00000
2632704.9	100.00	14605254.91	29.54556	0.00	0.000	21831.90	0.00000
2633512.6	120.00	22823241.49	31.54030	0.00	0.000	18098.78	0.00000
2634745.2	140.00	32988831.47	29.31029	0.00	0.000	14354.31	0.00000
2636547.5	160.00	42627537.99	19.39850	0.00	0.000	11257.43	0.00000
2638417.8	180.00	46834699.20	.08103	0.00	0.000	9959.09	0.00000

RESULTS

TIME	TIME	ALTITUDE	DOWN	CONCAT	DEP	VELOCITY	P T
2638817.6	-180.00	39299475.39	.00103	0.00	0.000	11041.71	0.00000
2640649.8	-160.00	36133546.24	16.60064	0.00	0.000	12161.24	0.00000
2642155.6	-140.00	28632369.17	25.44426	0.00	0.000	14922.86	0.00000
2643238.4	-120.00	20324089.95	28.62247	0.00	0.000	18365.35	0.00000
2643982.2	-100.00	13288037.63	27.23599	0.00	0.000	21859.93	0.00000
2644502.2	-80.00	8031722.55	23.54721	0.00	0.000	25048.93	0.00000
2644885.8	-60.00	4374623.84	18.57715	0.00	0.000	27713.16	0.00000
2645189.1	-40.00	2018454.43	12.69724	.04	.000	29708.81	.00000
2645448.0	-20.00	702537.14	6.44780	1.18	.009	30942.03	.00043
2645472.5	-18.00	621634.52	5.80458	1.64	.016	31021.03	.00082
2645496.8	-16.00	549495.20	5.16764	2.34	.033	31091.80	.00165
2645520.9	-14.00	486036.49	4.52518	3.58	.077	31154.31	.00384
2645544.9	-12.00	431185.58	3.88141	6.51	.253	31208.54	.01259
2645568.8	-10.00	384879.49	3.23655	14.80	1.299	31254.47	.06462
2645592.6	-8.00	347065.06	2.59023	34.80	7.155	31292.07	.35548
2645616.3	-6.00	317698.81	1.94452	75.18	33.291	31321.34	1.65253
2645640.0	-4.00	296747.00	1.29807	137.15	110.546	31342.25	5.48370
2645663.6	-2.00	284185.55	.65291	196.64	226.942	31354.80	11.25311
2645685.6	0.00	280000.00	.08103	221.22	287.110	31358.48	14.23466
2645707.7	2.00	284185.55	.65291	196.64	226.942	31354.80	11.25311
2645731.3	4.00	296747.00	1.29807	137.15	110.546	31342.25	5.48370
2645754.9	6.00	317698.81	1.94452	75.18	33.291	31321.34	1.65253
2645778.6	8.00	347065.06	2.59023	34.80	7.155	31292.07	.35548
2645802.4	10.00	384879.49	3.23655	14.80	1.299	31254.47	.06462
2645825.3	12.00	431185.58	3.88141	6.51	.253	31208.54	.01259
2645850.3	14.00	486036.49	4.52518	3.58	.077	31154.31	.00384
2645874.5	16.00	549495.20	5.16764	2.34	.033	31091.80	.00165
2645898.7	18.00	621634.52	5.80458	1.64	.016	31021.03	.00082
2645923.2	20.00	702537.14	6.44780	1.18	.009	30942.03	.00043
2646182.1	40.00	2018454.43	12.69724	.04	.000	29708.81	.00000
2646485.5	60.00	4374623.84	18.50916	0.00	0.000	27713.16	0.00000
2646469.0	80.00	8031722.55	23.54721	0.00	0.000	25048.93	0.00000
2647389.1	100.00	13288037.63	27.23599	0.00	0.000	21859.93	0.00000
2648132.9	120.00	20324089.95	28.62247	0.00	0.000	18365.35	0.00000
2649215.7	140.00	28632369.17	25.44426	0.00	0.000	14922.86	0.00000
2650721.4	160.00	36133546.24	16.60064	0.00	0.000	12161.24	0.00000
2652553.4	180.00	39299475.39	.00103	0.00	0.000	11041.71	0.00000

REVOLUTION 19

TIME	THETA	ALTITUDE	GAMMA	SCONT	JFM	VELOCITY	P T
2652553.4	-180.00	32603653.80	.00103	0.00	0.000	12225.37	0.00000
2654132.8	-160.00	30251400.62	13.49411	0.00	0.000	13178.39	0.00000
2655288.0	-140.00	24503292.89	22.57550	0.00	0.000	15600.69	0.00000
2656234.6	-120.00	17833557.37	25.54402	0.00	0.000	18713.24	0.00000
2656416.0	-100.00	11318418.46	24.72746	0.00	0.000	21936.27	0.00000
2657411.0	-80.00	7329575.32	21.61252	0.00	0.000	24312.30	0.00000
2657786.5	-60.00	4050457.45	17.11722	0.00	0.000	27416.00	0.00000
2658089.1	-40.00	1891754.81	11.79551	.05	.060	29299.17	.00000
2658350.5	-20.00	673280.22	6.00481	1.26	.010	30465.60	.00052
2658375.3	-18.00	598061.76	5.41034	1.74	.019	30540.38	.00099
2658400.0	-16.00	530958.03	4.81431	2.47	.039	30607.38	.00197
2658424.6	-14.00	471903.31	4.21674	3.88	.095	30666.57	.00481
2658448.8	-12.00	420833.68	3.61655	7.19	.325	30717.92	.01644
2658473.1	-10.00	377716.90	3.01608	16.27	1.655	30761.41	.08364
2658497.2	-8.00	342492.52	2.41458	37.03	8.538	30797.02	.43104
2658521.3	-6.00	315131.79	1.81244	76.77	36.589	30824.73	1.84550
2658545.4	-4.00	295607.70	1.21014	134.79	112.572	30844.53	5.67429
2658569.3	-2.00	283900.46	.60923	188.46	219.772	30856.42	11.07358
2658591.8	0.00	280000.00	.08103	210.33	273.632	30860.38	13.78561
2658614.3	2.00	283300.96	.60923	188.46	219.772	30856.42	11.07358
2658638.3	4.00	295607.70	1.21014	134.79	112.572	30844.53	5.67429
2658662.3	6.00	315131.79	1.81244	76.77	36.589	30824.73	1.84550
2658686.4	8.00	342492.52	2.41458	37.03	8.538	30797.02	.43104
2658710.6	10.00	377716.90	3.01608	16.27	1.655	30761.41	.08364
2658734.8	12.00	420833.68	3.61655	7.19	.325	30717.92	.01644
2658759.2	14.00	471903.31	4.21674	3.88	.095	30666.57	.00481
2658783.7	16.00	530958.03	4.81431	2.47	.039	30607.38	.00197
2658808.3	18.00	598061.76	5.41034	1.74	.019	30540.38	.00099
2658833.1	20.00	673280.22	6.00481	1.26	.010	30465.60	.00052
2658894.5	40.00	1891754.81	11.79551	.05	.060	29299.17	.00000
2659397.2	60.00	4050457.45	17.11722	0.00	0.000	27416.00	0.00000
2659772.6	80.00	7329575.32	21.61252	0.00	0.000	24312.30	0.00000
2660267.7	100.00	11918418.46	24.72746	0.00	0.000	21936.27	0.00000
2660449.1	120.00	17833557.37	25.54402	0.00	0.000	18713.24	0.00000
2661845.7	140.00	24503292.89	22.57550	0.00	0.000	15600.69	0.00000
2663150.9	160.00	30251400.62	13.49411	0.00	0.000	13178.39	0.00000
2664631.2	180.00	32603653.80	.00103	0.00	0.000	12225.37	0.00000

REVOLUTION 20

TIME	HEIGHT	ALTITUDE	GAMMA	RCOUNT	ZEN	VELOCITY	P T
2664630.2	-100.00	26602516.93	.01103	0.00	0.000	13528.78	0.00000
2665423.5	-100.00	24887737.63	11.56425	0.00	0.000	14325.46	0.00000
2666466.1	-140.00	20576269.43	19.20651	0.00	0.000	16406.40	0.00000
2667688.7	-120.00	15346420.72	22.30364	0.00	0.000	19160.55	0.00000
2668304.2	-100.00	10490167.34	21.99942	0.00	0.000	22074.62	0.00000
2668778.2	-80.00	6572347.85	19.47512	0.00	0.000	24802.47	0.00000
2669144.8	-60.00	3687937.93	15.55504	0.00	0.000	27116.46	0.00000
2669446.6	-40.00	1748996.30	10.77640	.06	0.000	28866.61	.00000
2669710.7	-20.00	640149.56	5.50229	1.36	.013	29953.60	.00066
2669735.9	-18.00	571353.11	4.45449	1.87	.024	30023.36	.00123
2669760.9	-16.00	509944.49	4.41270	2.68	.048	30085.87	.00250
2669785.7	-14.00	455975.15	3.86516	4.32	.125	30141.10	.00645
2669810.5	-12.00	409102.19	3.31510	8.26	.454	30189.02	.02339
2669835.2	-10.00	364588.32	2.76579	18.37	2.234	30229.61	.11492
2669859.7	-8.00	337301.96	2.21447	39.99	10.550	30262.44	.54202
2669884.3	-6.00	312217.22	1.66248	78.75	40.805	30288.71	2.09458
2669908.7	-4.00	294313.96	1.11033	132.42	115.125	30307.20	5.90589
2669933.1	-2.00	283577.77	.55969	179.92	212.287	30318.29	10.88627
2669956.1	0.00	280000.00	.08103	198.99	259.559	30321.99	13.30879
2669979.1	2.00	283577.77	.55969	179.92	212.287	30318.29	10.88627
2670003.5	4.00	294313.96	1.11033	132.42	115.125	30307.20	5.90589
2670027.9	6.00	312217.22	1.66248	78.75	40.805	30288.71	2.09458
2670052.5	8.00	337301.96	2.21447	39.99	10.550	30262.44	.54202
2670077.0	10.00	364588.32	2.76579	18.37	2.234	30229.61	.11492
2670101.7	12.00	409102.19	3.31510	8.26	.454	30189.02	.02339
2670126.5	14.00	455975.15	3.86516	4.32	.125	30141.10	.00645
2670151.3	16.00	509944.49	4.41270	2.68	.048	30085.87	.00250
2670176.4	18.00	571353.11	4.45449	1.87	.024	30023.36	.00123
2670201.5	20.00	640149.56	5.50229	1.36	.013	29953.60	.00066
2670465.6	40.00	1748996.30	10.77640	.06	0.000	28866.61	.00000
2670767.4	60.00	3687937.93	15.55504	0.00	0.000	27116.46	0.00000
2671134.0	80.00	6572347.85	19.47512	0.00	0.000	24802.47	0.00000
2671603.0	100.00	10490167.34	21.99942	0.00	0.000	22074.62	0.00000
2672223.5	120.00	15346420.72	22.30364	0.00	0.000	19160.55	0.00000
2673046.1	140.00	20576269.43	19.20651	0.00	0.000	16406.40	0.00000
2674088.7	160.00	24887737.63	11.56425	0.00	0.000	14325.46	0.00000
2675232.0	180.00	26602516.93	.01103	0.00	0.000	13528.78	0.00000

REVOLUTION 21

TIME	THETA	ALTITUDE	CAM #A	ACONT	LFM	VELOCITY	P T
2675282.0	-180.00	21172060.85	.08103	0.00	0.000	14478.79	0.00000
2675241.2	-160.00	19957514.06	9.29275	0.00	0.000	15628.47	0.00000
2677102.4	-140.00	16821755.22	15.45147	0.00	0.000	17365.32	0.00000
2677812.1	-120.00	12852426.00	18.49620	0.00	0.000	19731.48	0.00000
2678373.0	-100.00	8993147.35	19.02309	0.00	0.000	22293.63	0.00000
2678814.8	-80.00	5749774.28	17.08759	0.00	0.000	24730.36	0.00000
2679171.6	-60.00	3283618.96	13.78444	0.00	0.000	26419.13	0.00000
2679472.2	-40.00	1586928.49	9.61106	.08	.000	28408.50	.00000
2679734.3	-20.00	602153.44	4.32445	1.52	.017	29399.58	.00088
2679754.9	-18.00	540703.23	4.43422	2.07	.031	29463.27	.00163
2679790.3	-16.00	435816.55	3.35139	3.03	.066	29520.36	.00346
2679815.6	-14.00	437462.35	3.46173	5.06	.182	29570.80	.00958
2679840.8	-12.00	395612.64	2.47049	10.09	.721	29614.57	.03785
2679866.0	-10.00	360243.00	2.47792	21.58	3.287	29651.65	.17234
2679891.0	-8.00	331332.64	1.48421	44.00	13.618	29682.01	.71332
2679916.0	-6.00	308864.63	1.45100	81.42	46.506	29705.64	2.43407
2679940.9	-4.00	292825.54	.99555	130.04	118.397	29722.53	6.19320
2679965.8	-2.00	283205.91	.50281	170.97	204.441	29732.67	10.69045
2679989.3	0.00	280000.00	.08113	187.12	244.800	29736.05	12.79940
2680012.8	2.00	283205.91	.50281	170.97	204.441	29732.67	10.69045
2680037.7	4.00	292825.54	.99555	130.04	118.397	29722.53	6.19320
2680062.7	6.00	308864.63	1.45100	81.42	46.506	29705.64	2.43407
2680087.7	8.00	331332.64	1.48421	44.00	13.618	29682.01	.71332
2680112.7	10.00	360243.00	2.47792	21.58	3.287	29651.65	.17234
2680137.8	12.00	395612.64	2.47049	10.09	.721	29614.57	.03785
2680163.0	14.00	437462.35	3.46173	5.06	.182	29570.80	.00958
2680188.3	16.00	435816.55	3.35139	3.03	.066	29520.36	.00346
2680213.8	18.00	540703.23	4.43422	2.07	.031	29463.27	.00163
2680239.4	20.00	602153.44	4.32445	1.52	.017	29399.58	.00088
2680266.4	22.00	1586928.49	9.61106	.08	.000	28408.50	.00000
2680287.1	24.00	3283618.96	13.78444	0.00	0.000	26419.13	0.00000
2680316.8	26.00	5749774.28	17.08759	0.00	0.000	24730.36	0.00000
2680345.7	28.00	8993147.35	19.02309	0.00	0.000	22293.63	0.00000
2680376.5	30.00	12852426.00	18.49620	0.00	0.000	19731.48	0.00000
2680407.2	32.00	16821755.22	15.45047	0.00	0.000	17365.32	0.00000
2680437.4	34.00	19957514.06	9.29275	0.00	0.000	15628.47	0.00000
2680466.7	36.00	21172060.85	.08103	0.00	0.000	14478.79	0.00000

REVOLUTION 22

TIME	TIME TA	ALTITUDE	GAM TA	ACONT	RFM	VELOCITY	P 1
26844646.7	-180.00	16199579.07	.08103	0.00	0.000	16616.35	0.00000
2685462.6	-160.00	15377776.07	7.15589	0.00	0.000	17125.87	0.00000
2686168.1	-140.00	13202515.44	12.50598	0.00	0.000	18514.83	0.00000
2686774.3	-120.00	10332943.21	15.30727	0.00	0.000	20460.77	0.00000
2687276.6	-100.00	7410311.22	15.75625	0.00	0.000	22620.33	0.00000
2687689.8	-80.00	4846050.92	14.39239	0.00	0.000	24712.08	0.00000
2688035.6	-60.00	2826250.42	11.74884	0.00	0.000	26527.78	0.00000
2688334.7	-40.00	1392870.37	8.25605	.12	.000	27920.73	.00001
2688605.1	-20.00	557783.85	4.24952	1.76	.024	28793.59	.00129
2688631.1	-18.00	504945.13	3.83149	2.43	.046	28849.79	.00246
2688657.1	-16.00	457601.73	3.41133	3.72	.106	28900.17	.00571
2688682.9	-14.00	415918.36	2.92930	6.46	.319	28944.69	.01711
2688708.6	-12.00	379921.28	2.56566	12.89	1.264	28983.33	.06780
2688734.3	-10.00	349298.43	2.14068	25.97	5.111	29016.07	.27389
2688759.8	-8.00	324339.48	1.71464	49.50	18.521	29042.88	.99147
2688785.4	-6.00	304935.51	1.28762	85.22	54.748	29063.75	2.92869
2688810.9	-4.00	291081.02	.86112	127.68	122.642	29078.66	6.55999
2688836.3	-2.00	282770.01	.43536	161.52	196.160	29087.62	10.48486
2688860.4	0.00	280000.00	.08103	174.62	229.233	29090.60	12.24979
2688884.5	2.00	282770.01	.43536	161.52	196.160	29087.62	10.48486
2688910.0	4.00	291081.02	.86112	127.68	122.642	29078.66	6.55999
2688935.5	6.00	304935.51	1.28762	85.22	54.748	29063.75	2.92869
2688961.0	8.00	324339.48	1.71464	49.50	18.521	29042.88	.99147
2688986.6	10.00	349298.43	2.14068	25.97	5.111	29016.07	.27389
2689012.2	12.00	379921.28	2.56566	12.89	1.264	28983.33	.06780
2689037.9	14.00	415918.36	2.92930	6.46	.319	28944.69	.01711
2689063.8	16.00	457601.73	3.41133	3.72	.106	28900.17	.00571
2689089.7	18.00	504945.13	3.83149	2.43	.046	28849.79	.00246
2689115.7	20.00	557783.85	4.24952	1.76	.024	28793.59	.00129
2689386.1	40.00	1392870.37	8.25605	.12	.000	27920.73	.00001
2689685.2	60.00	2826250.42	11.74884	0.00	0.000	26527.78	0.00000
2690031.0	80.00	4846050.92	14.39239	0.00	0.000	24712.08	0.00000
2690444.2	100.00	7410311.22	15.75625	0.00	0.000	22620.33	0.00000
2690946.5	120.00	10332943.21	15.30727	0.00	0.000	20460.77	0.00000
2691552.7	140.00	13202515.44	12.50598	0.00	0.000	18514.83	0.00000
2692258.2	160.00	15377776.07	7.15589	0.00	0.000	17125.87	0.00000
2693024.2	180.00	16199579.07	.08103	0.00	0.000	16616.35	0.00000

REVOLUTION 23

TIME	THETA	ALTITUDE	RAMMA	GCNT	OF 1	VELOCITY	P T
2693024.2	-180.00	11570649.37	.08103	0.00	0.000	18510.04	0.00000
2693624.5	-160.00	11057168.51	5.12141	0.00	0.000	18382.58	0.00000
2694198.8	-140.00	9655346.36	9.15141	0.00	0.000	19916.39	0.00000
2694709.0	-120.00	7753234.52	11.50113	0.00	0.000	21403.63	0.00000
2695153.6	-100.00	5710888.17	12.12855	0.00	0.000	23097.60	0.00000
2695536.3	-80.00	3834451.74	11.29595	0.00	0.000	24773.38	0.00000
2695854.5	-60.00	2297158.41	9.35627	.02	.000	26250.78	.00000
2696166.7	-40.00	1178380.12	6.63967	.19	.000	27396.29	.00002
2696440.7	-20.00	504518.11	3.43718	2.25	.043	28118.21	.00235
2696467.3	-18.00	461848.70	3.10022	3.28	.090	28165.44	.00496
2696493.8	-16.00	423674.63	2.76120	5.28	.232	28207.26	.01276
2696520.2	-14.00	389994.55	2.42038	9.73	.785	28244.22	.04319
2696546.6	-12.00	360808.66	2.07801	18.33	2.775	28276.31	.15257
2696572.8	-10.00	336114.70	1.73435	33.41	9.186	28303.50	.50460
2696599.0	-8.00	315312.10	1.38970	57.56	27.189	28325.78	1.49238
2696625.2	-6.00	300199.97	1.04445	90.37	66.842	28343.11	3.66933
2696651.6	-4.00	288977.58	.69929	125.24	128.287	28355.51	7.03407
2696677.4	-2.00	282244.37	.35673	151.40	187.303	28362.95	10.26724
2696702.2	0.00	280000.00	.08103	161.28	212.486	28365.43	11.64667
2696727.1	2.00	282244.37	.35673	151.40	187.303	28362.95	10.26724
2696753.2	4.00	288977.58	.69929	125.24	128.287	28355.51	7.03407
2696779.3	6.00	300199.97	1.04445	90.37	66.842	28343.11	3.66933
2696805.4	8.00	315312.10	1.38970	57.56	27.189	28325.78	1.49238
2696831.6	10.00	336114.70	1.73435	33.41	9.186	28303.50	.50460
2696857.9	12.00	360808.66	2.07801	18.33	2.775	28276.31	.15257
2696884.2	14.00	389994.55	2.42038	9.73	.785	28244.22	.04319
2696910.6	16.00	423674.63	2.76120	5.28	.232	28207.26	.01276
2696937.1	18.00	461848.70	3.10022	3.28	.090	28165.44	.00496
2696963.7	20.00	504518.11	3.43718	2.25	.043	28118.21	.00235
2697237.8	40.00	1178380.12	6.63967	.19	.000	27396.29	.00002
2697534.9	60.00	2297158.41	9.35627	.02	.000	26250.78	.00000
2697868.2	80.00	3834451.74	11.29595	0.00	0.000	24773.38	0.00000
2698250.9	100.00	5710888.17	12.12855	0.00	0.000	23097.60	0.00000
2698594.9	120.00	7753234.52	11.50113	0.00	0.000	21403.63	0.00000
2698905.7	140.00	9655346.36	9.15141	0.00	0.000	19916.39	0.00000
2699276.0	160.00	11057168.51	5.12141	0.00	0.000	18382.58	0.00000
2700380.3	180.00	11570649.37	.08103	0.00	0.000	18510.04	0.00000

TIME	TIME	ALTITUDE	CANAL	CONT	QFM	VELOCITY	P T
2700340.3	-180.00	7141265.20	.04133	0.00	0.000	20793.10	0.00000
2700446.8	-180.00	6470176.91	3.13755	0.00	0.000	21027.47	0.00000
2701297.6	-140.00	6117698.23	5.72234	0.00	0.000	21588.16	0.00000
2701718.5	-120.00	5040446.76	7.34593	0.00	0.000	22663.06	0.00000
2702113.4	-100.00	3431567.83	8.00000	0.00	0.000	23404.50	0.00000
2702452.7	-80.00	2662534.30	7.62684	0.00	0.000	24461.92	0.00000
2702771.1	-60.00	1660349.34	6.43315	.05	.000	25002.64	.00000
2703065.5	-40.00	904259.31	4.62478	.38	.001	26021.17	.00008
2703343.8	-20.00	437476.23	2.41258	3.95	.144	27342.22	.00819
2703771.1	-18.00	407623.94	2.17762	6.24	.358	27375.97	.02034
2703398.3	-16.00	380886.54	1.94050	10.58	1.024	27406.25	.05810
2703425.4	-14.00	357273.49	1.70185	18.09	2.945	27433.02	.16920
2703452.4	-12.00	336792.64	1.46189	29.83	8.042	27456.27	.45824
2703479.5	-10.00	312451.23	1.22188	47.40	20.341	27475.98	1.15386
2703506.4	-8.00	305255.00	.97973	70.86	45.445	27492.12	2.57230
2703533.4	-6.00	294208.64	.73696	97.84	86.578	27504.69	4.89400
2703560.3	-4.00	286315.81	.49523	122.73	136.068	27513.68	7.68898
2703587.2	-2.00	281579.04	.25751	140.25	177.541	27519.07	10.03286
2703612.9	.00	280000.00	.08113	146.63	194.066	27520.87	10.96346
2703638.5	2.00	281579.04	.25751	140.25	177.541	27519.07	10.03286
2703665.4	4.00	286315.81	.49523	122.73	136.068	27513.68	7.68898
2703692.3	6.00	294208.64	.73696	97.84	86.578	27504.69	4.89400
2703719.3	8.00	305255.00	.97973	70.86	45.445	27492.12	2.57230
2703746.3	10.00	319451.23	1.22188	47.40	20.341	27475.98	1.15386
2703773.3	12.00	336792.64	1.46189	29.83	8.042	27456.27	.45824
2703800.3	14.00	357273.49	1.70185	18.09	2.945	27433.02	.16920
2703827.5	16.00	380886.54	1.94050	10.58	1.024	27406.25	.05810
2703854.7	18.00	407623.94	2.17762	6.24	.358	27375.97	.02034
2703881.9	20.00	437476.23	2.41258	3.95	.144	27342.22	.00819
2704180.2	40.00	904259.31	4.62478	.38	.001	26021.17	.00008
2704454.7	60.00	1660349.34	6.43315	.05	.000	25002.64	.00000
2704773.0	80.00	2662534.30	7.62684	0.00	0.000	24461.92	0.00000
2705122.3	100.00	3831560.89	8.00000	0.00	0.000	23404.50	0.00000
2705507.2	120.00	5040446.76	7.34593	0.00	0.000	22663.06	0.00000
2705928.1	140.00	6117698.23	5.72234	0.00	0.000	21588.16	0.00000
2706378.9	160.00	6470176.91	3.13755	0.00	0.000	21027.47	0.00000
2706845.4	180.00	7141265.20	.04133	0.00	0.000	20793.10	0.00000

REVOLUTION 25

TIME	THETA	ALTITUDE	CLIMAX	SCOR T	QFM	VELOCITY	P T
2706845.4	-180.00	2638526.23	.081 3	0.00	0.000	23808.76	0.00000
2707188.8	-160.00	2559762.24	1.08901	0.00	0.000	23890.89	0.00000
2707529.1	-140.00	2335443.14	2.12257	0.01	0.000	24131.51	0.00000
2707861.2	-120.00	2001040.54	2.68349	.02	.000	24495.56	.00000
2708182.7	-100.00	1603232.20	2.94435	.05	.000	24934.49	.00000
2708492.8	-80.00	1194780.87	2.94412	.14	.000	25394.06	.00001
2708792.0	-60.00	824233.74	2.54654	.43	.002	25818.10	.00013
2709082.2	-40.00	531222.37	1.86603	1.50	.024	26158.69	.00144
2709365.9	-20.00	344193.83	.98889	21.80	4.935	26378.53	.29088
2709394.1	-18.00	332067.90	.45185	29.81	9.212	26392.95	.54264
2709422.2	-16.00	321190.16	.79557	39.90	16.474	26405.82	.97000
2709450.3	-14.00	311570.04	.60226	52.12	28.063	26417.20	1.65159
2709478.3	-12.00	303215.84	.60226	66.40	45.492	26427.08	2.67640
2709506.3	-10.00	296134.76	.51452	81.66	68.732	26435.47	4.04234
2709534.3	-8.00	290332.65	.41738	96.72	96.353	26442.34	5.66537
2709562.3	-6.00	285815.13	.31756	109.90	124.300	26447.69	7.30708
2709590.3	-4.00	282585.42	.21583	120.37	149.051	26451.52	8.76081
2709618.3	-2.00	280646.49	.12976	127.13	166.218	26453.41	9.76903
2709645.1	0.00	280000.00	.081 3	129.47	172.371	26454.58	10.13036
2709671.9	2.00	280646.49	.12876	127.13	166.218	26453.41	9.76903
2709699.9	4.00	282585.42	.21583	120.37	149.051	26451.52	8.76081
2709727.9	6.00	285815.13	.31756	109.90	124.300	26447.69	7.30708
2709755.9	8.00	290332.65	.41738	96.72	96.353	26442.34	5.66537
2709783.9	10.00	296134.76	.50482	81.66	68.732	26435.47	4.04234
2709811.9	12.00	303215.84	.60226	66.40	45.492	26427.08	2.67640
2709840.0	14.00	311570.04	.69378	52.12	28.063	26417.20	1.65159
2709868.1	16.00	321190.16	.79557	39.90	16.474	26405.82	.97000
2709896.2	18.00	332067.90	.891 25	29.81	9.212	26392.95	.54264
2709924.3	20.00	344193.83	.98889	21.80	4.935	26378.53	.29088
2710208.0	40.00	531222.37	1.86603	1.50	.024	26158.69	.00144
2710498.2	60.00	824233.74	2.54654	.43	.012	25818.10	.00013
2710797.5	80.00	1194780.87	2.94412	.14	.000	25394.06	.00001
2711107.6	100.00	1603232.20	2.94435	.05	.000	24934.49	.00000
2711429.1	120.00	2001040.54	2.68349	.02	.000	24495.56	.00000
2711761.2	140.00	2335883.14	2.12257	0.00	0.000	24131.51	0.00000
2712101.4	160.00	2559762.24	1.08901	0.00	0.000	23890.89	0.00000
2712444.8	180.00	2638526.23	.08103	0.00	0.000	23808.76	0.00000

Part 2
Listing of Punched Card CMA Input

REVOLUTION 1

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	25334.823	0.0000	.0000001	.000000	15 W. HEATER
21.6014	25483.207	0.0000	.0000003	.000000	15 W. HEATER
42.9665	25616.461	0.0000	.0000006	.000000	15 W. HEATER
64.1223	25734.422	0.0000	.0000013	.000001	15 W. HEATER
85.0945	25836.948	0.0000	.0000032	.000002	15 W. HEATER
105.9062	25923.913	0.0000	.0000120	.000006	15 W. HEATER
126.5765	25995.211	0.0000	.0000862	.000046	15 W. HEATER
147.1144	26050.755	0.0000	.00006895	.000365	15 W. HEATER
167.4962	26090.478	0.0000	.0039213	.002080	15 W. HEATER
187.5124	26114.331	0.0000	.0111008	.006261	15 W. HEATER
202.5552	26122.285	0.0000	.0132680	.008944	15 W. HEATER
217.5980	26114.331	0.0000	.0111008	.006261	15 W. HEATER
237.6143	26090.478	0.0000	.0039213	.002080	15 W. HEATER
257.9961	26050.755	0.0000	.00006895	.000365	15 W. HEATER
278.5340	25995.211	0.0000	.0000862	.000046	15 W. HEATER
299.2043	25923.913	0.0000	.0000120	.000006	15 W. HEATER
320.0160	25836.948	0.0000	.0000032	.000002	15 W. HEATER
340.9882	25734.422	0.0000	.0000013	.000001	15 W. HEATER
362.1440	25616.461	0.0000	.0000006	.000000	15 W. HEATER
383.5090	25483.207	0.0000	.0000003	.000000	15 W. HEATER
405.1104	25334.823	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 5

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	24454.818	0.0000	.0000001	.000000	15 W. HEATER
21.9500	24597.668	0.0000	.0000003	.000000	15 W. HEATER
43.6709	24725.952	0.0000	.0000006	.000000	15 W. HEATER
65.1898	24839.514	0.0000	.0000014	.000001	15 W. HEATER
86.5330	24938.216	0.0000	.0000035	.000002	15 W. HEATER
107.7254	25021.938	0.0000	.0000138	.000007	15 W. HEATER
128.7903	25090.576	0.0000	.0000991	.000052	15 W. HEATER
149.7474	25144.049	0.0000	.0007580	.000395	15 W. HEATER
170.6054	25182.291	0.0000	.0040713	.002121	15 W. HEATER
191.3103	25205.254	0.0000	.0109494	.006124	15 W. HEATER
208.8143	25212.912	0.0000	.0130004	.008633	15 W. HEATER
226.3183	25205.254	0.0000	.0109494	.006124	15 W. HEATER
247.0233	25182.291	0.0000	.0040713	.002121	15 W. HEATER
267.8813	25144.049	0.0000	.0007580	.000395	15 W. HEATER
288.8383	25090.576	0.0000	.0000991	.000052	15 W. HEATER
309.9032	25021.938	0.0000	.0000138	.000007	15 W. HEATER
331.0956	24938.216	0.0000	.0000035	.000002	15 W. HEATER
352.4388	24839.514	0.0000	.0000014	.000001	15 W. HEATER
373.9577	24725.952	0.0000	.0000006	.000000	15 W. HEATER
395.6786	24597.668	0.0000	.0000003	.000000	15 W. HEATER
417.6286	24454.818	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 10

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	22858.722	0.0000	.0000002	.000000	15 W. HEATER
22.6164	22990.401	0.0000	.0000004	.000000	15 W. HEATER
45.0160	23108.654	0.0000	.0000008	.000000	15 W. HEATER
67.2244	23213.336	0.0000	.0000017	.000001	15 W. HEATER
89.2668	23304.320	0.0000	.0000045	.000002	15 W. HEATER
111.1674	23381.494	0.0000	.0000188	.000009	15 W. HEATER
132.9494	23444.766	0.0000	.0001336	.000067	15 W. HEATER
154.6341	23494.057	0.0000	.0009193	.000463	15 W. HEATER
176.2382	23529.308	0.0000	.0043998	.002216	15 W. HEATER
197.7503	23550.476	0.0000	.0106724	.005878	15 W. HEATER
217.0007	23557.534	0.0000	.0125026	.008066	15 W. HEATER
236.2510	23550.476	0.0000	.0106724	.005878	15 W. HEATER
257.7632	23529.308	0.0000	.0043998	.002216	15 W. HEATER
279.3672	23494.057	0.0000	.0009193	.000463	15 W. HEATER
301.0520	23444.766	0.0000	.0001336	.000067	15 W. HEATER
322.8339	23381.494	0.0000	.0000188	.000009	15 W. HEATER
344.7345	23304.320	0.0000	.0000045	.000002	15 W. HEATER
366.7769	23213.336	0.0000	.0000017	.000001	15 W. HEATER
388.9854	23108.654	0.0000	.0000008	.000000	15 W. HEATER
411.3849	22990.401	0.0000	.0000004	.000000	15 W. HEATER
434.0013	22858.722	0.0000	.0000002	.000000	15 W. HEATER

REVOLUTION 15

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	20706.650	0.0000	.0000003	.000000	15 W. HEATER
23.6226	20820.387	0.0000	.0000006	.000000	15 W. HEATER
47.0502	20922.527	0.0000	.0000011	.000001	15 W. HEATER
70.3057	21012.946	0.0000	.0000025	.000001	15 W. HEATER
93.4115	21091.532	0.0000	.0000074	.000004	15 W. HEATER
116.3894	21158.191	0.0000	.0000350	.000017	15 W. HEATER
139.2608	21212.842	0.0000	.0002276	.000109	15 W. HEATER
162.0457	21255.417	0.0000	.0012663	.000606	15 W. HEATER
184.7616	21285.865	0.0000	.0050053	.002398	15 W. HEATER
207.4107	21304.148	0.0000	.0102940	.005551	15 W. HEATER
228.3021	21310.245	0.0000	.0118022	.007297	15 W. HEATER
249.1934	21304.148	0.0000	.0102940	.005551	15 W. HEATER
271.8426	21285.865	0.0000	.0050053	.002398	15 W. HEATER
294.5585	21255.417	0.0000	.0012663	.000606	15 W. HEATER
317.3434	21212.842	0.0000	.0002276	.000109	15 W. HEATER
340.2147	21158.191	0.0000	.0000350	.000017	15 W. HEATER
363.1927	21091.532	0.0000	.0000074	.000004	15 W. HEATER
386.2985	21012.946	0.0000	.0000025	.000001	15 W. HEATER
409.5540	20922.527	0.0000	.0000011	.000001	15 W. HEATER
432.9815	20820.387	0.0000	.0000006	.000000	15 W. HEATER
456.6042	20706.650	0.0000	.0000003	.000000	15 W. HEATER

REVOLUTION 20

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	17921.779	0.0000	.0000007	.000000	15 W. HEATER
25.1658	18005.357	0.0000	.0000013	.000001	15 W. HEATER
50.1795	18080.413	0.0000	.0000027	.000001	15 W. HEATER
75.0586	18146.855	0.0000	.0000069	.000003	15 W. HEATER
99.8204	18204.603	0.0000	.0000249	.000011	15 W. HEATER
124.4819	18253.587	0.0000	.0001224	.000054	15 W. HEATER
149.0596	18293.745	0.0000	.0005767	.000256	15 W. HEATER
173.5696	18325.031	0.0000	.0022268	.000990	15 W. HEATER
198.0262	18347.405	0.0000	.0062747	.002791	15 W. HEATER
222.4350	18360.840	0.0000	.0097991	.005144	15 W. HEATER
245.4138	18365.321	0.0000	.0108349	.006288	15 W. HEATER
268.3927	18360.840	0.0000	.0097991	.005144	15 W. HEATER
292.8015	18347.405	0.0000	.0062747	.002791	15 W. HEATER
317.2581	18325.031	0.0000	.0022268	.000990	15 W. HEATER
341.7681	18293.745	0.0000	.0005767	.000256	15 W. HEATER
366.3458	18253.587	0.0000	.0001224	.000054	15 W. HEATER
391.0072	18204.603	0.0000	.0000249	.000011	15 W. HEATER
415.7691	18146.855	0.0000	.0000069	.000003	15 W. HEATER
440.6482	18080.413	0.0000	.0000027	.000001	15 W. HEATER
465.6619	18005.357	0.0000	.0000013	.000001	15 W. HEATER
490.8277	17921.779	0.0000	.0000007	.000000	15 W. HEATER

REVOLUTION 23

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	15793.445	0.0000	.0000027	.000001	15 W. HEATER
26.5970	15845.877	0.0000	.0000057	.000002	15 W. HEATER
53.0935	15892.963	0.0000	.0000146	.000006	15 W. HEATER
79.5009	15934.646	0.0000	.0000492	.000020	15 W. HEATER
105.8303	15970.874	0.0000	.0001737	.000072	15 W. HEATER
132.0929	16001.603	0.0000	.0005741	.000238	15 W. HEATER
158.2995	16026.797	0.0000	.0016965	.000705	15 W. HEATER
184.4607	16046.424	0.0000	.0041686	.001734	15 W. HEATER
210.5860	16060.460	0.0000	.0077981	.003324	15 W. HEATER
236.6783	16068.889	0.0000	.0094217	.004851	15 W. HEATER
261.5000	16071.699	0.0000	.0100348	.005503	15 W. HEATER
286.3216	16068.889	0.0000	.0094217	.004851	15 W. HEATER
312.4139	16060.460	0.0000	.0077981	.003324	15 W. HEATER
338.5392	16046.424	0.0000	.0041686	.001734	15 W. HEATER
364.7004	16026.797	0.0000	.0016965	.000705	15 W. HEATER
390.9070	16001.603	0.0000	.0005741	.000238	15 W. HEATER
417.1696	15970.874	0.0000	.0001737	.000072	15 W. HEATER
443.4990	15934.646	0.0000	.0000492	.000020	15 W. HEATER
469.9064	15892.963	0.0000	.0000146	.000006	15 W. HEATER
496.4029	15845.877	0.0000	.0000057	.000002	15 W. HEATER
522.9999	15793.445	0.0000	.0000027	.000001	15 W. HEATER.

REVOLUTION 25

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	13314.705	0.0000	.0000002	.000000	15 W. HEATER
290.1953	13668.319	0.0000	.0000018	.000001	15 W. HEATER
573.9223	13899.125	0.0000	.0003551	.000137	15 W. HEATER
602.0561	13914.229	0.0000	.0006620	.000256	15 W. HEATER
630.1594	13927.793	0.0000	.0011828	.000458	15 W. HEATER
658.2355	13939.801	0.0000	.0020131	.000780	15 W. HEATER
686.2877	13950.237	0.0000	.0032611	.001265	15 W. HEATER
714.3192	13959.090	0.0000	.0049238	.001910	15 W. HEATER
742.3333	13966.347	0.0000	.0068990	.002677	15 W. HEATER
770.3329	13972.001	0.0000	.0078654	.003453	15 W. HEATER
798.3202	13976.045	0.0000	.0086125	.004139	15 W. HEATER
826.2921	13978.473	0.0000	.0090947	.004616	15 W. HEATER
853.1039	13979.283	0.0000	.0092614	.004787	15 W. HEATER
879.9157	13978.473	0.0000	.0090947	.004616	15 W. HEATER
907.8877	13976.045	0.0000	.0086125	.004139	15 W. HEATER
935.8750	13972.001	0.0000	.0078654	.003453	15 W. HEATER
963.8746	13966.347	0.0000	.0068990	.002677	15 W. HEATER
991.8887	13959.090	0.0000	.0049238	.001910	15 W. HEATER
1019.9202	13950.237	0.0000	.0032611	.001265	15 W. HEATER
1047.9724	13939.801	0.0000	.0020131	.000780	15 W. HEATER
1076.0485	13927.793	0.0000	.0011828	.000458	15 W. HEATER
1104.1517	13914.229	0.0000	.0006620	.000256	15 W. HEATER
1132.2355	13899.125	0.0000	.0003551	.000137	15 W. HEATER
1416.0126	13668.319	0.0000	.0000018	.000001	15 W. HEATER
1706.2079	13314.705	0.0000	.0000002	.000000	15 W. HEATER

BLANK

APPENDIX H

Trajectory and Reentry Environment
Output From Computer Code HRS017 (Version 3)
For a Perigee Altitude of 290,000 Feet
(Thirty-Nine Revolutions)

- Part 1 - Trajectory and Reentry
Environment Tabulated Data (Page 127)
- Part 2 - Listing of Punched Card
CMA Input (Page 166)

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Part 1
Trajectory and Reentry Environment Tabulated Data

REVOLUTION 1

TIME	THETA	ALTITUDE	GAMMA	GCON1	GFM	VELOCITY	P T
0.0	-180.00	1246374303.00	.08103	0.00	0.000	605.25	0.00000
384473.2	-160.00	436410023.04	74.57649	0.00	0.000	6306.36	0.00000
422279.9	-140.00	140091624.35	67.36655	0.00	0.000	12378.57	0.00000
428406.6	-120.00	59878873.56	58.33915	0.00	0.000	18084.75	0.00000
431270.0	-110.00	29229631.58	48.85709	0.00	0.000	23244.16	0.00000
431985.7	-90.00	14806543.85	39.19527	0.00	0.000	27698.53	0.00000
431540.9	-70.00	7204921.90	29.44634	0.00	0.000	31312.00	0.00000
431845.4	-50.00	3047369.32	19.65105	0.00	0.000	33474.56	0.00000
432081.7	-30.00	938241.51	9.83120	.83	.003	35005.19	.00012
432103.3	-18.00	813079.82	8.84845	1.25	.006	35709.31	.00026
432124.7	-16.00	701895.23	7.86561	1.87	.013	35402.55	.00058
432145.8	-14.00	604414.97	6.88270	2.81	.030	35884.89	.00129
432166.8	-12.00	520401.56	5.89974	4.37	.071	35956.30	.00308
432187.6	-10.00	449651.57	4.91675	8.12	.245	36016.76	.01056
432208.3	-8.00	391994.60	3.93376	20.19	1.507	36066.25	.06496
432228.9	-6.00	347292.38	2.95084	54.31	10.867	36104.77	.46797
432249.3	-4.00	315438.06	1.96817	125.55	57.938	36132.28	2.49303
432269.3	-2.00	296355.74	.98659	217.43	173.502	36148.80	7.46228
432284.4	0.00	290000.00	.08103	261.63	251.099	36154.30	10.79806
432299.4	2.00	296355.74	.98659	217.43	173.502	36148.80	7.46228
432319.4	4.00	315438.06	1.96817	125.55	57.938	36132.28	2.49303
432339.8	6.00	347292.38	2.95084	54.31	10.867	36104.77	.46797
432360.4	8.00	391994.60	3.93376	20.19	1.507	36066.25	.06496
432381.1	10.00	449651.57	4.91675	8.12	.245	36016.76	.01056
432401.9	12.00	520401.56	5.89974	4.37	.071	35956.30	.00308
432422.9	14.00	604414.97	6.88270	2.81	.030	35884.89	.00129
432444.1	16.00	701895.23	7.86561	1.87	.013	35402.55	.00058
432465.4	18.00	813079.82	8.84845	1.25	.006	35709.31	.00026
432487.1	20.00	938241.51	9.83120	.83	.003	35005.19	.00012
432723.3	40.00	3047369.32	19.65105	0.00	0.000	33474.56	0.00000
433027.8	60.00	7204921.90	29.44634	0.00	0.000	31312.00	0.00000
433483.0	80.00	14806543.85	39.19527	0.00	0.000	27698.53	0.00000
434294.7	100.00	29229631.58	48.85709	0.00	0.000	23244.16	0.00000
436162.1	120.00	59878873.56	58.33915	0.00	0.000	18084.75	0.00000
442289.8	140.00	140091624.35	67.36655	0.00	0.000	12378.57	0.00000
474545.5	160.00	436410093.04	74.57649	0.00	0.000	6306.36	0.00000
864568.7	180.00	1246374303.00	.08103	0.00	0.000	605.25	0.00000

REVOLUTION 2

TIME	TIME	ALTITUDE	GAMMA	SCONT	CFM	VELOCITY	P T
864568.7	-180.00	999350904.39	.08103	0.00	0.000	757.65	0.00000
1131273.6	-160.00	399017815.81	73.20429	0.00	0.000	6309.30	0.00000
1164456.4	-140.00	135623272.40	66.69791	0.00	0.000	12360.20	0.00000
1170349.1	-120.00	58907616.31	57.91694	0.00	0.000	18051.34	0.00000
1172182.9	-100.00	28935029.01	48.56643	0.00	0.000	23198.28	0.00000
1172993.1	-80.00	14700953.76	38.99057	0.00	0.000	27642.27	0.00000
1173447.3	-60.00	7165263.17	29.30547	0.00	0.000	31247.47	0.00000
1173751.8	-40.00	3033880.97	19.56224	0.00	0.000	33903.99	0.00000
1173988.4	-20.00	935348.22	9.78818	.83	.003	35530.44	.00012
1174010.1	-18.00	810758.47	8.80980	1.25	.006	35634.82	.00026
1174031.5	-16.00	700076.61	7.83132	1.87	.013	35727.85	.00058
1174052.7	-14.00	603032.97	6.85274	2.81	.030	35810.01	.00130
1174073.8	-12.00	519392.77	5.87410	4.37	.072	35881.26	.00311
1174094.7	-10.00	448954.86	4.89540	8.13	.247	35941.58	.01069
1174115.4	-8.00	391550.70	3.91670	20.24	1.525	35990.97	.06586
1174136.0	-6.00	347043.54	2.93806	54.28	10.932	36029.39	.47175
1174156.5	-4.00	315327.75	1.95966	125.11	57.929	36056.85	2.49787
1174176.6	-2.00	296328.20	.98235	216.17	172.694	36073.32	7.44305
1174192.2	0.00	290000.00	.08103	259.91	249.529	36078.81	10.75302
1174217.8	2.00	296328.20	.98235	216.17	172.694	36073.32	7.44305
1174228.0	4.00	315327.75	1.95966	125.11	57.929	36056.85	2.49787
1174248.4	6.00	347043.54	2.93806	54.28	10.932	36029.39	.47175
1174269.1	8.00	391550.70	3.91670	20.24	1.525	35990.97	.06586
1174289.8	10.00	448954.86	4.89540	8.13	.247	35941.58	.01069
1174310.7	12.00	519392.77	5.87410	4.37	.072	35881.26	.00311
1174331.7	14.00	603032.97	6.85274	2.81	.030	35810.01	.00130
1174352.9	16.00	700076.61	7.83132	1.87	.013	35727.85	.00058
1174374.3	18.00	810758.47	8.80980	1.25	.006	35634.82	.00026
1174396.0	20.00	935348.22	9.78818	.83	.003	35530.44	.00012
1174632.6	40.00	3033880.97	19.56224	0.00	0.000	33903.99	0.00000
1174937.2	60.00	7165263.17	29.30547	0.00	0.000	31247.47	0.00000
1175391.3	80.00	14700953.76	38.99057	0.00	0.000	27642.27	0.00000
1176201.5	100.00	28935029.01	48.56643	0.00	0.000	23198.28	0.00000
1178035.3	120.00	58907616.31	57.91694	0.00	0.000	18051.34	0.00000
1184928.0	140.00	135623272.40	66.69791	0.00	0.000	12360.20	0.00000
1217110.9	160.00	399017815.81	73.20429	0.00	0.000	6309.30	0.00000
1483815.7	180.00	999350904.39	.08103	0.00	0.000	757.65	0.00000

REVOLUTION 3

TIME	THETA	ALTITUDE	GAMMA	GCONT	OFM	VELOCITY	P T
1483815.7	-120.00	805243187.38	.08103	0.00	0.000	924.37	0.00000
1675457.1	-120.00	364401099.53	71.71393	0.00	0.000	6316.65	0.00000
1704903.0	-140.00	130491040.10	65.96426	0.00	0.000	12342.10	0.00000
1710555.0	-120.00	57866991.46	57.45329	0.00	0.000	18016.00	0.00000
1712357.2	-100.00	28615291.15	48.24713	0.00	0.000	23148.88	0.00000
1713161.4	-80.00	14585650.92	38.76567	0.00	0.000	27581.25	0.00000
1713614.4	-60.00	7121815.77	29.15069	0.00	0.000	31177.24	0.00000
1713919.0	-40.00	3019077.75	19.46466	0.00	0.000	33827.04	0.00000
1714156.0	-20.00	932170.01	9.74090	.83	.003	35449.91	.00012
1714177.7	-18.00	808208.39	8.76734	1.25	.006	35553.53	.00027
1714199.2	-16.00	698078.69	7.79364	1.87	.013	35646.33	.00059
1714220.5	-14.00	601514.67	6.81982	2.81	.030	35728.28	.00131
1714241.5	-12.00	518284.45	5.84592	4.37	.072	35799.35	.00315
1714262.5	-10.00	448189.37	4.87195	8.15	.250	35859.53	.01084
1714283.3	-8.00	391062.96	3.89796	20.29	1.544	35908.79	.06687
1714303.9	-6.00	346770.14	2.92401	54.25	11.004	35947.11	.47595
1714324.5	-4.00	315206.53	1.95030	124.63	57.921	35974.50	2.50325
1714344.7	-2.00	296297.94	.97768	214.81	171.815	35990.94	7.42213
1714360.8	0.00	280000.00	.08103	258.05	247.823	35996.41	10.70395
1714376.8	2.00	296297.94	.97768	214.81	171.815	35990.94	7.42213
1714397.1	4.00	315206.53	1.95030	124.63	57.921	35974.50	2.50325
1714417.6	6.00	346770.14	2.92401	54.25	11.004	35947.11	.47595
1714438.3	8.00	391062.96	3.89796	20.29	1.544	35908.79	.06687
1714459.1	10.00	448189.37	4.87195	8.15	.250	35859.53	.01084
1714480.0	12.00	518284.45	5.84592	4.37	.072	35799.35	.00315
1714501.1	14.00	601514.67	6.81982	2.81	.030	35728.28	.00131
1714522.4	16.00	698078.69	7.79364	1.87	.013	35646.33	.00059
1714543.8	18.00	808208.39	8.76734	1.25	.006	35553.53	.00027
1714565.5	20.00	932170.01	9.74090	.83	.003	35449.91	.00012
1714587.5	40.00	3019077.75	19.46466	0.00	0.000	33827.04	0.00000
1715107.2	60.00	7121815.77	29.15069	0.00	0.000	31177.24	0.00000
1715560.2	80.00	14585650.92	38.76567	0.00	0.000	27581.25	0.00000
1716364.4	100.00	28615291.15	48.24713	0.00	0.000	23148.88	0.00000
1718166.6	120.00	57866991.46	57.45329	0.00	0.000	18016.00	0.00000
1723818.5	140.00	130491040.10	65.96426	0.00	0.000	12342.10	0.00000
1753264.5	160.00	364401099.53	71.71393	0.00	0.000	6316.65	0.00000
1944975.8	180.00	805243187.38	.08103	0.00	0.000	924.37	0.00000

REVOLUTION 4

TIME	TIME	ALTITUDE	GAMMA	CCONT	GFM	VELOCITY	P T
1944405.4	-180.00	668141971.70	.08103	0.00	0.000	1105.54	0.00000
2086566.2	-160.00	332585110.93	70.09529	0.00	0.000	6329.54	0.00000
2112655.1	-140.00	126236758.76	65.16477	0.00	0.000	12324.81	0.00000
2118062.0	-120.00	56761369.89	56.94745	0.00	0.000	17979.06	0.00000
2119431.7	-100.00	28270847.81	47.89865	0.00	0.000	23096.17	0.00000
2120624.5	-80.00	14460611.20	38.52016	0.00	0.000	27515.61	0.00000
2121081.3	-60.00	7074532.61	28.48172	0.00	0.000	31101.37	0.00000
2121384.9	-40.00	3072936.29	19.35812	0.00	0.000	33743.75	0.00000
2121622.4	-20.00	422701.07	9.68928	.84	.003	35362.10	.00012
2121644.1	-18.00	875424.86	8.72097	1.25	.006	35465.44	.00027
2121665.6	-16.00	695897.77	7.75250	1.87	.014	35557.98	.00059
2121687.0	-14.00	549857.22	6.78388	2.81	.030	35639.70	.00132
2121708.1	-12.00	517074.51	5.81515	4.38	.073	35710.57	.00318
2121729.1	-10.00	447353.67	4.84634	8.16	.253	35770.58	.01101
2121749.9	-8.00	390530.47	3.87749	20.35	1.566	35819.71	.06798
2121770.6	-6.00	346471.64	2.90368	54.23	11.084	35857.93	.48059
2121791.3	-4.00	315074.19	1.94009	124.11	57.915	35885.24	2.50920
2121811.6	-2.00	296264.91	.97259	213.34	170.867	35901.63	7.39952
2121823.0	0.00	290000.00	.08103	256.04	245.983	35907.09	10.65090
2121844.5	2.00	276264.91	.97259	213.34	170.867	35901.63	7.39952
2121864.8	4.00	315074.19	1.94009	124.11	57.915	35885.24	2.50920
2121885.5	6.00	346471.64	2.90368	54.23	11.084	35857.93	.48059
2121906.2	8.00	390530.47	3.87749	20.35	1.566	35819.71	.06798
2121927.0	10.00	447353.67	4.84634	8.16	.253	35770.58	.01101
2121948.0	12.00	517074.51	5.81515	4.38	.073	35710.57	.00318
2121969.1	14.00	599857.22	6.78388	2.81	.030	35639.70	.00132
2121990.5	16.00	695897.77	7.75250	1.87	.014	35557.98	.00059
2122012.0	18.00	805424.86	8.72097	1.25	.006	35465.44	.00027
2122033.7	20.00	928701.07	9.68928	.84	.003	35362.10	.00012
2122271.2	40.00	3072936.29	19.35812	0.00	0.000	33743.75	0.00000
2122575.8	60.00	7074532.61	28.48172	0.00	0.000	31101.37	0.00000
2123027.6	80.00	14460611.20	38.52016	0.00	0.000	27515.61	0.00000
2123825.4	100.00	28270847.81	47.89865	0.00	0.000	23096.17	0.00000
2125594.0	120.00	56761369.89	56.94745	0.00	0.000	17979.06	0.00000
2131001.0	140.00	126236758.76	65.16477	0.00	0.000	12324.81	0.00000
2157089.9	160.00	332585110.93	70.09529	0.00	0.000	6329.54	0.00000
2298750.3	180.00	668141971.70	.08103	0.00	0.000	1105.54	0.00000

REVOLUTION 5

TIME	THETA	ALTITUDE	GAMMA	GCNT	CFM	VELOCITY	P T
2298750.3	-180.00	562914136.26	.08103	0.00	0.000	1301.30	0.00000
2405874.2	-160.00	303492305.65	68.35529	0.00	0.000	6349.16	0.00000
2428466.6	-140.00	121399218.07	64.29860	0.00	0.000	12308.92	0.00000
2434125.5	-120.00	55535191.40	56.39861	0.00	0.000	17940.84	0.00000
2435854.9	-100.00	27902137.71	47.52034	0.00	0.000	23040.33	0.00000
2436650.9	-80.00	14325800.97	38.25359	0.00	0.000	27445.43	0.00000
2437101.3	-60.00	7023359.26	28.79822	0.00	0.000	31019.91	0.00000
2437406.0	-40.00	2985429.92	19.24241	0.00	0.000	33654.11	0.00000
2437643.9	-20.00	924934.74	9.63323	.84	.003	35267.50	.00012
2437665.7	-18.00	802402.52	8.67062	1.25	.006	35370.52	.00027
2437687.3	-16.00	643529.59	7.70782	1.87	.014	35462.78	.00060
2437708.7	-14.00	598057.37	6.74485	2.81	.031	35544.25	.00134
2437724.9	-12.00	515760.56	5.78174	4.38	.074	35614.91	.00323
2437750.9	-10.00	446446.09	4.81853	8.18	.257	35674.74	.01119
2437771.8	-8.00	389952.17	3.85526	20.41	1.590	35723.71	.06921
2437792.6	-6.00	346147.46	2.89202	54.20	11.172	35761.81	.48569
2437813.3	-4.00	314930.46	1.92900	123.56	57.910	35789.04	2.51574
2437833.7	-2.00	296229.02	.96706	211.76	169.850	35805.38	7.37526
2437850.5	0.00	290000.00	.08103	253.88	244.010	35810.83	10.59387
2437867.2	2.00	296229.02	.96706	211.76	169.850	35805.38	7.37526
2437887.7	4.00	314930.46	1.92900	123.56	57.910	35789.04	2.51574
2437908.4	6.00	346147.46	2.89202	54.20	11.172	35761.81	.48569
2437929.2	8.00	389952.17	3.85526	20.41	1.590	35723.71	.06921
2437950.1	10.00	446446.09	4.81853	8.18	.257	35674.74	.01119
2437971.1	12.00	515760.56	5.78174	4.38	.074	35614.91	.00323
2437992.3	14.00	598057.37	6.74485	2.81	.031	35544.25	.00134
2438013.7	16.00	643529.59	7.70782	1.87	.014	35462.78	.00060
2438035.3	18.00	802402.52	8.67062	1.25	.006	35370.52	.00027
2438057.1	20.00	924934.74	9.63323	.84	.003	35267.50	.00012
2438294.9	40.00	2985429.92	19.24241	0.00	0.000	33654.11	0.00000
2438599.7	60.00	7023359.26	28.79822	0.00	0.000	31019.91	0.00000
2439050.1	80.00	14325800.97	38.25359	0.00	0.000	27445.43	0.00000
2439441.0	100.00	27902137.71	47.52034	0.00	0.000	23040.33	0.00000
2441574.5	120.00	55535191.40	56.39861	0.00	0.000	17940.84	0.00000
2446734.4	140.00	121399218.07	64.29860	0.00	0.000	12308.92	0.00000
2469826.8	160.00	303492305.65	68.35529	0.00	0.000	6349.16	0.00000
2576450.7	180.00	562914136.26	.08103	0.00	0.000	1301.30	0.00000

REVOLUTION 6

TIME	THETA	ALTITUDE	GAMMA	SCONT	QFM	VELOCITY	P T
2574950.7	-180.00	480166232.11	.08103	0.00	0.000	1511.82	0.00000
2659491.6	-180.00	276980838.26	66.49801	0.00	0.000	6376.80	0.00000
2679422.2	-140.00	116513710.28	63.36490	0.00	0.000	12295.07	0.00000
2684435.0	-120.00	54372902.03	55.80586	0.00	0.000	17401.74	0.00000
2686531.6	-100.00	27519598.34	47.11150	0.00	0.000	22981.60	0.00000
2687315.2	-80.00	14181173.57	37.96541	0.00	0.000	27370.86	0.00000
2687764.2	-60.00	6968232.47	28.59982	0.00	0.000	30432.92	0.00000
2688069.0	-40.00	2956528.00	19.11730	0.00	0.000	33558.15	0.00000
2688307.3	-20.00	920863.43	9.57261	.84	.003	35166.10	.00013
2688329.2	-18.00	799135.22	8.61617	1.26	.006	35268.77	.00028
2688350.8	-16.00	690969.33	7.65950	1.88	.014	35360.72	.00061
2688372.3	-14.00	596111.42	6.70263	2.81	.031	35441.92	.00136
2688393.5	-12.00	514339.88	5.74560	4.38	.075	35512.34	.00327
2688414.5	-10.00	445464.76	4.78845	8.20	.260	35571.96	.01139
2688435.6	-8.00	380326.86	3.83122	20.48	1.616	35620.77	.07052
2688456.4	-6.00	345796.91	2.87401	54.17	11.268	35658.75	.49128
2688477.2	-4.00	314775.04	1.91700	122.97	57.908	35685.88	2.52292
2688497.8	-2.00	246190.23	.96108	210.08	168.765	35702.17	7.34935
2688514.8	0.00	230000.00	.08103	251.58	241.906	35707.60	10.53288
2688531.9	2.00	296190.23	.96108	210.08	168.765	35702.17	7.34935
2688552.4	4.00	314775.04	1.91700	122.97	57.908	35685.88	2.52292
2688573.2	6.00	345796.91	2.87401	54.17	11.268	35658.75	.49128
2688594.1	8.00	380326.86	3.83122	20.48	1.616	35620.77	.07052
2688615.0	10.00	445464.76	4.78845	8.20	.260	35571.96	.01139
2688636.1	12.00	514339.88	5.74560	4.38	.075	35512.34	.00327
2688657.4	14.00	596111.42	6.70263	2.81	.031	35441.92	.00136
2688678.8	16.00	690969.33	7.65950	1.88	.014	35360.72	.00061
2688700.4	18.00	799135.22	8.61617	1.26	.006	35268.77	.00028
2688722.3	20.00	920863.43	9.57261	.84	.003	35166.10	.00013
2688960.6	40.00	2966528.00	19.11730	0.00	0.000	33558.15	0.00000
2689265.4	60.00	6968232.47	28.59982	0.00	0.000	30432.92	0.00000
2689714.5	80.00	14181173.57	37.96541	0.00	0.000	27370.86	0.00000
2690498.0	100.00	27519598.34	47.11150	0.00	0.000	22981.60	0.00000
2692194.6	120.00	54372902.03	55.80586	0.00	0.000	17401.74	0.00000
2697107.4	140.00	116513710.28	63.36490	0.00	0.000	12295.07	0.00000
2717538.0	160.00	276980838.26	66.49801	0.00	0.000	6376.80	0.00000
2801078.4	180.00	480166232.01	.08103	0.00	0.000	1511.82	0.00000

REVOLUTION 7

TIME	HEAT	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
2800074.9	-180.00	413783307.63	.08103	0.00	0.000	1737.31	0.00000
2864640.0	-160.00	252873184.11	64.52883	0.00	0.000	6413.83	0.00000
2882763.4	-140.00	111611836.50	62.36286	0.00	0.000	12283.98	0.00000
2887431.2	-120.00	53098916.09	55.16822	0.00	0.000	17862.16	0.00000
2889089.5	-100.00	27093662.28	46.67132	0.00	0.000	22420.22	0.00000
2889865.4	-80.00	14026668.05	37.65502	0.00	0.000	27292.02	0.00000
2890312.9	-60.00	6909079.33	28.38610	0.00	0.000	30840.46	0.00000
2890617.7	-40.00	2946195.67	18.98251	0.00	0.000	33455.86	0.00000
2890856.6	-20.00	916478.53	9.50729	.84	.003	35057.86	.00013
2890874.5	-18.00	795615.99	8.55750	1.26	.006	35160.15	.00028
2890900.2	-16.00	688211.46	7.60744	1.88	.014	35251.76	.00062
2890921.7	-14.00	594015.16	6.65715	2.81	.031	35332.66	.00137
2890943.0	-12.00	512809.39	5.70667	4.39	.076	35402.82	.00332
2890964.2	-10.00	444407.54	4.75605	8.23	.265	35462.23	.01160
2890985.2	-8.00	388653.15	3.80533	20.55	1.644	35510.86	.07196
2891006.1	-6.00	345419.23	2.85460	54.15	11.373	35548.70	.49740
2891026.9	-4.00	314607.58	1.90408	122.34	57.909	35575.73	2.53077
2891047.6	-2.00	296148.42	.95464	208.30	167.613	35591.96	7.32180
2891064.9	0.00	290000.00	.08103	249.15	239.673	35597.37	10.46795
2891082.3	2.00	296148.42	.95464	208.30	167.613	35591.96	7.32180
2891102.9	4.00	314607.58	1.90408	122.34	57.909	35575.73	2.53077
2891123.8	6.00	345419.23	2.85460	54.15	11.373	35548.70	.49740
2891144.7	8.00	388653.15	3.80533	20.55	1.644	35510.86	.07196
2891165.7	10.00	444407.54	4.75605	8.23	.265	35462.23	.01160
2891186.9	12.00	512809.39	5.70667	4.39	.076	35402.82	.00332
2891208.2	14.00	594015.16	6.65715	2.81	.031	35332.66	.00137
2891229.7	16.00	688211.46	7.60744	1.88	.014	35251.76	.00062
2891251.4	18.00	795615.99	8.55750	1.26	.006	35160.15	.00028
2891273.3	20.00	916478.53	9.50729	.84	.003	35057.86	.00013
2891512.1	40.00	2946195.67	18.98251	0.00	0.000	33455.86	0.00000
2891817.0	60.00	6909079.33	28.38610	0.00	0.000	30840.46	0.00000
2892264.5	80.00	14026668.05	37.65502	0.00	0.000	27292.02	0.00000
2893040.3	100.00	27093662.28	46.67132	0.00	0.000	22420.22	0.00000
2894648.7	120.00	53098916.09	55.16822	0.00	0.000	17862.16	0.00000
2899366.1	140.00	111611836.50	62.36286	0.00	0.000	12283.98	0.00000
2917434.9	160.00	252873184.11	64.52883	0.00	0.000	6413.83	0.00000
2982051.0	180.00	413783307.63	.08103	0.00	0.000	1737.31	0.00000

REVOLUTION R

TIME	TIME	ALTITUDE	GAMMA	CCONT	QFM	VELOCITY	P T
2982051.0	-180.00	359628783.67	.08103	0.00	0.000	1977.99	0.00000
3033314.3	-160.00	230976154.24	62.45460	0.00	0.000	6461.66	0.00000
3049300.2	-140.00	106721474.85	61.29170	0.00	0.000	12276.43	0.00000
3053731.4	-120.00	51777587.88	54.48461	0.00	0.000	17822.56	0.00000
3055350.3	-100.00	26554755.66	46.19893	0.00	0.000	22856.44	0.00000
3056114.0	-80.00	13862208.50	37.32177	0.00	0.000	27209.05	0.00000
3056563.9	-60.00	6845816.80	28.15657	0.00	0.000	30742.57	0.00000
3056868.8	-40.00	2924393.51	18.83773	0.00	0.000	33347.24	0.00000
3057105.2	-20.00	911770.30	9.43714	.85	.003	34942.75	.00013
3057137.1	-18.00	791836.95	8.49448	1.26	.006	35044.63	.00029
3057151.9	-16.00	685249.79	7.55152	1.88	.014	35135.88	.00063
3057173.5	-14.00	591763.85	6.60830	2.81	.032	35216.45	.00139
3057194.8	-12.00	511165.61	5.66486	4.39	.077	35286.33	.00338
3057216.1	-10.00	443272.00	4.72124	8.25	.269	35345.49	.01185
3057237.2	-8.00	387929.52	3.77751	20.63	1.674	35393.93	.07354
3057258.2	-6.00	345013.54	2.83376	54.13	11.487	35431.61	.50408
3057279.1	-4.00	314427.70	1.89019	121.68	57.914	35458.54	2.53934
3057299.8	-2.00	296103.52	.94771	206.41	166.396	35474.70	7.29264
3057317.4	0.00	290000.00	.08103	246.57	237.311	35480.09	16.39908
3057335.0	2.00	296103.52	.94771	206.41	166.396	35474.70	7.29264
3057355.8	4.00	314427.70	1.89019	121.68	57.914	35458.54	2.53934
3057376.7	6.00	345013.54	2.83376	54.13	11.487	35431.61	.50408
3057397.7	8.00	387929.52	3.77751	20.63	1.674	35393.93	.07354
3057418.8	10.00	443272.00	4.72124	8.25	.269	35345.49	.01185
3057440.0	12.00	511165.61	5.66486	4.39	.077	35286.33	.00338
3057461.4	14.00	591763.85	6.60830	2.81	.032	35216.45	.00139
3057482.9	16.00	685249.79	7.55152	1.88	.014	35135.88	.00063
3057504.7	18.00	791836.95	8.49448	1.26	.006	35044.63	.00029
3057526.7	20.00	911770.30	9.43714	.85	.003	34942.75	.00013
3057766.0	40.00	2924393.51	18.83773	0.00	0.000	33347.24	0.00000
3058071.9	60.00	6845816.80	28.15657	0.00	0.000	30742.57	0.00000
3058516.8	80.00	13862208.50	37.32177	0.00	0.000	27209.05	0.00000
3059284.5	100.00	26554755.66	46.19893	0.00	0.000	22856.44	0.00000
3060403.4	120.00	51777587.88	54.48461	0.00	0.000	17822.56	0.00000
3065428.6	140.00	106721474.85	61.29170	0.00	0.000	12276.43	0.00000
3081320.6	160.00	230976154.24	62.45460	0.00	0.000	6461.66	0.00000
3132583.9	180.00	359628783.67	.08103	0.00	0.000	1977.99	0.00000

REVOLUTION 9

TIME	DEPTH	ALTITUDE	GAMMA	CONT	OFM	VELOCITY	P T
3132593.9	-180.00	314814163.88	.08103	0.00	0.000	2234.16	0.00000
3173735.3	-100.00	211094182.91	60.28371	0.00	0.000	6521.80	0.00000
3187890.9	-140.00	101866859.36	60.15077	0.00	0.000	12273.26	0.00000
3192078.5	-121.00	50413188.29	53.75389	0.00	0.000	17783.42	0.00000
3193656.9	-100.00	26193297.35	45.69336	0.00	0.000	22790.56	0.00000
3194415.4	-80.00	13687703.64	36.96430	0.00	0.000	27122.09	0.00000
3194860.1	-60.00	6778351.15	27.91070	0.00	0.000	30639.31	0.00000
3195165.0	-40.00	2401077.26	18.68262	0.00	0.000	33232.28	0.00000
3195405.0	-20.00	906727.82	9.36197	.85	.003	34820.73	.00013
3195427.0	-18.00	787789.29	8.42696	1.27	.007	34922.16	.00029
3195448.9	-16.00	682077.34	7.49161	1.88	.014	35013.00	.00064
3195470.5	-14.00	589352.15	6.55596	2.81	.032	35093.22	.00142
3195491.9	-12.00	509404.63	5.62005	4.40	.078	35162.80	.00344
3195513.2	-10.00	442055.44	4.68394	8.28	.274	35221.70	.01211
3195534.4	-8.00	387154.23	3.74770	20.71	1.708	35269.92	.07528
3195555.5	-6.00	344578.47	2.81142	54.11	11.612	35307.44	.51135
3195576.5	-4.00	314234.97	1.87532	120.99	57.923	35334.25	2.54867
3195597.3	-2.00	296055.40	.94030	204.43	165.113	35350.34	7.26186
3195615.2	0.00	240000.00	.08103	243.86	234.824	35355.70	10.32630
3195633.0	2.00	296055.40	.94030	204.43	165.113	35350.34	7.26186
3195653.8	4.00	314234.97	1.87532	120.99	57.923	35334.25	2.54867
3195674.8	6.00	344578.47	2.81142	54.11	11.612	35307.44	.51135
3195695.4	8.00	387154.23	3.74770	20.71	1.708	35269.92	.07528
3195717.1	10.00	442055.44	4.68394	8.28	.274	35221.70	.01211
3195738.4	12.00	509404.63	5.62005	4.40	.078	35162.80	.00344
3195759.8	14.00	589352.15	6.55596	2.81	.032	35093.22	.00142
3195781.5	16.00	682077.34	7.49161	1.88	.014	35013.00	.00064
3195803.3	18.00	787789.29	8.42696	1.27	.007	34922.16	.00029
3195825.3	20.00	906727.82	9.36197	.85	.003	34820.73	.00013
3196065.3	40.00	2401077.26	18.68262	0.00	0.000	33232.28	0.00000
3196370.2	60.00	6778351.15	27.91070	0.00	0.000	30639.31	0.00000
3196414.4	80.00	13687703.64	36.96430	0.00	0.000	27122.09	0.00000
3197573.5	100.00	26193297.35	45.69336	0.00	0.000	22790.56	0.00000
3199151.8	120.00	50413188.29	53.75389	0.00	0.000	17783.42	0.00000
3203339.4	140.00	101866859.36	60.15077	0.00	0.000	12273.26	0.00000
3217495.0	160.00	211094182.91	60.28371	0.00	0.000	6521.80	0.00000
3258646.4	180.00	314814163.88	.08103	0.00	0.000	2234.16	0.00000

REVOLUTION 10

TIME	THETA	ALTITUDE	GAMMA	SCONT	CFM	VELOCITY	P T
3258646.4	-180.00	277267852.95	.08103	0.00	0.000	2506.11	0.00000
3292020.5	-150.00	193037678.60	58.02611	0.00	0.000	6595.76	0.00000
3304557.6	-140.00	27068737.06	58.93956	0.00	0.000	12275.38	0.00000
3304513.3	-120.00	49009883.89	52.97485	0.00	0.000	17745.30	0.00000
3310050.1	-100.00	25709697.98	45.15353	0.00	0.000	22722.89	0.00000
3310800.1	-80.00	13503046.32	36.58359	0.00	0.000	27031.30	0.00000
3311242.5	-60.00	6706577.34	27.64789	0.00	0.000	30530.73	0.00000
3311547.4	-40.00	2876197.50	18.51680	0.00	0.000	33110.97	0.00000
3311788.0	-20.00	901338.88	9.28160	.86	.003	34691.74	.00014
3311810.1	-18.00	783463.12	8.35477	1.27	.007	34792.69	.00030
3311832.0	-16.00	678686.34	7.42755	1.89	.015	34883.09	.00065
3311853.7	-14.00	586774.13	6.49999	2.81	.032	34962.93	.00144
3311875.3	-12.00	507522.07	5.57214	4.40	.079	35032.16	.00350
3311896.6	-10.00	440754.82	4.64407	8.31	.280	35090.79	.01240
3311917.9	-8.00	386325.33	3.71583	20.81	1.744	35138.78	.07719
3311939.0	-6.00	344114.14	2.78754	54.09	11.749	35176.12	.51928
3311960.1	-4.00	314028.91	1.85941	120.26	57.937	35202.80	2.55883
3311981.0	-2.00	296003.96	.93237	202.35	163.765	35218.81	7.22950
3311999.1	0.00	290000.00	.08103	241.01	232.213	35224.15	10.24960
3312017.2	2.00	296003.96	.93237	202.35	163.765	35218.81	7.22950
3312038.1	4.00	314028.91	1.85941	120.26	57.937	35202.80	2.55883
3312059.2	6.00	344114.14	2.78754	54.09	11.749	35176.12	.51928
3312080.3	8.00	386325.33	3.71583	20.81	1.744	35138.78	.07719
3312101.6	10.00	440754.82	4.64407	8.31	.280	35090.79	.01240
3312123.0	12.00	507522.07	5.57214	4.40	.079	35032.16	.00350
3312144.5	14.00	586774.13	6.49999	2.81	.032	34962.93	.00144
3312166.2	16.00	678686.34	7.42755	1.89	.015	34883.09	.00065
3312188.1	18.00	783463.12	8.35477	1.27	.007	34792.69	.00030
3312210.2	20.00	901338.88	9.28160	.86	.003	34691.74	.00014
3312450.8	40.00	2876197.50	18.51680	0.00	0.000	33110.97	0.00000
3312755.8	60.00	6706577.34	27.64789	0.00	0.000	30530.73	0.00000
3313198.1	80.00	13503046.32	36.58359	0.00	0.000	27031.30	0.00000
3313948.2	100.00	25709697.98	45.15353	0.00	0.000	22722.89	0.00000
3315485.0	120.00	49009883.89	52.97485	0.00	0.000	17745.30	0.00000
3319440.6	140.00	27068737.06	58.93956	0.00	0.000	12275.38	0.00000
3331477.8	160.00	193037678.60	58.02611	0.00	0.000	6595.76	0.00000
3365351.8	180.00	277267852.95	.08103	0.00	0.000	2506.11	0.00000

REVOLUTION 11

TIME	THETA	ALTITUDE	GAMMA	RCOUNT	RFM	VELOCITY	P 1
3365351.4	-180.00	25469806.89	.08103	0.00	0.000	2794.19	0.00000
3392663.2	-160.00	176627904.36	55.69325	0.00	0.000	6685.11	0.00000
3403775.1	-140.00	22344579.12	57.65774	0.00	0.000	12283.79	0.00000
3407505.3	-120.00	47571718.19	52.14621	0.00	0.000	17708.78	0.00000
3408994.7	-100.00	25204358.92	44.57820	0.00	0.000	22653.77	0.00000
3409740.4	-80.00	13308112.72	36.17693	0.00	0.000	26936.87	0.00000
3410380.7	-60.00	6630378.33	27.36750	0.00	0.000	30416.90	0.00000
3410485.8	-40.00	2849699.20	18.33983	0.00	0.000	32983.28	0.00000
3410727.0	-20.00	895589.90	9.19582	.86	.003	34555.72	.00014
3410749.2	-18.00	778847.45	8.27772	1.27	.007	34656.13	.00031
3410771.2	-16.00	675068.10	7.35918	1.89	.015	34746.06	.00067
3410792.9	-14.00	584023.13	6.44026	2.81	.033	34825.48	.00147
3410814.6	-12.00	505513.08	5.52101	4.41	.080	34894.36	.00357
3410836.0	-10.00	439366.78	4.60151	8.36	.286	34952.67	.01273
3410857.4	-8.00	385440.67	3.68182	20.91	1.785	35000.41	.07928
3410878.6	-6.00	343618.13	2.76205	54.08	11.897	35037.56	.52790
3410894.7	-4.00	313808.97	1.84244	119.50	57.958	35064.10	2.56987
3410920.8	-2.00	295949.05	.92391	200.16	162.354	35080.03	7.19555
3410939.1	.00	270000.00	.08103	238.03	229.478	35085.34	10.16897
3410957.4	2.00	245949.05	.92391	200.16	162.354	35080.03	7.19555
3410978.4	4.00	313808.97	1.84244	119.50	57.958	35064.10	2.56987
3410994.5	6.00	343618.13	2.76205	54.08	11.897	35037.56	.52790
3411020.5	8.00	385440.67	3.68182	20.91	1.785	35000.41	.07928
3411042.1	10.00	439366.78	4.60151	8.36	.286	34952.67	.01273
3411063.6	12.00	505513.08	5.52101	4.41	.080	34894.36	.00357
3411085.2	14.00	584023.13	6.44026	2.81	.033	34825.48	.00147
3411107.0	16.00	675068.10	7.35918	1.89	.015	34746.06	.00067
3411128.9	18.00	778847.45	8.27772	1.27	.007	34656.13	.00031
3411151.2	20.00	895589.90	9.19582	.86	.003	34555.72	.00014
3411342.3	40.00	2849699.20	18.33983	0.00	0.000	32983.28	0.00000
3411637.4	60.00	6630378.33	27.36750	0.00	0.000	30416.90	0.00000
3412137.8	80.00	13308112.72	36.17693	0.00	0.000	26936.87	0.00000
3412878.4	100.00	25204358.92	44.57820	0.00	0.000	22653.77	0.00000
3414372.9	120.00	47571718.19	52.14621	0.00	0.000	17708.78	0.00000
3418103.0	140.00	22344579.12	57.65774	0.00	0.000	12283.79	0.00000
3429214.3	160.00	176627904.36	55.69325	0.00	0.000	6685.11	0.00000
3456526.3	180.00	25469806.89	.08103	0.00	0.000	2794.19	0.00000

REVOLUTION 12

TIME	THETA	ALTITUDE	GAMMA	SCOUT	DEF	VELOCITY	P T
3456526.4	-180.00	218282414.03	.08103	0.00	0.000	3098.80	0.00000
3479057.6	-160.00	161699501.74	53.29793	0.00	0.000	6791.39	0.00000
3488412.4	-140.00	87708826.80	56.30524	0.00	0.000	12299.57	0.00000
3492424.3	-120.00	46102594.50	51.26666	0.00	0.000	17674.52	0.00000
3493875.8	-100.00	24677670.72	43.96640	0.00	0.000	22583.58	0.00000
3494600.6	-80.00	13102761.51	35.74392	0.00	0.000	26838.98	0.00000
3495044.4	-60.00	6549624.17	27.06879	0.00	0.000	30297.86	0.00000
3495350.0	-40.00	2821521.30	18.15125	0.00	0.000	32849.19	0.00000
3495541.8	-20.00	889465.77	9.10440	.87	.003	34412.58	.00015
3495614.1	-18.00	773930.09	8.19560	1.28	.007	34512.43	.00032
3495636.2	-16.00	671213.00	7.28631	1.89	.015	34601.84	.00068
3495658.1	-14.00	581091.81	6.37659	2.81	.033	34680.80	.00149
3495679.8	-12.00	503372.24	5.46651	4.42	.082	34749.29	.00365
3495701.3	-10.00	437887.55	4.55614	8.41	.294	34807.27	.01313
3495722.7	-8.00	384497.85	3.64556	21.02	1.829	34854.74	.08158
3495744.1	-6.00	343089.48	2.73488	54.07	12.058	34891.67	.53729
3495765.3	-4.00	313574.55	1.82435	118.71	57.986	34918.06	2.58187
3495786.4	-2.00	295890.52	.91489	197.88	160.879	34933.90	7.16002
3495804.9	0.00	290000.00	.08103	234.92	226.622	34939.18	10.08443
3495823.4	2.00	295890.52	.91489	197.88	160.879	34933.90	7.16002
3495844.6	4.00	313574.55	1.82435	118.71	57.986	34918.06	2.58187
3495865.8	6.00	343089.48	2.73488	54.07	12.058	34891.67	.53729
3495887.1	8.00	384497.85	3.64556	21.02	1.829	34854.74	.08158
3495908.6	10.00	437887.55	4.55614	8.41	.294	34807.27	.01313
3495930.1	12.00	503372.24	5.46651	4.42	.082	34749.29	.00365
3495951.8	14.00	581091.81	6.37659	2.81	.033	34680.80	.00149
3495973.7	16.00	671213.00	7.28631	1.89	.015	34601.84	.00068
3495995.7	18.00	773930.09	8.19560	1.28	.007	34512.43	.00032
3496018.0	20.00	889465.77	9.10440	.87	.003	34412.58	.00015
3496259.9	40.00	2821521.30	18.15125	0.00	0.000	32849.19	0.00000
3496465.0	60.00	6549624.17	27.06879	0.00	0.000	30297.86	0.00000
3497003.3	80.00	13102761.51	35.74392	0.00	0.000	26838.98	0.00000
3497734.1	100.00	24677670.72	43.96640	0.00	0.000	22583.58	0.00000
3499185.6	120.00	46102594.50	51.26666	0.00	0.000	17674.52	0.00000
3502697.5	140.00	87708826.80	56.30524	0.00	0.000	12299.57	0.00000
3512552.2	160.00	161699501.74	53.29793	0.00	0.000	6791.39	0.00000
3535083.5	180.00	218282414.03	.08103	0.00	0.000	3098.80	0.00000

REVOLUTION 13

TIME	THETA	ALTITUDE	GAMMA	CONT	DEM	VELOCITY	P T
3535083.5	-180.00	194839417.55	.08103	0.00	0.000	3420.39	0.00000
3553804.6	-180.00	148101467.91	50.85407	0.00	0.000	6916.16	0.00000
3562551.8	-140.00	23173156.95	54.88228	0.00	0.000	12323.87	0.00000
3565453.2	-120.00	44606260.51	50.33482	0.00	0.000	17643.22	0.00000
3567261.1	-100.00	24130011.18	43.31648	0.00	0.000	22512.73	0.00000
3567981.7	-80.00	12886832.54	35.28347	0.00	0.000	26737.84	0.00000
3568417.8	-60.00	6464170.90	26.75095	0.00	0.000	30173.69	0.00000
3568722.9	-40.00	2791596.09	17.95053	0.00	0.000	32708.67	0.00000
3568965.5	-20.00	882949.73	9.00708	.87	.003	34262.25	.00015
3568987.9	-18.00	768697.45	8.10817	1.29	.007	34361.47	.00032
3569010.0	-16.00	667110.32	7.20873	1.90	.015	34450.33	.00070
3569032.0	-14.00	577971.96	6.30881	2.82	.034	34528.80	.00153
3569053.8	-12.00	501093.55	5.40849	4.43	.083	34596.86	.00373
3569075.4	-10.00	436312.97	4.50785	8.47	.302	34654.48	.01357
3569096.9	-8.00	383494.21	3.60696	21.14	1.877	34701.65	.08411
3569118.4	-6.00	342526.72	2.70596	54.06	12.233	34738.36	.54751
3569139.7	-4.00	313324.99	1.80508	117.89	58.022	34764.58	2.59490
3569160.9	-2.00	295828.22	.90530	195.51	159.343	34780.32	7.12294
3569179.6	0.00	290000.00	.08103	231.68	223.647	34785.57	9.99595
3569198.4	2.00	295828.22	.90530	195.51	159.343	34780.32	7.12294
3569219.6	4.00	313324.99	1.80508	117.89	58.022	34764.58	2.59490
3569240.4	6.00	342526.72	2.70596	54.06	12.233	34738.36	.54751
3569262.3	8.00	383494.21	3.60696	21.14	1.877	34701.65	.08411
3569283.9	10.00	436312.97	4.50785	8.47	.302	34654.48	.01357
3569305.5	12.00	501093.55	5.40849	4.43	.083	34596.86	.00373
3569327.3	14.00	577971.96	6.30881	2.82	.034	34528.80	.00153
3569349.2	16.00	667110.32	7.20873	1.90	.015	34450.33	.00070
3569371.4	18.00	768697.45	8.10817	1.29	.007	34361.47	.00032
3569393.8	20.00	882949.73	9.00708	.87	.003	34262.25	.00015
3569636.4	40.00	2791596.09	17.95053	0.00	0.000	32708.67	0.00000
3569941.5	60.00	6464170.90	26.75095	0.00	0.000	30173.69	0.00000
3570377.6	80.00	12886832.54	35.28347	0.00	0.000	26737.84	0.00000
3571098.2	100.00	24130011.18	43.31648	0.00	0.000	22512.73	0.00000
3572506.1	120.00	44606260.51	50.33482	0.00	0.000	17643.22	0.00000
3575807.5	140.00	23173156.95	54.88228	0.00	0.000	12323.87	0.00000
3584554.7	160.00	148101467.91	50.85407	0.00	0.000	6916.16	0.00000
3603275.7	180.00	194839417.55	.08103	0.00	0.000	3420.39	0.00000

REVOLUTION 14

TIME	DEPTH	ALTITUDE	GAMMA	CCONT	QFM	VELOCITY	P T
3603275.7	-180.00	174471029.08	.08103	0.00	0.000	3759.43	0.00000
3618931.1	-160.00	135697155.10	48.37638	0.00	0.000	7060.94	0.00000
3626701.5	-140.00	78746754.71	53.38945	0.00	0.000	12357.94	0.00000
3629900.4	-120.00	43086294.42	49.34930	0.00	0.000	17615.67	0.00000
3631164.3	-100.00	23561743.02	42.62709	0.00	0.000	22441.68	0.00000
3631874.4	-80.00	12660145.31	34.79439	0.00	0.000	26633.67	0.00000
3632308.2	-60.00	6373859.27	26.41309	0.00	0.000	30044.46	0.00000
3632613.3	-40.00	2759848.55	17.73709	0.00	0.000	32561.68	0.00000
3632856.7	-20.00	876023.16	8.90356	.88	.003	34104.61	.00016
3632879.1	-18.00	763134.48	8.01519	1.29	.007	34203.16	.00033
3632901.4	-16.00	662748.18	7.12622	1.90	.016	34291.41	.00072
3632923.4	-14.00	574654.51	6.23672	2.82	.035	34369.35	.00156
3632945.3	-12.00	498670.33	5.34678	4.44	.085	34436.95	.00383
3632967.0	-10.00	434638.41	4.45648	8.53	.312	34494.18	.01404
3632988.7	-8.00	382426.78	3.56591	21.28	1.930	34541.04	.08689
3633010.2	-6.00	341928.15	2.67520	54.07	12.424	34577.49	.55864
3633031.6	-4.00	313059.56	1.78460	117.04	58.069	34603.54	2.60905
3633053.0	-2.00	295761.95	.89509	193.04	157.744	34619.17	7.08431
3633071.9	0.00	290000.00	.08103	228.32	220.552	34624.38	9.90353
3633090.8	2.00	295761.95	.89509	193.04	157.744	34619.17	7.08431
3633112.1	4.00	313059.56	1.78460	117.04	58.069	34603.54	2.60905
3633133.6	6.00	341928.15	2.67520	54.07	12.424	34577.49	.55864
3633155.1	8.00	382426.78	3.56591	21.28	1.930	34541.04	.08689
3633176.7	10.00	434638.41	4.45648	8.53	.312	34494.18	.01404
3633198.4	12.00	498670.33	5.34678	4.44	.085	34436.95	.00383
3633220.3	14.00	574654.51	6.23672	2.82	.035	34369.35	.00156
3633242.4	16.00	662748.18	7.12622	1.90	.016	34291.41	.00072
3633264.6	18.00	763134.48	8.01519	1.29	.007	34203.16	.00033
3633287.1	20.00	876023.16	8.90356	.88	.003	34104.61	.00016
363330.4	40.00	2759848.55	17.73709	0.00	0.000	32561.68	0.00000
3633835.6	60.00	6373859.27	26.41309	0.00	0.000	30044.46	0.00000
3634269.4	80.00	12660145.31	34.79439	0.00	0.000	26633.67	0.00000
3634979.4	100.00	23561743.02	42.62709	0.00	0.000	22441.68	0.00000
3636343.3	120.00	43086294.42	49.34930	0.00	0.000	17615.67	0.00000
3639442.3	140.00	78746754.71	53.38945	0.00	0.000	12357.94	0.00000
3647212.7	160.00	135697155.10	48.37638	0.00	0.000	7060.94	0.00000
3662868.0	180.00	174471029.08	.08103	0.00	0.000	3759.43	0.00000

REVOLUTION 15

TIME	HEIGHT	ALTITUDE	GAMMA	SCONT	QFM	VELOCITY	P T
3662868.0	-180.00	156652270.52	.08103	0.00	0.000	4116.49	0.00000
3676035.6	-160.00	124363682.64	45.87996	0.00	0.000	7227.20	0.00000
3682443.6	-140.00	74436583.91	51.82772	0.00	0.000	12403.10	0.00000
3685448.6	-120.00	41546092.63	48.30870	0.00	0.000	17592.73	0.00000
3687168.1	-100.00	22973210.94	41.89665	0.00	0.000	22370.43	0.00000
3687867.2	-80.00	12422497.06	34.27534	0.00	0.000	26526.73	0.00000
3688298.6	-60.00	6278513.20	26.05425	0.00	0.000	29910.23	0.00000
3688603.8	-40.00	2726195.56	17.51027	0.00	0.000	32408.16	0.00000
3688847.9	-20.00	868665.39	8.79354	.89	.004	33439.56	.00016
3688870.5	-18.00	757224.45	7.41636	1.30	.008	34037.37	.00034
3688892.8	-16.00	658113.38	7.03851	1.91	.016	34124.98	.00074
3688915.0	-14.00	571129.34	6.16010	2.83	.035	34202.34	.00160
3688936.9	-12.00	496095.17	5.28119	4.46	.087	34269.44	.00395
3688958.8	-10.00	432858.73	4.40188	8.60	.322	34326.25	.01457
3688980.5	-8.00	381292.27	3.52227	21.42	1.989	34372.75	.08996
3689002.1	-6.00	341291.95	2.64250	54.08	12.632	34408.94	.57077
3689023.7	-4.00	312777.42	1.76282	116.15	58.126	34434.80	2.62442
3689045.1	-2.00	295691.51	.88424	190.48	156.084	34450.31	7.04413
3689064.2	0.00	290000.00	.08103	224.83	217.340	34455.49	9.80714
3689083.4	2.00	295691.51	.88424	190.48	156.084	34450.31	7.04413
3689104.8	4.00	312777.42	1.76282	116.15	58.126	34434.80	2.62442
3689126.4	6.00	341291.95	2.64250	54.08	12.632	34408.94	.57077
3689148.0	8.00	381292.27	3.52227	21.42	1.989	34372.75	.08996
3689164.7	10.00	432858.73	4.40188	8.60	.322	34326.25	.01457
3689191.5	12.00	496095.17	5.28119	4.46	.087	34269.44	.00395
3689213.5	14.00	571129.34	6.16010	2.83	.035	34202.34	.00160
3689235.7	16.00	658113.38	7.03851	1.91	.016	34124.98	.00074
3689258.0	18.00	757224.45	7.41636	1.30	.008	34037.37	.00034
3689280.6	20.00	868665.39	8.79354	.89	.004	33439.56	.00016
3689304.7	40.00	2726195.56	17.51027	0.00	0.000	32408.16	0.00000
3689324.9	60.00	6278513.20	26.05425	0.00	0.000	29910.23	0.00000
3690261.2	80.00	12422497.06	34.27534	0.00	0.000	26526.73	0.00000
3690960.4	100.00	22973210.94	41.89665	0.00	0.000	22370.43	0.00000
3692279.9	120.00	41546092.63	48.30870	0.00	0.000	17592.73	0.00000
3693184.9	140.00	74436583.91	51.82772	0.00	0.000	12403.10	0.00000
3702092.9	160.00	124363682.64	45.87996	0.00	0.000	7227.20	0.00000
3715260.5	180.00	156652270.52	.08103	0.00	0.000	4116.49	0.00000

REVOLUTION 16

TIME	TIME TA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P I
3715260.5	-180.00	140966608.16	.08103	0.00	0.000	4492.16	0.00000
3726343.3	-160.00	113991022.85	43.37991	0.00	0.000	7416.37	0.00000
3732544.4	-140.00	70247647.93	50.19853	0.00	0.000	12460.80	0.00000
3735258.9	-120.00	39988858.69	47.21162	0.00	0.000	17575.33	0.00000
3736533.9	-100.00	22364738.14	41.12348	0.00	0.000	22301.03	0.00000
3737221.7	-80.00	12173660.35	33.72491	0.00	0.000	26417.30	0.00000
3737650.5	-60.00	6177937.92	25.67332	0.00	0.000	29771.09	0.00000
3737955.7	-40.00	2690544.89	17.26938	0.00	0.000	32248.08	0.00000
3738200.7	-20.00	860853.42	8.67666	.89	.004	33766.96	.00017
3738223.3	-18.00	750948.75	7.81136	1.31	.008	33863.98	.00036
3738245.8	-16.00	653191.23	6.94534	1.92	.017	33950.87	.00076
3738268.0	-14.00	567385.22	6.07869	2.83	.036	34027.61	.00164
3738290.1	-12.00	493359.82	5.21150	4.48	.089	34094.17	.00407
3738312.1	-10.00	430968.19	4.34387	8.67	.333	34150.52	.01516
3738333.9	-8.00	380087.02	3.47591	21.58	2.053	34196.65	.09334
3738355.7	-6.00	340616.04	2.60776	54.10	12.854	34232.55	.58400
3738377.3	-4.00	312477.66	1.73969	115.24	58.196	34258.19	2.64113
3738398.9	-2.00	295616.67	.87271	187.83	154.364	34273.58	7.00242
3738418.2	0.00	290090.00	.08103	221.21	214.012	34278.72	9.70677
3738437.5	2.00	295616.67	.87271	187.83	154.364	34273.58	7.00242
3738459.1	4.00	312477.66	1.73969	115.24	58.196	34258.19	2.64113
3738480.7	6.00	340616.04	2.60776	54.10	12.854	34232.55	.58400
3738502.5	8.00	380087.02	3.47591	21.58	2.053	34196.65	.09334
3738524.3	10.00	430968.19	4.34387	8.67	.333	34150.52	.01516
3738546.3	12.00	493359.82	5.21150	4.48	.089	34094.17	.00407
3738568.3	14.00	567385.22	6.07869	2.83	.036	34027.61	.00164
3738590.6	16.00	653191.23	6.94534	1.92	.017	33950.87	.00076
3738613.1	18.00	750948.75	7.81136	1.31	.008	33863.98	.00036
3738635.7	20.00	860853.42	8.67666	.89	.004	33766.96	.00017
3738880.7	40.00	2690544.89	17.26938	0.00	0.000	32248.08	0.00000
3739185.9	60.00	6177937.92	25.67332	0.00	0.000	29771.09	0.00000
3739614.7	80.00	12173660.35	33.72491	0.00	0.000	26417.30	0.00000
3740302.5	100.00	22364738.14	41.12348	0.00	0.000	22301.03	0.00000
3741577.5	120.00	39988858.69	47.21162	0.00	0.000	17575.33	0.00000
3744296.9	140.00	70247647.93	50.19853	0.00	0.000	12460.80	0.00000
3750443.1	160.00	113991022.85	43.37991	0.00	0.000	7416.37	0.00000
3761575.9	180.00	140966608.16	.08103	0.00	0.000	4492.16	0.00000

REVOLUTION 17

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
3761575.9	-180.00	127079883.47	.78103	0.00	0.000	4887.15	0.00000
3771032.7	-180.00	124480931.44	40.84090	0.00	0.000	7629.84	0.00000
3776505.0	-140.00	66183235.92	48.50384	0.00	0.000	12532.54	0.00000
3779047.4	-120.00	38417533.54	46.05666	0.00	0.000	17564.50	0.00000
3780277.4	-100.00	21736622.14	40.30578	0.00	0.000	22232.61	0.00000
3780454.0	-80.00	11313380.22	33.14151	0.00	0.000	26305.69	0.00000
3781380.1	-60.00	6071917.76	25.26912	0.00	0.000	29627.12	0.00000
3781685.3	-40.00	2652794.14	17.01361	0.00	0.000	32081.36	0.00000
3781931.1	-20.00	852561.64	8.55252	.90	.004	33586.66	.00018
3781953.9	-18.00	744286.65	7.69984	1.32	.008	33682.82	.00037
3781976.4	-16.00	647965.35	6.84637	1.93	.017	33768.95	.00078
3781998.8	-14.00	563409.63	5.99222	2.84	.037	33845.01	.00169
3782021.0	-12.00	490455.09	5.13748	4.50	.092	33910.98	.00421
3782043.1	-10.00	428960.42	4.28226	8.77	.346	33966.83	.01586
3782065.0	-8.00	378806.95	3.42667	21.81	2.134	34012.56	.09755
3782086.9	-6.00	339898.14	2.57086	54.15	13.111	34048.13	.59867
3782108.7	-4.00	312159.27	1.71511	114.30	58.280	34073.56	2.65929
3782130.3	-2.00	295537.17	.86047	185.08	152.544	34088.81	6.95919
3782149.9	.00	290000.00	.08103	217.48	210.569	34093.40	9.60238
3782169.4	2.00	285537.17	.86047	185.08	152.544	34088.81	6.95919
3782191.1	4.00	312159.27	1.71511	114.30	58.280	34073.56	2.65929
3782212.8	6.00	339898.14	2.57086	54.15	13.111	34048.13	.59867
3782234.7	8.00	378806.95	3.42667	21.81	2.134	34012.56	.09755
3782256.6	10.00	428960.42	4.28226	8.77	.346	33966.83	.01586
3782278.7	12.00	490455.09	5.13748	4.50	.092	33910.98	.00421
3782300.9	14.00	563409.63	5.99222	2.84	.037	33845.01	.00169
3782323.3	16.00	647965.35	6.84637	1.93	.017	33768.95	.00078
3782345.8	18.00	744286.65	7.69984	1.32	.008	33682.82	.00037
3782368.6	20.00	852561.64	8.55252	.90	.004	33586.66	.00018
3782391.4	40.00	2652794.14	17.01361	0.00	0.000	32081.36	0.00000
3782419.6	60.00	6071917.76	25.26912	0.00	0.000	29627.12	0.00000
3783345.7	80.00	11913380.22	33.14151	0.00	0.000	26305.69	0.00000
3784021.9	100.00	21736622.14	40.30578	0.00	0.000	22232.61	0.00000
3785252.3	120.00	38417533.54	46.05666	0.00	0.000	17564.50	0.00000
3787794.8	140.00	66183235.92	48.50384	0.00	0.000	12532.54	0.00000
3793267.0	160.00	104480931.44	40.84090	0.00	0.000	7629.84	0.00000
3802723.8	180.00	127079883.87	.78103	0.00	0.000	4887.15	0.00000

REVOLUTION 18

TIME	HEI TA	AL TITUDE	GAMMA	CCONT	QFM	VELOCITY	P T
3802723.8	-180.00	114721320.58	.02103	0.00	0.000	5302.22	0.00000
3810790.9	-160.00	95745830.25	38.42674	0.00	0.000	7868.95	0.00000
3815666.4	-140.00	62245150.82	46.74610	0.00	0.000	12619.96	0.00000
3818040.3	-120.00	36835086.67	44.84248	0.00	0.000	17561.37	0.00000
3819226.3	-100.00	21089129.84	39.44161	0.00	0.000	22166.35	0.00000
3819890.4	-80.00	11641370.62	32.52342	0.00	0.000	26192.23	0.00000
3820313.6	-60.00	5460213.49	24.84032	0.00	0.000	29478.44	0.00000
3820618.8	-40.00	2612829.28	16.74207	0.00	0.000	31907.94	0.00000
3820865.5	-20.00	843761.48	8.42067	.91	.004	33398.50	.00018
3820888.4	-18.00	737215.01	7.58139	1.33	.008	33493.73	.00039
3820911.1	-16.00	642417.48	6.74126	1.93	.018	33579.02	.00081
3820933.6	-14.00	559188.59	5.90038	2.85	.038	33654.34	.00174
3820955.9	-12.00	487370.70	5.05886	4.54	.095	33719.68	.00439
3820978.1	-10.00	426828.29	4.21682	8.89	.363	33774.99	.01669
3821000.2	-8.00	377447.50	3.77436	22.06	2.225	33820.27	.10228
3821022.1	-6.00	339135.68	2.53167	54.26	13.416	33855.51	.61609
3821044.0	-4.00	311821.11	1.68901	113.33	58.381	33880.69	2.67906
3821065.8	-2.00	295452.73	.84746	182.25	150.744	33895.80	6.91443
3821085.6	0.00	290000.00	.08103	213.62	207.012	33900.83	9.49394
3821105.3	2.00	295452.73	.84746	182.25	150.744	33895.80	6.91443
3821127.1	4.00	311821.11	1.68901	113.33	58.381	33880.69	2.67906
3821149.0	6.00	339135.68	2.53167	54.26	13.416	33855.51	.61609
3821171.0	8.00	377447.50	3.77436	22.06	2.225	33820.27	.10228
3821193.0	10.00	426828.29	4.21682	8.89	.363	33774.99	.01669
3821215.2	12.00	487370.70	5.05886	4.54	.095	33719.68	.00439
3821237.6	14.00	559188.59	5.90038	2.85	.038	33654.34	.00174
3821260.0	16.00	642417.48	6.74126	1.93	.018	33579.02	.00081
3821282.7	18.00	737215.01	7.58139	1.33	.008	33493.73	.00039
3821305.6	20.00	843761.48	8.42067	.91	.004	33398.50	.00018
3821552.3	40.00	2612829.28	16.74207	0.00	0.000	31907.94	0.00000
3821857.5	60.00	5460213.49	24.84032	0.00	0.000	29478.44	0.00000
3822280.8	80.00	11641370.62	32.52342	0.00	0.000	26192.23	0.00000
3822444.9	100.00	21089129.84	39.44161	0.00	0.000	22166.35	0.00000
3824130.8	120.00	36835086.67	44.84248	0.00	0.000	17561.37	0.00000
3826504.7	140.00	62245150.82	46.74610	0.00	0.000	12619.96	0.00000
3831380.2	160.00	95745830.25	38.42674	0.00	0.000	7868.95	0.00000
3839447.3	180.00	114721320.58	.02103	0.00	0.000	5302.22	0.00000

REVOLUTION 19

TIME	INCL	ALTITUDE	GAMMA	SCOUT	QEM	VELOCITY	P T
3839447.3	-187.00	103669476.56	.08103	0.00	0.000	5738.22	0.00000
3846355.2	-160.00	47107710.37	36.00007	0.00	0.000	8134.99	0.00000
3850701.7	-140.00	58433917.09	44.92835	0.00	0.000	12724.79	0.00000
3852415.5	-120.00	35243907.27	43.56777	0.00	0.000	17567.18	0.00000
3854056.4	-100.00	20422491.52	38.52891	0.00	0.000	22103.00	0.00000
3854708.7	-80.00	11357310.09	31.86874	0.00	0.000	26077.33	0.00000
3855124.0	-60.00	5842559.11	24.38545	0.00	0.000	29325.13	0.00000
3855434.1	-40.00	2570523.09	16.45378	0.00	0.000	31727.73	0.00000
3855681.8	-20.00	834420.92	8.28064	.92	.004	33202.28	.00019
3855704.8	-18.00	729707.93	7.45564	1.34	.009	33296.50	.00040
3855727.6	-16.00	636527.15	6.52962	1.95	.018	33380.89	.00084
3855750.2	-14.00	554706.42	5.80283	2.86	.039	33455.41	.00181
3855772.6	-12.00	484095.15	4.97535	4.59	.099	33520.05	.00460
3855795.0	-10.00	424563.82	4.14730	9.01	.381	33574.78	.01762
3855817.2	-8.00	376003.56	3.31880	22.34	2.326	33619.58	.10757
3855834.3	-6.00	338325.78	2.49003	54.40	13.751	33654.45	.63524
3855861.3	-4.00	311461.88	1.66129	112.34	58.501	33679.36	2.70060
3855883.2	-2.00	295363.04	.83365	179.32	148.846	33694.31	6.86817
3855903.2	0.00	290000.00	.08103	209.65	203.342	33699.29	9.38139
3855923.1	2.00	295363.04	.83365	179.32	148.846	33694.31	6.86817
3855945.0	4.00	311461.88	1.66129	112.34	58.501	33679.36	2.70060
3855967.1	6.00	338325.78	2.49003	54.40	13.751	33654.45	.63524
3855989.2	8.00	376003.56	3.31880	22.34	2.326	33619.58	.10757
3856011.4	10.00	424563.82	4.14730	9.01	.381	33574.78	.01762
3856033.7	12.00	484095.15	4.97535	4.59	.099	33520.05	.00460
3856056.1	14.00	554706.42	5.80283	2.86	.039	33455.41	.00181
3856078.7	16.00	636527.15	6.52962	1.95	.018	33380.89	.00084
3856101.5	18.00	729707.93	7.45564	1.34	.009	33296.50	.00040
3856124.5	20.00	834420.92	8.28064	.92	.004	33202.28	.00019
3856172.2	40.00	2570523.09	16.45378	0.00	0.000	31727.73	0.00000
3856677.4	60.00	5842559.11	24.38545	0.00	0.000	29325.13	0.00000
3857097.6	80.00	11357310.09	31.86874	0.00	0.000	26077.33	0.00000
3857749.4	100.00	20422491.52	38.52891	0.00	0.000	22103.00	0.00000
3858890.8	120.00	35243907.27	43.56777	0.00	0.000	17567.18	0.00000
3861104.7	140.00	58433917.09	44.92835	0.00	0.000	12724.79	0.00000
3865451.1	160.00	47707710.37	36.00007	0.00	0.000	8134.99	0.00000
3872359.0	180.00	103669476.56	.08103	0.00	0.000	5738.22	0.00000

REVOLUTION 20

TIME	THETA	ALTITUDE	GAMMA	GCNT	QFM	VELOCITY	P T
3872359.0	-140.00	93741718.52	.08103	0.00	0.000	6196.12	0.00000
3878294.4	-160.00	80297090.27	33.62207	0.00	0.000	8429.24	0.00000
3882171.3	-140.00	54748966.93	43.05416	0.00	0.000	12848.86	0.00000
3884233.3	-120.00	33646399.27	42.23133	0.00	0.000	17583.30	0.00000
3885330.4	-100.00	19736893.75	37.56547	0.00	0.000	22043.41	0.00000
3885965.4	-80.00	11060836.45	31.17539	0.00	0.000	25961.40	0.00000
3886386.6	-60.00	5718657.99	23.90286	0.00	0.000	29167.34	0.00000
3886691.7	-40.00	2525733.13	16.14763	0.00	0.000	31540.65	0.00000
3886940.4	-20.00	824504.05	8.13185	.94	.004	32997.79	.00020
3886963.5	-18.00	721736.29	7.32192	1.35	.009	33090.91	.00042
3886986.4	-16.00	630271.37	6.51099	1.96	.019	33174.31	.00088
3887002.1	-14.00	549945.54	5.69918	2.88	.040	33247.97	.00188
3887031.7	-12.00	480615.52	4.88662	4.64	.103	33311.86	.00482
3887054.2	-10.00	422158.02	4.07343	9.15	.401	33365.95	.01867
3887076.5	-8.00	374469.38	3.25977	22.64	2.439	33410.23	.11351
3887098.7	-6.00	337465.21	2.44579	54.56	14.119	33444.69	.65634
3887120.9	-4.00	311080.17	1.63183	111.32	58.642	33469.31	2.72410
3887143.0	-2.00	295267.72	.81898	176.31	146.888	33484.09	6.82039
3887163.1	0.00	240000.00	.08103	205.56	199.559	33489.01	9.26468
3887183.3	2.00	295267.72	.81898	176.31	146.888	33484.09	6.82039
3887205.4	4.00	311080.17	1.63183	111.32	58.642	33469.31	2.72410
3887227.5	6.00	337465.21	2.44579	54.56	14.119	33444.69	.65634
3887249.8	8.00	374469.38	3.25977	22.64	2.439	33410.23	.11351
3887272.1	10.00	422158.02	4.07343	9.15	.401	33365.95	.01867
3887294.5	12.00	480615.52	4.88662	4.64	.103	33311.86	.00482
3887317.1	14.00	549945.54	5.69918	2.88	.040	33247.97	.00188
3887339.9	16.00	630271.37	6.51099	1.96	.019	33174.31	.00088
3887362.8	18.00	721736.29	7.32192	1.35	.009	33090.91	.00042
3887385.9	20.00	824504.05	8.13185	.94	.004	32997.79	.00020
3887634.6	40.00	2525733.13	16.14763	0.00	0.000	31540.65	0.00000
3887434.7	60.00	5718657.99	23.90286	0.00	0.000	29167.34	0.00000
3888356.8	80.00	11060836.45	31.17539	0.00	0.000	25961.40	0.00000
3888995.9	100.00	19736893.75	37.56547	0.00	0.000	22043.41	0.00000
3890093.0	120.00	33646399.27	42.23133	0.00	0.000	17583.30	0.00000
3892155.0	140.00	54748966.93	43.05416	0.00	0.000	12848.86	0.00000
3896031.9	160.00	80297090.27	33.62207	0.00	0.000	8429.24	0.00000
3901967.3	180.00	93741718.52	.08103	0.00	0.000	6196.12	0.00000

REVOLUTION 21

TIME	THETA	ALTITUDE	GAMMA	RCENT	GEM	VELOCITY	P T
3901467.3	-180.00	84786233.94	.08103	0.00	0.000	6677.01	0.00000
3907082.6	-160.00	73452051.96	31.30226	0.00	0.000	8752.97	0.00000
3910542.2	-140.00	51188804.63	41.12769	0.00	0.000	12994.11	0.00000
3912460.3	-120.00	32044667.04	40.83204	0.00	0.000	17611.23	0.00000
3913513.4	-100.00	19032470.63	36.54893	0.00	0.000	21988.53	0.00000
3914139.4	-80.00	10751540.29	30.44107	0.00	0.000	25844.93	0.00000
3914553.2	-60.00	5588178.13	23.39072	0.00	0.000	29005.19	0.00000
3914858.3	-40.00	2478249.35	15.82237	0.00	0.000	31346.60	0.00000
3915108.0	-20.00	813970.33	7.97369	.95	.005	32784.78	.00022
3915131.3	-18.00	713267.27	7.17982	1.37	.009	32876.70	.00045
3915154.3	-16.00	623624.20	6.38488	1.97	.019	32959.03	.00091
3915177.2	-14.00	544886.08	5.58899	2.90	.042	33031.75	.00196
3915199.9	-12.00	476917.21	4.79228	4.70	.109	33094.82	.00510
3915222.5	-10.00	419600.77	3.99490	9.32	.424	33148.22	.01988
3915245.0	-8.00	372838.48	3.19700	22.97	2.566	33191.94	.12020
3915267.4	-6.00	336550.34	2.39876	54.74	14.525	33225.95	.67965
3915289.7	-4.00	310674.36	1.60051	110.28	58.807	33250.26	2.74977
3915311.9	-2.00	295166.39	.80338	173.21	144.872	33264.85	6.77111
3915332.3	0.00	290000.00	.08103	201.35	195.664	33269.71	9.14374
3915352.6	2.00	295166.39	.80338	173.21	144.872	33264.85	6.77111
3915374.9	4.00	310674.36	1.60051	110.28	58.807	33250.26	2.74977
3915397.2	6.00	336550.34	2.39876	54.74	14.525	33225.95	.67965
3915419.6	8.00	372838.48	3.19700	22.97	2.566	33191.94	.12020
3915442.0	10.00	419600.77	3.99490	9.32	.424	33148.22	.01988
3915464.6	12.00	476917.21	4.79228	4.70	.109	33094.82	.00510
3915487.4	14.00	544886.08	5.58899	2.90	.042	33031.75	.00196
3915510.2	16.00	623624.20	6.38488	1.97	.019	32959.03	.00091
3915533.3	18.00	713267.27	7.17982	1.37	.009	32876.70	.00045
3915556.5	20.00	813970.33	7.97369	.95	.005	32784.78	.00022
3915806.3	40.00	2478249.35	15.82237	0.00	0.000	31346.60	0.00000
3916111.3	60.00	5588178.13	23.39072	0.00	0.000	29005.19	0.00000
3916525.1	80.00	10751540.29	30.44107	0.00	0.000	25844.93	0.00000
3917151.1	100.00	19032470.63	36.54893	0.00	0.000	21988.53	0.00000
3918204.2	120.00	32044667.04	40.83204	0.00	0.000	17611.23	0.00000
3920122.3	140.00	51188804.63	41.12769	0.00	0.000	12994.11	0.00000
3923581.9	160.00	73452051.96	31.30226	0.00	0.000	8752.97	0.00000
3928697.3	180.00	84786233.94	.08103	0.00	0.000	6677.01	0.00000

REVOLUTION 22

TIME	THETA	ALTITUDE	GAMMA	GCONT	CFM	VELOCITY	P T
3928697.3	-180.00	76675900.32	.08103	0.00	0.000	7182.14	0.00000
3933117.8	-160.00	67117360.93	29.04845	0.00	0.000	9107.52	0.00000
3936206.0	-140.00	47751149.01	39.15357	0.00	0.000	13162.64	0.00000
3937988.1	-120.00	30440572.25	39.36889	0.00	0.000	17652.62	0.00000
3938997.5	-100.00	18309293.26	35.47676	0.00	0.000	21939.43	0.00000
3939610.1	-80.00	10428956.84	29.66324	0.00	0.000	25728.48	0.00000
3940020.4	-60.00	5450746.33	22.84698	0.00	0.000	28838.84	0.00000
3940325.3	-40.00	2428041.07	15.47660	0.00	0.000	31145.44	0.00000
3940576.2	-20.00	802773.88	7.80544	.97	.005	32562.97	.00023
3940599.6	-18.00	704263.70	7.02866	1.39	.010	32653.59	.00047
3940622.8	-16.00	616556.25	6.25071	1.99	.020	32734.75	.00096
3940645.8	-14.00	539505.55	5.47175	2.92	.043	32806.44	.00205
3940668.7	-12.00	472983.70	4.69192	4.77	.114	32868.61	.00541
3940691.4	-10.00	416880.58	3.91135	9.53	.454	32921.26	.02145
3940714.0	-8.00	371103.51	3.13022	23.33	2.709	32964.36	.12778
3940736.6	-6.00	335577.02	2.34872	54.95	14.973	32997.90	.70550
3940754.1	-4.00	310242.59	1.56719	109.21	59.000	33021.87	2.77787
3940781.4	-2.00	295058.57	.78679	170.02	142.797	33036.25	6.72032
3940802.0	0.00	290000.00	.08103	197.02	191.658	33041.04	9.01848
3940822.6	2.00	295058.57	.78679	170.02	142.797	33036.25	6.72032
3940845.0	4.00	310242.59	1.56719	109.21	59.000	33021.87	2.77787
3940867.4	6.00	335577.02	2.34872	54.95	14.973	32997.90	.70550
3940890.0	8.00	371103.51	3.13022	23.33	2.709	32964.36	.12778
3940912.6	10.00	416880.58	3.91135	9.53	.454	32921.26	.02145
3940935.3	12.00	472983.70	4.69192	4.77	.114	32868.61	.00541
3940958.2	14.00	539505.55	5.47175	2.92	.043	32806.44	.00205
3940981.2	16.00	616556.25	6.25071	1.99	.020	32734.75	.00096
3941004.4	18.00	704263.70	7.02866	1.39	.010	32653.59	.00047
3941027.8	20.00	802773.88	7.80544	.97	.005	32562.97	.00023
3941278.7	40.00	2428041.07	15.47660	0.00	0.000	31145.44	0.00000
3941583.6	60.00	5450746.33	22.84698	0.00	0.000	28838.84	0.00000
3941993.9	80.00	10428956.84	29.66324	0.00	0.000	25728.48	0.00000
3942606.6	100.00	18309293.26	35.47676	0.00	0.000	21939.43	0.00000
3943616.0	120.00	30440572.25	39.36889	0.00	0.000	17652.62	0.00000
3945398.0	140.00	47751149.01	39.15357	0.00	0.000	13162.64	0.00000
3948486.2	160.00	67117360.93	29.04845	0.00	0.000	9107.52	0.00000
3952906.7	180.00	76675900.32	.08103	0.00	0.000	7182.14	0.00000

REVOLUTION 23

TIME	THETA	ALTITUDE	GAMMA	RCONT	RQM	VELOCITY	P T
3952906.7	-180.00	69303528.86	.08103	0.00	0.000	7712.92	0.00000
3956735.8	-160.00	61243670.79	26.86668	0.00	0.000	9494.26	0.00000
3959493.1	-140.00	44433054.36	37.13691	0.00	0.000	13356.63	0.00000
3961146.5	-120.00	28835719.94	37.84102	0.00	0.000	17709.31	0.00000
3962112.6	-100.00	17567356.49	34.34624	0.00	0.000	21897.30	0.00000
3962711.5	-80.00	10092555.76	28.83908	0.00	0.000	25612.68	0.00000
3963118.2	-60.00	5305940.95	22.26932	0.00	0.000	28668.47	0.00000
3963423.0	-40.00	2374753.35	15.10872	0.00	0.000	30937.06	0.00000
3963675.0	-20.00	790862.45	7.62631	.98	.005	32332.03	.00025
3963698.6	-18.00	694683.23	6.86770	1.41	.010	32421.23	.00050
3963721.9	-16.00	609034.06	6.10786	2.02	.021	32501.12	.00101
3963745.1	-14.00	533778.30	5.34692	2.96	.045	32571.68	.00216
3963768.1	-12.00	468796.14	4.58504	4.86	.121	32632.89	.00578
3963791.0	-10.00	413984.37	3.82237	9.77	.489	32684.71	.02325
3963813.8	-8.00	369256.10	3.05910	23.78	2.880	32727.14	.13684
3963836.5	-6.00	334540.54	2.29543	55.19	15.472	32760.15	.73426
3963859.1	-4.00	309782.78	1.53170	108.15	59.260	32783.75	2.81036
3963881.7	-2.00	294043.75	.76913	166.74	140.664	32797.90	6.66803
3963902.5	0.00	290000.00	.08103	192.57	187.539	32802.62	8.88880
3963923.3	2.00	294943.75	.76913	166.74	140.664	32797.90	6.66803
3963945.8	4.00	309782.78	1.53170	108.15	59.260	32783.75	2.81036
3963968.4	6.00	334540.54	2.29543	55.19	15.472	32760.15	.73426
3963991.1	8.00	369256.10	3.05910	23.78	2.880	32727.14	.13684
3964013.9	10.00	413984.37	3.82237	9.77	.489	32684.71	.02325
3964036.6	12.00	468796.14	4.58504	4.86	.121	32632.89	.00578
3964059.9	14.00	533778.30	5.34692	2.96	.045	32571.68	.00216
3964083.0	16.00	609034.06	6.10786	2.02	.021	32501.12	.00101
3964106.4	18.00	694683.23	6.86770	1.41	.010	32421.23	.00050
3964129.9	20.00	790862.45	7.62631	.98	.005	32332.03	.00025
3964381.9	40.00	2374753.35	15.10872	0.00	0.000	30937.06	0.00000
3964686.7	60.00	5305940.95	22.26932	0.00	0.000	28668.47	0.00000
3965043.4	80.00	10092555.76	28.83908	0.00	0.000	25612.68	0.00000
3965692.3	100.00	17567356.49	34.34624	0.00	0.000	21897.30	0.00000
3966658.4	120.00	28835719.94	37.84102	0.00	0.000	17709.31	0.00000
3968311.8	140.00	44433054.36	37.13691	0.00	0.000	13356.63	0.00000
3971064.2	160.00	61243670.79	26.86668	0.00	0.000	9494.26	0.00000
3974898.2	180.00	69303528.86	.08103	0.00	0.000	7712.92	0.00000

REVOLUTION 24

TIME	THETA	ALTITUDE	GAMMA	CONT	QFM	VELOCITY	P I
3974898.2	-180.00	62578136.47	.08103	0.00	0.000	8270.95	0.00000
3978221.8	-160.00	55786808.28	24.76129	0.00	0.000	9914.72	0.00000
3980683.9	-140.00	41231009.91	35.08321	0.00	0.000	13578.48	0.00000
3982215.9	-120.00	27231445.40	36.24772	0.00	0.000	17783.34	0.00000
3983139.1	-100.00	16806562.48	33.15445	0.00	0.000	21863.50	0.00000
3983724.0	-80.00	9741728.27	27.96545	0.00	0.000	25498.23	0.00000
3984126.8	-60.00	5153282.80	21.65514	0.00	0.000	28494.29	0.00000
3984431.5	-40.00	2318202.31	14.71691	0.00	0.000	30721.28	0.00000
3984584.7	-20.00	778176.22	7.43535	1.00	.005	32091.59	.00026
3984708.4	-18.00	684477.35	6.69612	1.43	.011	32179.24	.00053
3984731.9	-16.00	601019.28	5.95556	2.04	.022	32257.74	.00107
3984755.2	-14.00	527674.96	5.21383	2.99	.048	32327.07	.00229
3984778.4	-12.00	464332.93	4.47109	4.96	.130	32387.21	.00623
3984801.5	-10.00	410897.14	3.72751	10.04	.529	32438.14	.02535
3984824.4	-8.00	367286.65	2.98328	24.33	3.092	32479.83	.14799
3984847.3	-6.00	333435.50	2.23861	55.48	16.026	32512.28	.76638
3984870.1	-4.00	309292.53	1.49387	107.11	59.600	32535.46	2.84808
3984892.8	-2.00	294821.32	.75030	163.37	138.472	32549.37	6.61423
3984913.8	0.00	290000.00	.08103	188.01	183.307	32554.01	8.75457
3984934.8	2.00	294821.32	.75030	163.37	138.472	32549.37	6.61423
3984957.6	4.00	309292.53	1.49387	107.11	59.600	32535.46	2.84808
3984980.4	6.00	333435.50	2.23861	55.48	16.026	32512.28	.76638
3985003.2	8.00	367286.65	2.98328	24.33	3.092	32479.83	.14799
3985026.2	10.00	410897.14	3.72751	10.04	.529	32438.14	.02535
3985049.3	12.00	464332.93	4.47109	4.96	.130	32387.21	.00623
3985072.4	14.00	527674.96	5.21383	2.99	.048	32327.07	.00229
3985095.8	16.00	601019.28	5.95556	2.04	.022	32257.74	.00107
3985119.3	18.00	684477.35	6.69612	1.43	.011	32179.24	.00053
3985143.0	20.00	778176.22	7.43535	1.00	.005	32091.59	.00026
3985396.2	40.00	2318202.31	14.71691	0.00	0.000	30721.28	0.00000
3985700.9	60.00	5153282.80	21.65514	0.00	0.000	28494.29	0.00000
3986103.7	80.00	9741728.27	27.96545	0.00	0.000	25498.23	0.00000
3986688.6	100.00	16806562.48	33.15445	0.00	0.000	21863.50	0.00000
3987611.8	120.00	27231445.40	36.24772	0.00	0.000	17783.34	0.00000
3989143.8	140.00	41231009.91	35.08321	0.00	0.000	13578.48	0.00000
3991605.9	160.00	55786808.28	24.76129	0.00	0.000	9914.72	0.00000
3994929.4	180.00	62578136.47	.08103	0.00	0.000	8270.95	0.00000

REVOLUTION 25

TIME	THETA	ALTITUDE	GAMMA	CCONT	QFM	VELOCITY	P T
3994929.4	-180.00	56421994.08	.08103	0.00	0.000	8858.11	0.00000
3997819.1	-160.00	50707131.58	22.73503	0.00	0.000	10370.57	0.00000
4000017.4	-140.00	38141018.05	32.99821	0.00	0.000	13830.72	0.00000
4001434.9	-120.00	25628796.24	34.58843	0.00	0.000	17876.97	0.00000
4002315.7	-100.00	16026699.62	31.89824	0.00	0.000	21839.55	0.00000
4002886.2	-80.00	9375770.60	27.03883	0.00	0.000	25385.95	0.00000
4003285.0	-60.00	4992223.56	21.00144	0.00	0.000	28316.54	0.00000
4003589.5	-40.00	2258119.23	14.29908	.03	.000	30497.93	.00000
4003844.0	-20.00	764646.18	7.23151	1.03	.006	31841.23	.00029
4003867.8	-18.00	673590.12	6.51295	1.46	.012	31927.16	.00057
4003891.5	-16.00	592467.66	5.79297	2.07	.024	32004.14	.00114
4003915.0	-14.00	521161.63	5.07173	3.04	.050	32072.13	.00243
4003938.4	-12.00	459569.17	4.34943	5.08	.140	32131.11	.00676
4003961.6	-10.00	407601.57	3.62623	10.40	.582	32181.05	.02812
4003984.8	-8.00	365184.06	2.90232	24.94	3.336	32221.94	.16095
4004007.8	-6.00	332255.66	2.17794	55.80	16.647	32253.75	.80244
4004030.8	-4.00	308769.07	1.45347	106.05	59.989	32276.49	2.88964
4004053.7	-2.00	294690.59	.73019	159.92	136.220	32290.13	6.55891
4004074.9	0.00	290000.00	.08103	183.34	178.961	32294.68	8.61564
4004096.2	2.00	294690.59	.73019	159.92	136.220	32290.13	6.55891
4004119.1	4.00	308769.07	1.45347	106.05	59.989	32276.49	2.88964
4004142.1	6.00	332255.66	2.17794	55.80	16.647	32253.75	.80244
4004165.1	8.00	365184.06	2.90232	24.94	3.336	32221.94	.16095
4004188.3	10.00	407601.57	3.62623	10.40	.582	32181.05	.02812
4004211.5	12.00	459569.17	4.34943	5.08	.140	32131.11	.00676
4004234.9	14.00	521161.63	5.07173	3.04	.050	32072.13	.00243
4004258.4	16.00	592467.66	5.79297	2.07	.024	32004.14	.00114
4004282.0	18.00	673590.12	6.51295	1.46	.012	31927.16	.00057
4004305.7	20.00	764646.18	7.23151	1.03	.006	31841.23	.00029
4004360.4	40.00	2258119.23	14.29908	.03	.000	30497.93	.00000
4004864.9	60.00	4992223.56	21.00144	0.00	0.000	28316.54	0.00000
4005263.7	80.00	9375770.60	27.03883	0.00	0.000	25385.95	0.00000
4005834.1	100.00	16026699.62	31.89824	0.00	0.000	21839.55	0.00000
4006714.9	120.00	25628796.24	34.58843	0.00	0.000	17876.97	0.00000
4008132.4	140.00	38141018.05	32.99821	0.00	0.000	13830.72	0.00000
4010130.8	160.00	50707131.58	22.73503	0.00	0.000	10370.57	0.00000
4013220.5	180.00	56421994.08	.08103	0.00	0.000	8858.11	0.00000

REVOLUTION 26

TIME	THETA	ALTITUDE	GAMMA	CCONT	QFM	VELOCITY	P T
4013220.5	-180.00	50768265.33	.08103	0.00	0.000	9476.56	0.00000
4015736.3	-160.00	45368952.91	20.78916	0.00	0.000	10863.75	0.00000
4017698.8	-140.00	35158650.54	30.88780	0.00	0.000	14116.13	0.00000
4019008.3	-120.00	24028508.00	32.86273	0.00	0.000	17992.73	0.00000
4019847.2	-100.00	15227415.36	30.57418	0.00	0.000	21827.22	0.00000
4020403.0	-80.00	8993862.49	26.05523	0.00	0.000	25276.79	0.00000
4020797.5	-60.00	4822130.82	20.30480	0.00	0.000	28135.48	0.00000
4021101.8	-40.00	2194193.00	13.85282	.03	.000	30266.79	.00000
4021357.6	-20.00	750192.16	7.01355	1.05	.006	31580.41	.00031
4021481.6	-18.00	661956.50	6.31708	1.49	.013	31664.48	.00062
4021405.5	-16.00	583327.76	5.61909	2.11	.025	31739.79	.00123
4021429.2	-14.00	514198.88	4.91977	3.10	.054	31806.30	.00263
4021452.7	-12.00	454475.86	4.21931	5.23	.152	31864.00	.00743
4021476.1	-10.00	404077.53	3.51789	10.82	.648	31912.86	.03158
4021499.5	-8.00	362935.44	2.81573	25.62	3.619	31952.86	.17611
4021522.7	-6.00	330993.77	2.11305	56.17	17.344	31983.99	.84312
4021545.9	-4.00	308209.17	1.41027	104.97	60.432	32006.23	2.93558
4021569.0	-2.00	244550.75	.70870	156.37	133.908	32019.58	6.50206
4021590.5	0.00	290000.00	.08103	178.54	174.499	32024.03	8.47184
4021611.9	2.00	294550.75	.70870	156.37	133.908	32019.58	6.50206
4021635.1	4.00	308209.17	1.41027	104.97	60.432	32006.23	2.93558
4021658.2	6.00	330993.77	2.11305	56.17	17.344	31983.99	.84312
4021681.5	8.00	362935.44	2.81573	25.62	3.619	31952.86	.17611
4021704.8	10.00	404077.53	3.51789	10.82	.648	31912.86	.03158
4021728.2	12.00	454475.86	4.21931	5.23	.152	31864.00	.00743
4021751.8	14.00	514198.88	4.91977	3.10	.054	31806.30	.00263
4021775.5	16.00	583327.76	5.61909	2.11	.025	31739.79	.00123
4021799.3	18.00	661956.50	6.31708	1.49	.013	31664.48	.00062
4021823.4	20.00	750192.16	7.01355	1.05	.006	31580.41	.00031
4022075.2	40.00	2194193.00	13.85282	.03	.000	30266.79	.00000
4022383.4	60.00	4822130.82	20.30480	0.00	0.000	28135.48	0.00000
4022778.0	80.00	8993862.49	26.05523	0.00	0.000	25276.79	0.00000
4023333.7	100.00	15227415.36	30.57418	0.00	0.000	21827.22	0.00000
4024172.6	120.00	24028508.00	32.86273	0.00	0.000	17992.73	0.00000
4025492.2	140.00	35158650.54	30.88780	0.00	0.000	14116.13	0.00000
4027444.6	160.00	45968952.91	20.78916	0.00	0.000	10863.75	0.00000
4029460.5	180.00	50768265.33	.08103	0.00	0.000	9476.56	0.00000

REVOLUTION 27

TIME	THETA	ALTITUDE	GAMMA	ACONT	QFM	VELOCITY	P T
4029960.5	-180.00	45559096.10	.08103	0.00	0.000	10128.85	0.00000
4032153.2	-150.00	41540015.33	18.92370	0.00	0.000	11396.50	0.00000
4033904.3	-140.00	32279081.51	28.75788	0.00	0.000	14437.77	0.00000
4035112.1	-120.00	22430970.59	31.07032	0.00	0.000	18133.49	0.00000
4035309.7	-100.00	14408180.40	29.17851	0.00	0.000	21428.52	0.00000
4036450.4	-80.00	8595038.83	25.01014	0.00	0.000	25171.85	0.00000
4036840.5	-50.00	4642268.44	19.56128	0.00	0.000	27951.44	0.00000
4037144.4	-40.00	2126060.12	13.37530	.04	.000	30027.61	.00000
4037401.6	-20.00	734720.11	6.78002	1.08	.007	31308.56	.00034
4037425.9	-18.00	649500.21	6.10719	1.52	.014	31390.57	.00067
4037449.9	-15.00	573539.22	5.43275	2.15	.027	31464.03	.00132
4037473.8	-14.00	506740.47	4.75691	3.18	.058	31528.92	.00287
4037497.5	-12.00	449018.99	4.07986	5.41	.168	31585.21	.00825
4037521.1	-10.00	400301.36	3.40179	11.30	.728	31632.87	.03576
4037544.7	-8.00	360525.66	2.72292	26.38	3.952	31671.90	.19400
4037568.1	-6.00	329641.30	2.04350	56.61	18.140	31702.27	.88960
4037591.5	-4.00	307609.03	1.36396	103.88	60.939	31723.97	2.98656
4037614.8	-2.00	294400.86	.68567	152.72	131.534	31737.00	6.44367
4037638.5	0.00	230000.00	.08103	173.62	169.918	31741.34	8.32293
4037654.3	2.00	294400.86	.68567	152.72	131.534	31737.00	6.44367
4037681.6	4.00	307609.03	1.36396	103.88	60.939	31723.97	2.98656
4037705.0	6.00	329641.30	2.04350	56.61	18.140	31702.27	.88960
4037728.4	8.00	360525.66	2.72292	26.38	3.952	31671.90	.19400
4037751.9	10.00	400301.36	3.40179	11.30	.728	31632.87	.03576
4037775.6	12.00	449018.99	4.07986	5.41	.168	31585.21	.00825
4037799.3	14.00	506740.47	4.75691	3.18	.058	31528.92	.00287
4037823.2	16.00	573539.22	5.43275	2.15	.027	31464.03	.00132
4037847.2	18.00	649500.21	6.10719	1.52	.014	31390.57	.00067
4037871.5	20.00	734720.11	6.78002	1.08	.007	31308.56	.00034
4038124.7	40.00	2126060.12	13.37530	.04	.000	30027.61	.00000
4038432.6	60.00	4642268.44	19.56128	0.00	0.000	27951.44	0.00000
4038822.7	80.00	8595038.83	25.01014	0.00	0.000	25171.85	0.00000
4039363.4	100.00	14408180.40	29.17851	0.00	0.000	21428.52	0.00000
4040161.0	120.00	22430970.59	31.07032	0.00	0.000	18133.49	0.00000
4041364.8	140.00	32279081.51	28.75788	0.00	0.000	14437.77	0.00000
4043119.9	160.00	41540015.33	18.92370	0.00	0.000	11396.50	0.00000
4045312.6	180.00	45559096.10	.08103	0.00	0.000	10128.85	0.00000

REVOLUTION 28

TIME	THE TA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
4045312.6	-140.00	40744047.71	.08103	0.00	0.000	10818.01	0.00000
4047225.0	-140.00	37391011.81	17.13745	0.00	0.000	11971.53	0.00000
4048786.4	-140.00	29497093.03	26.61411	0.00	0.000	14799.03	0.00000
4049438.5	-120.00	20836181.12	29.21099	0.00	0.000	18302.48	0.00000
4050655.3	-100.00	13568240.55	27.71705	0.00	0.000	21845.79	0.00000
4051190.5	-80.00	8178151.42	23.89839	0.00	0.000	25072.42	0.00000
4051565.9	-60.00	4451770.35	18.76624	0.00	0.000	27764.80	0.00000
4051860.5	-40.00	2053291.45	12.86319	.04	.000	29780.09	.00000
4052126.2	-20.00	718118.61	6.52918	1.12	.008	31024.95	.00038
4052152.6	-18.00	636130.83	5.88173	1.56	.015	31104.68	.00073
4052176.8	-16.00	563030.48	5.23259	2.20	.029	31176.10	.00144
4052200.4	-14.00	498731.51	4.58195	3.26	.063	31239.20	.00315
4052224.9	-12.00	443158.19	3.93003	5.63	.187	31293.43	.00931
4052248.7	-10.00	396245.02	3.27704	11.90	.833	31340.28	.04132
4052272.5	-8.00	357936.73	2.62319	27.20	4.333	31378.23	.21470
4052296.1	-6.00	328188.14	1.96877	57.15	19.065	31407.76	.94374
4052319.7	-4.00	306964.17	1.31421	102.78	61.521	31428.87	3.04337
4052343.3	-2.00	294239.79	.66093	148.99	129.097	31441.53	6.38370
4052365.2	0.00	290000.00	.08103	168.58	165.216	31445.76	8.16864
4052387.2	2.00	294239.79	.66093	148.99	129.097	31441.53	6.38370
4052411.8	4.00	306964.17	1.31421	102.78	61.521	31428.87	3.04337
4052434.4	6.00	328188.14	1.96877	57.15	19.065	31407.76	.94374
4052458.0	8.00	357936.73	2.62319	27.20	4.333	31378.23	.21470
4052481.8	10.00	396245.02	3.27704	11.90	.833	31340.28	.04132
4052505.6	12.00	443158.19	3.93003	5.63	.187	31293.43	.00931
4052529.6	14.00	498731.51	4.58195	3.26	.063	31239.20	.00315
4052553.6	16.00	563030.48	5.23259	2.20	.029	31176.10	.00144
4052577.4	18.00	636130.83	5.88173	1.56	.015	31104.68	.00073
4052602.3	20.00	718118.61	6.52918	1.12	.008	31024.95	.00038
4052626.1	40.00	2053291.45	12.86319	.04	.000	29780.09	.00000
4053164.5	60.00	4451770.35	18.76624	0.00	0.000	27764.80	0.00000
4053549.9	80.00	8178151.42	23.89839	0.00	0.000	25072.42	0.00000
4054075.2	100.00	13568240.55	27.71705	0.00	0.000	21845.79	0.00000
4054432.0	120.00	20836181.12	29.21099	0.00	0.000	18302.48	0.00000
4055444.1	140.00	29497093.03	26.61411	0.00	0.000	14799.03	0.00000
4057505.5	160.00	37391011.81	17.13745	0.00	0.000	11971.53	0.00000
4059417.4	180.00	40744047.71	.08103	0.00	0.000	10818.01	0.00000

REVOLUTION 29

TIME	DEPTH	ALTITUDE	GAMMA	CONST	QFM	VELOCITY	P T
4054417.4	-180.00	36278788.84	.08103	0.00	0.000	11547.65	0.00000
4061086.2	-180.00	33435132.59	15.42828	0.00	0.000	12592.07	0.00000
4062477.3	-140.00	26817049.37	24.46180	0.00	0.000	15203.79	0.00000
4063494.1	-120.00	19243676.35	27.28448	0.00	0.000	18503.45	0.00000
4064215.7	-100.00	12706550.66	25.15511	0.00	0.000	21881.77	0.00000
4064725.2	-80.00	7741816.64	22.71395	0.00	0.000	24480.03	0.00000
4065105.6	-60.00	4249604.69	17.91425	0.00	0.000	27576.01	0.00000
4065408.8	-40.00	1975374.04	12.31253	.05	.000	29523.46	.00000
4065669.0	-20.00	770253.99	6.25898	1.16	.008	30728.71	.00043
4065693.7	-18.00	621739.84	5.63884	1.61	.016	30805.92	.00081
4065718.1	-16.00	551715.66	5.01692	2.26	.032	30875.08	.00159
4065742.4	-14.00	490106.15	4.39343	3.38	.070	30936.18	.00353
4065768.6	-12.00	436845.01	3.76858	5.91	.213	30989.19	.01070
4065790.6	-10.00	391874.83	3.14260	12.61	.965	31034.08	.04833
4065814.6	-8.00	355147.09	2.51572	28.12	4.784	31070.84	.23937
4065838.5	-6.00	326622.15	1.88824	57.77	20.126	31099.45	1.00617
4065862.3	-4.00	316269.18	1.26060	101.67	62.190	31119.89	3.10701
4065886.1	-2.00	294066.20	.63429	145.15	126.593	31132.15	6.32212
4065915.4	0.00	290000.00	.08103	163.41	160.385	31136.24	8.00863
4065930.6	2.00	294066.20	.63429	145.15	126.593	31132.15	6.32212
4065954.4	4.00	306269.18	1.26060	101.67	62.190	31119.89	3.10701
4065978.2	6.00	326622.15	1.88824	57.77	20.126	31099.45	1.00617
4066002.1	8.00	355147.09	2.51572	28.12	4.784	31070.84	.23937
4066026.1	10.00	391874.83	3.14260	12.61	.965	31034.08	.04833
4066050.2	12.00	436845.01	3.76858	5.91	.213	30989.19	.01070
4066074.3	14.00	490106.15	4.39343	3.38	.070	30936.18	.00353
4066098.6	16.00	551715.66	5.01692	2.26	.032	30875.08	.00159
4066123.1	18.00	621739.84	5.63884	1.61	.016	30805.92	.00081
4066147.7	20.00	770253.99	6.25898	1.16	.008	30728.71	.00043
4066407.9	40.00	1975374.04	12.31253	.05	.000	29523.46	.00000
4066711.2	60.00	4249604.69	17.91425	0.00	0.000	27576.01	0.00000
4067091.5	80.00	7741816.64	22.71395	0.00	0.000	24480.03	0.00000
4067601.0	100.00	12706550.66	25.15511	0.00	0.000	21881.77	0.00000
4068317.6	120.00	19243676.35	27.28448	0.00	0.000	18503.45	0.00000
4068339.4	140.00	26807049.37	24.46180	0.00	0.000	15203.79	0.00000
4070730.5	160.00	33495132.59	15.42828	0.00	0.000	12592.07	0.00000
4072394.9	180.00	36278788.84	.08103	0.00	0.000	11547.65	0.00000

REVOLUTION 30

TIME	TIME	ALTITUDE	GAMMA	CONT	QFM	VELOCITY	P T
4072395.4	-180.00	32123975.21	.02103	0.00	0.000	12322.19	0.00000
4073454.1	-160.00	29827622.77	13.79312	0.00	0.000	13262.14	0.00000
4075091.8	-140.00	24202827.72	22.30561	0.00	0.000	15656.56	0.00000
4076025.7	-120.00	17652434.26	25.29029	0.00	0.000	18740.73	0.00000
4076705.7	-100.00	11821681.39	24.51730	0.00	0.000	21939.69	0.00000
4077199.0	-80.00	7284341.55	21.44974	0.00	0.000	24896.52	0.00000
4077574.0	-60.00	4034523.78	16.99875	0.00	0.000	27385.62	0.00000
4077876.8	-40.00	1891685.94	11.71850	.05	.000	29258.49	.00000
4078138.5	-20.00	620063.55	5.96690	1.21	.010	30418.78	.00049
4078163.5	-18.00	606195.18	5.37626	1.67	.018	30493.18	.00091
4078188.2	-16.00	539490.18	4.78374	2.34	.035	30559.23	.00178
4078212.7	-14.00	480784.19	4.18958	3.55	.080	30618.71	.00406
4078237.1	-12.00	430020.45	3.59399	6.26	.247	30669.80	.01254
4078261.4	-10.00	387149.74	2.99721	13.40	1.128	30713.07	.05709
4078285.6	-8.00	352130.45	2.39950	29.17	5.327	30748.49	.26938
4078309.8	-6.00	324929.52	1.80114	58.49	21.355	30776.06	1.07880
4078333.8	-4.00	305517.48	1.20262	100.54	62.962	30795.76	3.17871
4078357.9	-2.00	293872.43	.60549	141.20	124.020	30807.59	6.25888
4078380.4	0.00	290000.00	.08103	158.10	155.419	30811.53	7.84246
4078403.0	2.00	293878.43	.60549	141.20	124.020	30807.59	6.25888
4078427.0	4.00	305517.48	1.20262	100.54	62.962	30795.76	3.17871
4078451.1	6.00	324929.52	1.80114	58.49	21.355	30776.06	1.07880
4078475.2	8.00	352130.45	2.39950	29.17	5.327	30748.49	.26938
4078499.4	10.00	387149.74	2.99721	13.40	1.128	30713.07	.05709
4078523.7	12.00	430020.45	3.59399	6.26	.247	30669.80	.01254
4078548.1	14.00	480784.19	4.18958	3.55	.080	30618.71	.00406
4078572.7	16.00	539490.18	4.78374	2.34	.035	30559.23	.00178
4078597.3	18.00	606195.18	5.37626	1.67	.018	30493.18	.00091
4078622.0	20.00	680963.55	5.96690	1.21	.010	30418.78	.00049
4078646.8	40.00	1891685.94	11.71850	.05	.000	29258.49	.00000
4078670.8	60.00	4034523.78	16.99875	0.00	0.000	27385.62	0.00000
4078695.8	80.00	7284341.55	21.44974	0.00	0.000	24896.52	0.00000
4080055.2	100.00	11821681.39	24.51730	0.00	0.000	21939.69	0.00000
4080732.1	120.00	17652434.26	25.29029	0.00	0.000	18740.73	0.00000
4081659.0	140.00	24202827.72	22.30561	0.00	0.000	15656.56	0.00000
4082306.7	160.00	29827622.77	13.79312	0.00	0.000	13262.14	0.00000
4084362.0	180.00	32123975.21	.02103	0.00	0.000	12322.19	0.00000

REVOLUTION 31

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
4084362.0	-180.00	28244251.15	.08103	0.00	0.000	13147.12	0.00000
4085630.5	-160.00	26365324.72	12.22809	0.00	0.000	13986.78	0.00000
4086730.0	-140.00	21677688.86	20.14930	0.00	0.000	16162.68	0.00000
4087586.8	-120.00	16060727.08	23.22790	0.00	0.000	19019.48	0.00000
4088224.7	-100.00	10911683.92	22.78727	0.00	0.000	22023.45	0.00000
4088701.4	-80.00	6803617.13	20.09726	0.00	0.000	24824.12	0.00000
4089070.8	-60.00	3804991.90	16.01178	0.00	0.000	27194.28	0.00000
4089373.1	-40.00	1801459.73	11.07519	.06	.000	28983.40	.00000
4089636.6	-20.00	660045.87	5.64984	1.28	.011	30093.84	.00056
4089661.7	-18.00	589333.24	5.09117	1.74	.020	30165.09	.00105
4089686.6	-16.00	526224.49	4.53055	2.44	.040	30228.93	.00203
4089711.4	-14.00	470666.24	3.96821	3.77	.093	30285.33	.00480
4089736.0	-12.00	422611.35	3.40438	6.74	.297	30334.26	.01523
4089760.6	-10.00	382018.90	2.83930	14.31	1.334	30375.71	.06828
4089785.1	-8.00	348854.21	2.27325	30.43	6.014	30409.64	.30746
4089809.5	-6.00	323088.92	1.70653	59.33	22.791	30436.05	1.16422
4089833.8	-4.00	304700.92	1.13964	99.41	63.859	30454.93	3.26006
4089858.1	-2.00	293674.44	.57423	137.14	121.373	30466.26	6.19392
4089881.0	0.00	290000.00	.08103	152.65	150.309	30470.03	7.66958
4089903.8	2.00	293674.44	.57423	137.14	121.373	30466.26	6.19392
4089928.1	4.00	304700.92	1.13964	99.41	63.859	30454.93	3.26006
4089952.5	6.00	323088.92	1.70653	59.33	22.791	30436.05	1.16422
4089976.9	8.00	348854.21	2.27325	30.43	6.014	30409.64	.30746
4090001.4	10.00	382018.90	2.83930	14.31	1.334	30375.71	.06828
4090025.9	12.00	422611.35	3.40438	6.74	.297	30334.26	.01523
4090050.6	14.00	470666.24	3.96821	3.77	.093	30285.33	.00480
4090075.4	16.00	526224.49	4.53055	2.44	.040	30228.93	.00203
4090100.3	18.00	589333.24	5.09117	1.74	.020	30165.09	.00105
4090125.4	20.00	660045.87	5.64984	1.28	.011	30093.84	.00056
4090388.9	40.00	1801459.73	11.07519	.06	.000	28983.40	.00000
4090691.2	60.00	3804991.90	16.01178	0.00	0.000	27194.28	0.00000
4091060.6	80.00	6803617.13	20.09726	0.00	0.000	24824.12	0.00000
4091537.3	100.00	10911683.92	22.78727	0.00	0.000	22023.45	0.00000
4092175.2	120.00	16060727.08	23.22790	0.00	0.000	19019.48	0.00000
4093032.0	140.00	21677688.86	20.14930	0.00	0.000	16162.68	0.00000
4094131.5	160.00	26365324.72	12.22809	0.00	0.000	13986.78	0.00000
4095400.0	180.00	28244251.15	.08103	0.00	0.000	13147.12	0.00000

REVOLUTION 32

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
4095400.0	-180.00	24607302.74	.08103	0.00	0.000	14029.36	0.00000
4096504.4	-160.00	23086165.62	10.72854	0.00	0.000	14772.45	0.00000
4097479.0	-140.00	19224055.09	17.99538	0.00	0.000	16728.74	0.00000
4098260.3	-120.00	14465895.47	21.09545	0.00	0.000	19345.96	0.00000
4098859.6	-100.00	9973886.54	20.95730	0.00	0.000	22137.84	0.00000
4099319.3	-80.00	6296958.18	18.64611	0.00	0.000	24765.60	0.00000
4099682.7	-60.00	3559077.79	14.94346	0.00	0.000	27002.82	0.00000
4099984.3	-40.00	1703728.56	10.37517	.07	.000	28697.88	.00000
4100249.6	-20.00	637246.30	5.30386	1.35	.013	29752.20	.00066
4100274.9	-18.00	570947.18	4.78003	1.84	.023	29819.90	.00122
4100300.1	-16.00	511754.73	4.25418	2.59	.046	29880.56	.00240
4100325.2	-14.00	459626.58	3.72654	4.06	.113	29934.16	.00586
4100350.1	-12.00	414525.19	3.19735	7.38	.371	29980.67	.01922
4100374.9	-10.00	376417.93	2.66689	15.49	1.627	30020.06	.08425
4100399.7	-8.00	345277.14	2.13540	32.01	6.919	30052.32	.35797
4100424.4	-6.00	321080.11	1.60322	60.31	24.490	30077.43	1.26594
4100449.0	-4.00	303809.16	1.07089	98.28	64.907	30095.37	3.35315
4100473.6	-2.00	293451.66	.54013	132.96	118.646	30106.14	6.12714
4100496.8	0.00	290000.00	.08103	147.03	145.039	30109.73	7.48927
4100520.0	2.00	293451.66	.54013	132.96	118.646	30106.14	6.12714
4100544.6	4.00	303809.16	1.07089	98.28	64.907	30095.37	3.35315
4100569.2	6.00	321080.11	1.60322	60.31	24.490	30077.43	1.26594
4100593.9	8.00	345277.14	2.13540	32.01	6.919	30052.32	.35797
4100618.7	10.00	376417.93	2.66689	15.49	1.627	30020.06	.08425
4100643.5	12.00	414525.19	3.19735	7.38	.371	29980.67	.01922
4100668.4	14.00	459626.58	3.72654	4.06	.113	29934.16	.00586
4100693.5	16.00	511754.73	4.25418	2.59	.046	29880.56	.00240
4100718.7	18.00	570947.18	4.78003	1.84	.023	29819.90	.00122
4100744.0	20.00	637246.30	5.30386	1.35	.013	29752.20	.00066
4101009.3	40.00	1703728.56	10.37517	.07	.000	28697.88	.00000
4101311.0	60.00	3559077.79	14.94346	0.00	0.000	27002.82	0.00000
4101674.4	80.00	6296958.18	18.64611	0.00	0.000	24765.60	0.00000
4102134.0	100.00	9973886.54	20.95730	0.00	0.000	22137.84	0.00000
4102733.3	120.00	14465895.47	21.09545	0.00	0.000	19345.96	0.00000
4103514.6	140.00	19224055.09	17.99538	0.00	0.000	16728.74	0.00000
4104489.3	160.00	23086165.62	10.72854	0.00	0.000	14772.45	0.00000
4105593.6	180.00	24607302.74	.08103	0.00	0.000	14029.36	0.00000

REVOLUTION 33

TIME	THETA	ALTITUDE	GAMMA	CONF	QEM	VELOCITY	P T
4105593.6	-180.00	21122270.48	.08113	0.00	0.000	14477.94	0.00000
4106553.2	-160.00	19468522.24	9.28441	0.00	0.000	15627.62	0.00000
4107414.7	-140.00	16833135.24	15.84442	0.00	0.000	17363.05	0.00000
4108124.7	-120.00	12863988.25	18.84111	0.00	0.000	19727.35	0.00000
4108645.9	-100.00	9014575.69	19.71766	0.00	0.000	22288.44	0.00000
4109128.0	-80.00	5760853.30	17.08318	0.00	0.000	24724.45	0.00000
4109484.7	-60.00	3294287.63	13.78114	0.00	0.000	26812.29	0.00000
4109785.8	-40.00	1537242.24	9.60888	.08	.000	28400.98	.00000
4110053.1	-20.00	512234.54	4.92387	1.45	.015	29391.64	.00080
4110078.7	-18.00	550768.62	4.43224	1.46	.028	29455.31	.00146
4110104.1	-16.00	435868.20	3.35152	2.79	.056	29512.37	.00294
4110129.5	-14.00	447502.01	3.46097	4.47	.142	29562.79	.00749
4110154.7	-12.00	405641.81	2.96384	8.29	.488	29606.54	.02563
4110174.8	-10.00	370263.28	2.47728	17.01	2.043	29643.60	.10714
4110204.4	-8.00	341345.66	1.98388	33.88	8.080	29673.95	.42337
4110222.9	-6.00	318871.93	1.48967	61.54	26.584	29697.58	1.39202
4110254.9	-4.00	302828.79	.99533	97.15	68.142	29714.46	3.46077
4110279.8	-2.00	293206.72	.50270	128.63	115.828	29724.59	6.05841
4110313.3	0.00	290000.00	.02103	141.24	134.542	29727.47	7.30056
4110325.8	2.00	293206.72	.50270	128.63	115.828	29724.59	6.05841
4110351.7	4.00	302828.79	.99533	97.15	68.142	29714.46	3.46077
4110376.7	6.00	318871.93	1.48967	61.54	26.584	29697.58	1.39202
4110401.7	8.00	341345.66	1.98388	33.88	8.080	29673.95	.42337
4110426.3	10.00	370263.28	2.47728	17.01	2.043	29643.60	.10714
4110451.9	12.00	405641.81	2.96384	8.29	.488	29606.54	.02563
4110477.1	14.00	447502.01	3.46097	4.47	.142	29562.79	.00749
4110502.5	16.00	495868.29	3.95052	2.79	.056	29512.37	.00294
4110527.9	18.00	550768.62	4.43224	1.96	.028	29455.31	.00146
4110553.5	20.00	612234.54	4.92387	1.45	.015	29391.64	.00080
4110820.8	40.00	1597242.24	9.60888	.08	.000	28400.98	.00000
4111121.6	60.00	3294287.63	13.78114	0.00	0.000	26812.29	0.00000
4111478.6	80.00	5760853.30	17.08318	0.00	0.000	24724.45	0.00000
4111921.7	100.00	9014575.69	19.71766	0.00	0.000	22288.44	0.00000
4112411.9	120.00	12863988.25	18.84111	0.00	0.000	19727.35	0.00000
4113191.9	140.00	16833135.24	15.84442	0.00	0.000	17363.05	0.00000
4114153.4	160.00	19468522.24	9.28441	0.00	0.000	15627.62	0.00000
4115613.0	180.00	21122270.48	.08113	0.00	0.000	14477.94	0.00000

REVOLUTION 24

TIME	DATE	ALTITUDE	GAMMA	COUNT	CFM	VELOCITY	P I
4115013.0	-180.00	17941573.75	.04103	0.00	0.000	16004.96	0.00000
4115444.2	-160.00	16990335.02	7.90253	0.00	0.000	16563.78	0.00000
4116003.0	-140.00	14494283.59	13.69541	0.00	0.000	18076.60	0.00000
4117245.5	-120.00	11243160.10	16.60664	0.00	0.000	20175.53	0.00000
4117768.9	-100.00	7998469.70	16.95544	0.00	0.000	22484.23	0.00000
4118142.8	-80.00	5190554.39	15.34136	0.00	0.000	24705.26	0.00000
4118542.9	-60.00	3007292.13	12.50819	0.00	0.000	26624.02	0.00000
4118842.8	-40.00	1480330.65	8.76356	.10	.000	28091.40	.00000
4119112.2	-20.00	584568.02	4.50305	1.58	.014	29009.16	.00101
4119138.1	-18.00	528437.89	4.05964	2.13	.034	29068.21	.00183
4119163.8	-16.00	478280.12	3.61610	3.10	.072	29121.14	.00385
4119184.5	-14.00	434073.77	3.16670	5.07	.191	29167.41	.01019
4119215.0	-12.00	395800.13	2.71768	9.62	.686	29208.51	.03654
4119240.5	-10.00	363442.85	2.26733	19.15	2.708	29242.49	.14399
4119265.9	-8.00	336987.95	1.81592	36.30	9.705	29271.05	.51550
4119291.2	-6.00	316423.94	1.36341	63.08	24.229	29292.97	1.55135
4119316.5	-4.00	301741.82	.91160	96.02	67.615	29308.64	3.58679
4119341.8	-2.00	272035.13	.46128	124.15	112.907	29318.04	5.98754
4119366.7	0.00	240000.00	.08103	135.24	133.940	29321.18	7.10213
4119384.6	2.00	242935.13	.46128	124.15	112.907	29318.04	5.98754
4119414.9	4.00	301741.82	.91160	96.02	67.615	29308.64	3.58679
4119440.2	6.00	316423.94	1.36341	63.08	24.229	29292.97	1.55135
4119465.5	8.00	336987.95	1.81592	36.30	9.705	29271.05	.51550
4119490.9	10.00	363442.85	2.26733	19.15	2.708	29242.49	.14399
4119516.4	12.00	395800.13	2.71768	9.62	.686	29208.51	.03654
4119541.9	14.00	434073.77	3.16670	5.07	.191	29167.41	.01019
4119567.6	16.00	478280.12	3.61610	3.10	.072	29121.14	.00385
4119593.3	18.00	528437.89	4.05964	2.13	.034	29068.21	.00183
4119619.2	20.00	584568.02	4.50305	1.58	.014	29009.16	.00101
4119648.6	40.00	1480330.65	8.76356	.10	.000	28091.40	.00000
4120188.5	60.00	3007292.13	12.50819	0.00	0.000	26624.02	0.00000
4120534.6	80.00	5190554.39	15.34136	0.00	0.000	24705.26	0.00000
4120967.5	100.00	7998469.70	16.95544	0.00	0.000	22484.23	0.00000
4121485.9	120.00	11243160.10	16.60664	0.00	0.000	20175.53	0.00000
4122128.4	140.00	14494283.59	13.69541	0.00	0.000	18076.60	0.00000
4122887.2	160.00	16990335.02	7.90253	0.00	0.000	16563.78	0.00000
4123718.4	180.00	17941573.75	.04103	0.00	0.000	16004.96	0.00000

REVOLUTION 35

TIME	THETA	ALTITUDE	GAMMA	GCONT	QFM	VELOCITY	P T
4123718.4	-180.00	14853263.44	.08103	0.00	0.000	17127.40	0.00000
4124435.4	-180.00	14127705.50	6.56111	0.00	0.000	17597.15	0.00000
4125100.5	-140.00	12193831.15	11.54244	0.00	0.000	18884.59	0.00000
4125679.0	-120.00	9612600.33	14.23578	0.00	0.000	20702.33	0.00000
4126164.8	-100.00	6947792.53	14.75255	0.00	0.000	22734.50	0.00000
4126569.7	-80.00	4579357.34	13.54726	0.00	0.000	24714.23	0.00000
4126912.3	-60.00	2693450.66	11.10171	0.00	0.000	26439.82	0.00000
4127211.2	-40.00	1350665.97	7.82154	.13	.000	27767.30	.00001
4127482.7	-20.00	553628.33	4.03189	1.76	.025	28600.54	.00134
4127508.9	-18.00	503452.28	3.63562	2.40	.046	28654.23	.00248
4127535.1	-16.00	458591.78	3.23723	3.60	.102	28702.35	.00551
4127561.0	-14.00	419035.93	2.83697	6.00	.282	28744.89	.01523
4127587.0	-12.00	384774.87	2.43510	11.44	1.019	28781.81	.05503
4127612.8	-10.00	355799.89	2.03190	21.84	3.702	28813.08	.19975
4127638.6	-8.00	332103.51	1.62765	39.38	11.995	28838.70	.64665
4127664.3	-6.00	313679.53	1.22274	64.94	32.544	28858.64	1.75330
4127689.9	-4.00	300523.06	.81778	94.90	69.396	28872.89	3.73685
4127715.6	-2.00	292630.59	.41498	119.47	109.865	28881.45	5.91425
4127739.9	0.00	290000.00	.08103	128.99	128.041	28884.30	6.89207
4127764.2	2.00	292630.59	.41498	119.47	109.865	28881.45	5.91425
4127789.9	4.00	300523.06	.81778	94.90	69.396	28872.89	3.73685
4127815.5	6.00	313679.53	1.22274	64.94	32.544	28858.64	1.75330
4127841.3	8.00	332103.51	1.62765	39.38	11.995	28838.70	.64665
4127867.0	10.00	355799.89	2.03190	21.84	3.702	28813.08	.19975
4127892.9	12.00	384774.87	2.43510	11.44	1.019	28781.81	.05503
4127918.8	14.00	419035.93	2.83697	6.00	.282	28744.89	.01523
4127944.8	16.00	458591.78	3.23723	3.60	.102	28702.35	.00551
4127970.9	18.00	503452.28	3.63562	2.40	.046	28654.23	.00248
4127997.1	20.00	553628.33	4.03189	1.76	.025	28600.54	.00134
4128268.6	40.00	1350665.97	7.82154	.13	.000	27767.30	.00001
4128567.5	60.00	2693450.66	11.10171	0.00	0.000	26439.82	0.00000
4128910.1	80.00	4579357.34	13.54726	0.00	0.000	24714.23	0.00000
4129315.0	100.00	6947792.53	14.75255	0.00	0.000	22734.50	0.00000
4129400.8	120.00	9612600.33	14.23578	0.00	0.000	20702.33	0.00000
4130379.3	140.00	12193831.15	11.54244	0.00	0.000	18884.59	0.00000
4131044.4	160.00	14127705.50	6.56111	0.00	0.000	17597.15	0.00000
4131761.4	180.00	14853263.44	.08103	0.00	0.000	17127.40	0.00000

REVOLUTION 36

TIME	THETA	ALTITUDE	GAMMA	CCONT	CFM	VELOCITY	P T
4131761.4	-180.00	11884266.57	.08103	0.00	0.000	18370.44	0.00000
4132376.0	-160.00	11352361.78	5.25369	0.00	0.000	18751.92	0.00000
4132455.2	-140.00	9912829.20	9.37455	0.00	0.000	19809.36	0.00000
4133472.4	-120.00	7940465.10	11.76096	0.00	0.000	21328.00	0.00000
4133920.6	-100.00	5840500.39	12.38184	0.00	0.000	23054.68	0.00000
4134305.7	-80.00	3917231.85	11.51684	0.00	0.000	24760.26	0.00000
4134640.0	-60.00	2345909.01	9.52831	0.00	0.000	26262.24	0.00000
4134937.6	-40.00	1204812.98	6.75684	.18	.000	27425.86	.00002
4135211.5	-20.00	518500.83	3.49632	2.05	.035	28159.45	.00194
4135238.1	-18.00	475068.16	3.15347	2.89	.070	28206.79	.00383
4135264.6	-16.00	436213.75	2.80856	4.45	.164	28249.23	.00904
4135291.0	-14.00	401935.83	2.46183	7.70	.489	28286.76	.02689
4135317.3	-12.00	372232.60	2.11355	14.11	1.636	28319.33	.08982
4135343.5	-10.00	347102.38	1.76396	25.46	5.309	28346.93	.29118
4135369.7	-8.00	326543.60	1.41338	43.35	15.342	28369.54	.84080
4135395.8	-6.00	310554.92	1.06219	67.24	36.837	28387.14	2.01757
4135421.9	-4.00	299135.24	.71108	93.80	71.589	28399.71	3.91914
4135448.0	-2.00	292283.77	.36251	114.55	106.669	28407.27	5.83808
4135472.8	0.00	290000.00	.08103	122.44	121.834	28409.78	6.66748
4135497.6	2.00	292283.77	.36251	114.55	106.669	28407.27	5.83808
4135523.6	4.00	299135.24	.71108	93.80	71.589	28399.71	3.91914
4135549.7	6.00	310554.92	1.06219	67.24	36.837	28387.14	2.01757
4135575.9	8.00	326543.60	1.41338	43.35	15.342	28369.54	.84080
4135602.0	10.00	347102.38	1.76396	25.46	5.309	28346.93	.29118
4135628.3	12.00	372232.60	2.11355	14.11	1.636	28319.33	.08982
4135654.6	14.00	401935.83	2.46183	7.70	.489	28286.76	.02689
4135681.0	16.00	436213.75	2.80856	4.45	.164	28249.23	.00904
4135707.4	18.00	475068.16	3.15347	2.89	.070	28206.79	.00383
4135734.0	20.00	518500.83	3.49632	2.05	.035	28159.45	.00194
4136008.0	40.00	1204812.98	6.75684	.18	.000	27425.86	.00002
4136305.5	60.00	2345909.01	9.52831	0.00	0.000	26262.24	0.00000
4136639.9	80.00	3917231.85	11.51684	0.00	0.000	24760.26	0.00000
4137025.0	100.00	5840500.39	12.38184	0.00	0.000	23054.68	0.00000
4137473.1	120.00	7940465.10	11.76096	0.00	0.000	21328.00	0.00000
4137990.4	140.00	9912829.20	9.37455	0.00	0.000	19809.36	0.00000
4138569.5	160.00	11352361.78	5.25369	0.00	0.000	18751.92	0.00000
4139184.1	180.00	11884266.57	.08103	0.00	0.000	18370.44	0.00000

REVOLUTION 37

TIME	THETA	ALTITUDE	GAMMA	GCONT	GFM	VELOCITY	P T
4139184.1	-180.00	8991846.15	.08103	0.00	0.000	19774.60	0.00000
4139706.1	-160.00	8626350.52	3.96422	0.00	0.000	20067.17	0.00000
4140205.7	-140.00	7622130.09	7.16991	0.00	0.000	20886.69	0.00000
4140663.9	-120.00	6209407.39	9.15134	0.00	0.000	22083.36	0.00000
4141074.0	-100.00	4656473.05	9.79855	0.00	0.000	23468.10	0.00000
4141437.9	-80.00	3187892.91	9.24609	0.00	0.000	24857.13	0.00000
4141763.1	-60.00	1953679.48	7.73517	.03	.000	26095.10	.00000
4142054.0	-40.00	1037274.09	5.52810	.26	.001	27062.43	.00004
4142335.6	-20.00	477719.34	2.87385	2.66	.063	27675.58	.00351
4142362.6	-18.00	442093.26	2.59286	3.89	.134	27715.23	.00749
4142389.5	-16.00	410200.70	2.30995	6.21	.339	27750.79	.01898
4142416.3	-14.00	382047.48	2.02535	10.79	1.020	27782.24	.05705
4142443.1	-12.00	357638.55	1.73931	18.73	3.058	27809.53	.17097
4142469.8	-10.00	336978.09	1.45209	30.98	8.348	27832.67	.46633
4142496.4	-8.00	320069.55	1.16398	48.64	20.526	27851.62	1.14581
4142523.1	-6.00	306915.67	.87537	70.46	43.004	27866.38	2.39930
4142549.6	-4.00	297518.57	.58705	92.72	74.374	27876.93	4.14799
4142576.2	-2.00	291879.71	.30190	109.30	103.270	27883.26	5.75826
4142601.5	0.00	290000.00	.08103	115.46	115.211	27885.37	6.42360
4142626.8	2.00	291879.71	.30190	109.30	103.270	27883.26	5.75826
4142653.4	4.00	297518.57	.58705	92.72	74.374	27876.93	4.14799
4142679.9	6.00	306915.67	.87537	70.46	43.004	27866.38	2.39930
4142706.6	8.00	320069.55	1.16398	48.64	20.526	27851.62	1.14581
4142733.2	10.00	336978.09	1.45209	30.98	8.348	27832.67	.46633
4142759.9	12.00	357638.55	1.73931	18.73	3.058	27809.53	.17097
4142786.7	14.00	382047.48	2.02535	10.79	1.020	27782.24	.05705
4142813.5	16.00	410200.70	2.30995	6.21	.339	27750.79	.01898
4142840.4	18.00	442093.26	2.59286	3.89	.134	27715.23	.00749
4142867.4	20.00	477719.34	2.87385	2.66	.063	27675.58	.00351
4143144.0	40.00	1037274.09	5.52810	.26	.001	27062.43	.00004
4143439.9	60.00	1953679.48	7.73517	.03	.000	26095.10	.00000
4143765.1	80.00	3187892.91	9.24609	0.00	0.000	24857.13	0.00000
4144129.0	100.00	4656473.05	9.79855	0.00	0.000	23468.10	0.00000
4144539.1	120.00	6209407.39	9.15134	0.00	0.000	22083.36	0.00000
4144997.3	140.00	7622130.09	7.16991	0.00	0.000	20886.69	0.00000
4145496.9	160.00	8626350.52	3.96422	0.00	0.000	20067.17	0.00000
4146018.9	180.00	8991846.15	.08103	0.00	0.000	19774.60	0.00000

REVOLUTION 38

TIME	THETA	ALTITUDE	GAMMA	RCONT	CFM	VELOCITY	P T
4146018.9	-180.00	6110464.64	.08103	0.00	0.000	21413.76	0.00000
4146455.6	-160.00	5888640.94	2.66535	0.00	0.000	21614.26	0.00000
4146880.1	-140.00	5269785.73	4.88369	0.00	0.000	22181.48	0.00000
4147280.4	-120.00	4375160.46	6.34409	0.00	0.000	23023.42	0.00000
4147651.1	-100.00	3357838.27	6.91868	0.00	0.000	24015.94	0.00000
4147992.1	-80.00	2361394.70	6.63741	0.00	0.000	25028.96	0.00000
4148306.6	-60.00	1496803.81	5.62741	.08	.000	25944.87	.00000
4148600.5	-40.00	838088.15	4.06077	.46	.002	26668.26	.00012
4148880.1	-20.00	428624.13	2.12375	4.34	.178	27130.02	.01022
4148907.6	-18.00	402364.44	1.91694	6.72	.426	27159.96	.02440
4148935.0	-16.00	378837.28	1.70851	10.76	1.088	27186.83	.06225
4148962.3	-14.00	358053.38	1.49868	17.32	2.811	27210.59	.16059
4148989.6	-12.00	340022.09	1.28764	26.70	6.664	27231.22	.38049
4149016.9	-10.00	324751.43	1.07565	40.05	14.963	27248.71	.85373
4149044.1	-8.00	312248.16	.86299	56.48	29.706	27263.04	1.69410
4149071.2	-6.00	302517.75	.65010	74.84	52.083	27274.20	2.96896
4149098.4	-4.00	295564.45	.43789	91.69	78.095	27282.17	4.45046
4149125.5	-2.00	291391.26	.23000	103.56	99.571	27286.96	5.67332
4149151.5	0.00	290000.00	.08103	107.85	107.971	27288.56	6.15158
4149177.4	2.00	291391.26	.23000	103.56	99.571	27286.96	5.67332
4149204.5	4.00	295564.45	.43789	91.69	78.095	27282.17	4.45046
4149231.7	6.00	302517.75	.65010	74.84	52.083	27274.20	2.96896
4149258.9	8.00	312248.16	.86299	56.48	29.706	27263.04	1.69410
4149286.1	10.00	324751.43	1.07565	40.05	14.963	27248.71	.85373
4149313.3	12.00	340022.09	1.28764	26.70	6.664	27231.22	.38049
4149340.6	14.00	358053.38	1.49868	17.32	2.811	27210.59	.16059
4149367.9	16.00	378837.28	1.70851	10.76	1.088	27186.83	.06225
4149395.3	18.00	402364.44	1.91694	6.72	.426	27159.96	.02440
4149422.8	20.00	428624.13	2.12375	4.34	.178	27130.02	.01022
4149702.5	40.00	838088.15	4.06077	.46	.002	26668.26	.00012
4149976.3	60.00	1496803.81	5.62741	.08	.000	25944.87	.00000
4150310.8	80.00	2361394.70	6.63741	0.00	0.000	25028.96	0.00000
4150651.8	100.00	3357838.27	6.91868	0.00	0.000	24015.94	0.00000
4151022.6	120.00	4375160.46	6.34409	0.00	0.000	23023.42	0.00000
4151422.8	140.00	5269785.73	4.88369	0.00	0.000	22181.48	0.00000
4151847.4	160.00	5888640.94	2.66535	0.00	0.000	21614.26	0.00000
4152284.1	180.00	6110464.64	.08103	0.00	0.000	21413.76	0.00000

REVOLUTION 39

TIME	INHTA	ALTITUDE	GAMMA	GCNT	QFM	VELOCITY	P T
4152284.1	-180.00	3106066.53	.08103	0.00	0.000	23454.84	0.00000
4152639.4	-160.00	3010264.00	1.29749	0.00	0.000	23554.73	0.00000
4152990.6	-140.00	2738629.31	2.40683	0.00	0.000	23840.03	0.00000
4153331.7	-120.00	2334215.13	3.18511	0.00	0.000	24270.63	0.00000
4153660.1	-100.00	1856617.76	3.54650	.03	.000	24788.62	.00000
4153974.6	-80.00	1369450.17	3.47089	.09	.000	25328.22	.00001
4154276.3	-60.00	930276.29	2.99335	.31	.001	25825.01	.00006
4154567.2	-40.00	584857.54	2.18826	1.15	.014	26223.03	.00082
4154850.5	-20.00	365230.21	1.15492	13.42	1.847	26479.60	.10845
4154878.5	-18.00	351013.60	1.04339	18.73	3.589	26496.30	.21058
4154906.6	-16.00	338262.74	.93087	25.70	6.744	26511.29	.39550
4154934.6	-14.00	326987.93	.81752	34.66	12.245	26524.55	.71773
4154962.5	-12.00	317198.20	.70350	45.22	20.815	26536.08	1.21956
4154990.4	-10.00	308901.37	.58903	57.07	33.117	26545.85	1.93963
4155018.4	-8.00	302104.07	.47443	69.62	49.236	26553.85	2.88279
4155046.3	-6.00	296811.68	.36024	81.26	67.021	26560.09	3.92320
4155074.1	-4.00	293028.41	.24782	90.75	83.536	26564.55	4.88912
4155102.0	-2.00	290757.25	.14245	96.97	95.345	26567.23	5.57974
4155128.7	0.00	290000.00	.08103	99.13	99.643	26568.12	5.83106
4155155.4	2.00	290757.25	.14245	96.97	95.345	26567.23	5.57974
4155183.3	4.00	293028.41	.24782	90.75	83.536	26564.55	4.88912
4155211.1	6.00	296811.68	.36024	81.26	67.021	26560.09	3.92320
4155239.0	8.00	302104.07	.47443	69.62	49.236	26553.85	2.88279
4155267.0	10.00	308901.37	.58903	57.07	33.117	26545.85	1.93963
4155294.9	12.00	317198.20	.70350	45.22	20.815	26536.08	1.21956
4155322.8	14.00	326987.93	.81752	34.66	12.245	26524.55	.71773
4155350.8	16.00	338262.74	.93087	25.70	6.744	26511.29	.39550
4155378.9	18.00	351013.60	1.04339	18.73	3.589	26496.30	.21058
4155406.9	20.00	365230.21	1.15492	13.42	1.847	26479.60	.10845
4155690.2	40.00	584857.54	2.18826	1.15	.014	26223.03	.00082
4155981.1	60.00	930276.29	2.99335	.31	.001	25825.01	.00006
4156282.8	80.00	1369450.17	3.47089	.09	.000	25328.22	.00001
4156597.3	100.00	1856617.76	3.54650	.03	.000	24788.62	.00000
4156925.7	120.00	2334215.13	3.18511	0.00	0.000	24270.63	0.00000
4157266.8	140.00	2738629.31	2.40683	0.00	0.000	23840.03	0.00000
4157618.0	160.00	3010264.00	1.29749	0.00	0.000	23554.73	0.00000
4157973.3	180.00	3106066.53	.08103	0.00	0.000	23454.84	0.00000

Part 2
Listing of Punched Card CMA Input

REVOLUTION 1

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	25322.685	0.0000	.0000001	.000000	15 W. HEATER
21.6168	25470.998	0.0000	.0000002	.000000	15 W. HEATER
42.9970	25604.188	0.0000	.0000005	.000000	15 W. HEATER
64.1679	25722.093	0.0000	.0000012	.000001	15 W. HEATER
85.1550	25824.570	0.0000	.0000028	.000001	15 W. HEATER
105.9815	25911.493	0.0000	.0000094	.000005	15 W. HEATER
126.6665	25982.756	0.0000	.0000580	.000031	15 W. HEATER
147.2191	26038.274	0.0000	.0004174	.000221	15 W. HEATER
167.6155	26077.978	0.0000	.0022217	.001178	15 W. HEATER
187.6462	26101.820	0.0000	.0066471	.003526	15 W. HEATER
202.7007	26109.770	0.0000	.0096170	.005102	15 W. HEATER
217.7553	26101.820	0.0000	.0066471	.003526	15 W. HEATER
237.7860	26077.978	0.0000	.0022217	.001178	15 W. HEATER
258.1824	26038.274	0.0000	.0004174	.000221	15 W. HEATER
278.7349	25982.756	0.0000	.0000580	.000031	15 W. HEATER
299.4199	25911.493	0.0000	.0000094	.000005	15 W. HEATER
320.2465	25824.570	0.0000	.0000028	.000001	15 W. HEATER
341.2336	25722.093	0.0000	.0000012	.000001	15 W. HEATER
362.4044	25604.188	0.0000	.0000005	.000000	15 W. HEATER
383.7847	25470.998	0.0000	.0000002	.000000	15 W. HEATER
405.4015	25322.685	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 5

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	24844.632	0.0000	.0000001	.000000	15 W. HEATER
21.8061	24989.988	0.0000	.0000002	.000000	15 W. HEATER
43.3800	25120.524	0.0000	.0000005	.000000	15 W. HEATER
64.7490	25236.079	0.0000	.0000012	.000001	15 W. HEATER
85.9394	25336.513	0.0000	.0000029	.000002	15 W. HEATER
106.9761	25421.704	0.0000	.0000101	.000005	15 W. HEATER
127.8815	25491.547	0.0000	.0000624	.000033	15 W. HEATER
148.6731	25545.958	0.0000	.0004373	.000229	15 W. HEATER
169.3529	25584.871	0.0000	.0022635	.001189	15 W. HEATER
189.8323	25608.237	0.0000	.0066326	.003485	15 W. HEATER
206.5831	25616.029	0.0000	.0095257	.005006	15 W. HEATER
223.3339	25608.237	0.0000	.0066326	.003485	15 W. HEATER
243.8133	25584.871	0.0000	.0022635	.001189	15 W. HEATER
264.4931	25545.958	0.0000	.0004373	.000229	15 W. HEATER
285.2848	25491.547	0.0000	.0000624	.000033	15 W. HEATER
306.1901	25421.704	0.0000	.0000101	.000005	15 W. HEATER
327.2268	25336.513	0.0000	.0000029	.000002	15 W. HEATER
348.4172	25236.079	0.0000	.0000012	.000001	15 W. HEATER
369.7863	25120.524	0.0000	.0000005	.000000	15 W. HEATER
391.3601	24989.988	0.0000	.0000002	.000000	15 W. HEATER
413.1662	24844.632	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 10

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	24040.049	0.0000	.0000001	.000000	15 W. HEATER
22.1287	24180.155	0.0000	.0000003	.000000	15 W. HEATER
44.0309	24305.976	0.0000	.0000006	.000000	15 W. HEATER
65.7337	24417.357	0.0000	.0000013	.000001	15 W. HEATER
87.2631	24514.163	0.0000	.0000032	.000002	15 W. HEATER
108.6440	24596.276	0.0000	.0000114	.000006	15 W. HEATER
129.8999	24663.597	0.0000	.0000707	.000036	15 W. HEATER
151.0515	24716.043	0.0000	.0004753	.000245	15 W. HEATER
172.1112	24753.550	0.0000	.0023406	.001209	15 W. HEATER
193.0434	24776.072	0.0000	.0066098	.003416	15 W. HEATER
211.1195	24783.583	0.0000	.0093696	.004843	15 W. HEATER
229.1957	24776.072	0.0000	.0066098	.003416	15 W. HEATER
250.1279	24753.550	0.0000	.0023406	.001209	15 W. HEATER
271.1876	24716.043	0.0000	.0004753	.000245	15 W. HEATER
292.3392	24663.597	0.0000	.0000707	.000036	15 W. HEATER
313.5951	24596.276	0.0000	.0000114	.000006	15 W. HEATER
334.9760	24514.163	0.0000	.0000032	.000002	15 W. HEATER
356.5053	24417.357	0.0000	.0000013	.000001	15 W. HEATER
378.2081	24305.976	0.0000	.0000006	.000000	15 W. HEATER
400.1104	24180.155	0.0000	.0000003	.000000	15 W. HEATER
422.2391	24040.049	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 15

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	23008.880	0.0000	.0000002	.000000	15 W. HEATER
22.5624	23141.697	0.0000	.0000003	.000000	15 W. HEATER
44.9063	23260.971	0.0000	.0000007	.000000	15 W. HEATER
67.0579	23366.557	0.0000	.0000015	.000001	15 W. HEATER
89.0423	23458.327	0.0000	.0000037	.000002	15 W. HEATER
110.8839	23536.169	0.0000	.0000137	.000007	15 W. HEATER
132.6059	23599.987	0.0000	.0000843	.000043	15 W. HEATER
154.2298	23649.704	0.0000	.0005341	.000270	15 W. HEATER
175.7719	23685.259	0.0000	.0024541	.001240	15 W. HEATER
197.2189	23706.610	0.0000	.0065840	.003328	15 W. HEATER
216.3441	23713.730	0.0000	.0091652	.004634	15 W. HEATER
235.4692	23706.610	0.0000	.0065840	.003328	15 W. HEATER
256.9163	23685.259	0.0000	.0024541	.001240	15 W. HEATER
278.4583	23649.704	0.0000	.0005341	.000270	15 W. HEATER
300.0823	23599.987	0.0000	.0000843	.000043	15 W. HEATER
321.8043	23536.169	0.0000	.0000137	.000007	15 W. HEATER
343.6458	23458.327	0.0000	.0000037	.000002	15 W. HEATER
365.6302	23366.557	0.0000	.0000015	.000001	15 W. HEATER
387.7818	23260.971	0.0000	.0000007	.000000	15 W. HEATER
410.1258	23141.697	0.0000	.0000003	.000000	15 W. HEATER
432.6882	23008.880	0.0000	.0000002	.000000	15 W. HEATER

REVOLUTION 20

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	21749.675	0.0000	.0000002	.000000	15 W. HEATER
23.1293	21872.605	0.0000	.0000004	.000000	15 W. HEATER
46.0517	21983.000	0.0000	.0000009	.000000	15 W. HEATER
68.7919	22080.727	0.0000	.0000018	.000001	15 W. HEATER
91.3735	22165.665	0.0000	.0000047	.000002	15 W. HEATER
113.8198	22237.712	0.0000	.0000180	.000009	15 W. HEATER
136.1532	22296.779	0.0000	.0001094	.000054	15 W. HEATER
158.3947	22342.795	0.0000	.0006319	.000310	15 W. HEATER
180.5618	22375.704	0.0000	.0026208	.001287	15 W. HEATER
202.6523	22395.465	0.0000	.0065588	.003223	15 W. HEATER
222.7847	22402.055	0.0000	.0089081	.004378	15 W. HEATER
242.9171	22395.465	0.0000	.0065588	.003223	15 W. HEATER
265.0077	22375.704	0.0000	.0026208	.001287	15 W. HEATER
287.1748	22342.795	0.0000	.0006319	.000310	15 W. HEATER
309.4162	22296.779	0.0000	.0001094	.000054	15 W. HEATER
331.7496	22237.712	0.0000	.0000180	.000009	15 W. HEATER
354.1959	22165.665	0.0000	.0000047	.000002	15 W. HEATER
376.7775	22080.727	0.0000	.0000018	.000001	15 W. HEATER
399.5177	21983.000	0.0000	.0000009	.000000	15 W. HEATER
422.4401	21872.605	0.0000	.0000004	.000000	15 W. HEATER
445.5694	21749.675	0.0000	.0000002	.000000	15 W. HEATER

REVOLUTION 25

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	20251.755	0.0000	.0000003	.000000	15 W. HEATER
23.8660	20361.220	0.0000	.0000006	.000000	15 W. HEATER
47.5424	20459.523	0.0000	.0000012	.000001	15 W. HEATER
71.0514	20546.545	0.0000	.0000024	.000001	15 W. HEATER
94.4148	20622.179	0.0000	.0000068	.000003	15 W. HEATER
117.6538	20686.334	0.0000	.0000281	.000013	15 W. HEATER
140.7891	20738.931	0.0000	.0001608	.000076	15 W. HEATER
163.8403	20779.907	0.0000	.0008011	.000379	15 W. HEATER
186.8248	20809.211	0.0000	.0028828	.001365	15 W. HEATER
209.7458	20826.808	0.0000	.0065406	.003099	15 W. HEATER
230.9753	20832.676	0.0000	.0085904	.004071	15 W. HEATER
252.2048	20826.808	0.0000	.0065406	.003099	15 W. HEATER
275.1259	20809.211	0.0000	.0028828	.001365	15 W. HEATER
298.1103	20779.907	0.0000	.0008011	.000379	15 W. HEATER
321.1616	20738.931	0.0000	.0001608	.000076	15 W. HEATER
344.2969	20686.334	0.0000	.0000281	.000013	15 W. HEATER
367.5359	20622.179	0.0000	.0000068	.000003	15 W. HEATER
390.8992	20546.545	0.0000	.0000024	.000001	15 W. HEATER
414.4082	20459.523	0.0000	.0000012	.000001	15 W. HEATER
438.0846	20361.220	0.0000	.0000006	.000000	15 W. HEATER
461.9506	20251.755	0.0000	.0000003	.000000	15 W. HEATER

REVOLUTION 30

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	18482.761	0.0000	.0000005	.000000	15 W. HEATER
24.8411	18573.275	0.0000	.0000010	.000000	15 W. HEATER
49.5195	18654.561	0.0000	.0000019	.000001	15 W. HEATER
74.0539	18726.518	0.0000	.0000043	.000002	15 W. HEATER
98.4628	18789.059	0.0000	.0000132	.000006	15 W. HEATER
122.7645	18842.108	0.0000	.0000599	.000027	15 W. HEATER
146.9768	18885.600	0.0000	.0002821	.000127	15 W. HEATER
171.1167	18919.482	0.0000	.0011287	.000510	15 W. HEATER
195.1996	18943.713	0.0000	.0033237	.001502	15 W. HEATER
219.2309	18958.263	0.0000	.0065418	.002957	15 W. HEATER
241.7787	18963.115	0.0000	.0081959	.003706	15 W. HEATER
264.3264	18958.263	0.0000	.0065418	.002957	15 W. HEATER
288.3577	18943.713	0.0000	.0033237	.001502	15 W. HEATER
312.4406	18919.482	0.0000	.0011287	.000510	15 W. HEATER
336.5805	18885.600	0.0000	.0002821	.000127	15 W. HEATER
360.7928	18842.108	0.0000	.0000599	.000027	15 W. HEATER
385.0945	18789.059	0.0000	.0000132	.000006	15 W. HEATER
409.5034	18726.518	0.0000	.0000043	.000002	15 W. HEATER
434.0378	18654.561	0.0000	.0000019	.000001	15 W. HEATER
458.7162	18573.275	0.0000	.0000010	.000000	15 W. HEATER
483.5573	18482.761	0.0000	.0000005	.000000	15 W. HEATER

REVOLUTION 35

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	16339.235	0.0000	.0000015	.000001	15 W. HEATER
26.2174	16400.632	0.0000	.0000028	.000001	15 W. HEATER
52.3187	16455.767	0.0000	.0000062	.000003	15 W. HEATER
78.3171	16504.576	0.0000	.0000171	.000007	15 W. HEATER
104.2254	16546.998	0.0000	.0000616	.000026	15 W. HEATER
130.0567	16582.981	0.0000	.0002232	.000094	15 W. HEATER
155.8235	16612.481	0.0000	.0007220	.000306	15 W. HEATER
181.5382	16635.464	0.0000	.0019563	.000828	15 W. HEATER
207.2116	16651.900	0.0000	.0041675	.001766	15 W. HEATER
232.8479	16661.769	0.0000	.0065938	.002794	15 W. HEATER
257.1756	16665.061	0.0000	.0076832	.003257	15 W. HEATER
281.5033	16661.769	0.0000	.0065938	.002794	15 W. HEATER
307.1395	16651.900	0.0000	.0041675	.001766	15 W. HEATER
332.8130	16635.464	0.0000	.0019563	.000828	15 W. HEATER
358.5276	16612.481	0.0000	.0007220	.000306	15 W. HEATER
384.2944	16582.981	0.0000	.0002232	.000094	15 W. HEATER
410.1257	16546.998	0.0000	.0000616	.000026	15 W. HEATER
436.0341	16504.576	0.0000	.0000171	.000007	15 W. HEATER
462.0324	16455.767	0.0000	.0000062	.000003	15 W. HEATER
488.1337	16400.632	0.0000	.0000028	.000001	15 W. HEATER
514.3512	16339.235	0.0000	.0000015	.000001	15 W. HEATER

REVOLUTION 37

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	15299.476	0.0000	.0000041	.000002	15 W. HEATER
26.9835	15343.349	0.0000	.0000087	.000004	15 W. HEATER
53.8818	15382.748	0.0000	.0000220	.000009	15 W. HEATER
80.7044	15417.626	0.0000	.0000661	.000027	15 W. HEATER
107.4607	15447.940	0.0000	.0001980	.000081	15 W. HEATER
134.1601	15473.653	0.0000	.0005395	.000220	15 W. HEATER
160.8119	15494.734	0.0000	.0013247	.000541	15 W. HEATER
187.4250	15511.157	0.0000	.0027724	.001134	15 W. HEATER
214.0072	15522.902	0.0000	.0047913	.001960	15 W. HEATER
240.5604	15529.954	0.0000	.0066497	.002721	15 W. HEATER
265.8725	15532.306	0.0000	.0074175	.003035	15 W. HEATER
291.1847	15529.954	0.0000	.0066497	.002721	15 W. HEATER
317.7379	15522.902	0.0000	.0047913	.001960	15 W. HEATER
344.3201	15511.157	0.0000	.0027724	.001134	15 W. HEATER
370.9332	15494.734	0.0000	.0013247	.000541	15 W. HEATER
397.5850	15473.653	0.0000	.0005395	.000220	15 W. HEATER
424.2844	15447.940	0.0000	.0001980	.000081	15 W. HEATER
451.0407	15417.626	0.0000	.0000661	.000027	15 W. HEATER
477.8633	15382.748	0.0000	.0000220	.000009	15 W. HEATER
504.7616	15343.349	0.0000	.0000087	.000004	15 W. HEATER
531.7451	15299.476	0.0000	.0000041	.000002	15 W. HEATER

APPENDIX I

Trajectory and Reentry Environment
Output From Computer Code HRS017 (Version 3)
For a Perigee Altitude of 300,000 Feet
(Sixty-Two Revolutions)

Part 1 - Trajectory and Reentry
Environment Tabulated Data (Page 173)

Part 2 - Listing of Punched Card
CMA Input (Page 235)

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Part 1
Trajectory and Reentry Environment Tabulated Data

REVOLUTION 1

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
0.0	-180.00	1246374303.00	.08103	0.00	0.000	605.39	0.00000
384953.7	-160.00	436550188.69	74.57395	0.00	0.000	6304.88	0.00000
422278.4	-140.00	140159001.24	67.36531	0.00	0.000	12375.62	0.00000
428408.9	-120.00	59915138.54	58.33837	0.00	0.000	18080.42	0.00000
430273.7	-100.00	29252722.96	48.85656	0.00	0.000	23238.60	0.00000
431089.9	-80.00	14823189.91	39.19490	0.00	0.000	27691.90	0.00000
431545.4	-60.00	7218107.63	29.44607	0.00	0.000	31304.51	0.00000
431850.1	-40.00	3058643.99	19.65089	0.00	0.000	33966.42	0.00000
432086.5	-20.00	948541.70	9.83112	.80	.002	35596.66	.00011
432108.2	-18.00	823322.07	8.84838	1.20	.006	35700.76	.00024
432129.6	-16.00	712086.01	7.86555	1.80	.012	35793.97	.00053
432150.8	-14.00	614560.61	6.88265	2.68	.027	35876.29	.00117
432171.8	-12.00	530508.29	5.89969	4.11	.063	35947.69	.00274
432192.6	-10.00	459725.53	4.91671	7.26	.196	36008.14	.00846
432213.3	-8.00	402041.86	3.93373	16.52	1.009	36057.62	.04352
432233.9	-6.00	357318.92	2.95082	42.90	6.787	36096.12	.29232
432254.3	-4.00	325449.85	1.96816	95.55	33.583	36123.63	1.44539
432274.3	-2.00	306358.68	.98658	162.42	96.897	36140.14	4.16854
432289.4	0.00	300000.00	.08103	195.53	140.363	36145.64	6.03753
432304.5	2.00	306358.68	.98658	162.42	96.897	36140.14	4.16854
432324.5	4.00	325449.85	1.96816	95.55	33.583	36123.63	1.44539
432344.9	6.00	357318.92	2.95082	42.90	6.787	36096.12	.29232
432365.5	8.00	402041.86	3.93373	16.52	1.009	36057.62	.04352
432386.2	10.00	459725.53	4.91671	7.26	.196	36008.14	.00846
432407.0	12.00	530508.29	5.89969	4.11	.063	35947.69	.00274
432428.0	14.00	614560.61	6.88265	2.68	.027	35876.29	.00117
432449.2	16.00	712086.01	7.86555	1.80	.012	35793.97	.00053
432470.6	18.00	823322.07	8.84838	1.20	.006	35700.76	.00024
432492.2	20.00	948541.70	9.83112	.80	.002	35596.66	.00011
432728.7	40.00	3058643.99	19.65089	0.00	0.000	33966.42	0.00000
433033.4	60.00	7218107.63	29.44607	0.00	0.000	31304.51	0.00000
433488.9	80.00	14823189.91	39.19490	0.00	0.000	27691.90	0.00000
434305.1	100.00	29252722.96	48.85656	0.00	0.000	23238.60	0.00000
436169.9	120.00	59915138.54	58.33837	0.00	0.000	18080.42	0.00000
442300.4	140.00	140159001.24	67.36531	0.00	0.000	12375.62	0.00000
479625.1	160.00	436550188.69	74.57395	0.00	0.000	6304.88	0.00000
864578.8	180.00	1246374303.00	.08103	0.00	0.000	605.39	0.00000

REVOLUTION 2

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
864578.8	-180.00	1080625141.65	.08103	0.00	0.000	695.63	0.00000
1171560.6	-160.00	413656768.39	73.76351	0.00	0.000	6306.18	0.00000
1206349.8	-140.00	137483690.76	66.96956	0.00	0.000	12364.54	0.00000
1212340.0	-120.00	59337341.91	58.08851	0.00	0.000	18060.52	0.00000
1214187.1	-100.00	29077901.98	48.68455	0.00	0.000	23211.35	0.00000
1215000.1	-80.00	14760605.47	39.07376	0.00	0.000	27658.53	0.00000
1215455.0	-60.00	7194616.15	29.36272	0.00	0.000	31266.26	0.00000
1215759.7	-40.00	3050657.03	19.59833	0.00	0.000	33924.61	0.00000
1215996.4	-20.00	946828.77	9.80566	.80	.003	35552.68	.00011
1216018.0	-18.00	821947.77	8.82551	1.21	.006	35656.63	.00024
1216039.5	-16.00	711009.34	7.84526	1.80	.012	35749.73	.00054
1216060.7	-14.00	613742.44	6.86492	2.68	.027	35831.94	.00118
1216081.7	-12.00	529911.07	5.88452	4.11	.063	35903.24	.00275
1216102.6	-10.00	459313.07	4.90408	7.26	.197	35963.61	.00851
1216123.3	-8.00	401779.06	3.92363	16.53	1.016	36013.02	.04385
1216143.9	-6.00	357171.61	2.94325	42.88	6.807	36051.47	.29358
1216164.4	-4.00	325384.54	1.96312	95.34	33.575	36078.95	1.44686
1216184.5	-2.00	306342.38	.98407	161.87	96.630	36095.43	4.16218
1216199.9	0.00	300000.00	.08103	194.77	139.843	36100.93	6.02260
1216215.3	2.00	306342.38	.98407	161.87	96.630	36095.43	4.16218
1216235.4	4.00	325384.54	1.96312	95.34	33.575	36078.95	1.44686
1216255.9	6.00	357171.61	2.94325	42.88	6.807	36051.47	.29358
1216276.5	8.00	401779.06	3.92363	16.53	1.016	36013.02	.04385
1216297.2	10.00	459313.07	4.90408	7.26	.197	35963.61	.00851
1216318.1	12.00	529911.07	5.88452	4.11	.063	35903.24	.00275
1216339.1	14.00	613742.44	6.86492	2.68	.027	35831.94	.00118
1216360.3	16.00	711009.34	7.84526	1.80	.012	35749.73	.00054
1216381.7	18.00	821947.77	8.82551	1.21	.006	35656.63	.00024
1216403.4	20.00	946828.77	9.80566	.80	.003	35552.68	.00011
1216640.1	40.00	3050657.03	19.59833	0.00	0.000	33924.61	0.00000
1216944.8	60.00	7194616.15	29.36272	0.00	0.000	31266.26	0.00000
1217399.7	80.00	14760605.47	39.07376	0.00	0.000	27658.53	0.00000
1218212.6	100.00	29077901.98	48.68455	0.00	0.000	23211.35	0.00000
1220059.7	120.00	59337341.91	58.08851	0.00	0.000	18060.52	0.00000
1226050.0	140.00	137483690.76	66.96956	0.00	0.000	12364.54	0.00000
1260839.1	160.00	413656768.39	73.76351	0.00	0.000	6306.18	0.00000
1567821.0	180.00	1080625141.65	.08103	0.00	0.000	695.63	0.00000

REVOLUTION 3

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
1567821.0	-180.00	945799833.22	.08103	0.00	0.000	791.60	0.00000
1815982.4	-160.00	391641042.12	72.90207	0.00	0.000	6308.96	0.00000
1848363.9	-140.00	134727094.59	66.54788	0.00	0.000	12353.42	0.00000
1854210.1	-120.00	58730244.02	57.82216	0.00	0.000	18039.75	0.00000
1856038.7	-100.00	28892820.20	48.50116	0.00	0.000	23182.63	0.00000
1856848.2	-80.00	14694110.04	38.94460	0.00	0.000	27623.22	0.00000
1857302.5	-60.00	7169609.38	29.27383	0.00	0.000	31225.70	0.00000
1857607.2	-40.00	3042146.06	19.54230	0.00	0.000	33880.23	0.00000
1857844.1	-20.00	945002.50	9.77851	.81	.003	35505.97	.00011
1857865.8	-18.00	820482.48	8.80112	1.21	.006	35609.77	.00024
1857887.3	-16.00	709861.36	7.82362	1.80	.012	35702.73	.00054
1857908.5	-14.00	612870.06	6.84601	2.68	.027	35784.83	.00119
1857929.6	-12.00	529274.28	5.86834	4.11	.064	35856.02	.00276
1857950.5	-10.00	458873.26	4.89061	7.27	.198	35916.30	.00857
1857971.2	-8.00	401498.83	3.91287	16.55	1.022	35965.65	.04420
1857991.9	-6.00	357014.53	2.93519	42.85	6.830	36004.05	.29493
1858012.4	-4.00	325314.90	1.95775	95.12	33.568	36031.48	1.44844
1858032.6	-2.00	306325.00	.98139	161.28	96.347	36047.94	4.15544
1858048.3	0.00	300000.00	.08103	193.97	139.292	36053.43	6.00676
1858063.9	2.00	306325.00	.98139	161.28	96.347	36047.94	4.15544
1858084.2	4.00	325314.90	1.95775	95.12	33.568	36031.48	1.44844
1858104.7	6.00	357014.53	2.93519	42.85	6.830	36004.05	.29493
1858125.3	8.00	401498.83	3.91287	16.55	1.022	35965.65	.04420
1858146.1	10.00	458873.26	4.89061	7.27	.198	35916.30	.00857
1858167.0	12.00	529274.28	5.86834	4.11	.064	35856.02	.00276
1858188.0	14.00	612870.06	6.84601	2.68	.027	35784.83	.00119
1858209.3	16.00	709861.36	7.82362	1.80	.012	35702.73	.00054
1858230.7	18.00	820482.48	8.80112	1.21	.006	35609.77	.00024
1858252.4	20.00	945002.50	9.77851	.81	.003	35505.97	.00011
1858489.3	40.00	3042146.06	19.54230	0.00	0.000	33880.23	0.00000
1858794.1	60.00	7169609.38	29.27383	0.00	0.000	31225.70	0.00000
1859248.3	80.00	14694110.04	38.94460	0.00	0.000	27623.22	0.00000
1860057.8	100.00	28892820.20	48.50116	0.00	0.000	23182.63	0.00000
1861886.4	120.00	58730244.02	57.82216	0.00	0.000	18039.75	0.00000
1867732.7	140.00	134727094.59	66.54788	0.00	0.000	12353.42	0.00000
1900114.1	160.00	391641042.12	72.90207	0.00	0.000	6308.96	0.00000
2148275.5	180.00	945799833.22	.08103	0.00	0.000	791.60	0.00000

REVOLUTION 4

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
2148275.5	-180.00	834509163.62	.08103	0.00	0.000	893.34	0.00000
2351249.7	-160.00	370560480.17	71.98995	0.00	0.000	6313.48	0.00000
2381356.0	-140.00	131900299.02	66.10006	0.00	0.000	12342.38	0.00000
2387055.4	-120.00	58094929.88	57.53915	0.00	0.000	18018.19	0.00000
2388864.6	-100.00	28697587.37	48.30627	0.00	0.000	23152.50	0.00000
2389670.5	-80.00	14623701.16	38.80732	0.00	0.000	27585.99	0.00000
2390124.0	-60.00	7143077.63	29.17936	0.00	0.000	31182.84	0.00000
2390428.8	-40.00	3033106.10	19.48273	0.00	0.000	33833.27	0.00000
2390666.0	-20.00	943061.63	9.74966	.81	.003	35456.52	.00011
2390687.7	-18.00	818925.19	8.77520	1.21	.006	35560.17	.00025
2390709.1	-16.00	708641.27	7.80062	1.80	.012	35652.99	.00054
2390730.4	-14.00	611942.87	6.82592	2.68	.027	35734.95	.00119
2390751.5	-12.00	528597.45	5.85114	4.11	.064	35806.04	.00278
2390772.4	-10.00	458405.79	4.87629	7.27	.199	35866.23	.00864
2390793.2	-8.00	401200.98	3.90143	16.57	1.030	35915.50	.04457
2390813.9	-6.00	356847.57	2.92661	42.83	6.854	35953.84	.29638
2390834.4	-4.00	325240.88	1.95204	94.89	33.560	35981.23	1.45014
2390854.7	-2.00	306306.52	.97854	160.66	96.047	35997.67	4.14831
2390870.7	0.00	300000.00	.08103	193.12	138.710	36003.15	5.99002
2390886.6	2.00	306306.52	.97854	160.66	96.047	35997.67	4.14831
2390906.9	4.00	325240.88	1.95204	94.89	33.560	35981.23	1.45014
2390927.5	6.00	356847.57	2.92661	42.83	6.854	35953.84	.29638
2390948.1	8.00	401200.98	3.90143	16.57	1.030	35915.50	.04457
2390968.9	10.00	458405.79	4.87629	7.27	.199	35866.23	.00864
2390989.9	12.00	528597.45	5.85114	4.11	.064	35806.04	.00278
2391011.0	14.00	611942.87	6.82592	2.68	.027	35734.95	.00119
2391032.2	16.00	708641.27	7.80062	1.80	.012	35652.99	.00054
2391053.7	18.00	818925.19	8.77520	1.21	.006	35560.17	.00025
2391075.4	20.00	943061.63	9.74966	.81	.003	35456.52	.00011
2391312.5	40.00	3033106.10	19.48273	0.00	0.000	33833.27	0.00000
2391617.3	60.00	7143077.63	29.17936	0.00	0.000	31182.84	0.00000
2392070.9	80.00	14623701.16	38.80732	0.00	0.000	27585.99	0.00000
2392876.8	100.00	28697587.37	48.30627	0.00	0.000	23152.50	0.00000
2394686.0	120.00	58094929.88	57.53915	0.00	0.000	18018.19	0.00000
2400385.4	140.00	131900299.02	66.10006	0.00	0.000	12342.38	0.00000
2430491.6	160.00	370560480.17	71.98995	0.00	0.000	6313.48	0.00000
2633465.9	180.00	834509163.62	.08103	0.00	0.000	893.34	0.00000

REVOLUTION 5

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
2633465.9	-180.00	741477299.20	.08103	0.00	0.000	1000.87	0.00000
2801181.1	-160.00	350446899.65	71.02758	0.00	0.000	6320.00	0.00000
2829146.2	-140.00	129013971.59	65.62592	0.00	0.000	12331.57	0.00000
2834696.3	-120.00	57432490.26	57.23930	0.00	0.000	17995.93	0.00000
2836485.5	-100.00	28492311.05	48.09973	0.00	0.000	23120.98	0.00000
2837287.5	-80.00	14549373.46	38.66183	0.00	0.000	27546.88	0.00000
2837740.3	-60.00	7115009.56	29.07923	0.00	0.000	31137.71	0.00000
2838045.2	-40.00	3023531.51	19.41960	0.00	0.000	33783.76	0.00000
2838282.5	-20.00	941004.75	9.71907	.81	.003	35404.35	.00011
2838304.3	-18.00	817274.77	8.74773	1.21	.006	35507.82	.00025
2838325.8	-16.00	707348.17	7.77624	1.80	.013	35600.49	.00055
2838347.1	-14.00	610960.16	6.80462	2.68	.028	35682.33	.00120
2838368.2	-12.00	527880.07	5.83290	4.11	.064	35753.30	.00279
2838389.2	-10.00	457910.31	4.86112	7.28	.201	35813.39	.00871
2838410.0	-8.00	400885.28	3.88930	16.59	1.037	35862.58	.04497
2838430.7	-6.00	356670.60	2.91753	42.81	6.879	35900.85	.29793
2838451.3	-4.00	325162.42	1.94598	94.65	33.553	35928.20	1.45195
2838471.6	-2.00	306286.93	.97553	160.00	95.732	35944.61	4.14081
2838487.8	0.00	300000.00	.08103	192.22	138.097	35950.08	5.97237
2838504.1	2.00	306286.93	.97553	160.00	95.732	35944.61	4.14081
2838524.4	4.00	325162.42	1.94598	94.65	33.553	35928.20	1.45195
2838545.0	6.00	356670.60	2.91753	42.81	6.879	35900.85	.29793
2838565.7	8.00	400885.28	3.88930	16.59	1.037	35862.58	.04497
2838586.5	10.00	457910.31	4.86112	7.28	.201	35813.39	.00871
2838607.5	12.00	527880.07	5.83290	4.11	.064	35753.30	.00279
2838628.6	14.00	610960.16	6.80462	2.68	.028	35682.33	.00120
2838649.9	16.00	707348.17	7.77624	1.80	.013	35600.49	.00055
2838671.4	18.00	817274.77	8.74773	1.21	.006	35507.82	.00025
2838693.2	20.00	941004.75	9.71907	.81	.003	35404.35	.00011
2838930.5	40.00	3023531.51	19.41960	0.00	0.000	33783.76	0.00000
2839235.4	60.00	7115009.56	29.07923	0.00	0.000	31137.71	0.00000
2839688.2	80.00	14549373.46	38.66183	0.00	0.000	27546.88	0.00000
2840490.2	100.00	28492311.05	48.09973	0.00	0.000	23120.98	0.00000
2842279.4	120.00	57432490.26	57.23930	0.00	0.000	17995.93	0.00000
2847829.5	140.00	129013971.59	65.62592	0.00	0.000	12331.57	0.00000
2875794.6	160.00	350446899.65	71.02758	0.00	0.000	6320.00	0.00000
3043509.8	180.00	741477299.20	.08103	0.00	0.000	1000.87	0.00000

REVOLUTION 6

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
3043509.8	-180.00	662847953.81	.08103	0.00	0.000	1114.23	0.00000
3183338.4	-160.00	331311577.14	70.01553	0.00	0.000	6328.82	0.00000
3209295.6	-140.00	126078316.21	65.12523	0.00	0.000	12321.12	0.00000
3214694.8	-120.00	56744020.19	56.92242	0.00	0.000	17973.04	0.00000
3216463.0	-100.00	28277096.99	47.88139	0.00	0.000	23088.15	0.00000
3217261.1	-80.00	14471118.81	38.50801	0.00	0.000	27505.90	0.00000
3217713.1	-60.00	7085392.18	28.97335	0.00	0.000	31090.30	0.00000
3218018.0	-40.00	3013415.94	19.35284	0.00	0.000	33731.69	0.00000
3218255.6	-20.00	938830.29	9.68673	.81	.003	35349.44	.00011
3218277.4	-18.00	815529.93	8.71868	1.21	.006	35452.74	.00025
3218298.9	-16.00	705981.05	7.75046	1.80	.013	35545.24	.00055
3218320.2	-14.00	609921.16	6.78210	2.68	.028	35626.93	.00121
3218341.4	-12.00	527121.60	5.81363	4.11	.064	35697.78	.00281
3218362.4	-10.00	457386.43	4.84507	7.29	.202	35757.77	.00878
3218383.3	-8.00	400551.48	3.87648	16.62	1.045	35806.87	.04540
3218404.0	-6.00	356483.47	2.90792	42.78	6.907	35845.08	.29957
3218424.6	-4.00	325079.45	1.93958	94.40	33.545	35872.38	1.45388
3218445.0	-2.00	306266.22	.97234	159.32	95.402	35888.76	4.13293
3218461.5	0.00	300000.00	.08103	191.28	137.455	35894.23	5.95383
3218477.9	2.00	306266.22	.97234	159.32	95.402	35888.76	4.13293
3218498.3	4.00	325079.45	1.93958	94.40	33.545	35872.38	1.45388
3218518.9	6.00	356483.47	2.90792	42.78	6.907	35845.08	.29957
3218539.7	8.00	400551.48	3.87648	16.62	1.045	35806.87	.04540
3218560.6	10.00	457386.43	4.84507	7.29	.202	35757.77	.00878
3218581.6	12.00	527121.60	5.81363	4.11	.064	35697.78	.00281
3218602.7	14.00	609921.16	6.78210	2.68	.028	35626.93	.00121
3218624.0	16.00	705981.05	7.75046	1.80	.013	35545.24	.00055
3218645.6	18.00	815529.93	8.71868	1.21	.006	35452.74	.00025
3218667.3	20.00	938830.29	9.68673	.81	.003	35349.44	.00011
3218905.0	40.00	3013415.94	19.35284	0.00	0.000	33731.69	0.00000
3219209.8	60.00	7085392.18	28.97335	0.00	0.000	31090.30	0.00000
3219661.9	80.00	14471118.81	38.50801	0.00	0.000	27505.90	0.00000
3220459.9	100.00	28277096.99	47.88139	0.00	0.000	23088.15	0.00000
3222228.2	120.00	56744020.19	56.92242	0.00	0.000	17973.04	0.00000
3227627.3	140.00	126078316.21	65.12523	0.00	0.000	12321.12	0.00000
3253584.5	160.00	331311577.14	70.01553	0.00	0.000	6328.82	0.00000
3393413.1	180.00	662847953.81	.08103	0.00	0.000	1114.23	0.00000

REVOLUTION 7

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
3393413.1	-180.00	595744757.29	.08103	0.00	0.000	1233.45	0.00000
3510923.0	-160.00	313149712.15	68.95452	0.00	0.000	6340.23	0.00000
3535002.7	-140.00	123103037.39	64.59776	0.00	0.000	12311.17	0.00000
3540249.6	-120.00	56030617.16	56.58828	0.00	0.000	17949.60	0.00000
3541996.2	-100.00	28052049.49	47.65110	0.00	0.000	23054.03	0.00000
3542790.1	-80.00	14388926.44	38.34573	0.00	0.000	27463.09	0.00000
3543241.3	-60.00	7054210.90	28.86165	0.00	0.000	31040.64	0.00000
3543546.3	-40.00	3002752.34	19.28241	0.00	0.000	33677.07	0.00000
3543784.1	-20.00	936536.51	9.65260	.81	.003	35291.80	.00012
3543805.9	-18.00	813689.26	8.68803	1.21	.006	35394.90	.00025
3543827.5	-16.00	704538.81	7.72326	1.80	.013	35487.24	.00055
3543848.9	-14.00	608825.04	6.75834	2.68	.028	35568.78	.00122
3543870.1	-12.00	526321.40	5.79329	4.10	.065	35639.49	.00283
3543891.1	-10.00	456833.72	4.82814	7.29	.203	35699.37	.00886
3543912.0	-8.00	400199.29	3.86295	16.64	1.054	35748.38	.04585
3543932.8	-6.00	356286.05	2.89778	42.75	6.936	35786.52	.30132
3543953.4	-4.00	324991.92	1.93283	94.14	33.537	35813.77	1.45593
3543973.9	-2.00	306244.37	.96897	158.60	95.056	35830.12	4.12468
3543990.6	0.00	300000.00	.08103	190.30	136.782	35835.57	5.93439
3544007.2	2.00	306244.37	.96897	158.60	95.056	35830.12	4.12468
3544027.7	4.00	324991.92	1.93283	94.14	33.537	35813.77	1.45593
3544048.3	6.00	356286.05	2.89778	42.75	6.936	35786.52	.30132
3544069.1	8.00	400199.29	3.86295	16.64	1.054	35748.38	.04585
3544090.0	10.00	456833.72	4.82814	7.29	.203	35699.37	.00886
3544111.1	12.00	526321.40	5.79329	4.10	.065	35639.49	.00283
3544132.2	14.00	608825.04	6.75834	2.68	.028	35568.78	.00122
3544153.6	16.00	704538.81	7.72326	1.80	.013	35487.24	.00055
3544175.2	18.00	813689.26	8.68803	1.21	.006	35394.90	.00025
3544197.0	20.00	936536.51	9.65260	.81	.003	35291.80	.00012
3544434.9	40.00	3002752.34	19.28241	0.00	0.000	33677.07	0.00000
3544739.8	60.00	7054210.90	28.86165	0.00	0.000	31040.64	0.00000
3545191.0	80.00	14388926.44	38.34573	0.00	0.000	27463.09	0.00000
3545984.9	100.00	28052049.49	47.65110	0.00	0.000	23054.03	0.00000
3547731.6	120.00	56030617.16	56.58828	0.00	0.000	17949.60	0.00000
3552978.5	140.00	123103037.39	64.59776	0.00	0.000	12311.17	0.00000
3577058.2	160.00	313149712.15	68.95452	0.00	0.000	6340.23	0.00000
3694568.0	180.00	595744757.29	.08103	0.00	0.000	1233.45	0.00000

REVOLUTION 8

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
3694568.0	-180.00	537983960.47	.08103	0.00	0.000	1358.59	0.00000
3794027.0	-160.00	295944229.16	67.84544	0.00	0.000	6354.56	0.00000
3816355.3	-140.00	120097312.87	64.04329	0.00	0.000	12301.89	0.00000
3821449.3	-120.00	55293379.32	56.23666	0.00	0.000	17925.71	0.00000
3823173.8	-100.00	27817271.64	47.40866	0.00	0.000	23018.70	0.00000
3823963.2	-80.00	14302783.07	38.17488	0.00	0.000	27418.47	0.00000
3824413.6	-60.00	7021449.52	28.74404	0.00	0.000	30988.74	0.00000
3824718.6	-40.00	2991533.00	19.20824	0.00	0.000	33619.88	0.00000
3824956.7	-20.00	934121.49	9.61667	.81	.003	35231.42	.00012
3824978.6	-18.00	811751.24	8.65575	1.21	.006	35334.32	.00026
3825000.2	-16.00	703020.22	7.69462	1.80	.013	35426.47	.00056
3825021.6	-14.00	607670.86	6.73332	2.68	.028	35507.85	.00122
3825042.8	-12.00	525478.79	5.77187	4.10	.065	35578.43	.00284
3825063.9	-10.00	456251.70	4.81031	7.30	.205	35638.18	.00894
3825084.8	-8.00	399828.43	3.84870	16.67	1.064	35687.10	.04636
3825105.6	-6.00	356078.14	2.88710	42.73	6.966	35725.16	.30318
3825126.4	-4.00	324899.75	1.92572	93.86	33.530	35752.35	1.45812
3825146.9	-2.00	306221.36	.96543	157.85	94.694	35768.68	4.11606
3825163.7	0.00	300000.00	.08103	189.27	136.080	35774.12	5.91405
3825180.6	2.00	306221.36	.96543	157.85	94.694	35768.68	4.11606
3825201.1	4.00	324899.75	1.92572	93.86	33.530	35752.35	1.45812
3825221.8	6.00	356078.14	2.88710	42.73	6.966	35725.16	.30318
3825242.6	8.00	399828.43	3.84870	16.67	1.064	35687.10	.04636
3825263.6	10.00	456251.70	4.81031	7.30	.205	35638.18	.00894
3825284.6	12.00	525478.79	5.77187	4.10	.065	35578.43	.00284
3825305.9	14.00	607670.86	6.73332	2.68	.028	35507.85	.00122
3825327.3	16.00	703020.22	7.69462	1.80	.013	35426.47	.00056
3825348.9	18.00	811751.24	8.65575	1.21	.006	35334.32	.00026
3825370.7	20.00	934121.49	9.61667	.81	.003	35231.42	.00012
3825608.9	40.00	2991533.00	19.20824	0.00	0.000	33619.88	0.00000
3825913.8	60.00	7021449.52	28.74404	0.00	0.000	30988.74	0.00000
3826364.2	80.00	14302783.07	38.17488	0.00	0.000	27418.47	0.00000
3827153.7	100.00	27817271.64	47.40866	0.00	0.000	23018.70	0.00000
3828878.1	120.00	55293379.32	56.23666	0.00	0.000	17925.71	0.00000
3833972.2	140.00	120097312.87	64.04329	0.00	0.000	12301.89	0.00000
3856300.4	160.00	295944229.16	67.84544	0.00	0.000	6354.56	0.00000
3955759.4	180.00	537983960.47	.08103	0.00	0.000	1358.59	0.00000

REVOLUTION 9

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
3955759.4	-180.00	487881598.89	.08103	0.00	0.000	1489.69	0.00000
4040482.1	-160.00	279668950.45	66.68937	0.00	0.000	6372.13	0.00000
4061179.9	-140.00	117069774.22	63.46158	0.00	0.000	12293.45	0.00000
4066120.9	-120.00	54533403.42	55.86730	0.00	0.000	17901.47	0.00000
4067822.5	-100.00	27572865.55	47.15389	0.00	0.000	22982.20	0.00000
4068607.4	-80.00	14212672.91	37.99529	0.00	0.000	27372.08	0.00000
4069056.9	-60.00	6987090.25	28.62040	0.00	0.000	30934.60	0.00000
4069361.9	-40.00	2979749.50	19.13028	0.00	0.000	33560.15	0.00000
4069600.3	-20.00	931583.17	9.57889	.81	.003	35168.29	.00012
4069622.2	-18.00	809714.18	8.62182	1.21	.006	35270.97	.00026
4069643.9	-16.00	701423.96	7.66451	1.80	.013	35362.93	.00056
4069665.3	-14.00	606457.60	6.70701	2.68	.028	35444.14	.00123
4069686.6	-12.00	524593.03	5.74935	4.10	.065	35514.57	.00286
4069707.7	-10.00	455639.86	4.79157	7.31	.207	35574.20	.00903
4069728.6	-8.00	399438.56	3.83372	16.71	1.075	35623.01	.04692
4069749.5	-6.00	355859.58	2.87588	42.70	6.999	35660.99	.30515
4069770.3	-4.00	324802.84	1.91824	93.57	33.523	35688.13	1.46044
4069790.8	-2.00	306197.17	.96170	157.07	94.317	35704.42	4.10706
4069807.9	0.00	300000.00	.08103	188.20	135.347	35709.85	5.89282
4069824.9	2.00	306197.17	.96170	157.07	94.317	35704.42	4.10706
4069845.5	4.00	324802.84	1.91824	93.57	33.523	35688.13	1.46044
4069866.2	6.00	355859.58	2.87588	42.70	6.999	35660.99	.30515
4069887.1	8.00	399438.56	3.83372	16.71	1.075	35623.01	.04692
4069908.1	10.00	455639.86	4.79157	7.31	.207	35574.20	.00903
4069929.2	12.00	524593.03	5.74935	4.10	.065	35514.57	.00286
4069950.5	14.00	606457.60	6.70701	2.68	.028	35444.14	.00123
4069971.9	16.00	701423.96	7.66451	1.80	.013	35362.93	.00056
4069993.5	18.00	809714.18	8.62182	1.21	.006	35270.97	.00026
4070015.4	20.00	931583.17	9.57889	.81	.003	35168.29	.00012
4070253.9	40.00	2979749.50	19.13028	0.00	0.000	33560.15	0.00000
4070558.8	60.00	6987090.25	28.62040	0.00	0.000	30934.60	0.00000
4071008.4	80.00	14212672.91	37.99529	0.00	0.000	27372.08	0.00000
4071793.3	100.00	27572865.55	47.15389	0.00	0.000	22982.20	0.00000
4073494.8	120.00	54533403.42	55.86730	0.00	0.000	17901.47	0.00000
4078435.8	140.00	117069774.22	63.46158	0.00	0.000	12293.45	0.00000
4099133.6	160.00	279668950.45	66.68937	0.00	0.000	6372.13	0.00000
4183856.3	180.00	487881598.89	.08103	0.00	0.000	1489.69	0.00000

REVOLUTION 10

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
4183856.3	-180.00	444120988.50	.08103	0.00	0.000	1626.81	0.00000
4256446.9	-160.00	264291197.02	65.48760	0.00	0.000	6393.29	0.00000
4275629.4	-140.00	114028494.75	62.85242	0.00	0.000	12286.02	0.00000
4280417.6	-120.00	53751782.78	55.47996	0.00	0.000	17876.98	0.00000
4282095.7	-100.00	27318932.48	46.88657	0.00	0.000	22944.59	0.00000
4282875.8	-80.00	14118577.78	37.80682	0.00	0.000	27323.95	0.00000
4283324.4	-60.00	6951113.68	28.49063	0.00	0.000	30878.25	0.00000
4283629.4	-40.00	2967392.70	19.04844	0.00	0.000	33497.85	0.00000
4283868.2	-20.00	928919.30	9.53924	.82	.003	35102.40	.00012
4283890.1	-18.00	807576.26	8.58620	1.21	.006	35204.85	.00026
4283911.8	-16.00	699748.60	7.63290	1.80	.013	35296.61	.00057
4283933.3	-14.00	605184.18	6.67940	2.68	.028	35377.63	.00124
4283954.6	-12.00	523663.31	5.72572	4.10	.066	35447.91	.00288
4283975.7	-10.00	454997.65	4.77190	7.32	.208	35507.40	.00912
4283996.7	-8.00	399029.32	3.81799	16.75	1.087	35556.11	.04753
4284017.6	-6.00	355630.16	2.86409	42.67	7.034	35594.01	.30723
4284038.4	-4.00	324701.12	1.91040	93.27	33.517	35621.09	1.46289
4284059.1	-2.00	306171.78	.95779	156.26	93.926	35637.34	4.09769
4284076.3	0.00	300000.00	.08103	187.09	134.586	35642.75	5.87070
4284093.5	2.00	306171.78	.95779	156.26	93.926	35637.34	4.09769
4284114.1	4.00	324701.12	1.91040	93.27	33.517	35621.09	1.46289
4284134.9	6.00	355630.16	2.86409	42.67	7.034	35594.01	.30723
4284155.8	8.00	399029.32	3.81799	16.75	1.087	35556.11	.04753
4284176.9	10.00	454997.65	4.77190	7.32	.208	35507.40	.00912
4284198.0	12.00	523663.31	5.72572	4.10	.066	35447.91	.00288
4284219.3	14.00	605184.18	6.67940	2.68	.028	35377.63	.00124
4284240.8	16.00	699748.60	7.63290	1.80	.013	35296.61	.00057
4284262.5	18.00	807576.26	8.58620	1.21	.006	35204.85	.00026
4284284.4	20.00	928919.30	9.53924	.82	.003	35102.40	.00012
4284523.1	40.00	2967392.70	19.04844	0.00	0.000	33497.85	0.00000
4284828.2	60.00	6951113.68	28.49063	0.00	0.000	30878.25	0.00000
4285276.7	80.00	14118577.78	37.80682	0.00	0.000	27323.95	0.00000
4286056.9	100.00	27318932.48	46.88657	0.00	0.000	22944.59	0.00000
4287735.0	120.00	53751782.78	55.47996	0.00	0.000	17876.98	0.00000
4292523.2	140.00	114028494.75	62.85242	0.00	0.000	12286.02	0.00000
4311705.7	160.00	264291197.02	65.48760	0.00	0.000	6393.29	0.00000
4384296.3	180.00	444120988.50	.08103	0.00	0.000	1626.81	0.00000

REVOLUTION 11

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
4384296.3	-180.00	405659770.74	.08103	0.00	0.000	1770.00	0.00000
4446822.6	-160.00	249773886.37	64.24165	0.00	0.000	6418.39	0.00000
4464598.5	-140.00	110980984.17	62.21556	0.00	0.000	12279.79	0.00000
4469234.7	-120.00	52949605.04	55.07435	0.00	0.000	17857.34	0.00000
4470888.7	-100.00	27055572.94	46.60648	0.00	0.000	22905.94	0.00000
4471664.0	-80.00	14020477.07	37.60929	0.00	0.000	27274.10	0.00000
4472111.6	-60.00	6913498.75	28.35460	0.00	0.000	30819.68	0.00000
4472416.7	-40.00	2954452.74	18.96265	0.00	0.000	33433.00	0.00000
4472655.7	-20.00	926127.45	9.49767	.82	.003	35033.74	.00012
4472677.7	-18.00	805335.52	8.54886	1.22	.006	35135.95	.00026
4472699.4	-16.00	697992.59	7.59977	1.80	.013	35227.49	.00057
4472720.9	-14.00	603849.42	6.65045	2.68	.028	35308.33	.00125
4472742.3	-12.00	522688.77	5.70094	4.10	.066	35378.44	.00291
4472763.4	-10.00	454324.45	4.75127	7.32	.210	35437.79	.00922
4472784.5	-8.00	398600.33	3.80151	16.79	1.099	35486.38	.04817
4472805.5	-6.00	355389.66	2.85174	42.65	7.070	35524.19	.30943
4472826.3	-4.00	324594.49	1.90217	92.96	33.510	35551.21	1.46550
4472847.0	-2.00	306145.16	.95369	155.41	93.519	35567.42	4.08796
4472864.4	0.00	300000.00	.08103	185.94	133.795	35572.82	5.84768
4472881.8	2.00	306145.16	.95369	155.41	93.519	35567.42	4.08796
4472902.5	4.00	324594.49	1.90217	92.96	33.510	35551.21	1.46550
4472923.3	6.00	355389.66	2.85174	42.65	7.070	35524.19	.30943
4472944.3	8.00	398600.33	3.80151	16.79	1.099	35486.38	.04817
4472965.3	10.00	454324.45	4.75127	7.32	.210	35437.79	.00922
4472986.5	12.00	522688.77	5.70094	4.10	.066	35378.44	.00291
4473007.8	14.00	603849.42	6.65045	2.68	.028	35308.33	.00125
4473029.3	16.00	697992.59	7.59977	1.80	.013	35227.49	.00057
4473051.1	18.00	805335.52	8.54886	1.22	.006	35135.95	.00026
4473073.0	20.00	926127.45	9.49767	.82	.003	35033.74	.00012
4473312.1	40.00	2954452.74	18.96265	0.00	0.000	33433.00	0.00000
4473617.2	60.00	6913498.75	28.35460	0.00	0.000	30819.68	0.00000
4474064.8	80.00	14020477.07	37.60929	0.00	0.000	27274.10	0.00000
4474840.0	100.00	27055572.94	46.60648	0.00	0.000	22905.94	0.00000
4476494.1	120.00	52949605.04	55.07435	0.00	0.000	17857.34	0.00000
4481130.2	140.00	110980984.17	62.21556	0.00	0.000	12279.79	0.00000
4498906.1	160.00	249773886.37	64.24165	0.00	0.000	6418.39	0.00000
4561432.5	180.00	405659770.74	.08103	0.00	0.000	1770.00	0.00000

REVOLUTION 12

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
4561432.5	-180.00	371663487.30	.08103	0.00	0.000	1919.34	0.00000
4615551.9	-160.00	236077198.04	62.95328	0.00	0.000	6447.80	0.00000
4632023.7	-140.00	107934189.26	61.55082	0.00	0.000	12274.96	0.00000
4636508.8	-120.00	52127950.08	54.65018	0.00	0.000	17827.68	0.00000
4638138.3	-100.00	26782886.68	46.31340	0.00	0.000	22866.31	0.00000
4638908.5	-80.00	13918347.80	37.40254	0.00	0.000	27222.58	0.00000
4639355.1	-60.00	6874222.75	28.21220	0.00	0.000	30758.91	0.00000
4639660.2	-40.00	2940918.98	18.87282	0.00	0.000	33365.59	0.00000
4639899.6	-20.00	923205.02	9.45414	.82	.003	34962.31	.00012
4639921.6	-18.00	802989.86	8.50976	1.22	.006	35064.26	.00027
4639943.4	-16.00	696154.28	7.56508	1.81	.013	35155.57	.00058
4639964.9	-14.00	602452.03	6.62014	2.68	.029	35236.21	.00126
4639986.3	-12.00	521668.48	5.67499	4.10	.067	35306.14	.00293
4640007.5	-10.00	453619.62	4.72968	7.33	.212	35365.35	.00933
4640028.6	-8.00	398151.17	3.78425	16.83	1.113	35413.82	.04885
4640049.6	-6.00	355137.85	2.83881	42.62	7.109	35451.53	.31177
4640070.5	-4.00	324482.84	1.89356	92.64	33.505	35478.48	1.46825
4640091.3	-2.00	306117.28	.94939	154.54	93.097	35494.65	4.07786
4640108.8	0.00	300000.00	.08103	184.74	132.976	35500.04	5.82378
4640126.4	2.00	306117.28	.94939	154.54	93.097	35494.65	4.07786
4640147.1	4.00	324482.84	1.89356	92.64	33.505	35478.48	1.46825
4640168.0	6.00	355137.85	2.83881	42.62	7.109	35451.53	.31177
4640189.0	8.00	398151.17	3.78425	16.83	1.113	35413.82	.04885
4640210.1	10.00	453619.62	4.72968	7.33	.212	35365.35	.00933
4640231.3	12.00	521668.48	5.67499	4.10	.067	35306.14	.00293
4640252.7	14.00	602452.03	6.62014	2.68	.029	35236.21	.00126
4640274.3	16.00	696154.28	7.56508	1.81	.013	35155.57	.00058
4640296.0	18.00	802989.86	8.50976	1.22	.006	35064.26	.00027
4640318.0	20.00	923205.02	9.45414	.82	.003	34962.31	.00012
4640557.4	40.00	2940918.98	18.87282	0.00	0.000	33365.59	0.00000
4640862.5	60.00	6874222.75	28.21220	0.00	0.000	30758.91	0.00000
4641309.1	80.00	13918347.80	37.40254	0.00	0.000	27222.58	0.00000
4642079.3	100.00	26782886.68	46.31340	0.00	0.000	22866.31	0.00000
4643708.8	120.00	52127950.08	54.65018	0.00	0.000	17827.68	0.00000
4648194.0	140.00	107934189.26	61.55082	0.00	0.000	12274.96	0.00000
4664665.8	160.00	236077198.04	62.95328	0.00	0.000	6447.80	0.00000
4718785.1	180.00	371663487.30	.08103	0.00	0.000	1919.34	0.00000

REVOLUTION 13

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
4718785.1	-180.00	341457319.89	.08103	0.00	0.000	2074.90	0.00000
4765837.3	-160.00	223159875.63	61.62450	0.00	0.000	6481.89	0.00000
4781101.0	-140.00	104894499.98	60.85799	0.00	0.000	12271.74	0.00000
4785436.7	-120.00	51287887.72	54.20717	0.00	0.000	17803.11	0.00000
4787041.1	-100.00	26500972.75	46.00706	0.00	0.000	22825.77	0.00000
4787806.0	-80.00	13812164.53	37.18635	0.00	0.000	27169.42	0.00000
4788251.6	-60.00	6833261.22	28.06328	0.00	0.000	30695.96	0.00000
4788556.7	-40.00	2926780.03	18.77888	0.00	0.000	33295.61	0.00000
4788796.5	-20.00	920149.19	9.40862	.82	.003	34888.08	.00012
4788818.5	-18.00	800537.00	8.46887	1.22	.006	34989.77	.00027
4788840.3	-16.00	694231.86	7.52879	1.81	.013	35080.84	.00059
4788861.9	-14.00	600990.65	6.58844	2.68	.029	35161.26	.00127
4788883.3	-12.00	520601.43	5.64786	4.09	.067	35231.01	.00295
4788904.6	-10.00	452882.48	4.70709	7.34	.214	35290.06	.00944
4788925.8	-8.00	397681.41	3.76620	16.88	1.127	35338.40	.04957
4788946.8	-6.00	354874.49	2.82528	42.59	7.150	35376.02	.31423
4788967.7	-4.00	324366.07	1.88455	92.31	33.499	35402.89	1.47116
4788988.5	-2.00	306088.13	.94490	153.64	92.660	35419.02	4.06740
4789006.2	0.00	300000.00	.08103	183.51	132.128	35424.40	5.79898
4789024.0	2.00	306088.13	.94490	153.64	92.660	35419.02	4.06740
4789044.8	4.00	324366.07	1.88455	92.31	33.499	35402.89	1.47116
4789065.7	6.00	354874.49	2.82528	42.59	7.150	35376.02	.31423
4789086.7	8.00	397681.41	3.76620	16.88	1.127	35338.40	.04957
4789107.9	10.00	452882.48	4.70709	7.34	.214	35290.06	.00944
4789129.2	12.00	520601.43	5.64786	4.09	.067	35231.01	.00295
4789150.6	14.00	600990.65	6.58844	2.68	.029	35161.26	.00127
4789172.2	16.00	694231.86	7.52879	1.81	.013	35080.84	.00059
4789194.0	18.00	800537.00	8.46887	1.22	.006	34989.77	.00027
4789216.0	20.00	920149.19	9.40862	.82	.003	34888.08	.00012
4789455.8	40.00	2926780.03	18.77888	0.00	0.000	33295.61	0.00000
4789760.9	60.00	6833261.22	28.06328	0.00	0.000	30695.96	0.00000
4790206.5	80.00	13812164.53	37.18635	0.00	0.000	27169.42	0.00000
4790971.4	100.00	26500972.75	46.00706	0.00	0.000	22825.77	0.00000
4792575.8	120.00	51287887.72	54.20717	0.00	0.000	17803.11	0.00000
4796911.4	140.00	104894499.98	60.85799	0.00	0.000	12271.74	0.00000
4812175.1	160.00	223159875.63	61.62450	0.00	0.000	6481.89	0.00000
4859227.3	180.00	341457319.89	.08103	0.00	0.000	2074.90	0.00000

REVOLUTION 14

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
4859227.3	-180.00	314490499.42	.08103	0.00	0.000	2236.75	0.00000
4900303.9	-160.00	210980227.34	60.25757	0.00	0.000	6521.05	0.00000
4914449.2	-140.00	101867760.13	60.13690	0.00	0.000	12270.36	0.00000
4918637.0	-120.00	50430475.66	53.74499	0.00	0.000	17778.77	0.00000
4920216.0	-100.00	26209929.38	45.68719	0.00	0.000	22784.40	0.00000
4920975.5	-80.00	13701899.38	36.96055	0.00	0.000	27114.65	0.00000
4921420.0	-60.00	6790587.94	27.90770	0.00	0.000	30630.84	0.00000
4921725.1	-40.00	2912023.66	18.68073	0.00	0.000	33223.06	0.00000
4921965.2	-20.00	916956.97	9.36105	.82	.003	34811.05	.00013
4921987.3	-18.00	797974.52	8.42614	1.22	.006	34912.45	.00027
4922009.1	-16.00	692223.43	7.49088	1.81	.013	35003.27	.00059
4922030.8	-14.00	599463.82	6.55532	2.68	.029	35083.46	.00129
4922052.3	-12.00	519486.55	5.61950	4.09	.067	35153.01	.00298
4922073.6	-10.00	452112.26	4.68349	7.35	.216	35211.90	.00956
4922094.8	-8.00	397190.56	3.74734	16.93	1.142	35260.11	.05034
4922115.9	-6.00	354599.29	2.81115	42.56	7.193	35297.62	.31683
4922136.9	-4.00	324244.04	1.87514	91.96	33.495	35324.42	1.47424
4922157.7	-2.00	306057.67	.94021	152.70	92.208	35340.50	4.05657
4922175.6	0.00	300000.00	.08103	182.23	131.251	35345.86	5.77330
4922193.4	2.00	306057.67	.94021	152.70	92.208	35340.50	4.05657
4922214.3	4.00	324244.04	1.87514	91.96	33.495	35324.42	1.47424
4922235.3	6.00	354599.29	2.81115	42.56	7.193	35297.62	.31683
4922256.4	8.00	397190.56	3.74734	16.93	1.142	35260.11	.05034
4922277.6	10.00	452112.26	4.68349	7.35	.216	35211.90	.00956
4922298.9	12.00	519486.55	5.61950	4.09	.067	35153.01	.00298
4922320.3	14.00	599463.82	6.55532	2.68	.029	35083.46	.00129
4922342.0	16.00	692223.43	7.49088	1.81	.013	35003.27	.00059
4922363.8	18.00	797974.52	8.42614	1.22	.006	34912.45	.00027
4922385.9	20.00	916956.97	9.36105	.82	.003	34811.05	.00013
4922626.0	40.00	2912023.66	18.68073	0.00	0.000	33223.06	0.00000
4922931.2	60.00	6790587.94	27.90770	0.00	0.000	30630.84	0.00000
4923375.7	80.00	13701899.38	36.96055	0.00	0.000	27114.65	0.00000
4924135.1	100.00	26209929.38	45.68719	0.00	0.000	22784.40	0.00000
4925714.1	120.00	50430475.66	53.74499	0.00	0.000	17778.77	0.00000
4929901.9	140.00	101867760.13	60.13690	0.00	0.000	12270.36	0.00000
4944047.2	160.00	210980227.34	60.25757	0.00	0.000	6521.05	0.00000
4985123.8	180.00	314490499.42	.08103	0.00	0.000	2236.75	0.00000

REVOLUTION 15

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
4985123.8	-180.00	290309700.09	.08103	0.00	0.000	2404.97	0.00000
5021120.5	-160.00	199496880.68	58.85500	0.00	0.000	6565.67	0.00000
5034230.9	-140.00	98859282.01	59.38741	0.00	0.000	12271.04	0.00000
5038272.9	-120.00	49556757.30	53.26332	0.00	0.000	17754.80	0.00000
5039826.0	-100.00	25909853.91	45.35353	0.00	0.000	22742.28	0.00000
5040579.9	-80.00	13587521.92	36.72489	0.00	0.000	27058.32	0.00000
5041023.2	-60.00	6746174.82	27.74530	0.00	0.000	30563.56	0.00000
5041328.4	-40.00	2896636.80	18.57826	0.00	0.000	33147.93	0.00000
5041568.9	-20.00	913625.14	9.31139	.83	.003	34731.19	.00013
5041591.0	-18.00	795299.82	8.38153	1.22	.006	34832.30	.00028
5041612.9	-16.00	690126.93	7.45130	1.81	.013	34922.84	.00060
5041634.6	-14.00	597869.97	6.52074	2.68	.029	35002.80	.00130
5041656.1	-12.00	518322.68	5.58990	4.10	.068	35072.15	.00302
5041677.5	-10.00	451308.18	4.65885	7.37	.219	35130.86	.00968
5041698.7	-8.00	396678.11	3.72764	16.98	1.158	35178.93	.05116
5041719.9	-6.00	354311.98	2.79639	42.54	7.238	35216.32	.31957
5041740.9	-4.00	324116.65	1.86531	91.61	33.492	35243.05	1.47749
5041761.8	-2.00	306025.87	.93531	151.74	91.742	35259.08	4.04538
5041779.8	0.00	300000.00	.08103	180.91	130.346	35264.43	5.74673
5041797.8	2.00	306025.87	.93531	151.74	91.742	35259.08	4.04538
5041818.8	4.00	324116.65	1.86531	91.61	33.492	35243.05	1.47749
5041839.8	6.00	354311.98	2.79639	42.54	7.238	35216.32	.31957
5041860.9	8.00	396678.11	3.72764	16.98	1.158	35178.93	.05116
5041882.2	10.00	451308.18	4.65885	7.37	.219	35130.86	.00968
5041903.5	12.00	518322.68	5.58990	4.10	.068	35072.15	.00302
5041925.1	14.00	597869.97	6.52074	2.68	.029	35002.80	.00130
5041946.7	16.00	690126.93	7.45130	1.81	.013	34922.84	.00060
5041968.6	18.00	795299.82	8.38153	1.22	.006	34832.30	.00028
5041990.8	20.00	913625.14	9.31139	.83	.003	34731.19	.00013
5042231.3	40.00	2896636.80	18.57826	0.00	0.000	33147.93	0.00000
5042536.4	60.00	6746174.82	27.74530	0.00	0.000	30563.56	0.00000
5042979.8	80.00	13587521.92	36.72489	0.00	0.000	27058.32	0.00000
5043733.7	100.00	25909853.91	45.35353	0.00	0.000	22742.28	0.00000
5045286.8	120.00	49556757.30	53.26332	0.00	0.000	17754.80	0.00000
5049328.7	140.00	98859282.01	59.38741	0.00	0.000	12271.04	0.00000
5062439.2	160.00	199496880.68	58.85500	0.00	0.000	6565.67	0.00000
5098435.9	180.00	290309700.09	.08103	0.00	0.000	2404.97	0.00000

REVOLUTION 16

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5098435.9	-180.00	268538902.39	.08103	0.00	0.000	2579.66	0.00000
5130092.6	-160.00	188669338.49	57.41954	0.00	0.000	6616.14	0.00000
5142245.8	-140.00	95873864.32	58.60939	0.00	0.000	12274.05	0.00000
5146144.2	-120.00	48667759.70	52.76184	0.00	0.000	17731.34	0.00000
5147671.1	-100.00	25600842.72	45.00577	0.00	0.000	22699.49	0.00000
5148419.2	-80.00	13468999.14	36.47916	0.00	0.000	27000.46	0.00000
5148861.3	-60.00	6699991.89	27.57591	0.00	0.000	30494.12	0.00000
5149166.5	-40.00	2880605.48	18.47137	0.00	0.000	33070.22	0.00000
5149407.4	-20.00	910150.27	9.25958	.83	.003	34648.50	.00013
5149429.6	-18.00	792510.11	8.33499	1.23	.006	34749.28	.00028
5149451.5	-16.00	687940.18	7.41000	1.81	.014	34839.55	.00061
5149473.3	-14.00	596207.42	6.48466	2.68	.030	34919.25	.00131
5149494.8	-12.00	517108.61	5.55902	4.10	.069	34988.39	.00306
5149516.3	-10.00	450469.38	4.63314	7.38	.221	35046.92	.00982
5149537.6	-8.00	396143.52	3.70710	17.04	1.174	35094.83	.05202
5149558.7	-6.00	354012.26	2.78100	42.51	7.287	35132.11	.32246
5149579.8	-4.00	323983.75	1.85506	91.25	33.489	35158.75	1.48092
5149600.8	-2.00	305992.69	.93020	150.74	91.262	35174.74	4.03383
5149619.0	0.00	300000.00	.08103	179.55	129.412	35180.07	5.71927
5149637.1	2.00	305992.69	.93020	150.74	91.262	35174.74	4.03383
5149658.1	4.00	323983.75	1.85506	91.25	33.489	35158.75	1.48092
5149679.2	6.00	354012.26	2.78100	42.51	7.287	35132.11	.32246
5149700.4	8.00	396143.52	3.70710	17.04	1.174	35094.83	.05202
5149721.7	10.00	450469.38	4.63314	7.38	.221	35046.92	.00982
5149743.1	12.00	517108.61	5.55902	4.10	.069	34988.39	.00306
5149764.6	14.00	596207.42	6.48466	2.68	.030	34919.25	.00131
5149786.4	16.00	687940.18	7.41000	1.81	.014	34839.55	.00061
5149808.3	18.00	792510.11	8.33499	1.23	.006	34749.28	.00028
5149830.5	20.00	910150.27	9.25958	.83	.003	34648.50	.00013
5150071.4	40.00	2880605.48	18.47137	0.00	0.000	33070.22	0.00000
5150376.6	60.00	6699991.89	27.57591	0.00	0.000	30494.12	0.00000
5150818.7	80.00	13468999.14	36.47916	0.00	0.000	27000.46	0.00000
5151566.9	100.00	25600842.72	45.00577	0.00	0.000	22699.49	0.00000
5153093.7	120.00	48667759.70	52.76184	0.00	0.000	17731.34	0.00000
5156992.1	140.00	95873864.32	58.60939	0.00	0.000	12274.05	0.00000
5169145.3	160.00	188669338.49	57.41954	0.00	0.000	6616.14	0.00000
5200802.0	180.00	268538902.39	.08103	0.00	0.000	2579.66	0.00000

REVOLUTION 17

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5200802.0	-180.00	248863978.69	.08103	0.00	0.000	2760.92	0.00000
5228733.7	-160.00	178458376.83	55.95419	0.00	0.000	6672.87	0.00000
5240001.7	-140.00	92915812.63	57.80277	0.00	0.000	12279.63	0.00000
5243759.0	-120.00	47764491.65	52.24020	0.00	0.000	17708.54	0.00000
5245259.3	-100.00	25282990.98	44.64360	0.00	0.000	22656.12	0.00000
5246001.5	-80.00	13346295.32	36.22311	0.00	0.000	26941.13	0.00000
5246442.4	-60.00	6652007.11	27.39935	0.00	0.000	30422.55	0.00000
5246747.6	-40.00	2863914.76	18.35994	0.00	0.000	32989.92	0.00000
5246988.9	-20.00	906528.66	9.20557	.83	.003	34562.94	.00013
5247011.1	-18.00	789602.43	8.28647	1.23	.006	34663.40	.00029
5247033.1	-16.00	685660.82	7.36695	1.81	.014	34753.36	.00061
5247054.9	-14.00	594474.39	6.44704	2.68	.030	34832.80	.00133
5247076.5	-12.00	515843.00	5.52682	4.11	.069	34901.71	.00309
5247098.0	-10.00	449594.95	4.60634	7.39	.224	34960.04	.00996
5247119.4	-8.00	395586.21	3.68568	17.09	1.192	35007.80	.05294
5247140.6	-6.00	353699.78	2.76495	42.48	7.337	35044.96	.32552
5247161.7	-4.00	323845.19	1.84437	90.87	33.488	35071.51	1.48455
5247182.8	-2.00	305958.09	.92487	149.72	90.766	35087.44	4.02193
5247201.1	0.00	300000.00	.08103	178.15	128.451	35092.76	5.69091
5247219.4	2.00	305958.09	.92487	149.72	90.766	35087.44	4.02193
5247240.4	4.00	323845.19	1.84437	90.87	33.488	35071.51	1.48455
5247261.5	6.00	353699.78	2.76495	42.48	7.337	35044.96	.32552
5247282.8	8.00	395586.21	3.68568	17.09	1.192	35007.80	.05294
5247304.1	10.00	449594.95	4.60634	7.39	.224	34960.04	.00996
5247325.6	12.00	515843.00	5.52682	4.11	.069	34901.71	.00309
5247347.2	14.00	594474.39	6.44704	2.68	.030	34832.80	.00133
5247369.0	16.00	685660.82	7.36695	1.81	.014	34753.36	.00061
5247391.0	18.00	789602.43	8.28647	1.23	.006	34663.40	.00029
5247413.2	20.00	906528.66	9.20557	.83	.003	34562.94	.00013
5247654.5	40.00	2863914.76	18.35994	0.00	0.000	32989.92	0.00000
5247959.7	60.00	6652007.11	27.39935	0.00	0.000	30422.55	0.00000
5248400.6	80.00	13346295.32	36.22311	0.00	0.000	26941.13	0.00000
5249142.9	100.00	25282990.98	44.64360	0.00	0.000	22656.12	0.00000
5250643.1	120.00	47764491.65	52.24020	0.00	0.000	17708.54	0.00000
5254400.5	140.00	92915812.63	57.80277	0.00	0.000	12279.63	0.00000
5265668.4	160.00	178458376.83	55.95419	0.00	0.000	6672.87	0.00000
5293600.1	180.00	248863978.69	.08103	0.00	0.000	2760.92	0.00000

REVOLUTION 18

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5293600.1	-180.00	231020770.14	.08103	0.00	0.000	2948.85	0.00000
5318320.6	-160.00	168826317.92	54.46215	0.00	0.000	6736.24	0.00000
5328770.0	-140.00	89988961.88	56.96751	0.00	0.000	12288.06	0.00000
5332389.0	-120.00	46847941.73	51.69805	0.00	0.000	17686.58	0.00000
5333862.4	-100.00	24956392.54	44.26669	0.00	0.000	22612.27	0.00000
5334598.5	-80.00	13219371.92	35.95648	0.00	0.000	26880.36	0.00000
5335038.1	-60.00	6602186.36	27.21544	0.00	0.000	30348.86	0.00000
5335343.4	-40.00	2846548.74	18.24384	0.00	0.000	32907.02	0.00000
5335585.1	-20.00	902756.41	9.14929	.84	.003	34474.51	.00014
5335607.4	-18.00	786573.60	8.23592	1.23	.006	34574.61	.00029
5335629.4	-16.00	683286.35	7.32209	1.82	.014	34664.26	.00062
5335651.3	-14.00	592668.95	6.40785	2.68	.030	34743.43	.00135
5335672.9	-12.00	514524.46	5.49327	4.11	.070	34812.09	.00314
5335694.5	-10.00	448683.91	4.57842	7.41	.227	34870.22	.01013
5335715.9	-8.00	395005.55	3.66336	17.16	1.211	34917.81	.05392
5335737.1	-6.00	353374.20	2.74822	42.46	7.391	34954.84	.32874
5335758.4	-4.00	323700.82	1.83323	90.49	33.488	34981.30	1.48837
5335779.5	-2.00	305922.05	.91932	148.66	90.257	34997.18	4.00966
5335797.9	0.00	300000.00	.08103	176.71	127.462	35002.47	5.66167
5335816.3	2.00	305922.05	.91932	148.66	90.257	34997.18	4.00966
5335837.4	4.00	323700.82	1.83323	90.49	33.488	34981.30	1.48837
5335858.6	6.00	353374.20	2.74822	42.46	7.391	34954.84	.32874
5335879.9	8.00	395005.55	3.66336	17.16	1.211	34917.81	.05392
5335901.3	10.00	448683.91	4.57842	7.41	.227	34870.22	.01013
5335922.8	12.00	514524.46	5.49327	4.11	.070	34812.09	.00314
5335944.5	14.00	592668.95	6.40785	2.68	.030	34743.43	.00135
5335966.3	16.00	683286.35	7.32209	1.82	.014	34664.26	.00062
5335988.4	18.00	786573.60	8.23592	1.23	.006	34574.61	.00029
5336010.6	20.00	902756.41	9.14929	.84	.003	34474.51	.00014
5336252.3	40.00	2846548.74	18.24384	0.00	0.000	32907.02	0.00000
5336557.6	60.00	6602186.36	27.21544	0.00	0.000	30348.86	0.00000
5336997.2	80.00	13219371.92	35.95648	0.00	0.000	26880.36	0.00000
5337733.4	100.00	24956392.54	44.26669	0.00	0.000	22612.27	0.00000
5339206.7	120.00	46847941.73	51.69805	0.00	0.000	17686.58	0.00000
5342825.7	140.00	89988961.88	56.96751	0.00	0.000	12288.06	0.00000
5353275.1	160.00	168826317.92	54.46215	0.00	0.000	6736.24	0.00000
5377995.7	180.00	231020770.14	.08103	0.00	0.000	2948.85	0.00000

REVOLUTION 19

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5377995.7	-180.00	214785775.09	.08103	0.00	0.000	3143.55	0.00000
5399936.9	-160.00	159737205.74	52.94682	0.00	0.000	6806.67	0.00000
5409629.5	-140.00	87096700.38	56.10360	0.00	0.000	12299.64	0.00000
5413112.9	-120.00	45919076.55	51.13503	0.00	0.000	17665.62	0.00000
5414559.1	-100.00	24621139.67	43.87470	0.00	0.000	22568.03	0.00000
5415288.9	-80.00	13088187.46	35.67899	0.00	0.000	26818.22	0.00000
5415727.2	-60.00	6550493.26	27.02398	0.00	0.000	30273.07	0.00000
5416032.5	-40.00	2828490.44	18.12296	0.00	0.000	32821.51	0.00000
5416274.7	-20.00	898829.32	9.09068	.84	.003	34383.17	.00014
5416297.0	-18.00	783420.22	8.18328	1.24	.007	34482.90	.00030
5416319.1	-16.00	680814.10	7.27537	1.82	.014	34572.22	.00063
5416341.0	-14.00	590789.05	6.36704	2.68	.030	34651.09	.00136
5416362.7	-12.00	513151.48	5.45834	4.12	.071	34719.50	.00318
5416384.3	-10.00	447735.22	4.54934	7.44	.231	34777.42	.01031
5416405.8	-8.00	394400.87	3.64012	17.22	1.231	34824.83	.05496
5416427.1	-6.00	353035.15	2.73081	42.43	7.447	34861.73	.33213
5416448.4	-4.00	323550.47	1.82163	90.09	33.489	34888.09	1.49241
5416469.5	-2.00	305884.52	.91354	147.58	89.733	34903.91	3.99704
5416488.1	0.00	300000.00	.08103	175.23	126.446	34909.18	5.63153
5416506.6	2.00	305884.52	.91354	147.58	89.733	34903.91	3.99704
5416527.8	4.00	323550.47	1.82163	90.09	33.489	34888.09	1.49241
5416549.1	6.00	353035.15	2.73081	42.43	7.447	34861.73	.33213
5416570.4	8.00	394400.87	3.64012	17.22	1.231	34824.83	.05496
5416591.9	10.00	447735.22	4.54934	7.44	.231	34777.42	.01031
5416613.4	12.00	513151.48	5.45834	4.12	.071	34719.50	.00318
5416635.2	14.00	590789.05	6.36704	2.68	.030	34651.09	.00136
5416657.1	16.00	680814.10	7.27537	1.82	.014	34572.22	.00063
5416679.2	18.00	783420.22	8.18328	1.24	.007	34482.90	.00030
5416701.5	20.00	898829.32	9.09068	.84	.003	34383.17	.00014
5416943.6	40.00	2828490.44	18.12296	0.00	0.000	32821.51	0.00000
5417248.9	60.00	6550493.26	27.02398	0.00	0.000	30273.07	0.00000
5417687.2	80.00	13088187.46	35.67899	0.00	0.000	26818.22	0.00000
5418417.1	100.00	24621139.67	43.87470	0.00	0.000	22568.03	0.00000
5419863.3	120.00	45919076.55	51.13503	0.00	0.000	17665.62	0.00000
5423346.7	140.00	87096700.38	56.10360	0.00	0.000	12299.64	0.00000
5433039.2	160.00	159737205.74	52.94682	0.00	0.000	6806.67	0.00000
5454980.5	180.00	214785775.09	.08103	0.00	0.000	3143.55	0.00000

REVOLUTION 20

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5454980.5	-180.00	199968812.02	.08103	0.00	0.000	3345.16	0.00000
5474507.1	-160.00	151156906.66	51.41178	0.00	0.000	6884.55	0.00000
5483499.8	-140.00	84241994.69	55.21113	0.00	0.000	12314.65	0.00000
5486850.6	-120.00	44978839.02	50.55079	0.00	0.000	17645.86	0.00000
5488269.4	-100.00	24277322.82	43.46727	0.00	0.000	22523.52	0.00000
5488992.9	-80.00	12952697.35	35.39036	0.00	0.000	26754.74	0.00000
5489429.8	-60.00	6496889.11	26.82475	0.00	0.000	30195.18	0.00000
5489735.1	-40.00	2809721.75	17.99714	0.00	0.000	32733.39	0.00000
5489977.7	-20.00	894742.90	9.02968	.84	.003	34288.90	.00014
5490000.1	-18.00	780138.69	8.12848	1.24	.007	34388.24	.00030
5490022.2	-16.00	678241.21	7.22675	1.82	.014	34477.21	.00064
5490044.2	-14.00	588832.53	6.32455	2.68	.031	34555.78	.00138
5490066.0	-12.00	511722.47	5.42197	4.12	.072	34623.92	.00323
5490087.6	-10.00	446747.78	4.51906	7.46	.234	34681.61	.01050
5490109.1	-8.00	393771.47	3.61593	17.29	1.252	34728.84	.05606
5490130.5	-6.00	352682.23	2.71268	42.41	7.507	34765.59	.33572
5490151.9	-4.00	323393.97	1.80956	89.68	33.492	34791.85	1.49666
5490173.1	-2.00	305845.44	.90752	146.47	89.195	34807.61	3.98407
5490191.8	0.00	300000.00	.08103	173.71	125.402	34812.86	5.60050
5490210.5	2.00	305845.44	.90752	146.47	89.195	34807.61	3.98407
5490231.7	4.00	323393.97	1.80956	89.68	33.492	34791.85	1.49666
5490253.0	6.00	352682.23	2.71268	42.41	7.507	34765.59	.33572
5490274.4	8.00	393771.47	3.61593	17.29	1.252	34728.84	.05606
5490295.9	10.00	446747.78	4.51906	7.46	.234	34681.61	.01050
5490317.6	12.00	511722.47	5.42197	4.12	.072	34623.92	.00323
5490339.3	14.00	588832.53	6.32455	2.68	.031	34555.78	.00138
5490361.3	16.00	678241.21	7.22675	1.82	.014	34477.21	.00064
5490383.4	18.00	780138.69	8.12848	1.24	.007	34388.24	.00030
5490405.8	20.00	894742.90	9.02968	.84	.003	34288.90	.00014
5490648.4	40.00	2809721.75	17.99714	0.00	0.000	32733.39	0.00000
5490953.7	60.00	6496889.11	26.82475	0.00	0.000	30195.18	0.00000
5491390.7	80.00	12952697.35	35.39036	0.00	0.000	26754.74	0.00000
5492114.2	100.00	24277322.82	43.46727	0.00	0.000	22523.52	0.00000
5493533.0	120.00	44978839.02	50.55079	0.00	0.000	17645.86	0.00000
5496883.7	140.00	84241994.69	55.21113	0.00	0.000	12314.65	0.00000
5505876.4	160.00	151156906.66	51.41178	0.00	0.000	6884.55	0.00000
5525403.0	180.00	199968812.02	.08103	0.00	0.000	3345.16	0.00000

REVOLUTION 21

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5525403.0	-180.00	186407190.22	.08103	0.00	0.000	3553.79	0.00000
5542824.3	-160.00	143053152.94	49.86072	0.00	0.000	6970.26	0.00000
5551169.7	-140.00	81427415.08	54.29019	0.00	0.000	12333.42	0.00000
5554391.0	-120.00	44028146.81	49.94495	0.00	0.000	17627.49	0.00000
5555782.2	-100.00	23925030.34	43.04403	0.00	0.000	22478.85	0.00000
5556499.1	-80.00	12812853.71	35.09027	0.00	0.000	26690.00	0.00000
5556934.6	-60.00	6441332.64	26.61751	0.00	0.000	30115.22	0.00000
5557240.0	-40.00	2790223.36	17.86624	0.00	0.000	32647.63	0.00000
5557483.0	-20.00	890492.39	8.96620	.85	.003	34191.67	.00014
5557505.4	-18.00	776725.12	8.07146	1.24	.007	34290.60	.00031
5557527.6	-16.00	675564.62	7.17615	1.82	.014	34379.20	.00065
5557549.7	-14.00	586797.03	6.28035	2.68	.031	34457.45	.00140
5557571.5	-12.00	510235.70	5.38413	4.13	.073	34525.31	.00327
5557593.2	-10.00	445720.38	4.48757	7.48	.238	34582.77	.01070
5557614.8	-8.00	393116.58	3.59075	17.36	1.275	34629.80	.05724
5557636.2	-6.00	352315.01	2.69382	42.38	7.570	34666.40	.33950
5557657.6	-4.00	323231.13	1.79699	89.27	33.497	34692.55	1.50115
5557678.9	-2.00	305804.79	.90126	145.32	88.643	34708.24	3.97074
5557697.7	0.00	300000.00	.08103	172.15	124.331	34713.48	5.56856
5557716.5	2.00	305804.79	.90126	145.32	88.643	34708.24	3.97074
5557737.8	4.00	323231.13	1.79699	89.27	33.497	34692.55	1.50115
5557759.2	6.00	352315.01	2.69382	42.38	7.570	34666.40	.33950
5557780.7	8.00	393116.58	3.59075	17.36	1.275	34629.80	.05724
5557802.3	10.00	445720.38	4.48757	7.48	.238	34582.77	.01070
5557824.0	12.00	510235.70	5.38413	4.13	.073	34525.31	.00327
5557845.8	14.00	586797.03	6.28035	2.68	.031	34457.45	.00140
5557867.8	16.00	675564.62	7.17615	1.82	.014	34379.20	.00065
5557890.0	18.00	776725.12	8.07146	1.24	.007	34290.60	.00031
5557912.4	20.00	890492.39	8.96620	.85	.003	34191.67	.00014
5558155.5	40.00	2790223.36	17.86624	0.00	0.000	32647.63	0.00000
5558460.8	60.00	6441332.64	26.61751	0.00	0.000	30115.22	0.00000
5558896.4	80.00	12812853.71	35.09027	0.00	0.000	26690.00	0.00000
5559613.3	100.00	23925030.34	43.04403	0.00	0.000	22478.85	0.00000
5561004.5	120.00	44028146.81	49.94495	0.00	0.000	17627.49	0.00000
5564225.7	140.00	81427415.08	54.29019	0.00	0.000	12333.42	0.00000
5572571.2	160.00	143053152.94	49.86072	0.00	0.000	6970.26	0.00000
5589992.4	180.00	186407190.22	.08103	0.00	0.000	3553.79	0.00000

REVOLUTION 22

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5589992.4	-180.00	173961042.62	.08103	0.00	0.000	3769.59	0.00000
5605571.8	-160.00	135395543.60	48.29741	0.00	0.000	7064.21	0.00000
5613318.6	-140.00	78655161.15	53.34097	0.00	0.000	12356.28	0.00000
5616413.5	-120.00	43067890.79	49.31715	0.00	0.000	17610.72	0.00000
5617776.9	-100.00	23564348.12	42.60456	0.00	0.000	22434.14	0.00000
5618487.1	-80.00	12668605.14	34.77839	0.00	0.000	26624.05	0.00000
5618921.2	-60.00	6383779.97	26.40204	0.00	0.000	30033.20	0.00000
5619226.5	-40.00	2769974.67	17.73010	0.00	0.000	32549.24	0.00000
5619470.1	-20.00	886072.67	8.90018	.85	.003	34091.46	.00015
5619492.5	-18.00	773175.40	8.01215	1.25	.007	34189.96	.00031
5619514.8	-16.00	672781.08	7.12352	1.83	.015	34278.17	.00066
5619536.9	-14.00	584680.08	6.23436	2.69	.031	34356.08	.00142
5619558.8	-12.00	508689.35	5.34476	4.13	.074	34423.64	.00333
5619580.5	-10.00	444651.76	4.45480	7.51	.242	34480.85	.01091
5619602.2	-8.00	392435.39	3.56457	17.44	1.299	34527.68	.05849
5619623.7	-6.00	351933.03	2.67419	42.36	7.636	34564.12	.34349
5619645.2	-4.00	323061.74	1.78393	88.84	33.503	34590.16	1.50589
5619666.5	-2.00	305762.50	.89475	144.15	88.077	34605.78	3.95706
5619685.5	0.00	300000.00	.08103	170.56	123.233	34610.99	5.53573
5619704.4	2.00	305762.50	.89475	144.15	88.077	34605.78	3.95706
5619725.8	4.00	323061.74	1.78393	88.84	33.503	34590.16	1.50589
5619747.2	6.00	351933.03	2.67419	42.36	7.636	34564.12	.34349
5619768.7	8.00	392435.39	3.56457	17.44	1.299	34527.68	.05849
5619790.4	10.00	444651.76	4.45480	7.51	.242	34480.85	.01091
5619812.1	12.00	508689.35	5.34476	4.13	.074	34423.64	.00333
5619834.0	14.00	584680.08	6.23436	2.69	.031	34356.08	.00142
5619856.1	16.00	672781.08	7.12352	1.83	.015	34278.17	.00066
5619878.4	18.00	773175.40	8.01215	1.25	.007	34189.96	.00031
5619900.9	20.00	886072.67	8.90018	.85	.003	34091.46	.00015
5620144.4	40.00	2769974.67	17.73010	0.00	0.000	32549.24	0.00000
5620449.8	60.00	6383779.97	26.40204	0.00	0.000	30033.20	0.00000
5620883.8	80.00	12668605.14	34.77839	0.00	0.000	26624.05	0.00000
5621594.0	100.00	23564348.12	42.60456	0.00	0.000	22434.14	0.00000
5622957.5	120.00	43067890.79	49.31715	0.00	0.000	17610.72	0.00000
5626052.3	140.00	78655161.15	53.34097	0.00	0.000	12356.28	0.00000
5633799.1	160.00	135395543.60	48.29741	0.00	0.000	7064.21	0.00000
5649378.5	180.00	173961042.62	.08103	0.00	0.000	3769.59	0.00000

REVOLUTION 23

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5649378.5	-180.00	162509562.10	.08103	0.00	0.000	3992.69	0.00000
5663341.4	-160.00	128155513.83	46.72571	0.00	0.000	7166.76	0.00000
5670534.3	-140.00	75927087.23	52.36372	0.00	0.000	12383.57	0.00000
5673506.1	-120.00	42098933.67	48.66701	0.00	0.000	17595.78	0.00000
5674841.6	-100.00	23195359.30	42.14847	0.00	0.000	22389.52	0.00000
5675545.0	-80.00	12519896.55	34.45439	0.00	0.000	26556.95	0.00000
5675977.5	-60.00	6324184.32	26.17807	0.00	0.000	29949.14	0.00000
5676282.9	-40.00	2748953.71	17.58855	0.00	0.000	32453.18	0.00000
5676526.9	-20.00	881478.29	8.83151	.85	.003	33988.23	.00015
5676549.4	-18.00	769485.10	7.95047	1.25	.007	34086.27	.00032
5676571.8	-16.00	669887.10	7.06878	1.83	.015	34174.08	.00067
5676593.9	-14.00	582478.99	6.18654	2.69	.032	34251.63	.00144
5676615.8	-12.00	507081.47	5.30383	4.14	.075	34318.88	.00338
5676637.7	-10.00	443540.57	4.42073	7.54	.246	34375.83	.01113
5676659.4	-8.00	391727.04	3.53733	17.52	1.324	34422.44	.05982
5676681.0	-6.00	351535.81	2.65379	42.34	7.706	34458.71	.34770
5676702.5	-4.00	322885.58	1.77034	88.41	33.512	34484.63	1.51089
5676723.9	-2.00	305718.51	.88798	142.96	87.496	34500.18	3.94303
5676743.0	0.00	300000.00	.08103	168.92	122.109	34505.37	5.50200
5676762.1	2.00	305718.51	.88798	142.96	87.496	34500.18	3.94303
5676783.5	4.00	322885.58	1.77034	88.41	33.512	34484.63	1.51089
5676805.0	6.00	351535.81	2.65379	42.34	7.706	34458.71	.34770
5676826.6	8.00	391727.04	3.53733	17.52	1.324	34422.44	.05982
5676848.3	10.00	443540.57	4.42073	7.54	.246	34375.83	.01113
5676870.1	12.00	507081.47	5.30383	4.14	.075	34318.88	.00338
5676892.1	14.00	582478.99	6.18654	2.69	.032	34251.63	.00144
5676914.2	16.00	669887.10	7.06878	1.83	.015	34174.08	.00067
5676936.6	18.00	769485.10	7.95047	1.25	.007	34086.27	.00032
5676959.1	20.00	881478.29	8.83151	.85	.003	33988.23	.00015
5677203.1	40.00	2748953.71	17.58855	0.00	0.000	32453.18	0.00000
5677508.5	60.00	6324184.32	26.17807	0.00	0.000	29949.14	0.00000
5677941.0	80.00	12519896.55	34.45439	0.00	0.000	26556.95	0.00000
5678644.4	100.00	23195359.30	42.14847	0.00	0.000	22389.52	0.00000
5679979.9	120.00	42098933.67	48.66701	0.00	0.000	17595.78	0.00000
5682951.6	140.00	75927087.23	52.36372	0.00	0.000	12383.57	0.00000
5690144.6	160.00	128155513.83	46.72571	0.00	0.000	7166.76	0.00000
5704107.5	180.00	162509562.10	.08103	0.00	0.000	3992.69	0.00000

REVOLUTION 24

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5704107.5	-180.00	151947945.91	.08103	0.00	0.000	4223.26	0.00000
5716647.5	-160.00	121306282.10	45.14945	0.00	0.000	7278.30	0.00000
5723327.9	-140.00	73244727.34	51.35876	0.00	0.000	12415.67	0.00000
5726179.8	-120.00	41122108.65	47.99417	0.00	0.000	17582.89	0.00000
5727487.3	-100.00	22818143.81	41.67532	0.00	0.000	22345.13	0.00000
5728183.6	-80.00	12366668.84	34.11788	0.00	0.000	26488.77	0.00000
5728614.6	-60.00	6262495.89	25.94532	0.00	0.000	29863.05	0.00000
5728919.9	-40.00	2727137.02	17.44140	0.00	0.000	32354.46	0.00000
5729164.5	-20.00	876703.40	8.76013	.86	.003	33881.95	.00015
5729187.1	-18.00	765649.49	7.88634	1.25	.007	33979.51	.00032
5729209.5	-16.00	666878.96	7.01188	1.83	.015	34066.90	.00069
5729231.7	-14.00	580190.92	6.13683	2.69	.032	34144.06	.00146
5729253.7	-12.00	505409.95	5.26127	4.15	.076	34210.99	.00344
5729275.6	-10.00	442385.35	4.38530	7.57	.251	34267.66	.01137
5729297.4	-8.00	390990.59	3.50902	17.61	1.352	34314.05	.06124
5729319.0	-6.00	351122.82	2.63257	42.32	7.780	34350.14	.35215
5729340.6	-4.00	322702.43	1.75621	87.96	33.523	34375.93	1.51616
5729362.1	-2.00	305672.79	.88094	141.73	86.902	34391.41	3.92865
5729381.3	0.00	300000.00	.08103	167.25	120.957	34396.57	5.46736
5729400.5	2.00	305672.79	.88094	141.73	86.902	34391.41	3.92865
5729422.0	4.00	322702.43	1.75621	87.96	33.523	34375.93	1.51616
5729443.6	6.00	351122.82	2.63257	42.32	7.780	34350.14	.35215
5729465.3	8.00	390990.59	3.50902	17.61	1.352	34314.05	.06124
5729487.0	10.00	442385.35	4.38530	7.57	.251	34267.66	.01137
5729508.9	12.00	505409.95	5.26127	4.15	.076	34210.99	.00344
5729531.0	14.00	580190.92	6.13683	2.69	.032	34144.06	.00146
5729553.2	16.00	666878.96	7.01188	1.83	.015	34066.90	.00069
5729575.5	18.00	765649.49	7.88634	1.25	.007	33979.51	.00032
5729598.2	20.00	876703.40	8.76013	.86	.003	33881.95	.00015
5729842.7	40.00	2727137.02	17.44140	0.00	0.000	32354.46	0.00000
5730148.1	60.00	6262495.89	25.94532	0.00	0.000	29863.05	0.00000
5730579.0	80.00	12366668.84	34.11788	0.00	0.000	26488.77	0.00000
5731275.4	100.00	22818143.81	41.67532	0.00	0.000	22345.13	0.00000
5732582.9	120.00	41122108.65	47.99417	0.00	0.000	17582.89	0.00000
5735434.8	140.00	73244727.34	51.35876	0.00	0.000	12415.67	0.00000
5742115.2	160.00	121306282.10	45.14945	0.00	0.000	7278.30	0.00000
5754655.1	180.00	151947945.91	.08103	0.00	0.000	4223.26	0.00000

REVOLUTION 25

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5754655.1	-180.00	142184899.21	.08103	0.00	0.000	4461.47	0.00000
5765939.0	-160.00	114822781.61	43.57244	0.00	0.000	7399.20	0.00000
5772145.0	-140.00	70609319.52	50.32649	0.00	0.000	12452.93	0.00000
5774880.3	-120.00	40138218.21	47.29824	0.00	0.000	17572.31	0.00000
5776159.7	-100.00	22432777.94	41.18465	0.00	0.000	22301.12	0.00000
5776848.9	-80.00	12208858.59	33.76850	0.00	0.000	26419.59	0.00000
5777278.2	-60.00	6198661.57	25.70350	0.00	0.000	29774.97	0.00000
5777583.6	-40.00	2704499.53	17.28847	0.00	0.000	32253.05	0.00000
5777828.7	-20.00	871741.77	8.68592	.86	.003	33772.58	.00016
5777851.4	-18.00	761663.54	7.81968	1.26	.007	33869.64	.00033
5777873.8	-16.00	663752.66	6.95272	1.84	.015	33956.57	.00070
5777896.1	-14.00	577812.82	6.08514	2.69	.032	34033.34	.00148
5777918.2	-12.00	503672.56	5.21703	4.15	.077	34099.92	.00350
5777940.1	-10.00	441184.54	4.34847	7.60	.255	34156.30	.01163
5777962.0	-8.00	390225.05	3.47959	17.70	1.380	34202.45	.06275
5777983.7	-6.00	350693.50	2.61051	42.31	7.858	34238.36	.35684
5778005.4	-4.00	322512.03	1.74152	87.51	33.536	34264.02	1.52173
5778027.0	-2.00	305625.25	.87362	140.48	86.295	34279.42	3.91392
5778046.3	0.00	300000.00	.08103	165.54	119.779	34284.55	5.43180
5778065.6	2.00	305625.25	.87362	140.48	86.295	34279.42	3.91392
5778087.2	4.00	322512.03	1.74152	87.51	33.536	34264.02	1.52173
5778108.8	6.00	350693.50	2.61051	42.31	7.858	34238.36	.35684
5778130.6	8.00	390225.05	3.47959	17.70	1.380	34202.45	.06275
5778152.4	10.00	441184.54	4.34847	7.60	.255	34156.30	.01163
5778174.4	12.00	503672.56	5.21703	4.15	.077	34099.92	.00350
5778196.5	14.00	577812.82	6.08514	2.69	.032	34033.34	.00148
5778218.7	16.00	663752.66	6.95272	1.84	.015	33956.57	.00070
5778241.2	18.00	761663.54	7.81968	1.26	.007	33869.64	.00033
5778263.9	20.00	871741.77	8.68592	.86	.003	33772.58	.00016
5778508.9	40.00	2704499.53	17.28847	0.00	0.000	32253.05	0.00000
5778814.3	60.00	6198661.57	25.70350	0.00	0.000	29774.97	0.00000
5779243.6	80.00	12208858.59	33.76850	0.00	0.000	26419.59	0.00000
5779932.8	100.00	22432777.94	41.18465	0.00	0.000	22301.12	0.00000
5781212.2	120.00	40138218.21	47.29824	0.00	0.000	17572.31	0.00000
5783947.6	140.00	70609319.52	50.32649	0.00	0.000	12452.93	0.00000
5790153.5	160.00	114822781.61	43.57244	0.00	0.000	7399.20	0.00000
5801437.4	180.00	142184899.21	.08103	0.00	0.000	4461.47	0.00000

REVOLUTION 26

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5801437.4	-180.00	133140583.21	.08103	0.00	0.000	4707.50	0.00000
5811609.5	-160.00	108681581.70	41.99842	0.00	0.000	7529.80	0.00000
5817376.1	-140.00	68021829.26	49.26741	0.00	0.000	12495.77	0.00000
5819998.2	-120.00	39148032.95	46.57886	0.00	0.000	17564.31	0.00000
5821249.5	-100.00	22039333.87	40.67599	0.00	0.000	22257.65	0.00000
5821931.4	-80.00	12046397.77	33.40581	0.00	0.000	26349.49	0.00000
5822359.0	-60.00	6132624.73	25.45230	0.00	0.000	29684.91	0.00000
5822664.4	-40.00	2681014.45	17.12954	0.00	0.000	32148.94	0.00000
5822910.0	-20.00	866586.70	8.60879	.87	.004	33660.08	.00016
5822932.7	-18.00	757521.81	7.75039	1.26	.007	33756.61	.00034
5822955.2	-16.00	660503.92	6.89123	1.84	.015	33843.07	.00071
5822977.6	-14.00	575341.42	6.03142	2.70	.033	33919.42	.00151
5822999.7	-12.00	501866.89	5.17104	4.16	.078	33985.64	.00356
5823021.8	-10.00	439936.48	4.31019	7.63	.261	34041.71	.01190
5823043.7	-8.00	389429.36	3.44899	17.79	1.410	34087.61	.06432
5823065.5	-6.00	350247.25	2.58759	42.29	7.941	34123.32	.36181
5823087.2	-4.00	322314.12	1.72625	87.04	33.553	34148.84	1.52760
5823108.9	-2.00	305575.83	.86602	139.19	85.673	34164.15	3.89884
5823128.3	0.00	300000.00	.08103	163.79	118.575	34169.26	5.39533
5823147.8	2.00	305575.83	.86602	139.19	85.673	34164.15	3.89884
5823169.4	4.00	322314.12	1.72625	87.04	33.553	34148.84	1.52760
5823191.2	6.00	350247.25	2.58759	42.29	7.941	34123.32	.36181
5823213.0	8.00	389429.36	3.44899	17.79	1.410	34087.61	.06432
5823234.9	10.00	439936.48	4.31019	7.63	.261	34041.71	.01190
5823256.9	12.00	501866.89	5.17104	4.16	.078	33985.64	.00356
5823279.1	14.00	575341.42	6.03142	2.70	.033	33919.42	.00151
5823301.4	16.00	660503.92	6.89123	1.84	.015	33843.07	.00071
5823323.9	18.00	757521.81	7.75039	1.26	.007	33756.61	.00034
5823346.7	20.00	866586.70	8.60879	.87	.004	33660.08	.00016
5823592.3	40.00	2681014.45	17.12954	0.00	0.000	32148.94	0.00000
5823897.7	60.00	6132624.73	25.45230	0.00	0.000	29684.91	0.00000
5824325.3	80.00	12046397.77	33.40581	0.00	0.000	26349.49	0.00000
5825007.2	100.00	22039333.87	40.67599	0.00	0.000	22257.65	0.00000
5826258.4	120.00	39148032.95	46.57886	0.00	0.000	17564.31	0.00000
5828880.6	140.00	68021829.26	49.26741	0.00	0.000	12495.77	0.00000
5834647.2	160.00	108681581.70	41.99842	0.00	0.000	7529.80	0.00000
5844819.2	180.00	133140583.21	.08103	0.00	0.000	4707.50	0.00000

REVOLUTION 27

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5844819.2	-180.00	124744919.38	.08103	0.00	0.000	4961.53	0.00000
5854004.7	-160.00	102860803.14	40.43098	0.00	0.000	7670.47	0.00000
5859364.3	-140.00	65482971.88	48.18207	0.00	0.000	12544.59	0.00000
5861876.6	-120.00	38152290.47	45.83568	0.00	0.000	17559.16	0.00000
5863099.7	-100.00	21637879.07	40.14885	0.00	0.000	22214.89	0.00000
5863774.1	-80.00	11879213.33	33.02939	0.00	0.000	26278.55	0.00000
5864199.9	-60.00	6064324.91	25.19139	0.00	0.000	29592.89	0.00000
5864505.3	-40.00	2656653.09	16.96440	0.00	0.000	32042.11	0.00000
5864751.5	-20.00	861231.02	8.52863	.87	.004	33544.41	.00017
5864774.3	-18.00	753218.51	7.67837	1.27	.008	33640.38	.00035
5864796.9	-16.00	657128.17	6.82733	1.85	.016	33726.34	.00073
5864819.3	-14.00	572773.20	5.97558	2.70	.033	33802.25	.00154
5864841.6	-12.00	499990.38	5.12324	4.17	.079	33868.09	.00363
5864863.7	-10.00	438639.39	4.27040	7.68	.267	33923.83	.01223
5864885.6	-8.00	388602.36	3.41719	17.89	1.442	33969.47	.06598
5864907.5	-6.00	349783.44	2.56376	42.30	8.034	34004.97	.36731
5864929.3	-4.00	322108.42	1.71038	86.57	33.572	34030.35	1.53381
5864951.1	-2.00	305524.47	.85811	137.88	85.038	34045.57	3.88341
5864970.6	0.00	300000.00	.08103	162.01	117.344	34050.65	5.35794
5864990.2	2.00	305524.47	.85811	137.88	85.038	34045.57	3.88341
5865011.9	4.00	322108.42	1.71038	86.57	33.572	34030.35	1.53381
5865033.8	6.00	349783.44	2.56376	42.30	8.034	34004.97	.36731
5865055.6	8.00	388602.36	3.41719	17.89	1.442	33969.47	.06598
5865077.6	10.00	438639.39	4.27040	7.68	.267	33923.83	.01223
5865099.7	12.00	499990.38	5.12324	4.17	.079	33868.09	.00363
5865122.0	14.00	572773.20	5.97558	2.70	.033	33802.25	.00154
5865144.4	16.00	657128.17	6.82733	1.85	.016	33726.34	.00073
5865167.0	18.00	753218.51	7.67837	1.27	.008	33640.38	.00035
5865189.8	20.00	861231.02	8.52863	.87	.004	33544.41	.00017
5865435.9	40.00	2656653.09	16.96440	0.00	0.000	32042.11	0.00000
5865741.3	60.00	6064324.91	25.19139	0.00	0.000	29592.89	0.00000
5866167.2	80.00	11879213.33	33.02939	0.00	0.000	26278.55	0.00000
5866841.6	100.00	21637879.07	40.14885	0.00	0.000	22214.89	0.00000
5868064.7	120.00	38152290.47	45.83568	0.00	0.000	17559.16	0.00000
5870577.0	140.00	65482971.88	48.18207	0.00	0.000	12544.59	0.00000
5875936.6	160.00	102860803.14	40.43098	0.00	0.000	7670.47	0.00000
5885122.0	180.00	124744919.38	.08103	0.00	0.000	4961.53	0.00000

REVOLUTION 28

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5885122.0	-180.00	116936180.39	.08103	0.00	0.000	5223.78	0.00000
5893429.8	-160.00	97340030.42	38.87357	0.00	0.000	7821.54	0.00000
5898412.3	-140.00	62993233.89	47.07115	0.00	0.000	12599.81	0.00000
5900818.0	-120.00	37151694.35	45.06832	0.00	0.000	17557.18	0.00000
5902012.9	-100.00	21228475.75	39.60272	0.00	0.000	22173.01	0.00000
5902679.7	-80.00	11707226.74	32.63878	0.00	0.000	26206.86	0.00000
5903103.8	-60.00	5993697.50	24.92040	0.00	0.000	29498.94	0.00000
5903409.1	-40.00	2631384.75	16.79280	0.00	0.000	31932.53	0.00000
5903655.9	-20.00	855667.03	8.44531	.88	.004	33425.52	.00017
5903678.8	-18.00	748747.40	7.60352	1.28	.008	33520.91	.00036
5903701.4	-16.00	653620.48	6.76090	1.85	.016	33606.34	.00074
5903723.9	-14.00	570104.41	5.91754	2.71	.034	33681.78	.00157
5903746.2	-12.00	498040.25	5.07355	4.19	.081	33747.22	.00372
5903768.4	-10.00	437291.33	4.22904	7.73	.273	33802.62	.01258
5903790.5	-8.00	387742.84	3.38414	17.99	1.475	33847.98	.06775
5903812.4	-6.00	349301.37	2.53899	42.32	8.138	33883.27	.37342
5903834.3	-4.00	321894.61	1.69389	86.09	33.595	33908.48	1.54036
5903856.1	-2.00	305471.09	.84989	136.55	84.389	33923.62	3.86764
5903875.8	0.00	300000.00	.08103	160.19	116.088	33928.66	5.31962
5903895.5	2.00	305471.09	.84989	136.55	84.389	33923.62	3.86764
5903917.3	4.00	321894.61	1.69389	86.09	33.595	33908.48	1.54036
5903939.2	6.00	349301.37	2.53899	42.32	8.138	33883.27	.37342
5903961.2	8.00	387742.84	3.38414	17.99	1.475	33847.98	.06775
5903983.3	10.00	437291.33	4.22904	7.73	.273	33802.62	.01258
5904005.4	12.00	498040.25	5.07355	4.19	.081	33747.22	.00372
5904027.8	14.00	570104.41	5.91754	2.71	.034	33681.78	.00157
5904050.2	16.00	653620.48	6.76090	1.85	.016	33606.34	.00074
5904072.9	18.00	748747.40	7.60352	1.28	.008	33520.91	.00036
5904095.8	20.00	855667.03	8.44531	.88	.004	33425.52	.00017
5904342.5	40.00	2631384.75	16.79280	0.00	0.000	31932.53	0.00000
5904647.9	60.00	5993697.50	24.92040	0.00	0.000	29498.94	0.00000
5905072.0	80.00	11707226.74	32.63878	0.00	0.000	26206.86	0.00000
5905738.8	100.00	21228475.75	39.60272	0.00	0.000	22173.01	0.00000
5906933.7	120.00	37151694.35	45.06832	0.00	0.000	17557.18	0.00000
5909339.4	140.00	62993233.89	47.07115	0.00	0.000	12599.81	0.00000
5914321.9	160.00	97340030.42	38.87357	0.00	0.000	7821.54	0.00000
5922629.6	180.00	116936180.39	.08103	0.00	0.000	5223.78	0.00000

REVOLUTION 29

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5922629.6	-180.00	109659813.40	.08103	0.00	0.000	5494.46	0.00000
5930154.8	-160.00	92100223.41	37.32946	0.00	0.000	7983.37	0.00000
5934787.6	-140.00	60552893.02	45.93538	0.00	0.000	12661.89	0.00000
5937090.1	-120.00	36146913.13	44.27645	0.00	0.000	17558.66	0.00000
5938256.8	-100.00	20811180.09	39.03705	0.00	0.000	22132.22	0.00000
5938915.9	-80.00	11530353.52	32.23348	0.00	0.000	26134.52	0.00000
5939338.1	-60.00	5920673.38	24.63896	0.00	0.000	29403.09	0.00000
5939643.5	-40.00	2605176.49	16.61448	0.00	0.000	31820.20	0.00000
5939890.8	-20.00	849886.46	8.35871	.89	.004	33303.36	.00018
5939913.8	-18.00	744101.79	7.52573	1.28	.008	33398.13	.00037
5939936.5	-16.00	649975.56	6.69186	1.86	.016	33483.00	.00076
5939959.1	-14.00	567330.99	5.85722	2.71	.034	33557.96	.00160
5939981.5	-12.00	496013.53	5.02191	4.20	.082	33622.97	.00381
5940003.7	-10.00	435890.25	4.18606	7.78	.281	33678.01	.01295
5940025.9	-8.00	386849.46	3.34978	18.09	1.511	33723.08	.06965
5940047.9	-6.00	348800.29	2.51324	42.35	8.249	33758.14	.37991
5940069.9	-4.00	321672.36	1.67674	85.60	33.621	33783.19	1.54729
5940091.8	-2.00	305415.59	.84135	135.18	83.727	33798.23	3.85152
5940111.6	0.00	300000.00	.08103	158.33	114.805	33803.24	5.28036
5940131.5	2.00	305415.59	.84135	135.18	83.727	33798.23	3.85152
5940153.3	4.00	321672.36	1.67674	85.60	33.621	33783.19	1.54729
5940175.3	6.00	348800.29	2.51324	42.35	8.249	33758.14	.37991
5940197.4	8.00	386849.46	3.34978	18.09	1.511	33723.08	.06965
5940219.5	10.00	435890.25	4.18606	7.78	.281	33678.01	.01295
5940241.8	12.00	496013.53	5.02191	4.20	.082	33622.97	.00381
5940264.2	14.00	567330.99	5.85722	2.71	.034	33557.96	.00160
5940286.7	16.00	649975.56	6.69186	1.86	.016	33483.00	.00076
5940309.5	18.00	744101.79	7.52573	1.28	.008	33398.13	.00037
5940332.4	20.00	849886.46	8.35871	.89	.004	33303.36	.00018
5940579.8	40.00	2605176.49	16.61448	0.00	0.000	31820.20	0.00000
5940885.1	60.00	5920673.38	24.63896	0.00	0.000	29403.09	0.00000
5941307.3	80.00	11530353.52	32.23348	0.00	0.000	26134.52	0.00000
5941966.4	100.00	20811180.09	39.03705	0.00	0.000	22132.22	0.00000
5943133.1	120.00	36146913.13	44.27645	0.00	0.000	17558.66	0.00000
5945435.6	140.00	60552893.02	45.93538	0.00	0.000	12661.89	0.00000
5950068.5	160.00	92100223.41	37.32946	0.00	0.000	7983.37	0.00000
5957593.6	180.00	109659813.40	.08103	0.00	0.000	5494.46	0.00000

REVOLUTION 30

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5957593.6	-180.00	102867452.78	.08103	0.00	0.000	5773.83	0.00000
5964419.4	-160.00	87123629.94	35.80167	0.00	0.000	8156.29	0.00000
5968728.0	-140.00	58162037.13	44.77563	0.00	0.000	12731.28	0.00000
5970930.5	-120.00	35138579.28	43.45974	0.00	0.000	17563.96	0.00000
5972069.1	-100.00	20386041.54	38.45128	0.00	0.000	22092.71	0.00000
5972720.3	-80.00	11348502.70	31.81297	0.00	0.000	26061.64	0.00000
5973140.6	-60.00	5845178.54	24.34666	0.00	0.000	29305.36	0.00000
5973445.9	-40.00	2577992.91	16.42918	0.00	0.000	31705.07	0.00000
5973693.9	-20.00	843880.40	8.26869	.89	.004	33177.89	.00018
5973716.9	-18.00	739274.46	7.44485	1.29	.008	33272.00	.00038
5973739.7	-16.00	646187.71	6.62009	1.87	.017	33356.29	.00078
5973762.4	-14.00	564448.59	5.79451	2.72	.035	33430.72	.00163
5973784.9	-12.00	493907.01	4.96823	4.22	.084	33495.29	.00390
5973807.2	-10.00	434433.92	4.14137	7.84	.288	33549.95	.01336
5973829.4	-8.00	385920.82	3.31406	18.20	1.549	33594.71	.07168
5973851.6	-6.00	348279.41	2.48648	42.38	8.366	33629.53	.38679
5973873.6	-4.00	321441.33	1.65892	85.10	33.651	33654.41	1.55461
5973895.6	-2.00	305357.91	.83247	133.79	83.051	33669.34	3.83506
5973915.5	0.00	300000.00	.08103	156.44	113.497	33674.32	5.24016
5973935.5	2.00	305357.91	.83247	133.79	83.051	33669.34	3.83506
5973957.5	4.00	321441.33	1.65892	85.10	33.651	33654.41	1.55461
5973979.5	6.00	348279.41	2.48648	42.38	8.366	33629.53	.38679
5974001.7	8.00	385920.82	3.31406	18.20	1.549	33594.71	.07168
5974023.9	10.00	434433.92	4.14137	7.84	.288	33549.95	.01336
5974046.2	12.00	493907.01	4.96823	4.22	.084	33495.29	.00390
5974068.7	14.00	564448.59	5.79451	2.72	.035	33430.72	.00163
5974091.3	16.00	646187.71	6.62009	1.87	.017	33356.29	.00078
5974114.2	18.00	739274.46	7.44485	1.29	.008	33272.00	.00038
5974137.2	20.00	843880.40	8.26869	.89	.004	33177.89	.00018
5974385.1	40.00	2577992.91	16.42918	0.00	0.000	31705.07	0.00000
5974690.5	60.00	5845178.54	24.34666	0.00	0.000	29305.36	0.00000
5975110.8	80.00	11348502.70	31.81297	0.00	0.000	26061.64	0.00000
5975762.0	100.00	20386041.54	38.45128	0.00	0.000	22092.71	0.00000
5976900.5	120.00	35138579.28	43.45974	0.00	0.000	17563.96	0.00000
5979103.1	140.00	58162037.13	44.77563	0.00	0.000	12731.28	0.00000
5983411.7	160.00	87123629.94	35.80167	0.00	0.000	8156.29	0.00000
5990237.5	180.00	102867452.78	.08103	0.00	0.000	5773.83	0.00000

REVOLUTION 31

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
5990237.5	-180.00	96516087.86	.08103	0.00	0.000	6062.14	0.00000
5996437.0	-160.00	82393700.55	34.29299	0.00	0.000	8340.62	0.00000
6000444.7	-140.00	55820581.68	43.59281	0.00	0.000	12808.48	0.00000
6002550.5	-120.00	34127288.24	42.61785	0.00	0.000	17573.44	0.00000
6003661.0	-100.00	19953101.92	37.84483	0.00	0.000	22054.73	0.00000
6004304.2	-80.00	11161576.11	31.37669	0.00	0.000	25988.33	0.00000
6004722.5	-60.00	5767133.55	24.04306	0.00	0.000	29205.79	0.00000
6005027.8	-40.00	2549795.97	16.23660	0.00	0.000	31587.13	0.00000
6005276.4	-20.00	837639.26	8.17510	.90	.004	33049.03	.00019
6005299.5	-18.00	734257.64	7.36078	1.30	.008	33142.45	.00039
6005322.4	-16.00	642250.80	6.54547	1.87	.017	33226.12	.00080
6005345.2	-14.00	561452.50	5.72931	2.72	.036	33300.01	.00167
6005367.7	-12.00	491717.26	4.91241	4.24	.086	33364.10	.00400
6005390.1	-10.00	432919.96	4.09491	7.90	.296	33418.37	.01379
6005412.4	-8.00	384955.37	3.27693	18.32	1.590	33462.80	.07386
6005434.7	-6.00	347737.86	2.45865	42.42	8.491	33497.37	.39410
6005456.8	-4.00	321201.13	1.64039	84.59	33.686	33522.07	1.56236
6005478.9	-2.00	305297.93	.82325	132.37	82.362	33536.89	3.81825
6005499.0	0.00	300000.00	.08103	154.51	112.162	33541.83	5.19901
6005519.1	2.00	305297.93	.82325	132.37	82.362	33536.89	3.81825
6005541.1	4.00	321201.13	1.64039	84.59	33.686	33522.07	1.56236
6005563.3	6.00	347737.86	2.45865	42.42	8.491	33497.37	.39410
6005585.5	8.00	384955.37	3.27693	18.32	1.590	33462.80	.07386
6005607.8	10.00	432919.96	4.09491	7.90	.296	33418.37	.01379
6005630.2	12.00	491717.26	4.91241	4.24	.086	33364.10	.00400
6005652.8	14.00	561452.50	5.72931	2.72	.036	33300.01	.00167
6005675.5	16.00	642250.80	6.54547	1.87	.017	33226.12	.00080
6005698.4	18.00	734257.64	7.36078	1.30	.008	33142.45	.00039
6005721.5	20.00	837639.26	8.17510	.90	.004	33049.03	.00019
6005970.1	40.00	2549795.97	16.23660	0.00	0.000	31587.13	0.00000
6006275.4	60.00	5767133.55	24.04306	0.00	0.000	29205.79	0.00000
6006693.7	80.00	11161576.11	31.37669	0.00	0.000	25988.33	0.00000
6007336.9	100.00	19953101.92	37.84483	0.00	0.000	22054.73	0.00000
6008447.4	120.00	34127288.24	42.61785	0.00	0.000	17573.44	0.00000
6010553.2	140.00	55820581.68	43.59281	0.00	0.000	12808.48	0.00000
6014560.9	160.00	82393700.55	34.29299	0.00	0.000	8340.62	0.00000
6020760.5	180.00	96516087.86	.08103	0.00	0.000	6062.14	0.00000

REVOLUTION 32

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6020760.5	-180.00	90567358.44	.08103	0.00	0.000	6359.67	0.00000
6026398.0	-160.00	77895006.31	32.80594	0.00	0.000	8536.72	0.00000
6030126.4	-140.00	53528285.95	42.38797	0.00	0.000	12893.97	0.00000
6032138.7	-120.00	33113597.32	41.75049	0.00	0.000	17587.47	0.00000
6033221.3	-100.00	19512394.40	37.21708	0.00	0.000	22018.49	0.00000
6033856.2	-80.00	10969467.69	30.92406	0.00	0.000	25914.70	0.00000
6034272.5	-60.00	5686453.10	23.72769	0.00	0.000	29104.41	0.00000
6034577.8	-40.00	2520544.68	16.03642	0.00	0.000	31466.36	0.00000
6034827.0	-20.00	831152.68	8.07779	.91	.004	32916.72	.00019
6034850.2	-18.00	729042.94	7.27335	1.31	.008	33009.41	.00040
6034873.2	-16.00	638158.20	6.46788	1.88	.017	33092.43	.00082
6034896.0	-14.00	558337.64	5.66151	2.73	.036	33165.75	.00171
6034918.7	-12.00	489440.53	4.85437	4.26	.088	33229.35	.00411
6034941.2	-10.00	431345.76	4.04659	7.96	.305	33283.19	.01426
6034963.6	-8.00	383951.46	3.23831	18.45	1.633	33327.27	.07620
6034985.9	-6.00	347174.72	2.42972	42.46	8.623	33361.58	.40188
6035008.1	-4.00	320951.33	1.62112	84.07	33.725	33386.08	1.57056
6035030.3	-2.00	305235.55	.81365	130.92	81.659	33400.79	3.80110
6035050.5	0.00	300000.00	.08103	152.54	110.802	33405.70	5.15689
6035070.7	2.00	305235.55	.81365	130.92	81.659	33400.79	3.80110
6035092.9	4.00	320951.33	1.62112	84.07	33.725	33386.08	1.57056
6035115.1	6.00	347174.72	2.42972	42.46	8.623	33361.58	.40188
6035137.4	8.00	383951.46	3.23831	18.45	1.633	33327.27	.07620
6035159.8	10.00	431345.76	4.04659	7.96	.305	33283.19	.01426
6035182.3	12.00	489440.53	4.85437	4.26	.088	33229.35	.00411
6035205.0	14.00	558337.64	5.66151	2.73	.036	33165.75	.00171
6035227.8	16.00	638158.20	6.46788	1.88	.017	33092.43	.00082
6035250.7	18.00	729042.94	7.27335	1.31	.008	33009.41	.00040
6035273.9	20.00	831152.68	8.07779	.91	.004	32916.72	.00019
6035523.2	40.00	2520544.68	16.03642	0.00	0.000	31466.36	0.00000
6035828.5	60.00	5686453.10	23.72769	0.00	0.000	29104.41	0.00000
6036244.7	80.00	10969467.69	30.92406	0.00	0.000	25914.70	0.00000
6036879.7	100.00	19512394.40	37.21708	0.00	0.000	22018.49	0.00000
6037962.2	120.00	33113597.32	41.75049	0.00	0.000	17587.47	0.00000
6039974.5	140.00	53528285.95	42.38797	0.00	0.000	12893.97	0.00000
6043702.9	160.00	77895006.31	32.80594	0.00	0.000	8536.72	0.00000
6049340.5	180.00	90567358.44	.08103	0.00	0.000	6359.67	0.00000

REVOLUTION 33

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6049340.5	-180.00	84986955.84	.08103	0.00	0.000	6666.72	0.00000
6054472.9	-160.00	73613160.02	31.34277	0.00	0.000	8744.92	0.00000
6057941.9	-140.00	51284767.87	41.16221	0.00	0.000	12988.29	0.00000
6059863.8	-120.00	32098024.65	40.85736	0.00	0.000	17606.47	0.00000
6060918.4	-100.00	19063942.43	36.56740	0.00	0.000	21984.28	0.00000
6061545.1	-80.00	10772062.63	30.45444	0.00	0.000	25840.91	0.00000
6061959.3	-60.00	5603045.33	23.40005	0.00	0.000	29001.26	0.00000
6062264.5	-40.00	2490194.78	15.82830	0.00	0.000	31342.71	0.00000
6062514.4	-20.00	824409.46	7.97658	.92	.004	32780.90	.00020
6062537.7	-18.00	723621.29	7.18241	1.32	.009	32872.82	.00041
6062560.8	-16.00	633902.73	6.38718	1.89	.018	32955.16	.00084
6062583.7	-14.00	555098.54	5.59100	2.74	.037	33027.87	.00175
6062606.4	-12.00	487072.80	4.79400	4.29	.091	33090.94	.00425
6062629.0	-10.00	429708.52	3.99633	8.03	.315	33144.34	.01477
6062651.5	-8.00	382907.29	3.19814	18.58	1.680	33188.06	.07872
6062673.9	-6.00	346588.98	2.39962	42.51	8.764	33222.08	.41016
6062696.2	-4.00	320691.51	1.60108	83.55	33.770	33246.38	1.57924
6062718.5	-2.00	305170.67	.80367	129.45	80.943	33260.97	3.78361
6062738.8	0.00	300000.00	.08103	150.54	109.416	33265.83	5.11380
6062759.2	2.00	305170.67	.80367	129.45	80.943	33260.97	3.78361
6062781.4	4.00	320691.51	1.60108	83.55	33.770	33246.38	1.57924
6062803.8	6.00	346588.98	2.39962	42.51	8.764	33222.08	.41016
6062826.2	8.00	382907.29	3.19814	18.58	1.680	33188.06	.07872
6062848.6	10.00	429708.52	3.99633	8.03	.315	33144.34	.01477
6062871.3	12.00	487072.80	4.79400	4.29	.091	33090.94	.00425
6062894.0	14.00	555098.54	5.59100	2.74	.037	33027.87	.00175
6062916.9	16.00	633902.73	6.38718	1.89	.018	32955.16	.00084
6062939.9	18.00	723621.29	7.18241	1.32	.009	32872.82	.00041
6062963.2	20.00	824409.46	7.97658	.92	.004	32780.90	.00020
6063213.1	40.00	2490194.78	15.82830	0.00	0.000	31342.71	0.00000
6063518.4	60.00	5603045.33	23.40005	0.00	0.000	29001.26	0.00000
6063932.5	80.00	10772062.63	30.45444	0.00	0.000	25840.91	0.00000
6064559.2	100.00	19063942.43	36.56740	0.00	0.000	21984.28	0.00000
6065613.8	120.00	32098024.65	40.85736	0.00	0.000	17606.47	0.00000
6067535.8	140.00	51284767.87	41.16221	0.00	0.000	12988.29	0.00000
6071004.8	160.00	73613160.02	31.34277	0.00	0.000	8744.92	0.00000
6076137.1	180.00	84986955.84	.08103	0.00	0.000	6666.72	0.00000

REVOLUTION 34

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6076137.1	-180.00	79744111.71	.08103	0.00	0.000	6983.63	0.00000
6080814.4	-160.00	69534741.34	29.90545	0.00	0.000	8965.57	0.00000
6084042.4	-140.00	49089517.54	39.91674	0.00	0.000	13091.97	0.00000
6085877.0	-120.00	31081047.97	39.93819	0.00	0.000	17630.87	0.00000
6086903.9	-100.00	18607758.43	35.89510	0.00	0.000	21952.35	0.00000
6087522.1	-80.00	10569236.41	29.96717	0.00	0.000	25767.08	0.00000
6087934.1	-60.00	5516811.20	23.05960	0.00	0.000	28896.38	0.00000
6088239.3	-40.00	2458698.45	15.61186	0.00	0.000	31216.16	0.00000
6088489.9	-20.00	817397.44	7.87127	.93	.004	32641.49	.00021
6088513.3	-18.00	717982.83	7.08781	1.33	.009	32732.60	.00043
6088536.4	-16.00	629476.62	6.30321	1.90	.018	32814.21	.00086
6088559.4	-14.00	551729.23	5.51762	2.76	.038	32886.28	.00180
6088582.2	-12.00	484609.69	4.73119	4.33	.093	32948.79	.00440
6088604.9	-10.00	428005.21	3.94404	8.12	.327	33001.73	.01540
6088627.5	-8.00	381820.92	3.15635	18.73	1.731	33045.06	.08144
6088650.0	-6.00	345979.53	2.36830	42.57	8.914	33078.78	.41899
6088672.4	-4.00	320421.16	1.58023	83.02	33.820	33102.87	1.58845
6088694.8	-2.00	305103.16	.79328	127.94	80.214	33117.33	3.76577
6088715.3	0.00	300000.00	.08103	148.50	108.004	33122.15	5.06972
6088735.8	2.00	305103.16	.79328	127.94	80.214	33117.33	3.76577
6088758.1	4.00	320421.16	1.58023	83.02	33.820	33102.87	1.58845
6088780.5	6.00	345979.53	2.36830	42.57	8.914	33078.78	.41899
6088803.0	8.00	381820.92	3.15635	18.73	1.731	33045.06	.08144
6088825.6	10.00	428005.21	3.94404	8.12	.327	33001.73	.01540
6088848.3	12.00	484609.69	4.73119	4.33	.093	32948.79	.00440
6088871.1	14.00	551729.23	5.51762	2.76	.038	32886.28	.00180
6088894.1	16.00	629476.62	6.30321	1.90	.018	32814.21	.00086
6088917.3	18.00	717982.83	7.08781	1.33	.009	32732.60	.00043
6088940.6	20.00	817397.44	7.87127	.93	.004	32641.49	.00021
6089191.2	40.00	2458698.45	15.61186	0.00	0.000	31216.16	0.00000
6089496.4	60.00	5516811.20	23.05960	0.00	0.000	28896.38	0.00000
6089908.4	80.00	10569236.41	29.96717	0.00	0.000	25767.08	0.00000
6090526.6	100.00	18607758.43	35.89510	0.00	0.000	21952.35	0.00000
6091553.5	120.00	31081047.97	39.93819	0.00	0.000	17630.87	0.00000
6093388.2	140.00	49089517.54	39.91674	0.00	0.000	13091.97	0.00000
6096616.2	160.00	69534741.34	29.90545	0.00	0.000	8965.57	0.00000
6101293.4	180.00	79744111.71	.08103	0.00	0.000	6983.63	0.00000

REVOLUTION 35

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6101293.4	-180.00	74811159.93	.08103	0.00	0.000	7310.75	0.00000
6105560.0	-160.00	65647225.73	28.49566	0.00	0.000	9199.03	0.00000
6108564.0	-140.00	46941909.36	38.65282	0.00	0.000	13205.58	0.00000
6110314.4	-120.00	30063103.27	38.99274	0.00	0.000	17661.13	0.00000
6111313.6	-100.00	18143842.32	35.19950	0.00	0.000	21923.02	0.00000
6111923.3	-80.00	10360853.63	29.46152	0.00	0.000	25693.37	0.00000
6112333.0	-60.00	5427643.66	22.70574	0.00	0.000	28789.80	0.00000
6112638.1	-40.00	2426003.81	15.38670	0.00	0.000	31086.67	0.00000
6112889.4	-20.00	810103.44	7.76168	.94	.005	32498.40	.00022
6112912.9	-18.00	712116.89	6.98934	1.34	.009	32588.66	.00044
6112936.1	-16.00	624871.41	6.21582	1.91	.019	32669.50	.00089
6112959.2	-14.00	548223.23	5.44126	2.77	.039	32740.89	.00185
6112982.1	-12.00	482046.43	4.66581	4.36	.096	32802.82	.00456
6113004.9	-10.00	426232.53	3.88962	8.22	.340	32855.26	.01607
6113027.6	-8.00	380690.24	3.11285	18.88	1.785	32898.18	.08437
6113050.2	-6.00	345345.19	2.33570	42.64	9.074	32931.59	.42841
6113072.7	-4.00	320139.76	1.55852	82.48	33.877	32955.45	1.59821
6113095.2	-2.00	305032.89	.78248	126.42	79.471	32969.78	3.74758
6113115.8	0.00	300000.00	.08103	146.42	106.567	32974.55	5.02464
6113136.4	2.00	305032.89	.78248	126.42	79.471	32969.78	3.74758
6113158.9	4.00	320139.76	1.55852	82.48	33.877	32955.45	1.59821
6113181.4	6.00	345345.19	2.33570	42.64	9.074	32931.59	.42841
6113204.0	8.00	380690.24	3.11285	18.88	1.785	32898.18	.08437
6113226.7	10.00	426232.53	3.88962	8.22	.340	32855.26	.01607
6113249.5	12.00	482046.43	4.66581	4.36	.096	32802.82	.00456
6113272.4	14.00	548223.23	5.44126	2.77	.039	32740.89	.00185
6113295.5	16.00	624871.41	6.21582	1.91	.019	32669.50	.00089
6113318.7	18.00	712116.89	6.98934	1.34	.009	32588.66	.00044
6113342.2	20.00	810103.44	7.76168	.94	.005	32498.40	.00022
6113593.5	40.00	2426003.81	15.38670	0.00	0.000	31086.67	0.00000
6113898.6	60.00	5427643.66	22.70574	0.00	0.000	28789.80	0.00000
6114308.3	80.00	10360853.63	29.46152	0.00	0.000	25693.37	0.00000
6114918.0	100.00	18143842.32	35.19950	0.00	0.000	21923.02	0.00000
6115917.2	120.00	30063103.27	38.99274	0.00	0.000	17661.13	0.00000
6117667.6	140.00	46941909.36	38.65282	0.00	0.000	13205.58	0.00000
6120671.6	160.00	65647225.73	28.49566	0.00	0.000	9199.03	0.00000
6124938.2	180.00	74811159.93	.08103	0.00	0.000	7310.75	0.00000

REVOLUTION 36

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6124938.2	-180.00	70163159.74	.08103	0.00	0.000	7648.46	0.00000
6128833.6	-160.00	61938917.46	27.11480	0.00	0.000	9445.68	0.00000
6131629.3	-140.00	44841212.83	37.37180	0.00	0.000	13329.72	0.00000
6133298.3	-120.00	29044583.27	38.02079	0.00	0.000	17697.75	0.00000
6134270.1	-100.00	17672179.82	34.47986	0.00	0.000	21896.61	0.00000
6134871.0	-80.00	10146766.73	28.93672	0.00	0.000	25619.96	0.00000
6135278.4	-60.00	5335426.72	22.33785	0.00	0.000	28681.59	0.00000
6135583.4	-40.00	2392054.55	15.15238	0.00	0.000	30954.20	0.00000
6135835.5	-20.00	802513.09	7.64758	.95	.005	32351.55	.00023
6135859.0	-18.00	706011.82	6.88682	1.35	.010	32440.90	.00046
6135882.4	-16.00	620077.90	6.12482	1.92	.019	32520.93	.00092
6135905.6	-14.00	544573.51	5.36174	2.79	.040	32591.61	.00191
6135928.6	-12.00	479377.86	4.59773	4.40	.100	32652.91	.00474
6135951.5	-10.00	424386.88	3.83294	8.32	.354	32704.83	.01681
6135974.3	-8.00	379512.94	3.06755	19.06	1.848	32747.32	.08772
6135997.0	-6.00	344684.67	2.30176	42.71	9.245	32780.39	.43849
6136019.6	-4.00	319846.74	1.53592	81.94	33.950	32804.02	1.60906
6136042.1	-2.00	304959.72	.77122	124.86	78.714	32818.20	3.72905
6136062.9	0.00	300000.00	.08103	144.31	105.104	32822.93	4.97854
6136083.7	2.00	304959.72	.77122	124.86	78.714	32818.20	3.72905
6136106.2	4.00	319846.74	1.53592	81.94	33.950	32804.02	1.60906
6136128.9	6.00	344684.67	2.30176	42.71	9.245	32780.39	.43849
6136151.6	8.00	379512.94	3.06755	19.06	1.848	32747.32	.08772
6136174.3	10.00	424386.88	3.83294	8.32	.354	32704.83	.01681
6136197.2	12.00	479377.86	4.59773	4.40	.100	32652.91	.00474
6136220.3	14.00	544573.51	5.36174	2.79	.040	32591.61	.00191
6136243.4	16.00	620077.90	6.12482	1.92	.019	32520.93	.00092
6136266.8	18.00	706011.82	6.88682	1.35	.010	32440.90	.00046
6136290.3	20.00	802513.09	7.64758	.95	.005	32351.55	.00023
6136542.4	40.00	2392054.55	15.15238	0.00	0.000	30954.20	0.00000
6136847.4	60.00	5335426.72	22.33785	0.00	0.000	28681.59	0.00000
6137254.8	80.00	10146766.73	28.93672	0.00	0.000	25619.96	0.00000
6137855.7	100.00	17672179.82	34.47986	0.00	0.000	21896.61	0.00000
6138827.5	120.00	29044583.27	38.02079	0.00	0.000	17697.75	0.00000
6140496.6	140.00	44841212.83	37.37180	0.00	0.000	13329.72	0.00000
6143292.2	160.00	61938917.46	27.11480	0.00	0.000	9445.68	0.00000
6147187.6	180.00	70163159.74	.08103	0.00	0.000	7648.46	0.00000

REVOLUTION 37

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6147187.6	-180.00	65777570.37	.08103	0.00	0.000	7997.20	0.00000
6150747.0	-160.00	58398886.33	25.76400	0.00	0.000	9705.93	0.00000
6153348.8	-140.00	42786601.91	36.07507	0.00	0.000	13464.99	0.00000
6154939.4	-120.00	28025835.70	37.02212	0.00	0.000	17741.26	0.00000
6155883.8	-100.00	17192740.46	33.73541	0.00	0.000	21873.47	0.00000
6156475.9	-80.00	9926814.46	28.39196	0.00	0.000	25547.03	0.00000
6156880.9	-60.00	5240034.40	21.95523	0.00	0.000	28571.78	0.00000
6157185.9	-40.00	2356789.33	14.90844	0.00	0.000	30818.71	0.00000
6157438.7	-20.00	794610.71	7.52872	.96	.005	32200.84	.00024
6157462.3	-18.00	699654.91	6.78002	1.36	.010	32289.23	.00048
6157485.8	-16.00	615086.05	6.03002	1.94	.020	32368.40	.00095
6157509.0	-14.00	540772.37	5.27890	2.80	.041	32438.32	.00197
6157532.2	-12.00	476598.32	4.52681	4.45	.103	32498.97	.00495
6157555.2	-10.00	422464.32	3.77390	8.43	.369	32550.32	.01761
6157578.1	-8.00	378286.51	3.02035	19.28	1.920	32592.37	.09161
6157600.9	-6.00	343996.55	2.26639	42.79	9.428	32625.08	.44928
6157623.6	-4.00	319541.46	1.51237	81.41	34.041	32648.46	1.62106
6157646.3	-2.00	304883.48	.75950	123.28	77.944	32662.49	3.71018
6157667.2	0.00	300000.00	.08103	142.17	103.615	32667.17	4.93140
6157688.1	2.00	304883.48	.75950	123.28	77.944	32662.49	3.71018
6157710.7	4.00	319541.46	1.51237	81.41	34.041	32648.46	1.62106
6157733.5	6.00	343996.55	2.26639	42.79	9.428	32625.08	.44928
6157756.3	8.00	378286.51	3.02035	19.28	1.920	32592.37	.09161
6157779.2	10.00	422464.32	3.77390	8.43	.369	32550.32	.01761
6157802.2	12.00	476598.32	4.52681	4.45	.103	32498.97	.00495
6157825.3	14.00	540772.37	5.27890	2.80	.041	32438.32	.00197
6157848.6	16.00	615086.05	6.03002	1.94	.020	32368.40	.00095
6157872.0	18.00	699654.91	6.78002	1.36	.010	32289.23	.00048
6157895.7	20.00	794610.71	7.52872	.96	.005	32200.84	.00024
6158148.5	40.00	2356789.33	14.90844	0.00	0.000	30818.71	0.00000
6158453.4	60.00	5240034.40	21.95523	0.00	0.000	28571.78	0.00000
6158858.4	80.00	9926814.46	28.39196	0.00	0.000	25547.03	0.00000
6159450.5	100.00	17192740.46	33.73541	0.00	0.000	21873.47	0.00000
6160394.9	120.00	28025835.70	37.02212	0.00	0.000	17741.26	0.00000
6161985.5	140.00	42786601.91	36.07507	0.00	0.000	13464.99	0.00000
6164587.3	160.00	58398886.33	25.76400	0.00	0.000	9705.93	0.00000
6168146.7	180.00	65777570.37	.08103	0.00	0.000	7997.20	0.00000

REVOLUTION 38

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6168146.7	-180.00	61633968.82	.08103	0.00	0.000	8357.43	0.00000
6171401.4	-160.00	55016908.14	24.44413	0.00	0.000	9980.20	0.00000
6173822.7	-140.00	40777163.05	34.76410	0.00	0.000	13612.06	0.00000
6175337.7	-120.00	27007161.10	35.99657	0.00	0.000	17792.23	0.00000
6176254.9	-100.00	16705475.30	32.96533	0.00	0.000	21853.98	0.00000
6176838.0	-80.00	9700820.04	27.82634	0.00	0.000	25474.77	0.00000
6177240.5	-60.00	5141329.44	21.55715	0.00	0.000	28460.45	0.00000
6177545.4	-40.00	2320141.14	14.65433	0.00	0.000	30680.16	0.00000
6177799.0	-20.00	786379.15	7.40484	.97	.005	32046.16	.00025
6177822.7	-18.00	693032.24	6.66870	1.38	.010	32133.52	.00050
6177846.3	-16.00	609884.86	5.93122	1.95	.020	32211.78	.00099
6177869.6	-14.00	536811.37	5.19256	2.82	.042	32280.90	.00205
6177892.9	-12.00	473701.61	4.45288	4.51	.108	32340.86	.00517
6177916.0	-10.00	420460.56	3.71235	8.55	.385	32391.63	.01849
6177939.0	-8.00	377008.19	2.97116	19.52	2.000	32433.19	.09586
6177961.9	-6.00	343279.28	2.22953	42.89	9.623	32465.53	.46085
6177984.7	-4.00	319223.24	1.48782	80.87	34.141	32488.64	1.63382
6178007.5	-2.00	304804.01	.74729	121.66	77.160	32502.51	3.69096
6178028.6	0.00	300000.00	.08103	139.98	102.099	32507.13	4.88320
6178049.6	2.00	304804.01	.74729	121.66	77.160	32502.51	3.69096
6178072.4	4.00	319223.24	1.48782	80.87	34.141	32488.64	1.63382
6178095.2	6.00	343279.28	2.22953	42.89	9.623	32465.53	.46085
6178118.2	8.00	377008.19	2.97116	19.52	2.000	32433.19	.09586
6178141.2	10.00	420460.56	3.71235	8.55	.385	32391.63	.01849
6178164.3	12.00	473701.61	4.45288	4.51	.108	32340.86	.00517
6178187.5	14.00	536811.37	5.19256	2.82	.042	32280.90	.00205
6178210.9	16.00	609884.86	5.93122	1.95	.020	32211.78	.00099
6178234.4	18.00	693032.24	6.66870	1.38	.010	32133.52	.00050
6178258.2	20.00	786379.15	7.40484	.97	.005	32046.16	.00025
6178511.7	40.00	2320141.14	14.65433	0.00	0.000	30680.16	0.00000
6178816.6	60.00	5141329.44	21.55715	0.00	0.000	28460.45	0.00000
6179219.1	80.00	9700820.04	27.82634	0.00	0.000	25474.77	0.00000
6179802.2	100.00	16705475.30	32.96533	0.00	0.000	21853.98	0.00000
6180719.5	120.00	27007161.10	35.99657	0.00	0.000	17792.23	0.00000
6182234.5	140.00	40777163.05	34.76410	0.00	0.000	13612.06	0.00000
6184655.8	160.00	55016908.14	24.44413	0.00	0.000	9980.20	0.00000
6187910.4	180.00	61633968.82	.08103	0.00	0.000	8357.43	0.00000

REVOLUTION 39

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6187910.4	-180.00	57713804.33	.08103	0.00	0.000	8729.66	0.00000
6190888.4	-160.00	51783408.46	23.15581	0.00	0.000	10268.95	0.00000
6193141.5	-140.00	38811901.76	33.44036	0.00	0.000	13771.60	0.00000
6194583.6	-120.00	25988810.42	34.94398	0.00	0.000	17851.26	0.00000
6195474.0	-100.00	16210314.17	32.16878	0.00	0.000	21838.55	0.00000
6196047.9	-80.00	9468589.06	27.23890	0.00	0.000	25403.42	0.00000
6196447.9	-60.00	5039161.87	21.14279	0.00	0.000	28347.64	0.00000
6196752.6	-40.00	2282036.58	14.38951	.03	.000	30538.49	.00000
6197007.0	-20.00	777799.55	7.27565	.98	.005	31887.38	.00026
6197030.8	-18.00	686128.54	6.55261	1.39	.011	31973.67	.00052
6197054.5	-16.00	604462.22	5.82817	1.97	.021	32050.96	.00103
6197078.0	-14.00	532681.26	5.10250	2.85	.044	32119.23	.00213
6197101.3	-12.00	470680.91	4.37577	4.56	.112	32178.45	.00542
6197124.5	-10.00	418370.85	3.64816	8.70	.406	32228.59	.01957
6197147.7	-8.00	375674.96	2.91985	19.77	2.086	32269.65	.10052
6197170.7	-6.00	342531.16	2.19108	42.99	9.833	32301.59	.47329
6197193.6	-4.00	318891.32	1.46222	80.33	34.251	32324.42	1.64740
6197216.5	-2.00	304721.12	.73455	120.03	76.363	32338.12	3.67139
6197237.7	0.00	300000.00	.08103	137.77	100.557	32342.68	4.83392
6197258.9	2.00	304721.12	.73455	120.03	76.363	32338.12	3.67139
6197281.8	4.00	318891.32	1.46222	80.33	34.251	32324.42	1.64740
6197304.8	6.00	342531.16	2.19108	42.99	9.833	32301.59	.47329
6197327.8	8.00	375674.96	2.91985	19.77	2.086	32269.65	.10052
6197350.9	10.00	418370.85	3.64816	8.70	.406	32228.59	.01957
6197374.2	12.00	470680.91	4.37577	4.56	.112	32178.45	.00542
6197397.5	14.00	532681.26	5.10250	2.85	.044	32119.23	.00213
6197421.0	16.00	604462.22	5.82817	1.97	.021	32050.96	.00103
6197444.6	18.00	686128.54	6.55261	1.39	.011	31973.67	.00052
6197468.5	20.00	777799.55	7.27565	.98	.005	31887.38	.00026
6197722.9	40.00	2282036.58	14.38951	.03	.000	30538.49	.00000
6198027.6	60.00	5039161.87	21.14279	0.00	0.000	28347.64	0.00000
6198427.6	80.00	9468589.06	27.23890	0.00	0.000	25403.42	0.00000
6199001.5	100.00	16210314.17	32.16878	0.00	0.000	21838.55	0.00000
6199891.8	120.00	25988810.42	34.94398	0.00	0.000	17851.26	0.00000
6201333.9	140.00	38811901.76	33.44036	0.00	0.000	13771.60	0.00000
6203587.1	160.00	51783408.46	23.15581	0.00	0.000	10268.95	0.00000
6206565.0	180.00	57713804.33	.08103	0.00	0.000	8729.66	0.00000

REVOLUTION 40

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6206565.0	-180.00	54000183.59	.08103	0.00	0.000	9114.45	0.00000
6209291.2	-160.00	48689409.59	21.89941	0.00	0.000	10572.69	0.00000
6211387.8	-140.00	36889747.66	32.10537	0.00	0.000	13944.33	0.00000
6212759.6	-120.00	24970981.89	33.86422	0.00	0.000	17919.01	0.00000
6213623.2	-100.00	15707162.47	31.34485	0.00	0.000	21827.65	0.00000
6214187.9	-80.00	9229906.93	26.62862	0.00	0.000	25333.21	0.00000
6214585.2	-60.00	4933367.21	20.71126	0.00	0.000	28233.43	0.00000
6214889.8	-40.00	2242394.97	14.11333	.03	.000	30393.64	.00000
6215145.0	-20.00	768851.14	7.14082	1.00	.006	31724.38	.00028
6215169.0	-18.00	678926.96	6.43145	1.41	.011	31809.52	.00054
6215192.7	-16.00	598804.84	5.72062	1.99	.022	31885.79	.00107
6215216.3	-14.00	528371.82	5.00851	2.87	.046	31953.16	.00222
6215239.8	-12.00	467528.74	4.29529	4.63	.118	32011.59	.00571
6215263.1	-10.00	416190.00	3.58115	8.87	.429	32061.07	.02081
6215286.4	-8.00	374283.46	2.86629	20.04	2.181	32101.59	.10563
6215309.5	-6.00	341750.30	2.15094	43.11	10.059	32133.11	.48668
6215332.6	-4.00	318544.86	1.43550	79.78	34.371	32155.64	1.66188
6215355.6	-2.00	304634.59	.72125	118.36	75.552	32169.15	3.65147
6215376.9	0.00	300000.00	.08103	135.51	98.989	32173.66	4.78352
6215398.3	2.00	304634.59	.72125	118.36	75.552	32169.15	3.65147
6215421.3	4.00	318544.86	1.43550	79.78	34.371	32155.64	1.66188
6215444.4	6.00	341750.30	2.15094	43.11	10.059	32133.11	.48668
6215467.5	8.00	374283.46	2.86629	20.04	2.181	32101.59	.10563
6215490.8	10.00	416190.00	3.58115	8.87	.429	32061.07	.02081
6215514.1	12.00	467528.74	4.29529	4.63	.118	32011.59	.00571
6215537.6	14.00	528371.82	5.00851	2.87	.046	31953.16	.00222
6215561.2	16.00	598804.84	5.72062	1.99	.022	31885.79	.00107
6215584.9	18.00	678926.96	6.43145	1.41	.011	31809.52	.00054
6215608.9	20.00	768851.14	7.14082	1.00	.006	31724.38	.00028
6215864.1	40.00	2242394.97	14.11333	.03	.000	30393.64	.00000
6216168.7	60.00	4933367.21	20.71126	0.00	0.000	28233.43	0.00000
6216566.0	80.00	9229906.93	26.62862	0.00	0.000	25333.21	0.00000
6217130.7	100.00	15707162.47	31.34485	0.00	0.000	21827.65	0.00000
6217994.2	120.00	24970981.89	33.86422	0.00	0.000	17919.01	0.00000
6219366.1	140.00	36889747.66	32.10537	0.00	0.000	13944.33	0.00000
6221462.7	160.00	48689409.59	21.89941	0.00	0.000	10572.69	0.00000
6224188.8	180.00	54000183.59	.08103	0.00	0.000	9114.45	0.00000

REVOLUTION 41

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6224188.8	-180.00	50477682.18	.08103	0.00	0.000	9512.43	0.00000
6226685.8	-160.00	45726480.19	20.67509	0.00	0.000	10891.97	0.00000
6228636.3	-140.00	35009557.93	30.76063	0.00	0.000	14131.03	0.00000
6229940.4	-120.00	23953817.32	32.75717	0.00	0.000	17996.20	0.00000
6230777.5	-100.00	15195897.29	30.49258	0.00	0.000	21821.75	0.00000
6231332.7	-80.00	8984535.85	25.99437	0.00	0.000	25264.41	0.00000
6231727.3	-60.00	4823764.45	20.26160	0.00	0.000	28117.90	0.00000
6232031.7	-40.00	2201127.28	13.82511	.03	.000	30245.55	.00000
6232287.8	-20.00	759510.96	7.00001	1.02	.006	31557.00	.00029
6232311.9	-18.00	671408.86	6.30490	1.43	.012	31640.93	.00057
6232335.8	-16.00	592897.96	5.60828	2.01	.023	31716.11	.00112
6232359.5	-14.00	523871.77	4.91033	2.90	.047	31782.52	.00231
6232383.0	-12.00	464236.77	4.21122	4.71	.124	31840.12	.00603
6232406.5	-10.00	413912.22	3.51116	9.05	.455	31888.90	.02219
6232429.9	-8.00	372830.02	2.81034	20.33	2.285	31928.84	.11127
6232453.1	-6.00	340934.63	2.10902	43.24	10.301	31959.91	.50113
6232476.3	-4.00	318182.94	1.40758	79.22	34.504	31982.12	1.67733
6232499.5	-2.00	304544.20	.70736	116.66	74.727	31995.45	3.63119
6232521.0	0.00	300000.00	.08103	133.22	97.394	31999.89	4.73199
6232542.5	2.00	304544.20	.70736	116.66	74.727	31995.45	3.63119
6232565.6	4.00	318182.94	1.40758	79.22	34.504	31982.12	1.67733
6232588.8	6.00	340934.63	2.10902	43.24	10.301	31959.91	.50113
6232612.1	8.00	372830.02	2.81034	20.33	2.285	31928.84	.11127
6232635.4	10.00	413912.22	3.51116	9.05	.455	31888.90	.02219
6232658.9	12.00	464236.77	4.21122	4.71	.124	31840.12	.00603
6232682.5	14.00	523871.77	4.91033	2.90	.047	31782.52	.00231
6232706.2	16.00	592897.96	5.60828	2.01	.023	31716.11	.00112
6232730.1	18.00	671408.86	6.30490	1.43	.012	31640.93	.00057
6232754.1	20.00	759510.96	7.00001	1.02	.006	31557.00	.00029
6233010.2	40.00	2201127.28	13.82511	.03	.000	30245.55	.00000
6233314.7	60.00	4823764.45	20.26160	0.00	0.000	28117.90	0.00000
6233709.2	80.00	8984535.85	25.99437	0.00	0.000	25264.41	0.00000
6234264.5	100.00	15195897.29	30.49258	0.00	0.000	21821.75	0.00000
6235101.5	120.00	23953817.32	32.75717	0.00	0.000	17996.20	0.00000
6236405.7	140.00	35009557.93	30.76063	0.00	0.000	14131.03	0.00000
6238356.2	160.00	45726480.19	20.67509	0.00	0.000	10891.97	0.00000
6240853.1	180.00	50477682.18	.08103	0.00	0.000	9512.43	0.00000

REVOLUTION 42

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6240853.1	-180.00	47132177.90	.08103	0.00	0.000	9924.30	0.00000
6243140.9	-160.00	42886687.29	19.48282	0.00	0.000	11227.42	0.00000
6244955.1	-140.00	33170119.02	29.40764	0.00	0.000	14332.50	0.00000
6246194.1	-120.00	22937397.52	31.62275	0.00	0.000	18083.57	0.00000
6247004.8	-100.00	14676362.78	29.61097	0.00	0.000	21821.41	0.00000
6247550.5	-80.00	8732211.17	25.33492	0.00	0.000	25197.32	0.00000
6247942.3	-60.00	4710153.46	19.79272	0.00	0.000	28001.13	0.00000
6248246.5	-40.00	2158134.88	13.52409	.04	.000	30094.16	.00000
6248503.5	-20.00	749753.50	6.85282	1.03	.006	31385.09	.00031
6248527.7	-18.00	663553.57	6.17262	1.45	.012	31467.72	.00060
6248551.7	-16.00	586725.21	5.49084	2.03	.024	31541.75	.00117
6248575.5	-14.00	519168.55	4.80769	2.94	.049	31607.13	.00242
6248599.2	-12.00	460795.79	4.12333	4.79	.130	31663.85	.00640
6248622.8	-10.00	411531.10	3.43799	9.25	.484	31711.88	.02373
6248646.3	-8.00	371310.52	2.75185	20.64	2.399	31751.21	.11749
6248669.7	-6.00	340081.83	2.06519	43.38	10.564	31781.81	.51676
6248693.0	-4.00	317804.53	1.37840	78.66	34.649	31803.67	1.69385
6248716.3	-2.00	304449.69	.69285	114.94	73.887	31816.80	3.61056
6248737.9	0.00	300000.00	.08103	130.89	95.771	31821.17	4.67928
6248759.6	2.00	304449.69	.69285	114.94	73.887	31816.80	3.61056
6248782.9	4.00	317804.53	1.37840	78.66	34.649	31803.67	1.69385
6248806.2	6.00	340081.83	2.06519	43.38	10.564	31781.81	.51676
6248829.6	8.00	371310.52	2.75185	20.64	2.399	31751.21	.11749
6248853.1	10.00	411531.10	3.43799	9.25	.484	31711.88	.02373
6248876.7	12.00	460795.79	4.12333	4.79	.130	31663.85	.00640
6248900.4	14.00	519168.55	4.80769	2.94	.049	31607.13	.00242
6248924.2	16.00	586725.21	5.49084	2.03	.024	31541.75	.00117
6248948.2	18.00	663553.57	6.17262	1.45	.012	31467.72	.00060
6248972.4	20.00	749753.50	6.85282	1.03	.006	31385.09	.00031
6249229.3	40.00	2158134.88	13.52409	.04	.000	30094.16	.00000
6249533.6	50.00	4710153.46	19.79272	0.00	0.000	28001.13	0.00000
6249925.3	80.00	8732211.17	25.33492	0.00	0.000	25197.32	0.00000
6250471.0	100.00	14676362.78	29.61097	0.00	0.000	21821.41	0.00000
6251281.7	120.00	22937397.52	31.62275	0.00	0.000	18083.57	0.00000
6252520.7	140.00	33170119.02	29.40764	0.00	0.000	14332.50	0.00000
6254335.0	160.00	42886687.29	19.48282	0.00	0.000	11227.42	0.00000
6256622.8	180.00	47132177.90	.08103	0.00	0.000	9924.30	0.00000

REVOLUTION 43

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6256622.8	-180.00	43950702.61	.08103	0.00	0.000	10350.81	0.00000
6258719.5	-160.00	40162550.06	18.32235	0.00	0.000	11579.73	0.00000
6260406.6	-140.00	31370146.37	28.04787	0.00	0.000	14549.63	0.00000
6261582.9	-120.00	21921736.54	30.46085	0.00	0.000	18181.97	0.00000
6262367.4	-100.00	14148364.46	28.69892	0.00	0.000	21827.21	0.00000
6262903.4	-80.00	8472636.89	24.64895	0.00	0.000	25132.26	0.00000
6263292.2	-60.00	4592312.05	19.30346	0.00	0.000	27883.21	0.00000
6263596.3	-40.00	2113308.01	13.20941	.04	.000	29939.37	.00000
6263854.1	-20.00	739550.32	6.69880	1.05	.007	31208.45	.00033
6263878.4	-18.00	655337.99	6.03419	1.47	.013	31289.71	.00063
6263902.6	-16.00	580268.34	5.36795	2.06	.025	31362.50	.00123
6263926.5	-14.00	514248.16	4.70027	2.98	.052	31426.80	.00257
6263950.4	-12.00	457195.49	4.03135	4.89	.138	31482.57	.00683
6263974.1	-10.00	409039.48	3.36140	9.49	.519	31529.81	.02558
6263997.7	-8.00	369720.37	2.69063	20.99	2.529	31568.48	.12454
6264021.2	-6.00	339189.33	2.01931	43.60	10.877	31598.58	.53518
6264044.7	-4.00	317408.48	1.34786	78.09	34.809	31620.08	1.71155
6264068.1	-2.00	304350.77	.67766	113.19	73.034	31632.99	3.58958
6264089.9	0.00	300000.00	.08103	128.52	94.120	31637.29	4.62536
6264111.7	2.00	304350.77	.67766	113.19	73.034	31632.99	3.58958
6264135.2	4.00	317408.48	1.34786	78.09	34.809	31620.08	1.71155
6264158.6	6.00	339189.33	2.01931	43.60	10.877	31598.58	.53518
6264182.2	8.00	369720.37	2.69063	20.99	2.529	31568.48	.12454
6264205.8	10.00	409039.48	3.36140	9.49	.519	31529.81	.02558
6264229.5	12.00	457195.49	4.03135	4.89	.138	31482.57	.00683
6264253.3	14.00	514248.16	4.70027	2.98	.052	31426.80	.00257
6264277.3	16.00	580268.34	5.36795	2.06	.025	31362.50	.00123
6264301.4	18.00	655337.99	6.03419	1.47	.013	31289.71	.00063
6264325.7	20.00	739550.32	6.69880	1.05	.007	31208.45	.00033
6264583.6	40.00	2113308.01	13.20941	.04	.000	29939.37	.00000
6264887.6	60.00	4592312.05	19.30346	0.00	0.000	27883.21	0.00000
6265276.4	80.00	8472636.89	24.64895	0.00	0.000	25132.26	0.00000
6265812.4	100.00	14148364.46	28.69892	0.00	0.000	21827.21	0.00000
6266597.0	120.00	21921736.54	30.46085	0.00	0.000	18181.97	0.00000
6267773.2	140.00	31370146.37	28.04787	0.00	0.000	14549.63	0.00000
6269460.3	160.00	40162550.06	18.32235	0.00	0.000	11579.73	0.00000
6271557.1	180.00	43950702.61	.08103	0.00	0.000	10350.81	0.00000

REVOLUTION 44

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6271557.1	-180.00	40921309.47	.08103	0.00	0.000	10792.85	0.00000
6273479.2	-160.00	37546994.91	17.19329	0.00	0.000	11949.66	0.00000
6275047.5	-140.00	29608281.85	26.68272	0.00	0.000	14783.36	0.00000
6276163.3	-120.00	20906774.47	29.27140	0.00	0.000	18292.30	0.00000
6276921.9	-100.00	13611662.32	27.75525	0.00	0.000	21839.82	0.00000
6277448.1	-80.00	8205480.26	23.93498	0.00	0.000	25069.59	0.00000
6277833.8	-60.00	4469992.18	18.79248	0.00	0.000	27764.25	0.00000
6278137.7	-40.00	2066523.92	12.88012	.04	.000	29781.11	.00000
6278396.5	-20.00	728869.52	6.53748	1.08	.007	31026.88	.00035
6278420.9	-18.00	646736.25	5.88919	1.49	.013	31106.67	.00067
6278445.2	-16.00	573506.85	5.23921	2.09	.026	31178.15	.00130
6278469.3	-14.00	509094.90	4.58774	3.04	.055	31241.29	.00272
6278493.2	-12.00	453424.32	3.93499	5.00	.148	31296.06	.00734
6278517.1	-10.00	406429.35	3.28116	9.78	.562	31342.44	.02788
6278540.8	-8.00	368054.44	2.62649	21.43	2.688	31380.42	.13320
6278564.5	-6.00	338254.24	1.97124	43.85	11.221	31409.97	.55542
6278588.1	-4.00	316993.51	1.31586	77.52	34.985	31431.09	1.73053
6278611.7	-2.00	304247.12	.66175	111.40	72.165	31443.77	3.56822
6278633.6	0.00	300000.00	.08103	126.11	92.441	31447.99	4.57018
6278655.6	2.00	304247.12	.66175	111.40	72.165	31443.77	3.56822
6278679.2	4.00	316993.51	1.31586	77.52	34.985	31431.09	1.73053
6278702.8	6.00	338254.24	1.97124	43.85	11.221	31409.97	.55542
6278726.5	8.00	368054.44	2.62649	21.43	2.688	31380.42	.13320
6278750.2	10.00	406429.35	3.28116	9.78	.562	31342.44	.02788
6278774.1	12.00	453424.32	3.93499	5.00	.148	31296.06	.00734
6278798.0	14.00	509094.90	4.58774	3.04	.055	31241.29	.00272
6278822.1	16.00	573506.85	5.23921	2.09	.026	31178.15	.00130
6278846.4	18.00	646736.25	5.88919	1.49	.013	31106.67	.00067
6278870.8	20.00	728869.52	6.53748	1.08	.007	31026.88	.00035
6279129.6	40.00	2066523.92	12.88012	.04	.000	29781.11	.00000
6279433.5	60.00	4469992.18	18.79248	0.00	0.000	27764.25	0.00000
6279819.2	80.00	8205480.26	23.93498	0.00	0.000	25069.59	0.00000
6280345.4	100.00	13611662.32	27.75525	0.00	0.000	21839.82	0.00000
6281104.0	120.00	20906774.47	29.27140	0.00	0.000	18292.30	0.00000
6282219.8	140.00	29608281.85	26.68272	0.00	0.000	14783.36	0.00000
6283788.1	160.00	37546994.91	17.19329	0.00	0.000	11949.66	0.00000
6285710.2	180.00	40921309.47	.08103	0.00	0.000	10792.85	0.00000

REVOLUTION 45

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6285710.2	-180.00	38032952.55	.08103	0.00	0.000	11251.39	0.00000
6287472.3	-160.00	35033311.04	16.09506	0.00	0.000	12338.12	0.00000
6288929.6	-140.00	27883088.51	25.31354	0.00	0.000	15034.73	0.00000
6289987.2	-120.00	19892368.38	28.05428	0.00	0.000	18415.56	0.00000
6290720.2	-100.00	13065962.17	26.77870	0.00	0.000	21859.96	0.00000
6291236.3	-80.00	7930364.97	23.19140	0.00	0.000	25009.72	0.00000
6291618.9	-60.00	4342915.45	18.25833	0.00	0.000	27644.37	0.00000
6291922.6	-40.00	2017644.55	12.53516	.04	.000	29619.26	.00000
6292182.3	-20.00	717675.15	6.36828	1.10	.008	30840.15	.00038
6292206.9	-18.00	637719.16	5.73710	1.52	.014	30918.37	.00072
6292231.3	-16.00	566417.66	5.10417	2.12	.027	30988.44	.00137
6292255.5	-14.00	503691.06	4.46970	3.09	.058	31050.34	.00290
6292279.6	-12.00	449469.26	3.83390	5.12	.158	31104.04	.00791
6292303.6	-10.00	403691.62	3.19699	10.10	.612	31149.51	.03053
6292327.5	-8.00	366306.92	2.55920	21.91	2.867	31186.75	.14294
6292351.3	-6.00	337273.27	1.92082	44.12	11.596	31215.73	.57756
6292375.1	-4.00	316558.16	1.28229	76.94	35.178	31236.43	1.75095
6292398.8	-2.00	304138.38	.64507	109.59	71.281	31248.86	3.54650
6292420.9	0.00	300000.00	.08103	123.67	90.732	31253.00	4.51368
6292443.1	2.00	304138.38	.64507	109.59	71.281	31248.86	3.54650
6292466.8	4.00	316558.16	1.28229	76.94	35.178	31236.43	1.75095
6292490.6	6.00	337273.27	1.92082	44.12	11.596	31215.73	.57756
6292514.4	8.00	366306.92	2.55920	21.91	2.867	31186.75	.14294
6292538.3	10.00	403691.62	3.19699	10.10	.612	31149.51	.03053
6292562.3	12.00	449469.26	3.83390	5.12	.158	31104.04	.00791
6292586.4	14.00	503691.06	4.46970	3.09	.058	31050.34	.00290
6292610.6	16.00	566417.66	5.10417	2.12	.027	30988.44	.00137
6292635.0	18.00	637719.16	5.73710	1.52	.014	30918.37	.00072
6292659.5	20.00	717675.15	6.36828	1.10	.008	30840.15	.00038
6292919.3	40.00	2017644.55	12.53516	.04	.000	29619.26	.00000
6293222.9	60.00	4342915.45	18.25833	0.00	0.000	27644.37	0.00000
6293605.5	80.00	7930364.97	23.19140	0.00	0.000	25009.72	0.00000
6294121.7	100.00	13065962.17	26.77870	0.00	0.000	21859.96	0.00000
6294854.6	120.00	19892368.38	28.05428	0.00	0.000	18415.56	0.00000
6295912.3	140.00	27883088.51	25.31354	0.00	0.000	15034.73	0.00000
6297369.6	160.00	35033311.04	16.09506	0.00	0.000	12338.12	0.00000
6299131.7	180.00	38032952.55	.08103	0.00	0.000	11251.39	0.00000

REVOLUTION 46

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6299131.7	-180.00	35275376.38	.08103	0.00	0.000	11727.54	0.00000
6300747.0	-160.00	32615105.67	15.02695	0.00	0.000	12746.10	0.00000
6302100.6	-140.00	26193041.95	23.94155	0.00	0.000	15304.89	0.00000
6303102.2	-120.00	18878280.65	26.80937	0.00	0.000	18552.84	0.00000
6303809.6	-100.00	12510904.89	25.76787	0.00	0.000	21888.45	0.00000
6304315.6	-80.00	7646862.68	22.41640	0.00	0.000	24953.11	0.00000
6304695.0	-60.00	4210767.33	17.69936	0.00	0.000	27523.69	0.00000
6304998.3	-40.00	1966513.68	12.17332	.05	.000	29453.72	.00000
6305259.1	-20.00	705926.45	6.19059	1.13	.008	30647.98	.00041
6305283.8	-18.00	628253.64	5.57736	1.55	.015	30724.51	.00076
6305308.3	-16.00	558974.56	4.96233	2.15	.029	30793.08	.00146
6305332.7	-14.00	498016.54	4.34570	3.16	.062	30853.66	.00311
6305356.9	-12.00	445315.52	3.72771	5.28	.171	30906.21	.00863
6305381.1	-10.00	400816.04	3.10856	10.45	.669	30950.71	.03358
6305405.1	-8.00	364471.22	2.48851	22.43	3.069	30987.15	.15397
6305429.1	-6.00	336242.74	1.86785	44.42	12.007	31015.51	.60187
6305453.0	-4.00	316100.80	1.24702	76.35	35.391	31035.78	1.77294
6305476.9	-2.00	304024.14	.62755	107.74	70.381	31047.94	3.52440
6305499.2	0.00	300000.00	.08103	121.18	88.993	31051.99	4.45580
6305521.5	2.00	304024.14	.62755	107.74	70.381	31047.94	3.52440
6305545.4	4.00	316100.80	1.24702	76.35	35.391	31035.78	1.77294
6305569.3	6.00	336242.74	1.86785	44.42	12.007	31015.51	.60187
6305593.3	8.00	364471.22	2.48851	22.43	3.069	30987.15	.15397
6305617.3	10.00	400816.04	3.10856	10.45	.669	30950.71	.03358
6305641.5	12.00	445315.52	3.72771	5.28	.171	30906.21	.00863
6305665.7	14.00	498016.54	4.34570	3.16	.062	30853.66	.00311
6305690.1	16.00	558974.56	4.96233	2.15	.029	30793.08	.00146
6305714.6	18.00	628253.64	5.57736	1.55	.015	30724.51	.00076
6305739.3	20.00	705926.45	6.19059	1.13	.008	30647.98	.00041
6306000.1	40.00	1966513.68	12.17332	.05	.000	29453.72	.00000
6306303.4	60.00	4210767.33	17.69936	0.00	0.000	27523.69	0.00000
6306682.8	80.00	7646862.68	22.41640	0.00	0.000	24953.11	0.00000
6307188.8	100.00	12510904.89	25.76787	0.00	0.000	21888.45	0.00000
6307896.2	120.00	18878280.65	26.80937	0.00	0.000	18552.84	0.00000
6308897.8	140.00	26193041.95	23.94155	0.00	0.000	15304.89	0.00000
6310251.4	160.00	32615105.67	15.02695	0.00	0.000	12746.10	0.00000
6311866.7	180.00	35275376.38	.08103	0.00	0.000	11727.54	0.00000

REVOLUTION 47

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6311866.7	-180.00	32639012.53	.08103	0.00	0.000	12222.57	0.00000
6313347.4	-160.00	30286257.75	13.98810	0.00	0.000	13174.76	0.00000
6314603.9	-140.00	24536517.47	22.56784	0.00	0.000	15595.10	0.00000
6315551.5	-120.00	17864163.94	25.53647	0.00	0.000	18705.37	0.00000
6316233.7	-100.00	11946052.64	24.72122	0.00	0.000	21926.18	0.00000
6316729.4	-80.00	7354482.26	21.60798	0.00	0.000	24900.26	0.00000
6317105.3	-60.00	4073190.01	17.11370	0.00	0.000	27402.37	0.00000
6317408.4	-40.00	1912953.32	11.79322	.05	.000	29284.36	.00000
6317670.2	-20.00	693576.86	6.00368	1.16	.009	30450.06	.00044
6317695.0	-18.00	618301.87	5.40933	1.59	.016	30524.80	.00082
6317719.7	-16.00	551147.63	4.81311	2.20	.031	30591.76	.00157
6317744.2	-14.00	492048.40	4.21525	3.24	.066	30650.91	.00336
6317768.6	-12.00	440946.22	3.61598	5.45	.187	30702.23	.00945
6317792.9	-10.00	397790.86	3.01552	10.86	.739	30745.69	.03736
6317817.1	-8.00	362539.83	2.41413	22.99	3.297	30781.28	.16653
6317841.2	-6.00	335158.40	1.81211	44.75	12.458	30808.97	.62867
6317865.3	-4.00	315619.52	1.20992	75.76	35.626	30828.77	1.79670
6317889.3	-2.00	303903.92	.60912	105.86	69.465	30840.64	3.50192
6317911.8	0.00	300000.00	.08103	118.65	87.222	30844.60	4.39648
6317934.4	2.00	303903.92	.60912	105.86	69.465	30840.64	3.50192
6317958.4	4.00	315619.52	1.20992	75.76	35.626	30828.77	1.79670
6317982.5	6.00	335158.40	1.81211	44.75	12.458	30808.97	.62867
6318006.6	8.00	362539.83	2.41413	22.99	3.297	30781.28	.16653
6318030.8	10.00	397790.86	3.01552	10.86	.739	30745.69	.03736
6318055.1	12.00	440946.22	3.61598	5.45	.187	30702.23	.00945
6318079.5	14.00	492048.40	4.21525	3.24	.066	30650.91	.00336
6318104.0	16.00	551147.63	4.81311	2.20	.031	30591.76	.00157
6318128.7	18.00	618301.87	5.40933	1.59	.016	30524.80	.00082
6318153.5	20.00	693576.86	6.00368	1.16	.009	30450.06	.00044
6318415.3	40.00	1912953.32	11.79322	.05	.000	29284.36	.00000
6318718.4	60.00	4073190.01	17.11370	0.00	0.000	27402.37	0.00000
6319094.3	80.00	7354482.26	21.60798	0.00	0.000	24900.26	0.00000
6319590.0	100.00	11946052.64	24.72122	0.00	0.000	21926.18	0.00000
6320272.2	120.00	17864163.94	25.53647	0.00	0.000	18705.37	0.00000
6321219.8	140.00	24536517.47	22.56784	0.00	0.000	15595.10	0.00000
6322476.3	160.00	30286257.75	13.98810	0.00	0.000	13174.76	0.00000
6323956.9	180.00	32639012.53	.08103	0.00	0.000	12222.57	0.00000

REVOLUTION 48

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6323956.9	-180.00	30114880.54	.08103	0.00	0.000	12737.94	0.00000
6325313.8	-160.00	28040868.49	12.97750	0.00	0.000	13625.47	0.00000
6326479.3	-140.00	22911771.71	21.19336	0.00	0.000	15906.79	0.00000
6327374.9	-120.00	16849541.59	24.23532	0.00	0.000	18874.50	0.00000
6328032.1	-100.00	11370871.21	23.63703	0.00	0.000	21974.21	0.00000
6328517.3	-80.00	7052656.01	20.76385	0.00	0.000	24851.78	0.00000
6328889.7	-60.00	3929773.09	16.49923	0.00	0.000	27280.58	0.00000
6329192.5	-40.00	1856759.04	11.39330	.05	.000	29111.01	.00000
6329455.3	-20.00	680572.80	5.80673	1.19	.009	30246.05	.00048
6329480.3	-18.00	607820.36	5.23225	1.63	.017	30318.85	.00089
6329505.1	-16.00	542902.40	4.65584	2.25	.033	30384.07	.00169
6329529.8	-14.00	485760.19	4.07776	3.34	.072	30441.70	.00368
6329554.4	-12.00	436341.89	3.49821	5.65	.206	30491.69	.01049
6329578.8	-10.00	394602.54	2.91745	11.33	.823	30534.04	.04191
6329603.2	-8.00	360504.08	2.33573	23.61	3.557	30568.71	.18091
6329627.5	-6.00	334015.37	1.75335	45.12	12.955	30595.69	.65834
6329651.7	-4.00	315112.17	1.17081	75.17	35.886	30614.97	1.82245
6329675.9	-2.00	303777.18	.58970	103.95	68.532	30626.55	3.47903
6329698.6	0.00	300000.00	.08103	116.07	85.417	30630.40	4.33563
6329721.3	2.00	303777.18	.58970	103.95	68.532	30626.55	3.47903
6329745.5	4.00	315112.17	1.17081	75.17	35.886	30614.97	1.82245
6329769.8	6.00	334015.37	1.75335	45.12	12.955	30595.69	.65834
6329794.1	8.00	360504.08	2.33573	23.61	3.557	30568.71	.18091
6329818.4	10.00	394602.54	2.91745	11.33	.823	30534.04	.04191
6329842.9	12.00	436341.89	3.49821	5.65	.206	30491.69	.01049
6329867.4	14.00	485760.19	4.07776	3.34	.072	30441.70	.00368
6329892.1	16.00	542902.40	4.65584	2.25	.033	30384.07	.00169
6329916.9	18.00	607820.36	5.23225	1.63	.017	30318.85	.00089
6329941.9	20.00	680572.80	5.80673	1.19	.009	30246.05	.00048
6330204.8	40.00	1856759.04	11.39330	.05	.000	29111.01	.00000
6330507.5	60.00	3929773.09	16.49923	0.00	0.000	27280.58	0.00000
6330879.9	80.00	7052656.01	20.76385	0.00	0.000	24851.78	0.00000
6331365.1	100.00	11370871.21	23.63703	0.00	0.000	21974.21	0.00000
6332022.3	120.00	16849541.59	24.23532	0.00	0.000	18874.50	0.00000
6332917.9	140.00	22911771.71	21.19336	0.00	0.000	15906.79	0.00000
6334083.4	160.00	28040868.49	12.97750	0.00	0.000	13625.47	0.00000
6335440.3	180.00	30114880.54	.08103	0.00	0.000	12737.94	0.00000

REVOLUTION 49

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6335440.3	-180.00	27694489.70	.08103	0.00	0.000	13275.35	0.00000
6336683.1	-160.00	25873206.63	11.99403	0.00	0.000	14099.79	0.00000
6337763.4	-140.00	21316916.80	19.81882	0.00	0.000	16241.58	0.00000
6338609.0	-120.00	15833781.57	22.90551	0.00	0.000	19061.78	0.00000
6339241.4	-100.00	10784706.90	22.51337	0.00	0.000	22033.68	0.00000
6339715.8	-80.00	6740721.53	19.88144	0.00	0.000	24808.32	0.00000
6340084.6	-60.00	3780041.61	15.85353	0.00	0.000	27158.51	0.00000
6340387.0	-40.00	1797694.02	10.97174	.06	.000	28933.50	.00000
6340651.0	-20.00	666852.06	5.59878	1.23	.010	30035.51	.00053
6340676.1	-18.00	596758.58	5.04525	1.67	.019	30106.22	.00097
6340701.1	-16.00	534198.87	4.48977	2.32	.036	30169.59	.00184
6340725.9	-14.00	479121.23	3.93254	3.46	.079	30225.56	.00408
6340750.6	-12.00	431479.96	3.37383	5.89	.229	30274.13	.01176
6340775.2	-10.00	391235.39	2.81386	11.86	.923	30315.27	.04733
6340799.8	-8.00	358353.90	2.25291	24.26	3.846	30348.95	.19702
6340824.2	-6.00	332807.99	1.69129	45.52	13.507	30375.17	.69135
6340848.7	-4.00	314576.22	1.12950	74.58	36.174	30393.90	1.85043
6340873.0	-2.00	303643.29	.56920	102.00	67.581	30405.15	3.45574
6340895.9	0.00	300000.00	.08103	113.45	83.577	30408.90	4.27315
6340918.9	2.00	303643.29	.56920	102.00	67.581	30405.15	3.45574
6340943.2	4.00	314576.22	1.12950	74.58	36.174	30393.90	1.85043
6340967.6	6.00	332807.99	1.69129	45.52	13.507	30375.17	.69135
6340992.1	8.00	358353.90	2.25291	24.26	3.846	30348.95	.19702
6341016.6	10.00	391235.39	2.81386	11.86	.923	30315.27	.04733
6341041.2	12.00	431479.96	3.37383	5.89	.229	30274.13	.01176
6341066.0	14.00	479121.23	3.93254	3.46	.079	30225.56	.00408
6341090.8	16.00	534198.87	4.48977	2.32	.036	30169.59	.00184
6341115.8	18.00	596758.58	5.04525	1.67	.019	30106.22	.00097
6341140.9	20.00	666852.06	5.59878	1.23	.010	30035.51	.00053
6341404.9	40.00	1797694.02	10.97174	.06	.000	28933.50	.00000
6341707.3	60.00	3780041.61	15.85353	0.00	0.000	27158.51	0.00000
6342076.1	80.00	6740721.53	19.88144	0.00	0.000	24808.32	0.00000
6342550.5	100.00	10784706.90	22.51337	0.00	0.000	22033.68	0.00000
6343182.9	120.00	15833781.57	22.90551	0.00	0.000	19061.78	0.00000
6344028.4	140.00	21316916.80	19.81882	0.00	0.000	16241.58	0.00000
6345108.7	160.00	25873206.63	11.99403	0.00	0.000	14099.79	0.00000
6346351.6	180.00	27694489.70	.08103	0.00	0.000	13275.35	0.00000

REVOLUTION 50

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6346351.6	-180.00	25369737.74	.08103	0.00	0.000	13836.80	0.00000
6347489.3	-160.00	23777645.08	11.03641	0.00	0.000	14599.59	0.00000
6348489.7	-140.00	19749884.27	18.44471	0.00	0.000	16601.34	0.00000
6349287.0	-120.00	14816061.47	21.54646	0.00	0.000	19268.97	0.00000
6349894.7	-100.00	10186755.64	21.34798	0.00	0.000	22105.95	0.00000
6350358.3	-80.00	6417897.86	18.95776	0.00	0.000	24770.67	0.00000
6350723.3	-60.00	3623440.11	15.17375	0.00	0.000	27036.38	0.00000
6351025.2	-40.00	1735481.07	10.52641	.06	.000	28751.60	.00000
6351290.4	-20.00	652341.70	5.37870	1.28	.011	29817.97	.00059
6351315.7	-18.00	585057.28	4.84734	1.73	.021	29886.43	.00107
6351340.8	-16.00	524990.11	4.31396	2.39	.039	29947.77	.00203
6351365.8	-14.00	472095.51	3.77882	3.61	.088	30001.97	.00459
6351390.7	-12.00	426333.91	3.24214	6.19	.259	30049.00	.01340
6351415.5	-10.00	387670.95	2.70419	12.43	1.039	30088.83	.05369
6351440.2	-8.00	356077.48	2.16523	24.96	4.176	30121.45	.21553
6351464.9	-6.00	331529.61	1.62558	45.97	14.121	30146.84	.72827
6351489.5	-4.00	314008.72	1.08577	73.98	36.494	30164.98	1.88096
6351514.0	-2.00	303501.51	.54751	100.00	66.612	30175.87	3.43203
6351537.1	0.00	300000.00	.08103	110.77	81.700	30179.50	4.20892
6351560.3	2.00	303501.51	.54751	100.00	66.612	30175.87	3.43203
6351584.8	4.00	314008.72	1.08577	73.98	36.494	30164.98	1.88096
6351609.4	6.00	331529.61	1.62558	45.97	14.121	30146.84	.72827
6351634.0	8.00	356077.48	2.16523	24.96	4.176	30121.45	.21553
6351658.8	10.00	387670.95	2.70419	12.43	1.039	30088.83	.05369
6351683.6	12.00	426333.91	3.24214	6.19	.259	30049.00	.01340
6351708.5	14.00	472095.51	3.77882	3.61	.088	30001.97	.00459
6351733.5	16.00	524990.11	4.31396	2.39	.039	29947.77	.00203
6351758.6	18.00	585057.28	4.84734	1.73	.021	29886.43	.00107
6351783.9	20.00	652341.70	5.37870	1.28	.011	29817.97	.00059
6352049.0	40.00	1735481.07	10.52641	.06	.000	28751.60	.00000
6352351.0	60.00	3623440.11	15.17375	0.00	0.000	27036.38	0.00000
6352716.0	80.00	6417897.86	18.95776	0.00	0.000	24770.67	0.00000
6353179.5	100.00	10186755.64	21.34798	0.00	0.000	22105.95	0.00000
6353787.3	120.00	14816061.47	21.54646	0.00	0.000	19268.97	0.00000
6354584.6	140.00	19749884.27	18.44471	0.00	0.000	16601.34	0.00000
6355584.9	160.00	23777645.08	11.03641	0.00	0.000	14599.59	0.00000
6356722.7	180.00	25369737.74	.08103	0.00	0.000	13836.80	0.00000

REVOLUTION 51

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6356722.7	-180.00	23132800.63	.08103	0.00	0.000	14424.67	0.00000
6357763.4	-160.00	21748584.33	10.10318	0.00	0.000	15127.11	0.00000
6358688.7	-140.00	18208374.25	17.07118	0.00	0.000	16988.27	0.00000
6359439.4	-120.00	13795320.51	20.15733	0.00	0.000	19498.12	0.00000
6360022.7	-100.00	9576021.21	20.13825	0.00	0.000	22192.58	0.00000
6360475.2	-80.00	6083252.95	17.98935	0.00	0.000	24739.72	0.00000
6360836.2	-60.00	3459311.21	14.45657	0.00	0.000	26914.46	0.00000
6361137.7	-40.00	1669791.94	10.05479	.07	.000	28565.07	.00000
6361404.0	-20.00	636955.18	5.14515	1.33	.013	29592.82	.00066
6361429.5	-18.00	572646.15	4.63729	1.79	.023	29658.84	.00119
6361454.8	-16.00	515220.42	4.12737	2.48	.043	29718.00	.00226
6361480.0	-14.00	464640.27	3.61564	3.79	.100	29770.27	.00523
6361505.1	-12.00	420872.28	3.10235	6.54	.297	29815.63	.01548
6361530.1	-10.00	383887.35	2.58775	13.06	1.177	29854.05	.06130
6361555.0	-8.00	353660.79	2.07213	25.75	4.559	29885.51	.23715
6361579.8	-6.00	330172.32	1.55581	46.47	14.810	29910.00	.76981
6361604.6	-4.00	313406.15	1.03934	73.37	36.850	29927.50	1.91439
6361629.3	-2.00	303350.97	.52450	97.97	65.621	29938.00	3.40787
6361652.7	0.00	300000.00	.08103	108.05	79.782	29941.50	4.14280
6361676.0	2.00	303350.97	.52450	97.97	65.621	29938.00	3.40787
6361700.8	4.00	313406.15	1.03934	73.37	36.850	29927.50	1.91439
6361725.6	6.00	330172.32	1.55581	46.47	14.810	29910.00	.76981
6361750.4	8.00	353660.79	2.07213	25.75	4.559	29885.51	.23715
6361775.3	10.00	383887.35	2.58775	13.06	1.177	29854.05	.06130
6361800.3	12.00	420872.28	3.10235	6.54	.297	29815.63	.01548
6361825.4	14.00	464640.27	3.61564	3.79	.100	29770.27	.00523
6361850.5	16.00	515220.42	4.12737	2.48	.043	29718.00	.00226
6361875.9	18.00	572646.15	4.63729	1.79	.023	29658.84	.00119
6361901.3	20.00	636955.18	5.14515	1.33	.013	29592.82	.00066
6362167.7	40.00	1669791.94	10.05479	.07	.000	28565.07	.00000
6362469.2	60.00	3459311.21	14.45657	0.00	0.000	26914.46	0.00000
6362830.1	80.00	6083252.95	17.98935	0.00	0.000	24739.72	0.00000
6363282.6	100.00	9576021.21	20.13825	0.00	0.000	22192.58	0.00000
6363865.9	120.00	13795320.51	20.15733	0.00	0.000	19498.12	0.00000
6364616.6	140.00	18208374.25	17.07118	0.00	0.000	16988.27	0.00000
6365542.0	160.00	21748584.33	10.10318	0.00	0.000	15127.11	0.00000
6366582.7	180.00	23132800.63	.08103	0.00	0.000	14424.67	0.00000

REVOLUTION 52

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6366582.7	-180.00	20976005.31	.08103	0.00	0.000	15041.80	0.00000
6367533.6	-160.00	19780355.01	9.19273	0.00	0.000	15685.06	0.00000
6368388.5	-140.00	16689783.14	15.69800	0.00	0.000	17404.96	0.00000
6369094.2	-120.00	12770192.25	18.73689	0.00	0.000	19751.62	0.00000
6369653.2	-100.00	8951257.01	18.88104	0.00	0.000	22295.41	0.00000
6370094.4	-80.00	5735658.77	16.97209	0.00	0.000	24716.56	0.00000
6370451.2	-60.00	3286865.96	13.69803	0.00	0.000	26793.04	0.00000
6370752.2	-40.00	1600232.61	9.55389	.08	.000	28373.59	.00000
6371019.8	-20.00	620588.42	4.89655	1.39	.014	29359.36	.00074
6371045.4	-18.00	559440.63	4.41366	1.86	.025	29422.72	.00133
6371070.9	-16.00	504822.79	3.92869	2.60	.049	29479.51	.00257
6371096.3	-14.00	456704.11	3.44187	4.02	.115	29529.68	.00608
6371121.6	-12.00	415057.21	2.95347	7.01	.350	29573.22	.01838
6371146.7	-10.00	379858.26	2.46375	13.78	1.346	29610.11	.07065
6371171.8	-8.00	351086.95	1.97298	26.62	5.007	29640.31	.26263
6371196.9	-6.00	328726.63	1.48151	47.06	15.606	29663.82	.81794
6371221.9	-4.00	312764.28	.98990	72.77	37.249	29680.62	1.95120
6371246.8	-2.00	303190.60	.50001	95.89	64.609	29690.70	3.38323
6371270.4	0.00	300000.00	.08103	105.26	77.821	29694.07	4.07461
6371294.0	2.00	303190.60	.50001	95.89	64.609	29690.70	3.38323
6371318.9	4.00	312764.28	.98990	72.77	37.249	29680.62	1.95120
6371343.9	6.00	328726.63	1.48151	47.06	15.606	29663.82	.81794
6371369.0	8.00	351086.95	1.97298	26.62	5.007	29640.31	.26263
6371394.1	10.00	379858.26	2.46375	13.78	1.346	29610.11	.07065
6371419.2	12.00	415057.21	2.95347	7.01	.350	29573.22	.01838
6371444.5	14.00	456704.11	3.44187	4.02	.115	29529.68	.00608
6371469.9	16.00	504822.79	3.92869	2.60	.049	29479.51	.00257
6371495.4	18.00	559440.63	4.41366	1.86	.025	29422.72	.00133
6371521.0	20.00	620588.42	4.89655	1.39	.014	29359.36	.00074
6371788.6	40.00	1600232.61	9.55389	.08	.000	28373.59	.00000
6372089.6	60.00	3286865.96	13.69803	0.00	0.000	26793.04	0.00000
6372446.4	80.00	5735658.77	16.97209	0.00	0.000	24716.56	0.00000
6372887.6	100.00	8951257.01	18.88104	0.00	0.000	22295.41	0.00000
6373446.6	120.00	12770192.25	18.73689	0.00	0.000	19751.62	0.00000
6374152.3	140.00	16689783.14	15.69800	0.00	0.000	17404.96	0.00000
6375007.2	160.00	19780355.01	9.19273	0.00	0.000	15685.06	0.00000
6375958.1	180.00	20976005.31	.08103	0.00	0.000	15041.80	0.00000

REVOLUTION 53

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6375958.1	-180.00	18891672.63	.08103	0.00	0.000	15691.71	0.00000
6376826.0	-160.00	17867087.66	8.30319	0.00	0.000	16276.76	0.00000
6377614.4	-140.00	15191098.51	14.32444	0.00	0.000	17854.58	0.00000
6378276.8	-120.00	11738907.97	17.28342	0.00	0.000	20032.32	0.00000
6378811.6	-100.00	8310883.11	17.57256	0.00	0.000	22416.62	0.00000
6379241.1	-80.00	5373727.37	15.90104	0.00	0.000	24702.46	0.00000
6379593.6	-60.00	3105141.87	12.89336	0.00	0.000	26672.50	0.00000
6379894.0	-40.00	1526322.42	9.02004	.09	.000	28176.77	.00000
6380162.9	-20.00	603114.28	4.63093	1.46	.016	29116.72	.00086
6380188.7	-18.00	545337.39	4.17469	1.96	.029	29177.18	.00152
6380214.4	-16.00	493715.36	3.71634	2.75	.056	29231.36	.00298
6380240.0	-14.00	448224.17	3.25614	4.30	.136	29279.25	.00722
6380265.5	-12.00	408842.45	2.79433	7.57	.420	29320.80	.02228
6380290.8	-10.00	375551.48	2.33117	14.71	1.579	29356.00	.08363
6380316.2	-8.00	348335.34	1.86697	27.67	5.566	29384.83	.29450
6380341.4	-6.00	327180.91	1.40207	47.72	16.515	29407.27	.87315
6380366.6	-4.00	312077.95	.93705	72.16	37.697	29423.31	1.99193
6380391.8	-2.00	303019.12	.47386	93.76	63.572	29432.93	3.35809
6380415.6	0.00	300000.00	.08103	102.41	75.810	29436.14	4.00414
6380439.4	2.00	303019.12	.47386	93.76	63.572	29432.93	3.35809
6380464.6	4.00	312077.95	.93705	72.16	37.697	29423.31	1.99193
6380489.8	6.00	327180.91	1.40207	47.72	16.515	29407.27	.87315
6380515.1	8.00	348335.34	1.86697	27.67	5.566	29384.83	.29450
6380540.4	10.00	375551.48	2.33117	14.71	1.579	29356.00	.08363
6380565.8	12.00	408842.45	2.79433	7.57	.420	29320.80	.02228
6380591.2	14.00	448224.17	3.25614	4.30	.136	29279.25	.00722
6380616.8	16.00	493715.36	3.71634	2.75	.056	29231.36	.00298
6380642.5	18.00	545337.39	4.17469	1.96	.029	29177.18	.00152
6380668.3	20.00	603114.28	4.63093	1.46	.016	29116.72	.00086
6380937.2	40.00	1526322.42	9.02004	.09	.000	28176.77	.00000
6381237.7	60.00	3105141.87	12.89336	0.00	0.000	26672.50	0.00000
6381590.1	80.00	5373727.37	15.90104	0.00	0.000	24702.46	0.00000
6382019.6	100.00	8310883.11	17.57256	0.00	0.000	22416.62	0.00000
6382554.5	120.00	11738907.97	17.28342	0.00	0.000	20032.32	0.00000
6383216.8	140.00	15191098.51	14.32444	0.00	0.000	17854.58	0.00000
6384005.2	160.00	17867087.66	8.30319	0.00	0.000	16276.76	0.00000
6384873.1	180.00	18891672.63	.08103	0.00	0.000	15691.71	0.00000

REVOLUTION 54

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6384873.1	-180.00	16871909.36	.08103	0.00	0.000	16378.75	0.00000
6385663.8	-160.00	16002529.54	7.43241	0.00	0.000	16906.38	0.00000
6386389.6	-140.00	13708742.20	12.94910	0.00	0.000	18341.03	0.00000
6387010.0	-120.00	10699153.60	15.79442	0.00	0.000	20343.74	0.00000
6387520.7	-100.00	7652864.07	16.20804	0.00	0.000	22558.90	0.00000
6387938.4	-80.00	4995717.16	14.77010	0.00	0.000	24698.98	0.00000
6388286.2	-60.00	2912941.60	12.03664	0.00	0.000	26553.27	0.00000
6388586.0	-40.00	1447463.70	8.44870	.11	.000	27974.10	.00001
6388856.2	-20.00	584374.44	4.34584	1.55	.019	28863.79	.00100
6388882.3	-18.00	530207.76	3.91817	2.08	.033	28921.06	.00178
6388908.2	-16.00	481796.14	3.48837	2.96	.067	28972.39	.00357
6388933.9	-14.00	439122.19	3.05671	4.66	.165	29017.75	.00883
6388959.6	-12.00	402170.33	2.62343	8.35	.526	29057.13	.02813
6388985.2	-10.00	370926.91	2.18880	15.80	1.876	29090.48	.10027
6389010.8	-8.00	345380.24	1.75312	28.91	6.262	29117.80	.33435
6389036.3	-6.00	325520.69	1.31675	48.47	17.560	29139.06	.93693
6389061.7	-4.00	311340.72	.88030	71.55	38.203	29154.26	2.03731
6389087.1	-2.00	302834.91	.44582	91.57	62.508	29163.38	3.33241
6389111.2	0.00	300000.00	.08103	99.48	73.746	29166.42	3.93109
6389135.2	2.00	302834.91	.44582	91.57	62.508	29163.38	3.33241
6389160.6	4.00	311340.72	.88030	71.55	38.203	29154.26	2.03731
6389186.1	6.00	325520.69	1.31675	48.47	17.560	29139.06	.93693
6389211.6	8.00	345380.24	1.75312	28.91	6.262	29117.80	.33435
6389237.1	10.00	370926.91	2.18880	15.80	1.876	29090.48	.10027
6389262.7	12.00	402170.33	2.62343	8.35	.526	29057.13	.02813
6389288.4	14.00	439122.19	3.05671	4.66	.165	29017.75	.00883
6389314.2	16.00	481796.14	3.48837	2.96	.067	28972.39	.00357
6389340.1	18.00	530207.76	3.91817	2.08	.033	28921.06	.00178
6389366.1	20.00	584374.44	4.34584	1.55	.019	28863.79	.00100
6389636.4	40.00	1447463.70	8.44870	.11	.000	27974.10	.00001
6389936.2	60.00	2912941.60	12.03664	0.00	0.000	26553.27	0.00000
6390284.0	80.00	4995717.16	14.77010	0.00	0.000	24698.98	0.00000
6390701.7	100.00	7652864.07	16.20804	0.00	0.000	22558.90	0.00000
6391212.4	120.00	10699153.60	15.79442	0.00	0.000	20343.74	0.00000
6391832.7	140.00	13708742.20	12.94910	0.00	0.000	18341.03	0.00000
6392558.6	160.00	16002529.54	7.43241	0.00	0.000	16906.38	0.00000
6393349.3	180.00	16871909.36	.08103	0.00	0.000	16378.75	0.00000

REVOLUTION 55

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6393349.3	-180.00	14908312.52	.08103	0.00	0.000	17108.51	0.00000
6394068.1	-160.00	14179772.53	6.57781	0.00	0.000	17579.27	0.00000
6394734.9	-140.00	12238328.14	11.56968	0.00	0.000	18869.27	0.00000
6395314.5	-120.00	9647849.91	14.26631	0.00	0.000	20690.24	0.00000
6395801.1	-100.00	6974522.35	14.78134	0.00	0.000	22725.59	0.00000
6396206.6	-80.00	4599390.27	13.57162	0.00	0.000	24708.09	0.00000
6396549.5	-60.00	2708739.91	11.12042	0.00	0.000	26435.88	0.00000
6396848.6	-40.00	1362895.72	7.83413	.13	.000	27764.95	.00001
6397120.3	-20.00	564167.12	4.03820	1.66	.022	28599.15	.00120
6397146.6	-18.00	513887.74	3.64130	2.24	.039	28652.89	.00214
6397172.7	-16.00	468935.17	3.24228	3.24	.082	28701.07	.00446
6397198.7	-14.00	429298.37	2.84139	5.16	.208	28743.66	.01125
6397224.6	-12.00	394967.39	2.43889	9.34	.679	28780.62	.03669
6397250.5	-10.00	365933.42	2.03506	17.22	2.301	28811.93	.12418
6397276.2	-8.00	342188.88	1.63018	30.33	7.115	28837.57	.38362
6397302.0	-6.00	323727.51	1.22463	49.32	18.773	28857.54	1.01144
6397327.6	-4.00	310544.37	.81904	70.94	38.779	28871.81	2.08827
6397353.3	-2.00	302635.91	.41560	89.32	61.413	28880.37	3.30612
6397377.6	0.00	300000.00	.08103	96.47	71.618	28883.23	3.85513
6397402.0	2.00	302635.91	.41560	89.32	61.413	28880.37	3.30612
6397427.6	4.00	310544.37	.81904	70.94	38.779	28871.81	2.08827
6397453.3	6.00	323727.51	1.22463	49.32	18.773	28857.54	1.01144
6397479.0	8.00	342188.88	1.63018	30.33	7.115	28837.57	.38362
6397504.8	10.00	365933.42	2.03506	17.22	2.301	28811.93	.12418
6397530.7	12.00	394967.39	2.43889	9.34	.679	28780.62	.03669
6397556.6	14.00	429298.37	2.84139	5.16	.208	28743.66	.01125
6397582.6	16.00	468935.17	3.24228	3.24	.082	28701.07	.00446
6397608.7	18.00	513887.74	3.64130	2.24	.039	28652.89	.00214
6397634.9	20.00	564167.12	4.03820	1.66	.022	28599.15	.00120
6397906.7	40.00	1362895.72	7.83413	.13	.000	27764.95	.00001
6398205.7	60.00	2708739.91	11.12042	0.00	0.000	26435.88	0.00000
6398548.7	80.00	4599390.27	13.57162	0.00	0.000	24708.09	0.00000
6398954.2	100.00	6974522.35	14.78134	0.00	0.000	22725.59	0.00000
6399440.8	120.00	9647849.91	14.26631	0.00	0.000	20690.24	0.00000
6400020.4	140.00	12238328.14	11.56968	0.00	0.000	18869.27	0.00000
6400687.1	160.00	14179772.53	6.57781	0.00	0.000	17579.27	0.00000
6401406.0	180.00	14908312.52	.08103	0.00	0.000	17108.51	0.00000

REVOLUTION 56

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6401406.0	-180.00	12991517.36	.08103	0.00	0.000	17888.33	0.00000
6402057.9	-160.00	12390825.47	5.73620	0.00	0.000	18302.48	0.00000
6402668.6	-140.00	10774271.69	10.18258	0.00	0.000	19445.79	0.00000
6403208.6	-120.00	8580799.70	12.69384	0.00	0.000	21077.48	0.00000
6403671.1	-100.00	6272240.20	13.28430	0.00	0.000	22920.96	0.00000
6404064.0	-80.00	4181785.44	12.29558	0.00	0.000	24732.28	0.00000
6404401.7	-60.00	2490536.05	10.13498	0.00	0.000	26321.02	0.00000
6404700.0	-40.00	1271621.81	7.16878	.15	.000	27548.46	.00001
6404973.2	-20.00	542227.75	3.70394	1.81	.027	28320.94	.00148
6404999.7	-18.00	496162.24	3.34040	2.46	.049	28370.75	.00270
6405026.0	-16.00	454961.94	2.97477	3.63	.107	28415.42	.00585
6405052.3	-14.00	418621.83	2.60730	5.85	.277	28454.90	.01513
6405078.5	-12.00	387137.22	2.23825	10.58	.901	28489.17	.04915
6405104.6	-10.00	360503.92	1.86787	18.97	2.888	28518.21	.15745
6405130.6	-8.00	338718.26	1.49648	32.04	8.217	28541.99	.44758
6405156.6	-6.00	321777.15	1.12445	50.29	20.201	28560.50	1.09968
6405182.6	-4.00	309678.13	.75245	70.36	39.476	28573.74	2.14795
6405208.5	-2.00	302419.44	.38283	86.98	60.282	28581.68	3.27915
6405233.1	0.00	300000.00	.08103	93.36	69.418	28584.33	3.77575
6405257.7	2.00	302419.44	.38283	86.98	60.282	28581.68	3.27915
6405283.6	4.00	309678.13	.75245	70.36	39.476	28573.74	2.14795
6405309.6	6.00	321777.15	1.12445	50.29	20.201	28560.50	1.09968
6405335.6	8.00	338718.26	1.49648	32.04	8.217	28541.99	.44758
6405361.6	10.00	360503.92	1.86787	18.97	2.888	28518.21	.15745
6405387.7	12.00	387137.22	2.23825	10.58	.901	28489.17	.04915
6405413.9	14.00	418621.83	2.60730	5.85	.277	28454.90	.01513
6405440.2	16.00	454961.94	2.97477	3.63	.107	28415.42	.00585
6405466.5	18.00	496162.24	3.34040	2.46	.049	28370.75	.00270
6405493.0	20.00	542227.75	3.70394	1.81	.027	28320.94	.00148
6405766.2	40.00	1271621.81	7.16878	.15	.000	27548.46	.00001
6406064.5	60.00	2490536.05	10.13498	0.00	0.000	26321.02	0.00000
6406402.2	80.00	4181785.44	12.29558	0.00	0.000	24732.28	0.00000
6406795.1	100.00	6272240.20	13.28430	0.00	0.000	22920.96	0.00000
6407257.6	120.00	8580799.70	12.69384	0.00	0.000	21077.48	0.00000
6407797.6	140.00	10774271.69	10.18258	0.00	0.000	19445.79	0.00000
6408408.3	160.00	12390825.47	5.73620	0.00	0.000	18302.48	0.00000
6409060.2	180.00	12991517.36	.08103	0.00	0.000	17888.33	0.00000

REVOLUTION 57

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6409060.2	-180.00	11110452.01	.08103	0.00	0.000	18728.22	0.00000
6409649.3	-160.00	10625896.31	4.90348	0.00	0.000	19085.67	0.00000
6410206.7	-140.00	9309124.44	8.78229	0.00	0.000	20079.41	0.00000
6410708.1	-120.00	7492088.85	11.06920	0.00	0.000	21513.04	0.00000
6411146.3	-100.00	5540955.78	11.70559	0.00	0.000	23150.72	0.00000
6411526.1	-80.00	3738835.70	10.92846	0.00	0.000	24774.89	0.00000
6411858.3	-60.00	2255606.16	9.06720	.02	.000	26209.55	.00000
6412155.7	-40.00	1172287.34	6.44248	.19	.000	27323.41	.00002
6412430.5	-20.00	518196.43	3.33754	2.02	.035	28026.57	.00193
6412457.2	-18.00	476738.69	3.01049	2.80	.066	28071.97	.00368
6412483.8	-16.00	439644.55	2.68141	4.19	.148	28112.68	.00818
6412510.3	-14.00	406914.47	2.35054	6.91	.400	28148.67	.02208
6412536.8	-12.00	378548.67	2.01813	12.13	1.227	28179.91	.06771
6412563.2	-10.00	354547.16	1.68445	21.03	3.679	28206.39	.20280
6412589.5	-8.00	334909.87	1.34980	34.20	9.708	28228.07	.53468
6412615.8	-6.00	319636.65	1.01456	51.44	21.925	28244.95	1.20688
6412642.0	-4.00	308727.35	.67944	69.84	40.350	28257.02	2.22013
6412668.2	-2.00	302181.83	.34700	84.56	59.108	28264.27	3.25138
6412693.1	0.00	300000.00	.08103	90.13	67.129	28266.68	3.69230
6412718.1	2.00	302181.83	.34700	84.56	59.108	28264.27	3.25138
6412744.3	4.00	308727.35	.67944	69.84	40.350	28257.02	2.22013
6412770.5	6.00	319636.65	1.01456	51.44	21.925	28244.95	1.20688
6412796.8	8.00	334909.87	1.34980	34.20	9.708	28228.07	.53468
6412823.1	10.00	354547.16	1.68445	21.03	3.679	28206.39	.20280
6412849.5	12.00	378548.67	2.01813	12.13	1.227	28179.91	.06771
6412875.9	14.00	406914.47	2.35054	6.91	.400	28148.67	.02208
6412902.5	16.00	439644.55	2.68141	4.19	.148	28112.68	.00818
6412929.1	18.00	476738.69	3.01049	2.80	.066	28071.97	.00368
6412955.8	20.00	518196.43	3.33754	2.02	.035	28026.57	.00193
6413230.6	40.00	1172287.34	6.44248	.19	.000	27323.41	.00002
6413528.0	60.00	2255606.16	9.06720	.02	.000	26209.55	.00000
6413860.2	80.00	3738835.70	10.92846	0.00	0.000	24774.89	0.00000
6414240.0	100.00	5540955.78	11.70559	0.00	0.000	23150.72	0.00000
6414678.2	120.00	7492088.85	11.06920	0.00	0.000	21513.04	0.00000
6415179.6	140.00	9309124.44	8.78229	0.00	0.000	20079.41	0.00000
6415737.0	160.00	10625896.31	4.90348	0.00	0.000	19085.67	0.00000
6416326.1	180.00	11110452.01	.08103	0.00	0.000	18728.22	0.00000

REVOLUTION 58

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6416326.1	-180.00	9250998.24	.08103	0.00	0.000	19642.52	0.00000
6416856.0	-160.00	8872090.01	4.07399	0.00	0.000	19942.67	0.00000
6417362.5	-140.00	7832357.56	7.36014	0.00	0.000	20782.71	0.00000
6417826.0	-120.00	6372994.44	9.38026	0.00	0.000	22007.62	0.00000
6418239.7	-100.00	4773248.51	10.02870	0.00	0.000	23422.87	0.00000
6418605.8	-80.00	3264676.85	9.45097	0.00	0.000	24840.55	0.00000
6418932.0	-60.00	2000056.76	7.89850	.03	.000	26102.65	.00000
6419228.2	-40.00	1062960.17	5.64073	.25	.001	27088.05	.00003
6419504.8	-20.00	491559.67	2.93112	2.36	.049	27712.34	.00277
6419531.8	-18.00	455199.59	2.64444	3.36	.099	27752.70	.00555
6419558.7	-16.00	422652.02	2.35584	5.11	.228	27788.90	.01276
6419585.5	-14.00	393922.18	2.06553	8.57	.640	27820.91	.03576
6419612.2	-12.00	369014.55	1.77377	14.38	1.795	27848.70	.10023
6419638.9	-10.00	347932.87	1.48080	23.66	4.845	27872.24	.27025
6419665.5	-8.00	330680.19	1.18694	36.80	11.693	27891.54	.65180
6419692.1	-6.00	317258.98	.89257	52.90	24.128	27906.55	1.34424
6419718.7	-4.00	307671.09	.59846	69.32	41.380	27917.29	2.30449
6419745.2	-2.00	301917.84	.30745	82.02	57.880	27923.74	3.22265
6419770.5	0.00	300000.00	.08103	86.75	64.730	27925.88	3.60380
6419795.7	2.00	301917.84	.30745	82.02	57.880	27923.74	3.22265
6419822.3	4.00	307671.09	.59846	69.32	41.380	27917.29	2.30449
6419848.8	6.00	317258.98	.89257	52.90	24.128	27906.55	1.34424
6419875.4	8.00	330680.19	1.18694	36.80	11.693	27891.54	.65180
6419902.0	10.00	347932.87	1.48080	23.66	4.845	27872.24	.27025
6419928.7	12.00	369014.55	1.77377	14.38	1.795	27848.70	.10023
6419955.5	14.00	393922.18	2.06553	8.57	.640	27820.91	.03576
6419982.3	16.00	422652.02	2.35584	5.11	.228	27788.90	.01276
6420009.1	18.00	455199.59	2.64444	3.36	.099	27752.70	.00555
6420036.1	20.00	491559.67	2.93112	2.36	.049	27712.34	.00277
6420312.7	40.00	1062960.17	5.64073	.25	.001	27088.05	.00003
6420609.0	60.00	2000056.76	7.89850	.03	.000	26102.65	.00000
6420935.2	80.00	3264676.85	9.45097	0.00	0.000	24840.55	0.00000
6421301.3	100.00	4773248.51	10.02870	0.00	0.000	23422.87	0.00000
6421714.9	120.00	6372994.44	9.38026	0.00	0.000	22007.62	0.00000
6422178.4	140.00	7832357.56	7.36014	0.00	0.000	20782.71	0.00000
6422684.9	160.00	8872090.01	4.07399	0.00	0.000	19942.67	0.00000
6423214.8	180.00	9250998.24	.08103	0.00	0.000	19642.52	0.00000

REVOLUTION 59

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6423214.8	-180.00	7393321.85	.08103	0.00	0.000	20653.18	0.000000
6423688.6	-160.00	7110800.04	3.23930	0.00	0.000	20894.67	0.000000
6424145.9	-140.00	6327915.74	5.90194	0.00	0.000	21574.90	0.000000
6424571.9	-120.00	5209795.60	7.60722	0.00	0.000	22577.36	0.000000
6424960.4	-100.00	3957512.18	8.22776	0.00	0.000	23749.35	0.000000
6425312.0	-80.00	2750271.47	7.83370	0.00	0.000	24936.12	0.000000
6425631.7	-60.00	1717939.29	6.60062	.05	.000	26002.01	.000000
6425926.7	-40.00	940695.94	4.74152	.34	.001	26839.62	.000006
6426205.2	-20.00	461534.95	2.47270	3.00	.083	27372.52	.00471
6426232.4	-18.00	430908.72	2.23143	4.34	.172	27407.03	.00978
6426259.6	-16.00	403479.94	1.98839	6.80	.421	27437.98	.02387
6426286.8	-14.00	379257.62	1.74379	11.01	1.102	27465.36	.06239
6426313.8	-12.00	358249.57	1.49786	17.80	2.872	27489.13	.16242
6426340.8	-10.00	340462.48	1.25085	27.27	6.723	27509.28	.37999
6426367.8	-8.00	325901.93	1.00306	40.10	14.503	27525.78	.81918
6426394.7	-6.00	314572.42	.75490	54.66	26.913	27538.63	1.51942
6426421.6	-4.00	306477.45	.50721	68.83	42.619	27547.82	2.40534
6426448.5	-2.00	301619.49	.26323	79.33	56.581	27553.34	3.19268
6426474.2	0.00	300000.00	.08103	83.17	62.186	27555.18	3.50876
6426499.8	2.00	301619.49	.26323	79.33	56.581	27553.34	3.19268
6426526.7	4.00	306477.45	.50721	68.83	42.619	27547.82	2.40534
6426553.6	6.00	314572.42	.75490	54.66	26.913	27538.63	1.51942
6426580.6	8.00	325901.93	1.00306	40.10	14.503	27525.78	.81918
6426607.5	10.00	340462.48	1.25085	27.27	6.723	27509.28	.37999
6426634.6	12.00	358249.57	1.49786	17.80	2.872	27489.13	.16242
6426661.6	14.00	379257.62	1.74379	11.01	1.102	27465.36	.06239
6426688.7	16.00	403479.94	1.98839	6.80	.421	27437.98	.02387
6426715.9	18.00	430908.72	2.23143	4.34	.172	27407.03	.00978
6426743.2	20.00	461534.95	2.47270	3.00	.083	27372.52	.00471
6427021.7	40.00	940695.94	4.74152	.34	.001	26839.62	.000006
6427316.7	60.00	1717939.29	6.60062	.05	.000	26002.01	.000000
6427636.3	80.00	2750271.47	7.83370	0.00	0.000	24936.12	0.000000
6427987.9	100.00	3957512.18	8.22776	0.00	0.000	23749.35	0.000000
6428376.5	120.00	5209795.60	7.60722	0.00	0.000	22577.36	0.000000
6428802.5	140.00	6327915.74	5.90194	0.00	0.000	21574.90	0.000000
6429259.8	160.00	7110800.04	3.23930	0.00	0.000	20894.67	0.000000
6429733.5	180.00	7393321.85	.08103	0.00	0.000	20653.18	0.000000

REVOLUTION 60

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6429733.5	-180.00	5505758.64	.08103	0.00	0.000	21797.17	0.00000
6430153.2	-160.00	5311722.03	2.38543	0.00	0.000	21977.39	0.00000
6430562.5	-140.00	4768597.95	4.38252	0.00	0.000	22488.26	0.00000
6430950.8	-120.00	3978758.29	5.71481	0.00	0.000	23249.18	0.00000
6431313.2	-100.00	3073784.62	6.25823	0.00	0.000	24149.87	0.00000
6431649.2	-80.00	2180278.80	6.02702	.02	.000	25072.85	.00000
6431961.5	-60.00	1399241.78	5.12635	.09	.000	25910.22	.00001
6432255.0	-40.00	800554.20	3.70803	.51	.003	26573.34	.00016
6432535.6	-20.00	426809.64	1.94225	4.39	.185	26997.37	.01067
6432563.2	-18.00	402798.80	1.75334	6.56	.413	27024.89	.02376
6432590.7	-16.00	381282.20	1.56290	10.07	.970	27049.58	.05573
6432618.2	-14.00	362271.04	1.37113	15.44	2.272	27071.41	.13046
6432645.6	-12.00	345775.13	1.17825	22.81	4.946	27090.38	.28385
6432673.0	-10.00	331802.93	.98449	32.65	10.119	27106.45	.58039
6432700.4	-8.00	320361.53	.79012	44.37	18.656	27119.63	1.06953
6432727.7	-6.00	311456.70	.59561	56.85	30.587	27129.88	1.75289
6432755.0	-4.00	305092.93	.40193	68.34	44.161	27137.22	2.53007
6432782.3	-2.00	301273.39	.21294	76.42	55.183	27141.62	3.16103
6432808.4	0.00	300000.00	.08103	79.32	59.438	27143.09	3.40460
6432834.5	2.00	301273.39	.21294	76.42	55.183	27141.62	3.16103
6432861.8	4.00	305092.93	.40193	68.34	44.161	27137.22	2.53007
6432889.1	6.00	311456.70	.59561	56.85	30.587	27129.88	1.75289
6432916.4	8.00	320361.53	.79012	44.37	18.656	27119.63	1.06953
6432943.8	10.00	331802.93	.98449	32.65	10.119	27106.45	.58039
6432971.2	12.00	345775.13	1.17825	22.81	4.946	27090.38	.28385
6432998.6	14.00	362271.04	1.37113	15.44	2.272	27071.41	.13046
6433026.1	16.00	381282.20	1.56290	10.07	.970	27049.58	.05573
6433053.6	18.00	402798.80	1.75334	6.56	.413	27024.89	.02376
6433081.2	20.00	426809.64	1.94225	4.39	.185	26997.37	.01067
6433361.8	40.00	800554.20	3.70803	.51	.003	26573.34	.00016
6433655.3	60.00	1399241.78	5.12635	.09	.000	25910.22	.00001
6433967.6	80.00	2180278.80	6.02702	.02	.000	25072.85	.00000
6434303.6	100.00	3073784.62	6.25823	0.00	0.000	24149.87	0.00000
6434666.0	120.00	3978758.29	5.71481	0.00	0.000	23249.18	0.00000
6435054.3	140.00	4768597.95	4.38252	0.00	0.000	22488.26	0.00000
6435463.6	160.00	5311722.03	2.38543	0.00	0.000	21977.39	0.00000
6435883.3	180.00	5505758.64	.08103	0.00	0.000	21797.17	0.00000

REVOLUTION 61

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6435883.3	-180.00	3527614.44	.08103	0.00	0.000	23147.15	0.00000
6436249.5	-160.00	3416002.38	1.48500	0.00	0.000	23261.08	0.00000
6436610.7	-140.00	3100244.95	2.75028	0.00	0.000	23586.03	0.00000
6436960.1	-120.00	2632056.70	3.63049	0.00	0.000	24075.39	0.00000
6437294.5	-100.00	2082077.16	4.03062	.02	.000	24662.42	.00000
6437613.0	-80.00	1524322.05	3.93326	.07	.000	25272.15	.00000
6437916.8	-60.00	1024299.92	3.38345	.23	.001	25832.00	.00004
6438208.3	-40.00	632864.21	2.46847	.93	.009	26279.57	.00054
6438491.3	-20.00	384816.11	1.30074	8.88	.800	26567.63	.04681
6438519.3	-18.00	368782.17	1.17489	12.49	1.579	26586.37	.09236
6438547.3	-16.00	354403.68	1.04795	17.54	3.107	26603.19	.18160
6438575.2	-14.00	341691.46	.92006	23.85	5.734	26618.07	.33492
6438603.0	-12.00	330655.04	.79141	31.83	10.192	26631.00	.59501
6438630.9	-10.00	321302.65	.66221	40.92	16.819	26641.96	.98151
6438658.7	-8.00	313641.24	.53277	50.59	25.686	26650.94	1.49848
6438686.5	-6.00	307676.50	.40360	59.93	36.017	26657.94	2.10060
6438714.3	-4.00	303412.83	.27597	67.89	46.189	26662.94	2.69333
6438742.1	-2.00	300853.36	.15486	73.17	53.627	26665.94	3.12672
6438768.7	0.00	300000.00	.08103	75.02	56.365	26666.95	3.28620
6438795.3	2.00	300853.36	.15486	73.17	53.627	26665.94	3.12672
6438823.1	4.00	303412.83	.27597	67.89	46.189	26662.94	2.69333
6438850.9	6.00	307676.50	.40360	59.93	36.017	26657.94	2.10060
6438878.7	8.00	313641.24	.53277	50.59	25.686	26650.94	1.49848
6438906.5	10.00	321302.65	.66221	40.92	16.819	26641.96	.98151
6438934.4	12.00	330655.04	.79141	31.83	10.192	26631.00	.59501
6438962.2	14.00	341691.46	.92006	23.85	5.734	26618.07	.33492
6438990.2	16.00	354403.68	1.04795	17.54	3.107	26603.19	.18160
6439018.1	18.00	368782.17	1.17489	12.49	1.579	26586.37	.09236
6439046.1	20.00	384816.11	1.30074	8.88	.800	26567.63	.04681
6439329.1	40.00	632864.21	2.46847	.93	.009	26279.57	.00054
6439620.6	60.00	1024299.92	3.38345	.23	.001	25832.00	.00004
6439924.4	80.00	1524322.05	3.93326	.07	.000	25272.15	.00000
6440242.9	100.00	2082077.16	4.03062	.02	.000	24662.42	.00000
6440577.4	120.00	2632056.70	3.63049	0.00	0.000	24075.39	0.00000
6440926.7	140.00	3100244.95	2.75028	0.00	0.000	23586.03	0.00000
6441287.9	160.00	3416002.38	1.48500	0.00	0.000	23261.08	0.00000
6441654.1	180.00	3527614.44	.08103	0.00	0.000	23147.15	0.00000

REVOLUTION 62

TIME	THETA	ALTITUDE	GAMMA	QCONT	QFM	VELOCITY	P T
6441654.1	-180.00	1299875.41	.08103	.10	.000	24894.13	.00001
6441964.3	-160.00	1268349.99	.46796	.11	.000	24930.30	.00001
6442273.9	-140.00	1178073.62	.86643	.14	.000	25034.15	.00002
6442580.3	-120.00	1041177.91	1.15779	.21	.001	25192.42	.00003
6442882.5	-100.00	875548.83	1.30593	.35	.001	25385.23	.00009
6443180.0	-80.00	702011.45	1.29558	.65	.005	25588.81	.00029
6443472.8	-60.00	541438.79	1.13159	1.35	.021	25778.65	.00124
6443761.7	-40.00	412292.25	.83668	4.85	.258	25932.38	.01548
6444047.8	-20.00	328832.67	.44876	31.10	10.488	26032.23	.62636
6444076.2	-18.00	323393.66	.40684	36.00	14.040	26038.75	.83833
6444104.7	-16.00	318511.61	.36466	41.11	18.297	26044.61	1.09225
6444133.2	-14.00	314191.69	.32234	46.37	23.266	26049.79	1.38859
6444161.6	-12.00	310438.49	.28006	51.49	28.666	26054.29	1.71060
6444190.1	-10.00	307255.97	.23809	56.47	34.474	26058.11	2.05687
6444218.5	-8.00	304647.50	.19685	60.95	40.141	26061.24	2.39470
6444247.0	-6.00	302615.83	.15722	64.68	45.193	26063.68	2.69583
6444275.4	-4.00	301163.10	.12103	67.49	49.190	26065.42	2.93410
6444303.8	-2.00	300290.85	.09268	69.24	51.758	26066.47	3.08716
6444331.1	0.00	300000.00	.08103	69.83	52.644	26066.82	3.13995
6444358.3	2.00	300290.85	.09268	69.24	51.758	26066.47	3.08716
6444386.8	4.00	301163.10	.12103	67.49	49.190	26065.42	2.93410
6444415.2	6.00	302615.83	.15722	64.68	45.193	26063.68	2.69583
6444443.6	8.00	304647.50	.19685	60.95	40.141	26061.24	2.39470
6444472.1	10.00	307255.97	.23809	56.47	34.474	26058.11	2.05687
6444500.5	12.00	310438.49	.28006	51.49	28.666	26054.29	1.71060
6444529.0	14.00	314191.69	.32234	46.37	23.266	26049.79	1.38859
6444557.4	16.00	318511.61	.36466	41.11	18.297	26044.61	1.09225
6444585.9	18.00	323393.66	.40684	36.00	14.040	26038.75	.83833
6444614.4	20.00	328832.67	.44876	31.10	10.488	26032.23	.62636
6444900.4	40.00	412292.25	.83668	4.85	.258	25932.38	.01548
6445189.3	60.00	541438.79	1.13159	1.35	.021	25778.65	.00124
6445482.2	80.00	702011.45	1.29558	.65	.005	25588.81	.00029
6445779.7	100.00	875548.83	1.30593	.35	.001	25385.23	.00009
6446081.8	120.00	1041177.91	1.15779	.21	.001	25192.42	.00003
6446388.3	140.00	1178073.62	.86643	.14	.000	25034.15	.00002
6446697.9	160.00	1268349.99	.46796	.11	.000	24930.30	.00001
6447008.0	180.00	1299875.41	.08103	.10	.000	24894.13	.00001

Part 2
Listing of Punched Card CMA Input

REVOLUTION 1

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	25310.558	0.0000	.0000001	.000000	15 W. HEATER
21.6322	25458.800	0.0000	.0000002	.000000	15 W. HEATER
43.0276	25591.926	0.0000	.0000005	.000000	15 W. HEATER
64.2135	25709.775	0.0000	.0000011	.000001	15 W. HEATER
85.2155	25812.203	0.0000	.0000025	.000001	15 W. HEATER
106.0569	25899.084	0.0000	.0000076	.000004	15 W. HEATER
126.7566	25970.314	0.0000	.0000389	.000021	15 W. HEATER
147.3238	26025.805	0.0000	.0002608	.000138	15 W. HEATER
167.7348	26065.490	0.0000	.0012884	.000683	15 W. HEATER
187.7800	26089.320	0.0000	.0037141	.001970	15 W. HEATER
202.8463	26097.267	0.0000	.0053785	.002853	15 W. HEATER
217.9126	26089.320	0.0000	.0037141	.001970	15 W. HEATER
237.9578	26065.490	0.0000	.0012884	.000683	15 W. HEATER
258.3687	26025.805	0.0000	.0002608	.000138	15 W. HEATER
278.9359	25970.314	0.0000	.0000389	.000021	15 W. HEATER
299.6357	25899.084	0.0000	.0000076	.000004	15 W. HEATER
320.4770	25812.203	0.0000	.0000025	.000001	15 W. HEATER
341.4790	25709.775	0.0000	.0000011	.000001	15 W. HEATER
362.6650	25591.926	0.0000	.0000005	.000000	15 W. HEATER
384.0604	25458.800	0.0000	.0000002	.000000	15 W. HEATER
405.6926	25310.558	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 5

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	25037.809	0.0000	.0000001	.000000	15 W. HEATER
21.7407	25184.378	0.0000	.0000002	.000000	15 W. HEATER
43.2473	25316.003	0.0000	.0000005	.000000	15 W. HEATER
64.5474	25432.522	0.0000	.0000011	.000001	15 W. HEATER
85.6670	25533.794	0.0000	.0000025	.000001	15 W. HEATER
106.6307	25619.696	0.0000	.0000078	.000004	15 W. HEATER
127.4601	25690.122	0.0000	.0000404	.000021	15 W. HEATER
148.1705	25744.987	0.0000	.0002672	.000141	15 W. HEATER
168.7572	25784.224	0.0000	.0013013	.000686	15 W. HEATER
189.0993	25807.785	0.0000	.0037094	.001957	15 W. HEATER
205.3076	25815.642	0.0000	.0053494	.002822	15 W. HEATER
221.5160	25807.785	0.0000	.0037094	.001957	15 W. HEATER
241.8580	25784.224	0.0000	.0013013	.000686	15 W. HEATER
262.4447	25744.987	0.0000	.0002672	.000141	15 W. HEATER
283.1552	25690.122	0.0000	.0000404	.000021	15 W. HEATER
303.9846	25619.696	0.0000	.0000078	.000004	15 W. HEATER
324.9482	25533.794	0.0000	.0000025	.000001	15 W. HEATER
346.0679	25432.522	0.0000	.0000011	.000001	15 W. HEATER
367.3679	25316.003	0.0000	.0000005	.000000	15 W. HEATER
388.8745	25184.378	0.0000	.0000002	.000000	15 W. HEATER
410.6153	25037.809	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 10

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	24612.553	0.0000	.0000001	.000000	15 W. HEATER
21.9089	24756.439	0.0000	.0000002	.000000	15 W. HEATER
43.5870	24885.653	0.0000	.0000005	.000000	15 W. HEATER
65.0616	25000.039	0.0000	.0000011	.000001	15 W. HEATER
86.3591	25099.456	0.0000	.0000026	.000001	15 W. HEATER
107.5045	25183.785	0.0000	.0000083	.000004	15 W. HEATER
128.5206	25252.921	0.0000	.0000430	.000022	15 W. HEATER
149.4266	25306.782	0.0000	.0002779	.000145	15 W. HEATER
170.2287	25345.300	0.0000	.0013224	.000691	15 W. HEATER
190.8603	25368.430	0.0000	.0037025	.001936	15 W. HEATER
208.0801	25376.143	0.0000	.0053036	.002774	15 W. HEATER
225.2999	25368.430	0.0000	.0037025	.001936	15 W. HEATER
245.9315	25345.300	0.0000	.0013224	.000691	15 W. HEATER
266.7336	25306.782	0.0000	.0002779	.000145	15 W. HEATER
287.6395	25252.921	0.0000	.0000430	.000022	15 W. HEATER
308.6557	25183.785	0.0000	.0000083	.000004	15 W. HEATER
329.8010	25099.456	0.0000	.0000026	.000001	15 W. HEATER
351.0985	25000.039	0.0000	.0000011	.000001	15 W. HEATER
372.5732	24885.653	0.0000	.0000005	.000000	15 W. HEATER
394.2513	24756.439	0.0000	.0000002	.000000	15 W. HEATER
416.1602	24612.553	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 15

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	24094.756	0.0000	.0000001	.000000	15 W. HEATER
22.1174	24235.241	0.0000	.0000003	.000000	15 W. HEATER
44.0076	24361.402	0.0000	.0000006	.000000	15 W. HEATER
65.6979	24473.084	0.0000	.0000012	.000001	15 W. HEATER
87.2142	24570.152	0.0000	.0000028	.000001	15 W. HEATER
108.5815	24652.487	0.0000	.0000089	.000005	15 W. HEATER
129.8234	24719.989	0.0000	.0000468	.000024	15 W. HEATER
150.9604	24772.577	0.0000	.0002922	.000151	15 W. HEATER
172.0045	24810.185	0.0000	.0013499	.000698	15 W. HEATER
192.9176	24832.768	0.0000	.0036944	.001911	15 W. HEATER
210.9237	24840.299	0.0000	.0052473	.002715	15 W. HEATER
228.9299	24832.768	0.0000	.0036944	.001911	15 W. HEATER
249.8430	24810.185	0.0000	.0013499	.000698	15 W. HEATER
270.8870	24772.577	0.0000	.0002922	.000151	15 W. HEATER
292.0240	24719.989	0.0000	.0000468	.000024	15 W. HEATER
313.2659	24652.487	0.0000	.0000089	.000005	15 W. HEATER
334.6333	24570.152	0.0000	.0000028	.000001	15 W. HEATER
356.1496	24473.084	0.0000	.0000012	.000001	15 W. HEATER
377.8398	24361.402	0.0000	.0000006	.000000	15 W. HEATER
399.7301	24235.241	0.0000	.0000003	.000000	15 W. HEATER
421.8475	24094.756	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 20

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	23484.977	0.0000	.0000001	.000000	15 W. HEATER
22.3701	23621.256	0.0000	.0000003	.000000	15 W. HEATER
44.5178	23743.640	0.0000	.0000006	.000000	15 W. HEATER
66.4694	23851.979	0.0000	.0000013	.000001	15 W. HEATER
88.2508	23946.142	0.0000	.0000030	.000002	15 W. HEATER
109.8865	24026.013	0.0000	.0000097	.000005	15 W. HEATER
131.4002	24091.495	0.0000	.0000520	.000026	15 W. HEATER
152.8130	24142.508	0.0000	.0003109	.000159	15 W. HEATER
174.1401	24178.990	0.0000	.0013852	.000707	15 W. HEATER
195.3601	24200.898	0.0000	.0036856	.001882	15 W. HEATER
214.0462	24208.203	0.0000	.0051802	.002646	15 W. HEATER
232.7324	24200.898	0.0000	.0036856	.001882	15 W. HEATER
253.9524	24178.990	0.0000	.0013852	.000707	15 W. HEATER
275.2794	24142.508	0.0000	.0003109	.000159	15 W. HEATER
296.6923	24091.495	0.0000	.0000520	.000026	15 W. HEATER
318.2059	24026.013	0.0000	.0000097	.000005	15 W. HEATER
339.8417	23946.142	0.0000	.0000030	.000002	15 W. HEATER
361.6230	23851.979	0.0000	.0000013	.000001	15 W. HEATER
383.5747	23743.640	0.0000	.0000006	.000000	15 W. HEATER
405.7223	23621.256	0.0000	.0000003	.000000	15 W. HEATER
428.0925	23484.977	0.0000	.0000001	.000000	15 W. HEATER

REVOLUTION 25

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	22783.031	0.0000	.0000002	.000000	15 W. HEATER
22.6722	22914.179	0.0000	.0000003	.000000	15 W. HEATER
45.1276	23031.954	0.0000	.0000007	.000000	15 W. HEATER
67.3921	23136.213	0.0000	.0000014	.000001	15 W. HEATER
89.4907	23226.829	0.0000	.0000033	.000002	15 W. HEATER
111.4476	23303.692	0.0000	.0000110	.000005	15 W. HEATER
133.2859	23366.708	0.0000	.0000591	.000030	15 W. HEATER
155.0271	23415.800	0.0000	.0003356	.000169	15 W. HEATER
176.6879	23450.909	0.0000	.0014301	.000719	15 W. HEATER
198.2577	23471.991	0.0000	.0036765	.001849	15 W. HEATER
217.5811	23479.022	0.0000	.0051015	.002567	15 W. HEATER
236.9045	23471.991	0.0000	.0036765	.001849	15 W. HEATER
258.4743	23450.909	0.0000	.0014301	.000719	15 W. HEATER
280.1351	23415.800	0.0000	.0003356	.000169	15 W. HEATER
301.8764	23366.708	0.0000	.0000591	.000030	15 W. HEATER
323.7147	23303.692	0.0000	.0000110	.000005	15 W. HEATER
345.6716	23226.829	0.0000	.0000033	.000002	15 W. HEATER
367.7701	23136.213	0.0000	.0000014	.000001	15 W. HEATER
390.0346	23031.954	0.0000	.0000007	.000000	15 W. HEATER
412.4901	22914.179	0.0000	.0000003	.000000	15 W. HEATER
435.1623	22783.031	0.0000	.0000002	.000000	15 W. HEATER

REVOLUTION 30

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	21987.737	0.0000	.0000002	.000000	15 W. HEATER
23.0302	22112.653	0.0000	.0000004	.000000	15 W. HEATER
45.8509	22224.833	0.0000	.0000007	.000000	15 W. HEATER
68.4871	22324.138	0.0000	.0000016	.000001	15 W. HEATER
90.9627	22410.449	0.0000	.0000037	.000002	15 W. HEATER
113.3014	22483.660	0.0000	.0000128	.000006	15 W. HEATER
135.5257	22543.682	0.0000	.0000687	.000034	15 W. HEATER
157.6569	22590.441	0.0000	.0003703	.000183	15 W. HEATER
179.7122	22623.882	0.0000	.0014874	.000735	15 W. HEATER
201.6881	22643.962	0.0000	.0036677	.001812	15 W. HEATER
221.6466	22650.659	0.0000	.0050107	.002476	15 W. HEATER
241.6050	22643.962	0.0000	.0036677	.001812	15 W. HEATER
263.5809	22623.882	0.0000	.0014874	.000735	15 W. HEATER
285.6363	22590.441	0.0000	.0003703	.000183	15 W. HEATER
307.7674	22543.682	0.0000	.0000687	.000034	15 W. HEATER
329.9917	22483.660	0.0000	.0000128	.000006	15 W. HEATER
352.3304	22410.449	0.0000	.0000037	.000002	15 W. HEATER
374.8061	22324.138	0.0000	.0000016	.000001	15 W. HEATER
397.4423	22224.833	0.0000	.0000007	.000000	15 W. HEATER
420.2630	22112.653	0.0000	.0000004	.000000	15 W. HEATER
443.2932	21987.737	0.0000	.0000002	.000000	15 W. HEATER

REVOLUTION 35

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	21096.341	0.0000	.0000002	.000000	15 W. HEATER
23.4534	21213.681	0.0000	.0000004	.000000	15 W. HEATER
46.7066	21319.057	0.0000	.0000009	.000000	15 W. HEATER
69.7834	21412.340	0.0000	.0000018	.000001	15 W. HEATER
92.7067	21493.416	0.0000	.0000045	.000002	15 W. HEATER
115.4990	21562.187	0.0000	.0000157	.000008	15 W. HEATER
138.1820	21618.569	0.0000	.0000826	.000040	15 W. HEATER
160.7762	21662.493	0.0000	.0004189	.000202	15 W. HEATER
183.2993	21693.905	0.0000	.0015616	.000755	15 W. HEATER
205.7521	21712.768	0.0000	.0036601	.001771	15 W. HEATER
226.3747	21719.058	0.0000	.0049066	.002374	15 W. HEATER
246.9973	21712.768	0.0000	.0036601	.001771	15 W. HEATER
269.4500	21693.905	0.0000	.0015616	.000755	15 W. HEATER
291.9731	21662.493	0.0000	.0004189	.000202	15 W. HEATER
314.5674	21618.569	0.0000	.0000826	.000040	15 W. HEATER
337.2503	21562.187	0.0000	.0000157	.000008	15 W. HEATER
360.0426	21493.416	0.0000	.0000045	.000002	15 W. HEATER
382.9659	21412.340	0.0000	.0000018	.000001	15 W. HEATER
406.0427	21319.057	0.0000	.0000009	.000000	15 W. HEATER
429.2960	21213.681	0.0000	.0000004	.000000	15 W. HEATER
452.7493	21096.341	0.0000	.0000002	.000000	15 W. HEATER

REVOLUTION 40

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	20103.391	0.0000	.0000003	.000000	15 W. HEATER
23.9551	20211.447	0.0000	.0000005	.000000	15 W. HEATER
47.7223	20308.485	0.0000	.0000011	.000001	15 W. HEATER
71.3235	20394.387	0.0000	.0000022	.000001	15 W. HEATER
94.7804	20469.049	0.0000	.0000057	.000003	15 W. HEATER
118.1140	20532.378	0.0000	.0000209	.000010	15 W. HEATER
141.3447	20584.299	0.0000	.0001060	.000050	15 W. HEATER
164.4922	20624.748	0.0000	.0004877	.000230	15 W. HEATER
187.5736	20653.675	0.0000	.0016642	.000785	15 W. HEATER
210.5924	20671.045	0.0000	.0036550	.001725	15 W. HEATER
231.9382	20676.837	0.0000	.0047874	.002260	15 W. HEATER
253.2839	20671.045	0.0000	.0036550	.001725	15 W. HEATER
276.3028	20653.675	0.0000	.0016642	.000785	15 W. HEATER
299.3841	20624.748	0.0000	.0004877	.000230	15 W. HEATER
322.5316	20584.299	0.0000	.0001060	.000050	15 W. HEATER
345.7623	20532.378	0.0000	.0000209	.000010	15 W. HEATER
369.0959	20469.049	0.0000	.0000057	.000003	15 W. HEATER
392.5528	20394.387	0.0000	.0000022	.000001	15 W. HEATER
416.1540	20308.485	0.0000	.0000011	.000001	15 W. HEATER
439.9212	20211.447	0.0000	.0000005	.000000	15 W. HEATER
463.8763	20103.391	0.0000	.0000003	.000000	15 W. HEATER

REVOLUTION 45

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	18998.358	0.0000	.0000004	.000000	15 W. HEATER
24.5560	19094.847	0.0000	.0000007	.000000	15 W. HEATER
48.9403	19181.498	0.0000	.0000014	.000001	15 W. HEATER
73.1728	19258.204	0.0000	.0000030	.000001	15 W. HEATER
97.2730	19324.874	0.0000	.0000082	.000004	15 W. HEATER
121.2603	19381.424	0.0000	.0000316	.000014	15 W. HEATER
145.1534	19427.787	0.0000	.0001476	.000068	15 W. HEATER
168.9702	19463.905	0.0000	.0005958	.000273	15 W. HEATER
192.7269	19489.736	0.0000	.0018050	.000827	15 W. HEATER
216.4285	19505.247	0.0000	.0036544	.001676	15 W. HEATER
238.5919	19510.419	0.0000	.0046504	.002133	15 W. HEATER
260.7552	19505.247	0.0000	.0036544	.001676	15 W. HEATER
284.4569	19489.736	0.0000	.0018050	.000827	15 W. HEATER
308.2136	19463.905	0.0000	.0005958	.000273	15 W. HEATER
332.0304	19427.787	0.0000	.0001476	.000068	15 W. HEATER
355.9234	19381.424	0.0000	.0000316	.000014	15 W. HEATER
379.9107	19324.874	0.0000	.0000082	.000004	15 W. HEATER
404.0110	19258.204	0.0000	.0000030	.000001	15 W. HEATER
428.2435	19181.498	0.0000	.0000014	.000001	15 W. HEATER
452.6277	19094.847	0.0000	.0000007	.000000	15 W. HEATER
477.1838	18998.358	0.0000	.0000004	.000000	15 W. HEATER

REVOLUTION 50

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	17759.845	0.0000	.0000006	.000000	15 W. HEATER
25.2912	17841.488	0.0000	.0000012	.000001	15 W. HEATER
50.4330	17914.806	0.0000	.0000022	.000001	15 W. HEATER
75.4426	17979.710	0.0000	.0000049	.000002	15 W. HEATER
100.7369	18036.121	0.0000	.0000144	.000006	15 W. HEATER
125.1326	18083.970	0.0000	.0000575	.000025	15 W. HEATER
149.8459	18123.199	0.0000	.0002304	.000102	15 W. HEATER
174.4926	18153.761	0.0000	.0007779	.000344	15 W. HEATER
199.0870	18175.617	0.0000	.0020079	.000889	15 W. HEATER
223.6343	18188.741	0.0000	.0036622	.001622	15 W. HEATER
246.7622	18193.118	0.0000	.0044907	.001989	15 W. HEATER
269.8902	18188.741	0.0000	.0036622	.001622	15 W. HEATER
294.4375	18175.617	0.0000	.0020079	.000889	15 W. HEATER
319.0319	18153.761	0.0000	.0007779	.000344	15 W. HEATER
343.6786	18123.199	0.0000	.0002304	.000102	15 W. HEATER
368.3919	18083.970	0.0000	.0000575	.000025	15 W. HEATER
393.1876	18036.121	0.0000	.0000144	.000006	15 W. HEATER
418.0819	17979.710	0.0000	.0000049	.000002	15 W. HEATER
443.0915	17914.806	0.0000	.0000022	.000001	15 W. HEATER
468.2333	17841.488	0.0000	.0000012	.000001	15 W. HEATER
493.5245	17759.845	0.0000	.0000006	.000000	15 W. HEATER

REVOLUTION 55

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	16337.642	0.0000	.0000013	.000001	15 W. HEATER
26.2317	16399.104	0.0000	.0000024	.000001	15 W. HEATER
52.3470	16454.300	0.0000	.0000050	.000002	15 W. HEATER
78.3591	16503.161	0.0000	.0000126	.000005	15 W. HEATER
104.2811	16545.629	0.0000	.0000410	.000017	15 W. HEATER
130.1258	16581.651	0.0000	.0001388	.000059	15 W. HEATER
155.9059	16611.183	0.0000	.0004283	.000181	15 W. HEATER
181.6337	16634.190	0.0000	.0011286	.000478	15 W. HEATER
207.3203	16650.644	0.0000	.0023290	.000987	15 W. HEATER
232.9696	16660.524	0.0000	.0036861	.001562	15 W. HEATER
257.3090	16663.819	0.0000	.0042978	.001822	15 W. HEATER
281.6484	16660.524	0.0000	.0036861	.001562	15 W. HEATER
307.2977	16650.644	0.0000	.0023290	.000987	15 W. HEATER
332.9843	16634.190	0.0000	.0011286	.000478	15 W. HEATER
358.7121	16611.183	0.0000	.0004283	.000181	15 W. HEATER
384.4922	16581.651	0.0000	.0001388	.000059	15 W. HEATER
410.3369	16545.629	0.0000	.0000410	.000017	15 W. HEATER
436.2589	16503.161	0.0000	.0000126	.000005	15 W. HEATER
462.2710	16454.300	0.0000	.0000050	.000002	15 W. HEATER
488.3864	16399.104	0.0000	.0000024	.000001	15 W. HEATER
514.6180	16337.642	0.0000	.0000013	.000001	15 W. HEATER

REVOLUTION 60

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	14105.074	0.0000	.0000002	.000000	15 W. HEATER
280.5804	14558.819	0.0000	.0000127	.000005	15 W. HEATER
308.1723	14588.513	0.0000	.0000283	.000011	15 W. HEATER
335.7053	14615.179	0.0000	.0000663	.000026	15 W. HEATER
363.1859	14638.785	0.0000	.0001552	.000062	15 W. HEATER
390.6205	14659.302	0.0000	.0003374	.000134	15 W. HEATER
418.0155	14676.705	0.0000	.0006894	.000274	15 W. HEATER
445.3774	14690.973	0.0000	.0012699	.000505	15 W. HEATER
472.7122	14702.088	0.0000	.0020805	.000828	15 W. HEATER
500.0249	14710.038	0.0000	.0030021	.001195	15 W. HEATER
527.3153	14714.811	0.0000	.0037501	.001494	15 W. HEATER
553.4069	14716.403	0.0000	.0040389	.001609	15 W. HEATER
579.4985	14714.811	0.0000	.0037501	.001494	15 W. HEATER
606.7889	14710.038	0.0000	.0030021	.001195	15 W. HEATER
634.1016	14702.088	0.0000	.0020805	.000828	15 W. HEATER
661.4364	14690.973	0.0000	.0012699	.000505	15 W. HEATER
688.7983	14676.705	0.0000	.0006894	.000274	15 W. HEATER
716.1933	14659.302	0.0000	.0003374	.000134	15 W. HEATER
743.6280	14638.785	0.0000	.0001552	.000062	15 W. HEATER
771.1085	14615.179	0.0000	.0000663	.000026	15 W. HEATER
798.6415	14588.513	0.0000	.0000283	.000011	15 W. HEATER
826.2335	14558.819	0.0000	.0000127	.000005	15 W. HEATER
1106.8138	14105.074	0.0000	.0000002	.000000	15 W. HEATER

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APPENDIX J

Trajectory and Reentry Environment
From the TTA Trajectory Computer Code For an
Initial Drag Perigee of 259,392 Feet
(Four Revolutions)

- Part 1 - Listing of TTA Input Data (Page 245)
- Part 2 - Trajectory and Reentry
Environment Tabulated Data (Page 249)
- Part 3 - Listing of Punched Card
CMA Input (Page 257)

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9PROGRM CARTAP,8600,      ,03, H. R. SPAHR      BOX 053 UNCLASSIFIED
9CHARGE 8666,9513,0049237
9TAPF  OUTPUT,10222
1SCTLR NASA LM AD CR
1FORMT 2      1 8X,2A8
        NASA LM AD CR
1WRITE BINARY
1FORMT 10     1 10A8
CD HITE 6 STET STOP
1WRITE BINARY
1FORMT 6      1 6F10.0
400000.0 375000.0 350000.0 325000.0 300000.0 150000.0
3.2      3.2      3.2      3.2      3.2      3.2
1WRITE BINARY
1WRTLR
END

```

```

9PROGRM CARTAP,8600,      ,03, H. R. SPAHR      BOX 053 UNCLASSIFIED
9CHARGE 8666,9513,0049237
9TAPF  OUTPUT,10222
1SCTLR HEATER CROSS.1
1FORMT 2      1 8X,2A8
        HEATER CROSS.1
1WRITE BINARY
1FORMT 10     1 10A8
CD HITE 25 STET STOP
1WRITE BINARY
1FORMT 5      1 5F10.0
500000.0 400000.0 390000.0 380000.0 370000.0
360000.0 350000.0 340000.0 330000.0 320000.0
310000.0 300000.0 290000.0 280000.0 270000.0
260000.0 250000.0 240000.0 230000.0 220000.0
210000.0 200000.0 100000.0 50000.0 0.0
0.067100 0.066954 0.066875 0.066761 0.066573
0.066248 0.065751 0.064916 0.063483 0.061156
0.057437 0.051825 0.044909 0.038657 0.034929
0.033883 0.033787 0.033784 0.033784 0.033784
0.033784 0.033784 0.033784 0.033784 0.033784
1WRITE BINARY
1FORMT 10     1 10A8
RHO HITE 259 STET STOP
1WRITE BINARY
1FORMT 7      1 7E11.0
0.0      1000.0      2000.0      3000.0      3300.0      4000.0      5000.0
6000.0      6600.0      7000.0      8000.0      9000.0      9800.0      10000.0
11000.0     12000.0     13000.0     14000.0     15000.0     16000.0     16400.0
17000.0     18000.0     19000.0     20000.0     21000.0     22000.0     23000.0
24000.0     25000.0     26000.0     27000.0     28000.0     29000.0     29500.0
30000.0     31000.0     32000.0     33000.0     34000.0     35000.0     36000.0
37000.0     38000.0     39000.0     40000.0     41000.0     42000.0     42600.0
43000.0     44000.0     45000.0     46000.0     47000.0     48000.0     49000.0
49200.0     50000.0     51000.0     52000.0     53000.0     54000.0     55000.0
55800.0     56000.0     57000.0     58000.0     59000.0     60000.0     61000.0
62000.0     62400.0     63000.0     64000.0     65000.0     66000.0     67000.0
68000.0     68800.0     69000.0     70000.0     71000.0     72000.0     73000.0

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74000.0	75000.0	75400.0	76000.0	77000.0	78000.0	79000.0
80000.0	81000.0	82000.0	83000.0	84000.0	85000.0	86000.0
87000.0	88000.0	88600.0	89000.0	90000.0	91000.0	92000.0
93000.0	94000.0	95000.0	95200.0	96000.0	97000.0	98000.0
99000.0	100000.0	101000.0	101800.0	105000.0	110000.0	115000.0
120000.0	125000.0	130000.0	135000.0	140000.0	145000.0	150000.0
155000.0	160000.0	165000.0	170000.0	175000.0	180000.0	185000.0
190000.0	195000.0	200000.0	210000.0	220000.0	230000.0	240000.0
250000.0	260000.0	270000.0	280000.0	290000.0	300000.0	310000.0
320000.0	330000.0	340000.0	350000.0	360000.0	370000.0	380000.0
390000.0	400000.0	410000.0	420000.0	430000.0	440000.0	450000.0
460000.0	470000.0	480000.0	490000.0	500000.0	520000.0	540000.0
560000.0	580000.0	600000.0	620000.0	640000.0	660000.0	680000.0
700000.0	720000.0	740000.0	760000.0	780000.0	800000.0	820000.0
840000.0	860000.0	880000.0	900000.0	920000.0	940000.0	960000.0
980000.0	1000000.0	1020000.0	1040000.0	1060000.0	1080000.0	1100000.0
1120000.0	1140000.0	1160000.0	1180000.0	1200000.0	1220000.0	1240000.0
1260000.0	1280000.0	1300000.0	1320000.0	1340000.0	1360000.0	1380000.0
1400000.0	1420000.0	1440000.0	1460000.0	1480000.0	1500000.0	1520000.0
1540000.0	1560000.0	1580000.0	1600000.0	1620000.0	1640000.0	1660000.0
1680000.0	1700000.0	1720000.0	1740000.0	1760000.0	1780000.0	1800000.0
1820000.0	1840000.0	1860000.0	1880000.0	1900000.0	1920000.0	1940000.0
1960000.0	1980000.0	2000000.0	2020000.0	2040000.0	2060000.0	2080000.0
2100000.0	2120000.0	2140000.0	2160000.0	2180000.0	2200000.0	2220000.0
2240000.0	2260000.0	2280000.0	2300000.0	2320000.0	2320001.0	2320002.0
7.6474E-02	7.4262E-02	7.2098E-02	6.9984E-02	6.9359E-02	6.7917E-02	6.5898E-02
6.3925E-02	6.2763E-02	6.1998E-02	6.0116E-02	5.8278E-02	5.6839E-02	5.6483E-02
5.4731E-02	5.3022E-02	5.1353E-02	4.9725E-02	4.8137E-02	4.6589E-02	4.5980E-02
4.5079E-02	4.3606E-02	4.2171E-02	4.0773E-02	3.9410E-02	3.8083E-02	3.6790E-02
3.5531E-02	3.4306E-02	3.3113E-02	3.1952E-02	3.0823E-02	2.9725E-02	2.9187E-02
2.8657E-02	2.7619E-02	2.6610E-02	2.5629E-02	2.4676E-02	2.3751E-02	2.2853E-02
2.1814E-02	2.0794E-02	1.9822E-02	1.8895E-02	1.8012E-02	1.7170E-02	1.6684E-02
1.6367E-02	1.5602E-02	1.4873E-02	1.4178E-02	1.3516E-02	1.2884E-02	1.2282E-02
1.2165E-02	1.1709E-02	1.1162E-02	1.0641E-02	1.0144E-02	9.6701E-03	9.2186E-03
8.8727E-03	8.7882E-03	8.3780E-03	7.9870E-03	7.6142E-03	7.2589E-03	6.9202E-03
6.5973E-03	6.4724E-03	6.2895E-03	5.9961E-03	5.7164E-03	5.4485E-03	5.1874E-03
4.9391E-03	4.7494E-03	4.7031E-03	4.4787E-03	4.2653E-03	4.0624E-03	3.8694E-03
3.6858E-03	3.5112E-03	3.4438E-03	3.3451E-03	3.1871E-03	3.0368E-03	2.8937E-03
2.7576E-03	2.6281E-03	2.5049E-03	2.3876E-03	2.2759E-03	2.1696E-03	2.0685E-03
1.9721E-03	1.8804E-03	1.8275E-03	1.7931E-03	1.7100E-03	1.6308E-03	1.5554E-03
1.4836E-03	1.4152E-03	1.3500E-03	1.3373E-03	1.2879E-03	1.2288E-03	1.1725E-03
1.1188E-03	1.0676E-03	1.0189E-03	9.8152E-04	8.4570E-04	6.6470E-04	5.2412E-04
4.1506E-04	3.3006E-04	2.6353E-04	2.1122E-04	1.6994E-04	1.3722E-04	1.1119E-04
9.0400E-05	7.4713E-05	6.1822E-05	5.1159E-05	4.2605E-05	3.5578E-05	2.9651E-05
2.4663E-05	2.0472E-05	1.6957E-05	1.1748E-05	8.0356E-06	5.3888E-06	3.5353E-06
2.2630E-06	1.4090E-06	8.1720E-07	4.6610E-07	2.6600E-07	1.4880E-07	8.3140E-08
4.7740E-08	2.7960E-08	1.6540E-08	1.0120E-08	6.3850E-09	3.9710E-09	2.5790E-09
1.7430E-09	1.1640E-09	7.9900E-10	5.7510E-10	4.2940E-10	3.3010E-10	2.6000E-10
2.0880E-10	1.7060E-10	1.4150E-10	1.1880E-10	1.0200E-10	7.7200E-11	6.0900E-11
4.9060E-11	4.0400E-11	3.3500E-11	2.7960E-11	2.3630E-11	2.0080E-11	1.7130E-11
1.4670E-11	1.2600E-11	1.0860E-11	9.3980E-12	8.1790E-12	7.1350E-12	6.2380E-12
5.4660E-12	4.8000E-12	4.2240E-12	3.7240E-12	3.2900E-12	2.9120E-12	2.5830E-12
2.2940E-12	2.0460E-12	1.8270E-12	1.6340E-12	1.4640E-12	1.3130E-12	1.1790E-12
1.0600E-12	9.5480E-13	8.6070E-13	7.7690E-13	7.0200E-13	6.3510E-13	5.7520E-13

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5.2150E-13 4.7340E-13 4.3010E-13 3.9150E-13 3.5720E-13 3.2610E-13 2.9790E-13
2.7240E-13 2.4930E-13 2.2830E-13 2.0920E-13 1.9190E-13 1.7610E-13 1.6180E-13
1.4870E-13 1.3680E-13 1.2590E-13 1.1600E-13 1.0690E-13 9.8610E-14 9.1200E-14
8.4400E-14 7.8140E-14 7.2370E-14 6.7070E-14 6.2180E-14 5.7670E-14 5.3510E-14
4.9670E-14 4.6130E-14 4.2860E-14 3.9830E-14 3.7040E-14 3.4460E-14 3.2070E-14
2.9850E-14 2.7830E-14 2.5960E-14 2.4230E-14 2.2620E-14 2.1120E-14 1.9730E-14
1.8430E-14 1.7230E-14 1.6110E-14 1.5060E-14 1.4090E-14 1.3180E-14 1.2340E-14
1.1550E-14 1.0810E-14 1.0130E-14 9.4910E-15 8.8950E-15 0.0000E-00 0.0000E-00
1WRITE BINARY
1WRTLR
END
9PROGRM CARTAP,8600, ,03, H. R. SPAHR BOX 053 UNCLASSIFIED
9CHARGE 8666,9513,0049237
9TAPF OUTPUT,10000
1SCTLR 21767 SPAHR1
1FORMT 2 1 8X,2A8
21767 SPAHR1
1WRITE BINARY
1FORMT 10 1 10A8
CLEAR AND SET POINT MASS.
1WRITE BINARY REPFAT
SET IDENT TO ( 21767 SPAHR1 ALRH MULTIPLE ORBITS ).
SET TTH. SET QC TO 0.
LOAD METRO ( ICAO 1962 ATMOSPHERE KLETT ).
LOAD DATA A ( NASA LM AD CR ).
SET INITIAL LAT TO 14.0, LONG TO 0.0, HITE TO 578068.0.
SET INITIAL VI TO 35910.7, GAMMAI TO -6.97300, TAU1 TO -90.0.
SET INITIAL TIME TO 0.0, POTIM TO 0.0, POPRATE TO 100.0.
SET WT TO 32963.6.
SET ARFA TO 129.4.
SET HEADING DATA TO ( 2 WT CD AREA VICRCL NOSE ).
SET COLUMN HEADINGS TO ( 2 HITE LAT LONG Q VT MACH
GAMMA TAU AT DQC QC RHO TIME CD ).
SET MAXTM TO 0.1.
START TRJCTRY.
WHEN TIME IS BETWEEN 1.01 AND 1.03, SET MAXTM TO 8.0.
WHEN EVER HITE IS GREATER THAN 600000.0, SET POPRATE TO 1000.0.
WHEN EVER HITE IS BETWEEN 600000.0 AND 400000.0, SET POPRATE TO 100.0.
WHEN EVER HITE IS LESS THAN 400000.0, SET POPRATE TO 5.0.
WHEN HITE IS LFSS THAN 300100.0, PRINT.
LOAD DATA A ( HEATER CROSS.1 ).
SET WT TO 1.000.
SET AREA TO 1.000.
WHEN CLOCK IS GREATER THAN 7185.0,
SET COLUMN HEADINGS TO ( 2 TIME HITE LAT
LONG GAMMAI TAU1 VI ).
PRINT.
END.
STOP
1WRTLR
END
9PROGRM TTA,8600, ,03, H. R. SPAHR BOX 053 UNCLASSIFIED
9TIME 120
9CHARGE 8666,9513,0049237

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9TAPE CONTROL,10000
9TAPF PARAM,10222
9TAPE METRO,10073
21767 SPAHR1
FND

TTA7622 34-54 21767 SPAHRI ALPH MULTIPLE ORBITS
 CONTROL21767 SPAHRI DATA-A=VASA LM A1 CR [ATA-4=]
 OBSERVER J,0000=LAT 0,0000=LONG 0,0000=OZNT

ATA= JCAU 1967 AT 10050000 KLEFT
 WTA= J= DATA= J= O=Y. O=Z

WT CD WFA VICH- VOSE
 32963.0 3,2000 127.40 25004.0 1,000

HIT=	LAT	LONG	VT	MACH	DATA	TAU	AT	FOC	JT	RHO	TIME	CD
578067.99400	14.00	000000	3,3-4	35943	16.2	-0.26672	-32.445	.124	1.103	.0100	4.123550-11	3,200
382714.47045	8.642	-22979	0,477	36109	30.7	-0.34294	-32.445	.172	3.585	177.5	2.352030-9	3,200
369410.47363	8.215	-25060	1,434	36120	32.7	-0.10210	-32.445	.103	11.88	224.6	4.1110764-9	3,200
356878.79592	7.717	-27157	1,532	36131	34.6	-0.26116	-32.445	.163	16.41	244.0	7.5514576-9	3,200
345093.12440	7.229	-29246	2,594	36141	35.5	-0.31906	-32.445	.157	21.24	242.2	1.3270211-8	3,200
334064.73920	6.740	-31335	4,735	36149	37.1	-0.37739	-32.445	.161	28.29	217.6	2.3311260-8	3,200
323792.24084	6.251	-33424	8,174	36157	38.1	-0.13609	-32.445	.142	37.15	678.4	4.0232894-8	3,200
314280.34063	5.701	-35213	1,381	36163	39.0	-0.39348	-32.445	.131	48.28	491.0	6.7966177-8	3,200
305534.48084	5.271	-37002	2,285	36167	39.9	-0.35171	-32.445	.115	52.07	1166.	1.1242773-7	3,200
297555.02677	4.780	-39640	4,607	36168	40.5	-0.40933	-32.445	.100	77.94	1213.	1.7744454-7	3,200
297555.92077	4.780	-39640	4,607	36168	40.5	-0.40933	-32.445	.117	77.94	1517.	1.7744454-7	0,501
290334.07000	4.290	-41777	5,319	36140	40.9	-0.16718	-32.445	.204	94.44	1945.	2.6202609-7	0,451
283890.70363	3.800	-43862	7,863	36100	40.8	-0.22707	-32.445	.291	114.5	2460.	3.8824702-7	0,411
278208.03010	3.310	-45944	10,67	36047	40.8	-0.58570	-32.445	.377	133.7	3080.	5.2894796-7	0,380
273290.39960	2.821	-48022	14,11	35978	40.7	-0.44506	-32.445	.486	152.2	3500.	7.0166715-7	0,362
269130.48437	2.332	-50090	17,39	35891	40.6	-0.20733	-32.445	.585	168.0	4602.	8.6862834-7	0,348
265723.04326	1.845	-52164	21,30	35787	40.5	-0.47194	-32.445	.712	184.7	5483.	1.0703073-6	0,345
263057.72169	1.359	-54225	24,27	35643	40.1	-0.73837	-32.445	.814	195.7	6436.	1.2280440-6	0,342
251123.41749	.8751	-56278	26,33	35525	39.9	-0.50751	-32.445	.887	202.1	7433.	1.3425161-6	0,340
259908.47022	.3930	-58323	27,55	35379	39.7	-0.27959	-32.445	.924	204.9	8452.	1.4164874-6	0,339
259392.00539	-.0872	-60360	28,17	35207	39.5	-0.02472	-32.445	.954	205.2	9475.	1.4603227-6	0,339
259564.46144	-.5653	-62387	27,65	35075	39.5	-0.15687	-32.445	.941	201.4	10496	1.4461950-6	0,339
260408.25489	-1.041	-64400	28,22	34926	39.2	-0.33370	-32.445	.897	194.3	11488	1.3848345-6	0,339
251008.41748	-1.515	-66417	24,37	34786	39.1	-0.60081	-32.445	.841	185.8	12439	1.2960599-6	0,341
264051.15236	-1.987	-68420	21,83	34657	39.0	-0.13429	-32.444	.762	174.5	13341	1.1692528-6	0,343
266824.19533	-2.458	-70416	18,64	34542	39.0	-0.72346	-32.444	.682	160.1	14179	1.0051441-6	0,346
270217.27443	-2.927	-72406	14,93	34445	39.0	-0.23123	-32.444	.543	142.5	14937	8.0957150-7	0,350
274222.28711	-3.394	-74391	12,25	34364	38.9	-0.43711	-32.444	.472	128.6	15013	6.6895550-7	0,365
278832.42696	-3.861	-76372	9,265	34295	38.8	-0.54139	-32.443	.382	111.3	16214	5.0708647-7	0,382
284043.11719	-4.326	-78350	7,018	34239	38.7	-0.84433	-32.443	.320	96.53	16732	3.8519723-7	0,412
289849.72412	-4.790	-80324	4,288	34193	38.7	-0.04618	-32.443	.254	80.36	17175	2.6900702-7	0,448
296249.44922	-5.254	-82297	3,495	34156	38.4	-0.24713	-32.442	.211	67.83	17544	1.9275646-7	0,492
303239.45510	-5.717	-84260	2,308	34125	37.8	-0.44735	-32.442	.185	55.04	17652	1.2752645-7	0,536
310819.54445	-6.180	-86237	1,450	34102	37.1	-0.54639	-32.442	.125	43.59	18498	8.0238813-8	0,577
318987.03070	-6.641	-88206	.9266	34083	36.5	-0.84617	-32.441	.104	34.83	18293	5.1325911-8	0,608
327741.49077	-7.103	-90174	.5849	34068	35.6	-0.14496	-32.441	.088	27.66	18448	3.2427496-8	0,630
337081.66200	-7.564	-92142	.3082	34055	34.6	-0.24344	-32.440	.077	21.44	18571	1.9872739-8	0,645
347006.77541	-8.024	-94109	.2169	34043	33.5	-0.44153	-32.440	.072	16.84	18657	1.2041650-8	0,655
357515.05027	-8.484	-96070	.1315	34031	32.5	-0.53954	-32.439	.070	13.12	18741	7.3129024-9	0,661
368607.11147	-8.944	-98042	.0775	34020	30.9	-0.33720	-32.438	.062	10.07	18799	4.3072426-9	0,665
380279.86622	-9.402	-1,00001	.0459	34009	29.2	-0.03439	-32.438	.070	7.753	18843	2.5556032-9	0,668
392532.54298	-9.861	-1,0197	.0287	33997	27.6	-0.23171	-32.437	.073	6.127	18877	1.5963656-9	0,669
405363.04457	-10.32	-1,0394	.0174	33985	25.3	-0.42836	-32.436	.075	4.771	18904	9.682255-10	0,670
10695502.124	-76.69	-4,6120	2,3-3	26910	10.8	-0.8670	-32.683	.231	.0000	19074	.0000000000	0,671
25114609.111	-74.93	170.02	1,4-3	21096	8.45	-0.8210	-32.610	.133	.0000	19074	.0000000000	0,671
38458083.834	-59.86	166.14	9,4-5	17643	7.07	-0.5302	-32.643	.089	.0000	19074	.0000000000	0,671
50324043.721	-50.11	162.04	7,6-5	15444	6.14	-0.3198	-32.798	.062	.0000	19074	.0000000000	0,671
60859112.805	-43.02	157.90	6,2-5	13980	5.60	-0.2625	-32.811	.047	.0000	19074	.0000000000	0,671
70240327.747	-37.47	153.75	5,4-5	12093	5.21	-0.2904	-32.833	.036	.0000	19074	.0000000000	0,671
78613657.265	-32.92	149.59	4,4-5	12333	4.44	-0.2902	-32.892	.025	.0000	19074	.0000000000	0,671

TTA7622 31-54 2176/ SPAHR1 ALPH MULTIPLE ORBITS
 CONTROL21767 SPAHR1 DATA-A=HEATER CROSS.1 DATA-B=
 OBSERVER 1.0000=LAT 0.0000=LONG 0.0000=ALT

DATA-C= DATA-D= ATMOS= ICAO 1962 AT10 SPHERE KLF TT
 DATA-E= DATA-F= DATA-G= DATA-H= DATA-I= DATA-J= DATA-K= DATA-L= DATA-M= DATA-N= DATA-O= DATA-P= DATA-Q= DATA-R= DATA-S= DATA-T= DATA-U= DATA-V= DATA-W= DATA-X= DATA-Y= DATA-Z=

WT	CD	AREA	VICPC	NOSE	0=ELEV	C=X	Y	Z					
1.00000	0.00710	1.0000	11469.7	1.0000									
HITE	LAT	LONG	VT	MACH	JAM14	TAJ	AT	DOC	QC	MMO	TIME	CD	
86093096.080	-29.03	145.42	4.5-5	11976	4.77	36.3434	133.23	-0.123	0.0000	19074	0.0000000000	8235.0000	.0671
92767476.339	-25.63	141.26	4.3-4	11645	4.67	32.7321	133.30	-0.118	0.0000	19074	0.0000000000	9235.0000	.0671
98706581.365	-22.59	137.09	4.2-5	11502	4.61	29.0834	143.10	-0.115	0.0000	19074	0.0000000000	10255.0000	.0671
103965830.31	-19.42	132.92	4.2-5	11442	4.56	25.5537	143.94	-0.112	0.0000	19074	0.0000000000	11255.0000	.0671
108589610.89	-17.27	128.75	4.2-5	11437	4.56	22.1039	143.24	-0.110	0.0000	19074	0.0000000000	12255.0000	.0671
112613677.80	-14.87	124.58	4.2-5	11466	4.59	19.0036	150.09	-0.104	0.0000	19074	0.0000000000	13255.0000	.0671
116066885.00	-12.61	120.41	4.2-5	11515	4.61	16.0030	151.37	-0.106	0.0000	19074	0.0000000000	14255.0000	.0671
116972448.83	-10.45	116.23	4.3-5	11574	4.64	13.1704	152.75	-0.105	0.0000	19074	0.0000000000	15255.0000	.0671
121348875.31	-8.375	112.06	4.3-5	11632	4.66	10.4863	153.67	-0.104	0.0000	19074	0.0000000000	16255.0000	.0671
123210642.57	-6.358	107.89	4.3-5	11684	4.68	7.91246	154.36	-0.103	0.0000	19074	0.0000000000	17255.0000	.0671
124568699.68	-4.385	103.72	4.4-5	11725	4.70	5.42772	154.85	-0.102	0.0000	19074	0.0000000000	18255.0000	.0671
125430823.50	-2.442	99.540	4.4-5	11752	4.71	3.00457	155.15	-0.101	0.0000	19074	0.0000000000	19255.0000	.0671
125801861.69	-0.5158	95.369	4.4-5	11752	4.71	0.15635	155.28	-0.100	0.0000	19074	0.0000000000	20255.0000	.0671
125683879.62	1.407	91.196	4.4-5	11761	4.71	-1.76621	153.24	-0.100	0.0000	19074	0.0000000000	21255.0000	.0671
125076222.11	3.340	87.023	4.4-5	11741	4.70	-4.16815	153.03	-0.101	0.0000	19074	0.0000000000	22255.0000	.0671
123975493.79	5.295	82.851	4.4-5	11707	4.69	-6.01742	154.64	-0.102	0.0000	19074	0.0000000000	23255.0000	.0671
122375457.28	7.288	78.678	4.3-5	11660	4.67	-7.14145	154.05	-0.103	0.0000	19074	0.0000000000	24255.0000	.0671
120266841.52	9.332	74.505	4.3-5	11603	4.65	-11.7677	153.26	-0.104	0.0000	19074	0.0000000000	25255.0000	.0671
117637046.67	11.45	70.333	4.2-5	11546	4.63	-14.5230	152.22	-0.104	0.0000	19074	0.0000000000	26255.0000	.0671
114469722.84	13.65	66.161	4.2-5	11491	4.60	-17.4322	151.90	-0.107	0.0000	19074	0.0000000000	27255.0000	.0671
110744188.91	15.97	61.989	4.2-5	11450	4.59	-20.5136	149.25	-0.109	0.0000	19074	0.0000000000	28255.0000	.0671
106434641.05	18.44	57.818	4.2-5	11435	4.58	-23.7845	147.20	-0.111	0.0000	19074	0.0000000000	29255.0000	.0671
101509076.86	21.09	53.646	4.2-5	11464	4.59	-27.2337	144.65	-0.113	0.0000	19074	0.0000000000	30255.0000	.0671
95927825.712	23.98	49.479	4.2-5	11560	4.63	-30.8312	141.50	-0.114	0.0000	19074	0.0000000000	31255.0000	.0671
89641524.554	27.19	45.311	4.4-5	11754	4.71	-34.5025	137.61	-0.121	0.0000	19074	0.0000000000	32255.0000	.0671
82588303.752	30.80	41.146	4.6-6	12089	4.84	-38.1125	132.81	-0.125	0.0000	19074	0.0000000000	33255.0000	.0671
74689862.239	34.98	36.943	5.1-5	12618	5.06	-41.4464	125.98	-0.132	0.0000	19074	0.0000000000	34255.0000	.0671
65846081.385	39.96	32.826	5.7-5	13422	5.38	-44.1961	121.08	-0.141	0.0000	19074	0.0000000000	35255.0000	.0671
55928250.044	44.16	28.679	6.8-6	14615	5.66	-45.9579	112.25	-0.153	0.0000	19074	0.0000000000	36255.0000	.0671
44773917.368	54.34	24.554	8.5-6	16391	6.37	-48.2197	104.01	-0.173	0.0000	19074	0.0000000000	37255.0000	.0671
32203453.622	66.15	20.508	11.2-5	19103	7.65	-44.2237	96.201	-0.184	0.0000	19074	0.0000000000	38255.0000	.0671
18193845.395	85.97	16.142	14.8-5	23512	9.42	-48.2097	88.462	-0.177	0.0000	19074	0.0000000000	39255.0000	.0671
4348248.7887	51.56	-168.38	3.0-5	30803	12.3	-21.8401	-92.056	-0.254	0.0000	19074	0.0000000000	40255.0000	.0671
452587.29346	11.93	-170.31	0.044	33942	10.8	-20.10744	-92.431	-0.184	2.407	19185	2.467531-10	40755.0000	.0670
396748.65626	10.11	-170.39	0.243	33992	26.8	-4.32232	-92.434	-0.170	5.638	19260	1.3522528-9	40775.0000	.0669
384229.71485	9.647	-170.41	0.400	34003	28.7	-4.12533	-92.435	-0.166	7.233	19292	2.2233958-9	40780.0000	.0668
372290.33350	9.168	-170.43	0.657	34013	30.3	-3.92810	-92.435	-0.161	9.267	19333	3.6521956-9	40785.0000	.0666
360931.93799	8.729	-170.45	1.108	34023	32.1	-3.73002	-92.436	-0.155	12.04	19386	6.1600302-9	40790.0000	.0663
350155.98635	8.270	-170.47	1.811	34031	33.2	-3.53293	-92.437	-0.147	15.32	19434	1.0061739-8	40795.0000	.0658
339963.88479	7.809	-170.49	2.985	34038	34.3	-3.33516	-92.437	-0.137	19.74	19542	1.6581244-8	40800.0000	.0649
330357.00439	7.349	-170.51	4.962	34042	35.4	-3.13715	-92.438	-0.121	25.44	19634	2.75527301-8	40805.0000	.0635
321336.68166	6.888	-170.53	8.123	34044	36.0	-2.93894	-92.438	-0.104	32.63	19798	4.5096044-8	40810.0000	.0615
312904.17237	6.427	-170.55	1.312	34042	36.8	-2.74061	-92.439	-0.101	41.32	19982	7.2859230-8	40815.0000	.0585
305060.58887	5.966	-170.57	2.080	34034	37.6	-2.54278	-92.439	-0.101	51.97	20215	1.1557217-7	40820.0000	.0547
297806.74609	5.504	-170.59	3.134	34019	38.1	-2.34497	-92.440	-0.118	63.73	20503	1.7450494-7	40825.0000	.0503
291142.91994	5.043	-170.61	4.537	33996	38.4	-2.14755	-92.440	-0.171	76.48	20834	2.5260498-7	40830.0000	.0457
285068.67628	4.582	-170.63	6.537	33963	38.4	-1.95072	-92.441	-0.241	91.67	21273	3.6467579-7	40835.0000	.0418
279582.72999	4.121	-170.65	8.596	33919	38.4	-1.75468	-92.441	-0.301	104.7	21764	4.8075035-7	40840.0000	.0385
274682.80517	3.660	-170.67	11.63	33863	38.3	-1.55470	-92.441	-0.400	121.3	22327	6.5278671-7	40845.0000	.0367
270365.48574	3.201	-170.69	14.27	33792	38.2	-1.36616	-92.441	-0.477	133.7	22967	8.0437131-7	40850.0000	.0351

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      ATMOS= ICAD 1962  ATMOSPHERE= KLETT
      DATA-C=          DATA-D=
      U=HLEV          O=X          O=Y          O=Z

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TTA7622 3B-54 21767 SPAHR1 ALPH MULTIPLE ORBITS
CONTROL21767 SPAHR1 DATA-A=HEATER CROSS,1 DATA-B=

ATMOS= ICAD 1962 ATMOSPHERE KLETT

0BSERVEK 0,0000=LAT 0,0000=LONG 0,0000=ORINT

DATA-C=

DATA-J=

0=ELEV

0=X

0=Y

0=Z

WT CD AREA MICRO NOSE

1.00000 .06653 1.0000 25730.3 1.000

HITC	LAT	LONG	VT	MACH	GAMMA	TAU	AT	DOC	GC	PHO	TIME	CD
368692.44385	10.74	130.65	.0655	31377	28.5	-3.44460	-92.416	.053	7.785	39249	4.2860441-9	54875.0000 .0665
359456.83886	10.31	130.63	.1009	31386	29.6	-3.30430	-92.418	.048	9.562	39293	6.5878707-9	54880.0000 .0662
350601.95167	9.890	130.61	.1216	31393	30.6	-3.16405	-92.420	.043	11.83	39346	9.8951711-9	54885.0000 .0658
342128.65025	9.466	130.59	.2325	31400	31.4	-3.02437	-92.422	.035	14.65	39412	1.5173403-8	54890.0000 .0651
334037.79932	9.041	130.58	.3579	31405	32.2	-2.88399	-92.424	.025	18.17	39494	2.3340833-8	54895.0000 .0641
326330.20851	8.616	130.56	.5399	31408	32.9	-2.74354	-92.425	.012	22.31	39595	3.6210848-8	54900.0000 .0626
319006.64113	8.190	130.54	.7858	31408	33.4	-2.60307	-92.427	-.004	26.00	39718	5.1256490-8	54905.0000 .0608
312067.76417	7.765	130.52	1.162	31406	34.0	-2.46264	-92.428	-.024	32.70	39866	7.5820115-8	54910.0000 .0582
305514.13525	7.339	130.50	1.725	31400	34.6	-2.32233	-92.430	-.056	39.80	40047	1.1259419-7	54915.0000 .0549
299346.11718	6.913	130.49	2.396	31388	35.1	-2.18224	-92.431	-.066	46.84	40263	1.5646351-7	54920.0000 .0514
293563.75246	6.487	130.47	3.429	31371	35.3	-2.04249	-92.432	-.128	55.95	40520	2.2423282-7	54925.0000 .0474
288166.67286	6.062	130.45	4.622	31347	35.5	-1.90322	-92.433	-.170	64.83	40822	3.0268488-7	54930.0000 .0438
283154.04543	5.637	130.43	6.142	31316	35.4	-1.76459	-92.434	-.221	74.54	41170	4.0298755-7	54935.0000 .0406
278524.36329	5.211	130.41	7.873	31276	35.4	-1.62676	-92.435	-.273	84.14	41565	5.1790961-7	54940.0000 .0381
274275.54200	4.787	130.40	10.11	31227	35.3	-1.48999	-92.436	-.344	94.92	42014	6.6708572-7	54945.0000 .0365
270404.69727	4.363	130.38	12.12	31167	35.3	-1.35447	-92.437	-.402	103.5	42511	8.0299108-7	54950.0000 .0351
266908.11035	3.940	130.36	15.03	31095	35.1	-1.22046	-92.438	-.501	114.7	43055	1.0001780-6	54955.0000 .0346
263780.99122	3.518	130.34	17.71	31007	34.9	-1.08829	-92.439	-.589	123.7	43652	1.1852409-6	54960.0000 .0343
261017.50685	3.097	130.32	20.02	30905	34.7	-.95827	-92.439	-.664	130.6	44289	1.3487839-6	54965.0000 .0340
258610.19335	2.677	130.31	22.51	30793	34.4	-.83077	-92.440	-.748	137.4	44959	1.5276895-6	54970.0000 .0339
256550.45558	2.259	130.29	24.90	30666	34.0	-.70604	-92.440	-.831	143.2	45661	1.7035911-6	54975.0000 .0338
254829.55713	1.843	130.27	26.80	30527	33.7	-.58439	-92.441	-.897	147.1	46387	1.8506412-6	54980.0000 .0338
253433.54934	1.429	130.25	28.25	30378	33.4	-.46611	-92.441	-.948	149.4	47129	1.9697749-6	54985.0000 .0338
252353.54638	1.017	130.24	29.27	30223	33.1	-.35139	-92.441	-.984	150.4	47879	2.0620071-6	54990.0000 .0338
251576.03015	.6065	130.22	29.89	30062	32.9	-.24038	-92.441	-1.01	150.3	48631	2.1284065-6	54995.0000 .0338
251088.12062	.1985	130.20	30.15	29899	32.6	-.13315	-92.441	-1.02	149.1	49380	2.1700745-6	55000.0000 .0338
250876.72754	-.2072	130.18	30.07	29736	32.4	-.02985	-92.441	-1.02	147.2	50121	2.1881275-6	55005.0000 .0338
250928.82665	-.6107	130.17	29.68	29573	32.3	.06959	-92.441	-1.00	144.5	50851	2.1836782-6	55010.0000 .0338
251231.58399	-1.012	130.15	29.01	29413	32.1	.16519	-92.441	-.983	141.2	51565	2.1578227-6	55015.0000 .0338
251772.52490	-1.411	130.13	28.09	29257	32.0	.25699	-92.440	-.954	137.4	52262	2.1116264-6	55020.0000 .0338
252539.65723	-1.808	130.12	26.94	29107	31.9	.34512	-92.440	-.917	133.1	52939	2.0461133-6	55025.0000 .0338
253521.58446	-2.203	130.10	25.58	28963	31.8	.42965	-92.439	-.872	128.3	53593	1.9622567-6	55030.0000 .0338
254707.54326	-2.596	130.08	24.03	28825	31.6	.51081	-92.439	-.822	123.1	54221	1.8609715-6	55035.0000 .0338
256087.74268	-2.988	130.07	22.31	28699	31.6	.58875	-92.438	-.765	117.5	54823	1.7431068-6	55040.0000 .0338
257652.92285	-3.377	130.05	20.43	28580	31.6	.66368	-92.437	-.703	111.5	55396	1.6094404-6	55045.0000 .0339
259394.91944	-3.765	130.03	18.40	28473	31.9	.73587	-92.436	-.635	105.0	55937	1.4606739-6	55050.0000 .0339
261306.43052	-4.152	130.02	16.65	28375	31.9	.80551	-92.435	-.580	99.15	56447	1.3316851-6	55055.0000 .0340
263380.94045	-4.537	130.00	15.03	28286	31.8	.87287	-92.433	-.529	93.55	56929	1.2099159-6	55060.0000 .0342
265612.58887	-4.921	129.98	13.31	28205	31.8	.93815	-92.432	-.475	87.52	57382	1.0768470-6	55065.0000 .0345
267996.24707	-5.304	129.97	11.51	28133	31.8	1.00154	-92.430	-.416	80.95	57803	9.3578210-7	55070.0000 .0347
270527.56055	-5.686	129.95	9.780	28071	31.8	1.06329	-92.429	-.361	74.27	58191	7.9867735-7	55075.0000 .0351
273202.82717	-6.067	129.94	8.595	28015	31.7	1.12359	-92.427	-.329	69.35	58549	7.0474874-7	55080.0000 .0361
276018.70312	-6.447	129.92	7.364	27965	31.6	1.18251	-92.425	-.293	63.06	58883	6.0588333-7	55085.0000 .0372
278972.25783	-6.827	129.90	6.084	27921	31.6	1.24047	-92.423	-.254	57.95	59188	5.0218403-7	55090.0000 .0383
282061.01012	-7.206	129.89	5.133	27883	31.5	1.29733	-92.421	-.227	53.08	59465	4.2489907-7	55095.0000 .0399
285282.82960	-7.584	129.87	4.343	27848	31.5	1.35331	-92.418	-.205	48.71	59719	3.6039058-7	55100.0000 .0420
288635.75830	-7.962	129.86	3.527	27817	31.5	1.40849	-92.416	-.179	43.87	59951	2.9329848-7	55105.0000 .0441
292118.14553	-8.339	129.84	2.894	27790	31.4	1.46298	-92.413	-.159	39.61	60159	2.4117533-7	55110.0000 .0464
29557.57666	-8.716	129.82	2.382	27766	31.2	1.51686	-92.410	-.142	35.88	60348	1.9886106-7	55115.0000 .0489

TTA7622 SH-94 21767 SPAHR1 ALRM MULTIPLE ORBITS
 CONTROL21767 SPAHR1 DATA-A=HEATER CROSS.1 DATA-B=

ATMOS= ICAN 1962 ATMOSPHERE KLETT

OBSERVER 0.0000=LAT 0.0000=LONG 0.0000=ALT

DATA-C=

DATA-D=

0=ELEV

0=X

0=Y

0=Z

WT CD AREA VIRC NOSE

1.00000 0.0369 1.0000 25770.1 1.000

HIT#	LAT	LONG	VT	MACH	GAMMA	TAU	AT	ROC	SC	RHO	TIME	CD
303328.85938	-9.469	129.79	1.215	27726	30.7	1.62509	-92.404	-0.104	28.55	60666	1.2694271-7	55125.0000 .0537
307316.81201	-9.845	129.78	1.202	27709	30.4	1.67538	-92.401	-0.095	28.40	60801	1.0075781-7	55130.0000 .0559
311428.92772	-10.22	129.76	.9307	27695	30.1	1.72172	-92.394	-0.083	22.33	60921	7.8081596-8	55135.0000 .0580
315664.57715	-10.60	129.74	.7513	27682	29.7	1.77957	-92.395	-0.074	20.85	61025	6.3087397-8	55140.0000 .0595
320023.20996	-10.97	129.73	.5675	27671	29.4	1.83116	-92.391	-0.065	17.41	61120	4.7694091-8	55145.0000 .0612
324504.34571	-11.35	129.71	.4617	27661	29.1	1.88252	-92.387	-0.060	15.71	61202	3.8830404-8	55150.0000 .0622
329107.54394	-11.72	129.70	.3532	27652	28.8	1.93369	-92.383	-0.054	13.73	61276	2.9725276-8	55155.0000 .0633
333832.40431	-12.09	129.68	.2301	27643	28.4	1.98468	-92.380	-0.051	12.22	61341	2.3583394-8	55160.0000 .0640
338678.55123	-12.47	129.67	.2142	27635	27.9	2.03552	-92.375	-0.044	10.68	61398	1.8049094-8	55165.0000 .0647
343645.63136	-12.84	129.65	.1684	27628	27.5	2.08621	-92.371	-0.040	9.472	61448	1.4199505-8	55170.0000 .0652
348733.50226	-13.22	129.63	.1295	27620	27.1	2.13676	-92.367	-0.044	8.307	61493	1.0933220-8	55175.0000 .0656
353941.22559	-13.59	129.62	.1025	27613	26.7	2.18719	-92.362	-0.043	7.385	61532	8.6479522-9	55180.0000 .0659
359269.06933	-13.96	129.60	.0789	27606	26.3	2.23750	-92.358	-0.042	6.478	61566	6.6580025-9	55185.0000 .0662
364716.49058	-14.34	129.59	.0621	27599	25.8	2.28768	-92.353	-0.042	5.748	61597	5.2464377-9	55190.0000 .0664
370283.17921	-14.71	129.57	.0465	27592	24.9	2.33776	-92.348	-0.042	4.974	61624	3.9315815-9	55195.0000 .0666
375968.77002	-15.08	129.55	.0371	27586	24.2	2.38772	-92.343	-0.042	4.444	61647	3.1401460-9	55200.0000 .0667
381772.95948	-15.45	129.54	.0287	27579	23.5	2.43756	-92.338	-0.042	3.998	61668	2.4307806-9	55205.0000 .0668
387695.37047	-15.83	129.52	.0229	27572	22.9	2.48730	-92.333	-0.043	3.496	61687	1.9356665-9	55210.0000 .0668
393735.67776	-16.20	129.51	.0180	27565	22.2	2.53692	-92.327	-0.043	3.095	61703	1.5267043-9	55215.0000 .0669
399893.51417	-16.57	129.49	.0133	27558	21.3	2.58642	-92.322	-0.043	2.709	61717	1.1701655-9	55220.0000 .0670
406168.52539	-16.94	129.48	.0111	27551	20.4	2.63582	-92.316	-0.044	2.426	61730	9.388488-10	55225.0000 .0670
555672.20947	-24.32	129.17	6.00-4	27383	12.5	3.59717	-92.172	-0.058	.5642	61844	5.162205-11	55325.0000 .0671
3660302.2427	-88.72	100.35	1.9-5	24158	9.66	5.81890	-94.372	-0.111	.0000	61915	.0000100000	56325.0000 .0671
6827521.9327	-42.21	-60.207	1.4-5	21304	8.34	5.22798	-93.052	-0.063	.0000	61915	.0000000000	57325.0000 .0671
7953792.9169	-63.717	-63.717	1.3-5	20389	8.17	5.36945	-93.177	.003	.0000	61915	.0000000000	58325.0000 .0671
6602316.3558	41.12	-67.234	1.5-5	21498	8.51	5.69134	-93.071	.002	.0000	61915	.0000000000	59325.0000 .0671
3322278.1581	80.67	73.639	1.9-5	24487	9.81	5.68535	-95.779	.113	.0000	61915	.0000000000	60325.0000 .0671
574394.99316	30.09	103.74	5.0-4	27361	12.3	5.69604	-91.983	.000	.5134	61981	4.282697-11	61225.0000 .0671
419985.81006	22.73	103.44	.0065	27534	18.7	5.74539	-92.180	.044	1.897	62077	5.754177-10	61325.0000 .0670
394544.29980	21.24	103.38	.0175	27562	22.1	5.74898	-92.213	.041	3.047	62125	1.4798850-9	61345.0000 .0669
388475.53663	20.87	103.36	.0221	27568	22.9	5.79961	-92.221	.039	3.426	62141	1.4704451-9	61350.0000 .0669
382524.18994	20.50	103.35	.0280	27575	23.5	5.85012	-92.228	.038	3.856	62160	2.3679777-9	61355.0000 .0668
376690.76933	20.13	103.33	.0359	27581	24.1	5.90054	-92.236	.037	4.373	62180	3.0396727-9	61360.0000 .0667
370975.01367	19.75	103.32	.0454	27587	24.8	5.95066	-92.243	.036	4.910	62203	3.8352781-9	61365.0000 .0666
365377.85743	19.36	103.30	.0602	27593	25.5	6.00109	-92.250	.034	5.656	62230	5.086782-9	61370.0000 .0664
359899.41650	18.01	103.29	.0760	27598	26.2	6.25124	-92.257	.032	6.357	62260	6.4225679-9	61375.0000 .0662
354540.01222	16.64	103.27	.0999	27603	26.6	6.20130	-92.264	.030	7.282	62294	8.4243054-9	61380.0000 .0660
349299.93702	15.26	103.26	.1252	27608	27.0	6.25130	-92.271	.027	8.158	62332	1.0564440-8	61385.0000 .0657
344179.47993	17.89	103.24	.1642	27612	27.4	6.10123	-92.278	.024	9.342	62376	1.3856774-8	61390.0000 .0653
339178.90771	17.52	103.22	.2071	27616	27.9	6.05111	-92.284	.020	10.49	62426	1.7477687-8	61395.0000 .0648
334298.47363	17.14	103.21	.2733	27619	28.3	6.00095	-92.291	.015	12.05	62482	2.3051143-8	61400.0000 .0641
329538.40479	16.77	103.19	.3423	27621	28.8	6.05078	-92.297	.010	13.48	62546	2.8873035-8	61405.0000 .0634
324898.49895	16.39	103.18	.4512	27622	29.0	6.00060	-92.303	.007	15.48	62618	3.8049978-8	61410.0000 .0623
320380.10545	16.02	103.16	.5572	27623	29.3	6.05046	-92.309	.004	17.19	62700	4.6988149-8	61415.0000 .0612
315982.14452	15.65	103.15	.7347	27621	29.6	6.00037	-92.315	.001	19.73	62792	6.1963208-8	61420.0000 .0597
311705.04982	15.27	103.13	.9140	27619	30.0	6.05038	-92.321	.004	22.00	62896	7.7104124-8	61425.0000 .0581
307548.80860	14.90	103.12	1.175	27613	30.3	6.00022	-92.326	.003	24.03	63013	9.9234525-8	61430.0000 .0561
303513.28809	14.52	103.10	1.489	27605	30.6	6.05086	-92.332	.003	28.03	63145	1.2573175-7	61435.0000 .0538
299598.25245	14.15	103.08	1.817	27597	30.9	6.00145	-92.337	.007	30.03	63293	1.5358848-7	61440.0000 .0515
295803.30909	13.77	103.07	2.341	27584	31.0	6.05235	-92.342	.009	35.07	63457	1.4798522-7	61445.0000 .0489

TTA7622 34-54 21767 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL21767 SPAHR1 DATA-A=H=ATER CROSS.1 DATA-B=
 OBSERVER 0.0000=LAT 0.0000=LONG 0.0000=ORNT 0=ELF/

AT(US=ICAU 1962 ATMOSPHERE KLETT
 DATA-D= DATA-E=
 DATA-F= DATA-G= DATA-H= DATA-I= DATA-J= DATA-K= DATA-L= DATA-M= DATA-N= DATA-O= DATA-P= DATA-Q= DATA-R= DATA-S= DATA-T= DATA-U= DATA-V= DATA-W= DATA-X= DATA-Y= DATA-Z=

WT CD ARFA VICKOL NOSE
 1.00000 .04638 1.0000 25776.5 1.000

	HITE	LAT	LONG	J	VT	MACH	-AM1A	TAJ	AT	DOC	DC	RHO	TIME	CD
292127.91749	13.40	103.05	2.847	27569	31.1	-1.20304	-92.347	-1.107	39.62	63642	2.4106081-7	61450.0000	.0464	
288571.56867	13.03	103.04	5.475	27550	31.2	-1.45541	-92.352	-1.120	42.49	63645	2.9458691-7	61455.0000	.0440	
285132.68701	12.65	103.02	4.279	27527	31.1	-1.40774	-92.357	-1.106	47.16	64069	3.6339493-7	61460.0000	.0419	
281810.72851	12.28	103.01	5.052	27500	31.1	-1.36072	-92.362	-1.179	51.13	64315	4.2986732-7	61465.0000	.0398	
278604.37033	11.91	102.99	6.040	27469	31.1	-1.31448	-92.366	-1.204	55.75	64582	5.1511119-7	61470.0000	.0381	
275511.01613	11.53	102.97	7.294	27433	31.0	-1.26913	-92.371	-1.249	61.08	64673	6.2371822-7	61475.0000	.0370	
272529.05772	11.16	102.96	8.492	27390	31.0	-1.22481	-92.375	-1.284	65.67	65191	7.2838372-7	61480.0000	.0359	
269657.65969	10.79	102.94	9.729	27341	31.0	-1.18169	-92.379	-1.320	70.00	65530	8.3745970-7	61485.0000	.0349	
266892.27050	10.42	102.93	11.55	27285	30.8	-1.13994	-92.383	-1.382	76.03	65894	1.0011115-6	61490.0000	.0346	
264230.43556	10.05	102.91	13.34	27219	30.6	-1.09977	-92.387	-1.440	81.15	66288	1.1586428-6	61495.0000	.0343	
261668.61719	9.678	102.90	15.00	27144	30.5	-1.06145	-92.391	-1.493	85.54	66705	1.3102512-6	61500.0000	.0341	
259202.47021	9.309	102.88	16.81	27060	30.3	-1.02520	-92.394	-1.552	89.92	67143	1.4771090-6	61505.0000	.0339	
256827.14552	8.942	102.87	18.98	26965	30.0	-0.991289	-92.398	-1.625	94.83	67605	1.6799618-6	61510.0000	.0339	
254537.22072	8.576	102.85	21.03	26859	29.6	-0.950012	-92.401	-1.695	98.04	68090	1.8755214-6	61515.0000	.0338	
252326.57912	8.211	102.84	22.94	26742	29.3	-0.931652	-92.404	-1.761	102.4	68593	2.0643101-6	61520.0000	.0338	
250188.27588	7.848	102.82	24.73	26615	29.0	-0.906524	-92.407	-1.821	105.2	69112	2.2469212-6	61525.0000	.0338	
248114.78803	7.487	102.80	27.27	26477	28.6	-0.884911	-92.410	-1.907	109.2	69648	2.5023555-6	61530.0000	.0338	
246098.00829	7.128	102.79	29.72	26324	28.3	-0.867153	-92.413	-1.991	112.6	70203	2.7594504-6	61535.0000	.0338	
244129.21923	6.771	102.77	32.01	26159	28.0	-0.853608	-92.415	-1.07	115.2	70772	3.0099394-6	61540.0000	.0338	
242198.78320	6.416	102.76	34.15	25981	27.6	-0.844787	-92.418	-1.14	117.3	71354	3.2555498-6	61545.0000	.0338	
240296.40917	6.064	102.74	36.15	25792	27.3	-0.840867	-92.420	-1.21	118.8	71944	3.4975879-6	61550.0000	.0338	
238411.25538	5.714	102.73	38.95	25591	26.9	-0.842266	-92.422	-1.30	121.2	72544	3.8297738-6	61555.0000	.0338	
236531.98534	5.367	102.72	41.80	25374	26.5	-0.849410	-92.424	-1.41	123.3	73155	4.1780967-6	61560.0000	.0338	
234646.78392	5.023	102.70	44.47	25141	26.1	-0.862784	-92.426	-1.49	124.6	73775	4.5275205-6	61565.0000	.0338	
232742.97706	4.683	102.69	47.01	24895	25.8	-0.882852	-92.428	-1.57	125.4	74401	4.8803892-6	61570.0000	.0338	
230907.40284	4.345	102.67	49.41	24636	25.4	-0.910071	-92.429	-1.65	125.7	75029	5.2391479-6	61575.0000	.0338	
228826.43003	4.012	102.66	52.57	24361	24.9	-0.944914	-92.431	-1.76	126.6	75660	5.5994189-6	61580.0000	.0338	
226786.17821	3.682	102.64	56.17	24069	24.5	-0.987944	-92.432	-1.83	127.5	76295	6.2394343-6	61585.0000	.0338	
224672.49317	3.356	102.63	59.63	23757	24.0	-1.039953	-92.433	-2.00	127.7	76933	6.7984845-6	61590.0000	.0338	
222470.70362	3.035	102.62	62.95	23426	23.6	-1.10125	-92.434	-2.11	127.3	77570	7.3816542-6	61595.0000	.0338	
220165.67335	2.718	102.60	66.15	23079	23.1	-1.17291	-92.434	-2.21	126.3	78205	7.9917496-6	61600.0000	.0338	
217742.18749	2.406	102.59	71.12	22710	22.6	-1.25554	-92.435	-2.34	126.5	78836	8.8737903-6	61605.0000	.0338	
215185.32323	2.099	102.58	76.01	22314	22.0	-1.35012	-92.435	-2.54	125.9	79467	9.8231006-6	61610.0000	.0338	
212480.18651	1.798	102.56	80.64	21892	21.5	-1.45774	-92.435	-2.71	124.4	80094	1.0827256-5	61615.0000	.0338	
209611.63329	1.503	102.55	85.40	21445	20.9	-1.57952	-92.434	-2.85	122.5	80711	1.1950330-5	61620.0000	.0338	
206564.94970	1.214	102.54	92.48	20967	20.3	-1.71672	-92.434	-3.10	121.4	81320	1.3537318-5	61625.0000	.0338	
203326.67772	.9314	102.53	98.95	20451	19.7	-1.87094	-92.433	-3.31	119.0	81922	1.5224134-5	61630.0000	.0338	
199884.01269	.6563	102.52	104.9	19902	19.0	-2.04410	-92.432	-3.51	115.5	82508	1.7038539-5	61635.0000	.0338	
196224.86279	.3890	102.50	113.7	19316	18.3	-2.23781	-92.431	-3.71	112.7	83079	1.9611921-5	61640.0000	.0338	
192339.94628	.1299	102.49	123.1	18679	17.7	-2.45444	-92.429	-4.12	109.1	83634	2.2701657-5	61645.0000	.0338	
188223.14697	-.1201	102.48	133.0	17990	16.9	-2.69816	-92.427	-4.45	104.6	84168	2.6435589-5	61650.0000	.0338	
183871.03804	-.3603	102.47	143.3	17248	16.2	-2.97132	-92.425	-4.79	99.12	84678	3.0989271-5	61655.0000	.0338	
179283.96046	-.5901	102.46	153.8	16449	15.5	-3.27852	-92.422	-5.14	92.72	85158	3.6584322-5	61660.0000	.0338	
174466.90722	-.8085	102.45	164.4	15594	14.5	-3.62476	-92.419	-5.49	85.44	85604	4.3517015-5	61665.0000	.0338	
169430.63135	-1.015	102.45	175.4	14681	13.6	-4.01615	-92.416	-5.86	77.48	86011	5.2373236-5	61670.0000	.0338	
164193.25830	-1.208	102.44	186.6	13709	12.7	-4.45986	-92.412	-6.23	68.94	86378	6.3901941-5	61675.0000	.0338	
158781.62792	-1.388	102.43	196.2	12681	11.7	-4.96557	-92.407	-6.54	59.76	86700	7.4535521-5	61680.0000	.0338	
153230.87159	-1.553	102.42	204.6	11605	10.8	-5.54489	-92.402	-6.82	50.42	86975	9.7756036-5	61685.0000	.0338	
147585.21388	-1.704	102.42	211.5	10490	9.81	-6.21271	-92.396	-7.04	41.24	87204	1.2376138-4	61690.0000	.0338	
141098.01612	-1.839	102.41	214.1	9352.	8.83	-6.98826	-92.390	-7.11	32.35	87588	1.5751938-4	61695.0000	.0338	

ATMOS= ICAO 1962 ATMOSPHERE KLETT
DATA=

0=X.	0=Y.	0=Z
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255

TTA7622 34-24 21767 SPAHR1 ALRM MULTIPLE ORBITS
 CONTROL21767 SPAHR1 DATA-A=HEATER CROSS.1 DATA-B=
 OBSFRVER 0.0000=LAT 0.0000=LONG 0.0000=QZNT DATA-C= DATA-D=
 WT CD AREA VICECL VOSE 0=ELEV 0=X 0=Y 0=Z
 1.00000 .03378 1.0000 25940.5 1.000
 HITE LAT LONG VT MACH GAMMA TAI AT HOC JC RHU TIME CD
 12470.837492 -2.544 102.38 30.04 192.4 .150 -49.9489 -.12363 -.015 .0022 87843 .0522361716 61950.0000 .0338
 11516.408203 -2.544 102.38 30.02 189.4 .177 -49.9497 -.13828 -.015 .0027 87843 .0538434584 61955.0000 .0338
 10576.490234 -2.544 102.38 30.01 186.5 .174 -49.9505 -.14302 -.014 .0027 87843 .0554729891 61960.0000 .0338
 9650.5947268 -2.544 102.38 29.99 183.8 .170 -49.9513 -.14794 -.013 .0026 87843 .0571177427 61965.0000 .0338
 8738.1435346 -2.544 102.38 29.97 181.2 .167 -49.9520 -.15276 -.013 .0025 87843 .0587592921 61970.0000 .0338
 7838.6679087 -2.544 102.38 29.96 178.5 .164 -49.9527 -.15786 -.012 .0024 87843 .0604198269 61975.0000 .0338
 6951.7705080 -2.544 102.38 29.94 176.2 .162 -49.9534 -.16164 -.011 .0023 87843 .0620402389 61980.0000 .0338
 6076.9335937 -2.544 102.38 29.93 173.8 .159 -49.9541 -.16585 -.011 .0023 87843 .0637760053 61985.0000 .0338
 5213.7739257 -2.544 102.38 29.92 171.5 .156 -49.9547 -.17053 -.011 .0022 87843 .0654762240 61990.0000 .0338
 4361.9916992 -2.544 102.38 29.91 169.3 .154 -49.9553 -.17531 -.010 .0022 87843 .0671861388 61995.0000 .0338
 3521.1274414 -2.544 102.38 29.90 167.1 .152 -49.9559 -.18050 -.010 .0021 87843 .0689034775 62000.0000 .0338
 2690.8339845 -2.544 102.38 29.89 165.0 .149 -49.9565 -.18414 -.009 .0020 87843 .0706375770 62005.0000 .0338
 1870.8574218 -2.544 102.38 29.88 163.0 .147 -49.9571 -.18888 -.009 .0020 87843 .0723774645 62010.0000 .0338
 1060.8300782 -2.544 102.38 29.87 161.0 .145 -49.9576 -.19310 -.009 .0019 87843 .0741303637 62015.0000 .0338
 260.4643437 -2.544 102.38 29.87 159.1 .143 -49.9581 -.19772 -.009 .0019 87843 .0758978518 62020.0000 .0338
 -531.20117189 -2.544 102.38 29.61 157.8 .141 -49.9586 -.20196 -.008 .0018 87843 .0764740000 62025.0000 .0338
 -1319.7348033 -2.544 102.38 29.53 157.7 .141 -49.9588 -.20499 -.008 .0018 87843 .0764740000 62030.0000 .0338
 HITE LESS THAN MIN.
 CLOCK= 1905.90
 -1713.8657227 -2.544 102.38 29.53 157.6 .141 -49.9589 -.20614 .103 .0018 87843 .0764740000 62032.5000 .0338
 END OF RUN,

REVOLUTION 1

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	25805.470	0.0000	.0000015	.000001	15 W. HEATER
55.0000	26044.382	0.0000	.0000837	.000044	15 W. HEATER
60.0000	26060.252	0.0000	.0001474	.000078	15 W. HEATER
65.0000	26076.127	0.0000	.0002664	.000141	15 W. HEATER
70.0000	26090.564	0.0000	.0004654	.000247	15 W. HEATER
75.0000	26102.115	0.0000	.0008165	.000433	15 W. HEATER
80.0000	26113.670	0.0000	.0014089	.000748	15 W. HEATER
85.0000	26122.337	0.0000	.0023703	.001258	15 W. HEATER
90.0000	26128.116	0.0000	.0038983	.002069	15 W. HEATER
95.0000	26129.561	0.0000	.0062028	.003292	15 W. HEATER
100.0000	26089.120	0.0000	.0094257	.004999	15 W. HEATER
105.0000	26031.400	0.0000	.0118726	.007166	15 W. HEATER
110.0000	25955.021	0.0000	.0139008	.009827	15 W. HEATER
115.0000	25855.751	0.0000	.0159239	.012904	15 W. HEATER
120.0000	25730.857	0.0000	.0178336	.016196	15 W. HEATER
125.0000	25581.954	0.0000	.0195031	.019387	15 W. HEATER
130.0000	25404.981	0.0000	.0208881	.022261	15 W. HEATER
135.0000	25208.749	0.0000	.0219201	.024544	15 W. HEATER
140.0000	25001.970	0.0000	.0225443	.025994	15 W. HEATER
145.0000	24787.598	0.0000	.0227081	.026407	15 W. HEATER
150.0000	24574.149	0.0000	.0225033	.025967	15 W. HEATER
155.0000	24365.809	0.0000	.0219184	.024666	15 W. HEATER
160.0000	24170.861	0.0000	.0209439	.022548	15 W. HEATER
165.0000	23991.923	0.0000	.0196723	.019916	15 W. HEATER
170.0000	23832.966	0.0000	.0181716	.017010	15 W. HEATER
175.0000	23699.299	0.0000	.0165110	.014055	15 W. HEATER
180.0000	23587.969	0.0000	.0147152	.011172	15 W. HEATER
185.0000	23493.339	0.0000	.0128988	.008589	15 W. HEATER
190.0000	23416.677	0.0000	.0111239	.006391	15 W. HEATER
195.0000	23353.799	0.0000	.0091723	.004602	15 W. HEATER
200.0000	23303.285	0.0000	.0063196	.003167	15 W. HEATER
205.0000	23261.004	0.0000	.0042050	.002106	15 W. HEATER
210.0000	23229.659	0.0000	.0027092	.001356	15 W. HEATER
215.0000	23203.781	0.0000	.0017212	.000861	15 W. HEATER
220.0000	23183.361	0.0000	.0010749	.000537	15 W. HEATER
225.0000	23165.672	0.0000	.0006565	.000328	15 W. HEATER
230.0000	23149.349	0.0000	.0003991	.000199	15 W. HEATER
235.0000	23133.032	0.0000	.0002436	.000122	15 W. HEATER
240.0000	23118.079	0.0000	.0001443	.000072	15 W. HEATER
245.0000	23103.132	0.0000	.0000868	.000043	15 W. HEATER
250.0000	23086.831	0.0000	.0000535	.000027	15 W. HEATER
255.0000	23070.536	0.0000	.0000323	.000016	15 W. HEATER

REVOLUTION 2

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	23012.192	0.0000	.0000083	.0000004	15 W. HEATER
20.0000	23080.040	0.0000	.0000451	.000023	15 W. HEATER
25.0000	23094.981	0.0000	.0000743	.000037	15 W. HEATER
30.0000	23108.567	0.0000	.0001224	.000061	15 W. HEATER
35.0000	23122.157	0.0000	.0002078	.000104	15 W. HEATER
40.0000	23133.032	0.0000	.0003419	.000171	15 W. HEATER
45.0000	23142.549	0.0000	.0005641	.000282	15 W. HEATER
50.0000	23147.989	0.0000	.0009341	.000467	15 W. HEATER
55.0000	23150.709	0.0000	.0015131	.000756	15 W. HEATER
60.0000	23147.989	0.0000	.0024091	.001203	15 W. HEATER
65.0000	23137.110	0.0000	.0037721	.001884	15 W. HEATER
70.0000	23116.720	0.0000	.0057499	.002870	15 W. HEATER
75.0000	23085.473	0.0000	.0084621	.004221	15 W. HEATER
80.0000	23040.676	0.0000	.0107084	.005937	15 W. HEATER
85.0000	22981.015	0.0000	.0124709	.008055	15 W. HEATER
90.0000	22905.195	0.0000	.0142829	.010571	15 W. HEATER
95.0000	22809.246	0.0000	.0160845	.013415	15 W. HEATER
100.0000	22693.295	0.0000	.0177625	.016373	15 W. HEATER
105.0000	22552.128	0.0000	.0192942	.019336	15 W. HEATER
110.0000	22389.997	0.0000	.0206274	.022125	15 W. HEATER
115.0000	22211.128	0.0000	.0216211	.024337	15 W. HEATER
120.0000	22017.059	0.0000	.0222970	.025916	15 W. HEATER
125.0000	21810.637	0.0000	.0227003	.026900	15 W. HEATER
130.0000	21599.933	0.0000	.0228280	.027243	15 W. HEATER
135.0000	21388.945	0.0000	.0226857	.026945	15 W. HEATER
140.0000	21182.894	0.0000	.0222896	.026049	15 W. HEATER
145.0000	20986.904	0.0000	.0216633	.024641	15 W. HEATER
150.0000	20804.717	0.0000	.0208357	.022824	15 W. HEATER
155.0000	20638.730	0.0000	.0198904	.020825	15 W. HEATER
160.0000	20488.759	0.0000	.0185098	.018054	15 W. HEATER
165.0000	20355.910	0.0000	.0171193	.015458	15 W. HEATER
170.0000	20242.565	0.0000	.0156640	.012953	15 W. HEATER
175.0000	20147.296	0.0000	.0141529	.010582	15 W. HEATER
180.0000	20064.911	0.0000	.0126360	.008440	15 W. HEATER
185.0000	19995.332	0.0000	.0111606	.006588	15 W. HEATER
190.0000	19938.494	0.0000	.0097534	.005033	15 W. HEATER
195.0000	19890.561	0.0000	.0081190	.003760	15 W. HEATER
200.0000	19850.240	0.0000	.0058829	.002721	15 W. HEATER
205.0000	19816.252	0.0000	.0041674	.001926	15 W. HEATER
210.0000	19789.836	0.0000	.0028856	.001333	15 W. HEATER
215.0000	19767.209	0.0000	.0019809	.000914	15 W. HEATER
220.0000	19748.362	0.0000	.0013429	.000620	15 W. HEATER
225.0000	19732.036	0.0000	.0009007	.000415	15 W. HEATER
230.0000	19716.971	0.0000	.0005963	.000275	15 W. HEATER
235.0000	19704.422	0.0000	.0003945	.000182	15 W. HEATER
240.0000	19690.622	0.0000	.0002618	.000121	15 W. HEATER
245.0000	19678.081	0.0000	.0001722	.000079	15 W. HEATER
250.0000	19665.544	0.0000	.0001116	.000051	15 W. HEATER
255.0000	19653.011	0.0000	.0000739	.000034	15 W. HEATER
260.0000	19640.482	0.0000	.0000496	.000023	15 W. HEATER
265.0000	19626.705	0.0000	.0000327	.000015	15 W. HEATER

REVOLUTION 3

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	19512.914	0.0000	.0000034	.0000002	15 W. HEATER
45.0000	19642.987	0.0000	.0000584	.0000027	15 W. HEATER
50.0000	19655.517	0.0000	.00000870	.0000040	15 W. HEATER
55.0000	19665.544	0.0000	.0001326	.0000061	15 W. HEATER
60.0000	19676.827	0.0000	.0002055	.0000095	15 W. HEATER
65.0000	19685.605	0.0000	.0003090	.000142	15 W. HEATER
70.0000	19694.385	0.0000	.0004678	.000216	15 W. HEATER
75.0000	19700.658	0.0000	.0007104	.000327	15 W. HEATER
80.0000	19704.422	0.0000	.0010687	.000493	15 W. HEATER
85.0000	19704.422	0.0000	.0015844	.000730	15 W. HEATER
90.0000	19701.912	0.0000	.0023281	.001073	15 W. HEATER
95.0000	19694.385	0.0000	.0033895	.001562	15 W. HEATER
100.0000	19679.335	0.0000	.0048514	.002234	15 W. HEATER
105.0000	19658.024	0.0000	.0067843	.003123	15 W. HEATER
110.0000	19627.957	0.0000	.0089525	.004251	15 W. HEATER
115.0000	19589.155	0.0000	.0102924	.005620	15 W. HEATER
120.0000	19539.144	0.0000	.0117027	.007268	15 W. HEATER
125.0000	19477.968	0.0000	.0131616	.009198	15 W. HEATER
130.0000	19403.190	0.0000	.0146400	.011387	15 W. HEATER
135.0000	19313.645	0.0000	.0160655	.013722	15 W. HEATER
140.0000	19204.483	0.0000	.0174370	.016178	15 W. HEATER
145.0000	19079.576	0.0000	.0187297	.018684	15 W. HEATER
150.0000	18940.312	0.0000	.0198170	.020939	15 W. HEATER
155.0000	18784.403	0.0000	.0207093	.022896	15 W. HEATER
160.0000	18614.500	0.0000	.0214591	.024617	15 W. HEATER
165.0000	18433.232	0.0000	.0220557	.026043	15 W. HEATER
170.0000	18245.605	0.0000	.0224946	.027132	15 W. HEATER
175.0000	18051.732	0.0000	.0227725	.027851	15 W. HEATER
180.0000	17856.505	0.0000	.0228936	.028194	15 W. HEATER
185.0000	17662.339	0.0000	.0228644	.028168	15 W. HEATER
190.0000	17469.235	0.0000	.0226923	.027791	15 W. HEATER
195.0000	17280.718	0.0000	.0223900	.027100	15 W. HEATER
200.0000	17097.898	0.0000	.0219701	.026135	15 W. HEATER
210.0000	16755.995	0.0000	.0208349	.023575	15 W. HEATER
220.0000	16451.923	0.0000	.0194007	.020497	15 W. HEATER
230.0000	16193.830	0.0000	.0177763	.017249	15 W. HEATER
240.0000	15981.819	0.0000	.0158611	.013760	15 W. HEATER
250.0000	15809.394	0.0000	.0139118	.010603	15 W. HEATER
260.0000	15677.051	0.0000	.0119723	.007862	15 W. HEATER
270.0000	15572.024	0.0000	.0101427	.005649	15 W. HEATER
280.0000	15490.704	0.0000	.0084717	.003944	15 W. HEATER
290.0000	15426.245	0.0000	.0065363	.002665	15 W. HEATER
300.0000	15375.218	0.0000	.0042584	.001734	15 W. HEATER
310.0000	15336.450	0.0000	.0026931	.001095	15 W. HEATER
320.0000	15306.576	0.0000	.0016809	.000683	15 W. HEATER
330.0000	15283.361	0.0000	.0010378	.000421	15 W. HEATER
340.0000	15263.477	0.0000	.0006320	.000256	15 W. HEATER
350.0000	15246.917	0.0000	.0003820	.000155	15 W. HEATER
360.0000	15230.365	0.0000	.0002331	.000094	15 W. HEATER
370.0000	15214.925	0.0000	.0001409	.000057	15 W. HEATER
380.0000	15200.595	0.0000	.0000847	.000034	15 W. HEATER
390.0000	15185.170	0.0000	.0000526	.000021	15 W. HEATER
400.0000	15169.753	0.0000	.0000322	.000013	15 W. HEATER
505.0000	14977.702	0.0000	.0000014	.000001	15 W. HEATER

REVOLUTION 4

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	14953.645	0.0000	.0000012	.000000	15 W. HEATER
100.0000	15143.343	0.0000	.0000158	.000006	15 W. HEATER
120.0000	15174.157	0.0000	.0000400	.000016	15 W. HEATER
125.0000	15180.765	0.0000	.0000510	.000021	15 W. HEATER
130.0000	15188.475	0.0000	.0000644	.000026	15 W. HEATER
135.0000	15195.085	0.0000	.0000821	.000033	15 W. HEATER
140.0000	15201.697	0.0000	.0001050	.000043	15 W. HEATER
145.0000	15208.311	0.0000	.0001365	.000055	15 W. HEATER
150.0000	15213.823	0.0000	.0001770	.000072	15 W. HEATER
155.0000	15219.336	0.0000	.0002266	.000092	15 W. HEATER
160.0000	15224.850	0.0000	.0002892	.000117	15 W. HEATER
165.0000	15229.262	0.0000	.0003719	.000151	15 W. HEATER
170.0000	15233.675	0.0000	.0004769	.000193	15 W. HEATER
175.0000	15236.985	0.0000	.0006162	.000250	15 W. HEATER
180.0000	15239.191	0.0000	.0007916	.000321	15 W. HEATER
190.0000	15241.398	0.0000	.0012922	.000524	15 W. HEATER
200.0000	15235.881	0.0000	.0020889	.000847	15 W. HEATER
210.0000	15222.644	0.0000	.0033481	.001356	15 W. HEATER
220.0000	15198.391	0.0000	.0052376	.002120	15 W. HEATER
235.0000	15135.644	0.0000	.0083948	.003886	15 W. HEATER
255.0000	14985.360	0.0000	.0118881	.007805	15 W. HEATER
275.0000	14717.391	0.0000	.0158491	.013910	15 W. HEATER
295.0000	14284.693	0.0000	.0195542	.021269	15 W. HEATER
315.0000	13668.643	0.0000	.0229636	.029527	15 W. HEATER
325.0000	13287.803	0.0000	.0246100	.034057	15 W. HEATER
335.0000	12860.593	0.0000	.0261557	.038658	15 W. HEATER
345.0000	12379.622	0.0000	.0277160	.043656	15 W. HEATER
355.0000	11854.230	0.0000	.0293218	.049181	15 W. HEATER
365.0000	11273.696	0.0000	.0309522	.055216	15 W. HEATER
375.0000	10639.399	0.0000	.0327592	.062391	15 W. HEATER
385.0000	9945.760	0.0000	.0346453	.070491	15 W. HEATER
395.0000	9186.186	0.0000	.0367845	.080418	15 W. HEATER
405.0000	8354.342	0.0000	.0390884	.092109	15 W. HEATER
415.0000	7452.767	0.0000	.0417760	.107028	15 W. HEATER
425.0000	6464.657	0.0000	.0446771	.125050	15 W. HEATER
435.0000	5404.582	0.0000	.0474590	.144949	15 W. HEATER
445.0000	4305.211	0.0000	.0498281	.165327	15 W. HEATER
455.0000	3212.108	0.0000	.0515196	.184680	15 W. HEATER
465.0000	2198.032	0.0000	.0519454	.198739	15 W. HEATER
475.0000	1348.026	0.0000	.0500194	.198297	15 W. HEATER
485.0000	736.941	0.0000	.0452220	.177451	15 W. HEATER
495.0000	365.907	0.0000	.0384990	.142852	15 W. HEATER
505.0000	171.365	0.0000	.0313683	.106264	15 W. HEATER
515.0000	80.540	0.0000	.0250406	.075837	15 W. HEATER
525.0000	40.107	0.0000	.0204308	.056051	15 W. HEATER
535.0000	21.980	0.0000	.0174385	.044690	15 W. HEATER
545.0000	13.510	0.0000	.0157258	.039095	15 W. HEATER
565.0000	6.519	0.0000	.0140261	.034693	15 W. HEATER
585.0000	3.780	0.0000	.0129736	.032210	15 W. HEATER
605.0000	2.474	0.0000	.0122529	.030618	15 W. HEATER
625.0000	1.766	0.0000	.0117690	.029713	15 W. HEATER
645.0000	1.394	0.0000	.0114186	.028978	15 W. HEATER
665.0000	1.152	0.0000	.0112071	.028723	15 W. HEATER
775.0000	.558	0.0000	.0105219	.028231	15 W. HEATER
795.0000	.506	0.0000	.0104371	.028185	15 W. HEATER

APPENDIX K

Trajectory and Reentry Environment
From the TTA Trajectory Computer Code For an
Initial Drag Perigee of 279,702 Feet
(Nine Revolutions)

Part 1 - Listing of TTA Input Data (Page 263)

Part 2 - Trajectory and Reentry
Environment Tabulated Data (Page 267)

Part 3 - Listing of Punched Card
CMA Input (Page 282)

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Part 1
Listing of TTA Input Data

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9PROGRM CARTAP,8600,      ,03, H. R. SPAHR      BOX 053  UNCLASSIFIED
9CHARGE  8666,9513,0049237
9TAPE    OUTPUT,10222
1SCTLR   NASA LM  AD CR
1FORMT   2      1 8X,2A8
          NASA LM  AD CR
1WRITE   BINARY
1FORMT   10     1 10A8
CD       HITE  6  STET STOP
1WRITE   BINARY
1FORMT   6      1 6F10.0
400000.0 375000.0 350000.0 325000.0 300000.0 150000.0
3.2      3.2      3.2      3.2      3.2      3.2
1WRITE   BINARY
1WRTLR
END
9PROGRM CARTAP,8600,      ,03, H. R. SPAHR      BOX 053  UNCLASSIFIED
9CHARGE  8666,9513,0049237
9TAPE    OUTPUT,10222
1SCTLR   HFATER CROSS.1
1FORMT   2      1 8X,2A8
          HEATER CROSS.1
1WRITE   BINARY
1FORMT   10     1 10A8
CD       HITE  25 STET STOP
1WRITE   BINARY
1FORMT   5      1 5F10.0
500000.0 400000.0 390000.0 380000.0 370000.0
360000.0 350000.0 340000.0 330000.0 320000.0
310000.0 300000.0 290000.0 280000.0 270000.0
260000.0 250000.0 240000.0 230000.0 220000.0
210000.0 200000.0 100000.0 50000.0 0.0
0.067100 0.066954 0.066875 0.066761 0.066573
0.066248 0.065751 0.064916 0.063483 0.061156
0.057437 0.051825 0.044909 0.038657 0.034929
0.033883 0.033787 0.033784 0.033784 0.033784
0.033784 0.033784 0.033784 0.033784 0.033784
1WRITE   BINARY
1FORMT   10     1 10A8
RHO      HITE  259 STET STOP
1WRITE   BINARY
1FORMT   7      1 7E11.0
0.0      1000.0      2000.0      3000.0      3300.0      4000.0      5000.0
6000.0      6600.0      7000.0      8000.0      9000.0      9800.0      10000.0
11000.0     12000.0     13000.0     14000.0     15000.0     16000.0     16400.0
17000.0     18000.0     19000.0     20000.0     21000.0     22000.0     23000.0
24000.0     25000.0     26000.0     27000.0     28000.0     29000.0     29500.0
30000.0     31000.0     32000.0     33000.0     34000.0     35000.0     36000.0
37000.0     38000.0     39000.0     40000.0     41000.0     42000.0     42600.0
43000.0     44000.0     45000.0     46000.0     47000.0     48000.0     49000.0
49200.0     50000.0     51000.0     52000.0     53000.0     54000.0     55000.0
55800.0     56000.0     57000.0     58000.0     59000.0     60000.0     61000.0
62000.0     62400.0     63000.0     64000.0     65000.0     66000.0     67000.0
68000.0     68800.0     69000.0     70000.0     71000.0     72000.0     73000.0

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74000.0	75000.0	75400.0	76000.0	77000.0	78000.0	79000.0
80000.0	81000.0	82000.0	83000.0	84000.0	85000.0	86000.0
87000.0	88000.0	88600.0	89000.0	90000.0	91000.0	92000.0
93000.0	94000.0	95000.0	95200.0	96000.0	97000.0	98000.0
99000.0	100000.0	101000.0	101800.0	105000.0	110000.0	115000.0
120000.0	125000.0	130000.0	135000.0	140000.0	145000.0	150000.0
155000.0	160000.0	165000.0	170000.0	175000.0	180000.0	185000.0
190000.0	195000.0	200000.0	210000.0	220000.0	230000.0	240000.0
250000.0	260000.0	270000.0	280000.0	290000.0	300000.0	310000.0
320000.0	330000.0	340000.0	350000.0	360000.0	370000.0	380000.0
390000.0	400000.0	410000.0	420000.0	430000.0	440000.0	450000.0
460000.0	470000.0	480000.0	490000.0	500000.0	520000.0	540000.0
560000.0	580000.0	600000.0	620000.0	640000.0	660000.0	680000.0
700000.0	720000.0	740000.0	760000.0	780000.0	800000.0	820000.0
840000.0	860000.0	880000.0	900000.0	920000.0	940000.0	960000.0
980000.0	1000000.0	1020000.0	1040000.0	1060000.0	1080000.0	1100000.0
1120000.0	1140000.0	1160000.0	1180000.0	1200000.0	1220000.0	1240000.0
1260000.0	1280000.0	1300000.0	1320000.0	1340000.0	1360000.0	1380000.0
1400000.0	1420000.0	1440000.0	1460000.0	1480000.0	1500000.0	1520000.0
1540000.0	1560000.0	1580000.0	1600000.0	1620000.0	1640000.0	1660000.0
1680000.0	1700000.0	1720000.0	1740000.0	1760000.0	1780000.0	1800000.0
1820000.0	1840000.0	1860000.0	1880000.0	1900000.0	1920000.0	1940000.0
1960000.0	1980000.0	2000000.0	2020000.0	2040000.0	2060000.0	2080000.0
2100000.0	2120000.0	2140000.0	2160000.0	2180000.0	2200000.0	2220000.0
2240000.0	2260000.0	2280000.0	2300000.0	2320000.0	2320001.0	2320002.0
7.6474E-02	7.4262E-02	7.2098E-02	6.9984E-02	6.9359E-02	6.7917E-02	6.5898E-02
6.3925E-02	6.2763E-02	6.1998E-02	6.0116E-02	5.8278E-02	5.6839E-02	5.6483E-02
5.4731E-02	5.3022E-02	5.1353E-02	4.9725E-02	4.8137E-02	4.6589E-02	4.5980E-02
4.5079E-02	4.3606E-02	4.2171E-02	4.0773E-02	3.9410E-02	3.8083E-02	3.6790E-02
3.5531E-02	3.4306E-02	3.3113E-02	3.1952E-02	3.0823E-02	2.9725E-02	2.9187E-02
2.8657E-02	2.7619E-02	2.6610E-02	2.5629E-02	2.4676E-02	2.3751E-02	2.2853E-02
2.1814E-02	2.0794E-02	1.9822E-02	1.8895E-02	1.8012E-02	1.7170E-02	1.6684E-02
1.6367E-02	1.5602E-02	1.4873E-02	1.4178E-02	1.3516E-02	1.2884E-02	1.2282E-02
1.2165E-02	1.1709E-02	1.1162E-02	1.0641E-02	1.0144E-02	9.6701E-03	9.2186E-03
8.8727E-03	8.7882E-03	8.3780E-03	7.9870E-03	7.6142E-03	7.2589E-03	6.9202E-03
6.5973E-03	6.4724E-03	6.2895E-03	5.9961E-03	5.7164E-03	5.4485E-03	5.1874E-03
4.9391E-03	4.7494E-03	4.7031E-03	4.4787E-03	4.2653E-03	4.0624E-03	3.8694E-03
3.6858E-03	3.5112E-03	3.4438E-03	3.3451E-03	3.1871E-03	3.0368E-03	2.8937E-03
2.7576E-03	2.6281E-03	2.5049E-03	2.3876E-03	2.2759E-03	2.1696E-03	2.0685E-03
1.9721E-03	1.8804E-03	1.8275E-03	1.7931E-03	1.7100E-03	1.6308E-03	1.5554E-03
1.4836E-03	1.4152E-03	1.3500E-03	1.3373E-03	1.2879E-03	1.2288E-03	1.1725E-03
1.1188E-03	1.0676E-03	1.0189E-03	9.8152E-04	8.4570E-04	6.6470E-04	5.2412E-04
4.1506E-04	3.3006E-04	2.6353E-04	2.1122E-04	1.6994E-04	1.3722E-04	1.1119E-04
9.0400E-05	7.4713E-05	6.1822E-05	5.1159E-05	4.2605E-05	3.5578E-05	2.9651E-05
2.4663E-05	2.0472E-05	1.6957E-05	1.1748E-05	8.0356E-06	5.3888E-06	3.5353E-06
2.2630E-06	1.4090E-06	8.1720E-07	4.6610E-07	2.6600E-07	1.4880E-07	8.3140E-08
4.7740E-08	2.7960E-08	1.6540E-08	1.0120E-08	6.3850E-09	3.9710E-09	2.5790E-09
1.7430E-09	1.1640E-09	7.9900E-10	5.7510E-10	4.2940E-10	3.3010E-10	2.6000E-10
2.0880E-10	1.7060E-10	1.4150E-10	1.1880E-10	1.0200E-10	7.7200E-11	6.0900E-11
4.9060E-11	4.0400E-11	3.3500E-11	2.7960E-11	2.3630E-11	2.0080E-11	1.7130E-11
1.4670E-11	1.2600E-11	1.0860E-11	9.3980E-12	8.1790E-12	7.1350E-12	6.2380E-12
5.4660E-12	4.8000E-12	4.2240E-12	3.7240E-12	3.2900E-12	2.9120E-12	2.5830E-12
2.2940E-12	2.0460E-12	1.8270E-12	1.6340E-12	1.4640E-12	1.3130E-12	1.1790E-12
1.0600E-12	9.5480E-13	8.6070E-13	7.7690E-13	7.0200E-13	6.3510E-13	5.7520E-13


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5.2150E-13 4.7340E-13 4.3010E-13 3.9150E-13 3.5720E-13 3.2610E-13 2.9790E-13
2.7240E-13 2.4930E-13 2.2830E-13 2.0920E-13 1.9190E-13 1.7610E-13 1.6180E-13
1.4870E-13 1.3680E-13 1.2590E-13 1.1600E-13 1.0690E-13 9.8610E-14 9.1200E-14
8.4400E-14 7.8140E-14 7.2370E-14 6.7070E-14 6.2180E-14 5.7670E-14 5.3510E-14
4.9670E-14 4.6130E-14 4.2860E-14 3.9830E-14 3.7040E-14 3.4460E-14 3.2070E-14
2.9850E-14 2.7830E-14 2.5960E-14 2.4230E-14 2.2620E-14 2.1120E-14 1.9730E-14
1.8430E-14 1.7230E-14 1.6110E-14 1.5060E-14 1.4090E-14 1.3180E-14 1.2340E-14
1.1550E-14 1.0810E-14 1.0130E-14 9.4910E-15 8.8950E-15 0.0000E-00 0.0000E-00
1WRITE  BINARY
1WRTLR
FND
9PROGRM CARTAP,8600,      ,03, H. R. SPAHR      BOX 053  UNCLASSIFIED
9CHARGE  8666,9513,0049237
9TAPF    OUTPUT,10000
1SCTLR   21768 SPAHR1
1FORMT   2      1 8X,2A8
          21768 SPAHR1
1WRITE  BINARY
1FORMT  10      1 10A8
        CLEAR AND SET POINT MASS.
1WRITE  BINARY REPEAT
SET IDENT TO ( 21768 SPAHR1 ALRH MULTIPLE ORBITS ).
SET TTH. SET QC TO 0.
LOAD METRO ( ICAO 1962 ATMOSPHERE KLETT ).
LOAD DATA A ( NASA LM AD CR ).
SET INITIAL LAT TO 14.09096, LONG TO 0.0, HITE TO 598411.0.
SET INITIAL VI TO 35893.5, GAMMAI TO -6.9737178, TAU1 TO -90.0.
SET INITIAL TIME TO 0.0, POTIM TO 0.0, POPRATE TO 100.0.
SET WT TO 32963.6.
SET AREA TO 129.4.
SET HEADING DATA TO ( 2      WT      CD      AREA  VICRCL  NOSE ).
SET COLUMN HEADINGS TO ( 2      HITE  LAT  LONG  Q  VT  MACH
      GAMMA  TAU  AT  DQC  QC      RHO      TIME  CD ).
SET MAXTM TO 0.1.
START TRJCTRY.
WHEN TIME IS BETWEEN 1.01 AND 1.03, SET MAXTM TO 8.0.
WHEN EVER HITE IS GREATER THAN 600000.0, SET POPRATE TO 1000.0.
WHEN EVER HITE IS BETWEEN 600000.0 AND 400000.0, SET POPRATE TO 100.0.
WHEN EVER HITE IS LESS THAN 400000.0, SET POPRATE TO 5.0.
WHEN HITE IS BETWEEN 300001.0 AND 300000.0, PRINT.
LOAD DATA A ( HEATER CROSS.1 ).
SET WT TO 1.000.
SET AREA TO 1.000.
WHEN EVER HITE IS LESS THAN 2320000.0 AND SENTA IS EQUAL TO 1,
SET SFNTA TO 0.
WHEN EVER HITE IS GREATER THAN 2320000.0 AND SENTA IS EQUAL TO 0,
SET SENTA TO 1 AND PRINT.
HOLD CONDITNS.
SET SENTB TO INITIAL GAMMAI.
SET SENTC TO INITIAL LAT.
MULTIPLY SENTB BY -1.0.
MULTIPLY SENTC BY -1.0.
SET INITIAL GAMMAI TO SENTB.
SET INITIAL LAT TO SENTC.

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START TRJCTRY.
WHEN CLOCK IS GREATER THAN 1785.0,
SET COLUMN HEADINGS TO ( 2      TIME      HITE      LAT
                        LONG      GAMMAI      TAU1      VI      ).
PRINT.
FND.
STOP
1WRTL
FND
9PROGRM TTA,8600,      ,03, H. R. SPAHR      BOX 053 UNCLASSIFIED
9TIME      30
9CHARGE 8666,9513,0049237
9TAPE CONTROL,10000
9TAPE PARAM,10222
9TAPE METRO,10073
      21768 SPAHR1
FND

```

Part 2

Trajectory and Reentry Environment Tabulated Data

YTA7622 3B-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL21768 SPAHR1 DATA=A=NASA LM AD CR DATA=B=
 OBSERVER 0.0000=LAT 0.0000=LONG 0.0000=ORNT 0=ELEV DATA-C= ATMOS= ICAO 1962 ATMOSPHERE KLETT
 DATA-C= DATA-C= DATA-C=
 0=X, 0=Y, 0=Z
 WT CD AREA VICROL NOSE
 32963.6 3,2000 129,40 25591.8 1,000
 HITE LAT LONG Q VT MACH GAMMA TAU AT DQC GC RHO TIME CD
 598410,99756 14.09 .00000 6.8=4 35926 16.0 =6.96742 =92.447 .114 1.081 .0000 3.404821-11 .000000000 3.200
 389757,73047 8.304 =.25068 .0357 36103 29.8 =4.10711 =92.448 .068 7.779 171.1 1.7632537-9 60.0000000 3.200
 377206,41700 7.817 =.27157 .0602 36114 31.5 =3.86634 =92.448 .064 10.09 215.8 2.9678668-9 65.0000000 3.200
 365409,15624 7.330 =.29246 .1030 36124 33.3 =3.62528 =92.448 .059 13.20 273.7 5.0796888-9 70.0000000 3.200
 354367,61280 6.841 =.31335 .1722 36133 34.8 =3.38396 =92.448 .055 17.07 349.0 8.4891334-9 75.0000000 3.200
 344083,42529 6.353 =.33424 .2825 36141 35.9 =3.14238 =92.448 .049 21.85 446.0 1.3918441-8 80.0000000 3.200
 334558,12744 5.864 =.35513 .4621 36149 37.0 =2.90058 =92.448 .043 27.94 569.9 2.2754618-8 85.0000000 3.200
 325793,13867 5.374 =.37602 .7370 36155 37.9 =2.65858 =92.448 .035 35.28 727.4 3.6281172-8 90.0000000 3.200
 317789,76367 4.885 =.39691 1.129 36160 38.6 =2.41640 =92.448 .026 43.65 924.3 5.5564237-8 95.0000000 3.200
 310549,16261 4.394 =.41780 1.650 36164 39.4 =2.17409 =92.448 .016 52.76 1165. 8.1195964-8 100.000000 3.200
 304072,32959 3.904 =.43868 2.481 36165 40.0 =1.93168 =92.448 .001 64.66 1457. 1.2206108-7 105.000000 3.200
 300000,33497 3.561 =.45327 3.024 36165 40.4 =1.76227 =92.448 -.008 71.37 1695. 1.4879780-7 108.493775 3.200
 298360,17580 3.413 =.45956 3.414 36158 40.5 =1.68925 =92.448 -.145 75.78 1806. 1.6801874-7 110.000000 .0507
 293414,92382 2.923 =.48043 4.584 36131 40.7 =1.44717 =92.448 -.192 87.65 2214. 2.2597709-7 115.000000 .0473
 289235,46290 2.432 =.50128 5.696 36097 40.8 =1.20567 =92.448 -.233 97.47 2678. 2.8129839-7 120.000000 .0444
 285819,30274 1.943 =.52210 7.064 36055 40.8 =.964931 =92.448 -.282 108.2 3192. 3.4965575-7 125.000000 .0423
 283162,80079 1.453 =.54290 8.116 36007 40.7 =.725086 =92.448 -.318 115.7 3753. 4.0281236-7 130.000000 .0406
 281261,43506 .9643 =.56367 8.856 35954 40.7 =.486272 =92.448 -.341 120.4 4345. 4.4085868-7 135.000000 .0394
 280109,83447 .4761 =.58440 9.290 35898 40.6 =.248574 =92.448 -.356 122.9 4954. 4.6390221-7 140.000000 .0387
 279702,19825 -.0112 =.60510 9.513 35840 40.5 =.012046 =92.448 -.366 124.0 5572. 4.7655582-7 145.000000 .0385
 280032,43263 =.4978 =.62577 9.261 35781 40.5 =.223278 =92.448 -.362 121.9 6188. 4.6545102-7 150.000000 .0387
 281094,36965 =.9836 =.64640 8.809 35723 40.4 =.457395 =92.448 -.354 118.5 6789. 4.4420166-7 155.000000 .0393
 282881,94484 =.1469 =.66700 8.075 35667 40.3 =.690333 =92.448 -.338 113.0 7369. 4.0843228-7 160.000000 .0405
 285389,40724 =.1953 =.68757 7.062 35615 40.3 =.922140 =92.448 -.312 105.4 7916. 3.5825796-7 165.000000 .0420
 288611,50098 =.2436 =.70812 5.776 35567 40.2 =1.15290 =92.448 -.274 95.08 8418. 2.9378387-7 170.000000 .0440
 292543,70558 =.2919 =.72864 4.633 35526 40.1 =1.38272 =92.448 -.240 84.96 8868. 2.3618777-7 175.000000 .0467
 297182,22413 =.3401 =.74914 3.559 35490 39.8 =1.61172 =92.448 -.205 74.34 9266. 1.8182433-7 180.000000 .0499
 302523,93410 =.3882 =.76962 2.584 35460 39.4 =1.84002 =92.448 -.169 63.25 9611. 1.3222785-7 185.000000 .0532
 308566,38622 =.4363 =.79009 1.806 35436 38.8 =2.06772 =92.448 -.137 52.82 9900. 9.2553108-8 190.000000 .0566
 315307,68654 =.4843 =.81055 1.254 35416 38.1 =2.29494 =92.448 -.113 43.99 10142 6.4350790-8 195.000000 .0594
 322746,29882 =.5323 =.83100 .8239 35399 37.4 =2.52173 =92.448 -.093 35.64 10341 4.2307821-8 200.000000 .0618
 330880,91554 =.5802 =.85145 .5245 35385 36.7 =2.74818 =92.447 -.080 28.43 10500 2.6953994-8 205.000000 .0636
 339710,35937 =.6281 =.87189 .3281 35373 35.6 =2.97432 =92.447 -.071 22.48 10627 1.6870770-8 210.000000 .0649
 349233,43898 =.6759 =.89233 .2062 35362 34.6 =3.20017 =92.447 -.067 17.82 10727 1.0612132-8 215.000000 .0657
 359448,89258 =.7237 =.91277 .1280 35352 33.6 =3.42575 =92.447 -.066 14.04 10807 6.5908386-9 220.000000 .0662
 370355,36329 =.7714 =.93321 .0761 35341 31.8 =3.65106 =92.447 -.066 10.83 10869 3.9215334-9 225.000000 .0666
 381951,40383 =.8191 =.95365 .0469 35330 30.1 =3.87609 =92.446 -.068 8.501 10917 2.4158626-9 230.000000 .0668
 394235,45997 =.8668 =.97408 .0290 35319 28.3 =4.10084 =92.446 -.070 6.693 10954 1.4977669-9 235.000000 .0669
 407205,87549 =.9143 =.99452 .0175 35307 26.0 =4.32529 =92.446 -.073 5.191 10984 9.009855-10 240.000000 .0670
 2388007,4257 =.9612 =.2,2403 3.6=5 33682 13.5 16.9989 =92.379 -.235 .0000 11164 .0000000000 545.468750 .0671

TTA7622 38-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL21768 SPAHR1 DATA-A=HEATER CROSS.1 DATA-B=
 OBSERVER 0.0000-LAT 0.0000=LONG 0.0000=ORNT DATA-C= ATMOS= 1040 1962 ATMOSPHERE KLETT
 DATA-D=

WT	CD	AREA	VICRCL	NOSE	O=ELEV	O=X	O=Y	O=Z					
1.00000	.06710	1.0000	24584.3	1.000									
HITE	LAT	LONG	Q	VT	MACH	GAMMA	TAU	AT	DQC	GC	RHO	TIME	CD
2388007.4248	36.12	-2.2403	3.6-5	33682	13.5	-16.9989	-92.379	.235	.0000	11164	.0000000000	545.468750	.0671
437963.68164	10.18	-3.4414	.0068	35280	21.9	-4.81525	-92.445	.080	3.236	11299	3.503206-10	840.000000	.0670
384203.37939	8.281	-3.5232	.0432	35326	29.8	-3.91841	-92.446	.063	8.161	11404	2.2275975-9	860.000000	.0668
372478.48632	7.804	-3.5436	.0704	35336	31.5	-3.69349	-92.447	.057	10.41	11450	3.6259947-9	865.000000	.0666
361443.14942	7.327	-3.5640	.1172	35344	33.3	-3.46832	-92.447	.050	13.43	11509	6.0366237-9	870.000000	.0663
351098.87746	6.849	-3.5845	.1886	35352	34.4	-3.24293	-92.447	.042	17.04	11585	9.7095693-9	875.000000	.0658
341447.14893	6.371	-3.6049	.3033	35358	35.4	-3.01736	-92.447	.031	21.60	11681	1.5610930-8	880.000000	.0650
332489.35840	5.893	-3.6253	.4881	35361	36.5	-2.79163	-92.447	.016	27.39	11803	2.5117153-8	885.000000	.0638
324226.78321	5.414	-3.6458	.7653	35362	37.2	-2.56581	-92.448	-.004	34.27	11957	3.9379423-8	890.000000	.0621
316660.52638	4.935	-3.6662	1.157	35360	37.9	-2.33997	-92.448	-.030	42.12	12148	5.9561737-8	895.000000	.0599
309791.40332	4.455	-3.6866	1.641	35353	38.6	-2.11419	-92.448	-.059	50.11	12378	8.4509646-8	900.000000	.0573
303619.83252	3.976	-3.7070	2.427	35340	39.1	-1.88857	-92.448	-.099	60.85	12654	1.2503218-7	905.000000	.0539
298145.73732	3.497	-3.7274	3.306	35321	39.6	-1.66326	-92.448	-.139	70.92	12984	1.7053196-7	910.000000	.0505
293368.37941	3.017	-3.7478	4.385	35295	39.8	-1.43838	-92.448	-.183	81.52	13365	2.2652259-7	915.000000	.0472
289286.13086	2.538	-3.7682	5.416	35263	39.9	-1.21409	-92.448	-.220	90.39	13795	2.8028452-7	920.000000	.0445
285896.54882	2.060	-3.7885	6.712	35224	39.8	-.990531	-92.448	-.267	100.4	14272	3.4811006-7	925.000000	.0423
283196.32326	1.582	-3.8089	7.734	35178	39.8	-.767837	-92.448	-.301	107.4	14792	4.0214157-7	930.000000	.0407
281181.33498	1.104	-3.8291	8.485	35127	39.7	-.546141	-92.448	-.325	112.1	15342	4.4246149-7	935.000000	.0394
279846.67138	.6272	-3.8494	9.013	35073	39.7	-.325527	-92.448	-.342	115.2	15911	4.7148337-7	940.000000	.0386
279186.98437	.1510	-3.8696	9.426	35017	39.6	-.106061	-92.448	-.360	117.4	16493	4.9464498-7	945.000000	.0384
279196.57374	-.3245	-3.8898	9.388	34959	39.5	.112207	-92.448	-.362	116.7	17079	4.9430830-7	950.000000	.0384
279869.55567	-.7991	-3.9100	8.910	34901	39.5	.329258	-92.448	-.350	113.3	17656	4.7067990-7	955.000000	.0386
281200.10401	-1.273	-3.9301	8.342	34846	39.4	.545121	-92.448	-.338	109.3	18212	4.4208592-7	960.000000	.0394
283182.65188	-1.746	-3.9502	7.570	34793	39.4	.759843	-92.448	-.321	103.8	18745	4.0241514-7	965.000000	.0406
285811.97219	-2.218	-3.9703	6.562	34743	39.3	.973476	-92.448	-.294	96.34	19247	3.4980244-7	970.000000	.0423
289083.33645	-2.690	-3.9903	5.320	34699	39.3	1.18611	-92.448	-.256	86.53	19705	2.8434244-7	975.000000	.0443
292992.72218	-3.161	-4.0103	4.311	34660	39.1	1.39786	-92.448	-.226	77.73	20115	2.3092530-7	980.000000	.0470
297536.72558	-3.631	-4.0303	3.311	34627	38.8	1.60883	-92.447	-.193	67.99	20480	1.7766958-7	985.000000	.0501
302712.53615	-4.100	-4.0503	2.437	34598	38.4	1.81913	-92.447	-.161	58.25	20795	1.3098949-7	990.000000	.0533
308517.93603	-4.570	-4.0703	1.725	34575	37.8	2.02886	-92.447	-.132	48.97	21063	9.2871232-8	995.000000	.0566
314951.20117	-5.038	-4.0902	1.218	34555	37.2	2.23813	-92.447	-.110	41.11	21288	6.5612748-8	1000.000000	.0593
322010.91796	-5.506	-4.1102	.8113	34539	36.5	2.44700	-92.446	-.091	33.54	21474	4.3762404-8	1005.000000	.0616
329695.90090	-5.974	-4.1301	.5291	34526	35.9	2.65553	-92.446	-.078	27.08	21625	2.8561508-8	1010.000000	.0634
338005.07424	-6.441	-4.1501	.3484	34514	35.0	2.86378	-92.446	-.071	21.97	21747	1.8818205-8	1015.000000	.0646
346937.36329	-6.908	-4.1700	.2236	34503	34.0	3.07175	-92.445	-.066	17.60	21846	1.2086213-8	1020.000000	.0655
356491.64699	-7.374	-4.1900	.1423	34492	33.1	3.27947	-92.445	-.064	14.04	21925	7.6953699-9	1025.000000	.0661
366666.74463	-7.840	-4.2099	.0882	34482	31.6	3.48694	-92.444	-.064	11.06	21987	4.7756478-9	1030.000000	.0665
377461.40430	-8.306	-4.2298	.0542	34471	30.0	3.69416	-92.444	-.065	8.664	22036	2.9323725-9	1035.000000	.0667
388874.28515	-8.771	-4.2498	.0339	34461	28.5	3.90113	-92.443	-.067	6.857	22075	1.8371098-9	1040.000000	.0669
400903.96534	-9.235	-4.2697	.0209	34450	26.5	4.10783	-92.443	-.070	5.380	22105	1.1310053-9	1045.000000	.0670
2336520.0782	-36.83	-5.5370	3.4-5	32816	13.1	16.3011	-92.328	-.226	.0000	22293	.0000000000	1364.53125	.0671

DATA-C= ATMOS= ICAO 1962 ATMOSPHERE KLETT
 DATA-C=
 O=X , O=Y, O=Z

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TTA7622 38-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL 21768 SPAHR1 DATA=A=HEATER CROSS.1 DATA-B=
 OBSERVER 0,0000=LAT 0,0000=LONG 0,0000=ORNT DATA-C=
 WT CD AREA VICRCL NOSE DATA-E=
 0=X, 0=Y, 0=Z
 1.00000 .06710 1.0000 24586.2 1.000
 HITE LAT LONG Q VT MACH GAMMA TAU AT DQC GC RHO TIME CD
 2383449.1538 38.56 -8.9330 3.2-5 31834 12.8 -15.8783 -92.255 .219 .0000 33388 .0000000000 2232.96875 .0671
 385879.09279 8.953 -10.287 .0365 33564 28.1 -3.73012 -92.441 .060 6.726 33610 2.0875078-9 2585.00000 .0668
 375233.42775 8.500 -10.306 .0568 33574 29.5 -3.54210 -92.441 .055 8.382 33648 3.2422285-9 2590.00000 .0667
 365139.13233 8.047 -10.325 .0902 33582 31.0 -3.35387 -92.442 .050 10.56 33695 5.1444135-9 2595.00000 .0664
 355591.35890 7.593 -10.345 .1408 33590 32.3 -3.16546 -92.443 .044 13.19 33754 8.0316275-9 2600.00000 .0660
 346593.26612 7.139 -10.364 .2159 33596 33.1 -2.97689 -92.443 .036 16.33 33828 1.2307123-8 2605.00000 .0655
 338145.94629 6.684 -10.384 .3274 33601 34.0 -2.78818 -92.444 .026 20.10 33919 1.8657329-8 2610.00000 .0647
 330250.40675 6.229 -10.403 .4857 33604 34.9 -2.59937 -92.445 .015 24.48 34030 2.7674036-8 2615.00000 .0635
 322907.55811 5.774 -10.423 .7369 33605 35.5 -2.41051 -92.445 -.005 30.14 34166 4.1988850-8 2620.00000 .0618
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 309882.83056 4.863 -10.461 1.472 33596 36.6 -2.03289 -92.446 -.050 42.53 34529 8.3909335-8 2630.00000 .0574
 304201.75293 4.408 -10.481 2.125 33586 37.1 -1.84430 -92.446 -.084 51.04 34762 1.2121129-7 2635.00000 .0542
 299074.81643 3.952 -10.500 2.796 33570 37.6 -1.65598 -92.447 -.115 58.46 35037 1.5964315-7 2640.00000 .0512
 294501.42727 3.497 -10.519 3.730 33548 37.7 -1.46806 -92.447 -.154 67.41 35351 2.1324327-7 2645.00000 .0480
 290480.32031 3.041 -10.539 4.547 33521 37.9 -1.28066 -92.447 -.184 74.27 35706 2.6037065-7 2650.00000 .0452
 287009.65235 2.587 -10.558 5.679 33488 37.9 -1.09390 -92.448 -.226 82.81 36098 3.2583686-7 2655.00000 .0430
 284086.88868 2.132 -10.578 6.682 33449 37.8 -1.07918 -92.448 -.260 89.59 36529 3.8432136-7 2660.00000 .0412
 281708.89211 1.678 -10.597 7.490 33405 37.8 -1.72832 -92.448 -.285 94.56 36991 4.3190507-7 2665.00000 .0397
 279871.79445 1.224 -10.616 8.138 33357 37.7 -1.538736 -92.448 -.305 98.25 37473 4.7060130-7 2670.00000 .0386
 278571.28565 .7714 -10.635 8.900 33306 37.7 -1.355708 -92.448 -.335 102.4 37975 5.1626216-7 2675.00000 .0381
 277802.65285 .3192 -10.655 9.334 33251 37.6 -1.173831 -92.448 -.350 104.5 38493 5.4324886-7 2680.00000 .0378
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 278635.98975 -1.033 -10.712 8.741 33081 37.4 -1.364418 -92.448 -.340 100.0 40046 5.1399040-7 2695.00000 .0381
 279942.45704 -1.482 -10.731 7.936 33028 37.4 -1.54110 -92.448 -.316 94.98 40534 4.6812033-7 2700.00000 .0386
 281754.94971 -1.930 -10.750 7.284 32978 37.3 -1.71285 -92.447 -.302 90.71 40998 4.3098346-7 2705.00000 .0398
 284068.94922 -2.378 -10.769 6.483 32931 37.3 -1.892108 -92.447 -.282 85.33 41439 3.8468033-7 2710.00000 .0412
 286880.29933 -2.825 -10.788 5.521 32888 37.2 -1.06594 -92.447 -.255 78.54 41849 3.2842521-7 2715.00000 .0430
 290185.31105 -3.271 -10.807 4.424 32850 37.2 -1.23888 -92.447 -.220 70.15 42221 2.6382815-7 2720.00000 .0450
 293980.89941 -3.717 -10.826 3.671 32816 36.9 -1.41103 -92.446 -.199 63.78 42555 2.1934386-7 2725.00000 .0477
 298264.39844 -4.162 -10.845 2.826 32786 36.7 -1.58250 -92.446 -.170 55.86 42855 1.6914125-7 2730.00000 .0506
 303033.58889 -4.607 -10.864 2.150 32761 36.3 -1.75336 -92.445 -.145 48.66 43116 1.2888146-7 2735.00000 .0535
 308284.68654 -5.051 -10.883 1.572 32740 35.8 -1.92372 -92.445 -.121 41.58 43342 9.4389616-8 2740.00000 .0565
 314022.27841 -5.495 -10.902 1.146 32722 35.3 -2.09365 -92.444 -.103 35.47 43534 6.8901145-8 2745.00000 .0589
 320239.18360 -5.938 -10.921 .7858 32707 34.7 -2.26321 -92.443 -.086 29.35 43696 4.7266895-8 2750.00000 .0612
 326936.43652 -6.381 -10.939 .5651 32694 34.2 -2.43248 -92.442 -.076 24.88 43831 3.4019729-8 2755.00000 .0628
 334113.14745 -6.824 -10.958 .3861 32682 33.5 -2.60148 -92.442 -.068 20.56 43944 2.3262786-8 2760.00000 .0641
 341768.45217 -7.266 -10.977 .2555 32671 32.7 -2.77024 -92.441 -.063 16.73 44037 1.5404654-8 2765.00000 .0651
 349901.52687 -7.708 -10.996 .1688 32662 31.9 -2.93879 -92.440 -.060 13.60 44113 1.0183220-8 2770.00000 .0657
 358511.51272 -8.150 -11.015 .1150 32652 31.1 -3.10712 -92.439 -.060 11.22 44175 6.9409500-9 2775.00000 .0662
 367597.50146 -8.591 -11.034 .0754 32642 29.8 -3.27525 -92.438 -.060 9.084 44225 4.5509631-9 2780.00000 .0665
 377158.53712 -9.031 -11.053 .0492 32632 28.4 -3.44317 -92.437 -.061 7.342 44266 2.9745316-9 2785.00000 .0667
 387193.61426 -9.472 -11.071 .0327 32623 27.2 -3.61089 -92.436 -.062 5.985 44299 1.9776138-9 2790.00000 .0668
 397701.68164 -9.911 -11.090 .0214 32612 25.6 -3.77839 -92.434 -.064 4.846 44326 1.2970726-9 2795.00000 .0669
 408681.62745 -10.35 -11.109 .0140 32602 23.8 -3.94567 -92.433 -.067 3.916 44348 8.471206-10 2800.00000 .0670
 2359124.6368 -40.13 -12.463 3.0-5 30859 12.4 15.0842 -92.161 -.209 .0000 44513 .0000000000 3164.84375 .0671

TTA7622 38-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL21768 SPAHR1 DATA=A=HEATER CROSS.1 DATA-B=
 OBSERVER 0,0000=LAT 0,0000=LONG 0,0000=ORNT

ATMOS= ICAO 1962 ATMOSPHERE KLETT
 DATA-C= DATA-C= DATA-C=
 0=X , 0=Y, 0=Z

WT	CD	AREA	VICRCL	NOSE	0=ELEV	0=X	0=Y	0=Z					
1,00000	.06710	1,0000	24598,7	1,000									
HITE	LAT	LONG	Q	VT	MACH	GAMMA	TAU	AT	DQC	GC	RHO	TIME	CD
2359124,6356	40,13	-12,463	3,0+5	30859	12,4	-15,0842	-92,161	.209	.0000	44513	.0000000000	3164,84375	.0671
483527,49220	12,95	-13,705	.0022	32530	17,0	-4,93400	-92,425	.081	1,552	44605	1,334926-10	3500,00000	.0671
386552,41945	9,444	-13,856	.0336	32621	27,3	-3,60061	-92,436	.058	6,365	44729	2,0312177-9	3540,00000	.0668
376547,00488	9,004	-13,874	.0506	32630	28,5	-3,43294	-92,437	.054	7,445	44763	3,0596569-9	3545,00000	.0667
367015,85396	8,563	-13,893	.0777	32639	29,9	-3,26508	-92,438	.049	9,219	44804	4,6913724-9	3550,00000	.0665
357959,95948	8,122	-13,912	.1184	32646	31,2	-3,09705	-92,439	.044	11,38	44855	7,1469551-9	3555,00000	.0661
349380,30861	7,681	-13,931	.1743	32653	31,9	-2,92887	-92,440	.038	13,80	44918	1,0517842-8	3560,00000	.0657
341277,84083	7,239	-13,950	.2606	32658	32,7	-2,76057	-92,441	.029	16,88	44995	1,5719626-8	3565,00000	.0650
333653,44093	6,797	-13,969	.3944	32662	33,6	-2,59216	-92,442	.018	20,75	45088	2,3787770-8	3570,00000	.0640
326507,92531	6,355	-13,988	.5781	32664	34,2	-2,42370	-92,442	.004	25,12	45203	3,4867324-8	3575,00000	.0627
319841,99365	5,912	-14,006	.8008	32664	34,7	-2,25522	-92,443	-.011	29,55	45340	4,8299342-8	3580,00000	.0611
313656,17970	5,470	-14,025	1,164	32660	35,2	-2,08680	-92,444	-.033	35,59	45502	7,0197124-8	3585,00000	.0588
307950,83742	5,027	-14,044	1,601	32653	35,8	-1,91849	-92,445	-.058	41,71	45695	9,6594802-8	3590,00000	.0563
302726,04982	4,584	-14,063	2,167	32641	36,2	-1,75038	-92,445	-.086	48,48	45920	1,3090076-7	3595,00000	.0534
297981,50341	4,141	-14,082	2,853	32625	36,6	-1,58259	-92,446	-.117	55,54	46180	1,7245678-7	3600,00000	.0504
293716,45752	3,699	-14,101	3,675	32603	36,7	-1,41522	-92,446	-.151	62,92	46476	2,2244312-7	3605,00000	.0475
289929,63672	3,256	-14,119	4,410	32577	36,9	-1,24837	-92,447	-.177	68,79	46806	2,6740797-7	3610,00000	.0449
286619,22999	2,814	-14,138	5,492	32546	36,8	-1,08217	-92,447	-.217	76,59	47169	3,3364921-7	3615,00000	.0428
283782,88526	2,372	-14,157	6,412	32508	36,8	-.916722	-92,447	-.248	82,53	47567	3,9040447-7	3620,00000	.0410
281417,72950	1,931	-14,176	7,170	32466	36,7	-.752157	-92,447	-.271	87,02	47992	4,3773123-7	3625,00000	.0395
279520,21925	1,490	-14,195	7,889	32421	36,7	-.588559	-92,448	-.294	90,99	48437	4,8294510-7	3630,00000	.0385
278086,44631	1,050	-14,213	8,685	32372	36,6	-.426012	-92,448	-.322	95,15	48902	5,3328487-7	3635,00000	.0379
277112,09864	.6103	-14,232	9,211	32318	36,6	-.264605	-92,448	-.342	97,63	49385	5,6749422-7	3640,00000	.0376
276592,46191	.1715	-14,251	9,474	32262	36,5	-.104417	-92,448	-.352	98,65	49876	5,8573866-7	3645,00000	.0374
276522,50390	-.2666	-14,269	9,481	32205	36,4	.054514	-92,448	-.355	98,30	50369	5,8819489-7	3650,00000	.0374
276897,09863	-.7039	-14,288	9,236	32148	36,4	.212177	-92,448	-.350	96,66	50857	5,7504287-7	3655,00000	.0375
277711,15771	-1,140	-14,306	8,747	32093	36,3	.368590	-92,448	-.337	93,72	51333	5,4646125-7	3660,00000	.0378
278959,77345	-1,576	-14,325	8,019	32040	36,2	.523799	-92,447	-.316	89,43	51792	5,0262235-7	3665,00000	.0383
280638,37598	-2,011	-14,343	7,210	31991	36,2	.677875	-92,447	-.293	84,53	52227	4,5332610-7	3670,00000	.0391
282742,75976	-2,445	-14,362	6,522	31945	36,1	.830898	-92,447	-.277	80,16	52639	4,1121738-7	3675,00000	.0404
285269,03371	-2,879	-14,380	5,705	31902	36,1	.982933	-92,446	-.256	74,77	53026	3,6066664-7	3680,00000	.0420
288213,66798	-3,312	-14,398	4,761	31863	36,0	1,13405	-92,446	-.228	68,14	53384	3,0174450-7	3685,00000	.0438
291573,59423	-3,744	-14,417	3,898	31829	35,9	1,28436	-92,445	-.201	61,53	53708	2,4755748-7	3690,00000	.0460
295346,20849	-4,176	-14,435	3,195	31798	35,7	1,43395	-92,445	-.179	55,61	54001	2,0334244-7	3695,00000	.0486
299529,26613	-4,608	-14,454	2,421	31772	35,5	1,58290	-92,444	-.151	48,33	54261	1,5431700-7	3700,00000	.0515
304120,94190	-5,039	-14,472	1,907	31749	35,1	1,73131	-92,443	-.132	42,85	54489	1,2174190-7	3705,00000	.0541
309119,72414	-5,469	-14,490	1,391	31729	34,7	1,87926	-92,442	-.111	36,56	54687	8,8919891-8	3710,00000	.0569
314524,39550	-5,899	-14,509	1,049	31713	34,1	2,02682	-92,441	-.096	31,73	54857	6,7123640-8	3715,00000	.0591
320333,92871	-6,329	-14,527	.7351	31699	33,6	2,17404	-92,440	-.081	26,54	55003	4,7079489-8	3720,00000	.0612
326547,46924	-6,758	-14,545	.5428	31686	33,2	2,32099	-92,439	-.073	22,80	55126	3,4789106-8	3725,00000	.0627
333164,22463	-7,187	-14,563	.3796	31675	32,6	2,46768	-92,438	-.066	19,06	55231	2,4346455-8	3730,00000	.0639
340183,46093	-7,616	-14,582	.2559	31665	31,9	2,61416	-92,437	-.060	15,65	55317	1,6422218-8	3735,00000	.0649
347604,46826	-8,044	-14,600	.1815	31655	31,1	2,76044	-92,436	-.058	13,18	55389	1,1657931-8	3740,00000	.0656
355426,52101	-8,472	-14,618	.1260	31646	30,4	2,90652	-92,435	-.057	10,98	55449	8,0931944-9	3745,00000	.0660
363648,85451	-8,900	-14,637	.0856	31637	29,5	3,05242	-92,433	-.057	9,050	55499	5,5041665-9	3750,00000	.0664
372270,68652	-9,327	-14,655	.0568	31628	28,2	3,19814	-92,432	-.057	7,372	55540	3,6549204-9	3755,00000	.0666
381291,20119	-9,754	-14,673	.0384	31618	27,0	3,34368	-92,430	-.058	6,060	55574	2,4710556-9	3760,00000	.0668
390709,54249	-10,18	-14,691	.0264	31609	25,9	3,48902	-92,429	-.060	5,028	55601	1,7019175-9	3765,00000	.0669
400524,81251	-10,61	-14,710	.0178	31599	24,3	3,63418	-92,427	-.062	4,123	55624	1,1448443-9	3770,00000	.0670
2355977,3544	-42,45	-16,140	2,8+5	29791	11,9	14,1889	-92,021	-.197	.0000	55802	.0000000000	4172,34375	.0671

TTA7622 3B-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL21768 SPAHR1 DATA-A=HEATER CROSS,1 DATA-B=
 OBSERVER 0.0000=LAT 0.0000=LONG 0.0000=ORNT

ATMOS= ICAO 1962 ATMOSPHERE KLETT
 DATA-C= DATA-E=
 0=ELEV 0=X, 0=Y, 0=Z

WT	CD	AREA	VICROL	NOSE	1,00000	.06710	1,0000	24599.9	1,000	HITE	LAT	LONG	Q	VT	MACH	GAMMA	TAU	AT	DQC	GC	RHO	TIME	CD
2355977	3544	42.45	-16.140	2.8-5	29791	11.9	-14.1889	-92.021	.197	.0000	55802	.0000000000	4172.34375	.0671									
410091	99072	11.01	-17.554	.0124	31588	22.8	-3.77021	-92.425	.062	3.439	55962	7.962403-10	4570.00000	.0670									
390114	88770	10.15	-17.591	.0270	31607	26.0	-3.48013	-92.429	.056	5.078	56004	1.7363480-9	4580.00000	.0669									
380721	41847	9.728	-17.609	.0391	31616	27.1	-3.33482	-92.430	.053	6.117	56032	2.5186894-9	4585.00000	.0668									
371725	93799	9.301	-17.627	.0580	31625	28.3	-3.18934	-92.432	.049	7.446	56066	3.7307494-9	4590.00000	.0666									
363129	27588	8.873	-17.646	.0875	31632	29.5	-3.04371	-92.433	.045	9.148	56107	5.6295928-9	4595.00000	.0663									
354932	27394	8.446	-17.664	.1288	31639	30.5	-2.89793	-92.435	.040	11.09	56158	8.2777957-9	4600.00000	.0660									
347135	74219	8.018	-17.682	.1861	31645	31.2	-2.75203	-92.436	.034	13.33	56219	1.1958854-8	4605.00000	.0655									
339740	42968	7.590	-17.700	.2621	31650	31.9	-2.60604	-92.437	.027	15.82	56292	1.6836429-8	4610.00000	.0649									
332747	04590	7.161	-17.719	.3865	31654	32.6	-2.45996	-92.438	.017	19.21	56379	2.4822874-8	4615.00000	.0639									
326156	23145	6.733	-17.737	.5538	31655	33.2	-2.31384	-92.440	.004	22.98	56484	3.5562974-8	4620.00000	.0626									
319968	54543	6.304	-17.755	.7452	31655	33.6	-2.16773	-92.441	-.009	26.64	56608	4.7851349-8	4625.00000	.0611									
314184	39745	5.875	-17.773	1.064	31652	34.1	-2.02166	-92.442	-.029	31.82	56754	6.8327233-8	4630.00000	.0590									
308804	03908	5.446	-17.792	1.416	31646	34.6	-1.87571	-92.442	-.049	36.68	56925	9.0992680-8	4635.00000	.0568									
303827	52441	5.016	-17.810	1.923	31636	35.0	-1.72996	-92.443	-.072	42.70	57123	1.2366847-7	4640.00000	.0540									
299254	57228	4.587	-17.828	2.448	31622	35.4	-1.58449	-92.444	-.099	48.11	57350	1.5753641-7	4645.00000	.0513									
295084	58985	4.158	-17.846	3.204	31604	35.5	-1.43939	-92.445	-.131	54.95	57607	2.0640861-7	4650.00000	.0484									
291316	54248	3.729	-17.865	3.884	31581	35.7	-1.29477	-92.445	-.156	60.39	57896	2.5057012-7	4655.00000	.0458									
287948	99513	3.301	-17.883	4.751	31553	35.7	-1.15073	-92.446	-.188	66.65	58214	3.0704061-7	4660.00000	.0436									
284979	99219	2.873	-17.901	5.658	31520	35.7	-1.00738	-92.446	-.219	72.56	58562	3.6645036-7	4665.00000	.0418									
282407	17577	2.445	-17.919	6.438	31483	35.6	-0.864837	-92.447	-.244	77.18	58937	4.1793241-7	4670.00000	.0402									
280227	63429	2.017	-17.937	7.091	31442	35.6	-0.723184	-92.447	-.263	80.77	59332	4.6154504-7	4675.00000	.0388									
278438	04834	1.590	-17.956	7.981	31397	35.5	-0.582506	-92.447	-.294	85.41	59747	5.2094012-7	4680.00000	.0381									
277034	76173	1.164	-17.974	8.708	31348	35.5	-0.442897	-92.448	-.320	88.91	60183	5.7020952-7	4685.00000	.0376									
276013	73390	.7383	-17.992	9.224	31295	35.4	-0.304458	-92.448	-.338	91.17	60634	6.0605780-7	4690.00000	.0372									
275370	47900	.3133	-18.010	9.534	31240	35.3	-0.167255	-92.448	-.349	92.33	61093	6.2864248-7	4695.00000	.0369									
275100	28565	-.1109	-18.028	9.643	31183	35.3	-0.031333	-92.448	-.355	92.49	61556	6.3812897-7	4700.00000	.0368									
275198	30322	-.30343	-18.046	9.556	31126	35.2	-.103289	-92.448	-.354	91.71	62016	6.3468757-7	4705.00000	.0369									
275659	66115	-.9570	-18.064	9.278	31069	35.1	-.236613	-92.447	-.348	90.02	62471	6.1848930-7	4710.00000	.0370									
276479	56109	-1.379	-18.082	8.815	31014	35.1	-.368662	-92.447	-.339	87.41	62915	5.8970261-7	4715.00000	.0373									
277653	38917	-1.800	-18.100	8.171	30962	35.0	-.499480	-92.447	-.317	83.86	63344	5.4848951-7	4720.00000	.0378									
279176	81445	-2.220	-18.117	7.351	30913	35.0	-.629135	-92.446	-.292	79.28	63752	4.9500204-7	4725.00000	.0384									
281045	87597	-2.640	-18.135	6.592	30867	34.9	-.757711	-92.446	-.272	74.85	64137	4.4517202-7	4730.00000	.0393									
283256	94875	-3.059	-18.153	5.920	30825	34.9	-.885289	-92.445	-.256	70.74	64501	4.0092846-7	4735.00000	.0407									
285806	69043	-3.477	-18.171	5.154	30785	34.8	1.011193	-92.445	-.235	65.83	64843	3.4990812-7	4740.00000	.0423									
288692	07814	-3.895	-18.189	4.293	30750	34.8	1.13772	-92.444	-.208	59.95	65158	2.9217152-7	4745.00000	.0441									
291910	50879	-4.313	-18.206	3.572	30718	34.7	1.26275	-92.443	-.186	54.57	65444	2.4360884-7	4750.00000	.0462									
295459	72999	-4.729	-18.224	2.957	30689	34.5	1.38710	-92.442	-.167	49.56	65704	2.0201196-7	4755.00000	.0487									
299337	78222	-5.146	-18.242	2.288	30664	34.3	1.51084	-92.441	-.143	43.53	65937	1.5656119-7	4760.00000	.0514									
303543	05371	-5.562	-18.259	1.832	30643	33.9	1.63407	-92.440	-.126	38.91	66143	1.2553631-7	4765.00000	.0538									
308074	18408	-5.977	-18.277	1.396	30624	33.5	1.75686	-92.439	-.108	33.93	66325	9.5784907-8	4770.00000	.0564									
312930	05519	-6.392	-18.295	1.059	30608	33.1	1.87926	-92.437	-.093	29.54	66483	7.2767605-8	4775.00000	.0585									
318109	72461	-6.807	-18.312	.7917	30594	32.6	2.00134	-92.436	-.081	25.52	66621	5.4431575-8	4780.00000	.0605									
323612	40137	-7.222	-18.330	.5900	30581	32.2	2.12314	-92.435	-.072	22.02	66739	4.0594670-8	4785.00000	.0620									
329437	37599	-7.636	-18.348	.4222	30570	31.8	2.24470	-92.433	-.064	18.62	66841	2.9072870-8	4790.00000	.0634									
335584	01415	-8.050	-18.365	.3133	30560	31.2	2.36604	-92.432	-.060	16.04	66927	2.1583056-8	4795.00000	.0643									
342051	70217	-8.463	-18.383	.2208	30551	30.6	2.48719	-92.430	-.056	13.46	67001	1.5222807-8	4800.00000	.0651									
348839	84425	-8.876	-18.401	.1575	30542	29.9	2.60817	-92.428	-.054	11.37	67063	1.0864820-8	4805.00000	.0657									
355947	83740	-9.289	-18.418	.1144	30533	29.3	2.72898	-92.426	-.053	9.688	67115	7.8984827-9	4810.00000	.0660									
363375	06494	-9.702	-18.436	.0807	30525	28.5	2.84963	-92.424	-.053	8.133	67160	5.5702593-9	4815.00000	.0664									

TTA7622 38-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL21768 SPAHR1 DATA-A=HEATER CROSS.1 DATA-B=
 OBSERVER 0,0000=LAT 0,0000=LONG 0,0000=ORNT DATA-C= ATMOS= ICAO 1962 ATMOSPHERE KLETT
 WT CD AREA VICRCL NOSE DATA-D= 0=ELEV 0=X , 0=Y, 0=Z
 1.00000 .06659 1.0000 25728.9 1.000
 HITE LAT LONG Q VT MACH GAMMA TAU AT DQC GC RHO TIME CD
 371120,89162 -10.11 -18.453 .0552 30516 27.4 2,97011 -92.422 -.053 6,729 67197 3.8149719-9 4820.00000 .0666
 379184,66213 -10.53 -18.471 .0389 30508 26.3 3,09044 -92.420 -.054 5,651 67228 2,6924950-9 4825.00000 .0667
 387565,69629 -10.94 -18.489 .0281 30499 25.4 3,21060 -92.418 -.055 4,804 67254 1,9465078-9 4830.00000 .0668
 396263,28955 -11.35 -18.506 .0199 30490 24.1 3,33060 -92.415 -.057 4,044 67276 1,3803555-9 4835.00000 .0669
 405276,70166 -11.76 -18.524 .0140 30480 22.7 3,45044 -92.413 -.058 3,392 67294 9,714004-10 4840.00000 .0670
 2344760,4413 -45.93 -20.027 2.6-5 28617 11.5 12.9826 -91.788 -.181 .0000 67462 .0000000000 5287.65625 .0671

TTA7622 38-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL21768 SPAHR1 DATA-A=HEATER CROSS.1 DATA-B=
 OBSERVER 0,0000=LAT 0,0000=LONG 0,0000=ORNT

DATA-C= ATMOS= 10AQ 1962 ATMCSPHERE KLETT
 DATA-D=

WT	CD	AREA	VICROL	NOSE	Q=ELEV	Q=X	Q=Y	Q=Z					
1,00000	.06710	1,0000	24605.2	1,000									
HITE	LAT	LONG	Q	VT	MACH	GAMMA	TAU	AT	DGC	GC	RHO	TIME	CD
2344760,4425	45,93	-20,027	2,6-5	28617	11,5	-12,9826	-91,788	.181	.0000	67462	.0000000000	5287,65625	.0671
396816,88378	11,38	-21,546	.0195	30488	24,0	-3,33831	-92,415	.054	3,996	67647	1,3483024-9	5740,00000	.0669
388099,37940	10,96	-21,565	.0275	30496	25,3	-3,21836	-92,418	.052	4,747	67669	1,9018919-9	5745,00000	.0669
379698,45411	10,55	-21,583	.0379	30504	26,3	-3,09826	-92,420	.049	5,574	67695	2,6209752-9	5750,00000	.0668
371614,77541	10,14	-21,601	.0542	30512	27,3	-2,97802	-92,422	.046	6,665	67725	3,7462233-9	5755,00000	.0666
363849,03517	9,728	-21,618	.0790	30519	28,4	-2,85764	-92,424	.042	8,045	67762	5,4558429-9	5760,00000	.0664
356401,90236	9,316	-21,636	.1119	30526	29,3	-2,73715	-92,426	.038	9,577	67806	7,7288895-9	5765,00000	.0661
349274,01418	8,903	-21,653	.1534	30532	29,9	-2,61654	-92,428	.034	11,21	67858	1,0586083-8	5770,00000	.0657
342465,97072	8,490	-21,671	.2167	30537	30,5	-2,49585	-92,430	.028	13,32	67919	1,4956847-8	5775,00000	.0651
335978,33398	8,076	-21,689	.3063	30541	31,2	-2,37508	-92,431	.020	15,84	67992	2,1132743-8	5780,00000	.0643
329811,62404	7,663	-21,706	.4108	30543	31,8	-2,25427	-92,433	.012	18,33	68077	2,8332608-8	5785,00000	.0634
323966,28955	7,249	-21,724	.5784	30544	32,2	-2,13345	-92,435	-.2-4	21,75	68177	3,9894679-8	5790,00000	.0621
318442,69728	6,835	-21,741	.7720	30543	32,5	-2,01265	-92,436	-.015	25,11	68294	5,3252852-8	5795,00000	.0606
313241,11374	6,421	-21,759	1,039	30540	33,0	-1,89193	-92,437	-.029	29,11	68429	7,1666450-8	5800,00000	.0586
308361,63964	6,007	-21,777	1,360	30534	33,4	-1,77135	-92,439	-.047	33,29	68585	9,3897474-8	5805,00000	.0565
303804,20020	5,593	-21,794	1,793	30525	33,8	-1,65096	-92,440	-.069	38,18	68764	1,2382162-7	5810,00000	.0540
299568,48095	5,179	-21,812	2,226	30512	34,1	-1,53085	-92,441	-.089	42,48	68965	1,5385740-7	5815,00000	.0515
295653,90138	4,765	-21,829	2,887	30495	34,3	-1,41110	-92,442	-.117	48,31	69192	1,9973628-7	5820,00000	.0488
292059,55128	4,351	-21,847	3,491	30475	34,4	-1,29179	-92,443	-.140	53,03	69446	2,4186206-7	5825,00000	.0463
288784,20655	3,938	-21,865	4,183	30450	34,4	-1,17303	-92,444	-.165	57,94	69723	2,9032803-7	5830,00000	.0441
285826,20949	3,524	-21,882	5,027	30421	34,4	-1,05491	-92,445	-.195	63,37	70026	3,4951755-7	5835,00000	.0423
283183,59816	3,111	-21,900	5,775	30388	34,4	-9,937520	-92,445	-.219	67,75	70354	4,0239620-7	5840,00000	.0406
280853,98048	2,699	-21,917	6,428	30351	34,3	-8,820964	-92,446	-.238	71,28	70702	4,4901185-7	5845,00000	.0392
278834,56397	2,287	-21,935	7,239	30311	34,3	-7,705320	-92,446	-.265	75,42	71069	5,0701846-7	5850,00000	.0382
277122,26173	1,875	-21,952	8,073	30266	34,2	-6,590678	-92,447	-.295	79,38	71456	5,6713739-7	5855,00000	.0376
275713,66357	1,464	-21,970	8,749	30217	34,2	-5,477145	-92,447	-.316	82,34	71860	6,1659327-7	5860,00000	.0371
274604,93703	1,054	-21,987	9,269	30165	34,1	-4,364807	-92,447	-.334	84,43	72278	6,5552066-7	5865,00000	.0366
273791,91262	.6441	-22,005	9,638	30110	34,1	-3,253732	-92,447	-.346	85,75	72704	6,8406595-7	5870,00000	.0363
273270,20996	.2352	-22,022	9,859	30053	34,0	-2,143967	-92,447	-.354	86,38	73134	7,0238293-7	5875,00000	.0361
273035,29591	-.1729	-22,039	9,937	29996	33,9	-1,035542	-92,447	-.358	86,36	73566	7,1063076-7	5880,00000	.0361
273082,55713	-.5802	-22,056	9,875	29939	33,9	-.071527	-92,447	-.357	85,74	73997	7,0897142-7	5885,00000	.0361
273407,37599	-.9868	-22,074	9,679	29881	33,8	-.177242	-92,447	-.355	84,54	74423	6,9756703-7	5890,00000	.0362
274005,18264	-1,393	-22,091	9,353	29825	33,7	-.281616	-92,447	-.345	82,77	74841	6,7657804-7	5895,00000	.0364
274871,52442	-1,798	-22,108	8,900	29770	33,7	-.384682	-92,446	-.335	80,42	75249	6,4616078-7	5900,00000	.0367
276002,12499	-2,202	-22,125	8,324	29718	33,6	-.486482	-92,446	-.318	77,49	75644	6,0646539-7	5905,00000	.0372
277392,94336	-2,605	-22,142	7,628	29668	33,6	-.587080	-92,445	-.297	73,92	76023	5,5763376-7	5910,00000	.0377
279040,24024	-3,008	-22,160	6,816	29623	33,5	-.686551	-92,444	-.275	69,65	76382	4,9979717-7	5915,00000	.0383
280940,62453	-3,410	-22,177	6,082	29580	33,5	-.784987	-92,443	-.252	65,61	76721	4,4727810-7	5920,00000	.0392
283091,01171	-3,812	-22,194	5,482	29541	33,4	-.882468	-92,443	-.237	62,12	77040	4,0424886-7	5925,00000	.0406
285488,54298	-4,213	-22,211	4,820	29504	33,4	-.979058	-92,441	-.219	58,10	77340	3,5627426-7	5930,00000	.0421
288130,61086	-4,613	-22,228	4,095	29471	33,3	1,07482	-92,440	-.197	53,43	77619	3,0340648-7	5935,00000	.0437
291014,93410	-5,013	-22,245	3,423	29441	33,3	1,16985	-92,439	-.176	48,75	77875	2,5410497-7	5940,00000	.0456
294139,54005	-5,413	-22,262	2,924	29414	33,1	1,26422	-92,438	-.161	44,99	78109	2,1748459-7	5945,00000	.0478
297502,65920	-5,812	-22,279	2,390	29389	33,0	1,35799	-92,436	-.142	40,61	78323	1,7806883-7	5950,00000	.0501
301102,76906	-6,210	-22,296	1,897	29368	32,7	1,45124	-92,435	-.124	36,13	78515	1,4155922-7	5955,00000	.0524
304938,60156	-6,609	-22,313	1,558	29349	32,4	1,54403	-92,433	-.111	32,71	78687	1,1637314-7	5960,00000	.0546
309009,06299	-7,007	-22,329	1,199	29332	32,0	1,63643	-92,431	-.096	28,66	78840	8,9646492-8	5965,00000	.0569
313313,24123	-7,404	-22,346	.9539	29318	31,7	1,72849	-92,429	-.085	25,55	78976	7,1411126-8	5970,00000	.0587
317850,34717	-7,802	-22,363	.7387	29305	31,3	1,82025	-92,427	-.075	22,47	79096	5,5349771-8	5975,00000	.0604
322619,70217	-8,199	-22,380	.5675	29293	30,9	1,91176	-92,425	-.067	19,69	79201	4,2558229-8	5980,00000	.0618

TTA7622 38-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL21768 SPAHR1 DATA-A=HEATER CROSS.1 DATA-B=
 OBSERVER 0,0000=LAT 0,0000=LONG 0,0000=ORNT

ATMOS= ICAO 1962 ATMOSPHERE KLETT
 DATA-C= DATA-L=
 0=ELEV 0=X , 0=Y, 0=Z

WT CD AREA VICROL NOSE
 1,00000 .06293 1,0000 25755.4 1,000

HITE	LAT	LONG	Q	VT	MACH	GAMMA	TAU	AT	DQC	GC	RHO	TIME	CD
327620,70166	-8,596	-22,397	,4353	29283	30,6	2,00304	-92,423	-.061	17,23	79293	3,2666252-8	5985,00000	.0629
332852,80616	-8,992	-22,414	,3290	29274	30,2	2,09412	-92,421	-.056	14,98	79373	2,4702095-8	5990,00000	.0639
338315,51123	-9,388	-22,431	,2457	29265	29,6	2,18502	-92,418	-.052	12,94	79443	1,8463686-8	5995,00000	.0647
344008,33840	-9,785	-22,448	,1858	29257	29,1	2,27577	-92,416	-.050	11,25	79503	1,3966647-8	6000,00000	.0653
349930,82130	-10,18	-22,464	,1351	29249	28,6	2,36636	-92,413	-.048	9,594	79556	1,0164413-8	6005,00000	.0657
356082,49268	-10,58	-22,481	,1043	29241	28,1	2,45681	-92,410	-.048	8,427	79600	7,8481890-9	6010,00000	.0661
362462,88087	-10,97	-22,498	,0769	29233	27,4	2,54711	-92,407	-.047	7,236	79640	5,7904606-9	6015,00000	.0663
369071,50392	-11,37	-22,515	,0557	29225	26,5	2,63729	-92,404	-.048	6,157	79673	4,1951390-9	6020,00000	.0665
375907,87795	-11,76	-22,532	,0418	29218	25,6	2,72733	-92,401	-.048	5,333	79702	3,1486234-9	6025,00000	.0667
382971,50051	-12,16	-22,548	,0309	29210	24,8	2,81723	-92,398	-.049	4,586	79726	2,3305826-9	6030,00000	.0668
390261,85695	-12,55	-22,565	,0229	29202	24,0	2,90700	-92,395	-.050	3,948	79748	1,7278385-9	6035,00000	.0669
397778,41747	-12,94	-22,582	,0171	29194	22,9	2,99662	-92,391	-.051	3,413	79766	1,2926296-9	6040,00000	.0669
405520,63967	-13,34	-22,599	,0127	29185	21,7	3,08611	-92,388	-.052	2,945	79782	9,624967-10	6045,00000	.0670
606786,30371	-21,13	-22,931	4,1-4	28973	12,8	4,84137	-92,294	-.079	,5294	79903	3,162019-11	6145,00000	.0671
2349360,1669	-52,31	-24,225	2,4-5	27227	10,9	11,2449	-91,295	-.157	,0000	79953	.00000000000	6578,59375	.0671

TTA7622 38-64 21768 SPAHR1 ALRH MULTIPLE OHB1'S
 CONTROL21768 SPAHR1 DATA-A=HEATER CROSS.1 DATA-R=
 OBSERVER 0.0000=LAT 0.0000=LONG 0.0000=ORNT

ATMOS= ICAO 1962 ATMOSPHERE KLETT
 DATA-C= DATA-L=
 0=ELEV 0=X, 0=Y, 0=Z

WT	CD	AREA	VICROL	NOSE	VT	MACH	GAMMA	TAU	AT	DWC	GC	RHO	TIME	CD
1.00000	.06710	1.0000	24601.4	1.000										
HITE	LAT	LONG		Q										
2349360.1669	52.31	-24.225	2.4-5	27227	10.9	-11.2449	-91.295	.157	.0000	79953	.0000000000	6578.59375	.0671	
531157.61620	18.59	-25.627	8.9-4	29052	13.7	-4.27343	-92.330	.070	.7793	80025	6.810654-11	7045.00000	.0671	
393534.53027	12.72	-25.877	.0204	29196	23.5	-2.94649	-92.393	.047	3.724	80151	1.5383507-9	7120.00000	.0669	
386144.89746	12.33	-25.894	.0274	29204	24.5	-2.85683	-92.397	.046	4.316	80171	2.0652866-9	7125.00000	.0668	
378981.75782	11.93	-25.911	.0361	29211	25.2	-2.76705	-92.400	.044	4.955	80194	2.7207393-9	7130.00000	.0667	
372045.66065	11.54	-25.927	.0489	29218	26.1	-2.67716	-92.403	.041	5.768	80221	3.6862440-9	7135.00000	.0666	
365337.07080	11.14	-25.944	.0677	29225	27.0	-2.58715	-92.406	.039	6.784	80252	5.0966311-9	7140.00000	.0664	
358856.47314	10.75	-25.961	.0905	29231	27.8	-2.49705	-92.409	.036	7.845	80289	6.8121073-9	7145.00000	.0662	
352604.32961	10.35	-25.978	.1215	29236	28.3	-2.40685	-92.412	.032	9.091	80331	9.1472829-9	7150.00000	.0659	
346581.08008	9.958	-25.995	.1636	29241	28.8	-2.31657	-92.414	.028	10.55	80380	1.2314947-8	7155.00000	.0655	
340787.13771	9.563	-26.011	.2131	29245	29.4	-2.22623	-92.417	.023	12.04	80436	1.6034658-8	7160.00000	.0650	
335222.88184	9.167	-26.028	.2924	29248	29.9	-2.13584	-92.420	.017	14.10	80501	2.1995469-8	7165.00000	.0642	
329888.65673	8.771	-26.045	.3747	29251	30.4	-2.04542	-92.422	.010	15.95	80577	2.8180237-8	7170.00000	.0635	
324784.75879	8.374	-26.062	.5090	29252	30.8	-1.95501	-92.424	9.-4	18.59	80663	3.8275747-8	7175.00000	.0623	
319911.40919	7.978	-26.079	.6390	29251	31.1	-1.86462	-92.426	-.008	20.82	80761	4.8053612-8	7180.00000	.0611	
315268.76857	7.582	-26.096	.8574	29249	31.4	-1.77430	-92.428	-.021	24.10	80873	6.4488559-8	7185.00000	.0594	
310856.87305	7.185	-26.113	1.065	29245	31.8	-1.68410	-92.430	-.033	26.84	81001	8.0106669-8	7190.00000	.0578	
306675.66310	6.788	-26.129	1.394	29238	32.1	-1.59405	-92.432	-.051	30.70	81144	1.0496760-7	7195.00000	.0556	
302724.89999	6.392	-26.146	1.738	29229	32.4	-1.50424	-92.434	-.068	34.24	81307	1.3090833-7	7200.00000	.0534	
299004.17872	5.995	-26.163	2.129	29216	32.7	-1.41471	-92.436	-.085	37.84	81487	1.6047103-7	7205.00000	.0511	
295512.86427	5.599	-26.180	2.669	29201	32.8	-1.32554	-92.437	-.108	42.31	81687	2.0138923-7	7210.00000	.0487	
292250.10352	5.203	-26.197	3.171	29182	32.9	-1.23681	-92.439	-.127	46.05	81908	2.3962879-7	7215.00000	.0465	
289214.77784	4.807	-26.214	3.723	29160	33.0	-1.14859	-92.440	-.146	49.80	82148	2.8171230-7	7220.00000	.0444	
286405.46876	4.411	-26.230	4.458	29135	33.0	-1.06097	-92.441	-.172	54.38	82408	3.3792657-7	7225.00000	.0427	
283820.54006	4.015	-26.247	5.130	29105	32.9	-.974029	-92.442	-.194	58.20	82690	3.8965099-7	7230.00000	.0410	
281458.04005	3.620	-26.264	5.739	29072	32.9	-.887863	-92.443	-.212	61.40	82989	4.3692462-7	7235.00000	.0396	
279315.66408	3.225	-26.281	6.422	29037	32.8	-.802543	-92.444	-.233	64.77	83304	4.9012703-7	7240.00000	.0384	
277390.89209	2.831	-26.297	7.287	28997	32.8	-.718151	-92.445	-.263	68.78	83638	5.5770578-7	7245.00000	.0377	
275680.94240	2.437	-26.314	8.047	28953	32.8	-.634792	-92.445	-.287	72.03	83990	6.1774211-7	7250.00000	.0370	
274182.69679	2.044	-26.331	8.704	28905	32.7	-.552568	-92.446	-.308	74.64	84357	6.7034552-7	7255.00000	.0365	
272892.65918	1.652	-26.348	9.259	28854	32.6	-.471561	-92.446	-.325	76.68	84736	7.1563874-7	7260.00000	.0360	
271807.08691	1.260	-26.364	9.716	28800	32.6	-.391838	-92.447	-.339	78.23	85123	7.5375318-7	7265.00000	.0356	
270922.02051	.8688	-26.381	10.08	28745	32.5	-.313455	-92.447	-.350	79.34	85517	7.8482786-7	7270.00000	.0353	
270233.33596	.4784	-26.397	10.35	28688	32.5	-.236456	-92.447	-.358	80.05	85916	8.0900758-7	7275.00000	.0350	
269736.79248	.0888	-26.414	10.61	28629	32.4	-.160875	-92.447	-.367	80.69	86318	8.3277662-7	7280.00000	.0349	
269428.05177	-.3000	-26.430	10.80	28570	32.3	-.086748	-92.447	-.375	81.04	86722	8.5104790-7	7285.00000	.0349	
269302.69287	-.6880	-26.447	10.84	28509	32.2	-.014103	-92.447	-.378	80.85	87127	8.5846664-7	7290.00000	.0349	
269356.23682	-1.075	-26.463	10.76	28448	32.2	.057046	-92.446	-.376	80.16	87530	8.5529791-7	7295.00000	.0349	
269584.21486	-1.461	-26.480	10.54	28388	32.1	.126704	-92.446	-.370	79.00	87928	8.4180617-7	7300.00000	.0349	
269982.23830	-1.847	-26.496	10.21	28329	32.0	.194894	-92.445	-.360	77.38	88319	8.1825114-7	7305.00000	.0349	
270546.04006	-2.232	-26.512	9.913	28272	32.0	.261651	-92.444	-.353	75.94	88702	7.9802853-7	7310.00000	.0351	
271271.47169	-2.616	-26.529	9.559	28216	31.9	.327008	-92.444	-.344	74.25	89078	7.7255863-7	7315.00000	.0354	
272154.53077	-2.999	-26.545	9.140	28162	31.9	.390998	-92.443	-.333	72.31	89444	7.4155442-7	7320.00000	.0357	
273191.33692	-3.381	-26.561	8.658	28109	31.8	.453662	-92.441	-.320	70.10	89801	7.0515216-7	7325.00000	.0361	
274378.20020	-3.763	-26.577	8.118	28059	31.7	.515051	-92.440	-.305	67.62	90145	6.6348139-7	7330.00000	.0366	
275711.62988	-4.144	-26.594	7.519	28011	31.7	.575225	-92.439	-.288	64.85	90476	6.1666467-7	7335.00000	.0371	
277188.36377	-4.524	-26.610	6.865	27966	31.6	.634252	-92.437	-.269	61.76	90793	5.6481655-7	7340.00000	.0376	
278805.39503	-4.904	-26.626	6.156	27924	31.6	.692212	-92.436	-.247	58.31	91093	5.0804258-7	7345.00000	.0382	
280560.00341	-5.283	-26.642	5.497	27886	31.5	.749189	-92.434	-.227	54.94	91376	4.5489433-7	7350.00000	.0390	
282449.70703	-5.662	-26.658	5.028	27851	31.5	.805260	-92.432	-.215	52.41	91644	4.1708136-7	7355.00000	.0402	

TTA7622 JB-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
CONTROL21768 SPAHR1 DATA-A=HEATER CROSS.1 DATA-B=
OBSERVER 0,0000=LAT 0,0000=LONG 0,0000=ORNT DATA-C=
0=ELEV ATMOS= ICAO 1962 ATMOSPHERE KLETT
DATA-L= 0=X, 0=Y, 0=Z

WT	CD	AREA	VICRCL	NOSE	Q	VT	MACH	GAMMA	TAU	AT	DQC	GC	RHO	TIME	CD
1,00000	.04145	1,0000	25781.9	1,000											
	HITE	LAT	LONG												
284472,16993	-6,040	-26,674	4,529	27817	31.5	,860484	-92,430	-.202	49,62	91900	3,7661188-7	7360,00000	,0415		
286625,22658	-6,417	-26,690	4,002	27786	31.4	,914910	-92,428	-.186	46,54	92140	3,3352922-7	7365,00000	,0428		
288906,89843	-6,794	-26,706	3,447	27757	31,4	,968601	-92,426	-.168	43,10	92364	2,8787296-7	7370,00000	,0442		
291315,45312	-7,171	-26,722	2,995	27731	31,3	1,02163	-92,423	-.154	40,10	92572	2,5058289-7	7375,00000	,0458		
293849,31692	-7,547	-26,738	2,635	27707	31,2	1,07405	-92,421	-.143	37,56	92766	2,2088601-7	7380,00000	,0476		
296507,05371	-7,923	-26,754	2,260	27685	31,1	1,12592	-92,418	-.130	34,73	92947	1,8973733-7	7385,00000	,0494		
299287,37011	-8,299	-26,770	1,869	27665	31,0	1,17729	-92,415	-.117	31,54	93113	1,5715202-7	7390,00000	,0513		
302189,16601	-8,674	-26,786	1,597	27648	30,7	1,22821	-92,412	-.107	29,12	93264	1,3442594-7	7395,00000	,0531		
305211,45559	-9,049	-26,801	1,360	27631	30,5	1,27874	-92,409	-.096	26,84	93404	1,1458158-7	7400,00000	,0547		
308353,35401	-9,424	-26,817	1,114	27617	30,2	1,32890	-92,406	-.087	24,27	93532	9,3951878-8	7405,00000	,0565		
311614,10352	-9,798	-26,833	,9168	27604	30,0	1,37875	-92,402	-.076	22,00	93647	7,7426074-8	7410,00000	,0580		
314993,03859	-10,17	-26,849	,7745	27592	29,7	1,42832	-92,399	-.070	20,21	93753	6,5464643-8	7415,00000	,0593		
318489,56446	-10,55	-26,865	,6276	27581	29,4	1,47764	-92,395	-.062	18,18	93849	5,3086942-8	7420,00000	,0606		
322103,15333	-10,92	-26,881	,5148	27572	29,1	1,52674	-92,392	-.057	16,46	93935	4,3579963-8	7425,00000	,0616		
325833,33886	-11,29	-26,896	,4274	27563	28,9	1,57565	-92,388	-.053	14,99	94014	3,6201656-8	7430,00000	,0625		
329679,68750	-11,67	-26,912	,3374	27555	28,7	1,62438	-92,384	-.048	13,32	94085	2,8593578-8	7435,00000	,0634		
333641,81593	-12,04	-26,928	,2807	27547	28,3	1,67294	-92,380	-.046	12,14	94148	2,3801046-8	7440,00000	,0640		
337719,35841	-12,41	-26,944	,2256	27540	27,9	1,72136	-92,375	-.043	10,88	94206	1,9144493-8	7445,00000	,0646		
341911,97413	-12,79	-26,959	,1804	27533	27,6	1,76965	-92,371	-.041	9,729	94257	1,5312513-8	7450,00000	,0651		
346219,33643	-13,16	-26,975	,1477	27526	27,2	1,81781	-92,366	-.040	8,803	94303	1,2547186-8	7455,00000	,0654		
350641,13282	-13,53	-26,991	,1163	27520	26,8	1,86585	-92,361	-.038	7,809	94345	9,8805369-9	7460,00000	,0658		
355177,05226	-13,90	-27,006	,0963	27514	26,5	1,91378	-92,357	-.038	7,105	94382	8,1863710-9	7465,00000	,0660		
359826,79639	-14,28	-27,022	,0759	27507	26,1	1,96159	-92,352	-.037	6,304	94416	6,4496915-9	7470,00000	,0662		
364590,06054	-14,65	-27,038	,0620	27501	25,5	2,00931	-92,347	-.037	5,700	94446	5,2769594-9	7475,00000	,0664		
369466,54444	-15,02	-27,053	,0482	27495	24,9	2,05691	-92,341	-.037	5,023	94473	4,0997762-9	7480,00000	,0666		
374455,95118	-15,39	-27,069	,0393	27489	24,3	2,10442	-92,336	-.037	4,539	94496	3,3507316-9	7485,00000	,0667		
379557,97265	-15,76	-27,085	,0310	27483	23,7	2,15182	-92,330	-.037	4,028	94518	2,6405302-9	7490,00000	,0668		
384772,30566	-16,13	-27,100	,0256	27477	23,2	2,19912	-92,325	-.038	3,659	94537	2,1800352-9	7495,00000	,0668		
390098,64063	-16,50	-27,116	,0204	27471	22,6	2,24632	-92,319	-.038	3,266	94554	1,7372887-9	7500,00000	,0669		
395536,66309	-16,87	-27,131	,0167	27464	21,8	2,29341	-92,313	-.039	2,954	94570	1,4224272-9	7505,00000	,0669		
401086,05177	-17,24	-27,147	,0132	27458	21,1	2,34040	-92,307	-.039	2,625	94584	1,1243591-9	7510,00000	,0670		
534924,49611	-24,61	-27,453	7,5-4	27307	12,8	3,25616	-92,156	-.053	,6268	94710	6,503654-11	7610,00000	,0671		
2325923,6817	-70,78	-28,468	2,0-5	25381	10,2	7,60023	-88,968	-.107	,0000	94792	.0000000000	8290,46875	,0671		

CONTROL 21768 SPAHRI DATA-A=HEATER CROSS.1 DATA-B=
OBSERVER 0,0000=LAT 0,0000=LONG 0,0000=DRNT

DATA-C= DATA-ELEV DATA-X DATA-Y DATA-Z
0=X, 0=Y, 0=Z

WT CD AREA VICRCL NOSE
1,00000 .03387 1,0000 25798,0 1,000

HITE	LAT	LONG	Q	VT	MACH	GAMMA	TAU	AT	DQC	GC	RHO	TIME	CD
258457,57813	-4,456	-30,538	16,60	26331	29,4	-.357451	-92,445	-.556	84,26	1,0+5	1,5407228-6	9310,00000	.0339
257655,12743	-.8032	-30,553	17,22	26240	29,2	-.342546	-92,444	-.577	85,17	1,0+5	1,6092521-6	9315,00000	.0339
256886,72022	-1,199	-30,568	17,79	26146	29,1	-.330127	-92,444	-.597	85,90	1,0+5	1,6748741-6	9320,00000	.0339
256146,45460	-1,514	-30,583	18,33	26048	28,9	-.320287	-92,443	-.615	86,48	1,1+5	1,7380928-6	9325,00000	.0338
255428,27491	-1,868	-30,598	18,83	25948	28,7	-.313114	-92,442	-.632	86,93	1,1+5	1,7994253-6	9330,00000	.0338
254725,98976	-2,220	-30,613	19,30	25845	28,5	-.308690	-92,441	-.648	87,26	1,1+5	1,8594005-6	9335,00000	.0338
254033,27980	-2,571	-30,628	19,75	25740	28,3	-.307098	-92,439	-.663	87,50	1,1+5	1,9185579-6	9340,00000	.0338
253343,72461	-2,921	-30,643	20,19	25632	28,2	-.308415	-92,438	-.677	87,66	1,1+5	1,9774459-6	9345,00000	.0338
252650,80665	-3,269	-30,657	20,62	25522	28,0	-.312718	-92,436	-.692	87,76	1,1+5	2,0366211-6	9350,00000	.0338
251947,91992	-3,615	-30,672	21,04	25409	27,8	-.320083	-92,434	-.705	87,81	1,1+5	2,0966476-6	9355,00000	.0338
251228,38624	-3,960	-30,687	21,46	25295	27,6	-.330586	-92,432	-.719	87,82	1,1+5	2,1580958-6	9360,00000	.0338
250485,45119	-4,303	-30,701	21,89	25178	27,4	-.344305	-92,430	-.733	87,81	1,1+5	2,2215425-6	9365,00000	.0338
249712,29687	-4,645	-30,716	22,44	25058	27,2	-.361322	-92,428	-.752	88,00	1,1+5	2,2996045-6	9370,00000	.0338
248902,04003	-4,985	-30,730	23,22	24935	27,0	-.381736	-92,425	-.778	88,57	1,1+5	2,4026934-6	9375,00000	.0338
248047,69922	-5,324	-30,744	24,02	24808	26,8	-.405676	-92,422	-.804	89,09	1,1+5	2,5113912-6	9380,00000	.0338
247142,15868	-5,661	-30,758	24,86	24676	26,6	-.433288	-92,419	-.832	89,60	1,1+5	2,6266031-6	9385,00000	.0338
246178,12255	-5,995	-30,773	25,73	24540	26,4	-.464719	-92,416	-.861	90,07	1,1+5	2,7492575-6	9390,00000	.0338
245148,16212	-6,328	-30,787	26,65	24399	26,2	-.500126	-92,413	-.891	90,53	1,1+5	2,8802993-6	9395,00000	.0338
244044,68995	-6,659	-30,801	27,61	24253	25,9	-.539675	-92,409	-.923	90,97	1,1+5	3,0206941-6	9400,00000	.0338
242859,97313	-6,988	-30,814	28,63	24102	25,7	-.583544	-92,406	-.957	91,38	1,1+5	3,1714256-6	9405,00000	.0338
241586,12647	-7,315	-30,828	29,70	23945	25,4	-.631920	-92,402	-.992	91,77	1,1+5	3,3334971-6	9410,00000	.0338
240215,12694	-7,640	-30,842	30,83	23782	25,1	-.685005	-92,397	-1,05	92,13	1,1+5	3,5079294-6	9415,00000	.0338
238738,84472	-7,963	-30,855	32,66	23612	24,8	-.743031	-92,393	-1,09	93,35	1,1+5	3,7690551-6	9420,00000	.0338
237149,02735	-8,283	-30,869	34,67	23431	24,5	-.806304	-92,389	-1,16	94,60	1,1+5	4,0637278-6	9425,00000	.0338
235437,30273	-8,601	-30,882	36,77	23239	24,2	-.875201	-92,384	-1,23	95,71	1,1+5	4,3809959-6	9430,00000	.0338
233594,94481	-8,916	-30,895	38,95	23036	23,9	-.950118	-92,379	-1,30	96,64	1,1+5	4,7224770-6	9435,00000	.0338
231612,97413	-9,228	-30,908	41,20	22821	23,5	-1,03147	-92,374	-1,37	97,39	1,2+5	5,0898352-6	9440,00000	.0338
229482,21338	-9,537	-30,921	43,84	22593	23,2	-1,11971	-92,368	-1,46	98,31	1,2+5	5,5258478-6	9445,00000	.0338
227193,41845	-9,843	-30,934	47,59	22349	22,8	-1,21538	-92,362	-1,59	100,0	1,2+5	6,1316460-6	9450,00000	.0338
224737,37501	-10,15	-30,946	51,40	22083	22,4	-1,31917	-92,356	-1,71	101,3	1,2+5	6,7817116-6	9455,00000	.0338
222104,79152	-10,44	-30,959	55,22	21797	21,9	-1,43187	-92,350	-1,84	102,1	1,2+5	7,4785038-6	9460,00000	.0338
219285,96583	-10,74	-30,971	59,57	21490	21,4	-1,55430	-92,344	-1,99	102,8	1,2+5	8,3006780-6	9465,00000	.0338
216271,41698	-11,03	-30,983	65,51	21155	21,0	-1,68743	-92,337	-2,18	104,2	1,2+5	9,4197992-6	9470,00000	.0338
213052,23437	-11,32	-30,995	71,28	20788	20,4	-1,83247	-92,330	-2,38	104,7	1,2+5	1,0614889-5	9475,00000	.0338
209619,64403	-11,60	-31,006	77,18	20390	19,9	-1,99079	-92,322	-2,57	104,5	1,2+5	1,1946127-5	9480,00000	.0338
205965,23192	-11,87	-31,018	85,70	19954	19,3	-2,16390	-92,315	-2,86	105,1	1,2+5	1,3849711-5	9485,00000	.0338
202082,18164	-12,14	-31,029	93,53	19473	18,7	-2,35373	-92,307	-3,12	104,1	1,2+5	1,5872392-5	9490,00000	.0338
197964,86230	-12,40	-31,039	102,6	18947	18,0	-2,56250	-92,298	-3,42	102,8	1,2+5	1,8387702-5	9495,00000	.0338
193609,19922	-12,65	-31,050	113,5	18368	17,4	-2,79278	-92,289	-3,78	101,1	1,2+5	2,1637769-5	9500,00000	.0338
189014,60547	-12,90	-31,060	125,3	17728	16,7	-3,04777	-92,280	-4,18	98,37	1,2+5	2,5646030-5	9505,00000	.0338
184184,20068	-13,14	-31,069	137,9	17022	15,9	-3,33140	-92,271	-4,60	94,53	1,2+5	3,0618049-5	9510,00000	.0338
179125,26318	-13,36	-31,078	151,0	16247	15,1	-3,64835	-92,261	-5,04	89,46	1,2+5	3,6807355-5	9515,00000	.0338
173850,18651	-13,58	-31,087	164,3	15401	14,3	-4,00424	-92,250	-5,48	83,15	1,2+5	4,4572101-5	9520,00000	.0338
168377,71193	-13,78	-31,095	178,0	14482	13,4	-4,40592	-92,239	-5,94	75,81	1,2+5	5,4618692-5	9525,00000	.0338
162734,50391	-13,97	-31,103	191,4	13491	12,5	-4,86194	-92,227	-6,38	67,46	1,2+5	6,7662902-5	9530,00000	.0338
156955,91212	-14,15	-31,110	202,5	12434	11,5	-5,38295	-92,214	-6,75	58,19	1,2+5	8,4263521-5	9535,00000	.0338
151085,32179	-14,31	-31,116	212,5	11322	10,5	-5,98231	-92,201	-7,08	48,72	1,2+5	1,0667723-4	9540,00000	.0338
145175,70607	-14,46	-31,122	218,8	10163	9,54	-6,67721	-92,187	-7,28	39,17	1,3+5	1,3630527-4	9545,00000	.0338
139288,13964	-14,59	-31,127	220,5	8983	8,52	-7,49023	-92,173	-7,32	30,15	1,3+5	1,7581712-4	9550,00000	.0338
133483,74512	-14,70	-31,132	215,6	7817	7,48	-8,45002	-92,158	-7,14	22,10	1,3+5	2,2708306-4	9555,00000	.0338

TTA7622 3B-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL21768 SPAHR1 DATA-A=HEATER CROSS.1 DATA-B=
 OBSERVER 0.0000=LAT 0.0000=LONG 0.0000=ORNT DATA-C= ATMOS= ICAO 1962 ATMOSPHERE KLETT
 0=X, 0=Y, 0=Z
 WT CD AREA VICRCL NOSE
 1.00000 .03378 1.0000 25876.9 1.0000
 HITE LAT LONG Q VT MACH GAMMA TAU AT DQC GC RHO TIME CD
 127816.82080 -14.60 -31.135 204.0 6698. 6.47 -9.59240 -92.141 -6.73 15.42 1.3+5 2.9257938-4 9560.00000 .0338
 122330.68115 -14.88 -31.139 187.3 5665. 5.53 -10.9622 -92.124 -6.14 10.30 1.3+5 3.7543842-4 9565.00000 .0338
 117050.90870 -14.95 -31.141 167.1 4736. 4.66 -12.6128 -92.106 -5.43 6.516 1.3+5 4.7938558-4 9570.00000 .0338
 111990.81933 -15.01 -31.143 145.7 3925. 3.90 -14.6086 -92.086 -4.67 4.124 1.3+5 6.0872612-4 9575.00000 .0338
 107149.39600 -15.06 -31.145 124.9 3235. 3.24 -17.0227 -92.064 -3.93 2.519 1.3+5 7.6789186-4 9580.00000 .0338
 102514.51269 -15.09 -31.146 104.8 2663. 2.68 -19.9324 -92.042 -3.20 1.518 1.3+5 9.5119340-4 9585.00000 .0338
 98062.837403 -15.13 -31.148 87.89 2199. 2.22 -23.4064 -92.016 -2.57 9211 1.3+5 .0011691256 9590.00000 .0338
 93770.137694 -15.15 -31.148 74.34 1828. 1.85 -27.4925 -91.992 -2.05 5692 1.3+5 .0014309226 9595.00000 .0338
 89617.641601 -15.17 -31.149 63.67 1534. 1.56 -32.2040 -91.958 -1.62 3509 1.3+5 .0017417740 9600.00000 .0338
 85593.977538 -15.19 -31.150 55.54 1302. 1.33 -37.4949 -91.919 -1.27 2368 1.3+5 .0021095489 9605.00000 .0338
 81694.759766 -15.20 -31.150 49.56 1120. 1.14 -43.2475 -91.873 -0.993 1519 1.3+5 .0025425056 9610.00000 .0338
 77923.143956 -15.21 -31.151 45.30 977.8 1.00 -49.2718 -91.819 -0.777 1156 1.3+5 .0030483515 9615.00000 .0338
 74288.564940 -15.22 -31.151 42.38 866.1 .889 -55.3303 -91.754 -0.614 0861 1.3+5 .0036354166 9620.00000 .0338
 70804.630371 -15.22 -31.151 40.41 777.0 .800 -61.1760 -91.676 -0.494 0665 1.3+5 .0043069919 9625.00000 .0338
 67485.625002 -15.23 -31.151 39.07 704.4 .727 -66.5949 -91.582 -0.407 0530 1.3+5 .0050668193 9630.00000 .0338
 64343.067383 -15.23 -31.151 38.01 643.9 .665 -71.4355 -91.464 -0.341 0431 1.3+5 .0059001441 9635.00000 .0338
 61381.753417 -15.23 -31.151 37.12 592.8 .612 -75.6112 -91.314 -0.290 0356 1.3+5 .0067969318 9640.00000 .0338
 58599.257323 -15.23 -31.151 36.35 548.9 .567 -79.0989 -91.121 -0.251 0299 1.3+5 .0077635969 9645.00000 .0338
 55988.437013 -15.24 -31.151 35.64 510.7 .528 -81.9257 -90.864 -0.218 0253 1.3+5 .0087930854 9650.00000 .0338
 53538.401366 -15.24 -31.151 35.00 477.3 .493 -84.1524 -90.517 -0.192 0217 1.3+5 .0098888516 9655.00000 .0338
 51236.153810 -15.24 -31.151 34.40 447.8 .463 -85.8589 -90.036 -0.169 0187 1.3+5 .0110389639 9660.00000 .0338
 49067.649414 -15.24 -31.151 33.85 421.8 .436 -87.1315 -89.352 -0.148 0163 1.3+5 .0122424251 9665.00000 .0338
 47019.188478 -15.24 -31.151 33.37 398.8 .412 -88.0559 -88.359 -0.132 0144 1.3+5 .0135038729 9670.00000 .0338
 45078.275393 -15.24 -31.151 32.96 378.3 .391 -88.7100 -86.884 -0.117 0128 1.3+5 .0148185986 9675.00000 .0338
 43233.765626 -15.24 -31.151 32.60 360.0 .372 -89.1608 -84.646 -0.105 0114 1.3+5 .0161881693 9680.00000 .0338
 41475.931642 -15.24 -31.151 32.29 343.5 .355 -89.4631 -81.200 -0.094 0103 1.3+5 .0176112656 9685.00000 .0338
 39796.321777 -15.24 -31.151 32.02 328.6 .339 -89.6598 -75.859 -0.085 0093 1.3+5 .0190838097 9690.00000 .0338
 38187.616699 -15.24 -31.151 31.80 315.1 .325 -89.7828 -67.728 -0.077 0085 1.3+5 .0206116366 9695.00000 .0338
 36643.557617 -15.24 -31.151 31.59 302.7 .313 -89.8555 -56.162 -0.070 0077 1.3+5 .0221843436 9700.00000 .0338
 35158.086914 -15.24 -31.151 31.24 291.8 .300 -89.8949 -42.001 -0.058 0071 1.3+5 .0236090379 9705.00000 .0338
 33722.298342 -15.24 -31.151 30.99 282.7 .289 -89.9142 -28.215 -0.049 0066 1.3+5 .0249406497 9710.00000 .0338
 32328.895508 -15.24 -31.151 30.84 274.8 .279 -89.9232 -17.542 -0.044 0062 1.3+5 .0262873535 9715.00000 .0338
 30973.582030 -15.24 -31.151 30.73 267.5 .270 -89.9278 -10.473 -0.040 0058 1.3+5 .0276464219 9720.00000 .0338
 29653.438966 -15.24 -31.151 30.65 260.7 .262 -89.9307 -6.1841 -0.037 0055 1.3+5 .0290243547 9725.00000 .0338
 28366.051270 -15.24 -31.151 30.58 254.3 .254 -89.9329 -3.6983 -0.035 0052 1.3+5 .0304210757 9730.00000 .0338
 27109.394044 -15.24 -31.151 30.52 248.4 .247 -89.9347 -2.2994 -0.033 0050 1.3+5 .0318284941 9735.00000 .0338
 25881.620607 -15.24 -31.151 30.46 242.8 .240 -89.9364 -1.5345 -0.031 0047 1.3+5 .0332542266 9740.00000 .0338
 24681.113770 -15.24 -31.151 30.41 237.5 .233 -89.9380 -1.1292 -0.029 0045 1.3+5 .0346966356 9745.00000 .0338
 23506.354494 -15.24 -31.151 30.36 232.5 .227 -89.9394 -.92340 -0.027 0043 1.3+5 .0361524997 9750.00000 .0338
 22355.972169 -15.24 -31.151 30.32 227.7 .222 -89.9408 -.82769 -0.026 0041 1.3+5 .0376227280 9755.00000 .0338
 21228.726074 -15.24 -31.151 30.28 223.2 .216 -89.9421 -.79002 -0.024 0039 1.3+5 .0391064805 9760.00000 .0338
 20123.474611 -15.24 -31.151 30.24 218.9 .211 -89.9433 -.78261 -0.023 0038 1.3+5 .0406047041 9765.00000 .0338
 19039.126465 -15.24 -31.151 30.21 214.8 .206 -89.9444 -.79074 -0.022 0036 1.3+5 .0421163012 9770.00000 .0338
 17974.716797 -15.24 -31.151 30.18 210.9 .202 -89.9455 -.80883 -0.020 0035 1.3+5 .0436432422 9775.00000 .0338
 16929.362792 -15.24 -31.151 30.15 207.2 .197 -89.9466 -.83166 -0.019 0033 1.3+5 .0451850735 9780.00000 .0338
 15902.240722 -15.24 -31.151 30.13 203.7 .193 -89.9476 -.85522 -0.018 0032 1.3+5 .0467403314 9785.00000 .0338
 14892.563477 -15.24 -31.151 30.10 200.2 .189 -89.9485 -.87852 -0.018 0031 1.3+5 .0483076092 9790.00000 .0338
 13899.573730 -15.24 -31.151 30.08 197.0 .186 -89.9494 -.90186 -0.017 0030 1.3+5 .0498884940 9795.00000 .0338
 12922.558992 -15.24 -31.151 30.06 193.8 .182 -89.9502 -.92594 -0.016 0029 1.3+5 .0514822497 9800.00000 .0338
 11960.915039 -15.24 -31.151 30.04 190.8 .178 -89.9511 -.95207 -0.015 0028 1.3+5 .0530887962 9805.00000 .0338

TTA7622 38-64 21768 SPAHR1 ALRH MULTIPLE ORBITS
 CONTROL21768 SPAHR1 DATA=A=HEATER CROSS.1 DATA=B=
 OBSERVER 0,0000=LAT 0,0000=LONG 0,0000=ORNT

DATA-C= ATMOS= ICAO 1962 ATMOSPHERE KLETT
 DATA-D= DATA-E=
 0=ELEV 0=X, 0=Y, 0=Z

WT	CD	AREA	VICRCL	NOSE	1,00000	.03378	1,0000	25949.2	1,000	HITE	LAT	LONG	Q	VT	MACH	GAMMA	TAU	AT	DQC	GC	RHO	TIME	CD
11014,122070	-15,24	-31,151	30,03	187,9	.175	-89,9519	-1,97960	-.015	.0027	1,3+5	.0547068654	9810,00000	.0338										
10081,659181	-15,24	-31,151	30,00	185,1	.172	-89,9526	-1,0043	-.014	.0026	1,3+5	.0563399331	9815,00000	.0338										
9162,8071290	-15,24	-31,151	30,00	182,4	.169	-89,9533	-1,0267	-.013	.0025	1,3+5	.0579851507	9820,00000	.0338										
8257,2851562	-15,24	-31,151	29,97	179,8	.166	-89,9540	-1,0515	-.012	.0025	1,3+5	.0596431099	9825,00000	.0338										
7364,3725586	-15,24	-31,151	29,97	177,3	.163	-89,9547	-1,0744	-.012	.0024	1,3+5	.0613122508	9830,00000	.0338										
6483,8056641	-15,24	-31,151	29,95	174,9	.160	-89,9553	-1,0990	-.011	.0023	1,3+5	.0629880297	9835,00000	.0338										
5615,0576172	-15,24	-31,151	29,94	172,6	.158	-89,9560	-1,1224	-.011	.0022	1,3+5	.0646844913	9840,00000	.0338										
4757,8603518	-15,24	-31,151	29,92	170,3	.155	-89,9566	-1,1480	-.011	.0022	1,3+5	.0663868800	9845,00000	.0338										
3911,7973242	-15,24	-31,151	29,92	168,1	.153	-89,9571	-1,1720	-.010	.0021	1,3+5	.0680987799	9850,00000	.0338										
3076,4418945	-15,24	-31,151	29,90	166,0	.150	-89,9577	-1,1973	-.010	.0021	1,3+5	.0698247461	9855,00000	.0338										
2251,5322265	-15,24	-31,151	29,90	164,0	.148	-89,9583	-1,2213	-.009	.0020	1,3+5	.0715662609	9860,00000	.0338										
1436,7490235	-15,24	-31,151	29,89	162,0	.146	-89,9588	-1,2462	-.009	.0020	1,3+5	.0733168751	9865,00000	.0338										
631,80224609	-15,24	-31,151	29,88	160,0	.144	-89,9593	-1,2691	-.009	.0019	1,3+5	.0750764534	9870,00000	.0338										
.163,76416015	-15,24	-31,151	29,76	158,2	.142	-89,9598	-1,2941	-.004	.0019	1,3+5	.0764740000	9875,00000	.0338										
.953,20605469	-15,24	-31,151	29,56	157,7	.141	-89,9601	-1,3150	.002	.0018	1,3+5	.0764740000	9880,00000	.0338										
.1741,6020508	-15,24	-31,151	29,54	157,7	.141	-89,9603	-1,3296	.003	.0018	1,3+5	.0764740000	9885,00000	.0338										
HITE LESS THAN MIN,																							
CLOCK= 560.10																							
.1741,6020508 -15,24 -31,151 29,54 157,7 .141 -89,9603 -1,3296 .003 .0018 1,3+5 .0764740000 9885,00000 .0338																							
END OF RUN,																							

Part 3
Listing of Punched Card CMA Input

REVOLUTION 1

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	25781.065	0.0000	.0000012	.000001	15 W. HEATER
60.0000	26035.727	0.0000	.0000635	.000034	15 W. HEATER
70.0000	26066.024	0.0000	.0001784	.000095	15 W. HEATER
80.0000	26090.564	0.0000	.0004891	.000259	15 W. HEATER
90.0000	26110.781	0.0000	.0012660	.000672	15 W. HEATER
100.0000	26123.782	0.0000	.0029165	.001548	15 W. HEATER
110.0000	26115.114	0.0000	.0059180	.003140	15 W. HEATER
120.0000	26027.074	0.0000	.0100225	.005309	15 W. HEATER
130.0000	25897.450	0.0000	.0120819	.007426	15 W. HEATER
140.0000	25740.895	0.0000	.0131158	.008760	15 W. HEATER
145.0000	25657.783	0.0000	.0132421	.008934	15 W. HEATER
150.0000	25573.377	0.0000	.0130951	.008741	15 W. HEATER
160.0000	25410.680	0.0000	.0120450	.007402	15 W. HEATER
170.0000	25268.392	0.0000	.0102240	.005338	15 W. HEATER
180.0000	25159.102	0.0000	.0062201	.003239	15 W. HEATER
190.0000	25082.598	0.0000	.0032025	.001665	15 W. HEATER
200.0000	25030.246	0.0000	.0014590	.000758	15 W. HEATER
210.0000	24993.491	0.0000	.0005940	.000308	15 W. HEATER
220.0000	24963.824	0.0000	.0002315	.000120	15 W. HEATER
230.0000	24932.763	0.0000	.0000844	.000044	15 W. HEATER
240.0000	24900.311	0.0000	.0000313	.000016	15 W. HEATER

REVOLUTION 3

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	23563.265	0.0000	.0000028	.000001	15 W. HEATER
45.0000	23721.322	0.0000	.0000684	.000035	15 W. HEATER
55.0000	23746.109	0.0000	.0001760	.000089	15 W. HEATER
65.0000	23765.397	0.0000	.0004415	.000223	15 W. HEATER
75.0000	23775.043	0.0000	.0010614	.000537	15 W. HEATER
85.0000	23769.531	0.0000	.0023347	.001182	15 W. HEATER
95.0000	23737.845	0.0000	.0046443	.002349	15 W. HEATER
105.0000	23674.537	0.0000	.0080541	.004069	15 W. HEATER
115.0000	23576.988	0.0000	.0108092	.006029	15 W. HEATER
125.0000	23448.148	0.0000	.0122363	.007732	15 W. HEATER
135.0000	23301.920	0.0000	.0129317	.008644	15 W. HEATER
145.0000	23145.269	0.0000	.0127746	.008443	15 W. HEATER
155.0000	22998.634	0.0000	.0118166	.007231	15 W. HEATER
165.0000	22868.683	0.0000	.0102494	.005445	15 W. HEATER
175.0000	22764.718	0.0000	.0072396	.003586	15 W. HEATER
185.0000	22686.563	0.0000	.0041654	.002060	15 W. HEATER
195.0000	22631.396	0.0000	.0021327	.001053	15 W. HEATER
205.0000	22592.417	0.0000	.0010013	.000494	15 W. HEATER
215.0000	22562.868	0.0000	.0004356	.000215	15 W. HEATER
225.0000	22536.023	0.0000	.0001833	.000090	15 W. HEATER
235.0000	22509.194	0.0000	.0000745	.000037	15 W. HEATER
245.0000	22479.700	0.0000	.0000305	.000015	15 W. HEATER

REVOLUTION 5

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	21137.385	0.0000	.0000043	.000002	15 W. HEATER
40.0000	21255.810	0.0000	.0000651	.000031	15 W. HEATER
50.0000	21279.275	0.0000	.0001493	.000072	15 W. HEATER
60.0000	21297.533	0.0000	.0003407	.000163	15 W. HEATER
70.0000	21309.275	0.0000	.0007538	.000361	15 W. HEATER
80.0000	21311.885	0.0000	.0015731	.000754	15 W. HEATER
90.0000	21297.533	0.0000	.0030587	.001466	15 W. HEATER
100.0000	21261.024	0.0000	.0054585	.002613	15 W. HEATER
110.0000	21198.508	0.0000	.0086998	.004159	15 W. HEATER
120.0000	21108.804	0.0000	.0105564	.005846	15 W. HEATER
130.0000	20995.970	0.0000	.0118605	.007385	15 W. HEATER
140.0000	20862.775	0.0000	.0145491	.011124	15 W. HEATER
150.0000	20717.137	0.0000	.0128030	.008623	15 W. HEATER
160.0000	20573.291	0.0000	.0123333	.008010	15 W. HEATER
170.0000	20442.724	0.0000	.0113190	.006754	15 W. HEATER
180.0000	20329.137	0.0000	.0099087	.005180	15 W. HEATER
190.0000	20236.207	0.0000	.0077269	.003609	15 W. HEATER
200.0000	20163.793	0.0000	.0048587	.002265	15 W. HEATER
210.0000	20109.251	0.0000	.0027766	.001293	15 W. HEATER
220.0000	20071.242	0.0000	.0014865	.000691	15 W. HEATER
230.0000	20040.861	0.0000	.0007501	.000349	15 W. HEATER
240.0000	20015.561	0.0000	.0003604	.000167	15 W. HEATER
250.0000	19992.804	0.0000	.0001699	.000079	15 W. HEATER
260.0000	19968.798	0.0000	.0000775	.000036	15 W. HEATER
270.0000	19944.806	0.0000	.0000361	.000017	15 W. HEATER

REVOLUTION 7

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	18566.968	0.0000	.0000404	.000018	15 W. HEATER
20.0000	18604.745	0.0000	.0001623	.000073	15 W. HEATER
40.0000	18631.578	0.0000	.0006239	.000280	15 W. HEATER
60.0000	18630.358	0.0000	.0021213	.000951	15 W. HEATER
80.0000	18575.495	0.0000	.0058408	.002614	15 W. HEATER
100.0000	18445.370	0.0000	.0099342	.005283	15 W. HEATER
120.0000	18238.361	0.0000	.0121717	.007944	15 W. HEATER
130.0000	18109.424	0.0000	.0127942	.008787	15 W. HEATER
140.0000	17972.555	0.0000	.0130119	.009099	15 W. HEATER
160.0000	17702.753	0.0000	.0122511	.008084	15 W. HEATER
180.0000	17477.506	0.0000	.0102564	.005677	15 W. HEATER
200.0000	17313.634	0.0000	.0073830	.003190	15 W. HEATER
220.0000	17196.218	0.0000	.0032752	.001410	15 W. HEATER
240.0000	17140.001	0.0000	.0012156	.000523	15 W. HEATER
260.0000	17097.898	0.0000	.0003959	.000170	15 W. HEATER
280.0000	17060.516	0.0000	.0001213	.000052	15 W. HEATER
300.0000	17013.847	0.0000	.0000372	.000016	15 W. HEATER

REVOLUTION 8

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	17026.675	0.0000	.0000441	.000019	15 W. HEATER
20.0000	17060.516	0.0000	.0001448	.000062	15 W. HEATER
40.0000	17083.875	0.0000	.0004654	.000200	15 W. HEATER
60.0000	17090.886	0.0000	.0014033	.000602	15 W. HEATER
80.0000	17065.187	0.0000	.0037114	.001592	15 W. HEATER
100.0000	16984.711	0.0000	.0079997	.003468	15 W. HEATER
120.0000	16841.727	0.0000	.0105085	.005993	15 W. HEATER
140.0000	16630.112	0.0000	.0124938	.008487	15 W. HEATER
160.0000	16371.764	0.0000	.0135259	.009970	15 W. HEATER
170.0000	16234.806	0.0000	.0136209	.010124	15 W. HEATER
180.0000	16097.288	0.0000	.0134509	.009885	15 W. HEATER
200.0000	15842.004	0.0000	.0124043	.008427	15 W. HEATER
220.0000	15622.259	0.0000	.0106833	.006264	15 W. HEATER
240.0000	15456.235	0.0000	.0086554	.004118	15 W. HEATER
260.0000	15334.236	0.0000	.0058933	.002396	15 W. HEATER
280.0000	15287.782	0.0000	.0030394	.001234	15 W. HEATER
300.0000	15220.439	0.0000	.0014330	.000580	15 W. HEATER
320.0000	15175.259	0.0000	.0006365	.000257	15 W. HEATER
340.0000	15142.243	0.0000	.0002705	.000109	15 W. HEATER
360.0000	15113.658	0.0000	.0001120	.000045	15 W. HEATER
380.0000	15087.296	0.0000	.0000477	.000019	15 W. HEATER
390.0000	15059.860	0.0000	.0000307	.000012	15 W. HEATER

REVOLUTION 9

TIME	H R	QDOTR	QDOTC/H R	P T A	I. D.
0.0000	14964.577	0.0000	.0000041	.000002	15 W. HEATER
65.0000	15063.151	0.0000	.0000366	.000015	15 W. HEATER
90.0000	15093.884	0.0000	.0001071	.000043	15 W. HEATER
140.0000	15129.046	0.0000	.0009247	.000373	15 W. HEATER
190.0000	15054.376	0.0000	.0057508	.002317	15 W. HEATER
240.0000	14727.152	0.0000	.0117358	.007626	15 W. HEATER
290.0000	14030.502	0.0000	.0160543	.014375	15 W. HEATER
340.0000	13011.056	0.0000	.0183901	.019077	15 W. HEATER
390.0000	11749.356	0.0000	.0210899	.025477	15 W. HEATER
440.0000	9976.985	0.0000	.0274351	.044183	15 W. HEATER
475.0000	7953.221	0.0000	.0362021	.079594	15 W. HEATER
490.0000	6739.177	0.0000	.0414060	.106741	15 W. HEATER
500.0000	5787.677	0.0000	.0451545	.129873	15 W. HEATER
510.0000	4737.846	0.0000	.0485412	.154660	15 W. HEATER
520.0000	3635.561	0.0000	.0513239	.179906	15 W. HEATER
530.0000	2560.527	0.0000	.0527048	.199961	15 W. HEATER
540.0000	1611.855	0.0000	.0518642	.207554	15 W. HEATER
550.0000	896.135	0.0000	.0476604	.191405	15 W. HEATER
560.0000	448.029	0.0000	.0409470	.156762	15 W. HEATER
570.0000	209.041	0.0000	.0334230	.117098	15 W. HEATER
580.0000	96.590	0.0000	.0265484	.082953	15 W. HEATER
590.0000	47.004	0.0000	.0214141	.060128	15 W. HEATER
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