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ADVANCED LAUNCH VEHICLE COMPUTER PROGRAM FOR FLYBACK AND RECOVERY TRAJECTORIES

Prepared for:

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6025 TECHNOLOGY DRIVE, P.O. BOX 1484 HUNTSVILLE, ALABAMA 35805

TELEPHONE 837-0580

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Nortronics-Huntsville Technical Report No. 374

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By

T. E. Perkins
J. von Puttkamer
D. P. Conrad

PREPARED FOR:

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Reviewed by:

P. R. Odom, Chief, Mission Analysis Group

D. M. Hammock, Director, Systems Section

Dr. S. S. Hu, Technical Director

NORTRONICS - HUNTSVILLE
HUNTSVILLE, ALABAMA

SUMMARY

This report documents a computer program designed to calculate the flyback and recovery flight of a lifting booster vehicle after its ascent mission is completed. Upon booster staging, the flyback sequence is initiated, and the vehicle descends, turns, decelerates, cruises, and glides down to landing at the desired base. Range, azimuth, fuel utilization, latitude, and longitude data throughout the whole mission are included. This program is written in FORTRAN II language and is suitable for the SDS 930 or CDC 3200 computer, and could be adapted to larger computers with little difficulty.

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NOMENCLATURE

Symbol	Definition	Function	Unit	Fortran Symbol
C_{D_0}	zero lift drag coefficient	f(M)		CD0
CD0TAB	table values of C_{D_0}			CD0TAB
C_D	drag coefficient			CDD
CF	centripetal force		ft lb	
C_L	coefficient of lift			CL
C_{L_0}	zero angle-of-attack lift coefficient	f(M)		CL0
CL0TAB	table values of C_{L_0}			CL0TAB
$\frac{\sqrt{C_L}}{C_D}$	Breguet convergence term			TERM
C_{L_α}	first derivative of C_L with α	f(M)		CL1
CL1TAB	table values of C_{L_α}			CL1TAB
$C_{L_{\alpha^2}}$	second derivative of C_L with α	f(M)		CL2
CL2TAB	table values of $C_{L_{\alpha^2}}$			CL2TAB
D	drag		lb	DRAG
DELD	convergence parameter			DELD
E	energy		ft lb	

NOMENCLATURE (continued)

Symbol	Definition	Function	Unit	Fortran Symbol
dE/dh	change in energy with altitude	*SPL	ft lb/ft	DEDH
F	first increment in CONVERG			F
g	acceleration due to gravity		ft/sec^2	GRAV
g_o	standard acceleration due to gravity at sea level	SPL	ft/sec^2	XGO
G_N	felt acceleration normal to flight path		g's	GN
G_T	felt acceleration tangential to flight path		g's	GT
G_R	total (resultant) felt acceleration		g's	GR
$G_{R_{max}}$	maximum allowed G_R	SPL	g's	GRMX
G_V	vertical (to earth's surface) felt acceleration		g's	GV
$G_{V_{max}}$	maximum G_V		g's	
h	altitude of vehicle under study		ft	ALT
Δh	change in altitude during integration		ft	ADELT
h_k	integration component for h		ft	AM

** SPL means single point lookup*

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran symbol
$\dot{h}$	rate of change of altitude		ft/sec	
h_{FG}	average altitude during glide		ft	ALTG
h_{FB}	flyback cruise altitude	SPL	ft	ALTB
Δh_{FB}	increment of altitude above h_{FB} that the vehicle starts transition to h_{FB}	SPL	ft	DHFB
Δh_{FBT}	tolerance on h_{FB}	SPL	ft	ATOL
h^*	altitude at staging	SPL	ft	ALTS
h_N	N-R increment computed in equation 90			DEL
IALP	type of angle-of-attack control	SPL		IALP
ICK	control indicator			ICK
I_{DE}	number of integrations for Condition D - E			
IGM	Indicator 1 = $G_{R_{max}}$ has been exceeded, α being controlled by $G_{R_{max}}$ 0 = some other α control			IGM
IGLD	glide option indicator	SPL		IGLD
KASE	condition indicator			KASE
k_1	induced drag efficiency factor	SPL		CK1
k_{20}	throttle variable			CK20
k_{21}	thrust variable	SPL		CK21

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran symbol
k_{22}	C_{D_0} variable	SPL		CK22
k_{23}	C_L variable	SPL		CK23
k_{24}	drag due to lift variable			CK24
LOC	control method 0 = α control -1 = altitude control +1 = Mach control			LOC
L	lift		lb	XLIFT
L/D	lift/drag ratio			DL
$(L/D)_{max}$	maximum L/D			
M	Mach number			XMACH
M_{FB}	flyback cruise Mach number	SPL		XMB
ΔM_{FB}	tolerance on M_{FB}	SPL		XTOL
XMACHT	Mach values in Mach table			XMACHT
m	mass		slugs	XM
NRK	integration step indicator			NRK
n	number of engines	SPL		XN
NTAB1	number of points in Mach table	SPL		NTAB1

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran Symbol
PRNT	time for next printout		sec	PRNT
q	dynamic pressure		lb/ft^2	QATM
q_{FG}	average dynamic pressure during glide		lb/ft^2	
r	radius of vehicle flight path		ft	RFP
R	range of vehicle under study		n.mi.	RANGE
R^*	range at staging	SPL	n.mi.	RANGS
$\dot{R}$	rate of change of range		n.mi./sec	RDOT
ΔR	change in range during integration		n.mi.	RDELT
R_e	radius of the earth	SPL	ft	RE
RADIAN	conversion from degrees to radians	SPL	°/RAD	RADIAN
R_k	integration component of range		ft	RN
R_{FB}	flyback cruise range		n.mi.	RFB
R_{FG}	glide range		n.mi.	RFG
S	reference area	SPL	ft^2	AREA
SOS	speed of sound	f(h)	ft/sec	SOS

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran Symbol
SFC	specific fuel consumption	f(M,h)	lb fuel/lb thrust/hr	SFC
$\Delta t_{(A,B,\ etc)}$	delta time at point (A,B,etc)		sec	T(A,B,e
T	thrust		lb	THR
Δt_p	print interval		sec	DTP
t_D	time at point D		sec	TIMD
T_e	engine thrust	f(M,h)	lb	TE
Δt	integration interval	SPL	sec	DELT
t_{FB}	time in flyback cruise		sec	TB
t_{FG}	time in glide		sec	TFG
V	velocity of vehicle under study		ft/sec	VEL
V*	velocity at staging	SPL	ft/sec	VELS
V_k	integration component of V		ft/sec	VK
$\dot{V}$	rate of change of velocity		ft/sec^2	
ΔV	change in velocity during integration		ft/sec	VDELT
$V_\perp$	velocity perpendicular to flight path radius		ft/sec	

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran Symbol
V_{FB}	velocity in flyback cruise		ft/sec	
V_{FG}	average velocity in glide		ft/sec	
W	weight of vehicle under study		lb	WHT
W*	weight at staging	SPL	lb	
W_{FB}	weight at start of flyback cruise		lb	
W_H	weight at end of flyback cruise		lb	
$\dot{W}$	rate of change of weight		lb/sec	
W_{EM}	empty weight	SPL	lb	WEMP
W_{FG}	glide condition weight	SPL	lb	
Z	azimuth of vehicle under study		deg	Z
$\dot{Z}$	rate of change of azimuth		deg/sec	
ΔZ	change of azimuth during integration		deg	ZDELT
Z_D	rate of change of azimuth at point D	SPL	deg/sec	ZDD
ΔZ_R	commanded change in azimuth in Condition D - E during integration interval		deg	ZBZD

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran Symbol
$\dot{Z}_R$	commanded $\dot{Z}$ during Condition D-E		deg/sec	DOTR
$\Delta\dot{Z}$	difference in commanded and actual $\dot{Z}$		deg/sec	DELZ
$\dot{Z}_D$	required Z to point D		deg	DZR
$\dot{Z}_{R_{TOL}}$	tolerance on $\dot{Z}_R$		deg/sec	ZRTL
Z_L	launch azimuth	SPL	deg	ZL
Z_L'	modified launch azimuth		deg	ZLP
Z_{FB}	flyback cruise azimuth		deg	ZB
Z_{AVG}	average azimuth		deg	ZAVG
Z_k	integration component for Z		deg	ZJ
Z*	staging azimuth	SPL	deg	
α	angle-of-attack		deg	ALPH
$\Delta\alpha$	increment of α for $(L/D)_{max}$ calculation	SPL	deg	ADD
α_{max}	maximum allowable α or IALP = 1 alpha	f(M)	deg	ATRN
α_{turn}	input α_{max} table		deg	ATR
α_{FG}	average angle-of-attack during glide		deg	ALPHG

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran Symbol
β^*	modified Z*		deg	BETS
β	internal average azimuth		deg	BETA
β_{FB}	modified Z_{FB} (See Figure 2-4)		deg	
β_H	modified Z_{FB} (See Figure 2-4)		deg	
γ	flight path angle		deg	GAM
γ_k	integration component for γ		deg	GL
γ^*	staging flight path angle	SPL	deg	
$\dot{\gamma}$	rate of change of γ		deg/sec	
γ_A	flight path angle at Point A	SPL	deg	GAMA
γ_c	flight path angle during condition C - D	SPL	deg	GAMC
$\dot{\gamma}_c$	rate of change of γ_c		deg/sec	DOTC
γ_{CO}	γ_c at start of commanded change		deg	GAMO
$\Delta\gamma_c$	tolerance on difference in γ and γ_c	SPL	deg	GCTL
γ_{FG}	average glide flight path angle		deg	GFG
λ	longitude		deg	XLON

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran Symbol
$\Delta\lambda_B$	difference in λ and λ_{FB}		deg	DLOB
$\Delta\lambda_{FB}$	change in flyback cruise longitude during integration		deg	
$\Delta\lambda$	change in longitude during integration		deg	DLON
λ_L	longitude of launch point	SPL	deg	
λ_H	longitude at home base	SPL	deg	XLOB
λ^*	longitude at staging		deg	
λ_{FB}	flyback cruise longitude		deg	
ρ	atmospheric density	f(h)	slug/ft^3	RHO
ρ_{FG}	average ρ during glide		slug/ft^3	RHOG
σ	range angle		deg	SIG
$\Delta\sigma$	integration interval of σ		deg	DSIG
σ^*	staging range angle		deg	SIGS
σ_{FB}	flyback cruise range angle		deg	SIGB
ϕ	roll angle		deg	PHI
$\dot{\phi}$	rate of change of roll angle		deg/sec	

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran Symbol
$\dot{\phi}_A$	$\dot{\phi}$ in condition A - B	SPL	deg/sec	DPB
ϕ_B	ϕ in condition B - C	SPL	deg	PB
ϕ_o	initial trial value of ϕ	SPL	deg	POA
ψ	latitude		deg	XLAT
$\Delta\psi$	latitude change during integration		deg	DLAT
ψ_L	launch latitude		deg	
ψ^*	staging latitude		deg	
ψ_{FB}	flyback cruise latitude change		deg	
ψ_H	latitude at home base	SPL	deg	XLAB
$\Delta\psi_{FB}$	change in flyback cruise latitude during integration		deg	DLAB
ψ'	complementary angle of ψ		deg	DL
ψ'_H	complementary angle of ψ_H		deg	
IEND, IEGT	Indicators used for different convergences using CONVERG where, in program, 0 = initial or O.K. value, 1 = error or failure to converge. Corresponds to IEND in call parameters			Same as Symbol for the remaining nomenclature.

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran Symbol
MAC, IM, IEGC	Indicators used for different convergences using CONVERG where, in program, 0 = initial and O.K. value. 1 = error or failure to converge. Corresponds to IEND in call parameters			
MND3, IND3, IGM, IGT, IGC	Step in convergence scheme used for different calls to CONVERG during one integration interval. Corresponds to IND3 in call parameters			
ALPH2, ALPH1, C2, C1, A2, A1, DELD2	These are stored values from the first two calls to routine CONVERG for each of the different convergences needed. Not all these are being used at any one time.			

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran Symbol
DELD1	These are stored values from the first two calls to routine CONVERG for each of the different convergences needed. Not all these are being used at any one time.			
DG2				
DG1				
DT2				
DT1				
DM2				
DM1				
X	These and similar notations are interim values in solutions to equations or storage of temporarily needed information			
Y				
E				
B				
D				
SQ				
ROOT1				
ROOT2				

NOMENCLATURE (continued)

Symbol	Definition	Function	Units	Fortran Symbol
GAMT2	These and similar notations are interim values in solutions to equations or storage of temporarily needed information			
GAMT1				
DGM2				
DGM1				

Subscripts and Superscripts

*	Staging
L	launch
R	required
A, B, etc.	indicate Condition or Point during cruise
max	maximum
1	at start of integration
2	at end of integration
H	home base
FB	flyback cruise condition
FG	glide condition

NOMENCLATURE (concluded)

Symbol	Definition	Function	Units	Fortran Symbol
AVG	average			
k	integration component			
EM	empty			
$\perp$	perpendicular			

Section I
INTRODUCTION

The study of advanced launch vehicles necessitates broad research into many areas of vehicle technology. One of the problems often encountered is the question of economical booster recovery. As a tool in lifting booster recovery studies, this program is designed to calculate the flight path required to recover a vehicle after it has completed its booster mission. Therefore, the program considers the basic aspects of going from staging through maneuvering of the booster into a cruise condition on the correct azimuth to the desired home base, and calculating the cruise and glide-to-landing parameters. Maximum input flexibility has been retained to allow a large number of diverse vehicle concepts to be studied.

The routine is designed to be used in conjunction with boost programs to provide a complete evaluation of recoverable boosters. It can provide assistance in parametric studies and help in the evaulation of many considerations which go into booster design. Some of the technical area evaluations that might be assisted include reentry energy management, cruise fuel requirements, recovery base possibilities, minimum cruise engine sizing, structural loading in entry and turning to base, effect of recovery requirements on overall booster sizing, and many others.

These are several rather unique features in this program. The most important feature is the system of calculating and turning to the cruise back to base azimuth. Other unique features include the energy management option, the vertical load factor option, the method of holding a desired flight angle by roll control, and others. These features are explained in Section III.

The weight data which is included in the appendix is derived primarily from Wright Air Development Center data which was collected and plotted by Northrop for general use in booster weight analysis, and is included here for general interest.

Section II
THEORY

2.1 GROUND RULES

Certain general assumptions have been made in developing the flyback routine. The primary ones are listed below:

- Earth relative motion is used throughout.
- A spherical rotating earth is assumed.
- The vehicle range calculated is ground range.
- No aerodynamic sideslip is considered.
- No winds are considered.
- The ascent flight from which staging data is taken is assumed to be two-dimensional. See note below.
- The flyback routine is three-dimensional.
- The equations developed are modified to facilitate inclusion in the computer routine.

Other specialized assumptions and conditions are explained as they are encountered in this report.

2.2 STARTING DATA

The data required from the ascent flight to start the flyback routine are detailed in Subsection 3.4. In general, the following information is necessary:

- Aerodynamic, propulsion, and weight data for the vehicle.
- Control data for the desired flight.
- Staging conditions -

  Staging weight - W^*

  Staging velocity - V^*

  Staging range - R^*

  Staging flightpath angle - γ^*

  Staging altitude - h^*

NOTE: If staging azimuth, latitude, and longitude are known, the launch conditions data are not needed and Subsection 2.3 is unnecessary and should be eliminated as explained in Section III.

- Launch Conditions -
  - Launch azimuth - Z_L
  - Launch latitude - ψ_L
  - Launch longitude - λ_L

2.3 CALCULATION

It is assumed that the staging position and azimuth are not known. Consequently, this section explains how the staging data are obtained for use in forthcoming calculations. Launch conditions, ascent range, and the assumption of two-dimensional ascent flight, serve as the basis for the computation. Figure 2-1 presents a geometrical representation of the method.

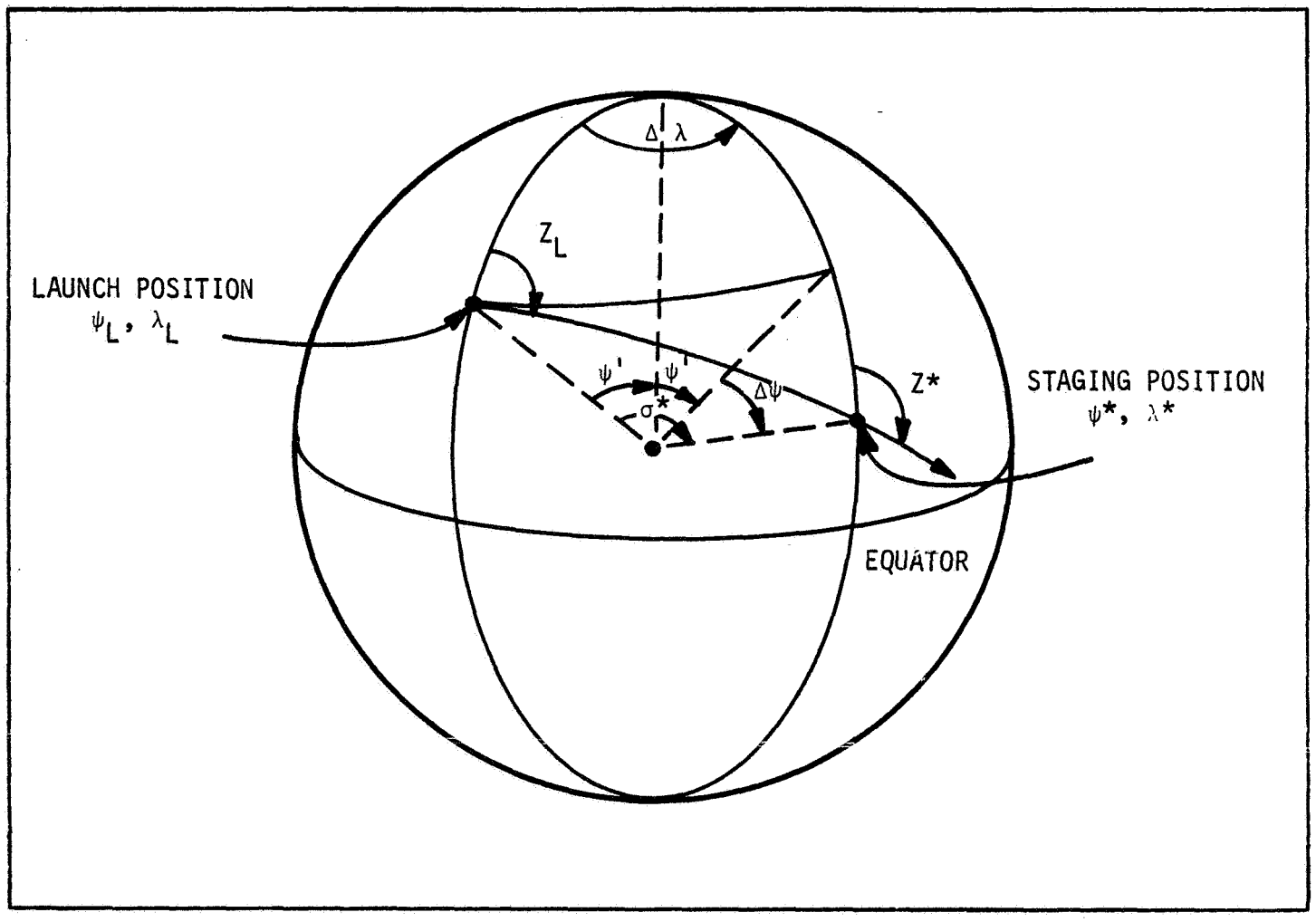


Figure 2-1. GEOMETRY OF STAGING POSITION

The auxiliary latitude, ψ', is latitude measured from the North Pole rather than the normal way from the equator. It is found from

$$\psi' = 90° - \psi_L \tag{1}$$

The range central angle at staging, σ^*, is found from

$$\sigma^* = \frac{57.3\ R^*}{R_e} \tag{2}$$

From the relationships of spherical trigonometry, the change in latitude, $\Delta\psi$, and longitude, $\Delta\lambda$, during ascent may be calculated as follows:

$$\Delta\psi = \cos^{-1}\left[\cos\psi' \cos\sigma^* + \sin\psi' \sin\sigma^* \cos Z_L\right] - \psi' \tag{3}$$

$$\Delta\lambda = \sin^{-1}\left[\frac{\sin Z_L \sin\sigma^*}{\sin(\Delta\psi + \psi')}\right] \tag{4}$$

The supplementary angle to Z^*, β^*, may now be calculated.

$$\beta^* = \sin^{-1}\left[\frac{\sin Z_L \sin\psi'}{\sin(\Delta\psi + \psi')}\right] \tag{5}$$

The staging azimuth therefore can be found by

$$Z^* = 180° - \beta^* \tag{6}$$

The staging latitude is given by

$$\psi^* = \psi_L \pm \Delta\psi \tag{7}$$

where

$\Delta\psi$ is negative when $90° < Z_L < 270°$

$\Delta\psi$ is positive when $270° < Z_L < 360°$

and $0 < Z_L < 90°$

The staging longitude is given by

$$\lambda^* = \lambda_L \pm \Delta\lambda \tag{8}$$

$\Delta\lambda$ is negative for eastern launch in western hemisphere.

$\Delta\lambda$ is positive for western launch in western hemisphere.

$\Delta\lambda$ is positive for eastern launch in eastern hemisphere.

$\Delta\lambda$ is negative for western launch in eastern hemisphere.

2.4 EQUATIONS OF MOTION

The equations of motion are derived relative to three orthogonal axes, the acceleration axes of tangential velocity, azimuth, and altitude. The axes form two planes which intersect on the tangential velocity. These planes are initially parallel and perpendicular to the earth's surface and rotate with the vehicle's flight path angle and azimuth. They do not rotate with the vehicle's roll. This is generally called the wind axis system. Figure 2-2 presents a vectorial representation of the velocities and forces in the wind axis system as used.

The value $\dot{V}$ is found by summing forces along the tangential acceleration axis.

$$m(\dot{V}) = T \cos \alpha - D - mg \sin \gamma + \frac{mV^2 \cos^2 \gamma \sin \gamma}{r} \tag{9}$$

which reduces to

$$\dot{V} = \frac{T \cos\alpha}{m} - \frac{D}{m} - g \sin\gamma + \frac{V^2 \cos^2 \gamma \sin \gamma}{r} \tag{10}$$

The equation for the vertical acceleration is

$$mV(\dot{\gamma}) = T \sin \alpha \cos \phi - mg \cos \gamma + L \cos \phi + \frac{mV^2 \cos^3 \gamma}{r} \tag{11}$$

which may be reduced to

$$\dot{\gamma} = \left(\frac{T \sin \alpha \cos \phi + L \cos\phi}{mV}\right) - \frac{g \cos\gamma}{V} - \frac{V \cos^3 \gamma}{r} \tag{12}$$

An explanation of the centripetal force term in the above equations may be in order. The basic formula is

$$CF = \frac{mV_\perp^2}{r} \tag{13}$$

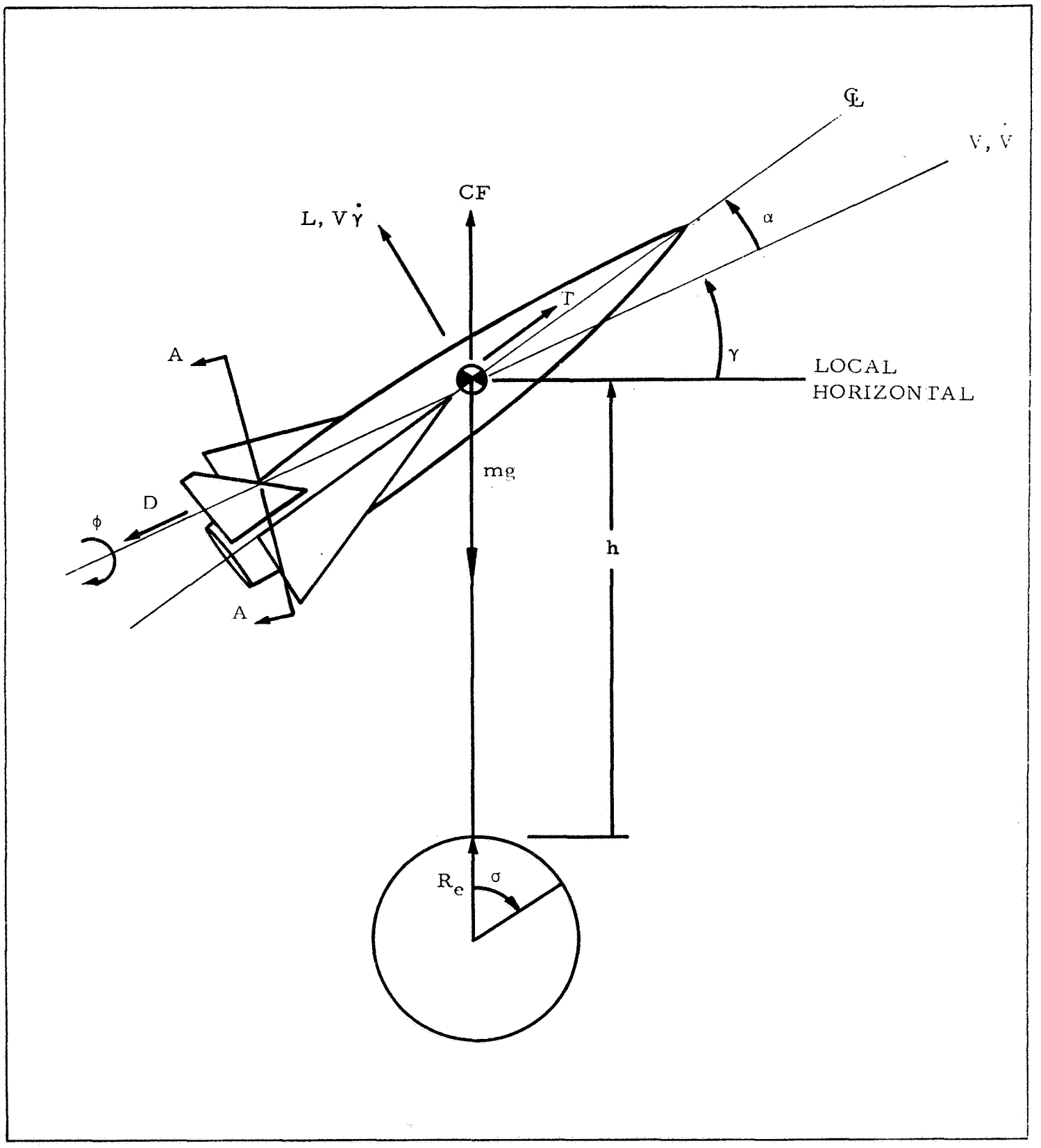


Figure 2-2. WIND AXIS EARTH RELATIVE COORDINATE SYSTEM

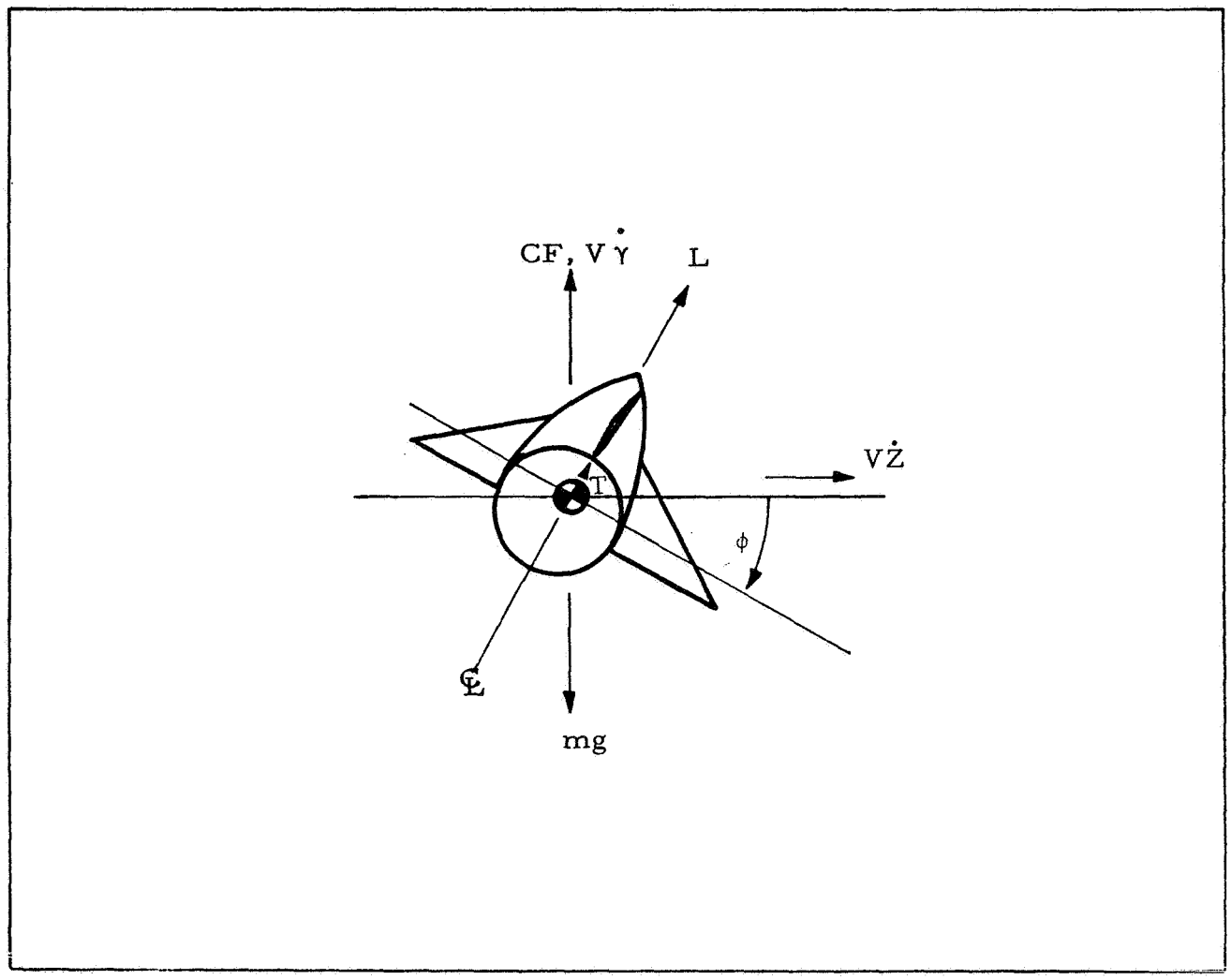


Figure 2-2a. VIEW A-A OF WIND AXIS EARTH RELATIVE COORDINATE SYSTEM

where $V_\perp$ is the velocity perpendicular to the flight path radius about which the vehicle is rotating. Since $V_\perp$ is

$$V_\perp = V \cos \gamma \tag{14}$$

As can be seen from Figure 2-2, the centrifugal force, CF, is

$$CF = \frac{mV^2 \cos^2 \gamma}{r} \tag{15}$$

The equation for the time rate of change of azimuth is

$$mV\,(\dot{Z}) = T \sin \alpha \sin \phi + L \sin \phi \tag{16}$$

which reduces to

$$\dot{Z} = \frac{T \sin \alpha \sin \phi + L \sin \phi}{mV} \tag{17}$$

The above equations use thrust, T, lift, L, drag, D, mass, m, and gravity, g, to find the desired accelerations. The following equations are used to find the above values.

Mach number is used in table look-ups of the aerodynamic parameters. It is found from

$$MN = \frac{V}{SOS} \tag{18}$$

Dynamic pressure is needed to determine aerodynamic forces from aerodynamic coefficients. It is found from

$$q = \frac{\rho V^2}{2} \tag{19}$$

The aerodynamic lift coefficient is found from the equation

$$C_L = k_{23}\left(C_{L_0} + C_{L_\alpha}\,\alpha + C_{L_{\alpha^2}}\,\alpha^2\right) \tag{20}$$

Lift is then found from

$$L = C_L\, q\, S \tag{21}$$

The drag coefficient is determined from

$$C_D = k_{22}\, C_{D_0} + k_1\, k_{24}\, C_L \tan \alpha \tag{22}$$

Then drag is found from

$$D = C_D\, q\, S \tag{23}$$

The vehicle mass is given by

$$m = \frac{W}{g_o} \tag{24}$$

The local gravity is calculated from

$$g = g_o \left(\frac{R_e}{r}\right)^2 \tag{25}$$

where

$$r = R_e + h \tag{26}$$

Other time rates of change that are needed are as follows:

For weight rate of change,

$$\dot{W} = \frac{T}{3600\ SFC} \tag{27}$$

where the 3600 changes the value of $\dot{W}$ from hours to seconds. SFC, as noted in the nomenclature, is a function of hours. For rate of change of altitude,

$$\dot{h} = V \sin \gamma \tag{28}$$

For rate of change of range,

$$\dot{R} = \frac{R_e\ V \cos \gamma}{6076.1\ r} \tag{29}$$

where the 6076.1 changes $\dot{R}$ from ft/sec to nautical miles/sec

After all the necessary rate of change values have been found, it is now possible to sum the values per a change in time. The actual values as developed below are the final values to which this effort is directed. These summation equations are:

For velocity,

$$V_2 = V_1 + \dot{V}\, \Delta t \tag{30}$$

for flight path angle,

$$\gamma_2 = \gamma_1 + \dot{\gamma}\, \Delta t \tag{31}$$

for azimuth,

$$Z_2 = Z_1 + \dot{Z}\,\Delta t \tag{32}$$

for weight,

$$W_2 = W_1 + \dot{W}\Delta t \tag{33}$$

for range,

$$R_2 = R_1 + \dot{R}\,\Delta t \tag{34}$$

and finally for altitude.

$$h_2 = h_1 + \dot{h}\Delta t \tag{35}$$

2.5 ACCELERATION EQUATIONS

The acceleration equations are used to provide constraints under certain control conditions and to provide loading information throughout the routine. Figure 2-3 illustrates the orientation of the acceleration vectors. The load factors are calculated in values of the normal gravity force on the vehicle.

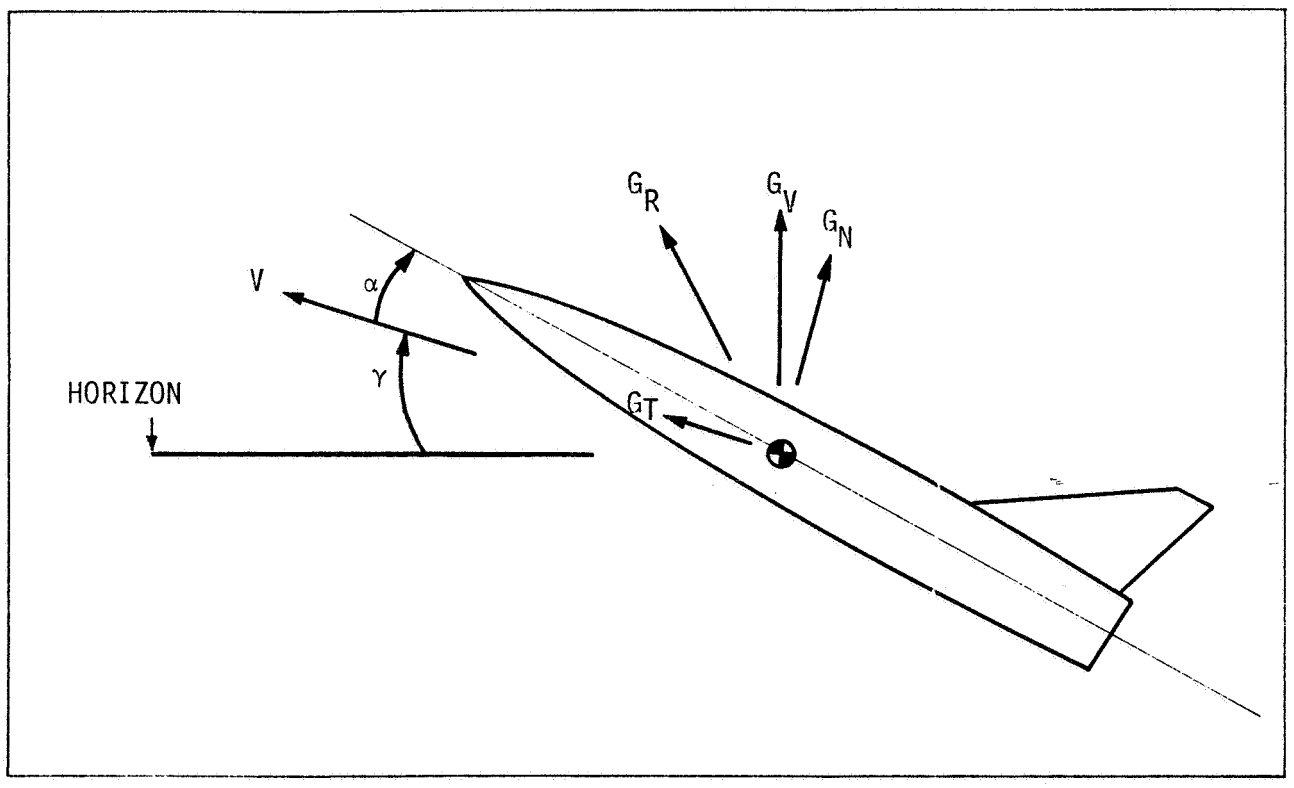


Figure 2-3. ACCELERATION FORCES

The normal load factor is calculated perpendicular to the velocity vector. It is given by

$$G_N = \frac{T}{W} \sin \alpha + \frac{L}{W} \tag{36}$$

The tangential load factor is measured parallel to the velocity vector. It is evaluated from

$$G_T = \frac{T}{W} \cos \alpha - \frac{D}{W} \tag{37}$$

The resultant load factor, G_R, is the vectorial summation of the values of G_N and G_T. G_R is thus the total load on the vehicle, and may be calculated from

$$G_R = \left(G_N^2 + G_T^2\right)^{1/2} \tag{38}$$

The vertical load factor, G_V, is the load factor on the vehicle acting normal to the local horizontal. It is a special case, used in the calculations presented in Subsection 2.8.3 and is calculated from

$$G_V = G_N \cos \gamma + G_T \sin \gamma \tag{39}$$

2.6 FLYBACK RANGE AND AZIMUTH CALCULATIONS

The routine keeps a running calculation of the flyback range, R_{FB}, and the flyback azimuth, Z_{FB}. Note that this range and azimuth are calculated on a direct great circle distance from the vehicle's actual position to the desired base. The calculations do not take into account the vehicle's actual direction. The fact that the vehicle must turn to the correct azimuth over a period of time is not considered. It should also be noted that the values of Z_{FB} and R_{FB} are constantly changing as the vehicle maneuvers. The main purpose of these calculations is to provide a target azimuth for the turn control. The calculations can also serve the investigator by showing the variation in range and direction of the base, and may then allow consideration of alternate modes of flight, discussed further in later sections. A different home base may also be considered and evaluated by comparison of flyback data using different calculations for more than one base. The geometry on which the calculations are based is given in Figure 2-4.

From the geometrical representation, it follows that

$$\lambda_{FB} = \left|\lambda_H - \lambda\right| \tag{40}$$

$$\psi_H' = \left|90° - \psi_H\right| \tag{41}$$

$$\psi' = \left|90° - \psi\right| \tag{42}$$

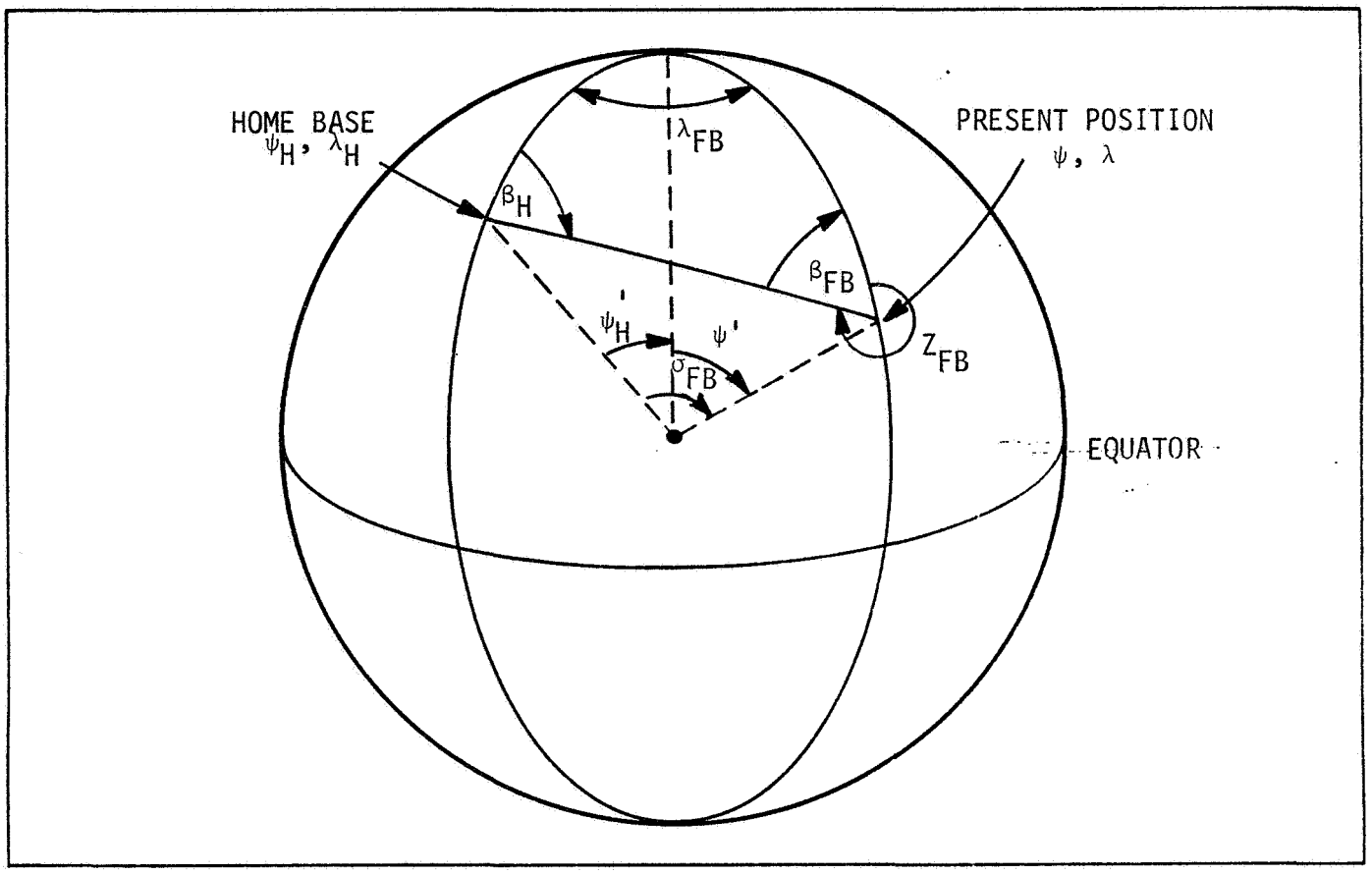


Figure 2-4. GEOMETRY OF FLYBACK CALCULATIONS

The following equations are used to solve for β_{FB} and β_H

$$\tan\left(\frac{\psi_H' - \psi'}{2}\right)\tan\left(\frac{\beta_H + \beta_{FB}}{2}\right) = \cos\left(\frac{\lambda_{FB}}{2}\right)\cos\left(\frac{\psi' - \psi_H'}{2}\right) \tag{43}$$

$$\frac{\beta_H + \beta_{FB}}{2} = \tan^{-1}\left[\frac{\cos\left(\frac{\lambda_{FB}}{2}\right)\cos\left(\frac{\psi' - \psi_H'}{2}\right)}{\tan\left(\frac{\psi_H' - \psi'}{2}\right)}\right] = X \tag{44}$$

$$\tan\left(\frac{\beta_H - \beta_{FB}}{2}\right)\sin\left(\frac{\psi' + \psi_H'}{2}\right) = \cos\left(\frac{\lambda_{FB}}{2}\right)\sin\left(\frac{\psi' - \psi_H'}{2}\right) \tag{45}$$

$$\frac{\beta_H - \beta_{FB}}{2} = \tan^{-1}\left[\frac{\cos\frac{\lambda_{FB}}{2}\sin\frac{\psi' - \psi'_H}{2}}{\sin\frac{\psi' + \psi'_H}{2}}\right] = Y \tag{46}$$

Then from the above

$$\beta_H + \beta_{FB} = 2X \tag{47}$$

$$\beta_H - \beta_{FB} = 2Y \tag{48}$$

Solving for β_{FB}

$$2\beta_{FB} = 2X - 2Y \tag{49}$$

and

$$\beta_{FB} = X - Y \tag{50}$$

The flyback range angle, σ_{FB}, can now be computed from

$$\frac{\sin\sigma_{FB}}{\sin\lambda_{FB}} = \frac{\sin\psi'_H}{\sin\beta_{FB}} \tag{51}$$

Solving

$$\sigma_{FB} = \sin^{-1}\left[\frac{\sin\lambda_{FB}\sin\psi'_H}{\sin\beta_{FB}}\right] \tag{52}$$

Then, from the figure it is obvious that

$$Z_{FB} = 360° - \beta_{FB} \tag{53}$$

Finally, the flyback range is

$$R_{FB} = R_e\ \sigma_{FB} \tag{54}$$

2.7 CHANGE IN POSITION

As the routine calculates the flight path, it is necessary to keep a continuous position fix. The instantaneous latitude and longitude are used primarily to determine the flyback range, but they may very well have other uses, such as plotting the complete flight on a suitable map to study range safety problems. Figure 2-5 presents the basic geometry of the calculations. The method employed to calculate the position is presented below.

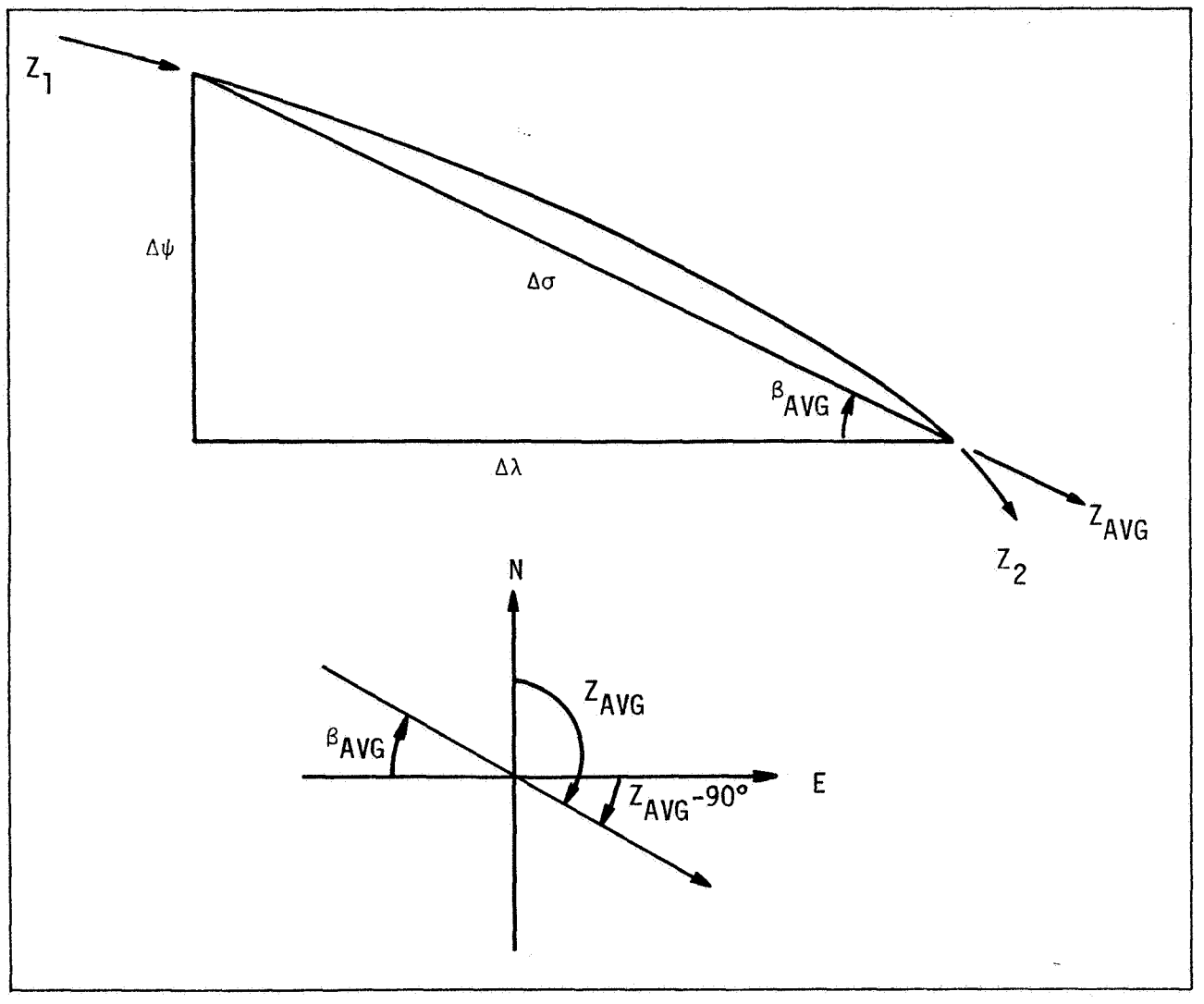


Figure 2-5. GEOMETRY OF POSITION CALCULATION

The average azimuth is

$$Z_{AVG} = \frac{Z_1 + Z_2}{2} \tag{55}$$

The average vertical angle to Z_{AVG}, the β_{AVG}, is found from the following conditions

When $0 < Z_{AVG} < 90°$, $\beta_{AVG} = 90° - Z_{AVG}$

When $90° < Z_{AVG} < 180°$ $\beta_{AVG} = Z_{AVG} - 90°$

When $180° < Z_{AVG} < 270°$ $\beta_{AVG} = 270° - Z_{AVG}$

When $270° < Z_{AVG} < 360°$ $\beta_{AVG} = 360° - Z_{AVG}$

The range angular variation, $\Delta\sigma$, may be calculated from

$$\Delta\sigma = \frac{57.3 \ \Delta R}{R_c} \tag{56}$$

Now using β_{AVG} and $\Delta\sigma$, the change in position may be calculated

$$\Delta\lambda = \Delta\sigma \cos \beta_{AVG} \tag{57}$$

$$\Delta\psi = \Delta\sigma \sin \beta_{AVG} \tag{58}$$

The new longitude is known to be

$$\lambda_2 = \lambda_1 \pm \Delta\lambda \tag{59}$$

where

$\Delta\lambda$ is negative for easterly azimuth in western hemisphere

$\Delta\lambda$ is positive for westerly azimuth in western hemisphere

$\Delta\lambda$ is positive for easterly azimuth in eastern hemisphere

$\Delta\lambda$ is negative for westerly azimuth in eastern hemisphere

The new latitude is

$$\psi_2 = \psi_1 \pm \Delta\psi \tag{60}$$

where

$\Delta\psi$ is negative when $90° < Z_{AVG} < 270°$

$\Delta\psi$ is positive when $270° < Z_{AVG} < 90°$

2.8 ANGLE OF ATTACK CONTROL

The control of the angle-of-attack during the turn and descent to cruise condition in this routine is basic to the efficiency of the flyback flight of

the vehicle. Due to varying vehicles and requirements, no one method may be considered best for all conditions, consequently four options of angle-of-attack control are provided. They are detailed in the following discussions.

2.8.1 Maximum lift or maximum angle-of-attack

A table of angle-of-attack as a function of Mach number is provided. The angle-of-attack may be the maximum allowed or, if desired, it may be the angle-of-attack for maximum lift coefficient as shown by aerodynamic data. This is a simple system and will generally result in the shortest flyback maneuver down to the cruise condition.

2.8.2 Maximum lift-drag ratio

The traditional maximum lift-drag ratio, $(L/D)_{max}$, is generally considered a very efficient flight mode. This mode of determining angle-of-attack, α, is often the most efficient method available. The α for $(L/D)_{max}$ is found from calculation of a table of L/D as a function of ascending α, as below

$$\text{Search} \quad \alpha \rightarrow L \rightarrow D \rightarrow L/D$$

$$\text{When } (L/D)_{old} > (L/D)_{new}$$

In other words, when the table of ascending α finds that L/D is no longer getting larger, then

$$(L/D)_{old} \cong (L/D)_{max}$$

A convergence scheme finds the correct α for $(L/D)_{max}$ as explained in Section III.

2.8.3 Maximum Vertical Load Factor

The angle-of-attack, α, may be controlled by the maximum vertical load factor, $G_{V_{max}}$. The method for determining $G_{V_{max}}$ follows.

G_V is found from the equation

$$G_V = G_N \cos \gamma + G_T \sin \gamma \tag{61}$$

where

$$G_N = \frac{T}{W} \sin \alpha + \frac{L}{W} \tag{62}$$

and

$$G_T = \frac{T}{W} \cos \alpha - \frac{D}{W} \tag{63}$$

To simplify a very complex problem, it is assumed T = 0. Then G_V is

$$G_V = \frac{L}{W} \cos \gamma - \frac{D}{W} \sin \gamma \tag{64}$$

The terms of the G_V equation are

$$\frac{L}{W} = \frac{C_L \; q \; S}{W} \tag{65}$$

where

$$C_L = k_{23} \left(C_{L_0} + C_{L\alpha} \; \alpha + C_{L_{\alpha^2}} \; \alpha^2\right) \tag{66}$$

Normally

$$C_{L_{\alpha^2}} \simeq 0 \tag{67}$$

and is so assumed here. The term D/W is found from

$$\frac{D}{W} = \frac{C_D \; q \; S}{W} \tag{68}$$

with

$$C_D = k_{22} \; C_{D_0} + k_1 \; k_{24} \left(C_{L_0} + C_{L_\alpha} \; \alpha\right) \tan \alpha \tag{69}$$

Letting

$$\mathcal{K} = \frac{q \; S \; k_{23}}{W} \tag{70}$$

Then the G_V equation becomes

$$G_V = C_{L_0} \cos\gamma\, Z + C_{L_\alpha}\, \alpha \cos\gamma\, Z - \frac{k_{22}\, C_{DO} \sin\gamma\, Z}{k_{23}} \tag{71}$$

$$- k_1\, k_{24}\, C_{L_0} \tan\alpha \sin\gamma\, Z - k_1\, k_{24}\, C_{L_\alpha}\, \alpha \tan\alpha \sin\gamma\, Z$$

Now the equation can be simplified by the following substitutions:

$$A = Z\, C_{L_0} \cos\gamma \tag{72}$$

$$B = Z\, C_{L_\alpha} \cos\gamma \tag{73}$$

$$C = - \frac{Z\, k_{22}\, C_{DO} \sin\gamma}{k_{23}} \tag{74}$$

$$D = - Z\, k_1\, k_{24}\, C_{L_0} \sin\gamma \tag{75}$$

$$E = - Z\, k_1\, k_{24}\, C_{L_\alpha} \sin\gamma \tag{76}$$

Now the above grouping results in the equation for G_V becoming

$$G_V = A + B\,\alpha + C + D \tan\alpha + E\,\alpha \tan\alpha \tag{77}$$

Taking the partial differential of G_V with respect to α yields

$$\frac{\partial G_V}{\partial \alpha} = B + D \sec^2\alpha + E \tan\alpha + E\,\alpha \sec^2\alpha = 0 \tag{78}$$

Now the partial can be set equal to zero to determine the extremums that exist. Then the maximum is chosen if it exists.

The equation can be further reduced by substituting

$$\tan\alpha = \frac{\sin\alpha}{\cos\alpha} \tag{79}$$

and

$$\sec^2\alpha = \frac{1}{\cos^2\alpha} \tag{80}$$

The partial now becomes

$$\frac{E\,\alpha}{\cos^2\alpha} + \frac{E \sin\alpha}{\cos\alpha} + \frac{D}{\cos^2\alpha} + B = 0 \tag{81}$$

The equation can now be multiplied by $\cos^2 \alpha$ which yields

$$E\alpha + E \sin\alpha \cos\alpha + D + B \cos^2\alpha = 0 \tag{82}$$

assuming $\alpha \neq 90°$. Then knowing that

$$\frac{\sin 2\alpha}{2} = \sin\alpha \cos\alpha \tag{83}$$

The equation further reduces to

$$B \cos^2\alpha + D + \frac{E \sin 2\alpha}{2} + E\alpha = 0 \tag{84}$$

Now since

$$\cos^2\alpha = \frac{1 + \cos 2\alpha}{2} \tag{85}$$

Then

$$\frac{B}{2} + \frac{B}{2} \cos 2\alpha + \frac{E}{2} \sin 2\alpha + E\alpha + D = 0 \tag{86}$$

Let

$$G = B/2$$
$$F = E/2$$
$$\beta = 2\alpha$$

The final form of the equation is then

$$G + G \cos \beta + F \sin \beta + F \beta + D = 0 \tag{87}$$

This equation can now be solved by the Newton-Raphson approximation using the first derivative with respect to β.

For $$f(\beta) = G \cos \beta + F \sin \beta + F\beta + (D + G) = 0.0 \tag{88}$$

$$f'(\beta) = -G \sin\beta + F \cos \beta + F = 0.0 \tag{89}$$

by the N-R formula

$$h_N = -\left[\frac{G \cos \beta + F \sin \beta + F \beta + D + G}{-G \sin \beta + F \cos \beta + F}\right] \tag{90}$$

$$\beta_{new} = \beta_{old} + h_N \tag{91}$$

The calculation of h_N is then repeated until $h_N < .1°$. Experience has shown this is sufficient convergence. Then since

$$\alpha = \beta/2 \tag{92}$$

the value of α for $G_{V_{max}}$ is solved.

2.8.4 Energy Management

All systems of angle-of-attack control are, in a sense, controlling the vehicle's energy. This energy management system approaches the problem directly in that the angle-of-attack is chosen so that the kinetic and potential energy is dissipated at a predetermined controlled rate. The vehicle will then arrive at the cruise condition necessary to insure required flightpath angle, velocity and altitude. Since experience has shown that is often impossible to curve smoothly into the cruise condition, thrust is included for use as necessary. Since the use of thrust changes the vehicle mass, mass must then be considered a variable with time. It is assumed that $\gamma \neq 0$ during the flight. The following derivation also assumes V and γ, the velocity and flightpath angle (when not subscripted) are average values through the integration period. The classic equation for energy is

$$E = mgh + 0.5\ mV^2 \tag{93}$$

The change in energy with time is

$$\frac{dE}{dt} = mg\ \frac{dh}{dt} + gh\ \frac{dm}{dt} + mV\ \frac{dV}{dt} + 0.5\ \frac{dm}{dt}\ \frac{V^2}{2} \tag{94}$$

The change in altitude with time is

$$\frac{dh}{dt} = V\ \sin\gamma \tag{95}$$

The change of mass with time is

$$\frac{dm}{dt} = \frac{\dot{W}}{g} \tag{96}$$

The change in velocity with time is

$$\frac{dV}{dt} = \frac{mg\ \sin\gamma\ + k_{21}T\text{-}D}{m} \tag{97}$$

Substituting the time rate of change values into the energy derivative equation yields

$$\frac{dE}{dt} = mg\ V\ \sin\gamma + \frac{gh\dot{W}}{g} + mV\left(\frac{mg\ \sin\gamma + k_{21}\ T\text{-}D}{m}\right) + \frac{\dot{W}\ V^2}{2g} \tag{98}$$

Collecting terms

$$\frac{dE}{dt} = 2\ mg\ V\ \sin\gamma + h\dot{W} + k_{21}TV - DV + \frac{\dot{W}\ V^2}{2g} \tag{99}$$

The rate of change of energy with time is not, however, the purpose. The purpose here is to control the change of energy during the change of altitude.

Therefore, to find dE/dh the following substitution is made.

$$\frac{dE}{dh} = \frac{dE}{dt} \frac{dt}{dh} \tag{100}$$

$$\frac{dt}{dh} = \frac{1}{V \sin \gamma} \tag{101}$$

$$\frac{dE}{dh} = \frac{\frac{dE}{dt}}{V \sin \gamma} \tag{102}$$

Substituting,

$$\frac{dE}{dh} = 2\ mg + \frac{h\dot{W}}{V \sin \gamma} + \frac{k_{21} TV}{V \sin \gamma} - \frac{DV}{V \sin \gamma} + \frac{\dot{W}\ V^2}{2g\ V \sin \gamma} \tag{103}$$

Multiplying through by sin γ

$$\frac{dE}{dh} \sin\gamma = 2\ mg \sin \gamma + \frac{h\dot{W}}{V} + k_{21}\ T - D + \frac{\dot{W}V}{2g} \tag{104}$$

To solve for γ, the equation becomes

$$\left(\frac{dE}{dh} - 2\ mg\right) \sin\gamma = \frac{h\dot{W}}{V} + k_{21}\ T - D + \frac{\dot{W}V}{2g} \tag{105}$$

$$\gamma = \sin^{-1} \left[\frac{\frac{h\dot{W}}{V} + k_{21}\ T - D + \frac{\dot{W}\ V}{2g}}{\frac{dE}{dh} - 2\ mg} \right] \tag{106}$$

The above equation may be solved for γ.

The values used for α and γ are now compared with the values of the integration. If they are not within tolerance, α is raised to raise γ or vise-versa and the whole system followed until all tolerances are met. If thrust is used, the thrust variable, k_{21}, may be adjusted to provide the necessary thrust to satisfy the equations.

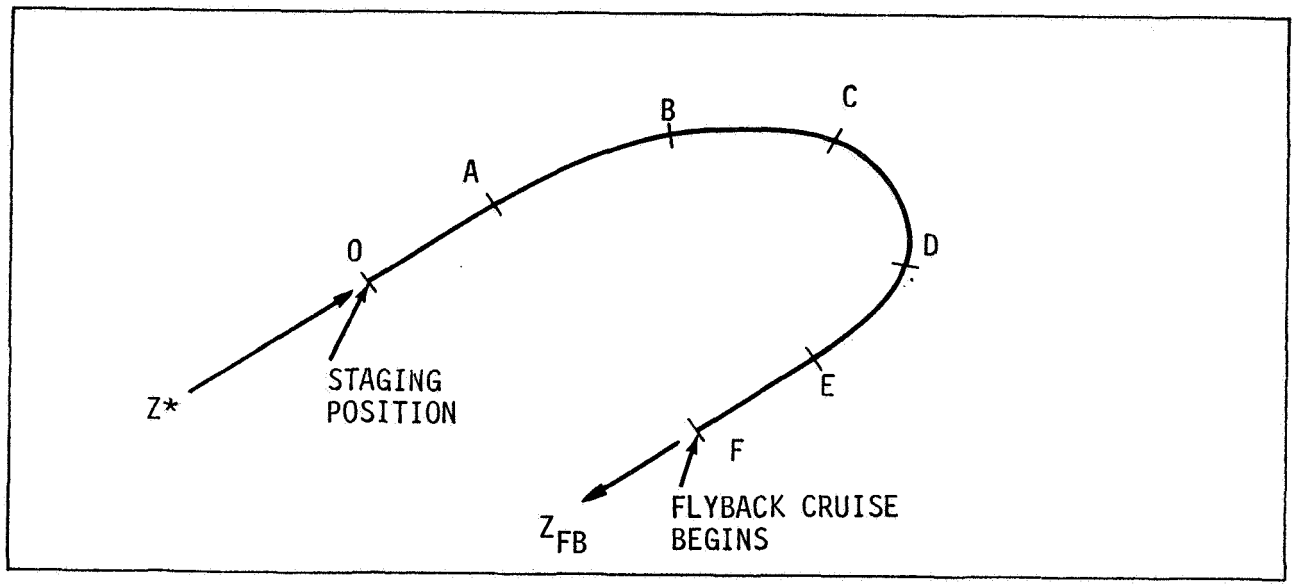


Figure 2-6. ROLL CONTROL CONDITIONS

2.9 ROLL CONTROL

The previous angle-of-attack controls serve to bring the vehicle to the desired cruise altitude and velocity. The roll control is used to bring the vehicle to the desired azimuth. The vehicle, upon staging, may be headed far from the direction of the desired landing base. Consequently, it is necessary to properly direct the vehicle back to the base. This is done through the following sequence of roll controls. Figure 2-6 illustrates the sequence of roll control conditions.

2.9.1 Condition 0 - A

A given roll angle, ϕ_o, is held until

$$\gamma \leq \gamma_A \tag{107}$$

where γ_A is a given value. ϕ_o is generally 180 degrees. The purpose here is to get the vehicle headed down and well within the aerodynamic control range.

2.9.2 Condition A - B

$\dot{\phi}_A$ is provided and held until

$$\phi = \phi_B \tag{108}$$

where ϕ_B is the given roll angle for the next condition. ϕ is varied by

$$\phi_2 = \phi_1 - \dot{\phi}_A \Delta t \tag{109}$$

2.9.3 Condition B - C

The previously mentioned ϕ_B is held until

$$\gamma \overset{<}{=} \gamma_C \tag{110}$$

where γ_C is the given desired flight path angle for the next condition.

2.9.4 Condition C - D

Basically, condition C - D desires to hold γ_C by varying ϕ until the altitude, h, reaches flyback altitude, h_{FB}. However, two factors tend to alter the ideal. First, the commanded flight path angle, γ_C, may not be possible for the vehicle to follow. Second, the γ_C must be modified so that the vehicle curves smoothly into h_{FB}. Modifications have to be made to account for these conditions.

The condition is controlled by a variation of the basic γ equation. First, two substitutions are made as follows:

$$\gamma = \gamma_C \tag{111}$$

$$\dot{\gamma} = \dot{\gamma}_C \tag{112}$$

Therefore,

$$\dot{\gamma}_C = \left(\frac{T \sin \alpha \cos \phi + L \cos \phi}{m V}\right) - \frac{g \cos \gamma_C}{V} + \frac{V \cos^3 \gamma_C}{r} \tag{113}$$

Solving for ϕ,

$$\cos \phi \left(\frac{T \sin \alpha + L}{mV}\right) = \dot{\gamma}_C + \frac{g \cos \gamma_C}{V} - \frac{V \cos^3 \gamma_C}{r} \tag{114}$$

or

$$\cos \phi = \frac{m V \dot{\gamma}_C + mg \cos \gamma_C - \dfrac{m V^2 \cos^3 \gamma_C}{r}}{T \sin \alpha + L} \tag{115}$$

and

$$\phi = \cos^{-1}\left[\frac{mV\dot{\gamma}_C + mg\cos\gamma_C - \frac{mV^2\cos^3\gamma_C}{r}}{T\sin\alpha + L}\right] \tag{116}$$

Initially, $\dot{\gamma}_C = 0$ and equation 116 is solved for the angle of roll which will maintain the desired γ_C with the given angle-of-attack from the applicable alpha control. However, if the term computed as

$$|\cos\phi| > 1 \quad \text{then } \phi = 0 \text{ by command.} \tag{117}$$

Then, γ_C is allowed to vary when it cannot be held. When

$$|\cos\phi| \leqq 1 \tag{118}$$

the first equation again applies. The γ that the vehicle has reached becomes γ_C. This way a wrong γ_C assumption is automatically corrected by the routine.

When the vehicle approaches within a given distance of h_{FB}, Δh_{FB}, a scheme to smoothly curve the flight path to zero at h_{FB} is initiated. Figure 2-7 presents the geometry.

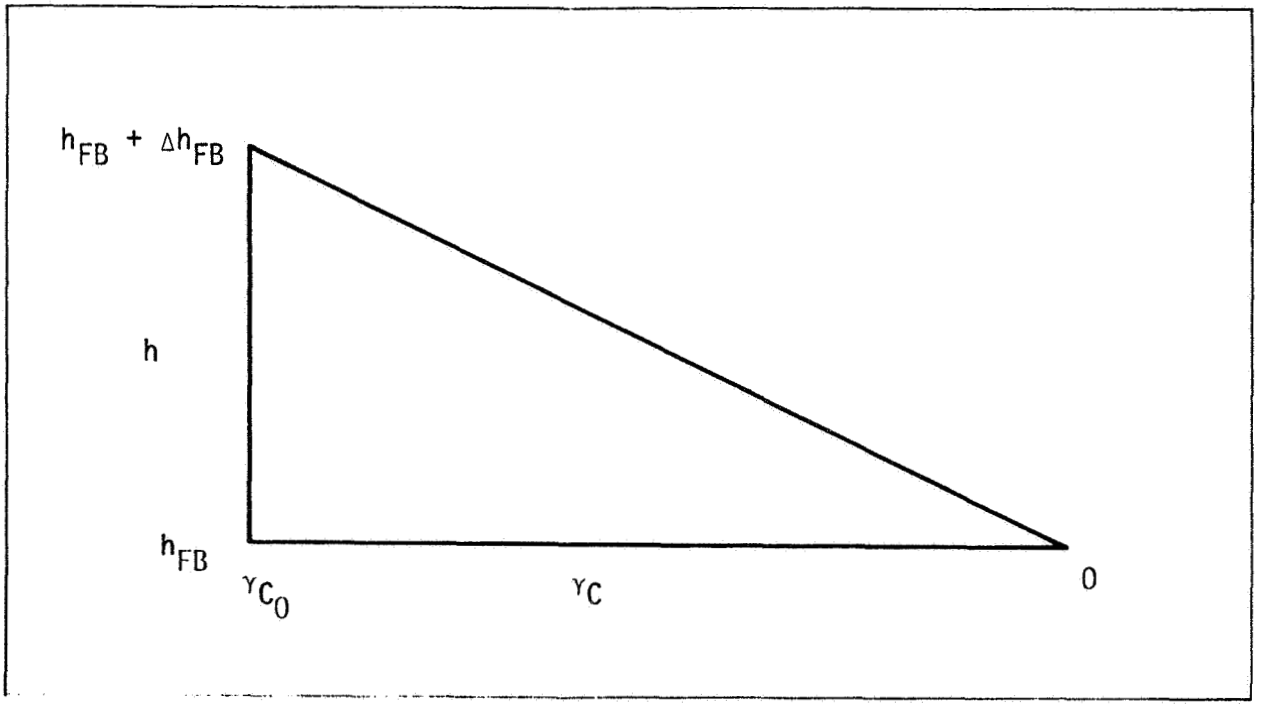


Figure 2-7. GEOMETRY OF FLYBACK ALTITUDE INTERCEPT

$$\gamma_{C0} = \gamma_C \tag{119}$$

where

$$h_{FB} + \Delta h_{FB} = h \tag{120}$$

γ_{C1} is the γ at the start of the time step and γ_{C2} becomes

$$\gamma_{C2} = \frac{\gamma_{C0}}{\Delta h_{FB}} (h - h_{FB}) \tag{121}$$

with $\dot{\gamma}_C$ being

$$\dot{\gamma}_C = \frac{\gamma_{C2} - \gamma_{C1}}{\Delta t} \tag{122}$$

This forces γ_C to smoothly curve to zero when

$$h_{FB} = h \tag{123}$$

thus bringing the vehicle to the flight path angle for cruise.

2.9.5 Condition D - E

This condition brings the vehicle from its turning state to the flyback azimuth, Z_{FB}. Point D is reached when

$$\Delta Z = \Delta Z_R = Z_{FB} - Z \tag{124}$$

ΔZ_R is a given value. From this point $\dot{Z}_R$, the required rate of change of azimuth, is controlled by the scheme developed below. Figure 2-8 illustrates the method of Z_{FB} intercept.

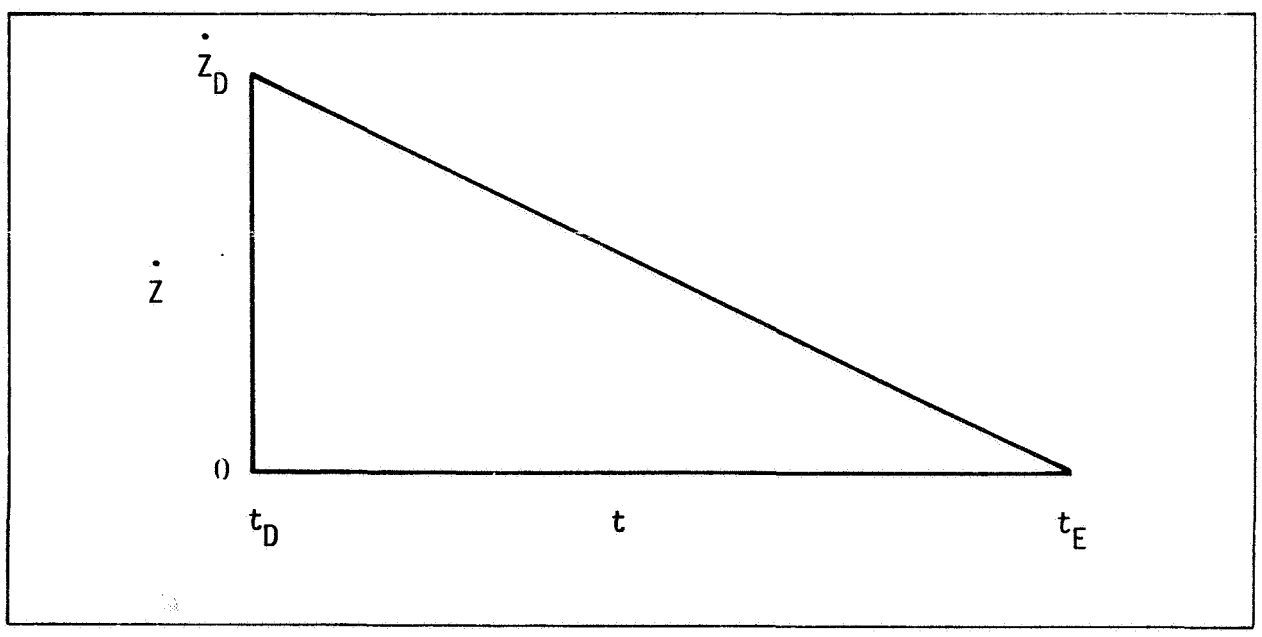


Figure 2-8. GEOMETRY OF FLYBACK AZIMUTH INTERCEPT

Z_R must go from its initial value at Point D to zero at Point E. Also ΔZ must equal zero at Point E. To do so,

$$\Delta Z_R = \int_{t_D}^{t_E} Z_R \tag{125}$$

Therefore the area of the triangle is

$$\Delta Z_R = \frac{\dot{Z}_R \; t_{D-E}}{2} \tag{126}$$

and

$$t_{D-E} = \frac{2 \; \Delta Z_R}{\dot{Z}_R} \tag{127}$$

$\dot{Z}_R$ is then computed from Points D to E from

$$\dot{Z}_R = \dot{Z}_D - \frac{\dot{Z}_D}{t_{D-E}} \left(t - t_D\right) \tag{128}$$

or eliminating t_{D-E},

$$\dot{Z}_R = \dot{Z}_D - \frac{\dot{Z}_D^{\,2}}{2\Delta Z} \; (t - t_D) \tag{129}$$

The roll angle, ϕ, is used to control Z by

$$\text{If } \dot{Z} < \dot{Z}_R, \quad \phi_{OLD} = 1.05 \quad \phi_{NEW}$$

$$\text{If } \dot{Z} > \dot{Z}_R, \quad \phi_{OLD} = 0.95 \quad \phi_{NEW}$$

until $\dot{Z}$ is correct. Point E is reached when

$$Z \geq Z_{FB} \tag{130}$$

Then, by command

$$\phi = 0 \tag{131}$$

and the flight is continued.

2.9.6 Condition E - F

The purpose of condition E - F is to hold the flyback Mach number or altitude after the turn is completed, when necessary. When the correct values of both M and h are attained, this condition is finished. When

$$M \leq M_{FB} \tag{132}$$

The value is held by

$$M = M_{FB} \pm \Delta M_{FB} \tag{133}$$

where ΔM_{FB} is the tolerance allowed on M_{FB}. The engines are assumed started and the throttle variable, k_{20}, is varied to hold M_{FB} as follows:

When $M < M_{FB}$, $k_{20\ NEW} = 1.05\ k_{20\ OLD}$

When $M > M_{FB}$, $k_{20\ NEW} = 0.95\ k_{20\ OLD}$

Standard convergence procedure is used.

Normally M_{FB} will be reached during the descent. However, if

$$h \leq h_{FB} \text{ before } M = M_{FB}, \tag{134}$$

the angle-of-attack may be used to hold the flyback altitude. The altitude should be held to

$$h = h_{FB} \pm \Delta h_{FB} \tag{135}$$

where Δh_{FB} is the allowed tolerance.

When $h > h_{FB}$, $\alpha_{NEW} = 0.95\ \alpha_{OLD}$

When $h < h_{FB}$, $\alpha_{NEW} = 1.05\ \alpha_{OLD}$

and the value of α found by convergence.

NOTE: Conditions C - D, D - E, and E - F are not necessarily separate operations. On many vehicles they will overlap. Consequently, each condition runs to its conclusion independently of the others.

2.10 CRUISE CONTROL

When all conditions above have been met, and

$$
\begin{aligned}
z &= z_{FB} \\
h &= h_{FB} \\
M &= M_{FB} \\
V &= V_{FB}
\end{aligned}
\tag{136}
$$

which are the cruise conditions, the vehicle is ready for cruise to base. As shown, the flyback range, R_{FB}, is continuously calculated. Knowing that and assuming that

$$W = W_{FB} \tag{137}$$

when the cruise conditions are met, SFC and S are input values, and ρ is known; then the weight at the end of cruise, W_H, can be calculated by the following modification of the classic Breguet equation.

$$W_H = \left[1 - \frac{R_{FB}}{\frac{7200}{SFC}\left[\frac{\sqrt{C_L}}{C_D}\right]_{MAX}\left[\frac{2\ W_{FB}}{\rho\ S}\right]^{\frac{1}{2}}}\right]^2 W_{FB} \tag{138}$$

$\left[\frac{\sqrt{C_L}}{C_D}\right]_{MAX}$ is calculated from the following:

First the table of α vs $\frac{\sqrt{C_L}}{C_D}$ is determined, i.e.,

$$\alpha \left| C_L \right| C_D \left| \sqrt{C_L} \right| \frac{\sqrt{C_L}}{C_D}$$

when

$$\left(\frac{\sqrt{C_L}}{C_D}\right)_{OLD} > \left(\frac{\sqrt{C_L}}{C_D}\right)_{NEW} \tag{139}$$

the last two points are used to converge on $\left(\frac{\sqrt{C_L}}{C_D}\right)_{MAX}$.

The time taken during flyback cruise is calculated by

$$t_{FB} = \frac{R_{FB}}{V_{FB}} \tag{140}$$

where

$$V_{FB} = M_{FB}\ (SOS) \tag{141}$$

2.11 GLIDE TO LANDING

The calculation of glide to landing is actually made before the cruise, so that the flyback range is modified to provide the correct value. However, it is included here for continuity, as the routine actually prints the glide conditions, subscripted $_{FG}$, after the cruise data.

Glide Option 1

This glide calculation assumes

$$W_{FG} = W_{EM} = W(EMPTY) \tag{142}$$

$$\rho_{FG} = \rho \text{ at } 0.5\ h_{FB} \tag{143}$$

$$V_{FG} = V_{FB} \tag{144}$$

$$q\ S = \tfrac{1}{2}\ \rho_{FG}\ V_{FG}^2\ S \tag{145}$$

The following equations must be satisfied for a stabilized glide condition, where the forces are summed perpendicular and parallel to the velocity vector. See Figure 2-9.

$$W_{FG} \cos \gamma = q \cdot S\ C_L \tag{146}$$

$$W_{FG} \sin \gamma = q\ S\ C_D \tag{147}$$

Solving for the flight path angle,

$$\gamma = \cos^{-1} \left[\frac{q\ S\ k_{23}\ C_{L\alpha}\alpha}{W_{FG}} \right] \tag{148}$$

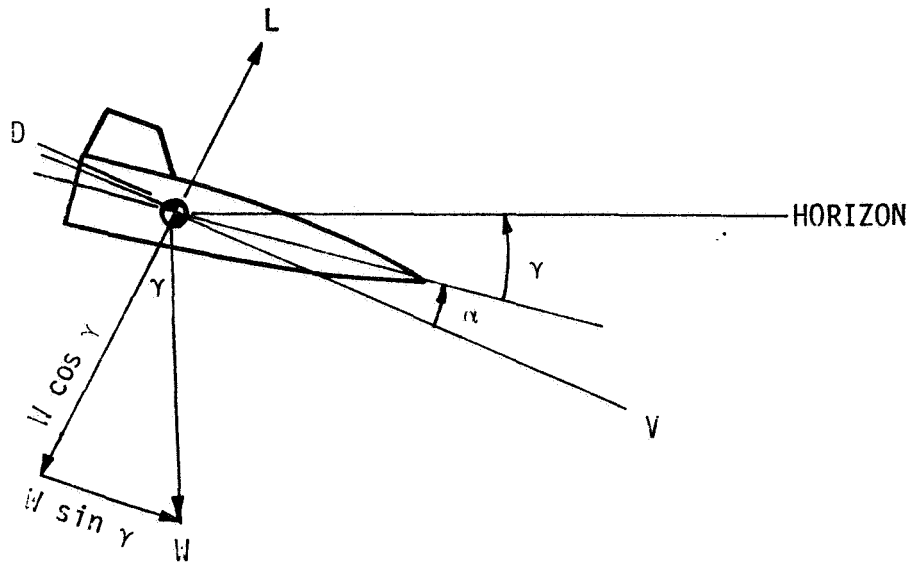
$$\gamma = \sin^{-1} \left[\frac{q\ S(k_{22}\ C_{DO} + k_1\ k_{24}\ C_{L\alpha}\ \alpha \tan \alpha)}{W_{FG}} \right] \tag{149}$$

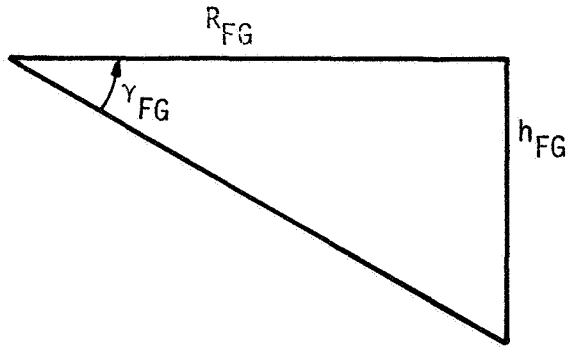
Then the two equations for γ may be solved for α by substituting

$$\cos \gamma = D\alpha \tag{150}$$

and

$$\sin \gamma = E + F\ \alpha\ \tan \alpha \tag{151}$$





OPTION 2

Figure 2-9. GLIDE CONDITIONS

Since

$$1 - \sin^2\gamma = \cos^2\gamma \tag{152}$$

then

$$1 - \sin^2\gamma = D^2\alpha^2 \tag{153}$$

$$\sin^2\gamma = 1 - D^2\alpha^2 \tag{154}$$

and

$$\sin^2\gamma = E^2 + 2EF\,\alpha\,\tan\alpha + F^2\alpha^2\tan^2\alpha \tag{155}$$

Substituting further

$$1 - D^2\alpha^2 = E^2 + 2EF\,\alpha\,\tan\alpha + F^2\alpha^2\tan^2\alpha \tag{156}$$

$$F^2\alpha^2\tan^2\alpha + 2EF\,\alpha\,\tan\alpha + D^2\alpha^2 + (E^2 - 1) = 0 \tag{157}$$

Making the following substitutions,

$$F^2 = X$$
$$2EF = Y$$
$$D^2 = Z$$
$$E^2 - 1 = W$$

then

$$X\alpha^2\tan^2\alpha + Y\,\alpha\tan\alpha + Z\alpha^2 + W = 0 \tag{158}$$

A series expansion of tan α yields

$$\tan\alpha = \alpha + \frac{\alpha^3}{3} + \frac{2\alpha^5}{15} + \ldots \tag{159}$$

Then the first term in the equation becomes

$$X\alpha^2\left(\alpha + \frac{\alpha^3}{3} + \frac{2\alpha^5}{15}\right)^2 = X\alpha^2\left(\alpha^2 + \frac{2\alpha^4}{3} + \ldots\right) \tag{160}$$

$$= X\alpha^4 + \frac{2X\alpha^6}{3} + \ldots$$

All remaining terms in the equation have been found to be insignificant. Therefore, the complete equation may be written in the form

$$X\alpha^4 + \frac{2X\alpha^6}{3} + Y\alpha\left(\alpha + \frac{\alpha^3}{3} + \frac{2\alpha^5}{15}\right) + Z\alpha^2 + W = 0 \tag{161}$$

$$X\alpha^4 + \frac{2X\alpha^6}{3} + Y\alpha^2 + \frac{Y\alpha^4}{3} + \frac{2Y\alpha^6}{15} + Z\alpha^2 + W = 0 \tag{162}$$

or

$$(Z + Y)\alpha^2 + \left(X + \frac{Y}{3}\right)\alpha^4 + 2\left(\frac{X}{3} + \frac{Y}{15}\right)\alpha^6 = -W \tag{163}$$

Let

$$a_1 = Z + Y$$

$$a_2 = X + \frac{Y}{3}$$

$$a_3 = 2\left[\frac{X}{3} + \frac{Y}{15}\right]$$

$$-W = V$$

$$\beta = \alpha^2$$

Substituting in the equation yields

$$a_1\beta + a_2\beta^2 + a_3\beta^3 = V \tag{164}$$

The equations for reversion of a series may now be applied, i.e.,

$$A_1 = \frac{1}{a_1}$$

$$A_2 = -a_2/a_1^3 \tag{165}$$

$$A_3 = \frac{1}{a_1^5}(a_2^2 - a_1 a_3)$$

Then the following may be written:

$$\beta = A_1 V + A_2 V^2 + A_3 V^3 \tag{166}$$

Finally, after solving for β,

$$\alpha_{FG} = \sqrt{\beta} \tag{167}$$

The glide flight path angle, γ_{FG}, may now be obtained from

$$\gamma_{FG} = \cos^{-1} [q_{FG} \; S \; k_{23} \; C_L \; \alpha_{FG}] \tag{168}$$

The glide range is given by

$$R_{FG} = \frac{h_{FG}}{\tan \gamma_{FG}} \tag{169}$$

This modifies the flyback range by the quantity

$$R_{FB\ NEW} = R_{FB\ OLD} - R_{FG} \tag{170}$$

Then the time in glide is given by (approximately)

$$t_{FG} = \frac{R_{FG}}{V_{FG} \cos \gamma_{FG}} \tag{171}$$

Glide Option 2

The second glide option uses the maximum lift-drag ratio of the vehicle. $(C_L/C_D)_{max}$ is found by calculating C_L/C_D as a function of α, thus:

$$\alpha \rightarrow C_L \rightarrow C_D \rightarrow \frac{C_L}{C_D}$$

When

$$\left(\frac{C_L}{C_D}\right)_{old} > \left(\frac{C_L}{C_D}\right)_{new} \tag{172}$$

then

$$\left(\frac{C_L}{C_D}\right)_{old} \cong \left(\frac{L}{D}\right)_{max} = \left(\frac{C_L}{C_D}\right)_{max} \tag{173}$$

As developed previously,

$$q \; S \; C_L = W \cos \gamma_{FG} \tag{174}$$

$$q \; S \; C_D = W \sin \gamma_{FG} \tag{175}$$

Dividing the upper equation by the lower,

$$\frac{C_L}{C_D} = \frac{\cos \gamma_{FG}}{\sin \gamma_{FG}} = \frac{1}{\tan \gamma_{FG}} \tag{176}$$

As shown in Figure 2-9

$$\tan \gamma_{FG} = \frac{h_{FG}}{R_{FG}} \tag{177}$$

Assuming

$$\left(\frac{C_L}{C_D}\right)_{max} = \frac{1}{\tan \gamma_{FG}} \tag{178}$$

And substituting,

$$\left(\frac{C_L}{C_D}\right)_{max} = \frac{R_{FG}}{h_{FG}} \tag{179}$$

or

$$R_{FG} = \left(\frac{C_L}{C_D}\right)_{max} h_{FG} \tag{180}$$

2.12 CONSTRAINTS

Throughout the whole flyback computation, there are two constraints designed to prevent the vehicle from violating either the equations herein or its structural integrity.

First, the angle-of-attack must be controlled. If, at any time, the α control violates the following conditions, α is automatically set as follows

If $\alpha > \alpha_{MAX}$, then set $\alpha = \alpha_{MAX}$

If $\alpha < 0.0$, then set $\alpha = 0.0$

The other constraint is on maximum resultant load factor, or $G_{R_{MAX}}$. When

$$G_R > G_{R_{MAX}} \tag{181}$$

where $G_{R_{MAX}}$ is a given value, α is reduced by

$$\alpha_{NEW} = 0.95\ \alpha_{OLD} \tag{182}$$

the time step is then recalculated, and $G_{R_{MAX}}$ is automatically rechecked.

The α is reduced until

$$G_R \leq G_{R_{MAX}} \tag{183}$$

Figure 2-10, Example Test Vehicle, illustrates the vehicle used in the example run of Section VI.

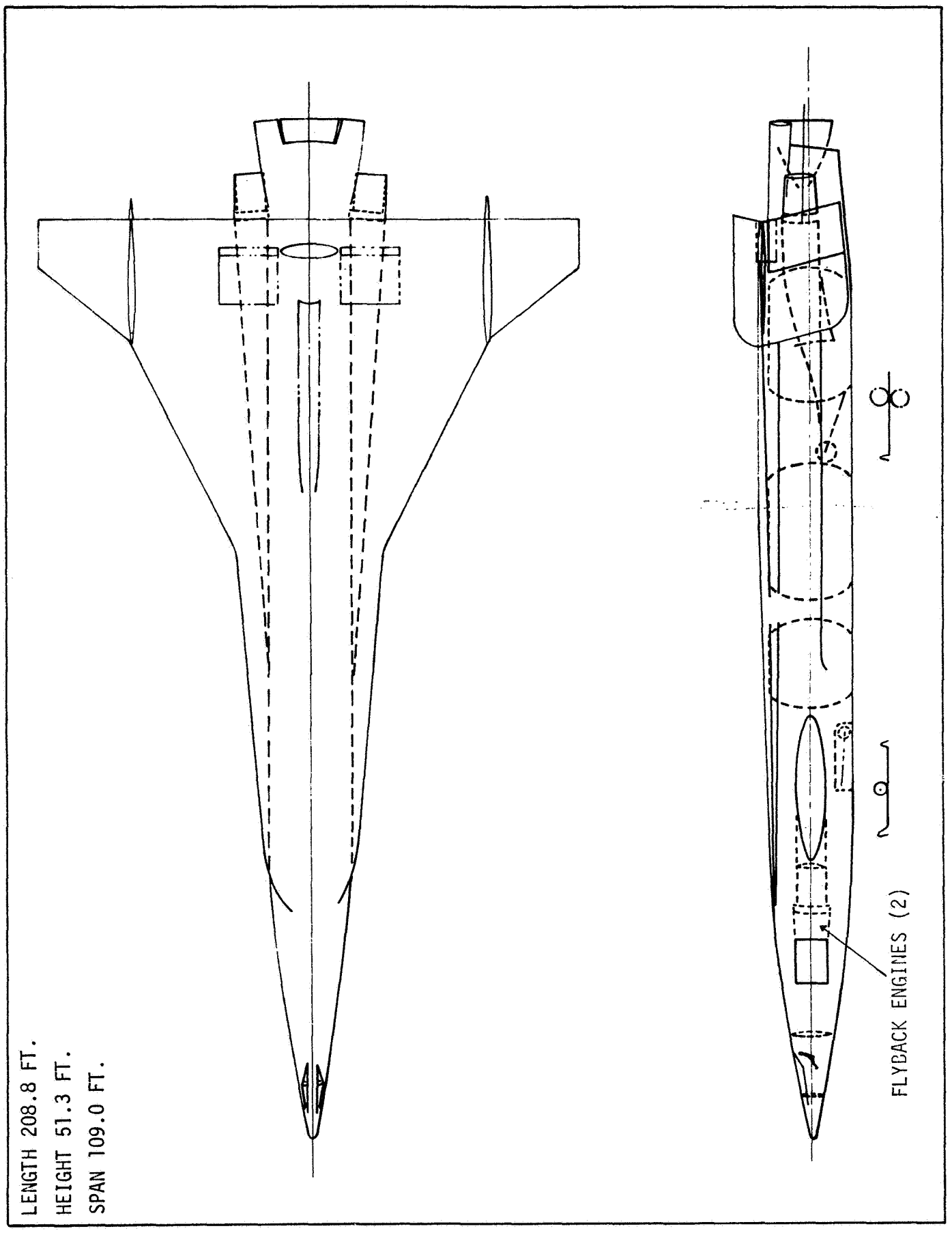


Figure 2-10. EXAMPLE TEST VEHICLE

Section III
IMPLEMENTATION

The computer program to implement the flyback theory has been written in Fortran II - IV for the CDC 3200 computer. This program has been written as a main directional program with 13 subroutines and functions to make the general structure of the program easy to follow and to avoid duplicate programming. The following description of the main program and the subroutines attempts to explain what the program is doing and includes some of the details on programming techniques used. This description is related back to the Theory section as seems appropriate.

3.1 MAIN PROGRAM

A. Input and printout of data as explained in Subsection 3.4.

B. Conversion of data for internal use, i.e., all degree values are converted to radians. Internal variables are given initial values.

C. The staging position is then calculated, as explained in Subsection 2.3. For the change in longitude, standard launch conditions are assumed. i.e., $\Delta\lambda$ is negative if $Z < 180°$
$\Delta\lambda$ is positive if $Z > 180°$.

If staging azimuth, latitude, and longitude are known, these should be input as ZL, XLAT, and XLON respectively. Cards A80 through A95 in the main routine of Section V should be removed from the program.

D. Bank control (Subsection 2.9) is used as the main body outline. Each bank condition has a corresponding KASE number within the program, i.e., condition 0-A is KASE 1, etc. Each condition is checked for method of flight control - Alt, Mach, or Alpha. An indicator ICK is used to denote which is in control. ICK = + 1 = Mach, ICK = - 1

= Alt, ICK = 0 = Alpha. Subroutine CONTRL is then called to establish the control values (Subsection 3.2). The integration parameters from the previous second are retrieved from subroutine SET. These values are then integrated in RUNGEK and final information including aerodynamic, navigational, and acceleration equations are calculated for the new time step using subroutines DRG, RESULT, ACCEL. Condition end conditions are then tested, if satisfied, the next condition is entered. If not, printout of the results is given from subroutine OUTPUT at specified time intervals.

The PHI control of GAMC in condition C-D (Subsection 2.9.4) was actually programmed in subroutine DRG where the needed value of PHI can be continuously calculated during the integration (DRG, No. B, Subsection 3.3). The GAMC flight path smoothing described has been incorporated in subroutine CONTRL (Subsection 3.2).

In condition D-E (Subsection 2.9.5), PHI is used to bring DELZ to 0.0 (DELZ is the difference between $\dot{Z}$ and $\dot{Z}_R$). Subroutine CONVERG is used to control PHI but the value of PHI is held between 0.0 and 90.0°. PHI is always set to 0.0 at the end of this condition.

Condition E-F (Subsection 2.9.6) is just for continuation of flight to the required ALT and XMACH values. As the controls on ALT and XMACH become effective at whatever point the required values are reached, this condition may actually be included in the earlier conditions; as a result, its control is handled in subroutine CONTRL through the indicator ICK as mentioned previously.

At the conclusion of condition D-E or in condition E-F, the cruise conditions will be met, then the glide and Breguet will be calculated. However, if PHI $\neq$ 0.0 at the time cruise conditions are met, the message PHI IS NOT ZERO will be printed and calculations stopped.

E. The glide condition is calculated first to obtain information needed in the Breguet. Two glide options are included. The method chosen is determined by the input indicator IGLD. Glide option one (IGLD=1) is programmed at the present time as a simple convergence scheme rather than the reversion series explained in Subsection 2.11. The expressions for sin and cos of Gam from Subsection 2.11 are evaluated with varying values of ALPH from 0.0 in steps of 1° until the values for GAM obtained are approximately equal. Testing for convergence is accomplished by checking for a change in sign of the difference between the values calculated for the sin and cos expressions. If the value of either the sin or cos term exceeds 1.0, the error message TERM EXCEEDED 1.0 is printed and calculations are terminated. Such a value would mean that a solution cannot be found for the conditions given. The information calculated for the glide is stored for printout after the Breguet.

Glide option two (IGLD=2) uses a simple convergence scheme to find the ALPH value to give the maximum (CL/CD) term, as for IALP=2 in Subsection 3.2. RFG and GFG are then calculated and RB modified. When printing the glide results, no TIM, VEL, or XMACH values are printed for this option.

F. The program section for calculating the Breguet equation (Subsection 2.10) is entered with the information from the end of the Flyback plus the range, RB, calculated in the GLIDE. To calculate WHT the maximum value of sqrt (CL)/CD, TERM, must be found. To find the ALPH for this, ALPH is varied from .25° in .5° increments until

$$TERM_{old} < TERM_{new}$$

$ALPH_{old}$ is then stepped in .1° increments to the actual crossover point. The TERM is not evaluated at ALPH = 0.0 because CD would be 0.0 and the TERM would be undefined. This method assumes the plot of sqrt(CL)/CD vs ALPH will be a smooth curve continuously rising to one peak.

At the end of these calculations

TIM = TIM at end of flyback + TB
RANGE = RANGE at end of flyback + RB
WHT = WHT from Breguet equation
ALPH = ALPH for maximum value of the sqrt (CL)/CD
VEL and ALT = values at end of flyback

After this information is printed, corresponding GLIDE information previously calculated is printed.

At this point, the message CALCULATIONS FINISHED will be printed and an attempt made to read a new set of data.

3.2 SUBROUTINE CONTRL

Subroutine CONTRL is the control routine used by all roll conditions.

Its primary purpose is to set the value of ALPH at each integration interval, but also GAMC is controlled during condition D-E and when ALT

hits DHFB, THR is used to control MACH. These control methods are explained throughout Section II, but have been grouped as one unit so the computer can handle the hierachy.

The control of ALT and XMACH is explained in Subsection 2.9.6. The primary indicator for ALTB-XMB control, ICK, is set within the main program. The values are

-1 ALTB reached
0 Neither ALTB nor XMB reached
+1 XMB reached
+2 Both ALTB and XMB reached

This is checked in CONTRL with LOC to determine when a change in the ALTB-XMB status has occurred. These are checked during all conditions. The values of LOC are:

0 Neither ALTB nor XMB has yet been reached
-1 Program has been operating under ALT control
+1 Program has been operating under MACH control

When both have been reached, LOC is no longer checked as there will be no further change in this control status.

When ALT first falls within ATOL feet of ALTB, routine CONVERG is used to determine the ALPH value to maintain this tolerance on ALT. A test integration is made from subroutine CONTRL with each trial ALPH until the condition is satisfied or ALPH falls outside its maximum and minimum range.

For XMB control when XMACH falls within the tolerance XTOL of XMB, the thrust parameter CK20 is varied to alter THR to hold XMACH on XMB. Subroutine CONVERG is used to converge on a CK20 that will hold DM = XMACH-XMB near 0.0. Here also trial integrations are necessary for each CK20 value tested to determine when the solution has been found. No maximum limit has been set on CK20 but 0.0 is the minimum value.

When ICK = 2, both of the above conditions must be satisfied at each integration interval.

If neither condition has been reached or if XMB only has been reached, GAMC control is then checked. A gradual increase is made in GAMC from DHFB to ALTB as explained in Subsection 2.9.9. IH is used as the indicator where

IH = 0 increasing GAMC not yet begun

IH = 1 now decreasing GAMC.

GAMC is increased by the equation given in Subsection 2.9.4 until GAMC = .5°. This value is held until ALT = ALTB at which time GAMC is set to 0.0 in the ALT control section. Continuously decreasing the last .5° GAMC was found to unnecessarily prolong the time needed to reach ALTB.

From condition D-E until the end of the flyback, provided ALTB has not been reached, ALPH is used to hold GAM on GAMC $\pm$ GCTL regardless of whether GAMC is constant or changing. Routine CONVERG is used to hold DGAM = GAM - GAMC near 0.0. If ALPH cannot hold this value, i.e., if ALPH goes outside the maximum - minimum range, GAMC is set equal to the present value of GAM and ALPH is set to either the maximum or minimum, depending on the direction in which it is out of range. Here again trial integrations must be made for each ALPH test value.

If neither ALTB nor condition D-E have been reached, then ALPH is controlled by the input method using the indicator IALP. These methods of ALPH control are explained in Subsection 2.8.

For IALP = 1, the maximum angle-of-attack is taken from the input table of MACH-Aerodynamic coefficients, and maximum ALPH values as described in the input. This value, called ATRN, is calculated in subroutine DRG but is only used as maximum ALPH unless called for here.

IALP = 2 is the maximum LIFT/DRAG method. A simple convergence routine is used beginning with ALPH = .5° and incrementing in .5° steps until the maximum value for LIFT/DRAG is found. Subroutine DRG is reevaluated for each test ALPH. The correct value has been found when

$$\text{LIFT/DRAG}_{new} < \text{LIFT/DRAG}_{old}$$

The ALPH_{old} value is then incremented in .1° steps to find a more exact value for ALPH.

IALP = 3 is the maximum vertical load factor method of control. The Newton-Raphson method is used to calculate the desired ALPH value as explained in Subsection 2.8.3. In most cases, maximum ALPH cuts off the convergence. In this case, BETG, i.e., 2* ALPH, is set to 25.° to begin the next convergence. The tolerance on BETG is an increment value, DEL, of ± .1°.

IALP = 4 is the Energy Management solution. The expression for the arc sin of GAM given in Subsection 2.8.4 is solved for the GAM needed, GAMT. Routine CONVERG is used to find the ALPH value required to keep DT = GAMT-GAM within the specified tolerance, i.e., GAM must be equal to GAMT ± .01°. A test integration must be made for each ALPH value tried.

After APLH has been set by one of these methods, GR must be checked to see that GRMX has not been exceeded, as stated in Subsection 2.12. If GR is greater than GRMX, then ALPH must be changed, using CONVERG, to

bring DG = GR - GRMX near 0.0. However, ALPH must still be kept within the maximum limit set by the ATRN value from the table and above the minimum value of 0.0.

The following tabulation of the heirachy of these ALPH control methods may help clarify their use.

- ALPH must not exceed ATRN and must not be less than 0.0.
- GR must not exceed GRMX.
- ALT must be held on ALTB.
- From conditions D-E on, GAM must be held on GAMC.
- ALPH will be controlled by whatever method is specified by the indicator IALP.

3.3 ADDITIONAL SUBROUTINES

The following subprograms, in addition to subroutine CONTRL, are used in this program:

A. Subroutine CONVERG is the standard convergence routine used throughout the program, especially in subroutine CONTRL. The call parameters are (IND3, IEND, F, ALPH, ALPH2, ALPH1, DELD, DELD2, DELD1, KASE, QTMAX) where

- IND3 is the internal indicator to establish at what point in the convergence the call is being made. The indicator is set to 0.0 on the first call to the routine for any particular convergence. The indicator should be reset to 0.0 at the completion of each integration step (with final results). The routine handles the value other than that.

- IEND indicates an error. The initial value should be 0.0. A value of 1.0 is generated whenever a value of ALPH of less than 0.0 is calculated. ALPH is set to 0.0 and a normal return from the routine is made. IEND is also set to 0.0 when the routine is not converging on a new ALPH value, i.e., when ALPH=ALPH1 or whenever ALPH = ALPH2 at the end of the routine. Which test is made determined by IND3. For this condition, an error message is printed but calculations continue.

- ALPH is input as the current value and returned as the new value to be tried. (ALPH does not have to be ALPH in the program, the routine is also used for PHI convergence).

- ALPH2 and ALPH1 are the stored values from earlier steps in the convergence. They must be provided for storage as the routine may be used for more than one convergence per integration step.

- DELD is the parameter used to determine the value of ALPH. It should correspond to the ALPH input at any particular step.

- DELD2 and DELD1 are values from an earlier step, corresponding to the ALPH2 and ALPH1 values.

- Kase is not used by the Flyback program.

- QTMAX is twice the value about which convergence is to be made. Most cases will be to converge on a value of ALPH to give a DELD value of 0.0, therefore, this value will usually be 0.0.

B. DRG is called at each step of the integration from RUNGEK and again at the conclusion of the integration. There are no call parameters for this routine as all needed information is transmitted through COMMON. This routine calculates the integration related parameters - the ALPH coefficients are looked up, the maximum ALPH value is calculated, DRAG, XLIFT, and QATM are calculated. In addition, for condition C-D, the expression for cos(PHI) (Subsection 2.9.4) is evaluated. For ALPH = 0.0 this equation is invalid and is not evaluated. If this expression has a value greater than 1.0,a GAMC greater than can be held is being asked for. As a result,PHI is set to 0.0 and GAMC is assigned the value of GAM at that moment. No error message is generated. The initial value for DOTC is 0.0. However,when GAMC is changed in CONTRL, DOTC is calculated for the change in GAMC.

C. OUTPUT is the routine used for output of all essential information at the end of each print interval, which may or may not correspond to the integration interval. For output purposes only, if PHI > 90°, the value for XLIFT is printed as a negative value. Subroutine OUT is used as the form for all printout from this routine.

D. OUT is a short routine for printout of any real numbers with four alphameric characters for identification. The call parameters are (I, A, I2, A2, I3, A3, I5, A4, I5, A5) where the I's represent 4 character Hollerith statements for identification of the following real numbers, A's. These are printed in an E12.5 format. If a different format is desired on all output, only this final format in subroutine OUT need be changed.

E. ACCEL is called at the end of each integration for the calculation of the acceleration equations as described in Subsection 2.5. All needed information is carried in COMMON.

F. RESULT is called at the end of each integration interval for the calculation of the navigation equations, including the change in latitude and longitude in the turn. Flyback range and azimuth are also calculated.

The change in position (Subsection 2.7) is computed first. Here the DLON sign option is programmed as DLON negative if Z < 180.0; DLON positive if Z > 180.0°

RB and ZB are then calculated as described in Subsection 2.6. ZB is not calculated during the final condition, E-F. Also at the end of this routine, the atmospheric data is obtained from routine ATMOSP and the mach number is calculated.

G. RUNGEK is the RUNGE-KUTTA integration routine. This is not a generalized routine, but one written specifically for this program. All information needed is carried through COMMON. One call to this routine by the main program completes one integration step. The integration

step indicator is NRK. This indicator is carried in COMMON for use in the supplemental routine, DOTS, where it is incremented. The initial value is set in RUNGEK. The integration interval DELT is input. A value of 1.0 has been used for most of the test work, and is suggested for use by the user. This routine integrates with TIM for GAM, ALT, VEL, RANGE, Z, and WHT. Function DELTA and subroutine DOTS are used exclusively by this routine.

H. DELTA is a short function for averaging the individual step values for the integrated variables in RUNGEK.

I. DOTS calculates the dot equations being integrated. These equations are given in Subsection 2.4. The arrays VK, GL, ZJ, AM, RN correspond to the components of VEL, GAM, Z, ALT and RANGE, respectively.

J. Subroutine SET is a program storage routine. The call parameter I is used to indicate whether information is to be stored or retrieved. I = information to be reset, 0 = information to be stored. All other values needed are carried in COMMON. This routine is used to store the values for the integrated variables at the end of a second; so if a second needs to be reevaluated, the data for the start point will still be available. This only stores the information from the previous completed integration stop. This is used when several different values of ALPH, or PHI must be tested before a new integration step is satisfactory. The variables in this routine with an N suffix are available only through this routine and must not be put in COMMON.

K. Subroutine ATMOSP is an atmospheric data routine. This routine was taken from the report "Advanced Launch Vehicle Computer Programs for Vertical Takeoff Trajectories, Horizontal Takeoff Trajectories, and Horizontal Takeoff Trajectories with Sonic Boom Calculation" (TR-293-6-110). The call parameters are (H, ANS) where H is the ALT value and ANS is the atmospheric data to be returned - speed of sound, gravitational attraction, and atmospheric density. When the altitude factor exceeds

the maximum value for which data is available, the maximum altitude value is used. No diagnostic is generated.

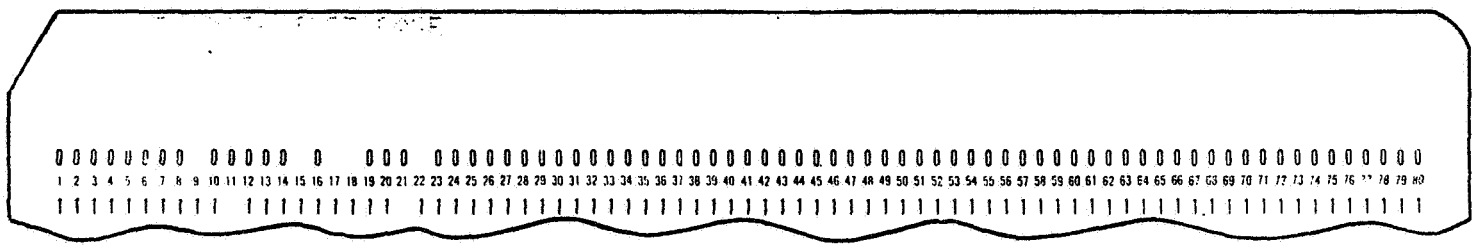
L. Function Y3 is a linear interpolation equation where Y3 is the unknown variable dependent on X3. A value for Y3 is calculated from two sets of points Y2, X2, and Y1, X1.

3.4 INPUT

Input of all data to the program is at the beginning of the main section of the program. The following explanation and illustrations should enable the user to set up a complete set of data. The illustrations below were used by all sample cases in Section VI. All input data is printed out unless otherwise noted.

CARD 1 HEADING

Any information desired as the heading on the first page of output may be put on this card. The format is 20A4.



CARD 2 INTEGERS

The format of this card is (3I2). The first two columns of this card should contain NTAB1, the number of data points to be included in the XMACH-ALPH coefficients table. This value is not printed.

Column 4 of this card should contain an integer, 1 through 4, to indicate the method of Alph control, IALP.

IALP = 1 Table input value

IALP = 2 Maximum lift/drag

IALP = 3 GV equation control

IALP = 4 Energy Management

Column 6 of this card should contain IGLD to indicate the glide option, as explained in Subsection 2.11.

IGLD = 1 glide ALPH determined by GAM equations

IGLD = 2 glide ALPH determined by maximum (CL/CD)

CARDS 3 through NTAB1 + 2. TABLE DATA

The table data is read in one complete set of data per card, i.e.,

XMACHT(1)	CLØTAB(1)	CL1TAB(1)	CL2TAB(1)	CDØTAB(1)	ATR(1)
. .	. .	. .	. .	. .	. .
XMACHT(NTAB1)	CLØTAB(NTAB1)	CL1TAB(NTAB1)	CL2TAB(NTAB1)	CDØTAB(NTAB1)	ATR(NTAB1)

The maximum number of point sets in this table is 16.

XMACHT is Mach number values

CLØTAB corresponds to CLØ

CL1TAB corresponds to CL1

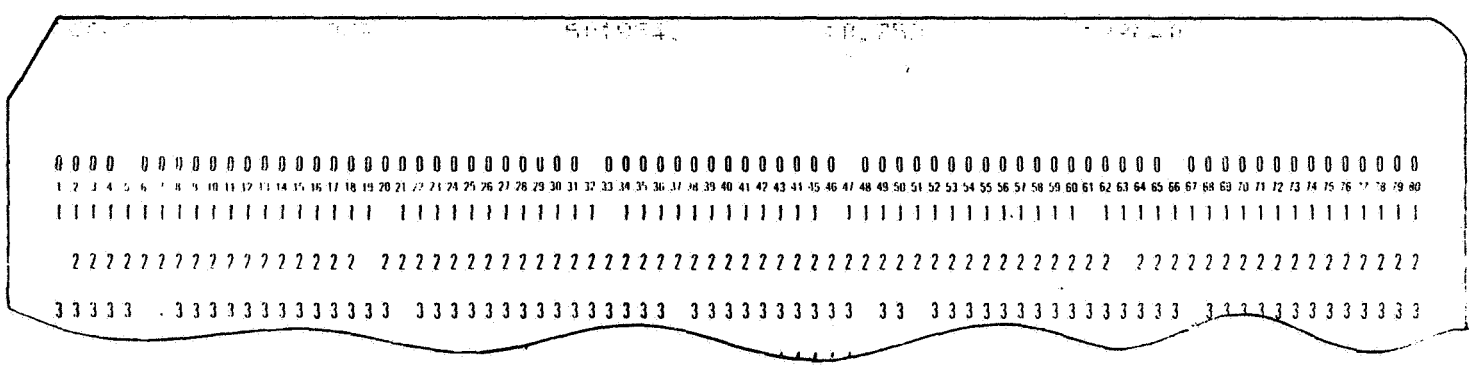
CL2TAB corresponds to CL2

CDØTAB corresponds to CDØ in the program.

ATR values are the ALPH values to be used for control method IALP = 1 or for maximum ALPH values.

ALL REMAINING CARDS contain single point data input, 5 values per card, until all needed information has been input (format 5E15.5). Definitions of these values can be found in the Nomenclature Section. The last five columns of each card are used and may be used for numbering. The alphabetic O's are slashed in the names over the sample cards for clarity. These cards are:

1. WHT VEL RANGE GAM ALT



2. ZL RE XLØN XLAT AREA

3. CK1 XN CK20 CK21 XGØ

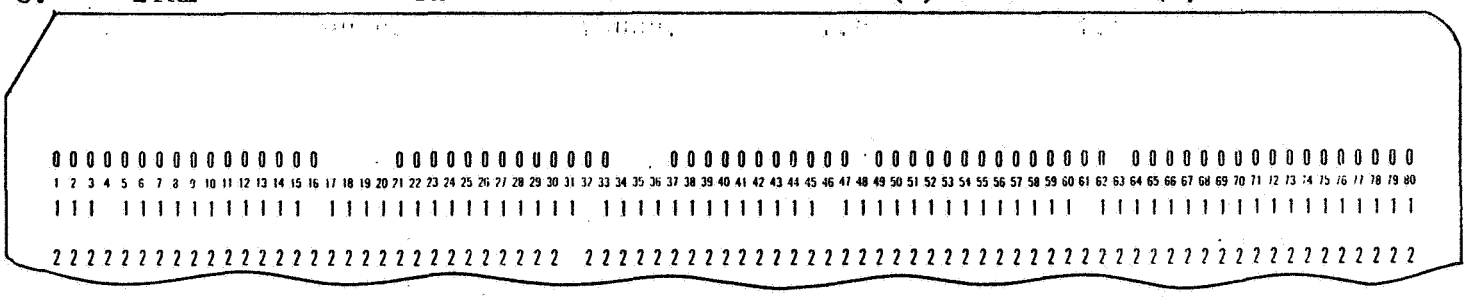
4. XLØB XLAB DELT GRMX PØA

5. GAMA PB DPB GAMC DZR

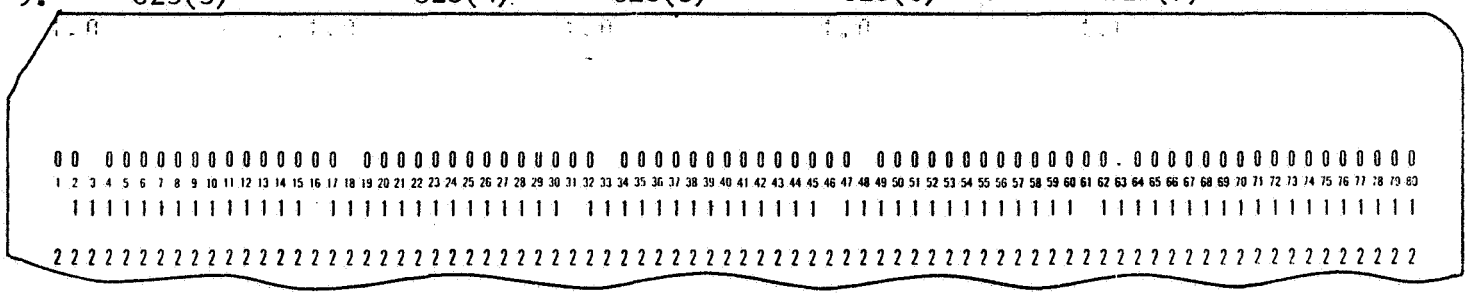
6. ZDD XMB ALTB TE DTP

7. SFC ATØL XTØL CK22 GCTL

8. ZTRL DHFB WEMP C23(1) C23(2)

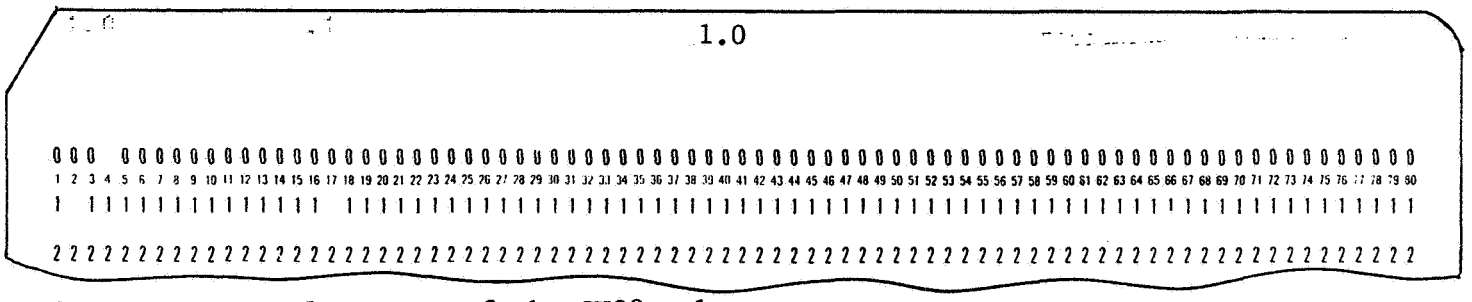


9. C23(3) C23(4) C23(5) C23(6) C23(7)



10. C23(8) DEDH CK24

1.0



C23 is the array for input of the CK23 values.

As many sets of data as desired may be stacked, limited only by your run time. No extra cards should be placed between data sets. When the last set is read, an I/Ø error will be given by the computer.

3.5 USE OF THE PROGRAM

This program, at present, requires a CDC 3200 computer with 32K storage, standard Fortran compiler, reader, and printer. However, the programming is sufficiently general that conversion to a larger machine should not cause any problems. In most cases, logical ifs have been avoided and the FORTRAN II form of input/output has been used.

To compile the program and execute a sample set of data, the following deck set up should be used on the CDC 3200:

7/9 Sequence, 001, etc. (The information here varies from installation to installation.)
7/9 JOB,,,,ND
7/9 FORTRAN, L, X.

Use 7/9 FORTRAN, L, X, P. if a binary deck is desired as output on cards.
Program Main (begins in column 7)
Main program

BLANK
SUBROUTINE 1

BLANK
SUBROUTINE 2
etc., until all subroutines are included
FINIS (begins in column 10)
7/9 LOAD, 56
7/9 RUN, 10 were 10 is the maximum run time (use whatever is needed)
DATA sets, as many as desired
7/8 7/8
7/8 7/8

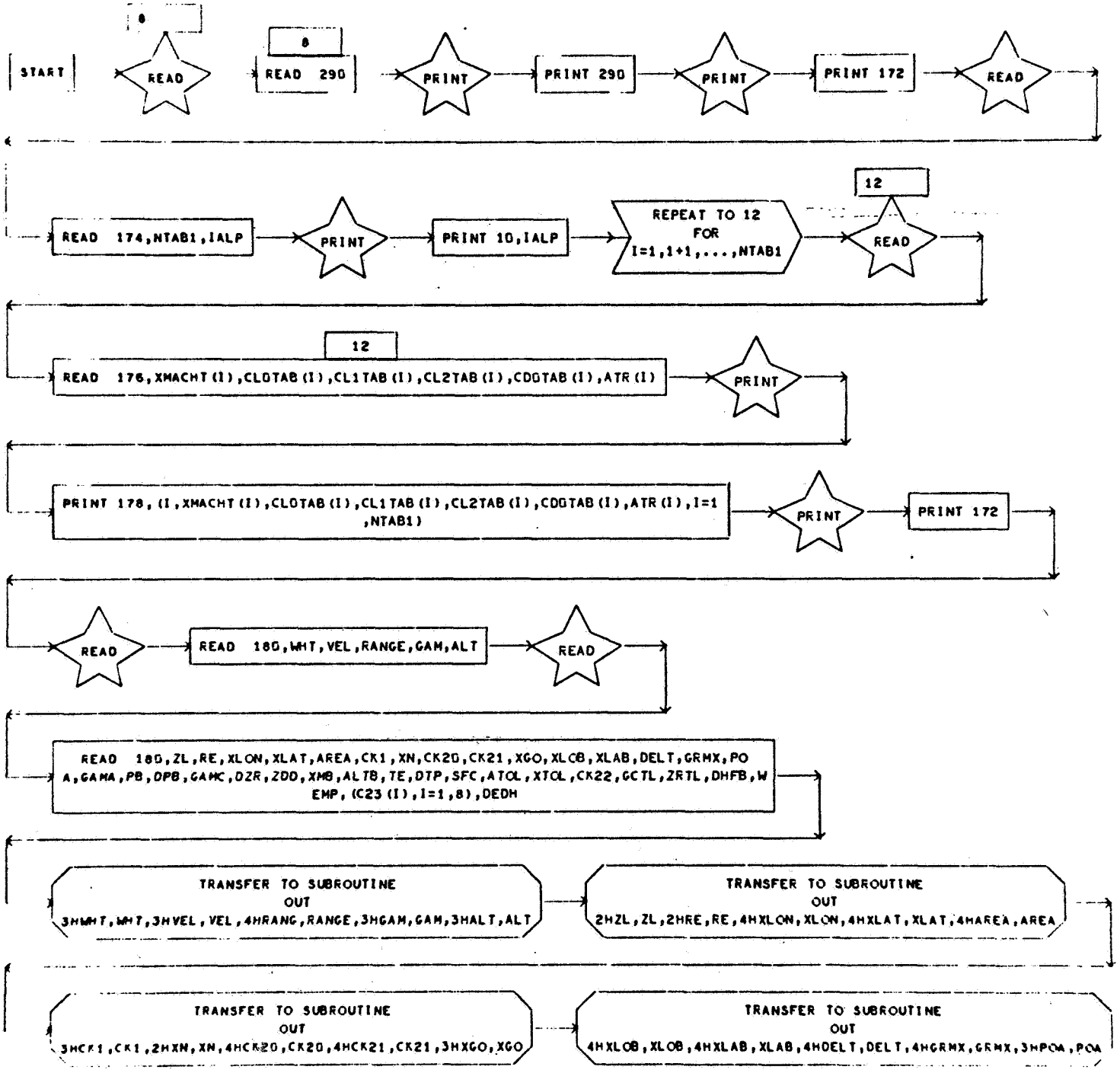
Compilation time is short, however, run time depends on the data set. An estimate is 10 to 20 minutes, based on test runs.
NOTE: The 7/8 and 7/9 denote multiple punches in column 1.

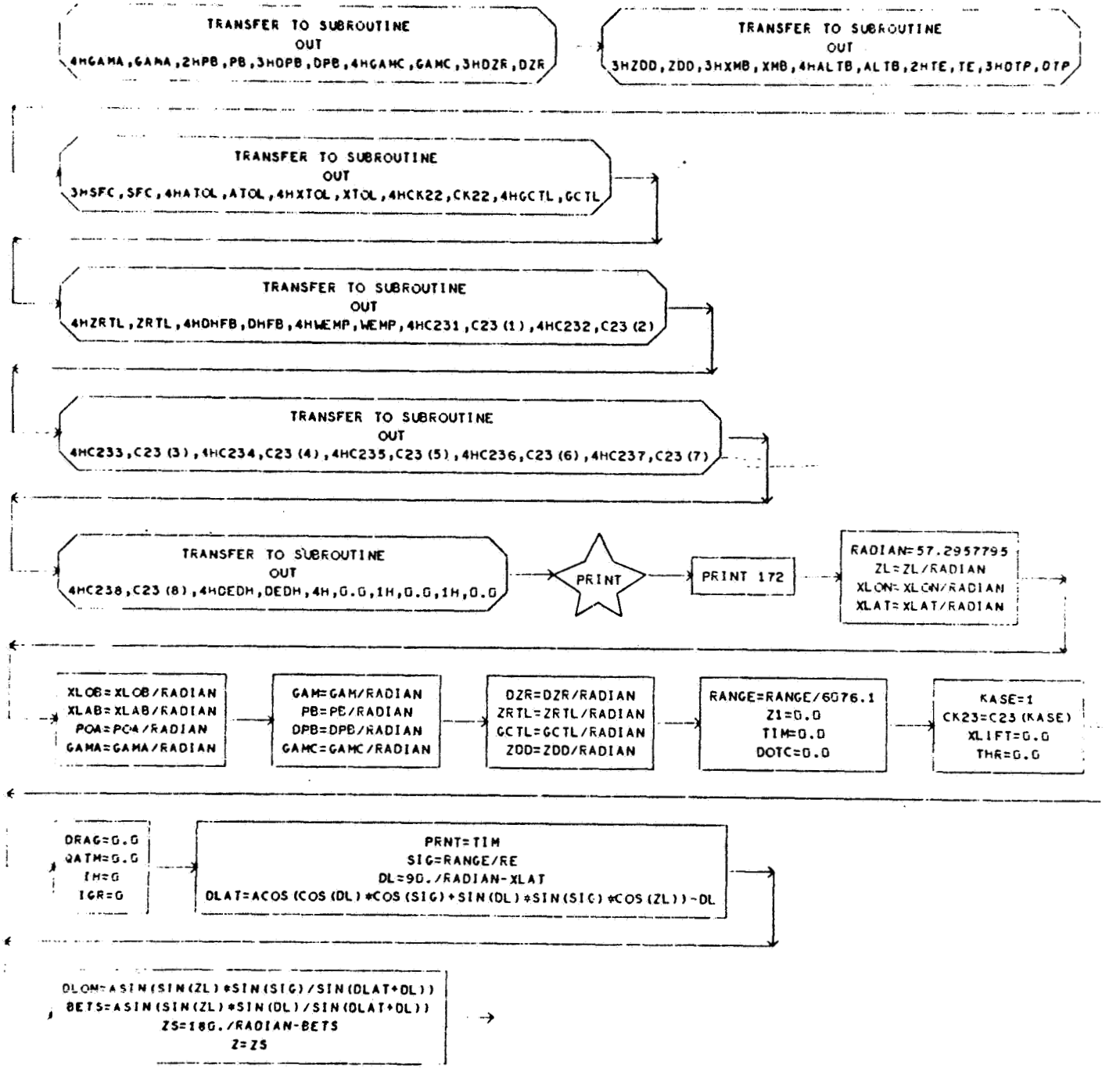
Section IV

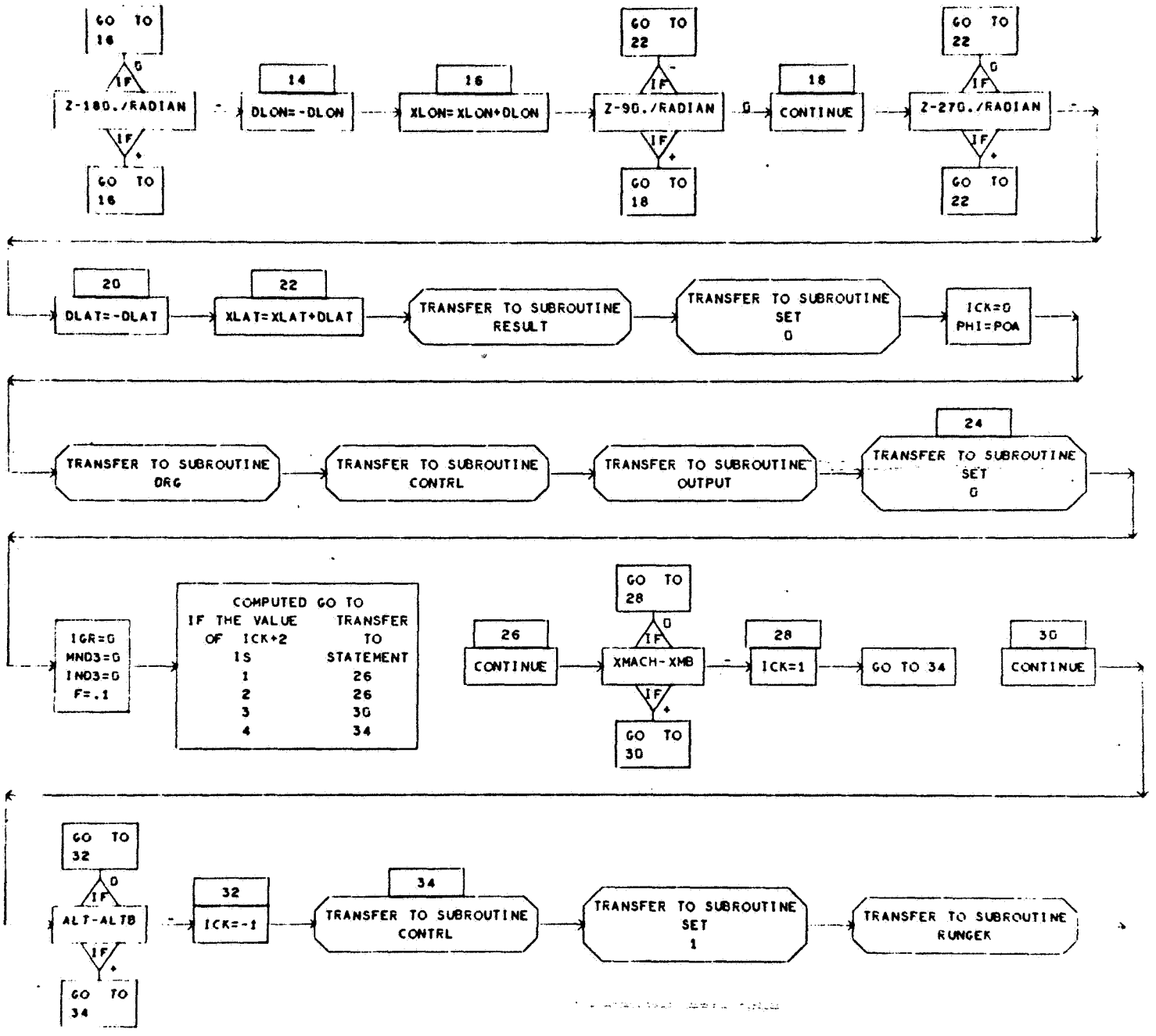
FLOW CHART

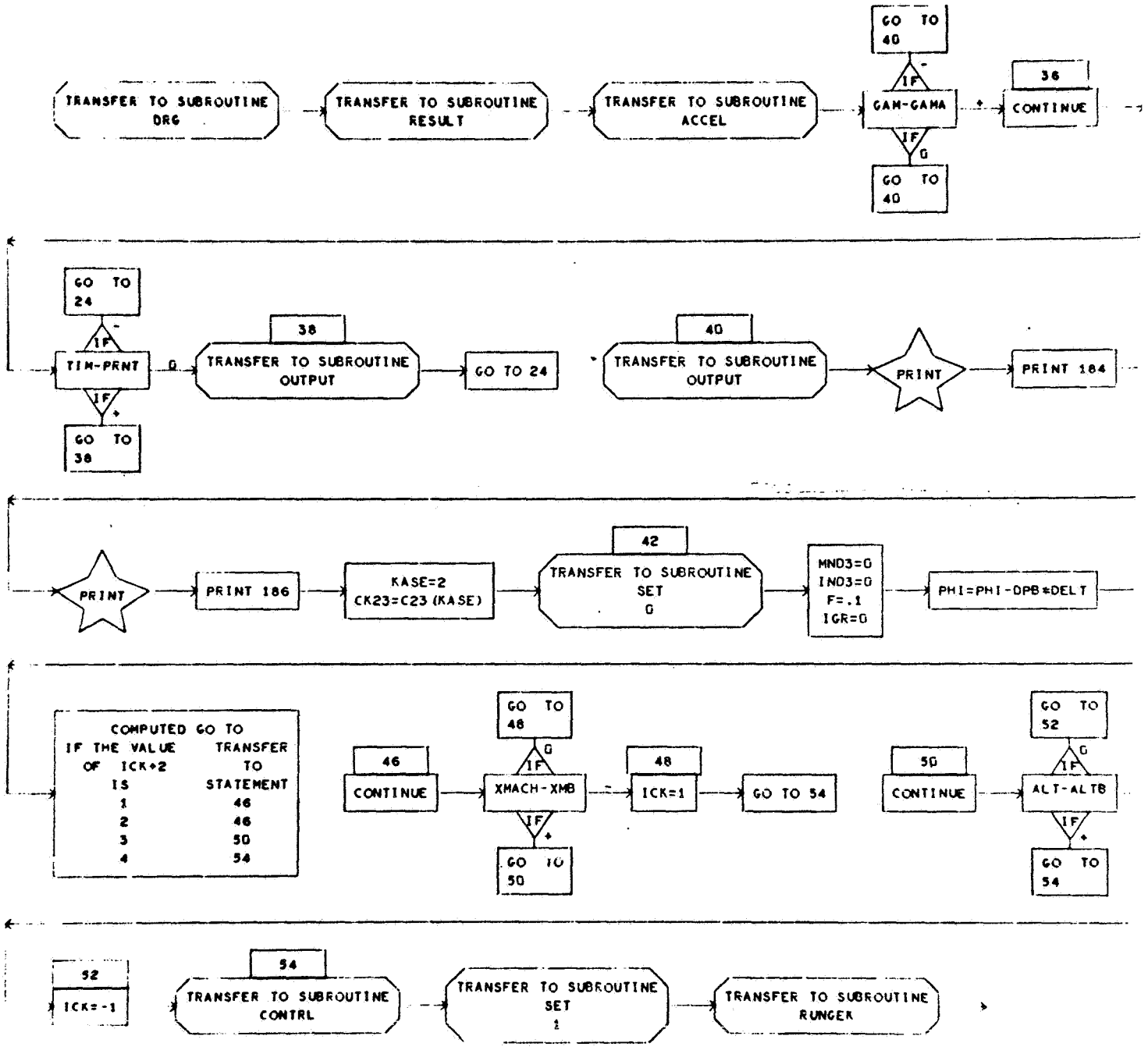
DIMENSIONED VARIABLES

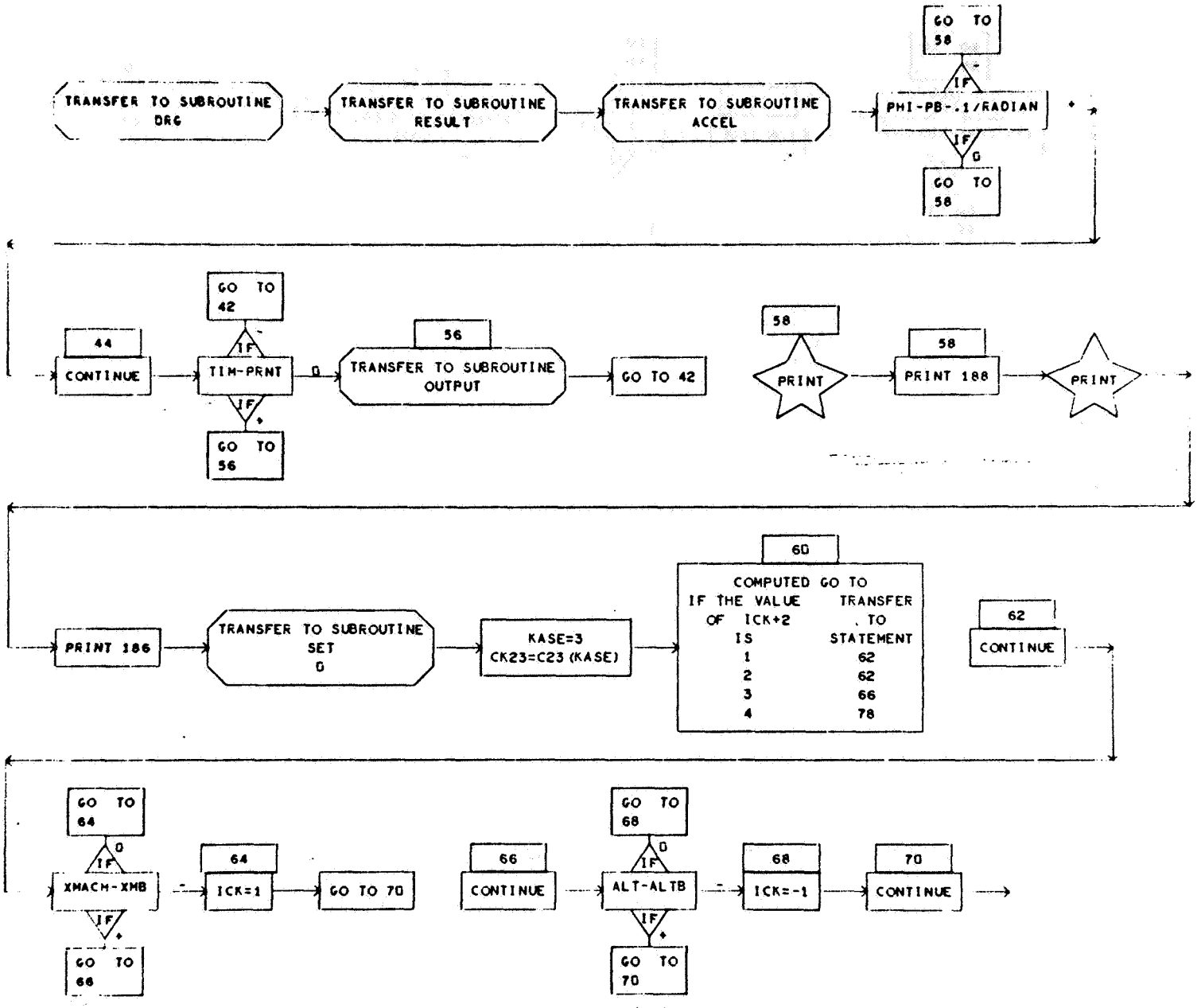
SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
GL	4	VK	4	AM	4	RN	4	ZJ	4
XMACHT	16	CLOTAB	16	CL1TAB	16	CL2TAB	16	DOTAB	16
ATR	16								

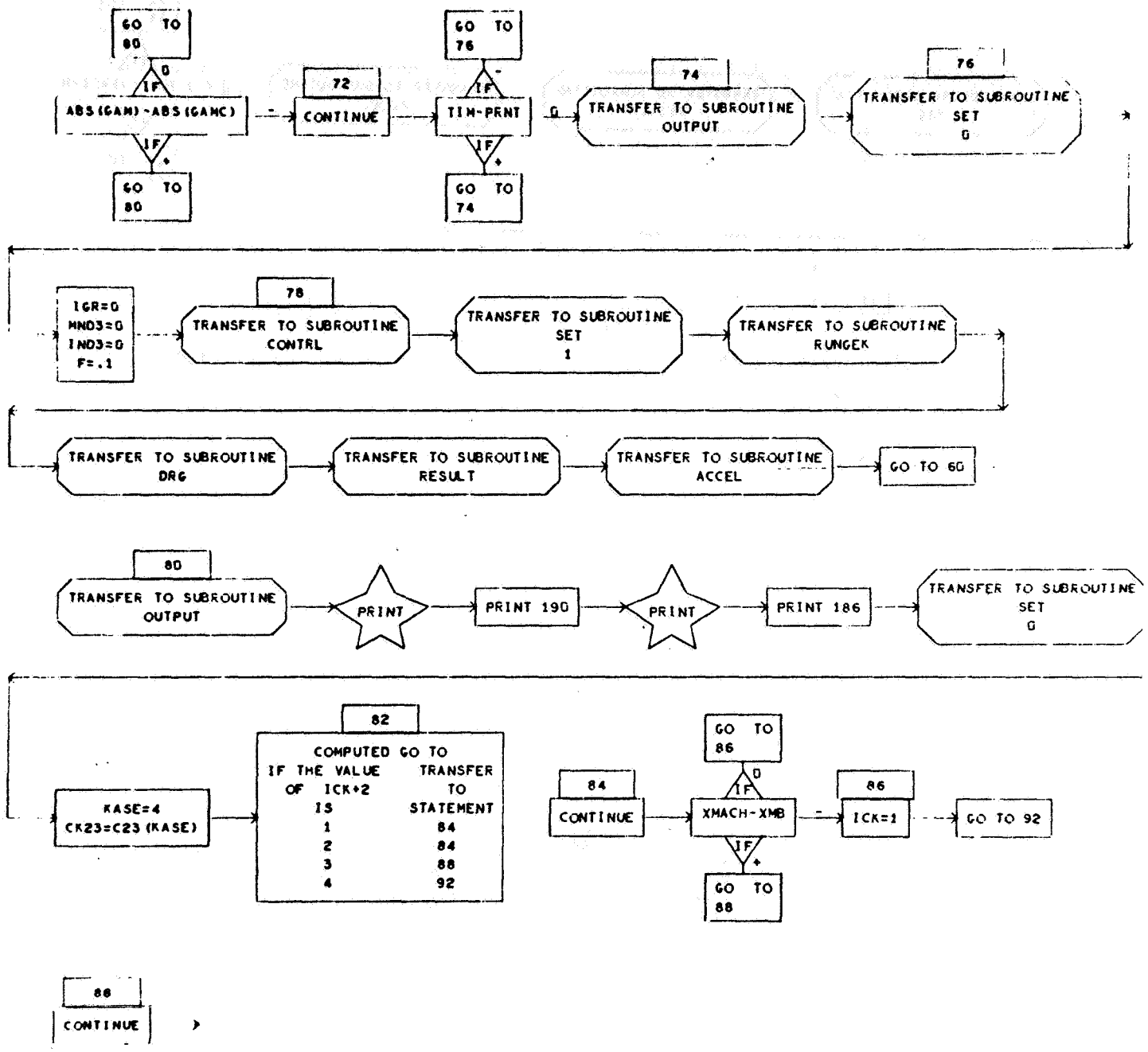


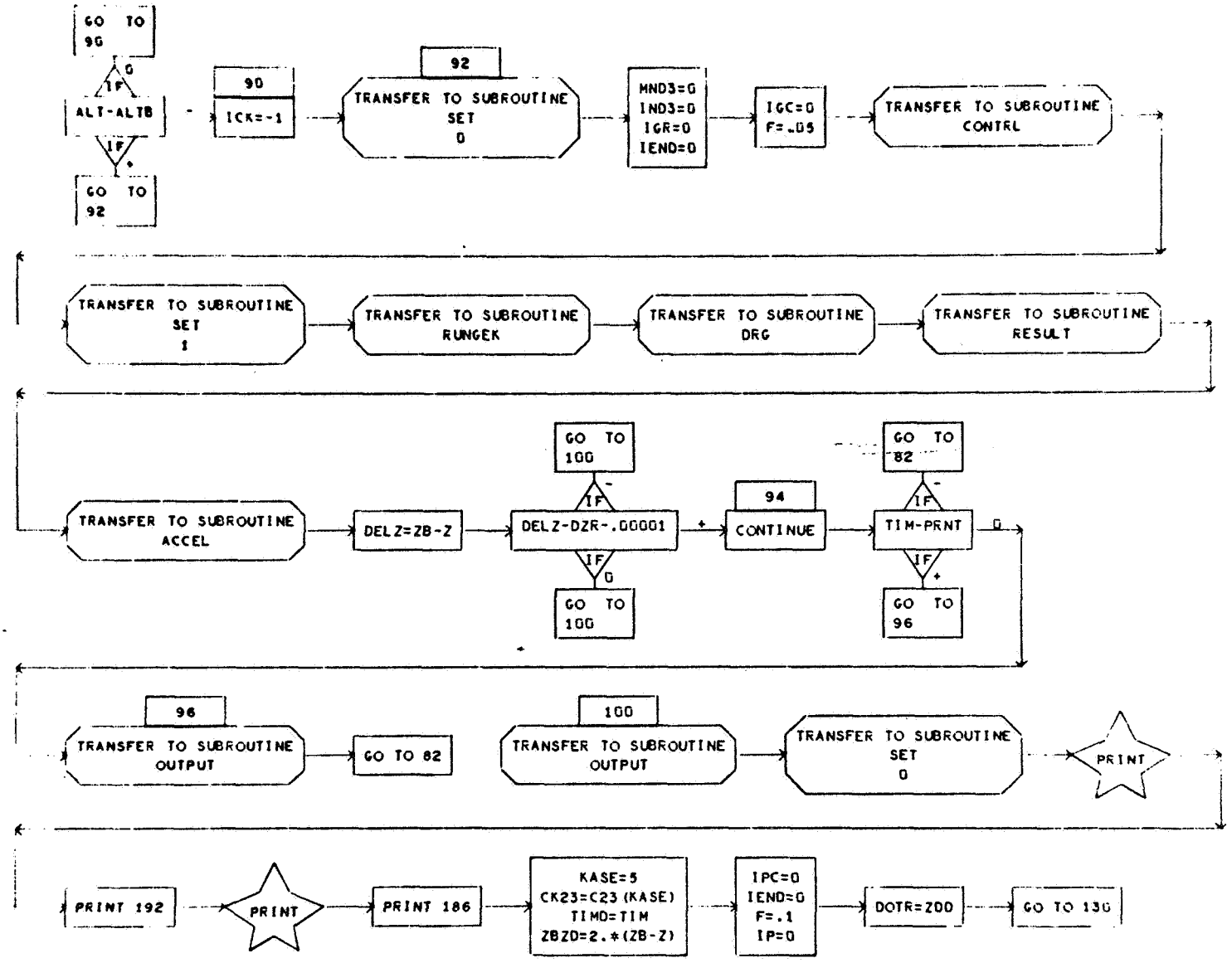

TRANSFER TO SUBROUTINE
OUT
4HGAMA,GAMA,2HPB,PB,3HDPB,DPB,4HGAMC,GAMC,3HDZR,DZR
TRANSFER TO SUBROUTINE
OUT
3HZDD,ZDD,3HXMB,XMB,4HALTB,ALTB,2HTE,TE,3HDTP,DTP
TRANSFER TO SUBROUTINE
OUT
3HSFC,SFC,4HATOL,ATOL,4HXTOL,XTOL,4HCK22,CK22,4HGCTL,GCTL
TRANSFER TO SUBROUTINE
OUT
4HZRTL,ZRTL,4HDHFB,DHFB,4HWEMP,WEMP,4HC231,C23(1),4HC232,C23(2)
TRANSFER TO SUBROUTINE
OUT
4HC233,C23(3),4HC234,C23(4),4HC235,C23(5),4HC236,C23(6),4HC237,C23(7)
TRANSFER TO SUBROUTINE
OUT
4HC238,C23(8),4HDEDH,DEDH,4H,0.0,1H,0.0,1H,0.0
PRINT
PRINT 172
RADIAN=57.2957795
ZL=ZL/RADIAN
XLON=XLON/RADIAN
XLAT=XLAT/RADIAN
XLOB=XLOB/RADIAN
XLAB=XLAB/RADIAN
POA=POA/RADIAN
GAMA=GAMA/RADIAN
GAM=GAM/RADIAN
PB=PB/RADIAN
DPB=DPB/RADIAN
GAMC=GAMC/RADIAN
DZR=DZR/RADIAN
ZRTL=ZRTL/RADIAN
GCTL=GCTL/RADIAN
ZDD=ZDD/RADIAN
RANGE=RANGE/6076.1
Z1=0.0
TIM=0.0
DOTC=0.0
KASE=1
CK23=C23(KASE)
XLIFT=0.0
THR=0.0
DRAG=0.0
QATM=0.0
IH=0
IGR=0
PRNT=TIM
SIG=RANGE/RE
DL=90./RADIAN-XLAT
DLAT=ACOS(COS(DL)*COS(SIG)+SIN(DL)*SIN(SIG)*COS(ZL))-DL
DLON=ASIN(SIN(ZL)*SIN(SIG)/SIN(DLAT+DL))
BETS=ASIN(SIN(ZL)*SIN(DL)/SIN(DLAT+DL))
ZS=180./RADIAN-BETS
Z=ZS

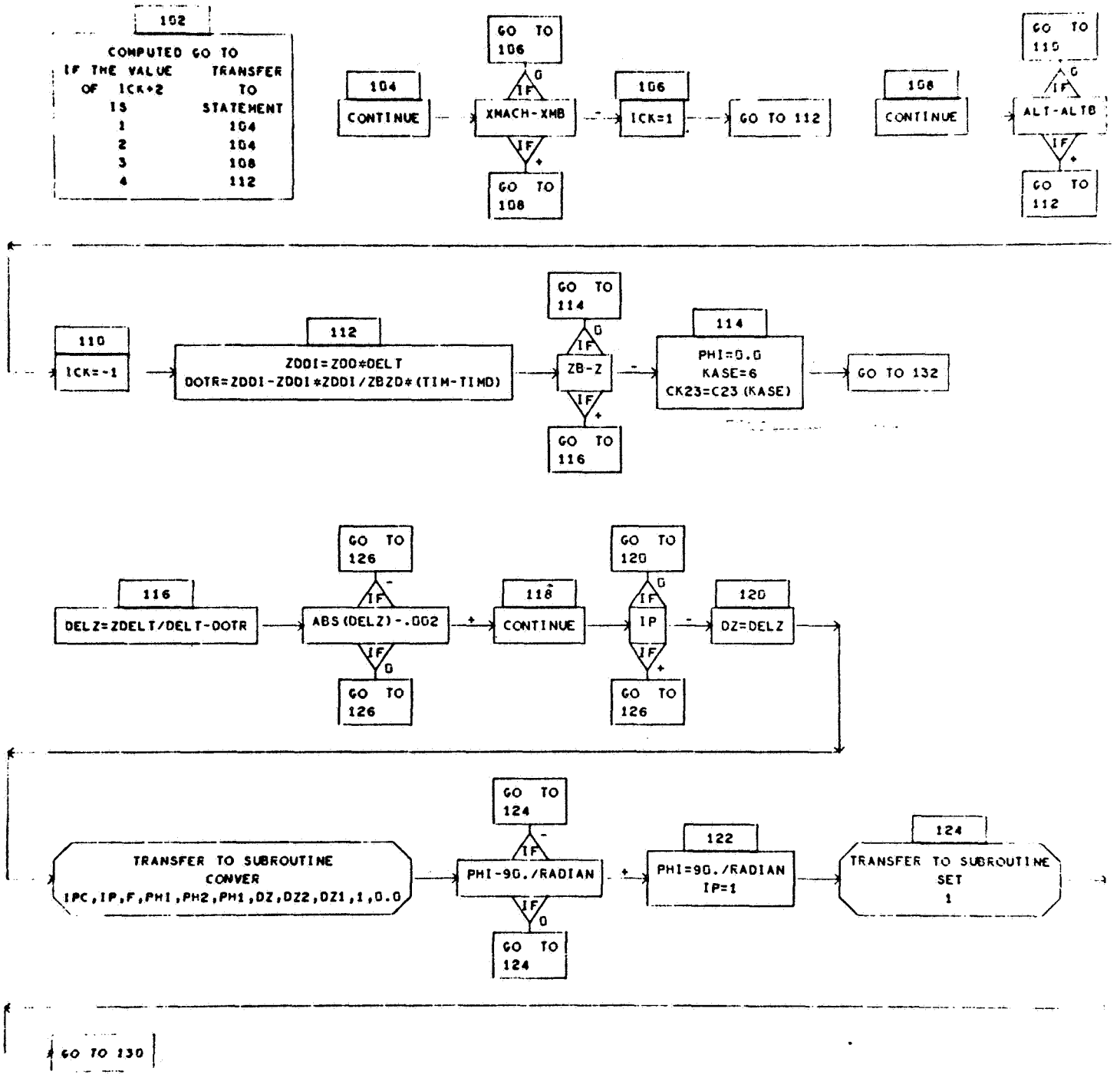

GO TO 16
IF
Z-180./RADIAN
IF
GO TO 16
14
DLON=-DLON
16
XLON=XLON+DLON
GO TO 22
IF
Z-90./RADIAN
IF
GO TO 18
18
CONTINUE
GO TO 22
IF
Z-270./RADIAN
IF
GO TO 22
20
DLAT=-DLAT
22
XLAT=XLAT+DLAT
TRANSFER TO SUBROUTINE RESULT
TRANSFER TO SUBROUTINE SET 0
ICK=0
PHI=POA
TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE CONTRL
TRANSFER TO SUBROUTINE OUTPUT
24
TRANSFER TO SUBROUTINE SET 0
IGR=0
MND3=0
IND3=0
F=.1
COMPUTED GO TO
IF THE VALUE OF ICK+2 IS
TRANSFER TO STATEMENT
1 26
2 26
3 30
4 34
26
CONTINUE
GO TO 28
IF
XMACH-XMB
IF
GO TO 30
28
ICK=1
GO TO 34
30
CONTINUE
GO TO 32
IF
ALT-ALTB
IF
GO TO 34
32
ICK=-1
34
TRANSFER TO SUBROUTINE CONTRL
TRANSFER TO SUBROUTINE SET 1
TRANSFER TO SUBROUTINE RUNGEK

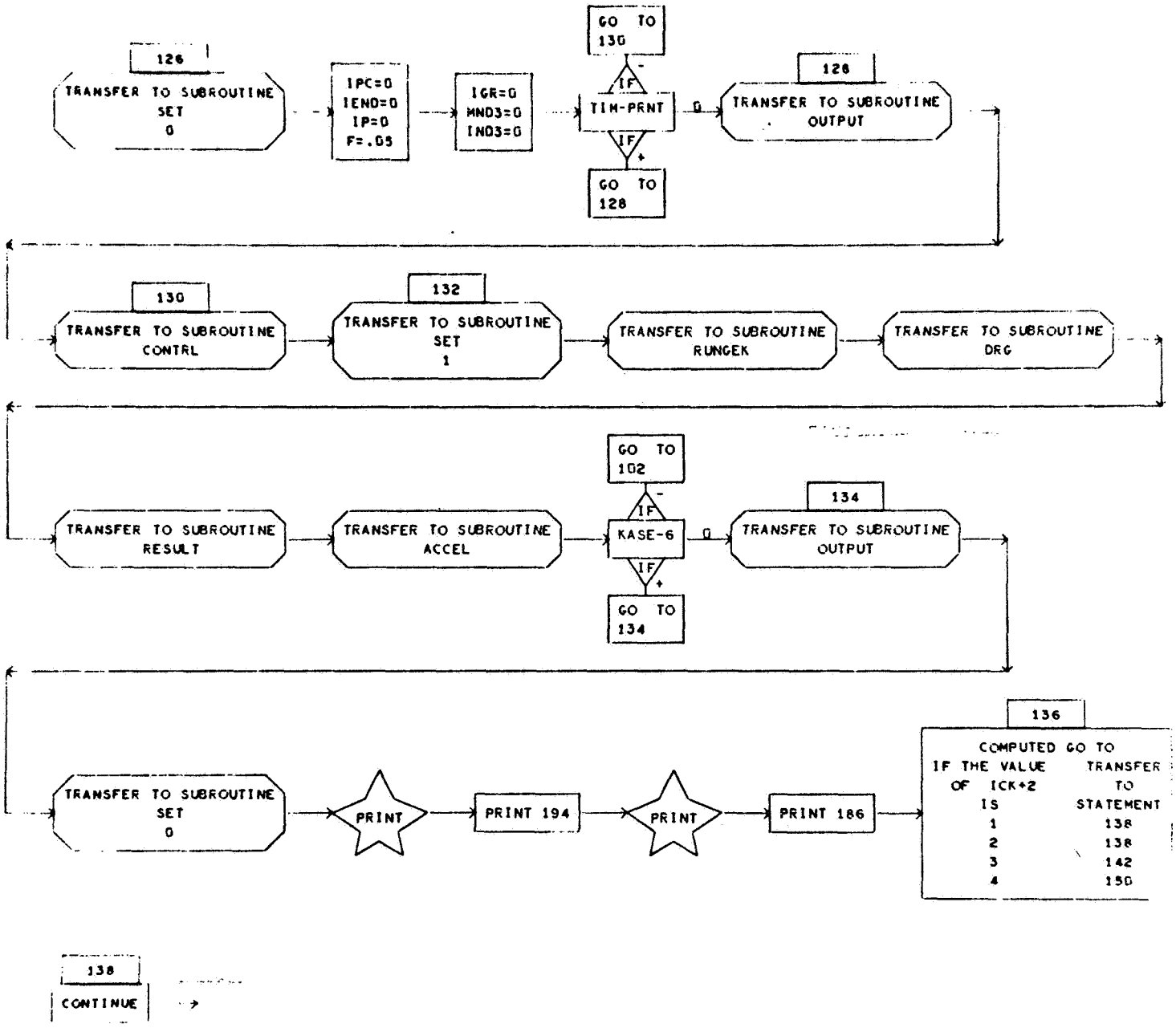

TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE RESULT
TRANSFER TO SUBROUTINE ACCEL
GO TO 40
IF
GAM-GAMA
IF
GO TO 40
36
CONTINUE
GO TO 24
IF
TIM-PRNT
IF
GO TO 38
38
TRANSFER TO SUBROUTINE OUTPUT
GO TO 24
40
TRANSFER TO SUBROUTINE OUTPUT
PRINT
PRINT 184
PRINT
PRINT 186
KASE=2
CK23=C23(KASE)
42
TRANSFER TO SUBROUTINE SET 0
MND3=0
IND3=0
F=.1
IGR=0
PHI=PHI-DPB*DELT
COMPUTED GO TO
IF THE VALUE OF ICK+2 IS
TRANSFER TO STATEMENT
1 46
2 46
3 50
4 54
46
CONTINUE
GO TO 48
IF
XMACH-XMB
IF
GO TO 50
48
ICK=1
GO TO 54
50
CONTINUE
GO TO 52
IF
ALT-ALTB
IF
GO TO 54
52
ICK=-1
54
TRANSFER TO SUBROUTINE CONTRL
TRANSFER TO SUBROUTINE SET 1
TRANSFER TO SUBROUTINE RUNGER

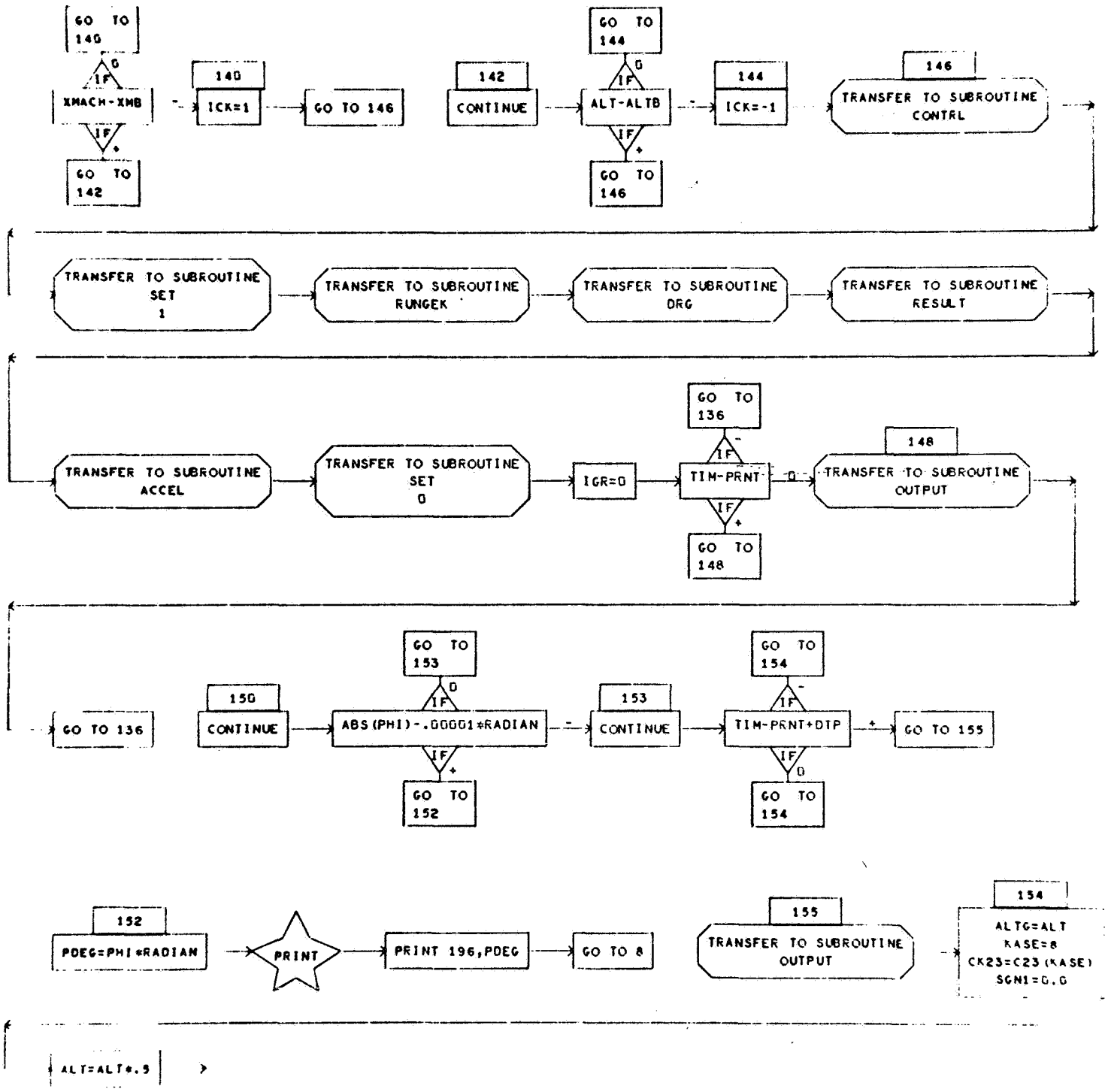

TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE RESULT
TRANSFER TO SUBROUTINE ACCEL
PHI-PB-.1/RADIAN
IF
GO TO 58
IF
0
GO TO 58
44
CONTINUE
TIM-PRNT
IF
GO TO 42
IF
+
GO TO 56
0
56
TRANSFER TO SUBROUTINE OUTPUT
GO TO 42
58
PRINT
58
PRINT 188
PRINT
PRINT 186
TRANSFER TO SUBROUTINE SET 0
KASE=3
CK23=C23 (KASE)
60
COMPUTED GO TO
IF THE VALUE OF ICK+2 IS
TRANSFER TO STATEMENT
1 62
2 62
3 66
4 78
62
CONTINUE
GO TO 64
IF
0
XMACH-XMB
IF
+
GO TO 66
64
ICK=1
GO TO 70
66
CONTINUE
GO TO 68
IF
0
ALT-ALTB
IF
+
GO TO 70
68
ICK=-1
70
CONTINUE

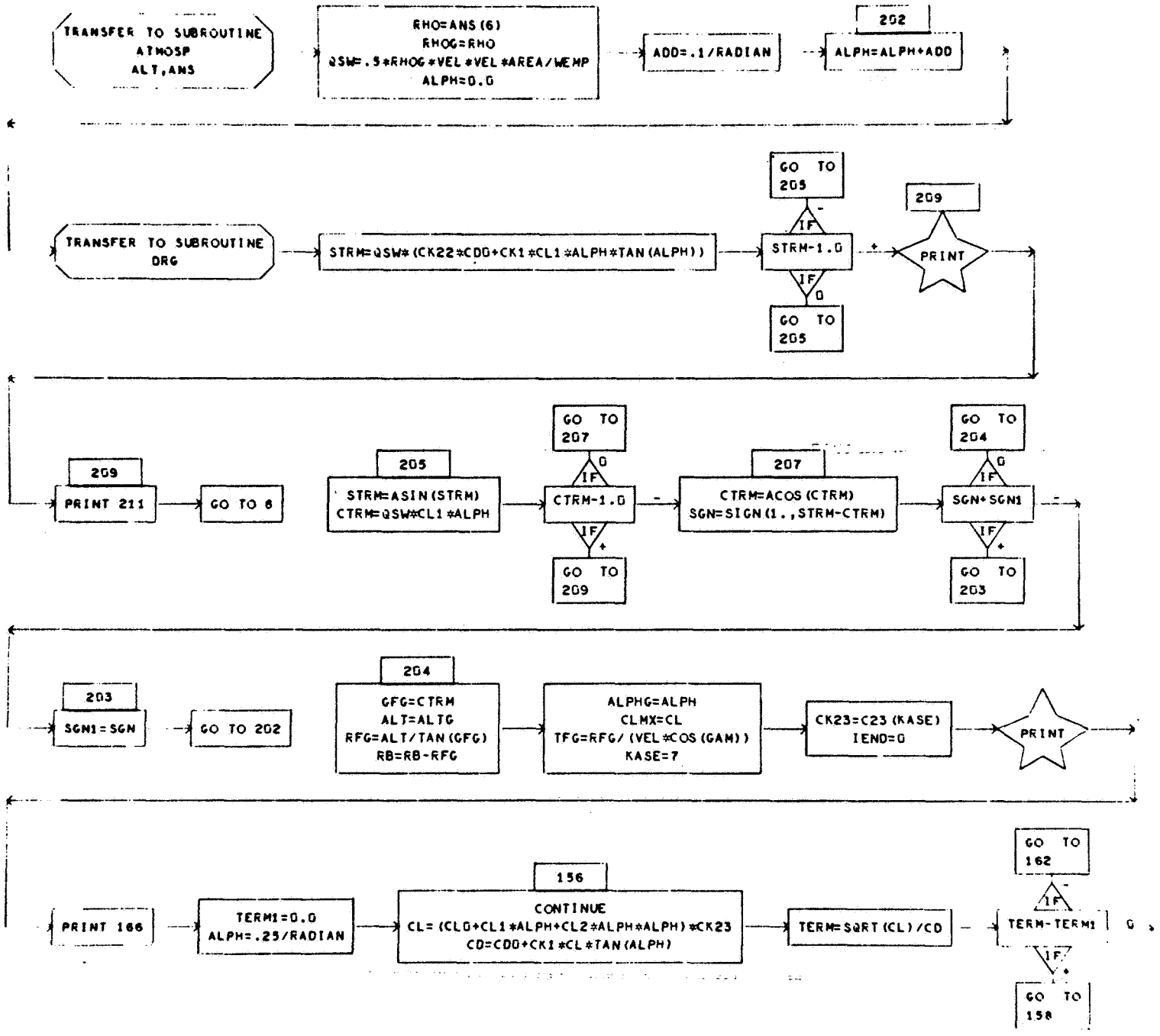

GO TO 80
0
IF
ABS(GAM)-ABS(GAMC)
-
IF
+
GO TO 80
72
CONTINUE
GO TO 76
-
IF
TIM-PRNT
IF
+
GO TO 74
0
74
TRANSFER TO SUBROUTINE OUTPUT
76
TRANSFER TO SUBROUTINE SET 0
IGR=0
MND3=0
IND3=0
F=.1
78
TRANSFER TO SUBROUTINE CONTRL
TRANSFER TO SUBROUTINE SET 1
TRANSFER TO SUBROUTINE RUNGEK
TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE RESULT
TRANSFER TO SUBROUTINE ACCEL
GO TO 60
80
TRANSFER TO SUBROUTINE OUTPUT
PRINT
PRINT 190
PRINT
PRINT 186
TRANSFER TO SUBROUTINE SET 0
KASE=4
CK23=C23(KASE)
82
COMPUTED GO TO
IF THE VALUE OF ICK+2 IS
TRANSFER TO STATEMENT
1 84
2 84
3 88
4 92
84
CONTINUE
GO TO 86
0
IF
XMACH-XMB
IF
+
GO TO 88
-
86
ICK=1
GO TO 92
88
CONTINUE

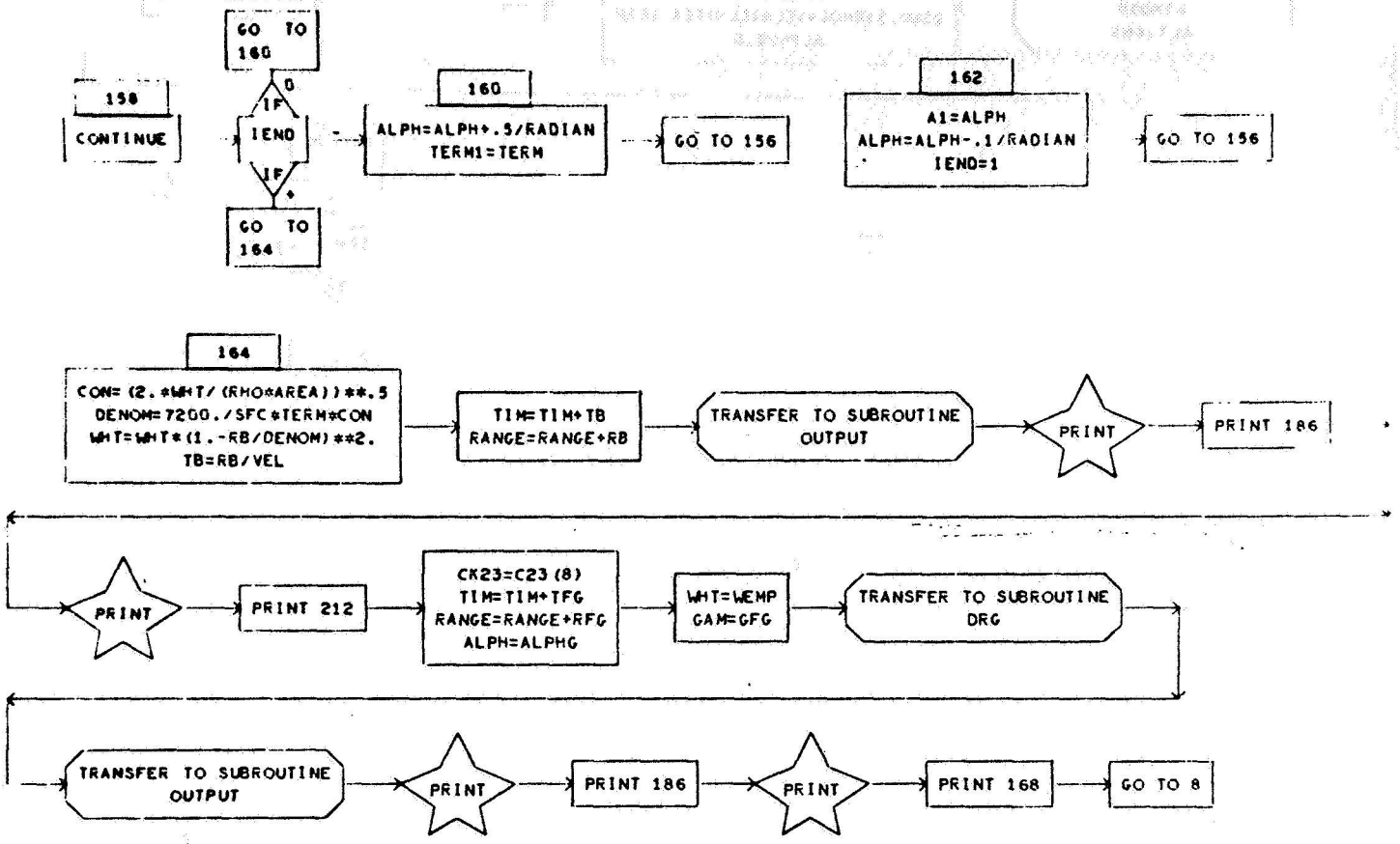

GO TO 90
IF 0
ALT-ALTB
IF +
GO TO 92
90
ICK=-1
92
TRANSFER TO SUBROUTINE SET 0
MND3=0
IND3=0
IGR=0
IEND=0
IGC=0
F=.05
TRANSFER TO SUBROUTINE CONTRL
TRANSFER TO SUBROUTINE SET 1
TRANSFER TO SUBROUTINE RUNGEK
TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE RESULT
TRANSFER TO SUBROUTINE ACCEL
DELZ=ZB-Z
GO TO 100
IF -
DELZ-DZR-.00001
IF 0
GO TO 100
+
94
CONTINUE
GO TO 82
IF -
TIM-PRNT
IF +
GO TO 96
0
96
TRANSFER TO SUBROUTINE OUTPUT
GO TO 82
100
TRANSFER TO SUBROUTINE OUTPUT
TRANSFER TO SUBROUTINE SET 0
PRINT
PRINT 192
PRINT
PRINT 186
KASE=5
CK23=C23(KASE)
TIMO=TIM
ZBZD=2.*(ZB-Z)
IPC=0
IEND=0
F=.1
IP=0
DOTR=ZDD
GO TO 130


102
COMPUTED GO TO
IF THE VALUE OF ICK+2 IS
TRANSFER TO STATEMENT
1 104
2 104
3 108
4 112
104
CONTINUE
GO TO 106
IF 0
XMACH-XMB
IF +
GO TO 108
106
ICK=1
GO TO 112
108
CONTINUE
GO TO 110
IF 0
ALT-ALTB
IF +
GO TO 112
110
ICK=-1
112
ZDDI=ZDD*DELT
DOTR=ZDDI-ZDDI*ZDDI/ZBZD*(TIM-TIMD)
GO TO 114
IF 0
ZB-Z
IF +
GO TO 116
114
PHI=0.0
KASE=6
CK23=C23(KASE)
GO TO 132
116
DELZ=ZDELT/DELT-DOTR
GO TO 126
IF -
ABS(DELZ)-.002
IF 0
GO TO 126
118
CONTINUE
GO TO 120
IF 0
IP
IF +
GO TO 126
120
DZ=DELZ
TRANSFER TO SUBROUTINE
CONVER
IPC,IP,F,PHI,PH2,PH1,DZ,DZ2,DZ1,1,0.0
GO TO 124
IF -
PHI-90./RADIAN
IF 0
GO TO 124
122
PHI=90./RADIAN
IP=1
124
TRANSFER TO SUBROUTINE
SET
1
GO TO 130


126
TRANSFER TO SUBROUTINE SET 0
IPC=0
IEND=0
IP=0
F=.05
IGR=0
MND3=0
IND3=0
GO TO 130
IF -
TIM-PRNT
0
IF +
GO TO 128
128
TRANSFER TO SUBROUTINE OUTPUT
130
TRANSFER TO SUBROUTINE CONTRL
132
TRANSFER TO SUBROUTINE SET 1
TRANSFER TO SUBROUTINE RUNGEK
TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE RESULT
TRANSFER TO SUBROUTINE ACCEL
GO TO 102
IF -
KASE-6
0
IF +
GO TO 134
134
TRANSFER TO SUBROUTINE OUTPUT
TRANSFER TO SUBROUTINE SET 0
PRINT
PRINT 194
PRINT
PRINT 186
136
COMPUTED GO TO
IF THE VALUE OF ICK+2 IS
TRANSFER TO STATEMENT
1 138
2 138
3 142
4 150
138
CONTINUE


GO TO 140
IF 0
XMACH-XMB
IF +
GO TO 142
140
ICK=1
GO TO 146
142
CONTINUE
GO TO 144
IF 0
ALT-ALTB
IF +
GO TO 146
144
ICK=-1
146
TRANSFER TO SUBROUTINE CONTRL
TRANSFER TO SUBROUTINE SET 1
TRANSFER TO SUBROUTINE RUNGEK
TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE RESULT
TRANSFER TO SUBROUTINE ACCEL
TRANSFER TO SUBROUTINE SET 0
IGR=0
GO TO 136
IF -
TIM-PRNT
IF +
GO TO 148
148
TRANSFER TO SUBROUTINE OUTPUT
GO TO 136
150
CONTINUE
GO TO 153
IF 0
ABS(PHI)-.00001*RADIAN
IF +
GO TO 152
153
CONTINUE
GO TO 154
IF -
TIM-PRNT+DTP
IF 0
GO TO 154
GO TO 155
152
PDEG=PHI*RADIAN
PRINT
PRINT 196,PDEG
GO TO 8
155
TRANSFER TO SUBROUTINE OUTPUT
154
ALTG=ALT
KASE=8
CK23=C23(KASE)
SGN1=0.0
ALT=ALT+.5

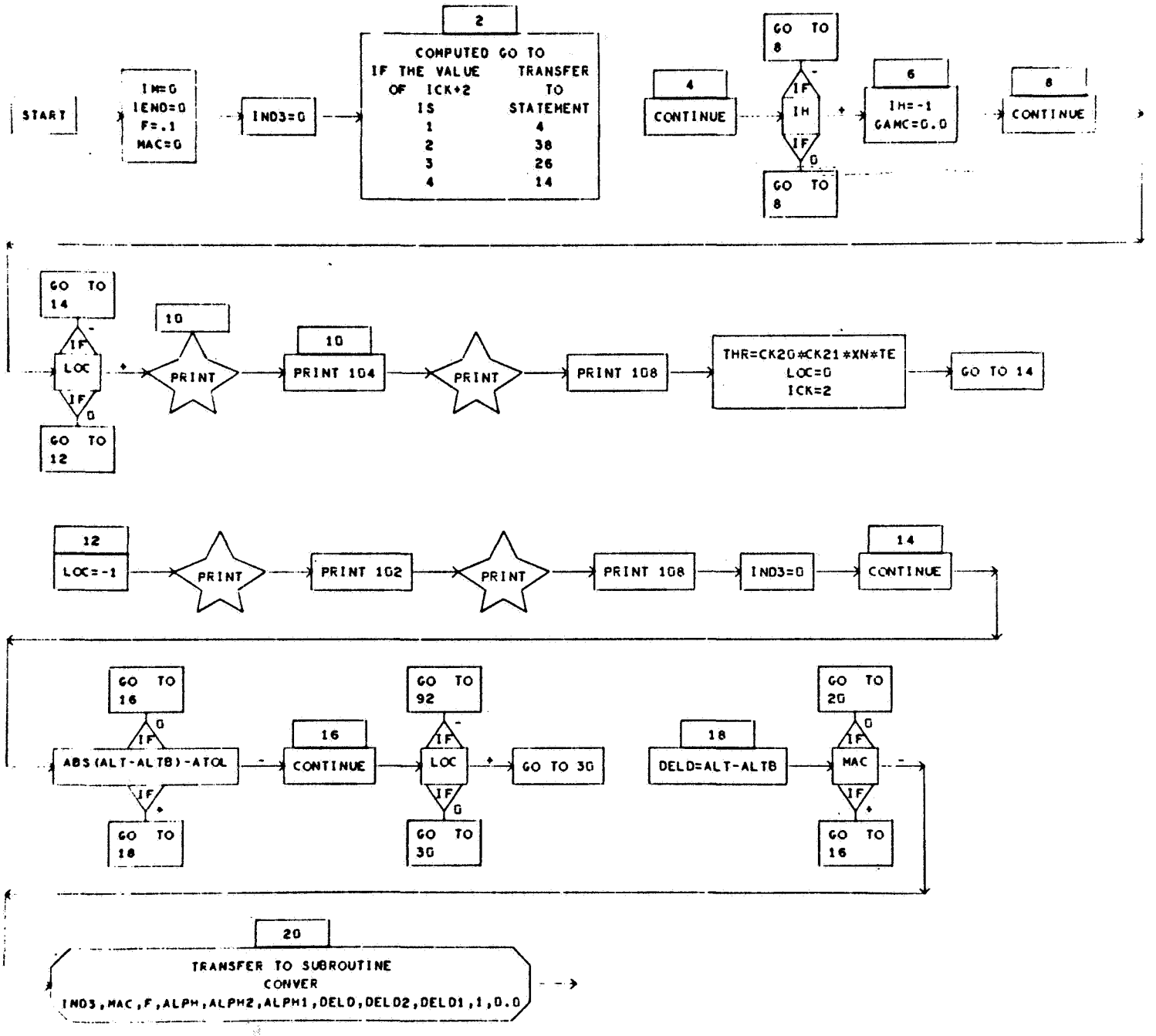

TRANSFER TO SUBROUTINE ATMOSP ALT,ANS
RHO=ANS(6)
RHOG=RHO
QSW=.5*RHOG*VEL*VEL*AREA/WEMP
ALPH=0.0
ADD=.1/RADIAN
202
ALPH=ALPH+ADD
TRANSFER TO SUBROUTINE DRG
STRM=QSW*(CK22*CDO+CK1*CL1*ALPH*TAN(ALPH))
STRM-1.0
IF
GO TO 205
GO TO 205
209
PRINT
209
PRINT 211
GO TO 6
205
STRM=ASIN(STRM)
CTRM=QSW*CL1*ALPH
CTRM-1.0
IF
GO TO 207
GO TO 209
207
CTRM=ACOS(CTRM)
SGN=SIGN(1.,STRM-CTRM)
SGN+SGN1
IF
GO TO 204
GO TO 203
203
SGN1=SGN
GO TO 202
204
GFG=CTRM
ALT=ALTG
RFG=ALT/TAN(GFG)
RB=RB-RFG
ALPHG=ALPH
CLMX=CL
TFG=RFG/(VEL*COS(GAM))
KASE=7
CK23=C23(KASE)
IEND=0
PRINT
PRINT 166
TERM1=0.0
ALPH=.25/RADIAN
156
CONTINUE
CL=(CLO+CL1*ALPH+CL2*ALPH*ALPH)*CK23
CD=CDO+CK1*CL*TAN(ALPH)
TERM=SQRT(CL)/CD
TERM-TERM1
IF
GO TO 162
GO TO 158

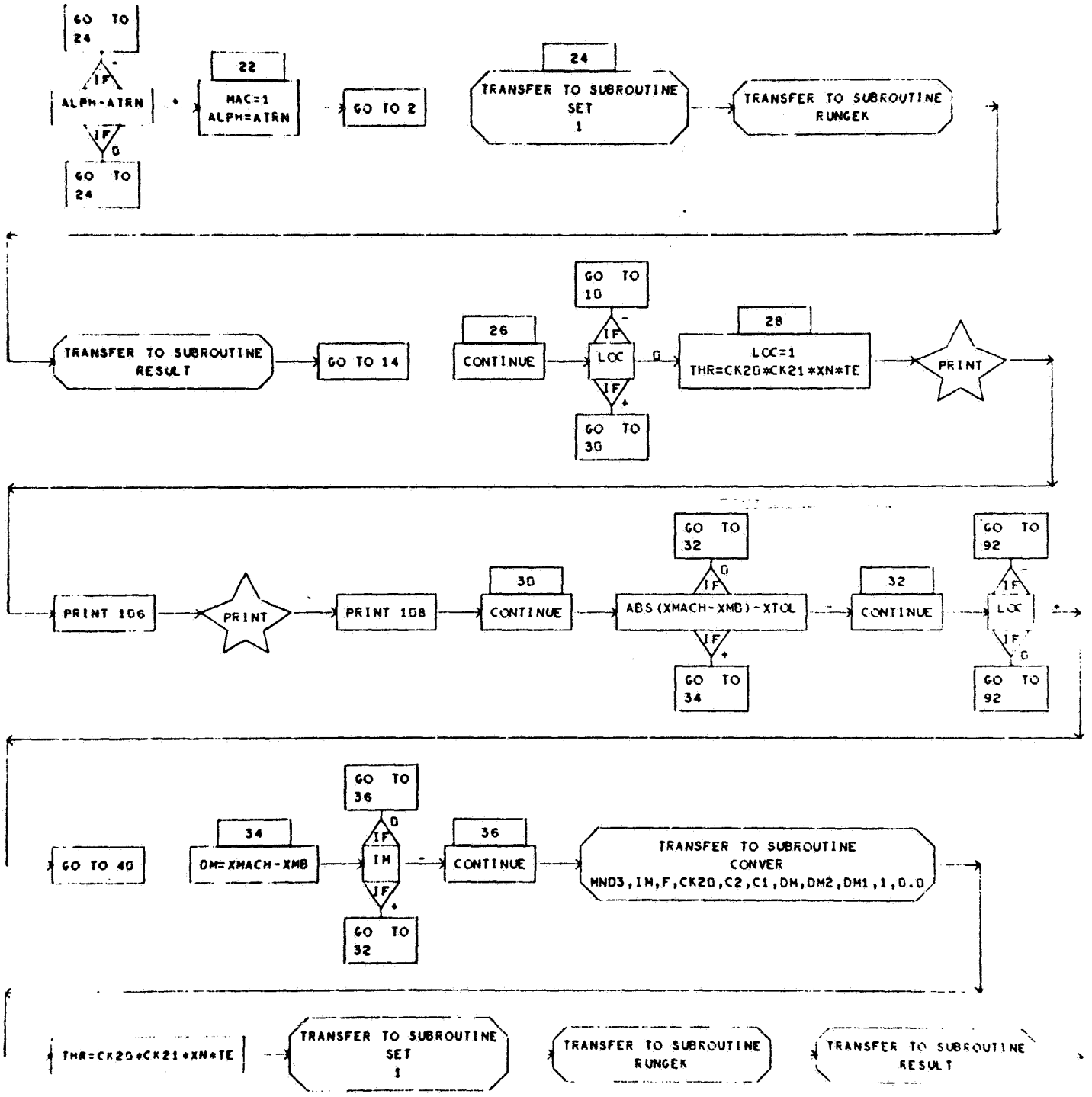

158
CONTINUE
GO TO 160
IF 0
IEND
IF +
GO TO 164
160
ALPH=ALPH+.5/RADIAN
TERM1=TERM
GO TO 156
162
A1=ALPH
ALPH=ALPH-.1/RADIAN
IEND=1
GO TO 156
164
CON=(2.*WHT/(RHO*AREA))**.5
DENOM=7200./SFC*TERM*CON
WHT=WHT*(1.-RB/DENOM)**2.
TB=RB/VEL
TIM=TIM+TB
RANGE=RANGE+RB
TRANSFER TO SUBROUTINE OUTPUT
PRINT
PRINT 186
PRINT
PRINT 212
CK23=C23(8)
TIM=TIM+TFG
RANGE=RANGE+RFG
ALPH=ALPHG
WHT=WEMP
GAM=GFG
TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE OUTPUT
PRINT
PRINT 186
PRINT
PRINT 168
GO TO 8

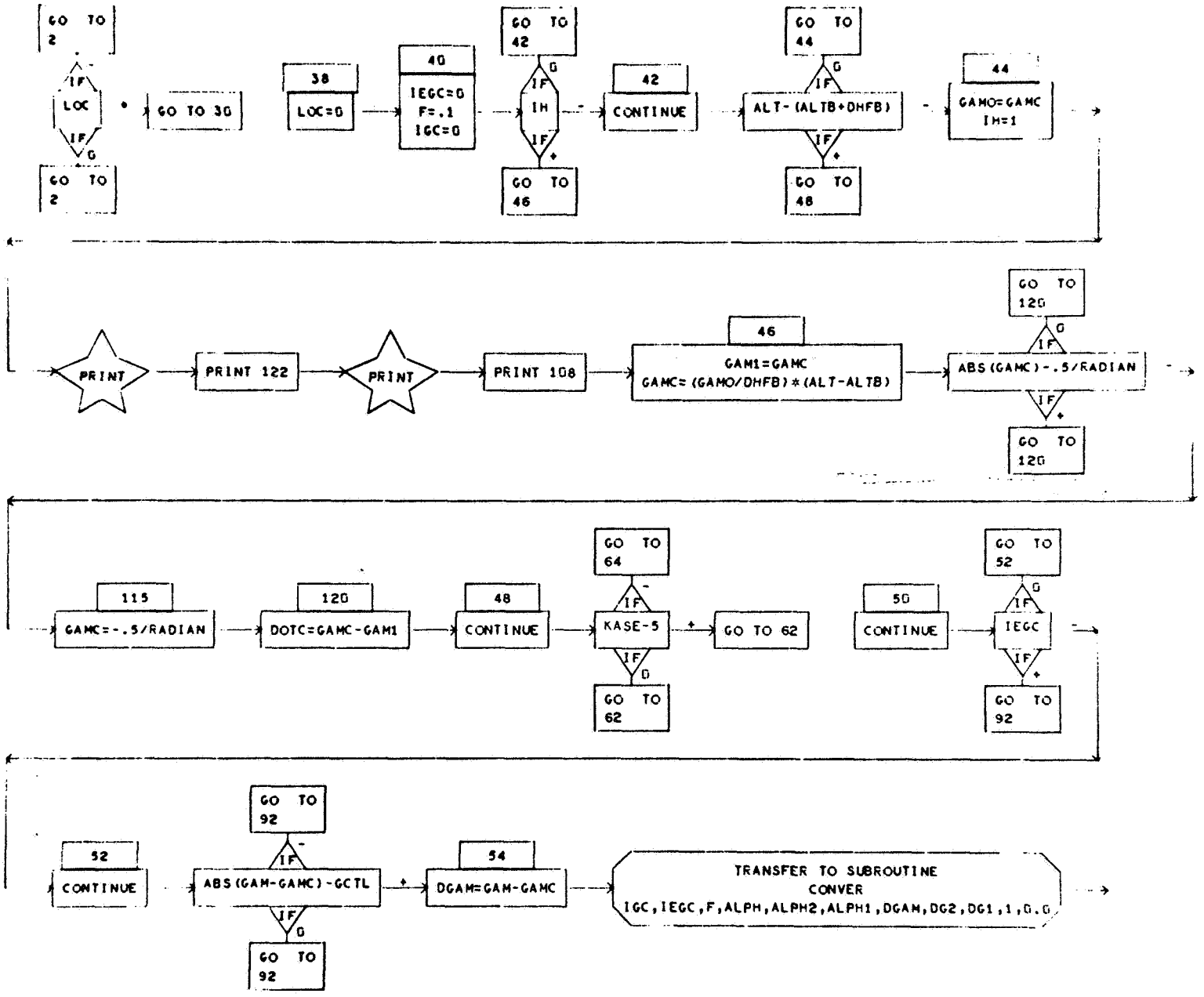
SUBROUTINE CONTRL

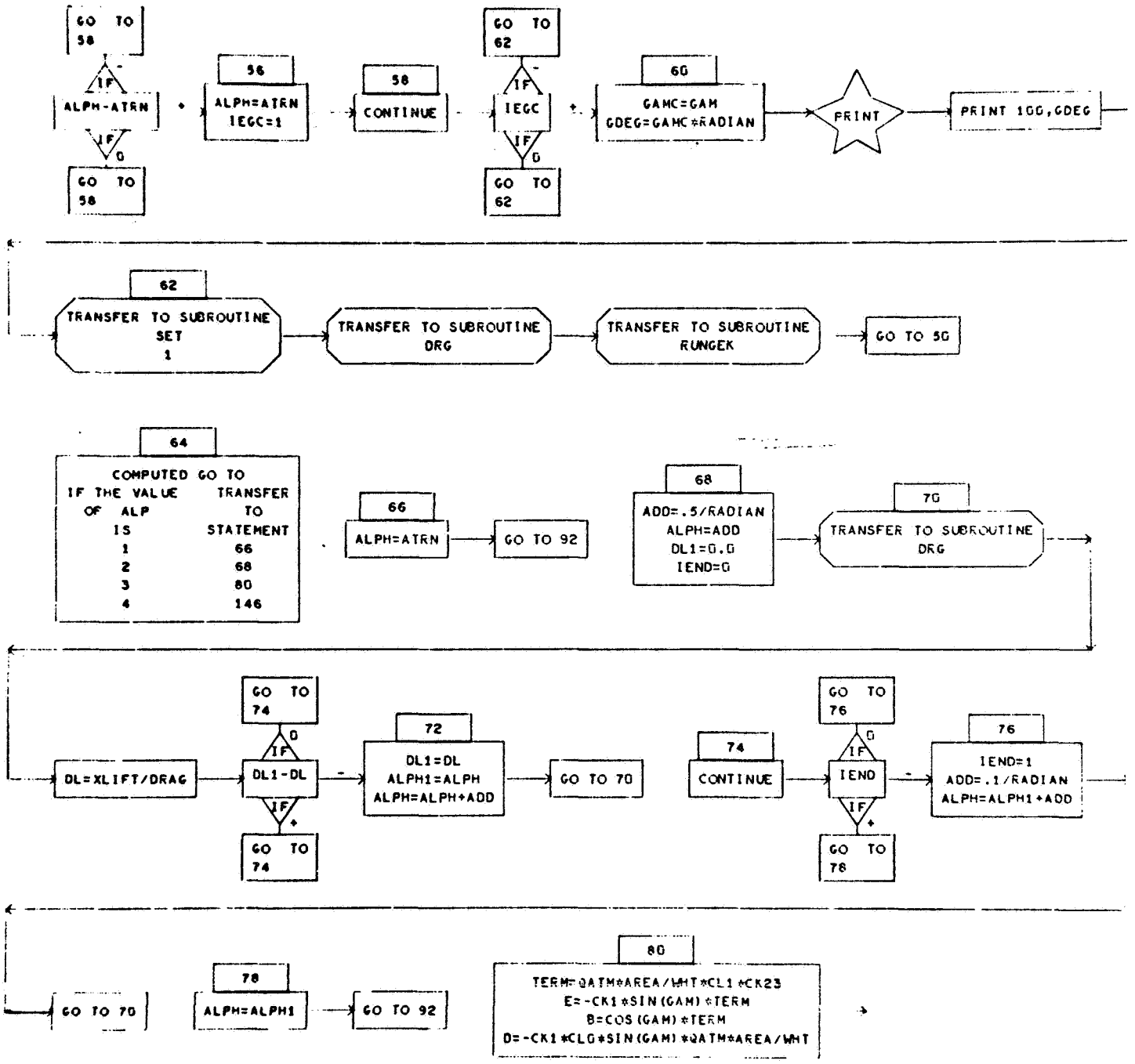
DIMENSIONED VARIABLES

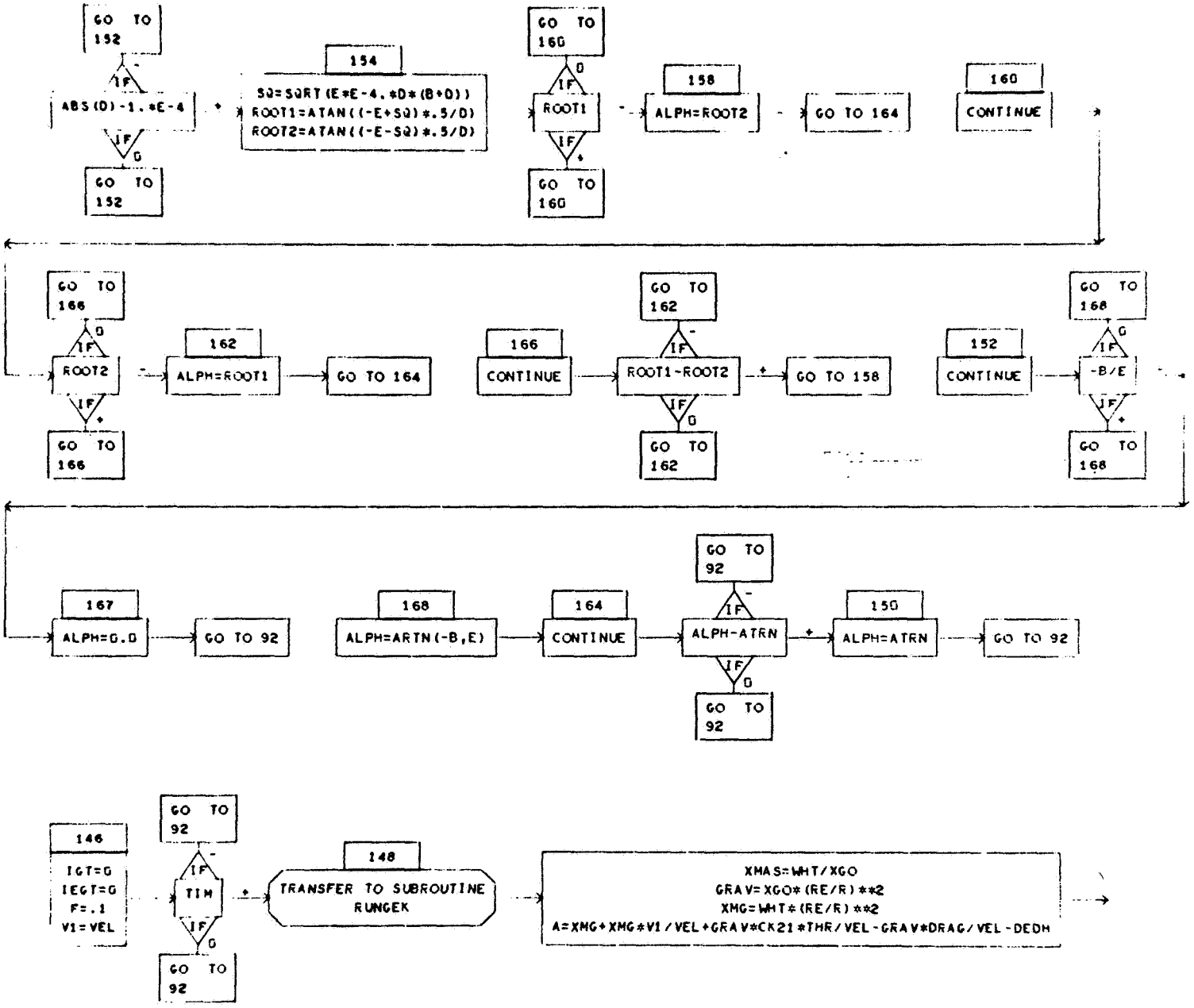
SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
GL	4	VK	4	AM	4	RN	4	ZJ	4
XMACHT	16	CLOTAB	16	CL1TAB	16	CL2TAB	16	DGTAB	16
ATR	16								

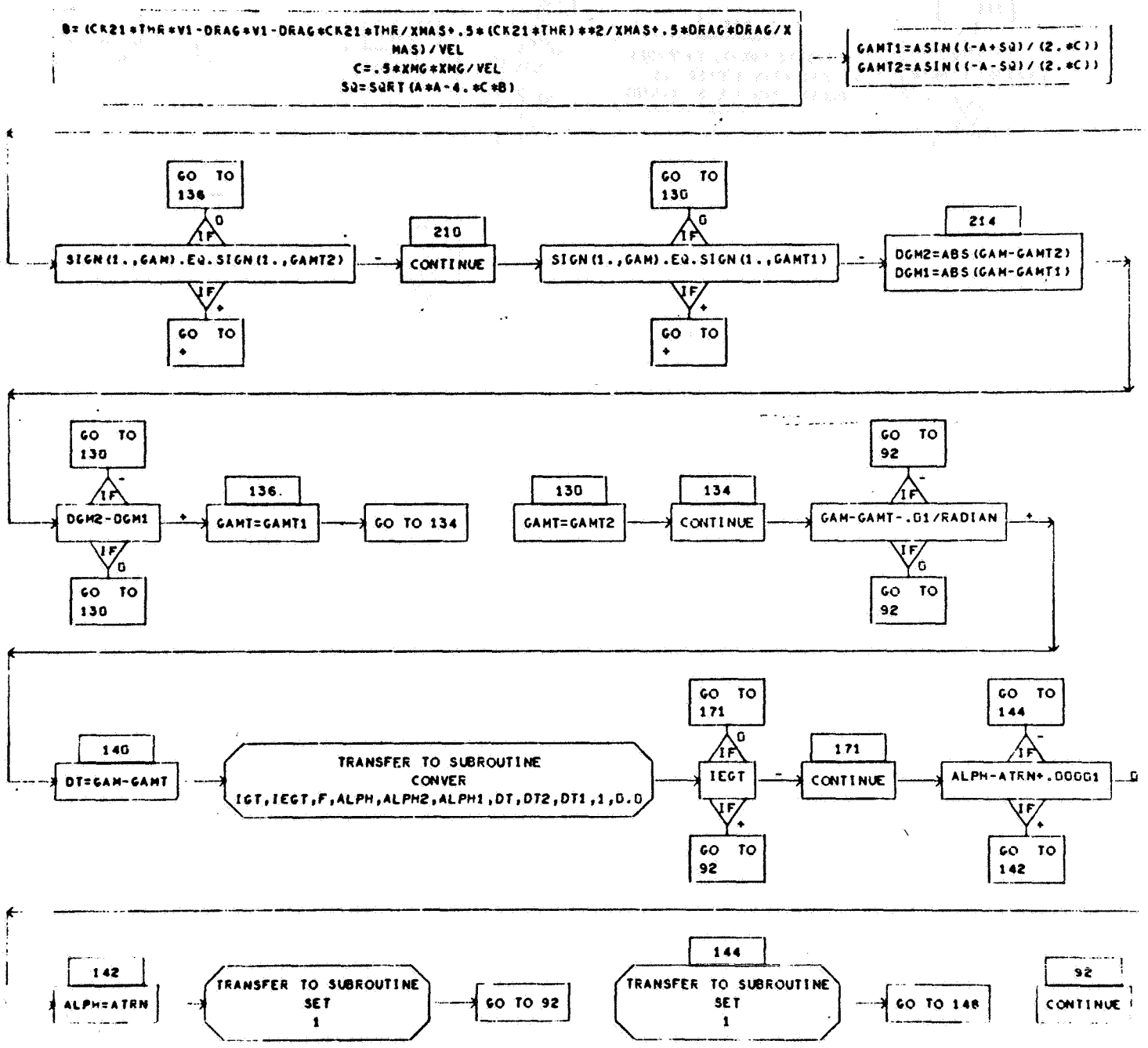


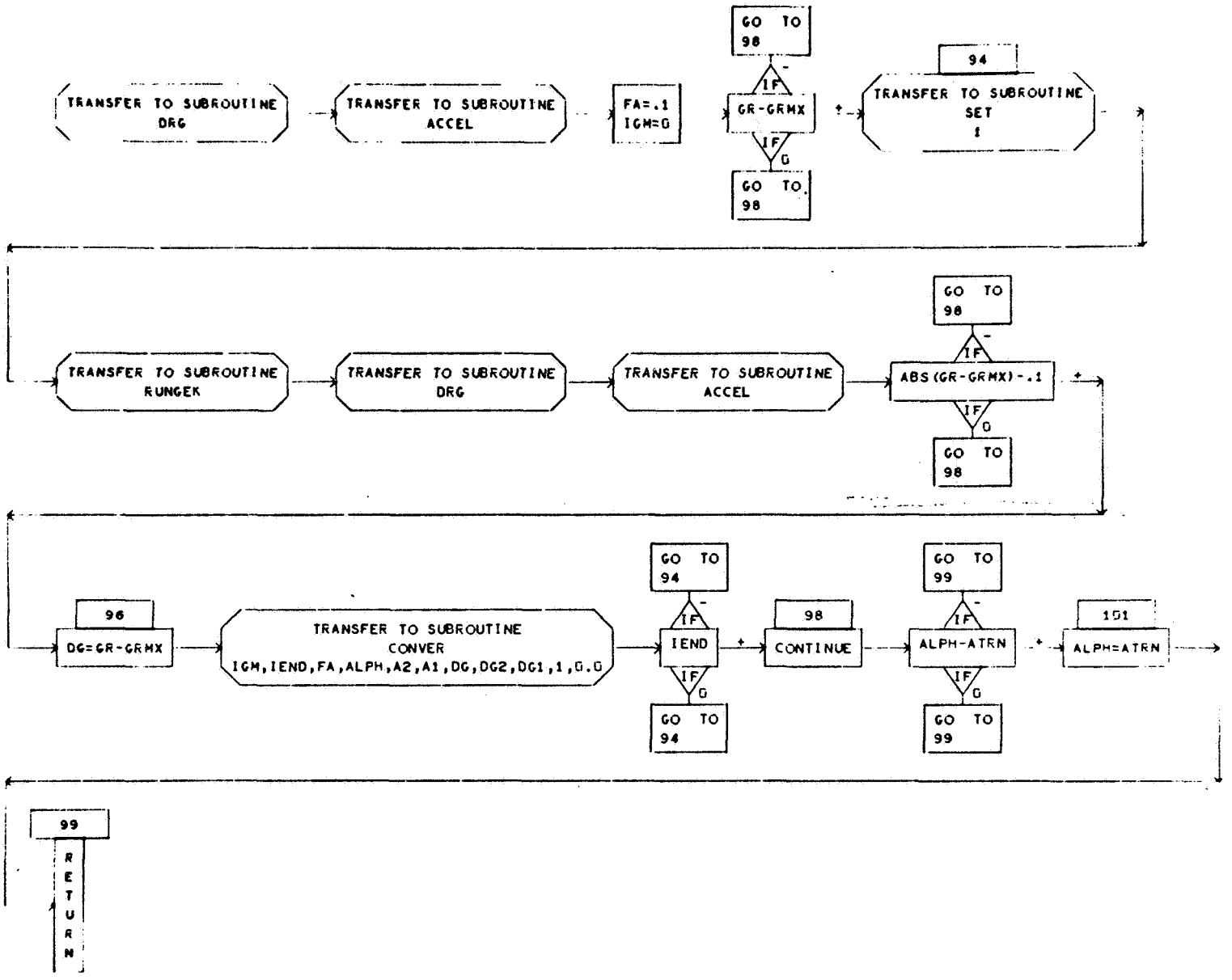

GO TO 24
IF
ALPH-ATRN
IF
0
GO TO 24
22
MAC=1
ALPH=ATRN
GO TO 2
24
TRANSFER TO SUBROUTINE SET 1
TRANSFER TO SUBROUTINE RUNGEK
TRANSFER TO SUBROUTINE RESULT
GO TO 14
26
CONTINUE
GO TO 10
IF
LOC
0
IF
+
GO TO 30
28
LOC=1
THR=CK20*CK21*XN*TE
PRINT
PRINT 106
PRINT
PRINT 108
30
CONTINUE
GO TO 32
0
IF
ABS(XMACH-XMB)-XTOL
IF
+
GO TO 34
32
CONTINUE
GO TO 92
IF
LOC
IF
0
GO TO 92
GO TO 40
34
DM=XMACH-XMB
GO TO 36
0
IF
IM
IF
+
GO TO 32
36
CONTINUE
TRANSFER TO SUBROUTINE CONVER
MND3,IM,F,CK20,C2,C1,DM,DM2,DM1,1,0.0
THR=CK20*CK21*XN*TE
TRANSFER TO SUBROUTINE SET 1
TRANSFER TO SUBROUTINE RUNGEK
TRANSFER TO SUBROUTINE RESULT


GO TO 2
IF
LOC
IF
GO TO 2
GO TO 30
38
LOC=0
40
IEGC=0
F=.1
IGC=0
GO TO 42
IF
IH
IF
GO TO 46
42
CONTINUE
GO TO 44
IF
ALT-(ALTB+DHFB)
IF
GO TO 48
44
GAMO=GAMC
IH=1
PRINT
PRINT 122
PRINT
PRINT 108
46
GAM1=GAMC
GAMC=(GAMO/DHFB)*(ALT-ALTB)
GO TO 120
IF
ABS(GAMC)-.5/RADIAN
IF
GO TO 120
115
GAMC=-.5/RADIAN
120
DOTC=GAMC-GAM1
48
CONTINUE
GO TO 64
IF
KASE-5
IF
GO TO 62
GO TO 62
50
CONTINUE
GO TO 52
IF
IEGC
IF
GO TO 92
52
CONTINUE
GO TO 92
IF
ABS(GAM-GAMC)-GCTL
IF
GO TO 92
54
DGAM=GAM-GAMC
TRANSFER TO SUBROUTINE
CONVER
IGC,IEGC,F,ALPH,ALPH2,ALPH1,DGAM,DG2,DG1,1,0.0

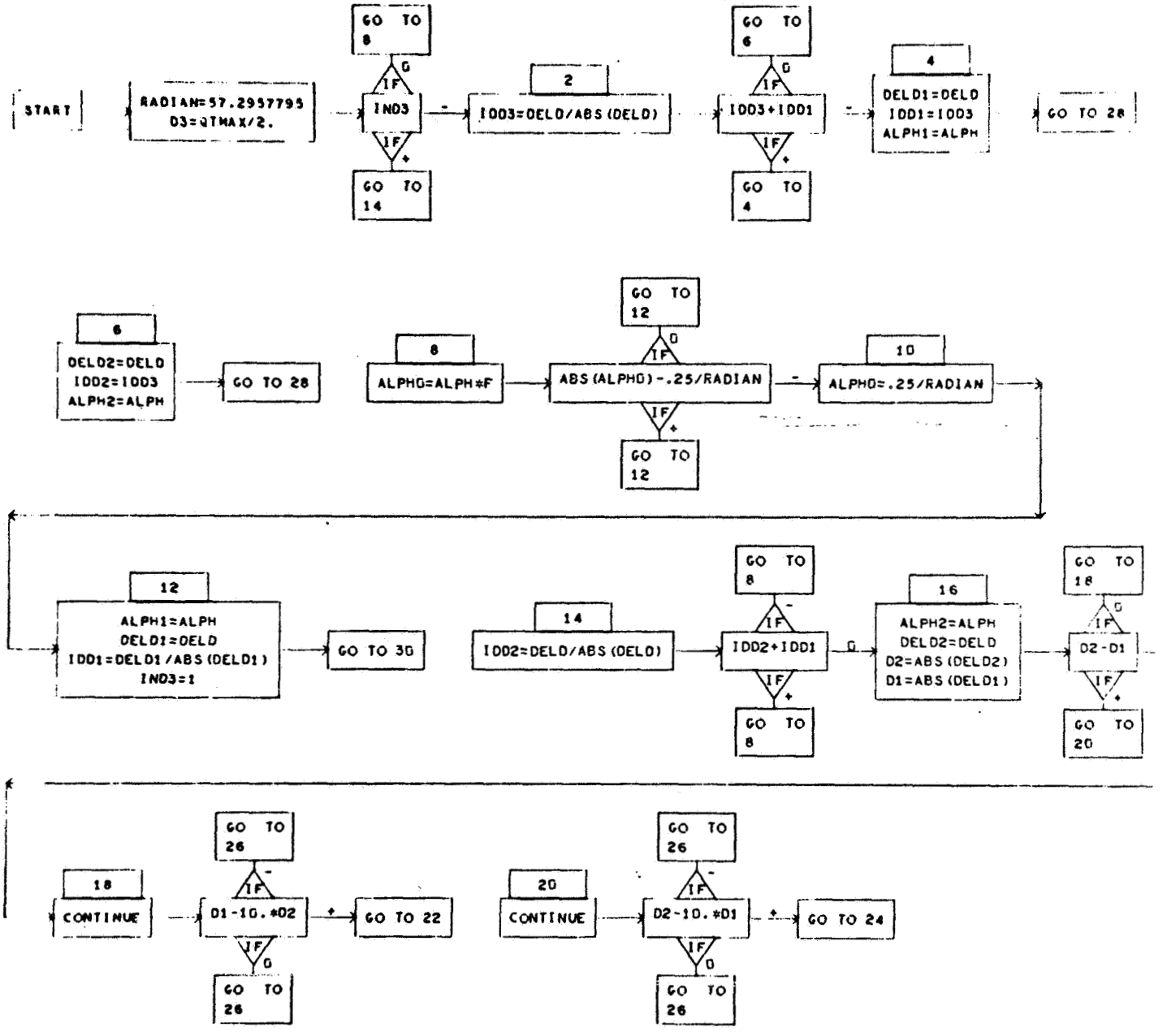

GO TO 58
IF
ALPH-ATRN
IF
0
GO TO 58
56
ALPH=ATRN
IEGC=1
58
CONTINUE
GO TO 62
IF
IEGC
IF
0
GO TO 62
60
GAMC=GAM
GDEG=GAMC*RADIAN
PRINT
PRINT 100,GDEG
62
TRANSFER TO SUBROUTINE SET 1
TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE RUNGEK
GO TO 50
64
COMPUTED GO TO
IF THE VALUE OF ALP IS
TRANSFER TO STATEMENT
1 66
2 68
3 80
4 146
66
ALPH=ATRN
GO TO 92
68
ADD=.5/RADIAN
ALPH=ADD
DL1=0.0
IEND=0
70
TRANSFER TO SUBROUTINE DRG
DL=XLIFT/DRAG
GO TO 74
0
IF
DL1-DL
IF
+
GO TO 74
72
DL1=DL
ALPH1=ALPH
ALPH=ALPH+ADD
GO TO 70
74
CONTINUE
GO TO 76
0
IF
IEND
IF
+
GO TO 78
76
IEND=1
ADD=.1/RADIAN
ALPH=ALPH1+ADD
GO TO 70
78
ALPH=ALPH1
GO TO 92
80
TERM=QATM*AREA/WHT*CL1*CK23
E=-CK1*SIN(GAM)*TERM
B=COS(GAM)*TERM
D=-CK1*CL0*SIN(GAM)*QATM*AREA/WHT

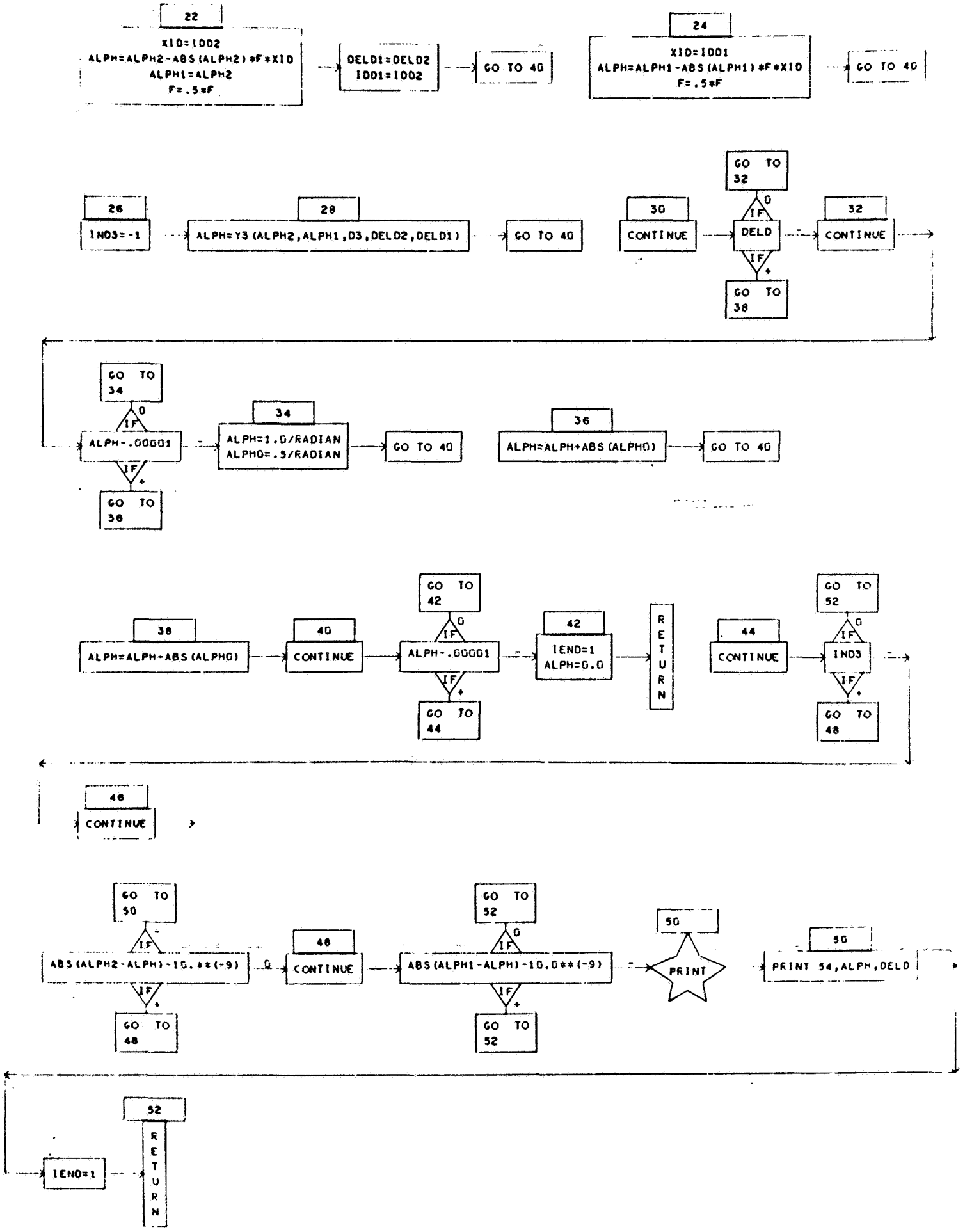

GO TO 152
IF
ABS(D)-1.*E-4
IF
GO TO 152
154
SQ=SQRT(E*E-4.*D*(B+D))
ROOT1=ATAN((-E+SQ)*.5/D)
ROOT2=ATAN((-E-SQ)*.5/D)
GO TO 160
IF
ROOT1
IF
GO TO 160
158
ALPH=ROOT2
GO TO 164
160
CONTINUE
GO TO 166
IF
ROOT2
IF
GO TO 166
162
ALPH=ROOT1
GO TO 164
166
CONTINUE
GO TO 162
IF
ROOT1-ROOT2
IF
GO TO 162
GO TO 158
152
CONTINUE
GO TO 168
IF
-B/E
IF
GO TO 168
167
ALPH=0.0
GO TO 92
168
ALPH=ARTN(-B,E)
164
CONTINUE
GO TO 92
IF
ALPH-ATRN
IF
GO TO 92
150
ALPH=ATRN
GO TO 92
146
IGT=0
IEGT=0
F=.1
V1=VEL
GO TO 92
IF
TIM
IF
GO TO 92
148
TRANSFER TO SUBROUTINE
RUNGEK
XMAS=WHT/XGO
GRAV=XGO*(RE/R)**2
XMG=WHT*(RE/R)**2
A=XMG+XMG*V1/VEL+GRAV*CK21*THR/VEL-GRAV*DRAG/VEL-DEDH


B= (CK21*THR*V1-DRAG*V1-DRAG*CK21*THR/XMAS+.5*(CK21*THR)**2/XMAS+.5*DRAG*DRAG/XMAS)/VEL
C=.5*XMG*XMG/VEL
SQ=SQRT(A*A-4.*C*B)
GAMT1=ASIN((-A+SQ)/(2.*C))
GAMT2=ASIN((-A-SQ)/(2.*C))
GO TO 136
IF 0
SIGN(1.,GAM).EQ.SIGN(1.,GAMT2)
IF +
GO TO +
210
CONTINUE
GO TO 130
IF 0
SIGN(1.,GAM).EQ.SIGN(1.,GAMT1)
IF +
GO TO +
214
DGM2=ABS(GAM-GAMT2)
DGM1=ABS(GAM-GAMT1)
GO TO 130
IF -
DGM2-DGM1
IF 0
GO TO 130
+
136.
GAMT=GAMT1
GO TO 134
130
GAMT=GAMT2
134
CONTINUE
GO TO 92
IF -
GAM-GAMT-.01/RADIAN
IF 0
GO TO 92
+
140
DT=GAM-GAMT
TRANSFER TO SUBROUTINE
CONVER
IGT,IEGT,F,ALPH,ALPH2,ALPH1,DT,DT2,DT1,1,0.0
GO TO 171
IF 0
IEGT
IF +
GO TO 92
-
171
CONTINUE
GO TO 144
IF -
ALPH-ATRN+.00001
IF +
GO TO 142
142
ALPH=ATRN
TRANSFER TO SUBROUTINE
SET
1
GO TO 92
144
TRANSFER TO SUBROUTINE
SET
1
GO TO 148
92
CONTINUE


TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE ACCEL
FA=.1
IGM=0
GR-GRMX
IF
GO TO 98
94
TRANSFER TO SUBROUTINE SET 1
TRANSFER TO SUBROUTINE RUNGEK
TRANSFER TO SUBROUTINE DRG
TRANSFER TO SUBROUTINE ACCEL
ABS(GR-GRMX)-.1
96
DG=GR-GRMX
TRANSFER TO SUBROUTINE CONVER
IGM,IEND,FA,ALPH,A2,A1,DG,DG2,DG1,1,0.0
IEND
GO TO 94
98
CONTINUE
GO TO 99
ALPH-ATRN
101
ALPH=ATRN
99
RETURN

SUBROUTINE CONVERG

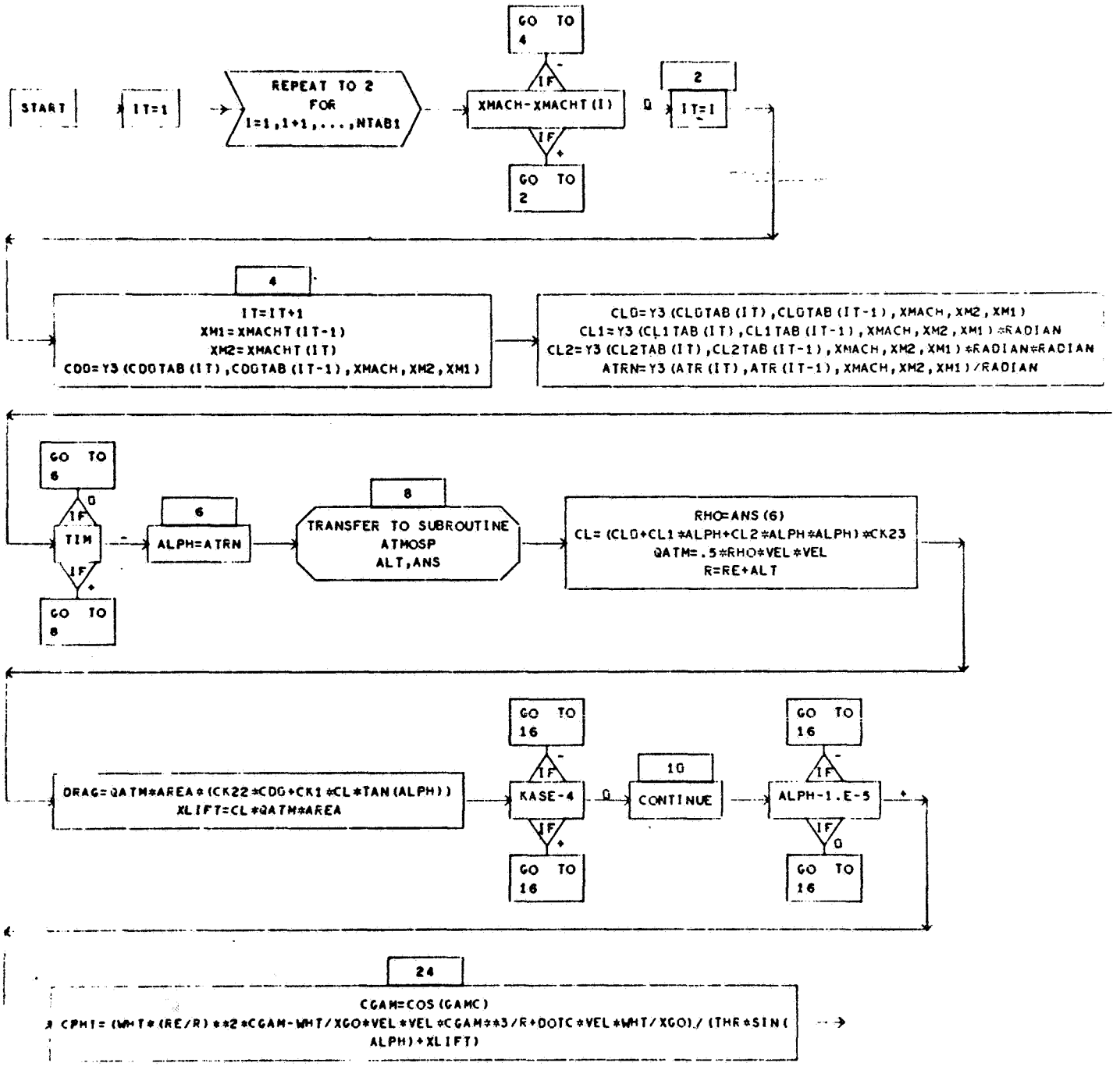


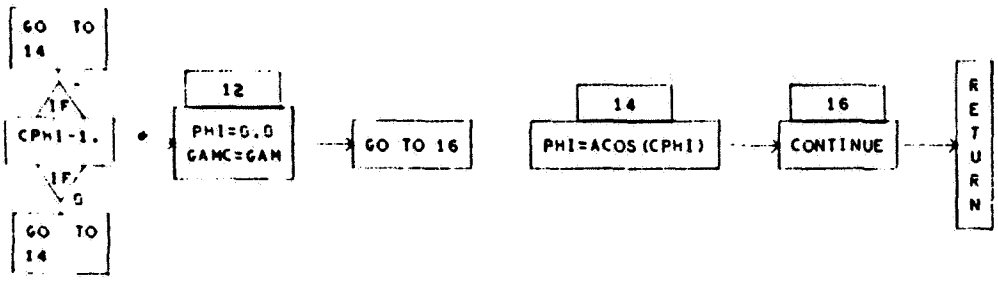

22
XID=IDD2
ALPH=ALPH2-ABS(ALPH2)*F*XID
ALPH1=ALPH2
F=.5*F
DELD1=DELD2
IDD1=IDD2
GO TO 40
24
XID=IDD1
ALPH=ALPH1-ABS(ALPH1)*F*XID
F=.5*F
GO TO 40
26
IND3=-1
28
ALPH=Y3(ALPH2,ALPH1,D3,DELD2,DELD1)
GO TO 40
30
CONTINUE
GO TO 32
IF 0
DELD
IF +
GO TO 38
32
CONTINUE
GO TO 34
IF 0
ALPH-.00001
IF +
GO TO 36
34
ALPH=1.0/RADIAN
ALPHO=.5/RADIAN
GO TO 40
36
ALPH=ALPH+ABS(ALPHO)
GO TO 40
38
ALPH=ALPH-ABS(ALPHO)
40
CONTINUE
GO TO 42
IF 0
ALPH-.00001
IF +
GO TO 44
42
IEND=1
ALPH=0.0
RETURN
44
CONTINUE
GO TO 52
IF 0
IND3
IF +
GO TO 48
46
CONTINUE
GO TO 50
IF -
ABS(ALPH2-ALPH)-10.**(-9)
IF +
GO TO 48
48
CONTINUE
GO TO 52
IF 0
ABS(ALPH1-ALPH)-10.0**(-9)
IF +
GO TO 52
50
PRINT
50
PRINT 54,ALPH,DELD
52
RETURN
IEND=1

SUBROUTINE DRG

DIMENSIONED VARIABLES

SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
GL	4	VK	4	AM	4	RN	4	ZJ	4
ANS	7	XMACHT	16	CLOTAB	16	CL1TAB	16	CL2TAB	16
DGTAB	16	ATR	16						

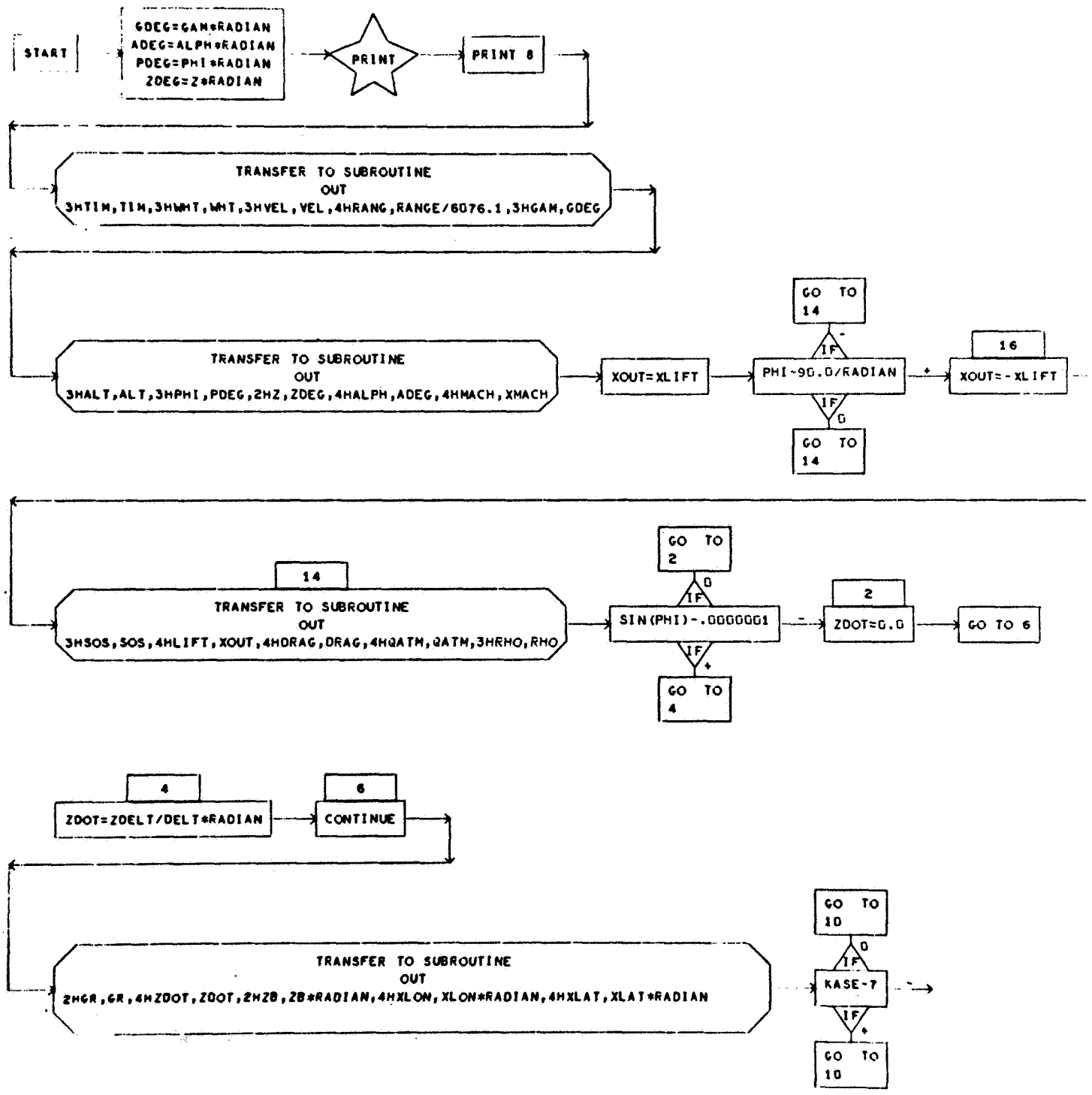


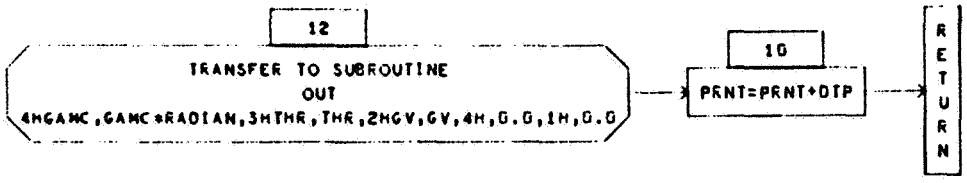

GO TO 14
IF
CPHI-1.
IF
0
GO TO 14
12
PHI=0.0
GAMC=GAM
GO TO 16
14
PHI=ACOS(CPHI)
16
CONTINUE
RETURN

SUBROUTINE OUTPUT

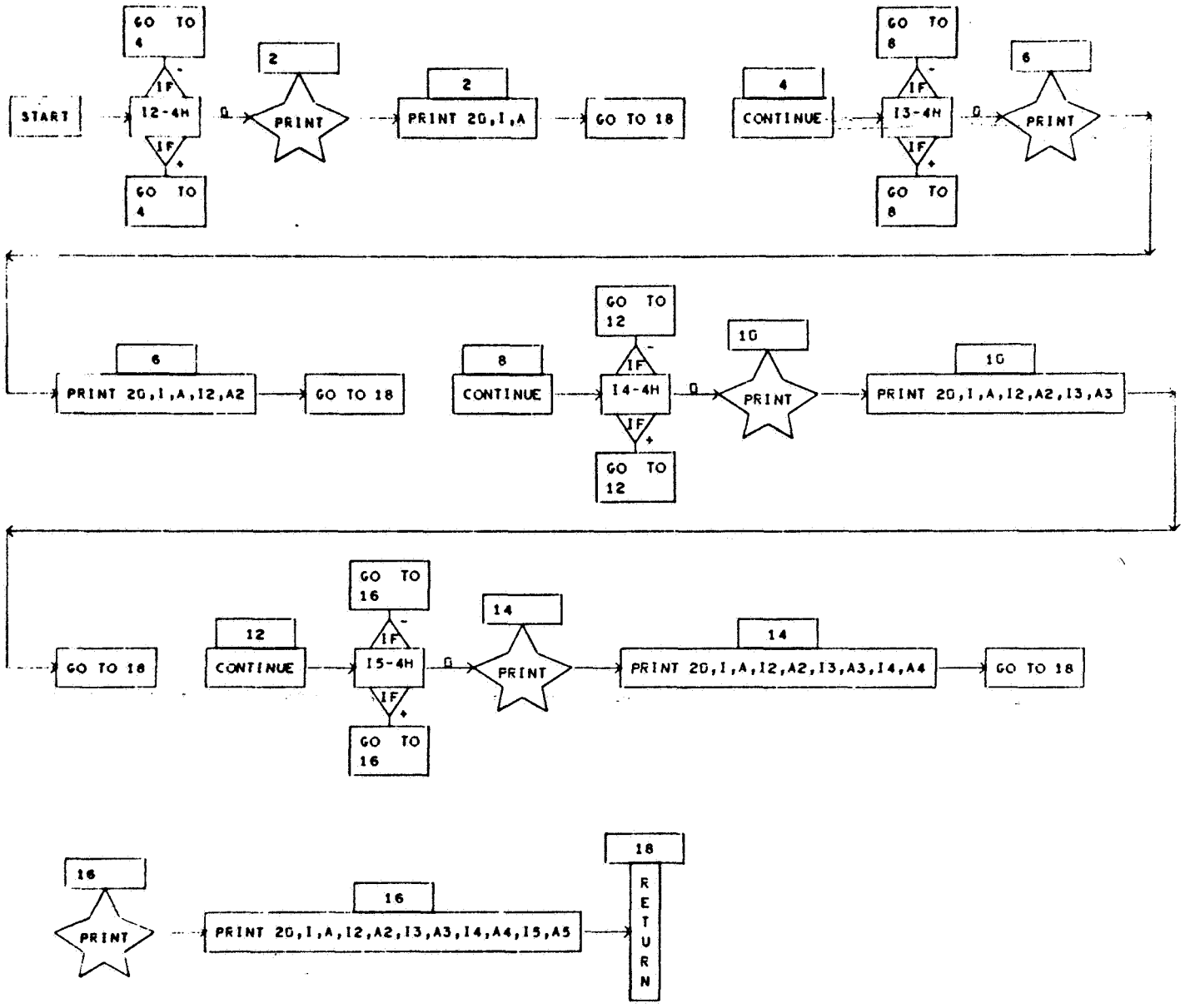
DIMENSIONED VARIABLES

SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
GL	4	VK	4	AM	4	RN	4	ZJ	4
XMACHT	16	CLOTAB	16	CL1TAB	16	CL2TAB	16	DGTAB	16
ATR	16								





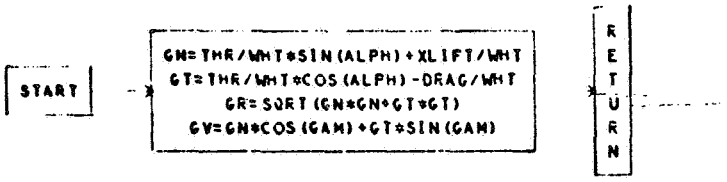
SUBROUTINE OUT



SUBROUTINE ACCEL

DIMENSIONED VARIABLES

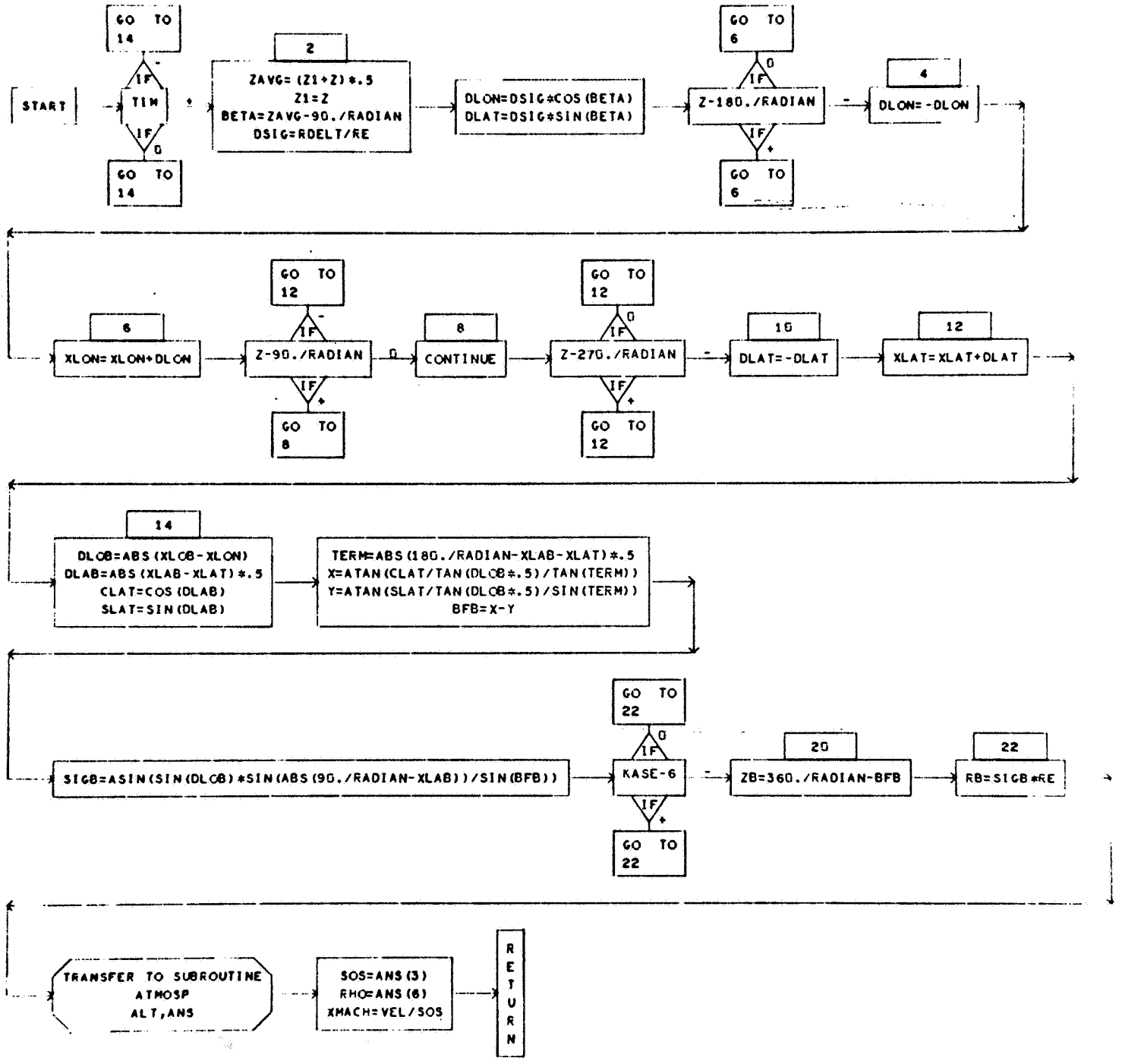
SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
GL	4	VK	4	AM	4	RN	4	ZJ	4



SUBROUTINE RESULT

DIMENSIONED VARIABLES

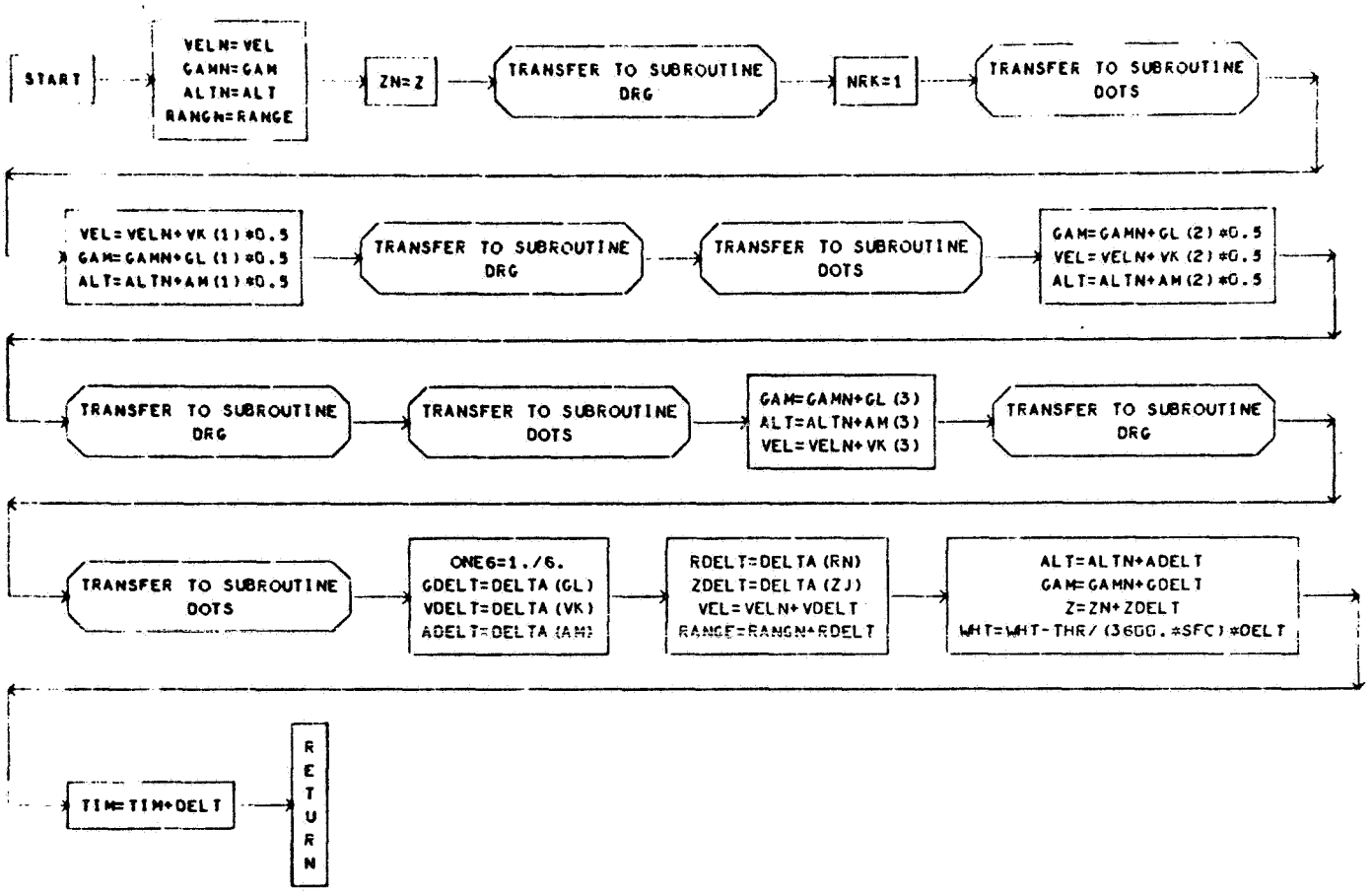
SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
ANS	7	GL	4	VK	4	AM	4	RN	4
ZJ	4	XMACHT	16	CLOTAB	16	CL1TAB	16	CL2TAB	16
DOTAB	16	ATR	16						



SUBROUTINE RUNGEK

DIMENSIONED VARIABLES

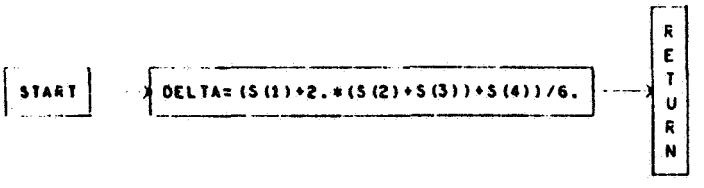
SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
GL	4	VK	4	AM	4	RN	4	ZJ	4



FUNCTION DELTA

DIMENSIONED VARIABLES

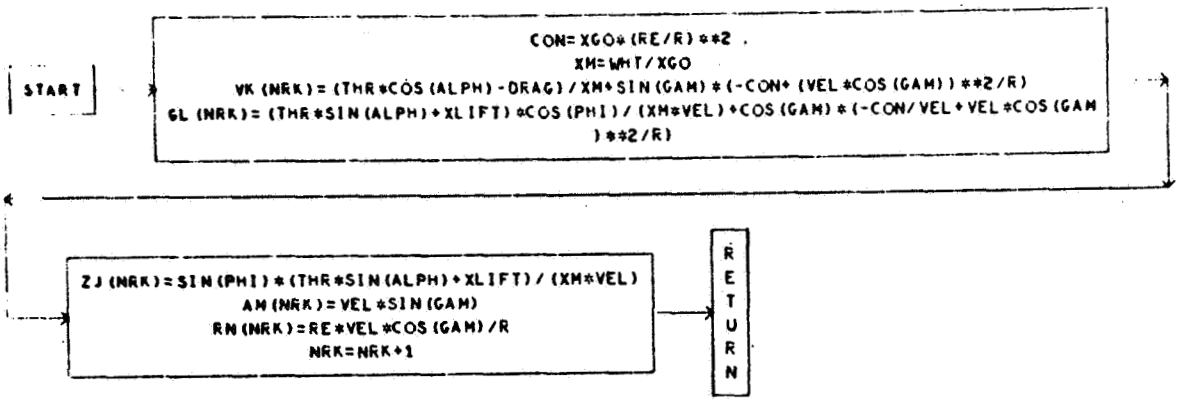
SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
S	4								



SUBROUTINE DOTS

DIMENSIONED VARIABLES

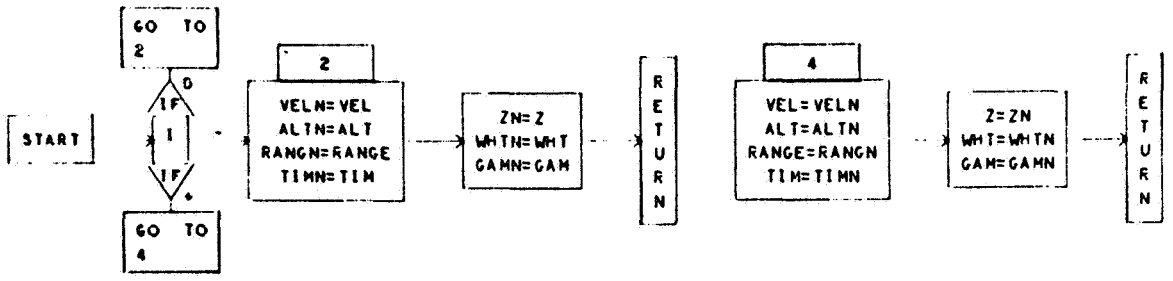
SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
GL	4	VK	4	AM	4	RN	4	ZJ	4



SUBROUTINE SET

DIMENSIONED VARIABLES

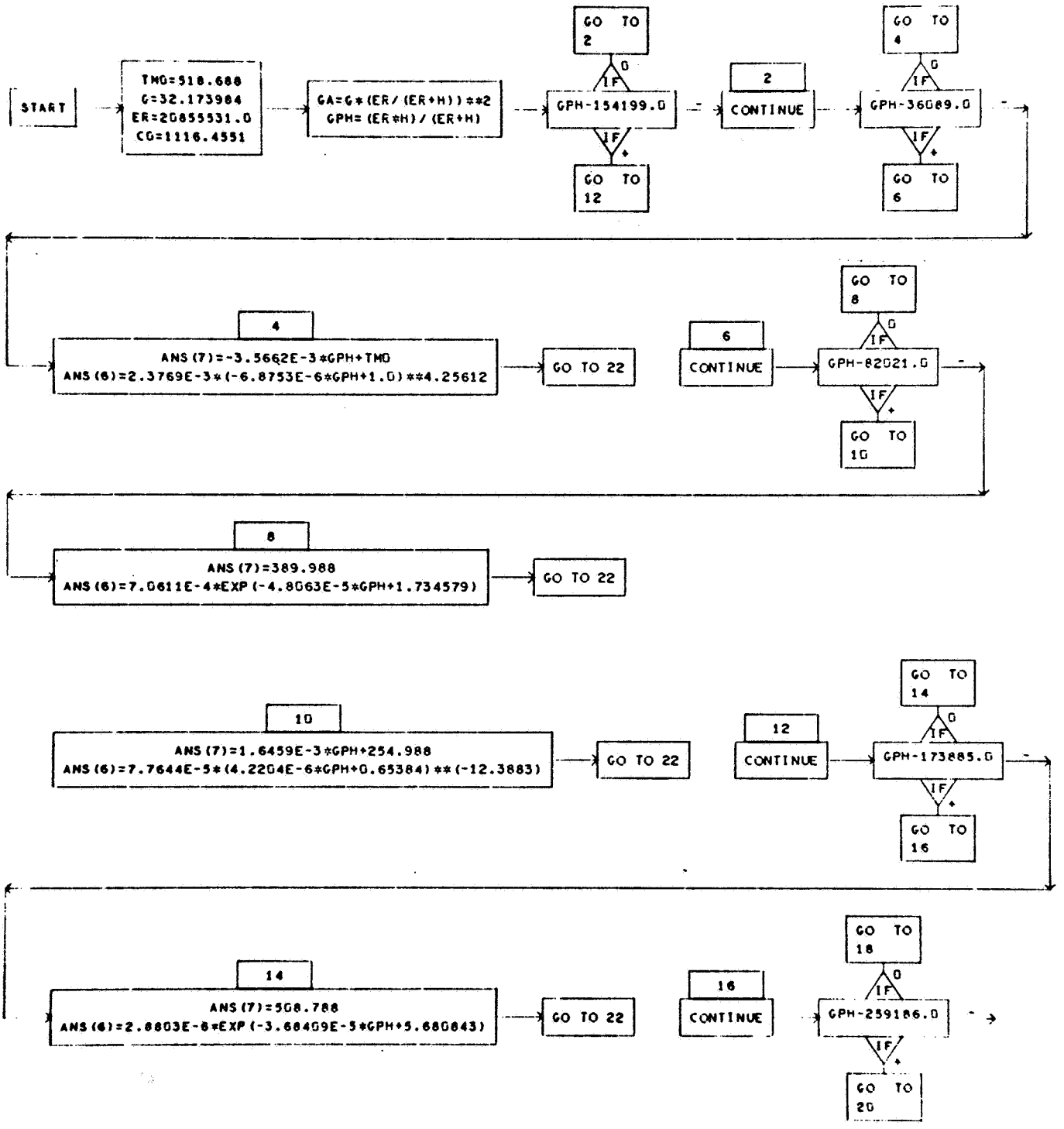
SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
GL	4	VK	4	AM	4	RN	4	ZJ	4

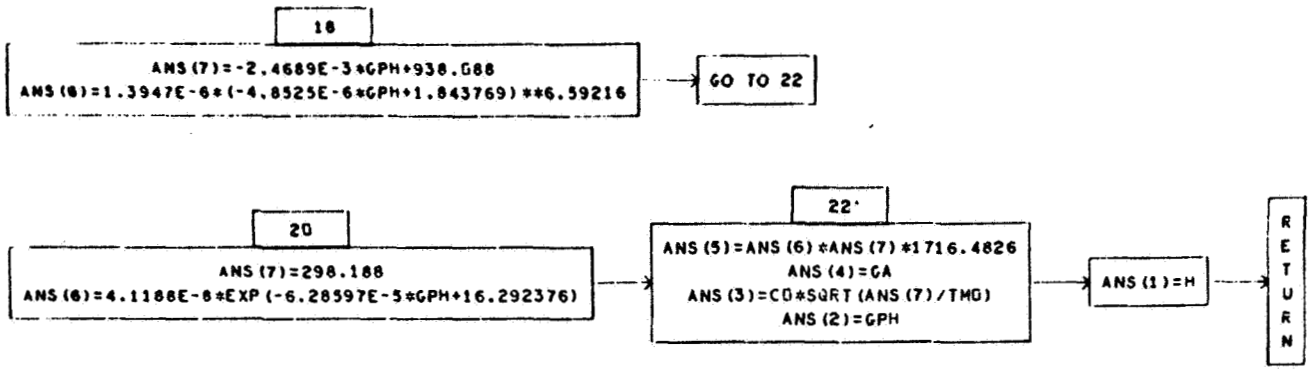


SUBROUTINE ATMOSP

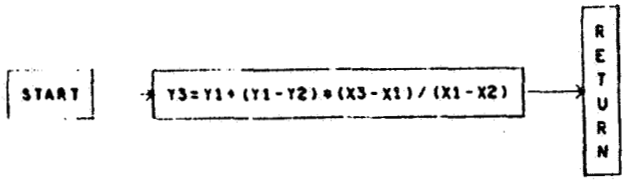
DIMENSIONED VARIABLES

SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES	SYMBOL	STORAGES
ANS	7								




18
ANS(7)=-2.4689E-3*GPH+938.088
ANS(6)=1.3947E-6*(-4.8525E-6*GPH+1.843769)**6.59216
GO TO 22
20
ANS(7)=298.188
ANS(6)=4.1188E-8*EXP(-6.28597E-5*GPH+16.292376)
22
ANS(5)=ANS(6)*ANS(7)*1716.4826
ANS(4)=GA
ANS(3)=CO*SQRT(ANS(7)/TMO)
ANS(2)=GPH
ANS(1)=H
RETURN

FUNCTION Y3


START
Y3=Y1+(Y1-Y2)*(X3-X1)/(X1-X2)
RETURN

Section V

PROGRAM LISTING

3200 FORTRAN (2.1.0)/(RTS) / /

```
      PROGRAM FLY
C     HTO=FLYBACK                                                       A
      DIMENSION ANS(7),C23(8)
      DIMENSION GL(4), VK(4), AM(4), RN(4), ZJ(4)                       A
C     CONTRL COMMON                                                     A
      COMMON GR,GRMX,ALPH,ATRN,IALP,XLIFT,DRAG,GV,GV1,ICK               A
C     DRG COMMON                                                        A
      COMMON RHO,VEL,QATM,RE,ALT,R,SOS,CD0,CK1,CL,CL1,CL2,CL0,AREA,XN,CK  A
     120,CK21,TE,THR,CK23
C     ACCEL COMMON                                                      A
      COMMON WHT,GN,GT,GAM                                              A
C     RESULT COMMON                                                     A
      COMMON RADIAN,DELTR,EETA,DSIG,DLON,DLAT,XLON,XLAT,XLCB,XLAB,SIGB,R  A
     1B,ZB,Z1,DTP,PRNT                                                  A
C     INTEGRATION COMMON                                                A
      COMMON NRK,RANGE,Z,GDELT,VDELT,ADELT,RDELT,ZDELT,GL,VK,AM,RN,ZJ,SF  A
     1C,DELT,XGO,PHI,XMACH,TIM                                          A
      COMMON ATOL,XTOL,MND3,IND3,F                                      A
      COMMON ALTB,XMB                                                   A
      DIMENSION XMACHT(16), CL0TAB(16), CL1TAB(16), CL2TAB(16), CD0TAB(1  A
     16)                                                                A
      COMMON NTAB1,XMACHT,CL0TAB,CL1TAB,CL2TAB,CD0TAB                   A
      DIMENSION ATR(16)                                                 A
      COMMON ATR                                                        A
      COMMON CK22                                                       A
      COMMON IEND,IGR,KASE,GAMC,GCTL                                    A
      COMMON IH,DHFB,DOTC                                               A
      COMMON DEDH,CK24
C     CALCULATE STAGING POSITION                                        A
    8 READ 290
      PRINT 290
  290 FORMAT (80H
     1                                )
      PRINT 172                                                         A
      READ 174, NTAB1,IALP                                              A
      PRINT 10,IALP
   10 FORMAT(14H ALPHA CONTROL ,I5)
      DO 12 I=1,NTAB1                                                   A
   12 READ 176, XMACHT(I),CL0TAB(I),CL1TAB(I),CL2TAB(I),CD0TAB(I),ATR(I)  A
      PRINT 178, (I,XMACHT(I),CL0TAB(I),CL1TAB(I),CL2TAB(I),CD0TAB(I),AT  A
     1R(I),I=1,NTAB1)                                                   A
      PRINT 172                                                         A
      READ 180, WHT,VEL,RANGE,GAM,ALT                                   A
      READ 180, ZL,RE,XLON,XLAT,AREA,CK1,XN,CK20,CK21,XGO,XLOB,XLAB,DELT  A
     1,GRMX,POA,GAMA,PB,DPB,GAMC,DZR,ZDD,XMB,ALTB,TE,DTP,SFC,ATOL,XTOL,C  A
     2K22,GCTL,ZRTL,DHFB ,WEMP,(C23(I),I=1,8),DEDH,CK24
      CALL OUT (3HWHT,WHT,3HVEL,VEL,4HRANG,RANGE,3HGAM,GAM,3HALT,ALT)    A
      CALL OUT (2HZL,ZL,2HRE,RE,4HXLON,XLON,4HXLAT,XLAT,4HAREA,AREA)    A
      CALL OUT (3HCK1,CK1,2HXN,XN,4HCK20,CK20,4HCK21,CK21,3HXGO,XGO)    A
      CALL OUT (4HXLOB,XLOB,4HXLAB,XLAB,4HDELT,DELT,4HGRMX,GRMX,3HPOA,PO  A
     1A)                                                                A
      CALL OUT (4HGAMA,GAMA,2HPB,PB,3HDPB,DPB,4HGAMC,GAMC,3HDZR,DZR)    A
      CALL OUT (3HZDD,ZDD,3HXMB,XMB,4HALTB,ALTB,2HTE,TE,3HDTP,DTP)      A
      CALL OUT (3HSFC,SFC,4HATOL,ATOL,4HXTOL,XTOL,4HCK22,CK22,4HGCTL,GCT  A
     1L)                                                                A
```

```
      CALL OUT (4HZRTL,ZRTL,4HDHFB,DHFB,4HWEMP,WEMP,4HC231,C23(1),4HC232
     *,C23(2))
      CALL OUT(4HC233,C23(3),4HC234,C23(4),4HC235,C23(5),4HC236,C23(6),
     *4HC237,C23(7))
      CALL OUT(4HC238,C23(8),4HDEDH,DEDH,4HCK24,CK24,4H    ,0.0,1H ,0.0)
      PRINT 172                                                          A  51
      RADIAN=57.2957795                                                  A  52
      ZL=ZL/RADIAN                                                       A  53
      XLON=XLON/RADIAN                                                   A  54
      XLAT=XLAT/RADIAN                                                   A  55
      XLOB=XLOB/RADIAN                                                   A  56
      XLAB=XLAB/RADIAN                                                   A  57
      POA=POA/RADIAN                                                     A  58
      GAMA=GAMA/RADIAN                                                   A  59
      GAM=GAM/RADIAN                                                     A  60
      PB=PB/RADIAN                                                       A  61
      DPB=DPB/RADIAN                                                     A  62
      GAMC=GAMC/RADIAN                                                   A  63
      DZR=DZR/RADIAN                                                     A  64
      ZRTL=ZRTL/RADIAN                                                   A  65
      GCTL=GCTL/RADIAN                                                   A  66
      ZDD=ZDD/RADIAN                                                     A  67
      RANGE=RANGE/6076.1
       SET UP DATA                                                       A  68
      Z1=0.0                                                             A  69
      TIM=0.0                                                            A  70
      DOTC=0.0                                                           A  71
      KASE=1                                                             A  72
      CK23=C23(KASE)
      XLIFT=0.0                                                          A  73
      THR=0.0                                                            A  74
      DRAG=0.0                                                           A  75
      QATM=0.0                                                           A  76
      Z=ZL
      IH=0                                                               A  77
      IGR=0                                                              A  78
      PRNT=TIM                                                           A  79
      SIG=RANGE/RE                                                       A  80
      DL=90./RADIAN-XLAT                                                 A  81
      DLAT=ACOS(COS(DL)*COS(SIG)+SIN(DL)*SIN(SIG)*COS(ZL))-DL            A  82
      DLON=ASIN(SIN(ZL)*SIN(SIG)/SIN(DLAT+DL))                           A  83
      BETS=ASIN(SIN(ZL)*SIN(DL)/SIN(DLAT+DL))                            A  84
      ZS=180./RADIAN-BETS                                                A  85
      Z=ZS                                                               A  86
      IF (Z-180./RADIAN) 14,16,16                                        A  89
   14 DLON=-DLON                                                         A  90
   16 XLON=XLON+DLON                                                     A  91
      IF (Z-90./RADIAN) 22,18,18                                         A  92
   18 IF (Z-270./RADIAN) 20,22,22                                        A  93
   20 DLAT=-DLAT                                                         A  94
   22 XLAT=XLAT+DLAT                                                     A  95
      CALL RESULT                                                        A  96
      CALL SET(0)
      PHI CONTROL LOGIC CONDITIONS                                       A  97
      CONDITION 0-A                                                      A  98
      ICK=0                                                              A  99
      ICK=1=MACH,-1=ALT,0=ALPH                                           A 100
      PHI=POA                                                            A 101
      CALL DRG                                                           A 102
```

```
      CALL CONTRL
      CALL OUTPUT                                                       A 1
   24 CALL SET (0)                                                      A 1
      IGR=0                                                             A 1
      MND3=0                                                            A 1
      IND3=0                                                            A 1
      F=.1                                                              A 1
      GO TO (26,26,30,34), ICK+2                                        A 1
   26 IF (XMACH-XMB) 28,28,30                                           A 1
   28 ICK=1                                                             A 1
      GO TO 34                                                          A 1
   30 IF (ALT-ALTB) 32,32,34                                            A 1
   32 ICK=-1                                                            A 1
   34 CALL CONTRL                                                       A 1
      CALL SET (1)                                                      A 1
      CALL RUNGEK                                                       A 1
      CALL DRG                                                          A 1
      CALL RESULT                                                       A 1
      CALL ACCEL                                                        A 1
      IF (GAM-GAMA) 40,40,36                                            A
   36 IF (TIM-PRNT) 24,38,38                                            A
   38 CALL OUTPUT                                                       A
      GO TO 24                                                          A
   40 CALL OUTPUT                                                       A
      PRINT 184                                                         A
      PRINT 186                                                         A
C     CONDITION A-B                                                     A
      KASE=2                                                            A
      CK23=C23(KASE)
   42 CALL SET (0)                                                      A
      MND3=0                                                            A
      IND3=0                                                            A
      F=.1                                                              A
      IGR=0                                                             A
      PHI=PHI-DPB*DELT
      GO TO (46,46,50,54), ICK+2                                        A
   46 IF (XMACH-XMB) 48,48,50                                           A
   48 ICK=1                                                             A
      GO TO 54                                                          A
   50 IF (ALT-ALTB) 52,52,54                                            A
   52 ICK=-1                                                            A
   54 CALL CONTRL                                                       A
      CALL SET (1)                                                      A
      CALL RUNGEK                                                       A
      CALL DRG                                                          A
      CALL RESULT                                                       A
      CALL ACCEL                                                        A
      IF(PHI-PB-.1/RADIAN)58,58,44
   44 IF (TIM-PRNT) 42,56,56
   56 CALL OUTPUT                                                       A
      GO TO 42                                                          A
   58 PRINT 188                                                         A
      PRINT 186                                                         A
      CALL SET(0)
C      CONDITION B-C.                                                   A
      KASE=3                                                            A
      CK23=C23(KASE)
```

```
 60 GO TO (62,62,66,78), ICK+2                                    A 157
 62 IF (XMACH-XMB) 64,64,66                                       A 158
 64 ICK=1                                                         A 159
    GO TO 70                                                      A 160
 66 IF (ALT-ALTB) 68,68,70                                        A 161
 68 ICK=-1                                                        A 162
 70 IF (ABS(GAM)-ABS(GAMC)) 72,80,80                              A 163
 72 IF (TIM-PRNT) 76,74,74                                        A 164
 74 CALL OUTPUT                                                   A 165
 76 CALL SET (0)                                                  A 166
    IGR=0                                                         A 167
    MND3=0                                                        A 168
    IND3=0                                                        A 169
    F=.1                                                          A 170
 78 CALL CONTRL                                                   A 171
    CALL SET (1)                                                  A 172
    CALL RUNGEK                                                   A 173
    CALL DRG                                                      A 174
    CALL RESULT                                                   A 175
    CALL ACCEL                                                    A 176
    GO TO 60                                                      A 177
 80 CALL OUTPUT
    PRINT 190
    PRINT 186                                                     A 179
    CALL SET (0)                                                  A 180
    CONDITION C-D.                                                A 181
    KASE=4                                                        A 182
    CK23=C23(KASE)
 82 GO TO (84,84,88,92), ICK+2
 84 IF (XMACH-XMB) 86,86,88                                       A 184
 86 ICK=1                                                         A 185
    GO TO 92                                                      A 186
 88 IF (ALT-ALTB) 90,90,92                                        A 187
 90 ICK=-1                                                        A 188
 92 CALL SET(0)
    MND3=0                                                        A 192
    IND3=0                                                        A 193
    IGR=0                                                         A 194
    IEND=0                                                        A 195
    IGC=0                                                         A 196
    F=.05                                                         A 197
    CALL CONTRL
    CALL SET (1)                                                  A 201
    CALL RUNGEK                                                   A 202
    CALL DRG                                                      A 203
    CALL RESULT                                                   A 204
    CALL ACCEL                                                    A 205
    DELZ=ZB-Z
    IF (DELZ-D7R-.00001) 100,100,94                               A 190
 94 IF (TIM-PRNT) 82,96,96
 96 CALL OUTPUT                                                   A 199
    GO TO 82                                                      A 206
100 CALL OUTPUT                                                   A 207
    CALL SET (0)                                                  A 208
    PRINT 192                                                     A 209
    PRINT 186                                                     A 210
```

```
C       CONDITION D-E                                                   A 2
        KASE=5                                                          A 2
        CK23=C23(KASE)
        TIMD=TIM                                                        A 2
        ZBZD=2.*(ZB-Z)                                                  A 2
        IPC=0                                                           A 2
        IEND=0                                                          A 2
        F=.1                                                            A 2
        IP=0                                                            A 2
        DOTR=ZDD                                                        A 2
        GO TO 130                                                       A 2
  102   GO TO (104,104,108,112), ICK+2                                  A 2
  104   IF (XMACH-XMB) 106,106,108                                      A 2
  106   ICK=1                                                           A 2
        GO TO 112                                                       A 2
  108   IF (ALT-ALTB) 110,110,112                                       A 2
  110   ICK=-1                                                          A 2
  112   ZDDI=ZDD*DELT                                                   A 2
        DOTR=ZDDI-ZDDI*ZDDI/ZBZD*(TIM-TIMD)                             A 2
        IF(ZB-Z)114,114,116
  114   PHI=0.0                                                         A 2
        KASE=6                                                          A 2
        CK23=C23(KASE)
        GO TO 132                                                       A 2
  116   DELZ=ZDELT/DELT-DOTR                                            A 2
        IF (ABS(DELZ)-.002) 126,126,118                                 A 2
  118   IF (IP) 120,120,126                                             A 2
  120   DZ=DELZ                                                         A 2
        CALL CONVERG (IPC,IP,F,PHI,PH2,PH1,DZ,DZ2,DZ1,1,0.0)            A 2
        IF (PHI-90./RADIAN) 124,124,122                                 A 2
  122   PHI=90./RADIAN                                                  A 2
        IP=1                                                            A 2
  124   CALL SET (1)                                                    A 2
        GO TO 130                                                       A 2
  126   CALL SET (0)                                                    A 2
        IPC=0                                                           A 2
        IEND=0                                                          A 2
        IP=0                                                            A 2
        F=.05                                                           A 2
        IGR=0                                                           A 2
        MND3=0                                                          A 2
        IND3=0                                                          A 2
        IF (TIM-PRNT) 130,128,128                                       A 2
  128   CALL OUTPUT                                                     A 2
  130   CALL CONTRL                                                     A 2
  132   CALL SET (1)                                                    A 2
        CALL RUNGEK                                                     A 2
        CALL DRG                                                        A 2
        CALL RESULT                                                     A 2
        CALL ACCEL                                                      A 2
         IF(KASE-6)102,134,134
C       CONDITION E-F.                                                  A 2
  134   CALL OUTPUT                                                     A 2
        CALL SET (0)                                                    A 2
        PRINT 194                                                       A 2
        PRINT 186                                                       A 2
```

```
C     CONDITION E-F IS PART OF SUB CONTROL                              A 265
  136 GO TO (138,136,142,150), ICK+2                                    A 266
  138 IF (XMACH-XMB) 140,140,142                                        A 267
  140 ICK=1                                                             A 268
      GO TO 146                                                         A 269
  142 IF (ALT-ALTB) 144,144,146                                         A 270
  144 ICK=-1                                                            A 271
  146 CALL CONTRL                                                       A 272
      CALL SET (1)                                                      A 273
      CALL RUNGEK                                                       A 274
      CALL DRG                                                          A 275
      CALL RESULT                                                       A 276
      CALL ACCEL                                                        A 277
      CALL SET (0)                                                      A 278
      IGR=0                                                             A 279
      IF (TIM-PRNT) 136,148,148                                         A 280
  148 CALL OUTPUT                                                       A 281
      GO TO 136                                                         A 282
  150 IF (ABS(PHI)-.00001*RADIAN) 153,153,152
  153 IF(TIM-PRNT+DIP)154,154,155
  152 PDEG=PHI*RADIAN                                                   A 284
      PRINT 196, PDEG                                                   A 285
      GO TO 8
C     GLIDE      CONDITION F-G
C      ITERATION METHOD
C
  155 CALL OUTPUT
      KASE=8
      CK23=C23(KASE)
      IF(IGLD-1)154,154,220
  220 ADD=.5/RADIAN
      T1=0.0
      ALPH=ADD
      IEND=0
  222 CALL DRG
      CD=CK22*CD0+CK1*CL*TAN(ALPH)
      TERM=CL/CD
      IF(T1-TERM)224,226,226
  224 T1=TERM
      ALPH1=ALPH
      ALPH=ALPH+ADD
      GO TO 222
  226 IF(IEND)228,228,230
  228 IEND=1
      ADD=.1/RADIAN
      ALPH=ALPH1+ADD
      GO TO 222
  230 ALPH=ALPH1
      IEND=0
      ALPHG=ALPH
      RFG=T1*ALT
      GFG=ATAN(ALT/RFG)
      RB=RB-RFG
      GO TO 161
  154 ALTG=ALT
      SGN1=0.0
      ALT=ALT*.5
      CALL ATMOSP(ALT,ANS)
      RHO=ANS(6)
      RHOG=RHO
      QSW=.5*RHOG*VEL*VEL*AREA/WEMP
      ALPH=0.0
      ADD=.1/RADIAN
  202 ALPH=ALPH+ADD
      CALL DRG
      STRM=QSW*(CK22*CD0-CK1*CL1*ALPH*TAN(ALPH))
      IF(STRM-1.0)205,205,209
  209 PRINT 211
  211 FORMAT(18H TERM EXCEEDED 1.0   )
      GO TO 8
  205 STRM=ASIN(STRM)
      CTRM=QSW*CL1*ALPH
      IF(CTRM-1.0)207,207,209
  207 CTRM=ACOS(CTRM)
      SGN=SIGN(1.,STRM-CTRM)
      IF(SGN*SGN1)203,204,203
  203 SGN1=SGN
      GO TO 202
  204 GFG=CTRM
      ALT=ALTG
      RFG=ALT/TAN(GFG)
      RB=RB-RFG
      ALPHG=ALPH
      CLMX=CL
      TFG=RFG/(VEL*COS(GAM))
C     HOLD THIS INFORMATION
```

```
C     PRINT AFTER BREQUET
C     CALCULATED BECAUSE RFG NEEDED BEFORE BREQUET
C     BREQUET EQUATION                                                  A 287
  161 KASE=7
      CK23=C23(KASE)
      IEND=0
      PRINT 166                                                         A 289
      TERM1=0.0                                                         A 290
      ALPH=.25/RADIAN                                                   A 291
  156 CONTINUE                                                          A 292
      CL=(CL0+CL1*ALPH+CL2*ALPH*ALPH)*CK23
      CD=CD0+CK1*CL*TAN(ALPH)                                           A 294
      TERM=SQRT(CL)/CD                                                  A 295
      IF (TERM-TERM1) 162,158,158                                       A 296
  158 IF (IEND) 160,160,164                                             A 297
  160 ALPH=ALPH+.5/RADIAN                                               A 298
      TERM1=TERM                                                        A 299
      GO TO 156                                                         A 30
  162 A1=ALPH                                                           A 30
      ALPH=ALPH-.1/RADIAN                                               A 30
      IEND=1                                                            A 30
      GO TO 156                                                         A 30
  164 CON=(2.*WHT/(RHO*AREA))**.5                                       A 30
      DENOM=7200./SFC*TERM*CON                                          A 30
      WHT=WHT*(1.-RB/DENOM)**2.
      TB=RB/VEL
      TIM=TIM+TB
      RANGE=RANGE+RB
      CALL OUTPUT
      PRINT 186
      PRINT 212
  212 FORMAT(6H0GLIDE)
      CK23=C23(8)
      RANGE=RANGE+RFG
      ALPH=ALPHG
      WHT=WEMP
      GAM=GFG
      CALL DRG
      IF(IGLD-1)232,232,234
  234 IALP=10
  232 TIM=TIM+TFG
      CALL OUTPUT
      PRINT 186
      PRINT 168                                                         A 3
      GO TO 8
C                                                                       A 3
C                                                                       A 3
  166 FORMAT(8H0BREQUET )
  168 FORMAT (22H0CALCULATIONS FINISHED)                                A 3
  172 FORMAT (1H )                                                      A 3
  174 FORMAT (2I2)                                                      A 3
  176 FORMAT (6E12.6,F8.3)                                              A 3
  178 FORMAT (1H0/1H0/9X,11HMACH NUMBER,9X,4HCL 0,12X,4HCL 1,12X,4HCL 2,  A 3
```

```
   112X,4HCD 0,12X,4HATRN,//(I5,6E16.6))
180 FORMAT (5E15.5,5X)
184 FORMAT (14H GAMA REACHED )
186 FORMAT (1H ,120H*************************************************
   1*************************************************************
   2*    )
188 FORMAT (12H PHI REACHED)
190 FORMAT (14H GAMC REACHED )
192 FORMAT (17H DELTA Z REQUIRED)
194 FORMAT (13H TIME REACHED)
196 FORMAT (16H PHI IS NCT ZERO,E15.5)
    END
```

3200 FORTRAN (2.1,0)/(RTS) / /

```
      SUBROUTINE CONTRL
      DIMENSION GL(4), VK(4), AM(4), RN(4), ZJ(4)
      CONTRL COMMON
      COMMON GR,GRMX,ALPH,ATRN,IALP,XLIFT,DRAG,GV,GV1,ICK
      DRG COMMON
      COMMON RHO,VEL,QATM,RE,ALT,R,SOS,CD0,CK1,CL,CL1,CL2,CL0,AREA,XN,CK
     120,CK21,TE,THR,CK23
      ACCEL COMMON
      COMMON WHT,GN,GT,GAM
      RESULT COMMON
      COMMON RADIAN,DELTR,BETA,DSIG,DLON,DLAT,XLON,XLAT,XLOB,XLAB,SIGB,R
     1B,ZB,Z1,DTP,PRNT
      INTEGRATION COMMON
      COMMON NRK,RANGE,Z,GDELT,VDELT,ADELT,RDELT,ZDELT,GL,VK,AM,RN,ZJ,SF
     1C,DELT,XGO,PHI,XMACH,TIM
      COMMON ATOL,XTOL,MND3,IND3,F
      COMMON ALTB,XMB
      DIMENSION XMACHT(16), CL0TAB(16), CL1TAB(16), CL2TAB(16), CD0TAB(1
     16)
      COMMON NTAB1,XMACHT,CL0TAB,CL1TAB,CL2TAB,CD0TAB
      DIMENSION ATR(16)
      COMMON ATR
      COMMON CK22
      COMMON IEND,IGR,KASE,GAMC,GCTL
      COMMON IH,DHFB,DOTC
      COMMON DEDH,CK24
      IM=0
      IEND=0
      F=.1
      MAC=0
      IND3=0
    2 GO TO (4,38,26,14), ICK+2
      ALTITUDE CONTROL
    4 IF (IH) 8,8,6
    6 IH=-1
      GAMC=0.0
    8 IF (LOC) 14,12,10
```

```
   10 PRINT 104                                                          B
      PRINT 108                                                          B
      THR=CK20*CK21*XN*TE                                                B
      LOC=0                                                              B
      ICK=2                                                              B
      GO TO 14                                                           B
   12 LOC=-1                                                             B
      PRINT 102                                                          B
      PRINT 108                                                          B
      IND3=0                                                             B
   14 IF (ABS(ALT-ALTB)-ATCL) 16,16,18                                   B
   16 IF (LOC) 92,30,30                                                  B
   18 DELD=ALT-ALTB                                                      B
      IF (MAC) 20,20,16                                                  B
   20 CALL CONVERG (IND3,MAC,F,ALPH,ALPH2,ALPH1,DELD,DELD2,DELD1,1,0.0)  B
      IF (ALPH-ATRN) 24,24,22                                            B
   22 MAC=1                                                              B
      ALPH=ATRN                                                          B
      GO TO 2                                                            B
   24 CALL SET (1)                                                       B
      CALL RUNGEK                                                        B
      CALL RESULT                                                        B
      GO TO 14                                                           B
C     MACH CONTROL                                                       B
   26 IF (LOC) 10,28,30                                                  B
   28 LOC=1                                                              B
      THR=CK20*CK21*XN*TE                                                B
      PRINT 106                                                          B
      PRINT 108                                                          B
   30 IF (ABS(XMACH-XMB)-XTOL) 32,32,34                                  B
   32 IF (LOC) 92,92,40                                                  B
   34 DM=XMACH-XMB                                                       B
      IF (IM) 36,36,32                                                   B
   36 CONTINUE                                                           B
      CALL CONVERG (MND3,IM,F,CK20,C2,C1,DM,DM2,DM1,1,0.0)               B
      THR=CK20*CK21*XN*TE                                                B
      CALL SET (1)                                                       B
      CALL RUNGEK                                                        B
      CALL RESULT                                                        B
      IF (LOC) 2,2,30                                                    B
C      ALPHA CONTROL                                                     B
   38 LOC=0                                                              B
   40 IEGC=0                                                             B
      F=.1                                                               B
      IGC=0                                                              B
      IF (IH) 42,42,46                                                   B
   42 IF (ALT-(ALTB+DHFB)) 44,44,48                                      B
   44 GAMO=GAMC                                                          B
      IH=1                                                               B
      PRINT 122
  122 FORMAT(13H DHFB REACHED )
      PRINT 108
   46 GAM1=GAMC                                                          B
      GAMC=(GAMO/DHFB)*(ALT-ALTB)                                        B
      IF(ABS(GAMC)-.5/RADIAN)115,120,120
  115 GAMC=-.5/RADIAN
  120 DOTC=GAMC-GAM1
```

```
 48 IF (KASE-5) 64,62,62                                          B  90
 50 IF (IEGC) 52,52,92                                            B  91
 52 IF (ABS(GAM-GAMC)-GCTL) 92,92,54                              B  92
 54 DGAM=GAM-GAMC                                                 B  93
    CALL CONVERG (IGC,IEGC,F,ALPH,ALPH2,ALPH1,DGAM,DG2,DG1,1,0.0) B  94
    IF (ALPH-ATRN) 58,58,56                                       B  95
 56 ALPH=ATRN                                                     B  96
    IEGC=1                                                        B  97
 58 IF (IEGC) 62,62,60                                            B  98
 60 GAMC=GAM                                                      B  99
    GDEG=GAMC*RADIAN                                              B 100
    PRINT 100, GDEG                                               B 101
 62 CALL SET (1)                                                  B 102
    CALL DRG                                                      B 103
    CALL RUNGEK                                                   B 104
    GO TO 50                                                      B 105
    ALPHA CONTROL LOGIC INDICATOR IALP                            B 106
 64 GO TO(66,68,80,146) IALP
    FIXED ALPHA - IALP=1                                          B 108
 66 ALPH=ATRN                                                     B 109
    GO TO 92                                                      B 110
    LIFT/DRAG MAXIMUM - IALP=2                                    B 111
 68 ADD=.5/RADIAN                                                 B 112
    ALPH=ADD                                                      B 113
    DL1=0.0                                                       B 114
    IEND=0                                                        B 115
 70 CALL DRG                                                      B 116
    DL=XLIFT/DRAG                                                 B 117
    IF (DL1-DL) 72,74,74                                          B 118
 72 DL1=DL                                                        B 119
    ALPH1=ALPH                                                    B 120
    ALPH=ALPH+ADD                                                 B 121
    GO TO 70                                                      B 122
 74 IF (IEND) 76,76,78                                            B 123
 76 IEND=1                                                        B 124
    ADD=.1/RADIAN                                                 B 125
    ALPH=ALPH1+ADD                                                B 126
    GO TO 70                                                      B 127
 78 ALPH=ALPH1                                                    B 128
    GO TO 92                                                      B 129
    GVMAX - IALP=3                                                B 131
    CALCULATION OF ALPHA FROM GV EQUATION
 80 TERM=QATM*AREA/WHT*CL1*CK23
    E=-CK1*SIN(GAM)*TERM*CK24
    B=COS(GAM)*TERM
    D=-CK1*CL0*SIN(GAM)*QATM*AREA/WHT*CK24
    IF(TIM-0.00)162,162,154
162 BETG=0.0
154 SB=SIN(BETG)
    CB=COS(BETG)
    FUNCT=B*.5*CB+.5*E*SB+E*.5*BETG+B*.5+D
    FUNCTP=.5*E*CB-B*SB*.5+.5*E
    DEL=-FUNCT/FUNCTP
    IF(ABS(DEL)-.1/RADIAN) 158,160,160
158 ALPH=BETG*.5
    GO TO 92
160 IF(ABS(BETG)-60./RADIAN)161,161,159
```

```
  159 BETG=25./RADIAN
      ALPH=ATRN
      GO TO 92
  161 BETG=BETG+DEL
      GO TO 154
C     CONTROL OPTION 4      ENERGY MANAGEMENT
  146 IGT=0
      IEGT=0
      F=.1
      IF(TIM)92,92,148
  148 CALL RUNGEK
      XMAS=WHT/XGO
      GRAV=XGO*(RE/R)**2
      XMG=WHT*(RE/R)**2
      WDOT=-THR/(3600.*SFC)
      TERM=       ALT*WDOT /       VEL +CK21*THR-DRAG+.5*WDOT*VEL/GRAV
      TERM=TERM/(DEDH-2.*XMG)
      IF(TERM-1.)132,132,92
  132 GAMT=ASIN(TERM)
      IF(ABS(GAM-GAMT)-.01/RADIAN)92,92,140
  140 DT=GAMT-GAM
      CALL CONVERG(IGT,IEGT,F,ALPH,ALPH2,ALPH1,DT,DT2,DT1,1,0.0)
      IF(IEGT)171,171,92
  171 IF(ALPH-ATRN+.00001) 144,142,142
  142 ALPH=ATRN
      CALL SET(1)
      GO TO 92
  144 CALL SET(1)
      GO TO 148
   92 CONTINUE                                                          B 1
C     GR CONTROL OVERRIDES ALPHA CONTROL                                B 1
      CALL DRG                                                          B 1
      CALL ACCEL                                                        B 1
      FA=.1                                                             B 1
      IGM=0                                                             B 1
      IF (GR-GRMX) 98,98,94                                             B 1
   94 CALL SET (1)                                                      B 1
      CALL RUNGEK                                                       B 1
      CALL DRG                                                          B 1
      CALL ACCEL                                                        B 1
      IF (ABS(GR-GRMX)-.1) 98,98,96                                     B 1
   96 DG=GR-GRMX                                                        B 1
      CALL CONVERG (IGM,IEND,FA,ALPH,A2,A1,DG,DG2,DG1,1,0.0)            B 1
      IF (IEND) 94,94,98                                                B 1
   98 IF(ALPH-ATRN)99,99,101
  101 ALPH=ATRN
   99 RETURN
C                                                                       B 1
C                                                                       B 1
  100 FORMAT (5H GAMC,E15.5)                                            B 1
  102 FORMAT (12H ALT CONTROL)                                          B 1
  104 FORMAT(26H ALIB AND XMB BOTH REACHED    )
  106 FORMAT (13H MACH CONTROL)                                         B 1
  108 FORMAT (1H ,120H*************************************************** B 1
     1*************************************************************** B 1
     2*    )                                                            B 1
      END                                                               B 1

        3200 FORTRAN DIAGNCSTIC RESULTS - FOR    CONTRL
```

```
      SUBROUTINE CONVERG (IND3,IEND,F,ALPH,ALPH2,ALPH1,DELD,DELD2,DELD1,  C   1
     1KASE,QTMAX)                                                         C   2
       MINIMUM VALUE FOR ALPH=0.0     NO MAXIMUM VALUE ON ALPH            C   3
      RADIAN=57.2957795                                                   C   4
      D3=QTMAX/2.                                                         C   5
      IF (IND3) 2,8,14                                                    C   6
    2 IDD3=DELD/ABS(DELD)                                                 C   7
      IF (IDD3+IDD1) 4,6,4                                                C   8
    4 DELD1=DELD                                                          C   9
      IDD1=IDD3                                                           C  10
      ALPH1=ALPH                                                          C  11
      GO TO 28                                                            C  12
    6 DELD2=DELD                                                          C  13
      IDD2=IDD3                                                           C  14
      ALPH2=ALPH                                                          C  15
      GO TO 28                                                            C  16
    8 ALPH0=ALPH*F                                                        C  17
      IF (ABS(ALPH0)-.25/RADIAN) 10,12,12                                 C  18
   10 ALPH0=.25/RADIAN                                                    C  19
   12 ALPH1=ALPH                                                          C  20
      DELD1=DELD                                                          C  21
      IDD1=DELD1/ABS(DELD1)                                               C  22
      IND3=1                                                              C  23
      GO TO 30                                                            C  24
   14 IDD2=DELD/ABS(DELD)                                                 C  25
      IF (IDD2+IDD1) 8,16,8                                               C  26
   16 ALPH2=ALPH                                                          C  27
      DELD2=DELD                                                          C  28
      D2=ABS(DELD2)                                                       C  29
      D1=ABS(DELD1)                                                       C  30
      IF (D2-D1) 18,18,20                                                 C  31
   18 IF (D1-10.*D2) 26,26,22                                             C  32
   20 IF (D2-10.*D1) 26,26,24                                             C  33
   22 XID=IDD2                                                            C  34
      ALPH=ALPH2-ABS(ALPH2)*F*XID                                         C  35
      ALPH1=ALPH2                                                         C  36
      F=.5*F                                                              C  37
      DELD1=DELD2                                                         C  38
      IDD1=IDD2                                                           C  39
      GO TO 40                                                            C  40
   24 XID=IDD1                                                            C  41
      ALPH=ALPH1-ABS(ALPH1)*F*XID                                         C  42
      F=.5*F                                                              C  43
      GO TO 40                                                            C  44
   26 IND3=-1                                                             C  45
   28 ALPH=Y3(ALPH2,ALPH1,C3,DELD2,DELD1)                                 C  46
      GO TO 40                                                            C  47
   30 IF (DELD) 32,32,38                                                  C  48
   32 IF (ALPH-.00001) 34,34,36                                           C  49
   34 ALPH=1.0/RADIAN                                                     C  50
      ALPH0=.5/RADIAN                                                     C  51
      GO TO 40                                                            C  52
   36 ALPH=ALPH+ABS(ALPH0)                                                C  53
```

```
      GO TO 40                                                          C
   38 ALPH=ALPH-ABS(ALPH0)                                              C
   40 CONTINUE                                                          C
      IF (ALPH-.00001) 42,42,44                                         C
   42 IEND=1                                                            C
      ALPH=0.0                                                          C
      RETURN                                                            C
   44 IF (IND3) 46,52,48                                                C
   46 IF (ABS(ALPH2-ALPH)-10.**(-9)) 50,48,48                           C
   48 IF (ABS(ALPH1-ALPH)-10.0**(-9)) 50,52,52                          C
   50 PRINT 54, ALPH,DELD                                               C
      IEND=1                                                            C
   52 RETURN                                                            C
C                                                                       C
C                                                                       C
   54 FORMAT (5H ALPH,E15.5,3X,4HDELD,E15.5,16H NON-CONVERGENCE)        C
      END                                                               C
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR CONVERG

3200 FORTRAN (2,1,0)/(RTS) / /

```
      SUBROUTINE DRG                                                    D
      DIMENSION GL(4), VK(4), AM(4), RN(4), ZJ(4)                       D
C     CONTRL COMMON                                                     D
      COMMON GR,GRMX,ALPH,ATRN,IALP,XLIFT,DRAG,GV,GV1,ICK               D
C     DRG COMMON                                                        D
      COMMON RHO,VEL,QATM,RE,ALT,R,SOS,CD0,CK1,CL,CL1,CL2,CL0,AREA,XN,CK D
     120,CK21,TE,THR,CK23
C     ACCEL COMMON                                                      D
      COMMON WHT,GN,GT,GAM                                              D
C     RESULT COMMON                                                     D
      COMMON RADIAN,DELTR,EETA,DSIG,DLON,DLAT,XLON,XLAT,XLCB,XLAB,SIGB,R D
     1B,ZB,Z1,DTP,PRNT                                                  D
C     INTEGRATION COMMON                                                D
      COMMON NRK,RANGE,Z,GDELT,VDELT,ADELT,RDELT,ZDELT,GL,VK,AM,RN,ZJ,SF D
     1C,DELT,XGO,PHI,XMACH,TIM                                          D
      COMMON ATOL,XTOL,MND3,IND3,F                                      D
      COMMON ALTB,XMB                                                   D
      DIMENSION ANS(7)                                                  D
      DIMENSION XMACHT(16), CL0TAB(16), CL1TAB(16), CL2TAB(16), CD0TAB(1 D
     16)                                                                D
      COMMON NTAB1,XMACHT,CL0TAB,CL1TAB,CL2TAB,CD0TAB                   D
      DIMENSION ATR(16)                                                 D
      COMMON ATR                                                        D
      COMMON CK22                                                       D
      COMMON IEND,IGR,KASE,GAMC,GCTL                                    D
      COMMON IH,DHFB,DOTC,DEDH,CK24
C     BASIC EQUATIONS OF MOTION                                         D
      IT=1                                                              D
      DO 2 I=1,NTAB1                                                    D
      IF (XMACH-XMACHT(I)) 4,2,2                                        D
    2 IT=I                                                              D
```

```
    4 IT=IT+1                                                          D   32
      XM1=XMACHT(IT-1)                                                 D   33
      XM2=XMACHT(IT)                                                   D   34
      CD0=Y3(CD0TAB(IT),CD0TAB(IT-1),XMACH,XM2,XM1)                    D   35
      CL0=Y3(CL0TAB(IT),CL0TAB(IT-1),XMACH,XM2,XM1)                    D   36
      CL1=Y3(CL1TAB(IT),CL1TAB(IT-1),XMACH,XM2,XM1)*RADIAN             D   37
      CL2=Y3(CL2TAB(IT),CL2TAB(IT-1),XMACH,XM2,XM1)*RADIAN*RADIAN      D   38
      ATRN=Y3(ATR(IT),ATR(IT-1),XMACH,XM2,XM1)/RADIAN                  D   39
      IF (TIM) 6,6,8                                                   D   40
    6 ALPH=ATRN                                                        D   41
    8 CALL ATMOSP (ALT,ANS)                                            D   42
      RHO=ANS(6)                                                       D   43
      CL=(CL0+CL1*ALPH+CL2*ALPH*ALPH)*CK23*CK24
      QATM=.5*RHO*VEL*VEL                                              D   45
      R=RE+ALT                                                         D   46
      DRAG=QATM*AREA*(CK22*CD0+CK1*CL*TAN(ALPH))                       D   47
      XLIFT=CL*QATM*AREA                                               D   48
      IF (KASE-4) 16,10,16                                             D   49
   10 IF(ALPH-1.E-5)16,16,24
   24 CGAM=COS(GAMC)
      CPHI=(WHT*(RE/R)**2*CGAM-WHT/XGO*VEL*VEL*CGAM**3/R+DOTC*VEL*WHT/XG  D   51
     10)/(THR*SIN(ALPH)+XLIFT)                                         D   52
      IF (CPHI-1.) 14,14,12                                            D   53
   12 PHI=0.0                                                          D   54
      GAMC=GAM                                                         D   55
      GO TO 16                                                         D   56
   14 PHI=ACOS(CPHI)                                                   D   57
   16 CONTINUE                                                         D   58
      RETURN                                                           D   59
      END                                                              D   60
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR DRG

3200 FORTRAN (2,1,0)/(RTS) / /

```
      SUBROUTINE OUTPUT                                                F    1
      DIMENSION GL(4), VK(4), AM(4), RN(4), ZJ(4)                      F    2
      CONTRL COMMON                                                    F    3
      COMMON GR,GRMX,ALPH,ATRN,IALP,XLIFT,DRAG,GV,GV1,IGK              F    4
      DRG COMMON                                                       F    5
      COMMON RHO,VEL,QATM,RE,ALT,R,SOS,CD0,CK1,CL,CL1,CL2,CL0,AREA,XN,CK  F    6
     120,CK21,TE,THR,CK23
      ACCEL COMMON                                                     F    8
      COMMON WHT,GN,GT,GAM                                             F    9
      RESULT COMMON                                                    F   10
      COMMON RADIAN,DELTR,BETA,DSIG,DLON,DLAT,XLON,XLAT,XLCB,XLAB,SIGB,R  F   11
     1B,ZB,Z1,DTP,PRNT                                                 F   12
      INTEGRATION COMMON                                               F   13
      COMMON NRK,RANGE,Z,GDELT,VDELT,ADELT,RDELT,ZDELT,GL,VK,AM,RN,ZJ,SF  F   14
     1C,DELT,XGO,PHI,XMACH,TIM                                         F   15
      COMMON ATOL,XTOL,MND3,IND3,F                                     F   16
      COMMON ALTB,XMB                                                  F   17
      DIMENSION XMACHT(16), CL0TAB(16), CL1TAB(16), CL2TAB(16), CD0TAB(1  F   18
     16)                                                               F   19
```

```
      COMMON NTAB1,XMACHT,CL0TAB,CL1TAB,CL2TAB,CD0TAB                   F
      DIMENSION ATR(16)                                                 F
      COMMON ATR                                                        F
      COMMON CK22                                                       F
      COMMON IEND,IGR,KASE,GAMC,GCTL                                    F
      COMMON IH,DHFB,DOTC                                               F
      GDEG=GAM*RADIAN                                                   F
      ADEG=ALPH*RADIAN                                                  F
      PDEG=PHI*RADIAN                                                   F
      ZDEG=Z*RADIAN                                                     F
      PRINT 8                                                           F
      CALL OUT (3HTIM,TIM,3HWHT,WHT,3HVEL,VEL,4HRANG,RANGE/6076.1,3HGAM,
     * GDEG)
      CALL OUT (3HALT,ALT,3HPHI,PDEG,2HZ ,ZDEG,4HALPH,ADEG,4HMACH,XMACH)  F
      XOUT=XLIFT
      IF(PHI-90.0/RADIAN)14,14,16
   16 XOUT=-XLIFT
   14 CALL OUT(3HSOS,SOS,4HLIFT,XOUT,4HDRAG,DRAG,4HQATM,QATM,3HRHO,RHO)
      IF (SIN(PHI)-.0000001) 2,2,4                                      F
    2 ZDOT=0.0                                                          F
      GO TO 6                                                           F
    4 ZDOT=ZDELT/DELT*RADIAN                                            F
    6 CONTINUE                                                          F
      CALL OUT (2HGR,GR,4HZDOT,ZDOT,2HZB,ZB*RADIAN,4HXLON,XLON*RADIAN,4H  F
     1XLAT,XLAT*RADIAN)                                                 F
      IF(KASE-7)12,10,10
   12 CALL OUT(4HGAMC,GAMC*RADIAN,3HTHR,THR,2HGV,GV,4H    ,0.0,1H ,0.0)
   10 PRNT=PRNT+DTP
      RETURN                                                            F
C                                                                       F
C                                                                       F
    8 FORMAT (1H )                                                      F
      END                                                               F
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR OUTPUT

3200 FORTRAN (2.1.0)/(RTS) / /

```
      SUBROUTINE OUT (I,A,I2,A2,I3,A3,I4,A4,I5,A5)                      E
      IF (I2-4H    ) 4,2,4                                              E
    2 PRINT 20, I,A                                                     E
      GO TO 18                                                          E
    4 IF (I3-4H    ) 8,6,8                                              E
    6 PRINT 20, I,A,I2,A2                                               E
      GO TO 18                                                          E
    8 IF (I4-4H    ) 12,10,12                                           E
   10 PRINT 20, I,A,I2,A2,I3,A3                                         E
      GO TO 18                                                          E
   12 IF (I5-4H    ) 16,14,16                                           E
   14 PRINT 20, I,A,I2,A2,I3,A3,I4,A4                                   E
      GO TO 18                                                          E
   16 PRINT 20, I,A,I2,A2,I3,A3,I4,A4,I5,A5                             E
   18 RETURN                                                            E
C                                                                       E
C                                                                       E
   20 FORMAT (1H ,5(A4,3X,E12.5,3X))                                    E
      END                                                               E
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR OUT

```
                    3200  FORTRAN  (2,1,0)/(RTS)      /  /

      SUBROUTINE ACCEL                                                  G   1
      CONTRL COMMON                                                     G   3
      COMMON GR,GRMX,ALPH,ATRN,IALP,XLIFT,DRAG,GV,GV1,IGK               G   4
      DRG COMMON                                                        G   5
      DIMENSION GL(4), VK(4), AM(4), RN(4), ZJ(4)                       G   2
      COMMON RHO,VEL,QATM,RE,ALT,R,SOS,CD0,CK1,CL,CL1,CL2,CL0,AREA,XN,CK G   6
     120,CK21,TE,THR,CK23
      ACCEL COMMON                                                      G   8
      COMMON WHT,GN,GT,GAM                                              G   9
      RESULT COMMON                                                     G  10
      COMMON RADIAN,DELTR,BETA,DSIG,DLON,DLAT,XLON,XLAT,XLOB,XLAB,SIGB,R G  11
     1B,ZB,Z1,DTP,PRNT                                                  G  12
      INTEGRATION COMMON                                                G  13
      COMMON NRK,RANGE,Z,GDELT,VDELT,ADELT,RDELT,ZDELT,GL,VK,AM,RN,ZJ,SF G  14
     1C,DELT,XGO,PHI,XMACH,TIM                                          G  15
      COMMON ATOL,XTOL,MND3,IND3,F                                      G  16
      ACCELERATION EQUATIONS                                            G  17
      GN=THR/WHT*SIN(ALPH)+XLIFT/WHT                                    G  18
      GT=THR/WHT*COS(ALPH)-DRAG/WHT                                     G  19
      GR=SQRT(GN*GN+GT*GT)                                              G  20
      GV=GN*COS(GAM)+GT*SIN(GAM)                                        G  21
      RETURN                                                            G  22
      END                                                               G  23-
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR ACCEL

```
                    3200  FORTRAN  (2,1,0)/(RTS)      /  /

      SUBROUTINE RESULT                                                 H   1
      DIMENSION ANS(7)                                                  H   2
      DIMENSION GL(4), VK(4), AM(4), RN(4), ZJ(4)                       H   3
!     CONTRL COMMON                                                     H   4
      COMMON GR,GRMX,ALPH,ATRN,IALP,XLIFT,DRAG,GV,GV1,IGK               H   5
!     DRG COMMON                                                        H   6
      COMMON RHO,VEL,QATM,RE,ALT,R,SOS,CD0,CK1,CL,CL1,CL2,CL0,AREA,XN,CK H   7
     120,CK21,TE,THR,CK23
!     ACCEL COMMON                                                      H   9
      COMMON WHT,GN,GT,GAM                                              H  10
!     RESULT COMMON                                                     H  11
      COMMON RADIAN,DELTR,BETA,DSIG,DLON,DLAT,XLON,XLAT,XLOB,XLAB,SIGB,R H  12
     1B,ZB,Z1,DTP,PRNT                                                  H  13
!     INTEGRATION COMMON                                                H  14
      COMMON NRK,RANGE,Z,GDELT,VDELT,ADELT,RDELT,ZDELT,GL,VK,AM,RN,ZJ,SF H  15
     1C,DELT,XGO,PHI,XMACH,TIM                                          H  16
      COMMON ATOL,XTOL,MND3,IND3,F
      COMMON ALTB,XMB
      DIMENSION XMACHT(16), CL0TAB(16), CL1TAB(16), CL2TAB(16), CD0TAB(1
     16)
      COMMON NTAB1,XMACHT,CL0TAB,CL1TAB,CL2TAB,CD0TAB                   A  21
      DIMENSION ATR(16)
      COMMON ATR,CK22
      COMMON IEND,IGR,KASE,GAMC,GCTL
      COMMON IH,DHFB,DOTC
!     NAVIGATION                                                        H  17
!     CHANGE IN LATITUDE AND LONG DURING TURN                           H  18
```

```
      IF (TIM) 14,14,2                                                  H
    2 ZAVG=(Z1+Z)*.5                                                    H
      Z1=Z                                                              H
      BETA=ZAVG-90./RADIAN                                              H
      DSIG=RDELT/RE                                                     H
      DLON=DSIG*COS(BETA)                                               H
      DLAT=DSIG*SIN(BETA)                                               H
      IF (Z-180./RADIAN) 4,6,6                                          H
    4 DLON=-DLON                                                        H
    6 XLON=XLON+DLON                                                    H
      IF (Z-90./RADIAN) 12,8,8                                          H
    8 IF (Z-270./RADIAN) 10,12,12                                       H
   10 DLAT=-DLAT                                                        H
   12 XLAT=XLAT+DLAT                                                    H
C     CALCULATION OF ZB AND RB.                                         H
   14 DLOB=ABS(XLOB-XLON)                                               H
      DLAB=ABS(XLAB-XLAT)*.5                                            H
      CLAT=COS(DLAB)                                                    H
      SLAT=SIN(DLAB)                                                    H
      TERM=ABS(180./RADIAN-XLAB-XLAT)*.5                                H
      X=ATAN(CLAT/TAN(DLOB*.5)/TAN(TERM))                               H
      Y=ATAN(SLAT/TAN(DLOB*.5)/SIN(TERM))                               H
      BFB=X-Y                                                           H
      SIGB=ASIN(SIN(DLOB)*SIN(ABS(90./RADIAN-XLAB))/SIN(BFB))           H
      IF(KASE-6)20,22,22
   20 ZB=360./RADIAN-BFB
   22 RB=SIGB*RE
      CALL ATMOSP (ALT,ANS)                                             H
      SOS=ANS(3)                                                        H
      RHO=ANS(6)                                                        H
      XMACH=VEL/SOS                                                     H
      RETURN                                                            H
      END                                                               H
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR RESULT

3200 FORTRAN (2,1,0)/(RTS) / /

```
      SUBROUTINE RUNGEK                                                 I
      DIMENSION GL(4), VK(4), AM(4), RN(4), ZJ(4)                       I
C     CONTRL COMMON                                                     I
      COMMON GR,GRMX,ALPH,ATRN,IALP,XLIFT,DRAG,GV,GV1,ICK               I
C     DRG COMMON                                                        I
      COMMON RHO,VEL,QATM,RE,ALT,R,SOS,CD0,CK1,CL,CL1,CL2,CL0,AREA,XN,CK I
     120,CK21,TE,THR,CK23
C     ACCEL COMMON                                                      I
      COMMON WHT,GN,GT,GAM                                              I
C     RESULT COMMON                                                     I
      COMMON RADIAN,DELTR,BETA,DSIG,DLON,DLAT,XLON,XLAT,XLOB,XLAB,SIGB,R I
     1B,ZB,Z1,DTP,PRNT                                                  I
C     INTEGRATION COMMON                                                I
      COMMON NRK,RANGE,Z,GDELT,VDELT,ADELT,RDELT,ZDELT,GL,VK,AM,RN,ZJ,SF I
     1C,DELT,XGO,PHI,XMACH,TIM                                          I
      COMMON ATOL,XTOL,MND3,IND3,F                                      I
      VELN=VEL                                                          I
```

```
      GAMN=GAM                                                          I  18
      ALTN=ALT                                                          I  19
      RANGN=RANGE                                                       I  20
      ZN=Z                                                              I  21
      CALL DRG                                                          I  22
      NRK=1                                                             I  23
      CALL DOTS                                                         I  24
      VEL=VELN+VK(1)*0.5                                                I  25
      GAM=GAMN+GL(1)*0.5                                                I  26
      ALT=ALTN+AM(1)*0.5                                                I  27
      CALL DRG                                                          I  28
      CALL DOTS                                                         I  29
      GAM=GAMN+GL(2)*0.5                                                I  30
      VEL=VELN+VK(2)*0.5                                                I  31
      ALT=ALTN+AM(2)*0.5                                                I  32
      CALL DRG                                                          I  33
      CALL DOTS                                                         I  34
      GAM=GAMN+GL(3)                                                    I  35
      ALT=ALTN+AM(3)                                                    I  36
      VEL=VELN+VK(3)                                                    I  37
      CALL DRG                                                          I  38
      CALL DOTS                                                         I  39
      ONE6=1./6.                                                        I  40
      GDELT=DELTA(GL)                                                   I  41
      VDELT=DELTA(VK)                                                   I  42
      ADELT=DELTA(AM)                                                   I  43
      RDELT=DELTA(RN)                                                   I  44
      ZDELT=DELTA(ZJ)                                                   I  45
      VEL=VELN+VDELT                                                    I  46
      RANGE=RANGN+RDELT                                                 I  47
      ALT=ALTN+ADELT                                                    I  48
      GAM=GAMN+GDELT                                                    I  49
      Z=ZN+ZDELT                                                        I  50
      WHT=WHT-THR/(3600.*SFC)*DELT                                      I  51
      TIM=TIM+DELT                                                      I  52
      RETURN                                                            I  53
      END                                                               I  54-
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR RUNGEK

3200 FORTRAN (2.1.0)/(RTS) / /

```
      FUNCTION DELTA (S)                                                J   1
      DIMENSION S(4)                                                    J   2
      DELTA=(S(1)+2.*(S(2)+S(3))+S(4))/6.                               J   3
      RETURN                                                            J   4
      END                                                               J   5-
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR DELTA

3200 FORTRAN (2.1.0)/(RTS) / /

```
      SUBROUTINE DOTS                                                   K   1
      DIMENSION GL(4), VK(4), AM(4), RN(4), ZJ(4)                       K   2
      CONTRL COMMON                                                     K   3
      COMMON GR,GRMX,ALPH,ATRN,IALP,XLIFT,DRAG,GV,GV1,ICK               K   4
```

```
C     DRG COMMON                                                        K
      COMMON RHO,VEL,QATM,RE,ALT,R,SOS,CDO,CK1,CL,CL1,CL2,CLO,AREA,XN,CK  K
     120,CK21,TE,THR,CK23
C     ACCEL COMMON                                                      K
      COMMON WHT,GN,GT,GAM                                              K
C     RESULT COMMON                                                     K  1
      COMMON RADIAN,DELTR,BETA,DSIG,DLON,DLAT,XLON,XLAT,XLOB,XLAB,SIGB,R K  1
     1B,ZB,Z1,DTP,PRNT                                                  K  1
C     INTEGRATION COMMON                                                K  1
      COMMON NRK,RANGE,Z,GDELT,VDELT,ADELT,RDELT,ZDELT,GL,VK,AM,RN,ZJ,SF K  1
     1C,DELT,XGO,PHI,XMACH,TIM                                          K  1
      COMMON ATOL,XTOL,MND3,IND3,F                                      K  1
      CON=XGO*(RE/R)**2                                                 K  1
      XM=WHT/XGO                                                        K  1
      VK(NRK)=(THR*COS(ALPH)-DRAG)/XM+SIN(GAM)*(-CON+(VEL*COS(GAM))**2/R K  1
     1)                                                                 K  2
      GL(NRK)=(THR*SIN(ALPH)+XLIFT)*COS(PHI)/(XM*VEL)+COS(GAM)*(-CON/VEL K  2
     1+VEL*COS(GAM)**2/R)                                               K  2
      ZJ(NRK)=SIN(PHI)*(THR*SIN(ALPH)+XLIFT)/(XM*VEL)                   K  2
      AM(NRK)=VEL*SIN(GAM)                                              K  2
      RN(NRK)=RE*VEL*COS(GAM)/R                                         K  2
      NRK=NRK+1                                                         K  2
      RETURN                                                            K  2
      END                                                               K  2
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR DOTS

3200 FORTRAN (2,1,0)/(RTS) / /

```
      SUBROUTINE SET (I)                                                L
      DIMENSION GL(4), VK(4), AM(4), RN(4), ZJ(4)                       L
C     CONTRL COMMON                                                     L
      COMMON GR,GRMX,ALPH,ATRN,IALP,XLIFT,DRAG,GV,GV1,ICK               L
C     DRG COMMON                                                        L
      COMMON RHO,VEL,QATM,RE,ALT,R,SOS,CDO,CK1,CL,CL1,CL2,CLO,AREA,XN,CK L
     120,CK21,TE,THR,CK23
C     ACCEL COMMON                                                      L
      COMMON WHT,GN,GT,GAM                                              L
C     RESULT COMMON                                                     L
      COMMON RADIAN,DELTR,BETA,DSIG,DLON,DLAT,XLON,XLAT,XLOB,XLAB,SIGB,R L
     1B,ZB,Z1,DTP,PRNT                                                  L
C     INTEGRATION COMMON                                                L
      COMMON NRK,RANGE,Z,GDELT,VDELT,ADELT,RDELT,ZDELT,GL,VK,AM,RN,ZJ,SF L
     1C,DELT,XGO,PHI,XMACH,TIM                                          L
      COMMON ATOL,XTOL,MND3,IND3,F                                      L
C     I=0,STORE, I=1,PICK-UP                                            L
      IF (I) 2,2,4                                                      L
    2 VELN=VEL                                                          L
      ALTN=ALT                                                          L
      RANGN=RANGE                                                       L
      TIMN=TIM                                                          L
      ZN=Z                                                              L
      WHTN=WHT                                                          L
      GAMN=GAM                                                          L
      RETURN                                                            L
    4 VEL=VELN                                                          L
      ALT=ALTN                                                          L
      RANGE=RANGN                                                       L
```

```
      TIM=TIMN                                                          L  30
      Z=ZN                                                              L  31
      WHT=WHTN                                                          L  32
      GAM=GAMN                                                          L  33
      RETURN                                                            L  34
      END                                                               L  35-
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR SET

3200 FORTRAN (2,1,0)/(RTS) / /

```
      SUBROUTINE ATMOSP (H,ANS)                                         M   1
      DIMENSION ANS(7)                                                  M   2
      TM0=518.688                                                       M   3
      G=32.173984                                                       M   4
      ER=20855531.0                                                     M   5
      C0=1116.4551                                                      M   6
      GA=G*(ER/(ER+H))**2                                               M   7
      GPH=(ER*H)/(ER+H)                                                 M   8
      IF (GPH-154199.0) 2,2,12                                          M   9
    2 IF (GPH-36089.0) 4,4,6                                            M  10
    4 ANS(7)=-3.5662E-3*GPH+TM0                                         M  11
      ANS(6)=2.3769E-3*(-6.8753E-6*GPH+1.0)**4.25612                    M  12
      GO TO 22                                                          M  13
    6 IF (GPH-82021.0) 8,8,10                                           M  14
    8 ANS(7)=389.988                                                    M  15
      ANS(6)=7.0611E-4*EXP(-4.8063E-5*GPH+1.734579)                     M  16
      GO TO 22                                                          M  17
   10 ANS(7)=1.6459E-3*GPH+254.988                                      M  18
      ANS(6)=7.7644E-5*(4.2204E-6*GPH+0.65384)**(-12.3883)              M  19
      GO TO 22                                                          M  20
      HIGH ALTITUDE                                                     M  21
   12 IF (GPH-173885.0) 14,14,16                                        M  22
   14 ANS(7)=508.788                                                    M  23
      ANS(6)=2.8803E-6*EXP(-3.68409E-5*GPH+5.680843)                    M  24
      GO TO 22                                                          M  25
   16 IF (GPH-259186.0) 18,18,20                                        M  26
   18 ANS(7)=-2.4689E-3*GPH+938.088                                     M  27
      ANS(6)=1.3947E-6*(-4.8525E-6*GPH+1.843769)**6.59216               M  28
      GO TO 22                                                          M  29
   20 ANS(7)=298.188                                                    M  30
      ANS(6)=4.1188E-8*EXP(-6.28597E-5*GPH+16.292376)                   M  31
   22 ANS(5)=ANS(6)*ANS(7)*1716.4826                                    M  32
      ANS(4)=GA                                                         M  33
      ANS(3)=C0*SQRT(ANS(7)/TM0)                                        M  34
      ANS(2)=GPH                                                        M  35
      ANS(1)=H                                                          M  36
      RETURN                                                            M  37
      END                                                               M  38-
```

3200 FORTRAN DIAGNOSTIC RESULTS - FOR ATMOSP

SUBR

60103	Q8GERROR	60961	FIXF	60430	FLOATF	60457	ABSF	60473	SQRTF	60604	SIGNF
60630	EXPF	60762	ASIN	61101	ACOS	61141	TAN	61207	ATANF	61350	SINCOS
61661	POWRF	62431	XTOI	62455	Q1QADRI	62636	Q8GOUTTB	62637	CONTROL	63377	FORMAT
63740	BCDOUT	65476	BCDINP	66473	Y3	66557	ATMOSP	67233	SET	67337	DOTS
67546	DELTA	67921	RUNGEK	70042	RESULT	70410	ACCEL	70504	OUT	70763	OUTPUT
71331	DRG	71763	CONVERG	72563	CONTRL	74266	ABRT				

ENTR

60361	IFIX	60961	XFIXF	60430	FLOAT	60457	XABSF	60457	IABS	60457	ABSF
60473	SQRTF	60604	XSIGNF	60604	ISIGN	60604	SIGNF	60630	EXPF	61207	ATANF
61350	COSF	61956	SINF	61661	POWRF	60430	FLOATF	62231	XTOI	60361	FIXF
62600	Q1GSTRX	62555	Q1GSTXR	62520	Q1QSBXR	62473	Q1GADXR	62551	Q1GSBRX	62531	Q1QADRX
62526	Q1QDVIR	62523	Q1GMUIR	62520	Q1QSBIR	62473	Q1GADIR	62514	Q1QDVRI	62510	Q1GMURI
62504	Q1GSBRI	62455	Q1GADRI	62756	Q8QARRAY	62736	Q8GIOTAB	62666	Q8QEXITS	62637	Q8QBNTRY
62636	Q8GOUTTB	63023	PWRTBL	64041	Q8QLGOTC	63377	Q8GIFRMT	63430	Q8GFORMT	62712	Q8QIOSET
62672	Q8GSENSE	63435	Q8GEDITS	60103	Q8QERROR	63321	PWRTBLO	63014	Q8GIOERR	65575	Q8QLGINC
60630	EXP	67254	DELTA	67357	DOTS	62555	Q1GSTIR	62566	Q1GSTRI	66475	Y3
62231	Q1GEXRI	61961	Q1GEXRR	64046	Q8QLGOTR	65601	Q8GLGINR	64041	Q8QLGOTI	65575	Q8QLGINI
64511	Q8GENGOT	63740	Q8GINGOT	66150	Q8QENGIN	65476	Q8GINGIN	60473	SQRT	60604	SIGN
66712	ATMOSP	61207	ATAN	61143	TAN	72042	CONVERG	60457	ABS	70410	ACCEL
67646	RUNGEK	71044	OUTPUT	73043	CONTRL	71421	DRG	67251	SET	70115	RESULT
61000	ASIN	61956	SIN	61350	COS	61105	ACOS	70514	OUT	75076	ABRT
03765	BUFLD	03767	FDFBOXS	05717	RIO	02432	EINT.	02416	DINT.	05710	BNJ.
01756	LLCS	01757	CIT.STN	05770	RDCKSUM	06041	START2	05476	ACCOUNTS	07135	LOADER
05543	FLOAT1	03767	ABNORMAL	00014	CIO	05535	MEMORY	04650	MIBUF	04674	MIRKADD
04675	MIRCEADL	05013	ESI	05243	UST	05305	CST	05456	BRBT	05436	BHT
02011	CIT	05074	ABT								

COMM

06277 071 2

DATA

NONE

EXTA

NONE

Section VI

EXAMPLES

FLYBACK TEST CASE

ALPHA CONTROL 2

GLIDE OPTION 1

	MACH NUMBER	CL 0	CL 1	CL 2	CD 0	ATRN
1	0	0	3.000000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
2	2.500000E-01	0	4.000000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
3	5.000000E-01	0	4.600000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
4	7.500000E-01	0	4.900000E-02	-2.200000E-04	4.360000E-02	2.500000E 01
5	1.000000E 00	0	5.100000E-02	-1.060000E-04	4.570000E-02	2.500000E 01
6	1.250000E 00	0	5.100000E-02	0	7.900000E-02	2.500000E 01
7	1.500000E 00	0	4.650000E-02	6.000000E-05	7.900000E-02	3.000000E 01
8	1.750000E 00	0	4.200000E-02	9.000000E-05	6.350000E-02	3.000000E 01
9	2.000000E 00	0	3.750000E-02	1.200000E-04	5.750000E-02	3.000000E 01
10	2.500000E 00	0	3.100000E-02	1.500000E-04	4.950000E-02	3.000000E 01
11	3.000000E 00	0	2.750000E-02	1.500000E-04	4.300000E-02	3.000000E 01
12	4.000000E 00	0	2.150000E-02	1.500000E-04	3.650000E-02	3.000000E 01
13	5.000000E 00	0	1.950000E-02	1.200000E-04	3.000000E-02	3.000000E 01
14	6.000000E 00	0	1.700000E-02	7.000000E-05	3.000000E-02	3.000000E 01
15	8.000000E 00	0	1.500000E-02	-7.000000E-05	2.950000E-02	3.000000E 01
16	1.200000E 01	0	1.300000E-02	-1.500000E-04	2.950000E-02	3.000000E 01

WHT	2.46603E 05	VEL	9.72100E 03	RANG	5.01854E 05	GAM	1.07530E 01	ALT	1.52640E 05
ZL	9.50000E 01	RF	2.09022E 07	XLON	8.10000E 01	XLAT	-.85000E 01	AREA	5.73300E 03
CK1	1.18000E 00	XN	4.00000E 00	CK20	1.00000E 00	CK23	.00000E 00	XGO	3.21740E 01
XLOB	8.10000E 01	XLAB	2.85000E 01	DELT	1.00000E 00	GRMX	4.00000E 00	PCA	1.40000E 02
GAMA	0	PB	4.50000E 01	DPB	5.00000E 00	GAMC	-9.70000E 00	DZR	2.00000E 01
ZDD	1.00000E 00	XMB	8.00000E-01	ALTR	3.90000E 04	TE	9.81200E 03	DTP	1.00000E 00
SFC	4.31000E-01	ATOL	1.00000E 03	XTOL	5.00000E-02	CK22	2.00000E 00	GCTL	2.00000E-03
ZRTL	1.00000E-01	DHFB	1.00000E 04	WEMP	2.15000E 03	C231	.00000E 00	C232	1.00000E 00
C233	1.00000E 00	C234	1.00000E 00	C235	1.00000E 00	C236	.00000E 00	C237	1.00000E 00
C238	1.00000E 00	DEDH	1.00000E-01						

TIM	0	WHT	2.46603E 05	VEL	9.72100E 03	RANG	1.35954E-02	GAM	1.07530E 01
ALT	1.82640E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	8.99841E 00
SOS	1.08634E 03	LIFT	-9.43370E 04	DRAG	7.95395E 04	QATM	5.21765E 01	RHO	1.16429E-06
GR	5.00474E-01	ZDOT	0	ZB	2.74912E 02	XLON	5.09997E 01	XLAT	2.55006E 01
GAMC	-9.70000E 00	THR	0	GV	3.15690E-01				

TIM	1.00000E 00	WHT	2.46603E 05	VEL	9.70590E 03	RANG	1.57106E 00	GAM	1.05244E 01
ALT	1.84433E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00001E 01	MACH	8.97434E 00
SOS	1.08152E 03	LIFT	-8.86864E 04	DRAG	7.47753E 04	QATM	4.91512E 01	RHO	1.04138E-06
GR	4.70403E-01	ZDOT	0	ZB	3.15804E 02	XLON	6.09806E 01	XLAT	2.85175E 01
GAMC	-9.70000E 00	THR	0	GV	2.98198E-01				

TIM	2.00000E 00	WHT	2.46603E 05	VEL	9.69753E 03	RANG	3.12756E 00	GAM	1.03325E 01

ALT	1.8[illegible]E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.00010E 00
SOS	1.07577E 03	LIFT	-4.21886E 04	DRAG	2.54608E 04	QATM	4.62101E 01	RHO	9.02752E-07
GR	1.99835E-01	ZDOT	0	ZR	2.91[illegible]7E 02	XLON	8.09546E 01	XLAT	2.05152E 01
GAMC	-9.70000E 00	THR	0	GV	1.49783E-01				

TIM	3.00000E 00	WHT	2.46603E 05	VEL	9.68946E 03	RANG	4.68361E 00	GAM	1.01421E 01
ALT	1.87912E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.03702E 00
SOS	1.07210E 03	LIFT	-3.96986E 04	DRAG	2.39765E 04	QATM	4.35626E 01	RHO	9.27992E-07
GR	1.88065E-01	ZDOT	0	ZR	2.83520E 02	XLON	8.09290E 01	XLAT	2.45130E 01
GAMC	-9.70000E 00	THR	0	GV	1.41346E-01				

TIM	4.00000E 00	WHT	2.46603E 05	VEL	9.68[illegible]7E 03	RANG	6.23915E 00	GAM	9.95342E 00
ALT	1.89[illegible]E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]9940E 00
SOS	1.06[illegible]E 03	LIFT	-3.73805E 04	DRAG	2.25556E 04	QATM	4.10944E 01	RHO	9.[illegible]8[illegible]E-07
GR	1.77108E-01	ZDOT	0	ZR	2.77275E 02	XLON	8.09[illegible]E 01	XLAT	2.05[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	1.33468E-01				

TIM	5.00000E 00	WHT	2.46603E 05	VEL	9.67[illegible]3E 03	RANG	7.79425E 00	GAM	9.75620E 00
ALT	1.91259E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]
SOS	1.04297E 03	LIFT	-3.52215E 04	DRAG	2.12954E 04	QATM	3.87924E 01	RHO	9.[illegible]-07
GR	1.66904E-01	ZDOT	0	ZR	2.74501E 02	XLON	8.08774E 01	XLAT	2.[illegible]
GAMC	-9.70001E 00	THR	0	GV	1.26109E-01				

TIM	6.00000E 00	WHT	2.46603E 05	VEL	9.66605E 03	RANG	9.34886E 00	GAM	9.[illegible]
ALT	1.92394E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]
SOS	1.05651E 03	LIFT	-3.32192E 04	DRAG	2.08391E 04	QATM	3.66444E 01	RHO	7.84273E-07
GR	1.57396E-01	ZDOT	0	ZR	2.72805E 02	XLON	8.08516E 01	XLAT	2.[illegible]
GAMC	-9.70002E 00	THR	0	GV	1.19224E-01				

TIM	7.00000E 00	WHT	2.46603E 05	VEL	9.65[illegible]1E 03	RANG	1.09[illegible]E 01	GAM	9.[illegible]
ALT	1.94477E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]
SOS	1.05411E 03	LIFT	-3.13354E 04	DRAG	1.89[illegible]E 04	QATM	3.46559E 01	RHO	7.42445E-07
GR	1.48531E-01	ZDOT	0	ZR	2.71[illegible]E 02	XLON	8.08[illegible]E 01	XLAT	2.05[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	1.12[illegible]E-01				

TIM	8.00000E 00	WHT	2.46603E 05	VEL	9.63[illegible]1E 03	RANG	[illegible]	GAM	9.[illegible]
ALT	1.96430E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]
SOS	1.04979E 03	LIFT	-2.95872E 04	DRAG	1.79147E 04	QATM	3.27[illegible]E 01	RHO	7.[illegible]-07
GR	1.40265E-01	ZDOT	0	ZR	2.70[illegible]E 02	XLON	8.08[illegible]E 01	XLAT	2.05[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	1.05769E-01				

TIM	9.00000E 00	WHT	2.46603E 05	VEL	9.64590E 03	RANG	1.41[illegible]E 01	GAM	9.[illegible]
ALT	1.97568E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]
SOS	1.04954E 03	LIFT	-2.79565E 04	DRAG	1.69555E 04	QATM	3.1[illegible]E 01	RHO	6.[illegible]-07
GR	1.32553E-01	ZDOT	0	ZR	2.73[illegible]E 02	XLON	8.07[illegible]E 01	XLAT	2.[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	1.01179E-01				

TIM	1.00000E 01	WHT	2.46603E 05	VEL	9.64[illegible]2E 03	RANG	1.55634E 01	GAM	8.54[illegible]E 00
ALT	1.99[illegible]E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]
SOS	1.04152E 03	LIFT	-2.54346E 04	DRAG	1.60[illegible]9E 04	QATM	2.93827E 01	RHO	6.[illegible]-07
GR	1.25356E-01	ZDOT	0	ZR	2.70959E 02	XLON	8.07459E 01	XLAT	2.54[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	9.592[illegible]1E-02				

TIM	1.10000E 01	WHT	2.46603E 05	VEL	9.63[illegible]3E 03	RANG	1.7[illegible]E 01	GAM	8.[illegible]
ALT	2.00934E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]
SOS	1.03725E 03	LIFT	-2.50142E 04	DRAG	1.51[illegible]8E 04	QATM	2.78[illegible]E 01	RHO	6.[illegible]-07
GR	1.18637E-01	ZDOT	0	ZR	2.71445E 02	XLON	8.07227E 01	XLAT	2.54903E 01
GAMC	-9.70000E 00	THR	0	GV	9.14[illegible]2E-02				

TIM	1.20000E 01	WHT	2.46603E 05	VEL	9.62[illegible]4E 03	RANG	1.86694E 01	GAM	8.[illegible]
ALT	2.01971E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]
SOS	1.03321E 03	LIFT	-2.36877E 04	DRAG	1.43[illegible]8E 04	QATM	2.63[illegible]9E 01	RHO	5.[illegible]-07
GR	1.13561E-01	ZDOT	0	ZR	2.71[illegible]2E 02	XLON	8.06969E 01	XLAT	2.54[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	8.65966E-02				

TIM	1.30000E 01	WHT	2.46603E 05	VEL	9.62[illegible]3E 03	RANG	2.02[illegible]5E 01	GAM	8.[illegible]
ALT	2.03370E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]
SOS	1.02925E 03	LIFT	-2.24484E 04	DRAG	1.36[illegible]8E 04	QATM	2.30870E 01	RHO	5.[illegible]-07
GR	1.06498E-01	ZDOT	0	ZR	2.72[illegible]9E 02	XLON	8.06712E 01	XLAT	2.[illegible]
GAMC	-9.70000E 00	THR	0	GV	8.28842E-02				

TIM	1.40000E 01	WHT	2.46603E 05	VEL	9.61[illegible]0E 03	RANG	2.17722E 01	GAM	8.[illegible]
ALT	2.04753E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.[illegible]
SOS	1.02535E 03	LIFT	-2.13904E 04	DRAG	1.29[illegible]7E 04	QATM	2.38[illegible]1E 01	RHO	5.[illegible]-07
GR	1.01314E-01	ZDOT	0	ZR	2.72459E 02	XLON	8.06454E 01	XLAT	2.[illegible]
GAMC	-9.70000E 00	THR	0	GV	7.894[illegible]2E-02				

TIM	1.50000E 01	WHT	2.46603E 05	VEL	9.61[illegible]4E 03	RANG	2.31[illegible]5E 01	GAM	7.97[illegible]E 00
ALT	2.06298E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.4[illegible]
SOS	1.02152E 03	LIFT	-2.02080E 04	DRAG	1.22[illegible]5E 04	QATM	2.26645E 01	RHO	4.[illegible]-07
GR	9.58967E-02	ZDOT	0	ZR	2.72761E 02	XLON	8.06397E 01	XLAT	2.54[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	7.426[illegible]2E-02				

TIM	1.60000E 01	WHT	2.46603E 05	VEL	9.60[illegible]5E 03	RANG	2.48746E 01	GAM	7.78064E 00

ALT	2.07414E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.43791E 00
SOS	1.01777E 03	LIFT	-1.91958E 04	DRAG	1.16744E 04	QATM	2.15673E 01	RHO	4.67490E-07
GR	9.11064E-02	ZDOT	0	ZB	2.72993E 02	XLON	8.05940E 01	XLAT	2.64837E 01
GAMC	-9.70000E 00	THR	0	GV	7.07173E-02				

TIM	1.70000E 01	WHT	2.46603E 05	VEL	9.60051E 03	RANG	2.64254E 01	GAM	7.60499E 00
ALT	2.08699E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.46710E 00
SOS	1.01409E 03	LIFT	-1.82491E 04	DRAG	1.11144E 04	QATM	2.05396E 01	RHO	4.45690E-07
GR	8.66254E-02	ZDOT	0	ZB	2.73200E 02	XLON	8.05682E 01	XLAT	2.64814E 01
GAMC	-9.70000E 00	THR	0	GV	6.73[illegible]8E-02				

TIM	1.80000E 01	WHT	2.46603E 05	VEL	9.59594E 03	RANG	2.79760E 01	GAM	7.42982E 00
ALT	2.09955E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.49597E 00
SOS	1.01649E 03	LIFT	-1.73634E 04	DRAG	1.05709E 04	QATM	1.95767E 01	RHO	4.25236E-07
GR	8.24325E-02	ZDOT	0	ZB	2.73586E 02	XLON	8.05425E 01	XLAT	2.84792E 01
GAMC	-9.70000E 00	THR	0	GV	6.42700E-02				

TIM	1.90000E 01	WHT	2.46603E 05	VEL	9.59071E 03	RANG	2.95262E 01	GAM	7.25522E 00
ALT	2.11181E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.52450E 00
SOS	1.00695E 03	LIFT	-1.65345E 04	DRAG	1.00714E 04	QATM	1.86742E 01	RHO	4.06042E-07
GR	7.85082E-02	ZDOT	0	ZB	2.73555E 02	XLON	8.05166E 01	XLAT	2.84769E 01
GAMC	-9.70000E 00	THR	0	GV	6.13544E-02				

TIM	2.00000E 01	WHT	2.46603E 05	VEL	9.58603E 03	RANG	3.10762E 01	GAM	7.08112E 00
ALT	2.12377E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.55267E 00
SOS	1.00349E 03	LIFT	-1.57586E 04	DRAG	9.60370E 03	QATM	1.78282E 01	RHO	3.88026E-07
GR	7.48343E-02	ZDOT	0	ZB	2.73749E 02	XLON	8.04911E 01	XLAT	2.84747E 01
GAMC	-9.70000E 00	THR	0	GV	5.86[illegible]3E-02				

TIM	2.10000E 01	WHT	2.46603E 05	VEL	9.58149E 03	RANG	3.26260E 01	GAM	6.90746E 00
ALT	2.13544E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.56048E 00
SOS	1.00011E 03	LIFT	-1.50321E 04	DRAG	9.16556E 03	QATM	1.70356E 01	RHO	3.71114E-07
GR	7.13940E-02	ZDOT	0	ZB	2.73851E 02	XLON	8.04654E 01	XLAT	2.84724E 01
GAMC	-9.70000E 00	THR	0	GV	5.60451E-02				

TIM	2.20000E 01	WHT	2.46603E 05	VEL	9.57708E 03	RANG	3.41755E 01	GAM	6.73425E 00
ALT	2.14682E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.60769E 00
SOS	9.96793E 02	LIFT	-1.43517E 04	DRAG	8.75507E 03	QATM	1.62911E 01	RHO	3.55234E-07
GR	6.81718E-02	ZDOT	0	ZB	2.73962E 02	XLON	8.04396E 01	XLAT	2.84702E 01
GAMC	-9.70000E 00	THR	0	GV	5.36328E-02				

TIM	2.30000E 01	WHT	2.46603E 05	VEL	9.57261E 03	RANG	3.57248E 01	GAM	6.56139E 00
ALT	2.15790E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.63490E 00
SOS	9.93556E 02	LIFT	-1.37144E 04	DRAG	8.37041E 03	QATM	1.55935E 01	RHO	3.40322E-07
GR	6.51533E-02	ZDOT	0	ZB	2.74113E 02	XLON	8.04139E 01	XLAT	2.84679E 01
GAMC	-9.70000E 00	THR	0	GV	5.13704E-02				

TIM	2.40000E 01	WHT	2.46603E 05	VEL	9.56867E 03	RANG	3.72739E 01	GAM	6.35892E 00
ALT	2.16870E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.66143E 00
SOS	9.90395E 02	LIFT	-1.31173E 04	DRAG	8.00290E 03	QATM	1.49387E 01	RHO	3.26317E-07
GR	6.23250E-02	ZDOT	0	ZB	2.74216E 02	XLON	8.03882E 01	XLAT	2.84657E 01
GAMC	-9.70000E 00	THR	0	GV	4.92473E-02				

TIM	2.50000E 01	WHT	2.46603E 05	VEL	9.56460E 03	RANG	3.88227E 01	GAM	6.21677E 00
ALT	2.17920E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.68761E 00
SOS	9.87308E 02	LIFT	-1.25579E 04	DRAG	7.67196E 03	QATM	1.43245E 01	RHO	3.10162E-07
GR	5.96746E-02	ZDOT	0	ZB	2.74322E 02	XLON	8.03625E 01	XLAT	2.84634E 01
GAMC	-9.70000E 00	THR	0	GV	4.72250E-02				

TIM	2.60000E 01	WHT	2.46603E 05	VEL	9.55677E 03	RANG	4.03715E 01	GAM	6.04495E 00
ALT	2.18941E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.71329E 00
SOS	9.84299E 02	LIFT	-1.20336E 04	DRAG	7.35535E 03	QATM	1.37481E 01	RHO	3.00806E-07
GR	5.71937E-02	ZDOT	0	ZB	2.74422E 02	XLON	8.03366E 01	XLAT	2.84612E 01
GAMC	-9.70000E 00	THR	0	GV	4.53872E-02				

TIM	2.70000E 01	WHT	2.46603E 05	VEL	9.55711E 03	RANG	4.19196E 01	GAM	5.87340E 00
ALT	2.19934E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.73848E 00
SOS	9.81365E 02	LIFT	-1.15422E 04	DRAG	7.05811E 03	QATM	1.32672E 01	RHO	2.89199E-07
GR	5.48624E-02	ZDOT	0	ZB	2.74515E 02	XLON	8.03112E 01	XLAT	2.84589E 01
GAMC	-9.70000E 00	THR	0	GV	4.36354E-02				

TIM	2.80000E 01	WHT	2.46603E 05	VEL	9.55356E 03	RANG	4.34680E 01	GAM	5.70213E 00
ALT	2.20897E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.76318E 00
SOS	9.78509E 02	LIFT	-1.10817E 04	DRAG	6.77961E 03	QATM	1.26990E 01	RHO	2.78296E-07
GR	5.26600E-02	ZDOT	0	ZB	2.74604E 02	XLON	8.02855E 01	XLAT	2.84567E 01
GAMC	-9.70000E 00	THR	0	GV	4.19836E-02				

TIM	2.90000E 01	WHT	2.46603E 05	VEL	9.54983E 03	RANG	4.50161E 01	GAM	5.53110E 00
ALT	2.21832E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.78737E 00
SOS	9.75730E 02	LIFT	-1.06501E 04	DRAG	6.51847E 03	QATM	1.22232E 01	RHO	2.68055E-07
GR	5.06342E-02	ZDOT	0	ZB	2.74688E 02	XLON	8.02596E 01	XLAT	2.84544E 01
GAMC	-9.70000E 00	THR	0	GV	4.04362E-02				

TIM	3.00000E 01	WHT	2.46603E 05	VEL	9.54641E 03	RANG	4.65639E 01	GAM	5.36031E 00
ALT	2.22738E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.41102E 00
SOS	9.73029E 02	LIFT	-1.02455E 04	DRAG	6.27361E 03	QATM	1.17761E 01	RHO	2.58436E-07
GR	4.87166E-02	ZDOT	0	ZB	2.74768E 02	XLON	8.02341E 01	XLAT	2.84522E 01
GAMC	-9.70000E 00	THR	0	GV	3.89882E-02				

TIM	3.10000E 01	WHT	2.46603E 05	VEL	9.54310E 03	RANG	4.81116E 01	GAM	5.16972E 00
ALT	2.23616E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.63413E 00
SOS	9.70407E 02	LIFT	-9.86629E 03	DRAG	6.04405E 03	QATM	1.13566E 01	RHO	2.49402E-07
GR	4.69191E-02	ZDOT	0	ZB	2.74844E 02	XLON	8.02084E 01	XLAT	2.84499E 01
GAMC	-9.70000E 00	THR	0	GV	3.76278E-02				

TIM	3.20000E 01	WHT	2.46603E 05	VEL	9.53991E 03	RANG	4.96591E 01	GAM	5.01933E 00
ALT	2.24465E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.85667E 00
SOS	9.67863E 02	LIFT	-9.51094E 03	DRAG	5.82884E 03	QATM	1.09636E 01	RHO	2.40919E-07
GR	4.52345E-02	ZDOT	0	ZB	2.74917E 02	XLON	8.01827E 01	XLAT	2.84477E 01
GAMC	-9.70000E 00	THR	0	GV	3.63519E-02				

TIM	3.30000E 01	WHT	2.46603E 05	VEL	9.53682E 03	RANG	5.12065E 01	GAM	4.84915E 00
ALT	2.25285E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.87864E 00
SOS	9.65399E 02	LIFT	-9.17800E 03	DRAG	5.62713E 03	QATM	1.05936E 01	RHO	2.32955E-07
GR	4.36560E-02	ZDOT	0	ZB	2.74967E 02	XLON	8.01571E 01	XLAT	2.84455E 01
GAMC	-9.70000E 00	THR	0	GV	3.51556E-02				

TIM	3.40000E 01	WHT	2.46603E 05	VEL	9.53354E 03	RANG	5.27537E 01	GAM	4.67909E 00
ALT	2.26077E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.90000E 00
SOS	9.63014E 02	LIFT	-8.86611E 03	DRAG	5.43812E 03	QATM	1.02475E 01	RHO	2.25482E-07
GR	4.21772E-02	ZDOT	0	ZB	2.75055E 02	XLON	8.01314E 01	XLAT	2.84432E 01
GAMC	-9.70000E 00	THR	0	GV	3.40343E-02				

TIM	3.50000E 01	WHT	2.46603E 05	VEL	9.53096E 03	RANG	5.43007E 01	GAM	4.56920E 00
ALT	2.26840E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.92075E 00
SOS	9.60709E 02	LIFT	-8.57404E 03	DRAG	5.26106E 03	QATM	9.92287E 00	RHO	2.18471E-07
GR	4.07922E-02	ZDOT	0	ZB	2.75139E 02	XLON	8.01057E 01	XLAT	2.84410E 01
GAMC	-9.70000E 00	THR	0	GV	3.29837E-02				

TIM	3.60000E 01	WHT	2.46603E 05	VEL	9.52819E 03	RANG	5.58476E 01	GAM	4.33946E 00
ALT	2.27576E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.94088E 00
SOS	9.58486E 02	LIFT	-8.30064E 03	DRAG	5.09526E 03	QATM	9.61866E 00	RHO	2.11697E-07
GR	3.94956E-02	ZDOT	0	ZB	2.75162E 02	XLON	8.01801E 01	XLAT	2.84387E 01
GAMC	-9.70000E 00	THR	0	GV	3.20410E-02				

TIM	3.70000E 01	WHT	2.46603E 05	VEL	9.52251E 03	RANG	5.73943E 01	GAM	4.16984E 00
ALT	2.28242E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.96036E 00
SOS	9.56343E 02	LIFT	-8.04483E 03	DRAG	4.94008E 03	QATM	9.33373E 00	RHO	2.05735E-07
GR	3.82823E-02	ZDOT	0	ZB	2.75242E 02	XLON	8.00544E 01	XLAT	2.84365E 01
GAMC	-9.70000E 00	THR	0	GV	3.10796E-02				

TIM	3.80000E 01	WHT	2.46603E 05	VEL	9.52294E 03	RANG	5.89409E 01	GAM	4.00032E 00
ALT	2.28961E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.97918E 00
SOS	9.54281E 02	LIFT	-7.80562E 03	DRAG	4.79493E 03	QATM	9.05702E 00	RHO	1.99964E-07
GR	3.71477E-02	ZDOT	0	ZB	2.75311E 02	XLON	8.00287E 01	XLAT	2.84342E 01
GAMC	-9.70000E 00	THR	0	GV	3.02150E-02				

TIM	3.90000E 01	WHT	2.46603E 05	VEL	9.52047E 03	RANG	6.04874E 01	GAM	3.83097E 00
ALT	2.29611E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	9.99732E 00
SOS	9.52302E 02	LIFT	-7.58210E 03	DRAG	4.65926E 03	QATM	8.81756E 00	RHO	1.94564E-07
GR	3.60874E-02	ZDOT	0	ZB	2.75357E 02	XLON	8.00031E 01	XLAT	2.84320E 01
GAMC	-9.70000E 00	THR	0	GV	2.94151E-02				

TIM	4.00000E 01	WHT	2.46603E 05	VEL	9.51819E 03	RANG	6.20337E 01	GAM	3.66169E 00
ALT	2.30233E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.00148E 01
SOS	9.50404E 02	LIFT	-7.37340E 03	DRAG	4.53225E 03	QATM	8.58444E 00	RHO	1.89514E-07
GR	3.50974E-02	ZDOT	0	ZB	2.75432E 02	XLON	7.99774E 01	XLAT	2.84297E 01
GAMC	-9.70000E 00	THR	0	GV	2.86650E-02				

TIM	4.10000E 01	WHT	2.46603E 05	VEL	9.51581E 03	RANG	6.35799E 01	GAM	3.49250E 00
ALT	2.30827E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.00315E 01
SOS	9.48589E 02	LIFT	-7.17876E 03	DRAG	4.41424E 03	QATM	8.36660E 00	RHO	1.84798E-07
GR	3.41739E-02	ZDOT	0	ZB	2.75466E 02	XLON	7.99516E 01	XLAT	2.84275E 01
GAMC	-9.70000E 00	THR	0	GV	2.79660E-02				

TIM	4.20000E 01	WHT	2.46603E 05	VEL	9.51362E 03	RANG	6.51259E 01	GAM	3.32340E 00
ALT	2.31392E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.00476E 01
SOS	9.46858E 02	LIFT	-6.99742E 03	DRAG	4.30419E 03	QATM	8.16388E 00	RHO	1.80399E-07
GR	3.33136E-02	ZDOT	0	ZB	2.75518E 02	XLON	7.99261E 01	XLAT	2.84252E 01
GAMC	-9.70000E 00	THR	0	GV	2.73157E-02				

TIM	4.30000E 01	WHT	2.46603E 05	VEL	9.51153E 03	RANG	6.66719E 01	GAM	3.15437E 00
ALT	2.31930E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.00679E 01
SOS	9.45209E 02	LIFT	-6.82873E 03	DRAG	4.20169E 03	QATM	7.97496E 00	RHO	1.76302E-07
GR	3.25132E-02	ZDOT	0	ZB	2.75568E 02	XLON	7.99005E 01	XLAT	2.84233E 01
GAMC	-9.70000E 00	THR	0	GV	2.67137E-02				

TIM	4.40000E 01	WHT	2.46603E 05	VEL	9.50953E 03	RANG	6.82177E 01	GAM	2.98542E 00
ALT	2.32459E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.00772E 01
SOS	9.43844E 02	LIFT	-6.67206E 03	DRAG	4.10648E 03	QATM	7.79936E 00	RHO	1.72493E-07
GR	3.17697E-02	ZDOT	0	ZB	2.75618E 02	XLON	7.98748E 01	XLAT	2.84208E 01
GAMC	-9.70000E 00	THR	0	GV	2.61519E-02				

TIM	4.50000E 01	WHT	2.46603E 05	VEL	9.50763E 03	RANG	6.97639E 01	GAM	2.81653E 00
ALT	2.32921E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.00913E 01
SOS	9.43143E 02	LIFT	-6.52683E 03	DRAG	4.01820E 03	QATM	7.63646E 00	RHO	1.68958E-07
GR	3.15956E-02	ZDOT	0	ZB	2.75666E 02	XLON	7.98492E 01	XLAT	2.84185E 01
GAMC	-9.70000E 00	THR	0	GV	2.56343E-02				

TIM	4.60000E 01	WHT	2.46603E 05	VEL	9.50581E 03	RANG	7.13090E 01	GAM	2.64770E 00
ALT	2.33574E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01043E 01
SOS	9.40767E 02	LIFT	-6.39252E 03	DRAG	3.93654E 03	QATM	7.48572E 00	RHO	1.65686E-07
GR	3.04432E-02	ZDOT	0	ZB	2.75713E 02	XLON	7.98235E 01	XLAT	2.84163E 01
GAMC	-9.70000E 00	THR	0	GV	2.51573E-02				

TIM	4.70000E 01	WHT	2.46603E 05	VEL	9.50499E 03	RANG	7.28544E 01	GAM	2.47892E 00
ALT	2.33799E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01166E 01
SOS	9.39455E 02	LIFT	-6.26865E 03	DRAG	3.86121E 03	QATM	7.34059E 00	RHO	1.62665E-07
GR	2.98553E-02	ZDOT	0	ZB	2.75759E 02	XLON	7.97979E 01	XLAT	2.84140E 01
GAMC	-9.70000E 00	THR	0	GV	2.47190E-02				

TIM	4.80000E 01	WHT	2.46603E 05	VEL	9.50245E 03	RANG	7.43996E 01	GAM	2.31019E 00
ALT	2.34196E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01281E 01
SOS	9.38229E 02	LIFT	-6.15477E 03	DRAG	3.79195E 03	QATM	7.21861E 00	RHO	1.59887E-07
GR	2.93148E-02	ZDOT	0	ZB	2.75805E 02	XLON	7.97722E 01	XLAT	2.84118E 01
GAMC	-9.70000E 00	THR	0	GV	2.43161E-02				

TIM	4.90000E 01	WHT	2.46603E 05	VEL	9.50020E 03	RANG	7.59451E 01	GAM	2.14150E 00
ALT	2.34565E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01388E 01
SOS	9.37687E 02	LIFT	-6.05047E 03	DRAG	3.72850E 03	QATM	7.10134E 00	RHO	1.57340E-07
GR	2.88197E-02	ZDOT	0	ZB	2.75849E 02	XLON	7.97466E 01	XLAT	2.84095E 01
GAMC	-9.70000E 00	THR	0	GV	2.39551E-02				

TIM	5.00000E 01	WHT	2.46603E 05	VEL	9.49945E 03	RANG	7.74903E 01	GAM	1.97285E 00
ALT	2.34906E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01487E 01
SOS	9.36830E 02	LIFT	-5.95539E 03	DRAG	3.67065E 03	QATM	6.99438E 00	RHO	1.55018E-07
GR	2.83684E-02	ZDOT	0	ZB	2.75892E 02	XLON	7.97210E 01	XLAT	2.84073E 01
GAMC	-9.70000E 00	THR	0	GV	2.36229E-02				

TIM	5.10000E 01	WHT	2.46603E 05	VEL	9.49507E 03	RANG	7.90353E 01	GAM	1.80423E 00
ALT	2.35219E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01577E 01
SOS	9.35860E 02	LIFT	-5.86918E 03	DRAG	3.61870E 03	QATM	6.89737E 00	RHO	1.52912E-07
GR	2.79532E-02	ZDOT	0	ZB	2.75935E 02	XLON	7.96953E 01	XLAT	2.84051E 01
GAMC	-9.70000E 00	THR	0	GV	2.33264E-02				

TIM	5.20000E 01	WHT	2.46603E 05	VEL	9.49679E 03	RANG	8.05803E 01	GAM	1.63563E 00
ALT	2.35564E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01660E 01
SOS	9.34175E 02	LIFT	-5.79156E 03	DRAG	3.57896E 03	QATM	6.80998E 00	RHO	1.51016E-07
GR	2.75908E-02	ZDOT	0	ZB	2.75977E 02	XLON	7.96697E 01	XLAT	2.84028E 01
GAMC	-9.70000E 00	THR	0	GV	2.30625E-02				

TIM	5.30000E 01	WHT	2.46603E 05	VEL	9.49559E 03	RANG	8.21252E 01	GAM	1.46770E 00
ALT	2.35761E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01734E 01
SOS	9.33376E 02	LIFT	-5.72224E 03	DRAG	3.52878E 03	QATM	6.73192E 00	RHO	1.49322E-07
GR	2.72617E-02	ZDOT	0	ZB	2.76018E 02	XLON	7.96441E 01	XLAT	2.84006E 01
GAMC	-9.70000E 00	THR	0	GV	2.28303E-02				

TIM	5.40000E 01	WHT	2.46603E 05	VEL	9.49447E 03	RANG	8.36700E 01	GAM	1.29852E 00
ALT	2.35990E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01800E 01
SOS	9.32664E 02	LIFT	-5.66099E 03	DRAG	3.49150E 03	QATM	6.66294E 00	RHO	1.47829E-07
GR	2.69718E-02	ZDOT	0	ZB	2.76059E 02	XLON	7.96184E 01	XLAT	2.83968E 01
GAMC	-9.70000E 00	THR	0	GV	2.26292E-02				

TIM	5.50000E 01	WHT	2.46603E 05	VEL	9.49349E 03	RANG	8.52147E 01	GAM	1.12998E 00
ALT	2.36191E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01857E 01
SOS	9.32038E 02	LIFT	-5.60760E 03	DRAG	3.45991E 03	QATM	6.60279E 00	RHO	1.46524E-07
GR	2.67175E-02	ZDOT	0	ZB	2.76099E 02	XLON	7.95928E 01	XLAT	2.83961E 01
GAMC	-9.70000E 00	THR	0	GV	2.24524E-02				

TIM	5.60000E 01	WHT	2.46603E 05	VEL	9.49200E 03	RANG	8.67595E 01	GAM	9.61464E-01
ALT	2.36364E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01906E 01
SOS	9.31499E 02	LIFT	-5.56188E 03	DRAG	3.43118E 03	QATM	6.55129E 00	RHO	1.45411E-07
GR	2.65005E-02	ZDOT	0	ZB	2.76159E 02	XLON	7.95672E 01	XLAT	2.83938E 01
GAMC	-9.70000E 00	THR	0	GV	2.23173E-02				

TIM	5.70000E 01	WHT	2.46603E 05	VEL	9.49164E 03	RANG	8.83039E 01	GAM	7.92953E-01
ALT	2.36511E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01946E 01
SOS	9.31046E 02	LIFT	-5.52367E 03	DRAG	3.40793E 03	QATM	6.51827E 00	RHO	1.44482E-07
GR	2.67151E-02	ZDOT	0	ZB	2.76217E 02	XLON	7.95415E 01	XLAT	2.83916E 01
GAMC	-9.70000E 00	THR	0	GV	2.22957E-02				

TIM	5.60000E 01	WHT	2.46603E 05	VEL	9.49066E 03	RANG	8.98483E 01	GAM	6.24448E-01
ALT	2.36627E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.01978E 01
SOS	9.30680E 02	LIFT	-5.49285E 03	DRAG	3.38917E 03	QATM	6.47357E 00	RHO	1.43735E-07
GR	2.61728E-02	ZDOT	0	ZB	2.76216E 02	XLON	7.95159E 01	XLAT	2.83894E 01
GAMC	-9.70000E 00	THR	0	GV	2.21230E-02				

TIM	5.90000E 01	WHT	2.46603E 05	VEL	9.49016E 03	RANG	9.13927E 01	GAM	4.55946E-01
ALT	2.36717E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.02001E 01
SOS	9.30672E 02	LIFT	-5.46931E 03	DRAG	3.37485E 03	QATM	6.44710E 00	RHO	1.43168E-07
GR	2.60611E-02	ZDOT	0	ZB	2.76254E 02	XLON	7.94903E 01	XLAT	2.83871E 01
GAMC	-9.70000E 00	THR	0	GV	2.20690E-02				

TIM	6.00000E 01	WHT	2.46603E 05	VEL	9.48954E 03	RANG	9.29370E 01	GAM	2.87442E-01
ALT	2.36778E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.02015E 01
SOS	9.30210E 02	LIFT	-5.45296E 03	DRAG	3.36491E 03	QATM	6.42875E 00	RHO	1.42780E-07
GR	2.59835E-02	ZDOT	0	ZB	2.76251E 02	XLON	7.94647E 01	XLAT	2.83849E 01
GAMC	-9.70000E 00	THR	0	GV	2.20496E-02				

TIM	6.10000E 01	WHT	2.46603E 05	VEL	9.48901E 03	RANG	9.44812E 01	GAM	1.16934E-01
ALT	2.36812E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.02021E 01
SOS	9.30105E 02	LIFT	-5.44375E 03	DRAG	3.35952E 03	QATM	6.41847E 00	RHO	1.42567E-07
GR	2.59398E-02	ZDOT	0	ZB	2.76248E 02	XLON	7.94391E 01	XLAT	2.83826E 01
GAMC	-9.70000E 00	THR	0	GV	2.20466E-02				

TIM	6.20000E 01	WHT	2.46603E 05	VEL	9.48855E 03	RANG	9.60254E 01	GAM	-4.95814E-02
ALT	2.36816E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.35000E 01	MACH	1.02018E 01
SOS	9.30087E 02	LIFT	-5.44165E 03	DRAG	3.35846E 03	QATM	6.41623E 00	RHO	1.42531E-07
GR	2.59299E-02	ZDOT	0	ZB	2.76234E 02	XLON	7.94134E 01	XLAT	2.83804E 01
GAMC	-9.70000E 00	THR	0	GV	2.20782E-02				

GAMA REACHED

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TIM	6.30000E 01	WHT	2.46603E 05	VEL	9.48818E 03	RANG	9.75695E 01	GAM	-2.18091E-01
ALT	2.36795E 05	PHI	1.75000E 02	Z	9.50005E 01	ALPH	1.35000E-01	MACH	1.02006E 01
SOS	9.30156E 02	LIFT	-5.44666E 03	DRAG	3.36133E 03	QATM	6.42201E 00	RHO	1.42671E-07
GR	2.59537E-02	ZDOT	3.73786E-04	ZB	2.76401E 02	XLON	7.93878E 01	XLAT	2.83781E 01
GAMC	-9.70000E 00	THR	0	GV	2.21385E-02				

TIM	6.40000E 01	WHT	2.46603E 05	VEL	9.48786E 03	RANG	9.91135E 01	GAM	-3.86566E-01
ALT	2.36745E 05	PHI	1.70000E 02	Z	9.50002E 01	ALPH	1.35000E 01	MACH	1.01986E 01
SOS	9.30412E 02	LIFT	-5.45877E 03	DRAG	3.36853E 03	QATM	6.43583E 00	RHO	1.42987E-07
GR	2.60113E-02	ZDOT	7.45945E-04	ZB	2.76436E 02	XLON	7.93622E 01	XLAT	2.83759E 01
GAMC	-9.70000E 00	THR	0	GV	2.22275E-02				

TIM	6.50000E 01	WHT	2.46603E 05	VEL	9.48767E 03	RANG	1.00657E 02	GAM	-5.54977E-01
ALT	2.36667E 05	PHI	1.65000E 02	Z	9.50004E 01	ALPH	1.35000E 01	MACH	1.01957E 01
SOS	9.30555E 02	LIFT	-5.47804E 03	DRAG	3.38049E 03	QATM	6.45774E 00	RHO	1.43480E-07
GR	2.61028E-02	ZDOT	1.11508E-03	ZB	2.76432E 02	XLON	7.93366E 01	XLAT	2.83737E 01
GAMC	-9.70000E 00	THR	0	GV	2.23457E-02				

TIM	6.60000E 01	WHT	2.46603E 05	VEL	9.48753E 03	RANG	1.02201E 02	GAM	-7.23294E-01
ALT	2.36562E 05	PHI	1.60000E 02	Z	9.50038E 01	ALPH	1.35000E 01	MACH	1.01919E 01
SOS	9.30855E 02	LIFT	-5.50453E 03	DRAG	3.39655E 03	QATM	6.48779E 00	RHO	1.44152E-07
GR	2.62286E-02	ZDOT	1.47976E-03	ZB	2.76507E 02	XLON	7.93116E 01	XLAT	2.83714E 01
GAMC	-9.70000E 00	THR	0	GV	2.24955E-02				

TIM	6.70000E 01	WHT	2.46603E 05	VEL	9.48747E 03	RANG	1.03745E 02	GAM	-8.91488E-01
ALT	2.36428E 05	PHI	1.55000E 02	Z	9.50057E 01	ALPH	1.35000E 01	MACH	1.01873E 01
SOS	9.31301E 02	LIFT	-5.53831E 03	DRAG	3.41725E 03	QATM	6.52607E 00	RHO	1.45004E-07
GR	2.63890E-02	ZDOT	1.83859E-03	ZB	2.76541E 02	XLON	7.92853E 01	XLAT	2.83692E 01
GAMC	-9.70000E 00	THR	0	GV	2.26723E-02				

TIM	6.80000E 01	WHT	2.46603E 05	VEL	9.48748E 03	RANG	1.05289E 02	GAM	-1.05953E 00
ALT	2.36266E 05	PHI	1.50000E 02	Z	9.50069E 01	ALPH	1.35000E 01	MACH	1.01818E 01
SOS	9.31804E 02	LIFT	-5.57949E 03	DRAG	3.44255E 03	QATM	6.57271E 00	RHO	1.46040E-07
GR	2.65846E-02	ZDOT	2.19005E-03	ZB	2.76576E 02	XLON	7.92597E 01	XLAT	2.83669E 01
GAMC	-9.70000E 00	THR	0	GV	2.28756E-02				

TIM	6.90000E 01	WHT	2.46603E 05	VEL	9.48757E 03	RANG	1.06833E 02	GAM	-1.22739E 00
ALT	2.36077E 05	PHI	1.45000E 02	Z	9.50104E 01	ALPH	1.35000E 01	MACH	1.01755E 01
SOS	9.32343E 02	LIFT	-5.62821E 03	DRAG	3.47185E 03	QATM	6.62784E 00	RHO	1.47262E-07
GR	2.68160E-02	ZDOT	2.53269E-03	ZB	2.76610E 02	XLON	7.92341E 01	XLAT	2.83647E 01
GAMC	-9.70000E 00	THR	0	GV	2.31193E-02				

TIM	7.00000E 01	WHT	2.46603E 05	VEL	9.48774E 03	RANG	1.08376E 02	GAM	-1.39505E 00
ALT	2.35860E 05	PHI	1.40000E 02	Z	9.50143E 01	ALPH	1.35000E 01	MACH	1.01683E 01
SOS	9.33648E 02	LIFT	-5.68462E 03	DRAG	3.51952E 03	QATM	6.69163E 00	RHO	1.48674E-07
GR	2.70838E-02	ZDOT	2.86495E-03	ZB	2.76644E 02	XLON	7.92085E 01	XLAT	2.83624E 01
GAMC	-9.70000E 00	THR	0	GV	2.33910E-02				

TIM	7.10000E 01	WHT	2.46603E 05	VEL	9.48798E 03	RANG	1.09920E 02	GAM	-1.56246E 00
ALT	2.35615E 05	PHI	1.35000E 02	Z	9.50164E 01	ALPH	1.35000E 01	MACH	1.01603E 01
SOS	9.33829E 02	LIFT	-5.74890E 03	DRAG	3.54958E 03	QATM	6.76427E 00	RHO	1.50281E-07
GR	2.73891E-02	ZDOT	3.18526E-03	ZB	2.76677E 02	XLON	7.91829E 01	XLAT	2.83602E 01
GAMC	-9.70000E 00	THR	0	GV	2.36957E-02				

TIM	7.20000E 01	WHT	2.46603E 05	VEL	9.48860E 03	RANG	1.11463E 02	GAM	-1.72961E 00
ALT	2.35343E 05	PHI	1.30000E 02	Z	9.50199E 01	ALPH	1.35000E 01	MACH	1.01514E 01
SOS	9.34675E 02	LIFT	-5.82125E 03	DRAG	3.58945E 03	QATM	6.84599E 00	RHO	1.52086E-07
GR	2.77326E-02	ZDOT	3.49197E-03	ZB	2.76711E 02	XLON	7.91573E 01	XLAT	2.83579E 01
GAMC	-9.70000E 00	THR	0	GV	2.40343E-02				

TIM	7.36000E 01	WHT	2.46603E 05	VEL	9.48869E 03	RANG	1.13007E 02	GAM	-1.69646E 00
ALT	2.35142E 05	PHI	1.25000E 02	Z	9.50237E 01	ALPH	1.35000E 01	MACH	1.01418E 01
SOS	9.35607E 02	LIFT	-5.90191E 03	DRAG	3.63857E 03	QATM	6.93703E 00	RHO	1.54096E-07
GR	2.81156E-02	ZDOT	3.78339E-03	ZB	2.76744E 02	XLON	7.91317E 01	XLAT	2.83557E 01
GAMC	-9.70000E 00	THR	0	GV	2.44[illegible]0E-02				

TIM	7.40000E 01	WHT	2.46603E 05	VEL	9.48915E 03	RANG	1.14550E 02	GAM	-2.06300E 00
ALT	2.34715E 05	PHI	1.20000E 02	Z	9.50278E 01	ALPH	1.35000E 01	MACH	1.01312E 01
SOS	9.36622E 02	LIFT	-5.99114E 03	DRAG	3.69290E 03	QATM	7.03767E 00	RHO	1.56316E-07
GR	2.85392E-02	ZDOT	4.05776E-03	ZB	2.76777E 02	XLON	7.91061E 01	XLAT	2.83534E 01
GAMC	-9.70000E 00	THR	0	GV	2.48180E-02				

TIM	7.50000E 01	WHT	2.46603E 05	VEL	9.48968E 03	RANG	1.16094E 02	GAM	-2.22918E 00
ALT	2.34359E 05	PHI	1.15000E 02	Z	9.50351E 01	ALPH	1.35000E 01	MACH	1.01199E 01
SOS	9.37722E 02	LIFT	-6.08922E 03	DRAG	3.75261E 03	QATM	7.14825E 00	RHO	1.58754E-07
GR	2.90048E-02	ZDOT	4.31325E-03	ZB	2.76830E 02	XLON	7.90805E 01	XLAT	2.83512E 01
GAMC	-9.70000E 00	THR	0	GV	2.52656E-02				

TIM	7.60000E 01	WHT	2.46603E 05	VEL	9.49029E 03	RANG	1.17637E 02	GAM	-2.39499E 00
ALT	2.33976E 05	PHI	1.10000E 02	Z	9.50366E 01	ALPH	1.35000E 01	MACH	1.01078E 01
SOS	9.38906E 02	LIFT	-6.15648E 03	DRAG	3.81729E 03	QATM	7.26903E 00	RHO	1.61416E-07
GR	2.95139E-02	ZDOT	4.54798E-03	ZB	2.76843E 02	XLON	7.90549E 01	XLAT	2.83489E 01
GAMC	-9.70000E 00	THR	0	GV	2.57524E-02				

TIM	7.70000E 01	WHT	2.46603E 05	VEL	9.49096E 03	RANG	1.19186E 02	GAM	-2.56040E 00
ALT	2.33566E 05	PHI	1.05000E 02	Z	9.50414E 01	ALPH	1.35000E 01	MACH	1.00949E 01
SOS	9.40173E 02	LIFT	-6.31325E 03	DRAG	3.88894E 03	QATM	7.40046E 00	RHO	1.64312E-07
GR	3.00653E-02	ZDOT	4.75997E-03	ZB	2.76875E 02	XLON	7.90295E 01	XLAT	2.83467E 01
GAMC	-9.70000E 00	THR	0	GV	2.62798E-02				

TIM	7.80000E 01	WHT	2.46603E 05	VEL	9.49170E 03	RANG	1.20723E 02	GAM	-2.72558E 00
ALT	2.33124E 05	PHI	1.00000E 02	Z	9.50463E 01	ALPH	1.35000E 01	MACH	1.00812E 01
SOS	9.41523E 02	LIFT	-6.43993E 03	DRAG	3.96601E 03	QATM	7.54293E 00	RHO	1.67449E-07
GR	3.06695E-02	ZDOT	4.94720E-03	ZB	2.76907E 02	XLON	7.90037E 01	XLAT	2.83449E 01
GAMC	-9.70000E 00	THR	0	GV	2.68498E-02				

TIM	7.90000E 01	WHT	2.46603E 05	VEL	9.49251E 03	RANG	1.22260E 02	GAM	-2.88993E 00
ALT	2.32663E 05	PHI	9.50000E 01	Z	9.50515E 01	ALPH	1.35000E 01	MACH	1.00668E 01
SOS	9.42954E 02	LIFT	-6.57693E 03	DRAG	4.04933E 03	QATM	7.69080E 00	RHO	1.70863E-07
GR	3.13197E-02	ZDOT	5.10756E-03	ZB	2.76940E 02	XLON	7.89781E 01	XLAT	2.83422E 01
GAMC	-9.70000E 00	THR	0	GV	2.74641E-02				

TIM	8.00000E 01	WHT	2.46603E 05	VEL	9.49339E 03	RANG	1.23809E 02	GAM	-3.05339E 00
ALT	2.32171E 05	PHI	9.00000E 01	Z	9.50567E 01	ALPH	1.35000E 01	MACH	1.00516E 01
SOS	9.44467E 02	LIFT	6.72470E 03	DRAG	4.13928E 03	QATM	7.86278E 00	RHO	1.74487E-07
GR	3.24210E-02	ZDOT	5.23888E-03	ZB	2.76972E 02	XLON	7.89525E 01	XLAT	2.83399E 01
GAMC	-9.70000E 00	THR	0	GV	2.81248E-02				

TIM	8.10000E 01	WHT	2.46603E 05	VEL	9.49433E 03	RANG	1.25353E 02	GAM	-3.21752E 00
ALT	2.31652E 05	PHI	8.50000E 01	Z	9.50620E 01	ALPH	1.35000E 01	MACH	1.00356E 01
SOS	9.46602E 02	LIFT	6.88372E 03	DRAG	4.23565E 03	QATM	8.04110E 00	RHO	1.78419E-07
GR	3.27757E-02	ZDOT	5.33890E-03	ZB	2.77[illegible]3E 02	XLON	7.89269E 01	XLAT	2.83375E 01
GAMC	-9.70000E 00	THR	0	GV	2.88[illegible]3E-02				

TIM	8.20000E 01	WHT	2.46603E 05	VEL	9.49564E 03	RANG	1.26896E 02	GAM	-3.38056E 00
ALT	2.31166E 05	PHI	8.00000E 01	Z	9.50674E 01	ALPH	1.35000E 01	MACH	1.00190E 01
SOS	9.47736E 02	LIFT	7.05453E 03	DRAG	4.33365E 03	QATM	8.23259E 00	RHO	1.82619E-07
GR	3.35862E-02	ZDOT	5.40534E-03	ZB	2.77[illegible]5E 02	XLON	7.89013E 01	XLAT	2.83354E 01
GAMC	-9.70000E 00	THR	0	GV	2.95947E-02				

TIM	8.30000E 01	WHT	2.46603E 05	VEL	9.49681E 03	RANG	1.28436E 02	GAM	-3.54300E 00
ALT	2.30532E 05	PHI	7.50000E 01	Z	9.50729E 01	ALPH	1.35000E 01	MACH	1.00016E 01
SOS	9.49490E 02	LIFT	7.23768E 03	DRAG	4.45[illegible]3E 03	QATM	8.43766E 00	RHO	1.87126E-07
GR	3.44552E-02	ZDOT	5.43585E-03	ZB	2.77[illegible]7E 02	XLON	7.88757E 01	XLAT	2.83331E 01
GAMC	-9.70000E 00	THR	0	GV	3.04388E-02				

TIM	8.40000E 01	WHT	2.46603E 05	VEL	9.49794E 03	RANG	1.29981E 02	GAM	-3.70502E 00
ALT	2.29932E 05	PHI	7.00000E 01	Z	9.50783E 01	ALPH	1.35000E 01	MACH	9.98351E 00
SOS	9.51323E 02	LIFT	7.43381E 03	DRAG	4.57005E 03	QATM	8.65743E 00	RHO	1.91945E-07
GR	3.53857E-02	ZDOT	5.42802E-03	ZB	2.77[illegible]8E 02	XLON	7.88501E 01	XLAT	2.83308E 01
GAMC	-9.70000E 00	THR	0	GV	3.12794E-02				

TIM	8.50000E 01	WHT	2.46603E 05	VEL	9.49874E 03	RANG	1.31524E 02	GAM	-3.86640E 00
ALT	2.29305E 05	PHI	6.50000E 01	Z	9.50837E 01	ALPH	1.35000E 01	MACH	9.96474E 00
SOS	9.53235E 02	LIFT	7.64356E 03	DRAG	4.69740E 03	QATM	8.89140E 00	RHO	1.97092E-07
GR	3.63807E-02	ZDOT	5.37944E-03	ZB	2.77[illegible]0E 02	XLON	7.88245E 01	XLAT	2.83285E 01
GAMC	-9.70000E 00	THR	0	GV	3.22943E-02				

TIM	8.60000E 01	WHT	2.46603E 05	VEL	9.49999E 03	RANG	1.33067E 02	GAM	-4.02720E 00

ALT	2.2[illegible]51E 05	PHI	6.00000E 01	Z	9.50850E 01	ALPH	1.35000E 01	MACH	9.94531E 00
SOS	9.5[illegible]22E 02	LIFT	7.86764E 03	DRAG	4.03342E 03	QATM	9.14152E 00	RHO	2.02583E-07
GR	3.74447E-02	ZDOT	5.28765E-03	ZR	2.771[illegible]1E 02	XLON	7.87969E 01	XLAT	2.83263E 01
GAMC	-9.70000E 00	THR	0	GV	3.32[illegible]8E-02				
TIM	6.70000E 01	WHT	2.46603E 05	VEL	9.50130E 03	RANG	1.34610E 02	GAM	-4.18740E 00
ALT	2.27978E 05	PHI	5.50000E 01	Z	9.50903E 01	ALPH	1.35000E 01	MACH	9.92522E 00
SOS	9.57289E 02	LIFT	8.15681E 03	DRAG	4.97[illegible]5E 03	QATM	9.40819E 00	RHO	2.08435E-07
GR	3.85781E-02	ZDOT	5.15022E-03	ZR	2.77[illegible]2E 02	XLON	7.87733E 01	XLAT	2.83240E 01
GAMC	-9.70000E 00	THR	0	GV	3.42[illegible]3E-02				
TIM	6.80000E 01	WHT	2.46603E 05	VEL	9.50[illegible]7E 03	RANG	1.36152E 02	GAM	-4.34701E 00
ALT	2.27263E 05	PHI	5.00000E 01	Z	9.50991E 01	ALPH	1.35000E 01	MACH	9.90449E 00
SOS	9.59430E 02	LIFT	8.36189E 03	DRAG	5.13[illegible]8E 03	QATM	9.69228E 00	RHO	2.14667E-07
GR	3.97879E-02	ZDOT	4.96471E-03	ZR	2.77[illegible]4E 02	XLON	7.87477E 01	XLAT	2.83217E 01
GAMC	-9.70000E 00	THR	0	GV	3.53866E-02				
PHI REACHED									
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TIM	8.90000E 01	WHT	2.46603E 05	VEL	9.504[illegible]9E 03	RANG	1.37695E 02	GAM	-4.50600E 00
ALT	2.26530E 05	PHI	4.50000E 01	Z	9.51[illegible]6E 01	ALPH	1.35000E 01	MACH	9.88313E 00
SOS	9.61647E 02	LIFT	8.63376E 03	DRAG	5.29[illegible]4E 03	QATM	9.99472E 00	RHO	2.21299E-07
GR	4.10772E-02	ZDOT	4.77875E-03	ZR	2.77[illegible]5E 02	XLON	7.87221E 01	XLAT	2.83194E 01
GAMC	-9.70000E 00	THR	0	GV	3.65[illegible]4E-02				
TIM	9.00000E 01	WHT	2.46603E 05	VEL	9.505[illegible]6E 03	RANG	1.39236E 02	GAM	-4.66480E 00
ALT	2.25772E 05	PHI	4.50000E 01	Z	9.51[illegible]7E 01	ALPH	1.35000E 01	MACH	9.86117E 00
SOS	9.63936E 02	LIFT	8.92336E 03	DRAG	5.47[illegible]9E 03	QATM	1.03165E 01	RHO	2.28353E-07
GR	4.24504E-02	ZDOT	4.88429E-03	ZR	2.772[illegible]5E 02	XLON	7.86962E 01	XLAT	2.83171E 01
GAMC	-9.70000E 00	THR	0	GV	3.76[illegible]4E-02				
TIM	9.10000E 01	WHT	2.46603E 02	VEL	9.507[illegible]9E 03	RANG	1.40780E 02	GAM	-4.82339E 00
ALT	2.24924E 05	PHI	4.50000E 01	Z	9.51[illegible]7E 01	ALPH	1.35000E 01	MACH	9.83861E 00
SOS	9.66304E 02	LIFT	9.23172E 03	DRAG	5.60[illegible]4E 03	QATM	1.06587E 01	RHO	2.35852E-07
GR	4.39125E-02	ZDOT	5.04991E-03	ZR	2.773[illegible]6E 02	XLON	7.86709E 01	XLAT	2.83148E 01
GAMC	-9.70000E 00	THR	0	GV	3.92[illegible]1E-02				
TIM	9.20000E 01	WHT	2.46603E 05	VEL	9.508[illegible]7E 03	RANG	1.42323E 02	GAM	-4.98175E 00
ALT	2.24171E 05	PHI	4.50000E 01	Z	9.51[illegible]0E 01	ALPH	1.35000E 01	MACH	9.81547E 00
SOS	9.68742E 02	LIFT	9.55995E 03	DRAG	5.85[illegible]6E 03	QATM	1.10225E 01	RHO	2.43821E-07
GR	4.54687E-02	ZDOT	5.22620E-03	ZR	2.77347E 02	XLON	7.86453E 01	XLAT	2.83125E 01
GAMC	-9.70000E 00	THR	0	GV	4.06[illegible]4E-02				
TIM	9.30000E 01	WHT	2.46603E 05	VEL	9.51[illegible]9E 03	RANG	1.43865E 02	GAM	-5.13987E 00
ALT	2.23332E 05	PHI	4.50000E 01	Z	9.51244E 01	ALPH	1.35000E 01	MACH	9.79177E 00
SOS	9.71254E 02	LIFT	9.90923E 03	DRAG	6.07[illegible]5E 03	QATM	1.14091E 01	RHO	2.52287E-07
GR	4.71244E-02	ZDOT	5.41377E-03	ZR	2.77378E 02	XLON	7.86197E 01	XLAT	2.83103E 01
GAMC	-9.70000E 00	THR	0	GV	4.22268E-02				
TIM	9.40000E 01	WHT	2.46603E 05	VEL	9.51396E 03	RANG	1.45408E 02	GAM	-5.29775E 00
ALT	2.22467E 05	PHI	4.50000E 01	Z	9.51300E 01	ALPH	1.35000E 01	MACH	9.76751E 00
SOS	9.73837E 02	LIFT	1.02808E 04	DRAG	6.29577E 03	QATM	1.18199E 01	RHO	2.61279E-07
GR	4.88458E-02	ZDOT	5.61332E-03	ZR	2.774[illegible]8E 02	XLON	7.85941E 01	XLAT	2.83080E 01
GAMC	-9.70000E 00	THR	0	GV	4.38669E-02				
TIM	9.50000E 01	WHT	2.46603E 05	VEL	9.51366E 03	RANG	1.46950E 02	GAM	-5.45535E 00
ALT	2.21576E 05	PHI	4.50000E 01	Z	9.51358E 01	ALPH	1.35000E 01	MACH	9.74271E 00
SOS	9.76492E 02	LIFT	1.06761E 04	DRAG	6.53492E 03	QATM	1.22563E 01	RHO	2.70827E-07
GR	5.07592E-02	ZDOT	5.83556E-03	ZR	2.77439E 02	XLON	7.85686E 01	XLAT	2.83057E 01
GAMC	-9.70000E 00	THR	0	GV	4.56[illegible]9E-02				
TIM	9.60000E 01	WHT	2.46603E 05	VEL	9.51544E 03	RANG	1.48492E 02	GAM	-5.61268E 00
ALT	2.20658E 05	PHI	4.50000E 01	Z	9.51439E 01	ALPH	1.35000E 01	MACH	9.71739E 00
SOS	9.79217E 02	LIFT	1.10965E 04	DRAG	6.78917E 03	QATM	1.27196E 01	RHO	2.80965E-07
GR	5.27513E-02	ZDOT	6.05125E-03	ZR	2.774[illegible]9E 02	XLON	7.85436E 01	XLAT	2.83034E 01
GAMC	-9.70000E 00	THR	0	GV	4.74742E-02				
TIM	9.70000E 01	WHT	2.46603E 05	VEL	9.51724E 03	RANG	1.50034E 02	GAM	-5.76972E 00
ALT	2.19715E 05	PHI	4.50000E 01	Z	9.51482E 01	ALPH	1.35000E 01	MACH	9.69156E 00
SOS	9.82013E 02	LIFT	1.15435E 04	DRAG	7.05942E 03	QATM	1.32120E 01	RHO	2.91726E-07
GR	5.44656E-02	ZDOT	6.29122E-03	ZR	2.77499E 02	XLON	7.85174E 01	XLAT	2.83011E 01
GAMC	-9.70000E 00	THR	0	GV	4.94[illegible]9E-02				
TIM	9.80000E 01	WHT	2.46603E 05	VEL	9.51[illegible]8E 03	RANG	1.51577E 02	GAM	-5.92644E 00
ALT	2.18745E 05	PHI	4.50000E 01	Z	9.51547E 01	ALPH	1.35000E 01	MACH	9.66524E 00
SOS	9.84878E 02	LIFT	1.20189E 04	DRAG	7.34668E 03	QATM	1.37340E 01	RHO	3.03148E-07
GR	5.71218E-02	ZDOT	6.54635E-03	ZR	2.77530E 02	XLON	7.84918E 01	XLAT	2.82987E 01
GAMC	-9.70000E 00	THR	0	GV	5.15533E-02				
TIM	9.90000E 01	WHT	2.46603E 05	VEL	9.52095E 03	RANG	1.53119E 02	GAM	-6.08284E 00
ALT	2.17749E 05	PHI	4.50000E 01	Z	9.51615E 01	ALPH	1.35000E 01	MACH	9.63843E 00
SOS	9.87611E 02	LIFT	1.25243E 04	DRAG	7.65198E 03	QATM	1.42894E 01	RHO	3.15271E-07
GR	5.95163E-02	ZDOT	6.81758E-03	ZR	2.77560E 02	XLON	7.84662E 01	XLAT	2.82964E 01
GAMC	-9.70000E 00	THR	0	GV	5.37995E-02				

TIM	1.00000E 02	WHT	2.46603E 05	VEL	9.52286E 03	RANG	1.54661E 02	GAM	-6.23889E 00
ALT	2.16727E 05	PHI	4.50000E 01	Z	9.51606E 01	ALPH	1.35000E 01	MACH	9.61116E 00
SOS	9.90813E 02	LIFT	1.30617E 04	DRAG	7.97646E 03	QATM	1.48785E 01	RHO	3.28138E-07
GR	6.28639E-02	ZDOT	7.10591E-03	ZR	2.77598E 02	XLON	7.84407E 01	XLAT	2.82941E 01
GAMC	-9.70000E 00	THR	0	GV	5.61608E-02				

TIM	1.01000E 02	WHT	2.46603E 05	VEL	9.52479E 03	RANG	1.56203E 02	GAM	-6.39457E 00
ALT	2.15679E 05	PHI	4.50000E 01	Z	9.51761E 01	ALPH	1.35000E 01	MACH	9.58343E 00
SOS	9.93843E 02	LIFT	1.36331E 04	DRAG	8.32150E 03	QATM	1.55040E 01	RHO	3.41792E-07
GR	6.47582E-02	ZDOT	7.41241E-03	ZR	2.77620E 02	XLON	7.84151E 01	XLAT	2.82918E 01
GAMC	-9.70000E 00	THR	0	GV	5.86979E-02				

TIM	1.02000E 02	WHT	2.46603E 05	VEL	9.52606E 03	RANG	1.57744E 02	GAM	-6.54987E 00
ALT	2.14615E 05	PHI	4.50000E 01	Z	9.51646E 01	ALPH	1.35000E 01	MACH	9.55527E 00
SOS	9.97616E 02	LIFT	1.42406E 04	DRAG	8.68779E 03	QATM	1.61679E 01	RHO	3.56282E-07
GR	6.76455E-02	ZDOT	7.73824E-03	ZR	2.77650E 02	XLON	7.83895E 01	XLAT	2.82895E 01
GAMC	-9.70000E 00	THR	0	GV	6.13669E-02				

TIM	1.03000E 02	WHT	2.46603E 05	VEL	9.52675E 03	RANG	1.59286E 02	GAM	-6.70476E 00
ALT	2.13506E 05	PHI	4.50000E 01	Z	9.51979E 01	ALPH	1.35000E 01	MACH	9.52668E 00
SOS	1.00022E 03	LIFT	1.46866E 04	DRAG	9.07777E 03	QATM	1.68726E 01	RHO	3.71659E-07
GR	7.07039E-02	ZDOT	8.08460E-03	ZR	2.77600E 02	XLON	7.83639E 01	XLAT	2.82872E 01
GAMC	-9.70000E 00	THR	0	GV	6.42513E-02				

TIM	1.04000E 02	WHT	2.46603E 05	VEL	9.53476E 03	RANG	1.61826E 02	GAM	-6.85921E 00
ALT	2.12350E 05	PHI	4.50000E 01	Z	9.52013E 01	ALPH	1.35000E 01	MACH	9.49769E 00
SOS	1.00348E 03	LIFT	1.55734E 04	DRAG	9.49172E 03	QATM	1.76211E 01	RHO	3.87978E-07
GR	7.39557E-02	ZDOT	8.45281E-03	ZR	2.77710E 02	XLON	7.83384E 01	XLAT	2.82848E 01
GAMC	-9.70000E 00	THR	0	GV	6.72963E-02				

TIM	1.05000E 02	WHT	2.46603E 05	VEL	9.53279E 03	RANG	1.62370E 02	GAM	-7.01322E 00
ALT	2.11229E 05	PHI	4.50000E 01	Z	9.52092E 01	ALPH	1.35000E 01	MACH	9.46830E 00
SOS	1.00481E 03	LIFT	1.62037E 04	DRAG	9.93107E 03	QATM	1.84155E 01	RHO	4.05296E-07
GR	7.74139E-02	ZDOT	8.84425E-03	ZR	2.77740E 02	XLON	7.83126E 01	XLAT	2.82825E 01
GAMC	-9.70000E 00	THR	0	GV	7.03556E-02				

TIM	1.06000E 02	WHT	2.46603E 05	VEL	9.53483E 03	RANG	1.63911E 02	GAM	-7.16674E 00
ALT	2.10853E 05	PHI	4.50000E 01	Z	9.52124E 01	ALPH	1.35000E 01	MACH	9.43852E 00
SOS	1.01020E 03	LIFT	1.70863E 04	DRAG	1.03568E 04	QATM	1.92588E 01	RHO	4.23676E-07
GR	8.10688E-02	ZDOT	9.26041E-03	ZR	2.77770E 02	XLON	7.82872E 01	XLAT	2.82802E 01
GAMC	-9.70000E 00	THR	0	GV	7.39518E-02				

TIM	1.07000E 02	WHT	2.46603E 05	VEL	9.53566E 03	RANG	1.65453E 02	GAM	-7.31976E 00
ALT	2.08658E 05	PHI	4.50000E 01	Z	9.52226E 01	ALPH	1.35000E 01	MACH	9.40838E 00
SOS	1.01366E 03	LIFT	1.79361E 04	DRAG	1.08218E 04	QATM	2.01942E 01	RHO	4.43183E-07
GR	8.49972E-02	ZDOT	9.70267E-03	ZR	2.77800E 02	XLON	7.82616E 01	XLAT	2.82778E 01
GAMC	-9.70000E 00	THR	0	GV	7.79485E-02				

TIM	1.08000E 02	WHT	2.46603E 05	VEL	9.53454E 03	RANG	1.66994E 02	GAM	-7.47225E 00
ALT	2.07622E 05	PHI	4.50000E 01	Z	9.52383E 01	ALPH	1.35000E 01	MACH	9.37787E 00
SOS	1.01718E 03	LIFT	1.87843E 04	DRAG	1.14241E 04	QATM	2.11048E 01	RHO	4.63886E-07
GR	8.91531E-02	ZDOT	1.01733E-02	ZR	2.77850E 02	XLON	7.82361E 01	XLAT	2.82755E 01
GAMC	-9.70000E 00	THR	0	GV	8.15497E-02				

TIM	1.09000E 02	WHT	2.46603E 05	VEL	9.54[illegible]0E 03	RANG	1.68535E 02	GAM	-7.62417E 00
ALT	2.06369E 05	PHI	4.50000E 01	Z	9.52490E 01	ALPH	1.35000E 01	MACH	9.34703E 00
SOS	1.02075E 03	LIFT	1.97182E 04	DRAG	1.19857E 04	QATM	2.21141E 01	RHO	4.85861E-07
GR	9.35723E-02	ZDOT	1.06735E-02	ZR	2.77900E 02	XLON	7.82105E 01	XLAT	2.82732E 01
GAMC	-9.70000E 00	THR	0	GV	8.57010E-02				

TIM	1.10000E 02	WHT	2.46603E 05	VEL	9.54506E 03	RANG	1.70076E 02	GAM	-7.77549E 00
ALT	2.05591E 05	PHI	4.50000E 01	Z	9.52602E 01	ALPH	1.35000E 01	MACH	9.31585E 00
SOS	1.02439E 03	LIFT	2.07116E 04	DRAG	1.25457E 04	QATM	2.31658E 01	RHO	5.09186E-07
GR	9.82717E-02	ZDOT	1.12054E-02	ZR	2.77950E 02	XLON	7.81850E 01	XLAT	2.82708E 01
GAMC	-9.70000E 00	THR	0	GV	9.01164E-02				

TIM	1.11000E 02	WHT	2.46603E 05	VEL	9.54510E 03	RANG	1.71612E 02	GAM	-7.92618E 00
ALT	2.03278E 05	PHI	4.50000E 01	Z	9.52720E 01	ALPH	1.35000E 01	MACH	9.28436E 00
SOS	1.02614E 03	LIFT	2.17680E 04	DRAG	1.32173E 04	QATM	2.43236E 01	RHO	5.33945E-07
GR	1.03269E-01	ZDOT	1.17711E-02	ZR	2.77900E 02	XLON	7.81594E 01	XLAT	2.82685E 01
GAMC	-9.70000E 00	THR	0	GV	9.48193E-02				

TIM	1.12000E 02	WHT	2.46603E 05	VEL	9.54714E 03	RANG	1.73158E 02	GAM	-8.07621E 00
ALT	2.02458E 05	PHI	4.50000E 01	Z	9.52843E 01	ALPH	1.35000E 01	MACH	9.25255E 00
SOS	1.03164E 03	LIFT	2.26916E 04	DRAG	1.38900E 04	QATM	2.55316E 01	RHO	5.60228E-07
GR	1.08541E-01	ZDOT	1.23726E-02	ZR	2.77950E 02	XLON	7.81339E 01	XLAT	2.82661E 01
GAMC	-9.70000E 00	THR	0	GV	9.98220E-02				

TIM	1.13000E 02	WHT	2.46603E 05	VEL	9.54915E 03	RANG	1.74695E 02	GAM	-8.22553E 00
ALT	2.01185E 05	PHI	4.50000E 01	Z	9.52973E 01	ALPH	1.35000E 01	MACH	9.22045E 00
SOS	1.03565E 03	LIFT	2.48870E 04	DRAG	1.46092E 04	QATM	2.68147E 01	RHO	5.88129E-07
GR	1.14257E-01	ZDOT	1.36124E-02	ZR	2.77979E 02	XLON	7.81083E 01	XLAT	2.82637E 01
GAMC	-9.70000E 00	THR	0	GV	1.05146E-01				

TIM	1.14000E 02	WHT	2.46603E 05	VEL	9.55114E 03	RANG	1.76239E 02	GAM	-8.37411E 00
ALT	1.99726E 05	PHI	4.50000E 01	Z	9.53110E 01	ALPH	1.35000E 01	MACH	9.18807E 00
SOS	1.03952E 03	LIFT	2.53585E 04	DRAG	1.53718E 04	QATM	2.81768E 01	RHO	6.17748E-07
GR	1.20249E-01	ZDOT	1.36928E-02	ZB	2.78309E 02	XLON	7.80828E 01	XLAT	2.82614E 01
GAMC	-9.70000E 00	THR	0	GV	1.10813E-01				

TIM	1.15000E 02	WHT	2.46603E 05	VEL	9.55310E 03	RANG	1.77780E 02	GAM	-8.52190E 00
ALT	1.98323E 05	PHI	4.50000E 01	Z	9.53255E 01	ALPH	1.35000E 01	MACH	9.15541E 00
SOS	1.04344E 03	LIFT	2.67109E 04	DRAG	1.61426E 04	QATM	2.96233E 01	RHO	6.49194E-07
GR	1.26633E-01	ZDOT	1.44165E-02	ZB	2.78339E 02	XLON	7.80572E 01	XLAT	2.82590E 01
GAMC	-9.70000E 00	THR	0	GV	1.16844E-01				

TIM	1.16000E 02	WHT	2.46603E 05	VEL	9.55502E 03	RANG	1.79326E 02	GAM	-8.66886E 00
ALT	1.96695E 05	PHI	4.50000E 01	Z	9.53406E 01	ALPH	1.35000E 01	MACH	9.12248E 00
SOS	1.04741E 03	LIFT	2.81495E 04	DRAG	1.70446E 04	QATM	3.11591E 01	RHO	6.82578E-07
GR	1.33444E-01	ZDOT	1.51862E-02	ZB	2.78369E 02	XLON	7.80317E 01	XLAT	2.82566E 01
GAMC	-9.70000E 00	THR	0	GV	1.23263E-01				

TIM	1.17000E 02	WHT	2.46603E 05	VEL	9.55609E 03	RANG	1.80860E 02	GAM	-8.81494E 00
ALT	1.95442E 05	PHI	4.50000E 01	Z	9.53566E 01	ALPH	1.35000E 01	MACH	9.08930E 00
SOS	1.05144E 03	LIFT	2.96799E 04	DRAG	1.79611E 04	QATM	3.27899E 01	RHO	7.18021E-07
GR	1.40677E-01	ZDOT	1.60050E-02	ZB	2.78099E 02	XLON	7.80061E 01	XLAT	2.82542E 01
GAMC	-9.70000E 00	THR	0	GV	1.30995E-01				

TIM	1.18000E 02	WHT	2.46603E 05	VEL	9.55571E 03	RANG	1.82400E 02	GAM	-8.96068E 00
ALT	1.93966E 05	PHI	4.50000E 01	Z	9.53735E 01	ALPH	1.35000E 01	MACH	9.05586E 00
SOS	1.05553E 03	LIFT	3.13077E 04	DRAG	1.89594E 04	QATM	3.45215E 01	RHO	7.55651E-07
GR	1.48370E-01	ZDOT	1.68758E-02	ZB	2.78130E 02	XLON	7.79806E 01	XLAT	2.82518E 01
GAMC	-9.70000E 00	THR	0	GV	1.37866E-01				

TIM	1.19000E 02	WHT	2.46603E 05	VEL	9.56047E 03	RANG	1.83939E 02	GAM	-9.10424E 00
ALT	1.92465E 05	PHI	4.50000E 01	Z	9.53935E 01	ALPH	1.35000E 01	MACH	9.02222E 00
SOS	1.05966E 03	LIFT	3.30393E 04	DRAG	1.99713E 04	QATM	3.63800E 01	RHO	7.95602E-07
GR	1.56553E-01	ZDOT	1.78021E-02	ZB	2.78160E 02	XLON	7.79551E 01	XLAT	2.82494E 01
GAMC	-9.70000E 00	THR	0	GV	1.45104E-01				

TIM	1.20000E 02	WHT	2.46603E 05	VEL	9.56225E 03	RANG	1.85476E 02	GAM	-9.24736E 00
ALT	1.90941E 05	PHI	4.50000E 01	Z	9.54101E 01	ALPH	1.35000E 01	MACH	8.96833E 00
SOS	1.06384E 03	LIFT	3.48811E 04	DRAG	2.10726E 04	QATM	3.83119E 01	RHO	8.38017E-07
GR	1.65254E-01	ZDOT	1.87874E-02	ZB	2.78190E 02	XLON	7.79295E 01	XLAT	2.82478E 01
GAMC	-9.70000E 00	THR	0	GV	1.53310E-01				

TIM	1.21000E 02	WHT	2.46603E 05	VEL	9.56376E 03	RANG	1.87018E 02	GAM	-9.38937E 00
ALT	1.89392E 05	PHI	4.50000E 01	Z	9.54299E 01	ALPH	1.35000E 01	MACH	8.95422E 00
SOS	1.06607E 03	LIFT	3.68401E 04	DRAG	2.22433E 04	QATM	4.03842E 01	RHO	8.83048E-07
GR	1.74509E-01	ZDOT	1.98354E-02	ZB	2.78220E 02	XLON	7.79040E 01	XLAT	2.82446E 01
GAMC	-9.70000E 00	THR	0	GV	1.62104E-01				

TIM	1.22000E 02	WHT	2.46603E 05	VEL	9.56527E 03	RANG	1.88556E 02	GAM	-9.53021E 00
ALT	1.87820E 05	PHI	4.50000E 01	Z	9.54519E 01	ALPH	1.35000E 01	MACH	8.91990E 00
SOS	1.07235E 03	LIFT	3.89236E 04	DRAG	2.34878E 04	QATM	4.25840E 01	RHO	9.30854E-07
GR	1.84350E-01	ZDOT	2.09500E-02	ZB	2.78231E 02	XLON	7.78785E 01	XLAT	2.82421E 01
GAMC	-9.70000E 00	THR	0	GV	1.71430E-01				

TIM	1.23000E 02	WHT	2.46603E 05	VEL	9.56669E 03	RANG	1.90095E 02	GAM	-9.66982E 00
ALT	1.86225E 05	PHI	4.50000E 01	Z	9.54700E 01	ALPH	1.35000E 01	MACH	8.88537E 00
SOS	1.07685E 03	LIFT	4.11393E 04	DRAG	2.48105E 04	QATM	4.49189E 01	RHO	9.81604E-07
GR	1.94814E-01	ZDOT	2.21355E-02	ZB	2.78281E 02	XLON	7.78530E 01	XLAT	2.82397E 01
GAMC	-9.70000E 00	THR	0	GV	1.81353E-01				

TIM	1.24000E 02	WHT	2.46603E 05	VEL	9.56759E 03	RANG	1.91633E 02	GAM	-9.80811E 00
ALT	1.84606E 05	PHI	4.50000E 01	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.85804E 00
SOS	1.08105E 03	LIFT	4.34954E 04	DRAG	2.62162E 04	QATM	4.73971E 01	RHO	1.03548E-06
GR	2.05939E-01	ZDOT	2.33962E-02	ZB	2.78312E 02	XLON	7.78275E 01	XLAT	2.82372E 01
GAMC	-9.70000E 00	THR	0	GV	1.91910E-01				

GAMC REACHED

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TIM	1.25000E 02	WHT	2.46603E 05	VEL	9.56917E 03	RANG	1.93171E 02	GAM	-9.93478E 00
ALT	1.82966E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.81573E 00
SOS	1.08547E 03	LIFT	4.59992E 04	DRAG	2.77095E 04	QATM	5.00255E 01	RHO	1.09263E-06
GR	2.17761E-01	ZDOT	0	ZB	2.78342E 02	XLON	7.78020E 01	XLAT	2.82348E 01
GAMC	-9.93478E 00	THR	0	GV	2.03120E-01				

TIM	1.26000E 02	WHT	2.46603E 05	VEL	9.57021E 03	RANG	1.94709E 02	GAM	-1.00594E 01
ALT	1.81604E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.78067E 00
SOS	1.08992E 03	LIFT	4.86582E 04	DRAG	2.92940E 04	QATM	5.28113E 01	RHO	1.15323E-06
GR	2.30313E-01	ZDOT	0	ZB	2.78373E 02	XLON	7.77765E 01	XLAT	2.82323E 01
GAMC	-1.00594E 01	THR	0	GV	2.15030E-01				

TIM	1.27000E 02	WHT	2.46603E 05	VEL	9.57109E 03	RANG	1.96246E 02	GAM	-1.01818E 01
ALT	1.79623E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.74545E 00
SOS	1.09441E 03	LIFT	5.14812E 04	DRAG	3.09755E 04	QATM	5.57631E 01	RHO	1.21746E-06
GR	2.43637E-01	ZDOT	0	ZB	2.78403E 02	XLON	7.77510E 01	XLAT	2.82299E 01
GAMC	-1.01818E 01	THR	0	GV	2.27678E-01				

TIM	1.2500[illegible]E 02	WHT	2.46603E 05	VEL	9.57161E 03	RANG	1.97783E 02	GAM	-1.03020E 01
ALT	1.77921E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.71009E 00
SOS	1.09893E 03	LIFT	5.44776E 04	DRAG	3.27593E 04	QATM	5.88900E 01	RHO	1.28553E-06
GR	2.57777E-01	ZDOT	0	ZR	2.78433E 02	XLON	7.77255E 01	XLAT	2.82274E 01
GAMC	-1.03020E 01	THR	0	GV	2.41196E-01				

TIM	1.29000E 02	WHT	2.46603E 05	VEL	9.57234E 03	RANG	1.99320E 02	GAM	-1.04196E 01
ALT	1.76199E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.67458E 00
SOS	1.10349E 03	LIFT	5.76570E 04	DRAG	3.46510E 04	QATM	6.22013E 01	RHO	1.35767E-06
GR	2.72780E-01	ZDOT	0	ZR	2.78463E 02	XLON	7.77001E 01	XLAT	2.82250E 01
GAMC	-1.04196E 01	THR	0	GV	2.55362E-01				

TIM	1.30000E 02	WHT	2.46603E 05	VEL	9.57267E 03	RANG	2.00856E 02	GAM	-1.05347E 01
ALT	1.74455E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.65718E 00
SOS	1.10575E 03	LIFT	6.12943E 04	DRAG	3.68156E 04	QATM	6.59916E 01	RHO	1.44030E-06
GR	2.89943E-01	ZDOT	0	ZR	2.78493E 02	XLON	7.76746E 01	XLAT	2.82225E 01
GAMC	-1.05347E 01	THR	0	GV	2.71660E-01				

TIM	1.31000E 02	WHT	2.46603E 05	VEL	9.57276E 03	RANG	2.02397E 02	GAM	-1.06467E 01
ALT	1.72690E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.65726E 00
SOS	1.10575E 03	LIFT	6.53951E 04	DRAG	3.92674E 04	QATM	7.03372E 01	RHO	1.53512E-06
GR	3.09319E-01	ZDOT	0	ZR	2.78523E 02	XLON	7.76491E 01	XLAT	2.82201E 01
GAMC	-1.06467E 01	THR	0	GV	2.90257E-01				

TIM	1.32000E 02	WHT	2.46603E 05	VEL	9.57256E 03	RANG	2.03927E 02	GAM	-1.07554E 01
ALT	1.70921E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.65708E 00
SOS	1.10575E 03	LIFT	6.97434E 04	DRAG	4.18725E 04	QATM	7.50145E 01	RHO	1.63726E-06
GR	3.29886E-01	ZDOT	0	ZR	2.78553E 02	XLON	7.76237E 01	XLAT	2.82176E 01
GAMC	-1.07554E 01	THR	0	GV	3.09540E-01				

TIM	1.33000E 02	WHT	2.46603E 05	VEL	9.57207E 03	RANG	2.05462E 02	GAM	-1.08600E 01
ALT	1.69126E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.65664E 00
SOS	1.10575E 03	LIFT	7.44253E 04	DRAG	4.46897E 04	QATM	8.00494E 01	RHO	1.74734E-06
GR	3.52831E-01	ZDOT	0	ZR	2.78542E 02	XLON	7.75902E 01	XLAT	2.82152E 01
GAMC	-1.08600E 01	THR	0	GV	3.30342E-01				

TIM	1.34000E 02	WHT	2.46603E 05	VEL	9.57[illegible]4E 03	RANG	2.06997E 02	GAM	-1.09620E 01
ALT	1.67314E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.65589E 00
SOS	1.10575E 03	LIFT	7.94665E 04	DRAG	4.77[illegible]4E 04	QATM	8.54094E 01	RHO	1.86597E-06
GR	3.75875E-01	ZDOT	0	ZR	2.78612E 02	XLON	7.75728E 01	XLAT	2.82127E 01
GAMC	-1.09620E 01	THR	0	GV	3.53179E-01				

TIM	1.35000E 02	WHT	2.46603E 05	VEL	9.57[illegible]05E 03	RANG	2.08551E 02	GAM	-1.10595E 01
ALT	1.65466E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.65481E 00
SOS	1.10575E 03	LIFT	8.48947E 04	DRAG	5.09752E 04	QATM	9.13038E 01	RHO	1.99359E-06
GR	4.01569E-01	ZDOT	0	ZR	2.78641E 02	XLON	7.75474E 01	XLAT	2.82118E 01
GAMC	-1.10595E 01	THR	0	GV	3.77516E-01				

TIM	1.36000E 02	WHT	2.46603E 05	VEL	9.56847E 03	RANG	2.10064E 02	GAM	-1.11522E 01
ALT	1.63643E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.65338E 00
SOS	1.10575E 03	LIFT	9.07395E 04	DRAG	5.44937E 04	QATM	9.75838E 01	RHO	2.13168E-06
GR	4.29392E-01	ZDOT	0	ZR	2.78671E 02	XLON	7.75219E 01	XLAT	2.82075E 01
GAMC	-1.11522E 01	THR	0	GV	4.03742E-01				

TIM	1.37000E 02	WHT	2.46603E 05	VEL	9.56646E 03	RANG	2.11597E 02	GAM	-1.12405E 01
ALT	1.61765E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.65156E 00
SOS	1.10575E 03	LIFT	9.70320E 04	DRAG	5.82607E 04	QATM	1.04342E 02	RHO	2.29[illegible]E-06
GR	4.58953E-01	ZDOT	0	ZR	2.78700E 02	XLON	7.74965E 01	XLAT	2.82054E 01
GAMC	-1.12405E 01	THR	0	GV	4.31979E-01				

TIM	1.38000E 02	WHT	2.46603E 05	VEL	9.56598E 03	RANG	2.13129E 02	GAM	-1.13236E 01
ALT	1.59914E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.64937E 00
SOS	1.10575E 03	LIFT	1.03805E 05	DRAG	6.23258E 04	QATM	1.11015E 02	RHO	2.44047E-06
GR	4.96587E-01	ZDOT	0	ZR	2.78779E 02	XLON	7.74711E 01	XLAT	2.82030E 01
GAMC	-1.13236E 01	THR	0	GV	4.62572E-01				

TIM	1.39000E 02	WHT	2.46603E 05	VEL	9.56129E 03	RANG	2.14990E 02	GAM	-1.14015E 01
ALT	1.58636E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.64601E 00
SOS	1.10575E 03	LIFT	1.11095E 05	DRAG	6.66959E 04	QATM	1.19437E 02	RHO	2.61315E-06
GR	5.25459E-01	ZDOT	0	ZR	2.78788E 02	XLON	7.74457E 01	XLAT	2.82005E 01
GAMC	-1.14015E 01	THR	0	GV	4.92[illegible]8E-01				

TIM	1.40000E 02	WHT	2.46603E 05	VEL	9.55744E 03	RANG	2.16191E 02	GAM	-1.14731E 01
ALT	1.56134E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.64341E 00
SOS	1.10575E 03	LIFT	1.18937E 05	DRAG	7.14049E 04	QATM	1.27846E 02	RHO	2.79925E-06
GR	5.62543E-01	ZDOT	0	ZR	2.78787E 02	XLON	7.74204E 01	XLAT	2.81981E 01
GAMC	-1.14731E 01	THR	0	GV	5.30257E-01				

TIM	1.41000E 02	WHT	2.46603E 05	VEL	9.55326E 03	RANG	2.17720E 02	GAM	-1.15365E 01
ALT	1.54224E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.65514E 00
SOS	1.10377E 03	LIFT	1.27837E 05	DRAG	7.67442E 04	QATM	1.37596E 02	RHO	3.01079E-06
GR	6.04631E-01	ZDOT	0	ZR	2.78816E 02	XLON	7.73950E 01	XLAT	2.81956E 01
GAMC	-1.15365E 01	THR	0	GV	5.70164E-01				

TIM	1.42000E 02	WHT	2.46603E 05	VEL	9.54841E 03	RANG	2.19249E 02	GAM	-1.12902E 01
ALT	1.52313E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.67735E 00
SOS	1.19936E 03	LIFT	1.37719E 05	DRAG	8.26225E 04	QATM	1.48109E 02	RHO	3.24900E 06
GR	6.51482E-01	ZDOT	0	ZR	2.78665E 02	XLON	7.73697E 01	XLAT	2.81932E 01
GAMC	-1.15965E 01	THR	0	GV	6.14470E-01				

TIM	1.43000E 02	WHT	2.46603E 05	VEL	9.54227E 03	RANG	2.20777E 02	GAM	-1.16467E 01
ALT	1.56390E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.69919E 00
SOS	1.09692E 03	LIFT	1.48370E 05	DRAG	8.91204E 04	QATM	1.59766E 02	RHO	3.50880E-06
GR	7.01[illegible]E-01	ZDOT	0	ZR	2.78274E 02	XLON	7.73443E 01	XLAT	2.81908E 01
GAMC	-1.14407E 01	THR	0	GV	6.62224E-01				

TIM	1.44000E 02	WHT	2.46603E 05	VEL	9.53[illegible]7E 03	RANG	2.22303E 02	GAM	-1.16882E 01
ALT	1.48461E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.72057E 00
SOS	1.09354E 03	LIFT	1.59939E 05	DRAG	9.61000E 04	QATM	1.72438E 02	RHO	3.79235E-06
GR	7.56869E-01	ZDOT	0	ZR	2.78903E 02	XLON	7.73190E 01	XLAT	2.81863E 01
GAMC	-1.14802E 01	THR	0	GV	7.14[illegible]1E-01				

TIM	1.45000E 02	WHT	2.46603E 05	VEL	9.52489E 03	RANG	2.23829E 02	GAM	-1.17203E 01
ALT	1.46527E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.74139E 00
SOS	1.09014E 03	LIFT	1.72500E 05	DRAG	1.03504E 05	QATM	1.86208E 02	RHO	4.10154E-06
GR	8.16159E-01	ZDOT	0	ZR	2.78901E 02	XLON	7.72937E 01	XLAT	2.81859E 01
GAMC	-1.17203E 01	THR	0	GV	7.70304E-01				

TIM	1.46000E 02	WHT	2.46603E 05	VEL	9.52041E 03	RANG	2.25353E 02	GAM	-1.17423E 01
ALT	1.44590E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.76154E 00
SOS	1.08681E 03	LIFT	1.86131E 05	DRAG	1.11700E 05	QATM	2.01160E 02	RHO	4.43675E-06
GR	8.80720E-01	ZDOT	0	ZR	2.78900E 02	XLON	7.72685E 01	XLAT	2.81835E 01
GAMC	-1.17423E 01	THR	0	GV	8.31346E-01				

TIM	1.47000E 02	WHT	2.46603E 05	VEL	9.51000E 03	RANG	2.26876E 02	GAM	-1.17532E 01
ALT	1.42952E 05	PHI	0	Z	9.54964E 01	ALPH	1.35000E 01	MACH	8.78091E 00
SOS	1.08313E 03	LIFT	2.00910E 05	DRAG	1.20447E 05	QATM	2.17363E 02	RHO	4.80636E-06
GR	9.50737E-01	ZDOT	0	ZR	2.78988E 02	XLON	7.72432E 01	XLAT	2.81810E 01
GAMC	-1.17532E 01	THR	0	GV	8.97401E-01				

TIM	1.48000E 02	WHT	2.46603E 05	VEL	9.50000E 03	RANG	2.28397E 02	GAM	-1.17541E 01
ALT	1.40716E 05	PHI	1.78696E 01	Z	9.55[illegible]1E 01	ALPH	1.35000E 01	MACH	8.79935E 00
SOS	1.07964E 03	LIFT	2.16921E 05	DRAG	1.30509E 05	QATM	2.34967E 02	RHO	5.20691E-06
GR	1.02659E 00	ZDOT	2.06962E-02	ZR	2.79[illegible]6E 02	XLON	7.72180E 01	XLAT	2.81786E 01
GAMC	-1.17532E 01	THR	0	GV	9.69[illegible]1E-01				

TIM	1.49000E 02	WHT	2.46603E 05	VEL	9.48814E 03	RANG	2.29917E 02	GAM	-1.17541E 01
ALT	1.38782E 05	PHI	2.76609E 01	Z	9.55458E 01	ALPH	1.35000E 01	MACH	8.81[illegible]8E 00
SOS	1.07613E 03	LIFT	2.34258E 05	DRAG	1.40994E 05	QATM	2.54014E 02	RHO	5.64[illegible]E-06
GR	1.10873E 00	ZDOT	6.86937E-02	ZR	2.79[illegible]5E 02	XLON	7.71926E 01	XLAT	2.81761E 01
GAMC	-1.17541E 01	THR	0	GV	1.04649E 00				

TIM	1.50000E 02	WHT	2.46603E 05	VEL	9.47455E 03	RANG	2.31435E 02	GAM	-1.17541E 01
ALT	1.36[illegible]E 05	PHI	3.48635E 01	Z	9.56458E 01	ALPH	1.35000E 01	MACH	8.83[illegible]E 00
SOS	1.07242E 03	LIFT	2.53027E 05	DRAG	1.52[illegible]4E 05	QATM	2.74640E 02	RHO	6.11895E-06
GR	1.19765E 00	ZDOT	1.00002E-01	ZR	2.79[illegible]4E 02	XLON	7.71676E 01	XLAT	2.81737E 01
GAMC	-1.17541E 01	THR	0	GV	1.13058E 00				

TIM	1.51000E 02	WHT	2.46603E 05	VEL	9.45923E 03	RANG	2.32950E 02	GAM	-1.17541E 01
ALT	1.34922E 05	PHI	4.95528E 01	Z	9.58150E 01	ALPH	1.35000E 01	MACH	8.84800E 00
SOS	1.06941E 03	LIFT	2.73345E 05	DRAG	1.646[illegible]1E 05	QATM	2.96976E 02	RHO	6.65743E-06
GR	1.29391E 00	ZDOT	1.27186E-01	ZR	2.79[illegible]4E 02	XLON	7.71425E 01	XLAT	2.81711E 01
GAMC	-1.17541E 01	THR	0	GV	1.22178E 00				

TIM	1.52000E 02	WHT	2.46603E 05	VEL	9.44205E 03	RANG	2.34463E 02	GAM	-1.17541E 01
ALT	1.32996E 05	PHI	4.52549E 01	Z	9.59661E 01	ALPH	1.35000E 01	MACH	8.86164E 00
SOS	1.06559E 03	LIFT	2.95332E 05	DRAG	1.77896E 05	QATM	3.21134E 02	RHO	7.28[illegible]E-06
GR	1.39669E 00	ZDOT	1.53086E-01	ZR	2.79[illegible]5E 02	XLON	7.71175E 01	XLAT	2.81625E 01
GAMC	-1.17541E 01	THR	0	GV	1.31944E 00				

TIM	1.53000E 02	WHT	2.46603E 05	VEL	9.43[illegible]7E 03	RANG	2.35974E 02	GAM	-1.17541E 01
ALT	1.31075E 05	PHI	4.93887E 01	Z	9.61449E 01	ALPH	1.35000E 01	MACH	8.87367E 00
SOS	1.06266E 03	LIFT	3.19118E 05	DRAG	1.92268E 05	QATM	3.47270E 02	RHO	7.81975E 06
GR	1.51878E 00	ZDOT	1.78822E-01	ZR	2.79166E 02	XLON	7.70924E 01	XLAT	2.81654E 01
GAMC	-1.17541E 01	THR	0	GV	1.42575E 00				

TIM	1.54000E 02	WHT	2.46603E 05	VEL	9.40394E 03	RANG	2.37481E 02	GAM	-1.17541E 01
ALT	1.29917E 05	PHI	5.28539E 01	Z	9.63499E 01	ALPH	1.35000E 01	MACH	8.88396E 00
SOS	1.05853E 03	LIFT	3.44841E 05	DRAG	2.07807E 05	QATM	3.75522E 02	RHO	8.49270E 06
GR	1.63265E 00	ZDOT	2.05023E-01	ZR	2.79199E 02	XLON	7.70675E 01	XLAT	2.81663E 01
GAMC	-1.17541E 01	THR	0	GV	1.54071E 00				

TIM	1.55000E 02	WHT	2.46603E 05	VEL	9.38140E 03	RANG	2.38986E 02	GAM	-1.17541E 01
ALT	1.27243E 05	PHI	5.55931E 01	Z	9.65821E 01	ALPH	1.35000E 01	MACH	8.89242E 00
SOS	1.05299E 03	LIFT	3.72445E 05	DRAG	2.24601E 05	QATM	4.06041E 02	RHO	9.22706E 06
GR	1.76469E 00	ZDOT	2.32120E-01	ZR	2.79[illegible]4E 02	XLON	7.70426E 01	XLAT	2.81683E 01
GAMC	-1.17541E 01	THR	0	GV	1.66496E 00				

TIM	1.5[illegible]E 02	WHT	2.46603E 05	VEL	9.35660E 03	RANG	2.40480E 02	GAM	-1.17541E 01
ALT	1.2[illegible]335E 05	PHI	5.67970E 01	Z	9.684[illegible]5E 01	ALPH	1.35000E 01	MACH	8.89877E 00
SOS	1.0[illegible]E 03	LIFT	4.02680E 05	DRAG	2.427[illegible]6E 05	QATM	4.38980E 02	RHO	1.00286E-05
GR	1.9[illegible]E 00	ZDOT	2.60450E-01	ZB	2.792[illegible]0E 02	XLON	7.70176E 01	XLAT	2.81574E 01
GAMC	-1.17541E 01	THR	0	GV	1.79[illegible]9E 00				

TIM	1.5[illegible]E 02	WHT	2.46603E 05	VEL	9.32934E 03	RANG	2.41963E 02	GAM	-1.17541E 01
ALT	1.2[illegible]E 05	PHI	6.13172E 01	Z	9.713[illegible]8E 01	ALPH	1.35000E 01	MACH	8.90285E 00
SOS	1.0[illegible]E 03	LIFT	4.351[illegible]E 05	DRAG	2.62[illegible]1E 05	QATM	4.74500E 02	RHO	1.09035E-05
GR	2.[illegible]E 00	ZDOT	2.96[illegible]E-01	ZB	2.793[illegible]7E 02	XLON	7.69930E 01	XLAT	2.81544E 01
GAMC	-1.17541E 01	THR	0	GV	1.944[illegible]8E 00				

TIM	1.5[illegible]E 02	WHT	2.46603E 05	VEL	9.29943E 03	RANG	2.43475E 02	GAM	-1.17541E 01
ALT	1.[illegible]E 05	PHI	6.35931E 01	Z	9.74547E 01	ALPH	1.35000E 01	MACH	8.90443E 00
SOS	1.0[illegible]E 03	LIFT	4.70075E 05	DRAG	2.83414E 05	QATM	5.12759E 02	RHO	1.18285E-05
GR	2.2[illegible]E 00	ZDOT	3.21935E-01	ZB	2.79346E 02	XLON	7.69684E 01	XLAT	2.81512E 01
GAMC	-1.17541E 01	THR	0	GV	2.10[illegible]E 00				

TIM	1.59[illegible]E 02	WHT	2.46603E 05	VEL	9.26667E 03	RANG	2.44962E 02	GAM	-1.17541E 01
ALT	1.19643E 05	PHI	6.56555E 01	Z	9.78[illegible]3E 01	ALPH	1.35000E 01	MACH	8.90329E 00
SOS	1.04[illegible]E 03	LIFT	5.07763E 05	DRAG	3.06145E 05	QATM	5.53919E 02	RHO	1.29012E-05
GR	2.40433E 00	ZDOT	3.55609E-01	ZB	2.79388E 02	XLON	7.69438E 01	XLAT	2.81479E 01
GAMC	-1.17541E 01	THR	0	GV	2.26[illegible]5E 00				

TIM	1.60[illegible]E 02	WHT	2.46603E 05	VEL	9.23[illegible]4E 03	RANG	2.46444E 02	GAM	-1.17541E 01
ALT	1.17754E 05	PHI	6.75293E 01	Z	9.82[illegible]9E 01	ALPH	1.35000E 01	MACH	8.89918E 00
SOS	1.03727E 03	LIFT	5.48331E 05	DRAG	3.31598E 05	QATM	5.98136E 02	RHO	1.40394E-05
GR	2.59[illegible]E 00	ZDOT	3.91571E-01	ZB	2.794[illegible]1E 02	XLON	7.69194E 01	XLAT	2.81445E 01
GAMC	-1.17541E 01	THR	0	GV	2.45[illegible]1E 00				

TIM	1.61[illegible]E 02	WHT	2.46603E 05	VEL	9.19[illegible]0E 03	RANG	2.47926E 02	GAM	-1.17541E 01
ALT	1.15882E 05	PHI	6.92352E 01	Z	9.863[illegible]0E 01	ALPH	1.35000E 01	MACH	8.89183E 00
SOS	1.03372E 03	LIFT	5.91948E 05	DRAG	3.56871E 05	QATM	6.45561E 02	RHO	1.52819E-05
GR	2.80289E 00	ZDOT	4.30072E-01	ZB	2.794[illegible]7E 02	XLON	7.68951E 01	XLAT	2.81409E 01
GAMC	-1.17541E 01	THR	0	GV	2.64467E 00				

TIM	1.62000E 02	WHT	2.46603E 05	VEL	9.14901E 03	RANG	2.49390E 02	GAM	-1.17541E 01
ALT	1.14014E 05	PHI	7.07904E 01	Z	9.91[illegible]4E 01	ALPH	1.35000E 01	MACH	8.88096E 00
SOS	1.0301[illegible]E 03	LIFT	6.38774E 05	DRAG	3.85[illegible]4E 05	QATM	6.96334E 02	RHO	1.06379E-05
GR	3.02452E 00	ZDOT	4.71367E-01	ZB	2.795[illegible]6E 02	XLON	7.68709E 01	XLAT	2.81371E 01
GAMC	-1.17541E 01	THR	0	GV	2.854[illegible]6E 00				

TIM	1.63000E 02	WHT	2.46603E 05	VEL	9.10253E 03	RANG	2.50852E 02	GAM	-1.17541E 01
ALT	1.12155E 05	PHI	7.22097E 01	Z	9.96191E 01	ALPH	1.35000E 01	MACH	8.86626E 00
SOS	1.02665E 03	LIFT	6.88967E 05	DRAG	4.15[illegible]4E 05	QATM	7.50579E 02	RHO	1.81177E-05
GR	3.26201E 00	ZDOT	5.15715E-01	ZB	2.79577E 02	XLON	7.68466E 01	XLAT	2.81332E 01
GAMC	-1.17541E 01	THR	0	GV	3.07[illegible]6E 00				

TIM	1.64000E 02	WHT	2.46603E 05	VEL	9.05[illegible]7E 03	RANG	2.52307E 02	GAM	-1.17541E 01
ALT	1.10306E 05	PHI	7.35059E 01	Z	1.00[illegible]2E 02	ALPH	1.35000E 01	MACH	8.84746E 00
SOS	1.02312E 03	LIFT	7.42669E 05	DRAG	4.47490E 05	QATM	8.08401E 02	RHO	1.97320E-05
GR	3.51604E 00	ZDOT	5.63581E-01	ZB	2.796[illegible]1E 02	XLON	7.68230E 01	XLAT	2.81290E 01
GAMC	-1.17541E 01	THR	0	GV	3.31[illegible]1E 00				

TIM	1.65000E 02	WHT	2.46603E 05	VEL	8.99707E 03	RANG	2.53754E 02	GAM	-1.17541E 01
ALT	1.08467E 05	PHI	7.46900E 01	Z	1.00797E 02	ALPH	1.35000E 01	MACH	8.82416E 00
SOS	1.01959E 03	LIFT	8.00009E 05	DRAG	4.81389E 05	QATM	8.69875E 02	RHO	2.14924E-05
GR	3.78720E 00	ZDOT	6.14638E-01	ZB	2.796[illegible]8E 02	XLON	7.67993E 01	XLAT	2.81246E 01
GAMC	-1.17541E 01	THR	0	GV	3.57417E 00				

TIM	1.66000E 02	WHT	2.46603E 05	VEL	8.93755E 03	RANG	2.55191E 02	GAM	-1.17541E 01
ALT	1.06641E 05	PHI	7.57720E 01	Z	1.01467E 02	ALPH	1.35000E 01	MACH	8.79611E 00
SOS	1.01608E 03	LIFT	8.61093E 05	DRAG	5.18462E 05	QATM	9.35043E 02	RHO	2.34113E-05
GR	4.07594E 00	ZDOT	6.69759E-01	ZB	2.79748E 02	XLON	7.67758E 01	XLAT	2.81200E 01
GAMC	-1.17541E 01	THR	0	GV	3.84690E 00				

TIM	1.67000E 02	WHT	2.46603E 05	VEL	8.87970E 03	RANG	2.56619E 02	GAM	-1.17541E 01
ALT	1.04826E 05	PHI	7.54105E 01	Z	1.02[illegible]5E 02	ALPH	1.21500E 01	MACH	8.76892E 00
SOS	1.01256E 03	LIFT	8.41769E 05	DRAG	5.09[illegible]7E 05	QATM	1.00531E 03	RHO	2.55025E-05
GR	3.93944E 00	ZDOT	6.57831E-01	ZB	2.798[illegible]2E 02	XLON	7.67525E 01	XLAT	2.81151E 01
GAMC	-1.17541E 01	THR	0	GV	3.76255E 00				

TIM	1.68000E 02	WHT	2.46603E 05	VEL	8.81602E 03	RANG	2.58038E 02	GAM	-1.17541E 01
ALT	1.03023E 05	PHI	7.64276E 01	Z	1.02841E 02	ALPH	1.21500E 01	MACH	8.73665E 00
SOS	1.00909E 03	LIFT	9.05325E 05	DRAG	5.47457E 05	QATM	1.07961E 03	RHO	2.77812E-05
GR	4.29018E 00	ZDOT	7.16234E-01	ZB	2.79879E 02	XLON	7.67294E 01	XLAT	2.81100E 01
GAMC	-1.17541E 01	THR	0	GV	4.04642E 00				

TIM	1.69000E 02	WHT	2.46603E 05	VEL	8.74271E 03	RANG	2.59446E 02	GAM	-1.17541E 01
ALT	1.01234E 05	PHI	7.73564E 01	Z	1.03620E 02	ALPH	1.21500E 01	MACH	8.69894E 00
SOS	1.00561E 03	LIFT	9.72675E 05	DRAG	5.87847E 05	QATM	1.15788E 03	RHO	3.02625E-05
GR	4.60867E 00	ZDOT	7.78976E-01	ZB	2.79950E 02	XLON	7.67066E 01	XLAT	2.81047E 01
GAMC	-1.17541E 01	THR	0	GV	4.34719E 00				

TIM	1.70000E 02	WHT	2.46603E 05	VEL	8.67399E 03	RANG	2.60843E 02	GAM	-1.17541E 01
ALT	9.94596E 04	PHI	7.82041E 01	Z	1.04466E 02	ALPH	1.21500E 01	MACH	8.65543E 00
SOS	1.00214E 03	LIFT	1.04382E 06	DRAG	6.30448E 05	QATM	1.24001E 03	RHO	3.29624E-05
GR	4.94493E 00	ZDOT	8.46324E-01	ZB	2.80024E 02	XLON	7.66840E 01	XLAT	2.80990E 01
GAMC	-1.17541E 01	THR	0	GV	4.66483E 00				

TIM	1.71000E 02	WHT	2.46603E 05	VEL	8.59457E 03	RANG	2.62228E 02	GAM	-1.17541E 01
ALT	9.77006E 04	PHI	7.85774E 01	Z	1.05385E 02	ALPH	1.21500E 01	MACH	8.60576E 00
SOS	9.98709E 02	LIFT	1.11870E 06	DRAG	6.75188E 05	QATM	1.32583E 03	RHO	3.58978E 05
GR	5.29865E 00	ZDOT	9.18537E-01	ZB	2.80102E 02	XLON	7.66617E 01	XLAT	2.80931E 01
GAMC	-1.17541E 01	THR	0	GV	4.99907E 00				

TIM	1.72000E 02	WHT	2.46603E 05	VEL	8.50918E 03	RANG	2.63600E 02	GAM	-1.17541E 01
ALT	9.59584E 04	PHI	7.96821E 01	Z	1.06381E 02	ALPH	1.21500E 01	MACH	8.54957E 00
SOS	9.95276E 02	LIFT	1.19720E 06	DRAG	7.21976E 05	QATM	1.41504E 03	RHO	3.90[illegible]
GR	5.66922E 00	ZDOT	9.95857E-01	ZB	2.80185E 02	XLON	7.66398E 01	XLAT	2.80[illegible]
GAMC	-1.17541E 01	THR	0	GV	5.34937E 00				

TIM	1.73000E 02	WHT	2.46603E 05	VEL	8.41755E 03	RANG	2.64957E 02	GAM	-1.17541E 01
ALT	9.42342E 04	PHI	8.03237E 01	Z	1.07459E 02	ALPH	1.21500E 01	MACH	8.48650E 00
SOS	9.91875E 02	LIFT	1.27913E 06	DRAG	7.70674E 05	QATM	1.50728E 03	RHO	4.25455E-05
GR	6.05571E 00	ZDOT	1.07850E 00	ZB	2.80272E 02	XLON	7.66181E 01	XLAT	2.80802E 01
GAMC	-1.17541E 01	THR	0	GV	5.71487E 00				

TIM	1.74000E 02	WHT	2.46603E 05	VEL	8.31945E 03	RANG	2.66300E 02	GAM	-1.17541E 01
ALT	9.25293E 04	PHI	8.09070E 01	Z	1.08[illegible]6E 02	ALPH	1.21500E 01	MACH	8.41623E 00
SOS	9.88500E 02	LIFT	1.36422E 06	DRAG	8.21995E 05	QATM	1.60209E 03	RHO	4.62942[illegible]
GR	6.45674E 00	ZDOT	1.16667E 00	ZB	2.80363E 02	XLON	7.65969E 01	XLAT	2.80735E 01
GAMC	-1.17541E 01	THR	0	GV	6.09433E 00				

TIM	1.75000E 02	WHT	2.46603E 05	VEL	8.21407E 03	RANG	2.67626E 02	GAM	-1.17541E 01
ALT	9.08451E 04	PHI	8.14365E 01	Z	1.09866E 02	ALPH	1.21500E 01	MACH	8.33845E 00
SOS	9.85155E 02	LIFT	1.45211E 06	DRAG	8.72997E 05	QATM	1.69886E 03	RHO	5.03511E-05
GR	6.87066E 00	ZDOT	1.26050E 00	ZB	2.80459E 02	XLON	7.65760E 01	XLAT	2.80600E 01
GAMC	-1.17541E 01	THR	0	GV	6.48632E 00				

TIM	1.76000E 02	WHT	2.46603E 05	VEL	8.10302E 03	RANG	2.68935E 02	GAM	-1.17541E 01
ALT	8.91430E 04	PHI	8.19161E 01	Z	1.11246E 02	ALPH	1.21500E 01	MACH	8.25289E 00
SOS	9.81841E 02	LIFT	1.54233E 06	DRAG	9.26[illegible]7E 05	QATM	1.79691E 03	RHO	5.47348E-05
GR	7.29512E 00	ZDOT	1.36011E 00	ZB	2.80560E 02	XLON	7.65556E 01	XLAT	2.80584E 01
GAMC	-1.17541E 01	THR	0	GV	6.88[illegible]6E 00				

TIM	1.77000E 02	WHT	2.46603E 05	VEL	7.984[illegible]9E 03	RANG	2.70226E 02	GAM	-1.17541E 01
ALT	8.75442E 04	PHI	8.23495E 01	Z	1.12[illegible]2E 02	ALPH	1.21500E 01	MACH	8.15938E 00
SOS	9.78563E 02	LIFT	1.63432E 06	DRAG	9.799[illegible]2E 05	QATM	1.89542E 03	RHO	5.94638E-05
GR	7.72744E 00	ZDOT	1.46554E 00	ZB	2.80[illegible]6E 02	XLON	7.65357E 01	XLAT	2.80503E 01
GAMC	-1.17541E 01	THR	0	GV	7.29[illegible]0E 00				

TIM	1.78000E 02	WHT	2.46603E 05	VEL	7.858[illegible]8E 03	RANG	2.71497E 02	GAM	-1.17541E 01
ALT	8.59304E 04	PHI	8.27401E 01	Z	1.14[illegible]9E 02	ALPH	1.21500E 01	MACH	8.05752E 00
SOS	9.75323E 02	LIFT	1.72741E 06	DRAG	1.034[illegible]6E 06	QATM	1.99346E 03	RHO	6.45562E-05
GR	8.16449E 00	ZDOT	1.57675E 00	ZB	2.80778E 02	XLON	7.65163E 01	XLAT	2.80419E 01
GAMC	-1.17541E 01	THR	0	GV	7.71[illegible]2E 00				

TIM	1.79000E 02	WHT	2.46603E 05	VEL	7.725[illegible]8E 03	RANG	2.72747E 02	GAM	-1.17541E 01
ALT	8.43429E 04	PHI	8.30908E 01	Z	1.159[illegible]2E 02	ALPH	1.21500E 01	MACH	7.94742E 00
SOS	9.72125E 02	LIFT	1.82082E 06	DRAG	1.08[illegible]4E 06	QATM	2.08999E 03	RHO	7.00291E-05
GR	8.60227E 00	ZDOT	1.69364E 00	ZB	2.80[illegible]4E 02	XLON	7.64974E 01	XLAT	2.80330E 01
GAMC	-1.17541E 01	THR	0	GV	8.12793E 00				

TIM	1.80000E 02	WHT	2.46603E 05	VEL	7.585[illegible]8E 03	RANG	2.73976E 02	GAM	-1.17541E 01
ALT	8.27832E 04	PHI	8.34310E 01	Z	1.17[illegible]6E 02	ALPH	1.21500E 01	MACH	7.82869E 00
SOS	9.69972E 02	LIFT	1.92140E 06	DRAG	1.14390E 06	QATM	2.18372E 03	RHO	7.58985E-05
GR	9.06774E 00	ZDOT	1.82353E 00	ZB	2.81[illegible]6E 02	XLON	7.64792E 01	XLAT	2.80238E 01
GAMC	-1.17541E 01	THR	0	GV	8.57[illegible]3E 00				

TIM	1.81000E 02	WHT	2.46603E 05	VEL	7.435[illegible]2E 03	RANG	2.75182E 02	GAM	-1.17541E 01
ALT	8.12528E 04	PHI	8.37359E 01	Z	1.19772E 02	ALPH	1.21500E 01	MACH	7.68364E 00
SOS	9.68086E 02	LIFT	2.02178E 06	DRAG	1.19[illegible]3E 06	QATM	2.26294E 03	RHO	8.17978E-05
GR	9.52401E 00	ZDOT	1.96619E 00	ZB	2.81143E 02	XLON	7.64616E 01	XLAT	2.80141E 01
GAMC	-1.17541E 01	THR	0	GV	9.01394E 00				

TIM	1.82000E 02	WHT	2.46603E 05	VEL	7.284[illegible]0E 03	RANG	2.76364E 02	GAM	-1.17541E 01
ALT	7.97532E 04	PHI	8.40091E 01	Z	1.21883E 02	ALPH	1.21500E 01	MACH	7.52464E 00
SOS	9.68086E 02	LIFT	2.12138E 06	DRAG	1.24367E 06	QATM	2.33117E 03	RHO	8.78628E-05
GR	9.97173E 00	ZDOT	2.11133E 00	ZB	2.81276E 02	XLON	7.64447E 01	XLAT	2.80040E 01
GAMC	-1.17541E 01	THR	0	GV	9.44939E 00				

TIM	1.83000E 02	WHT	2.46603E 05	VEL	7.124[illegible]2E 03	RANG	2.77520E 02	GAM	-1.17541E 01
ALT	7.82855E 04	PHI	8.42540E 01	Z	1.24146E 02	ALPH	1.21500E 01	MACH	7.35919E 00
SOS	9.68086E 02	LIFT	2.21972E 06	DRAG	1.28978E 06	QATM	2.39148E 03	RHO	9.42346E-05
GR	1.04104E 01	ZDOT	2.26314E 00	ZB	2.81414E 02	XLON	7.64285E 01	XLAT	2.79935E 01
GAMC	-1.17541E 01	THR	0	GV	9.87769E 00				

TIM	1.84000E 02	WHT	2.46603E 05	VEL	6.92852E 03	RANG	2.78651E 02	GAM	-1.17541E 01
ALT	7.68510E 04	PHI	8.44674E 01	Z	1.26566E 02	ALPH	1.21500E 01	MACH	7.18771E 00
SOS	9.68086E 02	LIFT	2.31366E 06	DRAG	1.33234E 06	QATM	2.44292E 03	RHO	1.00909E-04
GR	1.08265E 01	ZDOT	2.41966E 00	ZR	2.81557E 02	XLON	7.64131E 01	XLAT	2.79826E 01
GAMC	-1.17541E 01	THR	0	GV	1.02860E 01				

TIM	1.85000E 02	WHT	2.46603E 05	VEL	6.79042E 03	RANG	2.79754E 02	GAM	-1.17541E 01
ALT	7.54506E 04	PHI	8.45364E 01	Z	1.29390E 02	ALPH	1.18800E 01	MACH	7.01427E 00
SOS	9.68086E 02	LIFT	2.35145E 06	DRAG	1.34503E 06	QATM	2.48722E 03	RHO	1.07882E-04
GR	1.09851E 01	ZDOT	2.52341E 00	ZR	2.81705E 02	XLON	7.63986E 01	XLAT	2.79714E 01
GAMC	-1.17541E 01	THR	0	GV	1.04465E 01				

TIM	1.86000E 02	WHT	2.46603E 05	VEL	6.61777E 03	RANG	2.80831E 02	GAM	-1.17541E 01
ALT	7.48448E 04	PHI	8.46984E 01	Z	1.31722E 02	ALPH	1.18800E 01	MACH	6.83594E 00
SOS	9.68086E 02	LIFT	2.43218E 06	DRAG	1.37888E 06	QATM	2.52144E 03	RHO	1.15148E-04
GR	1.13375E 01	ZDOT	2.68287E 00	ZR	2.81657E 02	XLON	7.63850E 01	XLAT	2.79597E 01
GAMC	-1.17541E 01	THR	0	GV	1.07950E 01				

TIM	1.87000E 02	WHT	2.46603E 05	VEL	6.44102E 03	RANG	2.81879E 02	GAM	-1.17541E 01
ALT	7.27547E 04	PHI	8.48349E 01	Z	1.34617E 02	ALPH	1.18800E 01	MACH	6.65336E 00
SOS	9.68086E 02	LIFT	2.50520E 06	DRAG	1.40735E 06	QATM	2.54510E 03	RHO	1.22695E-04
GR	1.16528E 01	ZDOT	2.84417E 00	ZR	2.82014E 02	XLON	7.63723E 01	XLAT	2.79478E 01
GAMC	-1.17541E 01	THR	0	GV	1.11067E 01				

TIM	1.88000E 02	WHT	2.46603E 05	VEL	6.26268E 03	RANG	2.82899E 02	GAM	-1.17541E 01
ALT	7.14608E 04	PHI	8.49090E 01	Z	1.37601E 02	ALPH	1.17900E 01	MACH	6.46852E 00
SOS	9.68086E 02	LIFT	2.55066E 06	DRAG	1.42191E 06	QATM	2.55891E 03	RHO	1.30511E-04
GR	1.18413E 01	ZDOT	2.98311E 00	ZR	2.82174E 02	XLON	7.63605E 01	XLAT	2.79355E 01
GAMC	-1.17541E 01	THR	0	GV	1.13009E 01				

TIM	1.89000E 02	WHT	2.46603E 05	VEL	6.08043E 03	RANG	2.83890E 02	GAM	-1.17541E 01
ALT	7.02036E 04	PHI	8.49985E 01	Z	1.40743E 02	ALPH	1.17900E 01	MACH	6.28086E 00
SOS	9.68086E 02	LIFT	2.60537E 06	DRAG	1.43990E 06	QATM	2.56183E 03	RHO	1.38564E-04
GR	1.20712E 01	ZDOT	3.14330E 00	ZR	2.82568E 02	XLON	7.63497E 01	XLAT	2.79230E 01
GAMC	-1.17541E 01	THR	0	GV	1.15329E 01				

TIM	1.90000E 02	WHT	2.46603E 05	VEL	5.89811E 03	RANG	2.84852E 02	GAM	-1.17541E 01
ALT	6.89835E 04	PHI	8.50280E 01	Z	1.44109E 02	ALPH	1.17000E 01	MACH	6.09255E 00
SOS	9.68086E 02	LIFT	2.63003E 06	DRAG	1.44244E 06	QATM	2.55509E 03	RHO	1.46896E-04
GR	1.21637E 01	ZDOT	3.27583E 00	ZR	2.82505E 02	XLON	7.63399E 01	XLAT	2.79104E 01
GAMC	-1.17541E 01	THR	0	GV	1.16550E 01				

TIM	1.91000E 02	WHT	2.46603E 05	VEL	5.71456E 03	RANG	2.85784E 02	GAM	-1.17541E 01
ALT	6.78007E 04	PHI	8.50759E 01	Z	1.47449E 02	ALPH	1.17000E 01	MACH	5.90295E 00
SOS	9.68086E 02	LIFT	2.66404E 06	DRAG	1.44902E 06	QATM	2.53796E 03	RHO	1.55431E-04
GR	1.22976E 01	ZDOT	3.43007E 00	ZR	2.82674E 02	XLON	7.63312E 01	XLAT	2.78975E 01
GAMC	-1.17541E 01	THR	0	GV	1.17754E 01				

TIM	1.92000E 02	WHT	2.46603E 05	VEL	5.53015E 03	RANG	2.86687E 02	GAM	-1.17541E 01
ALT	6.66554E 04	PHI	8.51084E 01	Z	1.51054E 02	ALPH	1.17000E 01	MACH	5.71236E 00
SOS	9.68086E 02	LIFT	2.69037E 06	DRAG	1.45459E 06	QATM	2.51026E 03	RHO	1.64169E-04
GR	1.24001E 01	ZDOT	3.58509E 00	ZR	2.82844E 02	XLON	7.63235E 01	XLAT	2.78846E 01
GAMC	-1.17541E 01	THR	0	GV	1.18817E 01				

TIM	1.93000E 02	WHT	2.46603E 05	VEL	5.35490E 03	RANG	2.87561E 02	GAM	-1.17541E 01
ALT	6.55478E 04	PHI	8.51255E 01	Z	1.54774E 02	ALPH	1.17000E 01	MACH	5.52111E 00
SOS	9.68086E 02	LIFT	2.70820E 06	DRAG	1.45541E 06	QATM	2.47236E 03	RHO	1.73087E-04
GR	1.24674E 01	ZDOT	3.73962E 00	ZR	2.83034E 02	XLON	7.63166E 01	XLAT	2.78716E 01
GAMC	-1.17541E 01	THR	0	GV	1.19540E 01				

TIM	1.94000E 02	WHT	2.46603E 05	VEL	5.15996E 03	RANG	2.88404E 02	GAM	-1.17541E 01
ALT	6.44779E 04	PHI	8.51211E 01	Z	1.58661E 02	ALPH	1.17000E 01	MACH	5.33006E 00
SOS	9.68086E 02	LIFT	2.71387E 06	DRAG	1.45174E 06	QATM	2.42506E 03	RHO	1.82163E-04
GR	1.24793E 01	ZDOT	3.88750E 00	ZR	2.83185E 02	XLON	7.63113E 01	XLAT	2.78587E 01
GAMC	-1.17541E 01	THR	0	GV	1.19279E 01				

TIM	1.95000E 02	WHT	2.46603E 05	VEL	4.97604E 03	RANG	2.89216E 02	GAM	-1.17541E 01
ALT	6.34456E 04	PHI	8.50956E 01	Z	1.62569E 02	ALPH	1.17000E 01	MACH	5.14008E 00
SOS	9.68086E 02	LIFT	2.70756E 06	DRAG	1.44057E 06	QATM	2.36927E 03	RHO	1.91371E-04
GR	1.24368E 01	ZDOT	4.02744E 00	ZR	2.83354E 02	XLON	7.63066E 01	XLAT	2.78459E 01
GAMC	-1.17541E 01	THR	0	GV	1.19392E 01				

TIM	1.96000E 02	WHT	2.46603E 05	VEL	4.79393E 03	RANG	2.90903E 02	GAM	-1.17541E 01
ALT	6.24505E 04	PHI	8.50494E 01	Z	1.66847E 02	ALPH	1.17000E 01	MACH	4.95196E 00
SOS	9.68086E 02	LIFT	2.68968E 06	DRAG	1.42474E 06	QATM	2.30608E 03	RHO	2.00688E-04
GR	1.23418E 01	ZDOT	4.15829E 00	ZR	2.83521E 02	XLON	7.63034E 01	XLAT	2.78333E 01
GAMC	-1.17541E 01	THR	0	GV	1.18548E 01				

TIM	1.97000E 02	WHT	2.46603E 05	VEL	4.61490E 03	RANG	2.90759E 02	GAM	-1.17541E 01
ALT	6.14924E 04	PHI	8.49968E 01	Z	1.71159E 02	ALPH	1.17000E 01	MACH	4.76600E 00
SOS	9.68086E 02	LIFT	2.66842E 06	DRAG	1.40609E 06	QATM	2.23619E 03	RHO	2.10089E-04
GR	1.22310E 01	ZDOT	4.29196E 00	ZR	2.83686E 02	XLON	7.63010E 01	XLAT	2.78210E 01
GAMC	-1.17541E 01	THR	0	GV	1.17553E 01				

TIM	1.9[illegible]E 02	WHT	2.46603E 05	VEL	4.43[illegible]E 03	RANG	2.91486E 02	GAM	-1.17541E 01
ALT	6.05[illegible] 04	PHI	8.48446E 01	Z	1.754[illegible]E 02	ALPH	1.14300E 01	MACH	4.58572E 00
SOS	9.6[illegible]E 02	LIFT	2.59607E 06	DRAG	1.35316E 06	QATM	2.16346E 03	RHO	2.19552E-04
GR	1.1[illegible]E 01	ZDOT	4.34310E 00	ZR	2.8[illegible]E 02	XLON	7.62996E 01	XLAT	2.78090E 01
GAMC	-1.17541E 01	THR	0	GV	1.14[illegible]E 03				

TIM	1.99[illegible]E 02	WHT	2.46603E 05	VEL	4.26698E 03	RANG	2.92185E 02	GAM	-1.17541E 01
ALT	5.9[illegible]E 04	PHI	8.47907E 01	Z	1.79[illegible]E 02	ALPH	1.14300E 01	MACH	4.40765E 00
SOS	9.68[illegible]E 02	LIFT	2.57518E 06	DRAG	1.34[illegible]E 06	QATM	2.08521E 03	RHO	2.29054E-04
GR	1.17[illegible]E 01	ZDOT	4.48797E 00	ZR	2.84[illegible]E 02	XLON	7.62991E 01	XLAT	2.77973E 01
GAMC	-1.17541E 01	THR	0	GV	1.13[illegible]E 03				

TIM	2.[illegible] 02	WHT	2.46603E 05	VEL	4.09[illegible]E 03	RANG	2.92827E 02	GAM	-1.17541E 01
ALT	5.8[illegible] 04	PHI	8.46[illegible]E 01	Z	1.84[illegible]E 02	ALPH	1.13400E 01	MACH	4.23387E 00
SOS	9.[illegible] 02	LIFT	2.52272E 06	DRAG	1.31[illegible]E 06	QATM	2.00399E 03	RHO	2.38573E-04
GR	1.[illegible] 01	ZDOT	4.56134E 00	ZR	2.84[illegible]E 02	XLON	7.62987E 01	XLAT	2.77861E 01
GAMC	-1.17541E 01	THR	0	GV	1.18[illegible]E 03				

TIM	2.01600E 02	WHT	2.46603E 05	VEL	3.93[illegible]E 03	RANG	2.93502E 02	GAM	-1.17541E 01
ALT	5.80136E 04	PHI	8.45695E 01	Z	1.89[illegible]E 02	ALPH	1.13400E 01	MACH	4.06369E 00
SOS	9.68086E 02	LIFT	2.48089E 06	DRAG	1.28[illegible]E 06	QATM	1.91974E 03	RHO	2.48086E-04
GR	1.13268E 01	ZDOT	4.69899E 00	ZR	2.842[illegible]E 02	XLON	7.62974E 01	XLAT	2.77755E 01
GAMC	-1.17541E 01	THR	0	GV	1.09[illegible]E 03				

TIM	2.02000E 02	WHT	2.46603E 05	VEL	3.77[illegible]E 03	RANG	2.94122E 02	GAM	-1.17541E 01
ALT	5.72286E 04	PHI	8.44002E 01	Z	1.94[illegible]E 02	ALPH	1.12500E 01	MACH	3.89898E 00
SOS	9.68086E 02	LIFT	2.41059E 06	DRAG	1.24248E 06	QATM	1.83483E 03	RHO	2.57572E-04
GR	1.09973E 01	ZDOT	4.76203E 00	ZR	2.844[illegible]E 02	XLON	7.62953E 01	XLAT	2.77654E 01
GAMC	-1.17541E 01	THR	0	GV	1.05[illegible]E 03				

TIM	2.03000E 02	WHT	2.46603E 05	VEL	3.61[illegible]E 03	RANG	2.94715E 02	GAM	-1.17541E 01
ALT	5.64754E 04	PHI	8.43153E 01	Z	1.98921E 02	ALPH	1.12500E 01	MACH	3.73728E 00
SOS	9.68086E 02	LIFT	2.37891E 06	DRAG	1.21849E 06	QATM	1.74759E 03	RHO	2.67010E-04
GR	1.08355E 01	ZDOT	4.90825E 00	ZR	2.84553E 02	XLON	7.62925E 01	XLAT	2.77559E 01
GAMC	-1.17541E 01	THR	0	GV	1.04[illegible]E 03				

TIM	2.04000E 02	WHT	2.46603E 05	VEL	3.46[illegible]E 03	RANG	2.95284E 02	GAM	-1.17541E 01
ALT	5.57545E 04	PHI	8.42385E 01	Z	2.03993E 02	ALPH	1.12500E 01	MACH	3.57841E 00
SOS	9.68086E 02	LIFT	2.35118E 06	DRAG	1.19600E 06	QATM	1.65836E 03	RHO	2.76377E-04
GR	1.06969E 01	ZDOT	5.07239E 00	ZR	2.84667E 02	XLON	7.62890E 01	XLAT	2.77471E 01
GAMC	-1.17541E 01	THR	0	GV	1.03[illegible]E 03				

TIM	2.05000E 02	WHT	2.46603E 05	VEL	3.31[illegible]E 03	RANG	2.95829E 02	GAM	-1.17541E 01
ALT	5.50643E 04	PHI	8.41285E 01	Z	2.09[illegible]E 02	ALPH	1.12500E 01	MACH	3.42314E 00
SOS	9.68086E 02	LIFT	2.31086E 06	DRAG	1.16[illegible]E 06	QATM	1.56840E 03	RHO	2.85649E-04
GR	1.04999E 01	ZDOT	5.21683E 00	ZR	2.847[illegible]E 02	XLON	7.62850E 01	XLAT	2.77389E 01
GAMC	-1.17541E 01	THR	0	GV	1.01[illegible]E 03				

TIM	2.06000E 02	WHT	2.46603E 05	VEL	3.17[illegible]E 03	RANG	2.96350E 02	GAM	-1.17541E 01
ALT	5.44039E 04	PHI	8.38411E 01	Z	2.14[illegible]E 02	ALPH	1.09800E 01	MACH	3.27563E 00
SOS	9.68086E 02	LIFT	2.20650E 06	DRAG	1.11[illegible]E 06	QATM	1.48229E 03	RHO	2.94812E-04
GR	1.00190E 01	ZDOT	5.20581E 00	ZR	2.84864E 02	XLON	7.62804E 01	XLAT	2.77316E 01
GAMC	-1.17541E 01	THR	0	GV	9.67[illegible]E 00				

TIM	2.07000E 02	WHT	2.46603E 05	VEL	3.03[illegible]E 03	RANG	2.96846E 02	GAM	-1.17541E 01
ALT	5.37721E 04	PHI	8.36199E 01	Z	2.19[illegible]E 02	ALPH	1.08910E 01	MACH	3.13378E 00
SOS	9.68086E 02	LIFT	2.13308E 06	DRAG	1.07[illegible]E 06	QATM	1.39830E 03	RHO	3.03855E-04
GR	9.67715E 00	ZDOT	5.26245E 00	ZR	2.84946E 02	XLON	7.62754E 01	XLAT	2.77249E 01
GAMC	-1.17541E 01	THR	0	GV	9.35[illegible]E 00				

TIM	2.08000E 02	WHT	2.46603E 05	VEL	2.90[illegible]E 03	RANG	2.97325E 02	GAM	-1.17541E 01
ALT	5.31677E 04	PHI	8.34199E 01	Z	2.25[illegible]E 02	ALPH	1.08900E 01	MACH	2.99680E 00
SOS	9.68086E 02	LIFT	2.07100E 06	DRAG	1.03589E 06	QATM	1.31622E 03	RHO	3.12764E-04
GR	9.38647E 00	ZDOT	5.34552E 00	ZR	2.85[illegible]E 02	XLON	7.62700E 01	XLAT	2.77191E 01
GAMC	-1.17541E 01	THR	0	GV	9.07[illegible]E 00				

TIM	2.09000E 02	WHT	2.46603E 05	VEL	2.77[illegible]E 03	RANG	2.97781E 02	GAM	-1.17541E 01
ALT	5.25897E 04	PHI	8.31336E 01	Z	2.30[illegible]E 02	ALPH	1.08000E 01	MACH	2.86602E 00
SOS	9.68086E 02	LIFT	1.98720E 06	DRAG	9.88[illegible]E 05	QATM	1.23759E 03	RHO	3.21529E-04
GR	9.00069E 00	ZDOT	5.36347E 00	ZR	2.85[illegible]E 02	XLON	7.62644E 01	XLAT	2.77140E 01
GAMC	-1.17541E 01	THR	0	GV	8.70[illegible]E 00				

TIM	2.10000E 02	WHT	2.46603E 05	VEL	2.65200E 03	RANG	2.98217E 02	GAM	-1.17541E 01
ALT	5.20371E 04	PHI	8.28874E 01	Z	2.35813E 02	ALPH	1.08000E 01	MACH	2.73943E 00
SOS	9.68086E 02	LIFT	1.92069E 06	DRAG	9.57550E 05	QATM	1.16095E 03	RHO	3.30139E-04
GR	8.70286E 00	ZDOT	5.42566E 00	ZR	2.85[illegible]E 02	XLON	7.62586E 01	XLAT	2.77096E 01
GAMC	-1.17541E 01	THR	0	GV	8.41629E 00				

TIM	2.11000E 02	WHT	2.46603E 05	VEL	2.53590E 03	RANG	2.98634E 02	GAM	-1.17541E 01
ALT	5.15091E 04	PHI	8.26852E 01	Z	2.41282E 02	ALPH	1.08000E 01	MACH	2.61743E 00
SOS	9.68086E 02	LIFT	1.84952E 06	DRAG	9.23722E 05	QATM	1.08696E 03	RHO	3.38583E-04
GR	8.38337E 00	ZDOT	5.46920E 00	ZR	2.85[illegible]E 02	XLON	7.62527E 01	XLAT	2.77060E 01
GAMC	-1.17541E 01	THR	0	GV	8.10[illegible]E 00				

TIM	2.12603E 02	WHT	2.46603E 05	VEL	2.42[illegible]E 03	RANG	2.99032E 02	GAM	-1.17541E 01
ALT	5.10[illegible]E 04	PHI	8.22867E 01	Z	2.46777E 02	ALPH	1.08000E 01	MACH	2.50032E 00
SOS	9.68[illegible]E 02	LIFT	1.77510E 06	DRAG	8.8[illegible]E 05	QATM	1.01069E 03	RHO	3.46852E-04
GR	8.[illegible]E 00	ZDOT	5.49492E 00	ZR	2.85210E 02	XLON	7.62467E 01	XLAT	2.77031E 01
GAMC	-1.17541E 01	THR	0	GV	7.7808[illegible]E 00				

TIM	2.17[illegible]E 02	WHT	2.46603E 05	VEL	2.31[illegible]E 03	RANG	2.99412E 02	GAM	-1.17541E 01
ALT	5.05[illegible]E 04	PHI	8.19314E 01	Z	2.5226[illegible]E 02	ALPH	1.08000E 01	MACH	2.38829E 00
SOS	9.69[illegible]E 02	LIFT	1.69874E 06	DRAG	8.51[illegible]E 05	QATM	9.48670E 02	RHO	3.5494[illegible]E-04
GR	7.7[illegible]E 00	ZDOT	5.50395E 00	ZR	2.852[illegible]E 02	XLON	7.624[illegible]E 01	XLAT	2.77[illegible]E 01
GAMC	-1.17[illegible]E 01	THR	0	GV	7.447[illegible]E 00				

TIM	2.14[illegible]E 02	WHT	2.46603E 05	VEL	2.24[illegible]E 03	RANG	2.9977[illegible]E 02	GAM	-1.17541E 01
ALT	5.0[illegible]E 04	PHI	8.16813E 01	Z	2.57[illegible]E 02	ALPH	1.08[illegible]E 01	MACH	2.27[illegible]E 00
SOS	9.68[illegible]E 02	LIFT	1.64921E 06	DRAG	8.25[illegible]E 05	QATM	8.83[illegible]E 02	RHO	3.62859E-04
GR	7.47[illegible]	ZDOT	5.59978E 00	ZR	2.852[illegible]E 02	XLON	7.67349E 01	XLAT	2.76[illegible]E 01
GAMC	-1.[illegible] 01	THR	0	GV	7.22[illegible]E 00				

TIM	2.1[illegible]E 02	WHT	2.46603E 05	VEL	2.10[illegible]E 03	RANG	3.0[illegible]22E 02	GAM	-1.17541E 01
ALT	4.96[illegible]E 04	PHI	8.13824E 01	Z	2.63[illegible]E 02	ALPH	1.08[illegible]E 01	MACH	2.17492E 00
SOS	9.68[illegible] 02	LIFT	1.59349E 06	DRAG	7.97[illegible]E 05	QATM	8.2[illegible]35E 02	RHO	3.70549E-04
GR	7.29[illegible]E 00	ZDOT	5.67138E 00	ZR	2.85240E 02	XLON	7.62292E 01	XLAT	2.76958E 01
GAMC	-1.17541E 01	THR	0	GV	6.9848[illegible]E 00				

TIM	2.[illegible]E 02	WHT	2.46603E 05	VEL	2.00[illegible]E 03	RANG	3.0[illegible]52E 02	GAM	-1.17541E 01
ALT	4.92[illegible]E 04	PHI	8.10343E 01	Z	2.692[illegible]E 02	ALPH	1.08010E 01	MACH	2.07435E 00
SOS	9.69[illegible]E 02	LIFT	1.53305E 06	DRAG	7.66[illegible]E 05	QATM	7.6227[illegible]E 02	RHO	3.78040E-04
GR	6.9[illegible] 00	ZDOT	5.71939E 00	ZR	2.852[illegible]E 02	XLON	7.61258E 01	XLAT	2.76980E 01
GAMC	-1.17[illegible] 01	THR	0	GV	6.719[illegible]E 00				

DELTA Z [illegible]

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TIM	2.[illegible] 02	WHT	2.46603E 05	VEL	1.95[illegible]E 03	RANG	3.0[illegible]71E 02	GAM	-1.17551E 01
ALT	4.[illegible] 04	PHI	4.66537E 01	Z	2.702[illegible]E 02	ALPH	2.43169E 00	MACH	2.02004E 00
SOS	9.[illegible] 02	LIFT	3.41920E 05	DRAG	4.433[illegible]E 05	QATM	7.36954E 02	RHO	3.8941[illegible]E-04
GR	2.2767[illegible] 00	ZDOT	9.[illegible]9496E-01	ZR	2.852[illegible]E 02	XLON	[illegible].67867E 01	XLAT	2.76972E 01
GAMC	-1.17[illegible] 01	THR	1	GV	1.72[illegible]E 00				

DHFH REACHED

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TIM	2.1[illegible] 02	WHT	2.46603E 05	VEL	1.90251E 03	RANG	3.0[illegible]81E 02	GAM	-1.192[illegible]E 01
ALT	4.[illegible] 04	PHI	4.19843E 01	Z	2.712[illegible]E 02	ALPH	2.85195E 00	MACH	1.96562E 00
SOS	9.[illegible] 02	LIFT	3.96148E 05	DRAG	4.447[illegible]E 05	QATM	7.19911E 02	RHO	3.[illegible]E-04
GR	2.41[illegible] 00	ZDOT	1.04565E 00	ZR	2.85191E 02	XLON	7.61763E 01	XLAT	2.[illegible] 01
GAMC	-1.15201[illegible] 01	THR	0	GV	1.9[illegible]E 00				

TIM	2.19[illegible] 02	WHT	2.46603E 05	VEL	1.85[illegible]E 03	RANG	3.0[illegible]38E 02	GAM	-1.10628E 01
ALT	4.88445[illegible] 04	PHI	3.40105E 01	Z	2.722[illegible]E 02	ALPH	3.05734E 00	MACH	1.91147E 00
SOS	9.68[illegible] 02	LIFT	4.19281E 05	DRAG	4.411[illegible]E 05	QATM	6.84183E 02	RHO	3.99612E-04
GR	2.46[illegible] 00	ZDOT	9.52402E-01	ZR	2.851[illegible]E 02	XLON	7.61613E 01	XLAT	2.76964E 01
GAMC	-1.10628E 01	THR	0	GV	2.01[illegible]E 00				

TIM	2.20[illegible] 02	WHT	2.46603E 05	VEL	1.79[illegible]E 03	RANG	3.0[illegible]677E 02	GAM	-1.06[illegible] 01
ALT	4.77[illegible] 04	PHI	3.40105E 01	Z	2.731[illegible] 02	ALPH	3.09777E 00	MACH	1.85[illegible] 00
SOS	9.6[illegible] 02	LIFT	4.06577E 05	DRAG	4.249[illegible]E 05	QATM	6.58639E 02	RHO	4.06261E-04
GR	2.[illegible] 00	ZDOT	9.54566E-01	ZR	2.851[illegible]E 02	XLON	7.61564E 01	XLAT	2.76962E 01
GAMC	-1.0[illegible] 01	THR	0	GV	1.94[illegible]E 00				

TIM	2.21[illegible] 02	WHT	2.46603E 05	VEL	1.75[illegible]E 03	RANG	3.0[illegible]964E 02	GAM	-1.22[illegible]E 01
ALT	4.7[illegible] 04	PHI	3.40105E 01	Z	2.741[illegible]E 02	ALPH	3.[illegible]E 00	MACH	1.80[illegible]E 00
SOS	9.68[illegible] 02	LIFT	3.97387E 05	DRAG	4.16[illegible]E 05	QATM	6.5[illegible]76E 02	RHO	4.12922E-04
GR	2.[illegible] 00	ZDOT	9.55386E-01	ZR	2.851[illegible]E 02	XLON	7.61516E 01	XLAT	2.76959E 01
GAMC	-1.0[illegible] 01	THR	0	GV	1.85[illegible]E 00				

TIM	2.22[illegible] 02	WHT	2.46603E 05	VEL	1.78[illegible]E 03	RANG	3.02243E 02	GAM	-9.84986E 00
ALT	4.7[illegible] 04	PHI	2.98443E 01	Z	2.749[illegible]E 02	ALPH	[illegible].65323E 00	MACH	1.75[illegible]E 00
SOS	9.68[illegible] 02	LIFT	3.65972E 05	DRAG	4.11[illegible]E 05	QATM	[illegible]	RHO	4.18499E-04
GR	2.24[illegible] 00	ZDOT	8.14935E-01	ZR	2.851[illegible]E 02	XLON	[illegible]77E 01	XLAT	2.76947E 01
GAMC	-9.3[illegible] 00	THR	0	GV	1.76[illegible]E 00				

TIM	2.23[illegible] 02	WHT	2.46603E 05	VEL	1.65[illegible]E 03	RANG	3.02515E 02	GAM	-9.49642E 00
ALT	4.67976[illegible] 04	PHI	2.98443E 01	Z	2.757[illegible] 02	ALPH	2.9[illegible]E 00	MACH	1.70518E 00
SOS	9.68[illegible] 02	LIFT	3.61451E 05	DRAG	3.958[illegible]E 05	QATM	5.799795E 02	RHO	4.24[illegible]E-04
GR	2.17[illegible] 00	ZDOT	8.19159E-01	ZR	2.851[illegible]E 02	XLON	7.61532E 01	XLAT	2.76943E 01
GAMC	-9.6[illegible] 00	THR	0	GV	1.70996E 00				

TIM	2.[illegible] 02	WHT	2.46603E 05	VEL	1.64[illegible]E 03	RANG	3.1[illegible]79E 02	GAM	-9.[illegible] 00
ALT	4.65[illegible] 04	PHI	2.98443E 01	Z	2.76[illegible]E 02	ALPH	2.91543E 00	MACH	1.5[illegible]E 00
SOS	9.[illegible] 02	LIFT	3.53575E 05	DRAG	3.865[illegible]E 05	QATM	5.548[illegible] 02	RHO	4.29375E-04
GR	2.1[illegible] 00	ZDOT	8.24877E-01	ZR	2.851[illegible]E 02	XLON	7.6[illegible]86E 01	XLAT	2.76938E 01
GAMC	-9.165[illegible] 00	THR	0	GV	1.66[illegible]E 00				

TIM	2.25[illegible] 02	WHT	2.46603E 05	VEL	1.56[illegible]E 03	RANG	3.03[illegible]E 02	GAM	-8.85[illegible]E 00
ALT	4.62[illegible] 04	PHI	2.98443E 01	Z	2.774[illegible]E 02	ALPH	2.93196E 00	MACH	1.6[illegible]E 00
SOS	9.68[illegible] 02	LIFT	3.46474E 05	DRAG	3.777[illegible]E 05	QATM	5.3[illegible]83E 02	RHO	4.34[illegible]E-04

GR	2.07847E 00	ZDOT	8.32224E-01	ZR	2.851[illegible]6E 02	XLON	7.61246E 01	XLAT	2.769[illegible] 01
GAMC	-6.85476E 00	THR	0	GV	1.62401E 00				
TIM	2.250000E 02	WHT	2.46603E 05	VEL	1.51674E 03	RANG	3.03286E 02	GAM	-8.56525E 00
ALT	4.60524E 04	PHI	2.68598E 01	Z	2.78167E 02	ALPH	2.82730E 00	MACH	1.56674E 00
SOS	9.68[illegible]5E 02	LIFT	3.30453E 05	DRAG	3.73[illegible]0E 05	QATM	5.05621E 02	RHO	4.39576E-04
GR	2.0[illegible]E 00	ZDOT	7.42582E-01	ZR	2.851[illegible]1E 02	XLON	7.61163E 01	XLAT	2.76921E 01
GAMC	-8.5[illegible]E 00	THR	0	GV	1.55[illegible]1E 00				
TIM	2.270000E 02	WHT	2.46603E 05	VEL	1.47361E 03	RANG	3.03528E 02	GAM	-8.28946E 00
ALT	4.58335E 04	PHI	2.68598E 01	Z	2.789[illegible]9E 02	ALPH	2.91372E 00	MACH	1.52219E 00
SOS	9.68086E 02	LIFT	3.24990E 05	DRAG	3.57[illegible]2E 05	QATM	4.82303E 02	RHO	4.44206E-04
GR	1.96015E 00	ZDOT	7.51741E-01	ZR	2.851[illegible]4E 02	XLON	7.61123E 01	XLAT	2.76915E 01
GAMC	-8.28946E 00	THR	0	GV	1.51330E 00				
TIM	2.280000E 02	WHT	2.46603E 05	VEL	1.43094E 03	RANG	3.03764E 02	GAM	-8.03210E 00
ALT	4.56274E 04	PHI	2.41738E 01	Z	2.79594E 02	ALPH	2.84730E 00	MACH	1.47811E 00
SOS	9.68086E 02	LIFT	3.12665E 05	DRAG	3.53[illegible]0E 05	QATM	4.59282E 02	RHO	4.48606E-04
GR	1.91[illegible] 00	ZDOT	6.75451E-01	ZR	2.85[illegible]2E 02	XLON	7.61046E 01	XLAT	2.76902E 01
GAMC	-8.03210E 00	THR	0	GV	1.49548E 00				
TIM	2.290000E 02	WHT	2.46603E 05	VEL	1.39[illegible]0E 03	RANG	3.03994E 02	GAM	-7.78996E 00
ALT	4.54335E 04	PHI	2.41738E 01	Z	2.80[illegible]0E 02	ALPH	2.94624E 00	MACH	1.43603E 00
SOS	9.68086E 02	LIFT	3.08331E 05	DRAG	3.37653E 05	QATM	4.37543E 02	RHO	4.52790E-04
GR	1.85419E 00	ZDOT	6.85633E-01	ZR	2.851[illegible]6E 02	XLON	7.61008E 01	XLAT	2.76896E 01
GAMC	-7.78996E 00	THR	0	GV	1.42[illegible]6E 00				
TIM	2.300000E 02	WHT	2.46603E 05	VEL	1.34998E 03	RANG	3.04217E 02	GAM	-7.56193E 00
ALT	4.52[illegible]E 04	PHI	2.17565E 01	Z	2.808[illegible]9E 02	ALPH	2.91211E 00	MACH	1.39448E 00
SOS	9.68[illegible]E 02	LIFT	2.95742E 05	DRAG	3.32[illegible]5E 05	QATM	4.16216E 02	RHO	4.56770E-04
GR	1.81977E 00	ZDOT	6.19520E-01	ZR	2.852[illegible]5E 02	XLON	7.60935E 01	XLAT	2.76862E 01
GAMC	-7.56194E 00	THR	0	GV	1.37[illegible]6E 00				
TIM	2.310000E 02	WHT	2.46603E 05	VEL	1.31[illegible]0E 03	RANG	3.04434E 02	GAM	-7.34701E 00
ALT	4.50741E 04	PHI	2.17565E 01	Z	2.815[illegible]0E 02	ALPH	3.02338E 00	MACH	1.35484E 00
SOS	9.68[illegible]E 02	LIFT	2.95289E 05	DRAG	3.179[illegible]4E 05	QATM	3.96144E 02	RHO	4.60556E-04
GR	1.75955E 00	ZDOT	6.30267E-01	ZR	2.852[illegible]0E 02	XLON	7.60900E 01	XLAT	2.76875E 01
GAMC	-7.34701E 00	THR	0	GV	1.35246E 00				
TIM	2.320000E 02	WHT	2.46603E 05	VEL	1.27[illegible]5E 03	RANG	3.04644E 02	GAM	-7.14424E 00
ALT	4.49152E 04	PHI	1.95808E 01	Z	2.821[illegible]2E 02	ALPH	3.01548E 00	MACH	1.31584E 00
SOS	9.68086E 02	LIFT	2.87768E 05	DRAG	3.122[illegible]4E 05	QATM	3.76593E 02	RHO	4.64160E-04
GR	1.72178E 00	ZDOT	5.72037E-01	ZR	2.852[illegible]0E 02	XLON	7.60831E 01	XLAT	2.76864E 01
GAMC	-7.14425E 00	THR	0	GV	1.31[illegible]2E 00				
TIM	2.330000E 02	WHT	2.46603E 05	VEL	1.23[illegible]6E 03	RANG	3.04849E 02	GAM	-6.95278E 00
ALT	4.47613E 04	PHI	1.76227E 01	Z	2.82622E 02	ALPH	3.06473E 00	MACH	1.27815E 00
SOS	9.68086E 02	LIFT	2.81630E 05	DRAG	3.019[illegible]6E 05	QATM	3.57955E 02	RHO	4.67592E-04
GR	1.67[illegible]2E 00	ZDOT	5.23719E-01	ZR	2.852[illegible]1E 02	XLON	7.60765E 01	XLAT	2.76846E 01
GAMC	-6.95278E 00	THR	0	GV	1.28[illegible]5E 00				
TIM	2.340000E 02	WHT	2.46603E 05	VEL	1.20[illegible]5E 03	RANG	3.05040E 02	GAM	-6.77185E 00
ALT	4.46157E 04	PHI	1.76227E 01	Z	2.83[illegible]3E 02	ALPH	3.19336E 00	MACH	1.24220E 00
SOS	9.68086E 02	LIFT	2.79164E 05	DRAG	2.886[illegible]3E 05	QATM	3.40464E 02	RHO	4.70862E-04
GR	1.62849E 00	ZDOT	5.31062E-01	ZR	2.852[illegible]7E 02	XLON	7.60732E 01	XLAT	2.76838E 01
GAMC	-6.77187E 00	THR	0	GV	1.26[illegible]8E 00				
TIM	2.350000E 02	WHT	2.46603E 05	VEL	1.16844E 03	RANG	3.05241E 02	GAM	-6.60070E 00
ALT	4.44778E 04	PHI	1.58605E 01	Z	2.836[illegible]8E 02	ALPH	3.27251E 00	MACH	1.20696E 00
SOS	9.68086E 02	LIFT	2.74182E 05	DRAG	2.82664E 05	QATM	3.23551E 02	RHO	4.73979E-04
GR	1.59668E 00	ZDOT	4.84737E-01	ZR	2.85249E 02	XLON	7.60670E 01	XLAT	2.76823E 01
GAMC	-6.60071E 00	THR	0	GV	1.23622E 00				
TIM	2.360000E 02	WHT	2.46603E 05	VEL	1.13550E 03	RANG	3.05429E 02	GAM	-6.43864E 00
ALT	4.43471E 04	PHI	1.43744E 01	Z	2.840[illegible]1E 02	ALPH	3.39527E 00	MACH	1.17295E 00
SOS	9.68086E 02	LIFT	2.70082E 05	DRAG	2.732[illegible]1E 05	QATM	3.07481E 02	RHO	4.76952E-04
GR	1.55792E 00	ZDOT	4.43322E-01	ZR	2.852[illegible]1E 02	XLON	7.60609E 01	XLAT	2.76808E 01
GAMC	-6.43864E 00	THR	0	GV	1.21255E 00				
TIM	2.370000E 02	WHT	2.46603E 05	VEL	1.10415E 03	RANG	3.05612E 02	GAM	-6.28505E 00
ALT	4.42232E 04	PHI	1.43744E 01	Z	2.843[illegible]4E 02	ALPH	3.54706E 00	MACH	1.14045E 00
SOS	9.68086E 02	LIFT	2.68302E 05	DRAG	2.615[illegible]2E 05	QATM	2.92413E 02	RHO	4.79789E-04
GR	1.51934E 00	ZDOT	4.52902E-01	ZR	2.852[illegible]7E 02	XLON	7.60580E 01	XLAT	2.76800E 01
GAMC	-6.28508E 00	THR	0	GV	1.19755E 00				
TIM	2.380000E 02	WHT	2.46603E 05	VEL	1.07329E 03	RANG	3.05789E 02	GAM	-6.13940E 00
ALT	4.41056E 04	PHI	1.28470E 01	Z	2.849[illegible]9E 02	ALPH	3.69221E 00	MACH	1.10868E 00
SOS	9.68086E 02	LIFT	2.64913E 05	DRAG	2.556[illegible]5E 05	QATM	2.77910E 02	RHO	4.82499E-04
GR	1.49285E 00	ZDOT	4.14909E-01	ZR	2.852[illegible]0E 02	XLON	7.60522E 01	XLAT	2.76785E 01
GAMC	-6.13941E 00	THR	0	GV	1.17895E 00				
TIM	2.390000E 02	WHT	2.46603E 05	VEL	1.04357E 03	RANG	3.05962E 02	GAM	-5.95574E 00
ALT	4.39942E 04	PHI	0	Z	2.84949E 02	ALPH	3.86189E 00	MACH	1.07797E 00
SOS	9.68086E 02	LIFT	2.63055E 05	DRAG	2.47281E 05	QATM	2.64132E 02	RHO	4.85077E-04

GR	1.464[illegible]E 00	ZDOT	0	ZP	2.852[illegible]6E 02	XLON	7.60467E 01	XLAT	2.76[illegible]70E 01		
GAMC	-6.[illegible]E 00	THR	0	GV	1.162[illegible]0E 00						

TIME REACHED

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TIM	2.4[illegible]E 02	WHT	2.46613E 05	VEL	1.01550E 03	RANG	5.05130E 02	GAM	-5.87021E 00		
ALT	4.[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.84809E 00	MACH	1.048[illegible]E 00		
SOS	9.[illegible]E 02	LIFT	2.49421E 05	DRAG	2.35168E 05	QATM	2.51338E 02	RHO	4.87543E-04		
GR	1.[illegible]E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.60440E 01	XLAT	2.76763E 01		
GAMC	-5.[illegible]E 00	THR	0	GV	1.10[illegible]6E 00						

TIM	2.41[illegible]E 02	WHT	2.46603E 05	VEL	9.85[illegible]5E 02	RANG	5.06295E 02	GAM	-5.74569E 00		
ALT	4.37271E 04	PHI	0	Z	2.84949E 02	ALPH	4.12845E 00	MACH	1.02361E 00		
SOS	9.64[illegible]E 02	LIFT	2.54256E 05	DRAG	2.28762E 05	QATM	2.39129E 02	RHO	4.8991[illegible]E-04		
GR	1.3[illegible]E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.60413E 01	XLAT	2.76755E 01		
GAMC	-5.74[illegible]E 00	THR	0	GV	1.11872E 00						

TIM	2.42[illegible]E 02	WHT	2.46603E 05	VEL	9.61551E 02	RANG	5.05495E 02	GAM	-5.63[illegible]E 00		
ALT	4.36[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	4.3[illegible]E 00	MACH	9.9[illegible]E-01		
SOS	9.6[illegible]E 02	LIFT	2.53196E 05	DRAG	2.21677E 05	QATM	2.2[illegible]E 02	RHO	4.9[illegible]E-04		
GR	1.3[illegible]E 00	ZDOT	0	ZR	2.85216E 02	XLON	7.6[illegible]E 01	XLAT	2.[illegible]E 01		
GAMC	-5.52674E 00	THR	0	GV	1.10963E 00						

TIM	2.43[illegible]E 02	WHT	2.46603E 05	VEL	9.36313E 02	RANG	5.06006E 02	GAM	-5.51[illegible]E 00		
ALT	4.3[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	4.53759E 00	MACH	9.67169E-01		
SOS	9.6[illegible]E 02	LIFT	2.52278E 05	DRAG	2.12849E 05	QATM	2.16986E 02	RHO	4.9[illegible]E-04		
GR	1.3[illegible]E 00	ZDOT	0	ZR	2.85216E 02	XLON	7.60363E 01	XLAT	2.76742E 01		
GAMC	-5.51339E 00	THR	0	GV	1.10019E 00						

TIM	2.44[illegible]E 02	WHT	2.46603E 05	VEL	9.13[illegible]0E 02	RANG	5.06[illegible]0E 02	GAM	-5.40521E 00		
ALT	4.4[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	4.76[illegible]E 00	MACH	9.4337[illegible]E-01		
SOS	9.6[illegible]E 02	LIFT	2.51748E 05	DRAG	1.95362E 05	QATM	2.07[illegible]E 02	RHO	4.9643[illegible]E-04		
GR	1.2[illegible]E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.60[illegible]E 01	XLAT	2.76[illegible]E 01		
GAMC	-5.4[illegible]E 00	THR	0	GV	1.09054E 00						

TIM	2.45[illegible]E 02	WHT	2.46603E 05	VEL	8.92[illegible]0E 02	RANG	5.05[illegible]E 02	GAM	-5.30[illegible]E 00		
ALT	4.3[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	4.99[illegible]E 00	MACH	9.2[illegible]E-01		
SOS	9.6[illegible]E 02	LIFT	2.51269E 05	DRAG	1.81[illegible]E 05	QATM	1.98546E 02	RHO	4.9[illegible]E-04		
GR	1.2[illegible]E 00	ZDOT	0	ZR	2.85216E 02	XLON	7.60[illegible]E 01	XLAT	2.76[illegible]E 01		
GAMC	-5.3[illegible]E 00	THR	0	GV	1.08240E 00						

TIM	2.46[illegible]E 02	WHT	2.46603E 05	VEL	8.725[illegible]E 02	RANG	5.07[illegible]E 02	GAM	-5.[illegible]E 00		
ALT	4.3[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.21[illegible]E 00	MACH	9.[illegible]E-01		
SOS	9.6[illegible]E 02	LIFT	2.50833E 05	DRAG	1.687[illegible]E 05	QATM	.9.485E 02	RHO	5.[illegible]E-04		
GR	1.2[illegible]E 00	ZDOT	0	ZR	2.85216E 02	XLON	7.6[illegible]91E 01	XLAT	2.76[illegible]E 01		
GAMC	-5.2[illegible]E 00	THR	0	GV	1.07[illegible]0E 00						

TIM	2.47[illegible]E 02	WHT	2.46603E 05	VEL	8.544.9E 02	RANG	5.07193E 02	GAM	-5.10824E 00		
ALT	4.3[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.43956E 00	MACH	8.[illegible]E-01		
SOS	9.6[illegible]E 02	LIFT	2.50444E 05	DRAG	1.58[illegible]E 05	QATM	1.83527E 02	RHO	5.[illegible]E-04		
GR	1.2[illegible]E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.61269E 01	XLAT	2.76717E 01		
GAMC	-5.1[illegible]E 00	THR	0	GV	1.06962E 00						

TIM	2.49[illegible]E 02	WHT	2.46603E 05	VEL	8.375[illegible]E 02	RANG	5.07[illegible]E 02	GAM	-5.[illegible]E 00		
ALT	4.31[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.66[illegible]E 00	MACH	8.[illegible]E-01		
SOS	9.6[illegible]E 02	LIFT	2.50093E 05	DRAG	1.48[illegible]E 05	QATM	1.76762E 02	RHO	5.[illegible]E-04		
GR	1.17[illegible]E 00	ZDOT	0	ZR	2.85216E 02	XLON	7.6[illegible]46E 01	XLAT	2.[illegible]E 01		
GAMC	-5.01728E 00	THR	0	GV	1.06249E 00						

TIM	2.49[illegible]E 02	WHT	2.46603E 05	VEL	8.21[illegible]6E 02	RANG	5.07467E 02	GAM	-4.97951E 00		
ALT	4.31[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.88009E 00	MACH	8.48714E-01		
SOS	9.6[illegible]E 02	LIFT	2.49766E 05	DRAG	1.40459E 05	QATM	1.73710E 02	RHO	5.05752E-04		
GR	1.1[illegible]E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.60222E 01	XLAT	2.76755E 01		
GAMC	-4.93965E 00	THR	0	GV	1.05863E 00						

TIM	2.50[illegible]E 02	WHT	2.46603E 05	VEL	8.05581E 02	RANG	5.07600E 02	GAM	-4.[illegible]E 00		
ALT	4.3[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	6.09581E 00	MACH	8.33274E-01		
SOS	9.6[illegible]E 02	LIFT	2.49465E 05	DRAG	1.33196E 05	QATM	1.65101E 02	RHO	5.[illegible]431E-04		
GR	1.14677E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.60283E 01	XLAT	2.76710E 01		
GAMC	-4.84524E 00	THR	0	GV	1.05361E 00						

TIM	2.51[illegible]E 02	WHT	2.46603E 05	VEL	7.92553E 02	RANG	5.07731E 02	GAM	-4.7[illegible]E 00		
ALT	4.2[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	6.31841E 00	MACH	8.[illegible]E-01		
SOS	9.6[illegible]E 02	LIFT	2.49184E 05	DRAG	1.26[illegible]7E 05	QATM	1.59886E 02	RHO	5.[illegible]E-04		
GR	1.13[illegible]E 00	ZDOT	0	ZR	2.85216E 02	XLON	7.60182E 01	XLAT	2.[illegible]E 01		
GAMC	-4.76391E 00	THR	0	GV	1.04966E 00						

TIM	2.52[illegible]E 02	WHT	2.46603E 05	VEL	7.79150E 02	RANG	5.07806E 02	GAM	-4.08562E 00		
ALT	4.20214E 04	PHI	0	Z	2.84949E 02	ALPH	6.53785E 00	MACH	8.04836E-01		
SOS	9.6[illegible]E 02	LIFT	2.48922E 05	DRAG	1.21020E 05	QATM	1.54997E 02	RHO	5.10836E-04		
GR	1.12[illegible]E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.60161E 01	XLAT	2.76659E 01		
GAMC	-4.68523E 00	THR	0	GV	1.04611E 00						

TIM	2.5[illegible]E 02	WHT	2.46603E 05	VEL	7.66391E 02	RANG	5.07980E 02	GAM	-4.0[illegible]E 00		

ALT	4.28589E 04	PHI	0	Z	2.84949E 02	ALPH	6.75799E 00	MACH	7.91656E-01
SOS	9.68086E 02	LIFT	2.48676E 05	DRAG	1.15356E 05	QATM	1.50412E 02	RHO	5.12166E-04
GR	1.11254E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.60141E 01	XLAT	2.76683E 01
GAMC	-4.60922E 00	THR	0	GV	1.04291E 00				

MACH CONTROL

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TIM	2.54000E 02	WHT	2.46578E 05	VEL	7.594[illegible]E 02	RANG	3.06111E 02	GAM	-4.55571E 00
ALT	4.27985E 04	PHI	0	Z	2.84949E 02	ALPH	6.79841E 00	MACH	7.84467E-01
SOS	9.68086E 02	LIFT	2.45556E 05	DRAG	1.11031E 05	QATM	1.48125E 02	RHO	5.13658E-04
GR	1.06592E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.60121E 01	XLAT	2.76678E 01
GAMC	-4.53576E 00	THR	3.92480E 04	GV	1.03412E 00				

TIM	2.55000E 02	WHT	2.46552E 05	VEL	7.527[illegible]E 02	RANG	3.08235E 02	GAM	-4.46415E 00
ALT	4.27364E 04	PHI	0	Z	2.84949E 02	ALPH	6.96775E 00	MACH	7.77569E-01
SOS	9.68086E 02	LIFT	2.45303E 05	DRAG	1.08571E 05	QATM	1.45943E 02	RHO	5.15116E-04
GR	1.05263E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.60101E 01	XLAT	2.76672E 01
GAMC	-4.46424E 00	THR	3.92480E 04	GV	1.03298E 00				

TIM	2.56000E 02	WHT	2.46527E 05	VEL	7.46357E 02	RANG	3.08357E 02	GAM	-4.39446E 00
ALT	4.26609E 04	PHI	0	Z	2.84949E 02	ALPH	7.01485E 00	MACH	7.79941E-01
SOS	9.68086E 02	LIFT	2.45044E 05	DRAG	1.05296E 05	QATM	1.43863E 02	RHO	5.16546E-04
GR	1.04960E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.60081E 01	XLAT	2.76667E 01
GAMC	-4.39461E 00	THR	3.92480E 04	GV	1.03138E 00				

TIM	2.57000E 02	WHT	2.46502E 05	VEL	7.40101E 02	RANG	3.08479E 02	GAM	-4.32648E 00
ALT	4.26245E 04	PHI	0	Z	2.84949E 02	ALPH	7.12069E 00	MACH	7.64562E-01
SOS	9.68086E 02	LIFT	2.44803E 05	DRAG	1.04178E 05	QATM	1.41875E 02	RHO	5.17945E-04
GR	1.04885E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.60062E 01	XLAT	2.76662E 01
GAMC	-4.32662E 00	THR	3.92480E 04	GV	1.02992E 00				

TIM	2.58000E 02	WHT	2.46477E 05	VEL	7.34219E 02	RANG	3.08600E 02	GAM	-4.26010E 00
ALT	4.25693E 04	PHI	0	Z	2.84949E 02	ALPH	7.22505E 00	MACH	7.58413E-01
SOS	9.68086E 02	LIFT	2.44569E 05	DRAG	1.02159E 05	QATM	1.39971E 02	RHO	5.19314E-04
GR	1.04432E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.60042E 01	XLAT	2.76657E 01
GAMC	-4.26824E 00	THR	3.92480E 04	GV	1.02696E 00				

TIM	2.59000E 02	WHT	2.46451E 05	VEL	7.28464E 02	RANG	3.08720E 02	GAM	-4.19526E 00
ALT	4.25154E 04	PHI	0	Z	2.84949E 02	ALPH	7.32805E 00	MACH	7.52479E-01
SOS	9.68086E 02	LIFT	2.44343E 05	DRAG	1.00347E 05	QATM	1.38145E 02	RHO	5.20655E-04
GR	1.04200E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.60025E 01	XLAT	2.76652E 01
GAMC	-4.19541E 00	THR	3.92480E 04	GV	1.02728E 00				

TIM	2.60000E 02	WHT	2.46426E 05	VEL	7.22912E 02	RANG	3.08839E 02	GAM	-4.11194E 00
ALT	4.24628E 04	PHI	0	Z	2.84949E 02	ALPH	7.42980E 00	MACH	7.46744E-01
SOS	9.68086E 02	LIFT	2.44122E 05	DRAG	9.86117E 04	QATM	1.36591E 02	RHO	5.21969E-04
GR	1.03966E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.60004E 01	XLAT	2.76647E 01
GAMC	-4.12203E 00	THR	3.92480E 04	GV	1.02517E 00				

TIM	2.61000E 02	WHT	2.46354E 05	VEL	7.26924E 02	RANG	3.08957E 02	GAM	-4.00979E 00
ALT	4.24113E 04	PHI	0	Z	2.84949E 02	ALPH	7.32007E 00	MACH	7.50886E-01
SOS	9.68086E 02	LIFT	2.43815E 05	DRAG	9.84161E 04	QATM	1.38249E 02	RHO	5.23257E-04
GR	1.04857E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59775E 01	XLAT	2.76635E 01
GAMC	-4.09934E 00	THR	1.11979E 05	GV	1.04146E 00				

TIM	2.62000E 02	WHT	2.46282E 05	VEL	7.31297E 02	RANG	3.09077E 02	GAM	-4.00938E 00
ALT	4.23603E 04	PHI	0	Z	2.84949E 02	ALPH	6.87659E 00	MACH	7.55406E-01
SOS	9.68086E 02	LIFT	2.32860E 05	DRAG	9.55243E 04	QATM	1.40260E 02	RHO	5.24537E-04
GR	1.06196E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59756E 01	XLAT	2.76580E 01
GAMC	-4.09966E 00	THR	1.11979E 05	GV	9.93[illegible]2E-01				

TIM	2.63000E 02	WHT	2.46209E 05	VEL	7.35247E 02	RANG	3.09197E 02	GAM	-3.94961E 00
ALT	4.23094E 04	PHI	0	Z	2.84949E 02	ALPH	6.94179E 00	MACH	7.59485E-01
SOS	9.68086E 02	LIFT	2.38379E 05	DRAG	9.85993E 04	QATM	1.42125E 02	RHO	5.25817E-04
GR	1.02444E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59737E 01	XLAT	2.76575E 01
GAMC	-3.94970E 00	THR	1.11979E 05	GV	1.01762E 00				

TIM	2.64000E 02	WHT	2.46137E 05	VEL	7.38962E 02	RANG	3.09318E 02	GAM	-3.88972E 00
ALT	4.22589E 04	PHI	0	Z	2.84949E 02	ALPH	6.84825E 00	MACH	7.63343E-01
SOS	9.68086E 02	LIFT	2.38464E 05	DRAG	9.99773E 04	QATM	1.43920E 02	RHO	5.27087E-04
GR	1.03418E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59717E 01	XLAT	2.76570E 01
GAMC	-3.88984E 00	THR	1.11979E 05	GV	1.01764E 00				

TIM	2.65000E 02	WHT	2.46065E 05	VEL	7.42599E 02	RANG	3.09439E 02	GAM	-3.83046E 00
ALT	4.22090E 04	PHI	0	Z	2.84949E 02	ALPH	6.75849E 00	MACH	7.69387E-01
SOS	9.68086E 02	LIFT	2.38477E 05	DRAG	1.01310E 05	QATM	1.45644E 02	RHO	5.28345E-04
GR	1.02351E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59698E 01	XLAT	2.76562E 01
GAMC	-3.83058E 00	THR	1.11979E 05	GV	1.01725E 00				

TIM	2.66000E 02	WHT	2.45993E 05	VEL	7.45[illegible]5E 02	RANG	3.09561E 02	GAM	-3.77182E 00
ALT	4.21597E 04	PHI	0	Z	2.84949E 02	ALPH	6.67431E 00	MACH	7.70422E-01
SOS	9.68086E 02	LIFT	2.38477E 05	DRAG	1.02604E 05	QATM	1.47300E 02	RHO	5.29295E-04
GR	1.02295E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59678E 01	XLAT	2.76560E 01
GAMC	-3.77193E 00	THR	1.11979E 05	GV	1.01764E 00				

TIM	2.67000E 02	WHT	2.45921E 05	VEL	7.48964E 02	RANG	3.09084E 02	GAM	-3.71380E 00
ALT	4.21119E 04	PHI	0	Z	2.84949E 02	ALPH	6.59529E 00	MACH	7.73654E-01
SOS	9.68086E 02	LIFT	2.38466E 05	DRAG	1.03855E 05	QATM	1.48886E 02	RHO	5.30837E-04
GR	1.02243E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59656E 01	XLAT	2.76554E 01
GAMC	-3.71390E 00	THR	1.11979E 05	GV	1.01759E 00				
TIM	2.68000E 02	WHT	2.45849E 05	VEL	7.51912E 02	RANG	3.09807E 02	GAM	-3.65643E 00
ALT	4.20626E 04	PHI	0	Z	2.84949E 02	ALPH	6.52112E 00	MACH	7.76689E-01
SOS	9.68086E 02	LIFT	2.38444E 05	DRAG	1.05042E 05	QATM	1.50403E 02	RHO	5.32065E-04
GR	1.02192E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59639E 01	XLAT	2.76549E 01
GAMC	-3.65672E 00	THR	1.11979E 05	GV	1.01772E 00				
TIM	2.69000E 02	WHT	2.45776E 05	VEL	7.54955E 02	RANG	3.09930E 02	GAM	-3.59971E 00
ALT	4.20149E 04	PHI	0	Z	2.84949E 02	ALPH	6.45149E 00	MACH	7.79534E-01
SOS	9.68086E 02	LIFT	2.38412E 05	DRAG	1.06222E 05	QATM	1.51853E 02	RHO	5.33281E-04
GR	1.02144E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59619E 01	XLAT	2.76544E 01
GAMC	-3.59980E 00	THR	1.11979E 05	GV	1.01793E 00				
TIM	2.70000E 02	WHT	2.45704E 05	VEL	7.57251E 02	RANG	3.10054E 02	GAM	-3.54366E 00
ALT	4.19678E 04	PHI	0	Z	2.84949E 02	ALPH	6.38615E 00	MACH	7.82194E-01
SOS	9.68086E 02	LIFT	2.38372E 05	DRAG	1.07334E 05	QATM	1.53237E 02	RHO	5.34465E-04
GR	1.02098E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59599E 01	XLAT	2.76538E 01
GAMC	-3.54374E 00	THR	1.11979E 05	GV	1.01790E 00				
TIM	2.71000E 02	WHT	2.45632E 05	VEL	7.59626E 02	RANG	3.10178E 02	GAM	-3.48828E 00
ALT	4.19213E 04	PHI	0	Z	2.84949E 02	ALPH	6.32483E 00	MACH	7.84678E-01
SOS	9.68086E 02	LIFT	2.38323E 05	DRAG	1.08396E 05	QATM	1.54525E 02	RHO	5.35677E-04
GR	1.02053E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59579E 01	XLAT	2.76533E 01
GAMC	-3.48836E 00	THR	1.11979E 05	GV	1.01786E 00				
TIM	2.72000E 02	WHT	2.45560E 05	VEL	7.61476E 02	RANG	3.10303E 02	GAM	-3.43359E 00
ALT	4.18753E 04	PHI	0	Z	2.84949E 02	ALPH	6.26726E 00	MACH	7.86992E-01
SOS	9.68086E 02	LIFT	2.38267E 05	DRAG	1.09408E 05	QATM	1.55810E 02	RHO	5.36856E-04
GR	1.02011E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59559E 01	XLAT	2.76528E 01
GAMC	-3.43366E 00	THR	1.11979E 05	GV	1.01779E 00				
TIM	2.73000E 02	WHT	2.45488E 05	VEL	7.63959E 02	RANG	3.10426E 02	GAM	-3.37963E 00
ALT	4.18299E 04	PHI	0	Z	2.84949E 02	ALPH	6.21317E 00	MACH	7.89144E-01
SOS	9.68086E 02	LIFT	2.38200E 05	DRAG	1.10369E 05	QATM	1.57004E 02	RHO	5.38023E-04
GR	1.01969E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59539E 01	XLAT	2.76522E 01
GAMC	-3.37966E 00	THR	1.11979E 05	GV	1.01768E 00				
TIM	2.74000E 02	WHT	2.45416E 05	VEL	7.65890E 02	RANG	3.10554E 02	GAM	-3.32632E 00
ALT	4.17852E 04	PHI	0	Z	2.84949E 02	ALPH	6.16260E 00	MACH	7.91139E-01
SOS	9.68086E 02	LIFT	2.38134E 05	DRAG	1.11262E 05	QATM	1.58137E 02	RHO	5.39177E-04
GR	1.01931E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59518E 01	XLAT	2.76517E 01
GAMC	-3.32632E 00	THR	1.11979E 05	GV	1.01758E 00				
TIM	2.75000E 02	WHT	2.45343E 05	VEL	7.67678E 02	RANG	3.10679E 02	GAM	-3.27371E 00
ALT	4.17410E 04	PHI	0	Z	2.84949E 02	ALPH	6.11504E 00	MACH	7.92986E-01
SOS	9.68086E 02	LIFT	2.38058E 05	DRAG	1.12144E 05	QATM	1.59213E 02	RHO	5.40318E-04
GR	1.01893E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59498E 01	XLAT	2.76512E 01
GAMC	-3.27374E 00	THR	1.11979E 05	GV	1.01745E 00				
TIM	2.76000E 02	WHT	2.45271E 05	VEL	7.69359E 02	RANG	3.10805E 02	GAM	-3.22181E 00
ALT	4.16975E 04	PHI	0	Z	2.84949E 02	ALPH	6.07041E 00	MACH	7.94691E-01
SOS	9.68086E 02	LIFT	2.37978E 05	DRAG	1.12956E 05	QATM	1.60232E 02	RHO	5.41446E-04
GR	1.01857E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59478E 01	XLAT	2.76506E 01
GAMC	-3.22184E 00	THR	1.11979E 05	GV	1.01730E 00				
TIM	2.77000E 02	WHT	2.45199E 05	VEL	7.70850E 02	RANG	3.10932E 02	GAM	-3.17062E 00
ALT	4.16545E 04	PHI	0	Z	2.84949E 02	ALPH	6.02853E 00	MACH	7.96262E-01
SOS	9.68086E 02	LIFT	2.37892E 05	DRAG	1.13720E 05	QATM	1.61197E 02	RHO	5.42566E-04
GR	1.01821E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59458E 01	XLAT	2.76501E 01
GAMC	-3.17064E 00	THR	1.11979E 05	GV	1.01714E 00				
TIM	2.78000E 02	WHT	2.45127E 05	VEL	7.72246E 02	RANG	3.11056E 02	GAM	-3.12013E 00
ALT	4.16122E 04	PHI	0	Z	2.84949E 02	ALPH	5.98922E 00	MACH	7.97705E-01
SOS	9.68086E 02	LIFT	2.37802E 05	DRAG	1.14417E 05	QATM	1.62116E 02	RHO	5.43661E-04
GR	1.01786E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59437E 01	XLAT	2.76495E 01
GAMC	-3.12016E 00	THR	1.11979E 05	GV	1.01696E 00				
TIM	2.79000E 02	WHT	2.45055E 05	VEL	7.73526E 02	RANG	3.11185E 02	GAM	-3.07036E 00
ALT	4.15704E 04	PHI	0	Z	2.84949E 02	ALPH	5.95232E 00	MACH	7.99026E-01
SOS	9.68086E 02	LIFT	2.37709E 05	DRAG	1.15107E 05	QATM	1.62973E 02	RHO	5.44749E-04
GR	1.01752E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.59417E 01	XLAT	2.76490E 01
GAMC	-3.07038E 00	THR	1.11979E 05	GV	1.01676E 00				
TIM	2.80000E 02	WHT	2.44983E 05	VEL	7.74654E 02	RANG	3.11312E 02	GAM	-3.02129E 00
ALT	4.15293E 04	PHI	0	Z	2.84949E 02	ALPH	5.91769E 00	MACH	8.00253E-01
SOS	9.68086E 02	LIFT	2.37612E 05	DRAG	1.15732E 05	QATM	1.63780E 02	RHO	5.45823E-04

GR	1.01719E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59396E 01	XLAT	2.76484E 01		
GAMC	-3.02131E 00	THR	1.11979E 05	GV	1.01656E 00						
TIM	2.81000E 02	WHT	2.44910E 05	VEL	7.75757E 02	RANG	3.11439E 02	GAM	-2.97293E 00		
ALT	4.14887E 04	PHI	0	Z	2.84949E 02	ALPH	5.88516E 00	MACH	8.01331E-01		
SOS	9.68086E 02	LIFT	2.37511E 05	DRAG	1.16314E 05	QATM	1.64257E 02	RHO	5.46883E-04		
GR	1.01687E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59376E 01	XLAT	2.76479E 01		
GAMC	-2.97295E 00	THR	1.11979E 05	GV	1.01614E 00						
TIM	2.82000E 02	WHT	2.44838E 05	VEL	7.76721E 02	RANG	3.11366E 02	GAM	-2.92527E 00		
ALT	4.14454E 04	PHI	0	Z	2.84949E 02	ALPH	5.85465E 00	MACH	8.02326E-01		
SOS	9.68086E 02	LIFT	2.37408E 05	DRAG	1.16894E 05	QATM	1.65282E 02	RHO	5.47930E-04		
GR	1.01655E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59355E 01	XLAT	2.76473E 01		
GAMC	-2.92520E 00	THR	1.11979E 05	GV	1.01612E 00						
TIM	2.83000E 02	WHT	2.44766E 05	VEL	7.77591E 02	RANG	3.11694E 02	GAM	-2.87632E 00		
ALT	4.14094E 04	PHI	0	Z	2.84949E 02	ALPH	5.82599E 00	MACH	8.03226E-01		
SOS	9.68086E 02	LIFT	2.37303E 05	DRAG	1.17314E 05	QATM	1.65965E 02	RHO	5.48964E-04		
GR	1.01624E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59335E 01	XLAT	2.76464E 01		
GAMC	-2.87833E 00	THR	1.11979E 05	GV	1.01369E 00						
TIM	2.84000E 02	WHT	2.44694E 05	VEL	7.78324E 02	RANG	3.11822E 02	GAM	-2.83285E 00		
ALT	4.13707E 04	PHI	0	Z	2.84949E 02	ALPH	5.79907E 00	MACH	8.04034E-01		
SOS	9.68086E 02	LIFT	2.37195E 05	DRAG	1.17834E 05	QATM	1.66608E 02	RHO	5.49985E-04		
GR	1.01593E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59314E 01	XLAT	2.76462E 01		
GAMC	-2.83208E 00	THR	1.11979E 05	GV	1.01365E 00						
TIM	2.85000E 02	WHT	2.44622E 05	VEL	7.79024E 02	RANG	3.11949E 02	GAM	-2.78651E 00		
ALT	4.13325E 04	PHI	0	Z	2.84949E 02	ALPH	5.77377E 00	MACH	8.04757E-01		
SOS	9.68086E 02	LIFT	2.37084E 05	DRAG	1.18238E 05	QATM	1.67213E 02	RHO	5.50989E-04		
GR	1.01562E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59294E 01	XLAT	2.76457E 01		
GAMC	-2.78651E 00	THR	1.11979E 05	GV	1.01329E 00						
TIM	2.86000E 02	WHT	2.44550E 05	VEL	7.79596E 02	RANG	3.12077E 02	GAM	-2.74164E 00		
ALT	4.12949E 04	PHI	0	Z	2.84949E 02	ALPH	5.75063E 00	MACH	8.05409E-01		
SOS	9.68086E 02	LIFT	2.36974E 05	DRAG	1.18696E 05	QATM	1.67782E 02	RHO	5.51982E-04		
GR	1.01536E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59273E 01	XLAT	2.76451E 01		
GAMC	-2.74164E 00	THR	1.11979E 05	GV	1.01315E 00						
TIM	2.87000E 02	WHT	2.44477E 05	VEL	7.80235E 02	RANG	3.12205E 02	GAM	-2.69745E 00		
ALT	4.12573E 04	PHI	0	Z	2.84949E 02	ALPH	5.72771E 00	MACH	8.05967E-01		
SOS	9.68086E 02	LIFT	2.36861E 05	DRAG	1.19071E 05	QATM	1.68316E 02	RHO	5.52961E-04		
GR	1.01503E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59253E 01	XLAT	2.76446E 01		
GAMC	-2.69745E 00	THR	1.11979E 05	GV	1.01289E 00						
TIM	2.88000E 02	WHT	2.44405E 05	VEL	7.80726E 02	RANG	3.12333E 02	GAM	-2.65394E 00		
ALT	4.12214E 04	PHI	0	Z	2.84949E 02	ALPH	5.70672E 00	MACH	8.06464E-01		
SOS	9.68086E 02	LIFT	2.36746E 05	DRAG	1.19303E 05	QATM	1.68818E 02	RHO	5.53926E-04		
GR	1.01473E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59232E 01	XLAT	2.76440E 01		
GAMC	-2.65395E 00	THR	1.11979E 05	GV	1.01263E 00						
TIM	2.89000E 02	WHT	2.44333E 05	VEL	7.81148E 02	RANG	3.12461E 02	GAM	-2.61110E 00		
ALT	4.11856E 04	PHI	0	Z	2.84949E 02	ALPH	5.68700E 00	MACH	8.06855E-01		
SOS	9.68086E 02	LIFT	2.36631E 05	DRAG	1.19595E 05	QATM	1.69289E 02	RHO	5.54879E-04		
GR	1.01444E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59211E 01	XLAT	2.76435E 01		
GAMC	-2.61111E 00	THR	1.11979E 05	GV	1.01236E 00						
TIM	2.90000E 02	WHT	2.44261E 05	VEL	7.81512E 02	RANG	3.12590E 02	GAM	-2.56894E 00		
ALT	4.11563E 04	PHI	0	Z	2.84949E 02	ALPH	5.66844E 00	MACH	8.07265E-01		
SOS	9.68086E 02	LIFT	2.36515E 05	DRAG	1.19858E 05	QATM	1.69731E 02	RHO	5.55817E-04		
GR	1.01416E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59191E 01	XLAT	2.76429E 01		
GAMC	-2.57894E 00	THR	1.11979E 05	GV	1.01210E 00						
TIM	2.91000E 02	WHT	2.44189E 05	VEL	7.81894E 02	RANG	3.12718E 02	GAM	-2.52743E 00		
ALT	4.11155E 04	PHI	0	Z	2.84949E 02	ALPH	5.65099E 00	MACH	8.07527E-01		
SOS	9.68086E 02	LIFT	2.36398E 05	DRAG	1.20093E 05	QATM	1.70146E 02	RHO	5.56743E-04		
GR	1.01387E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59170E 01	XLAT	2.76424E 01		
GAMC	-2.52743E 00	THR	1.11979E 05	GV	1.01183E 00						
TIM	2.92000E 02	WHT	2.44116E 05	VEL	7.82055E 02	RANG	3.12846E 02	GAM	-2.48657E 00		
ALT	4.10813E 04	PHI	0	Z	2.84949E 02	ALPH	5.63456E 00	MACH	8.07836E-01		
SOS	9.68086E 02	LIFT	2.36285E 05	DRAG	1.20313E 05	QATM	1.70534E 02	RHO	5.57650E-04		
GR	1.01359E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59150E 01	XLAT	2.76418E 01		
GAMC	-2.48658E 00	THR	1.11979E 05	GV	1.01156E 00						
TIM	2.93000E 02	WHT	2.44044E 05	VEL	7.82257E 02	RANG	3.12975E 02	GAM	-2.44636E 00		
ALT	4.10476E 04	PHI	0	Z	2.84949E 02	ALPH	5.61910E 00	MACH	8.08045E-01		
SOS	9.68086E 02	LIFT	2.36162E 05	DRAG	1.20469E 05	QATM	1.70897E 02	RHO	5.58555E-04		
GR	1.01331E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59129E 01	XLAT	2.76413E 01		
GAMC	-2.44637E 00	THR	1.11979E 05	GV	1.01129E 00						
TIM	2.94000E 02	WHT	2.43972E 05	VEL	7.82414E 02	RANG	3.13103E 02	GAM	-2.40679E 00		
ALT	4.10145E 04	PHI	0	Z	2.84949E 02	ALPH	5.60454E 00	MACH	8.08208E-01		
SOS	9.68086E 02	LIFT	2.36044E 05	DRAG	1.20602E 05	QATM	1.71237E 02	RHO	5.59442E-04		

GR	1.01[illegible] 00	ZDOT	0	ZR	2.85[illegible]E 02	XLON	7.59[illegible]E 01	XLAT	2.[illegible]
GAMC	-2.46[illegible] 00	THR	1.11979E 05	GV	1.01[illegible]E 00				
TIM	2.9[illegible] 02	WHT	2.43900E 05	VEL	7.82[illegible]E 02	RANG	5.13231E 02	GAM	-2.36[illegible] 00
ALT	4.09819E 04	PHI	0	Z	2.84949E 02	ALPH	5.59082E 00	MACH	8.06323E-01
SOS	9.68086E 02	LIFT	2.35925E 05	DRAG	1.20[illegible]E 05	QATM	1.71556E 02	RHO	5.60312E-04
GR	1.01276E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59086E 01	XLAT	2.76402E 01
GAMC	-2.36786E 00	THR	1.11979E 05	GV	1.01275E 00				
TIM	2.96000E 02	WHT	2.43828E 05	VEL	7.82608E 02	RANG	5.13360E 02	GAM	-2.32[illegible]
ALT	4.09496E 04	PHI	0	Z	2.84949E 02	ALPH	5.57789E 00	MACH	8.0[illegible]
SOS	9.68086E 02	LIFT	2.35806E 05	DRAG	1.20914E 05	QATM	1.71853E 02	RHO	5.61177E-04
GR	1.01246E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59067E 01	XLAT	2.[illegible]
GAMC	-2.32954E 00	THR	1.11979E 05	GV	1.01248E 00				
TIM	2.97000E 02	WHT	2.43756E 05	VEL	7.82649E 02	RANG	5.13488E 02	GAM	-2.29[illegible]
ALT	4.09183E 04	PHI	0	Z	2.84949E 02	ALPH	5.56570E 00	MACH	8.[illegible]
SOS	9.68086E 02	LIFT	2.35687E 05	DRAG	1.21016E 05	QATM	1.72131E 02	RHO	5.62[illegible]
GR	1.01251E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59046E 01	XLAT	2.763[illegible]
GAMC	-2.29154E 00	THR	1.11979E 05	GV	1.01251E 00				
TIM	2.98000E 02	WHT	2.43683E 05	VEL	7.82656E 02	RANG	5.13617E 02	GAM	-2.25[illegible]
ALT	4.08872E 04	PHI	0	Z	2.84949E 02	ALPH	5.55420E 00	MACH	8.0845[illegible]
SOS	9.68086E 02	LIFT	2.35568E 05	DRAG	1.21101E 05	QATM	1.72391E 02	RHO	5.62861E-04
GR	1.01195E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59026E 01	XLAT	2.[illegible]385E 01
GAMC	-2.25475E 00	THR	1.11979E 05	GV	1.01195E 00				
TIM	2.99000E 02	WHT	2.43611E 05	VEL	7.82656E 02	RANG	5.13745E 02	GAM	-2.21825E 00
ALT	4.08567E 04	PHI	0	Z	2.84949E 02	ALPH	5.54334E 00	MACH	8.08437E-01
SOS	9.68086E 02	LIFT	2.35449E 05	DRAG	1.21170E 05	QATM	1.72634E 02	RHO	5.63685E-04
GR	1.01168E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.59005E 01	XLAT	2.76380E 01
GAMC	-2.21[illegible] 00	THR	1.11979E 05	GV	1.01168E 00				
TIM	3.00[illegible] 02	WHT	2.43539E 05	VEL	7.82656E 02	RANG	5.13874E 02	GAM	-2.18235E 00
ALT	4.08286E 04	PHI	0	Z	2.84949E 02	ALPH	5.53309E 00	MACH	8.08365E-01
SOS	9.6[illegible] 02	LIFT	2.35330E 05	DRAG	1.21223E 05	QATM	1.72800E 02	RHO	5.64496E-04
GR	1.01142E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.58984E 01	XLAT	2.76374E 01
GAMC	-2.18235E 00	THR	1.11979E 05	GV	1.01142E 00				
TIM	3.01000E 02	WHT	2.43467E 05	VEL	7.82511E 02	RANG	5.14002E 02	GAM	-2.14703E 00
ALT	4.07971E 04	PHI	0	Z	2.84949E 02	ALPH	5.52340E 00	MACH	8.08307E-01
SOS	9.68086E 02	LIFT	2.35211E 05	DRAG	1.21261E 05	QATM	1.73072E 02	RHO	5.65298E-04
GR	1.01116E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.58964E 01	XLAT	2.[illegible]
GAMC	-2.14703E 00	THR	1.11979E 05	GV	1.01116E 00				
TIM	3.02000E 02	WHT	2.43395E 05	VEL	7.82411E 02	RANG	5.14130E 02	GAM	-2.11225E 00
ALT	4.07658E 04	PHI	0	Z	2.84949E 02	ALPH	5.51424E 00	MACH	8.08[illegible]
SOS	9.68086E 02	LIFT	2.35093E 05	DRAG	1.21287E 05	QATM	1.73269E 02	RHO	5.66083E-04
GR	1.01091E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.58943E 01	XLAT	2.76365E 01
GAMC	-2.11225E 00	THR	1.11979E 05	GV	1.01090E 00				
TIM	3.03000E 02	WHT	2.43323E 05	VEL	7.82290E 02	RANG	5.14259E 02	GAM	-2.07810E 00
ALT	4.07394E 04	PHI	0	Z	2.84949E 02	ALPH	5.50557E 00	MACH	8.08079E-01
SOS	9.68086E 02	LIFT	2.34975E 05	DRAG	1.21300E 05	QATM	1.73452E 02	RHO	5.66859E-04
GR	1.01065E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.58922E 01	XLAT	2.76358E 01
GAMC	-2.07610E 00	THR	1.11979E 05	GV	1.01065E 00				
TIM	3.04000E 02	WHT	2.43250E 05	VEL	7.82149E 02	RANG	5.14387E 02	GAM	-2.04447E 00
ALT	4.07112E 04	PHI	0	Z	2.84949E 02	ALPH	5.49736E 00	MACH	8.07933E-01
SOS	9.68086E 02	LIFT	2.34857E 05	DRAG	1.21302E 05	QATM	1.73624E 02	RHO	5.67623E-04
GR	1.01041E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.58902E 01	XLAT	2.76352E 01
GAMC	-2.04448E 00	THR	1.11979E 05	GV	1.01040E 00				
TIM	3.05000E 02	WHT	2.43178E 05	VEL	7.81989E 02	RANG	5.14516E 02	GAM	-2.01140E 00
ALT	4.06836E 04	PHI	0	Z	2.84949E 02	ALPH	5.48958E 00	MACH	8.07769E-01
SOS	9.68086E 02	LIFT	2.34740E 05	DRAG	1.21293E 05	QATM	1.73783E 02	RHO	5.68376E-04
GR	1.01016E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.58881E 01	XLAT	2.76347E 01
GAMC	-2.01148E 00	THR	1.11979E 05	GV	1.01015E 00				
TIM	3.06000E 02	WHT	2.43106E 05	VEL	7.81813E 02	RANG	5.14644E 02	GAM	-1.97887E 00
ALT	4.06563E 04	PHI	0	Z	2.84949E 02	ALPH	5.48220E 00	MACH	8.07567E-01
SOS	9.68086E 02	LIFT	2.34623E 05	DRAG	1.21274E 05	QATM	1.73931E 02	RHO	5.69117E-04
GR	1.00992E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.58860E 01	XLAT	2.76341E 01
GAMC	-1.97887E 00	THR	1.11979E 05	GV	1.00992E 00				
TIM	3.07000E 02	WHT	2.43034E 05	VEL	7.81[illegible]E 02	RANG	5.14772E 02	GAM	-1.94687E 00
ALT	4.06296E 04	PHI	0	Z	2.84949E 02	ALPH	5.47520E 00	MACH	8.07389E-01
SOS	9.68086E 02	LIFT	2.34507E 05	DRAG	1.21246E 05	QATM	1.74069E 02	RHO	5.69847E-04
GR	1.00968E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.58840E 01	XLAT	2.76336E 01
GAMC	-1.94687E 00	THR	1.11979E 05	GV	1.00968E 00				
TIM	3.08000E 02	WHT	2.42962E 05	VEL	7.81417E 02	RANG	5.14901E 02	GAM	-1.91540E 00
ALT	4.06032E 04	PHI	0	Z	2.84949E 02	ALPH	5.46855E 00	MACH	8.07178E-01
SOS	9.68086E 02	LIFT	2.34391E 05	DRAG	1.21211E 05	QATM	1.74196E 02	RHO	5.70566E-04

GR	1.109445E 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58819E 01	XLAT	2.76331E 01
GAMC	-1.915409E 00	THR	1.11979E 05	GV	1.00942E 00				
TIM	3.[illegible] 02	WHT	2.42890E 05	VEL	7.812[illegible]E 02	RANG	3.15029E 02	GAM	-1.88444E 00
ALT	4.057730 04	PHI	0	Z	2.84949E 02	ALPH	5.46223E 00	MACH	8.06954E-01
SOS	9.68[illegible]E 02	LIFT	2.34275E 05	DRAG	1.211[illegible]7E 05	QATM	1.74317E 02	RHO	5.71274E-04
GR	1.09921E 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58798E 01	XLAT	2.76325E 01
GAMC	-1.88444E 00	THR	1.11979E 05	GV	1.00919E 00				
TIM	3.1[illegible] 02	WHT	2.42817E 05	VEL	7.809[illegible]E 02	RANG	3.15157E 02	GAM	-1.85399E 00
ALT	4.[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.45022E 00	MACH	8.06718E-01
SOS	9.68[illegible]E 02	LIFT	2.341[illegible]E 05	DRAG	1.211[illegible]E 05	QATM	1.74428E 02	RHO	5.71972E-04
GR	1.0[illegible] 00	ZDOT	0	ZR	2.852266E 02	XLON	7.59776E 01	XLAT	2.76319E 01
GAMC	-1.85399E 00	THR	1.11979E 05	GV	1.00845E 00				
TIM	3.1[illegible] 02	WHT	2.42745E 05	VEL	7.807[illegible]E 02	RANG	3.15285E 02	GAM	-1.82464E 00
ALT	4.052[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.45049E 00	MACH	8.06472E-01
SOS	9.6[illegible] 02	LIFT	2.34046E 05	DRAG	1.21[illegible]0E 05	QATM	1.74531E 02	RHO	5.72655E-04
GR	1.0[illegible] 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58757E 01	XLAT	2.76314E 01
GAMC	-1.82464E 00	THR	1.11979E 05	GV	1.00[illegible]2E 00				
TIM	3.1[illegible] 02	WHT	2.42[illegible]3E 05	VEL	7.80[illegible]7E 02	RANG	3.15414E 02	GAM	-1.79455E 00
ALT	4.0[illegible]21E 04	PHI	0	Z	2.84949E 02	ALPH	5.44503E 00	MACH	8.06217E-01
SOS	9.68[illegible] 02	LIFT	2.33932E 05	DRAG	1.20[illegible]7E 05	QATM	1.74026E 02	RHO	5.73335E-04
GR	1.0[illegible] 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58736E 01	XLAT	2.76308E 01
GAMC	-1.79455E 00	THR	1.11979E 05	GV	1.00[illegible]E 00				
TIM	3.1[illegible] 02	WHT	2.42601E 05	VEL	7.80[illegible]5E 02	RANG	3.15542E 02	GAM	-1.76561E 00
ALT	4.0477[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.43902E 00	MACH	8.05954E-01
SOS	9.6[illegible] 02	LIFT	2.3[illegible]E 05	DRAG	1.20[illegible]9E 05	QATM	1.74715E 02	RHO	5.74000E-04
GR	1.0[illegible] 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58716E 01	XLAT	2.76305E 01
GAMC	-1.76561E 00	THR	1.11979E 05	GV	1.00[illegible]E 00				
TIM	3.140[illegible] 02	WHT	2.42529E 05	VEL	7.799[illegible]1E 02	RANG	3.15675E 02	GAM	-1.73712E 00
ALT	4.045[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.43484E 00	MACH	8.05[illegible]4E-01
SOS	9.68[illegible] 02	LIFT	2.337[illegible]5E 05	DRAG	1.20[illegible]6E 05	QATM	1.74797E 02	RHO	5.74650E-04
GR	1.0[illegible] 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58695E 01	XLAT	2.76297E 01
GAMC	-1.73712E 00	THR	1.11979E 05	GV	1.00[illegible]E 00				
TIM	3.150[illegible] 02	WHT	2.42457E 05	VEL	7.797[illegible]5E 02	RANG	3.15798E 02	GAM	-1.70904E 00
ALT	4.043[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.43116E 00	MACH	8.05407E-01
SOS	9.68[illegible] 02	LIFT	2.33593E 05	DRAG	1.20[illegible]9E 05	QATM	1.74874E 02	RHO	5.75302E-04
GR	1.0[illegible] 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58675E 01	XLAT	2.76292E 01
GAMC	-1.70904E 00	THR	1.11979E 05	GV	1.00[illegible]5E 00				
TIM	3.15[illegible] 02	WHT	2.42384E 05	VEL	7.79[illegible]4E 02	RANG	3.15928E 02	GAM	-1.67959E 00
ALT	4.0[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.43080E 00	MACH	8.05119E-01
SOS	9.6[illegible] 02	LIFT	2.33669E 05	DRAG	1.20[illegible]9E 05	QATM	1.74941E 02	RHO	5.75937E-04
GR	1.0[illegible] 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58654E 01	XLAT	2.76280E 01
GAMC	-1.6[illegible] 00	THR	1.11979E 05	GV	1.00[illegible]5E 00				
TIM	3.17[illegible] 02	WHT	2.42312E 05	VEL	7.79[illegible]2E 02	RANG	3.16054E 02	GAM	-1.65445E 00
ALT	4.038[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.41669E 00	MACH	8.04838E-01
SOS	9.68[illegible] 02	LIFT	2.33181E 05	DRAG	1.205[illegible]7E 05	QATM	1.75009E 02	RHO	5.76562E-04
GR	1.00664[illegible] 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58633E 01	XLAT	2.76281E 01
GAMC	-1.65444E 00	THR	1.11979E 05	GV	1.00[illegible]E 00				
TIM	3.1[illegible] 02	WHT	2.42240E 05	VEL	7.768[illegible]1E 02	RANG	3.16182E 02	GAM	-1.62790E 00
ALT	4.03[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.41669E 00	MACH	8.04548E-01
SOS	9.68[illegible] 02	LIFT	2.33248E 05	DRAG	1.20[illegible]2E 05	QATM	1.75070E 02	RHO	5.77179E-04
GR	1.00721E 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58613E 01	XLAT	2.76275E 01
GAMC	-1.62779E 00	THR	1.11979E 05	GV	1.00717E 00				
TIM	3.190[illegible] 02	WHT	2.42168E 05	VEL	7.785[illegible]2E 02	RANG	3.16309E 02	GAM	-1.60008E 00
ALT	4.034[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.41669E 00	MACH	8.04249E-01
SOS	9.68[illegible] 02	LIFT	2.33304E 05	DRAG	1.204[illegible]8E 05	QATM	1.75124E 02	RHO	5.77785E-04
GR	1.00773E 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58592E 01	XLAT	2.76270E 01
GAMC	-1.60[illegible] 00	THR	1.11979E 05	GV	1.00769E 00				
TIM	3.29[illegible] 02	WHT	2.4[illegible]095E 05	VEL	7.78259E 02	RANG	3.16437E 02	GAM	-1.57575E 00
ALT	4.03[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.40566E 00	MACH	8.03957E-01
SOS	9.6[illegible] 02	LIFT	2.32895E 05	DRAG	1.203[illegible]0E 05	QATM	1.75177E 02	RHO	5.78382E-04
GR	1.00[illegible] 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58572E 01	XLAT	2.76264E 01
GAMC	-1.57575E 00	THR	1.11979E 05	GV	1.00[illegible]E 00				
TIM	3.21[illegible] 02	WHT	2.42024E 05	VEL	7.78[illegible]0E 02	RANG	3.16565E 02	GAM	-1.55029E 00
ALT	4.029[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.40566E 00	MACH	8.03658E-01
SOS	9.68[illegible] 02	LIFT	2.32944E 05	DRAG	1.20[illegible]7E 05	QATM	1.75225E 02	RHO	5.78970E-04
GR	1.00[illegible] 00	ZDOT	0	ZR	2.852266E 02	XLON	7.58551E 01	XLAT	2.76254E 01
GAMC	-1.55043E 00	THR	1.11979E 05	GV	1.00[illegible]9E 00				
TIM	3.220[illegible] 02	WHT	2.41951E 05	VEL	7.77714E 02	RANG	3.16693E 02	GAM	-1.52367E 00
ALT	4.027[illegible] 04	PHI	0	Z	2.84949E 02	ALPH	5.40566E 00	MACH	8.03352E-01
SOS	9.68[illegible] 02	LIFT	2.32985E 05	DRAG	1.201[illegible]2E 05	QATM	1.75267E 02	RHO	5.79549E-04

GR	1.[illegible]E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58531E 01	XLAT	2.76253E 01		
GAMC	-1.52548E 00	THR	1.11979E 05	GV	1.00714E 00						
TIM	3.2[illegible]E 02	WHT	2.41879E 05	VEL	7.77427E 02	RANG	5.16820E 02	GAM	-1.50092E 00		
ALT	4.[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.39414E 00	MACH	8.03056E-01		
SOS	9.65[illegible]E 02	LIFT	2.32541E 05	DRAG	1.20[illegible]E 05	QATM	1.75510E 02	RHO	5.80118E-04		
GR	1.00553E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58510E 01	XLAT	2.76244E 01		
GAMC	-1.50[illegible]E 00	THR	1.11979E 05	GV	1.00549E 00						
TIM	3.24[illegible]E 02	WHT	2.41807E 05	VEL	7.77[illegible]E 02	RANG	5.16946E 02	GAM	-1.47716E 00		
ALT	4.[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.39414E 00	MACH	8.02756E-01		
SOS	[illegible]	LIFT	2.32576E 05	DRAG	1.19940E 05	QATM	1.75548E 02	RHO	5.80680E-04		
GR	1.[illegible]E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58489E 01	XLAT	2.76242E 01		
GAMC	-1.47[illegible]E 00	THR	1.11979E 05	GV	1.00555E 00						
TIM	3.25[illegible]E 02	WHT	2.41735E 05	VEL	7.76840E 02	RANG	5.17076E 02	GAM	-1.42[illegible]E 00		
ALT	4.[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.39414E 00	MACH	8.02[illegible]E-01		
SOS	9.6[illegible]E 02	LIFT	2.32605E 05	DRAG	1.19869E 05	QATM	1.75581E 02	RHO	5.81202E-04		
GR	1.[illegible]	ZDOT	0	ZR	2.85276E 02	XLON	7.58469E 01	XLAT	2.[illegible]		
GAMC	-1.4[illegible]	THR	1.11979E 05	GV	1.00[illegible]E 00						
TIM	3.2[illegible]E 02	WHT	2.41663E 05	VEL	7.7[illegible]E 02	RANG	5.17[illegible]E 02	GAM	-1.42974E 00		
ALT	4.[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.38689E 00	MACH	8.02151E-01		
SOS	9.68[illegible]E 02	LIFT	2.32327E 05	DRAG	1.19726E 05	QATM	1.75[illegible]E 02	RHO	5.81[illegible]E-04		
GR	1.[illegible]	ZDOT	0	ZR	2.85276E 02	XLON	7.58448E 01	XLAT	2.76231E 01		
GAMC	-1.42974E 00	THR	1.11979E 05	GV	1.00541E 00						
TIM	3.27[illegible]E 02	WHT	2.41591E 05	VEL	7.76256E 02	RANG	5.17551E 02	GAM	-1.40618E 00		
ALT	4.01776E 04	PHI	0	Z	2.84949E 02	ALPH	5.38689E 00	MACH	8.01847E-01		
SOS	9.68[illegible]E 02	LIFT	2.32351E 05	DRAG	1.19652E 05	QATM	1.75445E 02	RHO	5.82311E-04		
GR	1.[illegible]E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58428E 01	XLAT	2.76226E 01		
GAMC	-1.40673E 00	THR	1.11979E 05	GV	1.00529E 00						
TIM	3.3[illegible]E 02	WHT	2.41514E 05	VEL	7.75967E 02	RANG	5.17455E 02	GAM	-1.3[illegible]E 00		
ALT	4.[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.38114E 00	MACH	8.[illegible]E-01		
SOS	9.6[illegible]E 02	LIFT	2.32129E 05	DRAG	1.19[illegible]E 05	QATM	1.75471E 02	RHO	5.82839E-04		
GR	1.[illegible]E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58407E 01	XLAT	2.76221E 01		
GAMC	-1.3[illegible]E 00	THR	1.11979E 05	GV	1.00512E 00						
TIM	3.[illegible]E 02	WHT	2.41446E 05	VEL	7.75675E 02	RANG	5.17566E 02	GAM	-1.3[illegible]E 00		
ALT	4.[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.38114E 00	MACH	8.[illegible]E-01		
SOS	9.6[illegible]E 02	LIFT	2.32146E 05	DRAG	1.19444E 05	QATM	1.75492E 02	RHO	[illegible]		
GR	1.[illegible]E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58387E 01	XLAT	2.[illegible]		
GAMC	-1.3[illegible]E 00	THR	1.11979E 05	GV	1.00547E 00						
TIM	3.3[illegible]E 02	WHT	2.41374E 05	VEL	7.75368E 02	RANG	5.177[illegible]E 02	GAM	-1.34[illegible]E 00		
ALT	4.61219E 04	PHI	0	Z	2.84949E 02	ALPH	5.37555E 00	MACH	8.0095[illegible]E-01		
SOS	9.68[illegible]E 02	LIFT	2.31917E 05	DRAG	1.19301E 05	QATM	1.75519E 02	RHO	5.83868E-04		
GR	1.00486E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58366E 01	XLAT	2.76209E 01		
GAMC	-1.34014E 00	THR	1.11979E 05	GV	1.00477E 00						
TIM	3.31[illegible]E 02	WHT	2.41302E 05	VEL	7.75100E 02	RANG	5.17849E 02	GAM	-1.31811E 00		
ALT	4.01039E 04	PHI	0	Z	2.84949E 02	ALPH	5.37555E 00	MACH	8.00652E-01		
SOS	9.65[illegible]E 02	LIFT	2.31929E 05	DRAG	1.192[illegible]E 05	QATM	1.75539E 02	RHO	5.84371E-04		
GR	1.00514E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58346E 01	XLAT	2.76204E 01		
GAMC	-1.31465E 00	THR	1.11979E 05	GV	1.00510E 00						
TIM	3.32[illegible]E 02	WHT	2.41230E 05	VEL	7.74[illegible]E 02	RANG	5.17968E 02	GAM	-1.29751E 00		
ALT	4.00[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.37018E 00	MACH	8.00359E-01		
SOS	9.68[illegible]E 02	LIFT	2.31722E 05	DRAG	1.191[illegible]E 05	QATM	1.75559E 02	RHO	5.84866E-04		
GR	1.00453E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58325E 01	XLAT	2.76198E 01		
GAMC	-1.29751E 00	THR	1.11979E 05	GV	1.00479E 00						
TIM	3.33[illegible]E 02	WHT	2.41158E 05	VEL	7.74[illegible]E 02	RANG	5.18095E 02	GAM	-1.27613E 00		
ALT	4.00668E 04	PHI	0	Z	2.84949E 02	ALPH	5.37018E 00	MACH	8.00064E-01		
SOS	9.68[illegible]E 02	LIFT	2.31730E 05	DRAG	1.19[illegible]E 05	QATM	1.75576E 02	RHO	5.85354E-04		
GR	1.00485E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58305E 01	XLAT	2.76193E 01		
GAMC	-1.27672E 00	THR	1.11979E 05	GV	1.00481E 00						
TIM	3.34[illegible]E 02	WHT	2.41085E 05	VEL	7.74252E 02	RANG	5.18222E 02	GAM	-1.25620E 00		
ALT	4.01517E 04	PHI	0	Z	2.84949E 02	ALPH	5.36489E 00	MACH	7.99776E-01		
SOS	9.68[illegible]E 02	LIFT	2.31515E 05	DRAG	1.18642E 05	QATM	1.75593E 02	RHO	5.85833E-04		
GR	1.00429E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58284E 01	XLAT	2.76187E 01		
GAMC	-1.25623E 00	THR	1.11979E 05	GV	1.00410E 00						
TIM	3.35[illegible]E 02	WHT	2.41013E 05	VEL	7.73971E 02	RANG	5.18349E 02	GAM	-1.23566E 00		
ALT	4.00349E 04	PHI	0	Z	2.84949E 02	ALPH	5.36489E 00	MACH	7.99486E-01		
SOS	9.68[illegible]E 02	LIFT	2.31519E 05	DRAG	1.18811E 05	QATM	1.75608E 02	RHO	5.86306E-04		
GR	1.00451E 00	ZDOT	0	ZR	2.85276E 02	XLON	7.58264E 01	XLAT	2.76182E 01		
GAMC	-1.23615E 00	THR	1.11979E 05	GV	1.00447E 00						
TIM	3.36[illegible]E 02	WHT	2.40941E 05	VEL	7.73656E 02	RANG	5.18476E 02	GAM	-1.21638E 00		
ALT	4.00123E 04	PHI	0	Z	2.84949E 02	ALPH	5.36014E 00	MACH	7.99202E-01		
SOS	9.6[illegible]E 02	LIFT	2.31323E 05	DRAG	1.18685E 05	QATM	1.75622E 02	RHO	5.86771E-04		

GR	[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58244E 01	XLAT	2.76177E 01		
GAMC	-1.21[illegible]	THR	1.11979E 05	GV	1.00590E 00						
TIM	3.37[illegible]	WHT	2.40869E 05	VEL	7.73421E 02	RANG	5.18603E 02	GAM	-1.19636E 00		
ALT	4.[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.36014E 00	MACH	7.98918E-01		
SOS	9.6[illegible]	LIFT	2.31524E 05	DRAG	1.18[illegible]4E 05	QATM	1.75634E 02	RHO	5.87229E-04		
GR	1.[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58223E 01	XLAT	2.76171E 01		
GAMC	-1.13[illegible]	THR	1.11979E 05	GV	1.00[illegible]E 00						
TIM	3.39[illegible]	WHT	2.40797E 05	VEL	7.73[illegible]2E 02	RANG	5.18730E 02	GAM	-1.17777E 00		
ALT	3.99[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.35524E 00	MACH	7.98843E-01		
SOS	9.69[illegible]	LIFT	2.31119E 05	DRAG	1.18[illegible]7E 05	QATM	1.75647E 02	RHO	5.87679E-04		
GR	1.00363	ZDCT	0	ZR	2.85286E 02	XLON	7.58203E 01	XLAT	2.76166E 01		
GAMC	-1.17777	THR	1.11979E 05	GV	1.00[illegible]E 00						
TIM	3.39[illegible]	WHT	2.40721E 05	VEL	7.72[illegible]2E 02	RANG	5.18857E 02	GAM	-1.15847E 00		
ALT	3.9[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.35524E 00	MACH	7.98561E-01		
SOS	9.6[illegible]	LIFT	2.31118E 05	DRAG	1.18[illegible]6E 05	QATM	1.75657E 02	RHO	5.88123E-04		
GR	1.0[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58182E 01	XLAT	2.76160E 01		
GAMC	-1.15[illegible]	THR	1.11979E 05	GV	1.00[illegible]8E 00						
TIM	3.40[illegible]	WHT	2.40652E 05	VEL	7.72[illegible]2E 02	RANG	5.18984E 02	GAM	-1.13850E 00		
ALT	3.99547	PHI	0	Z	2.84949E 02	ALPH	5.35524E 00	MACH	7.98083E-01		
SOS	9.68[illegible]	LIFT	2.31114E 05	DRAG	1.18[illegible]4E 05	QATM	1.75664E 02	RHO	5.88559E-04		
GR	1.00[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58162E 01	XLAT	2.76150E 01		
GAMC	-1.14[illegible]	THR	1.11979E 05	GV	1.00[illegible]E 00						
TIM	3.41[illegible]	WHT	2.40588E 05	VEL	7.72[illegible]6E 02	RANG	5.19011E 02	GAM	-1.12221E 00		
ALT	3.90[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.34524E 00	MACH	7.97818E-01		
SOS	9.68[illegible]	LIFT	2.30693E 05	DRAG	1.18[illegible]0E 05	QATM	1.75676E 02	RHO	5.88989E-04		
GR	1.00[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58141E 01	XLAT	2.76149E 01		
GAMC	-1.12[illegible]	THR	1.11979E 05	GV	1.00[illegible]1E 00						
TIM	3.42[illegible]	WHT	2.40503E 05	VEL	7.72[illegible]0E 02	RANG	5.19256E 02	GAM	-1.10521E 00		
ALT	3.9[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.34524E 00	MACH	7.97556E-01		
SOS	9.6[illegible]	LIFT	2.30592E 05	DRAG	1.18[illegible]5E 05	QATM	1.75685E 02	RHO	5.89412E-04		
GR	1.00[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58121E 01	XLAT	2.76144E 01		
GAMC	-1.10[illegible]	THR	1.11979E 05	GV	1.00[illegible]0E 00						
TIM	3.43[illegible]	WHT	2.40436E 05	VEL	7.71[illegible]4E 02	RANG	5.19505E 02	GAM	-1.08755E 00		
ALT	3.9[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.34524E 00	MACH	7.97289E-01		
SOS	9.6[illegible]	LIFT	2.30689E 05	DRAG	1.17[illegible]0E 05	QATM	1.75693E 02	RHO	5.89829E-04		
GR	1.0[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58101E 01	XLAT	2.76138E 01		
GAMC	-1.0[illegible]	THR	1.11979E 05	GV	1.00[illegible]8E 00						
TIM	3.4[illegible]	WHT	2.40364E 05	VEL	7.71[illegible]5E 02	RANG	5.19491E 02	GAM	-1.06910E 00		
ALT	3.9[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.34524E 00	MACH	7.97025E-01		
SOS	9.6[illegible]	LIFT	2.30684E 05	DRAG	1.17[illegible]7E 05	QATM	1.75699E 02	RHO	5.90239E-04		
GR	1.0[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58080E 01	XLAT	2.76135E 01		
GAMC	-1.0[illegible]	THR	1.11979E 05	GV	1.00[illegible]5E 00						
TIM	3.4[illegible]	WHT	2.40291E 05	VEL	7.71[illegible]9E 02	RANG	5.19618E 02	GAM	-1.05222E 00		
ALT	3.9[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.34059E 00	MACH	7.96768E-01		
SOS	9.6[illegible]	LIFT	2.30483E 05	DRAG	1.17[illegible]5E 05	QATM	1.75706E 02	RHO	5.90643E-04		
GR	1.0[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58060E 01	XLAT	2.76127E 01		
GAMC	-1.[illegible]	THR	1.11979E 05	GV	1.00[illegible]7E 00						
TIM	3.4[illegible]	WHT	2.40219E 05	VEL	7.71[illegible]1E 02	RANG	5.19742E 02	GAM	-1.03461E 00		
ALT	3.9[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.34059E 00	MACH	7.96511E-01		
SOS	9.6[illegible]	LIFT	2.30475E 05	DRAG	1.17[illegible]7E 05	QATM	1.75711E 02	RHO	5.91049E-04		
GR	1.0[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58039E 01	XLAT	2.76122E 01		
GAMC	-1.03[illegible]	THR	1.11979E 05	GV	1.00[illegible]3E 00						
TIM	3.47[illegible]	WHT	2.40147E 05	VEL	7.70[illegible]0E 02	RANG	5.19871E 02	GAM	-1.01893E 00		
ALT	3.9[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.33470E 00	MACH	7.96262E-01		
SOS	9.6[illegible]	LIFT	2.30223E 05	DRAG	1.175[illegible]6E 05	QATM	1.757[illegible]7E 02	RHO	5.91431E-04		
GR	1.00[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.58019E 01	XLAT	2.76117E 01		
GAMC	-1.0[illegible]	THR	1.11979E 05	GV	1.00[illegible]5E 00						
TIM	3.4[illegible]	WHT	2.40075E 05	VEL	7.70[illegible]0E 02	RANG	5.19998E 02	GAM	-1.00259E 00		
ALT	3.9[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.33470E 00	MACH	7.96012E-01		
SOS	9.6[illegible]	LIFT	2.30218E 05	DRAG	1.175[illegible]1E 05	QATM	1.75722E 02	RHO	5.91817E-04		
GR	1.00[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.57999E 01	XLAT	2.76111E 01		
GAMC	-1.00[illegible]	THR	1.11979E 05	GV	1.00[illegible]9E 00						
TIM	3.40[illegible]	WHT	2.40003E 05	VEL	7.70[illegible]1E 02	RANG	5.20124E 02	GAM	-9.55606E-01		
ALT	3.98[illegible]	PHI	0	Z	2.84949E 02	ALPH	5.33470E 00	MACH	7.95768E-01		
SOS	9.6[illegible]	LIFT	2.30210E 05	DRAG	1.17[illegible]6E 05	QATM	1.75726E 02	RHO	5.92196E-04		
GR	1.00[illegible]	ZDCT	0	ZR	2.85286E 02	XLON	7.57978E 01	XLAT	2.76106E 01		
GAMC	-9.[illegible]-01	THR	1.11979E 05	GV	1.00[illegible]5E 00						
TIM	3.50[illegible]	WHT	2.39951E 05	VEL	7.70142E 02	RANG	5.20251E 02	GAM	-9.70997E-01		
ALT	3.9[illegible]	PHI	0	Z	2.849[illegible]9E 02	ALPH	5.32784E 00	MACH	7.95531E-01		
SOS	9.68[illegible]	LIFT	2.29913E 05	DRAG	1.172[illegible]8E 05	QATM	1.75732E 02	RHO	5.92569E-04		

GR	1.00169E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57958E 01	XLAT	2.76100E 01
GAMC	-9.76998E-01	THR	1.11979E 05	GV	1.00166E 00				
TIM	3.51004E 02	WHT	2.39858E 05	VEL	7.69913E 02	RANG	3.20377E 02	GAM	-9.55727E-01
ALT	3.98[illegible]E 04	PHI	0	Z	2.84949E 02	ALPH	5.32784E 00	MACH	7.95294E-01
SOS	9.68[illegible]E 02	LIFT	2.29910E 05	DRAG	1.17216E 05	QATM	1.75736E 02	RHO	5.92936E-04
GR	1.00216E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57938E 01	XLAT	2.76095E 01
GAMC	-9.55540E-01	THR	1.11979E 05	GV	1.00213E 00				
TIM	3.52000E 02	WHT	2.39786E 05	VEL	7.69685E 02	RANG	3.20504E 02	GAM	-9.39814E-01
ALT	3.97873E 04	PHI	0	Z	2.84949E 02	ALPH	5.32784E 00	MACH	7.95059E-01
SOS	9.68[illegible]E 02	LIFT	2.29902E 05	DRAG	1.17144E 05	QATM	1.75739E 02	RHO	5.93298E-04
GR	1.00242E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57917E 01	XLAT	2.76089E 01
GAMC	-9.40323E-01	THR	1.11979E 05	GV	1.00239E 00				
TIM	3.53000E 02	WHT	2.39714E 05	VEL	7.69464E 02	RANG	3.20630E 02	GAM	-9.25352E-01
ALT	3.97747E 04	PHI	0	Z	2.84949E 02	ALPH	5.32309E 00	MACH	7.94831E-01
SOS	9.68[illegible]E 02	LIFT	2.29695E 05	DRAG	1.17[illegible]9E 05	QATM	1.75744E 02	RHO	5.93653E-04
GR	1.00[illegible]E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57897E 01	XLAT	2.76084E 01
GAMC	-9.25365E-01	THR	1.11979E 05	GV	1.00178E 00				
TIM	3.54000E 02	WHT	2.39642E 05	VEL	7.69244E 02	RANG	3.20757E 02	GAM	-9.10249E-01
ALT	3.97624E 04	PHI	0	Z	2.84949E 02	ALPH	5.32309E 00	MACH	7.94603E-01
SOS	9.68[illegible]E 02	LIFT	2.29683E 05	DRAG	1.16[illegible]9E 05	QATM	1.75747E 02	RHO	5.94004E-04
GR	1.00207E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57877E 01	XLAT	2.76079E 01
GAMC	-9.10633E-01	THR	1.11979E 05	GV	1.00[illegible]2E 00				
TIM	3.55000E 02	WHT	2.39570E 05	VEL	7.69[illegible]4E 02	RANG	3.20883E 02	GAM	-8.94513E-01
ALT	3.97563E 04	PHI	0	Z	2.84949E 02	ALPH	5.32309E 00	MACH	7.94367E-01
SOS	9.68[illegible]E 02	LIFT	2.29678E 05	DRAG	1.16[illegible]9E 05	QATM	1.75746E 02	RHO	5.94348E-04
GR	1.00233E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57856E 01	XLAT	2.76073E 01
GAMC	-8.96148E-01	THR	1.11979E 05	GV	1.00[illegible]0E 00				
TIM	3.56000E 02	WHT	2.39498E 05	VEL	7.68817E 02	RANG	3.21009E 02	GAM	-8.81909E-01
ALT	3.97384E 04	PHI	0	Z	2.84949E 02	ALPH	5.31454E 00	MACH	7.94162E-01
SOS	9.68[illegible]E 02	LIFT	2.29613E 05	DRAG	1.16743E 05	QATM	1.75754E 02	RHO	5.94688E-04
GR	1.00[illegible]E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57836E 01	XLAT	2.76064E 01
GAMC	-8.81910E-01	THR	1.11979E 05	GV	1.00180E 00				
TIM	3.57000E 02	WHT	2.39425E 05	VEL	7.686[illegible]0E 02	RANG	3.21135E 02	GAM	-8.68633E-01
ALT	3.97266E 04	PHI	0	Z	2.84949E 02	ALPH	5.31454E 00	MACH	7.93949E-01
SOS	9.68[illegible]E 02	LIFT	2.29508E 05	DRAG	1.16675E 05	QATM	1.75758E 02	RHO	5.95022E-04
GR	1.00130E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57816E 01	XLAT	2.76062E 01
GAMC	-8.67[illegible]E-01	THR	1.11979E 05	GV	1.00[illegible]8E 00				
TIM	3.58000E 02	WHT	2.39353E 05	VEL	7.684[illegible]5E 02	RANG	3.21262E 02	GAM	-8.54699E-01
ALT	3.97151E 04	PHI	0	Z	2.84949E 02	ALPH	5.31454E 00	MACH	7.93736E-01
SOS	9.68[illegible]E 02	LIFT	2.29302E 05	DRAG	1.16[illegible]2E 05	QATM	1.75761E 02	RHO	5.95352E-04
GR	1.00157E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57795E 01	XLAT	2.76057E 01
GAMC	-8.54097E-01	THR	1.11979E 05	GV	1.00[illegible]5E 00				
TIM	3.59000E 02	WHT	2.39281E 05	VEL	7.682[illegible]0E 02	RANG	3.21386E 02	GAM	-8.40125E-01
ALT	3.97037E 04	PHI	0	Z	2.84949E 02	ALPH	5.31454E 00	MACH	7.93525E-01
SOS	9.68[illegible]E 02	LIFT	2.29293E 05	DRAG	1.16547E 05	QATM	1.75763E 02	RHO	5.95676E-04
GR	1.00183E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57775E 01	XLAT	2.76051E 01
GAMC	-8.40513E-01	THR	1.11979E 05	GV	1.00181E 00				
TIM	3.60000E 02	WHT	2.39209E 05	VEL	7.681[illegible]2E 02	RANG	3.21514E 02	GAM	-8.27156E-01
ALT	3.96925E 04	PHI	0	Z	2.84949E 02	ALPH	5.30945E 00	MACH	7.93320E-01
SOS	9.68[illegible]E 02	LIFT	2.29073E 05	DRAG	1.16435E 05	QATM	1.75767E 02	RHO	5.95994E-04
GR	1.00110E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57755E 01	XLAT	2.76046E 01
GAMC	-8.27157E-01	THR	1.11979E 05	GV	1.00114E 00				
TIM	3.61000E 02	WHT	2.39137E 05	VEL	7.678[illegible]5E 02	RANG	3.21640E 02	GAM	-8.13537E-01
ALT	3.96813E 04	PHI	0	Z	2.84949E 02	ALPH	5.30945E 00	MACH	7.93117E-01
SOS	9.68[illegible]E 02	LIFT	2.29066E 05	DRAG	1.16372E 05	QATM	1.75769E 02	RHO	5.96308E-04
GR	1.00142E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57734E 01	XLAT	2.76041E 01
GAMC	-8.14821E-01	THR	1.11979E 05	GV	1.00140E 00				
TIM	3.62000E 02	WHT	2.39065E 05	VEL	7.676[illegible]9E 02	RANG	3.21766E 02	GAM	-7.99261E-01
ALT	3.96707E 04	PHI	0	Z	2.84949E 02	ALPH	5.30945E 00	MACH	7.92914E-01
SOS	9.68[illegible]E 02	LIFT	2.29057E 05	DRAG	1.16319E 05	QATM	1.75770E 02	RHO	5.96617E-04
GR	1.00169E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57714E 01	XLAT	2.76035E 01
GAMC	-8.01098E-01	THR	1.11979E 05	GV	1.00166E 00				
TIM	3.63000E 02	WHT	2.38992E 05	VEL	7.674[illegible]5E 02	RANG	3.21892E 02	GAM	-7.88397E-01
ALT	3.96601E 04	PHI	0	Z	2.84949E 02	ALPH	5.30037E 00	MACH	7.92724E-01
SOS	9.68[illegible]E 02	LIFT	2.28870E 05	DRAG	1.16164E 05	QATM	1.75776E 02	RHO	5.96921E-04
GR	1.00[illegible]E 00	ZDOT	0	ZB	2.85266E 02	XLON	7.57694E 01	XLAT	2.76030E 01
GAMC	-7.86398E-01	THR	1.11979E 05	GV	1.00027E 00				
TIM	3.64000E 02	WHT	2.38920E 05	VEL	7.672[illegible]2E 02	RANG	3.22018E 02	GAM	-7.76825E-01
ALT	3.96400E 04	PHI	0	Z	2.84949E 02	ALPH	5.30037E 00	MACH	7.92536E-01
SOS	9.68[illegible]E 02	LIFT	2.28666E 05	DRAG	1.16107E 05	QATM	1.75780E 02	RHO	5.97220E-04

GR	1.00056E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57674E 01	XLAT	2.76024E 01
GAMC	-7.75899E-01	THR	1.11979E 05	GV	1.00055E 00				
TIM	3.65000E 02	WHT	2.38648E 05	VEL	7.67060E 02	RANG	5.22144E 02	GAM	-7.64577E-01
ALT	3.96393E 04	PHI	0	Z	2.84949E 02	ALPH	5.30037E 00	MACH	7.92348E-01
SOS	9.68086E 02	LIFT	2.28662E 05	DRAG	1.16051E 05	QATM	1.75784E 02	RHO	5.97515E-04
GR	1.00084E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57653E 01	XLAT	2.76019E 01
GAMC	-7.63569E-01	THR	1.11979E 05	GV	1.00063E 00				
TIM	3.66000E 02	WHT	2.38776E 05	VEL	7.66829E 02	RANG	5.22270E 02	GAM	-7.51667E-01
ALT	3.96292E 04	PHI	0	Z	2.84949E 02	ALPH	5.30037E 00	MACH	7.92160E-01
SOS	9.68086E 02	LIFT	2.28655E 05	DRAG	1.15993E 05	QATM	1.75786E 02	RHO	5.97806E-04
GR	1.00111E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57633E 01	XLAT	2.76014E 01
GAMC	-7.51451E-01	THR	1.11979E 05	GV	1.00110E 00				
TIM	3.67000E 02	WHT	2.38704E 05	VEL	7.66698E 02	RANG	5.22396E 02	GAM	-7.38110E-01
ALT	3.96192E 04	PHI	0	Z	2.84949E 02	ALPH	5.30037E 00	MACH	7.91973E-01
SOS	9.68086E 02	LIFT	2.28647E 05	DRAG	1.15935E 05	QATM	1.75787E 02	RHO	5.98091E-04
GR	1.00138E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57613E 01	XLAT	2.76008E 01
GAMC	-7.39523E-01	THR	1.11979E 05	GV	1.00136E 00				
TIM	3.68000E 02	WHT	2.38632E 05	VEL	7.66569E 02	RANG	5.22522E 02	GAM	-7.27804E-01
ALT	3.96094E 04	PHI	0	Z	2.84949E 02	ALPH	5.29156E 00	MACH	7.91798E-01
SOS	9.68086E 02	LIFT	2.28273E 05	DRAG	1.15797E 05	QATM	1.75792E 02	RHO	5.98372E-04
GR	1.00003E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57592E 01	XLAT	2.76003E 01
GAMC	-7.27806E-01	THR	1.11979E 05	GV	1.00001E 00				
TIM	3.69000E 02	WHT	2.38559E 05	VEL	7.66360E 02	RANG	5.22648E 02	GAM	-7.16806E-01
ALT	3.95997E 04	PHI	0	Z	2.84949E 02	ALPH	5.29156E 00	MACH	7.91625E-01
SOS	9.68086E 02	LIFT	2.28269E 05	DRAG	1.15745E 05	QATM	1.75796E 02	RHO	5.98649E-04
GR	1.00031E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57572E 01	XLAT	2.75997E 01
GAMC	-7.16279E-01	THR	1.11979E 05	GV	1.00030E 00				
TIM	3.70000E 02	WHT	2.38487E 05	VEL	7.66193E 02	RANG	5.22774E 02	GAM	-7.05125E-01
ALT	3.95902E 04	PHI	0	Z	2.84949E 02	ALPH	5.29156E 00	MACH	7.91451E-01
SOS	9.68086E 02	LIFT	2.28265E 05	DRAG	1.15693E 05	QATM	1.75799E 02	RHO	5.98922E-04
GR	1.00059E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57552E 01	XLAT	2.75992E 01
GAMC	-7.04922E-01	THR	1.11979E 05	GV	1.00058E 00				
TIM	3.71000E 02	WHT	2.38415E 05	VEL	7.66025E 02	RANG	5.22900E 02	GAM	-6.92779E-01
ALT	3.95809E 04	PHI	0	Z	2.84949E 02	ALPH	5.29156E 00	MACH	7.91278E-01
SOS	9.68086E 02	LIFT	2.28258E 05	DRAG	1.15639E 05	QATM	1.75801E 02	RHO	5.99190E-04
GR	1.00087E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57532E 01	XLAT	2.75986E 01
GAMC	-6.93746E-01	THR	1.11979E 05	GV	1.00085E 00				
TIM	3.72000E 02	WHT	2.38343E 05	VEL	7.65867E 02	RANG	5.23026E 02	GAM	-6.82760E-01
ALT	3.95717E 04	PHI	0	Z	2.84949E 02	ALPH	5.28482E 00	MACH	7.91115E-01
SOS	9.68086E 02	LIFT	2.27971E 05	DRAG	1.15525E 05	QATM	1.75805E 02	RHO	5.99454E-04
GR	9.99901E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.57511E 01	XLAT	2.75981E 01
GAMC	-6.82761E-01	THR	1.11979E 05	GV	9.99888E-01				
TIM	3.73000E 02	WHT	2.38271E 05	VEL	7.65709E 02	RANG	5.23151E 02	GAM	-6.72044E-01
ALT	3.95626E 04	PHI	0	Z	2.84949E 02	ALPH	5.28482E 00	MACH	7.90952E-01
SOS	9.68086E 02	LIFT	2.27968E 05	DRAG	1.15427E 05	QATM	1.75809E 02	RHO	5.99713E-04
GR	1.00019E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57491E 01	XLAT	2.75976E 01
GAMC	-6.71954E-01	THR	1.11979E 05	GV	1.00017E 00				
TIM	3.74000E 02	WHT	2.38199E 05	VEL	7.65552E 02	RANG	5.23277E 02	GAM	-6.60645E-01
ALT	3.95537E 04	PHI	0	Z	2.84949E 02	ALPH	5.28482E 00	MACH	7.90790E-01
SOS	9.68086E 02	LIFT	2.27963E 05	DRAG	1.15427E 05	QATM	1.75812E 02	RHO	5.99969E-04
GR	1.00047E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57471E 01	XLAT	2.75970E 01
GAMC	-6.61312E-01	THR	1.11979E 05	GV	1.00045E 00				
TIM	3.75000E 02	WHT	2.38126E 05	VEL	7.65402E 02	RANG	5.23403E 02	GAM	-6.50846E-01
ALT	3.95450E 04	PHI	0	Z	2.84949E 02	ALPH	5.27968E 00	MACH	7.90634E-01
SOS	9.68086E 02	LIFT	2.27745E 05	DRAG	1.15331E 05	QATM	1.75817E 02	RHO	6.00221E-04
GR	9.99804E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.57451E 01	XLAT	2.75965E 01
GAMC	-6.50846E-01	THR	1.11979E 05	GV	9.99793E-01				
TIM	3.76000E 02	WHT	2.38054E 05	VEL	7.65252E 02	RANG	5.23529E 02	GAM	-6.40346E-01
ALT	3.95363E 04	PHI	0	Z	2.84949E 02	ALPH	5.27968E 00	MACH	7.90480E-01
SOS	9.68086E 02	LIFT	2.27742E 05	DRAG	1.15285E 05	QATM	1.75820E 02	RHO	6.00469E-04
GR	1.00009E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57431E 01	XLAT	2.75959E 01
GAMC	-6.40549E-01	THR	1.11979E 05	GV	1.00008E 00				
TIM	3.77000E 02	WHT	2.37982E 05	VEL	7.65102E 02	RANG	5.23654E 02	GAM	-6.29159E-01
ALT	3.95279E 04	PHI	0	Z	2.84949E 02	ALPH	5.27968E 00	MACH	7.90325E-01
SOS	9.68086E 02	LIFT	2.27737E 05	DRAG	1.15238E 05	QATM	1.75823E 02	RHO	6.00713E-04
GR	1.00037E 00	ZDOT	0	ZR	2.85286E 02	XLON	7.57410E 01	XLAT	2.75954E 01
GAMC	-6.30413E-01	THR	1.11979E 05	GV	1.00036E 00				
TIM	3.78000E 02	WHT	2.37910E 05	VEL	7.64962E 02	RANG	5.23780E 02	GAM	-6.20448E-01
ALT	3.95195E 04	PHI	0	Z	2.84949E 02	ALPH	5.27257E 00	MACH	7.90180E-01
SOS	9.68086E 02	LIFT	2.27437E 05	DRAG	1.15127E 05	QATM	1.75829E 02	RHO	6.00953E-04

GR	9.99349E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57390E 01	XLAT	2.75949E 01
GAMC	-6.20449E-01	THR	1.11979E 05	GV	9.99340E-01				
TIM	3.79000E 02	WHT	2.37838E 05	VEL	7.64822E 02	RANG	3.23906E 02	GAM	-6.11014E-01
ALT	3.95113E 04	PHI	0	Z	2.84949E 02	ALPH	5.27257E 00	MACH	7.90036E-01
SOS	9.68086E 02	LIFT	2.27437E 05	DRAG	1.15085E 05	QATM	1.75834E 02	RHO	6.01189E-04
GR	9.99647E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57370E 01	XLAT	2.75943E 01
GAMC	-6.10643E-01	THR	1.11979E 05	GV	9.99637E-01				
TIM	3.80000E 02	WHT	2.37766E 05	VEL	7.64682E 02	RANG	3.24031E 02	GAM	-6.00869E-01
ALT	3.95032E 04	PHI	0	Z	2.84949E 02	ALPH	5.27257E 00	MACH	7.89891E-01
SOS	9.68086E 02	LIFT	2.27434E 05	DRAG	1.15042E 05	QATM	1.75837E 02	RHO	6.01422E-04
GR	9.99938E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57350E 01	XLAT	2.75938E 01
GAMC	-6.00982E-01	THR	1.11979E 05	GV	9.99929E-01				
TIM	3.81000E 02	WHT	2.37693E 05	VEL	7.64543E 02	RANG	3.24157E 02	GAM	-5.90028E-01
ALT	3.94953E 04	PHI	0	Z	2.84949E 02	ALPH	5.27257E 00	MACH	7.89747E-01
SOS	9.68086E 02	LIFT	2.27431E 05	DRAG	1.14999E 05	QATM	1.75840E 02	RHO	6.01651E-04
GR	1.00022E 00	ZDOT	0	ZB	2.85286E 02	XLON	7.57329E 01	XLAT	2.75932E 01
GAMC	-5.91475E-01	THR	1.11979E 05	GV	1.00021E 00				
TIM	3.82000E 02	WHT	2.37621E 05	VEL	7.64414E 02	RANG	3.24282E 02	GAM	-5.82134E-01
ALT	3.94874E 04	PHI	0	Z	2.84949E 02	ALPH	5.26440E 00	MACH	7.89614E-01
SOS	9.68086E 02	LIFT	2.27087E 05	DRAG	1.14862E 05	QATM	1.75847E 02	RHO	6.01876E-04
GR	9.99007E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57309E 01	XLAT	2.75927E 01
GAMC	-5.82135E-01	THR	1.11979E 05	GV	9.98959E-01				
TIM	3.83000E 02	WHT	2.37549E 05	VEL	7.64285E 02	RANG	3.24408E 02	GAM	-5.73500E-01
ALT	3.94797E 04	PHI	0	Z	2.84949E 02	ALPH	5.26440E 00	MACH	7.89481E-01
SOS	9.68086E 02	LIFT	2.27088E 05	DRAG	1.14944E 05	QATM	1.75852E 02	RHO	6.02098E-04
GR	9.99311E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57289E 01	XLAT	2.75922E 01
GAMC	-5.72944E-01	THR	1.11979E 05	GV	9.99303E-01				
TIM	3.84000E 02	WHT	2.37477E 05	VEL	7.64156E 02	RANG	3.24533E 02	GAM	-5.64156E-01
ALT	3.94721E 04	PHI	0	Z	2.84949E 02	ALPH	5.26440E 00	MACH	7.89348E-01
SOS	9.68086E 02	LIFT	2.27087E 05	DRAG	1.14805E 05	QATM	1.75857E 02	RHO	6.02317E-04
GR	9.99611E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57269E 01	XLAT	2.75916E 01
GAMC	-5.63883E-01	THR	1.11979E 05	GV	9.99603E-01				
TIM	3.85000E 02	WHT	2.37405E 05	VEL	7.64027E 02	RANG	3.24659E 02	GAM	-5.54058E-01
ALT	3.94647E 04	PHI	0	Z	2.84949E 02	ALPH	5.26440E 00	MACH	7.89215E-01
SOS	9.68086E 02	LIFT	2.27085E 05	DRAG	1.14766E 05	QATM	1.75860E 02	RHO	6.02532E-04
GR	9.99903E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57249E 01	XLAT	2.75911E 01
GAMC	-5.54966E-01	THR	1.11979E 05	GV	9.99895E-01				
TIM	3.86000E 02	WHT	2.37333E 05	VEL	7.63907E 02	RANG	3.24784E 02	GAM	-5.46201E-01
ALT	3.94574E 04	PHI	0	Z	2.84949E 02	ALPH	5.25783E 00	MACH	7.89090E-01
SOS	9.68086E 02	LIFT	2.26810E 05	DRAG	1.14667E 05	QATM	1.75867E 02	RHO	6.02744E-04
GR	9.98987E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57228E 01	XLAT	2.75905E 01
GAMC	-5.46202E-01	THR	1.11979E 05	GV	9.98980E-01				
TIM	3.87000E 02	WHT	2.37260E 05	VEL	7.63787E 02	RANG	3.24910E 02	GAM	-5.37600E-01
ALT	3.94501E 04	PHI	0	Z	2.84949E 02	ALPH	5.25783E 00	MACH	7.88966E-01
SOS	9.68086E 02	LIFT	2.26810E 05	DRAG	1.14631E 05	QATM	1.75872E 02	RHO	6.02952E-04
GR	9.99293E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57208E 01	XLAT	2.75900E 01
GAMC	-5.37580E-01	THR	1.11979E 05	GV	9.99285E-01				
TIM	3.88000E 02	WHT	2.37188E 05	VEL	7.63666E 02	RANG	3.25035E 02	GAM	-5.28270E-01
ALT	3.94430E 04	PHI	0	Z	2.84949E 02	ALPH	5.25783E 00	MACH	7.88841E-01
SOS	9.68086E 02	LIFT	2.26810E 05	DRAG	1.14595E 05	QATM	1.75876E 02	RHO	6.03158E-04
GR	9.99592E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57188E 01	XLAT	2.75895E 01
GAMC	-5.29088E-01	THR	1.11979E 05	GV	9.99585E-01				
TIM	3.89000E 02	WHT	2.37116E 05	VEL	7.63553E 02	RANG	3.25161E 02	GAM	-5.20738E-01
ALT	3.94360E 04	PHI	0	Z	2.84949E 02	ALPH	5.25218E 00	MACH	7.88724E-01
SOS	9.68086E 02	LIFT	2.26574E 05	DRAG	1.14508E 05	QATM	1.75883E 02	RHO	6.03359E-04
GR	9.98850E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57166E 01	XLAT	2.75889E 01
GAMC	-5.20738E-01	THR	1.11979E 05	GV	9.98844E-01				
TIM	3.90000E 02	WHT	2.37044E 05	VEL	7.63439E 02	RANG	3.25286E 02	GAM	-5.12455E-01
ALT	3.94292E 04	PHI	0	Z	2.84949E 02	ALPH	5.25216E 00	MACH	7.88607E-01
SOS	9.68086E 02	LIFT	2.26575E 05	DRAG	1.14475E 05	QATM	1.75889E 02	RHO	6.03558E-04
GR	9.99159E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57148E 01	XLAT	2.75884E 01
GAMC	-5.12522E-01	THR	1.11979E 05	GV	9.99153E-01				
TIM	3.91000E 02	WHT	2.36972E 05	VEL	7.63325E 02	RANG	3.25412E 02	GAM	-5.03433E-01
ALT	3.94224E 04	PHI	0	Z	2.84949E 02	ALPH	5.25218E 00	MACH	7.88489E-01
SOS	9.68086E 02	LIFT	2.26575E 05	DRAG	1.14441E 05	QATM	1.75893E 02	RHO	6.03754E-04
GR	9.99462E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57128E 01	XLAT	2.75879E 01
GAMC	-5.04431E-01	THR	1.11979E 05	GV	9.99455E-01				
TIM	3.92000E 02	WHT	2.36899E 05	VEL	7.63230E 02	RANG	3.25537E 02	GAM	-4.99996E-01
ALT	3.94157E 04	PHI	0	Z	2.84949E 02	ALPH	5.23803E 00	MACH	7.88391E-01
SOS	9.68086E 02	LIFT	2.25989E 05	DRAG	1.14281E 05	QATM	1.75906E 02	RHO	6.03947E-04

GR	9.97165E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57107E 01	XLAT	2.75873E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.97160E-01				
TIM	3.93000E 02	WHT	2.36827E 05	VEL	7.63149E 02	RANG	3.25662E 02	GAM	-4.99999E-01
ALT	3.94093E 04	PHI	0	Z	2.84949E 02	ALPH	5.22842E 00	MACH	7.88308E-01
SOS	9.68986E 02	LIFT	2.25602E 05	DRAG	1.14174E 05	QATM	1.75925E 02	RHO	6.04140E-04
GR	9.95753E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57087E 01	XLAT	2.75868E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95750E-01				
TIM	3.94000E 02	WHT	2.36755E 05	VEL	7.63070E 02	RANG	3.25788E 02	GAM	-4.99063E-01
ALT	3.94024E 04	PHI	0	Z	2.84949E 02	ALPH	5.22842E 00	MACH	7.88225E-01
SOS	9.68986E 02	LIFT	2.25623E 05	DRAG	1.14160E 05	QATM	1.75944E 02	RHO	6.04332E-04
GR	9.96144E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57067E 01	XLAT	2.75862E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96140E-01				
TIM	3.95000E 02	WHT	2.36683E 05	VEL	7.63100E 02	RANG	3.25913E 02	GAM	-4.99999E-01
ALT	3.94970E 04	PHI	0	Z	2.84949E 02	ALPH	5.22211E 00	MACH	7.88155E-01
SOS	9.68986E 02	LIFT	2.25383E 05	DRAG	1.14151E 05	QATM	1.75966E 02	RHO	6.04529E-04
GR	9.95579E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57047E 01	XLAT	2.75857E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95576E-01				
TIM	3.96000E 02	WHT	2.36611E 05	VEL	7.62911E 02	RANG	3.26038E 02	GAM	-4.99999E-01
ALT	3.93891E 04	PHI	0	Z	2.84949E 02	ALPH	5.22211E 00	MACH	7.88087E-01
SOS	9.68986E 02	LIFT	2.25311E 05	DRAG	1.14085E 05	QATM	1.75992E 02	RHO	6.04718E-04
GR	9.95799E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57027E 01	XLAT	2.75852E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95796E-01				
TIM	3.97000E 02	WHT	2.36539E 05	VEL	7.62863E 02	RANG	3.26164E 02	GAM	-4.98835E-01
ALT	3.97824E 04	PHI	0	Z	2.84949E 02	ALPH	5.22211E 00	MACH	7.88011E-01
SOS	9.68986E 02	LIFT	2.25439E 05	DRAG	1.14078E 05	QATM	1.76017E 02	RHO	6.04910E-04
GR	9.96220E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.57006E 01	XLAT	2.75846E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96218E-01				
TIM	3.98000E 02	WHT	2.36466E 05	VEL	7.62804E 02	RANG	3.26289E 02	GAM	-4.99999E-01
ALT	3.97758E 04	PHI	0	Z	2.84949E 02	ALPH	5.21480E 00	MACH	7.87951E-01
SOS	9.68986E 02	LIFT	2.25164E 05	DRAG	1.14007E 05	QATM	1.76046E 02	RHO	6.05103E-04
GR	9.95297E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56986E 01	XLAT	2.75841E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95296E-01				
TIM	3.99000E 02	WHT	2.36394E 05	VEL	7.62746E 02	RANG	3.26414E 02	GAM	-5.00079E-01
ALT	3.97691E 04	PHI	0	Z	2.84949E 02	ALPH	5.21480E 00	MACH	7.87825E-01
SOS	9.68986E 02	LIFT	2.25198E 05	DRAG	1.14017E 05	QATM	1.76075E 02	RHO	6.05250E-04
GR	9.95247E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56966E 01	XLAT	2.75835E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95245E-01				
TIM	4.00000E 02	WHT	2.36322E 05	VEL	7.62687E 02	RANG	3.26540E 02	GAM	-4.99976E-01
ALT	3.93625E 04	PHI	0	Z	2.84949E 02	ALPH	5.21480E 00	MACH	7.87830E-01
SOS	9.68986E 02	LIFT	2.25232E 05	DRAG	1.14107E 05	QATM	1.76104E 02	RHO	6.05489E-04
GR	9.96196E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56946E 01	XLAT	2.75830E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96194E-01				
TIM	4.01000E 02	WHT	2.36250E 05	VEL	7.62627E 02	RANG	3.26665E 02	GAM	-4.99999E-01
ALT	3.93558E 04	PHI	0	Z	2.84949E 02	ALPH	5.20809E 00	MACH	7.87778E-01
SOS	9.68986E 02	LIFT	2.24988E 05	DRAG	1.13948E 05	QATM	1.76137E 02	RHO	6.05681E-04
GR	9.95407E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56926E 01	XLAT	2.75825E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95406E-01				
TIM	4.02000E 02	WHT	2.36178E 05	VEL	7.62586E 02	RANG	3.26790E 02	GAM	-4.99783E-01
ALT	3.93492E 04	PHI	0	Z	2.84949E 02	ALPH	5.20809E 00	MACH	7.87726E-01
SOS	9.68986E 02	LIFT	2.25027E 05	DRAG	1.13952E 05	QATM	1.76169E 02	RHO	6.05874E-04
GR	9.95877E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56906E 01	XLAT	2.75819E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95876E-01				
TIM	4.03000E 02	WHT	2.36106E 05	VEL	7.62534E 02	RANG	3.26915E 02	GAM	-4.98444E-01
ALT	3.93425E 04	PHI	0	Z	2.84949E 02	ALPH	5.20809E 00	MACH	7.87672E-01
SOS	9.68986E 02	LIFT	2.25065E 05	DRAG	1.13957E 05	QATM	1.76201E 02	RHO	6.06067E-04
GR	9.96344E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56886E 01	XLAT	2.75814E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96343E-01				
TIM	4.04000E 02	WHT	2.36033E 05	VEL	7.62493E 02	RANG	3.27041E 02	GAM	-4.99999E-01
ALT	3.93359E 04	PHI	0	Z	2.84949E 02	ALPH	5.19913E 00	MACH	7.87630E-01
SOS	9.68986E 02	LIFT	2.24731E 05	DRAG	1.13881E 05	QATM	1.76238E 02	RHO	6.06260E-04
GR	9.95157E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56865E 01	XLAT	2.75809E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95156E-01				
TIM	4.05000E 02	WHT	2.35961E 05	VEL	7.62451E 02	RANG	3.27166E 02	GAM	-5.00359E-01
ALT	3.93292E 04	PHI	0	Z	2.84949E 02	ALPH	5.19913E 00	MACH	7.87586E-01
SOS	9.68986E 02	LIFT	2.24776E 05	DRAG	1.13891E 05	QATM	1.76275E 02	RHO	6.06453E-04
GR	9.95651E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56845E 01	XLAT	2.75803E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95650E-01				
TIM	4.06000E 02	WHT	2.35889E 05	VEL	7.62407E 02	RANG	3.27291E 02	GAM	-4.99533E-01
ALT	3.93226E 04	PHI	0	Z	2.84949E 02	ALPH	5.19913E 00	MACH	7.87541E-01
SOS	9.68986E 02	LIFT	2.24819E 05	DRAG	1.13901E 05	QATM	1.76311E 02	RHO	6.06646E-04

GR	9.96141E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56825E 01	XLAT	2.75798E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96140E-01						
TIM	4.07000E 02	WHT	2.35417E 05	VEL	7.62269E 02	RANG	5.27416E 02	GAM	-5.00000E-01		
ALT	3.93254E 04	PHI	0	Z	2.84949E 02	ALPH	5.19365E 00	MACH	7.87501E-01		
SOS	9.68086E 02	LIFT	2.24634E 05	DRAG	1.13861E 05	QATM	1.76349E 02	RHO	6.06840E-04		
GR	9.95612E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56805E 01	XLAT	2.75792E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95511E-01						
TIM	4.09000E 02	WHT	2.35745E 05	VEL	7.62328E 02	RANG	5.27542E 02	GAM	-4.99254E-01		
ALT	3.93093E 04	PHI	0	Z	2.84949E 02	ALPH	5.19365E 00	MACH	7.87460E-01		
SOS	9.68086E 02	LIFT	2.24680E 05	DRAG	1.13873E 05	QATM	1.76387E 02	RHO	6.07033E-04		
GR	9.95112E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56785E 01	XLAT	2.75787E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96111E-01						
TIM	4.09999E 02	WHT	2.35673E 05	VEL	7.62294E 02	RANG	5.27667E 02	GAM	-4.99999E-01		
ALT	3.93026E 04	PHI	0	Z	2.84949E 02	ALPH	5.18767E 00	MACH	7.87424E-01		
SOS	9.68086E 02	LIFT	2.24476E 05	DRAG	1.13851E 05	QATM	1.76427E 02	RHO	6.07226E-04		
GR	9.95563E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56765E 01	XLAT	2.75782E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95512E-01						
TIM	4.10000E 02	WHT	2.35600E 05	VEL	7.62258E 02	RANG	5.27792E 02	GAM	-4.99505E-01		
ALT	3.92964E 04	PHI	0	Z	2.84949E 02	ALPH	5.18767E 00	MACH	7.87387E-01		
SOS	9.68086E 02	LIFT	2.24525E 05	DRAG	1.13845E 05	QATM	1.76467E 02	RHO	6.07419E-04		
GR	9.96014E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56744E 01	XLAT	2.75775E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96013E-01						
TIM	4.11000E 02	WHT	2.35528E 05	VEL	7.62226E 02	RANG	5.27917E 02	GAM	-5.00000E-01		
ALT	3.92893E 04	PHI	0	Z	2.84949E 02	ALPH	5.18276E 00	MACH	7.87354E-01		
SOS	9.68086E 02	LIFT	2.24368E 05	DRAG	1.13815E 05	QATM	1.76508E 02	RHO	6.07615E-04		
GR	9.95610E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56724E 01	XLAT	2.75771E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95609E-01						
TIM	4.12000E 02	WHT	2.35455E 05	VEL	7.62191E 02	RANG	5.28042E 02	GAM	-4.99241E-01		
ALT	3.92827E 04	PHI	0	Z	2.84949E 02	ALPH	5.18276E 00	MACH	7.87318E-01		
SOS	9.68086E 02	LIFT	2.24417E 05	DRAG	1.13830E 05	QATM	1.76540E 02	RHO	6.07806E-04		
GR	9.96126E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56704E 01	XLAT	2.75766E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96126E-01						
TIM	4.13000E 02	WHT	2.35384E 05	VEL	7.62163E 02	RANG	5.28166E 02	GAM	-4.99999E-01		
ALT	3.92764E 04	PHI	0	Z	2.84949E 02	ALPH	5.17666E 00	MACH	7.87288E-01		
SOS	9.68086E 02	LIFT	2.24211E 05	DRAG	1.13791E 05	QATM	1.76591E 02	RHO	6.08[illegible]E-04		
GR	9.95506E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56684E 01	XLAT	2.75[illegible]E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95505E-01						
TIM	4.14000E 02	WHT	2.35312E 05	VEL	7.62131E 02	RANG	5.28293E 02	GAM	-4.99486E-01		
ALT	3.92694E 04	PHI	0	Z	2.84949E 02	ALPH	5.17666E 00	MACH	7.87256E-01		
SOS	9.68086E 02	LIFT	2.24263E 05	DRAG	1.13808E 05	QATM	1.76635E 02	RHO	6.08[illegible]E-04		
GR	9.96031E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56664E 01	XLAT	2.75755E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96030E-01						
TIM	4.15000E 02	WHT	2.35240E 05	VEL	7.62104E 02	RANG	5.28410E 02	GAM	-5.00000E-01		
ALT	3.92627E 04	PHI	0	Z	2.84949E 02	ALPH	5.17160E 00	MACH	7.87228E-01		
SOS	9.68086E 02	LIFT	2.24102E 05	DRAG	1.13780E 05	QATM	1.76676E 02	RHO	6.08[illegible]E-04		
GR	9.95608E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56644E 01	XLAT	2.75749E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95608E-01						
TIM	4.16000E 02	WHT	2.35167E 05	VEL	7.62074E 02	RANG	5.28566E 02	GAM	-4.99233E-01		
ALT	3.92561E 04	PHI	0	Z	2.84949E 02	ALPH	5.17160E 00	MACH	7.87197E-01		
SOS	9.68086E 02	LIFT	2.24154E 05	DRAG	1.13798E 05	QATM	1.76719E 02	RHO	6.08581E-04		
GR	9.96137E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56624E 01	XLAT	2.75744E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96137E-01						
TIM	4.17000E 02	WHT	2.35095E 05	VEL	7.62049E 02	RANG	5.28668E 02	GAM	-4.99999E-01		
ALT	3.92494E 04	PHI	0	Z	2.84949E 02	ALPH	5.16541E 00	MACH	7.87172E-01		
SOS	9.68086E 02	LIFT	2.23947E 05	DRAG	1.13760E 05	QATM	1.76764E 02	RHO	6.08724E-04		
GR	9.95509E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56603E 01	XLAT	2.75739E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95509E-01						
TIM	4.18000E 02	WHT	2.35023E 05	VEL	7.62022E 02	RANG	5.28794E 02	GAM	-4.99465E-01		
ALT	3.92428E 04	PHI	0	Z	2.84949E 02	ALPH	5.16541E 00	MACH	7.87145E-01		
SOS	9.68086E 02	LIFT	2.24001E 05	DRAG	1.13760E 05	QATM	1.76807E 02	RHO	6.08968E-04		
GR	9.96045E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56583E 01	XLAT	2.75733E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96044E-01						
TIM	4.19000E 02	WHT	2.34951E 05	VEL	7.61998E 02	RANG	5.28919E 02	GAM	-5.00000E-01		
ALT	3.92361E 04	PHI	0	Z	2.84949E 02	ALPH	5.16022E 00	MACH	7.87119E-01		
SOS	9.68086E 02	LIFT	2.23837E 05	DRAG	1.13753E 05	QATM	1.76852E 02	RHO	6.09162E-04		
GR	9.95607E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56563E 01	XLAT	2.75728E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95607E-01						
TIM	4.20000E 02	WHT	2.34879E 05	VEL	7.61972E 02	RANG	5.29044E 02	GAM	-4.99227E-01		
ALT	3.92295E 04	PHI	0	Z	2.84949E 02	ALPH	5.16022E 00	MACH	7.87091E-01		
SOS	9.68086E 02	LIFT	2.23891E 05	DRAG	1.13773E 05	QATM	1.76896E 02	RHO	6.09355E-04		
GR	9.96146E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56543E 01	XLAT	2.75722E 01		
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96145E-01						

TIM	4.210000E 02	WHT	2.34807E 05	VEL	7.61950E 02	RANG	3.29169E 02	GAM	-4.99900
ALT	3.92229E 04	PHI	0	Z	2.84949E 02	ALPH	5.15397E 00	MACH	7.87069E
SOS	9.68086E 02	LIFT	2.23683E 05	DRAG	1.13737E 05	QATM	1.76943E 02	RHO	6.09550E-04
GR	9.95513E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56523E 01	XLAT	2.75717E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95513E-01				

TIM	4.220000E 02	WHT	2.34734E 05	VEL	7.61926E 02	RANG	3.29294E 02	GAM	-4.99450E-01
ALT	3.92142E 04	PHI	0	Z	2.84949E 02	ALPH	5.15397E 00	MACH	7.87044E-01
SOS	9.68086E 02	LIFT	2.23739E 05	DRAG	1.13759E 05	QATM	1.76987E 02	RHO	6.09744E-04
GR	9.96057E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56503E 01	XLAT	2.75712E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96057E-01				

TIM	4.230000E 02	WHT	2.34662E 05	VEL	7.61905E 02	RANG	3.29419E 02	GAM	-5.00000E-01
ALT	3.92096E 04	PHI	0	Z	2.84949E 02	ALPH	5.14866E 00	MACH	7.87022E-01
SOS	9.68086E 02	LIFT	2.23572E 05	DRAG	1.13733E 05	QATM	1.77034E 02	RHO	6.09938E-04
GR	9.95607E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56485E 01	XLAT	2.75706E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95607E-01				

TIM	4.240000E 02	WHT	2.34590E 05	VEL	7.61881E 02	RANG	3.29545E 02	GAM	-4.99224E-01
ALT	3.92029E 04	PHI	0	Z	2.84949E 02	ALPH	5.14866E 00	MACH	7.86997E-01
SOS	9.68086E 02	LIFT	2.23628E 05	DRAG	1.13755E 05	QATM	1.77079E 02	RHO	6.10132E-04
GR	9.96152E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56462E 01	XLAT	2.75701E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96152E-01				

TIM	4.250000E 02	WHT	2.34513E 05	VEL	7.61861E 02	RANG	3.29670E 02	GAM	-4.99999E-01
ALT	3.91963E 04	PHI	0	Z	2.84949E 02	ALPH	5.14240E 00	MACH	7.86977E-01
SOS	9.68086E 02	LIFT	2.23419E 05	DRAG	1.13728E 05	QATM	1.77127E 02	RHO	6.10320E-04
GR	9.95517E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56442E 01	XLAT	2.75696E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95517E-01				

TIM	4.260000E 02	WHT	2.34446E 05	VEL	7.61839E 02	RANG	3.29795E 02	GAM	-4.99437E-01
ALT	3.91896E 04	PHI	0	Z	2.84949E 02	ALPH	5.14240E 00	MACH	7.86954E-01
SOS	9.68086E 02	LIFT	2.23476E 05	DRAG	1.13743E 05	QATM	1.77173E 02	RHO	6.10520E-04
GR	9.96067E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56422E 01	XLAT	2.75690E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96067E-01				

TIM	4.270000E 02	WHT	2.34374E 05	VEL	7.61820E 02	RANG	3.29920E 02	GAM	-5.00000E-01
ALT	3.91830E 04	PHI	0	Z	2.84949E 02	ALPH	5.13704E 00	MACH	7.86935E-01
SOS	9.68086E 02	LIFT	2.23307E 05	DRAG	1.13717E 05	QATM	1.77220E 02	RHO	6.10715E-04
GR	9.95607E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56402E 01	XLAT	2.75685E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95607E-01				

TIM	4.280000E 02	WHT	2.34301E 05	VEL	7.61798E 02	RANG	3.30045E 02	GAM	-4.99223E-01
ALT	3.91763E 04	PHI	0	Z	2.84949E 02	ALPH	5.13704E 00	MACH	7.86912E-01
SOS	9.68086E 02	LIFT	2.23364E 05	DRAG	1.13741E 05	QATM	1.77266E 02	RHO	6.10909E-04
GR	9.96158E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56382E 01	XLAT	2.75679E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96158E-01				

TIM	4.290000E 02	WHT	2.34229E 05	VEL	7.61780E 02	RANG	3.30170E 02	GAM	-4.99999E-01
ALT	3.91697E 04	PHI	0	Z	2.84949E 02	ALPH	5.13074E 00	MACH	7.86894E-01
SOS	9.68086E 02	LIFT	2.23156E 05	DRAG	1.13707E 05	QATM	1.77314E 02	RHO	6.11103E-04
GR	9.95521E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56362E 01	XLAT	2.75674E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95521E-01				

TIM	4.300000E 02	WHT	2.34157E 05	VEL	7.61760E 02	RANG	3.30295E 02	GAM	-4.99426E-01
ALT	3.91631E 04	PHI	0	Z	2.84949E 02	ALPH	5.13074E 00	MACH	7.86872E-01
SOS	9.68086E 02	LIFT	2.23214E 05	DRAG	1.13731E 05	QATM	1.77361E 02	RHO	6.11298E-04
GR	9.96076E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56342E 01	XLAT	2.75669E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96076E-01				

TIM	4.310000E 02	WHT	2.34085E 05	VEL	7.61742E 02	RANG	3.30421E 02	GAM	-5.00000E-01
ALT	3.91564E 04	PHI	0	Z	2.84949E 02	ALPH	5.12532E 00	MACH	7.86854E-01
SOS	9.68086E 02	LIFT	2.23043E 05	DRAG	1.13706E 05	QATM	1.77410E 02	RHO	6.11492E-04
GR	9.95607E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56322E 01	XLAT	2.75663E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95607E-01				

TIM	4.320000E 02	WHT	2.34013E 05	VEL	7.61721E 02	RANG	3.30546E 02	GAM	-4.99222E-01
ALT	3.91498E 04	PHI	0	Z	2.84949E 02	ALPH	5.12532E 00	MACH	7.86833E-01
SOS	9.68086E 02	LIFT	2.23101E 05	DRAG	1.13730E 05	QATM	1.77456E 02	RHO	6.11667E-04
GR	9.96162E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56301E 01	XLAT	2.75658E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96162E-01				

TIM	4.330000E 02	WHT	2.33941E 05	VEL	7.61705E 02	RANG	3.30671E 02	GAM	-4.99999E-01
ALT	3.91431E 04	PHI	0	Z	2.84949E 02	ALPH	5.11901E 00	MACH	7.86816E-01
SOS	9.68086E 02	LIFT	2.22892E 05	DRAG	1.13597E 05	QATM	1.77505E 02	RHO	6.11881E-04
GR	9.95526E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56281E 01	XLAT	2.75653E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95526E-01				

TIM	4.340000E 02	WHT	2.33868E 05	VEL	7.61686E 02	RANG	3.30796E 02	GAM	-4.99417E-01
ALT	3.91365E 04	PHI	0	Z	2.84949E 02	ALPH	5.11901E 00	MACH	7.86796E-01
SOS	9.68086E 02	LIFT	2.22951E 05	DRAG	1.13722E 05	QATM	1.77552E 02	RHO	6.12076E-04
GR	9.96084E-01	ZDOT	0	ZB	2.85286E 02	XLON	7.56261E 01	XLAT	2.75647E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96084E-01				

TIM	4.35000E 02	WHT	2.33796E 05	VEL	7.61669E 02	RANG	3.30921E 02	GAM	-5.00000E-01
ALT	3.91298E 04	PHI	0	Z	2.84949E 02	ALPH	5.11354E 00	MACH	7.86779E-01
SOS	9.68086E 02	LIFT	2.22778E 05	DRAG	1.13697E 05	QATM	1.77661E 02	RHO	6.12271E-04
GR	9.95607E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56241E 01	XLAT	2.75642E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95607E-01				

TIM	4.36000E 02	WHT	2.33724E 05	VEL	7.61550E 02	RANG	3.31046E 02	GAM	-4.99225E-01
ALT	3.91232E 04	PHI	0	Z	2.84949E 02	ALPH	5.11354E 00	MACH	7.86759E-01
SOS	9.68086E 02	LIFT	2.22837E 05	DRAG	1.13722E 05	QATM	1.77649E 02	RHO	6.12475E-04
GR	9.96166E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56221E 01	XLAT	2.75636E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96166E-01				

TIM	4.37000E 02	WHT	2.33652E 05	VEL	7.61674E 02	RANG	3.31171E 02	GAM	-4.99999E-01
ALT	3.91166E 04	PHI	0	Z	2.84949E 02	ALPH	5.10724E 00	MACH	7.86743E-01
SOS	9.68086E 02	LIFT	2.22629E 05	DRAG	1.13669E 05	QATM	1.77698E 02	RHO	6.12605E-04
GR	9.95530E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56201E 01	XLAT	2.75631E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95530E-01				

TIM	4.38000E 02	WHT	2.33580E 05	VEL	7.61616E 02	RANG	3.31296E 02	GAM	-4.99409E-01
ALT	3.91099E 04	PHI	0	Z	2.84949E 02	ALPH	5.10724E 00	MACH	7.86735E-01
SOS	9.68086E 02	LIFT	2.22688E 05	DRAG	1.13715E 05	QATM	1.77746E 02	RHO	6.12555E-04
GR	9.96091E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56181E 01	XLAT	2.75626E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96091E-01				

TIM	4.39000E 02	WHT	2.33507E 05	VEL	7.61600E 02	RANG	3.31421E 02	GAM	-5.00000E-01
ALT	3.91033E 04	PHI	0	Z	2.84949E 02	ALPH	5.10174E 00	MACH	7.86718E-01
SOS	9.68086E 02	LIFT	2.22514E 05	DRAG	1.13690E 05	QATM	1.77795E 02	RHO	6.12505E-04
GR	9.95608E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56160E 01	XLAT	2.75620E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95608E-01				

TIM	4.40000E 02	WHT	2.33435E 05	VEL	7.61581E 02	RANG	3.31547E 02	GAM	-4.99225E-01
ALT	3.90966E 04	PHI	0	Z	2.84949E 02	ALPH	5.10174E 00	MACH	7.86686E-01
SOS	9.68086E 02	LIFT	2.22573E 05	DRAG	1.13716E 05	QATM	1.77845E 02	RHO	6.12455E-04
GR	9.96169E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56141E 01	XLAT	2.75615E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96169E-01				

TIM	4.41000E 02	WHT	2.33363E 05	VEL	7.61567E 02	RANG	3.31672E 02	GAM	-4.99999E-01
ALT	3.90900E 04	PHI	0	Z	2.84949E 02	ALPH	5.09544E 00	MACH	7.86675E-01
SOS	9.68086E 02	LIFT	2.22366E 05	DRAG	1.13684E 05	QATM	1.77895E 02	RHO	6.12344E-04
GR	9.95554E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56120E 01	XLAT	2.75610E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95554E-01				

TIM	4.42000E 02	WHT	2.33291E 05	VEL	7.61549E 02	RANG	3.31797E 02	GAM	-4.99402E-01
ALT	3.90833E 04	PHI	0	Z	2.84949E 02	ALPH	5.09544E 00	MACH	7.86654E-01
SOS	9.68086E 02	LIFT	2.22425E 05	DRAG	1.13700E 05	QATM	1.77941E 02	RHO	6.12365E-04
GR	9.96098E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56100E 01	XLAT	2.75604E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96098E-01				

TIM	4.43000E 02	WHT	2.33219E 05	VEL	7.61534E 02	RANG	3.31922E 02	GAM	-5.00000E-01
ALT	3.90767E 04	PHI	0	Z	2.84949E 02	ALPH	5.08991E 00	MACH	7.86639E-01
SOS	9.68086E 02	LIFT	2.22250E 05	DRAG	1.13665E 05	QATM	1.77991E 02	RHO	6.12385E-04
GR	9.95609E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56080E 01	XLAT	2.75599E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95609E-01				

TIM	4.44000E 02	WHT	2.33147E 05	VEL	7.61515E 02	RANG	3.32047E 02	GAM	-4.99227E-01
ALT	3.90701E 04	PHI	0	Z	2.84949E 02	ALPH	5.08991E 00	MACH	7.86625E-01
SOS	9.68086E 02	LIFT	2.22309E 05	DRAG	1.13711E 05	QATM	1.78039E 02	RHO	6.14026E-04
GR	9.96172E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56060E 01	XLAT	2.75593E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96171E-01				

TIM	4.45000E 02	WHT	2.33074E 05	VEL	7.61501E 02	RANG	3.32172E 02	GAM	-4.99999E-01
ALT	3.90634E 04	PHI	0	Z	2.84949E 02	ALPH	5.08364E 00	MACH	7.86605E-01
SOS	9.68086E 02	LIFT	2.22102E 05	DRAG	1.13680E 05	QATM	1.78089E 02	RHO	6.14221E-04
GR	9.95539E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56040E 01	XLAT	2.75588E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95539E-01				

TIM	4.46000E 02	WHT	2.33002E 05	VEL	7.61484E 02	RANG	3.32297E 02	GAM	-4.99396E-01
ALT	3.90568E 04	PHI	0	Z	2.84949E 02	ALPH	5.08364E 00	MACH	7.86587E-01
SOS	9.68086E 02	LIFT	2.22162E 05	DRAG	1.13706E 05	QATM	1.78137E 02	RHO	6.14410E-04
GR	9.96104E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.56020E 01	XLAT	2.75583E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96104E-01				

TIM	4.47000E 02	WHT	2.32930E 05	VEL	7.61469E 02	RANG	3.32422E 02	GAM	-5.00000E-01
ALT	3.90501E 04	PHI	0	Z	2.84949E 02	ALPH	5.07809E 00	MACH	7.86572E-01
SOS	9.68086E 02	LIFT	2.21986E 05	DRAG	1.13662E 05	QATM	1.78187E 02	RHO	6.14612E-04
GR	9.95610E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55999E 01	XLAT	2.75577E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95609E-01				

TIM	4.48000E 02	WHT	2.32858E 05	VEL	7.61451E 02	RANG	3.32547E 02	GAM	-4.99230E-01
ALT	3.90435E 04	PHI	0	Z	2.84949E 02	ALPH	5.07809E 00	MACH	7.86554E-01
SOS	9.68086E 02	LIFT	2.22045E 05	DRAG	1.13708E 05	QATM	1.78235E 02	RHO	6.14807E-04
GR	9.96174E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55979E 01	XLAT	2.75572E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.96174E-01				

TIM	4.49000E 02	WHT	2.32786E 05	VEL	7.61457E 02	RANG	3.32672E 02	GAM	-4.99999E-01
ALT	3.90369E 04	PHI	0	Z	2.84949E 02	ALPH	5.07183E 00	MACH	7.86539E-01
SOS	9.68056E 02	LIFT	2.21839E 05	DRAG	1.13677E 05	DATM	1.78285E 02	RHO	6.15003E-04
GR	9.95543E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55959E 01	XLAT	2.75567E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.95543E-01				

TIM	4.50000E 02	WHT	2.32714E 05	VEL	7.614[illegible]0E 02	RANG	3.32797E 02	GAM	-4.99390E-01
ALT	3.90302E 04	PHI	0	Z	2.84949E 02	ALPH	5.07183E 00	MACH	7.86521E-01
SOS	9.68056E 02	LIFT	2.21899E 05	DRAG	1.13[illegible]4E 05	DATM	1.78334E 02	RHO	6.15198E-04
GR	9.96110E-01	ZDOT	0	ZR	2.85[illegible]6E 02	XLON	7.55939E 01	XLAT	2.75561E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.961[illegible]9E-01				

TIM	4.51000E 02	WHT	2.32641E 05	VEL	7.614[illegible]6E 02	RANG	3.32922E 02	GAM	-5.00000E-01
ALT	3.90226E 04	PHI	0	Z	2.84949E 02	ALPH	5.06626E 00	MACH	7.86507E-01
SOS	9.6[illegible]56E 02	LIFT	2.21722E 05	DRAG	1.136[illegible]9E 05	DATM	1.78384E 02	RHO	6.15394E-04
GR	9.96611E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55919E 01	XLAT	2.75556E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.926[illegible]0E-01				

TIM	4.52000E 02	WHT	2.32569E 05	VEL	7.61388E 02	RANG	3.33048E 02	GAM	-4.99233E-01
ALT	3.90169E 04	PHI	0	Z	2.84949E 02	ALPH	5.06626E 00	MACH	7.86488E-01
SOS	9.68056E 02	LIFT	2.21781E 05	DRAG	1.13705E 05	DATM	1.78432E 02	RHO	6.15590E-04
GR	9.96176E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55899E 01	XLAT	2.75550E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.961[illegible]6E-01				

TIM	4.53000E 02	WHT	2.32497E 05	VEL	7.613[illegible]5E 02	RANG	3.33173E 02	GAM	-4.99999E-01
ALT	3.90135E 04	PHI	0	Z	2.84949E 02	ALPH	5.06002E 00	MACH	7.86475E-01
SOS	9.68056E 02	LIFT	2.21720E 05	DRAG	1.135[illegible]5E 05	DATM	1.78485E 02	RHO	6.15786E-04
GR	9.96546E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55879E 01	XLAT	2.75545E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.9[illegible]46E-01				

TIM	4.54000E 02	WHT	2.32425E 05	VEL	7.61[illegible]7E 02	RANG	3.33296E 02	GAM	-4.99385E-01
ALT	3.90037E 04	PHI	0	Z	2.84949E 02	ALPH	5.06462E 00	MACH	7.86457E-01
SOS	9.68056E 02	LIFT	2.21635E 05	DRAG	1.13[illegible]2E 05	DATM	1.78531E 02	RHO	6.15961E-04
GR	9.96115E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55859E 01	XLAT	2.75540E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.9[illegible]5E-01				

TIM	4.55[illegible]E 02	WHT	2.32353E 05	VEL	7.61[illegible]4E 02	RANG	3.33423E 02	GAM	-5.00000E-01
ALT	3.89970E 04	PHI	0	Z	2.84[illegible]9E 02	ALPH	5.05444E 00	MACH	7.86492E-01
SOS	9.68056E 02	LIFT	2.21454E 05	DRAG	1.13[illegible]7E 05	DATM	1.78[illegible]2E 02	RHO	6.16[illegible]4E-04
GR	9.96112E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55[illegible]E 01	XLAT	2.[illegible]5E 01
GAMC	-5.00000E-01	THR	1.11979E 05	GV	9.9[illegible]2E-01				

ALTB AND ZMX WITH REACHED

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TIM	4.56000E 02	WHT	2.32281E 05	VEL	7.61[illegible]6E 02	RANG	3.33546E 02	GAM	-4.99265E-01
ALT	3.89904E 04	PHI	0	Z	2.84949E 02	ALPH	5.05444E 00	MACH	7.86424E-01
SOS	9.68056E 02	LIFT	2.21317E 05	DRAG	1.13714E 05	DATM	1.78635E 02	RHO	6.16375E-04
GR	9.96178E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55816E 01	XLAT	2.75529E 01
GAMC	0	THR	1.11979E 05	GV	9.9[illegible]8E-01				

BREQUET

TIM	2.86437E 03	WHT	2.05164E 05	VEL	7.61[illegible]6E 02	RANG	6.27[illegible]E 02	GAM	-4.99265E-01
ALT	3.89904E 04	PHI	0	Z	2.84949E 02	ALPH	4.2[illegible] 00	MACH	7.86424E-01
SOS	9.68056E 02	LIFT	1.02494E 05	DRAG	1.91705E 05	DATM	9.73579E 02	RHO	1.28900E-03
GR	9.96178E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55816E 01	XLAT	2.75529E 01

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GLIDE

TIM	2.83231E 03	WHT	2.15000E 05	VEL	7.61[illegible]6E 02	RANG	6.31295E 02	GAM	6.13876E 01
ALT	3.89904E 04	PHI	0	Z	2.84949E 02	ALPH	1.19000E 00	MACH	7.86424E-01
SOS	9.68056E 02	LIFT	4.90085E 04	DRAG	9.16594E 04	DATM	1.78630E 02	RHO	6.16373E-04
GR	9.96178E-01	ZDOT	0	ZR	2.85286E 02	XLON	7.55818E 01	XLAT	2.75529E 01

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CALCULATIONS FINISHED

FLYBACK TEST CASE

ALPHA CONTROL

GLIDE OPTION 1

			CL 1	CL 2	CD 0	ATRN
1	0	0	3.000000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
2	2.500000E-01	0	4.000000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
3	5.000000E-01	0	4.600000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
4	7.500000E-01	0	4.900000E-02	-2.200000E-04	4.360000E-02	2.500000E 01
5	1.000000E 00	0	5.100000E-02	-1.000000E-04	8.670000E-02	2.500000E 01
6	1.250000E 00	0	5.100000E-02	0	7.900000E-02	2.500000E 01
7	1.500000E 00	0	4.650000E-02	6.000000E-05	7.100000E-02	3.000000E 01
8	1.750000E 00	0	4.200000E-02	9.000000E-05	6.350000E-02	3.000000E 01
9	2.000000E 00	0	3.750000E-02	1.200000E-04	5.750000E-02	3.000000E 01
10	2.500000E 00	0	3.100000E-02	1.500000E-04	4.860000E-02	3.000000E 01
11	3.000000E 00	0	2.750000E-02	1.600000E-04	4.300000E-02	3.000000E 01
12	4.000000E 00	0	2.150000E-02	1.500000E-04	3.650000E-02	3.000000E 01
13	5.000000E 00	0	1.850000E-02	1.200000E-04	3.300000E-02	3.000000E 01
14	6.000000E 00	0	1.700000E-02	7.000000E-05	3.100000E-02	3.000000E 01
15	8.000000E 00	0	1.500000E-02	-7.000000E-05	2.950000E-02	3.000000E 01
16	1.200000E 01	0	1.300000E-02	-1.500000E-04	2.650000E-02	3.000000E 01

WHT	2.46603E 05	VEL	9.72100E 03	RANG	5.01854E 05	GAM	1.07530E 01	ALT	1.82640E 05		
ZL	9.50000E 01	HE	2.05022E 07	XLON	8.10000E 01	XLAT	2.85000E 01	AREA	5.08300E 03		
CK1	1.10000E 00	XN	4.00000E 00	CK20	1.00000E 00	CK21	1.00000E 00	XGO	3.21740E 01		
XLOB	6.10600E 01	XLAB	2.85000E 01	DELT	1.00000E 00	GRMX	4.00000E 00	PCA	1.80000E 02		
GAMA	0	PM	4.50000E 01	DPB	5.00000E 00	GAMC	-9.70000E 00	DZN	2.00000E 01		
ZDD	1.00000E 00	XMB	8.00000E-01	ALTR	3.90000E 04	TE	9.81200E 03	DTP	1.00000E 00		
SFC	4.31600E-01	ATCL	1.00000E 03	XTOL	5.00000E-02	CK22	2.00000E 00	QCTL	2.00000E-03		
ZRTL	1.00000E-01	WHFB	1.00000E 04	WEMP	2.15000E 05	C231	1.00000E 00	C232	1.00000E 00		
C233	1.00000E 00	C234	1.00000E 00	C235	1.00000E 00	C236	1.00000E 00	C237	1.00000E 00		
C238	1.00000E 00	DECM	1.00000E-01	CK24	1.00000E 00						

TIM	0	WHT	2.46603E 05	VEL	9.72100E 03	RANG	1.35934E-02	GAM	1.07530E 01		
ALT	1.82640E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	8.94840E 00		
SOS	1.06572E 03	LIFT	-9.43370E 04	DRAG	7.95395E 04	QATM	5.21765E 01	RHO	1.10429E-06		
GR	5.00374E-01	ZDOT	0	ZR	2.74902E 02	XLON	8.09997E 01	XLAT	2.85000E 01		
GAMC	-9.70000E 00	THR	0	GV	3.15650E-01						

TIM	1.00000E 00	WHT	2.46603E 05	VEL	9.70590E 03	RANG	1.57106E 00	GAM	1.05244E 01		
ALT	1.84433E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	8.97434E 00		
SOS	1.08152E 03	LIFT	-8.86864E 04	DRAG	7.47753E 04	QATM	4.90512E 01	RHO	1.04138E-06		
GR	4.70403E-01	ZDOT	0	ZR	3.15804E 02	XLON	8.09806E 01	XLAT	2.85175E 01		
GAMC	-9.70000E 00	THR	0	GV	2.98198E-01						

TIM	2.00000E 00	WHT	2.46603E 05	VEL	9.69152E 03	RANG	3.12718E 00	GAM	1.02996E 01		
ALT	1.86186E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.00044E 00		
SOS	1.07678E 03	LIFT	-8.32543E 04	DRAG	7.02166E 04	QATM	4.61578E 01	RHO	9.82860E-07		
GR	4.41651E-01	ZDOT	0	ZR	2.91041E 02	XLON	8.09548E 01	XLAT	2.85152E 01		
GAMC	-9.70000E 00	THR	0	GV	2.81253E-01						

TIM	3.00000E 00	WHT	2.46603E 05	VEL	9.67782E 03	RANG	4.68202E 00	GAM	1.00784E 01		
ALT	1.87899E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.02666E 00		
SOS	1.07214E 03	LIFT	-7.82280E 04	DRAG	6.60016E 04	QATM	4.34767E 01	RHO	9.28393E-07		
GR	4.15046E-01	ZDOT	0	ZR	2.81826E 02	XLON	8.09290E 01	XLAT	2.85130E 01		
GAMC	-9.70000E 00	THR	0	GV	2.65491E-01						

TIM	4.00000E 00	WHT	2.46603E 05	VEL	9.66475E 03	RANG	6.23564E 00	GAM	9.86059E 00		
ALT	1.89573E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.05297E 00		
SOS	1.06758E 03	LIFT	-7.35737E 04	DRAG	6.20958E 04	QATM	4.09902E 01	RHO	8.77665E-07		
GR	3.90407E-01	ZDOT	0	ZR	2.77283E 02	XLON	8.09032E 01	XLAT	2.85107E 01		
GAMC	-9.70000E 00	THR	0	GV	2.50819E-01						

TIM	5.00000E 00	WHT	2.46603E 05	VEL	9.65227E 03	RANG	7.78810E 00	GAM	9.64580E 00		
ALT	1.91209E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.07933E 00		
SOS	1.06310E 03	LIFT	-6.92604E 04	DRAG	5.84754E 04	QATM	3.86822E 01	RHO	8.30391E-07		
GR	3.67572E-01	ZDOT	0	ZR	2.74616E 02	XLON	8.08775E 01	XLAT	2.85085E 01		
GAMC	-9.70000E 00	THR	0	GV	2.37156E-01						

TIM	6.00000E 00	WHT	2.46603E 05	VEL	9.64035E 03	RANG	9.33947E 00	GAM	9.43384E 00		
ALT	1.92808E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.10571E 00		
SOS	1.05871E 03	LIFT	-6.52603E 04	DRAG	5.51172E 04	QATM	3.65384E 01	RHO	7.86311E-07		
GR	3.46392E-01	ZDOT	0	ZR	2.72873E 02	XLON	8.08217E 01	XLAT	2.85062E 01		
GAMC	-9.70000E 00	THR	0	GV	2.24424E-01						

TIM	7.00000E 00	WHT	2.46603E 05	VEL	9.62894E 03	RANG	1.08898E 01	GAM	9.22452E 00		
ALT	1.94370E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.13207E 00		
SOS	1.05441E 03	LIFT	-6.15481E 04	DRAG	5.20000E 04	QATM	3.45456E 01	RHO	7.45187E-07		
GR	3.26736E-01	ZDOT	0	ZR	2.71650E 02	XLON	8.08260E 01	XLAT	2.85040E 01		
GAMC	-9.70000E 00	THR	0	GV	2.12554E-01						

TIM	8.00000E 00	WHT	2.46603E 05	VEL	9.61803E 03	RANG	1.24391E 01	GAM	9.01762E 00		
ALT	1.95895E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.15838E 00		
SOS	1.050196 03	LIFT	-5.81008E 04	DRAG	4.91045E 04	QATM	3.26918E 01	RHO	7.06800E-07		
GR	3.08480E-01	ZDOT	0	ZR	2.70748E 02	XLON	8.08003E 01	XLAT	2.85017E 01		
GAMC	-9.70000E 00	THR	0	GV	2.01482E-01						

TIM	9.00000E 00	WHT	2.46603E 05	VEL	9.60758E 03	RANG	1.39875E 01	GAM	8.81299E 00		
ALT	1.97385E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.18462E 00		
SOS	1.04605E 03	LIFT	-5.42974E 04	DRAG	4.64133E 04	QATM	3.09662E 01	RHO	6.70953E-07		
GR	2.91514E-01	ZDOT	0	ZR	2.70358E 02	XLON	8.07746E 01	XLAT	2.84995E 01		
GAMC	-9.70000E 00	THR	0	GV	1.91151E-01						

TIM	1.00000E 01	WHT	2.46603E 05	VEL	9.59756E 03	RANG	1.55350E 01	GAM	8.61045E 00		
ALT	1.98840E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.21075E 00		
SOS	1.04200E 03	LIFT	-5.15189E 04	DRAG	4.39105E 04	QATM	2.93590E 01	RHO	6.37456E-07		
GR	2.75738E-01	ZDOT	0	ZR	2.70049E 02	XLON	8.07489E 01	XLAT	2.84972E 01		
GAMC	-9.70000E 00	THR	0	GV	1.81505E-01						

TIM	1.10000E 01	WHT	2.46603E 05	VEL	9.58795E 03	RANG	1.70816E 01	GAM	8.40985E 00		
ALT	2.00259E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.23674E 00		
SOS	1.03802E 03	LIFT	-4.91480E 04	DRAG	4.25815E 04	QATM	2.78612E 01	RHO	6.06147E-07		
GR	2.61060E-01	ZDOT	0	ZR	2.71435E 02	XLON	8.07233E 01	XLAT	2.84950E 01		
GAMC	-9.70000E 00	THR	0	GV	1.72496E-01						

TIM	1.20000E 01	WHT	2.46603E 05	VEL	9.57872E 03	RANG	1.86274E 01	GAM	8.21106E 00		
ALT	2.01644E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.26258E 00		
SOS	1.03413E 03	LIFT	-4.65686E 04	DRAG	3.94130E 04	QATM	2.64644E 01	RHO	5.76868E-07		
GR	2.47395E-01	ZDOT	0	ZR	2.71842E 02	XLON	8.06976E 01	XLAT	2.84927E 01		
GAMC	-9.70000E 00	THR	0	GV	1.64079E-01						

TIM	1.30000E 01	WHT	2.46603E 05	VEL	9.56987E 03	RANG	2.01724E 01	GAM	8.01393E 00		
ALT	2.02995E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.28822E 00		
SOS	1.03032E 03	LIFT	-4.41665E 04	DRAG	3.73930E 04	QATM	2.51612E 01	RHO	5.49478E-07		
GR	2.34668E-01	ZDOT	0	ZR	2.72189E 02	XLON	8.06720E 01	XLAT	2.84905E 01		
GAMC	-9.70000E 00	THR	0	GV	1.56211E-01						

TIM	1.40000E 01	WHT	2.46603E 05	VEL	9.56136E 03	RANG	2.17166E 01	GAM	7.81836E 00		

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ALT	2.04313E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.31365E 00		
SOS	1.02660E 03	LIFT	-4.19282E 04	DRAG	3.55103E 04	QATM	2.39448E 01	RHO	5.23843E-07		
GR	2.22807E-01	ZDOT	0	ZB	2.72489E 02	XLON	8.06464E 01	XLAT	2.84883E 01		
GAMC	-9.70000E 00	THR	0	GV	1.48854E-01						
TIM	1.50000E 01	WHT	2.46603E 05	VEL	9.55318E 03	RANG	2.32602E 01	GAM	7.62424E 00		
ALT	2.05597E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.33884E 00		
SOS	1.02295E 03	LIFT	-3.98416E 04	DRAG	3.37548E 04	QATM	2.28087E 01	RHO	4.99844E-07		
GR	2.11750E-01	ZDOT	0	ZB	2.72751E 02	XLON	8.06208E 01	XLAT	2.84860E 01		
GAMC	-9.70000E 00	THR	0	GV	1.41973E-01						
TIM	1.60000E 01	WHT	2.46603E 05	VEL	9.54931E 03	RANG	2.48030E 01	GAM	7.43145E 00		
ALT	2.06848E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.36377E 00		
SOS	1.01939E 03	LIFT	-3.78956E 04	DRAG	3.21172E 04	QATM	2.17472E 01	RHO	4.77369E-07		
GR	2.01436E-01	ZDOT	0	ZB	2.72983E 02	XLON	8.05952E 01	XLAT	2.84838E 01		
GAMC	-9.70000E 00	THR	0	GV	1.35534E-01						
TIM	1.70000E 01	WHT	2.46603E 05	VEL	9.53774E 03	RANG	2.63452E 01	GAM	7.23991E 00		
ALT	2.08066E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.38840E 00		
SOS	1.01591E 03	LIFT	-3.60799E 04	DRAG	3.05869E 04	QATM	2.07551E 01	RHO	4.56314E-07		
GR	1.91813E-01	ZDOT	0	ZB	2.73190E 02	XLON	8.05696E 01	XLAT	2.84815E 01		
GAMC	-9.70000E 00	THR	0	GV	1.29509E-01						
TIM	1.80000E 01	WHT	2.46603E 05	VEL	9.53045E 03	RANG	2.78867E 01	GAM	7.04953E 00		
ALT	2.09252E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.41273E 00		
SOS	1.01251E 03	LIFT	-3.43852E 04	DRAG	2.91620E 04	QATM	1.98274E 01	RHO	4.36584E-07		
GR	1.82829E-01	ZDOT	0	ZB	2.73376E 02	XLON	8.05440E 01	XLAT	2.84793E 01		
GAMC	-9.70000E 00	THR	0	GV	1.23868E-01						
TIM	1.90000E 01	WHT	2.46603E 05	VEL	9.52343E 03	RANG	2.94276E 01	GAM	6.86022E 00		
ALT	2.10405E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.43673E 00		
SOS	1.00919E 03	LIFT	-3.28029E 04	DRAG	2.78295E 04	QATM	1.89596E 01	RHO	4.18092E-07		
GR	1.74441E-01	ZDOT	0	ZB	2.73545E 02	XLON	8.05184E 01	XLAT	2.84771E 01		
GAMC	-9.70000E 00	THR	0	GV	1.18587E-01						
TIM	2.00000E 01	WHT	2.46603E 05	VEL	9.51667E 03	RANG	3.09680E 01	GAM	6.67191E 00		
ALT	2.11527E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.46037E 00		
SOS	1.00595E 03	LIFT	-3.13251E 04	DRAG	2.65846E 04	QATM	1.81476E 01	RHO	4.00756E-07		
GR	1.66605E-01	ZDOT	0	ZB	2.73699E 02	XLON	8.04929E 01	XLAT	2.84748E 01		
GAMC	-9.70000E 00	THR	0	GV	1.13641E-01						
TIM	2.10000E 01	WHT	2.46603E 05	VEL	9.51015E 03	RANG	3.25078E 01	GAM	6.48453E 00		
ALT	2.12617E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.48363E 00		
SOS	1.00280E 03	LIFT	-2.99443E 04	DRAG	2.54212E 04	QATM	1.73877E 01	RHO	3.84500E-07		
GR	1.59283E-01	ZDOT	0	ZB	2.73841E 02	XLON	8.04673E 01	XLAT	2.84726E 01		
GAMC	-9.70000E 00	THR	0	GV	1.09009E-01						
TIM	2.20000E 01	WHT	2.46603E 05	VEL	9.50387E 03	RANG	3.40470E 01	GAM	6.29802E 00		
ALT	2.13675E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.50649E 00		
SOS	9.99724E 02	LIFT	-2.86541E 04	DRAG	2.43338E 04	QATM	1.66762E 01	RHO	3.69255E-07		
GR	1.52441E-01	ZDOT	0	ZB	2.73971E 02	XLON	8.04418E 01	XLAT	2.84704E 01		
GAMC	-9.70000E 00	THR	0	GV	1.04669E-01						
TIM	2.30000E 01	WHT	2.46603E 05	VEL	9.49782E 03	RANG	3.55857E 01	GAM	6.11231E 00		
ALT	2.14702E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.52893E 00		
SOS	9.96734E 02	LIFT	-2.74480E 04	DRAG	2.33171E 04	QATM	1.60101E 01	RHO	3.54957E-07		
GR	1.46044E-01	ZDOT	0	ZB	2.74092E 02	XLON	8.04162E 01	XLAT	2.84681E 01		
GAMC	-9.70000E 00	THR	0	GV	1.00604E-01						
TIM	2.40000E 01	WHT	2.46603E 05	VEL	9.49198E 03	RANG	3.71239E 01	GAM	5.92735E 00		
ALT	2.15696E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.55094E 00		
SOS	9.93827E 02	LIFT	-2.63205E 04	DRAG	2.23664E 04	QATM	1.53862E 01	RHO	3.41545E-07		
GR	1.40064E-01	ZDOT	0	ZB	2.74205E 02	XLON	8.03907E 01	XLAT	2.84659E 01		
GAMC	-9.70000E 00	THR	0	GV	9.67956E-02						
TIM	2.50000E 01	WHT	2.46603E 05	VEL	9.48635E 03	RANG	3.86616E 01	GAM	5.74307E 00		
ALT	2.16663E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.57248E 00		
SOS	9.91002E 02	LIFT	-2.52663E 04	DRAG	2.14773E 04	QATM	1.48019E 01	RHO	3.28964E-07		
GR	1.34472E-01	ZDOT	0	ZB	2.74311E 02	XLON	8.03652E 01	XLAT	2.84637E 01		
GAMC	-9.70000E 00	THR	0	GV	9.32281E-02						
TIM	2.60000E 01	WHT	2.46603E 05	VEL	9.48091E 03	RANG	4.01989E 01	GAM	5.55945E 00		
ALT	2.17596E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.59354E 00		
SOS	9.88260E 02	LIFT	-2.42806E 04	DRAG	2.06457E 04	QATM	1.42546E 01	RHO	3.17164E-07		
GR	1.29242E-01	ZDOT	0	ZB	2.74410E 02	XLON	8.03397E 01	XLAT	2.84614E 01		
GAMC	-9.70000E 00	THR	0	GV	8.98864E-02						
TIM	2.70000E 01	WHT	2.46603E 05	VEL	9.47567E 03	RANG	4.17357E 01	GAM	5.37642E 00		
ALT	2.18500E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.61410E 00		
SOS	9.85601E 02	LIFT	-2.33589E 04	DRAG	1.98680E 04	QATM	1.37419E 01	RHO	3.06096E-07		
GR	1.24352E-01	ZDOT	0	ZB	2.74504E 02	XLON	8.03142E 01	XLAT	2.84592E 01		
GAMC	-9.70000E 00	THR	0	GV	8.67568E-02						
TIM	2.80000E 01	WHT	2.46603E 05	VEL	9.47061E 03	RANG	4.32720E 01	GAM	5.19395E 00		
ALT	2.19372E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.63415E 00		
SOS	9.83025E 02	LIFT	-2.24970E 04	DRAG	1.91406E 04	QATM	1.32618E 01	RHO	2.95717E-07		
GR	1.19778E-01	ZDOT	0	ZB	2.74593E 02	XLON	8.02887E 01	XLAT	2.84570E 01		
GAMC	-9.70000E 00	THR	0	GV	8.38264E-02						
TIM	2.90000E 01	WHT	2.46603E 05	VEL	9.46574E 03	RANG	4.48080E 01	GAM	5.01199E 00		
ALT	2.20214E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.65366E 00		
SOS	9.80534E 02	LIFT	-2.16911E 04	DRAG	1.84603E 04	QATM	1.28122E 01	RHO	2.85985E-07		
GR	1.15502E-01	ZDOT	0	ZB	2.74677E 02	XLON	8.02632E 01	XLAT	2.84547E 01		
GAMC	-9.70000E 00	THR	0	GV	8.10835E-02						
TIM	3.00000E 01	WHT	2.46603E 05	VEL	9.46103E 03	RANG	4.63435E 01	GAM	4.83052E 00		
ALT	2.21026E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.67261E 00		
SOS	9.78126E 02	LIFT	-2.09378E 04	DRAG	1.78242E 04	QATM	1.23912E 01	RHO	2.76863E-07		
GR	1.11504E-01	ZDOT	0	ZB	2.74757E 02	XLON	8.02378E 01	XLAT	2.84525E 01		
GAMC	-9.70000E 00	THR	0	GV	7.85169E-02						
TIM	3.10000E 01	WHT	2.46603E 05	VEL	9.45649E 03	RANG	4.78786E 01	GAM	4.64949E 00		
ALT	2.21808E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.69099E 00		
SOS	9.75802E 02	LIFT	-2.02338E 04	DRAG	1.72296E 04	QATM	1.19971E 01	RHO	2.68316E-07		
GR	1.07767E-01	ZDOT	0	ZB	2.74833E 02	XLON	8.02123E 01	XLAT	2.84503E 01		
GAMC	-9.70000E 00	THR	0	GV	7.61166E-02						
TIM	3.20000E 01	WHT	2.46603E 05	VEL	9.45211E 03	RANG	4.94134E 01	GAM	4.46887E 00		
ALT	2.22559E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.70879E 00		
SOS	9.73563E 02	LIFT	-1.95761E 04	DRAG	1.66740E 04	QATM	1.16284E 01	RHO	2.60310E-07		
GR	1.04276E-01	ZDOT	0	ZB	2.74906E 02	XLON	8.01868E 01	XLAT	2.84481E 01		
GAMC	-9.70000E 00	THR	0	GV	7.38732E-02						
TIM	3.30000E 01	WHT	2.46603E 05	VEL	9.44789E 03	RANG	5.09477E 01	GAM	4.28863E 00		
ALT	2.23281E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.72597E 00		
SOS	9.71408E 02	LIFT	-1.89619E 04	DRAG	1.61551E 04	QATM	1.12835E 01	RHO	2.52816E-07		
GR	1.01015E-01	ZDOT	0	ZB	2.74976E 02	XLON	8.01614E 01	XLAT	2.84458E 01		
GAMC	-9.70000E 00	THR	0	GV	7.17780E-02						
TIM	3.40000E 01	WHT	2.46603E 05	VEL	9.44381E 03	RANG	5.24817E 01	GAM	4.10874E 00		
ALT	2.23972E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.74254E 00		
SOS	9.69338E 02	LIFT	-1.83886E 04	DRAG	1.56706E 04	QATM	1.09612E 01	RHO	2.45806E-07		
GR	9.79716E-02	ZDOT	0	ZB	2.75043E 02	XLON	8.01359E 01	XLAT	2.84436E 01		
GAMC	-9.70000E 00	THR	0	GV	6.98229E-02						

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TIM	3.50000E 01	WHT	2.46603E 05	VEL	9.43989E 03	RANG	5.40154E 01	QAM	3.92918E 00		
ALT	2.24634E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.75846E 00		
SOS	9.67354E 02	LIFT	-1.76539E 04	DRAG	1.52187E 04	QATM	1.06602E 01	RHO	2.39254E-07		
QR	9.51328E-02	ZDOT	0	ZB	2.75108E 02	XLON	8.01105E 01	XLAT	2.84414E 01		
GAMC	-9.70000E 00	THR	0	GV	6.80005E-02						
TIM	3.60000E 01	WHT	2.46603E 05	VEL	9.43610E 03	RANG	5.55487E 01	QAM	3.74992E 00		
ALT	2.25266E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.77373E 00		
SOS	9.65455E 02	LIFT	-1.73557E 04	DRAG	1.47975E 04	QATM	1.03792E 01	RHO	2.33136E-07		
QR	9.24872E-02	ZDOT	0	ZB	2.75170E 02	XLON	8.00850E 01	XLAT	2.84391E 01		
GAMC	-9.70000E 00	THR	0	GV	6.63040E-02						
TIM	3.70000E 01	WHT	2.46603E 05	VEL	9.43246E 03	RANG	5.70817E 01	QAM	3.57093E 00		
ALT	2.25868E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.78834E 00		
SOS	9.63642E 02	LIFT	-1.68919E 04	DRAG	1.44053E 04	QATM	1.01173E 01	RHO	2.27430E-07		
QR	9.00241E-02	ZDOT	0	ZB	2.75230E 02	XLON	8.00596E 01	XLAT	2.84369E 01		
GAMC	-9.70000E 00	THR	0	GV	6.47270E-02						
TIM	3.80000E 01	WHT	2.46603E 05	VEL	9.42895E 03	RANG	5.86143E 01	QAM	3.39220E 00		
ALT	2.26441E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.80226E 00		
SOS	9.61915E 02	LIFT	-1.64606E 04	DRAG	1.40406E 04	QATM	9.87353E 00	RHO	2.22114E-07		
QR	8.77338E-02	ZDOT	0	ZB	2.75288E 02	XLON	8.00342E 01	XLAT	2.84347E 01		
GAMC	-9.70000E 00	THR	0	GV	6.32636E-02						
TIM	3.90000E 01	WHT	2.46603E 05	VEL	9.42557E 03	RANG	6.01466E 01	QAM	3.21370E 00		
ALT	2.26984E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.81549E 00		
SOS	9.60275E 02	LIFT	-1.60602E 04	DRAG	1.37019E 04	QATM	9.64688E 00	RHO	2.17171E-07		
QR	8.56071E-02	ZDOT	0	ZB	2.75345E 02	XLON	8.00087E 01	XLAT	2.84325E 01		
GAMC	-9.70000E 00	THR	0	GV	6.19086E-02						
TIM	4.00000E 01	WHT	2.46603E 05	VEL	9.42231E 03	RANG	6.16787E 01	QAM	3.03542E 00		
ALT	2.27498E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.82801E 00		
SOS	9.58721E 02	LIFT	-1.56891E 04	DRAG	1.33879E 04	QATM	9.43654E 00	RHO	2.12583E-07		
QR	8.36360E-02	ZDOT	0	ZB	2.75400E 02	XLON	7.99833E 01	XLAT	2.84303E 01		
GAMC	-9.70000E 00	THR	0	GV	6.06569E-02						
TIM	4.10000E 01	WHT	2.46603E 05	VEL	9.41918E 03	RANG	6.32104E 01	QAM	2.85733E 00		
ALT	2.27982E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.83980E 00		
SOS	9.57253E 02	LIFT	-1.53459E 04	DRAG	1.30975E 04	QATM	9.24175E 00	RHO	2.08333E-07		
QR	8.18126E-02	ZDOT	0	ZB	2.75453E 02	XLON	7.99579E 01	XLAT	2.84280E 01		
GAMC	-9.70000E 00	THR	0	GV	5.95041E-02						
TIM	4.20000E 01	WHT	2.46603E 05	VEL	9.41617E 03	RANG	6.47418E 01	QAM	2.67942E 00		
ALT	2.28437E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.85086E 00		
SOS	9.55873E 02	LIFT	-1.50291E 04	DRAG	1.28294E 04	QATM	9.06181E 00	RHO	2.04407E-07		
QR	8.01300E-02	ZDOT	0	ZB	2.75505E 02	XLON	7.99325E 01	XLAT	2.84258E 01		
GAMC	-9.70000E 00	THR	0	GV	5.84460E-02						
TIM	4.30000E 01	WHT	2.46603E 05	VEL	9.41328E 03	RANG	6.62729E 01	QAM	2.50166E 00		
ALT	2.28863E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.86118E 00		
SOS	9.54580E 02	LIFT	-1.47377E 04	DRAG	1.25828E 04	QATM	8.89606E 00	RHO	2.00792E-07		
QR	7.85819E-02	ZDOT	0	ZB	2.75555E 02	XLON	7.99071E 01	XLAT	2.84236E 01		
GAMC	-9.70000E 00	THR	0	GV	5.74789E-02						
TIM	4.40000E 01	WHT	2.46603E 05	VEL	9.41051E 03	RANG	6.78038E 01	QAM	2.32406E 00		
ALT	2.29259E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.87074E 00		
SOS	9.53375E 02	LIFT	-1.44706E 04	DRAG	1.23566E 04	QATM	8.74391E 00	RHO	1.97474E-07		
QR	7.71623E-02	ZDOT	0	ZB	2.75605E 02	XLON	7.98817E 01	XLAT	2.84214E 01		
GAMC	-9.70000E 00	THR	0	GV	5.65994E-02						
TIM	4.50000E 01	WHT	2.46603E 05	VEL	9.40785E 03	RANG	6.93344E 01	QAM	2.14657E 00		
ALT	2.29626E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.87953E 00		
SOS	9.52257E 02	LIFT	-1.42266E 04	DRAG	1.21500E 04	QATM	8.60463E 00	RHO	1.94443E-07		
QR	7.58660E-02	ZDOT	0	ZB	2.75653E 02	XLON	7.98563E 01	XLAT	2.84191E 01		
GAMC	-9.70000E 00	THR	0	GV	5.58043E-02						
TIM	4.60000E 01	WHT	2.46603E 05	VEL	9.40529E 03	RANG	7.08647E 01	QAM	1.96921E 00		
ALT	2.29964E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.88754E 00		
SOS	9.51227E 02	LIFT	-1.40049E 04	DRAG	1.19623E 04	QATM	8.47832E 00	RHO	1.91688E-07		
QR	7.46881E-02	ZDOT	0	ZB	2.75700E 02	XLON	7.98309E 01	XLAT	2.84169E 01		
GAMC	-9.70000E 00	THR	0	GV	5.50910E-02						
TIM	4.70000E 01	WHT	2.46603E 05	VEL	9.40285E 03	RANG	7.23947E 01	QAM	1.79194E 00		
ALT	2.30272E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.89477E 00		
SOS	9.50285E 02	LIFT	-1.38047E 04	DRAG	1.17927E 04	QATM	8.36394E 00	RHO	1.89200E-07		
QR	7.36243E-02	ZDOT	0	ZB	2.75746E 02	XLON	7.98055E 01	XLAT	2.84147E 01		
GAMC	-9.70000E 00	THR	0	GV	5.44569E-02						
TIM	4.80000E 01	WHT	2.46603E 05	VEL	9.40051E 03	RANG	7.39245E 01	QAM	1.61476E 00		
ALT	2.30552E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.90120E 00		
SOS	9.49431E 02	LIFT	-1.36253E 04	DRAG	1.16407E 04	QATM	8.26129E 00	RHO	1.86971E-07		
QR	7.26707E-02	ZDOT	0	ZB	2.75791E 02	XLON	7.97801E 01	XLAT	2.84125E 01		
GAMC	-9.70000E 00	THR	0	GV	5.38998E-02						
TIM	4.90000E 01	WHT	2.46603E 05	VEL	9.39827E 03	RANG	7.54540E 01	QAM	1.43765E 00		
ALT	2.30802E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.90684E 00		
SOS	9.48665E 02	LIFT	-1.34659E 04	DRAG	1.15057E 04	QATM	8.17001E 00	RHO	1.84994E-07		
QR	7.18237E-02	ZDOT	0	ZB	2.75835E 02	XLON	7.97548E 01	XLAT	2.84103E 01		
GAMC	-9.70000E 00	THR	0	GV	5.34179E-02						
TIM	5.00000E 01	WHT	2.46603E 05	VEL	9.39614E 03	RANG	7.69832E 01	QAM	1.26060E 00		
ALT	2.31023E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.91166E 00		
SOS	9.47988E 02	LIFT	-1.33261E 04	DRAG	1.13872E 04	QATM	8.08979E 00	RHO	1.83260E-07		
QR	7.10803E-02	ZDOT	0	ZB	2.75878E 02	XLON	7.97294E 01	XLAT	2.84080E 01		
GAMC	-9.70000E 00	THR	0	GV	5.30096E-02						
TIM	5.10000E 01	WHT	2.46603E 05	VEL	9.39410E 03	RANG	7.85123E 01	QAM	1.08360E 00		
ALT	2.31215E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.91567E 00		
SOS	9.47400E 02	LIFT	-1.32052E 04	DRAG	1.12847E 04	QATM	8.02035E 00	RHO	1.81766E-07		
QR	7.04378E-02	ZDOT	0	ZB	2.75921E 02	XLON	7.97040E 01	XLAT	2.84058E 01		
GAMC	-9.70000E 00	THR	0	GV	5.26734E-02						
TIM	5.20000E 01	WHT	2.46603E 05	VEL	9.39216E 03	RANG	8.00410E 01	QAM	9.06642E-01		
ALT	2.31378E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.91885E 00		
SOS	9.46900E 02	LIFT	-1.31029E 04	DRAG	1.11980E 04	QATM	7.96146E 00	RHO	1.80506E-07		
QR	6.98938E-02	ZDOT	0	ZB	2.75963E 02	XLON	7.96786E 01	XLAT	2.84036E 01		
GAMC	-9.70000E 00	THR	0	GV	5.24083E-02						
TIM	5.30000E 01	WHT	2.46603E 05	VEL	9.39031E 03	RANG	8.15695E 01	QAM	7.29704E-01		
ALT	2.31513E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92121E 00		
SOS	9.46489E 02	LIFT	-1.30187E 04	DRAG	1.11266E 04	QATM	7.91290E 00	RHO	1.79476E-07		
QR	6.94464E-02	ZDOT	0	ZB	2.76004E 02	XLON	7.96533E 01	XLAT	2.84014E 01		
GAMC	-9.70000E 00	THR	0	GV	5.22134E-02						
TIM	5.40000E 01	WHT	2.46603E 05	VEL	9.38856E 03	RANG	8.30978E 01	QAM	5.52779E-01		
ALT	2.31618E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92273E 00		
SOS	9.46167E 02	LIFT	-1.29525E 04	DRAG	1.10704E 04	QATM	7.87452E 00	RHO	1.78672E-07		
QR	6.90940E-02	ZDOT	0	ZB	2.76044E 02	XLON	7.96279E 01	XLAT	2.83992E 01		
GAMC	-9.70000E 00	THR	0	GV	5.20881E-02						
TIM	5.50000E 01	WHT	2.46603E 05	VEL	9.38690E 03	RANG	8.46258E 01	QAM	3.75856E-01		
ALT	2.31694E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92342E 00		
SOS	9.45933E 02	LIFT	-1.29038E 04	DRAG	1.10291E 04	QATM	7.84618E 00	RHO	1.78092E-07		

QR	6.88392E-02	ZDOT	0	ZB	2.76084E 02	XLON	7.96026E 01	XLAT	2.83969E 01
GAMC	-9.70000E 00	THR	0	GV	5.20319E-02				
TIM	5.60000E 01	WHT	2.46603E 05	VEL	9.38532E 03	RANG	8.61537E 01	QAM	1.98923E-01
ALT	2.31741E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92327E 00
SOS	9.49789E 02	LIFT	-1.28727E 04	DRAG	1.10025E 04	QATM	7.82777E 00	RHO	1.77734E-07
QR	6.86692E-02	ZDOT	0	ZB	2.76123E 02	XLON	7.95772E 01	XLAT	2.83947E 01
GAMC	-9.70000E 00	THR	0	GV	5.20448E-02				
TIM	5.70000E 01	WHT	2.46603E 05	VEL	9.38384E 03	RANG	8.76812E 01	QAM	2.19707E-02
ALT	2.31759E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92228E 00
SOS	9.49733E 02	LIFT	-1.28588E 04	DRAG	1.09907E 04	QATM	7.81924E 00	RHO	1.77596E-07
QR	6.85953E-02	ZDOT	0	ZB	2.76162E 02	XLON	7.95519E 01	XLAT	2.83925E 01
GAMC	-9.70000E 00	THR	0	GV	5.21268E-02				
TIM	5.80000E 01	WHT	2.46603E 05	VEL	9.38243E 03	RANG	8.92085E 01	QAM	-1.55013E-01
ALT	2.31748E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92045E 00
SOS	9.49767E 02	LIFT	-1.28623E 04	DRAG	1.09935E 04	QATM	7.82054E 00	RHO	1.77679E-07
QR	6.86133E-02	ZDOT	0	ZB	2.76200E 02	XLON	7.95265E 01	XLAT	2.83903E 01
GAMC	-9.70000E 00	THR	0	GV	5.22783E-02				

GAMA REACHED

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TIM	5.90000E 01	WHT	2.46603E 05	VEL	9.38112E 03	RANG	9.07356E 01	QAM	-3.32001E-01
ALT	2.31708E 05	PHI	1.75000E 02	Z	9.50010E 01	ALPH	3.00000E 01	MACH	9.91777E 00
SOS	9.49889E 02	LIFT	-1.28830E 04	DRAG	1.10109E 04	QATM	7.83168E 00	RHO	1.77982E-07
QR	6.87231E-02	ZDOT	8.93930E-04	ZB	2.76238E 02	XLON	7.95012E 01	XLAT	2.83881E 01
GAMC	-9.70000E 00	THR	0	GV	5.24998E-02				
TIM	6.00000E 01	WHT	2.46603E 05	VEL	9.37988E 03	RANG	9.22625E 01	QAM	-5.08925E-01
ALT	2.31639E 05	PHI	1.70000E 02	Z	9.50028E 01	ALPH	3.00000E 01	MACH	9.91425E 00
SOS	9.46100E 02	LIFT	-1.29211E 04	DRAG	1.10430E 04	QATM	7.85269E 00	RHO	1.78507E-07
QR	6.89250E-02	ZDOT	1.78545E-03	ZB	2.76275E 02	XLON	7.94759E 01	XLAT	2.83859E 01
GAMC	-9.70000E 00	THR	0	GV	5.27920E-02				
TIM	6.10000E 01	WHT	2.46603E 05	VEL	9.37872E 03	RANG	9.37892E 01	QAM	-6.85719E-01
ALT	2.31542E 05	PHI	1.65000E 02	Z	9.50055E 01	ALPH	3.00000E 01	MACH	9.90989E 00
SOS	9.46400E 02	LIFT	-1.29766E 04	DRAG	1.10899E 04	QATM	7.88362E 00	RHO	1.79254E-07
QR	6.92198E-02	ZDOT	2.67128E-03	ZB	2.76312E 02	XLON	7.94505E 01	XLAT	2.83836E 01
GAMC	-9.70000E 00	THR	0	GV	5.31560E-02				
TIM	6.20000E 01	WHT	2.46603E 05	VEL	9.37764E 03	RANG	9.53156E 01	QAM	-8.62316E-01
ALT	2.31415E 05	PHI	1.60000E 02	Z	9.50090E 01	ALPH	3.00000E 01	MACH	9.90468E 00
SOS	9.46789E 02	LIFT	-1.30498E 04	DRAG	1.11516E 04	QATM	7.92455E 00	RHO	1.80226E-07
QR	6.96081E-02	ZDOT	3.54812E-03	ZB	2.76348E 02	XLON	7.94252E 01	XLAT	2.83814E 01
GAMC	-9.70000E 00	THR	0	GV	5.35929E-02				
TIM	6.30000E 01	WHT	2.46603E 05	VEL	9.37663E 03	RANG	9.68417E 01	QAM	-1.03865E 00
ALT	2.31259E 05	PHI	1.55000E 02	Z	9.50134E 01	ALPH	3.00000E 01	MACH	9.89863E 00
SOS	9.47265E 02	LIFT	-1.31408E 04	DRAG	1.12265E 04	QATM	7.97559E 00	RHO	1.81426E-07
QR	7.00913E-02	ZDOT	4.41258E-03	ZB	2.76384E 02	XLON	7.93999E 01	XLAT	2.83792E 01
GAMC	-9.70000E 00	THR	0	GV	5.41041E-02				
TIM	6.40000E 01	WHT	2.46603E 05	VEL	9.37569E 03	RANG	9.83677E 01	QAM	-1.21465E 00
ALT	2.31075E 05	PHI	1.50000E 02	Z	9.50187E 01	ALPH	3.00000E 01	MACH	9.89175E 00
SOS	9.47830E 02	LIFT	-1.32500E 04	DRAG	1.13208E 04	QATM	8.03689E 00	RHO	1.82657E-07
QR	7.06708E-02	ZDOT	5.26119E-03	ZB	2.76420E 02	XLON	7.93746E 01	XLAT	2.83770E 01
GAMC	-9.70000E 00	THR	0	GV	5.46911E-02				
TIM	6.50000E 01	WHT	2.46603E 05	VEL	9.37483E 03	RANG	9.98934E 01	QAM	-1.39025E 00
ALT	2.30862E 05	PHI	1.45000E 02	Z	9.50248E 01	ALPH	3.00000E 01	MACH	9.88404E 00
SOS	9.48482E 02	LIFT	-1.33776E 04	DRAG	1.14286E 04	QATM	8.10862E 00	RHO	1.84523E-07
QR	7.13482E-02	ZDOT	6.09037E-03	ZB	2.76455E 02	XLON	7.93493E 01	XLAT	2.83747E 01
GAMC	-9.70000E 00	THR	0	GV	5.53560E-02				
TIM	6.60000E 01	WHT	2.46603E 05	VEL	9.37404E 03	RANG	1.01419E 02	QAM	-1.56539E 00
ALT	2.30620E 05	PHI	1.40000E 02	Z	9.50317E 01	ALPH	3.00000E 01	MACH	9.87550E 00
SOS	9.49221E 02	LIFT	-1.35241E 04	DRAG	1.15524E 04	QATM	8.19097E 00	RHO	1.86428E-07
QR	7.21258E-02	ZDOT	6.89641E-03	ZB	2.76490E 02	XLON	7.93239E 01	XLAT	2.83725E 01
GAMC	-9.70000E 00	THR	0	GV	5.61007E-02				
TIM	6.70000E 01	WHT	2.46603E 05	VEL	9.37331E 03	RANG	1.02944E 02	QAM	-1.74000E 00
ALT	2.30350E 05	PHI	1.35000E 02	Z	9.50394E 01	ALPH	3.00000E 01	MACH	9.86615E 00
SOS	9.50048E 02	LIFT	-1.36898E 04	DRAG	1.16924E 04	QATM	8.28417E 00	RHO	1.88579E-07
QR	7.30058E-02	ZDOT	7.67545E-03	ZB	2.76525E 02	XLON	7.92986E 01	XLAT	2.83703E 01
GAMC	-9.70000E 00	THR	0	GV	5.69276E-02				
TIM	6.80000E 01	WHT	2.46603E 05	VEL	9.37264E 03	RANG	1.04469E 02	QAM	-1.91401E 00
ALT	2.30051E 05	PHI	1.30000E 02	Z	9.50478E 01	ALPH	3.00000E 01	MACH	9.85598E 00
SOS	9.50960E 02	LIFT	-1.38754E 04	DRAG	1.18492E 04	QATM	8.38848E 00	RHO	1.90981E-07
QR	7.39909E-02	ZDOT	8.42350E-03	ZB	2.76560E 02	XLON	7.92733E 01	XLAT	2.83681E 01
GAMC	-9.70000E 00	THR	0	GV	5.78394E-02				
TIM	6.90000E 01	WHT	2.46603E 05	VEL	9.37204E 03	RANG	1.05994E 02	QAM	-2.08736E 00
ALT	2.29724E 05	PHI	1.25000E 02	Z	9.50569E 01	ALPH	3.00000E 01	MACH	9.84501E 00
SOS	9.51958E 02	LIFT	-1.40813E 04	DRAG	1.20232E 04	QATM	8.50421E 00	RHO	1.93640E-07
QR	7.50840E-02	ZDOT	9.13636E-03	ZB	2.76595E 02	XLON	7.92480E 01	XLAT	2.83658E 01
GAMC	-9.70000E 00	THR	0	GV	5.88389E-02				
TIM	7.00000E 01	WHT	2.46603E 05	VEL	9.37149E 03	RANG	1.07518E 02	QAM	-2.25998E 00
ALT	2.29368E 05	PHI	1.20000E 02	Z	9.50667E 01	ALPH	3.00000E 01	MACH	9.83325E 00
SOS	9.53041E 02	LIFT	-1.43082E 04	DRAG	1.22150E 04	QATM	8.63165E 00	RHO	1.96565E-07
QR	7.62887E-02	ZDOT	9.80968E-03	ZB	2.76629E 02	XLON	7.92227E 01	XLAT	2.83636E 01
GAMC	-9.70000E 00	THR	0	GV	5.99293E-02				
TIM	7.10000E 01	WHT	2.46603E 05	VEL	9.37100E 03	RANG	1.09043E 02	QAM	-2.43181E 00
ALT	2.28985E 05	PHI	1.15000E 02	Z	9.50772E 01	ALPH	3.00000E 01	MACH	9.82071E 00
SOS	9.54209E 02	LIFT	-1.45568E 04	DRAG	1.24250E 04	QATM	8.77119E 00	RHO	1.99764E-07
QR	7.76084E-02	ZDOT	1.04389E-02	ZB	2.76663E 02	XLON	7.91975E 01	XLAT	2.83613E 01
GAMC	-9.70000E 00	THR	0	GV	6.11139E-02				
TIM	7.20000E 01	WHT	2.46603E 05	VEL	9.37057E 03	RANG	1.10567E 02	QAM	-2.60278E 00
ALT	2.28573E 05	PHI	1.10000E 02	Z	9.50882E 01	ALPH	3.00000E 01	MACH	9.80739E 00
SOS	9.55460E 02	LIFT	-1.48278E 04	DRAG	1.26540E 04	QATM	8.92320E 00	RHO	2.03244E-07
QR	7.90472E-02	ZDOT	1.10192E-02	ZB	2.76697E 02	XLON	7.91722E 01	XLAT	2.83591E 01
GAMC	-9.70000E 00	THR	0	GV	6.23965E-02				
TIM	7.30000E 01	WHT	2.46603E 05	VEL	9.37018E 03	RANG	1.12091E 02	QAM	-2.77284E 00
ALT	2.28134E 05	PHI	1.05000E 02	Z	9.50997E 01	ALPH	3.00000E 01	MACH	9.79332E 00
SOS	9.56794E 02	LIFT	-1.51222E 04	DRAG	1.29026E 04	QATM	9.08811E 00	RHO	2.07018E-07
QR	8.06095E-02	ZDOT	1.15457E-02	ZB	2.76731E 02	XLON	7.91469E 01	XLAT	2.83568E 01
GAMC	-9.70000E 00	THR	0	GV	6.37812E-02				
TIM	7.40000E 01	WHT	2.46603E 05	VEL	9.36984E 03	RANG	1.13614E 02	QAM	-2.94192E 00
ALT	2.27667E 05	PHI	1.00000E 02	Z	9.51117E 01	ALPH	3.00000E 01	MACH	9.77849E 00
SOS	9.58210E 02	LIFT	-1.54407E 04	DRAG	1.31716E 04	QATM	9.26637E 00	RHO	2.11094E-07
QR	8.23000E-02	ZDOT	1.20131E-02	ZB	2.76765E 02	XLON	7.91216E 01	XLAT	2.83546E 01
GAMC	-9.70000E 00	THR	0	GV	6.52723E-02				
TIM	7.50000E 01	WHT	2.46603E 05	VEL	9.36955E 03	RANG	1.15138E 02	QAM	-3.10997E 00
ALT	2.27172E 05	PHI	9.50000E 01	Z	9.51242E 01	ALPH	3.00000E 01	MACH	9.76293E 00
SOS	9.59707E 02	LIFT	-1.57843E 04	DRAG	1.34618E 04	QATM	9.45850E 00	RHO	2.15484E-07
QR	8.41240E-02	ZDOT	1.24161E-02	ZB	2.76799E 02	XLON	7.90964E 01	XLAT	2.83523E 01
GAMC	-9.70000E 00	THR	0	GV	6.68744E-02				

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TIM	7.60000E 01	WHT	2.46603E 05	VEL	9.36929E 03	RANG	1.16661E 02	GAM	-3.27693E 00
ALT	2.26650E 05	PHI	9.00000E 01	Z	9.51369E 01	ALPH	3.00000E 01	MACH	9.74664E 00
SOS	9.62284E 02	LIFT	1.61542E 04	DRAG	1.37740E 04	QATM	9.66503E 00	RHO	2.20201E-07
QR	8.68469E-02	ZDOT	1.27492E-02	ZB	2.76833E 02	XLON	7.90711E 01	XLAT	2.83500E 01
GAMC	-9.70000E 00	THR	0	GV	6.85927E-02				
TIM	7.70000E 01	WHT	2.46603E 05	VEL	9.36908E 03	RANG	1.18183E 02	GAM	-3.44275E 00
ALT	2.26181E 05	PHI	8.50000E 01	Z	9.51499E 01	ALPH	3.00000E 01	MACH	9.72964E 00
SOS	9.62941E 02	LIFT	1.65514E 04	DRAG	1.41093E 04	QATM	9.88652E 00	RHO	2.25258E-07
QR	8.81948E-02	ZDOT	1.30064E-02	ZB	2.76866E 02	XLON	7.90458E 01	XLAT	2.83478E 01
GAMC	-9.70000E 00	THR	0	GV	7.04324E-02				
TIM	7.80000E 01	WHT	2.46603E 05	VEL	9.36889E 03	RANG	1.19706E 02	GAM	-3.60737E 00
ALT	2.25525E 05	PHI	8.00000E 01	Z	9.51631E 01	ALPH	3.00000E 01	MACH	9.71195E 00
SOS	9.64677E 02	LIFT	1.69772E 04	DRAG	1.44687E 04	QATM	1.01236E 01	RHO	2.30669E-07
QR	9.04540E-02	ZDOT	1.31820E-02	ZB	2.76900E 02	XLON	7.90206E 01	XLAT	2.83455E 01
GAMC	-9.70000E 00	THR	0	GV	7.23995E-02				
TIM	7.90000E 01	WHT	2.46603E 05	VEL	9.36874E 03	RANG	1.21228E 02	GAM	-3.77076E 00
ALT	2.24922E 05	PHI	7.50000E 01	Z	9.51764E 01	ALPH	3.00000E 01	MACH	9.69358E 00
SOS	9.66489E 02	LIFT	1.74329E 04	DRAG	1.48531E 04	QATM	1.03770E 01	RHO	2.36449E-07
QR	9.28716E-02	ZDOT	1.32698E-02	ZB	2.76933E 02	XLON	7.89953E 01	XLAT	2.83432E 01
GAMC	-9.70000E 00	THR	0	GV	7.45001E-02				
TIM	8.00000E 01	WHT	2.46603E 05	VEL	9.36861E 03	RANG	1.22750E 02	GAM	-3.93286E 00
ALT	2.24293E 05	PHI	7.00000E 01	Z	9.51896E 01	ALPH	3.00000E 01	MACH	9.67454E 00
SOS	9.68378E 02	LIFT	1.79198E 04	DRAG	1.52639E 04	QATM	1.06473E 01	RHO	2.42615E-07
QR	9.54548E-02	ZDOT	1.32636E-02	ZB	2.76967E 02	XLON	7.89701E 01	XLAT	2.83409E 01
GAMC	-9.70000E 00	THR	0	GV	7.67408E-02				
TIM	8.10000E 01	WHT	2.46603E 05	VEL	9.36850E 03	RANG	1.24272E 02	GAM	-4.09365E 00
ALT	2.23637E 05	PHI	6.50000E 01	Z	9.52028E 01	ALPH	3.00000E 01	MACH	9.65484E 00
SOS	9.70342E 02	LIFT	1.84395E 04	DRAG	1.57022E 04	QATM	1.09353E 01	RHO	2.49184E-07
QR	9.82115E-02	ZDOT	1.31572E-02	ZB	2.77000E 02	XLON	7.89440E 01	XLAT	2.83386E 01
GAMC	-9.70000E 00	THR	0	GV	7.91286E-02				
TIM	8.20000E 01	WHT	2.46603E 05	VEL	9.36842E 03	RANG	1.25794E 02	GAM	-4.25309E 00
ALT	2.22955E 05	PHI	6.00000E 01	Z	9.52157E 01	ALPH	3.00000E 01	MACH	9.63451E 00
SOS	9.72381E 02	LIFT	1.89935E 04	DRAG	1.61693E 04	QATM	1.12418E 01	RHO	2.56174E-07
QR	1.01150E-01	ZDOT	1.29441E-02	ZB	2.77033E 02	XLON	7.89196E 01	XLAT	2.83363E 01
GAMC	-9.70000E 00	THR	0	GV	8.16712E-02				
TIM	8.30000E 01	WHT	2.46603E 05	VEL	9.36834E 03	RANG	1.27315E 02	GAM	-4.41116E 00
ALT	2.22248E 05	PHI	5.50000E 01	Z	9.52263E 01	ALPH	3.00000E 01	MACH	9.61356E 00
SOS	9.74492E 02	LIFT	1.95836E 04	DRAG	1.66668E 04	QATM	1.15678E 01	RHO	2.63605E-07
QR	1.04280E-01	ZDOT	1.26182E-02	ZB	2.77066E 02	XLON	7.88944E 01	XLAT	2.83340E 01
GAMC	-9.70000E 00	THR	0	GV	8.43765E-02				
TIM	8.40000E 01	WHT	2.46603E 05	VEL	9.36827E 03	RANG	1.28836E 02	GAM	-4.56784E 00
ALT	2.21514E 05	PHI	5.00000E 01	Z	9.52405E 01	ALPH	3.00000E 01	MACH	9.59200E 00
SOS	9.76675E 02	LIFT	2.02116E 04	DRAG	1.71960E 04	QATM	1.19140E 01	RHO	2.71498E-07
QR	1.07610E-01	ZDOT	1.21731E-02	ZB	2.77099E 02	XLON	7.88691E 01	XLAT	2.83317E 01
GAMC	-9.70000E 00	THR	0	GV	8.72531E-02				

PHI REACHED

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TIM	8.50000E 01	WHT	2.46603E 05	VEL	9.36821E 03	RANG	1.30357E 02	GAM	-4.72312E 00
ALT	2.20756E 05	PHI	4.50000E 01	Z	9.52521E 01	ALPH	3.00000E 01	MACH	9.56985E 00
SOS	9.78929E 02	LIFT	2.08794E 04	DRAG	1.77587E 04	QATM	1.22814E 01	RHO	2.79876E-07
QR	1.11151E-01	ZDOT	1.16028E-02	ZB	2.77132E 02	XLON	7.88439E 01	XLAT	2.83294E 01
GAMC	-9.70000E 00	THR	0	GV	9.03101E-02				
TIM	8.60000E 01	WHT	2.46603E 05	VEL	9.36814E 03	RANG	1.31877E 02	GAM	-4.87800E 00
ALT	2.19972E 05	PHI	4.50000E 01	Z	9.52641E 01	ALPH	3.00000E 01	MACH	9.54712E 00
SOS	9.81253E 02	LIFT	2.15891E 04	DRAG	1.83565E 04	QATM	1.26712E 01	RHO	2.88762E-07
QR	1.14914E-01	ZDOT	1.19921E-02	ZB	2.77165E 02	XLON	7.88187E 01	XLAT	2.83271E 01
GAMC	-9.70000E 00	THR	0	GV	9.38587E-02				
TIM	8.70000E 01	WHT	2.46603E 05	VEL	9.36807E 03	RANG	1.33397E 02	GAM	-5.03245E 00
ALT	2.19162E 05	PHI	4.50000E 01	Z	9.52765E 01	ALPH	3.00000E 01	MACH	9.52383E 00
SOS	9.83645E 02	LIFT	2.23431E 04	DRAG	1.89914E 04	QATM	1.30845E 01	RHO	2.98185E-07
QR	1.16911E-01	ZDOT	1.24058E-02	ZB	2.77198E 02	XLON	7.87935E 01	XLAT	2.83247E 01
GAMC	-9.70000E 00	THR	0	GV	9.70099E-02				
TIM	8.80000E 01	WHT	2.46603E 05	VEL	9.36798E 03	RANG	1.34917E 02	GAM	-5.18645E 00
ALT	2.18328E 05	PHI	4.50000E 01	Z	9.52894E 01	ALPH	3.00000E 01	MACH	9.49997E 00
SOS	9.86107E 02	LIFT	2.31440E 04	DRAG	1.96656E 04	QATM	1.35225E 01	RHO	3.08173E-07
QR	1.23156E-01	ZDOT	1.28453E-02	ZB	2.77231E 02	XLON	7.87683E 01	XLAT	2.83224E 01
GAMC	-9.70000E 00	THR	0	GV	1.00676E-01				
TIM	8.90000E 01	WHT	2.46603E 05	VEL	9.36788E 03	RANG	1.36436E 02	GAM	-5.33998E 00
ALT	2.17469E 05	PHI	4.50000E 01	Z	9.53027E 01	ALPH	3.00000E 01	MACH	9.47557E 00
SOS	9.88635E 02	LIFT	2.39942E 04	DRAG	2.03812E 04	QATM	1.39866E 01	RHO	3.18756E-07
QR	1.27663E-01	ZDOT	1.33119E-02	ZB	2.77264E 02	XLON	7.87431E 01	XLAT	2.83201E 01
GAMC	-9.70000E 00	THR	0	GV	1.04568E-01				
TIM	9.00000E 01	WHT	2.46603E 05	VEL	9.36776E 03	RANG	1.37955E 02	GAM	-5.49299E 00
ALT	2.16584E 05	PHI	4.50000E 01	Z	9.53165E 01	ALPH	3.00000E 01	MACH	9.45063E 00
SOS	9.91231E 02	LIFT	2.48968E 04	DRAG	2.11406E 04	QATM	1.44782E 01	RHO	3.29968E-07
QR	1.32446E-01	ZDOT	1.38074E-02	ZB	2.77297E 02	XLON	7.87179E 01	XLAT	2.83177E 01
GAMC	-9.70000E 00	THR	0	GV	1.08702E-01				
TIM	9.10000E 01	WHT	2.46603E 05	VEL	9.36768E 03	RANG	1.39474E 02	GAM	-5.64547E 00
ALT	2.15675E 05	PHI	4.50000E 01	Z	9.53308E 01	ALPH	3.00000E 01	MACH	9.42517E 00
SOS	9.93893E 02	LIFT	2.58547E 04	DRAG	2.19463E 04	QATM	1.49987E 01	RHO	3.41843E-07
QR	1.37521E-01	ZDOT	1.43333E-02	ZB	2.77329E 02	XLON	7.86927E 01	XLAT	2.83154E 01
GAMC	-9.70000E 00	THR	0	GV	1.13089E-01				
TIM	9.20000E 01	WHT	2.46603E 05	VEL	9.36741E 03	RANG	1.40992E 02	GAM	-5.79738E 00
ALT	2.14741E 05	PHI	4.50000E 01	Z	9.53457E 01	ALPH	3.00000E 01	MACH	9.39919E 00
SOS	9.96620E 02	LIFT	2.68711E 04	DRAG	2.28009E 04	QATM	1.55498E 01	RHO	3.54418E-07
QR	1.42906E-01	ZDOT	1.48914E-02	ZB	2.77362E 02	XLON	7.86675E 01	XLAT	2.83130E 01
GAMC	-9.70000E 00	THR	0	GV	1.17747E-01				
TIM	9.30000E 01	WHT	2.46603E 05	VEL	9.36718E 03	RANG	1.42510E 02	GAM	-5.94869E 00
ALT	2.13783E 05	PHI	4.50000E 01	Z	9.53612E 01	ALPH	3.00000E 01	MACH	9.37270E 00
SOS	9.99411E 02	LIFT	2.79494E 04	DRAG	2.37074E 04	QATM	1.61331E 01	RHO	3.67732E-07
QR	1.48619E-01	ZDOT	1.54837E-02	ZB	2.77394E 02	XLON	7.86424E 01	XLAT	2.83107E 01
GAMC	-9.70000E 00	THR	0	GV	1.22691E-01				
TIM	9.40000E 01	WHT	2.46603E 05	VEL	9.36690E 03	RANG	1.44028E 02	GAM	-6.09936E 00
ALT	2.12800E 05	PHI	4.50000E 01	Z	9.53773E 01	ALPH	3.00000E 01	MACH	9.34572E 00
SOS	1.00227E 03	LIFT	2.90933E 04	DRAG	2.46686E 04	QATM	1.67505E 01	RHO	3.81826E-07
QR	1.54678E-01	ZDOT	1.61120E-02	ZB	2.77427E 02	XLON	7.86172E 01	XLAT	2.83083E 01
GAMC	-9.70000E 00	THR	0	GV	1.27937E-01				
TIM	9.50000E 01	WHT	2.46603E 05	VEL	9.36656E 03	RANG	1.45545E 02	GAM	-6.24935E 00
ALT	2.11792E 05	PHI	4.50000E 01	Z	9.53941E 01	ALPH	3.00000E 01	MACH	9.31826E 00
SOS	1.00518E 03	LIFT	3.03066E 04	DRAG	2.56878E 04	QATM	1.74037E 01	RHO	3.96744E-07
QR	1.61103E-01	ZDOT	1.67787E-02	ZB	2.77460E 02	XLON	7.85920E 01	XLAT	2.83059E 01
GAMC	-9.70000E 00	THR	0	GV	1.33505E-01				
TIM	9.60000E 01	WHT	2.46603E 05	VEL	9.36616E 03	RANG	1.47062E 02	GAM	-6.39863E 00

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ALT	2.10761E 05	PHI	4.50000E 01	Z	9.54116E 01	ALPH	3.00000E 01	MACH	9.29032E 00
SOS	1.00816E 03	LIFT	3.15933E 04	DRAG	2.67683E 04	QATM	1.80947E 01	RHO	4.12532E-07
GR	1.67916E-01	ZDOT	1.74858E-02	ZB	2.77492E 02	XLON	7.85669E 01	XLAT	2.83036E 01
GAMC	-9.70000E 00	THR	0	GV	1.39413E-01				
TIM	9.70000E 01	WHT	2.46603E 05	VEL	9.36568E 03	RANG	1.48578E 02	GAM	-6.54715E 00
ALT	2.09705E 05	PHI	4.50000E 01	Z	9.54298E 01	ALPH	3.00000E 01	MACH	9.26191E 00
SOS	1.01120E 03	LIFT	3.29578E 04	DRAG	2.79138E 04	QATM	1.88256E 01	RHO	4.29241E-07
GR	1.75141E-01	ZDOT	-1.82359E-02	ZB	2.77525E 02	XLON	7.85417E 01	XLAT	2.83012E 01
GAMC	-9.70000E 00	THR	0	GV	1.49682E-01				
TIM	9.80000E 01	WHT	2.46603E 05	VEL	9.36512E 03	RANG	1.50094E 02	GAM	-6.69488E 00
ALT	2.08625E 05	PHI	4.50000E 01	Z	9.54488E 01	ALPH	3.00000E 01	MACH	9.23304E 00
SOS	1.01430E 03	LIFT	3.44046E 04	DRAG	2.91279E 04	QATM	1.95987E 01	RHO	4.46921E-07
GR	1.82800E-01	ZDOT	1.90314E-02	ZB	2.77558E 02	XLON	7.85166E 01	XLAT	2.82988E 01
GAMC	-9.70000E 00	THR	0	GV	1.52333E-01				
TIM	9.90000E 01	WHT	2.46603E 05	VEL	9.36447E 03	RANG	1.51610E 02	GAM	-6.84175E 00
ALT	2.07521E 05	PHI	4.50000E 01	Z	9.54687E 01	ALPH	3.00000E 01	MACH	9.20373E 00
SOS	1.01746E 03	LIFT	3.59385E 04	DRAG	3.04148E 04	QATM	2.04162E 01	RHO	4.65629E-07
GR	1.90919E-01	ZDOT	1.98751E-02	ZB	2.77590E 02	XLON	7.84915E 01	XLAT	2.82964E 01
GAMC	-9.70000E 00	THR	0	GV	1.59389E-01				
TIM	1.00000E 02	WHT	2.46603E 05	VEL	9.36371E 03	RANG	1.53125E 02	GAM	-6.98773E 00
ALT	2.06394E 05	PHI	4.50000E 01	Z	9.54895E 01	ALPH	3.00000E 01	MACH	9.17397E 00
SOS	1.02068E 03	LIFT	3.75648E 04	DRAG	3.17785E 04	QATM	2.12806E 01	RHO	4.85421E-07
GR	1.99525E-01	ZDOT	2.07699E-02	ZB	2.77623E 02	XLON	7.84664E 01	XLAT	2.82940E 01
GAMC	-9.70000E 00	THR	0	GV	1.66875E-01				
TIM	1.01000E 02	WHT	2.46603E 05	VEL	9.36284E 03	RANG	1.54639E 02	GAM	-7.13277E 00
ALT	2.05243E 05	PHI	4.50000E 01	Z	9.55112E 01	ALPH	3.00000E 01	MACH	9.14379E 00
SOS	1.02396E 03	LIFT	3.92886E 04	DRAG	3.32237E 04	QATM	2.21945E 01	RHO	5.06360E-07
GR	2.08647E-01	ZDOT	2.17187E-02	ZB	2.77656E 02	XLON	7.84413E 01	XLAT	2.82916E 01
GAMC	-9.70000E 00	THR	0	GV	1.74815E-01				
TIM	1.02000E 02	WHT	2.46603E 05	VEL	9.36165E 03	RANG	1.56153E 02	GAM	-7.27680E 00
ALT	2.04069E 05	PHI	4.50000E 01	Z	9.55339E 01	ALPH	3.00000E 01	MACH	9.11317E 00
SOS	1.02729E 03	LIFT	4.11159E 04	DRAG	3.47549E 04	QATM	2.31604E 01	RHO	5.28510E-07
GR	2.18314E-01	ZDOT	2.27248E-02	ZB	2.77688E 02	XLON	7.84162E 01	XLAT	2.82891E 01
GAMC	-9.70000E 00	THR	0	GV	1.83237E-01				
TIM	1.03000E 02	WHT	2.46603E 05	VEL	9.36072E 03	RANG	1.57666E 02	GAM	-7.41977E 00
ALT	2.02872E 05	PHI	4.50000E 01	Z	9.55577E 01	ALPH	3.00000E 01	MACH	9.08214E 00
SOS	1.03067E 03	LIFT	4.30524E 04	DRAG	3.63771E 04	QATM	2.41813E 01	RHO	5.51941E-07
GR	2.28558E-01	ZDOT	2.37916E-02	ZB	2.77721E 02	XLON	7.83911E 01	XLAT	2.82867E 01
GAMC	-9.70000E 00	THR	0	GV	1.92170E-01				
TIM	1.04000E 02	WHT	2.46603E 05	VEL	9.35943E 03	RANG	1.59179E 02	GAM	-7.56162E 00
ALT	2.01651E 05	PHI	4.50000E 01	Z	9.55826E 01	ALPH	3.00000E 01	MACH	9.05070E 00
SOS	1.03411E 03	LIFT	4.51047E 04	DRAG	3.80957E 04	QATM	2.52602E 01	RHO	5.78723E-07
GR	2.39413E-01	ZDOT	2.49227E-02	ZB	2.77754E 02	XLON	7.83660E 01	XLAT	2.82842E 01
GAMC	-9.70000E 00	THR	0	GV	2.01642E-01				
TIM	1.05000E 02	WHT	2.46603E 05	VEL	9.35799E 03	RANG	1.60691E 02	GAM	-7.70229E 00
ALT	2.00408E 05	PHI	4.50000E 01	Z	9.56088E 01	ALPH	3.00000E 01	MACH	9.01885E 00
SOS	1.03760E 03	LIFT	4.72793E 04	DRAG	3.99159E 04	QATM	2.64001E 01	RHO	6.02934E-07
GR	2.50912E-01	ZDOT	2.61218E-02	ZB	2.77767E 02	XLON	7.83409E 01	XLAT	2.82818E 01
GAMC	-9.70000E 00	THR	0	GV	2.11686E-01				
TIM	1.06000E 02	WHT	2.46603E 05	VEL	9.35637E 03	RANG	1.62202E 02	GAM	-7.84170E 00
ALT	1.99143E 05	PHI	4.50000E 01	Z	9.56362E 01	ALPH	3.00000E 01	MACH	8.98659E 00
SOS	1.04115E 03	LIFT	4.95832E 04	DRAG	4.18437E 04	QATM	2.76042E 01	RHO	6.30653E-07
GR	2.63094E-01	ZDOT	2.73929E-02	ZB	2.77820E 02	XLON	7.83159E 01	XLAT	2.82793E 01
GAMC	-9.70000E 00	THR	0	GV	2.22335E-01				
TIM	1.07000E 02	WHT	2.46603E 05	VEL	9.35456E 03	RANG	1.63713E 02	GAM	-7.97979E 00
ALT	1.97855E 05	PHI	4.50000E 01	Z	9.56649E 01	ALPH	3.00000E 01	MACH	8.95395E 00
SOS	1.04474E 03	LIFT	5.20238E 04	DRAG	4.38850E 04	QATM	2.88760E 01	RHO	6.59964E-07
GR	2.75996E-01	ZDOT	2.87403E-02	ZB	2.77853E 02	XLON	7.82908E 01	XLAT	2.82768E 01
GAMC	-9.70000E 00	THR	0	GV	2.33624E-01				
TIM	1.08000E 02	WHT	2.46603E 05	VEL	9.35254E 03	RANG	1.65223E 02	GAM	-8.11648E 00
ALT	1.96546E 05	PHI	4.50000E 01	Z	9.56951E 01	ALPH	3.00000E 01	MACH	8.92091E 00
SOS	1.04838E 03	LIFT	5.46088E 04	DRAG	4.60463E 04	QATM	3.02189E 01	RHO	6.90956E-07
GR	2.89660E-01	ZDOT	3.01684E-02	ZB	2.77887E 02	XLON	7.82658E 01	XLAT	2.82744E 01
GAMC	-9.70000E 00	THR	0	GV	2.45589E-01				
TIM	1.09000E 02	WHT	2.46603E 05	VEL	9.35029E 03	RANG	1.66732E 02	GAM	-8.25168E 00
ALT	1.95215E 05	PHI	4.50000E 01	Z	9.57267E 01	ALPH	3.00000E 01	MACH	8.88748E 00
SOS	1.05207E 03	LIFT	5.73463E 04	DRAG	4.83341E 04	QATM	3.16367E 01	RHO	7.23722E-07
GR	3.04127E-01	ZDOT	3.16818E-02	ZB	2.77920E 02	XLON	7.82408E 01	XLAT	2.82719E 01
GAMC	-9.70000E 00	THR	0	GV	2.58268E-01				
TIM	1.10000E 02	WHT	2.46603E 05	VEL	9.34780E 03	RANG	1.68241E 02	GAM	-8.38532E 00
ALT	1.93862E 05	PHI	4.50000E 01	Z	9.57600E 01	ALPH	3.00000E 01	MACH	8.85366E 00
SOS	1.05581E 03	LIFT	6.02447E 04	DRAG	5.07555E 04	QATM	3.31332E 01	RHO	7.58359E-07
GR	3.19442E-01	ZDOT	3.32855E-02	ZB	2.77953E 02	XLON	7.82158E 01	XLAT	2.82693E 01
GAMC	-9.70000E 00	THR	0	GV	2.71701E-01				
TIM	1.11000E 02	WHT	2.46603E 05	VEL	9.34505E 03	RANG	1.69748E 02	GAM	-8.51731E 00
ALT	1.92488E 05	PHI	4.50000E 01	Z	9.57950E 01	ALPH	3.00000E 01	MACH	8.81946E 00
SOS	1.05959E 03	LIFT	6.33128E 04	DRAG	5.33175E 04	QATM	3.47123E 01	RHO	7.94969E-07
GR	3.35650E-01	ZDOT	3.49846E-02	ZB	2.77987E 02	XLON	7.81908E 01	XLAT	2.82668E 01
GAMC	-9.70000E 00	THR	0	GV	2.85930E-01				
TIM	1.12000E 02	WHT	2.46603E 05	VEL	9.34202E 03	RANG	1.71255E 02	GAM	-8.64754E 00
ALT	1.91094E 05	PHI	4.50000E 01	Z	9.58318E 01	ALPH	3.00000E 01	MACH	8.78488E 00
SOS	1.06342E 03	LIFT	6.65598E 04	DRAG	5.60278E 04	QATM	3.63781E 01	RHO	8.33659E-07
GR	3.52801E-01	ZDOT	3.67845E-02	ZB	2.78021E 02	XLON	7.81659E 01	XLAT	2.82643E 01
GAMC	-9.70000E 00	THR	0	GV	3.00999E-01				
TIM	1.13000E 02	WHT	2.46603E 05	VEL	9.33869E 03	RANG	1.72761E 02	GAM	-8.77592E 00
ALT	1.89679E 05	PHI	4.50000E 01	Z	9.58705E 01	ALPH	3.00000E 01	MACH	8.74992E 00
SOS	1.06729E 03	LIFT	6.99952E 04	DRAG	5.88942E 04	QATM	3.81348E 01	RHO	8.74541E-07
GR	3.70944E-01	ZDOT	3.86908E-02	ZB	2.78055E 02	XLON	7.81409E 01	XLAT	2.82617E 01
GAMC	-9.70000E 00	THR	0	GV	3.16952E-01				
TIM	1.14000E 02	WHT	2.46603E 05	VEL	9.33503E 03	RANG	1.74266E 02	GAM	-8.90235E 00
ALT	1.88244E 05	PHI	4.50000E 01	Z	9.59112E 01	ALPH	3.00000E 01	MACH	8.71457E 00
SOS	1.07120E 03	LIFT	7.36290E 04	DRAG	6.19248E 04	QATM	3.99868E 01	RHO	9.17731E-07
GR	3.90131E-01	ZDOT	4.07095E-02	ZB	2.78089E 02	XLON	7.81160E 01	XLAT	2.82591E 01
GAMC	-9.70000E 00	THR	0	GV	3.33836E-01				
TIM	1.15000E 02	WHT	2.46603E 05	VEL	9.33103E 03	RANG	1.75769E 02	GAM	-9.02672E 00
ALT	1.86790E 05	PHI	4.50000E 01	Z	9.59540E 01	ALPH	3.00000E 01	MACH	8.67884E 00
SOS	1.07515E 03	LIFT	7.74714E 04	DRAG	6.51279E 04	QATM	4.19386E 01	RHO	9.63350E-07
GR	4.10417E-01	ZDOT	4.28467E-02	ZB	2.78123E 02	XLON	7.80911E 01	XLAT	2.82566E 01
GAMC	-9.70000E 00	THR	0	GV	3.51700E-01				
TIM	1.16000E 02	WHT	2.46603E 05	VEL	9.32666E 03	RANG	1.77272E 02	GAM	-9.14890E 00
ALT	1.85317E 05	PHI	4.50000E 01	Z	9.59942E 01	ALPH	3.00000E 01	MACH	8.64273E 00
SOS	1.07913E 03	LIFT	8.15330E 04	DRAG	6.85124E 04	QATM	4.39946E 01	RHO	1.01152E-06
GR	4.31856E-01	ZDOT	4.51088E-02	ZB	2.78158E 02	XLON	7.80662E 01	XLAT	2.82539E 01
GAMC	-9.70000E 00	THR	0	GV	3.70593E-01				

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TIM	1.17000E 02	WHT	2.46603E 05	VEL	9.32190E 03	RANG	1.78774E 02	GAM	-9.26878E 00
ALT	1.83824E 05	PHI	4.50000E 01	Z	9.60467E 01	ALPH	3.00000E 01	MACH	8.60623E 00
SOS	1.08316E 03	LIFT	8.58248E 04	DRAG	7.20871E 04	QATM	4.61595E 01	RHO	1.06239E-06
GR	4.54505E-01	ZDOT	4.75025E-02	ZB	2.78193E 02	XLON	7.80413E 01	XLAT	2.82513E 01
GAMC	-9.70000E 00	THR	0	GV	3.90567E-01				
TIM	1.18000E 02	WHT	2.46603E 05	VEL	9.31671E 03	RANG	1.80274E 02	GAM	-9.38623E 00
ALT	1.82314E 05	PHI	4.50000E 01	Z	9.60967E 01	ALPH	3.00000E 01	MACH	8.56934E 00
SOS	1.08721E 03	LIFT	9.03580E 04	DRAG	7.58611E 04	QATM	4.84381E 01	RHO	1.11607E-06
GR	4.78424E-01	ZDOT	5.00347E-02	ZB	2.78228E 02	XLON	7.80165E 01	XLAT	2.82487E 01
GAMC	-9.70000E 00	THR	0	GV	4.11675E-01				
TIM	1.19000E 02	WHT	2.46603E 05	VEL	9.31107E 03	RANG	1.81773E 02	GAM	-9.50112E 00
ALT	1.80786E 05	PHI	4.50000E 01	Z	9.61494E 01	ALPH	3.00000E 01	MACH	8.53205E 00
SOS	1.09130E 03	LIFT	9.51441E 04	DRAG	7.98438E 04	QATM	5.08552E 01	RHO	1.17272E-06
GR	5.03673E-01	ZDOT	5.27126E-02	ZB	2.78263E 02	XLON	7.79916E 01	XLAT	2.82460E 01
GAMC	-9.70000E 00	THR	0	GV	4.33971E-01				
TIM	1.20000E 02	WHT	2.46603E 05	VEL	9.30495E 03	RANG	1.83271E 02	GAM	-9.61329E 00
ALT	1.79240E 05	PHI	4.50000E 01	Z	9.62050E 01	ALPH	3.00000E 01	MACH	8.49437E 00
SOS	1.09543E 03	LIFT	1.00195E 05	DRAG	8.40447E 04	QATM	5.33554E 01	RHO	1.23248E-06
GR	5.30312E-01	ZDOT	5.55437E-02	ZB	2.78299E 02	XLON	7.79668E 01	XLAT	2.82433E 01
GAMC	-9.70000E 00	THR	0	GV	4.57569E-01				
TIM	1.21000E 02	WHT	2.46603E 05	VEL	9.29833E 03	RANG	1.84767E 02	GAM	-9.72261E 00
ALT	1.77678E 05	PHI	4.50000E 01	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.45627E 00
SOS	1.09958E 03	LIFT	1.05922E 05	DRAG	8.84736E 04	QATM	5.60037E 01	RHO	1.29550E-06
GR	5.58405E-01	ZDOT	5.85354E-02	ZB	2.78334E 02	XLON	7.79420E 01	XLAT	2.82406E 01
GAMC	-9.70000E 00	THR	0	GV	4.82345E-01				

GAMC REACHED

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TIM	1.22000E 02	WHT	2.46603E 05	VEL	9.29116E 03	RANG	1.86262E 02	GAM	-9.80337E 00
ALT	1.76102E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.41780E 00
SOS	1.10375E 03	LIFT	1.11131E 05	DRAG	9.31341E 04	QATM	5.87810E 01	RHO	1.36184E-06
GR	5.87975E-01	ZDOT	0	ZB	2.78370E 02	XLON	7.79173E 01	XLAT	2.82379E 01
GAMC	-9.80337E 00	THR	0	GV	5.08370E-01				
TIM	1.23000E 02	WHT	2.46603E 05	VEL	9.28339E 03	RANG	1.87756E 02	GAM	-9.87952E 00
ALT	1.74514E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.39557E 00
SOS	1.10575E 03	LIFT	1.17499E 05	DRAG	9.84263E 04	QATM	6.19378E 01	RHO	1.43738E-06
GR	6.21551E-01	ZDOT	0	ZB	2.78406E 02	XLON	7.78926E 01	XLAT	2.82352E 01
GAMC	-9.87952E 00	THR	0	GV	5.37884E-01				
TIM	1.24000E 02	WHT	2.46603E 05	VEL	9.27492E 03	RANG	1.89248E 02	GAM	-9.95034E 00
ALT	1.72916E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.38791E 00
SOS	1.10575E 03	LIFT	1.24519E 05	DRAG	1.04281E 05	QATM	6.55101E 01	RHO	1.52306E-06
GR	6.58620E-01	ZDOT	0	ZB	2.78441E 02	XLON	7.78679E 01	XLAT	2.82325E 01
GAMC	-9.95034E 00	THR	0	GV	5.70413E-01				
TIM	1.25000E 02	WHT	2.46603E 05	VEL	9.26572E 03	RANG	1.90738E 02	GAM	-1.00156E 01
ALT	1.71309E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.37959E 00
SOS	1.10575E 03	LIFT	1.31815E 05	DRAG	1.10380E 05	QATM	6.93012E 01	RHO	1.61440E-06
GR	6.97180E-01	ZDOT	0	ZB	2.78476E 02	XLON	7.78432E 01	XLAT	2.82298E 01
GAMC	-1.00156E 01	THR	0	GV	6.04220E-01				
TIM	1.26000E 02	WHT	2.46603E 05	VEL	9.25573E 03	RANG	1.92226E 02	GAM	-1.00748E 01
ALT	1.69694E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.37055E 00
SOS	1.10575E 03	LIFT	1.39564E 05	DRAG	1.16858E 05	QATM	7.33216E 01	RHO	1.71175E-06
GR	7.38138E-01	ZDOT	0	ZB	2.78511E 02	XLON	7.78186E 01	XLAT	2.82271E 01
GAMC	-1.00748E 01	THR	0	GV	6.40115E-01				
TIM	1.27000E 02	WHT	2.46603E 05	VEL	9.24490E 03	RANG	1.93713E 02	GAM	-1.01278E 01
ALT	1.68071E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.36076E 00
SOS	1.10575E 03	LIFT	1.47790E 05	DRAG	1.23733E 05	QATM	7.75617E 01	RHO	1.81545E-06
GR	7.81613E-01	ZDOT	0	ZB	2.78546E 02	XLON	7.77939E 01	XLAT	2.82244E 01
GAMC	-1.01278E 01	THR	0	GV	6.78196E-01				
TIM	1.28000E 02	WHT	2.46603E 05	VEL	9.23317E 03	RANG	1.95198E 02	GAM	-1.01740E 01
ALT	1.66443E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.35015E 00
SOS	1.10575E 03	LIFT	1.56516E 05	DRAG	1.31023E 05	QATM	8.20913E 01	RHO	1.92587E-06
GR	8.27721E-01	ZDOT	0	ZB	2.78581E 02	XLON	7.77694E 01	XLAT	2.82217E 01
GAMC	-1.01740E 01	THR	0	GV	7.18556E-01				
TIM	1.29000E 02	WHT	2.46603E 05	VEL	9.22046E 03	RANG	1.96681E 02	GAM	-1.02130E 01
ALT	1.64810E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.33867E 00
SOS	1.10575E 03	LIFT	1.65763E 05	DRAG	1.38747E 05	QATM	8.68601E 01	RHO	2.04335E-06
GR	8.76578E-01	ZDOT	0	ZB	2.78615E 02	XLON	7.77448E 01	XLAT	2.82190E 01
GAMC	-1.02130E 01	THR	0	GV	7.61294E-01				
TIM	1.30000E 02	WHT	2.46603E 05	VEL	9.20677E 03	RANG	1.98162E 02	GAM	-1.02445E 01
ALT	1.63174E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.32628E 00
SOS	1.10575E 03	LIFT	1.75552E 05	DRAG	1.46921E 05	QATM	9.28970E 01	RHO	2.16829E-06
GR	9.28294E-01	ZDOT	0	ZB	2.78649E 02	XLON	7.77203E 01	XLAT	2.82163E 01
GAMC	-1.02445E 01	THR	0	GV	8.06491E-01				
TIM	1.31000E 02	WHT	2.46603E 05	VEL	9.19198E 03	RANG	1.99640E 02	GAM	-1.02679E 01
ALT	1.61536E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.31290E 00
SOS	1.10575E 03	LIFT	1.85903E 05	DRAG	1.55562E 05	QATM	9.72099E 01	RHO	2.30103E-06
GR	9.82973E-01	ZDOT	0	ZB	2.78683E 02	XLON	7.76958E 01	XLAT	2.82136E 01
GAMC	-1.02679E 01	THR	0	GV	8.54229E-01				
TIM	1.32000E 02	WHT	2.46603E 05	VEL	9.17605E 03	RANG	2.01116E 02	GAM	-1.02828E 01
ALT	1.59897E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.29849E 00
SOS	1.10575E 03	LIFT	1.96836E 05	DRAG	1.64685E 05	QATM	1.02806E 02	RHO	2.44195E-06
GR	1.04071E 00	ZDOT	0	ZB	2.787[illegible]6E 02	XLON	7.76714E 01	XLAT	2.82109E 01
GAMC	-1.02828E 01	THR	0	GV	9.04577E-01				
TIM	1.33000E 02	WHT	2.46603E 05	VEL	9.15890E 03	RANG	2.02589E 02	GAM	-1.02886E 01
ALT	1.58260E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.28298E 00
SOS	1.10575E 03	LIFT	2.08365E 05	DRAG	1.74302E 05	QATM	1.08690E 02	RHO	2.59140E-06
GR	1.10159E 00	ZDOT	0	ZB	2.78750E 02	XLON	7.76470E 01	XLAT	2.82082E 01
GAMC	-1.02886E 01	THR	0	GV	9.57595E-01				
TIM	1.34000E 02	WHT	2.46603E 05	VEL	9.14046E 03	RANG	2.04060E 02	GAM	-1.02888E 01
ALT	1.56626E 05	PHI	1.76920E 01	Z	9.62964E 01	ALPH	3.00000E 01	MACH	8.26631E 00
SOS	1.10575E 03	LIFT	2.20506E 05	DRAG	1.84425E 05	QATM	1.14867E 02	RHO	2.74974E-06
GR	1.16570E 00	ZDOT	3.29538E-02	ZB	2.78783E 02	XLON	7.76226E 01	XLAT	2.82056E 01
GAMC	-1.02886E 01	THR	0	GV	1.01337E 00				
TIM	1.35000E 02	WHT	2.46603E 05	VEL	9.12067E 03	RANG	2.05527E 02	GAM	-1.02888E 01
ALT	1.54995E 05	PHI	2.58172E 01	Z	9.63664E 01	ALPH	3.00000E 01	MACH	8.25307E 00
SOS	1.10512E 03	LIFT	2.33548E 05	DRAG	1.95296E 05	QATM	1.21484E 02	RHO	2.92077E-06
GR	1.23454E 00	ZDOT	6.95777E-02	ZB	2.78816E 02	XLON	7.75983E 01	XLAT	2.82029E 01
GAMC	-1.02886E 01	THR	0	GV	1.07386E 00				
TIM	1.36000E 02	WHT	2.46603E 05	VEL	9.09936E 03	RANG	2.06992E 02	GAM	-1.02888E 01
ALT	1.53368E 05	PHI	3.20460E 01	Z	9.64627E 01	ALPH	3.00000E 01	MACH	8.25526E 00
SOS	1.10225E 03	LIFT	2.48231E 05	DRAG	2.07543E 05	QATM	1.28973E 02	RHO	3.11535E-06
GR	1.31208E 00	ZDOT	9.62927E-02	ZB	2.78850E 02	XLON	7.75741E 01	XLAT	2.82001E 01
GAMC	-1.02886E 01	THR	0	GV	1.14074E 00				
TIM	1.37000E 02	WHT	2.46603E 05	VEL	9.07645E 03	RANG	2.08453E 02	GAM	-1.02888E 01

ALT	1.51745E 05	PHI	3.69293E 01	Z	9.65821E 01	ALPH	3.00000E 01	MACH	8.25600E 00
SOS	1.09938E 03	LIFT	2.63437E 05	DRAG	2.20262E 05	QATM	1.36900E 02	RHO	3.32353E-06
GR	1.39247E 00	ZDOT	1.19356E-01	ZB	2.78885E 02	XLON	7.75499E 01	XLAT	2.81974E 01
GAMC	-1.02886E 01	THR	0	GV	1.21062E 00				

TIM	1.38000E 02	WHT	2.46603E 05	VEL	9.05183E 03	RANG	2.09910E 02	GAM	-1.02888E 01
ALT	1.50126E 05	PHI	4.10638E 01	Z	9.67231E 01	ALPH	3.00000E 01	MACH	8.25519E 00
SOS	1.09650E 03	LIFT	2.75550E 05	DRAG	2.33736E 05	QATM	1.45283E 02	RHO	3.54626E-06
GR	1.47764E 00	ZDOT	1.41040E-01	ZB	2.78920E 02	XLON	7.75258E 01	XLAT	2.81946E 01
GAMC	-1.02886E 01	THR	0	GV	1.28467E 00				

TIM	1.39000E 02	WHT	2.46603E 05	VEL	9.02541E 03	RANG	2.11363E 02	GAM	-1.02888E 01
ALT	1.48511E 05	PHI	4.46614E 01	Z	9.68853E 01	ALPH	3.00000E 01	MACH	8.25272E 00
SOS	1.09363E 03	LIFT	2.96616E 05	DRAG	2.48003E 05	QATM	1.54141E 02	RHO	3.78455E-06
GR	1.56784E 00	ZDOT	1.62190E-01	ZB	2.78956E 02	XLON	7.75018E 01	XLAT	2.81917E 01
GAMC	-1.02886E 01	THR	0	GV	1.36309E 00				

TIM	1.40000E 02	WHT	2.46603E 05	VEL	8.99707E 03	RANG	2.12812E 02	GAM	-1.02888E 01
ALT	1.46902E 05	PHI	4.78465E 01	Z	9.70686E 01	ALPH	3.00000E 01	MACH	8.24849E 00
SOS	1.09075E 03	LIFT	3.14678E 05	DRAG	2.63098E 05	QATM	1.63492E 02	RHO	4.03947E-06
GR	1.66330E 00	ZDOT	1.83279E-01	ZB	2.78994E 02	XLON	7.74778E 01	XLAT	2.81888E 01
GAMC	-1.02886E 01	THR	0	GV	1.44609E 00				

TIM	1.41000E 02	WHT	2.46603E 05	VEL	8.96671E 03	RANG	2.14257E 02	GAM	-1.02888E 01
ALT	1.45298E 05	PHI	5.07003E 01	Z	9.72732E 01	ALPH	3.00000E 01	MACH	8.24236E 00
SOS	1.08788E 03	LIFT	3.33782E 05	DRAG	2.79056E 05	QATM	1.73354E 02	RHO	4.31217E-06
GR	1.76424E 00	ZDOT	2.04612E-01	ZB	2.79032E 02	XLON	7.74540E 01	XLAT	2.81858E 01
GAMC	-1.02886E 01	THR	0	GV	1.53387E 00				

TIM	1.42000E 02	WHT	2.46603E 05	VEL	8.93422E 03	RANG	2.15696E 02	GAM	-1.02888E 01
ALT	1.43699E 05	PHI	5.32790E 01	Z	9.74996E 01	ALPH	3.00000E 01	MACH	8.23421E 00
SOS	1.08501E 03	LIFT	3.53971E 05	DRAG	2.95915E 05	QATM	1.83741E 02	RHO	4.60386E-06
GR	1.87089E 00	ZDOT	2.26413E-01	ZB	2.79072E 02	XLON	7.74302E 01	XLAT	2.81827E 01
GAMC	-1.02886E 01	THR	0	GV	1.62663E 00				

TIM	1.43000E 02	WHT	2.46603E 05	VEL	8.89946E 03	RANG	2.17130E 02	GAM	-1.02888E 01
ALT	1.42106E 05	PHI	5.56240E 01	Z	9.77485E 01	ALPH	3.00000E 01	MACH	8.22391E 00
SOS	1.08214E 03	LIFT	3.75287E 05	DRAG	3.13706E 05	QATM	1.94668E 02	RHO	4.91583E-06
GR	1.98349E 00	ZDOT	2.48859E-01	ZB	2.79113E 02	XLON	7.74065E 01	XLAT	2.81795E 01
GAMC	-1.02886E 01	THR	0	GV	1.72457E 00				

TIM	1.44000E 02	WHT	2.46603E 05	VEL	8.86233E 03	RANG	2.18559E 02	GAM	-1.02888E 01
ALT	1.40520E 05	PHI	5.77669E 01	Z	9.80206E 01	ALPH	3.00000E 01	MACH	8.21132E 00
SOS	1.07928E 03	LIFT	3.97773E 05	DRAG	3.32463E 05	QATM	2.06147E 02	RHO	5.24941E-06
GR	2.10223E 00	ZDOT	2.72096E-01	ZB	2.79155E 02	XLON	7.73829E 01	XLAT	2.81762E 01
GAMC	-1.02886E 01	THR	0	GV	1.82787E 00				

TIM	1.45000E 02	WHT	2.46603E 05	VEL	8.82268E 03	RANG	2.19981E 02	GAM	-1.02888E 01
ALT	1.38941E 05	PHI	5.97324E 01	Z	9.83168E 01	ALPH	3.00000E 01	MACH	8.19630E 00
SOS	1.07642E 03	LIFT	4.21465E 05	DRAG	3.52215E 05	QATM	2.18187E 02	RHO	5.60605E-06
GR	2.22731E 00	ZDOT	2.96256E-01	ZB	2.79200E 02	XLON	7.73595E 01	XLAT	2.81729E 01
GAMC	-1.02886E 01	THR	0	GV	1.93670E 00				

TIM	1.46000E 02	WHT	2.46603E 05	VEL	8.78039E 03	RANG	2.21397E 02	GAM	-1.02888E 01
ALT	1.37369E 05	PHI	6.15403E 01	Z	9.86383E 01	ALPH	3.00000E 01	MACH	8.17870E 00
SOS	1.07357E 03	LIFT	4.46400E 05	DRAG	3.72989E 05	QATM	2.30794E 02	RHO	5.98724E-06
GR	2.35892E 00	ZDOT	3.21456E-01	ZB	2.79246E 02	XLON	7.73362E 01	XLAT	2.81694E 01
GAMC	-1.02886E 01	THR	0	GV	2.05124E 00				

TIM	1.47000E 02	WHT	2.46603E 05	VEL	8.73522E 03	RANG	2.22800E 02	GAM	-1.02888E 01
ALT	1.35804E 05	PHI	6.32072E 01	Z	9.89861E 01	ALPH	3.00000E 01	MACH	8.15837E 00
SOS	1.07072E 03	LIFT	4.72607E 05	DRAG	3.94808E 05	QATM	2.43971E 02	RHO	6.39455E-06

GR	2.49720E 00	ZDOT	3.47808E-01	ZB	2.79294E 02	XLON	7.73130E 01	XLAT	2.81658E 01
GAMC	-1.02886E 01	THR	0	GV	2.17160E 00				

TIM	1.48000E 02	WHT	2.46603E 05	VEL	8.68734E 03	RANG	2.24208E 02	GAM	-1.02888E 01
ALT	1.34248E 05	PHI	6.47467E 01	Z	9.93615E 01	ALPH	3.00000E 01	MACH	8.13514E 00
SOS	1.06788E 03	LIFT	5.00112E 05	DRAG	4.17690E 05	QATM	2.57716E 02	RHO	6.82963E-06
GR	2.64229E 00	ZDOT	3.75416E-01	ZB	2.79343E 02	XLON	7.72899E 01	XLAT	2.81621E 01
GAMC	-1.02886E 01	THR	0	GV	2.29792E 00				

TIM	1.49000E 02	WHT	2.46603E 05	VEL	8.63630E 03	RANG	2.25602E 02	GAM	-1.02888E 01
ALT	1.32701E 05	PHI	6.61704E 01	Z	9.97659E 01	ALPH	3.00000E 01	MACH	8.10885E 00
SOS	1.06505E 03	LIFT	5.28933E 05	DRAG	4.41646E 05	QATM	2.72022E 02	RHO	7.29421E-06
GR	2.79426E 00	ZDOT	4.04380E-01	ZB	2.79395E 02	XLON	7.72670E 01	XLAT	2.81582E 01
GAMC	-1.02886E 01	THR	0	GV	2.43026E 00				

TIM	1.50000E 02	WHT	2.46603E 05	VEL	8.58206E 03	RANG	2.26987E 02	GAM	-1.02888E 01
ALT	1.31163E 05	PHI	6.74884E 01	Z	1.00201E 02	ALPH	3.00000E 01	MACH	8.07935E 00
SOS	1.06222E 03	LIFT	5.59081E 05	DRAG	4.66662E 05	QATM	2.86876E 02	RHO	7.79005E-06
GR	2.95317E 00	ZDOT	4.34797E-01	ZB	2.79449E 02	XLON	7.72443E 01	XLAT	2.81542E 01
GAMC	-1.02886E 01	THR	0	GV	2.56869E 00				

TIM	1.51000E 02	WHT	2.46603E 05	VEL	8.52449E 03	RANG	2.28364E 02	GAM	-1.02888E 01
ALT	1.29636E 05	PHI	6.87094E 01	Z	1.00667E 02	ALPH	3.00000E 01	MACH	8.04645E 00
SOS	1.05941E 03	LIFT	5.90557E 05	DRAG	4.92744E 05	QATM	3.02259E 02	RHO	8.31903E-06
GR	3.11901E 00	ZDOT	4.66759E-01	ZB	2.79506E 02	XLON	7.72218E 01	XLAT	2.81501E 01
GAMC	-1.02886E 01	THR	0	GV	2.71318E 00				

TIM	1.52000E 02	WHT	2.46603E 05	VEL	8.46344E 03	RANG	2.29731E 02	GAM	-1.02888E 01
ALT	1.28118E 05	PHI	6.98409E 01	Z	1.01168E 02	ALPH	3.00000E 01	MACH	8.01000E 00
SOS	1.05661E 03	LIFT	6.23350E 05	DRAG	5.19970E 05	QATM	3.18145E 02	RHO	8.88304E-06
GR	3.29172E 00	ZDOT	5.00355E-01	ZB	2.79564E 02	XLON	7.71994E 01	XLAT	2.81458E 01
GAMC	-1.02886E 01	THR	0	GV	2.86371E 00				

TIM	1.53000E 02	WHT	2.46603E 05	VEL	8.39876E 03	RANG	2.31088E 02	GAM	-1.02888E 01
ALT	1.26613E 05	PHI	7.08899E 01	Z	1.01703E 02	ALPH	3.00000E 01	MACH	7.96983E 00
SOS	1.05382E 03	LIFT	6.57438E 05	DRAG	5.48185E 05	QATM	3.34499E 02	RHO	9.48405E-06
GR	3.47116E 00	ZDOT	5.35671E-01	ZB	2.79626E 02	XLON	7.71773E 01	XLAT	2.81413E 01
GAMC	-1.02886E 01	THR	0	GV	3.02015E 00				

TIM	1.54000E 02	WHT	2.46603E 05	VEL	8.33006E 03	RANG	2.32434E 02	GAM	-1.02888E 01
ALT	1.25119E 05	PHI	7.19481E 01	Z	1.02279E 02	ALPH	3.00000E 01	MACH	7.92549E 00
SOS	1.05105E 03	LIFT	6.95969E 05	DRAG	5.79566E 05	QATM	3.51254E 02	RHO	1.01241E-05
GR	3.67265E 00	ZDOT	5.75748E-01	ZB	2.79690E 02	XLON	7.71553E 01	XLAT	2.81366E 01
GAMC	-1.02886E 01	THR	0	GV	3.19661E 00				

TIM	1.55000E 02	WHT	2.46603E 05	VEL	8.25704E 03	RANG	2.33769E 02	GAM	-1.02888E 01
ALT	1.23637E 05	PHI	7.29607E 01	Z	1.02899E 02	ALPH	3.00000E 01	MACH	7.87669E 00
SOS	1.04829E 03	LIFT	7.37538E 05	DRAG	6.13137E 05	QATM	3.68338E 02	RHO	1.08051E-05
GR	3.88930E 00	ZDOT	6.19457E-01	ZB	2.79757E 02	XLON	7.71336E 01	XLAT	2.81318E 01
GAMC	-1.02886E 01	THR	0	GV	3.38678E 00				

TIM	1.56000E 02	WHT	2.46603E 05	VEL	8.17950E 03	RANG	2.35092E 02	GAM	-1.02888E 01
ALT	1.22169E 05	PHI	7.39023E 01	Z	1.03565E 02	ALPH	3.00000E 01	MACH	7.82317E 00
SOS	1.04555E 03	LIFT	7.81146E 05	DRAG	6.48198E 05	QATM	3.85672E 02	RHO	1.15291E-05
GR	4.11618E 00	ZDOT	6.66052E-01	ZB	2.79826E 02	XLON	7.71122E 01	XLAT	2.81267E 01
GAMC	-1.02886E 01	THR	0	GV	3.58617E 00				

TIM	1.57000E 02	WHT	2.46603E 05	VEL	8.10732E 03	RANG	2.36403E 02	GAM	-1.02888E 01
ALT	1.20715E 05	PHI	7.37796E 01	Z	1.04233E 02	ALPH	2.78668E 01	MACH	7.77439E 00
SOS	1.04282E 03	LIFT	7.76968E 05	DRAG	6.06512E 05	QATM	4.04186E 02	RHO	1.22986E-05
GR	3.99697E 00	ZDOT	6.67809E-01	ZB	2.79899E 02	XLON	7.70910E 01	XLAT	2.81215E 01
GAMC	-1.02886E 01	THR	0	GV	3.53931E 00				

.....GR_{MAX} CONTROL.....

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FLYBACK TEST CASE

ALPHA CONTROL 3

GLIDE-OPTION 1

	MACH NUMBER	CL 0	CL 1	CL 2	CD 0	ATRN
1	0	0	3.000000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
2	2.500000E-01	0	4.000000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
3	5.000000E-01	0	4.600000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
4	7.500000E-01	0	4.900000E-02	-2.200000E-04	4.360000E-02	2.500000E 01
5	1.000000E 00	0	5.100000E-02	-1.000000E-04	8.670000E-02	2.500000E 01
6	1.250000E 00	0	5.100000E-02	0	7.900000E-02	2.500000E 01
7	1.500000E 00	0	4.650000E-02	6.000000E-05	7.100000E-02	3.000000E 01
8	1.750000E 00	0	4.200000E-02	9.000000E-05	6.350000E-02	3.000000E 01
9	2.000000E 00	0	3.750000E-02	1.200000E-04	5.750000E-02	3.000000E 01
10	2.500000E 00	0	3.100000E-02	1.500000E-04	4.860000E-02	3.000000E 01
11	3.000000E 00	0	2.750000E-02	1.600000E-04	4.300000E-02	3.000000E 01
12	4.000000E 00	0	2.150000E-02	1.500000E-04	3.650000E-02	3.000000E 01
13	5.000000E 00	0	1.850000E-02	1.200000E-04	3.300000E-02	3.000000E 01
14	6.000000E 00	0	1.700000E-02	7.000000E-05	3.100000E-02	3.000000E 01
15	8.000000E 00	0	1.500000E-02	-7.000000E-05	2.950000E-02	3.000000E 01
16	1.200000E 01	0	1.300000E-02	-1.500000E-04	2.650000E-02	3.000000E 01

WHT	2.46603E 05	VEL	9.72100E 03	RANG	5.01854E 05	GAM	1.07530E 01	ALT	1.82640E 05
ZL	9.50000E 01	RE	2.09022E 07	XLON	8.10000E 01	XLAT	2.85000E 01	AREA	5.08300E 03
CK1	1.18000E 00	XN	4.00000E 00	CK20	1.00000E 00	CK21	1.00000E 00	XGO	3.21740E 01
XLOB	8.10000E 01	XLAB	2.85000E 01	DELT	1.00000E 00	GRMX	4.00000E 00	POA	1.80000E 02
QAMA	0	PB	4.50000E 01	DPB	5.00000E 00	GAMC	-9.70000E 00	DZR	2.00000E 01
ZDD	1.00000E 00	XMB	8.00000E-01	ALTB	3.90000E 04	TE	9.81200E 03	DTP	1.00000E 00
SFC	4.31600E-01	ATOL	1.00000E 03	XTOL	5.00000E-02	CK22	2.00000E 00	QCTL	2.00000E-03
ZMTL	1.00000E-01	DHFB	1.00000E 04	NEMP	2.15000E 05	C231	1.00000E 00	C232	1.00000E 00
C233	1.00000E 00	C234	1.00000E 00	C235	1.00000E 00	C236	1.00000E 00	C237	1.00000E 00
C238	1.00000E 00	DEDH	1.00000E-01	CK24	1.00000E 00				

TIM	0	WHT	2.46603E 05	VEL	9.72100E 03	RANG	1.35934E-02	GAM	1.07530E 01
ALT	1.82640E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	8.94840E 00
SOS	1.08634E 03	LIFT	-9.43370E 04	DRAG	7.95395E 04	QATH	5.21765E 01	RHO	1.10429E-06
GR	5.08374E-01	ZDOT	0	ZB	2.74902E 02	XLON	8.09997E 01	XLAT	2.85000E 01
QAMC	-9.70000E 00	THR	0	GV	3.13650E-01				

TIM	1.00000E 00	WHT	2.46603E 05	VEL	9.70590E 03	RANG	1.57106E 00	GAM	1.05244E 01
ALT	1.84433E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	8.97434E 00
SOS	1.08152E 03	LIFT	-8.86864E 04	DRAG	7.47753E 04	QATH	4.90512E 01	RHO	1.04138E-06
GR	4.70403E-01	ZDOT	0	ZB	3.15804E 02	XLON	8.09806E 01	XLAT	2.85175E 01
QAMC	-9.70000E 00	THR	0	GV	2.98198E-01				

TIM	2.00000E 00	WHT	2.46603E 05	VEL	9.69152E 03	RANG	3.12718E 00	GAM	1.02996E 01
ALT	1.85186E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.00044E 00
SOS	1.07678E 03	LIFT	-8.32543E 04	DRAG	7.02186E 04	QATH	4.61578E 01	RHO	9.82860E-07
GR	4.41651E-01	ZDOT	0	ZB	2.91041E 02	XLON	8.09548E 01	XLAT	2.85152E 01
QAMC	-9.70000E 00	THR	0	GV	2.81253E-01				

TIM	3.00000E 00	WHT	2.46603E 05	VEL	9.67782E 03	RANG	4.68202E 00	GAM	1.00784E 01
ALT	1.87099E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.02666E 00
SOS	1.07214E 03	LIFT	-7.82280E 04	DRAG	6.60016E 04	QATH	4.34767E 01	RHO	9.28393E-07
GR	4.15046E-01	ZDOT	0	ZB	2.81826E 02	XLON	8.09290E 01	XLAT	2.85130E 01
QAMC	-9.70000E 00	THR	0	GV	2.65491E-01				

TIM	4.00000E 00	WHT	2.46603E 05	VEL	9.66475E 03	RANG	6.23564E 00	GAM	9.86059E 00
ALT	1.89573E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.05297E 00
SOS	1.06758E 03	LIFT	-7.35737E 04	DRAG	6.20958E 04	QATH	4.09902E 01	RHO	8.77665E-07
GR	3.90407E-01	ZDOT	0	ZB	2.77283E 02	XLON	8.09032E 01	XLAT	2.85107E 01
QAMC	-9.70000E 00	THR	0	GV	2.50819E-01				

TIM	5.00000E 00	WHT	2.46603E 05	VEL	9.65227E 03	RANG	7.78810E 00	GAM	9.64580E 00
ALT	1.91209E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.07933E 00
SOS	1.06310E 03	LIFT	-6.92604E 04	DRAG	5.84754E 04	QATH	3.86822E 01	RHO	8.30391E-07
GR	3.67572E-01	ZDOT	0	ZB	2.74616E 02	XLON	8.08775E 01	XLAT	2.85085E 01
QAMC	-9.70000E 00	THR	0	GV	2.37156E-01				

TIM	6.00000E 00	WHT	2.46603E 05	VEL	9.64035E 03	RANG	9.33947E 00	GAM	9.43384E 00
ALT	1.92808E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.10571E 00
SOS	1.05871E 03	LIFT	-6.52603E 04	DRAG	5.51172E 04	QATH	3.65384E 01	RHO	7.86311E-07
GR	3.46392E-01	ZDOT	0	ZB	2.72873E 02	XLON	8.08517E 01	XLAT	2.85062E 01
QAMC	-9.70000E 00	THR	0	GV	2.24424E-01				

TIM	7.00000E 00	WHT	2.46603E 05	VEL	9.62894E 03	RANG	1.08898E 01	GAM	9.22452E 00
ALT	1.94370E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.13207E 00
SOS	1.05441E 03	LIFT	-6.15481E 04	DRAG	5.20000E 04	QATH	3.45456E 01	RHO	7.45187E-07
GR	3.26736E-01	ZDOT	0	ZB	2.71650E 02	XLON	8.08260E 01	XLAT	2.85040E 01
QAMC	-9.70000E 00	THR	0	GV	2.12554E-01				

TIM	8.00000E 00	WHT	2.46603E 05	VEL	9.61803E 03	RANG	1.24391E 01	GAM	9.01762E 00
ALT	1.96895E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.15838E 00
SOS	1.05019E 03	LIFT	-5.81008E 04	DRAG	4.91045E 04	QATH	3.26918E 01	RHO	7.06800E-07
GR	3.08480E-01	ZDOT	0	ZB	2.70748E 02	XLON	8.08003E 01	XLAT	2.85017E 01
QAMC	-9.70000E 00	THR	0	GV	2.01482E-01				

TIM	9.00000E 00	WHT	2.46603E 05	VEL	9.60758E 03	RANG	1.39875E 01	GAM	8.81299E 00
ALT	1.97385E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.18462E 00
SOS	1.04505E 03	LIFT	-5.48974E 04	DRAG	4.64133E 04	QATH	3.09662E 01	RHO	6.70951E-07
GR	2.91514E-01	ZDOT	0	ZB	2.70358E 02	XLON	8.07746E 01	XLAT	2.84995E 01
QAMC	-9.70000E 00	THR	0	GV	1.91151E-01				

TIM	1.00000E 01	WHT	2.46603E 05	VEL	9.59756E 03	RANG	1.55350E 01	GAM	8.61045E 00
ALT	1.98840E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.21075E 00
SOS	1.04200E 03	LIFT	-5.19189E 04	DRAG	4.39105E 04	QATH	2.93590E 01	RHO	6.37456E-07
GR	2.79738E-01	ZDOT	0	ZB	2.70949E 02	XLON	8.07489E 01	XLAT	2.84972E 01
QAMC	-9.70000E 00	THR	0	GV	1.81509E-01				

TIM	1.10000E 01	WHT	2.46603E 05	VEL	9.58795E 03	RANG	1.70818E 01	GAM	8.40985E 00
ALT	2.00299E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.23674E 00
SOS	1.03882E 03	LIFT	-4.91480E 04	DRAG	4.15815E 04	QATH	2.78612E 01	RHO	6.06147E-07
GR	2.61060E-01	ZDOT	0	ZB	2.71435E 02	XLON	8.07233E 01	XLAT	2.84950E 01
QAMC	-9.70000E 00	THR	0	GV	1.72494E-01				

TIM	1.20000E 01	WHT	2.46603E 05	VEL	9.57872E 03	RANG	1.86274E 01	GAM	8.21108E 00
ALT	2.01644E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.26258E 00
SOS	1.03413E 03	LIFT	-4.65686E 04	DRAG	3.94130E 04	QATH	2.64644E 01	RHO	5.78888E-07
GR	2.47395E-01	ZDOT	0	ZB	2.71642E 02	XLON	8.06976E 01	XLAT	2.84927E 01
QAMC	-9.70000E 00	THR	0	GV	1.64079E-01				

TIM	1.30000E 01	WHT	2.46603E 05	VEL	9.56987E 03	RANG	2.01724E 01	GAM	8.01393E 00
ALT	2.02995E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.28822E 00
SOS	1.03032E 03	LIFT	-4.41685E 04	DRAG	3.73930E 04	QATH	2.51612E 01	RHO	5.49478E-07
GR	2.34668E-01	ZDOT	0	ZB	2.72189E 02	XLON	8.06720E 01	XLAT	2.84905E 01
QAMC	-9.70000E 00	THR	0	GV	1.56211E-01				

TIM	1.40000E 01	WHT	2.46603E 05	VEL	9.56136E 03	RANG	2.17166E 01	GAM	7.81836E 00

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ALT	2.04313E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.31365E 00		
SOS	1.02660E 03	LIFT	-4.19282E 04	DRAG	3.55103E 04	QATM	2.39448E 01	RHO	5.23843E-07		
GR	2.22807E-01	ZDOT	0	ZB	2.72489E 02	XLON	8.06464E 01	XLAT	2.84883E 01		
GAMC	-9.70000E 00	THR	0	GV	1.48854E-01						
TIM	1.50000E 01	WHT	2.46603E 05	VEL	9.55318E 03	RANG	2.32602E 01	GAM	7.62424E 00		
ALT	2.05597E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.33884E 00		
SOS	1.02295E 03	LIFT	-3.96416E 04	DRAG	3.37548E 04	QATM	2.28087E 01	RHO	4.99844E-07		
GR	2.11750E-01	ZDOT	0	ZB	2.72751E 02	XLON	8.06208E 01	XLAT	2.84860E 01		
GAMC	-9.70000E 00	THR	0	GV	1.41973E-01						
TIM	1.60000E 01	WHT	2.46603E 05	VEL	9.54531E 03	RANG	2.48030E 01	GAM	7.43145E 00		
ALT	2.06848E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.36377E 00		
SOS	1.01939E 03	LIFT	-3.78956E 04	DRAG	3.21172E 04	QATM	2.17472E 01	RHO	4.77369E-07		
GR	2.01436E-01	ZDOT	0	ZB	2.72983E 02	XLON	8.05952E 01	XLAT	2.84838E 01		
GAMC	-9.70000E 00	THR	0	GV	1.35534E-01						
TIM	1.70000E 01	WHT	2.46603E 05	VEL	9.53774E 03	RANG	2.63452E 01	GAM	7.23991E 00		
ALT	2.08066E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.38840E 00		
SOS	1.01591E 03	LIFT	-3.60799E 04	DRAG	3.05889E 04	QATM	2.07551E 01	RHO	4.56314E-07		
GR	1.91813E-01	ZDOT	0	ZB	2.73190E 02	XLON	8.05696E 01	XLAT	2.84815E 01		
GAMC	-9.70000E 00	THR	0	GV	1.29509E-01						
TIM	1.80000E 01	WHT	2.46603E 05	VEL	9.53045E 03	RANG	2.78867E 01	GAM	7.04953E 00		
ALT	2.09252E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.41273E 00		
SOS	1.01251E 03	LIFT	-3.43852E 04	DRAG	2.91620E 04	QATM	1.98274E 01	RHO	4.36584E-07		
GR	1.82829E-01	ZDOT	0	ZB	2.73376E 02	XLON	8.05440E 01	XLAT	2.84793E 01		
GAMC	-9.70000E 00	THR	0	GV	1.23868E-01						
TIM	1.90000E 01	WHT	2.46603E 05	VEL	9.52343E 03	RANG	2.94276E 01	GAM	6.86022E 00		
ALT	2.10405E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.43673E 00		
SOS	1.00919E 03	LIFT	-3.28029E 04	DRAG	2.78295E 04	QATM	1.89596E 01	RHO	4.18092E-07		
GR	1.74441E-01	ZDOT	0	ZB	2.73545E 02	XLON	8.05184E 01	XLAT	2.84771E 01		
GAMC	-9.70000E 00	THR	0	GV	1.18587E-01						
TIM	2.00000E 01	WHT	2.46603E 05	VEL	9.51667E 03	RANG	3.09680E 01	GAM	6.67191E 00		
ALT	2.11527E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.46037E 00		
SOS	1.00595E 03	LIFT	-3.13251E 04	DRAG	2.65846E 04	QATM	1.81476E 01	RHO	4.00756E-07		
GR	1.66605E-01	ZDOT	0	ZB	2.73699E 02	XLON	8.04929E 01	XLAT	2.84748E 01		
GAMC	-9.70000E 00	THR	0	GV	1.13641E-01						
TIM	2.10000E 01	WHT	2.46603E 05	VEL	9.51015E 03	RANG	3.25078E 01	GAM	6.48453E 00		
ALT	2.12617E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.48363E 00		
SOS	1.00280E 03	LIFT	-2.99443E 04	DRAG	2.54212E 04	QATM	1.73877E 01	RHO	3.84500E-07		
GR	1.59283E-01	ZDOT	0	ZB	2.73841E 02	XLON	8.04673E 01	XLAT	2.84726E 01		
GAMC	-9.70000E 00	THR	0	GV	1.09009E-01						
TIM	2.20000E 01	WHT	2.46603E 05	VEL	9.50387E 03	RANG	3.40470E 01	GAM	6.29802E 00		
ALT	2.13675E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.50649E 00		
SOS	9.99724E 02	LIFT	-2.86541E 04	DRAG	2.43338E 04	QATM	1.66762E 01	RHO	3.69255E-07		
GR	1.52441E-01	ZDOT	0	ZB	2.73971E 02	XLON	8.04418E 01	XLAT	2.84704E 01		
GAMC	-9.70000E 00	THR	0	GV	1.04669E-01						
TIM	2.30000E 01	WHT	2.46603E 05	VEL	9.49782E 03	RANG	3.55857E 01	GAM	6.11231E 00		
ALT	2.14702E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.52893E 00		
SOS	9.96734E 02	LIFT	-2.74480E 04	DRAG	2.33171E 04	QATM	1.60101E 01	RHO	3.54957E-07		
GR	1.46044E-01	ZDOT	0	ZB	2.74092E 02	XLON	8.04162E 01	XLAT	2.84681E 01		
GAMC	-9.70000E 00	THR	0	GV	1.00604E-01						
TIM	2.40000E 01	WHT	2.46603E 05	VEL	9.49198E 03	RANG	3.71239E 01	GAM	5.92735E 00		
ALT	2.15698E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.55094E 00		
SOS	9.93827E 02	LIFT	-2.63205E 04	DRAG	2.23664E 04	QATM	1.53862E 01	RHO	3.41545E-07		
GR	1.40064E-01	ZDOT	0	ZB	2.74205E 02	XLON	8.03907E 01	XLAT	2.84659E 01		
GAMC	-9.70000E 00	THR	0	GV	9.67956E-02						
TIM	2.50000E 01	WHT	2.46603E 05	VEL	9.48635E 03	RANG	3.86616E 01	GAM	5.74307E 00		
ALT	2.16663E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.57248E 00		
SOS	9.91002E 02	LIFT	-2.52663E 04	DRAG	2.14773E 04	QATM	1.48019E 01	RHO	3.28964E-07		
GR	1.34472E-01	ZDOT	0	ZB	2.74311E 02	XLON	8.03652E 01	XLAT	2.84637E 01		
GAMC	-9.70000E 00	THR	0	GV	9.32281E-02						
TIM	2.60000E 01	WHT	2.46603E 05	VEL	9.48091E 03	RANG	4.01989E 01	GAM	5.55945E 00		
ALT	2.17596E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.59354E 00		
SOS	9.88260E 02	LIFT	-2.42806E 04	DRAG	2.06457E 04	QATM	1.42546E 01	RHO	3.17164E-07		
GR	1.29242E-01	ZDOT	0	ZB	2.74410E 02	XLON	8.03397E 01	XLAT	2.84614E 01		
GAMC	-9.70000E 00	THR	0	GV	8.98864E-02						
TIM	2.70000E 01	WHT	2.46603E 05	VEL	9.47567E 03	RANG	4.17357E 01	GAM	5.37642E 00		
ALT	2.18500E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.61410E 00		
SOS	9.85601E 02	LIFT	-2.33589E 04	DRAG	1.98680E 04	QATM	1.37419E 01	RHO	3.06096E-07		
GR	1.24352E-01	ZDOT	0	ZB	2.74504E 02	XLON	8.03142E 01	XLAT	2.84592E 01		
GAMC	-9.70000E 00	THR	0	GV	8.67568E-02						
TIM	2.80000E 01	WHT	2.46603E 05	VEL	9.47061E 03	RANG	4.32720E 01	GAM	5.19395E 00		
ALT	2.19372E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.63415E 00		
SOS	9.83025E 02	LIFT	-2.24970E 04	DRAG	1.91406E 04	QATM	1.32618E 01	RHO	2.95717E-07		
GR	1.19778E-01	ZDOT	0	ZB	2.74593E 02	XLON	8.02887E 01	XLAT	2.84570E 01		
GAMC	-9.70000E 00	THR	0	GV	8.38264E-02						
TIM	2.90000E 01	WHT	2.46603E 05	VEL	9.46574E 03	RANG	4.48080E 01	GAM	5.01199E 00		
ALT	2.20214E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.65366E 00		
SOS	9.80534E 02	LIFT	-2.16911E 04	DRAG	1.84603E 04	QATM	1.28122E 01	RHO	2.85985E-07		
GR	1.15502E-01	ZDOT	0	ZB	2.74677E 02	XLON	8.02632E 01	XLAT	2.84547E 01		
GAMC	-9.70000E 00	THR	0	GV	8.10835E-02						
TIM	3.00000E 01	WHT	2.46603E 05	VEL	9.46103E 03	RANG	4.63435E 01	GAM	4.83052E 00		
ALT	2.21026E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.67261E 00		
SOS	9.78126E 02	LIFT	-2.09378E 04	DRAG	1.78242E 04	QATM	1.23912E 01	RHO	2.76863E-07		
GR	1.11504E-01	ZDOT	0	ZB	2.74757E 02	XLON	8.02378E 01	XLAT	2.84525E 01		
GAMC	-9.70000E 00	THR	0	GV	7.85169E-02						
TIM	3.10000E 01	WHT	2.46603E 05	VEL	9.45649E 03	RANG	4.78786E 01	GAM	4.64949E 00		
ALT	2.21808E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.69099E 00		
SOS	9.75802E 02	LIFT	-2.02338E 04	DRAG	1.72296E 04	QATM	1.19971E 01	RHO	2.68316E-07		
GR	1.07767E-01	ZDOT	0	ZB	2.74833E 02	XLON	8.02123E 01	XLAT	2.84503E 01		
GAMC	-9.70000E 00	THR	0	GV	7.61166E-02						
TIM	3.20000E 01	WHT	2.46603E 05	VEL	9.45211E 03	RANG	4.94134E 01	GAM	4.46887E 00		
ALT	2.22559E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.70879E 00		
SOS	9.73553E 02	LIFT	-1.95761E 04	DRAG	1.66740E 04	QATM	1.16284E 01	RHO	2.60310E-07		
GR	1.04276E-01	ZDOT	0	ZB	2.74906E 02	XLON	8.01868E 01	XLAT	2.84481E 01		
GAMC	-9.70000E 00	THR	0	GV	7.38732E-02						
TIM	3.30000E 01	WHT	2.46603E 05	VEL	9.44789E 03	RANG	5.09477E 01	GAM	4.28863E 00		
ALT	2.23281E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.72597E 00		
SOS	9.71408E 02	LIFT	-1.89619E 04	DRAG	1.61551E 04	QATM	1.12835E 01	RHO	2.52816E-07		
GR	1.01015E-01	ZDOT	0	ZB	2.74976E 02	XLON	8.01614E 01	XLAT	2.84458E 01		
GAMC	-9.70000E 00	THR	0	GV	7.17780E-02						
TIM	3.40000E 01	WHT	2.46603E 05	VEL	9.44381E 03	RANG	5.24817E 01	GAM	4.10874E 00		
ALT	2.23972E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.74254E 00		
SOS	9.69338E 02	LIFT	-1.83866E 04	DRAG	1.56706E 04	QATM	1.09612E 01	RHO	2.45806E-07		
GR	9.79716E-02	ZDOT	0	ZB	2.75043E 02	XLON	8.01359E 01	XLAT	2.84436E 01		
GAMC	-9.70000E 00	THR	0	GV	6.98229E-02						

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TIM	3.50000E 01	WMT	2.44603E 05	VEL	9.43989E 03	RANG	5.40154E 01	GAM	3.92918E 00
ALT	2.24634E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.75846E 00
SOS	9.47394E 02	LIFT	-1.70539E 04	DRAG	1.52187E 04	QATM	1.06602E 01	RHO	2.39254E-07
GR	9.51328E-02	ZDOT	0	ZB	2.75100E 02	XLON	8.01185E 01	XLAT	2.84414E 01
GAMC	-9.70000E 00	THR	0	GV	6.00005E-02				
TIM	3.60000E 01	WMT	2.44603E 05	VEL	9.43618E 03	RANG	5.55487E 01	GAM	3.74992E 00
ALT	2.25266E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.77373E 00
SOS	9.45495E 02	LIFT	-1.73557E 04	DRAG	1.47975E 04	QATM	1.03792E 01	RHO	2.33136E-07
GR	9.24872E-02	ZDOT	0	ZB	2.75170E 02	XLON	8.00050E 01	XLAT	2.84391E 01
GAMC	-9.70000E 00	THR	0	GV	6.63048E-02				
TIM	3.70000E 01	WMT	2.44603E 05	VEL	9.43246E 03	RANG	5.70817E 01	GAM	3.57093E 00
ALT	2.25860E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.78834E 00
SOS	9.436420 02	LIFT	-1.68919E 04	DRAG	1.44053E 04	QATM	1.01173E 01	RHO	2.27430E-07
GR	9.00241E-02	ZDOT	0	ZB	2.75230E 02	XLON	8.00590E 01	XLAT	2.84369E 01
GAMC	-9.70000E 00	THR	0	GV	6.47270E-02				
TIM	3.80000E 01	WMT	2.44603E 05	VEL	9.42895E 03	RANG	5.86143E 01	GAM	3.39220E 00
ALT	2.26441E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.80226E 00
SOS	9.41915E 02	LIFT	-1.64606E 04	DRAG	1.40406E 04	QATM	9.87393E 00	RHO	2.22114E-07
GR	8.77330E-02	ZDOT	0	ZB	2.75280E 02	XLON	8.00342E 01	XLAT	2.84347E 01
GAMC	-9.70000E 00	THR	0	GV	6.32636E-02				
TIM	3.90000E 01	WMT	2.44603E 05	VEL	9.42557E 03	RANG	6.01466E 01	GAM	3.21370E 00
ALT	2.26904E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.81549E 00
SOS	9.40275E 02	LIFT	-1.60602E 04	DRAG	1.37019E 04	QATM	9.64408E 00	RHO	2.17171E-07
GR	8.54871E-02	ZDOT	0	ZB	2.75345E 02	XLON	8.00087E 01	XLAT	2.84325E 01
GAMC	-9.70000E 00	THR	0	GV	6.19004E-02				
TIM	4.00000E 01	WMT	2.44603E 05	VEL	9.42231E 03	RANG	6.16787E 01	GAM	3.03542E 00
ALT	2.27490E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.82801E 00
SOS	9.387216 02	LIFT	-1.54891E 04	DRAG	1.33879E 04	QATM	9.43654E 00	RHO	2.12583E-07
GR	8.36360E-02	ZDOT	0	ZB	2.75400E 02	XLON	7.99035E 01	XLAT	2.84303E 01
GAMC	-9.70000E 00	THR	0	GV	6.04569E-02				
TIM	4.10000E 01	WMT	2.44603E 05	VEL	9.41918E 03	RANG	6.32104E 01	GAM	2.85733E 00
ALT	2.27902E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.83980E 00
SOS	9.37253E 02	LIFT	-1.52459E 04	DRAG	1.30975E 04	QATM	9.24175E 00	RHO	2.08335E-07
GR	8.18126E-02	ZDOT	0	ZB	2.75453E 02	XLON	7.99579E 01	XLAT	2.84280E 01
GAMC	-9.70000E 00	THR	0	GV	5.85041E-02				
TIM	4.20000E 01	WMT	2.44603E 05	VEL	9.41617E 03	RANG	6.47418E 01	GAM	2.67942E 00
ALT	2.28437E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.85086E 00
SOS	9.35873E 02	LIFT	-1.50291E 04	DRAG	1.28294E 04	QATM	9.06181E 00	RHO	2.04407E-07
GR	8.01300E-02	ZDOT	0	ZB	2.75505E 02	XLON	7.99325E 01	XLAT	2.84250E 01
GAMC	-9.70000E 00	THR	0	GV	5.64468E-02				
TIM	4.30000E 01	WMT	2.44603E 05	VEL	9.41328E 03	RANG	6.62729E 01	GAM	2.50166E 00
ALT	2.28863E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.86110E 00
SOS	9.34568E 02	LIFT	-1.47377E 04	DRAG	1.25828E 04	QATM	8.89606E 00	RHO	2.00792E-07
GR	7.85819E-02	ZDOT	0	ZB	2.75555E 02	XLON	7.99071E 01	XLAT	2.84236E 01
GAMC	-9.70000E 00	THR	0	GV	5.74789E-02				
TIM	4.40000E 01	WMT	2.44603E 05	VEL	9.41051E 03	RANG	6.78938E 01	GAM	2.32406E 00
ALT	2.29259E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.87074E 00
SOS	9.33375E 02	LIFT	-1.44786E 04	DRAG	1.23566E 04	QATM	8.74391E 00	RHO	1.97474E-07
GR	7.71623E-02	ZDOT	0	ZB	2.75605E 02	XLON	7.98817E 01	XLAT	2.84214E 01
GAMC	-9.70000E 00	THR	0	GV	5.65994E-02				
TIM	4.50000E 01	WMT	2.44603E 05	VEL	9.40785E 03	RANG	6.93344E 01	GAM	2.14657E 00
ALT	2.29626E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.87953E 00
SOS	9.32257E 02	LIFT	-1.42266E 04	DRAG	1.21500E 04	QATM	8.60483E 00	RHO	1.94443E-07
GR	7.58660E-02	ZDOT	0	ZB	2.75653E 02	XLON	7.98563E 01	XLAT	2.84191E 01
GAMC	-9.70000E 00	THR	0	GV	5.58043E-02				
TIM	4.60000E 01	WMT	2.44603E 05	VEL	9.40529E 03	RANG	7.08647E 01	GAM	1.96971E 00
ALT	2.29964E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.88754E 00
SOS	9.31227E 02	LIFT	-1.40049E 04	DRAG	1.19623E 04	QATM	8.47832E 00	RHO	1.91680E-07
GR	7.44681E-02	ZDOT	0	ZB	2.75700E 02	XLON	7.98309E 01	XLAT	2.84169E 01
GAMC	-9.70000E 00	THR	0	GV	5.50910E-02				
TIM	4.70000E 01	WMT	2.44603E 05	VEL	9.40285E 03	RANG	7.23947E 01	GAM	1.79194E 00
ALT	2.30272E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.89477E 00
SOS	9.30205E 02	LIFT	-1.38047E 04	DRAG	1.17927E 04	QATM	8.36394E 00	RHO	1.89200E-07
GR	7.36243E-02	ZDOT	0	ZB	2.75746E 02	XLON	7.98055E 01	XLAT	2.84147E 01
GAMC	-9.70000E 00	THR	0	GV	5.44569E-02				
TIM	4.80000E 01	WMT	2.44603E 05	VEL	9.40051E 03	RANG	7.39245E 01	GAM	1.61476E 00
ALT	2.30552E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.90120E 00
SOS	9.29431E 02	LIFT	-1.36253E 04	DRAG	1.16407E 04	QATM	8.26129E 00	RHO	1.86971E-07
GR	7.26787E-02	ZDOT	0	ZB	2.75791E 02	XLON	7.97801E 01	XLAT	2.84125E 01
GAMC	-9.70000E 00	THR	0	GV	5.38998E-02				
TIM	4.90000E 01	WMT	2.44603E 05	VEL	9.39827E 03	RANG	7.54540E 01	GAM	1.43765E 00
ALT	2.30802E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.90684E 00
SOS	9.28665E 02	LIFT	-1.34659E 04	DRAG	1.15057E 04	QATM	8.17001E 00	RHO	1.84994E-07
GR	7.18237E-02	ZDOT	0	ZB	2.75835E 02	XLON	7.97548E 01	XLAT	2.84103E 01
GAMC	-9.70000E 00	THR	0	GV	5.34179E-02				
TIM	5.00000E 01	WMT	2.44603E 05	VEL	9.39614E 03	RANG	7.69832E 01	GAM	1.28660E 00
ALT	2.31023E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.91166E 00
SOS	9.27480E 02	LIFT	-1.33261E 04	DRAG	1.13872E 04	QATM	8.08079E 00	RHO	1.83266E-07
GR	7.10883E-02	ZDOT	0	ZB	2.75878E 02	XLON	7.97294E 01	XLAT	2.84068E 01
GAMC	-9.70000E 00	THR	0	GV	5.30096E-02				
TIM	5.10000E 01	WMT	2.44603E 05	VEL	9.39418E 03	RANG	7.85123E 01	GAM	1.00360E 00
ALT	2.31215E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.91967E 00
SOS	9.47480E 02	LIFT	-1.32092E 04	DRAG	1.12847E 04	QATM	8.02035E 00	RHO	1.81766E-07
GR	7.04378E-02	ZDOT	0	ZB	2.75921E 02	XLON	7.97049E 01	XLAT	2.84050E 01
GAMC	-9.70000E 00	THR	0	GV	5.26734E-02				
TIM	5.20000E 01	WMT	2.44603E 05	VEL	9.39218E 03	RANG	8.00410E 01	GAM	9.86842E-01
ALT	2.31378E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.91885E 00
SOS	9.44988E 02	LIFT	-1.31629E 04	DRAG	1.11988E 04	QATM	7.96146E 00	RHO	1.80504E-07
GR	6.98938E-02	ZDOT	0	ZB	2.75963E 02	XLON	7.96780E 01	XLAT	2.84036E 01
GAMC	-9.70000E 00	THR	0	GV	5.24083E-02				
TIM	5.30000E 01	WMT	2.44603E 05	VEL	9.39031E 03	RANG	8.15895E 01	GAM	7.29784E-01
ALT	2.31513E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92121E 00
SOS	9.44488E 02	LIFT	-1.30187E 04	DRAG	1.11266E 04	QATM	7.91298E 00	RHO	1.79476E-07
GR	6.94444E-02	ZDOT	0	ZB	2.76004E 02	XLON	7.96533E 01	XLAT	2.84014E 01
GAMC	-9.70000E 00	THR	0	GV	5.22134E-02				
TIM	5.40000E 01	WMT	2.44603E 05	VEL	9.38858E 03	RANG	8.30970E 01	GAM	5.92779E-01
ALT	2.31610E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92273E 00
SOS	9.44147E 02	LIFT	-1.29329E 04	DRAG	1.10784E 04	QATM	7.87492E 00	RHO	1.78672E-07
GR	6.98940E-02	ZDOT	0	ZB	2.76044E 02	XLON	7.96279E 01	XLAT	2.83992E 01
GAMC	-9.70000E 00	THR	0	GV	5.20681E-02				
TIM	5.50000E 01	WMT	2.44603E 05	VEL	9.38690E 03	RANG	8.46298E 01	GAM	3.75858E-01
ALT	2.31694E 05	PHI	1.00000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92342E 00
SOS	9.49933E 02	LIFT	-1.29038E 04	DRAG	1.10291E 04	QATM	7.84618E 00	RHO	1.78092E-07

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GR	6.88352E-02	ZDOT	0	ZB	2.76084E 02	XLON	7.96026E 01	XLAT	2.83969E 01		
GAMC	-9.70000E 00	THR	0	GV	5.20319E-02						
TIM	5.60000E 01	WHT	2.46603E 05	VEL	9.38532E 03	RANG	8.61537E 01	GAM	1.98923E-01		
ALT	2.31741E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92327E 00		
SOS	9.45789E 02	LIFT	-1.28727E 04	DRAG	1.10025E 04	QATM	7.82777E 00	RHO	1.77734E-07		
GR	6.86692E-02	ZDOT	0	ZB	2.76123E 02	XLON	7.95772E 01	XLAT	2.83947E 01		
GAMC	-9.70000E 00	THR	0	GV	5.20448E-02						
TIM	5.70000E 01	WHT	2.46603E 05	VEL	9.38384E 03	RANG	8.76812E 01	GAM	2.19707E-02		
ALT	2.31759E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92228E 00		
SOS	9.45733E 02	LIFT	-1.28588E 04	DRAG	1.09907E 04	QATM	7.81924E 00	RHO	1.77596E-07		
GR	6.89953E-02	ZDOT	0	ZB	2.76162E 02	XLON	7.95519E 01	XLAT	2.83925E 01		
GAMC	-9.70000E 00	THR	0	GV	5.21268E-02						
TIM	5.80000E 01	WHT	2.46603E 05	VEL	9.38243E 03	RANG	8.92085E 01	GAM	-1.55013E-01		
ALT	2.31748E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.92045E 00		
SOS	9.45767E 02	LIFT	-1.28623E 04	DRAG	1.09935E 04	QATM	7.82054E 00	RHO	1.77679E-07		
GR	6.86133E-02	ZDOT	0	ZB	2.76200E 02	XLON	7.95265E 01	XLAT	2.83903E 01		
GAMC	-9.70000E 00	THR	0	GV	5.22783E-02						

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TIM	5.90000E 01	WHT	2.46603E 05	VEL	9.38112E 03	RANG	9.07356E 01	GAM	-3.32001E-01		
ALT	2.31708E 05	PHI	1.75000E 02	Z	9.50010E 01	ALPH	3.00000E 01	MACH	9.91777E 00		
SOS	9.45889E 02	LIFT	-1.28836E 04	DRAG	1.10109E 04	QATM	7.83168E 00	RHO	1.77982E-07		
GR	6.87231E-02	ZDOT	8.93930E-04	ZB	2.76238E 02	XLON	7.95012E 01	XLAT	2.83881E 01		
GAMC	-9.70000E 00	THR	0	GV	5.24998E-02						
TIM	6.00000E 01	WHT	2.46603E 05	VEL	9.37988E 03	RANG	9.22625E 01	GAM	-5.08925E-01		
ALT	2.31639E 05	PHI	1.70000E 02	Z	9.50028E 01	ALPH	3.00000E 01	MACH	9.91425E 00		
SOS	9.46100E 02	LIFT	-1.29211E 04	DRAG	1.10430E 04	QATM	7.85269E 00	RHO	1.78507E-07		
GR	6.89250E-02	ZDOT	1.78545E-03	ZB	2.76275E 02	XLON	7.94759E 01	XLAT	2.83859E 01		
GAMC	-9.70000E 00	THR	0	GV	5.27920E-02						
TIM	6.10000E 01	WHT	2.46603E 05	VEL	9.37872E 03	RANG	9.37892E 01	GAM	-6.85719E-01		
ALT	2.31542E 05	PHI	1.65000E 02	Z	9.50055E 01	ALPH	3.00000E 01	MACH	9.90989E 00		
SOS	9.46400E 02	LIFT	-1.29766E 04	DRAG	1.10899E 04	QATM	7.88362E 00	RHO	1.79254E-07		
GR	6.92198E-02	ZDOT	2.67128E-03	ZB	2.76312E 02	XLON	7.94505E 01	XLAT	2.83836E 01		
GAMC	-9.70000E 00	THR	0	GV	5.31560E-02						
TIM	6.20000E 01	WHT	2.46603E 05	VEL	9.37764E 03	RANG	9.53156E 01	GAM	-8.62316E-01		
ALT	2.31415E 05	PHI	1.60000E 02	Z	9.50090E 01	ALPH	3.00000E 01	MACH	9.90468E 00		
SOS	9.46789E 02	LIFT	-1.30498E 04	DRAG	1.11516E 04	QATM	7.92455E 00	RHO	1.80226E-07		
GR	6.96081E-02	ZDOT	3.54812E-03	ZB	2.76348E 02	XLON	7.94252E 01	XLAT	2.83814E 01		
GAMC	-9.70000E 00	THR	0	GV	5.35929E-02						
TIM	6.30000E 01	WHT	2.46603E 05	VEL	9.37663E 03	RANG	9.68417E 01	GAM	-1.03865E 00		
ALT	2.31259E 05	PHI	1.55000E 02	Z	9.50134E 01	ALPH	3.00000E 01	MACH	9.89863E 00		
SOS	9.47265E 02	LIFT	-1.31408E 04	DRAG	1.12285E 04	QATM	7.97559E 00	RHO	1.81426E-07		
GR	7.00913E-02	ZDOT	4.41258E-03	ZB	2.76384E 02	XLON	7.93999E 01	XLAT	2.83792E 01		
GAMC	-9.70000E 00	THR	0	GV	5.41041E-02						
TIM	6.40000E 01	WHT	2.46603E 05	VEL	9.37569E 03	RANG	9.83677E 01	GAM	-1.21465E 00		
ALT	2.31075E 05	PHI	1.50000E 02	Z	9.50187E 01	ALPH	3.00000E 01	MACH	9.89175E 00		
SOS	9.47830E 02	LIFT	-1.32500E 04	DRAG	1.13208E 04	QATM	8.03689E 00	RHO	1.82857E-07		
GR	7.06708E-02	ZDOT	5.26119E-03	ZB	2.76420E 02	XLON	7.93746E 01	XLAT	2.83770E 01		
GAMC	-9.70000E 00	THR	0	GV	5.46911E-02						
TIM	6.50000E 01	WHT	2.46603E 05	VEL	9.37483E 03	RANG	9.98934E 01	GAM	-1.39025E 00		
ALT	2.30862E 05	PHI	1.45000E 02	Z	9.50248E 01	ALPH	3.00000E 01	MACH	9.88404E 00		
SOS	9.48482E 02	LIFT	-1.33776E 04	DRAG	1.14286E 04	QATM	8.10862E 00	RHO	1.84523E-07		
GR	7.13482E-02	ZDOT	6.09037E-03	ZB	2.76455E 02	XLON	7.93493E 01	XLAT	2.83747E 01		
GAMC	-9.70000E 00	THR	0	GV	5.53560E-02						
TIM	6.60000E 01	WHT	2.46603E 05	VEL	9.37404E 03	RANG	1.01419E 02	GAM	-1.56539E 00		
ALT	2.30620E 05	PHI	1.40000E 02	Z	9.50317E 01	ALPH	3.00000E 01	MACH	9.87550E 00		
SOS	9.49221E 02	LIFT	-1.35241E 04	DRAG	1.15524E 04	QATM	8.19097E 00	RHO	1.86428E-07		
GR	7.21258E-02	ZDOT	6.89641E-03	ZB	2.76490E 02	XLON	7.93239E 01	XLAT	2.83725E 01		
GAMC	-9.70000E 00	THR	0	GV	5.61007E-02						
TIM	6.70000E 01	WHT	2.46603E 05	VEL	9.37331E 03	RANG	1.02944E 02	GAM	-1.74000E 00		
ALT	2.30350E 05	PHI	1.35000E 02	Z	9.50394E 01	ALPH	3.00000E 01	MACH	9.86615E 00		
SOS	9.50048E 02	LIFT	-1.36898E 04	DRAG	1.16924E 04	QATM	8.28417E 00	RHO	1.88579E-07		
GR	7.30058E-02	ZDOT	7.67545E-03	ZB	2.76525E 02	XLON	7.92986E 01	XLAT	2.83703E 01		
GAMC	-9.70000E 00	THR	0	GV	5.69276E-02						
TIM	6.80000E 01	WHT	2.46603E 05	VEL	9.37264E 03	RANG	1.04469E 02	GAM	-1.91401E 00		
ALT	2.30051E 05	PHI	1.30000E 02	Z	9.50478E 01	ALPH	3.00000E 01	MACH	9.85598E 00		
SOS	9.50960E 02	LIFT	-1.38754E 04	DRAG	1.18492E 04	QATM	8.38848E 00	RHO	1.90981E-07		
GR	7.39909E-02	ZDOT	8.42350E-03	ZB	2.76560E 02	XLON	7.92733E 01	XLAT	2.83681E 01		
GAMC	-9.70000E 00	THR	0	GV	5.78394E-02						
TIM	6.90000E 01	WHT	2.46603E 05	VEL	9.37204E 03	RANG	1.05994E 02	GAM	-2.08736E 00		
ALT	2.29724E 05	PHI	1.25000E 02	Z	9.50569E 01	ALPH	3.00000E 01	MACH	9.84501E 00		
SOS	9.51958E 02	LIFT	-1.40813E 04	DRAG	1.20232E 04	QATM	8.50421E 00	RHO	1.93640E-07		
GR	7.50840E-02	ZDOT	9.13636E-03	ZB	2.76595E 02	XLON	7.92480E 01	XLAT	2.83658E 01		
GAMC	-9.70000E 00	THR	0	GV	5.88389E-02						
TIM	7.00000E 01	WHT	2.46603E 05	VEL	9.37149E 03	RANG	1.07518E 02	GAM	-2.25998E 00		
ALT	2.29368E 05	PHI	1.20000E 02	Z	9.50667E 01	ALPH	3.00000E 01	MACH	9.83325E 00		
SOS	9.53041E 02	LIFT	-1.43082E 04	DRAG	1.22150E 04	QATM	8.63165E 00	RHO	1.96565E-07		
GR	7.62887E-02	ZDOT	9.80968E-03	ZB	2.76629E 02	XLON	7.92227E 01	XLAT	2.83636E 01		
GAMC	-9.70000E 00	THR	0	GV	5.99293E-02						
TIM	7.10000E 01	WHT	2.46603E 05	VEL	9.37100E 03	RANG	1.09043E 02	GAM	-2.43181E 00		
ALT	2.28985E 05	PHI	1.15000E 02	Z	9.50772E 01	ALPH	3.00000E 01	MACH	9.82071E 00		
SOS	9.54209E 02	LIFT	-1.45568E 04	DRAG	1.24250E 04	QATM	8.77119E 00	RHO	1.99764E-07		
GR	7.76084E-02	ZDOT	1.04389E-02	ZB	2.76663E 02	XLON	7.91975E 01	XLAT	2.83613E 01		
GAMC	-9.70000E 00	THR	0	GV	6.11139E-02						
TIM	7.20000E 01	WHT	2.46603E 05	VEL	9.37057E 03	RANG	1.10567E 02	GAM	-2.60278E 00		
ALT	2.28573E 05	PHI	1.10000E 02	Z	9.50882E 01	ALPH	3.00000E 01	MACH	9.80739E 00		
SOS	9.55460E 02	LIFT	-1.48279E 04	DRAG	1.26540E 04	QATM	8.92320E 00	RHO	2.03244E-07		
GR	7.90472E-02	ZDOT	1.10192E-02	ZB	2.76697E 02	XLON	7.91722E 01	XLAT	2.83591E 01		
GAMC	-9.70000E 00	THR	0	GV	6.23965E-02						
TIM	7.30000E 01	WHT	2.46603E 05	VEL	9.37018E 03	RANG	1.12091E 02	GAM	-2.77284E 00		
ALT	2.28134E 05	PHI	1.05000E 02	Z	9.50997E 01	ALPH	3.00000E 01	MACH	9.79332E 00		
SOS	9.56794E 02	LIFT	-1.51222E 04	DRAG	1.29026E 04	QATM	9.08811E 00	RHO	2.07018E-07		
GR	8.06095E-02	ZDOT	1.15457E-02	ZB	2.76731E 02	XLON	7.91469E 01	XLAT	2.83568E 01		
GAMC	-9.70000E 00	THR	0	GV	6.37812E-02						
TIM	7.40000E 01	WHT	2.46603E 05	VEL	9.36984E 03	RANG	1.13614E 02	GAM	-2.94192E 00		
ALT	2.27667E 05	PHI	1.00000E 02	Z	9.51117E 01	ALPH	3.00000E 01	MACH	9.77849E 00		
SOS	9.58210E 02	LIFT	-1.54407E 04	DRAG	1.31716E 04	QATM	9.26637E 00	RHO	2.11094E-07		
GR	8.23000E-02	ZDOT	1.20131E-02	ZB	2.76765E 02	XLON	7.91216E 01	XLAT	2.83546E 01		
GAMC	-9.70000E 00	THR	0	GV	6.52723E-02						
TIM	7.50000E 01	WHT	2.46603E 05	VEL	9.36955E 03	RANG	1.15138E 02	GAM	-3.10997E 00		
ALT	2.27172E 05	PHI	9.50000E 01	Z	9.51242E 01	ALPH	3.00000E 01	MACH	9.76293E 00		
SOS	9.59707E 02	LIFT	-1.57843E 04	DRAG	1.34618E 04	QATM	9.45850E 00	RHO	2.15484E-07		
GR	8.41240E-02	ZDOT	1.24161E-02	ZB	2.76799E 02	XLON	7.90964E 01	XLAT	2.83523E 01		
GAMC	-9.70000E 00	THR	0	GV	6.68744E-02						

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TIM	7.60000E 01	WHT	2.46603E 05	VEL	9.36929E 03	RANG	1.16661E 02	GAM	-3.27693E 00
ALT	2.26650E 05	PHI	9.00000E 01	Z	9.51369E 01	ALPH	3.00000E 01	MACH	9.74664E 00
SOS	9.61284E 02	LIFT	1.61542E 04	DRAG	1.37740E 04	QATM	9.66503E 00	RHO	2.20201E-07
GR	8.60869E-02	ZDOT	1.27492E-02	ZB	2.76833E 02	XLON	7.90711E 01	XLAT	2.83500E 01
GAMC	-9.70000E 00	THR	0	GV	6.85927E-02				
TIM	7.70000E 01	WHT	2.46603E 05	VEL	9.36908E 03	RANG	1.18183E 02	GAM	-3.44275E 00
ALT	2.26101E 05	PHI	8.50000E 01	Z	9.51499E 01	ALPH	3.00000E 01	MACH	9.72964E 00
SOS	9.62941E 02	LIFT	1.65514E 04	DRAG	1.41093E 04	QATM	9.88652E 00	RHO	2.25258E-07
GR	8.81948E-02	ZDOT	1.30064E-02	ZB	2.76866E 02	XLON	7.90458E 01	XLAT	2.83478E 01
GAMC	-9.70000E 00	THR	0	GV	7.04324E-02				
TIM	7.80000E 01	WHT	2.46603E 05	VEL	9.36889E 03	RANG	1.19706E 02	GAM	-3.60737E 00
ALT	2.25525E 05	PHI	8.00000E 01	Z	9.51631E 01	ALPH	3.00000E 01	MACH	9.71195E 00
SOS	9.64677E 02	LIFT	1.69772E 04	DRAG	1.44687E 04	QATM	1.01236E 01	RHO	2.30669E-07
GR	9.04540E-02	ZDOT	1.31820E-02	ZB	2.76900E 02	XLON	7.90206E 01	XLAT	2.83455E 01
GAMC	-9.70000E 00	THR	0	GV	7.23995E-02				
TIM	7.90000E 01	WHT	2.46603E 05	VEL	9.36874E 03	RANG	1.21228E 02	GAM	-3.77076E 00
ALT	2.24922E 05	PHI	7.50000E 01	Z	9.51764E 01	ALPH	3.00000E 01	MACH	9.69358E 00
SOS	9.66489E 02	LIFT	1.74329E 04	DRAG	1.48531E 04	QATM	1.03770E 01	RHO	2.36449E-07
GR	9.28716E-02	ZDOT	1.32698E-02	ZB	2.76933E 02	XLON	7.89953E 01	XLAT	2.83432E 01
GAMC	-9.70000E 00	THR	0	GV	7.45001E-02				
TIM	8.00000E 01	WHT	2.46603E 05	VEL	9.36861E 03	RANG	1.22750E 02	GAM	-3.93286E 00
ALT	2.24293E 05	PHI	7.00000E 01	Z	9.51896E 01	ALPH	3.00000E 01	MACH	9.67454E 00
SOS	9.68378E 02	LIFT	1.79198E 04	DRAG	1.52639E 04	QATM	1.06473E 01	RHO	2.42615E-07
GR	9.54548E-02	ZDOT	1.32636E-02	ZB	2.76967E 02	XLON	7.89701E 01	XLAT	2.83409E 01
GAMC	-9.70000E 00	THR	0	GV	7.67408E-02				
TIM	8.10000E 01	WHT	2.46603E 05	VEL	9.36850E 03	RANG	1.24272E 02	GAM	-4.09365E 00
ALT	2.23637E 05	PHI	6.50000E 01	Z	9.52028E 01	ALPH	3.00000E 01	MACH	9.65484E 00
SOS	9.70342E 02	LIFT	1.84395E 04	DRAG	1.57022E 04	QATM	1.09353E 01	RHO	2.49184E-07
GR	9.82115E-02	ZDOT	1.31572E-02	ZB	2.77000E 02	XLON	7.89448E 01	XLAT	2.83386E 01
GAMC	-9.70000E 00	THR	0	GV	7.91286E-02				
TIM	8.20000E 01	WHT	2.46603E 05	VEL	9.36842E 03	RANG	1.25794E 02	GAM	-4.25309E 00
ALT	2.22955E 05	PHI	6.00000E 01	Z	9.52157E 01	ALPH	3.00000E 01	MACH	9.63451E 00
SOS	9.72381E 02	LIFT	1.89935E 04	DRAG	1.61693E 04	QATM	1.12418E 01	RHO	2.56174E-07
GR	1.01150E-01	ZDOT	1.29441E-02	ZB	2.77033E 02	XLON	7.89196E 01	XLAT	2.83363E 01
GAMC	-9.70000E 00	THR	0	GV	8.16712E-02				
TIM	8.30000E 01	WHT	2.46603E 05	VEL	9.36834E 03	RANG	1.27315E 02	GAM	-4.41116E 00
ALT	2.22248E 05	PHI	5.50000E 01	Z	9.52283E 01	ALPH	3.00000E 01	MACH	9.61356E 00
SOS	9.74492E 02	LIFT	1.95836E 04	DRAG	1.66668E 04	QATM	1.15678E 01	RHO	2.63605E-07
GR	1.04280E-01	ZDOT	1.26182E-02	ZB	2.77066E 02	XLON	7.88944E 01	XLAT	2.83340E 01
GAMC	-9.70000E 00	THR	0	GV	8.43765E-02				
TIM	8.40000E 01	WHT	2.46603E 05	VEL	9.36827E 03	RANG	1.28836E 02	GAM	-4.56784E 00
ALT	2.21514E 05	PHI	5.00000E 01	Z	9.52405E 01	ALPH	3.00000E 01	MACH	9.59200E 00
SOS	9.76675E 02	LIFT	2.02116E 04	DRAG	1.71960E 04	QATM	1.19140E 01	RHO	2.71498E-07
GR	1.07610E-01	ZDOT	1.21731E-02	ZB	2.77099E 02	XLON	7.88691E 01	XLAT	2.83317E 01
GAMC	-9.70000E 00	THR	0	GV	8.72531E-02				

PHI REACHED

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TIM	8.50000E 01	WHT	2.46603E 05	VEL	9.36821E 03	RANG	1.30357E 02	GAM	-4.72312E 00
ALT	2.20756E 05	PHI	4.50000E 01	Z	9.52521E 01	ALPH	3.00000E 01	MACH	9.56985E 00
SOS	9.78929E 02	LIFT	2.08794E 04	DRAG	1.77587E 04	QATM	1.22814E 01	RHO	2.79876E-07
GR	1.11151E-01	ZDOT	1.16028E-02	ZB	2.77132E 02	XLON	7.88439E 01	XLAT	2.83294E 01
GAMC	-9.70000E 00	THR	0	GV	9.03101E-02				
TIM	8.60000E 01	WHT	2.46603E 05	VEL	9.36814E 03	RANG	1.31877E 02	GAM	-4.87800E 00
ALT	2.19972E 05	PHI	4.50000E 01	Z	9.52641E 01	ALPH	3.00000E 01	MACH	9.54712E 00
SOS	9.81253E 02	LIFT	2.15891E 04	DRAG	1.83565E 04	QATM	1.26712E 01	RHO	2.88762E-07
GR	1.14914E-01	ZDOT	1.19921E-02	ZB	2.77165E 02	XLON	7.88187E 01	XLAT	2.83271E 01
GAMC	-9.70000E 00	THR	0	GV	9.35587E-02				
TIM	8.70000E 01	WHT	2.46603E 05	VEL	9.36807E 03	RANG	1.33397E 02	GAM	-5.03245E 00
ALT	2.19162E 05	PHI	4.50000E 01	Z	9.52765E 01	ALPH	3.00000E 01	MACH	9.52383E 00
SOS	9.83645E 02	LIFT	2.23431E 04	DRAG	1.89914E 04	QATM	1.30845E 01	RHO	2.98185E-07
GR	1.18911E-01	ZDOT	1.24058E-02	ZB	2.77198E 02	XLON	7.87935E 01	XLAT	2.83247E 01
GAMC	-9.70000E 00	THR	0	GV	9.70099E-02				
TIM	8.80000E 01	WHT	2.46603E 05	VEL	9.36798E 03	RANG	1.34917E 02	GAM	-5.18645E 00
ALT	2.18328E 05	PHI	4.50000E 01	Z	9.52894E 01	ALPH	3.00000E 01	MACH	9.49997E 00
SOS	9.86107E 02	LIFT	2.31440E 04	DRAG	1.96656E 04	QATM	1.35225E 01	RHO	3.08173E-07
GR	1.23156E-01	ZDOT	1.28453E-02	ZB	2.77231E 02	XLON	7.87683E 01	XLAT	2.83224E 01
GAMC	-9.70000E 00	THR	0	GV	1.00676E-01				
TIM	8.90000E 01	WHT	2.46603E 05	VEL	9.36788E 03	RANG	1.36436E 02	GAM	-5.33998E 00
ALT	2.17469E 05	PHI	4.50000E 01	Z	9.53027E 01	ALPH	3.00000E 01	MACH	9.47557E 00
SOS	9.88635E 02	LIFT	2.39942E 04	DRAG	2.03812E 04	QATM	1.39866E 01	RHO	3.18756E-07
GR	1.27663E-01	ZDOT	1.33119E-02	ZB	2.77264E 02	XLON	7.87431E 01	XLAT	2.83201E 01
GAMC	-9.70000E 00	THR	0	GV	1.04568E-01				
TIM	9.00000E 01	WHT	2.46603E 05	VEL	9.36776E 03	RANG	1.37955E 02	GAM	-5.49299E 00
ALT	2.16584E 05	PHI	4.50000E 01	Z	9.53165E 01	ALPH	3.00000E 01	MACH	9.45063E 00
SOS	9.91231E 02	LIFT	2.46968E 04	DRAG	2.11406E 04	QATM	1.44782E 01	RHO	3.29968E-07
GR	1.32446E-01	ZDOT	1.38074E-02	ZB	2.77297E 02	XLON	7.87179E 01	XLAT	2.83177E 01
GAMC	-9.70000E 00	THR	0	GV	1.08702E-01				
TIM	9.10000E 01	WHT	2.46603E 05	VEL	9.36760E 03	RANG	1.39474E 02	GAM	-5.64547E 00
ALT	2.15675E 05	PHI	4.50000E 01	Z	9.53308E 01	ALPH	3.00000E 01	MACH	9.42517E 00
SOS	9.93893E 02	LIFT	2.58547E 04	DRAG	2.19463E 04	QATM	1.49987E 01	RHO	3.41843E-07
GR	1.37521E-01	ZDOT	1.43333E-02	ZB	2.77329E 02	XLON	7.86927E 01	XLAT	2.83154E 01
GAMC	-9.70000E 00	THR	0	GV	1.13089E-01				
TIM	9.20000E 01	WHT	2.46603E 05	VEL	9.36741E 03	RANG	1.40992E 02	GAM	-5.79738E 00
ALT	2.14741E 05	PHI	4.50000E 01	Z	9.53457E 01	ALPH	3.00000E 01	MACH	9.39919E 00
SOS	9.96620E 02	LIFT	2.68711E 04	DRAG	2.28009E 04	QATM	1.55498E 01	RHO	3.54418E-07
GR	1.42906E-01	ZDOT	1.48914E-02	ZB	2.77362E 02	XLON	7.86675E 01	XLAT	2.83130E 01
GAMC	-9.70000E 00	THR	0	GV	1.17747E-01				
TIM	9.30000E 01	WHT	2.46603E 05	VEL	9.36718E 03	RANG	1.42510E 02	GAM	-5.94869E 00
ALT	2.13783E 05	PHI	4.50000E 01	Z	9.53612E 01	ALPH	3.00000E 01	MACH	9.37270E 00
SOS	9.99411E 02	LIFT	2.79494E 04	DRAG	2.37074E 04	QATM	1.61331E 01	RHO	3.67732E-07
GR	1.48619E-01	ZDOT	1.54837E-02	ZB	2.77394E 02	XLON	7.86424E 01	XLAT	2.83107E 01
GAMC	-9.70000E 00	THR	0	GV	1.22691E-01				
TIM	9.40000E 01	WHT	2.46603E 05	VEL	9.36690E 03	RANG	1.44028E 02	GAM	-6.09936E 00
ALT	2.12800E 05	PHI	4.50000E 01	Z	9.53773E 01	ALPH	3.00000E 01	MACH	9.34572E 00
SOS	1.00227E 03	LIFT	2.90933E 04	DRAG	2.46686E 04	QATM	1.67505E 01	RHO	3.81826E-07
GR	1.54678E-01	ZDOT	1.61120E-02	ZB	2.77427E 02	XLON	7.86172E 01	XLAT	2.83083E 01
GAMC	-9.70000E 00	THR	0	GV	1.27937E-01				
TIM	9.50000E 01	WHT	2.46603E 05	VEL	9.36656E 03	RANG	1.45945E 02	GAM	-6.24935E 00
ALT	2.11792E 05	PHI	4.50000E 01	Z	9.53941E 01	ALPH	3.00000E 01	MACH	9.31826E 00
SOS	1.00518E 03	LIFT	3.03066E 04	DRAG	2.56878E 04	QATM	1.74037E 01	RHO	3.96744E-07
GR	1.61103E-01	ZDOT	1.67787E-02	ZB	2.77460E 02	XLON	7.85920E 01	XLAT	2.83059E 01
GAMC	-9.70000E 00	THR	0	GV	1.33505E-01				
TIM	9.60000E 01	WHT	2.46603E 05	VEL	9.36616E 03	RANG	1.47062E 02	GAM	-6.39863E 00

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ALT	2.10761E 05	PHI	4.50000E 01	Z	9.54116E 01	ALPH	3.00000E 01	MACH	9.29032E 00
SOS	1.00816E 03	LIFT	3.15933E 04	DRAG	2.67683E 04	QATM	1.80947E 01	RHO	4.12532E-07
GR	1.67916E-01	ZDOT	1.74858E-02	ZB	2.77492E 02	XLON	7.85669E 01	XLAT	2.83036E 01
GAMC	-9.70000E 00	THR	0	GV	1.39413E-01				
TIM	9.70000E 01	WHT	2.46603E 05	VEL	9.36568E 03	RANG	1.48578E 02	GAM	-6.54715E 00
ALT	2.09705E 05	PHI	4.50000E 01	Z	9.54298E 01	ALPH	3.00000E 01	MACH	9.26191E 00
SOS	1.01120E 03	LIFT	3.25578E 04	DRAG	2.79138E 04	QATM	1.88256E 01	RHO	4.29241E-07
GR	1.75141E-01	ZDOT	1.82359E-02	ZB	2.77525E 02	XLON	7.85417E 01	XLAT	2.83012E 01
GAMC	-9.70000E 00	THR	0	GV	1.45682E-01				
TIM	9.80000E 01	WHT	2.46603E 05	VEL	9.36512E 03	RANG	1.50094E 02	GAM	-6.69488E 00
ALT	2.08625E 05	PHI	4.50000E 01	Z	9.54488E 01	ALPH	3.00000E 01	MACH	9.23304E 00
SOS	1.01430E 03	LIFT	3.44046E 04	DRAG	2.91279E 04	QATM	1.95987E 01	RHO	4.46921E-07
GR	1.82800E-01	ZDOT	1.90314E-02	ZB	2.77558E 02	XLON	7.85166E 01	XLAT	2.82988E 01
GAMC	-9.70000E 00	THR	0	GV	1.52333E-01				
TIM	9.90000E 01	WHT	2.46603E 05	VEL	9.36447E 03	RANG	1.51610E 02	GAM	-6.84175E 00
ALT	2.07521E 05	PHI	4.50000E 01	Z	9.54687E 01	ALPH	3.00000E 01	MACH	9.20373E 00
SOS	1.01746E 03	LIFT	3.59385E 04	DRAG	3.04148E 04	QATM	2.04162E 01	RHO	4.65629E-07
GR	1.90919E-01	ZDOT	1.98751E-02	ZB	2.77590E 02	XLON	7.84915E 01	XLAT	2.82964E 01
GAMC	-9.70000E 00	THR	0	GV	1.59389E-01				
TIM	1.00000E 02	WHT	2.46603E 05	VEL	9.36371E 03	RANG	1.53125E 02	GAM	-6.98773E 00
ALT	2.06394E 05	PHI	4.50000E 01	Z	9.54895E 01	ALPH	3.00000E 01	MACH	9.17397E 00
SOS	1.02068E 03	LIFT	3.75648E 04	DRAG	3.17785E 04	QATM	2.12806E 01	RHO	4.85421E-07
GR	1.99525E-01	ZDOT	2.07699E-02	ZB	2.77623E 02	XLON	7.84664E 01	XLAT	2.82940E 01
GAMC	-9.70000E 00	THR	0	GV	1.66875E-01				
TIM	1.01000E 02	WHT	2.46603E 05	VEL	9.36284E 03	RANG	1.54639E 02	GAM	-7.13277E 00
ALT	2.05243E 05	PHI	4.50000E 01	Z	9.55112E 01	ALPH	3.00000E 01	MACH	9.14379E 00
SOS	1.02396E 03	LIFT	3.92886E 04	DRAG	3.32237E 04	QATM	2.21945E 01	RHO	5.06360E-07
GR	2.08647E-01	ZDOT	2.17187E-02	ZB	2.77656E 02	XLON	7.84413E 01	XLAT	2.82916E 01
GAMC	-9.70000E 00	THR	0	GV	1.74815E-01				
TIM	1.02000E 02	WHT	2.46603E 05	VEL	9.36185E 03	RANG	1.56153E 02	GAM	-7.27680E 00
ALT	2.04069E 05	PHI	4.50000E 01	Z	9.55339E 01	ALPH	3.00000E 01	MACH	9.11317E 00
SOS	1.02729E 03	LIFT	4.11159E 04	DRAG	3.47549E 04	QATM	2.31604E 01	RHO	5.28510E-07
GR	2.18314E-01	ZDOT	2.27248E-02	ZB	2.77688E 02	XLON	7.84162E 01	XLAT	2.82891E 01
GAMC	-9.70000E 00	THR	0	GV	1.83237E-01				
TIM	1.03000E 02	WHT	2.46603E 05	VEL	9.36072E 03	RANG	1.57666E 02	GAM	-7.41977E 00
ALT	2.02872E 05	PHI	4.50000E 01	Z	9.55577E 01	ALPH	3.00000E 01	MACH	9.08214E 00
SOS	1.03067E 03	LIFT	4.30524E 04	DRAG	3.63771E 04	QATM	2.41813E 01	RHO	5.51941E-07
GR	2.28558E-01	ZDOT	2.37916E-02	ZB	2.77721E 02	XLON	7.83911E 01	XLAT	2.82867E 01
GAMC	-9.70000E 00	THR	0	GV	1.92170E-01				
TIM	1.04000E 02	WHT	2.46603E 05	VEL	9.35943E 03	RANG	1.59179E 02	GAM	-7.56162E 00
ALT	2.01651E 05	PHI	4.50000E 01	Z	9.55826E 01	ALPH	3.00000E 01	MACH	9.05070E 00
SOS	1.03411E 03	LIFT	4.51047E 04	DRAG	3.80957E 04	QATM	2.52602E 01	RHO	5.76723E-07
GR	2.39413E-01	ZDOT	2.49227E-02	ZB	2.77754E 02	XLON	7.83660E 01	XLAT	2.82842E 01
GAMC	-9.70000E 00	THR	0	GV	2.01642E-01				
TIM	1.05000E 02	WHT	2.46603E 05	VEL	9.35799E 03	RANG	1.60691E 02	GAM	-7.70229E 00
ALT	2.00408E 05	PHI	4.50000E 01	Z	9.56088E 01	ALPH	3.00000E 01	MACH	9.01885E 00
SOS	1.03760E 03	LIFT	4.72793E 04	DRAG	3.99159E 04	QATM	2.64001E 01	RHO	6.02934E-07
GR	2.50912E-01	ZDOT	2.61218E-02	ZB	2.77787E 02	XLON	7.83409E 01	XLAT	2.82818E 01
GAMC	-9.70000E 00	THR	0	GV	2.11666E-01				
TIM	1.06000E 02	WHT	2.46603E 05	VEL	9.35637E 03	RANG	1.62202E 02	GAM	-7.84170E 00
ALT	1.99143E 05	PHI	4.50000E 01	Z	9.56362E 01	ALPH	3.00000E 01	MACH	8.98659E 00
SOS	1.04115E 03	LIFT	4.95832E 04	DRAG	4.18437E 04	QATM	2.76042E 01	RHO	6.30653E-07
GR	2.63094E-01	ZDOT	2.73929E-02	ZB	2.77820E 02	XLON	7.83159E 01	XLAT	2.82793E 01
GAMC	-9.70000E 00	THR	0	GV	2.22335E-01				
TIM	1.07000E 02	WHT	2.46603E 05	VEL	9.35456E 03	RANG	1.63713E 02	GAM	-7.97979E 00
ALT	1.97855E 05	PHI	4.50000E 01	Z	9.56649E 01	ALPH	3.00000E 01	MACH	8.95395E 00
SOS	1.04474E 03	LIFT	5.20238E 04	DRAG	4.38850E 04	QATM	2.88760E 01	RHO	6.59964E-07
GR	2.75996E-01	ZDOT	2.87403E-02	ZB	2.77853E 02	XLON	7.82908E 01	XLAT	2.82768E 01
GAMC	-9.70000E 00	THR	0	GV	2.33624E-01				
TIM	1.08000E 02	WHT	2.46603E 05	VEL	9.35254E 03	RANG	1.65223E 02	GAM	-8.11648E 00
ALT	1.96546E 05	PHI	4.50000E 01	Z	9.56951E 01	ALPH	3.00000E 01	MACH	8.92091E 00
SOS	1.04838E 03	LIFT	5.46088E 04	DRAG	4.60463E 04	QATM	3.02189E 01	RHO	6.90956E-07
GR	2.89660E-01	ZDOT	3.01684E-02	ZB	2.77887E 02	XLON	7.82658E 01	XLAT	2.82744E 01
GAMC	-9.70000E 00	THR	0	GV	2.45589E-01				
TIM	1.09000E 02	WHT	2.46603E 05	VEL	9.35029E 03	RANG	1.66732E 02	GAM	-8.25168E 00
ALT	1.95215E 05	PHI	4.50000E 01	Z	9.57267E 01	ALPH	3.00000E 01	MACH	8.88748E 00
SOS	1.05207E 03	LIFT	5.73463E 04	DRAG	4.83341E 04	QATM	3.16367E 01	RHO	7.23722E-07
GR	3.04127E-01	ZDOT	3.16818E-02	ZB	2.77920E 02	XLON	7.82408E 01	XLAT	2.82719E 01
GAMC	-9.70000E 00	THR	0	GV	2.58268E-01				
TIM	1.10000E 02	WHT	2.46603E 05	VEL	9.34780E 03	RANG	1.68241E 02	GAM	-8.38532E 00
ALT	1.93862E 05	PHI	4.50000E 01	Z	9.57600E 01	ALPH	3.00000E 01	MACH	8.85366E 00
SOS	1.05581E 03	LIFT	6.02447E 04	DRAG	5.07555E 04	QATM	3.31332E 01	RHO	7.58359E-07
GR	3.19442E-01	ZDOT	3.32855E-02	ZB	2.77953E 02	XLON	7.82158E 01	XLAT	2.82693E 01
GAMC	-9.70000E 00	THR	0	GV	2.71701E-01				
TIM	1.11000E 02	WHT	2.46603E 05	VEL	9.34505E 03	RANG	1.69748E 02	GAM	-8.51731E 00
ALT	1.92488E 05	PHI	4.50000E 01	Z	9.57950E 01	ALPH	3.00000E 01	MACH	8.81946E 00
SOS	1.05959E 03	LIFT	6.33128E 04	DRAG	5.33175E 04	QATM	3.47123E 01	RHO	7.94969E-07
GR	3.35650E-01	ZDOT	3.49846E-02	ZB	2.77987E 02	XLON	7.81908E 01	XLAT	2.82668E 01
GAMC	-9.70000E 00	THR	0	GV	2.85930E-01				
TIM	1.12000E 02	WHT	2.46603E 05	VEL	9.34202E 03	RANG	1.71259E 02	GAM	-8.64754E 00
ALT	1.91094E 05	PHI	4.50000E 01	Z	9.58318E 01	ALPH	3.00000E 01	MACH	8.78488E 00
SOS	1.06342E 03	LIFT	6.65598E 04	DRAG	5.60278E 04	QATM	3.63781E 01	RHO	8.33659E-07
GR	3.52801E-01	ZDOT	3.67845E-02	ZB	2.78021E 02	XLON	7.81659E 01	XLAT	2.82643E 01
GAMC	-9.70000E 00	THR	0	GV	3.00999E-01				
TIM	1.13000E 02	WHT	2.46603E 05	VEL	9.33869E 03	RANG	1.72761E 02	GAM	-8.77592E 00
ALT	1.89679E 05	PHI	4.50000E 01	Z	9.58705E 01	ALPH	3.00000E 01	MACH	8.74992E 00
SOS	1.06729E 03	LIFT	6.99952E 04	DRAG	5.88942E 04	QATM	3.81348E 01	RHO	8.74541E-07
GR	3.70944E-01	ZDOT	3.86908E-02	ZB	2.78055E 02	XLON	7.81409E 01	XLAT	2.82617E 01
GAMC	-9.70000E 00	THR	0	GV	3.16952E-01				
TIM	1.14000E 02	WHT	2.46603E 05	VEL	9.33503E 03	RANG	1.74266E 02	GAM	-8.90235E 00
ALT	1.88244E 05	PHI	4.50000E 01	Z	9.59112E 01	ALPH	3.00000E 01	MACH	8.71457E 00
SOS	1.07120E 03	LIFT	7.36290E 04	DRAG	6.19248E 04	QATM	3.99868E 01	RHO	9.17731E-07
GR	3.90131E-01	ZDOT	4.07095E-02	ZB	2.78089E 02	XLON	7.81160E 01	XLAT	2.82591E 01
GAMC	-9.70000E 00	THR	0	GV	3.33836E-01				
TIM	1.15000E 02	WHT	2.46603E 05	VEL	9.33103E 03	RANG	1.75769E 02	GAM	-9.02872E 00
ALT	1.86790E 05	PHI	4.50000E 01	Z	9.59540E 01	ALPH	3.00000E 01	MACH	8.67884E 00
SOS	1.07515E 03	LIFT	7.74714E 04	DRAG	6.51279E 04	QATM	4.19386E 01	RHO	9.63350E-07
GR	4.10417E-01	ZDOT	4.28467E-02	ZB	2.78123E 02	XLON	7.80911E 01	XLAT	2.82566E 01
GAMC	-9.70000E 00	THR	0	GV	3.51700E-01				
TIM	1.16000E 02	WHT	2.46603E 05	VEL	9.32666E 03	RANG	1.77272E 02	GAM	-9.14890E 00
ALT	1.85317E 05	PHI	4.50000E 01	Z	9.59992E 01	ALPH	3.00000E 01	MACH	8.64273E 00
SOS	1.07913E 03	LIFT	8.15330E 04	DRAG	6.85124E 04	QATM	4.39946E 01	RHO	1.01152E-06
GR	4.31856E-01	ZDOT	4.51088E-02	ZB	2.78158E 02	XLON	7.80662E 01	XLAT	2.82539E 01
GAMC	-9.70000E 00	THR	0	GV	3.70593E-01				

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TIM	1.17000E 02	WHT	2.46603E 05	VEL	9.32190E 03	RANG	1.78774E 02	GAM	-9.26878E 00
ALT	1.83824E 05	PHI	4.50000E 01	Z	9.60467E 01	ALPH	3.00000E 01	MACH	8.60623E 00
SOS	1.08316E 03	LIFT	8.56248E 04	DRAG	7.20871E 04	QATM	4.61595E 01	RHO	1.06239E-06
GR	4.54505E-01	ZDOT	4.75025E-02	ZB	2.78193E 02	XLON	7.80413E 01	XLAT	2.82513E 01
GAMC	-9.70000E 00	THR	0	GV	3.90567E-01				
TIM	1.18000E 02	WHT	2.46603E 05	VEL	9.31671E 03	RANG	1.80274E 02	GAM	-9.38623E 00
ALT	1.82314E 05	PHI	4.50000E 01	Z	9.60967E 01	ALPH	3.00000E 01	MACH	8.56934E 00
SOS	1.08721E 03	LIFT	9.03580E 04	DRAG	7.58611E 04	QATM	4.84381E 01	RHO	1.11607E-06
GR	4.78424E-01	ZDOT	5.00347E-02	ZB	2.78228E 02	XLON	7.80165E 01	XLAT	2.82487E 01
GAMC	-9.70000E 00	THR	0	GV	4.11675E-01				
TIM	1.19000E 02	WHT	2.46603E 05	VEL	9.31107E 03	RANG	1.81773E 02	GAM	-9.50112E 00
ALT	1.80786E 05	PHI	4.50000E 01	Z	9.61494E 01	ALPH	3.00000E 01	MACH	8.53205E 00
SOS	1.09130E 03	LIFT	9.51441E 04	DRAG	7.98438E 04	QATM	5.08352E 01	RHO	1.17272E-06
GR	5.03673E-01	ZDOT	5.27126E-02	ZB	2.78263E 02	XLON	7.79916E 01	XLAT	2.82460E 01
GAMC	-9.70000E 00	THR	0	GV	4.33971E-01				
TIM	1.20000E 02	WHT	2.46603E 05	VEL	9.30495E 03	RANG	1.83271E 02	GAM	-9.61329E 00
ALT	1.79240E 05	PHI	4.50000E 01	Z	9.62050E 01	ALPH	3.00000E 01	MACH	8.49437E 00
SOS	1.09543E 03	LIFT	1.00195E 05	DRAG	8.40447E 04	QATM	5.33554E 01	RHO	1.23248E-06
GR	5.30312E-01	ZDOT	5.55437E-02	ZB	2.78299E 02	XLON	7.79668E 01	XLAT	2.82433E 01
GAMC	-9.70000E 00	THR	0	GV	4.57509E-01				
TIM	1.21000E 02	WHT	2.46603E 05	VEL	9.29833E 03	RANG	1.84767E 02	GAM	-9.72261E 00
ALT	1.77678E 05	PHI	4.50000E 01	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.45627E 00
SOS	1.09958E 03	LIFT	1.05522E 05	DRAG	8.84736E 04	QATM	5.60037E 01	RHO	1.29550E-06
GR	5.58405E-01	ZDOT	5.85354E-02	ZB	2.78334E 02	XLON	7.79420E 01	XLAT	2.82406E 01
GAMC	-9.70000E 00	THR	0	GV	4.82345E-01				

GAMC REACHED

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TIM	1.22000E 02	WHT	2.46603E 05	VEL	9.29116E 03	RANG	1.86262E 02	GAM	-9.80337E 00
ALT	1.76102E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.41780E 00
SOS	1.10375E 03	LIFT	1.11131E 05	DRAG	9.31341E 04	QATM	5.87810E 01	RHO	1.36184E-06
GR	5.87975E-01	ZDOT	0	ZB	2.78370E 02	XLON	7.79173E 01	XLAT	2.82379E 01
GAMC	-9.80337E 00	THR	0	GV	5.08370E-01				
TIM	1.23000E 02	WHT	2.46603E 05	VEL	9.28339E 03	RANG	1.87756E 02	GAM	-9.87952E 00
ALT	1.74514E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.39557E 00
SOS	1.10575E 03	LIFT	1.17499E 05	DRAG	9.84263E 04	QATM	6.19378E 01	RHO	1.43738E-06
GR	6.21551E-01	ZDOT	0	ZB	2.78406E 02	XLON	7.78926E 01	XLAT	2.82352E 01
GAMC	-9.87952E 00	THR	0	GV	5.37884E-01				
TIM	1.24000E 02	WHT	2.46603E 05	VEL	9.27492E 03	RANG	1.89248E 02	GAM	-9.95034E 00
ALT	1.72916E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.38791E 00
SOS	1.10575E 03	LIFT	1.24519E 05	DRAG	1.04281E 05	QATM	6.55101E 01	RHO	1.52306E-06
GR	6.58620E-01	ZDOT	0	ZB	2.78441E 02	XLON	7.78679E 01	XLAT	2.82325E 01
GAMC	-9.95034E 00	THR	0	GV	5.70413E-01				
TIM	1.25000E 02	WHT	2.46603E 05	VEL	9.26572E 03	RANG	1.90738E 02	GAM	-1.00156E 01
ALT	1.71309E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.37959E 00
SOS	1.10575E 03	LIFT	1.31815E 05	DRAG	1.10380E 05	QATM	6.93012E 01	RHO	1.61440E-06
GR	6.97180E-01	ZDOT	0	ZB	2.78476E 02	XLON	7.78432E 01	XLAT	2.82298E 01
GAMC	-1.00156E 01	THR	0	GV	6.04220E-01				
TIM	1.26000E 02	WHT	2.46603E 05	VEL	9.25573E 03	RANG	1.92226E 02	GAM	-1.00748E 01
ALT	1.69694E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.37055E 00
SOS	1.10575E 03	LIFT	1.39564E 05	DRAG	1.16858E 05	QATM	7.33216E 01	RHO	1.71175E-06
GR	7.38138E-01	ZDOT	0	ZB	2.78511E 02	XLON	7.78186E 01	XLAT	2.82271E 01
GAMC	-1.00748E 01	THR	0	GV	6.40115E-01				
TIM	1.27000E 02	WHT	2.46603E 05	VEL	9.24490E 03	RANG	1.93713E 02	GAM	-1.01278E 01
ALT	1.68071E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.36076E 00
SOS	1.10575E 03	LIFT	1.47790E 05	DRAG	1.23733E 05	QATM	7.75817E 01	RHO	1.81545E-06
GR	7.81613E-01	ZDOT	0	ZB	2.78546E 02	XLON	7.77939E 01	XLAT	2.82244E 01
GAMC	-1.01278E 01	THR	0	GV	6.78196E-01				
TIM	1.28000E 02	WHT	2.46603E 05	VEL	9.23317E 03	RANG	1.95198E 02	GAM	-1.01740E 01
ALT	1.66443E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.35015E 00
SOS	1.10575E 03	LIFT	1.56516E 05	DRAG	1.31023E 05	QATM	8.20913E 01	RHO	1.92587E-06
GR	8.27721E-01	ZDOT	0	ZB	2.78581E 02	XLON	7.77694E 01	XLAT	2.82217E 01
GAMC	-1.01740E 01	THR	0	GV	7.18558E-01				
TIM	1.29000E 02	WHT	2.46603E 05	VEL	9.22048E 03	RANG	1.96681E 02	GAM	-1.02130E 01
ALT	1.64810E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.33867E 00
SOS	1.10575E 03	LIFT	1.65763E 05	DRAG	1.38747E 05	QATM	8.68601E 01	RHO	2.04335E-06
GR	8.76578E-01	ZDOT	0	ZB	2.78615E 02	XLON	7.77448E 01	XLAT	2.82190E 01
GAMC	-1.02130E 01	THR	0	GV	7.61294E-01				
TIM	1.30000E 02	WHT	2.46603E 05	VEL	9.20677E 03	RANG	1.98162E 02	GAM	-1.02445E 01
ALT	1.63174E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.32628E 00
SOS	1.10575E 03	LIFT	1.75552E 05	DRAG	1.46921E 05	QATM	9.18970E 01	RHO	2.16829E-06
GR	9.28294E-01	ZDOT	0	ZB	2.78649E 02	XLON	7.77203E 01	XLAT	2.82163E 01
GAMC	-1.02445E 01	THR	0	GV	8.06491E-01				
TIM	1.31000E 02	WHT	2.46603E 05	VEL	9.19198E 03	RANG	1.99640E 02	GAM	-1.02679E 01
ALT	1.61536E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.31290E 00
SOS	1.10575E 03	LIFT	1.85903E 05	DRAG	1.55562E 05	QATM	9.72099E 01	RHO	2.30103E-06
GR	9.82973E-01	ZDOT	0	ZB	2.78683E 02	XLON	7.76958E 01	XLAT	2.82136E 01
GAMC	-1.02679E 01	THR	0	GV	8.54229E-01				
TIM	1.32000E 02	WHT	2.46603E 05	VEL	9.17605E 03	RANG	2.01116E 02	GAM	-1.02828E 01
ALT	1.59697E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.29849E 00
SOS	1.10575E 03	LIFT	1.96836E 05	DRAG	1.64685E 05	QATM	1.02806E 02	RHO	2.44195E-06
GR	1.04071E 00	ZDOT	0	ZB	2.78716E 02	XLON	7.76714E 01	XLAT	2.82109E 01
GAMC	-1.02828E 01	THR	0	GV	9.04577E-01				
TIM	1.33000E 02	WHT	2.46603E 05	VEL	9.15890E 03	RANG	2.02989E 02	GAM	-1.02886E 01
ALT	1.58260E 05	PHI	0	Z	9.62635E 01	ALPH	3.00000E 01	MACH	8.28298E 00
SOS	1.10575E 03	LIFT	2.08365E 05	DRAG	1.74302E 05	QATM	1.08690E 02	RHO	2.59140E-06
GR	1.10159E 00	ZDOT	0	ZB	2.78750E 02	XLON	7.76470E 01	XLAT	2.82082E 01
GAMC	-1.02886E 01	THR	0	GV	9.57595E-01				
TIM	1.34000E 02	WHT	2.46603E 05	VEL	9.14046E 03	RANG	2.04060E 02	GAM	-1.02888E 01
ALT	1.56626E 05	PHI	1.76920E 01	Z	9.62964E 01	ALPH	3.00000E 01	MACH	8.26631E 00
SOS	1.10575E 03	LIFT	2.20506E 05	DRAG	1.84425E 05	QATM	1.14867E 02	RHO	2.74974E-06
GR	1.16570E 00	ZDOT	3.29538E-02	ZB	2.78783E 02	XLON	7.76226E 01	XLAT	2.82056E 01
GAMC	-1.02886E 01	THR	0	GV	1.01337E 00				
TIM	1.35000E 02	WHT	2.46603E 05	VEL	9.12067E 03	RANG	2.05527E 02	GAM	-1.02888E 01
ALT	1.54995E 05	PHI	2.58172E 01	Z	9.63664E 01	ALPH	3.00000E 01	MACH	8.25307E 00
SOS	1.10512E 03	LIFT	2.33548E 05	DRAG	1.95296E 05	QATM	1.21484E 02	RHO	2.92077E-06
GR	1.23454E 00	ZDOT	6.99777E-02	ZB	2.78816E 02	XLON	7.75983E 01	XLAT	2.82029E 01
GAMC	-1.02886E 01	THR	0	GV	1.07328E 00				
TIM	1.36000E 02	WHT	2.46603E 05	VEL	9.09936E 03	RANG	2.06992E 02	GAM	-1.02888E 01
ALT	1.53368E 05	PHI	3.20460E 01	Z	9.64627E 01	ALPH	3.00000E 01	MACH	8.25526E 00
SOS	1.10225E 03	LIFT	2.48231E 05	DRAG	2.07543E 05	QATM	1.28973E 02	RHO	3.11535E-06
GR	1.31208E 00	ZDOT	9.62927E-02	ZB	2.78850E 02	XLON	7.75741E 01	XLAT	2.82001E 01
GAMC	-1.02886E 01	THR	0	GV	1.14074E 00				
TIM	1.37000E 02	WHT	2.46603E 05	VEL	9.07645E 03	RANG	2.08453E 02	GAM	-1.02888E 01

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ALT	1.51745E 05	PHI	3.69293E 01	Z	9.65821E 01	ALPH	3.00000E 01	MACH	8.25600E 00		
SOS	1.09938E 03	LIFT	2.63437E 05	DRAG	2.20262E 05	QATM	1.36900E 02	RHO	3.32353E-06		
GR	1.39247E 00	ZDOT	1.19356E-01	ZB	2.78885E 02	XLON	7.75499E 01	XLAT	2.81974E 01		
GAMC	-1.02886E 01	THR	0	GV	1.21062E 00						
TIM	1.38000E 02	WHT	2.46603E 05	VEL	9.05183E 03	RANG	2.09910E 02	GAM	-1.02888E 01		
ALT	1.50126E 05	PHI	4.10638E 01	Z	9.67231E 01	ALPH	3.00000E 01	MACH	8.25519E 00		
SOS	1.09650E 03	LIFT	2.79550E 05	DRAG	2.33736E 05	QATM	1.45283E 02	RHO	3.54626E-06		
GR	1.47764E 00	ZDOT	1.41040E-01	ZB	2.78920E 02	XLON	7.75258E 01	XLAT	2.81946E 01		
GAMC	-1.02886E 01	THR	0	GV	1.28467E 00						
TIM	1.39000E 02	WHT	2.46603E 05	VEL	9.02541E 03	RANG	2.11363E 02	GAM	-1.02888E 01		
ALT	1.48511E 05	PHI	4.46614E 01	Z	9.68853E 01	ALPH	3.00000E 01	MACH	8.25272E 00		
SOS	1.09363E 03	LIFT	2.96616E 05	DRAG	2.48003E 05	QATM	1.54141E 02	RHO	3.78455E-06		
GR	1.56784E 00	ZDOT	1.62190E-01	ZB	2.78956E 02	XLON	7.75018E 01	XLAT	2.81917E 01		
GAMC	-1.02886E 01	THR	0	GV	1.36309E 00						
TIM	1.40000E 02	WHT	2.46603E 05	VEL	8.99707E 03	RANG	2.12812E 02	GAM	-1.02888E 01		
ALT	1.46902E 05	PHI	4.78465E 01	Z	9.70686E 01	ALPH	3.00000E 01	MACH	8.24849E 00		
SOS	1.09075E 03	LIFT	3.14678E 05	DRAG	2.63098E 05	QATM	1.63492E 02	RHO	4.03947E-06		
GR	1.66330E 00	ZDOT	1.83279E-01	ZB	2.78994E 02	XLON	7.74778E 01	XLAT	2.81888E 01		
GAMC	-1.02886E 01	THR	0	GV	1.44609E 00						
TIM	1.41000E 02	WHT	2.46603E 05	VEL	8.96671E 03	RANG	2.14257E 02	GAM	-1.02888E 01		
ALT	1.45298E 05	PHI	5.07003E 01	Z	9.72732E 01	ALPH	3.00000E 01	MACH	8.24236E 00		
SOS	1.08788E 03	LIFT	3.33782E 05	DRAG	2.79056E 05	QATM	1.73354E 02	RHO	4.31217E-06		
GR	1.76424E 00	ZDOT	2.04612E-01	ZB	2.79032E 02	XLON	7.74540E 01	XLAT	2.81858E 01		
GAMC	-1.02886E 01	THR	0	GV	1.53387E 00						
TIM	1.42000E 02	WHT	2.46603E 05	VEL	8.93422E 03	RANG	2.15696E 02	GAM	-1.02888E 01		
ALT	1.43699E 05	PHI	5.32790E 01	Z	9.74996E 01	ALPH	3.00000E 01	MACH	8.23421E 00		
SOS	1.08501E 03	LIFT	3.53971E 05	DRAG	2.95915E 05	QATM	1.83741E 02	RHO	4.60386E-06		
GR	1.87089E 00	ZDOT	2.26413E-01	ZB	2.79072E 02	XLON	7.74302E 01	XLAT	2.81827E 01		
GAMC	-1.02886E 01	THR	0	GV	1.62663E 00						
TIM	1.43000E 02	WHT	2.46603E 05	VEL	8.89946E 03	RANG	2.17130E 02	GAM	-1.02888E 01		
ALT	1.42106E 05	PHI	5.56240E 01	Z	9.77485E 01	ALPH	3.00000E 01	MACH	8.22391E 00		
SOS	1.08214E 03	LIFT	3.75287E 05	DRAG	3.13706E 05	QATM	1.94668E 02	RHO	4.91583E-06		
GR	1.98349E 00	ZDOT	2.48859E-01	ZB	2.79113E 02	XLON	7.74065E 01	XLAT	2.81795E 01		
GAMC	-1.02886E 01	THR	0	GV	1.72457E 00						
TIM	1.44000E 02	WHT	2.46603E 05	VEL	8.86233E 03	RANG	2.18559E 02	GAM	-1.02888E 01		
ALT	1.40520E 05	PHI	5.77669E 01	Z	9.80206E 01	ALPH	3.00000E 01	MACH	8.21132E 00		
SOS	1.07928E 03	LIFT	3.97773E 05	DRAG	3.32463E 05	QATM	2.06147E 02	RHO	5.24941E-06		
GR	2.10223E 00	ZDOT	2.72096E-01	ZB	2.79155E 02	XLON	7.73829E 01	XLAT	2.81762E 01		
GAMC	-1.02886E 01	THR	0	GV	1.82787E 00						
TIM	1.45000E 02	WHT	2.46603E 05	VEL	8.82268E 03	RANG	2.19981E 02	GAM	-1.02888E 01		
ALT	1.38941E 05	PHI	5.97324E 01	Z	9.83168E 01	ALPH	3.00000E 01	MACH	8.19630E 00		
SOS	1.07642E 03	LIFT	4.21465E 05	DRAG	3.52215E 05	QATM	2.18187E 02	RHO	5.60605E-06		
GR	2.22731E 00	ZDOT	2.96256E-01	ZB	2.79200E 02	XLON	7.73595E 01	XLAT	2.81729E 01		
GAMC	-1.02886E 01	THR	0	GV	1.93670E 00						
TIM	1.46000E 02	WHT	2.46603E 05	VEL	8.78039E 03	RANG	2.21397E 02	GAM	-1.02888E 01		
ALT	1.37369E 05	PHI	6.15403E 01	Z	9.86383E 01	ALPH	3.00000E 01	MACH	8.17870E 00		
SOS	1.07357E 03	LIFT	4.46400E 05	DRAG	3.72989E 05	QATM	2.30794E 02	RHO	5.98724E-06		
GR	2.35892E 00	ZDOT	3.21456E-01	ZB	2.79246E 02	XLON	7.73362E 01	XLAT	2.81694E 01		
GAMC	-1.02886E 01	THR	0	GV	2.05124E 00						
TIM	1.47000E 02	WHT	2.46603E 05	VEL	8.73532E 03	RANG	2.22806E 02	GAM	-1.02888E 01		
ALT	1.35804E 05	PHI	6.32072E 01	Z	9.89861E 01	ALPH	3.00000E 01	MACH	8.15837E 00		
SOS	1.07072E 03	LIFT	4.72607E 05	DRAG	3.94808E 05	QATM	2.43971E 02	RHO	6.39455E-06		
GR	2.49720E 00	ZDOT	3.47808E-01	ZB	2.79294E 02	XLON	7.73130E 01	XLAT	2.81658E 01		
GAMC	-1.02886E 01	THR	0	GV	2.17160E 00						
TIM	1.48000E 02	WHT	2.46603E 05	VEL	8.68734E 03	RANG	2.24208E 02	GAM	-1.02888E 01		
ALT	1.34248E 05	PHI	6.47467E 01	Z	9.93615E 01	ALPH	3.00000E 01	MACH	8.13514E 00		
SOS	1.06788E 03	LIFT	5.00112E 05	DRAG	4.17690E 05	QATM	2.57716E 02	RHO	6.82963E-06		
GR	2.64229E 00	ZDOT	3.75416E-01	ZB	2.79343E 02	XLON	7.72899E 01	XLAT	2.81621E 01		
GAMC	-1.02886E 01	THR	0	GV	2.29792E 00						
TIM	1.49000E 02	WHT	2.46603E 05	VEL	8.63630E 03	RANG	2.25602E 02	GAM	-1.02888E 01		
ALT	1.32701E 05	PHI	6.61704E 01	Z	9.97659E 01	ALPH	3.00000E 01	MACH	8.10885E 00		
SOS	1.06505E 03	LIFT	5.28933E 05	DRAG	4.41646E 05	QATM	2.72022E 02	RHO	7.29421E-06		
GR	2.79426E 00	ZDOT	4.04380E-01	ZB	2.79395E 02	XLON	7.72670E 01	XLAT	2.81582E 01		
GAMC	-1.02886E 01	THR	0	GV	2.43026E 00						
TIM	1.50000E 02	WHT	2.46603E 05	VEL	8.58206E 03	RANG	2.26987E 02	GAM	-1.02888E 01		
ALT	1.31163E 05	PHI	6.74884E 01	Z	1.00201E 02	ALPH	3.00000E 01	MACH	8.07935E 00		
SOS	1.06222E 03	LIFT	5.59081E 05	DRAG	4.66682E 05	QATM	2.86876E 02	RHO	7.79005E-06		
GR	2.95317E 00	ZDOT	4.34797E-01	ZB	2.79449E 02	XLON	7.72443E 01	XLAT	2.81542E 01		
GAMC	-1.02886E 01	THR	0	GV	2.56869E 00						
TIM	1.51000E 02	WHT	2.46603E 05	VEL	8.52449E 03	RANG	2.28364E 02	GAM	-1.02888E 01		
ALT	1.29636E 05	PHI	6.87094E 01	Z	1.00667E 02	ALPH	3.00000E 01	MACH	8.04645E 00		
SOS	1.05941E 03	LIFT	5.90557E 05	DRAG	4.92794E 05	QATM	3.02259E 02	RHO	8.31903E-06		
GR	3.11901E 00	ZDOT	4.66759E-01	ZB	2.79506E 02	XLON	7.72218E 01	XLAT	2.81501E 01		
GAMC	-1.02886E 01	THR	0	GV	2.71318E 00						
TIM	1.52000E 02	WHT	2.46603E 05	VEL	8.46344E 03	RANG	2.29731E 02	GAM	-1.02888E 01		
ALT	1.28118E 05	PHI	6.98409E 01	Z	1.01168E 02	ALPH	3.00000E 01	MACH	8.01000E 00		
SOS	1.05661E 03	LIFT	6.23350E 05	DRAG	5.19970E 05	QATM	3.18145E 02	RHO	8.88304E-06		
GR	3.29172E 00	ZDOT	5.00355E-01	ZB	2.79564E 02	XLON	7.71994E 01	XLAT	2.81458E 01		
GAMC	-1.02886E 01	THR	0	GV	2.86371E 00						
TIM	1.53000E 02	WHT	2.46603E 05	VEL	8.39876E 03	RANG	2.31088E 02	GAM	-1.02888E 01		
ALT	1.26613E 05	PHI	7.08899E 01	Z	1.01703E 02	ALPH	3.00000E 01	MACH	7.96983E 00		
SOS	1.05382E 03	LIFT	6.57438E 05	DRAG	5.48185E 05	QATM	3.34499E 02	RHO	9.48405E-06		
GR	3.47116E 00	ZDOT	5.35671E-01	ZB	2.79626E 02	XLON	7.71773E 01	XLAT	2.81413E 01		
GAMC	-1.02886E 01	THR	0	GV	3.02015E 00						
TIM	1.54000E 02	WHT	2.46603E 05	VEL	8.33006E 03	RANG	2.32434E 02	GAM	-1.02888E 01		
ALT	1.25119E 05	PHI	7.19481E 01	Z	1.02279E 02	ALPH	3.00000E 01	MACH	7.92549E 00		
SOS	1.05105E 03	LIFT	6.95969E 05	DRAG	5.79566E 05	QATM	3.51254E 02	RHO	1.01241E-05		
GR	3.67265E 00	ZDOT	5.75748E-01	ZB	2.79690E 02	XLON	7.71553E 01	XLAT	2.81366E 01		
GAMC	-1.02886E 01	THR	0	GV	3.19661E 00						
TIM	1.55000E 02	WHT	2.46603E 05	VEL	8.29704E 03	RANG	2.33769E 02	GAM	-1.02888E 01		
ALT	1.23637E 05	PHI	7.29607E 01	Z	1.02899E 02	ALPH	3.00000E 01	MACH	7.87669E 00		
SOS	1.04829E 03	LIFT	7.37538E 05	DRAG	6.13137E 05	QATM	3.68338E 02	RHO	1.08051E-05		
GR	3.88930E 00	ZDOT	6.19457E-01	ZB	2.79757E 02	XLON	7.71336E 01	XLAT	2.81318E 01		
GAMC	-1.02886E 01	THR	0	GV	3.38678E 00						
TIM	1.56000E 02	WHT	2.46603E 05	VEL	8.17950E 03	RANG	2.35092E 02	GAM	-1.02888E 01		
ALT	1.22169E 05	PHI	7.39023E 01	Z	1.03565E 02	ALPH	3.00000E 01	MACH	7.82317E 00		
SOS	1.04555E 03	LIFT	7.81146E 05	DRAG	6.48198E 05	QATM	3.85672E 02	RHO	1.15291E-05		
GR	4.11618E 00	ZDOT	6.66052E-01	ZB	2.79826E 02	XLON	7.71122E 01	XLAT	2.81267E 01		
GAMC	-1.02886E 01	THR	0	GV	3.58617E 00						
TIM	1.57000E 02	WHT	2.46603E 05	VEL	8.10732E 03	RANG	2.36403E 02	GAM	-1.02888E 01		
ALT	1.20715E 05	PHI	7.37796E 01	Z	1.04233E 02	ALPH	2.78668E 01	MACH	7.77439E 00		
SOS	1.04282E 03	LIFT	7.76968E 05	DRAG	6.06512E 05	QATM	4.04186E 02	RHO	1.22986E-05		
GR	3.99697E 00	ZDOT	6.67809E-01	ZB	2.79899E 02	XLON	7.70910E 01	XLAT	2.81215E 01		
GAMC	-1.02886E 01	THR	0	GV	3.53931E 00						

.....GR_{MAX} CONTROL.....

28556

FLYBACK TEST CASE

ALPHA CONTROL 4

GLIDE OPTION 1

	MACH NUMBER	CL 0	CL 1	CL 2	CD 0	ATMN
1	0	0	3.000000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
2	2.500000E-01	0	4.000000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
3	5.000000E-01	0	4.600000E-02	-2.400000E-04	4.320000E-02	2.500000E 01
4	7.500000E-01	0	4.900000E-02	-2.200000E-04	4.560000E-02	2.500000E 01
5	1.000000E 00	0	5.100000E-02	-1.000000E-04	8.670000E-02	2.500000E 01
6	1.250000E 00	0	5.100000E-02	0	7.900000E-02	2.500000E 01
7	1.500000E 00	0	4.650000E-02	6.000000E-05	7.[illegible]0000E-02	3.000000E 01
8	1.750000E 00	0	4.200000E-02	9.000000E-05	6.350000E-02	3.000000E 01
9	2.000000E 00	0	3.750000E-02	1.200000E-04	5.750000E-02	3.000000E 01
10	2.500000E 00	0	3.100000E-02	1.500000E-04	4.860000E-02	3.000000E 01
11	3.000000E 00	0	2.750000E-02	1.600000E-04	4.360000E-02	3.000000E 01
12	4.000000E 00	0	2.150000E-02	1.500000E-04	3.650000E-02	3.000000E 01
13	5.000000E 00	0	1.850000E-02	1.200000E-04	3.360000E-02	3.000000E 01
14	6.000000E 00	0	1.700000E-02	7.000000E-05	3.160000E-02	3.000000E 01
15	8.000000E 00	0	1.500000E-02	-7.000000E-05	2.950000E-02	3.000000E 01
16	1.200000E 01	0	1.300000E-02	-1.500000E-04	2.650000E-02	3.000000E 01

WHT	2.46603E 05	VEL	9.77100E 03	RANG	5.01854E 05	GAM	1.07530E 01	ALT	1.82640E 05
ZL	9.50000E 01	HR	2.05022E 07	XLON	8.10000E 01	XLAT	2.85000E 01	AREA	5.08300E 03
CK1	1.18000E 00	XM	4.00000E 01	CK20	1.00000E 00	CK21	1.00000E 00	XCO	3.21740E 01
XLOB	8.10000E 01	XLAM	2.85000E 01	DFLT	1.00000E 00	GRHX	4.00000E 00	PCA	1.80000E 02
GAMA	0	PR	4.50000E 01	DPB	5.00000E 00	GAMC	-9.70000E 00	DZR	2.00000E 01
ZDD	1.00000E 00	XMB	8.00000E-01	ALFA	3.90000E 04	IE	9.81200E 03	DTP	1.00000E 00
SFC	4.31500E-01	AICL	1.83500E 03	XTOL	5.00000E-02	CK22	2.00000E 00	GCTL	2.00000E-03
ZRTL	1.00000E-01	DHRA	1.50000E 04	WFMP	2.15000E 05	C231	1.00000E 00	C232	1.00000E 00
C233	1.00000E 00	C234	1.00000E 00	C235	1.00000E 00	C236	.00000E 00	C237	1.00000E 00
C238	1.00000E 00	DFTM	1.00000E-01	CK24	1.00000E 00				

TIM	0	WHT	2.46603E 05	VEL	9.72100E 03	RANG	1.35934E-02	GAM	1.07530E 01
ALT	1.82640E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	8.94840E 00
SOS	1.08634E 03	LIFT	-9.43370E 04	DRAG	7.95395E 04	QATM	5.21765E 01	RHO	1.10429E-06
GR	5.00374E-01	ZDCT	0	ZR	2.74942E 02	XLON	8.09997E 01	XLAT	2.85000E 01
GAMC	-9.70000E 00	THR	0	GV	3.15650E-01				
TIM	1.00000E 00	WHT	2.46603E 05	VEL	9.70590E 03	RANG	1.57106E 00	GAM	1.05244E 01
ALT	1.84433E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	8.97434E 00
SOS	1.08152E 03	LIFT	-8.86864E 04	DRAG	7.47753E 04	QATM	4.90512E 01	RHO	1.04138E-06
GR	4.70403E-01	ZDCT	0	ZR	3.15804E 02	XLON	8.09806E 01	XLAT	2.85175E 01
GAMC	-9.70000E 00	THR	0	GV	2.98108E-01				
TIM	2.00000E 00	WHT	2.46603E 05	VEL	9.69122E 03	RANG	3.12716E 00	GAM	1.02996E 01
ALT	1.86186E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.00044E 00
SOS	1.07678E 03	LIFT	-8.32543E 04	DRAG	7.02176E 04	QATM	4.61576E 01	RHO	9.82860E-07
GR	4.41651E-01	ZDCT	0	ZR	2.91341E 02	XLON	8.09548E 01	XLAT	2.85152E 01
GAMC	-9.70000E 00	THR	0	GV	2.81253E-01				
TIM	3.00000E 00	WHT	2.46603E 05	VEL	9.67782E 03	RANG	4.66282E 00	GAM	1.00784E 01
ALT	1.87899E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.02666E 00
SOS	1.07214E 03	LIFT	-7.82280E 04	DRAG	6.60016E 04	QATM	4.34767E 01	RHO	9.28393E-07
GR	4.15046E-01	ZDCT	0	ZR	2.81976E 02	XLON	8.09290E 01	XLAT	2.85130E 01
GAMC	-9.70000E 00	THR	0	GV	2.65411E-01				
TIM	4.00000E 00	WHT	2.46603E 05	VEL	9.66345E 03	RANG	6.23564E 00	GAM	9.86059E 00
ALT	1.89573E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.05297E 00
SOS	1.06758E 03	LIFT	-7.35737E 04	DRAG	6.20958E 04	QATM	4.09902E 01	RHO	8.77665E-07
GR	3.90407E-01	ZDCT	0	ZR	2.77235E 02	XLON	8.09032E 01	XLAT	2.85107E 01
GAMC	-9.70000E 00	THR	0	GV	2.50849E-01				
TIM	5.00000E 00	WHT	2.46603E 05	VEL	9.65217E 03	RANG	7.78810E 00	GAM	9.64580E 00
ALT	1.91209E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.07933E 00
SOS	1.06310E 03	LIFT	-6.95604E 04	DRAG	5.84754E 04	QATM	3.86822E 01	RHO	8.30391E-07
GR	3.67572E-01	ZDCT	0	ZR	2.74616E 02	XLON	8.08775E 01	XLAT	2.85085E 01
GAMC	-9.70000E 00	THR	0	GV	2.37156E-01				
TIM	6.00000E 00	WHT	2.46603E 05	VEL	9.64105E 03	RANG	9.33947E 00	GAM	9.43384E 00
ALT	1.92680E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.10571E 00
SOS	1.05871E 03	LIFT	-6.52603E 04	DRAG	5.51172E 04	QATM	3.65384E 01	RHO	7.86311E-07
GR	3.46392E-01	ZDCT	0	ZR	2.72853E 02	XLON	8.08517E 01	XLAT	2.85062E 01
GAMC	-9.70000E 00	THR	0	GV	2.24424E-01				
TIM	7.00000E 00	WHT	2.46603E 05	VEL	9.62954E 03	RANG	1.08898E 01	GAM	9.22452E 00
ALT	1.94370E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.13207E 00
SOS	1.05441E 03	LIFT	-6.15481E 04	DRAG	5.20900E 04	QATM	3.45456E 01	RHO	7.45187E-07
GR	3.26736E-01	ZDCT	0	ZR	2.71650E 02	XLON	8.08260E 01	XLAT	2.85040E 01
GAMC	-9.70000E 00	THR	0	GV	2.12554E-01				
TIM	8.00000E 00	WHT	2.46603E 05	VEL	9.61803E 03	RANG	1.24391E 01	GAM	9.01762E 00
ALT	1.95895E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.15838E 00
SOS	1.05019E 03	LIFT	-5.81006E 04	DRAG	4.91145E 04	QATM	3.26918E 01	RHO	7.06800E-07
GR	3.08480E-01	ZDCT	0	ZR	2.70748E 02	XLON	8.08003E 01	XLAT	2.85017E 01
GAMC	-9.70000E 00	THR	0	GV	2.01442E-01				
TIM	9.00000E 00	WHT	2.46603E 05	VEL	9.60778E 03	RANG	1.39875E 01	GAM	8.81299E 00
ALT	1.97365E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.18462E 00
SOS	1.04605E 03	LIFT	-5.48974E 04	DRAG	4.64113E 04	QATM	3.09662E 01	RHO	6.70951E-07
GR	2.91514E-01	ZDCT	0	ZR	2.70348E 02	XLON	8.07746E 01	XLAT	2.84995E 01
GAMC	-9.70000E 00	THR	0	GV	1.91151E-01				
TIM	1.00000E 01	WHT	2.46603E 05	VEL	9.59756E 03	RANG	1.55350E 01	GAM	8.61045E 00
ALT	1.98840E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.21075E 00
SOS	1.04200E 03	LIFT	-5.15189E 04	DRAG	4.39165E 04	QATM	2.93590E 01	RHO	6.37456E-07
GR	2.75738E-01	ZDCT	0	ZR	2.70449E 02	XLON	8.07489E 01	XLAT	2.84972E 01
GAMC	-9.70000E 00	THR	0	GV	1.81515E-01				
TIM	1.10000E 01	WHT	2.46603E 05	VEL	9.58745E 03	RANG	1.70816E 01	GAM	8.40985E 00
ALT	2.00259E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.23674E 00
SOS	1.03802E 03	LIFT	-4.91480E 04	DRAG	4.15815E 04	QATM	2.78612E 01	RHO	6.06147E-07
GR	2.61060E-01	ZDCT	0	ZR	2.71455E 02	XLON	8.07233E 01	XLAT	2.84950E 01
GAMC	-9.70000E 00	THR	0	GV	1.72496E-01				
TIM	1.20000E 01	WHT	2.46603E 05	VEL	9.57672E 03	RANG	1.86274E 01	GAM	8.21106E 00
ALT	2.01644E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.26258E 00
SOS	1.03413E 03	LIFT	-4.65686E 04	DRAG	3.94130E 04	QATM	2.64644E 01	RHO	5.76868E-07
GR	2.47395E-01	ZDCT	0	ZR	2.71842E 02	XLON	8.06976E 01	XLAT	2.84927E 01
GAMC	-9.70000E 00	THR	0	GV	1.64479E-01				
TIM	1.30000E 01	WHT	2.46603E 05	VEL	9.56987E 03	RANG	2.01724E 01	GAM	8.01393E 00
ALT	2.02995E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.28822E 00
SOS	1.03032E 03	LIFT	-4.41665E 04	DRAG	3.73930E 04	QATM	2.51612E 01	RHO	5.49478E-07
GR	2.34668E-01	ZDCT	0	ZR	2.72189E 02	XLON	8.06720E 01	XLAT	2.84905E 01
GAMC	-9.70000E 00	THR	0	GV	1.56211E-01				
TIM	1.40000E 01	WHT	2.46603E 05	VEL	9.56176E 03	RANG	2.17166E 01	GAM	7.81836E 00

ALT	2.04313E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.31369E 00
SOS	1.02600E 03	LIFT	-4.15282E 04	DRAG	3.55103E 04	QATM	2.39448E 01	RHO	5.23843E-07
GR	2.22803E-01	ZDCT	0	ZR	2.72419E 02	XLON	8.06464E 01	XLAT	2.84883E 01
GAMC	-9.70000E 00	THR	0	GV	1.48454E-01				
TIM	1.50000E 01	WHT	2.46603E 05	VEL	9.55316E 03	RANG	2.32602E 01	GAM	7.62424E 00
ALT	2.05597E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.33884E 00
SOS	1.02295E 03	LIFT	-3.98416E 04	DRAG	3.37548E 04	QATM	2.28087E 01	RHO	4.99844E-07
GR	2.11750E-01	ZDCT	0	ZR	2.72751E 02	XLON	8.06208E 01	XLAT	2.84860E 01
GAMC	-9.70000E 00	THR	0	GV	1.41973E-01				
TIM	1.60000E 01	WHT	2.46603E 05	VEL	9.54531E 03	RANG	2.48030E 01	GAM	7.43145E 00
ALT	2.06848E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.36377E 00
SOS	1.01934E 03	LIFT	-3.78956E 04	DRAG	3.21172E 04	QATM	2.17472E 01	RHO	4.77369E-07
GR	2.01436E-01	ZDCT	0	ZR	2.72943F 02	XLON	8.05952E 01	XLAT	2.84838E 01
GAMC	-9.70000E 00	THR	0	GV	1.35544E-01				
TIM	1.70000E 01	WHT	2.46603E 05	VEL	9.53774E 03	RANG	2.63452E 01	GAM	7.23991E 00
ALT	2.08046E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.38840E 00
SOS	1.01591E 03	LIFT	-3.60799E 04	DRAG	3.05609E 04	QATM	2.07551E 01	RHO	4.56314E-07
GR	1.91813E-01	ZDCT	0	ZR	2.73190E 02	XLON	8.05696E 01	XLAT	2.84815E 01
GAMC	-9.70000E 00	THR	0	GV	1.29509E-01				
TIM	1.80000E 01	WHT	2.46603E 05	VEL	9.53105E 03	RANG	2.78867E 01	GAM	7.04953E 00
ALT	2.09252E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.41273E 00
SOS	1.01251E 03	LIFT	-3.43852E 04	DRAG	2.91600E 04	QATM	1.98274E 01	RHO	4.36584E-07
GR	1.82829E-01	ZDCT	0	ZR	2.73376E 02	XLON	8.05440E 01	XLAT	2.84793E 01
GAMC	-9.70000E 00	THR	0	GV	1.23608E-01				
TIM	1.90000E 01	WHT	2.46603E 05	VEL	9.52343E 03	RANG	2.94278E 01	GAM	6.86072E 00
ALT	2.10465E 05	PHI	1.80000E 02	Z	9.50012E 01	ALPH	3.00000E 01	MACH	9.43673E 00
SOS	1.00919E 03	LIFT	-3.28329E 04	DRAG	2.78245E 04	QATM	1.89596E 01	RHO	4.18092E-07
GR	1.74441E-01	ZDCT	0	ZR	2.73545E 02	XLON	8.05184E 01	XLAT	2.84771E 01
GAMC	-9.70000E 00	THR	0	GV	1.18587E-01				
TIM	2.00000E 01	WHT	2.46603E 05	VEL	9.51667E 03	RANG	3.09680E 01	GAM	6.67191E 00
ALT	2.11527E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.46037E 00
SOS	1.00595E 03	LIFT	-3.13251E 04	DRAG	2.65846E 04	QATM	1.81476E 01	RHO	4.00756E-07
GR	1.66605E-01	ZDCT	0	ZR	2.73699E 02	XLON	8.04929E 01	XLAT	2.84748E 01
GAMC	-9.70000E 00	THR	0	GV	1.13641E-01				
TIM	2.10000E 01	WHT	2.46603E 05	VEL	9.51015E 03	RANG	3.25078E 01	GAM	6.48453E 00
ALT	2.12517E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.48363E 00
SOS	1.00280E 03	LIFT	-2.95443E 04	DRAG	2.54242E 04	QATM	1.73877E 01	RHO	3.84500E-07
GR	1.59263E-01	ZDCT	0	ZR	2.73941E 02	XLON	8.04673E 01	XLAT	2.84726E 01
GAMC	-9.70000E 00	THR	0	GV	1.09069E-01				
TIM	2.20000E 01	WHT	2.46603E 05	VEL	9.50367E 03	RANG	3.40470E 01	GAM	6.29802E 00
ALT	2.13675E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.50649E 00
SOS	9.99724E 02	LIFT	-2.86541E 04	DRAG	2.43348E 04	QATM	1.66762E 01	RHO	3.69255E-07
GR	1.52441E-01	ZDCT	0	ZR	2.73971E 02	XLON	8.04418E 01	XLAT	2.84704E 01
GAMC	-9.70000E 00	THR	0	GV	1.04469E-01				
TIM	2.30000E 01	WHT	2.46603E 05	VEL	9.49722E 03	RANG	3.55857E 01	GAM	6.11231E 00
ALT	2.14702E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.52893E 00
SOS	9.96734E 02	LIFT	-2.74480E 04	DRAG	2.33171E 04	QATM	1.60181E 01	RHO	3.54957E-07
GR	1.46044E-01	ZDCT	0	ZR	2.74092E 02	XLON	8.04162E 01	XLAT	2.84681E 01
GAMC	-9.70000E 00	THR	0	GV	1.00684E-01				
TIM	2.40000E 01	WHT	2.46603E 05	VEL	9.49198E 03	RANG	3.71239E 01	GAM	5.92735E 00
ALT	2.15698E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.55094E 00
SOS	9.93827E 02	LIFT	-2.62205E 04	DRAG	2.23604E 04	QATM	1.53862E 01	RHO	3.41545E-07
GR	1.40064E-01	ZDCT	0	ZR	2.74225E 02	XLON	8.03907E 01	XLAT	2.84659E 01
GAMC	-9.70000E 00	THR	0	GV	9.67456E-02				
TIM	2.50000E 01	WHT	2.46603E 05	VEL	9.48625E 03	RANG	3.86616E 01	GAM	5.74307E 00
ALT	2.16663E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.57248E 00
SOS	9.91002E 02	LIFT	-2.52665E 04	DRAG	2.14773E 04	QATM	1.48919E 01	RHO	3.28964E-07
GR	1.34472E-01	ZDCT	0	ZR	2.74311E 02	XLON	8.03652E 01	XLAT	2.84637E 01
GAMC	-9.70000E 00	THR	0	GV	9.32281E-02				
TIM	2.60000E 01	WHT	2.46603E 05	VEL	9.48091E 03	RANG	4.01989E 01	GAM	5.55945E 00
ALT	2.17596E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.59354E 00
SOS	9.88260E 02	LIFT	-2.42806E 04	DRAG	2.06457E 04	QATM	1.42546E 01	RHO	3.17164E-07
GR	1.29242E-01	ZDCT	0	ZR	2.74410E 02	XLON	8.03397E 01	XLAT	2.84614E 01
GAMC	-9.70000E 00	THR	0	GV	8.98864E-02				
TIM	2.70000E 01	WHT	2.46603E 05	VEL	9.47567E 03	RANG	4.17357E 01	GAM	5.37642E 00
ALT	2.18500E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.61410E 00
SOS	9.85601E 02	LIFT	-2.31589E 04	DRAG	1.98660E 04	QATM	1.37419E 01	RHO	3.06096E-07
GR	1.24352E-01	ZDCT	0	ZR	2.74504E 02	XLON	8.03142E 01	XLAT	2.84592E 01
GAMC	-9.70000E 00	THR	0	GV	8.67548E-02				
TIM	2.80000E 01	WHT	2.46603E 05	VEL	9.47061E 03	RANG	4.32726E 01	GAM	5.19395E 00
ALT	2.19372E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.63415E 00
SOS	9.83025E 02	LIFT	-2.24970E 04	DRAG	1.91406E 04	QATM	1.32618E 01	RHO	2.95717E-07
GR	1.19778E-01	ZDCT	0	ZR	2.74593E 02	XLON	8.02887E 01	XLAT	2.84570E 01
GAMC	-9.70000E 00	THR	0	GV	8.38244E-02				
TIM	2.90000E 01	WHT	2.46603E 05	VEL	9.46574E 03	RANG	4.48080E 01	GAM	5.01199E 00
ALT	2.20214E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.65366E 00
SOS	9.80574E 02	LIFT	-2.16911E 04	DRAG	1.84613E 04	QATM	1.28122E 01	RHO	2.85985E-07
GR	1.15562E-01	ZDCT	0	ZR	2.74677E 02	XLON	8.02632E 01	XLAT	2.84547E 01
GAMC	-9.70000E 00	THR	0	GV	8.10635E-02				
TIM	3.00000E 01	WHT	2.46603E 05	VEL	9.46105E 03	RANG	4.63435E 01	GAM	4.83052E 00
ALT	2.21026E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.67261E 00
SOS	9.78126E 02	LIFT	-2.05378E 04	DRAG	1.78242E 04	QATM	1.23912E 01	RHO	2.76863E-07
GR	1.11584E-01	ZDCT	0	ZR	2.74757E 02	XLON	8.02378E 01	XLAT	2.84525E 01
GAMC	-9.70000E 00	THR	0	GV	7.85169E-02				
TIM	3.10000E 01	WHT	2.46603E 05	VEL	9.45649E 03	RANG	4.78786E 01	GAM	4.64949E 00
ALT	2.21808E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.69099E 00
SOS	9.75802E 02	LIFT	-2.02338E 04	DRAG	1.72246E 04	QATM	1.19971E 01	RHO	2.68316E-07
GR	1.07767E-01	ZDCT	0	ZR	2.74833E 02	XLON	8.02123E 01	XLAT	2.84503E 01
GAMC	-9.70000E 00	THR	0	GV	7.61166E-02				
TIM	3.20000E 01	WHT	2.46603E 05	VEL	9.45211E 03	RANG	4.94134E 01	GAM	4.46887E 00
ALT	2.22559E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.70879E 00
SOS	9.73563E 02	LIFT	-1.95761E 04	DRAG	1.66760E 04	QATM	1.16284E 01	RHO	2.60310E-07
GR	1.04276E-01	ZDCT	0	ZR	2.74906E 02	XLON	8.01868E 01	XLAT	2.84481E 01
GAMC	-9.70000E 00	THR	0	GV	7.38732E-02				
TIM	3.30000E 01	WHT	2.46603E 05	VEL	9.44769E 03	RANG	5.09477E 01	GAM	4.28863E 00
ALT	2.23281E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.72597E 00
SOS	9.71408E 02	LIFT	-1.89619E 04	DRAG	1.61551E 04	QATM	1.12835E 01	RHO	2.52816E-07
GR	1.01015E-01	ZDCT	0	ZR	2.74976E 02	XLON	8.01614E 01	XLAT	2.84458E 01
GAMC	-9.70000E 00	THR	0	GV	7.17760E-02				
TIM	3.40000E 01	WHT	2.46603E 05	VEL	9.44361E 03	RANG	5.24817E 01	GAM	4.10874E 00
ALT	2.23982E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.74254E 00
SOS	9.69338E 02	LIFT	-1.83880E 04	DRAG	1.56776E 04	QATM	1.09612E 01	RHO	2.45806E-07
GR	9.79716E-02	ZDCT	0	ZR	2.75043E 02	XLON	8.01359E 01	XLAT	2.84436E 01
GAMC	-9.70000E 00	THR	0	GV	6.98249E-02				

TIM	3.50000E 01	WHT	2.46603E 05	VEL	9.43969E 03	RANG	5.40154E 01	GAM	3.92918E 00
ALT	2.24634E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.75846E 00
SOS	9.67354E 02	LIFT	-1.78539E 04	DRAG	1.52187E 04	QATM	1.06602E 01	RHO	2.39254E-07
GR	9.51324E-02	ZDOT	0	ZB	2.75108E 02	XLON	8.01105E 01	XLAT	2.84414E 01
GAMC	-9.70000E 00	THR	0	GV	6.80005E-02				
TIM	3.60000E 01	WHT	2.46603E 05	VEL	9.43610E 03	RANG	5.55487E 01	GAM	3.74992E 00
ALT	2.25266E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.77373E 00
SOS	9.65455E 02	LIFT	-1.73957E 04	DRAG	1.47975E 04	QATM	1.03792E 01	RHO	2.33136E-07
GR	9.24872E-02	ZDOT	0	ZB	2.75170E 02	XLON	8.00850E 01	XLAT	2.84391E 01
GAMC	-9.70000E 00	THR	0	GV	6.63040E-02				
TIM	3.70000E 01	WHT	2.46603E 05	VEL	9.43246E 03	RANG	5.70817E 01	GAM	3.57093E 00
ALT	2.25868E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.78834E 00
SOS	9.63642E 02	LIFT	-1.68919E 04	DRAG	1.44053E 04	QATM	1.01173E 01	RHO	2.27430E-07
GR	9.00241E-02	ZDOT	0	ZB	2.75230E 02	XLON	8.00596E 01	XLAT	2.84369E 01
GAMC	-9.70000E 00	THR	0	GV	6.47270E-02				
TIM	3.80000E 01	WHT	2.46603E 05	VEL	9.42895E 03	RANG	5.86143E 01	GAM	3.39220E 00
ALT	2.26441E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.80226E 00
SOS	9.61915E 02	LIFT	-1.64606E 04	DRAG	1.40406E 04	QATM	9.87353E 00	RHO	2.22114E-07
GR	8.77338E-02	ZDOT	0	ZB	2.75288E 02	XLON	8.00342E 01	XLAT	2.84347E 01
GAMC	-9.70000E 00	THR	0	GV	6.32436E-02				
TIM	3.90000E 01	WHT	2.46603E 05	VEL	9.42557E 03	RANG	6.01466E 01	GAM	3.21370E 00
ALT	2.26984E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.81549E 00
SOS	9.60275E 02	LIFT	-1.60602E 04	DRAG	1.37019E 04	QATM	9.64688E 00	RHO	2.17171E-07
GR	8.56071E-02	ZDOT	0	ZB	2.75345E 02	XLON	8.00087E 01	XLAT	2.84325E 01
GAMC	-9.70000E 00	THR	0	GV	6.19466E-02				
TIM	4.00000E 01	WHT	2.46603E 05	VEL	9.42241E 03	RANG	6.16787E 01	GAM	3.03542E 00
ALT	2.27498E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.82801E 00
SOS	9.58721E 02	LIFT	-1.56891E 04	DRAG	1.33879E 04	QATM	9.43654E 00	RHO	2.12583E-07
GR	8.36360E-02	ZDOT	0	ZB	2.75400E 02	XLON	7.99833E 01	XLAT	2.84303E 01
GAMC	-9.70000E 00	THR	0	GV	6.06569E-02				
TIM	4.10000E 01	WHT	2.46603E 05	VEL	9.41938E 03	RANG	6.32104E 01	GAM	2.85733E 00
ALT	2.27982E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.83980E 00
SOS	9.57253E 02	LIFT	-1.53459E 04	DRAG	1.30935E 04	QATM	9.24175E 00	RHO	2.08333E-07
GR	8.18126E-02	ZDOT	0	ZB	2.75453E 02	XLON	7.99579E 01	XLAT	2.84280E 01
GAMC	-9.70000E 00	THR	0	GV	5.95041E-02				
TIM	4.20000E 01	WHT	2.46603E 05	VEL	9.41617E 03	RANG	6.47416E 01	GAM	2.67942E 00
ALT	2.28437E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.85086E 00
SOS	9.55873E 02	LIFT	-1.50291E 04	DRAG	1.28294E 04	QATM	9.06181E 00	RHO	2.04407E-07
GR	8.01300E-02	ZDOT	0	ZB	2.75505E 02	XLON	7.99325E 01	XLAT	2.84258E 01
GAMC	-9.70000E 00	THR	0	GV	5.84400E-02				
TIM	4.30000E 01	WHT	2.46603E 05	VEL	9.41[illegible]8E 03	RANG	6.62729E 01	GAM	2.50166E 00
ALT	2.28868E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.86118E 00
SOS	9.54580E 02	LIFT	-1.47377E 04	DRAG	1.25868E 04	QATM	8.89606E 00	RHO	2.00792E-07
GR	7.85819E-02	ZDOT	0	ZB	2.75595E 02	XLON	7.99071E 01	XLAT	2.84236E 01
GAMC	-9.70000E 00	THR	0	GV	5.74789E-02				
TIM	4.40000E 01	WHT	2.46603E 05	VEL	9.41091E 03	RANG	6.78038E 01	GAM	2.32406E 00
ALT	2.29259E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.87074E 00
SOS	9.53375E 02	LIFT	-1.44706E 04	DRAG	1.23566E 04	QATM	8.74391E 00	RHO	1.97474E-07
GR	7.71623E-02	ZDOT	0	ZB	2.75605E 02	XLON	7.98817E 01	XLAT	2.84214E 01
GAMC	-9.70000E 00	THR	0	GV	5.65994E-02				
TIM	4.50000E 01	WHT	2.46603E 05	VEL	9.40785E 03	RANG	6.93544E 01	GAM	2.14657E 00
ALT	2.29626E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.87953E 00
SOS	9.52257E 02	LIFT	-1.42266E 04	DRAG	1.21590E 04	QATM	8.60483E 00	RHO	1.94443E-07
GR	7.58660E-02	ZDOT	0	ZB	2.75653E 02	XLON	7.98563E 01	XLAT	2.84191E 01
GAMC	-9.70000E 00	THR	0	GV	5.58045E-02				
TIM	4.60000E 01	WHT	2.46603E 05	VEL	9.40529E 03	RANG	7.08647E 01	GAM	1.76921E 00
ALT	2.29964E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.88754E 00
SOS	9.51227E 02	LIFT	-1.40049E 04	DRAG	1.19653E 04	QATM	8.47832E 00	RHO	1.91688E-07
GR	7.46881E-02	ZDOT	0	ZB	2.75700E 02	XLON	7.98309E 01	XLAT	2.84169E 01
GAMC	-9.70000E 00	THR	0	GV	5.50910E-02				
TIM	4.70000E 01	WHT	2.46603E 05	VEL	9.40265E 03	RANG	7.23947E 01	GAM	1.79194E 00
ALT	2.30272E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.89477E 00
SOS	9.50285E 02	LIFT	-1.38047E 04	DRAG	1.17957E 04	QATM	8.36394E 00	RHO	1.89200E-07
GR	7.36243E-02	ZDOT	0	ZB	2.75746E 02	XLON	7.98055E 01	XLAT	2.84147E 01
GAMC	-9.70000E 00	THR	0	GV	5.44569E-02				
TIM	4.80000E 01	WHT	2.46603E 05	VEL	9.40061E 03	RANG	7.39245E 01	GAM	1.61476E 00
ALT	2.30552E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.90120E 00
SOS	9.49431E 02	LIFT	-1.36253E 04	DRAG	1.16407E 04	QATM	8.26179E 00	RHO	1.86971E-07
GR	7.26707E-02	ZDOT	0	ZB	2.75791E 02	XLON	7.97801E 01	XLAT	2.84125E 01
GAMC	-9.70000E 00	THR	0	GV	5.38998E-02				
TIM	4.90000E 01	WHT	2.46603E 05	VEL	9.39827E 03	RANG	7.54546E 01	GAM	1.43765E 00
ALT	2.30802E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	3.00000E 01	MACH	9.90684E 00
SOS	9.48665E 02	LIFT	-1.34459E 04	DRAG	1.15057E 04	QATM	8.17001E 00	RHO	1.84994E-07
GR	7.18237E-02	ZDOT	0	ZB	2.75835E 02	XLON	7.97548E 01	XLAT	2.84103E 01
GAMC	-9.70000E 00	THR	0	GV	5.34179E-02				
TIM	5.00000E 01	WHT	2.46603E 05	VEL	9.39624E 03	RANG	7.69833E 01	GAM	1.26096E 00
ALT	2.31023E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	2.86014E 01	MACH	9.91177E 00
SOS	9.47988E 02	LIFT	-1.28836E 04	DRAG	1.05924E 04	QATM	8.08996E 00	RHO	1.83260E-07
GR	6.76454E-02	ZDOT	0	ZB	2.75878E 02	XLON	7.97294E 01	XLAT	2.84080E 01
GAMC	-9.70000E 00	THR	0	GV	5.12833E-02				
TIM	5.10000E 01	WHT	2.46603E 05	VEL	9.39449E 03	RANG	7.85123E 01	GAM	1.08501E 00
ALT	2.31216E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	2.59829E 01	MACH	9.91608E 00
SOS	9.47399E 02	LIFT	-1.16983E 04	DRAG	9.13109E 03	QATM	8.02095E 00	RHO	1.81765E-07
GR	6.08192E-02	ZDOT	0	ZB	2.75971E 02	XLON	7.97040E 01	XLAT	2.84058E 01
GAMC	-9.70000E 00	THR	0	GV	4.75369E-02				
TIM	5.20000E 01	WHT	2.46603E 05	VEL	9.39301E 03	RANG	8.00412E 01	GAM	9.09942E-01
ALT	2.31379E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	2.29955E 01	MACH	9.91976E 00
SOS	9.46898E 02	LIFT	-1.07509E 04	DRAG	7.65540E 03	QATM	7.96270E 00	RHO	1.80502E-07
GR	5.35192E-02	ZDOT	0	ZB	2.75963E 02	XLON	7.96786E 01	XLAT	2.84036E 01
GAMC	-9.70000E 00	THR	0	GV	4.30975E-02				
TIM	5.30000E 01	WHT	2.46603E 05	VEL	9.39181E 03	RANG	8.15699E 01	GAM	7.35939E-01
ALT	2.31514E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.95527E 01	MACH	9.92283E 00
SOS	9.46485E 02	LIFT	-9.37728E 03	DRAG	6.18767E 03	QATM	7.91495E 00	RHO	1.79465E-07
GR	4.55583E-02	ZDOT	0	ZB	2.76004E 02	XLON	7.96533E 01	XLAT	2.84014E 01
GAMC	-9.70000E 00	THR	0	GV	3.77084E-02				
TIM	5.40000E 01	WHT	2.46603E 05	VEL	9.39088E 03	RANG	8.30985E 01	GAM	5.63295E-01
ALT	2.31620E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.54424E 01	MACH	9.92527E 00
SOS	9.46158E 02	LIFT	-7.64493E 03	DRAG	4.73893E 03	QATM	7.87747E 00	RHO	1.78651E-07
GR	3.64739E-02	ZDOT	0	ZB	2.76024E 02	XLON	7.96279E 01	XLAT	2.83992E 01
GAMC	-9.70000E 00	THR	0	GV	3.08105E-02				
TIM	5.50000E 01	WHT	2.46603E 05	VEL	9.39021E 03	RANG	8.46269E 01	GAM	3.92560E-01
ALT	2.31699E 05	PHI	1.80000E 02	Z	9.50001E 01	ALPH	1.01316E 01	MACH	9.92709E 00
SOS	9.45918E 02	LIFT	-5.23052E 03	DRAG	3.34191E 03	QATM	7.85003E 00	RHO	1.78054E-07

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GR     2.51780E-03   ZDCT            0   ZR    2.76184E 02   XLON   7.96020E 01   XLAT   2.83969E 01
GAMC  -9.70000E 00   THR             0   GV    2.11119E-02

TIM    5.60000E 01   WHT   2.46603E 05   VFL   9.38967E 03   HANG   8.61554E 01   GAM    2.25981E-01
ALT    2.31749E 05   PHI   1.80000E 02   Z     9.50001E 01   ALPH             0   MACH   9.97826E 00
SOS    9.45763E 02   LIFT            0   DRAG  2.23549E 03   QAIM   7.81230E 00   HPQ    1.77608E-07
GR     9.05830E-03   ZDCT            0   ZR    2.76113E 02   XLON   7.95772E 01   XLAT   2.83947E 01
GAMC  -9.70000E 00   THR             0   GV   -4.57269E-05

TIM    5.70000E 01   WHT   2.46603E 05   VFL   9.38941E 03   HANG   8.76836E 01   GAM    5.93921E-02
ALT    2.31773E 05   PHI   1.80000E 02   Z     9.50001E 01   ALPH             0   MACH   9.97863E 00
SOS    9.45691E 02   LIFT            0   DRAG  2.23136E 03   QAIM   7.82387E 00   HPQ    1.77490E-07
GR     9.04827E-03   ZDCT            0   ZR    2.76172E 02   XLON   7.95518E 01   XLAT   2.83925E 01
GAMC  -9.70000E 00   THR             0   GV   -9.37943F-06

TIM    5.80000E 01   WHT   2.46603E 05   VFL   9.38943E 03   HANG   8.92121F 01   GAM   -1.07204E-01
ALT    2.31749E 05   PHI   1.80000E 02   Z     9.50001E 01   ALPH             0   MACH   9.97021E 00
SOS    9.45783E 02   LIFT            0   DRAG  2.23155E 03   QAIM   7.82472E 00   HPQ    1.77520E-07
GR     9.04015E-03   ZDCT            0   ZR    2.76200E 02   XLON   7.95265E 01   XLAT   2.83903E 01
GAMC  -9.70000E 00   THR             0   GV    1.69316E-05
GAMA REACHED
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TIM    5.90000E 01   WHT   2.46603E 05   VFL   9.38893E 03   HANG   9.07404E 01   GAM   -2.73806E-01
ALT    2.31738E 05   PHI   1.75000E 02   Z     9.50001E 01   ALPH             0   MACH   9.92699E 00
SOS    9.45790E 02   LIFT            0   DRAG  2.23406E 03   QAIM   7.81404E 00   HPQ    1.77757E-07
GR     9.06096E-03   ZDCT            0   ZR    2.76220E 02   XLON   7.95011E 01   XLAT   2.83881E 01
GAMC  -9.70000E 00   THR             0   GV    4.33395E-05

TIM    6.00000E 01   WHT   2.46603E 05   VFL   9.38871E 03   HANG   9.22080E 01   GAM   -4.40411F-01
ALT    2.31672E 05   PHI   1.70000E 02   Z     9.50001E 01   ALPH             0   MACH   9.92498E 00
SOS    9.45974E 02   LIFT            0   DRAG  2.24107E 03   QAIM   7.85420E 00   HPQ    1.78203E-07
GR     9.08372E-03   ZDCT            0   ZR    2.76275E 02   XLON   7.94758E 01   XLAT   2.83858E 01
GAMC  -9.70000E 00   THR             0   GV    6.98224E-05

TIM    6.10000E 01   WHT   2.46603E 05   VFL   9.38877E 03   HANG   9.37960E 01   GAM   -6.07016E-01
ALT    2.31593E 05   PHI   1.65000E 02   Z     9.50001E 01   ALPH             0   MACH   9.92217E 00
SOS    9.46241E 02   LIFT            0   DRAG  2.24804E 03   QAIM   7.88305E 00   HPQ    1.78457E-07
GR     9.11750E-03   ZDCT            0   ZR    2.76332E 02   XLON   7.94504E 01   XLAT   2.83836E 01
GAMC  -9.70000E 00   THR             0   GV    9.65919E-05

TIM    6.20000E 01   WHT   2.46603E 05   VFL   9.38860E 03   HANG   9.51250E 01   GAM   -7.73619E-01
ALT    2.31490E 05   PHI   1.60000E 02   Z     9.50001E 01   ALPH             0   MACH   9.91857E 00
SOS    9.44580E 02   LIFT            0   DRAG  2.25908E 03   QAIM   7.92129E 00   HPQ    1.79724E-07
GR     9.16242E-03   ZDCT            0   ZR    2.76396E 02   XLON   7.94251E 01   XLAT   2.83814E 01
GAMC  -9.70000E 00   THR             0   GV    1.23179E-04

TIM    6.30000E 01   WHT   2.46603E 05   VFL   9.38892F 03   HANG   9.66941E 01   GAM   -9.41219E-01
ALT    2.31340E 05   PHI   1.55000E 02   Z     9.50001E 01   ALPH             0   MACH   9.91419E 00
SOS    9.47014E 02   LIFT            0   DRAG  2.27143E 03   QAIM   7.96909E 00   HPQ    1.80004E-07
GR     9.21480E-03   ZDCT            0   ZR    2.76394E 02   XLON   7.93997E 01   XLAT   2.83792E 01
GAMC  -9.70000E 00   THR             0   GV    1.51270E-04

TIM    6.40000E 01   WHT   2.46603E 05   VFL   9.38921E 03   HANG   9.81812E 01   GAM   -1.10681E 00
ALT    2.31172E 05   PHI   1.50000E 02   Z     9.50001E 01   ALPH             0   MACH   9.90901E 00
SOS    9.47542E 02   LIFT            0   DRAG  2.29001E 03   QAIM   8.02061E 00   HPQ    1.82101E-07
GR     9.28622E-03   ZDCT            0   ZR    2.76419E 02   XLON   7.93743E 01   XLAT   2.83770E 01
GAMC  -9.70000E 00   THR             0   GV    1.79145E-04

TIM    6.50000E 01   WHT   2.46603E 05   VFL   9.38957E 03   HANG   9.99092E 01   GAM   -1.27340E 00
ALT    2.30977E 05   PHI   1.45000E 02   Z     9.50001E 01   ALPH             0   MACH   9.90305E 00
SOS    9.48129E 02   LIFT            0   DRAG  2.30946F 03   QAIM   8.09400E 00   HPQ    1.83620E-07


GR     9.36549E-03   ZDCT            0   ZR    2.76454F 02   XLON   7.93490E 01   XLAT   2.83748E 01
GAMC  -9.70000E 00   THR             0   GV    2.08140E-04

TIM    6.60000E 01   WHT   2.46603E 05   VFL   9.38992E 03   HANG   1.01437F 02   GAM   -1.43997E 00
ALT    2.30755E 05   PHI   1.40000E 02   Z     9.50001E 01   ALPH             0   MACH   9.89631E 00
SOS    9.48809E 02   LIFT            0   DRAG  2.33274E 03   QAIM   8.17149E 00   HPQ    1.85364E-07
GR     9.45665E-03   ZDCT            0   ZR    2.76479E 02   XLON   7.93236E 01   XLAT   2.83725E 01
GAMC  -9.70000E 00   THR             0   GV    2.37641E-04

TIM    6.70000E 01   WHT   2.46603E 05   VFL   9.39014E 03   HANG   1.02965F 02   GAM   -1.60653E 00
ALT    2.30505E 05   PHI   1.35000E 02   Z     9.50001E 01   ALPH             0   MACH   9.88880E 00
SOS    9.49573E 02   LIFT            0   DRAG  2.35713E 03   QAIM   8.25931E 00   HPQ    1.87340E-07
GR     9.56000E-03   ZDCT            0   ZR    2.76574E 02   XLON   7.92983E 01   XLAT   2.83703E 01
GAMC  -9.70000E 00   THR             0   GV    2.68970E-04

TIM    6.80000E 01   WHT   2.46603E 05   VFL   9.39053E 03   HANG   1.04493E 02   GAM   -1.77307E 00
ALT    2.30228E 05   PHI   1.30000E 02   Z     9.50001E 01   ALPH             0   MACH   9.88052E 00
SOS    9.50419E 02   LIFT            0   DRAG  2.38610E 03   QAIM   8.35772E 00   HPQ    1.89552E-07
GR     9.67580E-03   ZDCT            0   ZR    2.76590E 02   XLON   7.92729F 01   XLAT   2.83681E 01
GAMC  -9.70000E 00   THR             0   GV    2.99581F-04

TIM    6.90000E 01   WHT   2.46603E 05   VFL   9.39100E 03   HANG   1.06021E 02   GAM   -1.93960E 00
ALT    2.29924E 05   PHI   1.25000E 02   Z     9.50001E 01   ALPH             0   MACH   9.87148E 00
SOS    9.51347E 02   LIFT            0   DRAG  2.41764E 03   QAIM   8.46704E 00   HPQ    1.92000E-07
GR     9.80458E-03   ZDCT            0   ZR    2.76592E 02   XLON   7.92476E 01   XLAT   2.83659E 01
GAMC  -9.70000E 00   THR             0   GV    3.31445E-04

TIM    7.00000E 01   WHT   2.46603E 05   VFL   9.39156E 03   HANG   1.07549E 02   GAM   -2.10611E 00
ALT    2.29593E 05   PHI   1.20000E 02   Z     9.50001E 01   ALPH             0   MACH   9.86168E 00
SOS    9.52358E 02   LIFT            0   DRAG  2.45286F 03   QAIM   8.58766E 00   HPQ    1.94715E-07
GR     9.94458E-03   ZDCT            0   ZR    2.76635E 02   XLON   7.92222E 01   XLAT   2.83637E 01
GAMC  -9.70000E 00   THR             0   GV    3.65530E-04

TIM    7.10000E 01   WHT   2.46603E 05   VFL   9.39227E 03   HANG   1.09077E 02   GAM   -2.27259E 00
ALT    2.29234E 05   PHI   1.15000E 02   Z     9.50001E 01   ALPH             0   MACH   9.85114E 00
SOS    9.53451F 02   LIFT            0   DRAG  2.49176E 03   QAIM   8.71977E 00   HPQ    1.97681E-07
GR     1.01073F-02   ZDCT            0   ZR    2.76658E 02   XLON   7.91969F 01   XLAT   2.83614E 01
GAMC  -9.70000E 00   THR             0   GV    4.00555F-04

TIM    7.20000E 01   WHT   2.46603E 05   VFL   9.39357E 03   HANG   1.10605F 02   GAM   -2.43905E 00
ALT    2.28484E 05   PHI   1.10000F 02   Z     9.50001F 01   ALPH             0   MACH   9.83985E 00
SOS    9.54625F 02   LIFT            0   DRAG  2.53317E 03   QAIM   8.86397E 00   HPQ    2.00917E-07
GR     1.02773F-02   ZDCT            0   ZR    2.76691E 02   XLON   7.91715E 01   XLAT   2.83592E 01
GAMC  -9.70000E 00   THR             0   GV    4.37182F-04

TIM    7.30000E 01   WHT   2.46603E 05   VFL   9.39423E 03   HANG   1.12132E 02   GAM   -2.60548E 00
ALT    2.28434E 05   PHI   1.05000E 02   Z     9.50001E 01   ALPH             0   MACH   9.82783E 00
SOS    9.55881E 02   LIFT            0   DRAG  2.57872E 03   QAIM   9.02065E 00   HPQ    2.04430E-07
GR     1.04570E-02   ZDCT            0   ZR    2.76774E 02   XLON   7.91462E 01   XLAT   2.83570E 01
GAMC  -9.70000E 00   THR             0   GV    4.75370E-04

TIM    7.40000E 01   WHT   2.46603E 05   VFL   9.39510E 03   HANG   1.13660E 02   GAM   -2.77189E 00
ALT    2.27994E 05   PHI   1.00000E 02   Z     9.50001E 01   ALPH             0   MACH   9.81508E 00
SOS    9.57219E 02   LIFT            0   DRAG  2.62097E 03   QAIM   9.19030E 00   HPQ    2.08233E-07
GR     1.06571F-02   ZDCT            0   ZR    2.76758E 02   XLON   7.91208E 01   XLAT   2.83548E 01
GAMC  -9.70000E 00   THR             0   GV    5.19372E-04

TIM    7.50000E 01   WHT   2.46603E 05   VFL   9.39609E 03   HANG   1.15188E 02   GAM   -2.93826E 00
ALT    2.27526E 05   PHI   9.50000F 01   Z     9.50001E 01   ALPH             0   MACH   9.80162E 00
SOS    9.58637E 02   LIFT            0   DRAG  2.68176E 03   QAIM   9.37547E 00   HPQ    2.12338E-07
GR     1.08732E-02   ZDCT            0   ZR    2.76779E 02   XLON   7.90955F 01   XLAT   2.83526E 01
GAMC  -9.70000E 00   THR             0   GV    5.57390E-04
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TIM   7.60000E 01  WHT   2.46603E 05  VEL   9.39?6?E 03  RANG  1.16710E 02  GAM  -3.10460E 00
ALT   2.27030E 05  PHI   9.00000E 01  Z     9.50001E 01  ALPH            0  MACH  9.78745E 00
SOS   9.60135E 02  LIFT            0  DRAG  2.75847E 03  QATM  9.57073E 00  RHO   2.16756E-07
GR    1.11060E-02  ZDCT            0  ZR    2.76821E 02  XLON  7.9?701E 01  XLAT  2.83504E 01
GAMC -9.70000E 00  THR             0  GV    6.01488E-04
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TIM   7.70000E 01  WHT   2.46603E 05  VEL   9.39??3E 03  RANG  1.18244E 02  GAM  -3.27090E 00
ALT   2.26506E 05  PHI   8.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.77259E 00
SOS   9.61714E 02  LIFT            0  DRAG  2.80049E 03  QATM  9.76273E 00  RHO   2.21503E-07
GR    1.13563E-02  ZDCT            0  ZR    2.76822E 02  XLON  7.90446E 01  XLAT  2.83481E 01
GAMC -9.70000E 00  THR             0  GV    6.474?4E-04
----------------------------------------------------------------------------------------------
TIM   7.80000E 01  WHT   2.46603E 05  VEL   9.39976E 03  RANG  1.19771E 02  GAM  -3.43717E 00
ALT   2.25958E 05  PHI   8.00000E 01  Z     9.50001E 01  ALPH            0  MACH  9.75704E 00
SOS   9.63373E 02  LIFT            0  DRAG  2.86672E 03  QATM  1.00101E 01  RHO   2.26592E-07
GR    1.16248E-02  ZDCT            1  ZR    2.76??4E 02  XLON  7.96194E 01  XLAT  2.83459E 01
GAMC -9.70000E 00  THR             0  GV    6.96995E-04
----------------------------------------------------------------------------------------------
TIM   7.90000E 01  WHT   2.46603E 05  VEL   9.40046E 03  RANG  1.21299E 02  GAM  -3.60339E 00
ALT   2.25361E 05  PHI   7.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.74081E 00
SOS   9.65111E 02  LIFT            0  DRAG  2.93769E 03  QATM  1.02537E 01  RHO   2.32042E-07
GR    1.19126E-02  ZDCT            0  ZR    2.769?5E 02  XLON  7.89941E 01  XLAT  2.83437E 01
GAMC -9.70000E 00  THR             0  GV    7.487?4E-04
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TIM   8.00000E 01  WHT   2.46603E 05  VEL   9.402?3E 03  RANG  1.22827E 02  GAM  -3.76959E 00
ALT   2.24776E 05  PHI   7.00000E 01  Z     9.50001E 01  ALPH            0  MACH  9.72392E 00
SOS   9.66928E 02  LIFT            0  DRAG  3.01362E 03  QATM  1.05142E 01  RHO   2.37867E-07
GR    1.22205E-02  ZDCT            0  ZR    2.76?46E 02  XLON  7.89687E 01  XLAT  2.83415E 01
GAMC -9.70000E 00  THR             0  GV    8.034?9E-04
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TIM   8.10000E 01  WHT   2.46603E 05  VEL   9.403?7E 03  RANG  1.24354E 02  GAM  -3.93572E 00
ALT   2.24194E 05  PHI   6.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.70638E 00
SOS   9.68823E 02  LIFT            0  DRAG  3.09476E 03  QATM  1.07925E 01  RHO   2.44089E-07
GR    1.25497E-02  ZDCT            0  ZR    2.769?7E 02  XLON  7.89434E 01  XLAT  2.83393E 01
GAMC -9.70000E 00  THR             0  GV    8.61??5E-04
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TIM   8.20000E 01  WHT   2.46603E 05  VEL   9.405?7E 03  RANG  1.25882E 02  GAM  -4.10181E 00
ALT   2.23465E 05  PHI   6.00000E 01  Z     9.50001E 01  ALPH            0  MACH  9.68820E 00
SOS   9.70797E 02  LIFT            0  DRAG  3.18??4E 03  QATM  1.1?695E 01  RHO   2.5?726E-07
GR    1.29011E-02  ZDCT            0  ZR    2.77??6E 02  XLON  7.89181E 01  XLAT  2.83371E 01
GAMC -9.70000E 00  THR             0  GV    9.22?9?E-04
----------------------------------------------------------------------------------------------
TIM   8.30000E 01  WHT   2.46603E 05  VEL   9.40655E 03  RANG  1.27409E 02  GAM  -4.26786E 00
ALT   2.22799E 05  PHI   5.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.66939E 00
SOS   9.72848E 02  LIFT            0  DRAG  3.27379E 03  QATM  1.14063E 01  RHO   2.57801E-07
GR    1.32759E-02  ZDCT            0  ZR    2.77??9E 02  XLON  7.88927E 01  XLAT  2.83348E 01
GAMC -9.70000E 00  THR             1  GV    9.87967E-04
----------------------------------------------------------------------------------------------
TIM   8.40000E 01  WHT   2.46603E 05  VEL   9.40849E 03  RANG  1.28937E 02  GAM  -4.43386E 00
ALT   2.22085E 05  PHI   5.00000E 01  Z     9.50001E 01  ALPH            0  MACH  9.64997E 00
SOS   9.74976E 02  LIFT            0  DRAG  3.37?4?E 03  QATM  1.17438E 01  RHO   2.65337E-07
GR    1.36756E-02  ZDCT            0  ZR    2.774?9E 02  XLON  7.88674E 01  XLAT  2.83326E 01
GAMC -9.70000E 00  THR             0  GV    1.05??4E-03
PHI REACHED
**********************************************************************************************
TIM   8.50000E 01  WHT   2.46603E 05  VEL   9.41??9E 03  RANG  1.3?465E 02  GAM  -4.59980E 00
ALT   2.21344E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.62994E 00
SOS   9.77181E 02  LIFT            0  DRAG  3.47?45E 03  QATM  1.21032E 01  RHO   2.73359E-07
GR    1.41014E-02  ZDCT            0  ZR    2.77??9E 02  XLON  7.88420E 01  XLAT  2.83304E 01
GAMC -9.70000E 00  THR             0  GV    1.13?47E-03


TIM   8.60000E 01  WHT   2.46603E 05  VEL   9.41??7E 03  RANG  1.31992E 02  GAM  -4.76569E 00
ALT   2.20576E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.60932E 00
SOS   9.79462E 02  LIFT            0  DRAG  3.569?7E 03  QATM  1.24657E 01  RHO   2.81892E-07
GR    1.45546E-02  ZDCT            0  ZR    2.771?0E 02  XLON  7.88167E 01  XLAT  2.83282E 01
GAMC -9.70000E 00  THR             0  GV    1.20???E-03
----------------------------------------------------------------------------------------------
TIM   8.70000E 01  WHT   2.46603E 05  VEL   9.41380E 03  RANG  1.33520E 02  GAM  -4.93152E 00
ALT   2.19760E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.58812E 00
SOS   9.81819E 02  LIFT            0  DRAG  3.708?9E 03  QATM  1.28927E 01  RHO   2.90967E-07
GR    1.50375E-02  ZDCT            0  ZR    2.77159E 02  XLON  7.87913E 01  XLAT  2.83260E 01
GAMC -9.70000E 00  THR             0  GV    1.29270E-03
----------------------------------------------------------------------------------------------
TIM   8.80000E 01  WHT   2.46603E 05  VEL   9.415?0E 03  RANG  1.35047E 02  GAM  -5.09730E 00
ALT   2.18957E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.56636E 00
SOS   9.84251E 02  LIFT            0  DRAG  3.83493E 03  QATM  1.33255E 01  RHO   3.00614E-07
GR    1.55510E-02  ZDCT            0  ZR    2.77?9?E 02  XLON  7.87660E 01  XLAT  2.83237E 01
GAMC -9.70000E 00  THR             0  GV    1.38??7E-03
----------------------------------------------------------------------------------------------
TIM   8.90000E 01  WHT   2.46603E 05  VEL   9.41766E 03  RANG  1.36575E 02  GAM  -5.26302E 00
ALT   2.18107E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.54405E 00
SOS   9.86757E 02  LIFT            0  DRAG  3.96964E 03  QATM  1.37857E 01  RHO   3.10865E-07
GR    1.60973E-02  ZDCT            1  ZR    2.77219E 02  XLON  7.87406E 01  XLAT  2.83215E 01
GAMC -9.70000E 00  THR             1  GV    1.47657E-03
----------------------------------------------------------------------------------------------
TIM   9.00000E 01  WHT   2.46603E 05  VEL   9.41968E 03  RANG  1.38102E 02  GAM  -5.42867E 00
ALT   2.17230E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.52120E 00
SOS   9.89338E 02  LIFT            0  DRAG  4.11?41E 03  QATM  1.42746E 01  RHO   3.21756E-07
GR    1.66782E-02  ZDCT            0  ZR    2.77246E 02  XLON  7.87153E 01  XLAT  2.83193E 01
GAMC -9.70000E 00  THR             0  GV    1.57??7E-03
----------------------------------------------------------------------------------------------
TIM   9.10000E 01  WHT   2.46603E 05  VEL   9.42??6E 03  RANG  1.39630E 02  GAM  -5.59426E 00
ALT   2.16325E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.49782E 00
SOS   9.91992E 02  LIFT            0  DRAG  4.265?6E 03  QATM  1.47942E 01  RHO   3.33?2?E-07
GR    1.72959E-02  ZDCT            0  ZR    2.772?8E 02  XLON  7.86899E 01  XLAT  2.83171E 01
GAMC -9.70000E 00  THR             0  GV    1.686?6E-03
----------------------------------------------------------------------------------------------
TIM   9.20000E 01  WHT   2.46603E 05  VEL   9.42?46E 03  RANG  1.41157E 02  GAM  -5.75979E 00
ALT   2.15393E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.47393E 00
SOS   9.94719E 02  LIFT            0  DRAG  4.427?7E 03  QATM  1.53467E 01  RHO   3.45608E-07
GR    1.79526E-02  ZDCT            0  ZR    2.773?7E 02  XLON  7.86646E 01  XLAT  2.83149E 01
GAMC -9.70000E 00  THR             0  GV    1.80169E-03
----------------------------------------------------------------------------------------------
TIM   9.30000E 01  WHT   2.46603E 05  VEL   9.42?9?E 03  RANG  1.42684E 02  GAM  -5.92524E 00
ALT   2.14433E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.44955E 00
SOS   9.97518E 02  LIFT            0  DRAG  4.599?2E 03  QATM  1.59334E 01  RHO   3.58653E-07
GR    1.86507E-02  ZDCT            0  ZR    2.773?6E 02  XLON  7.86393E 01  XLAT  2.83127E 01
GAMC -9.70000E 00  THR             0  GV    1.92??3E-03
----------------------------------------------------------------------------------------------
TIM   9.40000E 01  WHT   2.46603E 05  VEL   9.42??5E 03  RANG  1.44212E 02  GAM  -6.09063E 00
ALT   2.13447E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.42468E 00
SOS   1.00039E 03  LIFT            0  DRAG  4.78230E 03  QATM  1.65566E 01  RHO   3.72504E-07
GR    1.93927E-02  ZDCT            0  ZR    2.77365E 02  XLON  7.86139E 01  XLAT  2.83104E 01
GAMC -9.70000E 00  THR             0  GV    2.05759E-03
----------------------------------------------------------------------------------------------
TIM   9.50000E 01  WHT   2.46603E 05  VEL   9.43?65E 03  RANG  1.45739E 02  GAM  -6.25595E 00
ALT   2.12432E 05  PHI   4.50000E 01  Z     9.50001E 01  ALPH            0  MACH  9.39934E 00
SOS   1.00335E 03  LIFT            0  DRAG  4.97679E 03  QATM  1.72187E 01  RHO   3.87209E-07
GR    2.01814E-02  ZDCT            0  ZR    2.77394E 02  XLON  7.85886E 01  XLAT  2.83082E 01
GAMC -9.70000E 00  THR             0  GV    2.19917E-03
----------------------------------------------------------------------------------------------
TIM   9.60000E 01  WHT   2.46603E 05  VEL   9.433?1E 03  RANG  1.47266E 02  GAM  -6.42120E 00
```

ALT	2.11391E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.37355E 00		
SOS	1.00654E 03	LIFT	0	DRAG	5.16351E 03	QATM	1.79219E 01	RHO	4.02822E-07		
GR	2.10196E-02	ZDCT	0	ZR	2.77443E 02	XLON	7.85632E 01	XLAT	2.83060E 01		
GAMC	-9.70000E 00	THR	0	GV	2.35476E-03						
TIM	9.70000E 01	WHT	2.46603E 05	VEL	9.43542E 03	RANG	1.48794E 02	GAM	-6.58637E 00		
ALT	2.10323E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.34731E 00		
SOS	1.00943E 03	LIFT	0	DRAG	5.40335E 03	QATM	1.86689E 01	RHO	4.19397E-07		
GR	2.19196E-02	ZDCT	0	ZR	2.77442E 02	XLON	7.85379E 01	XLAT	2.83038E 01		
GAMC	-9.70000E 00	THR	0	GV	2.51317E-03						
TIM	9.80000E 01	WHT	2.46603E 05	VEL	9.43768E 03	RANG	1.50321E 02	GAM	-6.75146E 00		
ALT	2.09227E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.32064E 00		
SOS	1.01258E 03	LIFT	0	DRAG	5.63027E 03	QATM	1.94624E 01	RHO	4.36995E-07		
GR	2.28577E-02	ZDCT	0	ZR	2.77406E 02	XLON	7.85126E 01	XLAT	2.83016E 01		
GAMC	-9.70000E 00	THR	0	GV	2.68721E-03						
TIM	9.90000E 01	WHT	2.46603E 05	VEL	9.44[illegible]9E 03	RANG	1.51848E 02	GAM	-6.91648E 00		
ALT	2.08164E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.29356E 00		
SOS	1.01580E 03	LIFT	0	DRAG	5.8[illegible]3E 03	QATM	2.04053E 01	RHO	4.55679E-07		
GR	2.38644E-02	ZDCT	0	ZR	2.77519E 02	XLON	7.84872E 01	XLAT	2.82994E 01		
GAMC	-9.70000E 00	THR	0	GV	2.87381E-03						
TIM	1.00000E 02	WHT	2.46603E 05	VEL	9.44244E 03	RANG	1.53375E 02	GAM	-7.08142E 00		
ALT	2.06953E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.26607E 00		
SOS	1.01909E 03	LIFT	0	DRAG	6.14554E 03	QATM	2.12007E 01	RHO	4.75518E-07		
GR	2.49346E-02	ZDCT	0	ZR	2.77547E 02	XLON	7.84619E 01	XLAT	2.82971E 01		
GAMC	-9.70000E 00	THR	0	GV	3.07[illegible]3E-03						
TIM	1.01000E 02	WHT	2.46603E 05	VEL	9.44543E 03	RANG	1.54902E 02	GAM	-7.24628E 00		
ALT	2.05775E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.23819E 00		
SOS	1.02244E 03	LIFT	0	DRAG	6.49[illegible]1E 03	QATM	2.23521E 01	RHO	4.96583E-07		
GR	2.64723E-02	ZDCT	0	ZR	2.77[illegible]55E 02	XLON	7.84365E 01	XLAT	2.82949E 01		
GAMC	-9.70000E 00	THR	0	GV	3.28[illegible]2E-03						
TIM	1.02000E 02	WHT	2.46603E 05	VEL	9.44[illegible]2E 03	RANG	1.56429E 02	GAM	-7.41106E 00		
ALT	2.04578E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.20994E 00		
SOS	1.02587E 03	LIFT	0	DRAG	6.72[illegible]3E 03	QATM	2.31629E 01	RHO	5.18954E-07		
GR	2.72820E-02	ZDCT	0	ZR	2.77[illegible]4E 02	XLON	7.84112E 01	XLAT	2.82927E 01		
GAMC	-9.70000E 00	THR	0	GV	3.51[illegible]3E-03						
TIM	1.03000E 02	WHT	2.46603E 05	VEL	9.45[illegible]4E 03	RANG	1.57956E 02	GAM	-7.57576E 00		
ALT	2.03338E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.18132E 00		
SOS	1.02936E 03	LIFT	0	DRAG	7.04503E 03	QATM	2.42371E 01	RHO	5.42711E-07		
GR	2.85683E-02	ZDCT	0	ZR	2.77[illegible]2E 02	XLON	7.83859E 01	XLAT	2.82905E 01		
GAMC	-9.70000E 00	THR	0	GV	3.76[illegible]6E-03						
TIM	1.04000E 02	WHT	2.46603E 05	VEL	9.45355E 03	RANG	1.59483E 02	GAM	-7.74037E 00		
ALT	2.02078E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.15235E 00		
SOS	1.03291E 03	LIFT	0	DRAG	7.48[illegible]7E 03	QATM	2.53785E 01	RHO	5.67945E-07		
GR	2.99362E-02	ZDCT	0	ZR	2.776[illegible]8E 02	XLON	7.83605E 01	XLAT	2.82883E 01		
GAMC	-9.70000E 00	THR	0	GV	4.031[illegible]4E-03						
TIM	1.05000E 02	WHT	2.46603E 05	VEL	9.45[illegible]0E 03	RANG	1.61010E 02	GAM	-7.90490E 00		
ALT	2.00794E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.12304E 00		
SOS	1.03653E 03	LIFT	0	DRAG	7.74[illegible]4E 03	QATM	2.65917E 01	RHO	5.94750E-07		
GR	3.13911E-02	ZDCT	0	ZR	2.776[illegible]6E 02	XLON	7.83352E 01	XLAT	2.82861E 01		
GAMC	-9.70000E 00	THR	0	GV	4.317[illegible]0E-03						
TIM	1.06000E 02	WHT	2.46603E 05	VEL	9.45[illegible]7E 03	RANG	1.62537E 02	GAM	-8.46934E 00		
ALT	1.99477E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.[illegible]9340E 00		
SOS	1.04021E 03	LIFT	0	DRAG	8.122[illegible]7E 03	QATM	2.78813E 01	RHO	6.23225E-07		
GR	3.29367E-02	ZDCT	0	ZR	2.777[illegible]5E 02	XLON	7.8[illegible]099E 01	XLAT	2.82878E 01		
GAMC	-9.70000E 00	THR	0	GV	4.62[illegible]5E-03						
TIM	1.07000E 02	WHT	2.46603E 05	VEL	9.46[illegible]7E 03	RANG	1.64064E 02	GAM	-8.23369E 00		
ALT	1.98136E 05	PHI	4.50000E 01	Z	9.50[illegible]1E 01	ALPH	0	MACH	9.06345E 00		
SOS	1.04396E 03	LIFT	0	DRAG	8.52876E 03	QATM	2.92521E 01	RHO	6.53481E-07		
GR	3.45850E-02	ZDCT	0	ZR	2.777[illegible]3E 02	XLON	7.82845E 01	XLAT	2.82816E 01		
GAMC	-9.70000E 00	THR	0	GV	4.952[illegible]5E-03						
TIM	1.08000E 02	WHT	2.46603E 05	VEL	9.46470E 03	RANG	1.65591E 02	GAM	-8.59796E 00		
ALT	1.96767E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.03519E 00		
SOS	1.04777E 03	LIFT	0	DRAG	9.960[illegible]1E 03	QATM	3.02996E 01	RHO	6.85631E-07		
GR	3.63366E-02	ZDCT	0	ZR	2.777[illegible]1E 02	XLON	7.82592E 01	XLAT	2.82794E 01		
GAMC	-9.70000E 00	THR	0	GV	5.306[illegible]7E-03						
TIM	1.09000E 02	WHT	2.46603E 05	VEL	9.46724E 03	RANG	1.67117E 02	GAM	-8.96213E 00		
ALT	1.95371E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.00264E 00		
SOS	1.05164E 03	LIFT	0	DRAG	9.42[illegible]3E 03	QATM	3.22595E 01	RHO	7.14797E-07		
GR	3.82804E-02	ZDCT	0	ZR	2.777[illegible]8E 02	XLON	7.82339E 01	XLAT	2.82772E 01		
GAMC	-9.70000E 00	THR	0	GV	5.68[illegible]4E-03						
TIM	1.10000E 02	WHT	2.46603E 05	VEL	9.47[illegible]0E 03	RANG	1.68644E 02	GAM	-8.72022E 00		
ALT	1.9394[illegible]E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.97180E 00		
SOS	1.05557E 03	LIFT	0	DRAG	9.94[illegible]8E 03	QATM	3.39073E 01	RHO	7.56111E-07		
GR	4.11839E-02	ZDCT	0	ZR	2.777[illegible]6E 02	XLON	7.82085E 01	XLAT	2.82750E 01		
GAMC	-9.70000E 00	THR	0	GV	6.096[illegible]3E-03						
TIM	1.11000E 02	WHT	2.46603E 05	VEL	9.473[illegible]8E 03	RANG	1.7[illegible]170E 02	GAM	-8.89021E 00		
ALT	1.92499E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.94069E 00		
SOS	1.05957E 03	LIFT	0	DRAG	1.03[illegible]1E 04	QATM	3.56000E 01	RHO	7.94713E-07		
GR	4.29951E-02	ZDCT	0	ZR	2.77643E 02	XLON	7.81832E 01	XLAT	2.82728E 01		
GAMC	-9.70000E 00	THR	0	GV	6.53635E-03						
TIM	1.12000E 02	WHT	2.46603E 05	VEL	9.47[illegible]6E 03	RANG	1.7[illegible]690E 02	GAM	-9.05411E 00		
ALT	1.91626E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.90933E 00		
SOS	1.06[illegible]E 03	LIFT	0	DRAG	1.09[illegible]5E 04	QATM	3.75242E 01	RHO	8.35752E-07		
GR	4.45423E-02	ZDCT	0	ZR	2.779[illegible]1E 02	XLON	7.81579E 01	XLAT	2.82705E 01		
GAMC	-9.70000E 00	THR	0	GV	7.009[illegible]0E-03						
TIM	1.13000E 02	WHT	2.46603E 05	VEL	9.479[illegible]4E 03	RANG	1.73222E 02	GAM	-9.21792E 00		
ALT	1.89515E 05	PHI	4.50000E 01	Z	9.50[illegible]1E 01	ALPH	0	MACH	8.87770E 00		
SOS	1.06774E 03	LIFT	0	DRAG	1.15743E 04	QATM	3.95074E 01	RHO	8.79387E-07		
GR	4.69348E-02	ZDCT	0	ZR	2.77[illegible]8E 02	XLON	7.81326E 01	XLAT	2.82683E 01		
GAMC	-9.70000E 00	THR	0	GV	7.518[illegible]8E-03						
TIM	1.14000E 02	WHT	2.46603E 05	VEL	9.48[illegible]3E 03	RANG	1.74746E 02	GAM	-9.38164E 00		
ALT	1.87983E 05	PHI	4.50000E 01	Z	9.50[illegible]1E 01	ALPH	0	MACH	8.84564E 00		
SOS	1.07191E 03	LIFT	0	DRAG	1.22[illegible]4E 04	QATM	4.16174E 01	RHO	9.25787E-07		
GR	4.94[illegible]8E-02	ZDCT	0	ZR	2.779[illegible]5E 02	XLON	7.81073E 01	XLAT	2.82661E 01		
GAMC	-9.70000E 00	THR	0	GV	8.066[illegible]6E-03						
TIM	1.15000E 02	WHT	2.46603E 05	VEL	9.484[illegible]1E 03	RANG	1.76274E 02	GAM	-9.54527E 00		
ALT	1.86424E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.81374E 00		
SOS	1.07614E 03	LIFT	0	DRAG	1.28713E 04	QATM	4.38623E 01	RHO	9.75135E-07		
GR	5.21944E-02	ZDCT	0	ZR	2.77[illegible]2E 02	XLON	7.80819E 01	XLAT	2.82639E 01		
GAMC	-9.70000E 00	THR	0	GV	8.655[illegible]4E-03						
TIM	1.16000E 02	WHT	2.46603E 05	VEL	9.48[illegible]7E 03	RANG	.77800E 02	GAM	-9.70880E 00		
ALT	1.84837E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.78141E 00		
SOS	1.08643E 03	LIFT	0	DRAG	1.39[illegible]6E 04	QATM	4.67512E 01	RHO	1.07762E-06		
GR	5.50831E-02	ZDCT	0	ZR	2.77579E 02	XLON	7.80566E 01	XLAT	2.82617E 01		
GAMC	-9.70000E 00	THR	0	GV	9.289[illegible]5E-03						

GAMC REACHED

TIM	1.17000E 02	WHT	2.46603E 05	VEL	9.49[illegible]2E 03	RANG	1.79325E 02	GAM	-9.87224E 00
ALT	1.83224E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.74887E 00
SOS	1.08477E 03	LIFT	0	DRAG	1.43423E 04	QATM	4.87935E 01	RHO	1.08346E-06
GR	5.81596E-02	ZDOT	0	ZR	2.78006E 02	XLON	7.80313E 01	XLAT	2.82595E 01
GAMC	-9.70000E 00	THR	0	GV	9.97156E-03				
TIM	1.18000E 02	WHT	2.46603E 05	VEL	9.49335E 03	RANG	1.80851E 02	GAM	-1.00356E 01
ALT	1.81583E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.71612E 00
SOS	1.08917E 03	LIFT	0	DRAG	1.51[illegible]5E 04	QATM	5.14993E 01	RHO	1.14286E-06
GR	6.14346E-02	ZDOT	0	ZR	2.78[illegible]3E 02	XLON	7.80060E 01	XLAT	2.82573E 01
GAMC	-9.70000E 00	THR	0	GV	1.07[illegible]9E-02				
TIM	1.19000E 02	WHT	2.46603E 05	VEL	9.49[illegible]4E 03	RANG	1.82376E 02	GAM	-1.01988E 01
ALT	1.79915E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.68316E 00
SOS	1.09363E 03	LIFT	0	DRAG	1.60[illegible]5E 04	QATM	5.43794E 01	RHO	1.20606E-06
GR	6.49275E-02	ZDOT	0	ZR	2.78[illegible]0E 02	XLON	7.79807E 01	XLAT	2.82550E 01
GAMC	-9.70000E 00	THR	0	GV	1.14964E-02				
TIM	1.20000E 02	WHT	2.46603E 05	VEL	9.49890E 03	RANG	1.83901E 02	GAM	-1.03620E 01
ALT	1.78224E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.65000E 00
SOS	1.09814E 03	LIFT	0	DRAG	1.69264E 04	QATM	5.74452E 01	RHO	1.27332E-06
GR	6.86464E-02	ZDOT	0	ZR	2.78087E 02	XLON	7.79554E 01	XLAT	2.82528E 01
GAMC	-9.70000E 00	THR	0	GV	1.23428E-02				
TIM	1.21000E 02	WHT	2.46603E 05	VEL	9.50161E 03	RANG	1.85426E 02	GAM	-1.05251E 01
ALT	1.76495E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.61666E 00
SOS	1.10270E 03	LIFT	0	DRAG	1.79055E 04	QATM	6.07088E 01	RHO	1.34489E-06
GR	7.26087E-02	ZDOT	0	ZR	2.78134E 02	XLON	7.79301E 01	XLAT	2.82506E 01
GAMC	-9.70000E 00	THR	0	GV	1.32661E-02				
TIM	1.22000E 02	WHT	2.46603E 05	VEL	9.50[illegible]7E 03	RANG	1.86950E 02	GAM	-1.06880E 01
ALT	1.74749E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.59532E 00
SOS	1.10575E 03	LIFT	0	DRAG	1.90[illegible]8E 04	QATM	6.43704E 01	RHO	1.42521E-06
GR	7.70544E-02	ZDOT	0	ZR	2.78141E 02	XLON	7.79048E 01	XLAT	2.82484E 01
GAMC	-9.70000E 00	THR	0	GV	1.42[illegible]6E-02				
TIM	1.23000E 02	WHT	2.46603E 05	VEL	9.50[illegible]4E 03	RANG	1.88474E 02	GAM	-1.08509E 01
ALT	1.72973E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.55765E 00
SOS	1.10575E 03	LIFT	0	DRAG	2.02[illegible]2E 04	QATM	6.86867E 01	RHO	1.51995E-06
GR	8.22665E-02	ZDOT	0	ZR	2.78[illegible]7E 02	XLON	7.78795E 01	XLAT	2.82462E 01
GAMC	-9.70000E 00	THR	0	GV	1.54870E-02				
TIM	1.24000E 02	WHT	2.46603E 05	VEL	9.50[illegible]3E 03	RANG	1.89990E 02	GAM	-1.10137E 01
ALT	1.71170E 05	PHI	4.50000E 01	Z	9.50[illegible]1E 01	ALPH	0	MACH	8.55989E 00
SOS	1.10575E 03	LIFT	0	DRAG	2.16[illegible]2E 04	QATM	7.33635E 01	RHO	1.62200E-06
GR	8.78626E-02	ZDOT	0	ZR	2.78194E 02	XLON	7.78542E 01	XLAT	2.82440E 01
GAMC	-9.70000E 00	THR	0	GV	1.67856E-02				
TIM	1.25000E 02	WHT	2.46603E 05	VEL	9.51[illegible]0E 03	RANG	1.91522E 02	GAM	-1.11764E 01
ALT	1.69339E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.60204E 00
SOS	1.10575E 03	LIFT	0	DRAG	2.31[illegible]5E 04	QATM	7.84345E 01	RHO	1.73389E-06
GR	9.39304E-02	ZDOT	0	ZR	2.78[illegible]1E 02	XLON	7.78290E 01	XLAT	2.82418E 01
GAMC	-9.70000E 00	THR	0	GV	1.82[illegible]6E-02				
TIM	1.26000E 02	WHT	2.46603E 05	VEL	9.51[illegible]5E 03	RANG	1.93045E 02	GAM	-1.13391E 01
ALT	1.67482E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.60407E 00
SOS	1.10575E 03	LIFT	0	DRAG	2.47871E 04	QATM	8.39367E 01	RHO	1.85464E-06
GR	1.00514E-01	ZDOT	0	ZR	2.78247E 02	XLON	7.78037E 01	XLAT	2.82396E 01
GAMC	-9.70000E 00	THR	0	GV	1.97625E-02				
TIM	1.27000E 02	WHT	2.46603E 05	VEL	9.51[illegible]5E 03	RANG	1.94566E 02	GAM	-1.15016E 01
ALT	1.65598E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.60598E 00
SOS	1.10575E 03	LIFT	0	DRAG	2.65499E 04	QATM	8.99109E 01	RHO	1.98577E-06
GR	1.07662E-01	ZDOT	0	ZR	2.78274E 02	XLON	7.77784E 01	XLAT	2.82373E 01
GAMC	-9.70000E 00	THR	0	GV	2.14674E-02				
TIM	1.28000E 02	WHT	2.46603E 05	VEL	9.51[illegible]0E 03	RANG	1.96090E 02	GAM	-1.16641E 01
ALT	1.63687E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.60774E 00
SOS	1.10575E 03	LIFT	0	DRAG	2.84653E 04	QATM	9.64020E 01	RHO	2.12826E-06
GR	1.15430E-01	ZDOT	0	ZR	2.78300E 02	XLON	7.77532E 01	XLAT	2.82351E 01
GAMC	-9.70000E 00	THR	0	GV	2.33368E-02				
TIM	1.29000E 02	WHT	2.46603E 05	VEL	9.51[illegible]6E 03	RANG	1.97612E 02	GAM	-1.18265E 01
ALT	1.61750E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.60933E 00
SOS	1.10575E 03	LIFT	0	DRAG	3.05428E 04	QATM	1.03466E 02	RHO	2.28323E-06
GR	1.23875E-01	ZDOT	0	ZR	2.78326E 02	XLON	7.77279E 01	XLAT	2.82329E 01
GAMC	-9.70000E 00	THR	0	GV	2.53879E-02				
TIM	1.30000E 02	WHT	2.46603E 05	VEL	9.52[illegible]1E 03	RANG	1.99134E 02	GAM	-1.19888E 01
ALT	1.59765E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.61074E 00
SOS	1.10575E 03	LIFT	0	DRAG	3.28128E 04	QATM	1.11156E 02	RHO	2.45189E-06
GR	1.33063E-01	ZDOT	0	ZR	2.78353E 02	XLON	7.77027E 01	XLAT	2.82307E 01
GAMC	-9.70000E 00	THR	0	GV	2.76599E-02				
TIM	1.31000E 02	WHT	2.46603E 05	VEL	9.52264E 03	RANG	2.00655E 02	GAM	-1.21510E 01
ALT	1.57794E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.61194E 00
SOS	1.10575E 03	LIFT	0	DRAG	3.52888E 04	QATM	1.19499E 02	RHO	2.63559E-06
GR	1.43067E-01	ZDOT	0	ZR	2.78379E 02	XLON	7.76774E 01	XLAT	2.82285E 01
GAMC	-9.70000E 00	THR	0	GV	3.01141E-02				
TIM	1.32000E 02	WHT	2.46603E 05	VEL	9.52[illegible]1E 03	RANG	2.02175E 02	GAM	-1.23132E 01
ALT	1.55777E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.61290E 00
SOS	1.10575E 03	LIFT	0	DRAG	3.79677E 04	QATM	1.28007E 02	RHO	2.83584E-06
GR	1.53967E-01	ZDOT	0	ZR	2.78425E 02	XLON	7.76522E 01	XLAT	2.82263E 01
GAMC	-9.70000E 00	THR	0	GV	3.28[illegible]3E-02				
TIM	1.33000E 02	WHT	2.46603E 05	VEL	9.52448E 03	RANG	2.03695E 02	GAM	-1.24753E 01
ALT	1.53732E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.63589E 00
SOS	1.10289E 03	LIFT	0	DRAG	4.11[illegible]6E 04	QATM	1.39276E 02	RHO	3.07060E-06
GR	1.66736E-01	ZDOT	0	ZR	2.78431E 02	XLON	7.76276E 01	XLAT	2.82241E 01
GAMC	-9.70000E 00	THR	0	GV	3.60182E-02				
TIM	1.34000E 02	WHT	2.46603E 05	VEL	9.52469E 03	RANG	2.05214E 02	GAM	-1.26374E 01
ALT	1.51662E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.66506E 00
SOS	1.09923E 03	LIFT	0	DRAG	4.46340E 04	QATM	1.51265E 02	RHO	3.33460E-06
GR	1.80979E-01	ZDOT	0	ZR	2.78457E 02	XLON	7.76018E 01	XLAT	2.82219E 01
GAMC	-9.70000E 00	THR	0	GV	3.95948E-02				
TIM	1.35000E 02	WHT	2.46603E 05	VEL	9.52490E 03	RANG	2.06732E 02	GAM	-1.27995E 01
ALT	1.49565E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.69454E 00
SOS	1.09550E 03	LIFT	0	DRAG	4.85[illegible]7E 04	QATM	1.64537E 02	RHO	3.62720E-06
GR	1.96712E-01	ZDOT	0	ZR	2.78483E 02	XLON	7.75766E 01	XLAT	2.82197E 01
GAMC	-9.70000E 00	THR	0	GV	4.35794E-02				
TIM	1.36000E 02	WHT	2.46603E 05	VEL	9.52446E 03	RANG	2.08249E 02	GAM	-1.29615E 01
ALT	1.47441E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.72428E 00
SOS	1.09172E 03	LIFT	0	DRAG	5.28[illegible]4E 04	QATM	1.79254E 02	RHO	3.95201E-06
GR	2.14143E-01	ZDOT	0	ZR	2.78509E 02	XLON	7.75514E 01	XLAT	2.82175E 01
GAMC	-9.70000E 00	THR	0	GV	4.80314E-02				
TIM	1.37000E 02	WHT	2.46603E 05	VEL	9.52[illegible]0E 03	RANG	2.09765E 02	GAM	-1.31234E 01

ALT	1.45292E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.75424E 00
SOS	1.04787E 03	LIFT	0	DRAG	5.75781E 04	QATM	1.95595E 02	RHO	4.31314E-06
GR	2.33485E-01	ZDOT	0	ZB	2.78535E 02	XLON	7.75263E 01	XLAT	2.82153E 01
GAMC	-9.70000E 00	THR	0	GV	5.30178E-02				
TIM	1.38000E 02	WHT	2.46603E 05	VEL	9.52197E 03	RANG	2.11281E 02	GAM	-1.32854E 01
ALT	1.43117E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.78439E 00
SOS	1.08397E 03	LIFT	0	DRAG	6.28779E 04	QATM	2.13764E 02	RHO	4.71532E-06
GR	2.54976E-01	ZDOT	0	ZB	2.78561E 02	XLON	7.75011E 01	XLAT	2.82131E 01
GAMC	-9.70000E 00	THR	0	GV	5.85940E-02				
TIM	1.39000E 02	WHT	2.46603E 05	VEL	9.51979E 03	RANG	2.12795E 02	GAM	-1.34474E 01
ALT	1.40916E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.81465E 00
SOS	1.08000E 03	LIFT	0	DRAG	6.87748E 04	QATM	2.33994E 02	RHO	5.16394E-06
GR	2.78889E-01	ZDOT	0	ZB	2.78587E 02	XLON	7.74760E 01	XLAT	2.82109E 01
GAMC	-9.70000E 00	THR	0	GV	6.48562E-02				
TIM	1.40000E 02	WHT	2.46603E 05	VEL	9.51687E 03	RANG	2.14308E 02	GAM	-1.36094E 01
ALT	1.38689E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.84496E 00
SOS	1.07597E 03	LIFT	0	DRAG	7.93453E 04	QATM	2.56551E 02	RHO	5.66520E-06
GR	3.05533E-01	ZDOT	0	ZB	2.78613E 02	XLON	7.74509E 01	XLAT	2.82087E 01
GAMC	-9.70000E 00	THR	0	GV	7.18921E-02				
TIM	1.41000E 02	WHT	2.46603E 05	VEL	9.51313E 03	RANG	2.15820E 02	GAM	-1.37714E 01
ALT	1.36437E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.87524E 00
SOS	1.07187E 03	LIFT	0	DRAG	8.26766E 04	QATM	2.81735E 02	RHO	6.22622E-06
GR	3.35262E-01	ZDOT	0	ZB	2.78638E 02	XLON	7.74258E 01	XLAT	2.82065E 01
GAMC	-9.70000E 00	THR	0	GV	7.98085E-02				
TIM	1.42000E 02	WHT	2.46603E 05	VEL	9.50846E 03	RANG	2.17330E 02	GAM	-1.39334E 01
ALT	1.34160E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.90541E 00
SOS	1.06772E 03	LIFT	0	DRAG	9.08679E 04	QATM	3.09893E 02	RHO	6.85522E-06
GR	3.68478E-01	ZDOT	0	ZB	2.78664E 02	XLON	7.74008E 01	XLAT	2.82043E 01
GAMC	-9.70000E 00	THR	0	GV	8.87276E-02				
TIM	1.43000E 02	WHT	2.46603E 05	VEL	9.50273E 03	RANG	2.18838E 02	GAM	-1.40956E 01
ALT	1.31858E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.93535E 00
SOS	1.06350E 03	LIFT	0	DRAG	1.00033E 05	QATM	3.41415E 02	RHO	7.56164E-06
GR	4.05642E-01	ZDOT	0	ZB	2.78690E 02	XLON	7.73757E 01	XLAT	2.82021E 01
GAMC	-9.70000E 00	THR	0	GV	9.87902E-02				
TIM	1.44000E 02	WHT	2.46603E 05	VEL	9.49582E 03	RANG	2.20344E 02	GAM	-1.42578E 01
ALT	1.29532E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.96494E 00
SOS	1.05922E 03	LIFT	0	DRAG	1.10300E 05	QATM	3.76752E 02	RHO	8.35642E-06
GR	4.47278E-01	ZDOT	0	ZB	2.78715E 02	XLON	7.73507E 01	XLAT	2.81999E 01
GAMC	-9.70000E 00	THR	0	GV	1.10158E-01				
TIM	1.45000E 02	WHT	2.46603E 05	VEL	9.48758E 03	RANG	2.21848E 02	GAM	-1.44202E 01
ALT	1.27181E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.99404E 00
SOS	1.05487E 03	LIFT	0	DRAG	1.21818E 05	QATM	4.16414E 02	RHO	9.25219E-06
GR	4.93983E-01	ZDOT	0	ZB	2.78740E 02	XLON	7.73258E 01	XLAT	2.81977E 01
GAMC	-9.70000E 00	THR	0	GV	1.23017E-01				
TIM	1.46000E 02	WHT	2.46603E 05	VEL	9.47782E 03	RANG	2.23356E 02	GAM	-1.45827E 01
ALT	1.24806E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.02249E 00
SOS	1.05047E 03	LIFT	0	DRAG	1.34754E 05	QATM	4.60984E 02	RHO	1.02636E-05
GR	5.46441E-01	ZDOT	0	ZB	2.78766E 02	XLON	7.73009E 01	XLAT	2.81956E 01
GAMC	-9.70000E 00	THR	0	GV	1.37581E-01				
TIM	1.47000E 02	WHT	2.46603E 05	VEL	9.46645E 03	RANG	2.24850E 02	GAM	-1.47454E 01
ALT	1.22409E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.05009E 00
SOS	1.04600E 03	LIFT	0	DRAG	1.49301E 05	QATM	5.11127E 02	RHO	1.14076E-05
GR	6.05430E-01	ZDOT	0	ZB	2.78791E 02	XLON	7.72760E 01	XLAT	2.81934E 01
GAMC	-9.70000E 00	THR	0	GV	1.54096E-01				
TIM	1.48000E 02	WHT	2.46603E 05	VEL	9.45946E 03	RANG	2.26346E 02	GAM	-1.49083E 01
ALT	1.19988E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.07663E 00
SOS	1.04146E 03	LIFT	0	DRAG	1.65477E 05	QATM	5.67599E 02	RHO	1.27039E-05
GR	6.71836E-01	ZDOT	0	ZB	2.78816E 02	XLON	7.72511E 01	XLAT	2.81912E 01
GAMC	-9.70000E 00	THR	0	GV	1.72845E-01				
TIM	1.49000E 02	WHT	2.46603E 05	VEL	9.43737E 03	RANG	2.27839E 02	GAM	-1.50715E 01
ALT	1.17545E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.10184E 00
SOS	1.03686E 03	LIFT	0	DRAG	1.84131E 05	QATM	6.31260E 02	RHO	1.41754E-05
GR	7.46670E-01	ZDOT	0	ZB	2.78842E 02	XLON	7.72264E 01	XLAT	2.81890E 01
GAMC	-9.70000E 00	THR	0	GV	1.94152E-01				
TIM	1.50000E 02	WHT	2.46603E 05	VEL	9.41931E 03	RANG	2.29329E 02	GAM	-1.52350E 01
ALT	1.15080E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.12543E 00
SOS	1.03220E 03	LIFT	0	DRAG	2.04946E 05	QATM	7.03084E 02	RHO	1.58489E-05
GR	8.31078E-01	ZDOT	0	ZB	2.78867E 02	XLON	7.72017E 01	XLAT	2.81869E 01
GAMC	-9.70000E 00	THR	0	GV	2.18390E-01				
TIM	1.51000E 02	WHT	2.46603E 05	VEL	9.39845E 03	RANG	2.30814E 02	GAM	-1.53989E 01
ALT	1.12595E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.14706E 00
SOS	1.02748E 03	LIFT	0	DRAG	2.28442E 05	QATM	7.84174E 02	RHO	1.77554E-05
GR	9.26357E-01	ZDOT	0	ZB	2.78892E 02	XLON	7.71770E 01	XLAT	2.81847E 01
GAMC	-9.70000E 00	THR	0	GV	2.45983E-01				
TIM	1.52000E 02	WHT	2.46603E 05	VEL	9.37442E 03	RANG	2.32295E 02	GAM	-1.55633E 01
ALT	1.10089E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.16633E 00
SOS	1.02270E 03	LIFT	0	DRAG	2.54961E 05	QATM	8.75770E 02	RHO	1.99311E-05
GR	1.03398E 00	ZDOT	0	ZB	2.78916E 02	XLON	7.71524E 01	XLAT	2.81828E 01
GAMC	-9.70000E 00	THR	0	GV	2.77418E-01				
TIM	1.53000E 02	WHT	2.46603E 05	VEL	9.34679E 03	RANG	2.33771E 02	GAM	-1.57282E 01
ALT	1.07565E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.18280E 00
SOS	1.01786E 03	LIFT	0	DRAG	2.84970E 05	QATM	9.79263E 02	RHO	2.24184E-05
GR	1.15558E 00	ZDOT	0	ZB	2.78941E 02	XLON	7.71280E 01	XLAT	2.81804E 01
GAMC	-9.70000E 00	THR	0	GV	3.13247E-01				
TIM	1.54000E 02	WHT	2.46603E 05	VEL	9.31508E 03	RANG	2.35241E 02	GAM	-1.58936E 01
ALT	1.05022E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.19593E 00
SOS	1.01296E 03	LIFT	0	DRAG	3.18862E 05	QATM	1.09620E 03	RHO	2.52666E-05
GR	1.29302E 00	ZDOT	0	ZB	2.78966E 02	XLON	7.71036E 01	XLAT	2.81783E 01
GAMC	-9.70000E 00	THR	0	GV	3.54096E-01				
TIM	1.55000E 02	WHT	2.46603E 05	VEL	9.27876E 03	RANG	2.36705E 02	GAM	-1.60599E 01
ALT	1.02463E 05	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.20514E 00
SOS	1.00800E 03	LIFT	0	DRAG	3.57163E 05	QATM	1.22830E 03	RHO	2.85335E-05
GR	1.44833E 00	ZDOT	0	ZB	2.78990E 02	XLON	7.70793E 01	XLAT	2.81762E 01
GAMC	-9.70000E 00	THR	0	GV	4.00669E-01				
TIM	1.56000E 02	WHT	2.46603E 05	VEL	9.23722E 03	RANG	2.38161E 02	GAM	-1.62269E 01
ALT	9.98889E 04	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.20974E 00
SOS	1.00298E 03	LIFT	0	DRAG	4.00479E 05	QATM	1.37743E 03	RHO	3.22861E-05
GR	1.62378E 00	ZDOT	0	ZB	2.79015E 02	XLON	7.70551E 01	XLAT	2.81741E 01
GAMC	-9.70000E 00	THR	0	GV	4.53752E-01				
TIM	1.57000E 02	WHT	2.46603E 05	VEL	9.18976E 03	RANG	2.39610E 02	GAM	-1.63949E 01
ALT	9.73012E 04	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.20895E 00
SOS	9.97916E 02	LIFT	0	DRAG	4.49263E 05	QATM	1.54559E 03	RHO	3.66030E-05
GR	1.82181E 00	ZDOT	0	ZB	2.79039E 02	XLON	7.70311E 01	XLAT	2.81720E 01
GAMC	-9.70000E 00	THR	0	GV	5.14215E-01				

TIM	1.58000E 02	WHT	2.46603E 05	VEL	9.13562E 03	RANG	2.41049E 02	GAM	-1.65640
ALT	9.47019E 04	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.20189
SOS	9.92799E 02	LIFT	0	DRAG	5.04311E 05	QATM	1.73494E 03	RHO	4.15756
GR	2.04503E 00	ZDOT	0	ZB	2.79063E 02	XLON	7.70072E 01	XLAT	2.81699
GAMC	-9.70000E 00	THR	0	GV	5.83010E-01				
TIM	1.59000E 02	WHT	2.46603E 05	VEL	9.07396E 03	RANG	2.42479E 02	GAM	-1.67344
ALT	9.20931E 04	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.18756
SOS	9.87635E 02	LIFT	0	DRAG	5.66252E 05	QATM	1.94767E 03	RHO	4.73099
GR	2.29621E 00	ZDOT	0	ZB	2.79087E 02	XLON	7.69835E 01	XLAT	2.81678
GAMC	-9.70000E 00	THR	0	GV	6.61160E-01				
TIM	1.60000E 02	WHT	2.46603E 05	VEL	9.00381E 03	RANG	2.43897E 02	GAM	-1.69063
ALT	8.94773E 04	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.16485
SOS	9.82429E 02	LIFT	0	DRAG	6.35777E 05	QATM	2.18598E 03	RHO	5.39293
GR	2.57814E 00	ZDOT	0	ZB	2.79110E 02	XLON	7.69599E 01	XLAT	2.81657
GAMC	-9.70000E 00	THR	0	GV	7.49741E-01				
TIM	1.61000E 02	WHT	2.46603E 05	VEL	8.92415E 03	RANG	2.45302E 02	GAM	-1.70799
ALT	8.68573E 04	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.13251
SOS	9.77185E 02	LIFT	0	DRAG	7.13563E 05	QATM	2.45198E 03	RHO	6.15761
GR	2.89357E 00	ZDOT	0	ZB	2.79134E 02	XLON	7.69366E 01	XLAT	2.81637
GAMC	-9.70000E 00	THR	0	GV	8.49854E-01				
TIM	1.62000E 02	WHT	2.46603E 05	VEL	8.83387E 03	RANG	2.46692E 02	GAM	-1.72555
ALT	8.42363E 04	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.08919
SOS	9.71909E 02	LIFT	0	DRAG	8.00233E 05	QATM	2.74747E 03	RHO	7.04143
GR	3.24503E 00	ZDOT	0	ZB	2.79157E 02	XLON	7.69136E 01	XLAT	2.81617
GAMC	-9.70000E 00	THR	0	GV	9.62560E-01				
TIM	1.63000E 02	WHT	2.46603E 05	VEL	8.73181E 03	RANG	2.48067E 02	GAM	-1.74333
ALT	8.16178E 04	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	9.01967
SOS	9.68086E 02	LIFT	0	DRAG	8.93590E 05	QATM	3.06452E 03	RHO	8.03866
GR	3.62360E 00	ZDOT	0	ZB	2.79180E 02	XLON	7.68908E 01	XLAT	2.81597
GAMC	-9.70000E 00	THR	0	GV	1.08562E 00				
TIM	1.64000E 02	WHT	2.46603E 05	VEL	8.61768E 03	RANG	2.49423E 02	GAM	-1.76139
ALT	7.90056E 04	PHI	4.50000E 01	Z	9.50001E 01	ALPH	0	MACH	8.90177
SOS	9.68086E 02	LIFT	0	DRAG	9.87659E 05	QATM	3.38097E 03	RHO	9.10524
GR	4.00506E 00	ZDOT	0	ZB	2.79202E 02	XLON	7.68683E 01	XLAT	2.81577
GAMC	-9.70000E 00	THR	0	GV	1.21193E 00				

.....GR_{MAX} CONTROL.....

U.S. GOVERNMENT PRINTING OFFICE: 1967-273-166

FLYBACK TEST CASE

ALPHA CONTROL 2 GLIDE OPTION 2

	MACH NUMBER	CL 0	CL 1	CL 2	CD 0	ATMN
1	0	0	3.00000E-02	-2.40000E-04	4.[illegible]E-02	2.50000E-01
2	2.50000E-01	0	4.[illegible]000E-02	-2.40000E-04	4.5[illegible]E-02	2.50000E-01
3	5.00000E-01	0	4.60000E-02	-2.40000E-04	4.[illegible]E-02	2.50000E-01
4	7.50000E-01	0	4.90000E-02	-2.20000E-04	4.[illegible]E-02	2.50000E-01
5	1.00000E 00	0	5.10000E-02	-[illegible]000E-04	8.0[illegible]E-02	2.50000E-01
6	1.25000E 00	0	5.10000E-02	0	7.[illegible]E-02	2.50000E-01
7	1.50000E 00	0	4.65000E-02	-[illegible]000E-05	7.[illegible]E-02	3.00000E-01
8	1.75000E 00	0	4.20000E-02	-9.00000E-05	6.[illegible]E-02	3.00000E-01
9	2.00000E 00	0	3.75000E-02	-[illegible]20000E-04	5.[illegible]E-02	3.00000E-01
10	2.50000E 00	0	3.10000E-02	-[illegible]50000E-04	4.[illegible]E-02	3.00000E-01
11	3.00000E 00	0	2.75000E-02	-[illegible]60000E-04	4.[illegible]E-02	3.00000E-01
12	4.00000E 00	0	2.15000E-02	[illegible]50000E-04	5.[illegible]E-02	3.[illegible]E
13	5.00000E 00	0	1.65000E-02	[illegible]20000E-04	5.[illegible]E-02	3.[illegible]E
14	6.00000E 00	0	1.[illegible]000E-02	-[illegible]000E-05	5.[illegible]E-02	3.[illegible]E
15	8.00000E 00	0	1.50000E-02	-[illegible]000E-05	[illegible]E-02	3.[illegible]E
16	1.20000E 01	0	1.[illegible]000E-02	[illegible]50000E-04	[illegible]E-02	3.[illegible]E

WHT	2.46603E 05	VEL	9.75100E 03	RANG	5.01[illegible]4E 05	GAM	[illegible]E 01	ALT	1.[illegible]64[illegible]E 05
ZI	9.5[illegible]000E-01	RE	2.09[illegible]22E 07	XLON	8.18[illegible]E 01	XLAT	[illegible]E 01	AREA	[illegible]E 03
CK1	1.18000E 00	XO	4.0[illegible]000E 00	CK2	1.000[illegible]0E 00	CK1	[illegible]E 00	XGO	[illegible]4[illegible]E 01
XLDR	8.[illegible]0000E-01	XLAB	2.85[illegible]00E 01	DELT	1.00[illegible]E [illegible]	GRMX	[illegible]E 00	PLA	[illegible]E 0[illegible]
GAMA	0	PHI	4.50000E 01	DPB	5.0000[illegible]E [illegible]	GAMC	-[illegible]E 00	DZR	[illegible]E 01
ZDD	1.00000E 00	XMR	8.00000E-01	ALTH	3.90[illegible]0E 04	TF	[illegible]8[illegible]20[illegible]E 03	DTP	[illegible]E 0[illegible]
SFC	4.51000E-01	ACCL	1.0[illegible]000E 03	XTO	5.00[illegible]0E-0[illegible]	CK 2	[illegible]E 00	GCTC	[illegible]E-0[illegible]
ZRTL	1.00000E-01	DHFR	1.0[illegible]000E 04	WEMP	2.15[illegible]0E 05	C231	[illegible]E 00	C232	1.[illegible]E 0[illegible]
C233	1.00000E 00	C234	1.0[illegible]000E 03	C235	1.00[illegible]0E [illegible]	C236	[illegible]E 00	C237	1.[illegible]E 0[illegible]
C238	1.00000E [illegible]	DFCH	1.00000E-01	CK24	[illegible]000[illegible]E [illegible]				

TIM	0	WHT	2.46603E 05	VEL	9.72[illegible]0E 03	RANG	[illegible]59[illegible]4E-02	GAM	1.[illegible]753[illegible]E 01
ALT	1.82643E 05	PHI	1.8[illegible]00E 02	Z	9.50[illegible]1E 01	ALPH	[illegible]E 01	MACH	8.9484[illegible]E [illegible]
SOS	1.[illegible]8634E 03	LIFT	-9.4[illegible]70E 04	DRAG	7.95[illegible]5E 04	QATM	[illegible]65E 01	RHO	1.1[illegible]429E-06
GR	5.[illegible]0374E-01	ZDCT	0	ZR	2.74[illegible]2E 02	XLON	[illegible]99[illegible]E 01	XLAT	2.[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	3.156[illegible]0E [illegible]				

TIM	2.00000E 01	WHT	2.46603E 05	VEL	9.586[illegible]3E 03	RANG	[illegible]1[illegible]62E 01	GAM	7.[illegible]E 0[illegible]
ALT	2.12377E 05	PHI	1.80000E 02	Z	9.50[illegible]1E 01	ALPH	[illegible]35[illegible]0E 01	MACH	9.[illegible]E 00
SOS	1.[illegible]0349E 03	LIFT	-1.57586E 04	DRAG	9.60[illegible]0E 03	QATM	[illegible]78282E 01	RHO	3.8[illegible]26E-07
GR	7.48345E-02	ZDCT	0	ZR	[illegible]73[illegible]9E [illegible]	XLON	[illegible]9[illegible]1E 01	XLA	2.[illegible]474[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	5.86[illegible]3E-0[illegible]				

TIM	4.00000E 01	WHT	2.46603E 05	VEL	9.51[illegible]9E 03	RANG	[illegible]2[illegible]37E 01	GAM	-3.[illegible]6169E 00
ALT	2.30233E 05	PHI	1.80000E 02	Z	9.50[illegible]1E 01	ALPH	[illegible]5[illegible]00E 01	MACH	1.[illegible]746E 01
SOS	9.50404E 02	LIFT	-7.37340E 03	DRAG	4.53[illegible]5E [illegible]	QATM	8.58444E 00	RHO	1.89[illegible]14E-07
GR	3.50974E-02	ZDCT	0	ZR	[illegible]754[illegible]2E 0[illegible]	XLON	[illegible]9977[illegible]E 01	XLAT	2.[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	[illegible]86[illegible]0E-0[illegible]				

TIM	6.00000E 01	WHT	2.46603E 05	VEL	9.48[illegible]4E 03	RANG	[illegible]29[illegible]70E 01	GAM	2.[illegible]7442E-01
ALT	2.36778E 05	PHI	1.80000E 02	Z	9.50[illegible]1E 01	ALPH	[illegible]E 01	MACH	1.[illegible]015E 01
SOS	9.30211E 02	LIFT	-5.45296E 03	DRAG	[illegible]364[illegible]1E [illegible]	QATM	[illegible]4[illegible]875E 00	RHO	1.4[illegible]78[illegible]E-07
GR	2.59835E-02	ZDCT	0	ZR	[illegible]76[illegible]1E 0[illegible]	XLON	[illegible]9464[illegible]E 01	XLAT	2.[illegible]8[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	2.20[illegible]6E-0[illegible]				

TIM	6.20000E 01	WHT	2.46603E 05	VEL	9.48[illegible]5E 03	RANG	[illegible]6[illegible]54E 01	GAM	-4.[illegible]814E-02
ALT	2.36818E 05	PHI	1.80000E 02	Z	9.50[illegible]1E 01	ALPH	[illegible]E 01	MACH	1.[illegible]18E 01
SOS	9.[illegible]087[illegible]E 02	LIFT	-5.44145E 03	DRAG	3.358[illegible]6E 0[illegible]	QATM	[illegible]4[illegible]62[illegible]E 00	RHO	1.4[illegible]E-07
GR	2.59299E-02	ZDCT	0	ZR	2.76[illegible]4E [illegible]	XLON	[illegible]9415[illegible]E 01	XLAT	2.[illegible]8[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	2.20[illegible]2E-0[illegible]				

GAMA REACHED

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PHI REACHED

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TIM	1.00000E 02	WHT	2.46603E 05	VEL	9.52[illegible]6E 03	RANG	[illegible]54661E 02	GAM	-6.[illegible]889E 0[illegible]
ALT	2.16727E 05	PHI	4.50000E 01	Z	9.51[illegible]6E 01	ALPH	[illegible]E 01	MACH	9.[illegible]116E 00
SOS	9.90613E 02	LIFT	1.3[illegible]617E 04	DRAG	[illegible]97[illegible]6E 0[illegible]	QATM	[illegible]48[illegible]85E 01	RHO	3.[illegible]138E-07
GR	6.20619E-02	ZDCT	7.1[illegible]591E-03	ZR	[illegible]77[illegible]0E 0[illegible]	XLON	[illegible]84[illegible]E 01	XLA	[illegible]941E 01
GAMC	-9.75000E 00	THR	0	GV	5.61[illegible]0E-02				

TIM	1.20000E 02	WHT	2.46603E 05	VEL	9.56[illegible]5E 03	RANG	[illegible]8[illegible]78E 02	GAM	-9.[illegible]736E 00
ALT	1.90946E 05	PHI	4.50000E 01	Z	9.541[illegible]1E 01	ALPH	[illegible]35[illegible]0E 01	MACH	8.9883[illegible]E 00
SOS	1.06384E 03	LIFT	3.48811E 04	DRAG	2.10[illegible]6E 04	QATM	[illegible]83[illegible]19E 01	RHO	8.[illegible]E-07
GR	1.65254E-01	ZDCT	1.87874E-02	ZR	2.78[illegible]0E 0[illegible]	XLON	[illegible]79[illegible]95E 01	XLAT	[illegible]6[illegible]47[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	1.53[illegible]0E-01				

TIM	1.24000E 02	WHT	2.46603E 05	VEL	9.567[illegible]9E 03	RANG	[illegible]9[illegible]635E 02	GAM	-9.[illegible]811E 00
ALT	1.84606E 05	PHI	4.50000E 01	Z	9.549[illegible]4E 01	ALPH	[illegible]5[illegible]00E 01	MACH	8.[illegible]64E [illegible]
SOS	1.[illegible]8105E 03	LIFT	4.549[illegible]4E 04	DRAG	[illegible]62[illegible]2E [illegible]	QATM	[illegible]E 01	RHO	1.[illegible]548E-06
GR	2.[illegible]5939E-01	ZDCT	2.3[illegible]962E-02	ZR	[illegible]78[illegible]2E 0[illegible]	XLON	[illegible]79[illegible]5E 01	XLAT	2.[illegible]E 01
GAMC	-9.70000E 00	THR	0	GV	1.91[illegible]0E-01				

GAMC REACHED

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TIM	1.60000E 02	WHT	2.46603E 05	VEL	9.2[illegible]4E 03	RANG	[illegible]4444E 02	GAM	-1.1[illegible]541E 01
ALT	[illegible]17759E 05	PHI	6.[illegible]293E 01	Z	9.8[illegible]9E 01	ALPH	1.35[illegible]E 01	MACH	8.89918E 00
SOS	1.[illegible]727E 03	LIFT	5.48331E 05	DRAG	[illegible]305[illegible]6E 05	QATM	[illegible]99[illegible]36E 02	RHO	1.4[illegible]394E-05
GR	2.59641E 00	ZDCT	3.91571E-01	ZR	2.79[illegible]1E 0[illegible]	XLON	[illegible]6[illegible]94E 01	XLAT	[illegible]445E 01
GAMC	-1.17541E 01	THR	0	GV	2.45[illegible]1E 00				

TIM	1.80000E 02	WHT	2.46603E 05	VEL	7.58[illegible]8E 03	RANG	[illegible]739[illegible]6E 02	GAM	-1.1[illegible]541E 01
ALT	8.27832E 04	PHI	8.34310E 01	Z	1.17[illegible]6E 0[illegible]	ALPH	[illegible]2[illegible]50E 01	MACH	7.[illegible]869E 00
SOS	9.68972E 02	LIFT	1.92140E 06	DRAG	1.14[illegible]0E 06	QATM	1[illegible]3[illegible]5E 03	RHO	[illegible]58985E-05
GR	9.[illegible]6774E 00	ZDCT	1.82353E 00	ZR	2.81[illegible]6E 0[illegible]	XLON	6[illegible]79[illegible]E 01	XLAT	2.[illegible]238E 01
GAMC	-1.17541E 01	THR	0	GV	8.57[illegible]3E 00				

TIM	2.00000E 02	WHT	2.46603E 05	VEL	4.09[illegible]5E 03	RANG	[illegible]9[illegible]857E 02	GAM	-1.1[illegible]541E 01
ALT	5.88317E 04	PHI	8.46706E 01	Z	[illegible]84[illegible]1E 0[illegible]	ALPH	1.134[illegible]E 01	MACH	4.[illegible]E 00
SOS	9.68686E 02	LIFT	2.5[illegible]272E 06	DRAG	[illegible]31[illegible]2E 06	QATM	[illegible]399E 03	RHO	2.[illegible]5[illegible]3E-04
GR	1.15298E 01	ZDCT	4.5[illegible]134E 00	ZR	2.84[illegible]4E 0[illegible]	XLON	6[illegible]98[illegible]E 01	XLAT	2.[illegible]861E 01
GAMC	-1.17541E 01	THR	0	GV	1.109[illegible]8E 01				

TIM	2.16000E 02	WHT	2.46603E 05	VEL	2.008[illegible]8E 03	RANG	[illegible]452E 02	GAM	1.1[illegible]541E 01
ALT	4.92045E 04	PHI	8.1[illegible]343E 01	Z	[illegible]692[illegible]1E [illegible]	ALPH	1.08[illegible]E 01	MACH	2.[illegible]43[illegible]E 00
SOS	9.68686E 02	LIFT	1.5[illegible]305E 06	DRAG	7.665[illegible]0E 05	QATM	[illegible]6[illegible]74E 02	RHO	5.[illegible]E-04
GR	6.95047E 00	ZDCT	5.71939E 01	ZR	2.852[illegible]7E 02	XLON	[illegible]6[illegible]38E 01	XLAT	2.[illegible]98[illegible]E 01
GAMC	-1.17541E 01	THR	0	GV	6.719[illegible]2E [illegible]				

DEL A Z REQUIRED

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DHFR REACHED

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TIM	2.39000E 02	WHT	2.46603E 05	VEL	1.043[illegible]7E 03	RANG	[illegible]059[illegible]E 02	GAM	-5.[illegible]574E 00
ALT	4.39942E 04	PHI	0	Z	2.849[illegible]9E 02	ALPH	[illegible]86189E 00	MACH	1.[illegible]97E 00
SOS	9.68186E 02	LIFT	2.67[illegible]55E 05	DRAG	2.47[illegible]1E 05	QATM	[illegible]64152E 02	RHO	4.[illegible]E-04

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GR      1.46403E 00   ZDOT            0   ZB      2.85286E 02   XLON    7.68467E 01   XLAT    2.76770E 01
GAMC   -6.00111E 00   THR            0   GV      1.16510E 00
TIME REACHED
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MACH CONTROL
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TIM     2.60000E 02   WHT     2.46426E 05   VEL     7.229 2E 02   RANG    3.08839E 02   GAM    -4.13194E 00
ALT     4.24628E 04   PHI            0   Z       2.84949E 02   ALPH    7.42980E 00   MACH    7.46744E-01
SOS     9.68086E 02   LIFT    2.44122E 05   DRAG    9.861 7E 04   QAIM    1.36391E 02   RHO     5.21969E-04
GR      1.03986E 00   ZDOT           0   ZB      2.85286E 02   XLON    7.60004E 01   XLAT    2.76647E 01
GAMC   -4.13208E 00   THR     3.92480E 04   GV      1.0261 7E 00

TIM     2.80000E 02   WHT     2.44983E 05   VEL     7.74694E 02   RANG    3.11312E 02   GAM    -3.02129E 00
ALT     4.15293E 04   PHI            0   Z       2.84949E 02   ALPH    5.91769E 00   MACH    8.08235E-01
SOS     9.68086E 02   LIFT    2.37612E 05   DRAG    1.157 2E 05   QAIM    1.61788E 02   RHO     5.45823E-04
GR      1.01719E 00   ZDOT           0   ZB      2.85286E 02   XLON    7.59396E 01   XLAT    2.76484E 01
GAMC   -3.02131E 00   THR     1.11979E 05   GV      1.01656E 00

TIM     3.00000E 02   WHT     2.43539E 05   VEL     7.825 6E 02   RANG    3.14874E 02   GAM    -2.18235E 00
ALT     4.08266E 04   PHI            0   Z       2.84949E 02   ALPH    5.53309E 00   MACH    8.08385E-01
SOS     9.68086E 02   LIFT    2.35330E 05   DRAG    1.212 3E 05   QAIM    1.72860E 02   RHO     5.64496E-04
GR      1.01142E 00   ZDOT           0   ZB      2.85286E 02   XLON    7.58984E 01   XLAT    2.76374E 01
GAMC   -2.18235E 00   THR     1.11979E 05   GV      1.01142E 00

TIM     3.20000E 02   WHT     2.42096E 05   VEL     7.782 9E 02   RANG    3.16437E 02   GAM    -1.57578E 00
ALT     4.03191E 04   PHI            0   Z       2.84949E 02   ALPH    5.40566E 00   MACH    8.08395E-01
SOS     9.68086E 02   LIFT    2.32896E 05   DRAG    1.203 6E 05   QAIM    1.75177E 02   RHO     5.78382E-04
GR      1.00623E 00   ZDOT           0   ZB      2.85286E 02   XLON    7.58572E 01   XLAT    2.76264E 01
GAMC   -1.57578E 00   THR     1.11979E 05   GV      1.006 0E 00

TIM     3.40000E 02   WHT     2.40652E 05   VEL     7.726 2E 02   RANG    3.18984E 02   GAM    -1.13850E 00
ALT     3.99547E 04   PHI            0   Z       2.84949E 02   ALPH    5.35524E 00   MACH    7.98083E-01
SOS     9.68086E 02   LIFT    2.31114E 05   DRAG    1.183 4E 05   QAIM    1.75664E 02   RHO     5.88559E-04
GR      1.00419E 00   ZDOT           0   ZB      2.85286E 02   XLON    7.58162E 01   XLAT    2.76155E 01
GAMC   -1.14042E 00   THR     1.11979E 05   GV      1.00416E 00

TIM     3.60000E 02   WHT     2.39209E 05   VEL     7.680 2E 02   RANG    3.21514E 02   GAM    -8.27156E-01
ALT     3.96925E 04   PHI            0   Z       2.84949E 02   ALPH    5.30945E 00   MACH    7.93320E-01
SOS     9.68086E 02   LIFT    2.29073E 05   DRAG    1.164 5E 05   QAIM    1.75767E 02   RHO     5.95994E-04
GR      1.00116E 00   ZDOT           0   ZB      2.85286E 02   XLON    7.57755E-01   XLAT    2.76046E 01
GAMC   -8.27157E-01   THR     1.11979E 05   GV      1.001 4E 00

TIM     3.80000E 02   WHT     2.37766E 05   VEL     7.646 2E 02   RANG    3.24031E 02   GAM    -6.00869E-01
ALT     3.95032E 04   PHI            0   Z       2.84949E 02   ALPH    5.27257E 00   MACH    7.89891E-01
SOS     9.68086E 02   LIFT    2.27434E 05   DRAG    1.15 2E 05   QAIM    1.75837E 02   RHO     6.01422E-04
GR      9.99938E-01   ZDOT           0   ZB      2.85286E 02   XLON    7.57350E 01   XLAT    2.75938E 01
GAMC   -6.00982E-01   THR     1.11979E 05   GV      9.999 9E-01

TIM     4.00000E 02   WHT     2.36322E 05   VEL     7.626 7E 02   RANG    3.26540E 02   GAM    -4.99076E-01
ALT     3.93625E 04   PHI            0   Z       2.84949E 02   ALPH    5.21480E 00   MACH    7.87830E-01
SOS     9.68086E 02   LIFT    2.25232E 05   DRAG    1.141 7E 05   QAIM    1.76104E 02   RHO     6.05489E-04
GR      9.96196E-01   ZDOT           0   ZB      2.85286E 02   XLON    7.56946E 01   XLAT    2.75830E 01
GAMC   -5.00000E-01   THR     1.11979E 05   GV      9.961 4E-01

TIM     4.20000E 02   WHT     2.34879E 05   VEL     7.619 2E 02   RANG    3.29044E 02   GAM    -4.99227E-01
ALT     3.92295E 04   PHI            0   Z       2.84949E 02   ALPH    5.16022E 00   MACH    7.87091E-01
SOS     9.68086E 02   LIFT    2.23891E 05   DRAG    1.137 3E 05   QAIM    1.76896E 02   RHO     6.09356E-04
GR      9.96146E-01   ZDOT           0   ZB      2.85286E 02   XLON    7.56543E 01   XLAT    2.75722E 01
GAMC   -5.00000E-01   THR     1.11979E 05   GV      9.961 5E-01

TIM     4.40000E 02   WHT     2.33435E 05   VEL     7.615 1E 02   RANG    3.31547E 02   GAM    -4.99225E-01



ALT     3.90966E 04   PHI            0   Z       2.84949E 02   ALPH    5.10174E 00   MACH    7.86688E-01
SOS     9.68086E 02   LIFT    2.22573E 05   DRAG    1.137 6E 05   QAIM    1.77843E 02   RHO     6.13245E-04
GR      9.96169E-01   ZDOT           0   ZB      2.85286E 02   XLON    7.56140E 01   XLAT    2.75615E 01
GAMC   -5.00000E-01   THR     1.11979E 05   GV      9.961 9E-01
ALTB AND XMB BOTH REACHED
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TIM     4.56000E 02   WHT     2.32281E 05   VEL     7.613 6E 02   RANG    3.33548E 02   GAM    -4.99235E-01
ALT     3.89904E 04   PHI            0   Z       2.84949E 02   ALPH    5.05444E 00   MACH    7.86424E-01
SOS     9.68086E 02   LIFT    2.21517E 05   DRAG    1.137 4E 05   QAIM    1.78630E 02   RHO     6.16373E-04
GR      9.96178E-01   ZDOT           0   ZB      2.85286E 02   XLON    7.55818E 01   XLAT    2.75529E 01
GAMC            0     THR     1.11979E 05   GV      9.961 8E-01

BREQUET

TIM     2.71011E 03   WHT     2.14095E 05   VEL     7.613 6E 02   RANG    6.15985E 02   GAM    -4.99235E-01
ALT     3.89904E 04   PHI            0   Z       2.84949E 02   ALPH    4.25000E 00   MACH    7.86424E-01
SOS     9.68086E 02   LIFT    4.33273E 05   DRAG    1.816 9E 05   QAIM    1.78630E 02   RHO     6.16373E-04
GR      9.96178E-01   ZDOT           0   ZB      2.85286E 02   XLON    7.55818E 01   XLAT    2.75529E 01
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GLIDE

WHT     2.15000E 05   RANG    6.31295E 02   GAM     2.27397E 01
ALT     3.89904E 04   PHI            0   Z       2.84949E 02   ALPH    1.00000E 01
SOS     9.68086E 02   LIFT    4.29167E 05   DRAG    1.798 4E 05   QAIM    1.78630E 02   RHO     6.16373E-04
GR      9.96178E-01   ZDOT           0   ZB      2.85286E 02   XLON    7.55818E 01   XLAT    2.75529E 01
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CALCULATIONS FINISHED
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Appendix

WEIGHT DATA

The following Tables A-1 through A-3 and Figures A-1 through A-15 present a weight breakdown and structural comparison for different types of bomber, cargo, and fighter aircraft. This data was compiled for use in advance launch studies.

Table A-1. BOMBER AIRCRAFT

	WING WEIGHT POUNDS	TAIL WEIGHT POUNDS	FUSELAGE WEIGHT POUNDS	LANDING GEAR WT. POUNDS	SURFACE CONTROL WT. POUNDS	NACELLE WEIGHT POUNDS	PROPULSION WEIGHT POUNDS	ENGINE WEIGHT POUNDS	FUEL SYSTEM WEIGHT POUNDS	INST. & NAVIG. EQUIP. WT. POUNDS
B-17G	6006	912	3635	2854	572	2259	15853	5289	3602	268
B-24J	6612	906	3317	2918	630	1570	14697	6050	2416	155
B-25J	2952	511	1955	1837	423	914	7046	3933	1259	102
B-26C	3865	566	1844	1878	305	1334	7594	4579	959	102
B-29A	14547	1487	7561	7506	836	4174	28758	10843	4382	335
B-32	12226	1664	4796	6044	849	3160	21856	10428	3035	287
B-36H	39355	4796	17781	16229	1399	7597	67332	34900	4621	1121
B-45C	9747	1784	5152	5157	1001	2999	1939	10359	4485	205
B-47E	16508	2498	12609	7981	1995	3901	21734	15521	4784	497
B-50A	14638	1968	7962	6580	948	5760	27401	13632	5131	386
B-52G	37369	6030	26731	12992	2591	5936	36554	29756	5038	866
B-57C	6728	1115	4703	2130	665	658	7151	5350	1260	194
B-58A	11835	1239	4994	3650	1384	4795	15759	13776	1071	288
B-66B	8761	1896	6412	2804	1432	1647	10942	8324	2148	263
B-70	25494	4490	56940	16593	7700	1328	45576	30570	4808	1328

Table A-1. BOMBER AIRCRAFT (Cont'd)

	HYDRAULIC & PNEUMATIC WEIGHT POUNDS	ELECTRICAL WEIGHT POUNDS	ELECTRONIC WEIGHT POUNDS	ARMAMENT WEIGHT POUNDS	FURNISHINGS & EQUIPMENT WEIGHT POUNDS	AIR COND. & ANTI-ICING WEIGHT POUNDS	FIXED EQUIPMENT WEIGHT POUNDS	WEIGHT EMPTY POUNDS	WEIGHT EMPTY-FIXED EQUIP. POUNDS
B-17G	152	1244	631	2929	998	299	6369	35845	29476
B-24J	455	1100	551	3105	1406	211	7102	36219	29117
B-25J	186	515	448	2091	386	75	3445	19628	15683
B-26C	144	498	379	3025	537	367	4861	22247	17386
B-29A	230	2130	755	4301	1848	281	9837	70194	60357
B-32	379	1169	567	4563	1934	600	9956	60235	50279
B-36H	185	2584	1055	10834	4010	1345	21134	168457	147323
B-45C	329	1011	1469	1836	1755	115	6720	48700	41980
B-47E	368	3687	4926	1480	1290	1303	14519	81745	67226
B-50A	343	2344	1499	4243	2476	1111	12124	77653	65529
B-52	1915	6047	7957	4333	2120	670	24432	152293	127861
B-57C	226	1090	1093	519	519	178	3322	27059	23737
B-58	517	1387	3784	757	658	927	8407	52044	43637
B-66B	774	1354	3420	866	907	1006	8824	42718	33894
B-70	8574	1609	1248	11790	3561	3063	31723	189844	158121

Table A-1. BOMBER AIRCRAFT (Cont'd)

	CREW WEIGHT POUNDS	FUEL WEIGHT POUNDS	OIL WEIGHT POUNDS	GUNS WEIGHT POUNDS	AMMO WEIGHT POUNDS	BOMB OR STORE * WEIGHT POUNDS	EQUIPMENT WEIGHT POUNDS	USEFUL LOAD WEIGHT POUNDS	NORMAL GROSS WEIGHT POUNDS
B-17G	1200	4710	562	875	1368	4166	36	12881	48726
B-24J	1800	13013	904	783	1170	2000	125	19781	56000
B-25J	1200	2620	495	562	480	2133	48	7541	27169
B-26C	600	2669	405	372	428	1200	34	5713	27960
B-29A	1200	21083	2045	912	3300	20764	478	49806	120000
B-32	1600	31626	2199	625	1629	2042	43	39765	100000
B-36H	3150	162906	4650	1803	5796	10000	754	189043	357500
B-45C	1000	30942	265	520	360	8830	368	45573	94273
B-47E	690	21953	150	228	620	18000*	185	43255	125000
B-50A	2750	31680	2201	988	1914	2111	478	42347	120000
B-52G	1620	303815	663	272	720	17700	1147	335707	488000
B-57C	496	14787	45	766	580	5260	250	22183	49242
YB-58A	690	46105	230	248	406		225	47956	100000
B-66B	720	23169	113	270	625	10024	361	35282	78000
B-70	1072	306011	510			10000*	3988	347265	537109

Table A-1. BOMBER AIRCRAFT (Cont'd)

	$\frac{W}{S}$	WING GROSS AREA SQ.FT.	WING SPAN FEET	WING STRUCTURAL SPAN FEET	WING AR	TIP CHORD THICKNESS INCHES	TIP CHORD LENGTH INCHES	TIP CHORD THICKNESS % CHORD PERCENT	ROOT CHORD THICKNESS INCHES
B-17G	34.1	1430	103.75	103.75	7.6	10.67	106.7	10.0	41.04
B-24J	53.4	1048	110.0	110.0	11.5	7.4	62.4	11.86	37.0
B-25J	44.5	610	67.7	67.7	7.5	8.70	64.3	13.53	26.32
B-26C	51.8	540	70.0	70.0	6.75	8.70	58.0	15.0	19.20
B-29A	69.0	1739	141	141.0	11.5	8.01	89.0	9.0	44.88
B-32	70.3	1422	135.	135.3	13.81	5.70	62.4	9.13	43.95
B-36H	75.0	4772	230	230.0	11.08	17.0	100	17.0	88.0
B-45C	80.0	1177	89	89.0	6.73	11.2	93	12.0	33.7
B-47E	87.5	1428	116	141.6	9.43	10.5	87.4	12.0	25.0
B-50A	67.8	1769	141.23	141.23	11.5	8.01	89.0	9.0	44.88
B-52G	122.0	4000	185.0	225.85	8.55	11.8	148.0	7.8	59.7
B-57C	51.3	960	64.26	64.26	4.27	7.2	80.0	9.0	27.4
YB-58A	64.8	1543	56.86	56.86	2.1	0	0	0	22.17
B-66B	100.0	780	72.5	89.5	6.75	5.4	64.9	8.3	19.40
B-70	85.3	6298	105.0	105.0	1.75	0	0	0	23.46

Table A-1. BOMBER AIRCRAFT (Cont'd)

	ROOT CHORD LENGTH INCHES	ROOT CHORD THICKNESS % CHORD PERCENT	WING TAPER RATIO	WING SWEEP C/4 0°	$f(\lambda)$	$\cos \Lambda$	$\lambda_T = \frac{\frac{t}{c}_T}{\frac{t}{c}_R}$	TOTAL TAIL AREA SQ.FT.	VERTICAL TAIL AREA SQ.FT.
B-17G	288.0	14.25	0.370	0	.424	1.0000	.702	440	166
B-24	168.0	22.02	0.371	0	.424	1.0000	.539	390	188
B-25	154.8	17.00	0.415	0	.428	1.0000	.796	223	95
B-26	128.0	15.00	0.453	0	.431	1.0000	1.000	182	63
B-29A	212.0	22.00	0.420	0	.428	1.0000	.409	571	238
B-32	192.0	22.89	0.325	3.5	.420	.99905	.399	620	287
B-36H	400.0	22.0	0.250	0	.412	1.0000	.773	1519	597
B-45C	224.7	15.00	0.414	0	.428	1.0000	.800	387	142
B-47E	208.0	12.00	0.420	35	.428	.81915	1.000	498	230
B-50A	204.0	22.00	0.436	0	.429	1.0000	.409	639	286
B-52G	371.0	16.10	0.399	35	.426	.81915	.484	1303	403
B-57C	228.0	12.00	0.351	5.2	.422	.99588	.750	256	63
YB-58A	651.1	3.40	0	0	.379	1.0000	0	160.0	160
B-66B	193.6	10.00	0.335	35.9	.421	.81004	.830	303	176
B-70	1413.6	1.66	0	DELTA	.379	1.0000	0	556	234

Table A-1. BOMBER AIRCRAFT (Cont'd)

	HORIZONTAL TAIL AREA SQ.FT.	AIRCRAFT LENGTH FEET	FUSELAGE LENGTH FEET	FUSELAGE DEPTH FEET	FUSELAGE WIDTH FEET	FUSELAGE WETTED AREA SQ. FT.	AMMO WEIGHT POUNDS	*MISSILE OR BOMB WEIGHT POUNDS	STORE WEIGHT POUNDS
B-17G	274	74.7	74.7	8.6	7.5	1410	1368	4166	
B-24J	202	58.8	58.8	10.42	7.42	1560	1170	7774	
B-25J	128	52.9	52.9	7.5	4.67	815	420	2132	
B-26	119	51.19	51.19	5.8	5.17	1010	372	1200	
B-29A	333	99.0	99.0	9.5	9.5	2316	3300	2000	
B-32	333	82.1	82.1	9.5	9.5	1870	1629	2076	
B-36H	922	162.1	162.1	12.5	12.5	5140	5796	10000	
B-45C	245	74.0	74.0	7.92	7.08	1385	360	8720	
B-47E	268	107.1	105.5	10.6	9.6	2600	620		18000
B-50A	353	99.0	99.0	9.5	9.6	2316	1914	2111	
B-52G	900	157.6	155.6	13.1	9.8	4950	720	10000	
B-57C	193	65.5	65.5	6.5	6.5	1025	580	5523	
YB-58A	0	96.78	92.13	6.50	5.25	1320	406		6230
B-66B	167	75.2	72.3	7.70	7.20	1674	625	10000	
B-70	322	193.8	189.04	16.37	30.5	7603		16000*	10000

Table A-1. BOMBER AIRCRAFT (Concluded)

	ARMAMENT POUNDS	STRESS GROSS WEIGHT POUNDS	STRESS LOAD FACTOR POUNDS	STRESS FUEL WEIGHT POUNDS	MAXIMUM KNOTS
B-17G	5534	48726	4.5	4710	285
B-24J	8944	4100	5.5	7570	290
B-25	2552	26122	5.5	2620	257
B-26C	1572	26000	6.75	2669	324
B-29A	5300	105000	4.5	21083	354
B-32	3705	100000	4.5	30672	312
B-36H	15796	357500	3.0	170840	365
B-45C	9080	93121	4.5	30942	498
B-47E	18620	220000	3.0	115345	528
B-50A	4025	120000	4.0	31680	347
B-52G	10720	276100	5.25	97996	553
B-57C	6103	38689	7.5	3766	520
B-58A	6636	107250	4.5	45588	1147
B-66B	10625	78000	4.8	23170	559
B-70	26000	554609	3.0	329126	1721

Table A-2. CARGO AIRCRAFT

	WING WEIGHT POUNDS	TAIL WEIGHT POUNDS	FUSELAGE WEIGHT POUNDS	LANDING GEAR WT. POUNDS	SURFACE CONTROL WT. POUNDS	NACELLE WEIGHT POUNDS	PROPULSION WEIGHT POUNDS	ENGINE WEIGHT POUNDS	FUEL SYS-TEM WEIGHT POUNDS	INST. & NAVI. EQUIP. WT. POUNDS
C-47A	3637	513	2136	1763	336	804	6064	3031	534	122
C-54G	6565	1139	5528	4174	939	2118	13948	6310	1360	419
C-74A	18725	2611	12450	10314	1407	5517	23496	13496	3146	405
C-82A	5948	892	5020	4019	849	1914	9391	4700	695	126
C-97C	15389	2078	13572	7112	891	4753	23051	13844	1488	487
C-118A	8940	1697	8099	4446	810	3292	16731	9414	2058	867
C-119G	7247	1195	7170	4200	1137	2608	12156	6906	1860	280
C-121C	11010	2618	12556	5709	1777	4476	21353	14603	1367	702
C-123B	5892	1468	7011	2346	593	1403	8640	4780	1396	271
C-124C	18135	3025	18073	11700	1493	6119	27019	15551	4059	769
C-130A	10389	2893	12035	4509	1414	2536	12477	6406	1033	608
C-131B	5226	1191	4884	2251	776	1739	7918	4756	309	250
C-133A	27603	6019	32240	10656	1859	3772	20663	10785	2047	687
KC-135	24719	4958	18176	10698	1897	2547	19584	14862	1430	523

Table A-2. CARGO AIRCRAFT (Cont'd)

	HYDRAULIC & PNEUMATIC WEIGHT POUNDS	ELECTRICAL WEIGHT POUNDS	ELECTRONIC WEIGHT POUNDS	FURNISHINGS & EQUIPMENT WEIGHT POUNDS	AIR COND & ANTI-ICING WEIGHT POUNDS	FIXED EQUIPMENT WEIGHT POUNDS	WEIGHT EMPTY POUNDS	WEIGHT EMPTY-FIXED EQUIP. POUNDS	$\frac{W}{S}$
C-47A	140	495	770	1450	233	3210	17873	14663	27.1
C-54G	272	787	835	3555	481	6349	38656	32307	42.6
C-74A	403	1204	867	6740	1420	11464	85985	74521	57.8
C-82A	163	525	792	1125	375	2943	29062	26119	32.0
C-97C	465	3043	1087	2444	1340	9106	75974	66868	84.8
C-118A	280	2162	1682	4298	3092	12828	56843	44015	70.4
C-119G	459	1116	1092	1313	1255	5677	41211	23297	44.2
C-121C	726	1627	1974	1915	3912	17381	76154	58772	80.6
C-123B	156	826	688	745	1042	3913	31232	27319	44.2
C-124C	582	1952	1886	7539	3293	16536	102181	85645	73.8
C-130A	640	1856	1508	3065	2293	10381	57407	47026	61.9
C-131B	264	1367	1046	1443	1211	5615	29604	23989	51.1
C-133A	2815	2135	2254	4620	3114	15930	118686	102756	102.9
KC-135	789	2333	2008	1483	1579	10491	92678	82187	94.5

Table A-2. CARGO AIRCRAFT (Cont'd)

	CREW WEIGHT POUNDS	FUEL WEIGHT POUNDS	OIL WEIGHT POUNDS	CARGO WEIGHT POUNDS	USEFUL LOAD WEIGHT POUNDS	NORMAL GROSS WEIGHT POUNDS	SURFACE AREA WING SQ. FT.	SPAN AERODYNAMIC FEET	SPAN STRUCTURAL FEET
C-47A	600	4848	519	2925	8892	26765	988	95.0	95.0
C-54G	1200	7351	1149	13560	23344	62000	1457	117.5	117.5
C-74A	1800	27322	1495	28137	58959	145000	2510	173.75	173.75
C-82A	1000	11320	890	2508	15745	44805	1400	106.0	106.0
C-97C	1000	24349	1375	46500	74036	150000	1769	141.2	141.2
C-118A	800	32761	1620	10193	46157	103000	1463	117.5	117.5
C-119G	1000	15636	1025	4584	22705	64000	1447.24	109.25	109.25
C-121C	1600	28457	1460	10358	56846	133000	1650.0	123.0	123.0
C-123B	400	5744	354	16000	22768	54000	1223.22	110.0	110.0
C-124C	1000	22769	2620	55262	82819	185000	2506	174.13	174.13
C-130A	800	23999	408	25000	50593	108000	1745.5	132.60	132.60
C-131B	400	10433	663	5689	17396	47000	920	105.33	105.33
C-133A	1000	61090	2620	97162	161186	275000	2673.1	179.65	175.65
KC-135	800	89800	303	45000	137322	230000	2433	130.83	159.71

Table A-2. CARGO AIRCRAFT (Cont'd)

	WING AR	TIP CHORD THICKNESS INCHES	TIP CHORD LENGTH INCHES	TIP CHORD THICKNESS % CHORD PERCENT	ROOT CHORD THICKNESS INCHES	ROOT CHORD LENGTH INCHES	ROOT CHORD THICKNESS % CHORD PERCENT	WING TAPER RATIO	SWEEP ANGLE 25% CHORD
C-47A	9.13	3.2	51.4	6.22	29.9	170	17.58	3.024	1
C-54G	9.48	8.5	70.5	12.06	36.6	229	15.98	3.079	1
C-74A	12.03	9.3	66.4	14.0	53.5	282	18.97	2.355	1
C-82A	8.03	9.63	107.0	9.0	38.5	214	18.00	5.000	1
C-97C	11.5	8.0	89.0	9.0	44.9	204	22.01	4.363	1
C-118A	9.44	8.5	71.3	11.92	36.6	228.8	16.00	3.116	1
C-119G	8.25	9.63	107.0	9.00	38.7	214.87	18.00	4.980	1
C-121C	9.17	12.2	102.0	11.96	39.6	220.0	18.00	4.636	1
C-123B	9.89	8.34	94.8	8.90	30.70	179.54	17.10	5.280	1
C-124C	11.96	9.30	66.4	14.00	53.50	282.0	18.97	2.355	1
C-130A	10.09	12.00	100.0	12.00	34.6	192.0	18.02	5.208	1
C-131B	12.06	8.1	54.0	15.00	32.3	162.0	20.00	3.333	1
C-133A	12.07	9.96	66.4	15.00	49.95	290.9	17.17	2.283	1
KC-135	7.04	10.10	112.00	9.00	56.40	337.98	16.69	3.314	

Table A-2. CARGO ARICRAFT (Cont'd)

	TOTAL TAIL AREA SQ.FT.	VERTICAL TAIL AREA SQ.FT.	HORIZONTAL TAIL AREA SQ.FT.	FUSELAGE LENGTH (BASIC) FEET	AIRCRAFT LENGTH FEET	FUSELAGE DEPTH FEET	FUSELAGE WIDTH FEET	FUSELAGE WETTED AREA SQ.FT.	STRESS GROSS WEIGHT POUNDS
C-47A	332.0	126.0	206.0	63.75	63.75	8.7	8.1	1190	26000
C-54G	467.0	179.0	288.0	93.8	93.8	11.5	10.4	2490	62000
C-74A	1037.0	344.0	693.0	124.0	124.0	13.2	13.2	3940	145000
C-82A	509.0	199.0	310.0	55.42	55.42	13.5	10.3	1830	42000
C-97C	639.0	306.0	333.0	110.3	110.3	15.21	11.0	3607	150000
C-118A	550.9	185.0	365.9	106.8	106.8	11.50	10.4	2976	107000
C-119G	546.5	205.5	341.0	86.5	86.5	13.5	11.5	2210	64000
C-121C	756.0	302.0	454.0	116.2	116.2	11.6	11.6	2659	134400
C-123B	600.57	255.0	345.57	76.25	76.25	11.67	14.08	2250	54000
C-124C	1146.0	465.0	681.0	130.0	130.0	20.92	13.75	5770	185000
C-130A	796.0	300.0	496.0	97.8	97.8	13.25	14.16	3460	108000
C-131B	393.0	159.0	234.0	79.2	79.2	9.4	9.4	3300	53200
C-133A	1441.2	640.2	801.0	153.37	157.54	16.10	16.67	6472	275000
KC-135A	812.4	312.4	500.0	128.83	128.83	13.83	12.00	4420	275000

Table A-2. CARGO AIRCRAFT (Concluded)

	STRESS FUEL WEIGHT POUNDS	STRESS CARGO WEIGHT POUNDS	STRESS LOAD FACTOR	V MAX KNOTS	f(λ)	cos Λ
C-47A	4848	2160	4.65	202	.418	1.0000
C-54G	7351	13560	4.50	268	.418	1.0000
C-74A	27322	28137	3.00	202	.411	1.0000
C-82A	11320	2508	5.50	246	.434	1.0000
C-97C	24349	46500	3.72	334	.429	1.0000
C-118A	32760	14194	3.75	320	.418	1.0000
C-119G	15636	4584	4.50	253	.434	1.0000
C-121C	24400	31640	3.75	320	.431	1.0000
C-123B	5745	16000	4.50	210	.436	1.0000
C-124C	22769	55262	3.75	288	.411	1.0000
C-130A	23999	25000	4.50	332	.435	1.0000
C-131B	10420	12246	4.72	278	.421	1.0000
C-133A	117360	38927	3.75	305	.410	1.0000
KC-135A	110000	69860	3.00			

Table A-3. FIGHTER AIRCRAFT

	HYDRAULIC & PNEUMATIC WEIGHT POUNDS	ELECTRICAL WEIGHT POUNDS	ELECTRONIC WEIGHT POUNDS	ARMAMENT WEIGHT POUNDS	FURNISHINGS & EQUIPMENT WEIGHT POUNDS	AIR COND & ANTI-ICING WEIGHT POUNDS	FIXED EQUIPMENT WEIGHT POUNDS	WEIGHT EMPTY POUNDS	WEIGHT EMPTY-FIXED EQUIP. POUNDS
F-80C	139	334	161	326	116	78	1214	8423	6997
F-84F	292	504	289	788	198	103	2325	13674	11349
F-84G	233	632	246	710	192	110	2268	11263	8995
F-86K	307	725	226	916	169	271	2820	13402	10582
F-89D	85	929	441	1120	533	495	3969	27936	23967
F-94C	152	501	391	1040	185	395	2940	12014	9074
F-100D	148	496	433	1026	231	297	2976	20973	17997
F-101A	378	752	991	415	236	136	3167	24720	20983
F-102A	318	594	2001	589	227	259	4230	19130	14810
F-104C	281	422	581	309	241	185	2221	12625	10404
F-104D	284	444	676	109	459	203	2408	13008	10659
F-105B	460	805	726	791	262	184	3813	25260	21447
F-106A	388	597	2653	630	284	387	5232	23583	18351
F-107A	164	487	375	1125	301	450	3249	25144	21895
F-108A	939	754	3572	928	1530	1153	9434	50907	41473
T-33A	162	369	305	152	243	109	1394	8483	7055

Table A-3. FIGHTER AIRCRAFT (Cont'd)

	WING WEIGHT POUNDS	TAIL WEIGHT POUNDS	FUSELAGE WEIGHT POUNDS	LANDING GEAR WT. POUNDS	SURFACE CONTROL WT. POUNDS	NACELLE WEIGHT POUNDS	PROPULSION WEIGHT POUNDS	ENGINE WEIGHT POUNDS	FUEL SYSTEM WEIGHT POUNDS	INST. & NAVIG. EQUIP. WT. POUNDS
F-80C	1506	225	1309	608	202	---	3348	1871	1183	60
F-84F	2717	471	1931	1149	612	69	4400	2697	1080	99
F-84G	1902	288	1677	980	395	33	3720	2380	969	72
F-86K	2133	346	2232	834	497	119	4421	3366	570	163
F-89D	6083	944	2881	2256	1041	787	7297	5588	1260	239
F-94C	1975	425	1946	610	339	---	3765	2725	865	70
F-100D	3891	979	3683	1484	1071	104	6778	5130	795	233
F-101A	3126	701	3283	1552	671	86	11310	9542	985	185
F-102A	3000	535	2409	1056	413	39	6358	4993	394	141
F-104C	1168	593	2687	825	638	112	4416	3290	565	150
F-104D	1151	589	2928	855	769	111	4256	3250	431	190
F-105B	3615	983	5954	1995	1418	106	7458	5838	672	245
F-106A	3274	665	4604	1231	461	38	8078	5816	751	129
F-107A	3821	1435	4860	1424	1590	89	8676	6201	1005	301
F-108A	6737	1535	12972	2180	2625	138	15286	10286	1614	508
T-33A	1517	242	1549	661	255	---	2802	1908	595	90

Table A-3. FIGHTER AIRCRAFT (Cont'd)

	CREW WEIGHT POUNDS	FUEL WEIGHT POUNDS	OIL WEIGHT POUNDS	USEFUL LOAD WEIGHT POUNDS	NORMAL GROSS WEIGHT POUNDS	$\frac{W}{S}$ LB/FT^2	$R_{u_1} = \frac{\text{USEFUL L}}{W_g}$	WING GROSS AREA SQ. FT.	WING SPAN SQ. FT.
F-80C	230	2914	23	4589	13012	54.76	.352	237.6	38.9
F-84F	230	3829	40	5074	18748	57.7	.270	324.7	33.6
F-84G	230	2873	70	4159	15422	59.3	.270	260	36.42
F-84K	230	3977	23	5012	18414	63.96	.272	287.9	37.12
F-89D	460	7668	54	10084	38020	62.7	.265	606	52.0
F-94C	460	2440	23	3452	15541	66.75	.222	232.8	37.26
F-100D	230	7820	75	9410	30383	75.9	.310	400.18	38.58
F-101A	230	14075	125	15754	40433	109.9	.390	368.0	39.7
F-102A	230	7207	62	8960	28090	40.4	.319	695.1	38.13
F-104C	230	5920	30	7040	19665	100.3	.358	196.1	21.9
F-104D	460	4290	30	4970	17979	91.7	.277	196.1	21.9
F-105B	230	7678	60	9037	34297	89.1	.264	385.0	35.0
F-106A	230	8914	60	10639	34222	49.0	.311	697.83	38.13
F-107A	230	11291	67	15436	40580	102.8	.380	394.84	36.58
F-108A	460	47920	166	51626	102533	54.96	.504	187.7	57.4
T-33A	460	2379	23	3664	12200			234.8	37.4

Table A-3. FIGHTER AIRCRAFT (Cont'd)

	WING STRUCTURAL SPAN FEET	WING AR	TIP CHORD THICKNESS INCHES	TIP CHORD LENGTH INCHES	TIP CHORD THICKNESS % CHORD PERCENT	ROOT CHORD MAXIMUM THICKNESS INCHES	ROOT CHORD LENGTH INCHES	ROOT CHORD THICKNESS % CHORD PERCENT	WING TAPER RATIO
F-80C	39.01	6.37	5.45	41.8	13	14.3	110	13	0.38
F-84F	43.86	3.48	6.96	86.0	8.1	12.04	148.59	8.1	0.58
F-84G	36.42	5.10	7.54	62.88	12	13.23	110.28	12	0.57
F-86K	45.43	4.79	6.98	63.47	11	14.35	123.69	12	0.51
F-89D	52.17	4.46	8.4	93.5	9	16.8	187	9	0.5
F-94C	37.39	5.96	4.19	41.9	10	11	110	10	0.38
F-100D	54.56	3.72	3.49	49.82	7	13.32	190.35	7	0.26
F-101A	49.39	4.28	2.82	49.28	15	11.55	173.25	6.7	0.28
F-102A	38.13	2.1	1.8	0	0	16.65	427.6	4	0
F-104C	23.08	2.45	2.0	58.0	3.5	5.61	155.83	3.6	0.38
F-104D	23.08	2.45	2.0	58.0	3.5	5.61	15583	3.6	0.38
F-105B	49.5	3.18	3.36	84	4	9.9	180.0	5.5	0.47
F-106A	38.13	2.1				16.65	427.6	4.0	0
F-107A	51.73	3.39	2.85	57.1	5	9.52	222.12	4.2	0.257
F-108A	57.4	1.76	0.9	34.6	2.6	11.9	759.9	1.6	0.26
T-33A	37.4	5.96	5.45	41.8	13	14.3	110	13	0.38

Table A-3. FIGHTER AIRCRAFT (Cont'd)

	WING SWEEP CHORD 25% DEGREES	f(λ)	cos Λ	TOTAL TAIL AREA SQ. FT	VERTICAL TAIL AREA SQ. FT.	HORIZONTAL TAIL AREA SQ. FT.	AIRCRAFT LENGTH FEET	FUSELAGE LENGTH FEET	FUSELAGE DEPTH FEET
F-80C	4.7	.425	.99668	65.6	27.36	38.24	34.5	34.5	4.67
F-84F	40	.439	.76604	95.3	39.49	55.8	43.4	38.5	7.17
F-84G	0	.439	1.00000	79.33	30.88	48.45	38.45	38.5	5.19
F-86K	35.7	.435	.81208	84.95	31.05	53.90	40.9	38.04	5.71
F-89D	2.5	.434	.99905	155.5	44.2	111.3	53.75	53.75	6.17
F-94C	4.7	.425	.99668	88.3	28.0	60.0	43.6	41.42	4.67
F-100D	45	.413	.70711	154.42	55.56	98.86	48.16	45.64	5.63
F-101A	36.5	.416	.80386	160.0	84.9	75.1	67.45	66.96	7.03
F-102A	0	.379	1.00000	95.14	95.14	0	63.18	61.12	6.9
F-104C	18.3	.425	.94943	83.2	35.1	48.1	54.77	51.25	4.70
F-104D	18.3	.425	.94943	83.2	43.7	48.1	54.77	51.25	4.70
F-105B	45	.432	.70711	123.4	63.0	60.37	63.1	63.1	7.41
F-106A	0	.379	1.00000	105	105.0	0	70.73	63.03	6.49
F-107A	45	.413	.70711	180.07	83.79	96.28	60.82	56.57	7.36
F-108 A	0	.386	1.00000	129.8	129.8	0	92.4	76.6	6.6
T-33A	4.7			65.6	27.36	38.24	37.7	37.7	4.67

Table A-3. FIGHTER AIRCRAFT (Cont'd)

	FUSELAGE WIDTH FEET	FUSELAGE WETTED AREA SQ. FT.	MISSILE WEIGHT POUNDS	ROCKET WEIGHT POUNDS	AMMO WEIGHT POUNDS	BOMB WEIGHT POUNDS	STRESS GROSS WEIGHT POUNDS	STRESS LOAD FACTOR	STRESS FUEL WEIGHT POUNDS
F-80C	4.67	410		1120	540		12200	11.0	2102
F-84F	4.17	478	540			7000	18500	14.0	3581
F-84G	4.17	439			540		15600	11.0	2873
F-86K	5.00	552.43			370		17090	8.1	2653
F-89D	6.98	583		1882			38263	8.5	7668
F-94C	4.67	506		445			15000	13.0	1909
F-100D	5.58	741.58			560		28177	11.0	5614
F-101A	7.67	1009.2			560		37000	11.0	10643
F-102A	6.5	979	762	432			25500	10.5	4617
F-104C	5.5	669			510		16945	11.0	3200
F-104D	5.5	669					16400	11.0	2711
F-105B	4.38	981			757		31392	13.0	4773
F-106A	8.06	1045	540	816			31050	10.5	5742
F-107A	5.65	936.46			560	2000	31858	11.0	2569
F-108A	2039		2454				74543	5.33	19930
T-33A	4.67	410			180		12200	11.0	2379

Table A-3. FIGHTER AIRCRAFT (Cont'd)

	$\frac{W_{gn}}{2}$	$b_s f(\lambda)$	$\frac{W_{gn}}{2} b_s f(\lambda)$	$\frac{W_{gn}}{2M^2 S}$	STRESS $\frac{W_g}{S}$	$\frac{AR}{C_n}$	V MAX KNOTS	V^2	M
F-80C	671.00	16.58	1.11×10^6	414	51.34	.0597	475	225625	.826
F-84F	1295.00	19.25	2.49	492.5	56.98	.0234	595	354025	.9
F-84G	858.00	15.99	1.37		60.00	.0464	595	354025	1.0347
F-86K	692.15	19.76	1.37	296	59.36	.0386	600	360000	.9
F-89D	1626.18	22.64	3.68	313	63.14	.0239	557	310249	.9686
F-94C	975.00	15.89	1.55	440	64.43	.05418	560	313600	.9739
F-100D	1549.73	27.53	3.49	204	70.41	.0196	792	627264	1.3773
F-101A	2035.00	20.55	4.18	246	100.5	.0247	863	744769	1.5
F-102A	1338.75	14.45	1.93	137	36.7	.0049	680	462400	1.1826
F-104C	931.98	9.81	.914	118.7	86.4	.0157	1150	1322500	2.00
F-104D	902.00	9.81			83.7		1150	1322500	2.00
F-105B	2040.48	21.38	4.36	123.3	68.2	.0177	1100	1210000	2.08
F-106A	1630.12	14.45	2.36		44.6		1160	1345600	2.017
F-107A	1752.19	21.36	3.74	75	80.8	.0153	1400	1960000	2.4347
F-108A	2981.72	21.75	6.48	17.8	40.0	.00232	1721	2961841	3.00
T-33A							475		

Table A-3. FIGHTER AIRCRAFT (Concluded)

	M^2	ALT	$\frac{t}{c}$ ave	$\frac{1}{2}\rho V_M^2$	$\frac{1}{M^2}$
F-80C	.682				1.47
F-84F	.81	S.L.	10	421	1.23
F-84G	1.071				
F-86K	.81	S.L.	11.5	428	1.23
F-89D	.937	10600	9	265	1.17
F-94C	.949				
F-100D	1.896	35000	7	231	.527
F-101A	2.25	35000	6.5	274	.444
F-102A	1.40	35000	4	170	.714
F-104C	4.00	35000	3.4	487	.250
F-104D	4.00				.250
F-105B	4.32	36000	4.6	526	.231
F-106A	4.08	35000	4	496	.245
F-107A	5.93				.167
F-108A	9.00	76550	2.3	148	.111
T-33A					

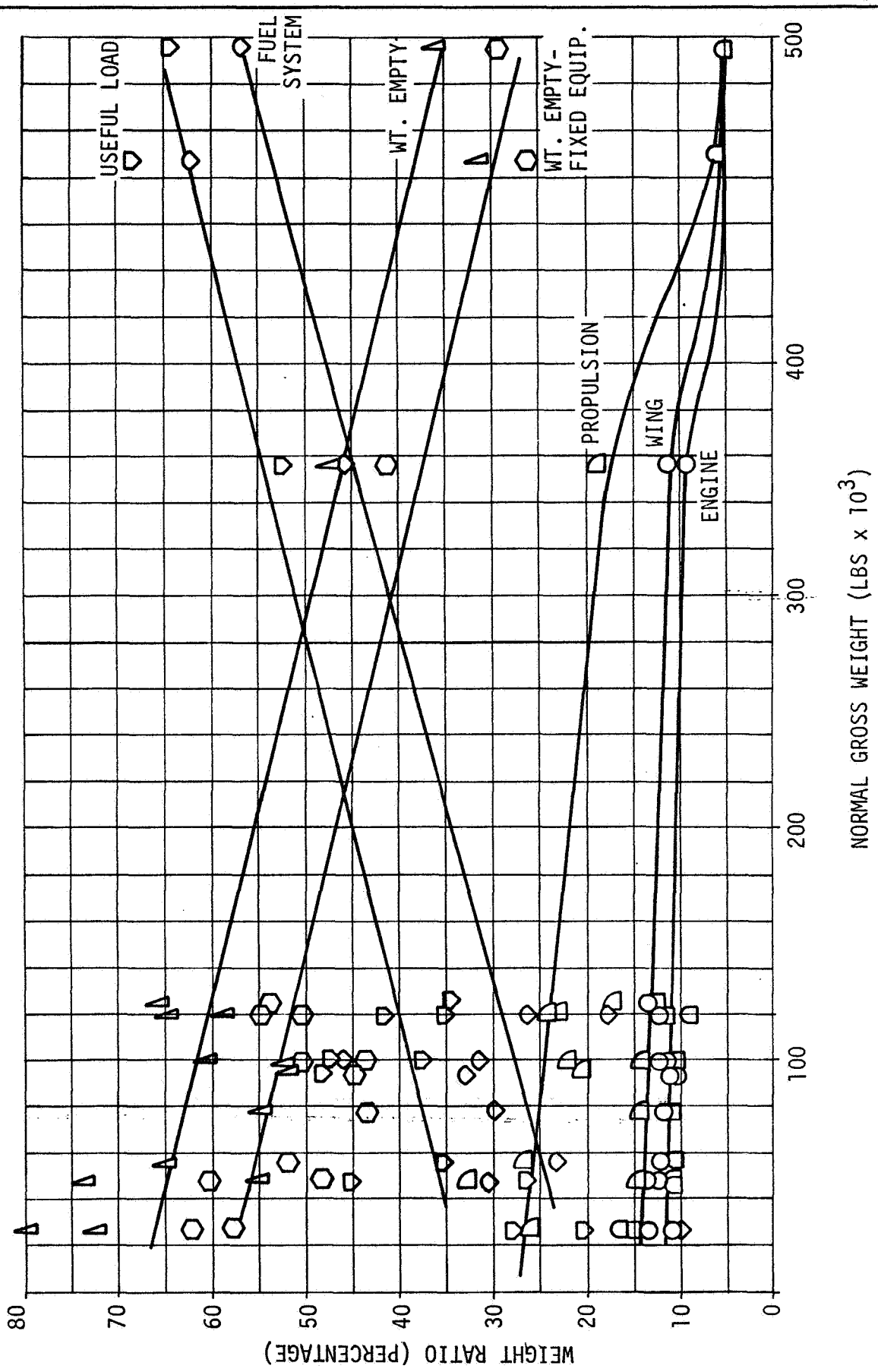

Figure A-1. WEIGHT ESTIMATION DATA - BOMBER AIRCRAFT

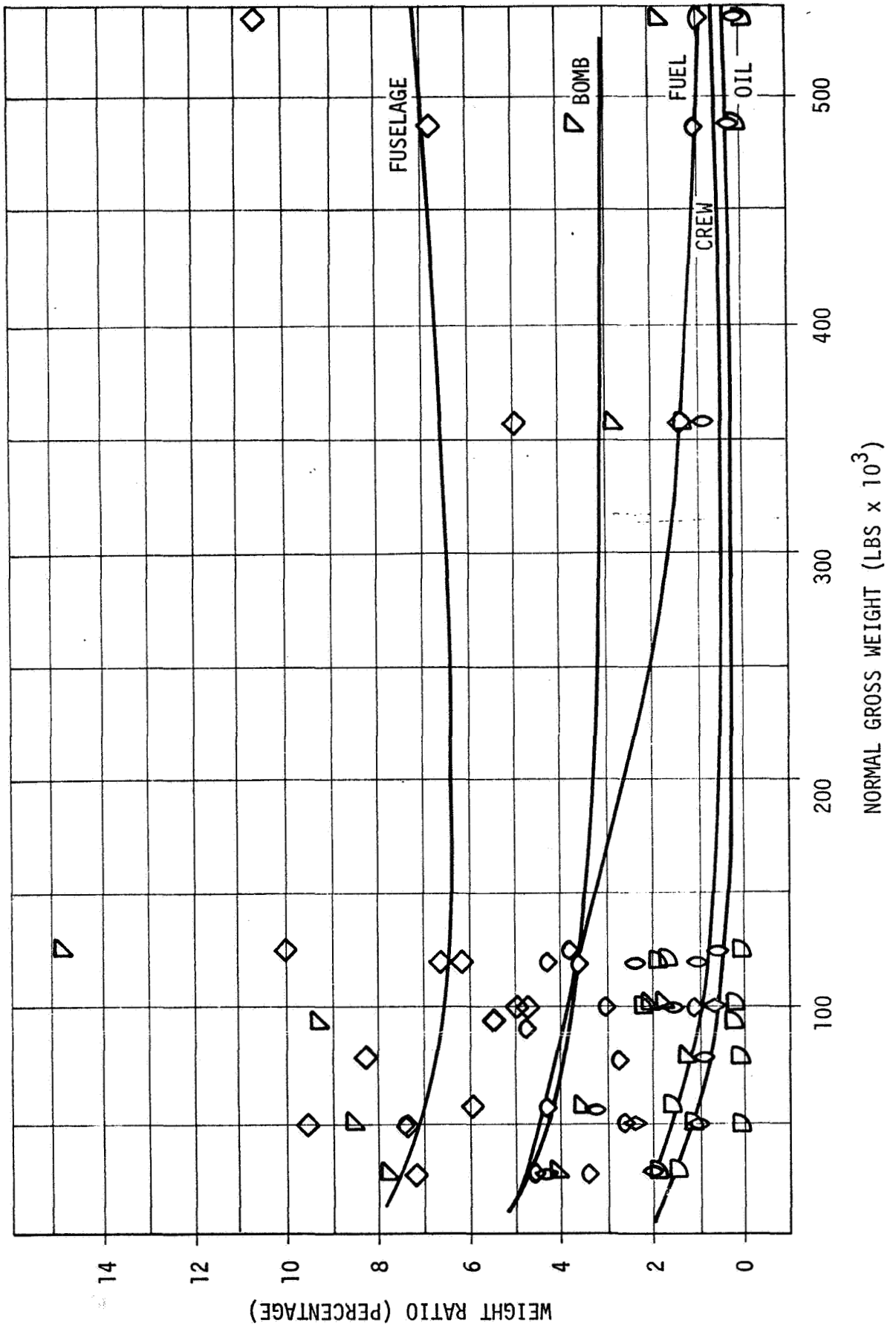

Figure A-2. WEIGHT ESTIMATION DATA - BOMBER AIRCRAFT

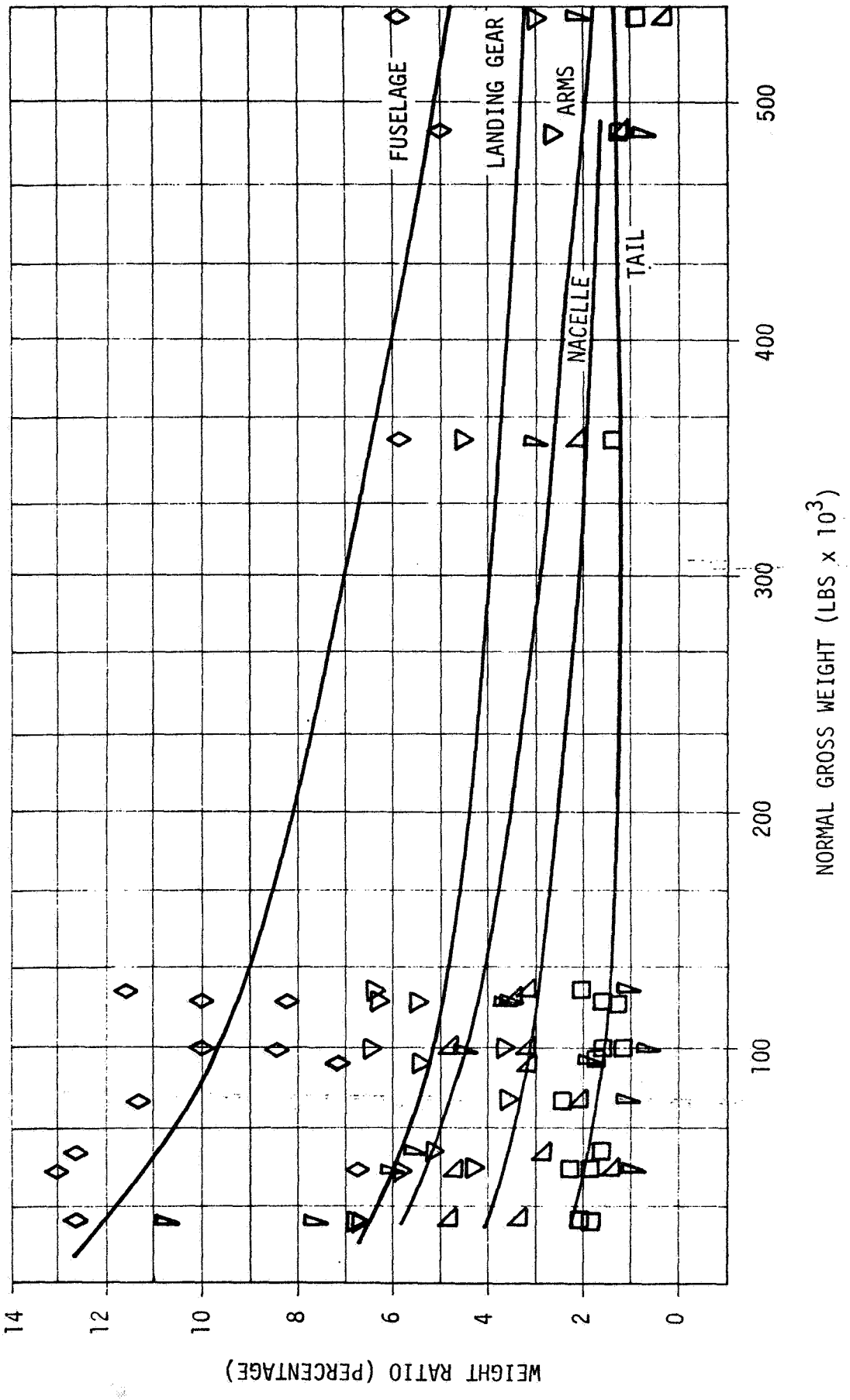

Figure A-3. WEIGHT ESTIMATION DATA - BOMBER AIRCRAFT

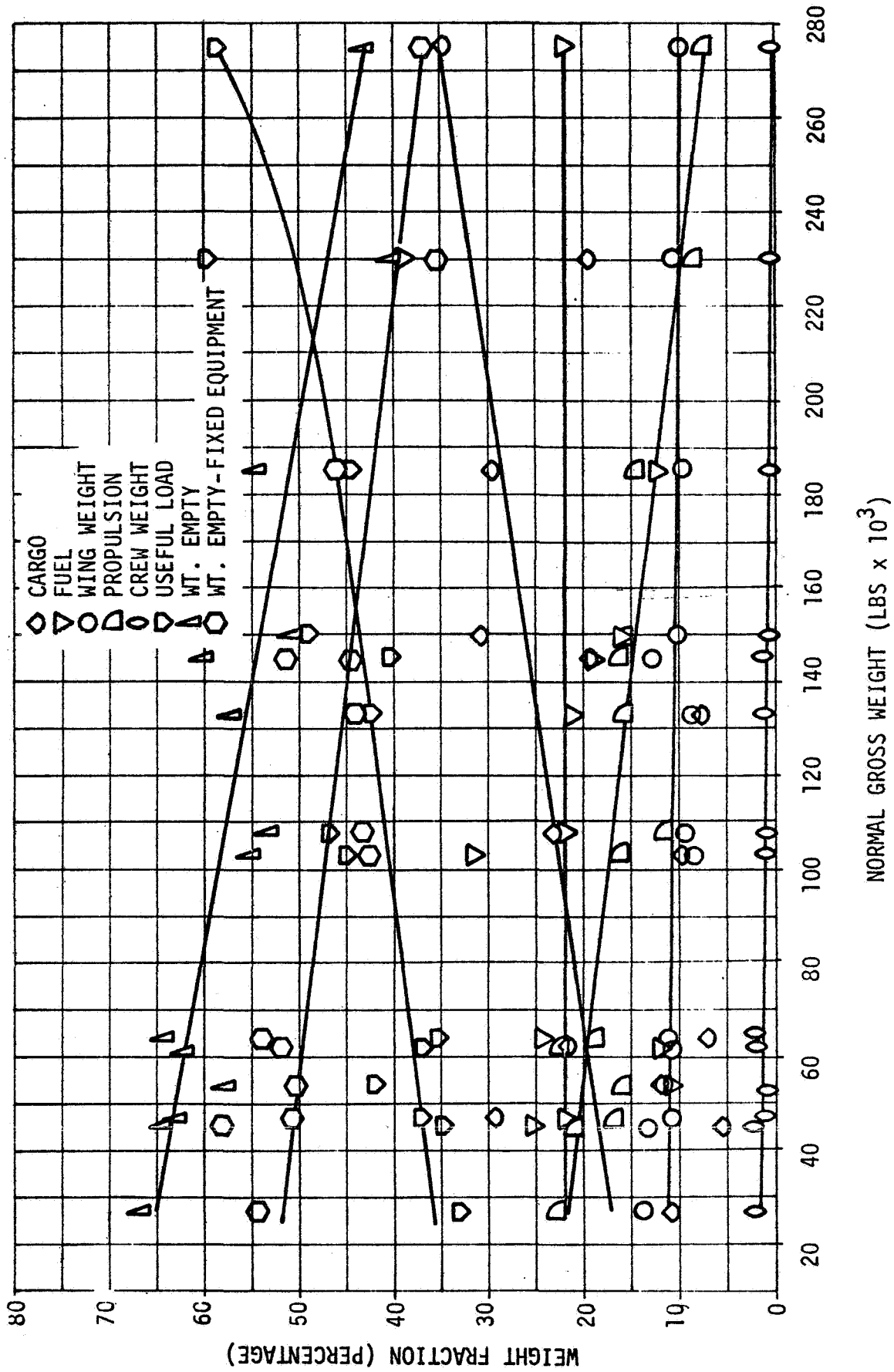

Figure A-4. WEIGHT ESTIMATION DATA - CARGO AIRCRAFT

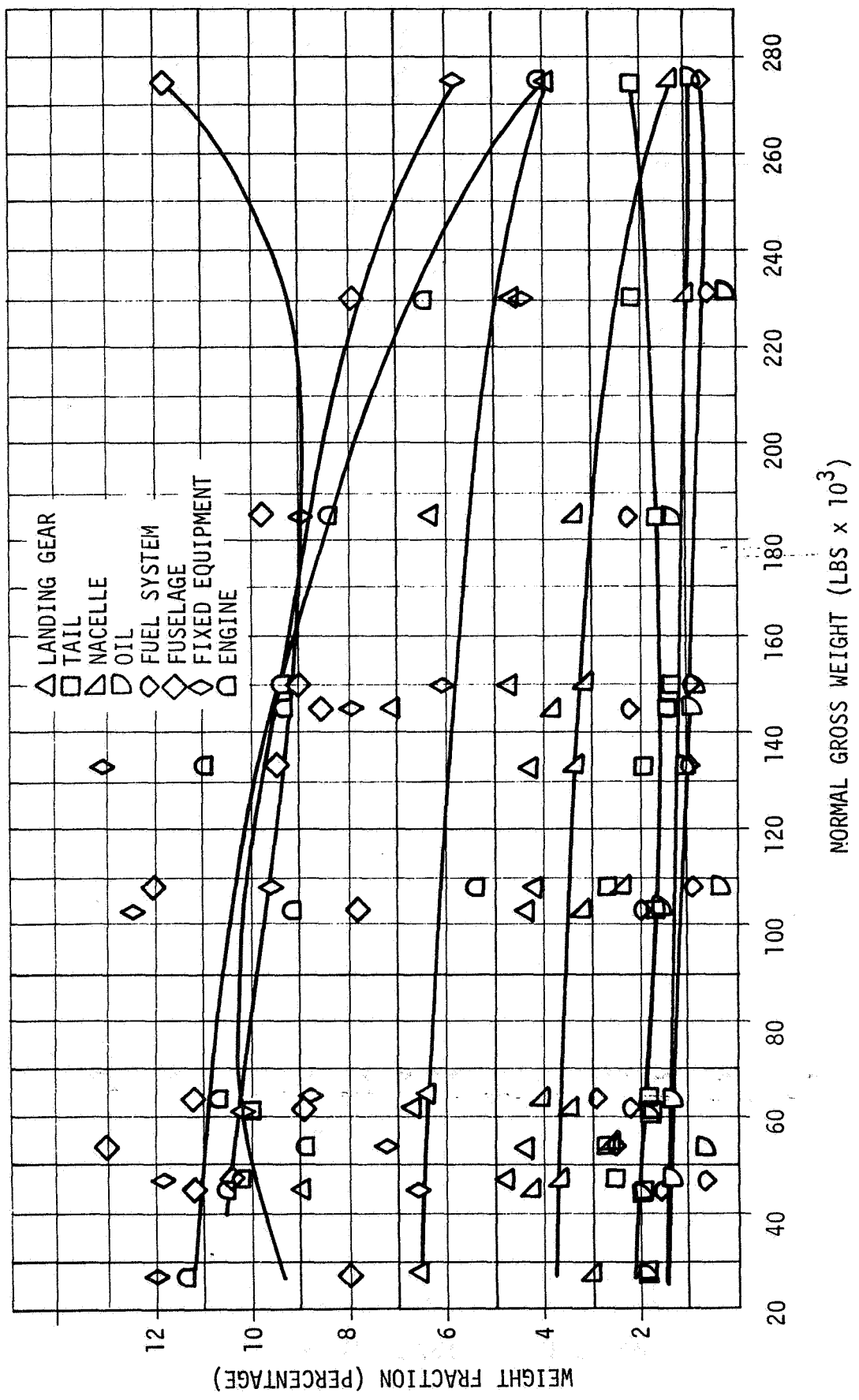

Figure A-5. WEIGHT ESTIMATION DATA - CARGO AIRCRAFT

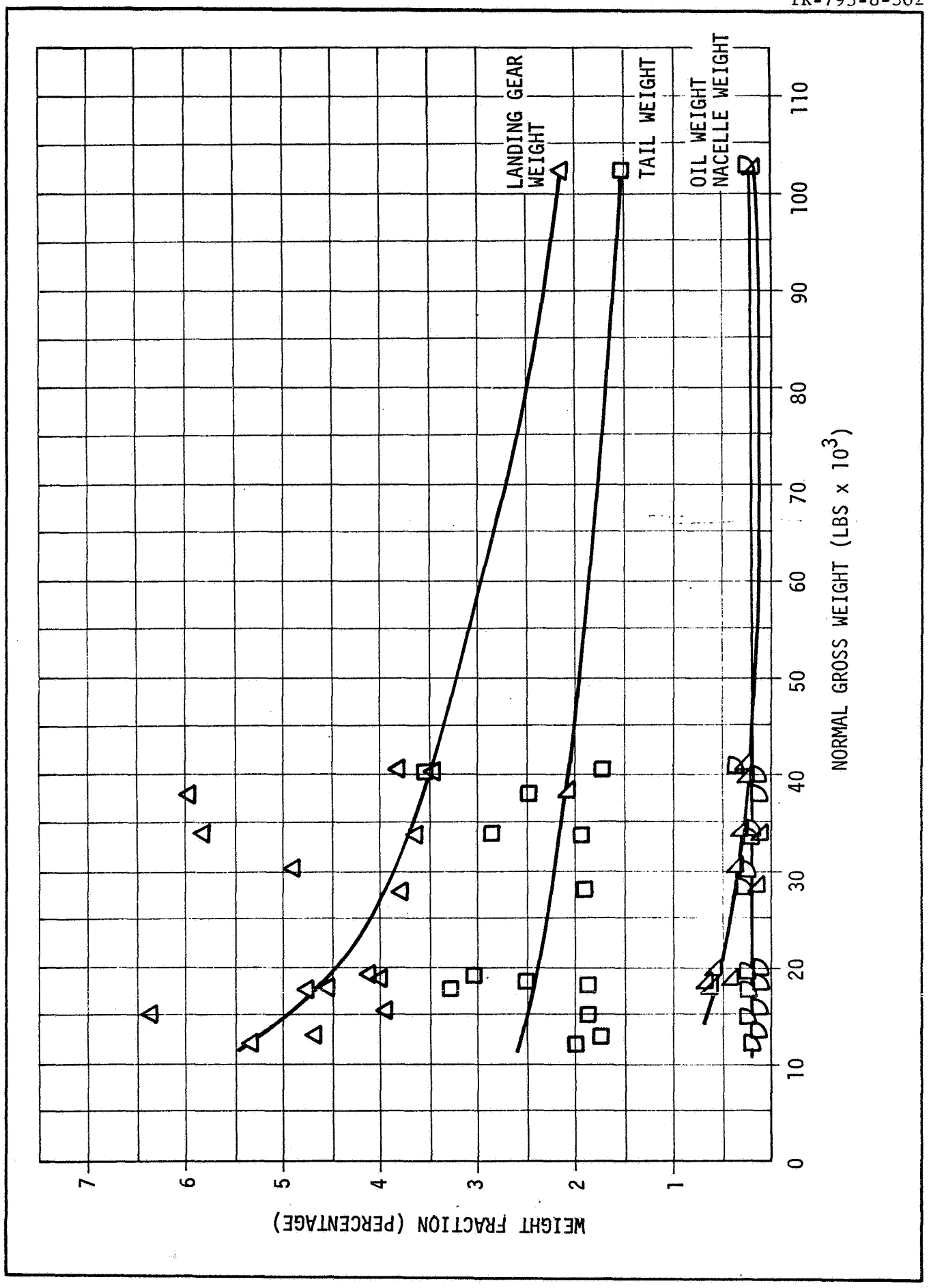

Figure A-6. WEIGHT ESTIMATION DATA - FIGHTER AIRCRAFT

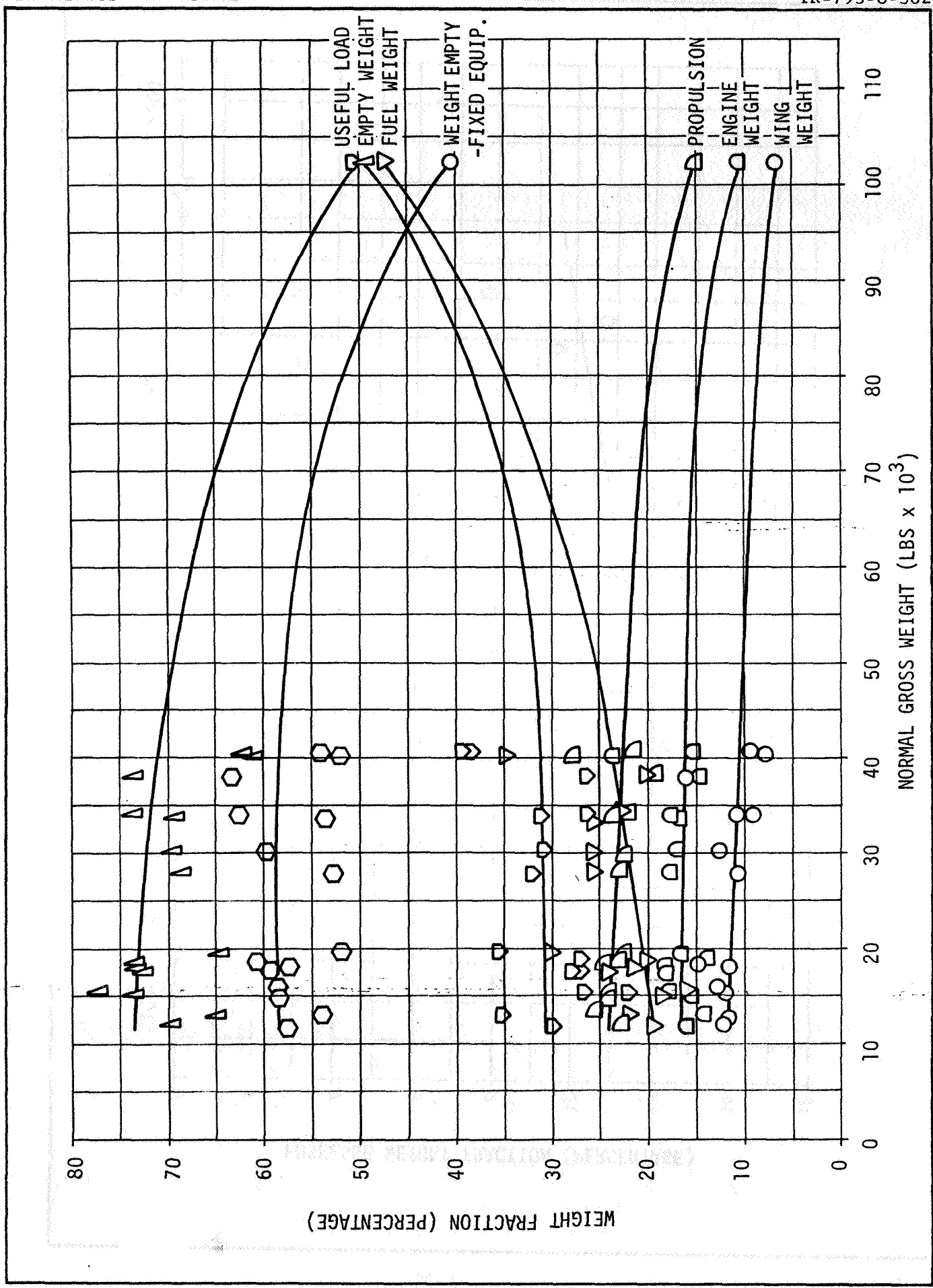

Figure A-7. WEIGHT ESTIMATION DATA - FIGHTER AIRCRAFT

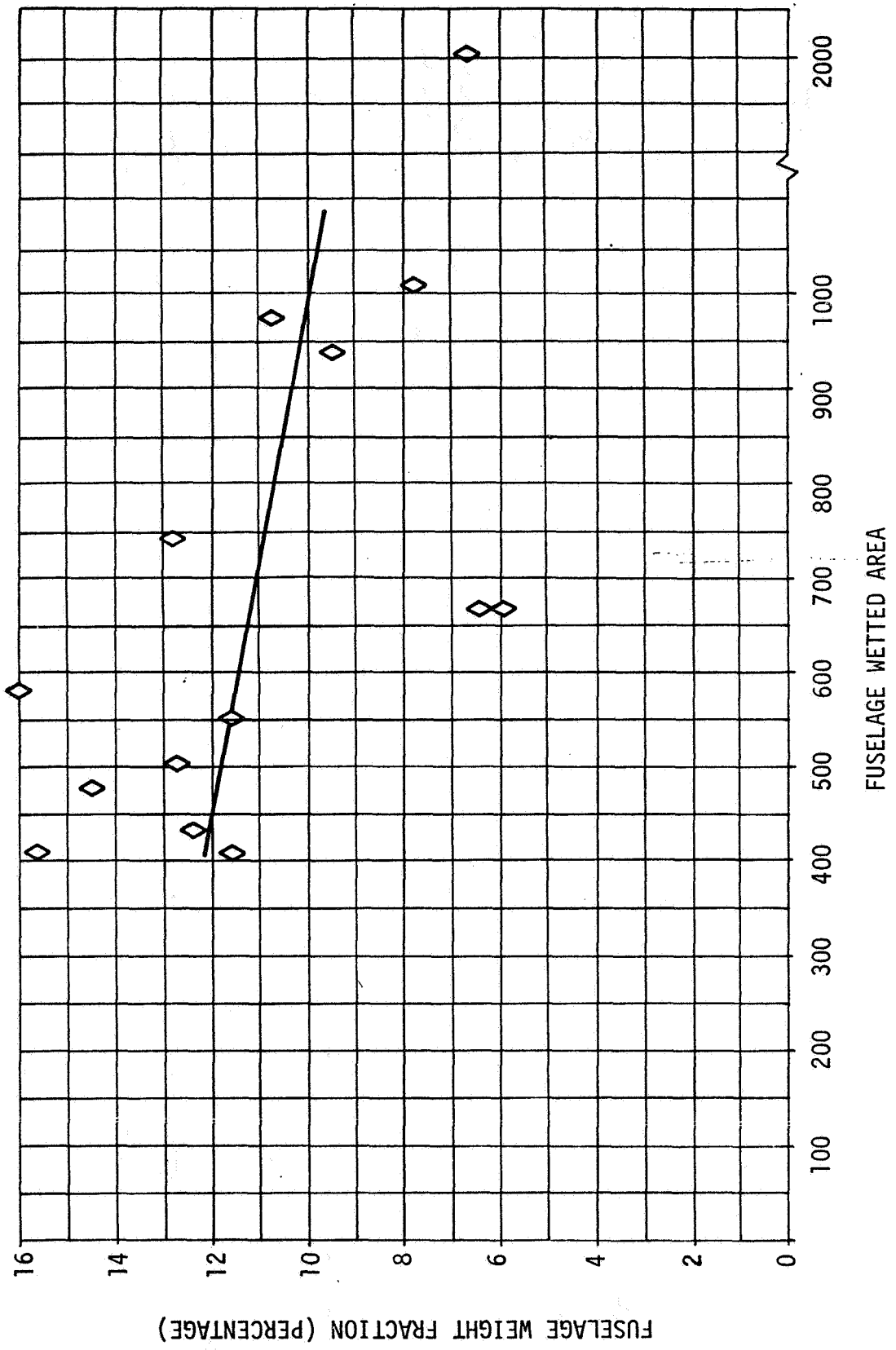

Figure A-8. WEIGHT ESTIMATION DATA - FIGHTER AIRCRAFT

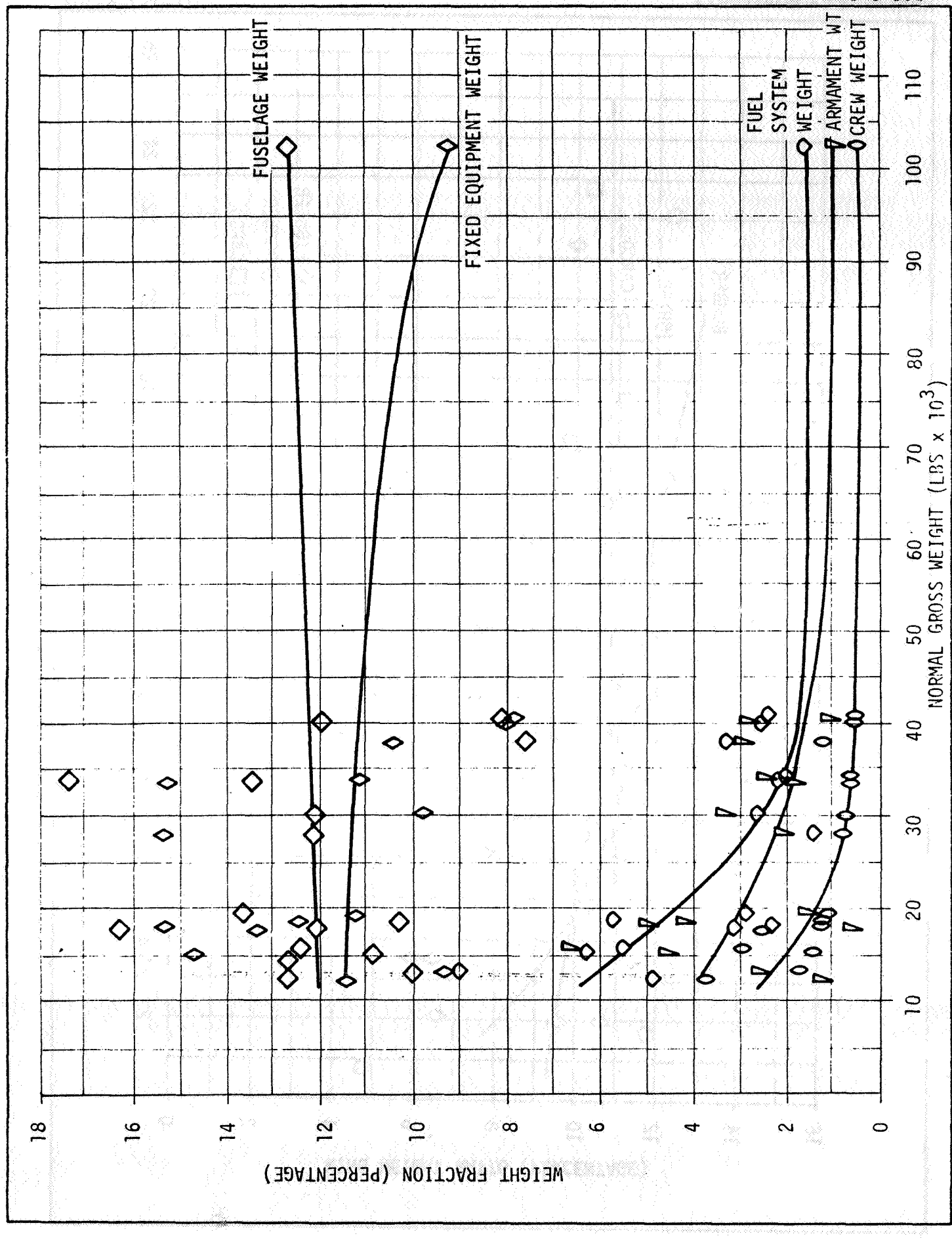

Figure A-9. WEIGHT ESTIMATION DATA - FIGHTER AIRCRAFT

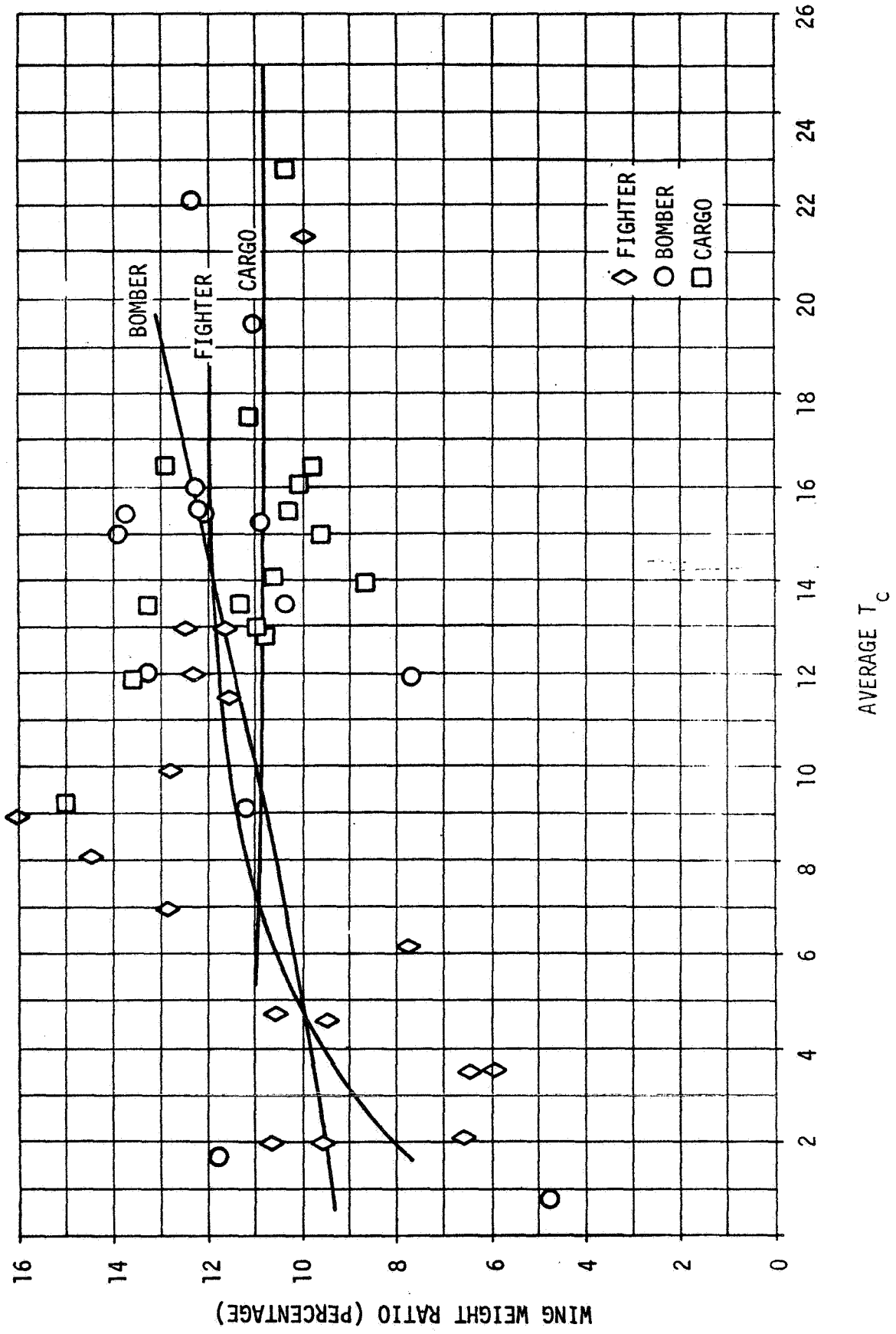

Figure A-10. WEIGHT ESTIMATION DATA

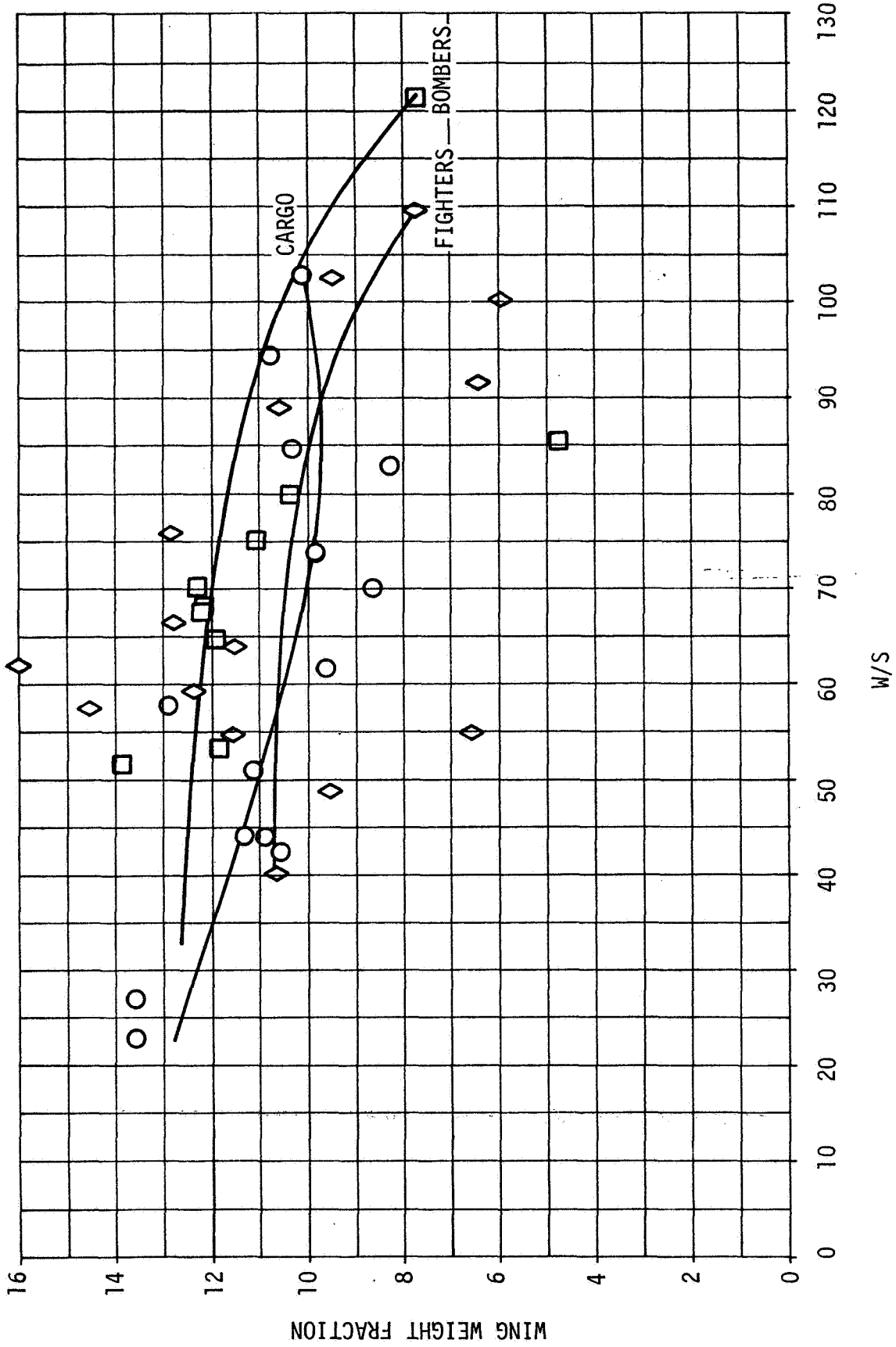

Figure A-11. WEIGHT ESTIMATION DATA

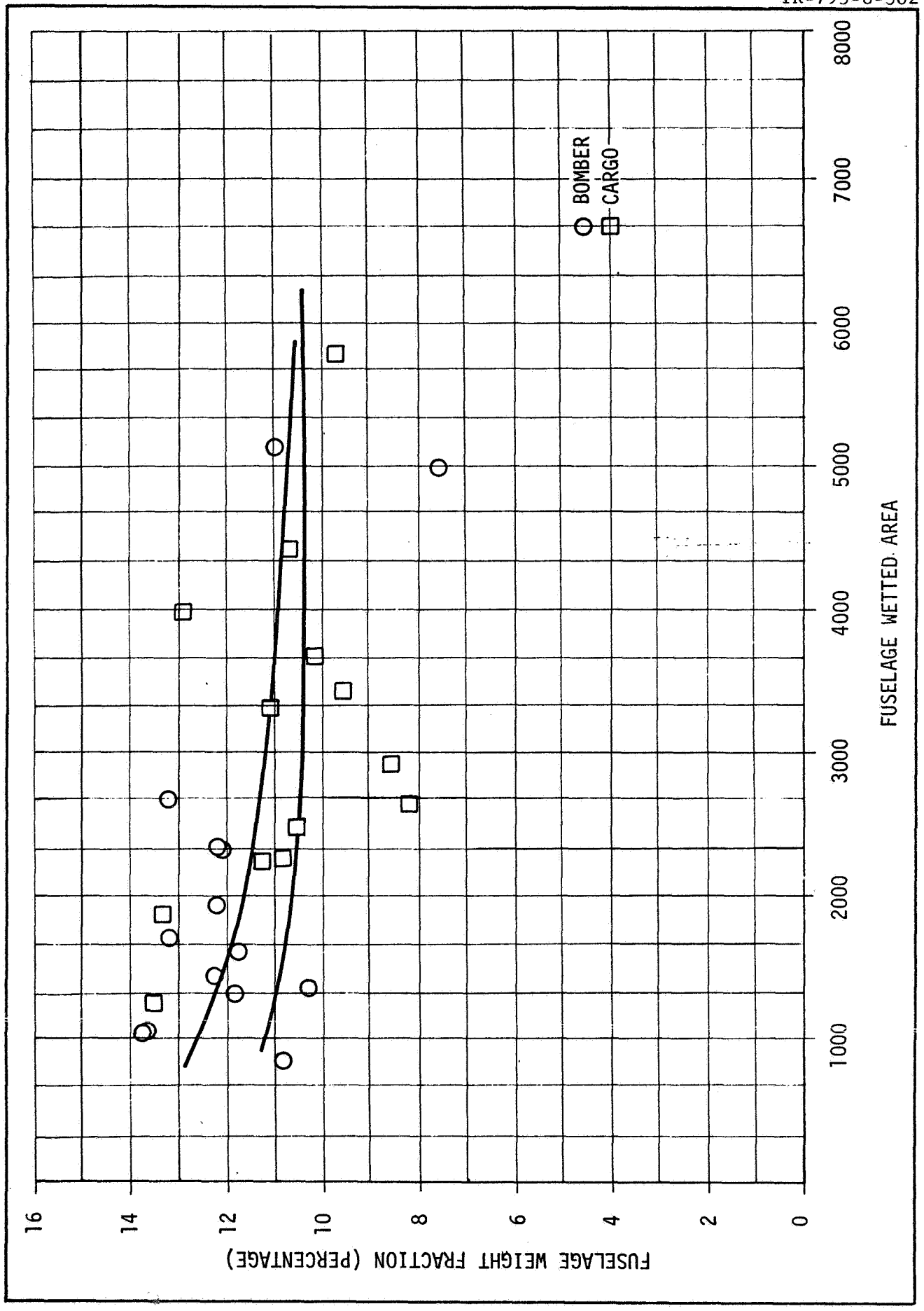

Figure A-12. WEIGHT ESTIMATION DATA

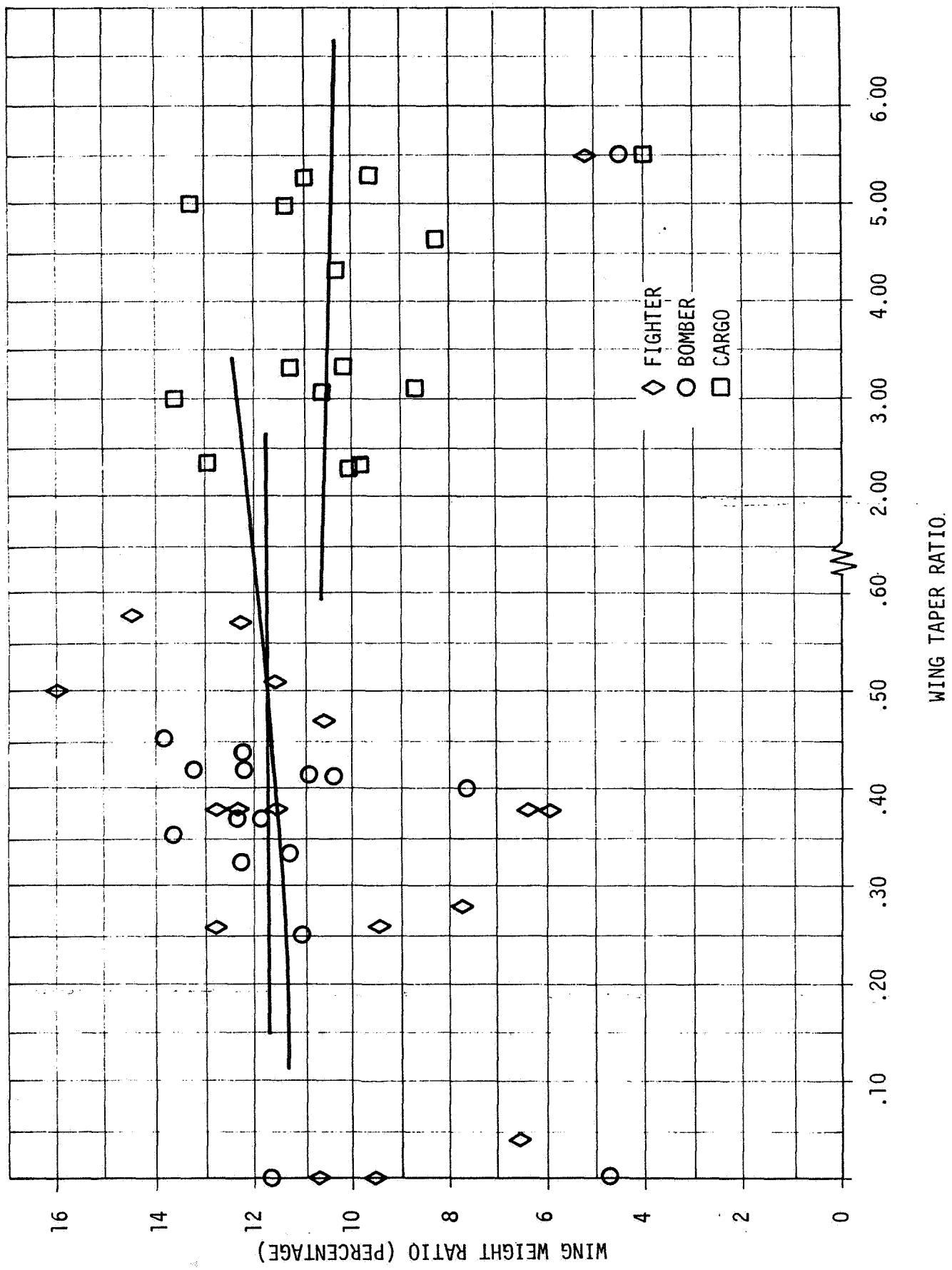

Figure A-13. WEIGHT ESTIMATION DATA

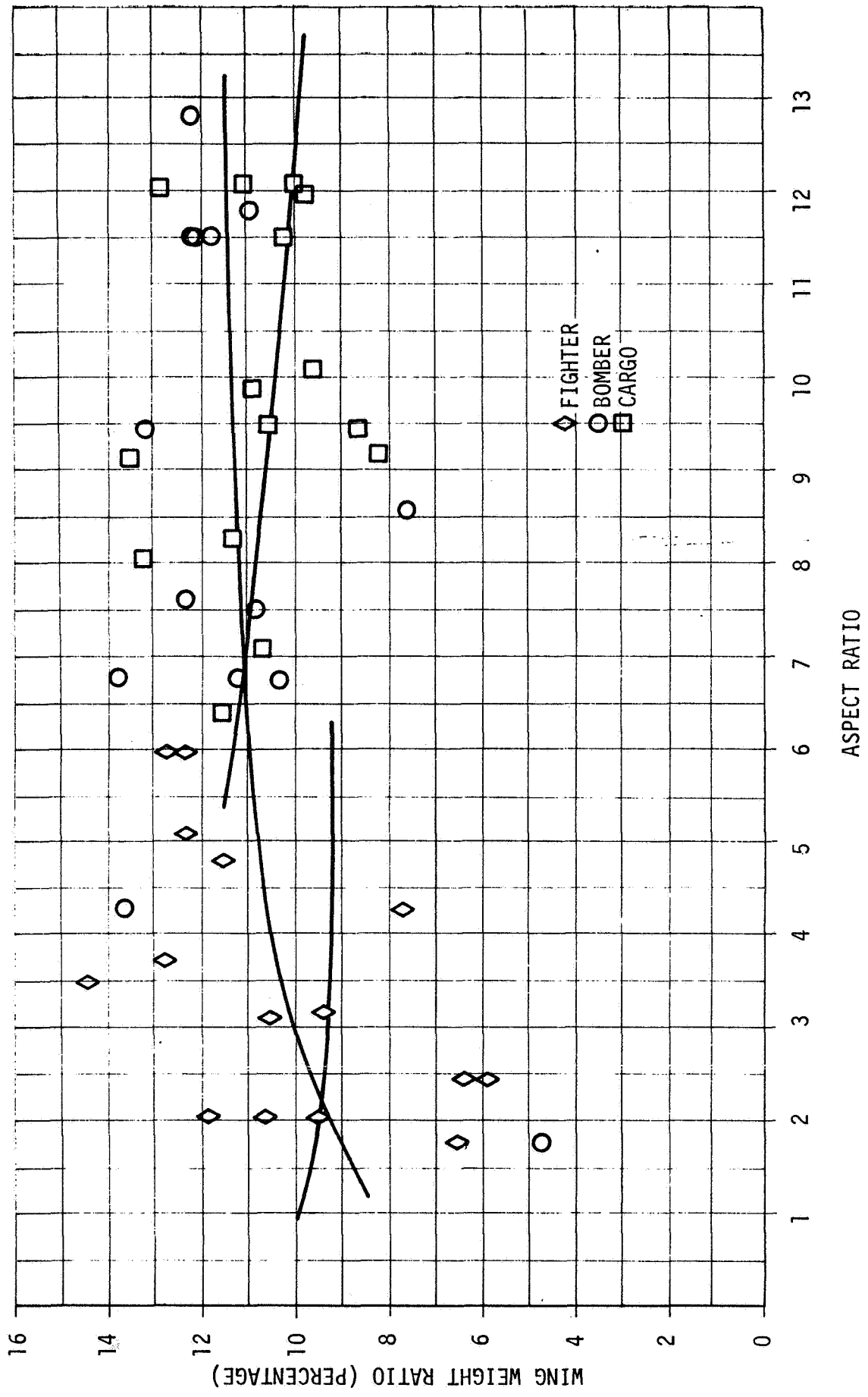

Figure A-14. WEIGHT ESTIMATION DATA

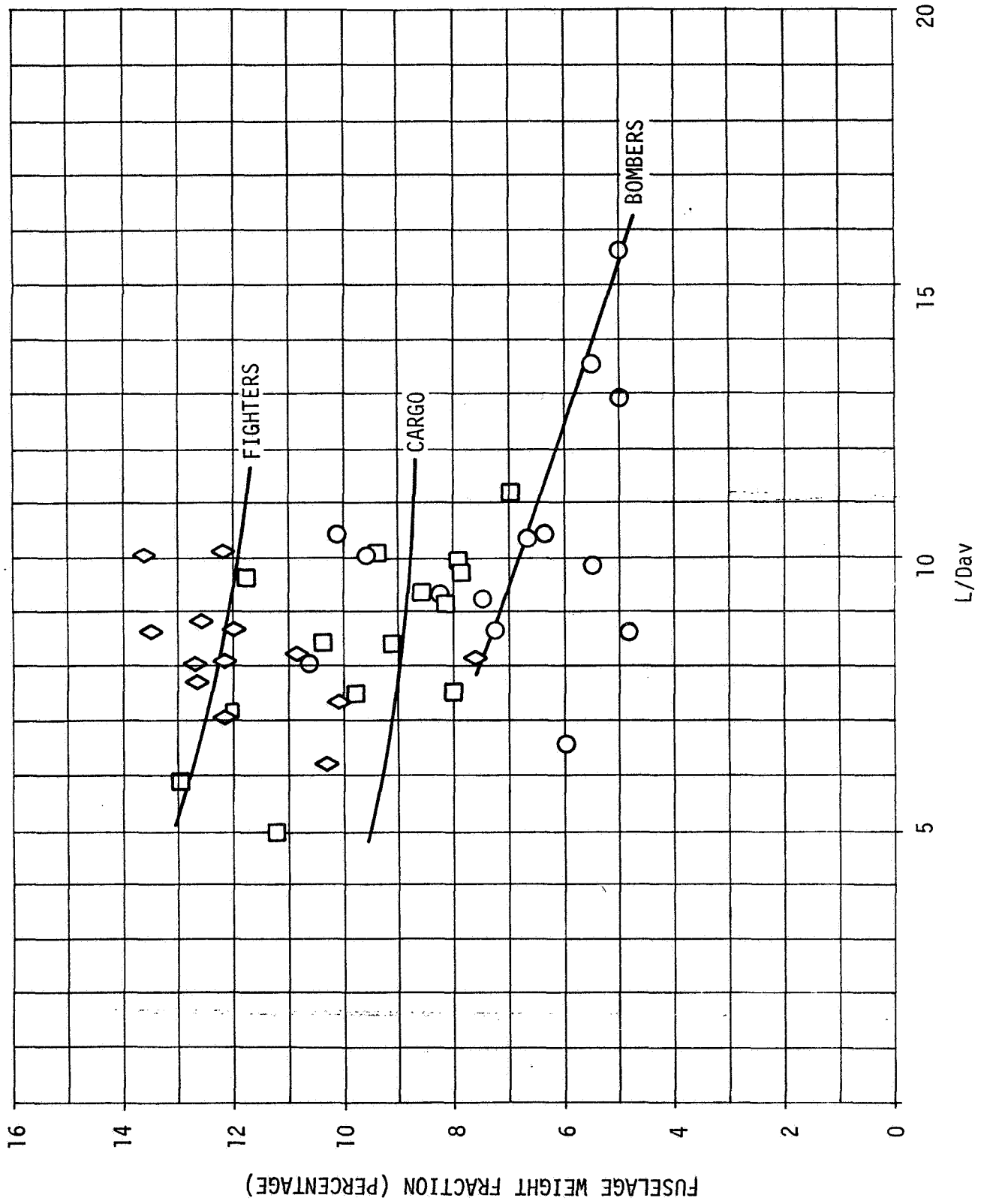

Figure A-15. WEIGHT ESTIMATION DATA